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Assessment of community and local government capacity to coping landslide susceptibility in Babakan Madang District, Bogor Regency

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ABSTRACT

Babakan Madang District is one of the landslide-prone areas in Bogor Regency. Therefore, to anticipate the situation, it is crucial to understand the level of landslide susceptibility and the capacity of the community and local government. High community and local government capacity can reduce disaster risk and increase the community's ability to recover and adapt after a disaster occurs. The objectives of this study are: 1) Identifying the level of landslide susceptibility in Babakan Madang District; 2) Identifying the level of community capacity in Babakan Madang District; and 3) Identifying the level of local government capacity in Babakan Madang District. The data used are secondary data (documents and maps) and primary data (interviews, questionnaires, and observations). Landslide susceptibility analysis uses six parameters, namely rainfall intensity, rock type, soil type, slope gradient, and land use. Community and local government capacity analysis uses four parameters each, namely Facilities and Infrastructure, Human Resources, Economy, and Institutional. The analysis results show that 75.16% of Babakan Madang District has a moderate level of landslide susceptibility, and the remaining 24.84% has a high level of landslide susceptibility. Overall, the level of community and local government capacity is high, but the level of institutional capacity parameters is still low. Therefore, to strengthen disaster risk reduction in Babakan Madang District, the low institutional capacity of the community and local government needs to be improved.

Keywords: *Capacity of community, disaster risk reduction, landslide, local government, susceptibility level*

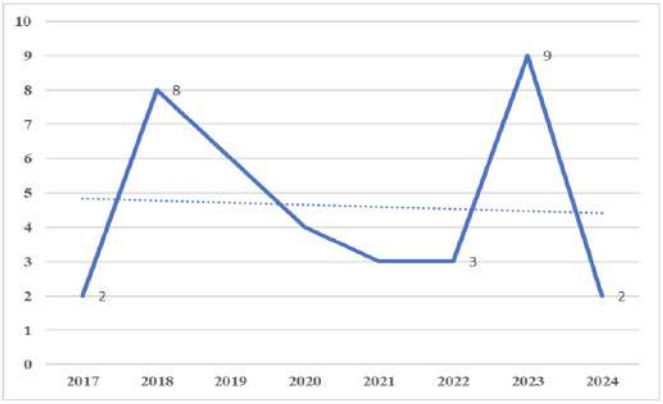
INTRODUCTION

Assessments of community and government capacity and disaster susceptibility are crucial in disaster risk management. Capacity is the overall strength, attributes, and resources possessed by a community, organization, or society to face, manage, and reduce disaster risk, as well as enhance the ability to recover and adapt after a disaster occurs(Lana et al., 2024). According to the Sendai Framework for Disaster Risk Reduction 2015-2030, strengthening the capacity of communities and local governments is a crucial component in enhancing resilience to disasters (Fakhri et al., 2017). This is reflected in the Sendai Framework for Disaster Risk Reduction 2015-2030, the first priority is "understanding disaster risk", and the second priority is "strengthening disaster risk governance for disaster risk management" (UNDRR, 2015).

Landslide is the movement of a mass of soil or rock down a slope due to loss of stability, triggered by natural factors or human activities (Lana et al., 2024; Dewi & Istiadi, 2016; Dewi & Abdi, 2017; Sobirin et al., 2017). Landslides occur because the driving force is greater than the resisting force. The driving force is influenced by the slope angle, water seeping into the ground, soil type, and rock type, while the resisting force is influenced by the soil and rock type (Sulistio et al., 2020). Natural factors that influence landslide occurrences include high rainfall, steep slopes, sandy soil types, distance from faults, and geological factors (Dewi et al., 2022; Isnaini, 2019; Istiadi & Priatna, 2021; Prastica, 2020; Setiawan & Wibowo, 2023; Yasien et al., 2021). Human activities that influence landslides include land use, infrastructure, and settlement density (Dewi & Akbar, 2025; Pratiwi et al., 2022; Istiadi & Priatna, 2021). Landslides have the potential to cause significant losses to the surrounding environment, including damage to infrastructure and public facilities, as well as loss of life and missing persons. Therefore, efforts are needed to reduce the risk by assessing the capacity of communities and local governments, as well as the landslide susceptibility of an area.

According to the data from the Bogor Regency Disaster Management Agency (BPBD) in 2024, landslides in Bogor Regency ranked first with 30.86% compared to other disasters. Meanwhile, according to the Bogor Regency Regional Regulation No. 1 of 2024 concerning the Bogor Regency Spatial Plan (RTRW) for 2024-2044, Babakan Madang District is one of 33 districts prone to landslides. According to the Bogor Regency Disaster Management Agency (BPBD) data, landslides in Babakan Madang from 2012 to 2023 totaled 212 incidents, affecting 1,532 people, and causing damage to 802 units of physical infrastructure (houses, utilities, and public facilities) (BPBD Bogor District,

2024). The high intensity of landslides in Babakan Madang District is related to the hilly topography, rainfall, as well as soil texture and porosity (Siwi, 2009). Landslide data from 2017 to 2023 in Babakan Madang District indicates that high rainfall is one of the triggers for landslides (Figure 1). The damage includes infrastructure (roads & bridges) and residential houses.



Source: Open Data Bogor Country 2017-2019; BPS 2020-2024).

Figure 1. Number of landslides in Babakan Madang District 2017-2024.

In addressing the landslide-prone condition of Babakan Madang District, the community and local government are required to have adequate capacity to manage disaster risk, thereby reducing disaster risk across all sectors. A hazard can turn into a disaster if the capacity of the community and local government is inadequate to face the threat (Lana et al., 2024). Therefore, to reduce disaster risk, the government and community must enhance their capacity to cope the threat of landslides. Capacity building for the community and local government is a non-structural mitigation effort.

Previous research on landslides in various locations in Bogor Regency by other researchers has mostly focused on: identifying landslide susceptibility (Rahayu et al., 2019; Ezrahayu et al., 2024), landslide risk associated with spatial planning (Dewi et al., 2021), and landslide susceptibility linked to spatial planning (Pratiwi et al., 2022; Ramadhan & Kurniawan, 2021;Wardhana et al., 2023). This study examines landslide susceptibility levels in relation to the capacity of the community and local government. This study is intended as an initial step in non-structural mitigation efforts to reduce the risk of landslides in Babakan Madang District.

Based on these reasons, a study is needed to assess the potential threat by identifying the level of landslide susceptibility and the capacity of the community and local government in Babakan Madang District. Therefore, the objectives of this research are: 1) Identifying the level of landslide susceptibility in Babakan Madang District, 2) Identifying the level of community capacity in Babakan Madang District, and 3) Identifying the level of local government capacity in Babakan Madang District.

METHODS

Location of Study

The research was conducted in Babakan Madang District, geographically located at coordinates 106°50'–106°58' East Longitude and 6°30'–6°39' South Latitude, with a total area of 9,237.90 ha. The district consists of nine villages. Administratively, the study area is bounded by Citeureup and Cibinong Districts in the north, Megamendung District in the south, Sukamakmur District in the east, and Sukaraja District in the west (Figure 2).

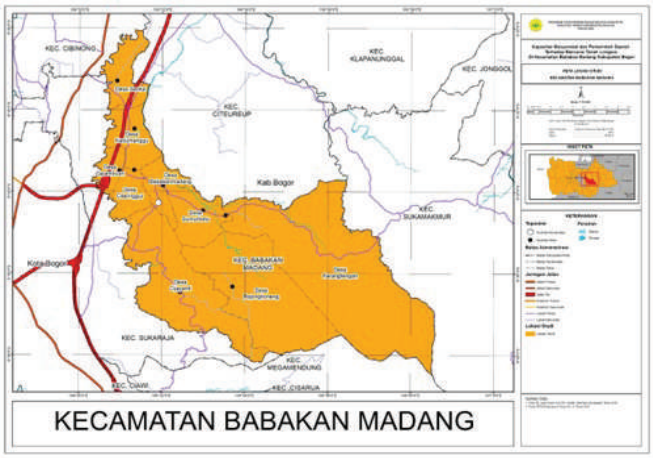


Figure 2. Map of study location in Babakan Madang District, Bogor Regency.

Data Collection

Data were collected from August 2023 to July 2024. Primary data collection used interview and field observation techniques. Interviews were conducted using a questionnaire instrument. Field observations utilized camera and GPS tools. Secondary data collected included landslide event documents, population data, infrastructure, slope gradient maps, soil type maps, rock type maps, land use maps, and rainfall maps. These data were obtained from Babakan Madang District, Bapedalitbang Bogor Regency, BPBD Bogor Regency and BNPB websites, as well as journals, proceedings, and reports accessed online.

The sampling technique for interviewing local government capacity used purposive sampling with a sample size of 10, corresponding to the number of villages (nine villages) and one Babakan Madang District. The interviewees were village and district officials. To determine the weight of landslide susceptibility and capacity of communities and local government parameters, interviews were conducted with three sources: 1) a field practitioner from the Prevention and Preparedness Division of BPBD Bogor Regency, 2)

an academic expert in environmental geology from Pakuan University, and 3) a field practitioner from Babakan Madang District. Interviews were also used to collect data on landslide events in Babakan Madang District. Data capacity of the community was collected by a questionnaire instrument. Sample size determined by Slovin's Formula (Antoro, 2024) as follows:

$n = N/(N.e^2+1)$

where:
n = sample size of Babakan Madang District
N = population of Babakan Madang District in 2022
e = error 10%

Based on the calculation results, the sample size obtained was 100 respondents.

The sampling technique for community capacity data is proportionate stratified random sampling. The formula used is developed by LSI (2006 cited in Ulya et al., 2018) as follows:

$ni = n \times Pi$

where:
i = 1,2,……,9
ni = sample size of the i^{th} village
n = sample size of Babakan Madang District
Pi = population of the i^{th} village divided by population of Babakan Madang District

Observations were conducted to verify the results of landslide susceptibility analysis with actual landslide locations in the field based on data from BPBD Bogor Regency. Additionally, observations assessed physical capacity, including evacuation routes, the number of health facilities, the crisis center, and disaster infrastructure developed by the community and local government.

Analysis

Landslide susceptibility analysis was conducted using five key parameters: rainfall intensity, rock type , soil type, slope gradient, and land use. Each parameter was assigned a weight and score, and then overlaid using ArcGIS 10.8. The parameters used are listed in Table 1.

Table 1. Parameter, weight & score of landslide susceptibility in Babakan Madang District.

Parameter	Range	Value	Weight	Score
Rainfall intensity (mm/yr) (RF)	<1500	1	0.252	0.252
	1501-2000	2		7.056
	2001-2500	3		0.756
	2501-3000	4		1.008
	>3000	5		1.26
Rock Type (RT)**	Aluvial	1	0.174	0.174
	Sediment, Limes stone	3		0.522
	Volcanic rock	5		0.87
Soil Type (ST)**	Alluvial, Grey Alluvial Association	1	0.145	0.145
	Yellow Brown Latosol Association	2		
	Brown Latosol, Reddis-brown Latosol, Grumosol	3		0.435
	Andosol, Podsol	4		
	Regosol	5		0.725
Slope Gradient (%) (SG)*	<15	1	0.184	0.184
	15-30	2		0.368
	30-50	3		0.552
	50-70	4		0.736
	>70	5		0.92
Land Use (LU)**	Water bodies, Forests, and dense vegetation	1	0.245	0.245
	Shrubs, Mixed gardens	2		0.49
	Plantations, Irrigated rice paddies	3		0.735
	Settlements, Industrial zones	4		0.98
	Open space	5		1.225

Source: Dewi & Akbar, 2025; *Wardhana et al., 2023; **Sunardi et al., 2022.

Total score of susceptibility calculated by formula:
Total Score = 0.252RF + 0.174RT + 0.145ST + 0.184SG + 0.245LU

Class interval for landslide susceptibility is determined by the formula:

$$Interval = \frac{Max\ score - Min\ score}{Number\ of\ Classes}$$

The landslide susceptibility classification can be seen in Table 2.

Table 2. Classification of landslide susceptibility in Babakan Madang District.

No	Classification of Landslide Susceptibility	Score
1	Low	2,60-3,23
2	Medium	3,24-3,87
3	High	3,88-4,50

The landslide susceptibility map's accuracy is evaluated using overall accuracy and *Khat* (Kappa) statistic (Lillesand & Kiefer, 2000 cited in Dewi & Akbar, 2025) by using the below formula:

$$Overall\ Accuracy = \frac{(\sum X_{ii})}{N} \times 100\%$$

$$K = \frac{\mathcal{N}\sum_{i=1}^{r} xii - \sum_{i=1}^{r}(x_{i+}\ x_{+1})}{\mathcal{N}^2 - \sum_{i=1}^{r}(x_{i+}\ x_{+1})}$$

where:
K = Kappa
$\sum X_{ii}$ = Diagonal column sample size
X_{i+} = Total samples in the i^{th} row
X_{+i} = Total sample in the i^{th} column
N = Total Sample (212)

Substantial agreement accuracy when Kappa value >0.6-0.80 and almost perfect agreement when Kappa value >0.81 (Vierra & Garret, 2005 cited in Dewi & Akbar, 2025). The landslide events calculated using the formula are 212 samples and verified through interviews with the community.

The capacity of the community is assessed through 4 parameters namely: Facilities & Infrastructure (FI), Human Resources (HR), Economic (Ec), and Institution (In). See Table 3.

Table 3. Parameters, indicators, and score of community capacity in Babakan Madang District.

Parameter & Weight capacity	Indicator	Range	Value	Score
Facilities & Infrastructure (FI) (Weight 0.10)	Availability of evacuation routes and shelters	No	1	0.05
		Yes	5	0.25
	Availability of disaster facilities and infrastructure (TPT)	No	1	0.05
		Yes	5	0.25
Human Resources (HR) (Weight 0.45)	Availability of emergency organizations	No	1	0.09
		Yes	5	0.45
	Engagement in disaster risk reduction education	No	1	0.09
		Yes	5	0.45
	Engagement in disaster risk education program	No	1	0.09
		Yes	5	0.45
	Involvement in disaster training	No	1	0.09
		Yes	5	0.45
	Social relationships	No	1	0.09
		Yes	5	0.45
Economic (Ec) (Weight 0.42)	Average income	<UMR	1	0.084
		>UMR	5	0.42
	Having insurance	No	1	0.084
		Yes	5	0.42
	Receipt of aid	No	1	0.084
		Yes	5	0.42
	Effort of Disaster Preparedness	No	1	0.084
		Yes	5	0.42
	Activity of Sticky rice collection	No	1	0.084
		Yes	5	0.42
Institutional (In) (Weight 0.03)	Disaster risk assessment	No	1	0.03
		Yes	5	0.15

Total score of community capacity (CC) calculated by using the formula:
Total Score CC = 0.10 FI + 0.45 HR + 0.42 Ek + 0.03 In

To determine the capacity classification of the community, the interval value is calculated with formula:

$$Interval = \frac{Max\ score - Min\ score}{Number\ of\ Classes}$$

Interval level of community capacity components shown in Table 4.

Table 4. Interval level of Community capacity Components.

Community Capacity Components	Low	Medium	High
Facilities & Infrastructure (FI)	0.1 - 0.23	0.24 - 0.36	0.37 - 0.5
Human Resources (HR)	0.45 - 1.04	1.05 - 1.64	1.65 - 2.25
Economic (Ec)	0.42 - 0.97	0.98 - 1.53	1.54 - 2.1
Institution (In)	0.03 - 0.06	0.07 - 1.10	0.11 - 0.15
Total	1 - 2.33	2.34 - 3.66	3.67 - 5

Local government capacity is analyzed using four parameters, namely: Facilities & Infrastructure (FI), Human Resources (HR), Economic (Ec), and Institution (In) (Table 5).

Table 5. Parameters, indicators and Score of local government capacity In Babakan Madang District.

Parameter & Weight Capacity	Indicators	Range	Value	Score
Facilities & Infrastructure (FI) (Weight 0.28)	Health Facilities (unit)	<10	1	0.07
		10 - 20	3	0.21
		>20	5	0.35
	Evacuation Route	No	1	0.07
		Yes	5	0.35
	Disaster Mitigation Infrastructure	No	1	0.07
		Yes	5	0.35
	Crisis Centre	No	1	0.07
		Yes	5	0.35
Human Resources (HR) (Weight 0.24)	Disaster Organization	No	1	0.06
		Yes	5	0.3
	Disaster Training	No	1	0.06
		Yes	5	0.3
	Disaster Socialization	No	1	0.06
		Yes	5	0.3
	Community outreach on disaster	No	1	0.06
		Yes	5	0.3
Economic (Ec) (Weight 0.35)	Disaster risk reduction initiatives	No	1	0.35
		Yes	5	1.75
Institution (In) (Weight 0.13)	Disaster risk assessment	No	1	0.13
		Yes	5	0.65

Total Score of Local Government calculated by formula:
Total Score = 0,28 FI + 0.24 HR + 0.35 Ec + 0.13 In

To determine the capacity classification of local governments, the interval value is calculated by using the formula:

$$Interval = \frac{Max\ score - Min\ score}{Number\ of\ Classes}$$

The detailed classification can be found in Table 6.

Table 6. Classification of local government capacity in Babakan Madang District.

Local Government Components	Interval		
	Low	Medium	High
Facilities & Infrastructure (FI)	0.28 - 0.64	0.65 - 1.02	1.03 - 1.4
Human Resources (HR)	0.12 - 0.47	0.48 - 0.83	0.84 - 1.2
Economic (Ec)	0.35 - 0.8	0.81 -1.27	1.28 - 1.75
Institution (In)	0.13 - 0.3	0.31 - 0.47	0.48 - 0.65
Total	1 - 2.33	2.34 - 3.66	3.67 - 5

RESULTS AND DISCUSSION

Landslide Susceptibility Level in Babakan Madang District

Babakan Madang District has moderate (6.942,85 ha or 75.16%) to high (12.295,05 ha or 24.84%) landslide susceptibility. The villages that have a high level of landslide susceptibility, covering most of their areas, are Sumur Batu (82.99%), Citaringgul (73.53%), and Babakan Madang (66.65%). Meanwhile, other villages such as Bojong Koneng, Karang Tengah, Cipambuan, Kadumangu, and Sentul have mostly (>80%) moderate landslide susceptibility.

This moderate to high landslide susceptibility has resulted in negative impacts. This condition is evident from disaster events in areas with moderate landslide susceptibility, namely Karang Tengah Village (April 30, 2024) and Sentul Village (April 24, 2024), as well as disaster events in areas with high landslide susceptibility, namely Citaringgul Village (April 2, 2024), Sumur Batu Village (November 30, 2024), and Babakan Madang Village (November 28, 2024). The impacts of the landslide disaster are: damage to residents' homes, disrupting access due to damage in transportation infrastructure, and causing people to evacuate. The main trigger is high rainfall intensity, with most (97.87%) of Babakan Madang District having rainfall >3000 mm/year. Additionally, Babakan Madang District has brown latosol soil type (50.84%) and regosol soil type (37.17%). Latosol soil has a loose structure and low plasticity (Rahmawati et al., 2023) making it prone to landslides when rainfall is high. Regosol soil is highly susceptible to erosion, therefore, when rainfall is high, it is prone to landslides. This is evident in villages with high landslide susceptibility, namely Sumur Batu, Babakan Madang, and Citaringgul, where most of the area (>80%) has regosol soil type. Similarly, in terms of rock type, Babakan Madang District has volcanic rock type (83.32%). Volcanic rocks are prone to weathering (Afasedanja, 2020), thus when rainfall is high, it is potentially prone to landslides.

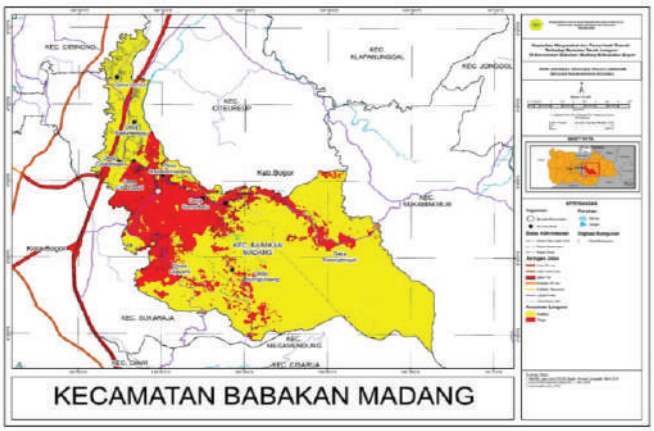


Figure 3. Level of landslide susceptibility in Babakan Madang District.

The accuracy test results for landslide susceptibility analysis using Overall Accuracy and Kappa Statistic in Babakan Madang District show an Overall Accuracy value of 83.49% and a Kappa statistic of 66.92%. These values indicate that the accuracy of the landslide susceptibility map in Babakan Madang District, resulting from the analysis, is substantially accurate (Substantial Agreement Accuracy). The landslide susceptibility is seen Table 7 and Figure 3.

Table 7. The Level of landslide susceptibility in Babakan Madang.

No	Village	Susceptibility Level					
		Medium	%	High	%	Total	%
1	Cijayanti	880.511	52.89	784.133	47.11	1664.644	18.02
2	Bojong Koneng	1662.711	87.33	241.310	12.67	1904.120	20.61
3	Karang Tengah	3103.124	89.77	353.710	10.23	3456.834	37.42
4	**Sumur Batu**	91.314	17.01	445.450	**82.99**	536.764	5.81
5	**Babakan Madang**	98.120	33.35	196.101	**66.65**	294.221	3.18
6	**Citaringgul**	67.571	23.47	220.360	**76.53**	287.931	3.12
7	Cipambuan	203.945	99.89	0.225	0.11	204.170	2.21
8	Kadumangu	395.620	88.30	52.430	11.70	448.050	4.85
9	Sentul	439.934	99.70	1.330	0.30	441.264	4.78
Babakan Madang District		6,942.85	75.16	2,295.050	24.84	9,237,900	100

Capacity of Community in Babakan Madang District

Overall, the capacity level of Babakan Madang community in facing landslides threat is high. Out of the 4 components assessed, the capacity of Financial (FI), Human Resources (HR), and Economic (Ec) components are at a high level, resulting in a high total capacity level of the community. Despite this, the community's institutional capacity is still low. Institutional capacity refers to the ability to conduct disaster risk assessments, participate in program planning, coordinate, implement, and evaluate policies effectively and efficiently in disaster management. Although the overall FI capacity is high, but 6 out of 9 villages (66.67%) have medium capacity, and similarly, 5 out of 9 villages (55.56%) have medium capacity in terms of HR. Notably, two villages with high landslide susceptibility, namely Sumur Batu, and Citaringgul, have medium capacity for FI and HR. This means that despite having an overall high capacity, not all villages have the same level of capacity. In addition to that one village with high landslide susceptibility namely Babakan Madang, has medium capacity for FI (See Table 8 and Figure 4).

A high level of community capacity in facing landslide threats is crucial for disaster risk reduction. Disaster risk reduction essentially means reducing vulnerability, mitigating threats, and increasing capacity. The relationship between capacity and disaster risk is inversely proportional. Therefore, a high level of community capacity can reduce disaster risk. Additionally, high community capacity enables them to adapt and become resilient more quickly after a landslide disaster.

Table 8. Capacity of community in Babakan Madang District.

No	Village	Capacity of Community								Total	Level
		FI	Level	HR	Level	Ec	Level	Ins	Level		
1	Cijayanti	0.5	High	2.25	High	2.1	High	0.03	**Low**	4.88	High
2	Bojong Koneng	0.5	High	2.25	High	2.1	High	0.03	**Low**	4.88	High
3	Karang Tengah	0.5	High	2.25	High	2.1	High	0.03	**Low**	4.88	High
4	**Sumur Batu**	0.3	**Med**	**1.53**	**Med**	2.1	High	0.03	**Low**	**3.96**	High
5	**Babakan Madang**	0.3	**Med**	**2.25**	High	2.1	High	0.03	**Low**	4.88	High
6	**Citaringgul**	0.3	**Med**	**1.53**	**Med**	2.1	High	0.03	**Low**	**3.96**	High
7	Cipambuan	0.3	**Med**	**1.53**	**Med**	2.1	High	0.03	**Low**	**3.96**	High
8	Kadumangu	0.3	**Med**	**1.53**	**Med**	2.1	High	0.03	**Low**	**3.96**	High
9	Sentul	0.3	**Med**	**1.53**	**Med**	2.1	High	0.03	**Low**	**3.96**	High
Average Babakan Madang District		0.37	High	1.85	High	2.10	High	0.03	**Low**	4.35	High

Figure 4. Capacities of community in Babakan Madang District.

Capacity of Local Government in Babakan Madang District

The total capacity level of Local Government in Babakan Madang District is high. Based one 4 components assessed, the capacity components of FI, HR, and Ec are at a high level, resulting in an overall high level of local government capacity. However, the institutional component remains at a low level across all villages. The local government of Babakan Madang District has not conducted specific disaster studies, particularly for areas with steep slope typologies. Although the Facilities and Infrastructure component has an overall high level, not all villages have achieved this level, with 3 villages (33.33%), namely: Citaringgul, Cipambuan and Kadumangu still at a medium level. One of these villages is Citaringgul, which have high landslide threats (see Table 9 and Figure 5).

Table 9. Capacity of local government in Babakan Madang District.

No	Village	Capacity Components of Local Government								Total	Level
		FI	Level	HR	Level	Ec	Level	Ins	Level		
1	Cijayanti	1.1	High	1.2	High	1.75	High	0.13	**Low**	4.18	High
2	Bojong Koneng	1.1	High	1.2	High	1.75	High	0.13	**Low**	4.18	High
3	Karang Tengah	1.1	High	1.2	High	1.75	High	0.13	**Low**	4.18	High
4	**Sumur Batu**	1.1	High	1.2	High	1.75	High	0.13	**Low**	4.18	High
5	**Babakan Madang**	1.3	High	1.2	High	1.75	High	0.13	**Low**	4.18	High
6	**Citaringgul**	0.8	**Med**	1.2	High	1.75	High	0.13	**Low**	**3.88**	High
7	Cipambuan	1.1	High	1.2	High	1.75	High	0.13	**Low**	4.18	High
8	Kadumangu	0.8	**Med**	1.2	High	1.75	High	0.13	**Low**	**3.88**	High
9	Sentul	0.8	**Med**	1.2	High	1.75	High	0.13	**Low**	**3.88**	High
Average Babakan Madang District		1.02	High	1.2	High	1.75	High	0.13	**Low**	4.10	High

Figure 5. Capacity of local government in Babakan Madang District.

Capacity refers to the abilities and strengths that exist within the community and local government that enable prevention, preparedness, response, and recovery efforts from disaster impacts to be carried out more quickly (Rahmawati & Fariz, 2024). In disaster risk, the influential variables are: Threat, Exposure, and Adaptability. The form of adaptation can be the capacity of local government and community in facing threats. Based on this, high landslide threats can be balanced with high capacity of community and local government, enabling the community to recover quickly after a disaster. The distribution of community and local government capacity towards landslide threats shows that 75% of areas with medium landslide threats have high local government and community capacity. However, three villages with high landslide susceptibility, namely Sumur Batu, Babakan Madang, and Citaringgul (Table 10).

Table 10. Capacity of community and local government in dealing with landslide threats in Babakan Madang District.

No	Village	Area (ha)	Threat			
			T. Medium & C. High		T. High & C. High	
			ha	%	ha	%
1	Cijayanti	1,664.64	880.50	53%	784.14	47%
2	Bojong Koneng	1,904.02	1,662.71	87%	241.31	13%
3	Karang Tengah	3,456.83	3,103.12	90%	353.71	10%
4	**Sumur Batu**	536.76	91.31	17%	445.45	83%
5	**Babakan Madang**	294.22	98.12	33%	196.10	67%
6	**Citaringgul**	287.93	67.57	23%	220.36	77%
7	Cipambuan	204.17	203.94	99%	0.23	0%
8	Kadumangu	448.04	395.61	88%	52.43	12%
9	Sentul	441.26	439.93	99%	1.33	0%
Babakan Madang District		9,237.90	6,942.85	75%	2,295.05	25%

CONCLUSION

Most (75.16%) of Babakan Madang District has a moderate level of landslide susceptibility, while three villages - Sumur Batu Village (83%), Babakan Madang Village (67%), and Citaringgul Village (77%) - are categorized as having a high level of susceptibility. Overall, the capacity of both the community and the local government in responding to and managing landslide threats is considered high; however, several

villages still face critical capacity gaps. Sumur Batu Village, despite having the highest level of landslide susceptibility, possesses community capacity that remains below the average level of Babakan Madang District. Similarly, Citaringgul Village, which also has a high level of landslide threat, exhibits community and local government capacities that fall below the district average. In addition, two other villages—Kadumangu and Sentul—although categorized as having moderate levels of landslide susceptibility, still demonstrate community and local government capacities that are lower than the district's overall average.

Based on these conditions, the four villages require targeted efforts to strengthen their capacity, particularly with regard to Facilities and Infrastructure (FI) and Human Resources (HR), which remain key components in reducing disaster risks. More broadly, institutional capacity in Babakan Madang District still needs to be improved, especially in enhancing the community's ability to conduct comprehensive disaster risk assessments, participate meaningfully in disaster program planning, coordinate across sectors, and implement as well as evaluate disaster management policies effectively and efficiently. Furthermore, the local government also needs to strengthen institutional capacity related to specific and detailed disaster studies, especially in areas characterized by steep slope typologies, and to intensify community awareness programs concerning landslide risks and the potential consequences of residing in areas prone to landslides.

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