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Pre-Flood Design Assessment Based on the Needs of the Jambi Community (Case Study of Three Districts / Cities)

Andy Subandi[1], Dwi Noerjoedianto[2], Andy Amir[3]
[1,2,3]Faculty of Medicine and Health Sciences Universitas Jambi, Indonesia

Abstract

The community's role during a disaster within the first 24 - 72 hours before having government's aid is crucial in making the condition under control in a timely manner, disaster management institution, especially at local level, has not had any models for preparedness training through participative approach based on the local wisdom of Jambi community to reduce disaster risks. The research process is carried out in three stages, (1) the first part is a literature study conducted to obtain information about how to deal with natural disasters, (2) Field studies conducted in several areas related to floods in Jambi Province, (3)) Analysis Community needs are carried out by reviewing the design of the pre-disaster disaster planning system and the needs of the Flood Preparedness Community in three districts of Jambi province. A sample of 1000 people was divided into 3 groups. Each group will be completed in accordance with the pre-response system and community needs, then analyzed qualitatively. Meanwhile, to find out the management system design. Obtained preparedness data in the three villages with a total subject of 1000 people that 52.33% did not get information about the disaster or disaster preparedness, 64.6% never made an emergency plan for the family when there was a disaster, 68.67% never prepared emergency equipment (food, water, or emergency supplies), 68.27% had not attended disaster preparedness training in the past year, but only 6.2% had never discussed with neighbors about what to do in the event of a disaster. Based on the results of the research, several stages can be planned in the making of the pre-disaster assessment design as an alternative to minimize losses from disasters, which can then be developed as a disaster plan process and making mitigation in accordance with the needs of each district.

Keywords
notary legal remedies; registration; business agencies; administration system

I. Introduction

Indonesia is a country where various regions are in a disaster-prone zone. Disasters that occur are the result of both nature and human error. These disasters can have many impacts, including: environmental damage, human casualties, loss or damage to property, changes in the system of life, and community livelihoods (Sugiyanto & Amalia, 2009)

Flood disasters are also a frequent disaster in ASIA, data obtained from Thailand's Department of Disaster Prevention and Mitigation (DDPM) stated that on November 6, 2016 around 6,000 households were affected by flooding in the center of Kanchanaburi and Phetchaburi provinces, Thailand. Vietnam's Disaster Management Committee (DMT)

reported a flood incident on 31 October 2016 with a loss of 227 houses damaged and 40,000 flooded. Heavy rains that occurred in several provinces in Vietnam from October 13th resulted in 35 deaths. Malaysia's National Disaster Management Agency (NADMA) reported that heavy rains caused catastrophic floods on November 7 - 8, 2016 and caused discomfort to thousands of residents in Penang.

Based on comparative data on the number of disasters in Indonesia in the last ten years 2008–2018 published by the National Disaster Management Agency (BNPB), floods are in the highest order of all types of disasters in Indonesia. Flood disaster data includes floods caused by human roles, either directly or indirectly. 978 of the 2873 incidents were recorded, which resulted in people dying, missing, injured, 10.2 million people displaced and affected, and 319,527 houses damaged. (BNPB 2018)

Flood disasters are caused by several factors, namely the factor of rain, the factor of the destruction of the retention of the watershed (DAS), the factor of error in planning river channel development, the factor of silting the river and the factor of errors in zoning and construction of facilities and infrastructure (Maryono, 2005).

Muaro Jambi Regency, especially Kumpeh District, is one of 11 districts that often experiences the impact of floods in the Muaro Jambi Regency area. Kumpeh sub-district with its plains topography, has an area of + 446 km2 due to the 2018 floods. The risk impact that occurs is cut access to roads, children cannot go to school. Data from the Batanghari District Disaster Relief Agency (BPBD), hundreds of houses were flooded. Until December 12, 2018, 358 houses were flooded, including areas that are at risk of flooding

Muara Bulian Subdistrict, Maro Sebo Ilir Subdistrict, Pemayung Subdistrict and Mersam and Muara Tembesi Subdistricts, but not yet disturbing activities. Not only inundating residents' houses, the floods also inundated public facilities such as roads and school buildings. "The road was submerged 2,100 meters. One of them happened in Pulau Raman Village, Pemayung District 190 meters and Danau Embat Village 200 meters.

According to Indonesian government policy, local and provincial officials are required to be at the forefront of natural disaster management. While the National Disaster Management Agency and the army can assist in times of need, however, these policies have not created systematic changes at the local level. Regional disaster management agencies were planned in all provinces but only established in a few areas. In addition, the weaknesses of disaster management in Indonesia are partly due to the lack of resources and skills of local governments that still depend on the central government (Permanasari & Sunarto, 2011).

Definition of Government; Understanding government and governance can be found in a variety of literature that discusses political issues. The government is etymologically derived from the Greek word, "Kubernan" or ship captain. It means to look forward. The word command has four elements namely first, there are two related parties, second, both parties have a contractual relationship. Third, the ruling party has authority. The four people who are governed have obedience(Emas in Halik et al, 2020)

Community participation in the first response in dealing with disasters, especially the first 24 - 72 hours prior to the existence of disaster management assistance from the government is a critical action that can bring conditions under control more quickly. Misresponsiveness from the community at these critical times can worsen conditions in the disaster area. Community preparedness in disaster management is expected to reduce casualties and material losses.

All of these problems are serious disasters threatening a country's population, national security, economy, and sustainable development, to avoid this, preparedness and

mitigation should be immediately carried out to protect from major damage and losses from future disasters (Awuor, Orindi, & Adwera , 2008, Adelekan, 2010). Floods have a significant impact on community welfare, as well as acting as a huge burden on local institutions, as disaster response activities hinder preparedness programs implemented at the community level. With the introduction of the Disaster Management Action in 2005 and the consequent efforts of various disaster management agencies, flood management has improved relatively. the government has succeeded in reducing the flood water level from 207.49 (m) in 1978, and 207, 32 m in 2013. This reflects that even with relatively more water discharges such as 8,06,464 in 2013, lower areas will be submerged compared to past floods. However, if we measure the scale on the basis of severity in terms of damage and losses, people being evacuated, livelihoods lost, there is still much to be done to reduce the potential impact of disasters, especially community safety. (BNPB, 2013)

According to Indonesian government policy, local and provincial officials are required to be at the forefront of natural disaster management. While the National Disaster Management Agency and the army can assist in times of need, however, these policies have not created systematic changes at the local level. Regional disaster management agencies were planned in all province but only established in a few areas. In addition, the weaknesses of disaster management in Indonesia are partly due to the lack of resources and skills of local governments that still depend on the central government (Alim, S., Kawabata, M., & Nakazawa, M. 2015).

The Government and the National Disaster Management Agency have launched a training program on disaster response as well as conducted counseling and simulations in disaster-prone areas to make them an Alert Village. The Alert Village Program is a village or sub-district with residents who have readiness of resources as well as the ability and willingness to prevent and overcome problems or threats to health, disasters and emergencies independently. In the implementation of the Alert Village, it was known that the community's understanding of the program was not applied to the community. The Merapi volcano disaster simulation that was carried out involved all stakeholders, the government, health cadres, volunteers and the community. However, in this simulation the community only plays a passive role and takes action to secure themselves in times of disaster. not to help fellow citizens. The simulation is more towards disaster preparedness for stake holders and the government. This shows a lack of community empowerment in disaster preparedness in disaster-prone areas (Sugiyanto, G., & Amalia, AD (2009).

Disaster management agencies especially at the local level can play an important role for effective flood risk reduction with the support of district governments and communities, demonstrating that despite steps being taken by agencies for disaster preparedness, agencies still face obstacles in their implementation. institutional level, and have posed significant determinants for effective response by institutions including awareness and perception, financial resources, technical resources, effective policies, institutional arrangements, leadership and human resources (Eriksen & Prior, 2011)

Earnings management practices that are often carried out by management can reduce the quality of a company's financial statements, besides this action can harm investors because they will get inappropriate information about the company's financial position. It is considered to have become a serious problem faced by practitioners, accounting academics and finance in recent decades. (Sitanggang et al, 2020)

Disaster risk reduction needs to focus more on inclusiveness, especially from local urban agencies such as cities. Policy makers need to focus on addressing the underlying reasons and constraints that impede effective and efficient preparedness to respond to disasters through appropriate policy mechanisms and consultations with the stakeholders

involved. Building awareness and perceptions of various parties involved in disaster management together with the participation of communities at risk can significantly help in reducing the impact of future disasters (Deen, S. 2015). Social change is a change in the interaction relationship between people, organizations or communities, it can involve social structures, values and norms and roles. According to Sukowati (2011: 3) Social Change is "the process by which changes in the structure and function of a social system. These changes occur as a result of the inclusion of renewal ideas adopted by members of the relevant social system". Whereas Moore in Sukowati (2011: 7) "social change is a part of cultural change. Changes in culture include all parts which include art, science, technology, philosophy and so on ". (Ismail et al, 2019)

The government needs to identify and address social and economic problems in society because the above issues can overshadow the efforts made to reduce risks. To achieve effective flood risk reduction, direct links need to be developed between all disaster management institutions, especially local level agencies and communities, with community heads as the focal point to ensure that agencies work complementary to improve preparedness to respond to floods. Therefore, it is imperative for institutions especially at the local level to be involved in preparedness activities through a participatory approach with the community (Harvatt, Petts, & Chilvers, 2011). For this reason, research is needed that examines the preparedness and needs of the community before a disaster occurs.

II. Research Methods

The research process was carried out in three stages, (1) the first part, namely a literature study conducted to obtain information on how to handle natural disasters, (2) Field studies conducted in several areas that have the potential to flood disaster in Jambi Province, (3) Analysis community needs which are carried out by reviewing the design of a pre-disaster disaster plan system and the needs of the community in Flood Disaster Preparedness in three districts of Jambi province. A sample of 1000 people was divided into 3 groups. Each group will be analyzed according to the pre-disaster management system and community needs, then analyzed qualitatively. Meanwhile, to know the pre-disaster management system design measured quantitatively.

III. Results Discussion

3.1 Test Data Validity and Reliability

The validity test is used to measure whether a questionnaire is valid or not. The questionnaire is considered valid if the questions on the questionnaire are able to reveal something that is measured by the questionnaire is able to reveal something that is measured by the questionnaire. Validity testing in this study was carried out using.

The validity test was carried out by correlating the answer score for each question item with the total variable score. The correlation technique used is the Pearson product moment correlation technique in accordance with the ordinal data measurement scale. The number used as a comparison to see whether an item is valid or not is 0.3. While the reliability test is used to see the stability or consistency of the measurement results. A measuring instrument is said to be reliable if it is used repeatedly on one object to produce the same results. The reliability technique used is the consistency reliability between the author's items using the Cronbach alpha test.

a. Validity and Reliability Test of Ranatu Makmur Village

The following are the results of the validity and reliability tests in Ranatu Makmur Village based on the recapitulated IBM SPSS 21.0 output.

Table 1. Validity Test of Ranatu Makmur Village

Code	r Count	r Table	Information
X1	0.862	0.3	Valid
X2	0.556	0.3	Valid
X3	0.806	0.3	Valid
X4	0.724	0.3	Valid
X5	0.813	0.3	Valid

Source: Primary Data Processing Results, 2019

The results of the validity test in this research questionnaire must compare the item correlation number with the total correlation obtained with the r item number> r table (Ghozali, 2013: 45). Because the correlation figures obtained from the questions on the X1 - X5 indicators are above 0.3, these questions were decided to be significant and have good validity.

Table 2. Reliability Test of Ranatu Makmur Village

Cronbach Alpha value	Critical Point	Decision
0.811	0.6	Reliable

Source: Primary Data Processing Results, 2019

Reliability test in this study, using the Cronbach alpha method. A construct or variable is said to be reliable if it gives a cronbach alpha value> 0.60 (Ghozali, 2013: 41). Based on the calculation of the reliability test that the author has done. It was found that Ranatu Makmur Village had a Cronbach alpha value above 0.6, which was 0.811. This means that the instrument has reliable results, so that this instrument or questionnaire belongs to a reliable and consistent instrument.

b. Test the Validity and Reliability of the Olak Village

Following are the results of the validity and reliability tests at Olak Village based on the recapitulated IBM SPSS 21.0 output.

Table 3. Validity Test of Olak Village

Code	r Count	r Table	Information
X1	0.723	0.3	Valid
X2	0.701	0.3	Valid
X3	0.751	0.3	Valid
X4	0.770	0.3	Valid
X5	0.739	0.3	Valid

Source: Primary Data Processing Results, 2019

The results of the validity test in this research questionnaire must compare the item correlation number with the total correlation obtained with the r item number> r table (Ghozali, 2013: 45). Because the correlation figures obtained from the questions on the X1 - X5 indicators are above 0.3, these questions were decided to be significant and have good validity.

c. Validity and Reliability Test of Maju Jaya Village

The following are the results of the validity and reliability tests in Maju Jaya Village based on the recapitulated IBM SPSS 21.0 output.

Table 4. Validity Test of Maju Jaya Village

Code	r Count	r Table	Information
X1	0.801	0.3	Valid
X2	0.596	0.3	Valid
X3	0.735	0.3	Valid
X4	0.677	0.3	Valid
X5	0.741	0.3	Valid

Source: Primary Data Processing Results, 2019

The results of the validity test in this research questionnaire must compare the item correlation number with the total correlation obtained with the r item number> r table (Ghozali, 2013: 45). Because the correlation figures obtained from the questions on the X1 - X5 indicators are above 0.3, these questions were decided to be significant and have good validity.

Table 5. Reliability Test for Maju Jaya Village

Score	*Cronbach Alpha*	Critical Point	Decision
0.744		0.6	Reliable

Source: Primary Data Processing Results, 2019

Reliability test in this study, using the Cronbach alpha method. A construct or variable is said to be reliable if it gives a cronbach alpha value> 0.60 (Ghozali, 2013: 41). Based on the calculation of the reliability test that the author has done. It was found that Maju Jaya Village had a Cronbach alpha value above 0.6, which was 0.744. This means that the instrument has reliable results, so that this instrument or questionnaire belongs to a reliable and consistent instrument.

3.2. Overview of Preparedness activities

a. Rantau Makmur Village Preparedness Activities

The following is an analysis of preparedness activities in Ranatu Makmur Village as a whole consisting of 500 respondents.

Table 6. Preparedness Activities of Rantau Makmur Village

No.	Statement	Have been done	Will be done	Will Not Be Done	Could not be done	Total
1	Attend meetings or receive written information about natural disasters or preparedness disaster	23	40	112	325	500
		4.6%	8.0%	22.4%	65.0%	100.0%
2	Discuss with neighbors at your place of residence about what to do if disaster happened	338	114	37	11	500
		67.6%	22.8%	7.4%	2,2%	100.0%
3	Develop an emergency plan for the family that contains what each member will do family done	10	45	94	351	500
		2.0%	9.0%	18.8%	70.2%	100.0%

No.	Statement	Have been done	Will be done	Will Not Be Done	Could not be done	Total
	if it happens disaster					
4	Prepare "Emergency Supplies" (food, water, battery, or emergency supplies other	17	47	68	368	500
		3,4%	9.4%	13.6%	73.6%	100.0%
5	In the past year, has there been anyone in your living area who has attended preparedness training disaster	26	70	74	330	500
		5.2%	14.0%	14.8%	66.0%	100.0%

Based on the results of the calculation, it shows several points about preparedness activities in Ranatu Makmur Village as follows:

a. On questions about attending meetings or receiving information written about natural disasters or disaster preparedness, the majority of respondents said it could not be done with a percentage of 65.0%.
b. In the question about discussing with neighbors in your place of residence about what to do in the event of a disaster, the majority of respondents stated that it had been done with a percentage of 67.6%.
c. On the question about building an emergency plan for the family containing what each family member would do in the event of a disaster, the majority of respondents stated that it could not be done with a percentage of 70.2%.
d. on the question about preparing "Emergency Equipment" (food reserves, water, batteries, or other emergency items, the majority of respondents said it could not be done with a percentage of 73.6%.

In the question about during the last one year, whether there is someone in your living area who has attended disaster preparedness training, the majority of respondents said it could not be done with a percentage of 66.0%.

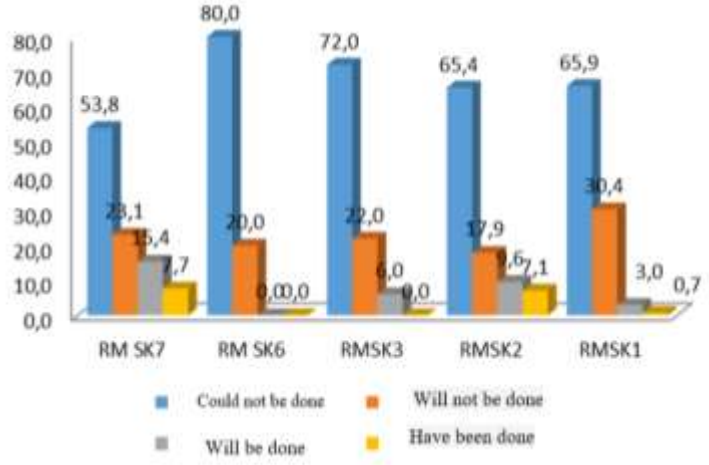

Figure 1. *Distribution Attending meetings or receiving written information about natural disasters or disaster preparedness (P1) by Region*

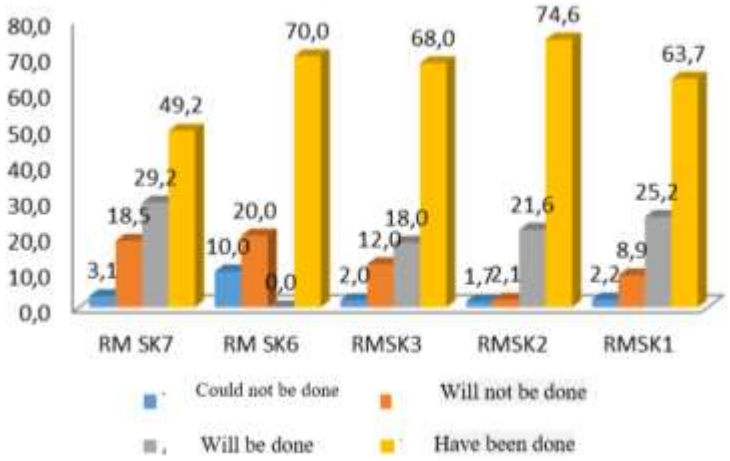

Figure 2*. Distribution Discuss with neighbors in your place of residence what will be done in the event of a disaster (P2) per region*

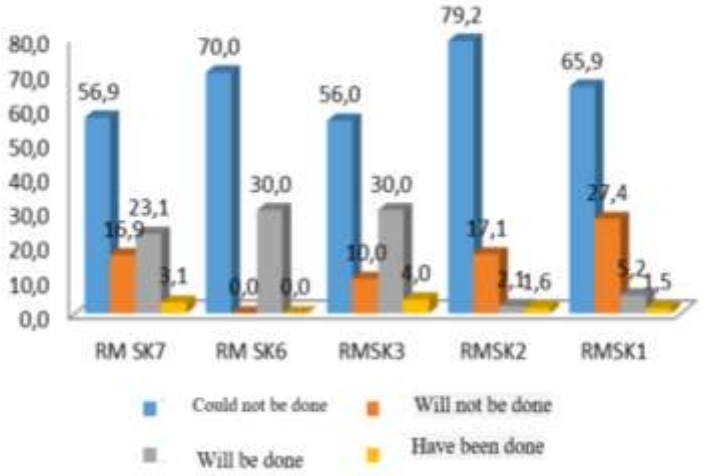

***Figure 3**. Distribution Developing an emergency plan for the family that contains what each family member will do if they happeni disaster (P3) Per Region*

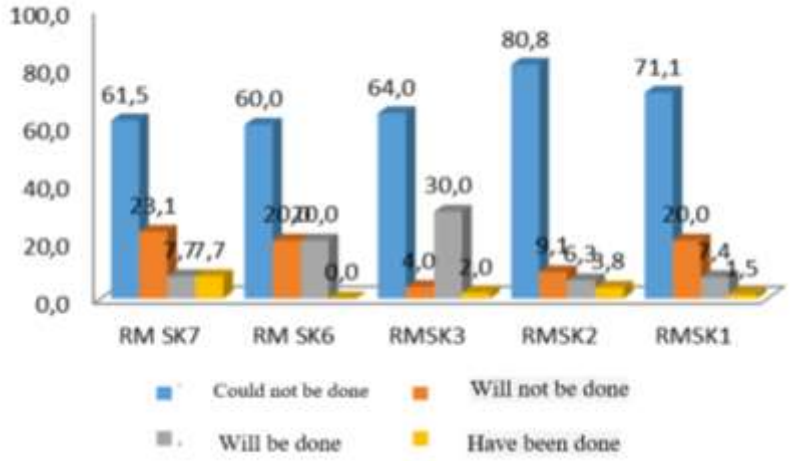

***Figure 4.** Distribution of Preparing "Emergency Equipment" (food, water, battery, or other emergency supplies (P4) by Region*

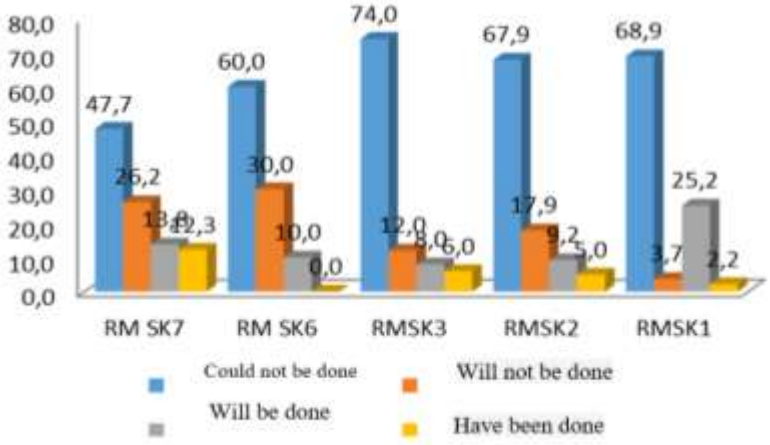

***Figure 5**. Distribution During the last one year, has anyone in your living area taken disaster preparedness training (P5) by Region*

b. Preparedness Activities in Olak Village

The following is an analysis of preparedness activities in Olak Village as a whole consisting of 250 respondents

Table 7. Preparedness Activities in Olak Village

No.	Statement	Have been done	Will be done	Will Not Be Done	Could not be done	Total
1	Attend meetings or receive written information about natural disasters or preparedness disaster	17	17	116	100	250
		6.8%	6.8%	46.4%	40.0%	100.0%
2	Discuss with neighbors at your place of residence about what to do if disaster happened	145	56	19	30	250
		58.0%	22.4%	76.4%	7.6%	100.0%
3	Develop an emergency plan for the family that contains what each family member will do when it occurs disaster	12	30	74	134	250
		4.8%	12.0%	29.6%	53.6%	100.0%
4	Preparing "Equipment Emergency"	15	18	36	181	250
		6.0%	7.2%	14.4%	72.4%	100.0%

No.	Statement	Have been done	Will be done	Will Not Be Done	Could not be done	Total
	(reserve food, water, batteries, or emergency goods other					
5	In the past one year, has there been anyone in your residence who has been on the preparedness training disaster	12	8	62	168	250
		4.8%	3,2%	24.8%	67.2%	100.0%

Based on the results of the calculation, it shows several points about preparedness activities in Olak Village as follows:

a. on questions about attending meetings or receiving written information about natural disasters or disaster preparedness, the majority of respondents said it would not be

done with a percentage of 46.4%.

b. On the question about discussing with neighbors in your place of residence about what to do in the event of a disaster, most respondents said they would not be done with a percentage of 76.4%.
c. On the question about building an emergency plan for the family containing what each family member would do in the event of a disaster, the majority of respondents said it could not be done with a percentage of 53.6%.
d. on the question about preparing "Emergency Equipment" (food reserves, water, batteries, or other emergency items, the majority of respondents said it could not be done with a percentage of 72.4%.
e. In the question about during the last one year, whether there is someone in your living area who has attended disaster preparedness training, the majority of respondents said it could not be done with a percentage of 67.2%.

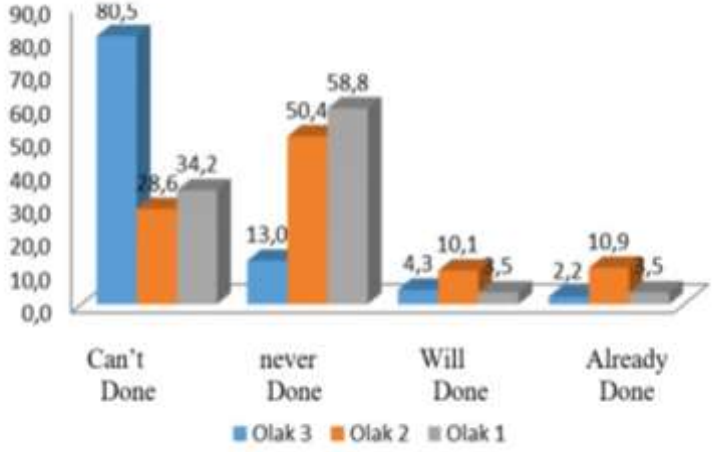

Figure 6. *Distribution Attending meetings or receiving written information about natural disasters or disaster preparedness (P1) by Region*

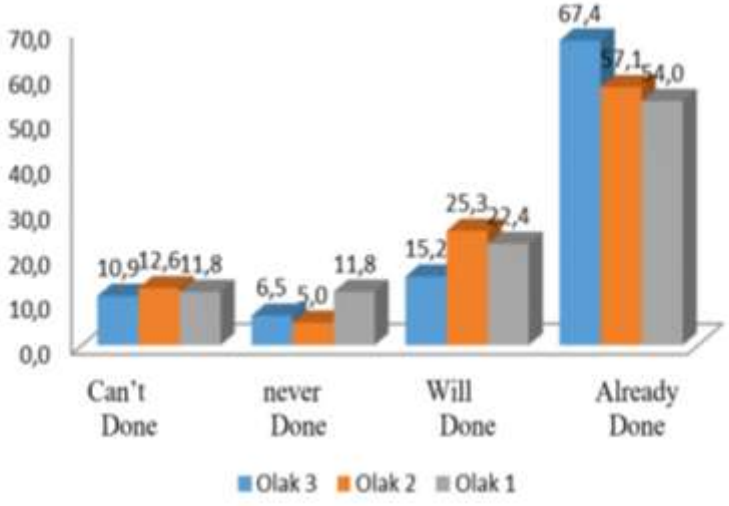

Figure 7. *Distribution. Discuss with your neighbors what will be done in the event of a disaster (P2) per region*

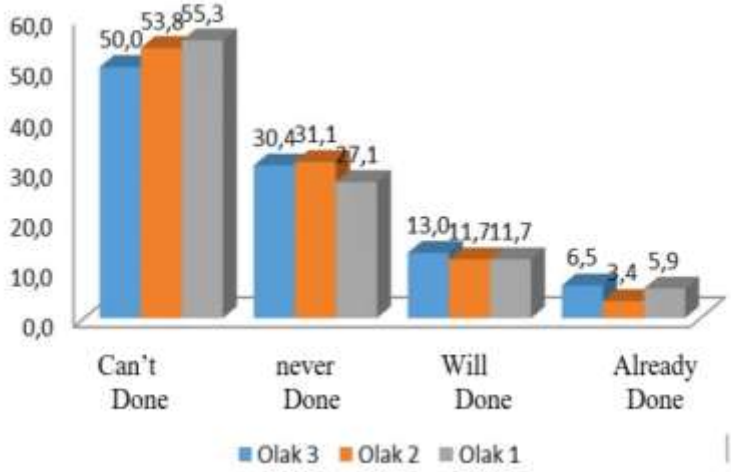

Figure 8. *Distribution Developing an emergency plan for families containing what each family member will do in the event of a disaster (P3) Per Region*

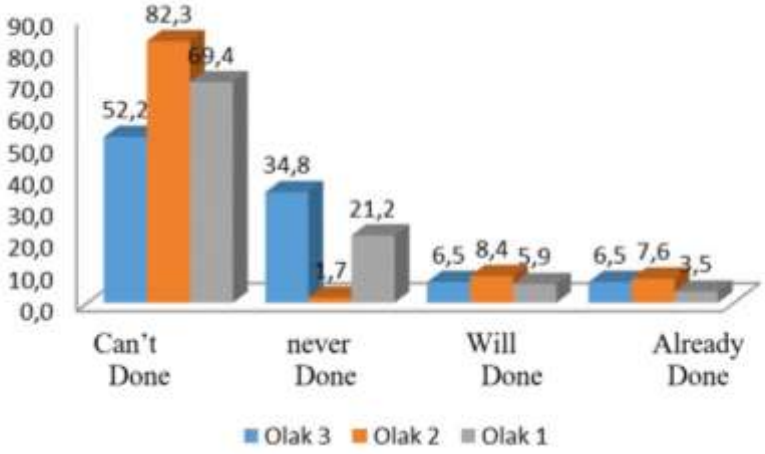

Figure 9. *Distribution of Preparing "Emergency Supplies" (food, water, battery, or other emergency supplies (P4) by Region*

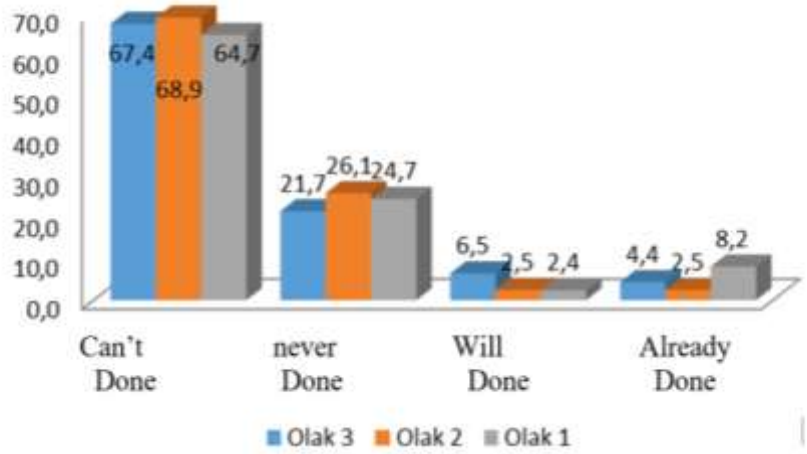

Figure 10. *Distribution Within the last one year, has there been anyone in your living area who has attended disaster preparedness training (P5) by Region*

Table 8. Preparedness Activities of Maju Jaya Village

No.	Statement	Have been done	Will be done	Will Not Be Done	Could not be done	Total
1	Attend meetings or receive written information about natural disasters or preparedness disaster	11	14	94	130	250
		4.4%	5.6%	38.0%	52.0%	100.0%
2	Discuss with neighbors at your place of residence about what to do if disaster happened	14	34	20	22	250
		69.6%	13.6%	8.0%	8.8%	100.0%
3	Develop an emergency plan for the family that contains what each member will do family done	18	21	36	175	250
		7.2%	8.4%	14.4%	70.0%	100.0%
	if it happens disaster					
4	Prepare "Emergency Supplies" (food, water, battery, or emergency supplies other	13	33	54	150	250
		5.2%	13.2%	21.6%	60.0%	100.0%
5	In the past one year, has there been anyone in your residence who has been on the preparedness training disaster	10	22	39	179	250
		4.0%	8.8%	15.6%	71.6%	100.0%

Based on the results of the calculation, it shows several points about preparedness activities in Maju Jaya Village as follows:

a. on questions about attending meetings or receiving written information about natural disasters or disaster preparedness, the majority of respondents said it would not be done with a percentage of 52.0%.
b. In the question about discussing with neighbors in your place of residence about what to do in the event of a disaster, the majority of respondents stated that it had been done with a percentage of 69.6%.

c. On the question about building an emergency plan for the family containing what each family member would do in the event of a disaster, the majority of respondents said it could not be done with a percentage of 70.0%.
d. on the question about preparing "Emergency Equipment" (food reserves, water, batteries, or other emergency items, the majority of respondents said it could not be done with a percentage of 60.0%.

In the question about during the last one year, whether there is someone in your living area who has attended disaster preparedness training, the majority of respondents said it could not be done with a percentage of 71.6%.

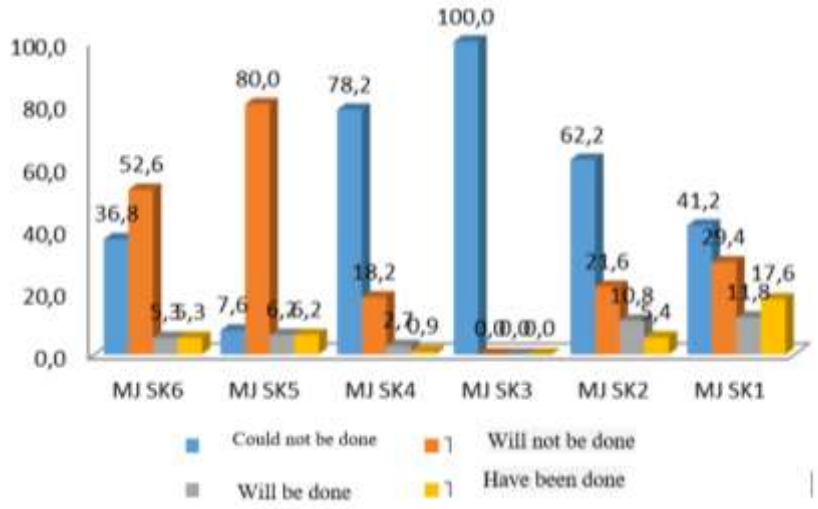

Figure 11. *Distribution Attending meetings or receiving written information about natural disasters or disaster preparedness (P1) by Region*

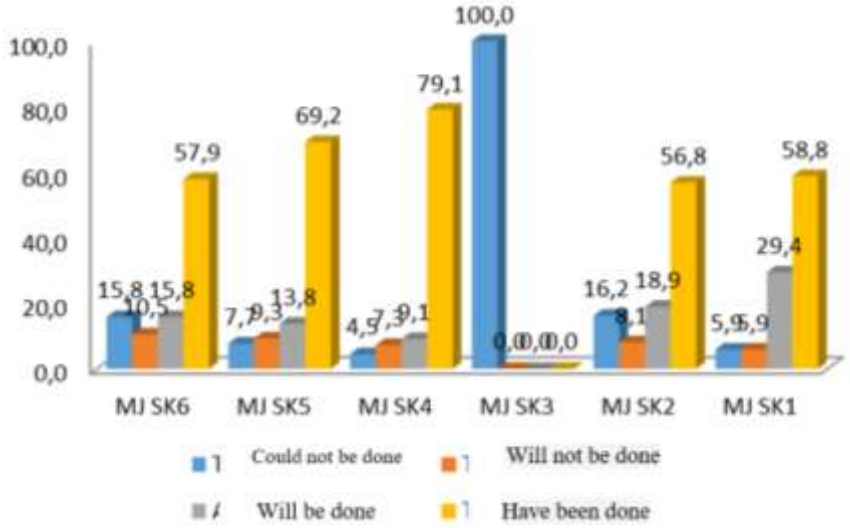

Figure 12. *Distribution Discuss with neighbors in your place of residence about what will be done in the event of a disaster (P2) per region*

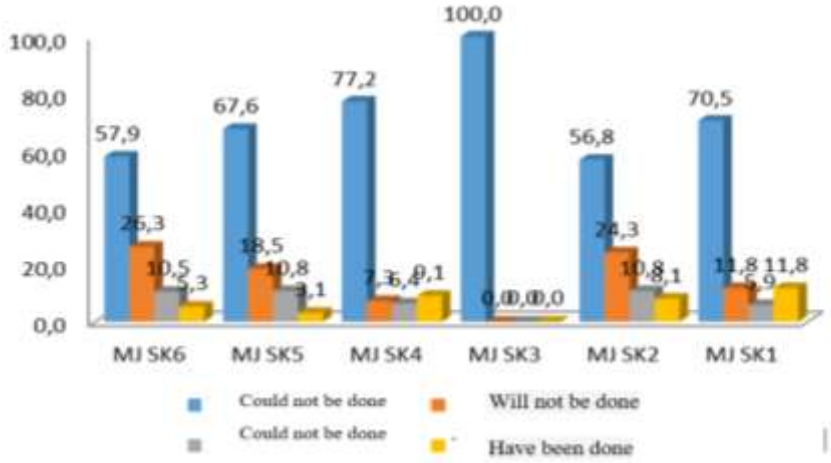

Figure 13. *Distribution Developing an emergency plan for the family that contains what each family member will do in the event of a disaster (P3) Per Region*

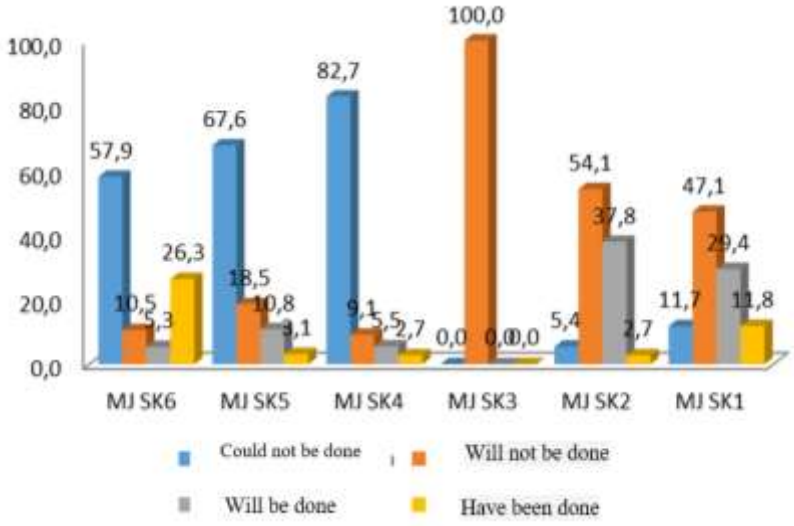

Figure 14. *Distribution of Preparing "Emergency Equipment" (food, water, battery, or other emergency supplies (P4) by Region*

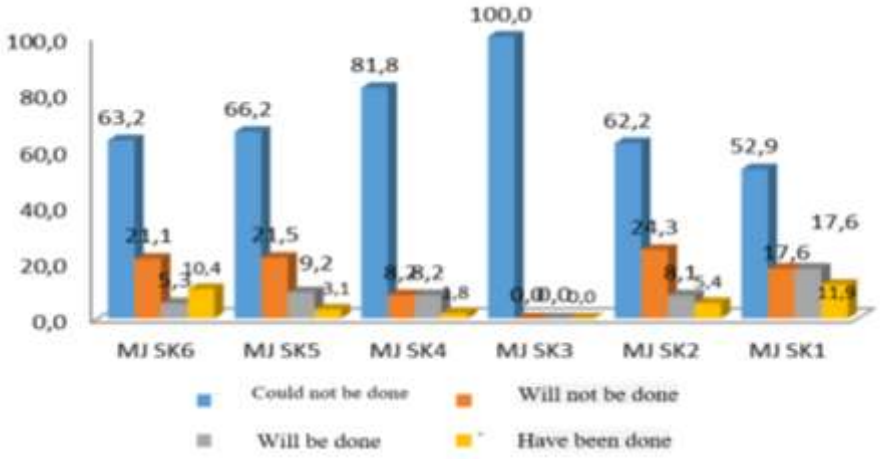

Figure 15. *Distribution Within the last one year, has there been anyone in your living area who has attended disaster preparedness training (P5) by Region*

IV. Conclusion

Based on the results of this study, several stages can be planned in making a pre-disaster assessment design as an alternative to minimize losses from disasters, the following can be seen regarding the following concepts:

1. Coordination meeting, 3 districts and cities for disaster risk reduction, based on information from the community that the time when a disaster occurs is the same as for the 3 districts
2. Creating disaster mitigation programs from 3 city districts to study the problems that cause flooding,
3. Creating a disaster preparedness program from graduation to village level training,
4. Make a water discharge monitoring program plan starting from Muara Bungo district, with a time span to Batanghari, Tanjabtim and Muaro Jambi districts
5. Community evacuation preparedness is managed by members of Destana (disaster resilient village)
6. Disaster response monitoring by respective BPBD
7. Health assessment due to flood disaster in collaboration with the local health center team
8. Disaster impact assessment in each district by BPBD
9. Advanced rehabilitation and mitigation stage

Furthermore, regarding the making of a disaster plan process, there are several alternative steps, including:

1. Preparation of laws and regulations
2. Making disaster-prone maps and mapping problems.
3. Making guidelines / standards / procedures
4. Making brochures / leaflets / posters
5. Research / assessment of disaster characteristics
6. Disaster risk assessment / analysis
7. Internalization of PB in the local content of education
8. Establishment of a disaster task force organization or unit
9. Strengthening social units in society, such as forums
10. PB mainstreaming in development planning

Furthermore, regarding mitigation making in each district, there are several alternative steps, including:

1. Preparation and placement of warning signs, hazards, prohibitions on entering disaster-prone areas, etc.
2. Supervision of the implementation of various regulations on spatial planning, building permits (IMB), and other regulations related to disaster prevention.
3. Basic disaster training for officials and the community.
4. Relocation of people from disaster-prone areas to safer areas.
5. Counseling and increasing community awareness. Guidelines for Preparing Disaster Management Plans
6. Planning of temporary shelter areas and evacuation routes in case of disaster.
7. Construction of structures that function to prevent, secure and reduce the impact of disasters, such as: embankments, dams, coastal erosion resistors, earthquake-resistant buildings and the like.

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