

People preparedness during Floods in Sub-district Sumbermanjing Wetan, Malang, Indonesia

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Abstract

Disaster Risk Reduction (DRR) is one of the prioritized activities worldwide including Indonesia. To fulfill DRR in Indonesia, the National Board for Disaster Management (BNPB) issued a BNPB Head Regulation Policy No. 1 of 2012 for the general guidelines for Disaster Resilient village/sub-districts (Destana). This program aims to increase the village/sub-district's capacity in DRR when faced with disaster. This study uses a descriptive research method with a qualitative approach. The data was collected through interviews and field observations in Sitarjo Village, Malang Regency, East Java Province, Indonesia.

This study found that the Malang Regional Disaster Management Agency (BPBD) has attempted to carry out capacity building on the dimensions of human resource, organizational strengthening and institutional reform in Sitarjo Village through training and socialization provided by the Malang Regency BPBD and other stakeholders in the DRR Program in Sitarjo Village. Organizational strengthening has also been carried out in Sitarjo Village, where the Sitarjo Village Disaster Risk Reduction Forum (FPRB) has been established before Sitarjo Village was incorporated in the Destana program and has cooperated with other stakeholders in capacity building in Sitarjo Village. However, the institutional reform at Sitarjo Village Destana has not run optimally as the Government has not made a policy in village/sub-district regulations specialized in the Destana program in Sitarjo village.

The main problem is the lack of community participation in capacity building carried out by Malang's BPBD. The community perceives that capacity building in the Disaster Resilient Village/sub-districts Program (Destana) is more about meeting DRR needs. It requires an understanding of DRR and the necessary capacity building that follows the characteristics of each village/sub-district. With high awareness among all DRR Program stakeholders, each village/sub-district's independence in dealing with threats and disaster risks can be properly realized.

Keywords: Disaster reduction, disaster-resilient village, people capacity, disaster preparedness, flood.

Introduction

Disaster Risk Reduction (DRR) is a prioritized activity globally, particularly for disaster-prone countries to realize sustainable development in the country. As a disaster laboratory with diverse disasters, Indonesia's population has become a strong society continuously learning from their experiences related to disasters in their area⁸.

The Indonesian government's mainstreaming of disaster risk prevention and risk reduction is realized through the establishment of policies in Law no. 24 of 2007 concerning Disaster Management. This policy determined that DRR implementation in Indonesia requires cooperation among the government branches, both the central government (BNPB) and local governments (BPBD) as the responsible parties for disaster management along with the community and various stakeholders of Indonesia.

The policy aligns with the international DRR framework of the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015 – 2030. The Sendai framework has 7 (seven) general targets decided by various countries for DRR: (i) Reduce global disaster mortality; (ii) Reduce the number of disaster-affected people globally; (iii) Reduce direct disaster economic loss in relation to global gross domestic product (GDP); (iv) Reduce disaster damage to critical infrastructure and disruption of basic services; (v) Increase the number of countries with national and local disaster risk reduction strategies; (vi) Enhance international cooperation for developing countries through adequate and sustainable support and (vii) Increase the availability and access of early warning systems and disaster risk information.

In following this policy, the National Disaster Management Agency (BNPB) has attempted to implement various work programs and activities, one of which is the Disaster Resilient Village/sub-district (Destana) program. This program was initiated by BNPB through Head Regulation (PerKa) of BNPB No. 1 of 2012 concerning the general guidelines for Disaster Resilient village/sub-district². The Destana Program in this policy aimed to increase each village/sub-district's capacity building. The final objective was to ensure each village/sub-district as independent, to adapt and to deal with disaster and to recover quickly from the adverse effects of disasters, especially from natural disasters.

Based on the objectives, components and strategies in the regulation, communities in disaster-prone areas are the main actors in the Destana program. Thus, there is a demand for

direct community participation in the DRR process, which is expected to continue to be efficient and sustainable. Village/sub-districts that are members of the Destana Programs (Destana Village/sub-districts) are expected to internalize the formed structures and functions to ensure that they can deal and rise quickly when a disaster occurs.

One of the agendas in the Destana program is capacity building aimed at Destana village/sub-districts. BNPB and BPBD have carried out many activities to increase village/sub-district and community capacity. The Destana program is a Government stimulant program. In this case, BNPB ultimately aims to foster the independence of the village/sub-district government and community to continue and internalize into their institutions. One activity to increase community capacity is through training for village or sub-district communities, volunteers and the village/sub-district government.

This capacity building has also been carried out by the Malang Regency BPBD, as the Malang Regency area has a high potential for natural disasters. This was proven through the BNPB's Indonesian Disaster Risk Index (IRBI) which stated that Malang Regency is a high disaster risk area. In contrast, the Regional Resilience Index Assessment is classified as moderate. Thus, the Malang Regency area requires special treatment for DRR issues in its regions.

However, DRR capacity building has not run optimally in Malang Regency. BPBD Malang Regency stated that only 39 Destana village/sub-districts lie in Malang Regency in 2019- only 11% of the total villages and sub-districts in Malang Regency of 378 villages and sub-districts. This is due to the weak capacity of resources in Malang Regency in dealing with existing disaster risks.

Existing resources in Malang Regency are divided into 3 (three) sectors namely human resources, natural resources and funding resources. The human resource capacity is divided into various sectors namely local government, village/sub-district government and the community and other stakeholders. Existing research shows that these capacities are inadequate for maximizing DRR actions in Malang Regency, be it the capacities of BPBD where not all personnel have good disaster knowledge¹¹.

Funding is also another factor of Destana capacity building in the Malang Regency. Based on the interviews, the lack of resources owned by BPBD Malang Regency is the main problem and only allows them to form four new Destana village/sub-districts in one year. Thus, if we compare Malang Regency's total villages and sub-district of 379 villages, forming Destana in all villages and sub-districts in Malang Regency will take a very long time.

Going back to developing Destana capacity in Malang Regency, we attempted to identify the capacity building process of Destana Village/sub-districts in Malang Regency,

one of them being Sitiarjo, located in Sumbermanjing Wetan District, Malang Regency. According to Malang Regency BPBD, Sitiarjo village joined the Destana program in 2018. Sitiarjo village has a high level of vulnerability to earthquakes, tsunamis, floods and moving land.

As Sitiarjo village has not been in the Destana program long, the capacity building process can be analyzed through the region's Destana program. Following the capacity building theory, we tried to examine Sitiarjo's capacity building of Destana in three main dimensions of capacity building: human resource development, organizational strengthening and institutional reform. In addition, the residents of Sitiarjo Village, the main actors in capacity building of the Sitiarjo Destana Village, are also the main object in this study in terms of how they participate in the capacity building of DRR through the Destana program.

Based on the two main problems, the objective of this research can be divided into (i) to identify how Malang Regency's government implements the Destana capacity building in the Sitiarjo Village and (ii) how the community sees capacity building through the Destana program for DRR in their area.

Figure 1 shows the rainfall in East Java Province in January 2021. Malang Regency, especially Sumbermanjing Wetan sub-district, is an area with quite a high rainfall, around 151-200mm. With such high rainfall, the potential for flooding in that area is quite high.

Review of Literature

Disaster Risk Reduction: Disaster Risk Reduction (DRR) comes from a global understanding in international disaster risk reduction strategy (ISDR) which can be interpreted as a combined concept of elements that contain elements of possibility in reducing vulnerability and disasters in society and also preventing or limiting (mitigating) and preparedness efforts to counter the impact of various threats in a wider context, namely sustainable development¹.

The DRR perspective continuously develops to the Sendai Framework for DRR, also known as SFDRR 2015 - 2030 (Sendai Framework for Disaster Risk Reduction). The framework emerged as a result of international consultations and discussions under the auspices of the United Nations. This DRR framework aims to prevent the emergence of new risks, reduce existing risks and strengthen resilience as well as produce guiding principles including the main responsibility of the State in preventing and reducing disaster risk¹.

In Indonesia, DRR implementation has been stipulated in Law No. 24 of 2007 concerning Disaster Management and includes three stages of disaster management: (1) before/pre-disaster; (2) when a disaster occurs (emergency response); and (3) after/post-disaster.

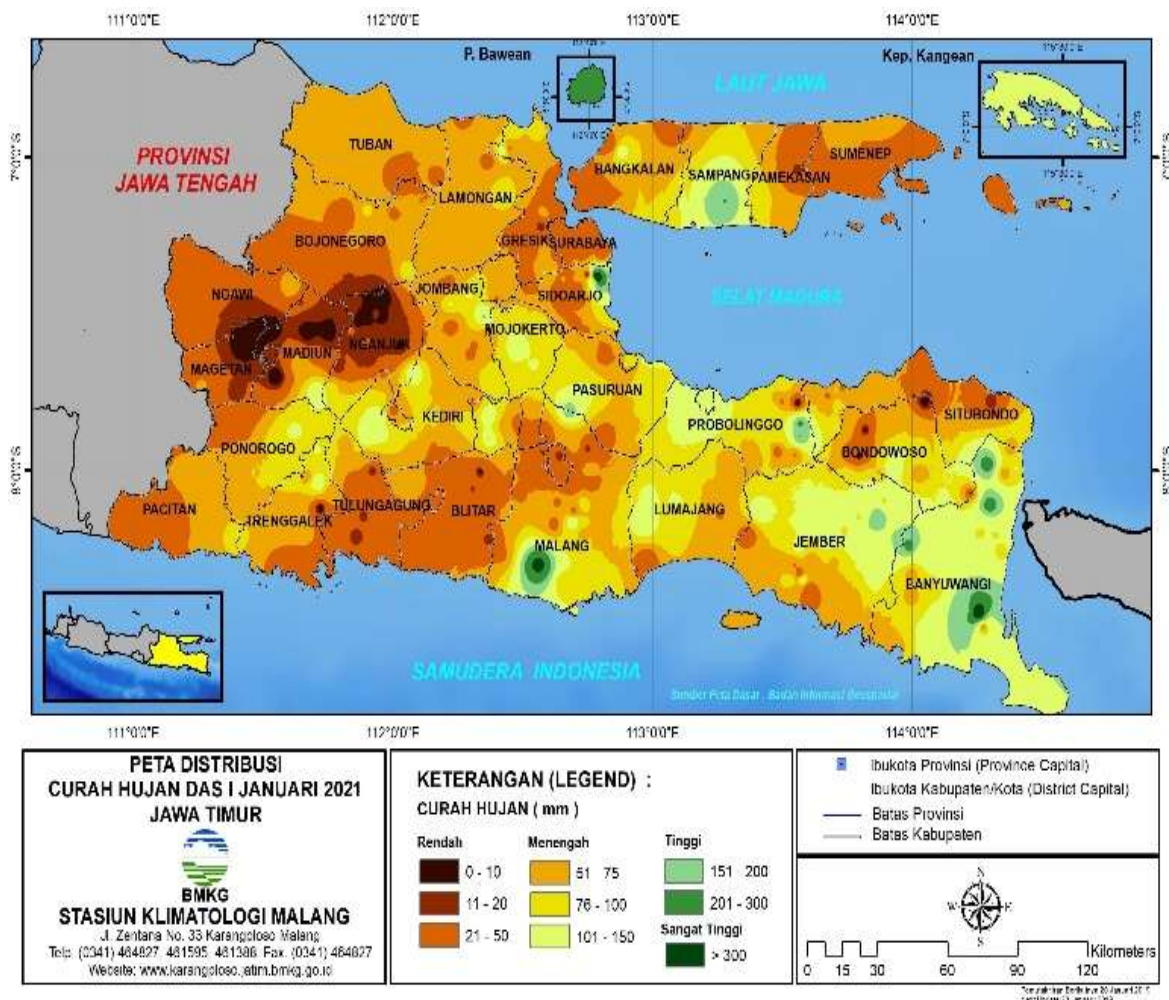


Figure 1: Rainfall in January 2021

Furthermore, a policy is in development in the Presidential Decree of the Republic of Indonesia No. 87 of 2020 concerning the Master Plan for Disaster Management for 2020 – 2044. The main objective of this policy is to realize Indonesia as a disaster-resilient country to create sustainable development in Indonesia. The Indonesian government aims to realize this main objective by (1) Creating resilient and sustainable disaster management, (2) Realizing professional and inclusive disaster management and (3) Realizing excellent disaster emergency management and post-disaster recovery.

Indonesia's commitment to disaster management aligns with UNISDR's main components in DRR: 1) Risk awareness and assessment including threat analysis as well as capacity and vulnerability analysis, 2) Knowledge development including education, training, research and information, 3) Policy commitment and institutional framework including organization, policy, legislation and community action 4) Application of DRR measures such as environmental management, land use, urban areas planning, protection of social facilities, science and technology, partnerships and networks, financial instruments and 5) Early warning system including forecasting, warning distribution, preparedness measures and response capacity.

Thus DRR is implemented to minimize the threat of disaster-affected areas and to reduce the vulnerability of disaster-prone areas by increasing the capacity of various stakeholders of disaster management in those areas.

Capacity Building

Capacity building can be interpreted as a process in which individuals, groups, organizations, institutions, or communities seek to improve their abilities in (a) carrying out their main tasks and functions, solving problems they face and formulating and realizing achievement of the set goals; and (b) understanding and meeting development needs in the wider context sustainably⁶.

In DRR activities, capacity building is crucial in supporting the success of DRR in an area as it connects capacity to threats and vulnerabilities in disaster risk assessment. Suppose the threat and vulnerability of a disaster-prone area are high, then the capacity of existing stakeholders in the area must also be high and can balance the existing threats and vulnerabilities. Thus, by increasing an area's existing capacity, DRR's main objective can be achieved by being independent and sustainable in sustaining regional development.

Table 1
Dimensions of Capacity Building

DIMENSION	FOCUS	ACTIVITY
Human resource development	Availability of technical and professional personnel	Training, salary, working conditions and recruitment
Organizational strengthening	Organizational strengthening of the management system in developing the performance of specific tasks and functions; microstructure	Incentive system, personnel utilization, leadership, organizational culture, communication and managerial structure
Institutional reform	Institutional and systems; macrostructure.	Rules of the game for political regimes and policy change, constitutional reform

The Indonesian government has also taken capacity building as a significant concern for disasters including the Destana program by BNPB. PerKa BNPB No. 1 of 2012 concerning general guidelines for Disaster Resilient villages (Destana) stated that capacity building is a must for Destana villages which is packaged through training, education and socialization to communities in disaster-prone areas.

In addition, capacity building is also given to volunteer groups and disaster management actors to ensure that they have the ability and can play an active role in planning, implementing and evaluating DRR activities.

Disaster Resilient Village Program: Based on Perka Number 1 of 2012 concerning General Guidelines for Disaster Resilient Villages (Destana), Destana can be interpreted as a village or sub-district that can recognize threats in its area and organize community resources to reduce vulnerability and increase capacity to reduce disaster risk. This ability is manifested in development planning that includes prevention efforts, preparedness, disaster risk reduction and capacity building for post-emergency recovery.

The specific objectives of developing this disaster-resilient Village/sub-districts are:

1. Protect communities living in disaster-prone areas from the adverse impacts of disasters;
2. Increase community participation, especially vulnerable groups, in resource management to reduce disaster risk;
3. Increase the capacity of community institutions in managing resources and maintaining local wisdom for disaster risk reduction;
4. Increase Government capacity in providing resource and technical support for disaster risk reduction and
5. Increase cooperation between stakeholders in DRR, local government, private sector, universities, NGOs, community organizations and other related groups.

Disaster Resilient Village/sub-districts principles: The Destana program has 20 indicators for a village/sub-district to become a Destana. Based on the 20 Destana indicators, the villages/sub-districts categorized as Destana are divided into three parts:

1. Beginner Village/sub-district: It is a Destana at the initial stage where the village/sub-district has only made efforts without results.

2. Intermediate Village/sub-district: It is a village/sub-district at the intermediate level where the village/sub-district has policies supporting documents and a volunteer team.

3. Advance Village/sub-district: It is a village/sub-district at the advanced level where the village/sub-district has carried out systematic efforts in DRR procedures.

Based on the objectives and indicators, the Destana Program aims to foster self-reliance in communities in disaster-prone villages/sub-districts in carrying out DRR activities. This independence allows community needs to be identified for future development, making the disaster impacts obsolete in the analysis process.

Research Method

This study uses a descriptive research method with a qualitative approach. These methods and approaches are used to obtain valid and relevant data and complete information about the object. Thus, it is pertinent to understand the logic flow³.

To obtain data related to this research, we applied data collection techniques in interviews by several informants and key informants in Sitarjo Village. In addition, we observed how the capacity building had been carried out in the area. Supporting documents from the field also became crucial in this research. Data validity is central to ensure that data is valid and credible and prevents it from being crucified for being subjective. On that basis, we carried out data triangulation for data sources and data collection techniques.

To analyze the data, we used the interactive data analysis techniques namely 1) Data collection, 2) Data reduction, 3) Data presentation and 4) Verification and drawing conclusions⁹.

Figure 2 is an area potentially exposed to flood based on the Meteorology, Climatology and Geophysics Agency (BMKG) with several parameters: rainfall, topographic conditions and slopes. Sumbermanjing Wetan is a flood-

potential district based on the existing slope conditions. Figure 3 shows how the slopes form around South Malang especially in Sitoarjo Village, Sumbermanjing Wetan district which looks like a basin indicating a high potential for inundation in the area.

Results and Discussion

Sitiarjo Village is a village located in the Malang Regency, East Java Province, Indonesia threatened by natural disasters, land movements and seasonal flooding.

Table 2
Indicators for a disaster resilient village (Destana)

CATEGORY	No.	INDICATOR
Legislation	1	Village/sub-district policy/regulation regarding DR/DRR
Planning	2	Disaster management plan, communication action plan, and/or contingency plan
	3	DRR Forums
Institutional	4	Volunteers for disaster management
	5	Cooperation between actors and regions
Funding	6	Disaster response fund
	7	Funds for DRR
Capacity Building	8	Training for village/sub-district officials
	9	Training for the volunteer team
	10	Training for village/sub-district residents
	11	Involvement/participation of village/sub-district residents
	12	Involvement of women in volunteer teams
Disaster Management Implementation	13	Map and risk analysis
	14	Maps and evacuation routes and shelters
	15	Early warning system
	16	Implementation of structural (physical) mitigation
	17	Patterns of economic resilience to reduce community vulnerability
	18	Health protection for vulnerable groups
	19	Natural resource management (SDA) for DRR
	20	Protection of the community's main productive assets

Source: Head of BNPB Regulation No. 1 of 2012⁷

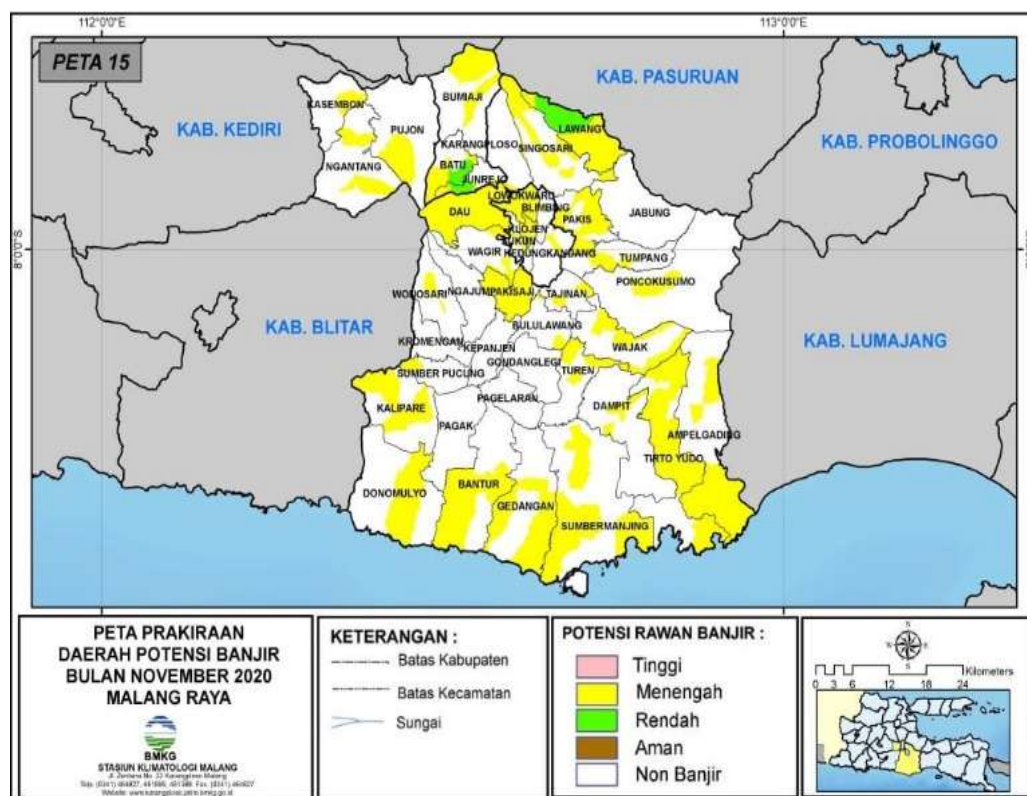


Figure 2: Flood Potential in November 2020



Figure 3: SRTM of Sumbermanjing Wetan Sub District

Based on the Sitarjo Village Government information, they mainly face seasonal floods. In year 2016, there were no casualties, but the community felt its impact as it damaged their houses, residences, agricultural land and supporting infrastructure.

Based on the routinely endured seasonal floods, Sitarjo village can be categorized as a disaster-prone area. In 2018, Sitarjo Village was included in the Disaster Resilient Village program in Malang Regency.

Destana Capacity Building in Sitarjo Village: It was explained³ that human resource capacity building could be in the form of initiatives to develop existing human resources to realize individual capacity in their required professional and technical responsibilities. This was then adapted to the human resource capacity building in the Destana program; the human resources come from various sectors in the village: the government, the community and volunteers.

This followed PerKa BNPB No. 1 of 2012⁷ which states that one component of Destana is capacity building activities in the form of training, disaster education and information dissemination to the public, especially volunteer groups and disaster management actors, to ensure they have the capacity and can play an active role as the main actors in planning, implementing and evaluating disaster risk reduction activities.

Therefore, the human resource capacity building aimed at the community and volunteers in the Destana Sitarjo Village have the right to receive training, education and information related to disasters in their area from the Malang Regency BPBD.

This capacity building follows the goals and strategies of Destana; the cooperation of all the relevant stakeholders from all levels and conditions is a priority to reduce disaster risks. Capacity building in DRR will include various trainings in Threat Mapping, HVCA or Threat Assessment, Vulnerability and Capacity of the Indonesian Red Cross (PMI), Participatory Rural Appraisal (PRA) methods and other similar methods as needed. Capacity building will also be carried out through affordable early warning and disaster preparedness equipment and systems.

In addition, various efforts were made to provide simulations and information related to disasters to the community and volunteers in Sitarjo Village. This began with counseling on the assessment of disaster-prone areas and data collection related to communities potentially affected by disasters in Sitarjo village. However, several communities in Sitarjo village, especially the Rowo Trate Hamlet residents, informed that some had attended the training and information related to disasters from the local government. Others including the women's group stated that they had not received any training. Therefore, the training provided by the local government is not evenly distributed, especially in Rowo Trate Hamlet, which is an area directly affected by the flood.

Additionally, the FPRB of Sitarjo village has routinely carried out informal socialization for disaster problems and provided counseling to elementary and junior high school students related to DRR management to ensure that children in Sitarjo village know and understand DRR in their area. These activities were done during their school extracurricular time, aided by the junior scouts to prevent interference with teaching and learning hours for the compulsory school subjects.

These findings concluded that capacity building for human resources in Sitarjo village had been implemented as the pre-requisite activities done by the Malang Regency BPBD and Sitarjo village FPRB. This aligns with UNDP and Grindle's³ capacity building theory, which stated that one dimension of capacity building is human resources. However, this capacity building has not run optimally as it was not given to the entire community of Sitarjo village which means the dissemination of information and counseling was not obtained by the entire community of Sitarjo village.

Organizational Strengthening: UNDP interprets organizational strengthening as an activity related to the organizational structure and work mechanism, work culture and resources. However, organizational capacity is also influenced by external factors in the wider institutional environment such as political, economic and cultural factors⁵. Organizational strengthening has several focuses; organizational structure, governance processes or practices and governance systems that enable the organization to relate to specific content, function smoothly and adapt to changing circumstances¹⁰.

BNPB has realized this interpretation through the Destana program by mainstreaming organizational strengthening directly related to the disaster in each village. PerKa BNPB No. 1 of 2012⁷ stated that the development of Disaster Resilient Villages/sub-districts could be carried out well. The capacity of the community and village/subdistrict Government in organizational issues and DRR needs to be improved. Capacity building in organizations will be provided in collaboration with non-governmental organizations and/or universities through workshops or field training in community organizing, leadership, management of community organizations and other related topics.

In Sitarjo Destana village, the FPRB had existed before Sitarjo village became a Destana village. The activities of MTB included collaborating with other stakeholders such as the National Army (TNI) and others in conducting various direct trainings for the community.

In 2005, MTB changed its name to the Community-Based Disaster Preparedness Organization (SIBAD) under the Indonesian Red Cross (PMI) and was engaged in capacity building activities for disaster-aware communities. Furthermore, the SIBAD Sitarjo followed the building disaster-related policies and regulations, thus enabling its members to become FPRB members following the BNPB PerKa No. 1 of 2012.⁷

The explanation shows that organizational strengthening in a DRR forum in Sitarjo Village has been in place even before Destana. The FPRB members know how to place and carry out their organizational procedures based on their existing SOPs and do not have any identity problems. The FPRB has been making various efforts to reduce disaster risk

in Sitarjo village. One effort is by submitting a proposal for assistance from the *plenggrongan* hall, which is the resident's main weapon in DRR. This *plenggrongan* hall has begun its realization with land grants from residents (individuals) intended for Sitarjo residents of Sitarjo village, especially Rowo Trate Hamlet, which is categorized as poor and does not have a *plenggrongan* system in their homes.

In addition, the FPRB has also collaborated with USAID resulting in a map of flood threat in Sitarjo village and a map of the flood evacuation location in Sitarjo village made by USAID. In addition, according to village officials and members of the Sitarjo village FPRB, there has been cooperation with USAID-APIK and BPBD Malang Regency in the procurement and simulation of the Early Warning System (EWS).

However, the request for assistance to realize this *plenggrongan* hall has not received a positive response other than funds from the CRS (Catholic Relief Service). The rest only comes from individual FPRB members showing that the synergy of various stakeholders in Sitarjo village is not going well.

Institutional System Reform: Brown, LaFond and Mocintyre² stated that a system is a resource in the form of supports in the system from actors and institutions related to financing, regulation and action assistance (other similar institutions), in which there is a cooperation mechanism in the system. This system/institutional capacity is relevant to the outcomes which include: the design of the overall structure and policies that guide service delivery; coordination of various types of organizations; allocation (facilities and infrastructure); management (institutional management: cooperation control) and resource management on the system/institution.

Within the system, some functions affect institutions such as financing (income collection, fundraising and purchasing), provision of policies (law or legislation, both personal and non-personal), availability of adequate resources and stewardship (procedure of performance or use). This is in line with the capacity building at the system level stated by UNDP; the system level refers to the national and regional regulatory frameworks, policies that manage institutions and how these institutions are interrelated and interact and depend on each other.

BNPB also considers the need for an institutional system reform as it oversees disaster issues in Indonesia starting from its DRR-issued policies including PerKa BNPB No. 1 of 2012 concerning guidelines for Disaster Resilient Villages or Subdistricts. Thus, the overall structure and policy design at the national scale have been fulfilled.

Furthermore, to follow up on the national policy, the Malang Regency Government has established the Malang Regency

BPBD, an extension of BNPB in DRR in the Malang Regency area. This can be seen through the first 4 (four) prioritized villages to become Destana in Malang Regency since 2011 namely Sumbermanjing Kulon Village, Pujiharjo Village, Purwodadi Village and Sidoasri Village.

Finally, in 2018, Sitarjo village became a Destana village. However, based on interviews with the Sitarjo village government, no DRR-related policies have been issued by the Sitarjo village government. The Sitarjo village responded to the Destana policy with a letter of assignment from the Sitarjo village FPRB to carry out activities and fulfill the indicators mentioned in the BNPB PerKa No. 1 of 2012.⁷ Thus, the main driver of DRR activities in Sitarjo village is the Sitarjo village FPRB.

Figure 4 shows the sections of Sitarjo Village. Sumbermanjing Wetan District is indeed located in a basin. This impacts flood potential any time when the rainfall is high and the drainage system cannot accommodate rainwater runoff. The seasonal floods that hit Sitarjo village must be handled wisely, one of which is thorough capacity building of the human resources/residents in Sitarjo village, increasing institutional roles and improving preparedness control in the event of a disaster.

Perspectives of the Sitarjo Village Community in the Destana Capacity Building: As previously described, capacity building through the Destana program has been carried out by the Malang Regency BPBD to the Sitarjo village community and Government. Capacity building has been carried out on three main aspects as per Grindle³ and UNDP, which divided capacity building into three aspects: HR development, organizational strengthening and institutional reform.

However, this study found that the people of Sitarjo village did not fully understand and follow capacity building. The interviews with the community of one of the hamlets in Sitarjo village revealed that they neither received nor understood capacity building activities through the Destana program, both individual and community groups in the village

The lack of understanding of the Destana program stems from the uneven distribution of training activities. As mentioned previously, this inequality is because the Destana program is new in Sitarjo village and its village government has not followed up the program with institutional reform activities. Thus, one main problem is the lack of follow-up of the village government in the Destana program.

This problem also affects the perspective of village residents. In addition, the community is reluctant to participate in the training. The community perceives that they already have the ability to reduce disaster risk in their area. In addition, the community is also reluctant to respond to various capacity building activities in DRR programs because they believe this program is only to bring assistance/funding to them and not increase their DRR capacity.

HR is one of the main objects of capacity building. This study found that capacity building for HR carried out by the Government and disaster NGOs in Sitarjo village was not accepted by the entire community, either because of its uneven distribution or the community's belief not adhering to them.

Conclusion

Perka BNPB No. 01 of 2012⁷ concerning general guidelines for disaster-resilient villages/subdistrict to realize a disaster-resilient village adheres with the existing capacity building theory. The national policy contains various DRR knowledge that can be implemented in disaster-prone villages including the demand for capacity building in these villages including in Sitarjo village. Capacity building can start from human resources training in Sitarjo village including the community, volunteers, FPRB and the village government. In addition, FPRB is one component in organizational strengthening in the Destana program. This is aimed at realizing community independence in dealing with DRR in their area.

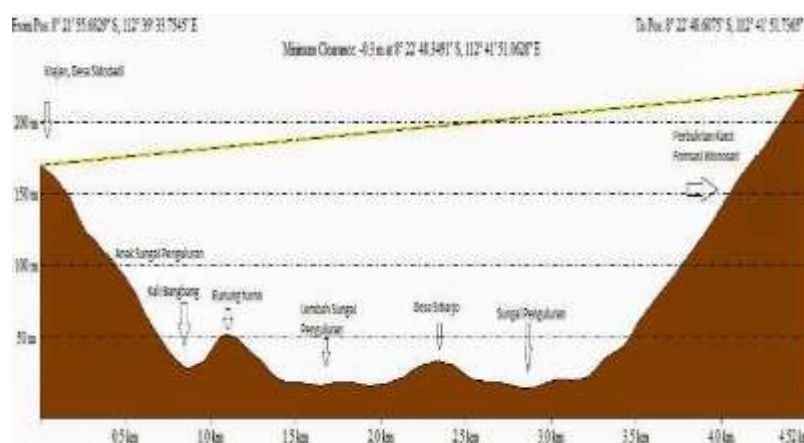


Figure 4: Section of Sitarjo Village

However, the capacity and willingness of the village government and communities are obstacles in capacity building in Sitarjo village based on the absence of a policy in capacity building on the dimensions of system / institutional reform. It is necessary to have a policy in the form of a village regulation (Peraturan Desa / PerDes) made by the village government to strengthen the resilience of Sitarjo village in DRR activities in its area.

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