A Case Study on Community Perception and Preparedness to Flooding at Barangay San Roque, San Miguel, and San Francisco

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ABSTRACT

This case study investigates the community perception and preparedness regarding flooding in the urban areas of Barangay San Roque, San Miguel, and San Francisco in Iriga City, Camarines Sur. The research was prompted by the extreme rainfall and unanticipated flooding caused by Typhoon Kristine in late 2024, which left some families trapped on roofs and faced significant livelihood losses. The study aimed to identify existing preparedness practices, uncover local challenges, and offer recommendations to enhance community resilience. The methodology involved a survey and in-depth interviews with a total of 45 residents and 30 barangay officials across the three locations. Findings revealed a high level of risk awareness, with over 92% of respondents in San Francisco and San Roque acknowledging their vulnerability to floods. While heavy rainfall was cited as the primary cause of flooding, residents also recognized the roles of climate change, poor drainage systems, and proximity to rivers and creeks. At the household level, preparedness is robust: most residents have lived in their barangays for over a decade and have developed specific survival strategies. These include safekeeping appliances prior to floods , shutting off power supplies , and maintaining "GO Bags" for emergencies. Furthermore, there is high awareness of early warning signals and local emergency plans, largely attributed to the effective use of social media and public address systems, or bandillo. From an institutional perspective, the barangay councils were found to be well-prepared, having established BDRRM Plans and protocols for preemptive and forced evacuations. However, significant gaps remain. The top problems identified by officials include uncooperative residents (96.67%), inadequate transportation, budget constraints, and a lack of specialized equipment like rubber boats. The study concludes that while the three barangays demonstrate strong resilience and readiness, systemic improvements are necessary. It recommends implementing sanctions for uncooperative residents, increasing response budgets, and collaborating with NGOs to build additional evacuation centers and provide more rescue vehicles to better manage future climate-related hazards.

INTRODUCTION

In the recent event of flooding caused by typhoon Kristine, where the community left astonished because of the amount of rainfall that caused some part of the city flooded, which was not anticipated. That leads to families trapped in the roof of their houses, hunger and anxiety. The flood caused a major impact on the community, their livelihood, sanitation and their well-being. Climate change has worsened the effects of flooding, that causes a much higher level of water on the flood prone areas. Preparedness measures have a crucial role in times of flooding most especially to the flood prone areas/ barangays. The response of the community can be lifesaving if properly done or properly executed. This study aims to identify the response of the community before, during and after the flood.

Barangay San Roque, San Miguel and San Francisco are susceptible to flooding because of high density of population, paved ground, closely clustered dwellings and buildings, clogged drainage systems or water ways. Effective preparedness measures can salvage the community's livelihood, dwelling and life when it comes to flooding caused by heavy rains. The villages of San Roque, San Francisco and parts of San Miguel were flooded due the heavy downpour brought by a Low Pressure Area (LPA) that started at around 3 p.m.

(https://newsinfo.inquirer.net/1641230/flood-hits-iriga-citys-central-district). Included in the "very high flood susceptibility" are Cabusao, Del Gallego, Lupi, Ragay, and Sipocot, all in District 1; LGUs Gainza, Libmanan,

Milaor, Minalabac, Pamplona, Pasacao, and San Fernando in District 2; Bombon, Calabanga, Camaligan, Canaman, Magarao, Ocampo, and Pili in District 3. Ten (10) municipalities in District 4, mostly classified as coastal areas, include Caramoan, Garchitorena, Goa, Lagonoy, Presentacion, Sagñay, San Jose, Siruma, Tigaon, and Tinambac. In District 5, the municipalities of Baao, Balatan, Bato, Buhi, Bula, Nabua, and the City of Iriga are also vulnerable to the same risk (https://www.bicolmail.net/single-post/edmero-field-geologist-almost-halfof-camsur-classified-as-risk-areas).

Objectives

1. To identify the existing community preparedness activities or practices related to flooding in Barangay San Roque, San Miguel and San Francisco.

2. To identify problems encountered and lessons learned from Barangay San Roque, San Miguel and San Francisco in relation to flood.

3. To provide recommendation to improve the community preparedness.

Scope and Limitations

The recent flood events in the last quarter of the year 2024 were six (6) tropical cyclones that consecutively struck the Philippines. Which one of these tropical cyclones “TC Kristine” has devastatingly impacted to the communities of the Rinconada Area, like the in the low-lying barangays of Iriga City, such as San Francisco, San Miguel and San Roque.

The study was conducted to identify the community preparedness activities related to flooding in the three (3) stated barangays; to identify the problems encountered of the residents of the three (3) barangays and to recommendations to enhance the preparedness of the three (3) barangays to flooding.

METHODOLOGY

The data collection was conducted through a survey along with in-depth interview, the respondents were composed of fifteen (15) residents and ten (10) barangay officials were surveyed in each barangay with the total of forty-five (45) residents and thirty (30) barangay officials. Respondents from the Barangay Council have additional questions to determine the preparedness of the barangay in time of flooding. Data presentation is through percentage. Thirteen (13) questions can be answered yes or no while eight (8) questions can check several items. For the barangay council there are nine (9) additional questions, two (2) of which can have multiple answers.

RELATED LITERATURE

A flooding situation is not a daily occurrence. However, flood forecasting operations must, of necessity, be a continuous activity. It is carried out from day to day even when the possibility of a flood is highly improbable. This mode of operation enables flood forecasters to pinpoint the beginning of a potential flood generating situation. Like storm bulletins which are issued only during the presence of tropical cyclones, flood forecast and warning bulletins are prepared only when a potential flooding situation is definitely present. They are issued regularly at specified hours of the day for the duration of the flooding period until the flood recedes or when all hazards and dangers associated with the phenomenon are no longer present (https://bagong.pagasa.dost.gov.ph/learning-tools/floods).

A "Flood Advisory" is a warning that states the imminence of a flood situation. Thus, it also contains suggested necessary actions that may have to be taken by the residents and the community in the threatened basin. An advisory is issued when the hydrological situation deteriorates further. It is also issued when condition is definitely improving but caution is still necessary. A "Flood Warning" is issued when a flooding situation is a definite reality at least 24 hours before actual flooding occurs. This category is maintained in succeeding bulletins as long as the affected areas are inundated and the attendant dangers are present. Aside from the forecast, a warning states the necessary precautionary measures and actions residents as well as the affected community must take. Flood bulletins are specifically directed to the public. They are intended to

apprise the people in the threatened area of the present situation and of the expected development. It suggests the appropriate actions the community may have to take to prevent or mitigate the disastrous effects of a flood. As in any kind of disaster, the best countermeasures for flood damage prevention and mitigation are those which are community efforts (https://bagong.pagasa.dost.gov.ph/learning-tools/floods).

This paper investigated the flood experiences of entrepreneurs in communities along the Ocoy River in Negros Oriental. It further examined the relationships among flood disaster risk perception, sense of place, and flood disaster preparedness of the respondents composed of 36 non-probable samples of owners and managers of enterprises near the river. The face-to-face survey revealed that most had accumulated damage and losses during floods, reinforcing their high flood disaster risk perceptions. But the latter was positively and significantly related to their sense of place score, which suggests a high value they assigned to their communities despite a high flood risk. However, they had a low disaster preparedness score which is not significantly related to flood disaster risk perception and a sense of place. Only place dependence had a positive and significant relationship to flood disaster preparedness which explains their reluctance to relocate their operations. Therefore, as part of enterprises' formal operational requirements for a business permit, the entrepreneurs must undergo flood disaster preparedness orientation to adapt to climate change according to Enrique G. Oracion of Silliman University, Dumaguete City, Negros Oriental.

Bollettino 2018 et. Al states that Despite a large body of research on disasters in the Philippines, there is limited data on household levels of preparedness for disaster. This report provides findings from a nationwide household survey in the Philippines addressing disaster resilience and preparedness. The results of the survey provide a comprehensive baseline of household measures on each. Preparedness relates to steps that are taken by government, communities and individuals to mitigate the impact of hazards. Preparedness is a component of resilience. Resilience is a long-term concept that covers the full disaster continuum and includes aspects of positive transformation that enhances the ability of future generations to meet their needs. Survey participants were selected using a nationally representative sample of randomly selected adults aged 18 years old and above, representing all Philippines economic strata (ABCDE households). A total of 4,368 interviews were conducted. Data collection took place across the country between March 10, 2017 and April 9, 2017. Two hundred and forty household interviews were conducted in each of the 18 regions2 of the Philippines with oversampling in the National Capital Region.

The Philippines is highly susceptible to both geophysical and climate-related disasters. This article explores Filipinos knowledge and perception of climate change and their association with what action Filipinos take to prepare for rapid onset natural hazards such as typhoons. Data for this study were collected from a nationally representative random survey of 5,184 adults conducted between March and April of 2017. Filipinos self-report relatively low levels of knowledge of climate change and cited increased temperatures, shifts in seasons, and heavier rains as the most likely consequences. Levels of disaster preparedness in the Philippines differ widely by region. Although most Filipinos perceive that natural hazards are a risk to them, only a third of Filipinos undertake measures to prepare for disasters. Filipinos who perceive climate-related changes directly impacting their households report taking greater action to prepare for disasters. Filipinos who believe they have been directly impacted by climate-related changes are also more likely to prepare for disasters, take planning actions, and undertake material actions to prepare, such as dwelling improvements. Other factors associated with disaster preparedness include gender, membership in an association, wealth, risk perception, and prior exposure to and losses due to disasters. The findings imply that, while posing different challenges and requiring different responses, adaptation to climate change and disaster preparedness are inherently associated and potentially mutually reinforcing. Policies and programs would arguably benefit from a more unified intervention framework that links climate change adaptation and disaster preparedness (Bollettino 2020 et. Al).

Natural hazards are one of the destructive phenomena that pose a significant hazard to humans, property, and the economy, among others. One of the most recurring natural hazards is flooding, which is caused by typhoons, monsoons, and heavy rainfall and has been one of the main concerns of the Philippines in recent years. The study's results will provide information on the factors affecting flood disaster preparedness by integrating the Theory of Planned Behavior (TPB) and the Protection Motivation Theory (PMT). A total of 509 individuals answered an online survey questionnaire with 52 adapted questions. Structural equation modeling (SEM) revealed that risk perception (RP), media (M), and personal experience (PE) had an effect on perceived

severity (PS) and perceived vulnerability (PV), which consequently affected the attitude toward the behavior (ATB), social norms (SN), and perceived behavioral control (PBC). It was determined that ATB, SN, and PBC significantly affected adapted behavior (AB), which consequently led to intention to follow (ITF) and perceived prevention (PP). After analyzing the data, it was revealed that 56.2% of female respondents were said to be more disaster resilient compared to males. This is the first study to determine the perceived prevention of disaster preparedness and mitigation in flood-prone areas in the Philippines. The results will be beneficial to academicians and government officials in developing determining factors that affect flood disaster preparedness. Lastly, a deeper understanding of how AB is the most significant variable may be further researched to improve the paper (Kurata 2023 et.al).

The Philippines is considered one of the most vulnerable and susceptible countries to the effects of natural disasters due to its location. Therefore, the country needs to be resilient to the natural calamities it faces yearly. The research aimed to determine the factors that affect the protective behavior of Filipinos during natural disasters by integrating protective motivation theory, the theory of planned behaviors, and ergonomic appraisals, and by adding variables such as knowledge and geographical perspectives. PLS-SEM was used to determine the significant factors that affect protective behavior. A questionnaire was developed and distributed to 302 Filipinos in the Philippines through a digital survey using Google forms. The analysis showed that the intention to prepare is the most significant factor affecting their protective behavior, followed by macro and physical ergonomics. Aside from this, attitudes, perceived severity, self-efficacy, response efficacy, response cost, and subjective norms were found to influence their intention to prepare significantly. Furthermore, understanding natural calamities significantly influences an individual's perceived severity. However, the geographical perspective, perceived vulnerability, perceived behavioral control, and cognitive ergonomics were found to have an insignificant influence on protective behavior for natural calamities. The study findings could be used as a basis for household units or the national government to build disaster management plans and resilience programs. Aside from this, it can also be used by researchers as a basis for exploring other areas that may affect the protective behavior of individuals to prepare for natural calamities worldwide (Gumasang 2023 et.al).

This thesis entitled, "Disaster Awareness and Local Government Unit Actions on Disaster Management" intended to find out answers to the following questions: 1.) What is the status of Disaster Awareness in Municipality of Kalayaan, Laguna in terms of knowledge, capabilities? 2.) What is the action of local official in the Municipality of Kalayaan, Laguna in terms of allocations, and ordinance? 3.) What is the status of Disaster Management in Municipality of Kalayaan, Laguna in terms of prevention/mitigation, preparedness, response, and rehabilitation/recovery? 4.) Is there a significant relationship between the status of disaster awareness and disaster management in the Municipality of Kalayaan, Laguna? and 5.) Is there a significant relationship between the action of the local officials and disaster management in the Municipality of Kalayaan, Laguna? A descriptive method is used in the study to determine the relationship of the disaster awareness to disaster management. The instrument used was questionnaire in the form of a checklist and a Five-Likert scale gather information needed to accomplish the study. The primary respondent of this study was the selected head of the family who belong to disaster-prone area in their barangay, and the officials/member of MDRRMO. The list of disaster-prone area came from MDRRMO, and two hundred (200) are served as respondent of the study, one hundred eighty-five (185) from the selected head of the family and fifteen (15) are came from officials and members of MDRRMO. The findings shows that the disaster awareness was observed to have a significant relationship to the disaster management. This means that the knowledge and capabilities of the residents about disaster awareness made them manage the disaster effectively. On the other hand, the findings shows that the action of local officials was observed to have a significant relationship to disaster management. This means that the ordinance and allocations of local officials that being implemented in the municipality had a noticeable impact on how effectively disaster were managed. The study concludes that the status of disaster awareness showed a significant relationship in disaster management in municipality. The null hypothesis "there is a significant relationship between the status disaster awareness and disaster management in the Municipality of Kalayaan, Laguna." is rejected. The action of local official showed a significant relationship in disaster management in municipality. The null hypothesis, "there is a significant relationship between the action of local officials and disaster management in the Municipality of Kalayaan, Laguna." is rejected. This recommends that residents may continue to engage their self in developing disaster preparedness program. And local officials may continually prioritize disaster preparedness and response in conducting risk assessments, developed more contingency plans, and investing in disaster-resilient infrastructure (Cabanig 2023).

The study determined the Level of Implementation of Disaster Risk Reduction and Management (DRRM) in Flood Prone Areas in Camarines Sur, Philippines. Specifically, the study focused on the level of implementation and problems encountered in four thematic areas of DRRM, namely: Prevention and Mitigation, Preparedness, Response, and Rehabilitation and Recovery. The Descriptive-Evaluative Inferential Method was used in the study. A five-point Likert scale questionnaire was used in gathering the data. The reliability of the questionnaire was determined by means of Kuder Richardson Formula. The same was validated by academic experts well-versed in the topic and disaster management practitioners. Purposive or selective sampling was used in choosing the MDRRMC while convenience sampling was the sampling technique used for community residents. One hundred twenty-one (121) members of the Disaster Risk Reduction and Management Council and three hundred (300) residents in flood-prone areas in Camarines Sur, Philippines were the respondents of the study. The population represented by the 300 respondents were household members specifically, the head of the family. Frequency count, percentage, rank, weighted mean, and Wilcoxon Mann Whitney U-Test were the statistical tools used in the study. Findings revealed that DRRM Programs were implemented in flood-prone areas in Camarines Sur namely, Milaor, San Fernando, Libmanan, Sipocot, Camaligan, Canaman, Magarao, Buhi, Nabua and Iriga City. Conversely, some of the problems encountered by the respondents on four thematic areas rated as "Serious" were: lack of community drills, inadequate disaster facilities and equipment, poor implementation of laws, absence of Standard Operation Manual, inadequate community warning system, lack of disaster response vehicles, and the reluctance of residents to pre-emptively evacuate (San Jose 2022).

Hydrometeorological hazards like flooding are inevitable; these affect agriculture and impact the economy for a prolonged duration. This research study was conducted to determine and assess the flood control measures in the municipality of Nabua in the Province of Camarines Sur, Philippines as bases for developing community-based flood control interventions. Using the descriptive evaluative survey method with a validated questionnaire as the primary data gathering instrument, gathered data were computed, tabulated, analyzed, and interpreted. It has shown that the degree of implementation of the flood control measures is high for structural and non-structural flood management. The null hypothesis is rejected. The difference between the responses of the respondents was significant. The extent of the effect of the factors directly influences the implementation of the flood control measures. It can be concluded that the Municipality of Nabua controls flooding primarily through its flood control infras-tructures that are strategically situated in the municipality, human resources, and collaboration and linkages. Moreover, the responses of the respondents are significantly different. Improvement and upgrading of its physical facilities and equipment to acquire real-time information; intensifying its campaign and information drive to build a more vital link between the municipality and its constituents, and information dissemination using social media and communications technology can increase awareness, mitigation, control, and response to flooding are thereby recommended. The community-based interventions on flood control can serve as a guide and an eye-opener for the local government unit of Nabua to promulgate and enact municipal ordinances about flood control (Sotto 2022).

RESULTS AND DISCUSSION

The respondents of San Francisco were mostly 25-44 years old with the percentage of 52%, in San Miguel the highest percentage were 65+ consists the 24% of the total respondents of barangay while the barangay San Roque ages 55-64 have the most numbered respondents. The 52% of the total respondents of the three (3) barangays are government employees, 22.33% are self-employed, 12% are housewives, 1.3% is a nongovernment employee and the 8% are students. The results shows that most of the respondents are employed this can be attributed to November 2024 Labor Force Survey by PSA that states "In November 2024, the country's employment rate was estimated at 96.8 percent. This was higher than the estimated employment rate of 96.4 percent in November 2023 and in October 2024 at 96.1 percent". The type of residence that the respondents occupy in San Francisco single-family homes is 80% and multi-family dwelling 20%; in San Roque there are 3 type of dwelling and the most common is the single-family home which 76% of the respondents occupies, the 20% resides on a multi-family dwelling and 4% is rents a dorm/boarding house; and the San Miguel most families occupies a single-family home and the 20% occupies multi-family dwelling. The results shows that the respondents occupied a single-family home this can be attributed to the PSA that states that "Of the total number of occupied housing units in the Philippines, 22,059,348 or 87.6 percent were single house". Most of 90.67% of the respondents lived in their barangays more than 10 years, or some of them said that they resided since they were born; 6.67% lived for 6-10 years in their barangay, 1.33% of the

respondents have lived for less than a year. Results shows that almost all of the respondents have been living in their barangay for ten years and beyond this can be attributed to the socio-economic benefits living in an urban barangay this finding is supported by Luca S D'Acci 2021 which stated "Empirical evidence suggests a causal link between mental health and urbanicity level. Idem for life satisfaction and stated preferences, both resulting higher at lower urbanicity levels. Despite this, more and more people are deciding to spend their lives in cities (85–90% by 2100). Why? Urban life pros and cons pose individuals subjective spatial dis-equilibrium to face life-time and daily-life decisions, rationally/irrationally balancing advantages and disadvantages in short (current utility) and long term (lifetime utility) perspectives. People trade-off antagonistic arguments of their lifetime/current utility functions when deciding where to live, and some of them end up having to sacrifice a preferred environment to enjoy other types of benefits".

The Community Perception to flooding in San Francisco 96% of the total respondents believes that their barangay is at risk of flooding while the 4% does not believe that their barangay is at risk of flooding. The 76% respondents believe their barangay is mainly because of heavy rainfall; 44% proximity to river, canals and creeks; 48% because of poor drainage system; 40% believes climate has contributed to the frequent flooding in their barangay. The total respondents of San Miguel also believe that 56% heavy rain; 24% proximity to river, canals and creeks; 28% poor drainage system; and 28% climate change due to climate change. The Community Perception to flooding in San Roque 92% of the total respondents believes that their barangay is at risk of flooding while the 8% does not believe that their barangay is at risk of flooding. The 68% respondents believe their barangay is mainly because of heavy rainfall; 28% proximity to river, canals and creeks; 40% because of poor drainage system; 40% believes climate has contributed to the frequent flooding in their barangay. Results shows that all of the barangays believed that they are at risk of flooding. This can be attributed to the location of the barangay according to San Jose 2022 that Iriga City is a flood prone area within Camarines Sur. The three barangays have also shown a same reason of what causes flooding to their barangays, the heavy rainfall have the highest percentage, however respondents were also aware that climate change have significant contribution to the frequency of flooding. It known that the three (3) barangays are urban barangays of Iriga City, such heavy rainfall causes flood in these barangays due to its lack of trees that absorb water run off but due to urbanization, a day of rain causes flood as "Human activities such as urbanization and the growth of settlements and assets in flooding areas likewise contribute to the increasing impacts of floods" stated by Cabrera et. Al 2019.

In San Francisco 96% of the total respondents are aware of the existing creek or river at their barangay. 88% of the total respondents knew that there is a water level monitoring indicator also known as early warning signals. Barangay San Miguel 100% of the total respondents are all aware of the presence of creek or river in their barangay and 88% of the total respondents are aware of the existing water level monitoring indicator also known as early warning signals. In San Roque 92% of the total number of respondents are aware that a creek or river is present in their barangay and 88% are aware of the existing water level monitoring indicator also known as early warning signals. The results shows that the three (3) barangays have rivers and creeks that can contribute to the flooding due to its proximity to the community, thus all present creeks or rivers have existing Early Warning Systems. This is supported by RA 10121 of 2010 which states "Disseminate information and raise public awareness about those hazards. vulnerabilities and risks, their nature, effects, early warning signs and counter-measures".

The total respondents 92% of San Francisco are aware of the local emergency plans for flooding while 8% is are not aware. In San Miguel, 64% are aware and 36% is not aware of the local emergency plans for flooding. While in San Roque, 100% of the total respondents are all aware of the local emergency plans for flooding. 92% of the total respondents of San Francisco have received information/ training on what to do in the event of flooding while 8% din not receive any information/ training on what to do in the event of flooding. In barangay San Miguel 72% information/ training on what to do in the event of flooding while 24% did not information/ training on what to do in the event of flooding and 4% who did not answer. While in San Roque, 92% of the total number of respondents have information/ training on what to do in the event of flooding 8% did not receive information/ training on what to do in the event of flooding. Results shows that all of the three (3) barangays respondents almost have information/ training on what to do in the event of flooding this can be attributed to the accessibility of infographics on flood on social media and in public places, posters are displayed/posted. In Iriga City, the CDRRMO office have posted it their social media account on Facebook as directed in Conduct Oplan Bandillo fore constituents' awareness along low lying and coastal areas to include

landsline and flood prone areas and preemptive evacuation before the landfall of weather disturbance. In barangay San Francisco 92% of the total respondents have evacuation plan in case of flooding and 6% that do not have evacuation plan in case of flooding. The total respondents in San Miguel 56% have evacuation plan in case of flooding while 24% do not have evacuation plan in case of flooding and 20% did not answer. And in San Roque 80% have evacuation plan in case of flooding while 20% do not have evacuation plan in case of flooding. Results shows that almost all of the respondents have their evacuation plan in case of flooding at home level, this can be attributed to their knowledge on what to do in case of flooding and the access to the information about flooding; as PAGASA has publish a Flood Safety Rules that states "Designate an evacuation area for the family and livestock".

The total respondents 100% of San Francisco are aware of local flood alerts or warnings. 84% of the total respondents of San Miguel are aware of local flood alerts or warnings while 16% had no answer. While in San Roque 92% of local flood alerts or warnings while 8% are not aware of local flood alerts or warnings. The awareness of the total number of respondents can be attributed to the info dissemination of information of the barangay such as conducting bandillo or the posted flood alerts of the CDRRMO. This is supported by RA 10121 "Disseminate information and raise public awareness about those hazards. vulnerabilities and risks, their nature, effects, early warning signs and counter-measures".

The 76% total respondents of San Francisco believes that the local government provides sufficient support for flood preparedness and 24% do not believe local government provides sufficient support for flood preparedness. Barangay San Miguel 60% local government provides sufficient support for flood preparedness while 12% do not believe the local government provides sufficient support for flood preparedness and 28% did not answer. 100% of the total respondents of San Roque believes that local government provides sufficient support for flood preparedness. Results shows that the barangays believes that the government of Iriga provides suffient support for flood this can be attributed through the seen efforts of the entire LGU Iriga and various leading agencies according to Dr. Vinck 2024, "Building trust in government efforts is essential for effective disaster response, ensuring that communities feel supported, prepared, and engaged when facing crises." and Andrada Et. Al that states that "On awareness 90 percent from Iriga City have received information or training regarding emergency preparedness and have seen or heard messages encouraging people in the city to prepare for emergencies in the past 12 months (96.67%). They found the information or statements helpful to prepare for and respond to disasters (93.3%).".

The 96% of the total respondents of San Francisco do safekeep their thing/appliances before the flood while 4% of the respondents do not safekeep their thing/appliances before the flood. In San Miguel 85% do safekeep their thing/appliances before the flood while 16% did not answer. Barangay San Roque do safekeep their thing/appliances before the flood 100%. Results shows that almost of the respondents safekeep their things before the flooding, this can be attributed to the frequency of flood events in the 3 barangays that causes them to safekeep their thing/appliances prior the flood ang their awareness as PAGASA Flood Safety Rules that "Store supplies and other household effects above expected flood water level".

The 96% of total respondents of San Francisco shuts down the main power supply of their household during flood while 4% do not shutdown the main power supply. In San Miguel 100% of the respondents' shuts down the main power supply during flood. Barangay San Roque 96% of the respondents shuts down the main power supply of the household during flood while 4% do not shutdown the main power supply. The results showed that almost of respondents of the 3 barangays shuts down the main power supply during flood. This can be attributed to their awareness of what will happen if they do not shut down the power supply as Flood Safety Rules by PAGASA states "When electrical fines and outlets will be submerged in floodwater, power should be switched off.".

The 44% respondents of San Francisco have been displaced during a flood, 48% has not been displaced, In San Miguel 92% has been displaced during a flood and 8% did not answer. Barangay San Roque, 80% have been displaced during a flood, 12% has not been displaced and 8% did not answer. Results can be attributed to the topographical location of the barangays and as a flood prone as stated "In District 5, the municipalities of Baao, Balatan, Bato, Buhi, Bula, Nabua, and the City of Iriga are also vulnerable to the same risk" (https://www.bicolmail.net/single-post/edmero-field-geologist-almost-half-of-camsur-classified-as-risk-areas).

The 48% of the respondents from San Francisco evacuated at home shelters, 4% have evacuated at evacuation center while 48% did not evacuate due to their home have second floors. In San Miguel, 40% evacuated at

home shelters and 24% at evacuated at the evacuations centers while 36% did not evacuate at all. In barangay San Roque, 68% evacuated at home shelter while 32% evacuated in evacuation centers. This can be attributed to their locations, according to PAGASA "Where houses are expected to be flooded, people should move to higher places.".

The 100% of the respondents from San Francisco have GO Bag prepared at their houses. In San Miguel, 76% have GO bags while 24% do not have. In barangay San Roque, 76% have Go Bag; 4% do not have and 20% have not answered. The results show that almost all of the barangay have GO Bag ready in case of emergency. This shows the effectiveness of the information dissemination according to the study of San Jose, 2022 that stated "In addition, community awareness and preparedness in Camarines Sur are strengthened through the distribution of disaster operations manuals to households, which equips residents with essential knowledge alongside regular drills and training. Moreover, the implementation of a community warning system, combined with training on its use and mandatory provision of preparedness equipment monitored by the Local Disaster Risk Reduction and Management Office (LDRRMO), enhances the community's overall disaster readiness.".

These are the results of the additional questions that were given to the three (3) barangay councils specifically. 100% of the barangays have BDRRM Plans ; 92% of all the barangays conducts bandillo/ public address in risks of flooding. 100% of the barangays conducts Pre-emptive and forced evacuation; 100% of the barangays have conducted relief operations; 100% have conducted clearing operations; 93.33% of the barangays have distributed medicines for leptospirosis; 96.67% have transported families that's been displaced due to a flood, 100% of the barangays have evacuation centers. Results show that in terms of preparedness, all of the barangay are well prepared, this can be attributed to the systematic approach of the government of Iriga in times of disaster, as mandated by RA10121 Section 12 that states "*Local Disaster Risk Reduction and Management Office (LDRRMO).* - (a) There shall be established an LDRRMO in every province, city and municipality, and a Barangay Disaster Risk Reduction and Management Committee (BDRRMC) in every · barangay which shall be responsible for setting the direction, development, implementation and coordination of disaster risk management programs within their territorial jurisdiction".

The existing preparedness activity of the barangays are 73% basic life support (BLS); 63.33% of Basic Incident Command System (BICS); 43.33% of Water Search and Rescue Training BDRRM Plans; and 83.33% Basic Fire Fighting. These trainings conducted by the barangays in cooperation of the lead agencies, is a that the barangays are functioning as it should be as stated in the RA 10121 "The LDRRMO shall be under the office of the governor, city or municipal mayor, and the punong barangay in case of the BDRRMC. The LDRRMOs shall be initially organized and composed of a DRRMO to be assisted by three (3) staff responsible for: (1) administration and training; (2) research and planning; and (3) operations and warning. The LDRRMOs and the BDRRMCs shall organize, train and directly supervise the local emergency response teams and the ACDVs." and according to J. M. Santiago (2020) "Urban barangays tend to have better access to resources and training compared to rural barangays. However, both types of barangays face challenges in terms of community engagement, early warning systems, and infrastructure development. The study suggests that urban barangays should share best practices with rural counterparts to improve overall flood management."

These are problems encountered in the barangays; uncooperative residents 96.67%; transportation 76.67%; budget 73.33%; 60%; availability of rubber boats 46.67% lack of training; 56.67% no food provision; 10% fear of looting incident; 40% awareness of residents; 50% solid waste management; and 66.67% evacuation center. The results show the gaps of barangays in the implementation of RA 10121 however theses gaps will eventually improve as A. F. Lazo (2018) stated that "The research highlights the difficulty barangays face in sustaining disaster preparedness efforts due to resource constraints, political interference, and a lack of community engagement. It calls for better integration of local knowledge and resources into disaster risk management strategies".

CONCLUSION AND RECOMMENDATIONS

Results showed that the existing community preparedness activities or practices related to flooding in Barangay San Roque, San Miguel and San Francisco has been improving since the availability of early warning systems and the accessibility to infographics and trainings. Social media have raised the level of

awareness of the community which had led them to safety during the event of flooding and their willingness to learn played a big part in the implementation of RA 10121.

The existing preparedness activities that the barangays are; the formulation of BDRRM Plan; conducts Pre-emptive and forced evacuation; all of the barangays have evacuation centers; of all the barangays conducts bandillo/public address when in risks of flooding; have transported families that's been displaced due to a flood; and all the barangays have distributed medicines for leptospirosis and all the barangays have conducted relief operations. The top five (5) identified problem are uncooperative residents; transportation; budget; evacuation center; and availability of rubber boats.

It is concluded that the three (3) barangays are well-prepared for flooding events, with both the residents and the barangay officials demonstrating readiness. The resilience of the community, coupled with the efforts of the government, plays a crucial role in ensuring effective disaster preparedness and response. It is recommended to give punishment/sanctions to the uncooperative residents through rules implementations; all flood prone barangays must have their own rubber boats for transportation and training for the handler; budget for the response must be adjusted; and construction of additional evacuation center for each barangay must be constructed through NGO's.

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