

Direct public engagement of the disaster management agency in Meranti Islands Regency in responding to peatland disasters

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Abstract. Disaster studies are interesting studies that will always require dynamic changes, but local governments must be able to provide good policies. With system replication, disasters are downstream but must be accompanied by upstream problems which become the basis for being resolved early. With the policy of separating government affairs in responding to public problems, between the central government and regional governments, the public administration system will be better. The locus of analysis in this article is the Meranti Islands Regency in Riau Province, where almost more than 70% of its territory is peat area. From 1998 until its peak in 2015, the supporting factors were the climate which caused long droughts, and also the habitual pattern of burning land which caused forest and land fires in peat areas that were difficult to extinguish, resulting in a haze disaster that spread to neighboring countries, namely Malaysia and Singapore. Based on this experience, the regional government replicated the application-based satellite system public service innovation to detect disaster points, with the hope of being more responsive so that it can respond earlier to disasters in Meranti Islands Regency. The Regional Disaster Management Agency (BPBD) of Meranti Islands Regency realizes that geographically it is difficult to reach disaster points in this region because this district consists of several islands and access to reach these areas takes quite a long time.

1 Introduction

The success of disaster management is influenced by mitigation and disaster preparedness that consists of socialism, contingency planning, training and training, and simulation [1]. Improving social function is a prayerful effort in mitigating a disaster, the presence of social capital of the community in supporting disaster mitigation efforts with the government [2]. Because ultimately building disaster resilience and social justice is something that must be present in every phase of disaster management [3]. Solid acceleration and cooperation are needed in creating and responding to a disaster between government and society. Because

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the policy that needs to be in post-disaster recovery will be more complex because it will relate to land administration, private entities, and climate change-related issues [4].

Disaster is an issue that is very close to climate change, where disasters are no longer caused by changes in nature but cannot be separated from human intervention. One of the impacts of a disaster that cannot be mitigated is that it causes vulnerability [5]. Handling unfavorable situations in a situation that experiences vulnerability must depart from previous experiences [6].

This article is the outcome of research that has been undertaken since 2022, with the place of analysis in this article being Meranti Islands in Indonesia's Riau Province. Almost all of the land in Meranti Islands is subject to forest fires and land, however unlike other Riau districts, where the main commodity is Sagu with an area of 40.186 Ha. Canals, like other land places, are created to prevent the incidence of wildfires and land and innovation to identify point of fire.

The concept of decentralization through local governance can enhance the role of local communities. In order to successfully implement decentralization, local governments have to collaborate with other levels of government, both vertically and horizontally, as well as with business companies and non-governmental organizations (NGOs). The success of decentralization can be seen from the success of institutions [7]. Since 2007, the National Disaster Management Agency (BNPB) has been in responsibility for disaster affairs, having a mandate to the government of the provinces, districts, and cities to act as leader at all key times in the case of a disaster. To achieve this goal, the quality of human resources has a significant impact on disaster management for local governments [8].

Land conversion is high, and land clearing by burning is a costly method that is often chosen because of its low cost [9]. In the last 30 years Indonesia's lowlands have experienced degradation, deforestation and fires. Companies do have a responsibility for fire management, but the interventions provided to companies have not guaranteed success. The lack of success in managing is due to the contribution and political economy to this problem is not an important issue [10].

Innovation for disaster response in Indonesia has been growing in various areas. One example is the development of *Simpul Pena*, an information system for disaster management control and operation center. This innovation has been effective in improving disaster management and increasing community participation through integrated and coordinated services. Another area of innovation is the application of a gender-based approach in spreading disaster preparedness information, particularly empowering women in disaster affairs [11]. Fiscal policy through tax instruments has also been explored as a potential innovation for financing disaster insurance and attracting community participation. Additionally, models for determining natural disaster insurance premiums with a subsidy and tax system have been developed, considering the level of risk distribution and economic losses. Lastly, there is a need to better utilize the potential of Indonesian youth and young professionals in disaster risk reduction through platforms like U-INSPIRE, which mobilizes their engagement in innovation, science, and technology for resiliency [12].

Local governments must have the ability to identify at times of threat, vulnerability and capacity of society. In the year 2022, the Meranti Islands District Government created a digital application to signal the presence of a fire point. Computer engineering (IT) can help generate information to make more comprehensive decisions in anticipating a disaster. Geographically seen in the following map is the region of the Meranti Islands district.



Fig. 1. Meranti Islands Gambut Land Zone Map.

The Meranti Islands are made up of various islands, with three notable ones being Padang Island, Tebing Tinggi Island, and Rangsang Island. And the territory of the dwarf is marked on the map with the color red. Inter-insular travel is difficult due to inter-island traffic limitations. Geographics like these must have their own set of issues. Land, like two sides of a coin, may be a disaster if not protected and can provide a variety of benefits if properly managed. One of them is the critical function of land in climate change [13].

Turmudi findings are still included in the article Almost the entire Gambut land in the district of Kepulauan Meranti was subsidized or decreased in land value. The difficulty is that the government must continue to ensure that the economies of the people in and around the cluster stay active, as well as the culture provided by the community. Almost the entire Gambut land in the district of Kepulauan Meranti was subsidized or decreased in land value. The difficulty is that the government must continue to ensure that the economies of the people in and around the cluster stay active, as well as the culture provided by the community.

The Riau Province Public Service Innovation Network (JIPP) was established in 2021 by the Ministry of State Apparatus Public Information and Bureaucratic Reforms (Kemenpan-RB) Indonesia. The JIPP provides training and assistance to the Riau Provincial Government and the Government of the entire district/city in Riau in the preparation of replications of public service innovations. The Riau Islands district's Regional Disaster Management Agency (BPBD) is responsive by developing accessible software tools and applications. Because it is difficult to travel from one location to another, it provides information more quickly.

The Android-based Disaster Management Information System (SIAGA) is an application that can be scanned using mobile phones. The Meranti Islands district local government (BPBD of Meranti Island District) recognizes that, in addition to the flammable land that causes the smoke fog disaster, another disaster is abrasion, and that all of the disaster conditions are very difficult to access because each district/island does not have a command to respond faster to disaster in terms of budget or activity. Because geographically crossing directly with the State of Malaysia, the repercussions of the tragedy that happened in the island district of Meranti one of its up to the neighboring country.

An intriguing pattern is that the local government has recognized the necessity not to solve public problems as a single actor; indirectly, this application involves a community not simply a community group formed to respond with a response is a Fire Care Society (MPA). This direct public involvement will aid in the dissemination of knowledge in disaster-prone areas, disaster prevention, disaster preparedness, and disaster alleviation.

2 Method

This article is the results of an analysis carried out through gradual actions using qualitative approaches, with data collecting done using a variety of technical means and including the actors who impact the conclusions of this research's analysis. This research is founded on epistemological assumptions in the paradigm interpretivism and ontologically, in accordance with the philosophy of science in research technique. Data must support phenomena, according to the concept of ontology itself.

The data generated in this article was obtained from interviews, literature studies and also conducted Focus Group Discussion (FGD) involving academics, the Bureau of Organization and Executive Administration of Riau Province, Bureau of Organisation and Government of Meranti Islands District and BPBD Meranti Islands District. The attempt to connect every role in preventing and mitigating disasters is the aim of the presence of the SIAGA Application. However, in this forum FGD itself is not only pointed to the BPBD district of Meranti Islands only, but also the Government of the Meranti district to see the commitment it has to realize public involvement directly.

3 Results and discussion

The haze disaster in Indonesia is a concern for international actors, because of the impact across national boundaries. After 20 years of operation, AATHP has not had a significant impact, Indonesia is still a contributor to air pollution from haze on the island of Sumatra and in Indonesia [14]. Several publications stated that the land conversion that occurred in Riau Province was also inseparable from companies with owners from Malaysia and Singapore. In retrospect, the current oil palm plantation land concessions began during the New Order government of 1982-1983 and 1997-1998 which provided opportunities for palm oil concessions for domestic and domestic and foreign investors [15].

The institutionalization of disasters caused by forest and land fires will capture the organizations in contact and coordination (local government), policy implementation, the role of the Ministry (central government), social norms and patronage networks [16].

Local government responses to disasters in Indonesia vary in terms of speed and effectiveness. Local governments in Indonesia have considered disaster risks to be an important factor in allocating budgets for disaster mitigation, but more than 50 percent of them allocate less than the required amount [17]. The government's response to disasters is often slow, ineffective, and chaotic, creating a "gap" between their preparedness and the expectations of disaster victims [18]. Local government capability in managing disasters is crucial, including institutions, human resources, policy making, finance, technical capacity, and leadership [19]. Collaborative leadership and building trust between local government and other organizations contribute to successful disaster response and recovery.

Meranti Islands district as seen in figure 1, that has something geographically special. The actors involved are centrally located in one place, the Long Strait, as the capital of the Meranti Islands district. Here's the identification of the actors who are directly involved in disaster management.

Table 1. Actors involved in disaster management in the Meranti Islands.

No.	Actors	Functions	Position
1.	BNPB	National Disaster Coordinator who mandates the local government	Coordinator
2.	Regent of Meranti Islands District	Meranti Islands Regency's chief policymaker and person in charge	Responsible
3.	Bureau of Organization and Administration of Meranti Islands District	Mission to accompany the Meranti Islands District BNPB to create Innovation Replications in meeting challenges in disaster management.	Associate (Specialized in Public Service Innovation Replication)
4.	BPBD of Meranti Islands District	Responsible for prevention, redress and in the event of disasters occurring in the territory of the Meranti Islands.	Implementor
5.	Academy	Promoted through the Ministry of State Apparatus Public Information and Bureaucratic Reform (Kemenpan-RB) in the field of Public Service as an accompanist in replication of public service innovation.	Facilitate in the creation of a SIAGA Application Innovation by the BPBD of Meranti Islands District.
6.	Masyarakat Peduli Api (MPA)	A community that has been formed since 2013 to help in a time of smoke haze disaster caused by forest and land fires.	Probate on the Job.
7.	Society	Currently with the presence of any application involved or participating, as the initial gateway information if a fire point is detected in the land of the forest.	Disaster point information provider

Based on table 1, which is the identifying result of this article's analytical procedure findings. Because disasters are not natural, engaging the public in disaster management is an essential response, but it must be effective. If disasters cannot be avoided, disaster preparation and management, as well as the actors' participation, will help reduce the impact of economic, social, and political losses that have already been impacted by climate change.

The ideal in a disaster management is that the more actors involved in the management of disasters, then will give the influence associated with preparedness in the face of a catastrophe. Leadership will make its greatest contribution to the active process of all public actors involved in disaster situations in terms of being able to survive in difficult circumstances, and able to establish networking.

The presence of agile leaders will then be able to produce priorities of action: investment in disaster risk reduction for resilience, increased disaster preparedness for more effective response, rehabilitation and construction. Meranti Islands District Governor who is present as one of the actors in an effort to encourage the BPBD of Meranti Island District to create an Android-based application namely SIAGA and SIAGA Website (siaga.merantikab.go.id) following the appearance of SIAGA website.



Fig. 2. SIAGA's website display.

Figure 2 shows forms of public participation spaces that are accessible as a form of public involvement in disaster management. The fact is that when accessed on the website can not open up-to-date information. Of course, these findings do not perfect the spread of actors in disaster management in the Meranti Islands district even though applications or replications of Disaster Innovation have been made. The thesis is whether the limits of knowledge and the ability of the community or the culture of the local government organizations give the functional limitations.

Without enabling network governance, the network and the development of trust across network stakeholders could never develop into multi-stakeholder management structures [20]. In order to make network governance work for forest land-use management by local governments for forest land-use policy, the network must be administered collectively rather than by the controlling authority. Furthermore, management must be diverse, and the controlling authority must not be confused when working with non-governmental organizations (NGOs). Overall, the goal should be to ensure that the network is managed as envisaged and to establish the circumstances for the formation of a governance network for forest land use policy.

The impact is that when disaster mitigation on land is not observed, it is damage to land itself, and also causes climate change. Approximately 90% of the Meranti Islands region's territory has been subsidized. The subsidy reaches roughly 1 meter in the research area that symbolizes the Meranti Territory. Up to 25 years ago, the expected rate of subsidy lasted 14 years. Efforts must be made to control the rate of subsidies by referring to government regulations that require cotton areas with a thickness of more than 3 meters to be used for conservation. To cultivate plants devoted to the cultivation of endemic plants such as shrimp, sagu, pine, and others, keep an eye on the lives and livelihoods of local its citizens.

The form of public Engagement created by the local government in the Meranti Islands has been good enough, aware of the constraints of inter-island transport and difficult access. However, it should be noted that in the management of the local government should pay attention to the capacity of the regional government itself. Capacity is not just about the capacity and human resources to be implemented, but there are more complex things that local governments need to understand in a disaster management. Completing complex tasks requires the ability of a wide capacity. Capacity is the ability of an organization to change and develop rapidly essential prerequisites forining a competitive advantage [21].

Capability of local government can supports public engagement, but local governments must understand how to give authority to the authorities or actors responsible, not just to give

function to perform their roles and to report. Public engagement is not as simple as participation, multi-sectoral and support of the head of the district but speaking of the authority given so that the function of the capacity can form a system that has authority [22]. Applications may meet the challenge of digitalization 4.0 but disaster management with a pattern of public involvement does not just need an application that is even imperfectly accessible.

One thing that should ideally be present in a disaster management to support is the presence of the media [22]. The media is not directly involved in disaster management functions in Meranti Islands, so the form of public involvement is only partial of the public sphere and the public involved even under Law No. 24 Year 2007 on Disaster Management.

4 Conclusion

The local government in the Meranti Islands has not fully granted full authority in every actor to implement disaster management practices. The BPBD as a central actor responsible for disaster management itself will not be able to solve disaster problems on its own. Because the disaster on the ground is influenced by previous factors including the economic cycle and the subsequent impact of climate change. The limitations of this article have not been covered in relation to how the usefulness of this SIAGA application is described and given the contribution of the public to be a source of information.

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