Excluding from Governance? Coastal Community Role in Changing Climate Governance in North Pekalongan, Central Java, Indonesia

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Abstract. This study aims to explore coastal community role in climate change governance in North Pekalongan. As a group that most affected by climate change in Northern Java Island, coastal community are often not given a role in development. Using qualitative method and Anthropology of Policy approach, this research shows that most the effort made by the Government to tackle climate change were misunderstood by the community, therefore, they have their own way to response to climate change.

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1 Introduction

As the largest archipelago country, Indonesia consists of 18,108 islands, 2.8 million square kilometers of water, and 1,8 square kilometers of land. This uniqueness of geographical conditions, according to Cribb and Ford [1], is a challenge for governance in two forms; first, the sea creates a special challenge of communication, coordination, and even identity. Second, the seas that lie between and around islands need to be governed as well. On the flip side, the challenge for the Government of Indonesia is not only from the geographical conditions but also in terms of climate change.

Zikra *et al* [2] mentioned there are at least three severe climate challenges faced by Indonesian coastal areas; a. Rising sea level, b. Rising wave height, and c. Increasing seawater temperature. Those three environmental changes will surely be impacting the ecosystem below, and outside the water, especially for the coastal communities on which their life depends on the sea. Thomas *et al* [3] already mentioned several vulnerabilities faced by many social groups amid climate change, among others:

A. Access to resources: climate change can widen the inequality gaps, especially in terms of access to vital resources such as water, sanitation, or land. In the end, this will lead to an increase in poverty gaps, power differentials, and gender inequality
B. Intertwined governance: climate change often creates collaborative governance, for local communities, and this sometimes creates confusion on who is the one who taking charge. This also harms the already established engagement between local-central governments.
C. Culture and knowledge: as an actual issue, a conversation on climate change can become a "new topic" for local communities. On the other hand, climate change can also contribute to the vanishing of local knowledge and indigenous traditions [3].

Fig. 1. Severe Sea Level Rise in Northern Pekalongan

This article then focused on how local communities around the coastal area in Pekalongan City understand and respond to the immediate impact of climate change. We are using the Anthropology of Policy perspective to uncover the interplay between policy implementations and institutions, cultural norms, or local practices. We also analyze the ways policies are contested, resisted, or negotiated by various stakeholders [4]. This approach also offers a holistic view of governance as a cultural process instead of an isolated process [5].

2 Research Method

This study adopted a qualitative approach to examine how local communities respond to climate change problems. As for the data gathering process, we interview related government units such as Regional Planning Agency (BAPPEDA), sub-city government unit (Kelurahan Kandang Panjang), and local stakeholders. We also observe how local citizens responded to several policies implemented by the government. In addition, we also gather insights from government planning documents as our secondary source of data, both from BAPPEDA or NGOs.

3 Results and Discussion

3.1 The Official Program

Since 2016, Pekalongan City Government has initiated a collaboration with several NGOs to tackle climate change issues, namely with Kemitraan Partnership and Adaptation Fund. This collaboration is an effort made by the Pekalongan City Government to escape from the rigid bureaucracy of the planning and development process. By collaborating with third-party organizations, the effort to precisely respond to climate change issues is implemented correctly. After four years of collaboration, Adaptation Fund finally create a set of programs that can be categorized into three categories: 1. Infrastructure development, 2. Strengthening social institutions, and 3. Increasing livelihood quality, the general overview of the implemented programs is presented below (Table 1).

Table 1. An Overview of Programs Offered by Adaptation Fund for Climate Change Problems in Pekalongan City [6]

Safekeeping

Enhancing protection along the coastal line of Pekalongan City.	6 kilometers of Mangrove Ecosystem Established.
	300m Parapet at Slamaran Beach in *kelurahan* Degayu constructed.
	Coastal embankment (geo-tube/sand trap) at Kandang Panjang established.
Surviving	
Enhancing coastal community capacity in developing and implementing Local Climate Change Adaptation Action Plan (RAD-API), climate change information system, and Climate Smart Initiative.	Pekalongan City Climate Working Group reactivated.
	Climate working group established and functioning in each of the 8 target *kelurahan*.
	Enhancing coastal community capacity in developing *kelurahan's* information system and implementing the ensuing climate change adaptation actions.
	Engaging youth groups and building their capacity to become Agents of Change in climate change adaptation actions of Pekalongan City.
	RAD API was developed based on Pekalongan City Climate Risk Assessment and Climate Coastal Impact.
	Strategy to integrate CCA into the local government planning process (annual work plan or mid-term development plan of the city) is developed.
	Innovative and collaboration adaptation actions are implemented in collaboration with the private sector, Government bodies, and NGOs, and also evaluated for future reference.
	Climate change training and knowledge sharing conducted.
	Knowledge product, Advocacy materials published and shared.
	Local knowledge-sharing network established.
Strengthening vertical coordination by enhancing the provincial government's capacity in mainstreaming climate change	Enhanced provincial capacity to develop RAD API.
	Appropriate strategy to integrate CCA into the Provincial government planning process is developed.

adaptation and resilience into the Central Java Province development plan.	
Strengthening vertical coordination and collaboration between national and local government in climate adaptation.	Knowledge product in the form of a Handbook on how to use SIDIK for risk assessment in coastal cities, targeted for local government, NGOs, and civil society organizations.
	Strengthened vertical coordination and collaboration between national and local governments.
Sustaining	
Improving community resilience through the initiation of alternative livelihood and improvement of sanitation facilities.	Aquafarming in the mangrove ecosystem was developed and implemented by the community.
	Mangrove ecosystem improved and involved wider participation of the affected coastal community of Pekalongan City.
	Improved cultural economy through the application of ecological batik using mangrove-based coloring products.
	Improved food security through the application of urban farming as an alternative to the conventional agriculture process
	Developed circular economy through the initiation of an integrated waste management system and processing.
	Improved sanitation facility in 8 target *kelurahan* to mitigate risks of waterborne disease.

	: Infrastructure		: Institutions		: Livelihood

3.2 Communities Knowledge and Asymmetrical Response

While the programs mentioned above are implemented in almost all *kelurahan* in Northern Pekalongan, the communities respond in a somewhat unusual manner. This is what we called by an asymmetrical response by communities. There are two types of asymmetrical responses that we found.

Fig. 2. Fishing as part of Diversifying Livelihood

First, in some infrastructural development efforts made by the government, the local community saw it as a new source of income. For example, in Kelurahan Kandang Panjang, the government built a coastal embankment, which made the water calmer on the land bay area, this is seen as an opportunity by the local community to fish and to selling boat services for those who want to fish at the middle of the bay. Some of the embankment land is also created as a recreational spot by the local community (Fig. 5). While the infrastructure development effort leads to new sources of income and recreational spots, the programs that are intended to increase livelihood levels are unsuccessfully implemented. Most of the livelihood programs center around mangrove optimization, as the sea level rise increase at a faster pace, the mangroves are not strong enough to withstand the rate of sea level rise. Even in Mangrove Park (Fig. 4) at Kelurahan Kandang Panjang -which is plotted to be the center of mangrove nurseries and development- the number of surviving mangroves is less than 10 square meters (Fig. 3). Instead of seeing Mangrove Park as a conservational place, local communities see it as a new fishing ground, as they feel safer and no one will chase them when fishing. To simplify, we present the asymmetrical response in the table below:

Table 2. Government Programs and Community Response

Program	Asymmetrical Response
Enhancing protection along the coastal line of Pekalongan City.	The embankment contributes to the calmer water in the bay area.

Coastal embankment (geo-tube/sand trap) at Kandang Panjang established. 6 kilometers of Mangrove Ecosystem Established.	Local community saw it as an opportunity to fish, and to sell boat services. Some of the embankment areas are becoming a new public space.
Improving community resilience through the initiation of alternative livelihood and improvement of sanitation facilities. Aquafarming in the mangrove ecosystem was developed and implemented by the community. Mangrove ecosystem improved and involved wider participation of the affected coastal community of Pekalongan City. Improved cultural economy through the application of ecological batik using mangrove-based coloring products.	As the sea level rise at an alarming rate, the mangrove cannot keep up with the rising water. Local communities did not see mangroves as a source of income. Mangrove Park become a new fishing ground.

Fig. 3. Some of the Last Remaining Mangrove

Fig. 4. Pekalongan Mangrove Park as a New Fishing Ground

Fig. 5. A Local-Initiated Land Embankment for Bird Contest

4 Conclusion

While an effort made by the government and NGOs is already comprehensive in tackling climate change issues at Pekalongan City, at the local level, the communities are still clueless about what their lives would be like amid rampant climate change impact. Moreover, some of the livelihood improvement programs were not specified to the needs of the local community where mangrove is non-existent. In response to a such miscalculated program, local communities create their own way-out, out by diversifying their livelihood tailored to the already implemented program. The Government of Pekalongan City needs to be more specific and dynamic in conducting development programs that meet the needs of the local community.

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