

# The Level Of Disaster Awareness And Preparedness Of Families In The Flood-Prone Barangays Of San Leonardo, Nueva Ecija - A Case Study

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**Abstract:** - Disasters are severe disturbances to a community's functioning that surpass the community's ability to cope using its own resources. Natural, man-made, and technological hazards and various elements that influence a community's exposure and vulnerability can all contribute to disasters. Families, the smallest unit in a society, are on the top list of most prone to hazards and disasters. According to Suryaratri (2020), the higher the awareness, the higher the preparedness of households to deal with disasters. Thus, in this study, the researchers aimed to determine the families' level of disaster awareness and preparedness in the flood-prone barangays in San Leonardo, Nueva Ecija. They also seek to assess related activities the respondents conducted and how these affect the lives of these families during a disaster. The researchers employed a descriptive quantitative design method. Thus, a questionnaire was sectioned into five (5) main parts subdivided into different questions regarding the families' level of disaster awareness and preparedness. It was established by adapting important questions from previous studies and creating and validating particular questions by the researchers. The researchers used a 4-point Likert Scale for the survey, then distributed it to respondents via messenger and e-mail. The researchers further examined the data collected from the respondents to obtain valuable and relevant information. The data collected shows that 44% of the total number of respondents believe that they are 80-100% disaster aware and prepared without the support of the local and national government. However, 4% of the total number of respondents think that they are 20-40% aware and prepared and still need the support of these governments. It also reveals that their level of disaster awareness and preparedness can be fully achieved through acquiring relevant technical activities and programs. Thus, reducing the negative impact of disasters on their families and the community.

**Key Words:**— *Families, Disaster Awareness, Disaster Preparedness, Flood-prone areas/barangays, Disaster Risk Reduction, and Management.*

## I. INTRODUCTION

Due to the geographical location of the Philippines, an average of 20 Tropical storms hit the country every year.

Manuscript revised May 26, 2022; accepted May 27, 2022. Date of publication May 29, 2022.

This paper available online at [www.ijprse.com](http://www.ijprse.com)

ISSN (Online): 2582-7898; SJIF: 5.59

Its local communities are vulnerable to disaster and other climate-related calamities and illnesses by which marginalized sectors are commonly affected, such as the poor, women, children, senior citizen, farmers, and others (PAG-ASA, n.d.) The geographical location of San Leonardo is vulnerable to a typhoon. At the same time, six barangays along the Pampanga and Peñaranda Rivers are susceptible to flooding, resulting in loss of lives, agricultural products, and public and private properties. It was also a phenomenon that the typhoons gradually intensified up to signal no. 5 due to climate change that causes severe damage to public and private infrastructure, crops, and livestock and leads to loss of lives. (San Leonardo LDRRM Plan 2021-2025, 2020).

Disaster preparation means considering the worst-case scenario and planning how you would respond ahead of time. Minor situations are more frequent, but you will be ready for anything if you are prepared for the worst.

Disaster awareness and preparedness may be the single most crucial component in bringing about the much-needed resilience and change – both the community and the responding unit.

It is a serious matter that must be put into consideration. Aside from the vulnerable sector, families are at most risk during a typhoon, so this research aims to study the families' level of disaster awareness and preparedness in the flood-prone barangays in San Leonardo, Nueva Ecija.

## II. LITERATURE AND STUDIES

There exists a considerable body of literature on the level of disaster awareness and preparedness of the families in the flood-prone barangays of San Leonardo, Nueva Ecija.

"Disaster Awareness" refers to one's level of awareness and understanding of critical issues and concerns around a specific object or phenomenon. Glago (2019) mentioned that flood disasters are major environmental challenges faced by residents of Asamankese, the capital of the West Akim Municipality in Ghana. Residents' level of awareness of flood disaster risks tends to be high because of their own experiences, irrespective of their individual level of education, occupation, and gender (Glago, 2019).

According to Suryaratri (2020), disaster awareness positively impacts household disaster preparedness among families in the Sumur District. The results show that 50.5% of the household disaster preparedness was determined by disaster awareness. It means that the higher the awareness, the higher the preparedness of households to deal with disasters in Sumur District families. He also mentioned that there are still respondents who have low scores on disaster preparedness; there is no training or seminar on disaster mitigation equally. Additionally, a lack of training or seminars on disaster mitigation can also make the preparedness of several families in the Sumur District lower (Suryaratri et al., 2020).

"Disaster Preparedness" is the knowledge and capacities developed by governments, professional response and recovery organizations, communities, and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent, or current hazard events or conditions. Preparedness action is carried out within disaster risk reduction and management and aims to build the capacities needed to

efficiently manage all types of emergencies and achieve orderly transitions from response to sustained recovery (DRRM Act, 2010).

DHS/FEMA defines preparedness as "a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action to ensure effective coordination during incident response." (Homeland Security, 2021).

Human suffering has multiplied in recent years due to the increased frequency and intensity of natural hazards, which are expected to rise in the coming years due to climate change. Admittedly, risks to humans from natural hazards cannot be eliminated entirely, but they can be reduced through systematic approaches such as disaster risk reduction (DRR) approaches that can be scientifically applied for minimizing vulnerability and building resilience in society through multi-sectoral and multi-dimensional measures (Ahmed, 2013).

In a study carried out by LIPI-UNESCO/ISDR (2006), preparedness is important in increasing disaster preparedness. So that preparedness can play a role in finalizing the impact of disasters and reducing physical and psychological losses, it is important to focus on disaster preparedness within the scope of the family. Individuals and households are the main stakeholders that are very important in community preparedness and are the spearhead, subject, and object of preparedness, which directly influences disaster risk (LIPI-UNESCO/ISDR, 2006).

There needs to be an awareness of the community to become a community with disaster preparedness. It is expected that the community will be able to know what disasters will occur around them by having disaster awareness in the community, whether the disaster has a serious impact or not, and whether it is classified as a hazard for themselves, their families, their environment, and the people around them (Suryaratri et al., 2020).

To the best knowledge of the researcher, the available literature reviewed maintained that there is a shortage of literature on disaster management, especially in a local context. Additional studies to understand more completely the key tenets of disaster awareness and preparedness, especially of the families in the flood-prone barangays in the municipality of San Leonardo, are required.

## III. OBJECTIVE

This research aims to determine the level of disaster awareness and preparedness of the families in the Flood-prone barangays

in the Municipality of San Leonardo. The study's specific objectives are to address the following:

1. To identify the activities the families in the flood-prone areas have in awareness and preparedness for any disaster, especially flooding;
2. To determine how these awareness and preparedness activities affect the lives of these families during a disaster; and
3. To measure the level of disaster awareness and preparedness of the families in the flood-prone barangays in the Municipality of San Leonardo

#### IV. METHOD AND PROCEDURES

The research design, locale of the study, population, sample of the population, sampling technique, data collection instrument, the responder profile and related literature and studies that the researcher will utilize as a reference in the research. The process shows how the researcher will gather and interpret the data. The output shows the result of the analyzed data and determines the level of disaster awareness and preparedness of the families in the flood-prone barangays in San Leonardo.

The research was carried out in the municipality of San Leonardo, Nueva Ecija Province (Philippines). This area was chosen because its geographic location is prone to typhoons and flooding and is accessible to the researcher's line of work.

The researchers employed a descriptive quantitative design method gathered via a questionnaire. It was established by adapting important questions from previous studies and creating and validating particular questions by the researchers. The survey used a Likert scale-based question. It was sent electronically through Google forms, which respondents could access via their e-mail addresses. This was due to the current situation in the country, the Covid-19 pandemic, where minimum public health standards were still being implemented. The researchers utilized this to safeguard the survey collection process's confidentiality and integrity; consequently, it is purely for research reasons.

The survey has five (5) main parts, separated into several questions about the level of Disaster Awareness and Preparedness of the Families in the Flood-prone Barangays in

questionnaire validation, instrument administration, and data analysis method are all described in this chapter.

#### 4.1. Conceptual Framework

It is critical to assess the families' level of awareness and preparedness. Awareness is linked to one's knowledge of a phenomenon obtained from reliable sources of information and authorities. This study will determine and explain the level of disaster awareness and preparedness of the families in the flood-prone barangays in San Leonardo – how it will help the families, the community, and the local government unit in the prevention, mitigation, and preparedness for any disaster. A conceptualized strategy and implementation are prepared to guide the researchers toward their primary objective. The input-process-output (IPO) conceptual framework is used in this study, as illustrated in Fig. 1. The input includes San Leonardo. Moreover, the questions were also localized for the respondents to associate themselves with the survey. The data was collected between the first and third weeks of May 2022.

The researcher gathered, summarized, analyzed, and evaluated the data for interpretation according to the frequency of items checked by the respondents. After collecting and evaluating all the data, researchers generated results, discussions, conclusions, and recommendations.

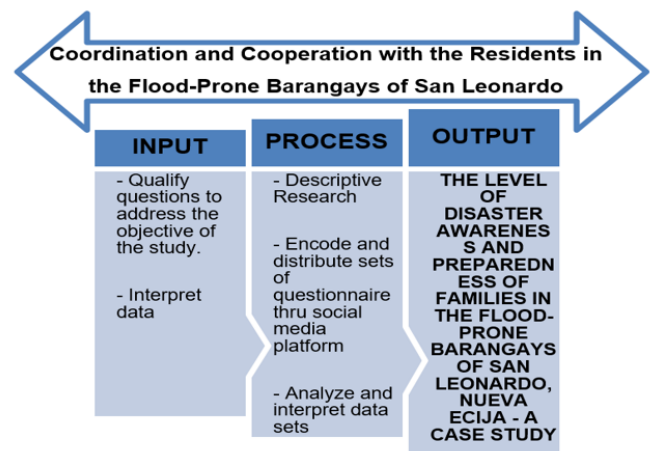


Fig.1. Conceptual Framework

#### 4.2. Sample

The survey's respondents were limited to 50 residents of the flood-prone barangays in San Leonardo. The researchers chose them to determine their level of disaster awareness and preparedness, primarily since they reside in the flood-prone areas in San Leonardo.

#### 4.3. Questionnaire Survey

There are five sections to the survey. The respondents' demographic and personal information is shown in the first part. The 2<sup>nd</sup> up to the last part of the survey was the respondents' responses and views on disaster awareness and preparedness. They included a section where the respondent can have an option to put comments or suggestions regarding the objective. For this purpose, the researchers employed survey data collected from questionnaires. Likewise, the researchers used Table 1 below to interpret the data collected.

Table.1. Interpretation of the Four-point Likert Scale

Table 1. Four-point Likert Scale Interpretation			
Likert Scale	Interval	Difference	Description
1	1.00-1.75	0.75	Strongly Disagree
2	1.76-2.51	0.75	Disagree
3	2.52-3.27	0.75	Agree
4	3.28-4.00	0.72	Strongly Agree

### V. RESULTS AND DISCUSSION

#### 5.1. Results

The researchers used survey data from 50 residents in San Leonardo, Nueva Ecija, who live in flood-prone barangays. The conclusion and recommendations that this study seeks to achieve are reached after evaluating the data supplied in this work. The interpretation of the results is used in the data analysis that follows.

Table 2. Interpretation of Responses for the Disaster Awareness

	N	Mean	Interpretation
1. I am concerned about my disaster preparedness knowledge for any disaster.	50	3.14	Agree
2. I am well-planned for any potential flooding.	50	3.14	Agree
3. I am aware that our barangay is a flood-prone area in San Leonardo.	50	3.00	Agree
4. I am aware that Climate Change also affects the impact of a	50	3.58	Strongly Agree

disaster/ flooding in our barangay.			
5. I will recommend a friend or colleague study more about disaster management based on my knowledge of disasters and their consequences.	50	3.44	Strongly Agree
<b>Satisfactory Average</b>		<b>3.26</b>	<b>Agree</b>

The overall average in Table 2 and the ratings in all five questions fall inside the "agree" interval. This indicates that most respondents are aware of the disaster and its potential impact on their barangay.

Table 3. Interpretation of Responses for the Disaster Preparedness

	N	Mean	Interpretation
1. I believe my family is adequately prepared in the event of flooding.	50	3.16	Agree
2. I have talked to my family about flood preparedness.	50	3.26	Agree
3. My family had experienced a natural disaster.	50	3.26	Agree
4. Another family member can carry out the emergency plan in my absence.	50	3.24	Agree
5. I have disaster supplies or e-balde that will last at least 72 hours. (i.e., Water supply, Food supply, Two-way radio, flashlights, or light sources, Vehicles for evacuation, First-aid kits, hygiene and sanitation products, Hand tools, Cell phones with long-lasting batteries, and power banks, medicines)	50	2.94	Agree
6. I and/or a family member have training on First Aid or BLS-CPR.	50	2.76	Agree
7. I reside in a densely populated area.	50	2.92	Agree
8. There is a disaster or emergency plan, laws, and policies in place for the community.	50	3.12	Agree
9. I have a phone number for disasters outside our province.	50	2.98	Agree
10. I would want to receive disaster management information or emergency through effective channels like a. Newspapers, Public Meetings, Television, Radio	50	3.46	Strongly Agree

b.	Family/ Friends, Cellphones, E-mails, Internet/ Social Media	50	3.38	Strongly Agree
11.	Has someone from the list below assisted you or your community develop a disaster plan?	50	3.12	Agree
a.	National Government			
b.	Local Government Unit	50	3.14	Agree
c.	Local Disaster Risk Reduction and Management Office	50	3.04	Agree
d.	Non-governmental organization or voluntary organization	50	2.92	Agree
<b>Satisfactory Average</b>			<b>3.11</b>	<b>Agree</b>

Table 3 represents the interpretation of the residents' responses to their disaster preparedness. The overall average and all eleven items' ratings fall below the "agree" interval. This demonstrates that many respondents agree that their family is disaster prepared and ready. However, the results suggest that not everyone in the family has had First Aid or CPR training, with the lowest mean of 2.76.

Table 4. Interpretation of Responses for the Impact of Disaster Awareness and Preparedness

	<i>N</i>	<i>Mean</i>	<i>Interpretation</i>
1. Being prepared can reduce fear, anxiety, and losses that accompany disasters.	50	3.70	Strongly Agree
2. I can reduce the impact of disaster by securing our important documents ahead of time.	50	3.58	Strongly Agree
3. I can lessen the impact of disaster by proactively securing food supplies should there be a food shortage during a disaster.	50	3.56	Strongly Agree
4. I can secure myself and my family if I am disaster aware and prepared.	50	3.70	Strongly Agree
5. If possible, if I am disaster aware and prepared, I can also help the community by volunteering in relief operations.	50	3.58	Strongly Agree
<b>Satisfactory Average</b>		<b>3.62</b>	<b>Strongly Agree</b>

The fourth section of the questionnaire aims to determine how this disaster awareness and preparedness activities affect the lives of the residents of San Leonardo. The

ratings in all the five items and the overall average fall under the interval for "strongly agree". This infers that most respondents strongly believe that being disaster aware and prepared positively affects the lives of the people from the flood-prone barangays in San Leonardo.

**D. Level of Disaster Awareness and Preparedness [With all my disaster awareness and preparedness, especially for**

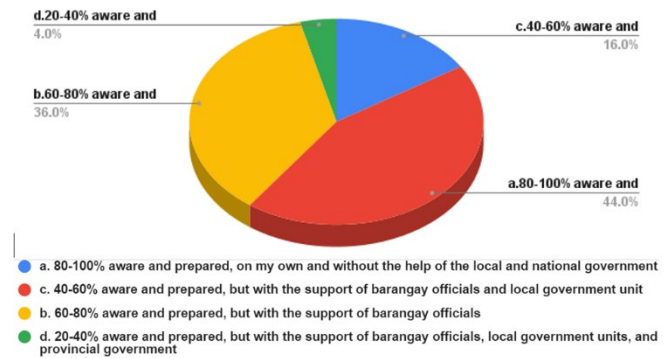


Fig.2. Interpretation of Responses for the Level of Disaster Awareness and Preparedness

The fifth and last portion of the survey questionnaire measures the respondents' disaster awareness and preparedness levels. Their responses are shown in Figure 2. The figure shows that 44% of the total number of respondents believe that they are 80-100% disaster aware and prepared without the support of the local and national government. However, 4% of the total number of respondents think that they are 20-40% aware and prepared and still need the support of the barangay, local, and national government.

Additionally, in the section wherein the respondents had an option to provide comments and suggestions, they pointed out three key suggestions:

- Be alert and observant of your environment before, during, and after a disaster;
- Information, Education, and Communication (IEC) Campaign and programs that provide Disaster Risk Reduction and Management (DRRM) approach play a big role in the community that a Local Government Unit should pay attention to; and
- To prevent and mitigate disaster impact through taking good care of the environment and engaging in healthy environment-driven activities

**5.2. Discussion**

These findings aim to address three primary concerns addressed by this study: 1.) to identify the activities the families

in the flood-prone areas have in awareness and preparedness for any disaster, especially flooding, 2.) to determine how these awareness and preparedness activities affect the lives of these families during a disaster, and 3.) to measure the level of disaster awareness and preparedness of the families in the flood-prone barangays in the Municipality of San Leonardo.

### 5.2.1. *Disaster Awareness and Preparedness Activities*

The data analysis in tables 2 and 3 reveals that the families in the flood-prone barangays of San Leonardo have conducted disaster and preparedness activities to be fully equipped to deal with any disaster, especially flooding. Based on the results, while most respondents believe that Climate Change also affects the impact of disaster or flooding in their barangay, some were not aware that their barangay is a flood-prone area. Many of them have experienced natural disasters such as flooding in their community. They also claimed that their families have talked about the preparedness measures prior to a disaster. When it comes to community disaster management, such as public announcements, most respondents prefer being notified through newspapers, public meetings, television, and radio. Moreover, some of them still do not have a family member who had training like First aid and CPR. The results also show that most of them have been assisted by the Local Government Unit in family disaster awareness and preparedness.

### 5.2.2. *Impact of Disaster Awareness and Preparedness*

As presented in Table 4 of the data collected for the impact of disaster awareness and preparedness on the lives of the families in the flood-prone areas in San Leonardo, most respondents believe that being prepared can reduce fear, anxiety, and losses that accompany disasters. They are also confident that they can secure important documents ahead of a disaster. However, few believe that they can preposition food supplies should there be food shortages during a disaster.

### 5.2.3. *Level of Disaster Awareness and Preparedness*

The survey results for the level of disaster awareness and preparedness of the residents in the flood-prone barangays in San Leonardo clearly say that most of the respondents are disaster aware and prepared on their own; without the support of local and national government. However, some of them believe that, although they are disaster aware and prepared, they would still seek the help of the local and national government.

## VI. FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

### 6.1. *Findings*

As per findings, the level of disaster awareness and preparedness of the families in the flood-prone barangays in San Leonardo, Nueva Ecija, has a significant impact on their living. Moreover, the findings highlight important discoveries that this study attempts to achieve:

- It was discovered that the residents in the flood-prone areas in San Leonardo conducted several activities to be aware and prepared before a disaster. These activities include cultivating their knowledge of what causes a disaster, its impact, and how to plan for it. However, some of them lack in terms of technical preparation, such as prepositioning of goods, emergency kits, and training for a disaster.
- The findings also show that being disaster aware and ready can reduce psychological impacts on families in the flood-prone barangays. It also presents that the residents could secure themselves and their families from a disaster's negative impact.
- Lastly, the families' level of disaster awareness and preparedness in the flood-prone barangays in San Leonardo plays a significant role in their safety and everyday living. The residents believe that their disaster understanding and preparedness could get them through any disaster. However, local and national government support is still needed in areas where families are most vulnerable to disaster.

The findings back up the claim by Suryaratri (2020), who mentioned that the higher the awareness, the higher the preparedness of households to deal with disasters.

However, the residents in the flood-prone barangays in San Leonardo limited the general ability of outcomes. Further study to improve this claim might be required to fully understand disaster awareness and preparedness and their impact on the community.

## VII. CONCLUSION

Preparedness for disasters is both a condition and a decision. While understanding disasters are necessary for learning how to manage them, the capacity to develop is directly related to the degree of disaster risk reduction and management that the

researchers believe acceptable or bearable to a given community.

This study aimed to examine and evaluate the level of disaster awareness and preparedness of the families in the flood-prone barangays in San Leonardo. This research study adds to our understanding of the activities done by the residents of the flood-prone areas in San Leonardo to be entirely disaster aware and prepared, its impact on their lives and safety, and the level of its capacity or coping mechanism. The study's specific objectives were supported by empirical evidence.

According to the survey results conducted on the residents in the flood-prone barangays in San Leonardo, the findings of this study reveal that their level of disaster awareness and preparedness can be fully achieved through acquiring relevant technical activities and programs. Thus, reducing the negative impact of disasters on their families and the community. These activities include engaging in a disaster preparedness seminar or training that is usually implemented by the higher authority in the community. This supports the claim conducted by LIPI-UNESCO/ISDR (2006) that preparedness can play a role in finalizing the impact of disasters and reducing physical and psychological losses. It is important to focus on disaster preparedness within the scope of the family. Likewise, the data also suggests that the local government unit or responding unit of San Leonardo should materialize its disaster risk reduction and management plan or strengthen it if there is existing.

No one is immune to the danger of being affected, but knowing your opponent and being prepared for yourself and your family is the key to surviving any disaster situation, whether natural or man-made.

#### **Recommendations:**

##### *Recommendation to the Local Government Unit or Responding Unit:*

The researchers recommend the findings to the Local Government Unit and its responding unit. Most respondents agree that the level of disaster awareness and preparedness has a crucial impact on their lives and safety. However, to become a safer and disaster-resilient community, it is a combined effort of its local government unit to provide a DRRM approach in the prevention, mitigating, and preparedness. Every individual should engage and be cultivated in these activities.

##### *Recommendation for Future Researchers:*

Future researchers should undertake studies and surveys from the perspective of the vulnerable sectors in flood-prone areas in a community. Likewise, assess their strengths and weaknesses before and during a disaster, evaluate their needs, and provide

evidence-based ways to the local authority to address those needs and provide for a safer, gender-sensitive, and disaster-resilient community.

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