



PARADIPLOMACY OF WEST NUSA TENGGARA PROVINCE IN ACHIEVING NET-ZERO EMISSION

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Abstrak

Penelitian ini bertujuan untuk mengetahui peran sub-negara dalam Hubungan Internasional, yaitu Nusa Tenggara Barat (NTB) yang berpartisipasi dalam Konferensi Perubahan Iklim PBB (COP-26) di Glasgow untuk mengurangi emisi karbon atau mencapai Net Zero Emission (NZE). Penelitian ini menggunakan pendekatan konseptual yaitu para-diplomasi dan diplomasi lingkungan. Analisis ini menggunakan metode penelitian kualitatif dengan lima tahapan yaitu pengumpulan data, reduksi data, penyajian data dalam bentuk narasi, grafik, dan tabel, dan tahap terakhir adalah penulisan kesimpulan. Hasil penelitian ini menunjukkan bahwa sub-negara dapat melakukan diplomasi dalam mengatasi permasalahan iklim global, Nusa Tenggara Barat yang turut serta dalam Konferensi Perubahan Iklim Perserikatan Bangsa-Bangsa (COP-26) di Glasgow, mampu memiliki daya tarik dengan beberapa negara seperti Inggris, Swedia, Denmark, dan Amerika Serikat karena NTB dinilai memiliki potensi dalam mengembangkan energi terbarukan, terlebih lagi NTB telah memiliki Perda tentang Rencana Umum Energi Daerah untuk mencapai Net Zero Emission dan hal ini selaras dengan tujuan COP-26.

Kata Kunci: *diplomasi lingkungan, net-zero emisi, paradiplomasi, perubahan iklim*

Abstract

This study aims to determine the role of the sub-state in International Relations, namely West Nusa Tenggara (West Nusa Tenggara, NTB), which participated in the United Nations Climate Change Conference (COP-26) in Glasgow to reduce carbon emissions or achieve Net Zero Emission (NZE). This research used a conceptual approach that is para-diplomacy and environmental diplomacy. This analysis used a qualitative research method with five stages: data collection, data reduction, data presentation in the form of narratives, graphs, and tables, and the final stage is writing conclusions. This study indicates that sub-states can carry out diplomacy in overcoming global climate problems, West Nusa Tenggara which participated in the United Nations Climate Change Conference (COP-26) in Glasgow, was able to have its charm with several countries such as England, Sweden, Denmark, and the United States because NTB is seen to have the potential to develop renewable energy; moreover, it already has Provincial Regulation concerning the General Plan of Regional Energy to achieve the Net Zero Emission and it is in line with the objectives of the COP-26

Keywords: climate change, environmental diplomacy, net zero emission, paradiplomacy

Introduction

The climate change issue has become a very significant problem in global politics. In the last few decades, climate change has enormously impacted the life of Earth's ecosystems. In response to this problem, United Nations organized a meeting of countries under the framework of United Nations Framework Convention on Climate Change (UNFCCC) and launched the Paris Agreement in 2015. This agreement is the continuance of the convention known as the Kyoto Protocol in 1997. Both these agreements aim to resolve a climate problem on a global scale because of the increment of temperature and greenhouse gases every year. In 2021 the UNFCCC held the 26th meeting of the *Conference of Parties* (COP-26), was held in Glasgow, Scotland, from 31 October to 13 November 2021. This meeting aims to: *first*, to reduce the earth's temperature based on *global net zero emission* by 1.5 degrees Celsius by 2030; *second*, to adapt to the environmental change to protect human and natural habitats in terms of recovering the global nature ecosystem; *third*, raising funds for countries with averagely low in terms of their economy, which aims to adapt for renewable energy transition; *fourth*, completion of the Paris Rulebook which contain the detail of the *Paris Agreement* (UNFCCC, 2021).

The COP-26 meeting is not going according to the original plan because the countries that have much influence, such as the United States and the European Union countries refuse the idea of facilitating the funding that is addressed to developing countries. These countries only agree to the Glasgow Pact, which only issues loss and damage caused by climate change. Other countries like India, Australia, and Saudi Arabia reduce the goals of this climate change agreement (Greenpeace Indonesia, 2021a; Katadata.co.id, 2021). Facing this global issue that climate change brought, Indonesia actively contributed to resolving this problem. Through COP-26, Indonesian President Joko Widodo delivered that the deforestation rate in Indonesia has decreased significantly and, at the same time, is running a program to plant 600 hectares of mangrove forest until 2024. Indonesia is also developing an electricity generator based on solar energy, which is friendly to the environment (Cabinet Secretariat of the Republic of Indonesia, 2021). Through the Paris Agreement *Nationally Determined Contribution* (NDC) plan, the Indonesian government adopted Law No. 16 the Year 2016, which compiled a plan to

drop emissions up to 29 percent by 2030 to reach a *net zero emission* goal by 2050 (Institute for Essential Services Reform, 2021).

The commitment of the Government of Indonesia to implement the goal of Net Zero Emission still looks less than optimal. This commitment can be seen from the contradictions made by the Government of Indonesia, which issued the *Minerba* and *Cipta Kerja* laws that harm the environment. In addition, the Government of Indonesia still uses coal as the most prominent national electricity generator and is increasing its capacity every year. This can be seen from the Electricity Supply Business Plan (RUPTL) of PT PLN (Persero) 2021-2030, which increases the power plant capacity from 13.8 Gigawatts or 34 percent to 40.5 Gigawatts (Greenpeace Indonesia, 2021b, 2021c). The Climate Change Performance Index (CCPI) assesses that Indonesia has dropped three ranks from last year, which was previously 24, to 27 as a country with low emissions. This is because the policy on the use of energy and climate produces harmful Greenhouse Gas emissions (Climate Change Performance Index, 2021).

West Nusa Tenggara (NTB), one of Indonesia's provinces, attended COP-26 to represent Indonesia at this conference. NTB represented Indonesia to present its superior programs in the environmental field, such as Ecotourism, Zero Waste, New Renewable Energy, and Green Energy which have been and are currently running. At this conference, NTB received recognition and appreciation and attracted Britain and Denmark's interest in cooperating in the field of renewable energy. This is also driven by the commitment of the UK and Denmark governments to facilitate any country or INGO in the field of developing clean energy for the environment. (NTB Provincial Government, 2021). The local government is essential in carrying out global issues such as climate change. Research conducted by Stren & Friendly (2019) states that local government is more effective in solving the climate problem by making a progressive policy about the environment. The existence of this kind of policy has a significant impact on the local emissions trade.

The role of local government is very significant in terms of the climate change policy. The establishment of this policy will be likely to create a mitigation system to resolve the climate problem climate. An example of a comprehensive climate action based

on local government can be seen in Mie Prefecture (Japan), Saxony-Anhalt (German), and Sao Paulo (Brazil). Each of these cities has its own clean energy development mechanism policy that reduces its country's emissions by an average of 10-11%. This policy usually regulates energy use by industries, sets a limitation for emission output, and creates a framework for sustainable clean energy management (Puppim de Oliveira, 2009). Resolving the climate problems, several methods are processed in the global constellation. This paper aims to explain one of those methods of solving this problem.

This paper explains how collaboration between local governments can play a significant and influential role in responding to climate change. One example of this collaborative effort between local governments can be seen in the Climate Leadership Group (C40), which is a collective action of cities in the world that advocate for local agendas in international forums such as the UN Conference on Sustainable Development (UCSD) and the UN Framework Convention on Climate Change (UNFCCC) (Wu, 2020). C40 helps local governments to design, conceptualize, analyze, and exchange information to implement effective policies to address climate change impacts and changes in the region (Fernández De Losada & Abdullah, 2019). This form of cooperation is known as paradiplomacy (which will be explained in the next section). Several provinces/cities in Indonesia conduct international cooperation with other countries or global institutions in dealing with climate change issues.

For example, Banjarmasin developed a sister city model for managing the wetland environment by conducting para-diplomacy with the Institute for Global Environmental Strategies (IGES) based in Japan (Syahrin et al., 2021). Surabaya and Kitakyushu signed the Memorandum of Understanding (MoU) to realize Surabaya Green City with three primary goals for both countries: green, recycling, and capacity building (Khalifah, 2019). Another example is Bantaeng Regency, South Sulawesi Province, collaborating with Japan to improve the cleanliness of cities by investing in environmentally friendly infrastructure capacity and transferring technology, as well as paradiplomacy assisting in clean city management (Harakan, Mustari, et al., 2021; Harakan, Rahman, et al., 2021). Paradiplomacy is one method that is quite significantly carried out by local governments in solving environmental problems in the region and climate problems globally. Paradiplomacy aims to make local governance more effective in achieving its goals, such as solving climate problems. NTB is a province representing Indonesia attending the

COP-26 meeting in Glasgow, trying to open up space for various countries to collaborate in overcoming climate problems. To see an example of a form of paradiplomacy in responding to climate change problems, this study discusses the paradiplomacy carried out by the NTB government in overcoming climate change.

Methods

This research uses a qualitative research method that explains the paradiplomacy carried out by the sub-state. The focus study case of this research is to analyze the West Nusa Tenggara (NTB) Regional Government on overcoming climate problems through various programs in the environmental field that open up space for collaboration with other countries. This research is structured in several stages. The first stage is to collect data from secondary sources like journals, reports, official websites, and other reliable internet sources. The primary sources were interviews with the government of NTB province which participated in COP-26 and related agencies. The next stage is data reduction and analysis, examining the data that has been collected to be sorted and selected according to the topic of this research. The next stage is presenting the data in narrative form, using tables, pictures, and graphs to help visualize the research and finally drawing conclusions based on the concepts of diplomacy and paradiplomacy.

Result and Discussion

Paradiplomacy Conception and Understanding the Net Zero Emission

Environmental problems have a global impact, so they require collective action to solve them. Countries as actors in international relations are constantly collaborating in the context of global governance in a joint effort to solve environmental problems, including climate change. However, collective action demands not only the state government's role but also non-state actors such as MNCs, NGOs, international organizations, global social movements and the active role of sub-state actors. One of the sub-state actors who have a significant role is a country's provincial/municipal government. Local governments, both at the provincial and city or district levels, are essential to initiating efforts to address environmental issues. Cross-sectoral cooperation is the key to addressing ongoing environmental problems, including through a para-diplomacy framework.

Paradiplomacy is foreign cooperation carried out by local governments. In recent years, the term paradiplomacy has been increasingly recognized because of sub-state actors' active participation in cooperation with other countries in various fields. In Duchacek's writings, it is stated that Paradiplomacy is the growing involvement of regional governments in international affairs (Duchacek, 2016). The increasing cooperation activities between sub-national governments and other state actors are indeed driven by globalization factors and the improvement of transnational regimes. The factors why sub-national actors need to appear in the international arena are generally due to economic, cultural, and political factors. Economically, investment is important for regional development. Regional products also need a market and require technology for modernization. Markets and export promotion are more important to local small businesses (Aldecoa & Keating, 1999). They also promote themselves as tourist destinations in a world of increasing mobility.

Paradiplomacy describes the global involvement of city or provincial governments in international relations affairs which state actors usually play. This shows a change in the concept of sovereignty, where the state must share power with other players in the international arena with a note that a country's paradiplomacy politics is formulated optimally to support national development (Mukti, 2020). Paradiplomacy becomes an instrument of development and an instrument of strengthening the identity of ethnonationalism so that the context of 'share' sovereignty becomes an important concern in para-diplomacy activities. Brian Hocking explained that Paradiplomacy was developed to emphasize the distinction between central and sub-national governments. Diplomacy cannot be viewed as a discrete process involving actors from the same state structure. Diplomacy must be viewed as a system that brings together actors from various levels of government and ministries. (Balzacq et al., 2020).

Paradiplomacy is often carried out in various fields, including economics, education, health and the environment. Some examples of successful paradiplomacy in the climate sector by several countries, such as New York (US) and Quebec (Canada), made MoU for the exchange of information, standardized data processing, and agreed to reduce emissions. Quebec cooperates with Wisconsin in favor of sound environmental management (Smith, 1988). Five Canadian provinces also collaborated with 6 New England countries in the Climate Change Action Plan of the New England Governor's

Conferences and the Easter Canadian Premiers in 2001. In addition, this practice of paradiplomacy is also carried out as an effort to form strategic steps, such as 39 US States, 6 Mexican States, and 9 Canadian provinces created The Climate Registry, which aims to standardize, identify, calculate, and report carbon emissions (Eatmon, 2009).

Furthermore, encourages participation in global agendas. In the context of paradiplomacy, with 240,000 cities and 175 local government associations, including 11 cities and 6 local government associations in Southeast Asia, United Cities and Local Governments (UCLG) is the world's largest local government organization. This is similar to C40, which helps develop an action plan to revitalize city parks and reduce the impact of flooding. C40 assists Kuala Lumpur in developing a roadmap of carbon emission reduction goals through various strategies such as energy conservation, waste management, and public transportation improvement. (Martinus, 2020). In Indonesia, the practice of paradiplomacy has often been carried out by actors from the provincial government or city/district governments. This goes with the expansion of issues and actors in the study of international relations, where actors are not only states but sub-states, groups, organizations and even individuals that become very influential in cooperation between actors.

Based on Law No. 32 of 2004 Indonesian law, The House of Representatives (DPRD) has the duty and authority to approve plans for international cooperation carried out by the local government where the authority of the autonomous region to conduct foreign cooperation is contained in Article 42 paragraph (1). This collaboration between local governments and foreign countries is arranged in a legal policy where the government can make a blueprint for the authority in the paradiplomacy field carried out by local governments (Mukti, 2020). Several regions have established forms of cooperation, such as sister cities or provinces, such as the city of Surabaya, which has established a sister city with the city of Liverpool (UK) (Surabaya City Government, 2021). Meanwhile, Bandung and Suwon (South Korea) are also conducting sister cities, especially in the Health sector. Then, the city of Makassar also cooperates with the Gold Coast (Australia) to strengthen the development of tourism potential.

The interaction between the NTB regional government and other countries or regional governments strengthens Indonesia's diplomacy in various fields represented by

the NTB regional government. Meanwhile, the province of West Nusa Tenggara (NTB) in the last five years has also been active in conducting para-diplomacy cooperation using the framework of sister province and sister city. The NTB Government is building a partnership with the Australian Northern Territory province, focusing on tourism, education, industry and investment (KOMINFOTIK NTB, 2022). In addition to the provincial level, the Mataram city government carries out sister city cooperation with Pengzhou (China), which is focused on the fields of culture, tourism, investment and industry. Mataram is also building a partnership with the city of Shah Alam (Malaysia), which focuses on efforts to accelerate sustainable development in the economic, social and environmental fields.

West Nusa Tenggara (NTB), an archipelagic province, is a popular tourist destination for foreign visitors. Tourism development is still ongoing in order to increase attractiveness and foreign tourist visits. The development of the currently developing province of NTB is also endeavoured to preserve the ecosystem. The NTB government then raised several environmental-based issues to be the flagship program of the NTB provincial government in recent years, such as Zero Waste, Green NTB, New Renewable Energy and Eco-Tourism. The NTB government is also active in conveying its commitment to realizing Net-Zero Emission in 2050 through various agendas to support the mission. Net Zero Emission (NZE) can generally be understood as a condition when the carbon emissions released into the atmosphere do not exceed the number of emissions the earth can absorb. In order to achieve this, a balance between human activities and the natural environment is needed. Human activities that produce gas emissions, such as industry, land burning and vehicle pollution, significantly impact the earth's ecosystem. Various impacts have been felt in various countries, such as climate change, lack of clean water sources, natural disasters, and other environmental degradation (Ministry of Energy and Mineral Resources, 2022).

The emergence of the NZE program became popular after the Paris Agreement in 2015, where the program aims to prevent global warming. Many countries have responded to this issue by forming various new regulations, especially to replace the energy that is not environmentally friendly. Responding to this problem, the Indonesian government seeks to carry out five things; increasing the use of new and renewable energy (EBT), decreasing the use of fossil energy, using electric vehicles in transportation,

increasing the use of electricity in households and industry, and utilizing *Carbon Capture and Storage* (CCS) (Ministry of Energy and Mineral Resources, 2022). The NTB regional government also positively responded by supporting NZE by setting a target in 2050, with the hope that NTB can become a pilot province. This departs from the awareness that NTB has much potential for green energy and has a well-organized roadmap in the context of reducing carbon emissions.

West Nusa Tenggara (NTB) Paradiplomacy to Achieve Net Zero Emission

The continuous pace of industrialization and development on earth impacts the declining quality of the environment and the occurrence of natural disasters. In many cases, natural disasters that occur in developed countries result in fewer victims compared to developing countries which result in more victims. However, environmental damage comes not only from excessive accumulation and production but also from the production and consumption process itself (Winarmo & Admojo, 2014). The Indonesian government highlighted environmental issues as one of the leading national problems that must be addressed. Various efforts can be made to respond to the problem of climate change, and one of them is cooperation carried out on a sub-national scale. West Nusa Tenggara's (NTB) government has made environmental issues the basis of various programs being implemented.

The NTB province has suffered much damage because of climate change. The severe impact of climate change is depleting water sources, changing rainfall frequencies, and increasing the earth's temperature (Sipayung et al., 2019). For the archipelagic region, another quite threatening impact is rising sea levels which will inundate coastal areas, affecting agriculture, aquaculture and coastal life. In the last few years, a severe flood occasionally occurred in several regions in NTB. In 2019, a massive flood occurred in Dompu Regency. In 2020 floods occurred in Bima Regency and Central Lombok Regency, precisely around the Mandalika Special Economic Zone (KEK) and in 2021, in West Lombok Regency and Mataram City. The cause of the flooding is the destruction of ecosystems in the watershed (river basin), which makes the soil unable to seep and withstand high rainfall (Sedayu, 2016). Considering the various threats and changes, the NTB government responds to environmental issues by carrying out various efforts on a

provincial scale. The step taken is to create an environment-based work program by cooperating with various global actors.

The paradiplomacy practice in Indonesia provides space for regions to conduct foreign cooperation based on Indonesian Law Number 3 of 2014, concerning Regional Government that explains in Article 363 paragraphs 1 and 2 stating that cooperation regions can be carried out for consideration of the efficiency and effectiveness of mutually beneficial public services. This can be done with: a) other regions; b) third parties; and institutions or regional governments in other countries based on statutory regulations. Article 367 also states several components that can become instruments for regional cooperation with foreign countries, which are: the advancement of science and technology; cultural exchange; the improvement of technical skills and government management; the promotion of regional potential; and other non-conflicting cooperation. Regional cooperation initiatives with foreign countries can also be carried out by regional governments or foreign institutions/governments, according to Government Regulation Number 28 of 2018. (article 28, paragraph 2).

However, this mechanism must be through several bureaucratic steps, such as approval, coordination and consultation with the ministry that administers government affairs in foreign relations (article 28, paragraph 4). Government Regulation Number 25 of 2020 concerning Procedures for Regional Cooperation with Regional Governments Abroad and Regional Cooperation with Overseas Institutions explained in Article 6 paragraph 1 that regional cooperation with Foreign Governments can be in the form of work same province with twins/sister; cooperation with twin districts/cities; and other forms of collaborations.

Article 2 states that in carrying out regional cooperation with foreign governments, the Governor or Regent/Mayor is represented on behalf of the region. Article 8 explains that regional cooperation with foreign countries must be based on the central government's approval, which the Minister coordinates. Regional governments conducting foreign cooperation must meet several conditions, one of which is Government Regulation Number 28 of 2018 concerning Regional Cooperation in Article 27, which states that regional and foreign cooperation must be under national development policies and plans and areas. Indonesian national and regional development

policy focused on the environmental sector to enforce the Net Zero Emission goals. The Ministry of Energy and Mineral Resources plans to replace diesel power plant energy with new and renewable energy to reduce greenhouse gas emissions to achieve the Net Zero Emission target. West Nusa Tenggara region holds the score of diesel power applications with 65 percent and 85.9 percent in Papua and Maluku (AntaraNews.com, 2022).

To contribute to managing a clean and emission-free environment, NTB has made the West Nusa Tenggara Provincial Regulation Number 3 of 2019 concerning Guidelines for preparing a general provincial energy plan. This regional regulation serves as a guide for the regional government in achieving: (1) independence in energy management; (2) energy availability; (3) energy resource management that is optimal, integrated, and sustainable; (4) efficient use of energy in all sectors; (5) access for the community to energy fairly and equitably; (6) development of technological capabilities, the energy industry, and energy services to enable regions to be self-sufficient, and expansion of human resource capacity; (7) creation of employment opportunities; and (8) preservation of environmental functions. Local governments carry out Paradiplomacy to achieve these goals. The eight objectives are regional development plans, and this can be achieved by cooperating with other countries based on the laws in force in Indonesia. One of the paradiplomacy steps taken by NTB to address emissions towards Net Zero Emission 2050 is collaborating with other countries and attending the COP-26 conference in Glasgow, United Kingdom. The Vice Governor of West Nusa Tenggara, Dr. Hj. Sitti Rohmi Djalilah, representing Indonesia in this conference, explained that the NTB province has the potential to develop renewable energy of 102.74 MW from various energy sources such as water (PLTM and PLTA), wind or rock (PLTB), solar power (PLTS), biomass (PLTBm), ocean waves (PLTAL). NTB already has a Micro Hydro Power Plant (PLTMH) with a capacity of 16 MW.

The eight objectives are regional development plans, and this can be achieved by cooperating with other countries based on the laws in force in Indonesia. Local governments carry out Paradiplomacy in order to achieve these goals. One of the paradiplomacy steps taken by West Nusa Tenggara to address emissions towards Net Zero Emission 2050 is by collaborating with other countries and attending the COP 26 conference in Glasgow, United Kingdom, which was attended by the Deputy Governor

of West Nusa Tenggara, Dr. Hj. Sitti Rohmi Djalilah, who explained that the NTB province has the potential for developing renewable energy of 102.74 MW from various energy sources such as water (PLTM and PLTA), wind or rock (PLTB), solar power (PLTS), biomass (PLTBm) and ocean currents (PLTAL). Moreover, NTB already has a Micro Hydro Power Plant (PLTMH) with a 16-MW capacity.

To achieve the target of net zero emissions in 2050, which is ten years faster than the target of the Indonesian Government in 2060, cooperation with foreign parties such as Denmark, Sweden, England, the United States and several other countries. This cooperation is being pioneered with a scheme to achieve the target of 60 new percent of Renewable Energy on the Lombok Grid in 2030 and 100 percent of Renewable Energy on the NTB Grid in 2040 (Electric Indonesia, 2022). The COP conference in Glasgow, UK, attended by the Deputy Governor of NTB, succeeded in attracting the interest of several international relations actors to collaborate with the NTB regional government, such as The US Trade and Development Agency (USTDA) from the United States. This collaboration plans to provide financial assistance to conduct a feasibility study in the Waste to Fuel project, which will later convert the municipal waste in Kebon Kongok with around 300 tons of waste per day into Biofuel of 20,000kl per year. Sweden is also interested in collaborating with NTB in the energy and clean water sector. Meanwhile, the UK will provide grant funds to undertake a feasibility study for the NTB's new renewable energy program through a program known as MENTARI. The programs to be developed include the Wind Power Plant in Mandalika with a capacity of 30 MW, in the Lombok Strait and the Alas Strait, namely the Ocean Current Power Plant, each with a capacity of 10 MW, and some in the NTB area will be made Solar PV of 23 MW (Listrik Indonesia, 2022).

The NTB government also cooperates with the Danish Government to maintain a sustainable environment, primarily to support the two leading islands, Lombok Island NTB and Denmark's Bornholm Island. This support was formed to develop the two islands into tourist destinations that implement a green environment and seek environmentally friendly energy sources. This goal is achieved by planning and developing renewable energy generation through energy production and waste management (Admara, 2020). Denmark is highly committed to cooperation in the renewable energy sector with the NTB government through the Danish International

Development Agency (DANIDA). The Danish Government runs the Danida Sustainable Infrastructure Finance (DSIF) program, which will invest in a 20 MW Biomass Power Plant (PLTBm) construction sector in Lombok and conduct a feedstock study with a potential of 2x25 MW Biomass in Sumbawa. Both will utilize plantation waste/waste such as corn and agriculture such as rice. Denmark's investment is in the form of grants of 30 percent and 70 percent in Soft loans (Listrik Indonesia, 2022).

The cooperation between Denmark and NTB in the field of energy and environment can be seen in the Letter of Intent (LoI) which was signed by the Governor of West Nusa Tenggara, Dr. H. Zulkieflimasyah and the Danish Ambassador to Indonesia, Rasmus Abildgaard Kristensen in 2019 (Pemerintah Provinsi NTB, 2019). The two parties also cooperated after participating in COP-26 in Glasgow, the UK, on November 23, 2021, and signing a Letter of Agreement (LoA) in the green transition sector and investment in renewable energy sector. Denmark signed this LoA and was represented by the Danish Ambassador to Indonesia. In contrast, Indonesia was represented by the Governor of NTB witnessed by the Danish Minister of Foreign Affairs, the Minister of Energy and Mineral Resources of the Republic of Indonesia and the Director of PLN(Dinas ESDM NTB, 2021).

Theoretically, the laws and regulations and government regulations on paradiplomacy as well as regional cooperation schemes with foreign countries have been going well and taking into account the principles contained in the regulations in Indonesia, as can be seen from the cooperation scheme between Denmark and NTB as governments. Consultation and planning with the Ministry of Energy and the environment, which is the authority of the Ministry of Energy and Mineral Resources and the Ministry of Environment and Forestry, as well as the Indonesian Ministry of Foreign Affairs dealing with foreign affairs.

The following is a table of paradiplomacy carried out by Denmark and NTB in the form of a summary of the LoI:

Table 1: Denmark and NTB Cooperation Scheme in the Energy and Environment Sector

| | |
|------------------------------------|--|
| Cooperation Name | Sustainable Island Initiative in Energy and Environment (SIT) |
| Cooperation Theme | Solid Waste Management, Circular Economy, Waste to Energy and Biomass (Environment and Energy) |
| Indonesian Public Authority | <ul style="list-style-type: none"> - Ministry of Environment and Forestry - Ministry of Energy and Mineral Resources - West Nusa Tenggara Province - Both Island Provincial Government (Lombok and Bornholm) |
| The Role of Indonesian Authorities | <p>Considerations from the Indonesian authorities were carried out by the National Development Planning Agency (Bappenas) of the NTB Province, the Environment and Forestry Service, the Energy and Mineral Resources Office, local governments and other partners. Human resources and personnel will be provided in accordance with the work plan, and they must collaborate closely with Danish counterparts.</p> <p>Officials and staff from Indonesian partners are responsible for mobilizing adequate financial and human resources for technical working groups and stakeholders in project management who contribute to SII's efficient and effective outcomes.</p> <p>Indonesian partners are expected to be active in training and activity implementation, as well as mission and workshop preparation, participating in meetings, peer-to-peer training, and other forms of cooperation. The Provincial Government will also play an essential role in ensuring coordination between provincial and local authorities, cities, districts, units and other partners, as well as coordinating with relevant ministries and other national stakeholders. The local government and its staff in the field of energy and environment will provide information and data on the energy and environmental sectors of the two islands.</p> |
| Danish Public Authority | <ul style="list-style-type: none"> - Danish Environmental Protection Agency (DEPA) - Danish Energy Agency (DEA) - Danish Embassy to Indonesia |
| The Role of Danish Authorities | DEPA and DEA will provide relevant staff with the required expertise from the Danish government, which will internationally involve other stakeholders. Denmark and |

| | |
|-------------------|---|
| | <p>Indonesia will provide experts from each country through the ministry or local government. While working with local partners, DEPA and DEA staff will actively participate in workshops, planning, technical matters, and peer-to-peer training.</p> <p>Danish government authorities and institutions in energy and environment will be used during the implementation of the cooperation as needed and must meet specific requirements to be set later. DEA and DEPA will ensure close coordination and collaboration throughout SII implementation. Implementation period from December 2019 to December 2022</p> |
| Expected Outcomes | <ul style="list-style-type: none"> -Local governments have sufficient waste and energy knowledge to begin integrated strategic planning in solid waste management and Waste to Energy (W to E) to identify how the potential for increasing the capacitive power from W to E can reduce fossil fuel consumption and how to integrate it into in the regional network. -The authorities can identify and improve the integrity of economic circulation (CE), solid waste management (SWM), and renewable energy (RE) within the framework of rules and practices that can be seen from policies at the provincial level -Separation, collection and transport of organic waste are improved to take advantage of this extensive waste segregation and improve waste management for waste to energy (WtoE) and sanitary landfill. -Public-private collaboration is strengthened by initiating an assessment of the preparation of funding opportunities for SWM and WtoE. |

Source: processed by researchers from the LoI of Denmark and Indonesia (Partnership Document Denmark and Indonesia, 2019)

One of the implementations is in the practice of paradiplomacy by providing space for employees of the NTB Energy, Resources and Minerals (ESDM) Office to participate in a short course organized by the Danida Fellowship Center (DFC), which manages funds from the Danish Ministry of Foreign Affairs. This program organizes short courses for people from various countries, including Indonesia, represented by NTB. Participants attended lectures at the Danish Technical University. They went to research and

production sites for wind turbines for power plants and the District Heating company that supplies heat during winter in Denmark, which uses renewable energy as fuel (EMR Department of NTB, 2022a). So far, NTB's foreign cooperation with Denmark in energy and the environment has started to work well with the increase in human resource capacity, in accordance with the LoI between the two parties.

NTB's Steps Towards Net Zero Emission in 2050

In addition to collaborating abroad with various countries, NTB took various strategic steps to achieve net zero emissions by 2050. For example, the government's development program mobilizes 'Green NTB' by planting trees in the Sekaroh Forest, a protected forest area in the south. Lombok Island with an area of 2,834 hectares on December 15, 2021. This program is running according to the Regional Action Plan from the Governor's Regulation (Peraturan Gubernur) No. 51 of 2012, which sought to achieve NZE. This program is targeted to reduce the deforestation and forest degradation rate in NTB. This tree planting will be in the NTB area and is targeted to reach 120 thousand hectares (Dinas Lingkungan Hidup dan Kehutanan NTB, 2021). The Green NTB program is an effort by the government and the community to turn bare forests into green again. Several steps that will continue to be taken by the government in realizing Green NTB are Nursery of productive plants of 20,000 Ha/Village/Year in 486 villages bordering forest areas (equivalent to 77,760 Ha until 2023; Rehabilitation outside forest areas from APBD \pm 15,000 hectares; Rehabilitation from APBN/KLHK sources, \pm 9,000 hectares; Rehabilitation from Proposal sources to the Ministry, 10,000 Ha; Rehabilitation from Borrow-to-Use Forest Area Permit Holders (IPPKH), \pm 7,000 hectares; Rehabilitation from Mass Organizations, Students and Private, \pm 10,000 hectares (Dinas Lingkungan Hidup dan Kehutanan NTB, 2018).

Currently, the handling and reduction of waste in NTB have increased by more than 45 percent from the initial condition of 20 percent (SuaraNTB, 2021). NTB also has several other programs that are intensively carried out, such as NTB Zero Waste or Clean NTB, Green NTB, New Renewable Energy and Ecotourism, which also aim to reduce emissions towards NZE. The NTB government is also collaborating with the United Nations Development Program (UNDP) and the Norwegian Agency for Development Cooperation (Norad), running the Ending Plastic Pollution Innovation Challenge (EPPIC)

2021 program. This program collaborates with the Coordinating Ministry for Maritime Affairs and Investment (Kemenko Marves) and is supported by Indonesia under the Secretariat of the National Coordinating Team for Marine Debris Management (TKN PSL) and Archipelagic and Island States (AIS) programs. The Norwegian Ministry of Foreign Affairs explained that the EPPIC program will support the NTB program related to waste management as an effort to realize Net Zero Emission 2050 (UNDP Indonesia, 2022).

In the industrial sector, through the West Nusa Tenggara Industry Office, electric vehicles have been developed and included in the 2019-2023 NTB Industry Office strategic plan to develop new and renewable energy (Dinas Perindustrian NTB, 2022). The purpose of this development is to establish Public Electric Vehicle Charging Stations (SPKLU), which are located in 3 places, namely: Regional State Electricity Company (PLN) Office, PLN UP3 Mataram Office; PLN UIW NTB Office and NTB Governor's Office (Pemerintah Provinsi NTB, 2022). This supports the advantages of NTB as a tourism area that uses electricity, especially at central points such as Mandalika, Gili Trawangan, and other tourism areas.

For new renewable energy in NTB, which PLN currently manages, 39.55MW is sourced from hydro and solar power. In contrast, the potential for new renewable energy in NTB can reach 102.74 MW sourced from water (PLTMH and PLTA), wind or wind. PLTB), solar power (PLTS), biomass (PLTBm) and also ocean currents (PLTAL) (Media Construction, 2021). This is what supports NTB as a pilot for green energy (Suara.com, 2022). Utilizing this new and renewable energy will assist in realizing NZE 2050 with the government's consistency in carrying out various strategic steps. In addition, through the Department of Energy and Mineral Resources (ESDM), NTB and PLN NTB are building a Solar Power Plant (PLTS) on one of the outer islands of NTB, namely Medang Island with 2547 residents. The PLTS, which was built with a capacity of 314 kWp, equipped with a battery with a capacity of 550 kWh and an inverter, the community on the 4.35 km island can enjoy electricity for 24 hours which previously was only 12 hours. This step aims to achieve the new target for New and Renewable Energy of 23 percent by 2025 (Dinas ESDM NTB, 2022b).

The mission of the NTB province to realize NZE 2050 can be seen in the several programs currently being implemented. Apart from the government, actors from various stakeholders, agencies, activists and academics support the low-carbon development model in NTB. The implementation of various programs can be seen, such as planting trees in the Green NTB program, waste management with a zero-waste program to building green energy. Although the implementation will undoubtedly face various obstacles, this effort must be carried out by NTB and all parties, cross-sectoral within the country and paradiplomacy with foreign actors.

Conclusion

Paradiplomacy is very important to facilitate local governments in managing the impacts of climate change today, as West Nusa Tenggara and Denmark have good experience in environmental management to achieve net zero emissions. This is in line with NTB's vision to reduce the impact of climate change with various programs run at this time, it needs the help of other parties, in this case other countries to develop various knowledge, policies, technical capabilities, financing and various other things to address climate change at the regional level because climate change greatly affects the environment at the regional level so that there is a need for foreign and regional cooperation schemes within the framework of paradiplomacy.

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- Government Regulation Number 28 of 2018 concerning Regional Cooperation
- Government Regulation Number 25 of 2020 concerning Procedures for Regional Cooperation with Regional Governments Abroad and Regional Cooperation with Institutions Abroad
- Regional Regulation of West Nusa Tenggara Province Number 3 of 2019 concerning Guidelines for the Preparation of the General Provincial Energy Plan