

Substate Actor and Implementation of Sustainable Development Goals: Bandung City's Paradiplomacy Practices in Water Leakage

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Abstract. The paper aims to analyze the efforts Bandung City at the international level to improve its capabilities in reducing the level of water leakage as relevant to point 6 of the SDGs. The research method in this paper is a qualitative method with data collection through interviews with several relevant observations and field research through direct and documentary studies. This research found that paradiplomacy of Bandung City with the Japanese City of Hamamatsu came to cooperate in water leakage to implement SDG 6 in Bandung. Paradiplomacy of Bandung City turns into providing capacity-building programs to reduce the level of air leakage in Bandung City by optimizing clean water services. The collaboration between Bandung City Government and Hamamatsu City Government is not only in the process of technology transfer but also in exchanging knowledge and insights regarding water leakage. This conclusion concludes that implementing SDG 6 for local governments can be optimized with paradiplomacy to assist countries and regions in solving specific problems like Bandung City Government. The city of Bandung supports the SDGs point 6 program to reduce the problem of water leakage and the efforts coming from paradiplomacy.

Keywords: Bandung City, Paradiplomacy, Substate, Sustainable Development Goals, Water Leakage

1. Introduction

The Indonesian government is committed to the United Nations program, Sustainable Development Goals (SDGs), with Presidential Regulation of the Republic of Indonesia No. 59 of 2017 to participate in the success of the SDGs. From this regulation, every public or private sector must put in its development planning according to the SDGs. Local government is one government agency that becomes the national target for the SDGs. Local governments in Indonesia, from provinces to cities and small-scale units, must support the overall achievement of the SDGs in Indonesia [1]. In achieving the SDGs in Indonesia, local governments face several challenges regarding limited human resources and technologies, thus have not maximized natural resources.

One of the challenges faced by the Indonesian local government in Bandung City is the high level of water leakage. The government of Bandung has obstacles to achieving SDG 6, which is qualified. Referring to news reports from Sindonews, water leaks and losses reached 36%, one of which was caused by pipe damage [2]. Bandung City Government realizes that the management of human resources and technology use is inadequate. For this reason, it is necessary to have a policy in development planning so that the level of water leakage in Bandung can decrease. One of the efforts made to overcome these problems is that Bandung City conducts paradiplomacy to increase the capability of the 6th SDGs. Bandung City is collaborating with Hamamatsu City by providing a training program for Tirtawening Perumda staff and a water leak technology grant.

Bandung City is a densely populated area because it has permanent residents and non-permanent residents with immigrants from other areas. Residents in Bandung require fulfillment of basic needs of clean water following SDG 6. Sources of clean water in Bandung City come from surface water, springs, and wells managed by Perumda Tirtawening. However, as reported by Tempo Regional news, several sub-districts in Bandung City have experienced a water crisis. This water crisis occurs because the distribution of clean water in the city of Bandung has limitations from its springs or problems in distribution to densely populated places [3]. In addition, the water crisis is compounded by the problem of pipe leaks in the city of Bandung, both technically and non-technically. In this case, to increase the achievement of SDGs point 6, The government of Bandung City utilizes paradiplomacy resulting the sister city cooperation model. The sister city cooperation model can be used as an instrument for a city with one of the goals to solve problems in the region and implement the SDGs. Local governments can take advantage of opportunities for paradiplomacy to achieve the goals of the SDGs.

This article will review how SDG 6, as a global agenda, is implemented at the local government level in local government of Indonesia, Bandung, for achieving sustainable development in water leakage using the theory of sustainable development and paradiplomacy. This theory explains how subnational actors implement the SDGs through paradiplomacy by collaborating with other cities abroad. For this reason, a comprehensive study is significant so Bandung's paradiplomacy can be developed to implement a program to achieve SDG 6 in Bandung City.

2. Literature Review

2.1. Sustainable Development

In 1987 through the World Commission on Environment and Development (WCED), the issue of sustainable development was developed with a definition of development that meets the needs of the present without compromising the right to meet the needs of future regeneration [4]. The United Nations explains the concept of sustainable development in three interrelated pillars: Economic, Social, and Environmental [5]. The three aspects, namely, economic, social, and environmental, will create sustainable conditions. These three aspects cannot be separated from each other because all three create a cause-and-effect relationship. One aspect will affect the other aspects. The interaction between the economic system, natural resources, human resources, and the environment cannot be separated from each other because of a cause-and-effect relationship. These three aspects of sustainable development must support each other [6]. The relationship between the economy and society presume to create an equitable relationship. Then the

relationship between the economy and the environment is expected to continue. At the same time, social and environmental relationships aim to remain.

There are three historical periods for the SDGs concept. First, from economic theory which emphasizes warnings for economic development with its negative effects on the environment. Through the First United Nations Conference on the Human Environment held in Stockholm in 1972, the concept of a balance between economic development and the environment was proclaimed. Second, with the 1987 Brundtland Commission Report of 19 delegates from 18 countries, the concepts of development and environment began to be disseminated to achieve a balance between socio-economic development and environment. Third, after the Brundtland period, through the Earth Summit or Rio Conference held in Rio de Janeiro in 1992, 27 SDGs concepts were proclaimed and developed to date with points and derivatives in the SDGs targets [7]. (Tomislav, K. (2018). The concept of sustainable development: From the beginning to contemporary issues. *Zagreb International Review of Economics & Business*, 21(1), 67-94.) compiled and implemented the concept of SDGs as global outcomes for each country up to the city government scale [8]. (Griggs, D., Stafford-Smith, M., Gaffney, O., Rockström, J., Öhman, M.C., Shyamsundar, P., ... & Noble, I. (2013). Sustainable development goals for people and Natural planets, 495(7441), 305-307.)

The implementation of the SDGs in all regions in Indonesia, its implementation attracts local governments to contribute at the provincial and city/district levels. One of the concept's most significant challenges today is creating sustainability, including the sustainability of political and institutional systems to strategies, programs, and policies so that sustainable development at the provincial and city/district government levels can be realized. The process and policies are not the same in every city, depending on the cities.

Using the conceptual understanding of Sustainable Development, the efforts of the City of Bandung at the international level to improve its capabilities in reducing the level of water leakage as a sustainable development program because this activity is carried out systematically and planned for water management. The aim is to improve the welfare and quality of the environment for present and future generations because the results of this procurement program can continue to be developed and empowered so that they can minimize the level of water leakage in Bandung City as little as possible. The benefits of this program are sustainable, and in the future, it is hoped that it can fulfill SDG 6 in ensuring the availability and sustainability of water and sanitation in Bandung.

2.2. Paradiplomacy

Paradiplomacy is a new phenomenon in the study of international relations. The term paradiplomacy was developed by Ivo Duchacek and Panayotis Soldatos in the 1980s in the article "The International Dimension of Sub-National Self Government". Paradiplomacy is an abbreviation of the term parallel diplomacy, then developed with multilayered diplomacy to see the conflict over the division of power between the central government and local governments. The presence of paradiplomacy provides an opportunity for actors other than the central government, such as groups, organizations, individuals, and local governments, to achieve their respective interests. Local governments emerged as new actors in International Relations and opened new gates for the world to interact and diplomacy directly [9].

According to Duchacek and Soldatos, paradiplomacy is an activity in international relations carried out by sub-state actors to achieve their interests. Kuznetsov explained that paradiplomacy is a form of political communication carried out by the local government of a country with local governments in other countries to achieve various economic, cultural, political, and other interests [10]. Therefore, paradiplomacy by sub-state actors can aim to support, complement, improve, duplicate, or even challenge or oppose diplomacy carried out by the central government [11].

The classification of paradiplomacy, according to Soldatos and Duchacek, is transborder regional paradiplomacy, transregional paradiplomacy, global paradiplomacy, and protodiplomacy. This division is based on the location of the geographical area and the suitability of the central government or not. In addition, Duchacek said that paradiplomacy became a new instrument in expanding the meaning of diplomacy, which became a meeting point between the central government and local governments in international politics [12].

Kuznetsov explains the origin of paradiplomacy, the reasons for the emergence of paradiplomacy, and the motives of paradiplomacy until the process of paradiplomacy takes place. There are eleven reasons for the emergence of paradiplomacy, namely globalization, regionalization, democracy, foreign policy domestication and internalization of domestic politics, federalization, problems with the nation-building process, insufficient effectiveness of the central government in foreign relations, asymmetry of constituent units, outside stimulus, the role of regional leader/political party, and the role of borders [13]. Kuznetsov explains technically how sub-state actors carry out activities across national borders [14].

Furthermore, Takdir Ali Mukti explained that paradiplomacy refers to the behavior and capacity to conduct foreign relations with foreign parties carried out by sub-state entities or local governments in achieving their specific interests. It is realized that local government cooperation with foreign parties will encourage rapid regional economic growth. One government sub-units or sub-national actor that play an active role in international activities is the city government [9]. Cities form a world community with various shared agendas, visions, and missions. Global cities are increasingly encouraging foreign relations in the economic, political, social, and cultural fields. Today, cities are emerging as significant actors on the global stage stated by Ivo Daalder as President of the Chicago Council on Global Affairs in 2015. Indirectly, global cities become subnational actors who can network with cities abroad for the direction of diplomacy and cooperation discourse. Now, as the leading actor, the city becomes a forum for efficient and effective implementation of the regions and targets of foreign policies and relations established for its people's prosperity.

In Indonesia, paradiplomacy is supported by Law Number 32 of 2004 and Laws Number 22 and 25/1999 on regional government. This law discusses changes in the authority of local governments since the era of decentralization. Law Number 32 of 2004 was later revised to become Law Number 12 of 2008. Law Number 12 of 2008 was again revised to become Law Number 23 of 2014. The law regulates the system or regional government autonomy. From this constitution, the authority of some regions is semi-autonomous to encourage development in the regions. Therefore, through regional autonomy, independence in carrying out development under the capacity and needs of the region is expected to be carried out more effectively and efficiently [15].

The central government has given way and authority to local governments to follow up on the opening of diplomatic relations established with foreign parties through financial, cultural, economic, and other cooperation activities. Regional governments may only cooperate with countries or foreign parties that have officially established diplomatic relations with the central government of Indonesia. Paradiplomacy is directly related to regional autonomy policies. The actors involved will deal directly with the area's existing policies to positively impact the sustainable development process.

In implementing Bandung's foreign affairs, one of the local government organizations or institutions tasked with and functioning for foreign affairs is Bandung City Cooperation Section (Bagian Kerja Sama Bandung). This sector manages and regulates the course of foreign relations between government institutions in Bandung. It can be said that Bandung City Cooperation Section is a particular structure to facilitate interregional cooperation. The making of a written agreement for cooperation between government of Bandung City and other parties outside it, both domestically and abroad, is handled by this sector. Regional Cooperation Coordination Team (Tim Koordinasi Kerja Sama Daerah) is the procurement of cooperation with the Government of Bandung City [16].

In addition, regional legislatures also participate in foreign affairs, which refer to agreements and agreements. The regional government must follow the regional internal mechanism through the DPRD as local legislative's opinion and consideration of the regional international agreement plan, as well as the DPRD's approval of the international cooperation plan, carried out by the regional government. The cooperation plan is submitted to the DPRD for approval. After obtaining approval from the relevant DPRD, the Regional Government submits the cooperation plan to the Ministry of Foreign Affairs and the Ministry of Home Affairs for consideration. After verification of the cooperation plan approved by the relevant DPRD, the Regional Government can prepare a draft Cooperation Paper [17].

3. Research Method

The type of research used in this paper is by using literature studies obtained from several sources. This research is descriptive qualitative, describing a research subject [18]. In this case, the dynamics and actions of Bandung's paradiplomacy practice with Hamamatsu City Government in water leakage to support SDG 6 achievement by the government from this international activity.

The type of data used in this paper is qualitative data sourced from primary and secondary data. Primary data are data sources that provide data to researchers or data obtained directly from the field as research objects. Secondary data are sources that do not directly provide data to researchers, observations, and interviews with several informants [19]. Some of the informants are Staff of the Department of Foreign Cooperation/Analysts of Foreign Cooperation of Government of Bandung City and Head of the North Region for Drinking Water at Perumda Tirtawening, and Hamamatsu Water Service Department.

Qualitative research is a research procedure that produces descriptive data in the form of written or spoken words from the people and circumstances observed. Qualitative research is a method used to examine the condition of natural objects. The researcher is the crucial instrument; the data collection technique is carried out by triangulation, and the data analysis is inductive. Researchers analyzed the data as a whole to explain the data in the form of text or images. Data analysis uses interactive techniques with three main components: data reduction, data presentation, and data verification [20]. The data used by the

author include (1) The theories that researchers take from the literature are the theory of sustainable development and paradiplomacy; (2) Retrieval of data from the results that have been presented from an institution. Among them are data obtained from the Department of Foreign Cooperation of Bandung City, Perumda Tirtawening Bandung, and the Water Service of Hamamatsu. The data collection technique required in this paper is to use several methods, those are, *first*, Literature Study. This method explores the theoretical foundations related to the Sustainable Development Goals (SDGs) and paradiplomacy related to foreign cooperation as a potential for achieving SDGs in the city of Bandung. *Second*, observation. Each data obtained from various sources is observed and analyzed concerning the dynamics and actions of Bandung's paradiplomacy with foreign cooperation with Hamamatsu City regarding the objectives of SDG 6, which are in line with the efforts of Bandung City to fulfill them.

The data analysis method uses a descriptive qualitative approach that describing the development and paradiplomacy activities by Government of Bandung City for efforts to achieve Sustainable Development Goals (SDGs), which the government is currently pursuing. The policies Government of Bandung City have a substantial role in achieving the SDG 6.

4. Results and Discussion

4.1. The Government of Bandung City as Paradiplomacy Actor

Local government as an international actor has developed since the 1980s. Initially international activities by local governments were carried out by a system in the form of federalism because the management authorities of each region. Since the phenomenon of globalization in the early 2000s, the form of a unitary or republican state has developed with regional autonomy. Some local governments adopt foreign activities by carrying out paradiplomacy to achieve their goals, including in Indonesia [21]. One example of paradiplomacy practices in the European Union has a positive impact on local governments. Paradiplomacy in the European Union as an activity of cooperation between regions and regional governments abroad, institutionalized through systemic reforms and the European Union, in the area of geopolitical considerations [22].

Bandung is one of the cities In Indonesia actively practicing paradiplomacy with various cities in other countries. Bandung is the first city in Indonesia to conduct paradiplomacy and establish cooperation through sister-city relations. The sign is the Charter of Friendship between Bandung and Braunschweig in 1960. After 40 years, the charter was upgraded by both cities to an MoU as the basis of internationally recognized law. The MoU was signed on June 19, 2000, in the City of Braunschweig (Germany) [23].

Sister city is one of the efforts of the City of Bandung to promote various fields that support the needs and interests of the City of Bandung, such as economy, society and culture, tourism, technology, environment, and others. The paradiplomacy of the City of Bandung with various cities abroad is intertwined in sisters with various cooperation programs. The sister cities of Bandung City are Fort Worth (United States America), Braunschweig (Germany), Namur (Belgium), New South Wales, Bega Valley, and Melbourne (Australia), Hamamatsu, Toyota and Kawasaki (Japan), Yingkou, Shenzhen, and Liuzhou (PRC), Suwon and Seoul (South Korea), Cotabato (Philippines), Petaling Jaya (Malaysia), and Cuenca (Republic of Ecuador) [24].

Some examples of paradiplomacy from the city of Bandung are making Batik with a distinctive Ecuadorian as a form of promotion of Batik Bandung, the existence of Little Bandung Mobile in Namur, apprenticeship for Seoul metropolitan government employees in Government of Bandung City, angklung performances from SMPN 28 Bandung students in Petaling Jaya, capacity building to reduce the level of water leaks in Bandung City (Program For Skill Support Regarding Leak Prevention Initiatives in Bandung City), and many others [25].

Promotional programs or collaborations aim to advance the city of Bandung in economic, social, cultural, environmental, and other aspects. Bandung City's residents can feel directly or indirectly from the practice of paradiplomacy carried out by the City of Bandung. The city of Bandung, in paradiplomacy practice, can compete to become a city that can achieve international standards such as smart cities, good governance, and including for the achievement of SDGs. To achieve this, the City of Bandung conducts paradiplomacy with various parties from the city and the private sector from abroad.

Along with the development of information technology and the emergence of globalization at this time, the city of Bandung is one of the cities noticed by various local governments abroad. Rapid developments in Bandung City area's foreign affairs occurred during Mayor Ridwan Kamil's leadership. As the 15th Mayor of Bandung, Ridwan Kamil is also active in various international activities to represent Indonesia, especially the City of Bandung, such as the 2017 Asia Summit Conference. Bandung City in investment cooperation. Several mayors and ambassadors from abroad often visit Bandung to discuss cooperation, explore, or learn from each other. Some examples include the visit of Chandler City Investors²¹, the French Ambassador's visit, the American Planning Association [26], and many others. Bandung City's efforts for paradiplomacy continued until the 16th Mayor, Oded Muhammad Danial. The intensity of cooperation between the Sister City of Bandung City and other cities abroad has increased.

The relation on state and cities in foreign relations depends on how rules and laws work in the country. Some countries with republic, unitary, or federalism system has their own ways. It depends how the state give the freedom and authority to the local government [27]. In Indonesia, autonomy of the local government started after reformation in 1998. After that, local government in Indonesia has been arranging local policy and local budget with several rules that still refer to central government regulations. Paradiplomacy also became policy to some local government in Indonesia after the reformation. It develops gradually how the local government can maximally see the possibilities in foreign policy and international activities. Paradiplomacy is still dominated by central government actors rather than local actors. The central government bureaucracy tends to be a lot of administrative rules [28]. However, this does not prevent a regional government from maximizing the potential of paradiplomacy to achieve its goals and interests.

The basis for Bandung City Government's authority in paradiplomacy is regulated in the Regional Autonomy Law Number 22/1999, revised into Law Number 32/2004, and Law Number 25/1999. In particular, the local government para-diplomacy regulations are also regulated in Law of the Republic of Indonesia Number 37 of 1999 concerning Foreign Relations, Law Number 24 of 2000 concerning International Agreements, Regulation of the State Minister of the National Development Planning Agency Number PPER-005/M.PPN/06/2006 concerning Procedures for Planning and Submission Proposals and

Assessment of Funded Activities and Foreign Loans and Grants, Regulation of the Minister of Foreign Affairs of the Republic of Indonesia Number 09/A/KP/XII/2006/01 concerning General Guidelines for Procedures for Foreign Relations and Cooperation of Regional Governments, and Regulation of the Minister of Home Affairs Number 3 of 2008 concerning Guidelines for the Implementation of Regional Government Cooperation with Foreign Parties [29].

4.2. Paradiplomacy of Bandung City to Achieve SDG 6

SDGs deal directly with and involve local communities in cities. A city can achieve SDGs by setting a strategy that must be contextual and according to the specific needs of the region. Strategic planning, SDGs and multilevel governance must be consistent and comprehensive. The SDG framework is necessary for the goals and actions to be undertaken by local governments. City management plays an important role by developing and guiding strategic planning involving all local government practitioners from the mayor to staff in each division or department [30]. Local governments must have transparent and accountable procedures for making agreements in achieving SDGs targets and indicators. In addition, strong political leadership is needed in administration with clear roles and functions to implement decisions and policies [31].

The provision of clean water and sanitation for the community is complex. It must involve all actors at all levels of government, the private sector, non-governmental organizations, and the public. Broad development policies must be carefully planned with long-term, national, and local action plans and adequately formulated. Problems that often occur for clean water services are inadequate implementation due to short-term planning, lack of managerial capacity, finance, labor, and water needs from other sectors with limited control. This is based on one of the cases in Citarum River, water pollution [32]. Services on water access are usually regulated by local governments or local agencies. Therefore, understanding from the local government is needed to understand the various types of challenges that exist, ranging from technical, financial, and others. Local actors and institutions must be careful when implementing SDG 6 [33].

The condition of waterways in Bandung City in 2014 was the installation rate of new waterways on 76.55%, the percentage of water that could not be billed on 37.7%, and the total water supply was only for 177,877 houses. Access to clean water throughout Bandung for 24 hours cannot be achieved due to a lack of water distribution volume. In addition to water distribution, the water quality is also of poor quality due to worn water pipes and the entry of underground water, making it unfit for drinking. The installation rate of waterways in Bandung has only reached 77%, and unbilled water is 38%. The mapping of the water pipeline network was not updated, and the water leak data was not correctly recapitulated until 2014 [34].

In addition to technical, water management in Bandung City also has a shortage of human resources. There is a lack of unbilled water management planning, awareness of preventing water theft, illegal installation of water supply points, and lack of coordination and information sharing between departments at Perumda Tirtawening. In terms of technology, the method of repairing water leaks is poor, so it is easy for leaks to occur in the water supply pipe. Perumda Tirtawening does not have the technology to deal with unbilled water (planned water leak surveys or repairs), so handling a water leak incident is less effective [34].

To achieve SDGs of point 6 with easy access to clean water, Bandung City Government needs a strategy to solve the water leakage problem. Making policies based on supply and demand, where the Government of Bandung City faces the demands of the SDG 6. In the SDGs, the function of the Central Government is in control because the contribution of local governments is crucial to the SDGs to meet these goals. Previously, Bandung City handled this problem only internally and domestically. The Government must move the fastest in resolving this water leak. The demands from SDG 6, the community, NGOs, and Perumda Tirtawening itself have encouraged Bandung to make policies to overcome problems by conducting paradiplomacy with Hamamatsu City. Bandung City wants to work with Hamamatsu City on this water leakage issue to collaborate on a water management cooperation program. The Government of Bandung City began with paradiplomacy along Sister City program between the two cities [35].

Sister City initiation of Bandung City with Hamamatsu City during the first meeting at UCLG ASPAC Executive Bureau Meeting in June 2014 in Hamamatsu. Mayor Hamamatsu invited the city of Bandung to continue the long-standing informal relationship to a more formal and intensive interaction. The Mayor of Bandung and the Mayor of Hamamatsu signed a Letter of Intent on December 19, 2014. This LoI marks the beginning of a sister city and cooperation between Bandung and the City of Hamamatsu in the future [35].

One of the LoI points discussed in this study is water management cooperation between the City of Bandung and the City of Hamamatsu in a water leakage training program relevant to SDG 6. The cooperation between the two cities is in the form of a program to increase the capacity of the employees of Perumda Tirtawening to reduce the level of water leakage. Hamamatsu City has been training in clean water management in various other countries. This collaboration is carried out for the paradiplomacy Bandung City to fulfill the SDGs' achievement and overcome the water problem. After the LoI, MoU enhanced cooperation for more interactive activities and programs. The two mayors signed the MoU on June 26, 2019, in Hamamatsu [35]. From the MoU, the Government of Hamamatsu City provided technical assistance to the City of Bandung in the form of two tools that can detect leaks in water pipes more quickly.

The cooperation from the LoI between the two cities is the exchange of stakeholders for the development of creative cities to advance the creative activities of the two cities, training of environmental stakeholders, including environmental care (conservation), waste management, clean water, and waste water management, as well as exchanges and cooperation, among educational and research institutions. These two cities organize cooperation programs under the central government's approval of the two cities by involving international organizations and other specialized organizations.

4.3. Capacity Building Program to Reduce Water Leakage in Bandung

In this paper, we will discuss the points of cooperation between the two cities in the form of a capacity-building program to reduce the level of water leakage in Bandung and the assistance of a water leak detection device to Perumda Tirtawening as an effort to achieve the goal of SDGs point 6 in the city of Bandung. Training personnel in the environment and sanitation field encourages collaboration between cultural and research academic institutions in the two cities. Bandung City Government appointed Perumda Tirtawening as the leading sector that collaborates with Hamamatsu City Government in training on preventing drinking water leakage in 2017 – 2019. Hamamatsu Water Service Department is the leading sector in the guidance

and training of Perumda Tirtawening. The City of Bandung's efforts aims in this collaboration to move from stage 1 to stage 2 in reducing surface water leakage [34].

Perumda Tirtawening selected several members of a particular team to attend training in Japan so they could later guide other officers in Bandung. The initial training was carried out in Bandung City by selecting several other special team members. The primary training provided by Hamamatsu Water Service Department to Perumda Tirtawening was carried out with the provisions and procedures from Hamamatsu with five stages of training. Training in the form of knowledge and training resources for better management so that water leakage can decrease well. This team of Perumda Tirtawening is expected to be able to guide other officers in Perumda Tirtawening. The entire program between Hamamatsu Water Service Department and Perumda Tirtawening ran for approximately two years from 2017 – 2019 [34].

There are six stages of Surveys and planned improvements to keep water leakage levels to a minimum in Hamamatsu City, which went on for 40 years for the excellent and maximum results it is today. For the city of Bandung, efforts to reduce water leakage at the ground surface are attempted to change from stage one to stage two, achieving a minimum of 20% - 30% of water leakage at ground level. The hope is that the City of Bandung can reach stage six to maintain a minimum water leakage rate of less than 5% [34].

Five pieces of training were conducted for this team of Perumda Tirtawening. The first training was to increase the officers' understanding of the importance of preventing water leakage. The training activity began with filling out questionnaires by a special team from Perumda Tirtawening to understand the importance of preventing water leakage. After that, a special team attended a technical seminar on preventing water leakage in Hamamatsu City to be implemented in Bandung pilot area. The Melong Asih area became an experimental area in 2017, and the Parahyangan Rumah Villa area became an experimental area in 2018. Then a special team supervised the repair of water leaks at Perumda Tirtawening [34].

For the second training, supervisor coaching with water leak surveys. The special team made a guide for developing water leak survey technicians to guide other Perumda Tirtawening officers. The Pilot Area for Parahyangan Rumah Villa conducted a water leak survey using a water leak detector in July – September 2018. Then counseling about the water leak survey method with water leak detection equipment. At the end of this second training session, there was a technical proficiency level assessment test for the special team that participated in the training from the Hamamatsu team. In the third training, mentoring is to be able to repair water leaks quickly. This activity is in the form of a technical seminar on repairing water leaks and an assessment of the level of technical expertise in repairing water leaks. The particular team also made a simple guide to repairing water leaks for other Perumda Tirtawening Bandung City officers [34].

Furthermore, in the fourth training, making a plan to prevent water leakage through lectures to the Perumda Tirtawening team. For what was studied, the method of making a work plan for preventing water leakage, planning for maintenance and updating of pipelines from a water leak survey, and measuring water discharge in the water distribution area. In addition, they also learn methods of making leak repair records, such as pipe material at the point of leakage, repair work methods, and others. For the final training, a special team from Perumda Tirtawening was taught the procedures for water supply work to reduce water leakage. In this training, they were asked to make a water supply work manual regarding water supply pipe materials and work procedures by taking into account the condition of the Tirtawening Perumda based on the standard work chart issued by the Ministry of Public Works [34].

By the end of the project, the special team had mastered capable water leak investigation and repair techniques. For the most important purposes and results, the selected special team can share information with other PDAM Bandung City employees by developing mentoring, training, and survey questionnaires on a problem. Through this collaboration, Bandung has reduced the volume of non-revenue water (NRW) from 80 percent to 10 percent [34].

Hamamatsu City also assisted in the form of water leakage prevention technology. Before that, the President Director of PDAM Tirtawening Bandung City visited Hamamatsu, Japan, in response to the JICA Partnership program on Technical Assistance to Bandung City in Leak Prevention Initiatives for Drinking Water [36]. In addition, the President Director of PDAM Tirtawening Bandung City also attended the invitation of Hamamatsu City in the framework of the Water Technology Infrastructure Business Seminar and Exchange Meeting. The City of Hamamatsu handed over two leak detection tools to the City of Bandung with a Leak Location Correlator and an Acoustic Leak Detector [37]. The tools were given during Hamamatsu City Government's visit to Bandung after the MoU was signed on June 26, 2019, in Hamamatsu.

5. Conclusion

As a local government that carries out such paradiplomacy, the City of Bandung has several interests and objectives. With the interrelated interactions, there is a goal that the collaboration is carried out to overcome one of the water management problems in the city of Bandung in fulfilling one of the goals of the SDGs. In this interest, there is an effort by the Government of Bandung City to achieve SDG number 6 by paradiplomacy. The city of Bandung carried out paradiplomacy with the need to achieve SDG number 6, and the decision-making of Bandung City Government continued with the discourse of cooperation with the City of Hamamatsu. Bandung's paradiplomacy for water leakage is very beneficial for efforts to achieve SDG 6 to ensure sustainable use and supply of fresh and clean water. Bandung City Government felt a beneficial impact on the paradiplomacy with Hamamatsu City Government, and the cooperation was resulted in a reduction in the level of a water pipe leakage in Bandung. With good management and strategic policy toward SDGs, Bandung City hopes that diplomacy with the environmental field will be able to solve existing problems and can support efforts in achieving the maximum target of SDG 6. With this paradiplomacy, Bandung City Government can increase the opportunity to overcome problems in the field of water leakage and achieve one substantial of the SDGs point 6. Bandung City Government's policy in paradiplomacy can be improved, and continuous efforts can be made with collaborative programs that help Bandung develop and progress and meet the SDGs targets. Other local governments in Indonesia can follow the example of Bandung City Government's efforts to take opportunities from abroad such as paradiplomacy activity. Not only relying on the central government and domestic opportunities, local governments can also maximize paradiplomacy with foreign parties from abroad.

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