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Level of Knowledge of Population Generations X, Y, and Z in Flood Mitigation Based on Nuwo Panggung Local Wisdom in Kelumbayaan District

Amalia Anisafira Budi[1], Puji Hardati[2], Rahma Hayati[3]

[1]Department of Geography Education, [2]Department of Geography Education, [3]Department of Geography Education;
Universitas Negeri Semarang, Semarang, Indonesia

Corresponding Author: Amalia Anisafira Budi

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ABSTRACT

The local wisdom of Nuwo Pangung in Kelumbayan District can play a role in mitigating flood disasters if the intergenerational population has a high level of knowledge about it. Measuring the level of knowledge of the intergenerational population regarding flood disaster mitigation based on local wisdom needs to be carried out in flood-prone areas. The purpose of this study was to measure the level of knowledge of the X, Y, and Z generations of residents in flood disaster mitigation based on local wisdom, Nuwo Pangung.

This research uses quantitative methods. The research was conducted in Kelumbayan District. The population in this study is an intergenerational population of 8192 people. The sample consisted of 120 residents of generations X, Y, and Z. The sampling technique used was purposive sampling. The research variables consist of the level of flood disaster knowledge, mitigation, and nuwo Pangung local wisdom. Data collection techniques using tests. Data analysis techniques using percentage techniques.

Results Research shows that 73% of the population of Generation X has a low level of knowledge, 72% of the population of Generation Y has a moderate level of knowledge, and 71% of the population of Generation Z has a high level of knowledge. The level of knowledge of the intergenerational population based on indicators is at low, medium and high levels.

The level of knowledge of generation X residents in flood disaster management based on local wisdom Nuwo Pangung is at a low level, generation Y residents are at a moderate level, and generation Z residents are at a high level.

Keywords: flood disaster, disaster mitigation, local wisdom

INTRODUCTION

Local wisdom is positive human behavior in dealing with nature and the surrounding environment (Alexandra et al, 2019: 34). Local wisdom is in the form of knowledge and beliefs in people's lives which include the concept of values, systems, methods, and theories that can be used effectively in dealing with and interacting with the surrounding environment (Woodhead et al, 2013; Rozi et al, 2021: 1). Generally, local residents have local knowledge and ecological wisdom in predicting natural disasters in their area (Naping et al, 2019: 2).

One of local wisdom that plays a role in disaster mitigation is nuwo pangung. Nuwo pangung are traditional houses of the Lampung tribe in the form of stilt houses. Nuwo pangung are owned by the Lampung Saibatin Tribe in Kelumbayan District, Tanggamus Regency.

The stilt house has a high position from the ground, so it can protect the owner from flood disasters (Juhadi, 2018: 80). The stilt

house is made of wood with sturdy pillars and has two floors.

Nuwo Pangung can play an effective role in mitigating floods if the intergenerational population has a high level of knowledge in flood disaster mitigation based on local wisdom, Nuwo Panggung.

Nuwo Pangung can play an effective role in mitigating floods if the intergenerational population has a high level of knowledge in flood disaster mitigation based on local wisdom, Nuwo Panggung. Community knowledge embodied in local wisdom can reduce the impact of disasters (Mayers & Watson, 2008; Zulfadrim et al, 2018; Juliyanto & Trisnowati, 2021: 127).

Knowledge is the result of curiosity through sensory processes towards certain objects and is the most important domain in the formation of behavior (Donsu, 2017; Purnamasari & Raharyani, 2020: 35). Knowledge about the condition of the surrounding environment and local wisdom is considered important to know the right handling in disaster management (Mustofa et al, 2020: 201).

Knowledge of local wisdom can be used as a reference for residents in managing the environment wisely and sustainably. Knowledge of flood disaster mitigation is very important to determine the attitude and behavior of the population in dealing with flood disasters in their area (Danladi, et al, 2021: 45).

Andriyani et al (2012) stated that some Indonesian people do not understand the actions that must be taken when facing the dangers of natural disasters. This has an impact on the large number of disaster victims (Andriyani et al, 2012; Juliyanto, 2021: 127). Disaster knowledge using local wisdom is needed in every development and conservation related to society (Timilsena et al, 2022: 120).

Measuring the level of knowledge of the intergenerational population needs to be carried out in flood-prone areas such as in Kelumbayan District. Indigenous and traditional knowledge can be useful for understanding the potential for certain cost-effective and participatory adaptation strategies, so that it can be used to minimize the impact of flood disaster risk (Abdulrashid, 2020: 469). Residents need to be involved in disaster mitigation because residents feel the impact and become victims of disasters (Purba et al, 2021: 38).

Local knowledge includes knowledge of places and experiences developed by local people. Knowledge is obtained from imitation and experimentation, and knowledge is empirical and not theoretical (Kalland, 2005; Hutagulung, 2020: 50).

This study aims to analyze the level of knowledge of the population of generations X, Y, and Z in flood disaster mitigation based on local wisdom nuwo Pangung. The analysis was carried out through three indicators, namely the level of knowledge of flood disaster, knowledge of flood disaster mitigation, and knowledge of local wisdom of Nuwo Pangung.

Similar research was conducted by Purba et al (2022), who examined differences in levels of knowledge regarding local wisdom-based disaster mitigation based on gender differences (Purba et al, 2022). The difference with this research is the research subject.

The importance of knowledge and skills regarding local wisdom has been proven to help reduce disaster risks to the human environment. This research was conducted by Timilsena (2022) in Kailali District as a disaster-prone area and has local wisdom of traditional houses (Timilsena, 2022). Indigenous and traditional knowledge has proven useful for understanding the potential of certain adaptation strategies that are cost-effective, participatory and sustainable (Abdulrashid, 2020: 469).

MATERIALS & METHODS

This research uses quantitative methods. The research was conducted in Kelumbayan District, Tanggamus Regency, Lampung Province. The population in this study is residents of generations X, Y, and Z totaling 8192 people.

The sampling technique used purposive sampling technique, with the sample areas of Umbar and Napal Pekon which are prone to flooding. There were 120 research samples consisting of 44 residents of Generation X, 28 residents of Generation Y, and 48 residents of Generation Z which were divided into Pekon Umbar and Napal.
The data collection technique uses a multiple-choice test technique with question indicators according to the variables, namely the level of knowledge about flood disasters, flood disaster mitigation, and local wisdom of nuwo Pangung. Data analysis techniques using percentage analysis techniques.

RESULT

a) Overview of Territory

Kelumbayan District is one of the sub-districts in Tanggamus Regency, Lampung Province. Kelumbayan District is located at 1040 56' 00" E-1050 12' 00" E and 50 50' 30" S-50 40' 20" S (BPS Kelumbayan District, 2022). Kelumbayan District has an area of 121.10 km2 and is divided into eight sub-districts, namely Umbar, Paku, Napal, Negeri Kelumbayan, Susuk, Sandingan, Unggak, and Kiluan Negeri sub-districts.

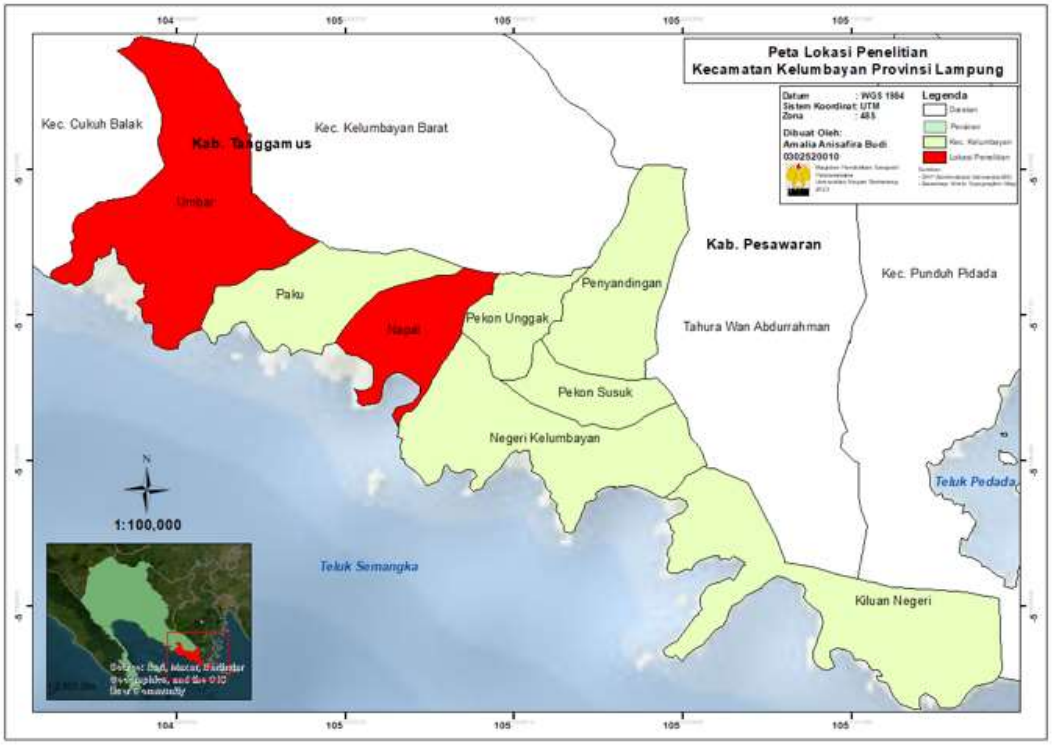

Figure 1 Map of Research Locations

Flood events in Kelumbayan District can be seen in the following table.

No	Pekon	Flood	Flash floods	Flood Rob
1	Umbar	5	1	1
2	Nail	1	0	0
3	Napal	1	1	0
4	N Kembayan	1	0	2
5	Implant	1	0	0
6	Pairing	1	0	2
7	Nope	2	0	0
8	Country Kiluan	0	0	1
	Lumpy	12	2	6

Source: BPS Tanggamus Regency, 2022

b) Intergenerational Population Knowledge Levels

The population in Kelumbayan District is 11,129 people divided into eight villages. The population of generations X, Y, and Z in Kelumbayan District can be seen in the following table.

Gen	Year of Birth	Current Age	Amount
X	1960-1980	42-62 years	3075
Y	1981-1995	27-41 years	1910
Z	1996-2010	12-26 years	3207
X, Y, Z			8192

Source: BPS Tanggamus Regency, 2022

The level of knowledge of the population in Kelumbayan District can be seen in the following table.

Gen	Knowledge level	Mark	%
Gen X	Low	0-55	73
	Currently	56-75	25
	Tall	76-100	2
Gen Y	Low	0-55	14
	Currently	56-75	72
	Tall	76-100	14
Gen Z	Low	0-55	8
	Currently	56-75	21
	Tall	76-100	71

Source: Primary Data, 2022

The level of knowledge of the intergenerational population regarding flood disaster mitigation based on local wisdom is diverse. The level of knowledge of the population is classified into three levels, namely low, medium and high levels. Residents' knowledge of the local wisdom of Nuwo Pangkalan in flood disaster mitigation is measured by knowledge of floods, flood disaster mitigation, and knowledge of the local wisdom of Nuwo Panggung.

DISCUSSION

a) Overview of Territory

Kelumbayan District has lowland, coastal, and highland morphology to hills. Kelumbayan District is located at an altitude of 0-> 500 meters above sea level. The slope of the slopes of Kelumbayan District is 10-45% (Image of SRTM Tanggamus Regency, 2019).

Rainfall in Kelumbayan District is classified as very wet, with an intensity of 2500-> 3000 mm per year (BMKG Masgar, 2019). Kelumbayan District is bordered by Semaka Bay in the south. The river in Kelumbayan District is the Way Napal River.

The physical condition of Kelumbayan District causes the area to be prone to floods. Flood is a natural disaster caused by high rainfall so that the river is unable to hold the water capacity so that it overflows into the surrounding area. Floods can also be caused by land conversion by humans (Alexandra et al, 2019: 34).

Other factors that can cause flooding are anthropogenic factors such as excessive groundwater consumption and infrastructure development which causes land loads to increase. Geological factors such as soil type can also be a factor causing flooding (Aji et al, 2021: 1).

The types of floods that occurred in Kelumbayan District were floods due to river overflows, flash floods, and tidal floods. Floods caused by river overflows occur in the alluvial lowland areas through which the Way Napal River passes. Flash floods occur in the upstream areas, namely highlands or hilly areas. Tidal floods occur in coastal areas bordering Semaka Bay.

Most of the Kelumbayan area is an area prone to flooding. The most frequent floods are floods caused by overflowing rivers. In 2021 there will be 12 floods due to overflowing rivers. Flash floods occurred 2 times in 2021. Tidal floods occurred 6 times in 2021 (BPS Tanggamus Regency, 2022).

The level of flood vulnerability in Kelumbayan District can be seen in the following map.

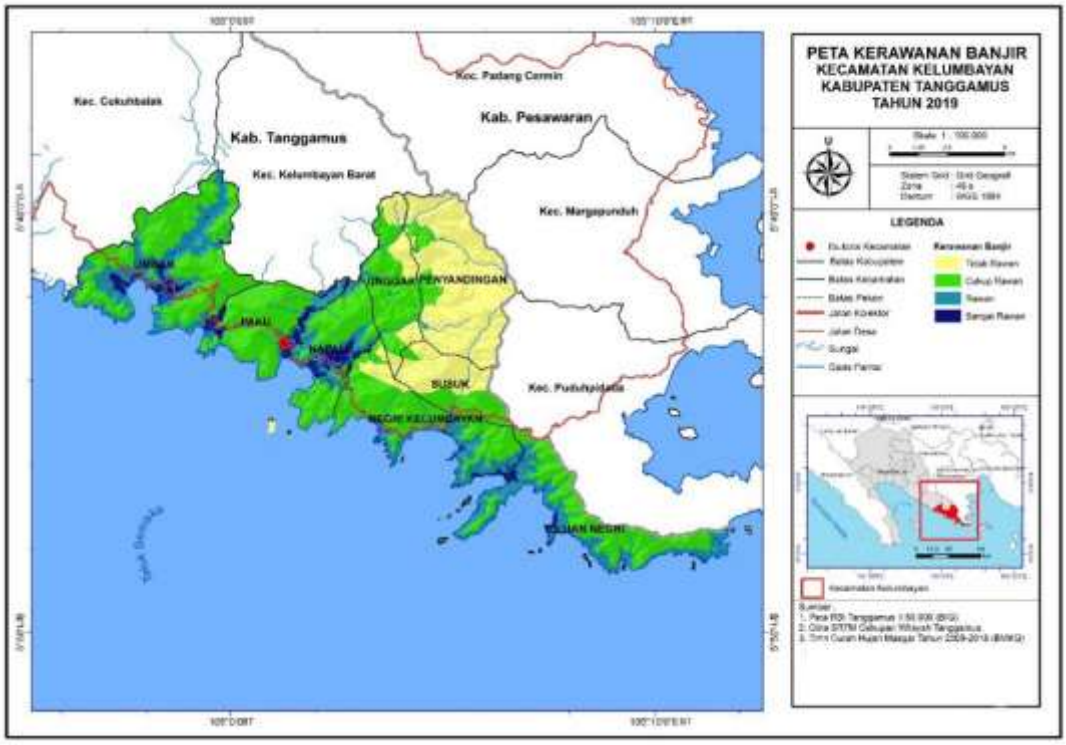

Figure 2 Map of Flood Vulnerability

Pekon Umbar and Napal have a very high level of vulnerability to flooding. Some of the Pekon Umbar, Napal, Negeri Kelumbayan, and Kiluan Negeri have a flood-prone classification. Pekon Paku, Unggak, and parts of Pekon Umbar, Maral, Kiluan Negeri, and Negeri Kelumbayan are classified as quite prone to flooding. The Susuk and Pairing Villages are classified as not prone to flooding.

Level Flood vulnerability and the high number of flood events in Kelumbayan Sub-District make the residents of Kelumbayan Sub-District affected by flooding. The impact of the flood was in the form of damage to public facilities and buildings, loss of property, and material losses due to damage to agricultural land and crops. Residents in Kelumbayan District must adapt to flood-prone conditions in their area.

Figure 3 Condition of the Way Napal River

Potential losses due to floods must be minimized with the awareness of the population about the dangers of flooding. This awareness is in the form of a good understanding of knowledge and participation regarding flood disaster risk reduction (Putra et al, 2021: 2).

Figure 4 Post-Flood Conditions

b) Intergenerational Population Knowledge Levels

The level of knowledge of the intergenerational population regarding flood disaster mitigation based on local wisdom is diverse. The level of knowledge of the population is classified into three levels, namely low, medium and high levels. Residents' knowledge of the local wisdom of Nuwo Pangkalan in flood disaster mitigation is measured by knowledge of floods, flood disaster mitigation, and knowledge of the local wisdom of Nuwo Panggung.

c) Knowledge Level of Generation X Population

Generation X residents who have a low level of knowledge as much as 73%. Generation X residents who have a moderate level of knowledge are as much as 25%. Generation X residents who have a high level of knowledge as much as 2%. Most of the population of generation X has a low level of knowledge in flood disaster mitigation based on local wisdom, Nuwo Pangung.

Generation X residents have a low level of knowledge caused by several factors. The first factor is that the population of generation X in Kelumbayan District has a low level of education. The low level of education of Generation X is caused by the fact that most of the population of Generation X does not have formal education at school. Most of the population of generation X go to school only up to the elementary school level.

Nugraheni (2019) stated that 70% of the population of Kelumbayan District only had education up to elementary school, 15% up to junior high school level, 12% up to high school level, and 2% up to tertiary level (Nugraheni et al, 2019: 145).

Generation X residents have also never received socialization regarding disaster mitigation based on local wisdom. Dissemination of disaster management based on local wisdom needs to be done because it is more effective in building

disaster awareness. Local wisdom-based disaster mitigation needs to be developed as a culture in the behavior of the population (Sari et a, 2020: 520).

Generation X residents know about their areas where floods frequently occur. Knowledge about floods, causes of floods, and appropriate mitigation in flood disaster management is not well understood by residents of generation X.

Generation X's disaster knowledge is only based on experience. Residents have knowledge of flood disasters based only on daily observations and experiences of the surrounding environment (Thapa et al, 2018: 36).

Floods have only occurred in the last 10 years, so the residents of Generation X are still adapting to changes in natural conditions in their area.

Generation X residents have a better level of knowledge about local wisdom. This knowledge is in the forms, characteristics, history, and functions of the nuwo pangung local wisdom in adat. Knowledge about the function of nuwo Pangung's local wisdom in disaster mitigation is unknown. The local wisdom of non-modern people usually forms the basis of their lives (McEwen & Jones, 2021: 675).

Most of the residents of generation X have occupied and are currently occupying the nuwo pangung as a place to live. They know the development of nuwopangung as the identity of the people of the Lampung tribe. Generation X residents also play a role in preserving nuwo pangung for later generations.

The low level of knowledge possessed by residents in disaster mitigation can cause high losses and casualties. Knowledge of flood risk can improve emergency preparedness and response (Purwoko & Putro, 2015; Sari et al, 2020: 520).

d) Generation Y Knowledge Level

Generation Y residents have a moderate level of knowledge in flood disaster mitigation based on local wisdom, namely 72% of the population. Generation Y residents who have a high level of knowledge are 14% and residents who have a low level of knowledge are 14%.

Generation Y residents have a better level of knowledge than generation X residents. Generation Y residents have an easier level of education and access to information than generation X residents because they are familiar with technology.

Generation Y residents mostly go to school up to junior high school level. They did not continue on to high school because the school was far away. The location of the SMA in Kelumbayan District is only in Pekon Napal with difficult road accessibility. Difficult accessibility makes outside assistance difficult to enter. Therefore, residents of generation Y as the generation that is playing a role in the Kembayan government agencies need to take adaptive steps.

Step-these steps can be in the form of increasing local knowledge, skills, and time-tested techniques based on multigenerational transmission and cultural continuity (Berkes, 2013:21; Nakamura, 2019:23).

Generation Y residents also never get socialization. Socialization in disaster management based on local wisdom is very effective for increasing awareness about disaster risk reduction, building early warning systems, and building a culture of community emergency response behavior (Sari et al, 2020: 520).

Partmost of the population of generation Y also do not live in nuwo pangung. They built a modern house as a place to live because of material limitations. However, the level of knowledge of the Generation Y population regarding the local wisdom of Nuwo Pangung can be said to be good.

Generation Y residents are starting to prepare themselves to replace the previous generation in traditional positions. Generation Y residents will be the next generation who will pass on the local wisdom of Nuwo Pasifik to the next generation. Local wisdom as a set of ideas should be applied, believed, used as a way

of life, and passed down from time to time (Sopa, 2018: 524).

e) Knowledge Level of Generation Z Population

Generation Z residents in Kelumbayan Sub-District have a high level of knowledge in flood disaster mitigation based on local wisdom nuwo Pangung. Generation Z residents who have a high level of knowledge are 71%. Generation Z residents who have a moderate level of knowledge are 21%. Generation Z residents who have a low level of knowledge are as much as 8%.

Generation Z residents have a high level of knowledge due to educational factors. Generation Z residents receive disaster mitigation education that is integrated into the school curriculum. Disaster education for teachers and students in schools is very important to build students' understanding and skills about the causes, nature and effects of natural disasters (Ronan et al, 2010; Annisa et al, 2022: 13).

Disaster education in schools is needed in aligning learning activities. Disaster-prone areas require studies related to disaster perception with concrete steps in the development of disaster education (Audley & Jovic, 2020; Mustofa, 2020: 203).

Nonetheless, disaster mitigation education has not been fully included in the formal curriculum at all school levels. BNPB provides recommendations for schools to become important centers for disaster education (Annisa et al, 2022: 17). Disaster education in schools is often hampered because of the teacher's ability to teach disaster material, the lack of availability of teaching materials related to disaster education, and weak policies regarding disaster-prone schools (Maryani, 2021: 4).

Generation Z residents also live in the digital era, where access to information is easier. The social demands regarding education were also higher than during the X and Y generations. However, knowledge of the local wisdom of nuwodinding was not very good. The factor that caused the nuwo pangung's existence in their area to fade away. Residents of generation Z have only heard of the history of the pangung nuwo from the generation before them.

Experience in dealing with flood disasters becomes a meaningful knowledge for residents who live in disaster-prone areas. Local wisdom can play an effective role in disaster mitigation if it can be utilized and managed properly.

CONCLUSION

The level of knowledge of generation X residents in flood disaster management based on local wisdom Nuwo Pangung is at a low level, generation Y residents are at a moderate level, and generation Z residents are at a high level.

Declaration by Authors

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