

Urban Environmental Governance in Indonesia:

An overview

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Abstract—Climate change has called the attention of governments in all parts of the world to better manage the urban environment. This paper aims to provide an overview of the urban environmental governance activities in Indonesia. This study uses a qualitative study through document analysis of the urban environmental governance implementation in Indonesia. The results indicate that there has been a commitment to reduce emissions by the city government in Indonesia. This commitment can be seen in the form of emission reduction policies and collaborative efforts with various parties. However, the supporting devices for low-emission environmental management are not all properly installed. It takes not only collaborative action but comprehensive collaborative action to be able to overcome the problem of climate change in Indonesian urban areas.

Keywords—urban governance; environmental governance; governance; urban

I. INTRODUCTION

Climate change is a problem that is far greater than just ecosystem damage and a threat to species extinction. Water shortages, crop failures and changes in weather patterns as a result of periodic changes from climate change will affect the condition of the people in the world in a relatively faster time. Thus, climate change has consequences that go beyond the environment, politics and science. This will be an economic problem, and most importantly, for a country where poverty is rampant, climate change will become a human security problem.

Science researchers have predicted that Indonesia is one of the vulnerable countries to get negative excesses from climate change [1]. This is because Indonesia is one of the countries that have an annual increase in emissions of more than 5 per cent [2]. The biggest emitters are land use, land use change and forest problems, followed by contributions from energy, agriculture, waste and industrial processes and product use [3]. In Indonesia, climate change has at least been felt to have an impact on the problem of vulnerability to disasters. Data from BNPB shows that around 75% of natural disasters in Indonesia (1990-2016) are climate-related disasters [4]. Whereas many as 31% in the form of floods, 20% storms, 16.5% landslides and 8% drought.

Ratification of the Paris Agreement (Paris Agreement) is one important step to demonstrate Indonesia's commitment to climate change adaptation and mitigation. Indonesia has committed to reducing its emissions by 29 per cent below the business projection as usual in 2030, or by 41 per cent if Indonesia receives international assistance. This commitment is stated in Nationally Determined Contribution (NDC). Reducing emissions according to Indonesia's targets based on the Paris agreement requires great effort and strong commitment, including energy conservation, state forest moratorium, restoring degraded peatlands, and pursuing mitigation measures for other sectors [5].

One of the Indonesian medium-term goals of the climate change adaptation strategy is to reduce risk in urban systems other than agriculture, water resources, energy security, forestry, maritime and fisheries, health, public services, and infrastructure [6]. Rapid urban development has an impact on the environment, in the form of increasing urban emissions from changes in land use and energy consumption. Based on data from the House of Representatives of Indonesian, Energy Commission, 70% of urban pollution comes from transportation, 90% of transportation emissions come from road transportation [7]. Urban emissions are predicted to increase from year to year if not addressed as early as possible. This research tries to provide an overview of the urban environmental governance that has been carried out in Indonesia in response to climate change by reducing greenhouse gas emissions.

II. LITERATURE REVIEW

A. Sustainable Development and Paris Agreement

The three main agenda underlying the climate change mitigation actions are the Paris Agreement, Agenda 2030 for Sustainable Development and the Sendai Framework for Disaster Risk Reduction. It has become a common agreement that climate change is one of the biggest threats to sustainable development [8]. Climate change is one of the major political and social issues. The magnitude of the threat of climate change has put climate change as one of the points of the SDGs (goal no. 13). Attention to climate change is based on the awareness that this action has an important role to play in the successful implementation of the SDGs on other points. From the 17 SDGs point, 12 objectives have climate-related

targets, which are related to energy, forestry, food security and education issues. Therefore, urgent action to mitigate climate change and deal with its impacts is an integral part of the successful implementation of the Sustainable Development Goals. Simultaneously, the implementation of the SDGs was support for the success of the implementation of the Paris Agreement.

The Paris Agreement was formed based on a convention to bring all countries to the same goal in making efforts to combat climate change and adapt to its effects. The main objective of the Paris Agreement is to strengthen the global response to the threat of climate change by keeping global temperature increases below 2 degrees Celsius and to strengthen the ability of countries to deal with the effects of climate change [9]. Weather patterns changes, sea levels rising, extreme weather and greenhouse gas emissions are currently at the highest level in history. In 2017 the concentration of CO₂ in the atmosphere reaches 405.5 parts per million (ppm). This figure increases when compared to the findings in 2016 of 403.3 ppm and 2015 amounted to 400.1 ppm [10]. In Indonesia, the highest GHG emissions occurred in 2006 with a total of 1.5 Gt CO₂-e, and the lowest occurred in 2001 with a total of 0.8 Gt CO₂-e [11]. In general, emissions from biological oxidation of peatlands are the largest source of emissions. The three provinces that have the highest emission average are Riau, Central Kalimantan and Papua. Without action, the surface temperature of the world average is likely to exceed 3 degrees Celsius. Low-economic people will be affected more by this. Therefore, proper financial flows, new technology frameworks, and capacity building frameworks must be carried out to support the actions of developing countries and the most vulnerable countries, in line with their own national goals. This agreement also provides increased transparency of actions and support through a stronger framework. Climate change is a global challenge, this is a problem that requires solutions that need to be coordinated at the international level to help developing countries move forward. To strengthen the global response to the threat of climate change, countries adopted the Paris Agreement at COP21, which came into force in November 2016. Under the agreement, 195 countries agreed to work to limit global temperature increases to below 2 degrees Celsius. With the existence of the Paris agreement, of course, it is expected to be able to better overcome and accelerate the achievement of sustainable development in Indonesia.

B. Urban Environmentally Governance

Climate change is an environmental problem in which city governments are required to take an important role in it [12]. However, climate change mitigation efforts are often challenged by the inability of the government to control the climate change. Especially in the era of liberalization and privatization [11]. Conceptually, Lemos and Agrawal describe environmental governance as a series of regulatory processes, mechanisms, and organizations where political actors influence environmental actions and outcomes [13]. Furthermore, they explained that environmental governance consists of international agreements, national policies and legislation, local decision-making structures, transnational

institutions, and environmental NGOs. The concept of governance, in the context of climate change mitigation, placing the private sector, to be actively involved in reducing greenhouse gas emissions, is not only hiding behind the government [14].

III. DISCUSSION

A. Indonesia Commitment to Cope with Climate Change

Indonesia is one of the countries committed to international climate change mitigation efforts. Evidence of Indonesia's commitment is to ratify international climate change agreement documents. In 1994, Indonesia ratified the United Nations Convention on Climate Change through Law No.6 of 1994. Ten years later, in 2004, Indonesia also ratified the Kyoto Protocol through Law No. 17 of 2004. For more than a decade, the global climate only binds developed countries to reduce emissions and other developing countries are only voluntary bases. Since 2015 the Paris Agreement has been agreed to place all countries on a platform of mutual commitment to tackle climate change. Although the principle of Common but Differential Responsibility-Respective Capabilities (CBDR-RC) remains in force. Given the differences in conditions between developed and developing countries, both in terms of economics, technology and human resources.

Climate negotiation or the 21st Conference of Parties (COP) of the UN Framework Convention on Climate Change (UNFCCC) took place in Paris from 30 November to 13 December 2015. This meeting was historic that agreed on a legally binding agreement. The Paris Agreement is supported by at least 195 countries, including the two largest carbon producing countries, the United States and China. Indonesia as one of the countries supporting the conference has prepared a document regarding the planned emission reduction contribution, known as the Intended Nationally Determined Contribution (INDC). Through Law No. 16 of 2016, Indonesia expressed readiness to increase the target of reducing greenhouse gas emissions. Indonesia committed to reducing emission from 26% to 29% in 2030 by using its efforts. The emission reduction effort will become 41% if there is international cooperation from business as usual and achieved by 2030. All the efforts will be achieved through the forestry sector, energy including transportation, waste, industrial processes and product use, and agriculture. The INDC strategy approach is based on four principles, namely using a landscape approach, highlighting the best practices, incorporating the climate agenda in development planning and promoting climate resilience related to food, water and energy [15].

Indonesian NDC has advantages over other countries because Indonesia wants balanced adaptation and mitigation, while other countries only focus on mitigation. Indonesia gives a picture to the world that this country has a distinct geographical and environmental. Adaptation is important for Indonesia because this country has the second longest beach after Canada. Besides, Indonesia is an archipelago that has many small islands. From the predictions of the Ministry of Maritime Affairs and Fisheries, up to the end of this century,

1,500 small islands have been sunk by rising sea levels due to climate change. Therefore, a combination of adaptation and mitigation is important.

B. Urban Environmental Activities in Indonesia

1) Employing a landscape approach into urban planning:

Related to efforts to mainstream climate change in national spatial planning, one important strategy is to ensure that spatial planning has considered climate change and is sensitive to climate change. It is expected that the regional spatial plans that have been established can encourage efforts to reduce regional risks to climate change, both through efforts to reduce vulnerability and increase regional capacity in dealing with / adapting to climate change. In the 2012-2020 Ministry of Public Works Ministry's National Action Plan document, efforts to adapt to Climate Change in the field of spatial planning are more focused and directed at identifying cities that are vulnerable to Climate Change. In this area, assistance will be provided in the preparation of the Spatial Detail Plan. The strategies for spatial planning to deal with climate change include: identification of urban areas experiencing the effects of climate change, mainstreaming city concepts and the role of communities that are resilient to the effects of climate change (Climate Change resilience), institutional capacity building and change mitigation and adaptation networks climate, providing access and processing of data and information related to climate change to spatial planning.

Until now, the preparation of the city spatial plan in Indonesia refers to Law No. 26 of 2007 concerning spatial planning which later became the basis for formulating action programs such as providing access and processing of data and information related to climate change to spatial planning, space planning, space utilization, space control, increasing institutional capacity and fostering spatial planning and supervision. However, in the implementation, there are still much space uses that are not by the plan and increase the rate of pollution. For example, in Bandung City, where the Puncut Dago area which was supposed to be a water catchment area was instead used as a residential area, which was marked by the widespread development of villas in the area [16].

Facing the inconsistency of spatial plans and their implementation in climate change adaptation, the future steps of the government are: (1) Increasing the availability of climate change projection data on an adequate scale especially at the City and Household levels; (2) Increasing the availability of maps of Disaster Prone Areas that have considered projections of climate change; (3) Climate Change Adaptation (API-PRB) convergence in the context of guidelines for disaster risk assessment; (4) Improving the quality of climate change risk studies and supporting integration into spatial plans; (5) Strengthening the capacity of officials in the field of Climate Change Mitigation and Adaptation through Spatial Planning; (6) Evaluating and integrating the draft Guidelines for Spatial Planning Based on Disaster Risk Reduction (PRB) and Guidelines for Integrating Climate Change Adaptation (API) into Spatial Planning; (7) Develop standards and tools to assess the responsiveness of

spatial plans to "Loss and Damage", and become part of the evaluation process in granting substance approvals to regional RTRs.

2) Highlighting existing best practices: Climate change mitigation and adaptation is a big job where the government cannot work independently to solve the problem of climate change. The role of multi-stakeholders is needed in this effort. It was realized that implementation by involving multi-stakeholders was a big peer in its own right. Until now there are several models of mainstreaming success practices, namely increasing community participation and cooperation with non-governmental parties.

One of the efforts to increase community participation in reducing the impact of climate change is ProKlim (Climate Village Program). The Climate Kampung Program (ProKlim) is a national-scale program developed by the Ministry of Environment to encourage active participation of the community and all parties in implementing local actions to increase resilience to the effects of climate change and reduce GHG emissions. The ProKlim Implementation refers to the Minister of Environment Regulation Number 19/2012 concerning the Climate Village Program. Adaptation and mitigation efforts to climate change in ProKlim locations can be in the form of (1) control of drought, floods and landslides; (2) increasing food security; (3) control of climate-related diseases; (4) handling or anticipating sea level rise, rob, seawater intrusion, abrasion, ablation or erosion due to wind, high waves; (5) waste management, solid and liquid waste; (6) processing and utilization of wastewater; (7) the use of new renewable energy, conservation and energy savings; (8) agricultural cultivation; (9) increase in vegetation cover; and (10) prevention and control of forest and land fires. In the 2015-2018 period, KLHK has received 1,566 ProKlim registrations, of which 137 have received ProKlim awards. The ProKlim award is awarded to regions that can implement activities to increase the adaptation capacity of the community in dealing with climate change and contribute to reducing GHG emissions at the site level.

The implementation of the collaborative governance concept has been exemplified by several cities in Indonesia, such as Surabaya and Makassar. One of Surabaya City's efforts to reduce greenhouse gases is through waste management by involving Kitakyushu, Japan as its partner. Through the scheme of Sister City cooperation between Surabaya and Kitakyushu in 2012, relations between the two cities continued to develop. One of the scopes of cooperation that exists between Surabaya and Kitakyushu is the re-management of waste to create a low-carbon society. Through the collaboration of Green Sister City, the Kitakyushu government helped Surabaya in tackling the waste problem. Waste that continues to accumulate in Surabaya and not managed causes the garbage in Surabaya to be mixed between dry and wet waste. Through the collaboration of Green Sister City with Kitakyushu and with JICA's assistance, Surabaya received assistance from a foreign company, Nishihara Corporation to handle the waste problem. The cooperation in the waste handling project through composting has succeeded in reducing more than 20% of waste in the city of Surabaya

and also succeeded in providing benefits in the economic field to the citizens of the city that have been replicated in various cities in Indonesia, the Philippines and Thailand.

Makassar Green and Clean (MGS) is a collaborative action between the Makassar government and PT Unilever in reducing emissions. Green and Clean initiated by the Unilever Indonesia Foundation is a community-based environmental program that aims to change the general paradigm in handling environmental issues including domestic waste, in the hope that the community will become more independent and act as agents of change. After the establishment of the MGC program, the trend of the Makassar Green and Clean Movement has grown rapidly in Makassar. The movement continued the spirit of the position of the Clean Makassar Movement launched by the Makassar city government in 2004. Until April 2009 MGC had penetrated in 143 villages and 900 RWs in the city of Makassar, where all programs launched in Makassar tried to rebuild the positive impression of the community about MGC.

IV. CONCLUSION

The results of the study indicate that regional readiness and strategy in Indonesia in implementing climate change adaptation and mitigation vary. To achieve its national climate targets, Indonesia needs to give priority to the implementation of policies in the land and energy sector and start thinking about more ambitious climate change mitigation policies. The prerequisite for achieving this strategy is transparency and good governance. The understanding that climate change is a cross-sectoral and multidimensional issue will enable better vertical and horizontal collaboration. Not only between government agencies, but also in collaboration with business people and civil society. In the end, an approach that prioritizes commitments to act, institutes climate change mitigation efforts at national and local levels, and builds real collaboration to tackle climate change can produce real progress, and puts Indonesia as a leader in building a sustainable economy.

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