

Original Article

Model Collaborative Governance Preparedness Disaster's in Indonesia (Colgopredi)

Evi Yunita Kurniaty^{1✉}, Walid Musthafa Sembiring², Ira Rizka Aisyah Lubis³, Maksun Syahril Lubis⁴, Adam⁵, Miftahul Husna Siregar⁶

^{1,2,4,5,6}Medan Area University, Faculty of Social and Political Sciences

³Universitas Sumatera Utara

Correspondence Author: eviyunita@staff.uma.ac.id

Abstract:

Indonesia is a country with a high level of disaster vulnerability, so disaster preparedness is a strategic agenda in national development. However, the complexity of disaster management often faces obstacles to coordination between stakeholders, including government, civil society, the private sector, and international organizations. This research uses the Collaborative Governance Preparedness Disaster's Model in Indonesia (COLGOPREDI) as an innovative approach in building collaborative governance-based disaster preparedness. This model emphasizes synergy across actors through the principles of participation, transparency, accountability, and strengthening local capacity. COLGOPREDI is designed to strengthen communication networks, coordination mechanisms, and a clear division of roles in the disaster management cycle, from mitigation, preparedness, emergency response, to recovery. The study results show that the implementation of this model has the potential to increase the effectiveness of disaster response, accelerate recovery, and encourage community resilience. Thus, COLGOPREDI can be a conceptual framework as well as a collaborative governance practice that is relevant in the context of disaster management in Indonesia.

Keywords: Collaborative Governance, Disaster Preparedness, Risk Management, Community Resilience.

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Introduction

Indonesia is one of the countries with the highest level of disaster vulnerability in the world, (Syukri et al., 2025). The geographical location in the Ring of Fire, (Hidayat, 2020) geological conditions, (Bahagia et al., 2025) and tropical climate characteristics make Indonesia prone to various types of disasters, ranging from earthquakes, tsunamis, (Abuhammad et al., 2024) volcanic eruptions, floods, landslides, to forest fires and climate crises, (Hidayat, 2020). This diversity of disaster types requires a disaster management

governance system that is not only responsive, (Subanda & Kirana, 2024) but also based on integrated and sustainable preparedness, (Lestari et al., 2024).

So far, disaster governance in Indonesia has progressed through the establishment of the National Disaster Management Agency (BNPB) and BPBDs at the regional level, (Komedi et al., 2025). However, major challenges still arise regarding cross-sector coordination, multi-actor involvement, (Garcia et al., n.d.) and the effectiveness of policy implementation in the field, (Sabarna & Ramdani, 2025). The fact shows that disaster management is often still reactive, fragmented, and has not fully involved non-government actors, such as academics, civil society, the business world, and the media, (Jati et al., 2025).

Models are defined in an abstract form of reality, (Syafriyani & Safitri, 2025). Silalahi defines a model as a container that describes a situation or set of circumstances so that the behavior found can be explained, (Basyar et al., 2025). Models are inferences from real systems that we can organize in various forms, (Rohman et al., 2024). The model replaces the theory, but when there is already a theory used as a model, (Rohman et al., 2024) it is an improvement on the model, (Nurhaeni et al., 2024). Meanwhile, model development is an activity in obtaining a new model that has advantages in several ways, (Rahmah et al., 2024).

The Collaborative Governance model by Ansell and Gash is used by research as an “analysis knife” to answer the problems in this study, (Rohman et al., 2024). According to Ansell and Gash's model, there are four indicators for organizing collaborative governance, namely starting conditions, collaborative process, (Yull & Mulyani, 2024) institutional design, and facilitative leadership, (Subanda & Kirana, 2024). The core of this model is the process indicator, while the other indicators contribute significantly to the collaborative process, (Abuhammad et al., 2024).

Figure 1.1 The following is the Collaborative Governance model initiated by Ansell and Gash

Figure 1.

Model Collaborative Governance Ansell dan Gash (2017), (Ansell & Gash, 2018)



Sources: (Tejakusuma & Sittadewi, 2017) and (Ansell & Gash, 2018)

From Ansell and Gash's, (Ansell & Gash, 2018) Collaborative Governance model, the findings of the problems in this study are:

In the starting condition indicator, the lack of financial resources allocated by the local government for disaster management, lack of professionals and limited infrastructure in disaster management, (Pratama & Achmad, 2020). The fundamental problem is the low participation of the community in the Disaster Risk Reduction Forum (FPRB) due to lack of

awareness and knowledge, [\(Ginanjar, 2025\)](#). Which then causes Destana that has been formed by BPBD not to run, in other words, it does not have a program in disaster resilience. Weak stakeholder cooperation, which led to conflicts between the government and the community as well as conflicts between the community and the community, [\(Ruswandi et al., 2021\)](#).

Problems from the indicators The Runggu collaboration process carried out at the Regency level is not sustainable, while for the village scope the Runggu culture that is routinely carried out does not schedule a discussion of disaster preparedness, [\(Kurniaty et al., 2024\)](#). The absence of trust, joint commitment and common thinking between the government, community and private sector in terms of implementing the Disaster Resilient Village program, [\(Rosyadi et al., 2020\)](#). Only 1 (village) that runs the Destana program and is able to get a Primary category Village Resilience Assessment, [\(Lestari et al., 2024\)](#).

Institutional design problems that the Karo Regency government has not issued any rules related to the Mount Sinabung disaster specifically disaster preparedness for implementing units and operational units, [\(Kurniaty et al., 2024\)](#). There are no rules that can answer the problems that exist in the Mount Sinabung disaster, [\(Komedi et al., 2025\)](#). Lack of public awareness and participation in Destana, so that the Destana program is not running as expected. Cooperation between stakeholders only exists in Gung Pinto Village, although the cooperation is not bound and unified, [\(Syafriyani & Safitri, 2025\)](#).

The problem with the Facilitative Leadership indicator is that strong leadership according to Ansell and Gashh as a steward, [\(Yull & Mulyani, 2024\)](#) mediator and catalyst can only be seen in Gung Pinto Village, [\(Dwi et al., 2025\)](#). For this village, this cannot be found because the Destana program is not running. Where the government, community and private sector do not have a joint program to implement, [\(Vinopal, 2018\)](#). This is a follow-up to the starting condition, collaborative process, institutional design that is not running. In this case, stakeholders did not utilize Runggu as social capital to overcome problems or failures in collaboration, [\(Taryanto & Prasajo, 2021\)](#).

So we can see the problems of the actors in the collaboration as follows

1. From the community: lack of knowledge, understanding, confidence, and trust in government and private sector programs.
2. In this context, Collaborative Governance is an important approach. The collaborative model emphasizes the involvement of various stakeholders in the decision-making process, planning, and implementation of disaster programs. Through collaboration, it is expected to create synergies that can strengthen community preparedness, accelerate response, and minimize the impact of disasters.
3. From the government: The government has not issued policies that can solve the problems of the Mount Sinabung disaster. In addition, the government has not carried out its functions by implementing work programs that should be carried out in solving problems.
4. From the private sector (F2KB): Because the Destana program is not running, so the Disaster Resilience Facilitator Forum (F2KB) also cannot do much for the progress of the Destana program.

From the results of research conducted in Karo Regency, that Collaborative Governance in Disaster Preparedness which formed 14 (fourteen) Disaster Resilient Villages (Destana), only 1 (one) village can run the Destana program as expected. From the results of the assessment of villages in Karo Regency that received the Disaster Resilient Village (Destana) assessment with the Pratama category was Gung Pinto Village. These results were

obtained because they met the assessment criteria, namely Villages that conduct basic training, disaster management regulations and policies, Prevention and Mitigation, complete the documents needed in disaster preparedness.

To answer this need, the concept of Collaborative Governance Preparedness Disaster's in Indonesia (COLGOPREDI) was born as a collaborative governance model designed to improve disaster preparedness. COLGOPREDI focuses on integrating the roles of government, private sector, academia, community and media (pentahelix approach) in building an adaptive, inclusive and local wisdom-based preparedness system. Thus, this model is expected to be able to fill the gap in disaster governance practices in Indonesia, which have been more dominant in emergency response aspects than preparedness.

Through the implementation of COLGOPREDI, Indonesia not only strengthens disaster risk mitigation capacity, but also builds social-ecological resilience in line with the Sustainable Development Goals (SDGs) agenda, especially goal 11 (sustainable cities and communities) and goal 13 (climate action).

Methods

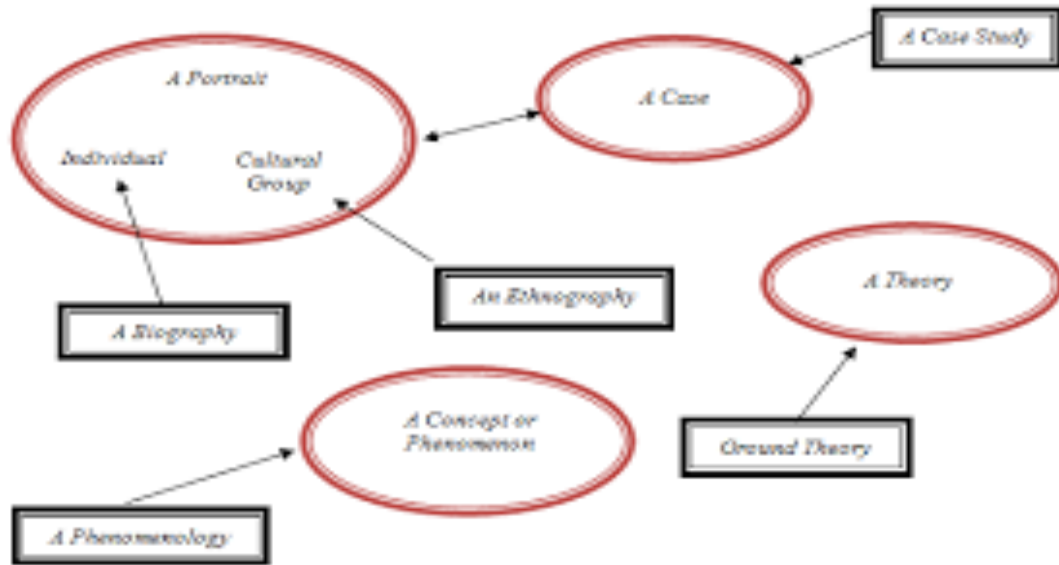
Research Approach

This research uses qualitative methods, according to Creswell qualitative research is a way of exploring and deepening meaning, which is usually related to social or humanitarian issues, ([Bianchi et al., 2021](#)). Using qualitative research in this study because qualitative research emphasizes the disclosure of phenomena as a whole and dynamically by revealing various aspects of the phenomenon, ([Ansell & Gash, 2018](#)). In Karo Regency, North Sumatra Province, the concept of Collaborative Governance in Mount Sinabung disaster preparedness is identified through the research arena used by the social science approach. And qualitative research can reveal social phenomena formed by certain situations and conditions in depth and dynamically. That in this study will explore and explore the meaning of phenomena that occur in the Mount Sinabung disaster, which then produces a Collaborative Governance model in disaster preparedness, ([Tejakusuma & Sittadewi, 2017](#)).

Data collection techniques in this study through interviews, documentation and Forum Group Discussion (FGD). With data analysis techniques with interactive analysis models. This model consists of three parts, namely data condensation, data presentation, and drawing/verification of conclusions.

Furthermore, the triangulation technique will be used to test the validity of the research data. Triangulation is more than one data collection method to obtain the same information, such as interviews, and documentation studies. According to Moleong, triangulation is a method of checking the validity of data that uses something else outside the data for the purpose of checking or as a comparison with the data. Checking through other sources is the most commonly used triangulation method. Denzin in Maleong distinguishes four categories of triangulation as a method of checking that uses sources, methods, investigators, and theories.

Here's a case study research model, to solve some of the main problems:



Sources: [\(Bahagia et al., 2025\)](#) and [\(Assyakurrohim et al., 2022\)](#)

Research Objective

The research was conducted in Gung Pintu Village, Neran District, Karo Regency

Analysis of Data

Analysis Techniques for the Colgopredi Model

Thematic Analysis

- 1) Coding interview data categories (e.g. trust, coordination, regulation, communication, resource capacity), [\(Bahagia et al., 2025\)](#).
- 2) Find patterns of relationships between actors (key actors, barriers, opportunities).
- 3) Actor Network Analysis (SNA)
- 4) To map the extent of interaction, connectedness and power of each stakeholder.

Quantitative Analysis (Colgopredi Model Testing)

Descriptive Statistics

- 1) Describes the level of preparedness (mean, SD, distribution), [\(Bianchi et al., 2021\)](#).
- 2) Comparison between regions/institutions.
- 3) Confirmatory Factor Analysis (CFA)
- 4) To test indicators in the Colgopredi dimensions (e.g. communication, coordination, trust, regulation, capacity).
- 5) Proving whether the model constructs match reality.
- 6) Structural Equation Modeling (SEM-PLS or SEM-Covariance)
- 7) Analyzing the relationship between variables:
- 8) Capacity coordination, trust, preparedness effectiveness.
- 9) Measure the contribution of each factor in shaping collaborative preparedness

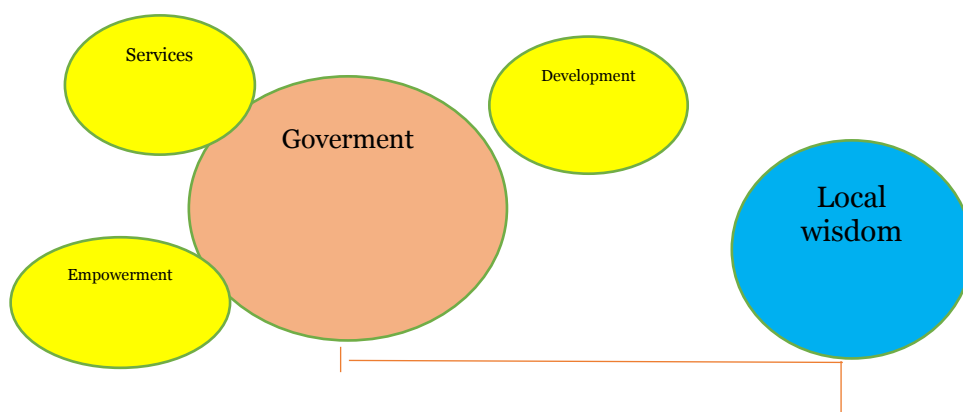
Results

Analyze the problem by identifying the problem that the community does not have the ability to participate in collaboration and the government does not play its proper role. The problem of unequal relationships between stakeholders, where the community does not have the same knowledge and understanding as the government and private sector. So it is

difficult to have the same understanding, trust and agreement in collaboration. This requires an empowerment process carried out by the government. The essential functions of government according to Ryaas Rasyid are services, empowerment and development. In this case, it is necessary for the government to function as an empowerment, namely the government is obliged to empower by improving the quality of human resources (HR). The government is tasked with providing guidance, training, mentoring that can increase knowledge and develop the quality of human resources so that civil society can be realized.

In carrying out this empowerment, the government can utilize the *runggu* culture. Local wisdom-based empowerment is a development approach that focuses on the local potential of the community to realize development, in this case realizing disaster preparedness.

Figure 2. Government Empowerment through Local Wisdom



Source: ([Researcher, 2019](#)), ([Assyakurrohim et al., 2022](#)) and (Lestari et al., 2024)

This concept is implemented in the initial conditions of collaboration. Empowerment is the process of developing, empowering, and strengthening the bargaining position of the lower strata of society against suppressive forces in all fields. The purpose of empowerment is to enable, empower the community, especially from underdevelopment, inequality, and powerlessness. Meanwhile, local wisdom is local ideas that are valued, instilled, and followed by members of the community from generation to generation. Local wisdom has an important role in community empowerment because it is a local resource that can be used to develop potential and solve problems. Empowerment through *runggu* in disaster preparedness is to empower the Karo community through deliberation to increase the capacity of Disaster Resilient Villages.

Community empowerment can be done through the Disaster Risk Reduction Forum (FPRB). Where the FPRB is tasked with accommodating disaster risk reduction initiatives from the possibility that this forum is formed on the basis of the participation of the awareness and ability of the local village community. Where this task is also the role of the government where the mandate of Law No. 24 of 2007 concerning disaster management has explained is a form of mandatory duty and responsibility of the government and the community to work together in overcoming disaster preparedness problems.

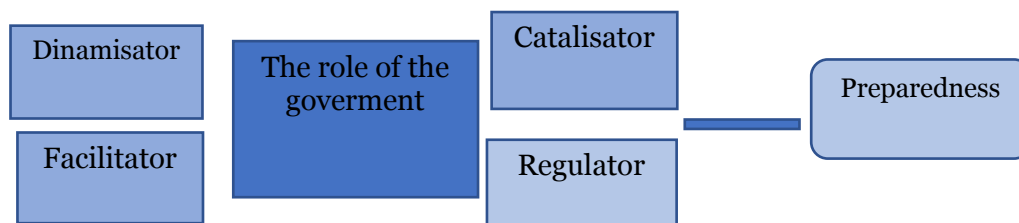
The next problem is that the government does not issue special regulations related to disaster preparedness. The role of the government needs to be a policy maker. According to Ryaas Rasyid, the role of government is divided into 4 (four) roles: regulator, dynamizer, facilitator, catalyst. The role of the government as a regulator is to balance the implementation of development by making policies as a regulator.

The Karo Regency Government has issued regulations related to disaster management, namely Karo Regency Regulation Number 07 of 2020 concerning the Karo Disaster Management Plan 2020-2024. However, the regulation does not specifically explain the handling of the Mount Sinabung disaster.

Moreover, the regulation does not explain disaster preparedness. Law No. 24/2007 on Disaster Management clearly states that there is a paradigm shift in disaster management, namely preparedness.

The product of this preparedness is the Disaster Resilient Village. However, the Karo Regency government did not issue regulations that could support the implementation of the Destana program. In carrying out its role as a regulator, the government should issue rules with a disaster preparedness approach. So that the rules issued are in accordance with what is to be achieved. This concept if analogized as shown below:

Figure 3. Regulation of the preparedness approach



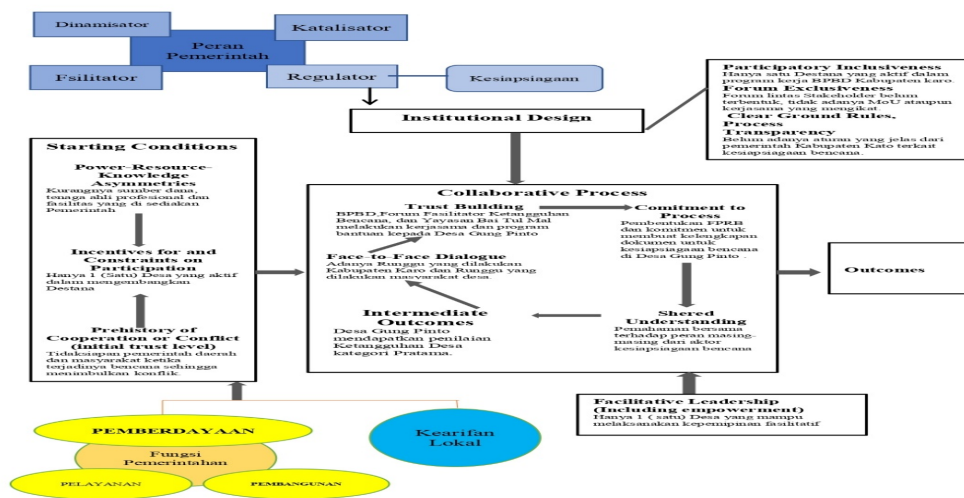
Sources: [\(Tejakusuma & Sittadewi, 2017\)](#) and [\(Ansell & Gash, 2018\)](#)

The results of the findings in the field, the main problem found by researchers is the non-implementation of Collaborative Governance in Mount Sinabung disaster preparedness due to starting conditions. Before the collaboration process, the initial conditions of collaboration must go well. However, this is not the case. Stakeholders who should be equal in collaboration, here there is inequality. Because of these conditions, the government needs to function to empower. The empowerment process carried out by the government can use the Runggu forum as a communication medium.

The next problem is that there is no proper regulation in disaster preparedness, so that the existing Destana program does not run as expected. For this reason, the government's role as a regulator is needed, by making rules with a disaster preparedness approach. Rules made with a preparedness approach will be able to answer the failures/problems that occur.

To overcome the problems/failures that occur in disaster preparedness programs, according to the author, it is necessary to develop a model to be suitable for describing the situation or a series of conditions of government collaboration in Karo Regency, North Sumatra Province in Disaster Preparedness. The development of the model can be seen in Figure 4.18 below, where researchers named the Collaborative Governance Preparedness Disaster's Model in Indonesia (COLGOPREDI).

Figure 4. Models Collaborative Governance Preparedness Disaster's in Indonesia (COLGOPREDI)



Sources: (Kurniaty et al., 2024) and (Pratama & Achmad, 2020)

The Collaborative Governance model in disaster preparedness adds 2 (two) concepts, namely empowerment through Local Wisdom and Regulation with a Preparedness approach. Ansell and Gash's Collaborative Governance model underwent development in the starting condition and institutional design indicators. This was done by the author to improve the discrepancy between the test results of the Ansell and Gash models and real data.

The finding research

The general findings from Indonesian research on collaborative governance & disaster preparedness:

- 1) Multi-actor collaboration (government, BPBD/BPNB, community, NGOs, private sector, academia/media - the “pentahelix” model) is increasingly recommended to improve mitigation, preparedness, response and recovery. However, implementation is often fragmented and unsustainable.
- 2) The strength of social networks and social capital and local leadership determine the success of collaboration - case studies (Merapi, Palu, etc.) show that leadership, inter-actor trust and coordination mechanisms influence response effectiveness.
- 3) Key challenges: weak inter-agency coordination, general regulations (Law 2007) without contextualized technical guidance, limited local resources, lack of joint training/readiness, and different objectives between sectors.
- 4) Reported benefits of collaboration: increased speed of response, more efficient distribution of resources, increased capacity of local communities, and integration of local and technical knowledge. However, quantitative evidence on direct effects (e.g. casualty reduction) is mixed.

Conclusion

The model developed by this researcher can be adapted to other disaster conditions in Indonesia. With the concept of the government's role as empowerment based on local

wisdom, it can be applied in every area with disaster potential. The concept of local wisdom in disaster preparedness in Indonesia through community empowerment must be carried out throughout Indonesia. As we know that there are various tribes and cultures that we can find in Indonesia with different disaster potentials. So the cultural diversity of various tribes in Indonesia in dealing with disasters is also different. Local wisdom is a science, work ethic and life management that is implemented in various community activities to face and solve problems, including disasters. With different cultural conditions, the approach to empowerment is also different. Therefore, the concept of the government's role as empowerment based on local wisdom is key in the government's efforts to create a disaster-ready and responsive community.

Then for the concept of government function as a regulator with a preparedness perspective can also be adapted to other regions in Indonesia. The government collaboration model with problem solving must have the advantages of collaboration, namely synergy between stakeholders. How the role of the community, government and private sector in making regulations. In order for regulations made by the government to be in accordance with the needs of the community, stakeholders must cooperate in making rules so that they can be implemented together. This has been done by the Sleman Regency government. This means that this concept is the answer when a government program fails in disaster preparedness efforts.

The shortcomings of Ansell and Gash's collaborative governance model are that the Collaborative Governance paradigm has 3 actors in implementing the government, the private sector and civil society who play a role in development. In the 1980s Collaborative Governance was the design of Western thinking to minimize the role of the state and give it to other parties. Meanwhile, in Indonesia, the function of government for empowerment is still very much needed to create civil society.

In western countries, civil society has been created, where society according to Perez Diaz emphasizes the condition of a society that has been through limited government authority, free, economic markets, and the emergence of community groups. Therefore, western countries do not need empowerment by the government for the community because the community is independent. It is different based on the findings that researchers found that in Collaborative Governance in disaster preparedness, the government's role in community empowerment is needed. Empowerment is carried out so that the community before the collaboration already has the will to be independent. It is different based on the findings that researchers found that in Collaborative Governance in disaster preparedness, the role of the government in community empowerment is needed. Empowerment is carried out so that the community before collaboration already has a shared will in self-strengthening such as mutual trust, shared understanding, internal legitimacy and commitment.

Ansell and Gash's theory is the result of research conducted in Western countries where the conditions of the government sector, the private sector and the community already have good institutions. The three sectors in government collaboration are ready to do joint activities to solve problems. In other words, the three sectors are equally ready to collaborate, the existing system is already running well. This is different from what the researchers did in the field, where the government collaboration carried out in the disaster preparedness of Mount Sinabung, the sectors involved were not ready to collaborate as described in the previous chapter

According to [Ansell and Gash \(2007\)](#) explain that the new strategy of governance in making public policy, they gather in a forum to produce joint decisions that is Collaborative

Governance. In this model, it assumes that mutual consensus can be realized because the position of the government, the private sector and the community has a common understanding. In western countries, the function of government is only as a public service and development, different from what Ryaas Rasyid stated that the role/function of government is as a service, empowerment and development.

The advantage of the model developed by the author is that the author adds the concept of empowerment through local wisdom. The government in carrying out its function as empowerment must also see the potential of local wisdom in the community. Local wisdom-based empowerment is a development approach that focuses on the local potential of the community to realize the goals of development, in this case realizing disaster preparedness.

Empowerment through Runggu culture is easier to realize disaster resilient communities. Regarding the use of empowerment, Taliziduhu Ndraha revealed that empowerment can be seen in the sense of empowering as well as in the sense of enabling. In the sense of empowering, empowerment, namely giving people the right or opportunity to express their aspirations and fight for them to determine their future, means related to politics. This requires a forum, namely Runggu, a routine deliberation conducted by the Karo community. In the sense of enabling, empowerment is the ability, capacity, and capability that is enhanced in the process of learning the community to do something to help themselves and contribute as much as possible to national integrity.

Another advantage of this model is that it adds the role of government as a regulator. The government in issuing regulations related to disasters should take into account the current conditions of the disaster. The local government issued a regulation with a preparedness perspective is an effort to answer the problem, with the aim that the preparedness program designed by the government can run properly. Policies issued by the government must be able to create disaster resilient communities.

The role of government as a regulator, the role of government as a dynamizer, the role of government as a facilitator, and the role of government as a catalyst are the roles of government based on Ryaas Rasyid in Muhadam Labolo. That it is an obligation for the government to play a role in issuing regulations that must be able to answer existing problems. Related to the Mount Sinabung disaster, the Karo Regency Government should issue actual regulations in solving problems in the disaster-prone area of Mount Sinabung. The Karo Regency Government must act as a regulator that is able to create a resilient and responsive community in disasters.

The shortcoming of the model is that researchers did not explain in detail the contribution of the private sector. This research focuses on the disaster preparedness stage. Where researchers look at Disaster Resilient Village activities. From the results of the research on the condition of collaborative governance in disaster preparedness, where collaboration that runs only in one Destana. Whereas the private sector has great potential in contributing resources and expertise to achieve the goal of creating disaster resilient communities. The role of the private sector in the Mount Sinabung disaster was more temporary during the disaster response. The activities carried out by the private sector are the sterilization process, the evacuation process, the emergency repair process and the provision of needs. Adapaun private sector involved are from Non-Governmental Organizations, Media, Universities, Non-Profit Organizations and so forth.

For the role of universities in the Mount Sinabung disaster, at the time of the disaster many universities raised funds for victims of the Mount Sinabung disaster. Even universities outside North Sumatra Province also helped such as Unsyiah Banda Aceh, Gajah Mada

University, and other universities. In fact, Gajah Mada University in 2014 sent 64 students to Mount Sinabung. The sending of KKN students is a form of UGM's concern to help ease the burden on people affected by natural disasters, namely the Mount Sinabung disaster. The role of academics is also in community service activities that are affected by disasters. Where to help ease the burden on the community affected by the eruption of Mount Sinabung, especially children and adolescents so as not to be traumatized by the incident. One of the universities that provide this assistance is Panca Budi University, and there are many other universities both from North Sumatra Province and from outside North Sumatra.

At the preparedness stage as it is now the role of academics in the Mount Sinabung disaster by conducting research that is useful for disaster management with different scientific studies. In addition to research, there are also many services carried out by academics. However, these activities are not bound in the form of collaboration, only counseling or training from academics from universities. There is no collective agreement made for each activity carried out because these activities are temporary and not sustainable. There has been no effort made by the disaster resilient villages to make cooperation or collaboration with the University in the efforts of disaster preparedness programs.

Meanwhile, the role of the media during disasters is indeed Media coverage of disasters is needed when disasters occur, not only providing correct information, but can build public empathy and also encourage people affected by disasters to rise from the problems that arise due to disasters that are or have occurred. The media has a very important role in the occurrence of natural disasters. The media became the channel that reported information about the Mount Sinabung disaster. Related to coverage at the time of the disaster, online media always provide coverage that has occurred even the most recent coverage. News in the media is sadness, disappointment, the number of losses and other tragic stories.

But at this time, the media preparedness stage does not play a significant role. Given that there are no reported activities and also no collaborative activities with the media related to preparedness. So it is not surprising that the issue of the failure of the Disaster Resilient Village program was not reported by the media.

Broadly speaking, there are 4 (four) phases of disaster, namely the mitigation phase, preparedness phase, response phase and recovery phase. The disaster management cycle consists of the pre-disaster phase, the disaster phase and the post-disaster phase. The pre-disaster stage includes prevention activities disaster mitigation, preparedness and early warning. So according to BNPB, preparedness is included in the pre-disaster stage activities. Where preparedness is planning how to respond to disasters. With emergency drills and early warning systems. In this research is the pre-disaster stage. Although the Mount Sinabung disaster has occurred (post-disaster), the government strives for readiness in facing the threats that will occur. Given the potential threat of disaster is still very large.

The results showed that it needs to be evaluated on an ongoing basis related to disaster preparedness. For the research location of the Mount Sinabung disaster, it is necessary to conduct research on the Runggu Culture in Disaster Preparedness Efforts. Because the runngu culture is social capital but cannot be utilized properly by the Karo people and the Karo Regency government. It is important to conduct further research on how to utilize local wisdom in disaster management, especially in disaster preparedness. Because disaster preparedness is an issue that will have a significant and sustainable impact. Given that Indonesia is a country prone to volcanic disasters. Until now there are still 129 active volcanoes, which are inactive as many as 500 volcanoes. As many as 13% of active volcanoes from the total around the world, 70 volcanoes have erupted and 15 volcanoes are

still critical.

Suggestion

The central and regional governments are advised to strengthen cross-sector collaboration through clarity of roles, coordination, and communication among stakeholders in disaster preparedness. The Colgopredi model needs to be implemented gradually by involving the government, community, private sector, academics, and media to improve the effectiveness of disaster preparedness. In addition, increasing human resource capacity, utilizing data and technology, and providing sustainable regulatory support need to be prioritized so that collaboration runs optimally and sustainably.

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