

# Assessment of the Women's Participation to Disaster Preparedness and Response in the Municipality of San Juan, Batangas

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*Abstract— In the Province of Batangas, Municipality of San Juan, Batangas is regarded to be vulnerable to disaster. It has coastal, upland and populated lowland geographical areas. In the fortuitous event of catastrophe, women are deemed the frailest among the marginalized sectors. While the Magna Carta of Women gives women the right to protection and security in terms of disasters, specialized needs of women may be overlooked, gender-blind and insensitive to the development actions. This study assesses the participation of women to disaster preparedness and response in the Municipality of San Juan. Research surveys states that in the event of fire, traumatic experiences of people affected therein got the highest weighted mean of 3.3640. In terms of flood, the highest weighted mean is 3.4740, where flood is caused by the large amounts of rainwater, which cannot be absorbed in to the ground, drainages and canals. Relative to typhoon, the highest weighted mean is 3.4260, an intense circulation of the weather system causes typhoon over tropical seas and oceans accompanied with very strong winds, heavy rains and large ocean waves. About landslide, it is triggered by other natural hazards such as prolonged, heavy rainfall, and typhoon or by other sources of water, which increases the water content of the slope materials and got the highest weighted mean of 3.4200. Regarding earthquake, the highest weighted mean is 3.370, where earthquake is caused by sudden slippage of rock masses below or at the surface of the earth. In terms of participation in disaster preparedness and response, the lowest weighted mean is 2.3380, it is where women slightly or sometimes participate in forming and mobilizing women's group in the local government units during disaster to protect and meet the necessary needs of women. Based on findings, the extent of participation in disaster preparedness and response practices in the Municipality of San Juan, Batangas is significant and highly important on the assessment of the respondents regarding disasters and their empowerment is necessary in developing a disaster resilient community. Thus, this study serves as basis for the determination in policy-decision making process necessary to address and integrate the specialized needs of women in the Municipality of San Juan, Batangas relative to participation to disaster preparedness and response.*

*Keywords—Disaster, Risk Management, Women Empowerment, Disaster Preparedness, Risk Management.*

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## I. INTRODUCTION

The Philippine Disaster Risk Reduction and Management (DRRM) Act of 2010 or Republic Act No. 10121), seven (7) years after its implementation, the country remains to be vulnerable in terms of disaster risk mitigation, preparedness and response. According to 2015 report of United Nations Office for Disaster Risk Reduction, the Philippines ranked fourth (4th) among the countries hit by disasters over the last twenty (20) years. It ranked fifth (5th) being the most vulnerable to disasters. Recently, in a report by the Asian Development Bank (ADB) dated July 14, 2017 based on the reports by Potsdam Institute for Climate Impact Research, disasters such as flood and typhoons as a result of climate change will damage more houses and lives in the Philippines by the year 2085. More intense floods and typhoons are expected to hit Asia and Pacific with rising global mean temperatures. One- meter sea-level rise makes the country vulnerable and risk of flooding especially those in coastal and low-lying areas in the region.

While the latest Global Gender Gap Report released last October 2016 by the World Economic Forum, the Philippines retained its seventh (7th) place globally among the gender-

equal societies. In the Asia-Pacific, the Philippines ranked one (1) in the annual Global Gender Gap Index. However, in times and during the period of catastrophe, the women and the children is the weakest among the marginalized sectors in terms of protecting, rescuing and rescuing from the fatalities of natural and human-induced disasters or other calamities. In times of crisis due to calamities, it is the women and children that have direct cause and severe consequences in their daily lives. Women are being the hit the hardest among the marginalized sectors in the society. Based on the report of the World Bank, Asian women perish in catastrophes more than men: 61% in the 2008 Myanmar cyclone; 67% in the Indian Ocean Tsunami in Banda, Aceh; and 95% in the cyclone Gorky in Bangladesh. Data shows that gender inequality pervades during disasters and makes the situation worse for the security and lives of women. While disaster preparedness is necessary for everybody, the specialized needs of women may be overlooked by the gender-equal societies when considering disaster preparedness.

It is very important to contemplate the women's issues when developing disaster preparedness and response activities for the community and society. Republic Act No. 9710 or the Magna Carta of Women, Section 10 states that

women have the right to protection and security in terms of disasters, calamities, and other crisis situations especially in all phased of relief, recovery, rehabilitation and construction efforts. It shall ensure full protection from sexual exploitation and other sexual and gender-related violence committed against them. Given the situation that the Philippines is prone to disaster, protection and security to women in rescue, relief and rehabilitation operation must be primarily ensured. The priority to women in terms of disasters and calamities realized the women's full human potentials to be prepared, adaptive and resilient during calamities. The function of women in the society must be acknowledged and reinvigorated, at every level and in every sphere, in the struggle during catastrophe, as they are indispensable in response to campaign for disaster prevention and zero casualties during disaster. Thus, through women empowerment, it makes a community an effective deliverance of disaster risk reduction and makes the families, homes and community livelihoods disaster-resilient.

The empowerment of women is a critical ingredient in building disaster resilience. Women are often the designers and builders of community resilience at the local level. There are countless examples where empowering women to exercise leadership within their communities contributes to disaster resilience. There is also strong and mounting evidence at the country level that improving gender equality contributes to policy choices that lead to better environmental governance, whether through increased representation and voice of women within their communities, in society at large, and at the political level, or through increased labor force participation.

The Philippine geographical location makes the country vulnerable to different natural disasters. Disasters are inevitable. These are caused by unsustainable development that has not taken into account of possible hazard impacts in the affected location. There are many hazards frequently injuring the country that causes the loss of lives and damages to properties. Not all hazard incidents necessarily result in disasters. Disasters are emergencies that cannot be controlled by those affected individuals or community without outside assistance. Disasters can only be considered as disasters if it affects the people who cannot cope with the physical and economic impacts brought by it.

According to Republic Act No. 10121 or the Philippine Disaster Risk Reduction and Management (DRRM) Act of 2010 "disasters are serious disruptions on the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceed the ability of the affected community or society to cope using its own resources". By records, the Philippines has gone through different natural and human induced hazards which are typically the results of the amalgamation of the exposure to hazards, the conditions of existing vulnerability and lacking of capacity deal with it, or measures to decrease or manage with the potential negative

consequences.

The Philippine government has established programs and projects for the management of risks brought by disasters and formulated ways on how to respond to these hazards. The principle behind the development of these programs was to use all of the available government resources, and encourage all concerned agencies to work collaboratively together in addressing the issue of calamities and disasters, natural or human-induced. As stipulated in the Philippine Constitution, women should be partners in the nation building. As part of this nation building, women should be empowered to participate in establishing a disaster resilient community.

The current gender relations between men and women in disaster risk reduction have everything to do with the roles and responsibilities women and men have at home and in society. These roles result in different identities, social responsibilities, attitudes, and expectations. Such differences are largely unfavourable to women and lead to gender inequality cutting across all socioeconomic development, including differences in vulnerabilities to disasters, and different capacities to reduce risk and respond to disasters. Crucially, women's limited access to information and knowledge inevitably increases their disaster vulnerability and risk, and that of their families. Thus, this study aims to identify the vulnerability of women in the Municipality of San Juan, Batangas to various hazards. The study also aims to assess and evaluate level of participation of women in the Municipality of San Juan, Batangas when it comes to disaster preparedness.

Disaster risk reduction (DRR) is a fundamental pillar of sustainable development and requires an "All of Society Inclusive Approach". Disasters affect men and women, and boys and girls, differently. A gender perspective to DRR helps focusing attention on the distinct gender-specific capacities and vulnerabilities to prevent, prepare, confront, and recover from disasters. In many contexts gender inequalities constrain the influence and control of women and girls over decisions governing their lives as well as their access to resources such as finance, food, agricultural inputs, land and property, technologies, education, health (including sexual and reproductive health), secure housing and employment. Due to existing socio-economic conditions, cultural beliefs and traditional practices, women are more likely to be disproportionately affected by disasters, including increased loss of livelihoods, gender-based violence, and even loss of life during and in the aftermath of disasters.

At the normative level the international community has committed to a strong focus on gender equality and women's rights in disaster risk reduction. These commitments are grounded in the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the Beijing Declaration and Platform for Action, as well as other international agreements such as the Hyogo Framework for Action: Building the resilience of nations and communities to

disasters 2005-15 (HFA) and CSW resolutions on gender equality and the empowerment of women in natural disasters (UNISDR, 2007).

According to Miller (2009), “a disaster is a sudden, calamitous event bringing great damage, loss, and destruction and devastation to life and property”. Any man made or natural hazard having potential to cause widespread destruction of property and human lives is considered a disaster (Olivia, 2011). The damage caused by disasters is immeasurable and varies with geographical location, climate and the type of the earth surface of vulnerability. A disaster also influences the mental, socio-economic, political and cultural state of the affected area. In short, a disaster is a function of the risk process which results from the combination of hazards, conditions of vulnerability and insufficient capacity to reduce the potential negative consequences of risks that have not been effectively managed (Miller, 2009).

Bollin et. al. (2002) concluded that disaster usually affects developing countries like Philippines or other countries with poor economic sustainability. The reasons for this are the low ability of local communities to raise funds to support the rehabilitation and recovery efforts for these disasters. The National Economic and Development Authority (NEDA) defined hazard as a potential damaging physical event, phenomenon or human activity, which can cause property damage, injury, death, social and economic disorder, or environmental declination. Vulnerability, instead, is a set of conditions and processes that result from different environmental, physical, social, and economical factors that increase the status of the impact of hazard to a certain area or community while risk is considered as the probability of harmful outcome or loss that results from hazard. The risk is high when the human activity, property, and growth of economy ignore the presence of hazards in certain time and place (NEDA, 2008).

United Nations Development Programme, in their article entitled “Reducing Disaster Risks: A Challenge for Development”, pointed out that natural disasters also pose a significant threat to prospects for achieving the Millennium Development Goals in particular, the overarching target of halving extreme poverty by 2015. In the Philippines, there are numerous natural disasters that happen every year like Super typhoon “Yolanda” or Haiyan, its international name. It is the most powerful and devastating tropical cyclone that struck the Philippines in recent memory. The Category 5 typhoon made its first landfall over Guiuan, Eastern Samar in the early morning of November 8, 2013 and wreaked havoc, primarily on the Visayas region, until its exit from the Philippine area of responsibility the following day. Weather officials said ‘Yolanda’ had sustained wind speeds exceeding 185 kph when it made landfall. The strong winds ripped off the roofs of thousands houses and knocked down shanties, trees, power and telephone lines and cell towers. Storm surge waves as high as 6 to 7 meters or a two-storey high building, were also

seen, claiming thousands of lives and destroying property (COA, 2014).

Yolanda left a trail of destruction in the lives of more than 3.4 million families or 16 million people, spread across 12,139 barangays in 44 provinces, 591 municipalities and 57 cities of Regions IV-A, IV-B, V, VI, VII, VIII, X and XI and CARAGA. A total of 4 million people has also been displaced by the typhoon. According to the National Disaster Risk Reduction and Management Council (NDRRMC), Yolanda’s death toll has reached 6,300 as of 17 April 2014, while the number of injured stood at 28,689 and 1,061 are still missing. In terms of economic damages, NDRRMC has pegged the total losses at P39.8 billion, with almost P20 billion for infrastructures and P20.2 billion for agriculture in Regions IV-A, IV-B, V, VI, VII, VIII and CARAGA (COA, 2014).

The adverse effects of these disasters could be less if there are effective disaster management and preparedness programs and schemes. Disaster Risk Management is the systematic process of using administrative decisions, organization, operation skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities including structural and non-structural measures to avoid and prevent or to limit or mitigate and be prepared to the adverse effects of hazards (ISDR, 2004).

One of the underlying principles of Disaster Risk Reduction (DRR) is to consider disasters as a result of a community’s vulnerability. Vulnerability has been defined as a set of conditions and processes resulting from physical, social, economic, and environmental factors, which increase the susceptibility of a community to the impact of disasters. By analyzing vulnerabilities and capacities, a fuller picture emerges of how to reduce disaster risks. The DRR approach considers a comprehensive range of vulnerability factors and aims to devise strategies that safeguard life and development before, during, and after a disaster.

This approach is useful to the climate change community because, whereas the climate change debate and work has largely taken place at the international and national levels and focused on impacts or hazards, disaster managers have long experience working at the local level on the vulnerabilities that turn an impact into a disaster. Although a national disaster reduction strategy should be in place, DRR activities are often focused on specific locations, addressing the particular vulnerabilities and capacities of the community, its culture and processes. The rationale behind any action and how it is implemented should be firmly rooted in the beneficial impacts that can be realized for the community, and for the most part, these benefits should be measurable. The success of disaster risk reduction activities depends to a large extent on the participation of community members (UNDP, 2004).

In accordance to what United Nations Development Programme (2004) have stated, adaptation to climate change risks may require effecting changes within local communities— by combining local knowledge and know-how with external information. Adaptation may simply require increasing the scale of current climate risk reduction efforts by intensifying today’s efforts or expanding to other areas practices to deal with well-known hazards. By adopting the DRR focus of vulnerability reduction and making use of the specific tools developed for DRR, the climate change community can benefit from the vast experience gained in the reduction of hydro-meteorological risks. Wolfgang et. al. (2002), added that Disaster Risk Management in a new area of social concern and is a relevant part for development mainly because disasters have devastated an increasing number of regions. The frequency to which some countries experience natural disaster should certainly place disaster risk at the forefront of development planners’ mind. Conferring to UNDP (2004), this agenda differentiates between two types of disaster risk management.

Prospective disaster risk management, the first type, should be integrated into sustainable development planning. Development programmes and projects need to be reviewed for their potential to reduce or aggravate vulnerability and hazard. The second type is compensatory disaster risk management such as disaster preparedness and response. It stands alongside development planning and is focused on the improvisation of existing vulnerability reduction of natural hazards that has accumulated through past development pathways (UNDP, 2004).

With a basis coming from the Hyogo Framework for Action of 2005 – 2015, the Philippine Congress has taken action to promote disaster risk management with the implementation of the Disaster Risk Reduction and Management bill of the Philippines or the Republic Act 10121 which is “An Act Strengthening the Philippine Disaster Risk and Management System, Providing for the National Disaster Risk Reduction and Management Framework and Institutionalizing the National Disaster Risk Reduction and Management Plan”.

Given all these, this national plan will serve as a road map on how disaster risk reduction and management will contribute to the attainment of sustainable development through inclusive growth and build the adaptive capacities of communities, increase the resilience of vulnerable sectors and optimize disaster mitigation opportunities with the end in view of promoting people’s welfare and security towards gender-responsive and rights- based sustainable development (NDRRMC, 2011).

Gender equality refers to equal rights, responsibilities and opportunities for women and men in policymaking and programmes where the interests, concerns and needs of both genders are equally considered and met (UNISDR, 2008). Good practices of gender-inclusive disaster risk reduction (DRR) worldwide provides strong evidence that a gender-

balanced approach to DRR benefits both men and women - with men and women meaning practically everyone, including families, communities and nations to some extent. Equal and active participation of women and men in DRR makes it possible to achieve the Millennium Development Goals (MDGs), sustainable socio-economic development and the overarching goal of the Hyogo Framework for Action (HFA) of building the resilience of nations and communities to disasters.

Gender issues in development and disasters are relatively well established and have been acknowledged globally at the highest levels. Within the development context, disasters showcase and highlight gendered imbalances in society. This includes both vulnerabilities and capacities, and social and economic imbalances arising from class, caste, disability and minority status. Aspects of gender cut across all segments of society and have implications for every action and move towards sustainable development, where DRR acts as a non-negotiable parameter. Thus, mainstreaming gender perspectives into the DRR process offers new opportunities to advance gender equality in the socio-economic development process (UNISDR, 2010).

The Hyogo Framework emphasizes that DRR must be addressed in the context of socioeconomic development, and mainstreamed into development planning and actions through five processes. Integration of gender perspectives is needed in all these processes in order to ultimately ensure that DRR policies and programmes are gender-sensitive. This is underlined in the Hyogo Framework as a necessary condition of effective DRR. This is reflected in the Hyogo Framework’s five priority areas for action which are: the political process requires national authorities to create an enabling environment for DRR; the technical process stresses the important role and application of science and technology in DRR; the socio-educational process focuses on ways to increase citizens’ understanding, knowledge and skills for reducing disaster risks; the development process underlines the importance and necessity of integrating DRR into development practices; and the humanitarian process emphasizes the importance of disaster preparedness and effective relief assistance, with increased effort in factoring DRR into disaster preparedness and recovery.

While progress has been made in the implementation of the Hyogo Framework for Action (HFA), it is widely recognized that serious gaps and challenges remain in delivering on the international community’s commitments to gender equality and women’s rights in disaster risk reduction efforts. Engagement and leadership of women as change agents in their societies are still often overlooked in disaster risk management, where women are often categorized as a vulnerable group.

Periodic reviews on HFA implementation progress show the status of gender equality and women’s social, economic and political empowerment is considered limited and unsatisfactory. Global and regional consultations on the

post-2015 framework for disaster risk reduction signaled a clear message that gender equality considerations require a stronger implementation focus and called for strong engagement and promotion of women's leadership in DRR. There is a wealth of recognized policy advice, best practices, strong evidence-based recommendations, innovations, guidance and tools for rights-based, gender sensitive approaches for disaster risk reduction and resilience building. This implies that it is lack of political attention and priority, inadequate capacity for implementation, as well as gaps in monitoring and accountability mechanisms, which impede implementation of gender equality commitments (HFA 2005 - 2015).

As structural barriers to women's participation and leadership in decision-making are a systemic problem, delivering on commitments to promoting women's leadership in DRR requires dedicated and targeted actions. It requires the facilitation of women's leadership despite these society wide barriers in addition to expanding and strengthening women's capacities to engage. A crucial element is recognizing and strengthening the role and capabilities of civil society and women's organizations in particular, and empowering them, through policies, access to resources and capacity building, to hold decision makers accountable for transparent, inclusive and gender response DRR management.

## II. OBJECTIVES

The general aim of this study is to determine the level of participation of women to disaster preparedness and response in the Municipality of San Juan, Batangas. Specifically, the study seeks answers to the following questions:

1. What is the profile of the respondents in terms of;
  - 1.1 age;
  - 1.2 civil status;
  - 1.3 residence's ecological setting; and
2. How do the respondents assess the natural and human-induced disasters in San Juan, Batangas relative to:
  - 2.1 fire;
  - 2.2 flood;
  - 2.3 typhoon;
  - 2.4 landslide; and
  - 2.5 earthquake?
3. To what extent do the respondents participate in disaster preparedness and response practices in the Municipality of San Juan, Batangas?
4. Is there a significant relationship between the:
  - 4.1 profile of the respondents and their assessment on the natural and human- induced disasters in San Juan, Batangas; and
  - 4.2 respondents' assessment on the natural and human-induced disasters and the extent of their participation in disaster preparedness and response practices in the Municipality of San Juan, Batangas?

5. Based on the findings, what projects can be suggested to further enhance the women's participation in disaster preparedness and response practices of the Municipality of San Juan, Batangas?

## III. MATERIALS AND METHODS

This part discusses the research method and procedure to be used in the study. It explains the research design, subject of the study, the data-gathering instrument, and the data gathering procedure.

**Research Design.** This study utilized the qualitative-descriptive research design in gathering data and information needed to fulfill this research endeavor with document inquiry, interviews, and researcher-made questionnaire as major instruments for data gathering. The qualitative-descriptive method was utilized in this study since it involved collecting and interpreting data in order to gather information needed to serve its purpose. The goal of qualitative- descriptive research is a comprehensive summarization, in everyday terms, of specific events experienced by individuals or groups of individuals. This design was also well regarded in formulating policies in the local, national, or international level (Calmorin, et. al., 2012).

The Gender and Development conceptual framework depicts the woman's image in relevance to the research study of assessment of women's preparedness and response in Municipality of San Juan, Batangas. The cartoon image of a woman serves as structural framework to guide the research study and to answer the statement of the problems. The circle image or the head refers indicates the study of women's respondent with respect to profile (age, civil status and residential ecological settings). The left square image or the left hand entails the study of the respondent with regard to extent of women's participation in disaster preparedness and response. The right square image or the right hand indicates the assessment of disasters in the Municipality of San Juan, Batangas based on the perception of women respondents. The head and hands images are connected to the center-triangle or the body since it synthesizes the significant relationship of respondent's profile and their assessment of disasters, and the extent of respondent's participation to disaster preparedness and response. The two arrows symbolize the woman's legs that result to findings and conclusion of the center-triangle image. From the findings and conclusions, the study recommends and proposes an output project necessary to address the needs of women in terms of disaster preparedness in the Municipality of San Juan, Batangas.

This type of research method is suitable wherever the subjects vary among themselves and one is interested to know the extent to which different conditions are obtained among these subjects. Data collection of qualitative descriptive studies focuses on discovering the nature of the specific events under study. Like other qualitative research approaches, qualitative-descriptive studies generally are characterized by simultaneous data collection and analysis.

In these contexts, the researchers focused on the assessment on the awareness of women in San Juan, Batangas to natural and human-induced disasters relative to fire, flood, typhoon, landslide, and earthquake.

More so, the proponents will also focus in determining the level of participation of women to disaster preparedness related to the aforementioned variables. This study will also analyze the extent of women's involvement in the response capacity of the Municipality of San Juan, Batangas with regards to Incident Command System and communication

**Table 1** Distribution of Respondents

Geographical Location	Total Population	Percentage	Sample Size
1. Coastal Barangays	4,637	33	368
2. Lowland Barangays	9,313	34	384
3. Upland Barangays	6,751	33	378
<b>Total</b>	<b>20,701</b>	<b>100</b>	<b>1,129</b>

The sampling method to be used is stratified random sampling to which the obtained sample size is proportional to the population size. The percentage of the sample size depends on the number of households per geographical location, which are presented in Tables 2, 3, and 4. Specifically, the study uses the draw-lots method in determining the respondents for each subgroup.

**Table 2.** Distribution of Respondents from Coastal Barangays

Name Barangay	Number of Households	Percentage	Sample Size
1. Abung	453	10	36
2. Barualte	329	7	26
3. Bataan	360	8	29
4. Calubcub 1.0	479	10	38
5. Catmon	216	5	17
6. Imelda	230	5	18
7. Laiya Ibabao	908	20	72
8. Nagsaulay	615	13	49
9. Putingbuhangin	423	9	34
10. Subukin	307	7	24
11. Ticalan	317	7	25
<b>Total</b>	<b>4,637</b>	<b>100</b>	<b>368</b>

**Table 3.** Distribution of Respondents from Lowland Barangays

Name of Barangay	Number of Households	Percentage	Sample Size
1. Balagbag	480	5	20
2. Buhaynasapa	850	9	35
3. Calicanto	440	5	18
4. Calitalit	946	10	39
5. Lipahan	650	7	27
6. Mabalano	697	7	29
7. Maraykit	630	7	26
8. Muzon	337	4	14
9. Palahanan 1.0	148	2	6
10. Palahanan 2.0	623	7	26
11. Palingowak	298	3	12
12. Pinagbayanan	253	3	10
13. Poblacion	657	7	27
14. Pocol	389	4	16
15. Sico 1.0	400	4	16
16. Sico 2.0	242	3	10
17. Talahiban 1.0	472	5	19
18. Talahiban 2.0	264	3	11
19. Tipas	537	6	22
<b>Total</b>	<b>9,313</b>	<b>100</b>	<b>384</b>

**Table 4.** Distribution of Respondents from Upland Barangays

Name of Barangay	Number of Households	Percentage	Sample Size
1. Bulsa	379	6	21
2. Calubcub 2.0	784	12	44
3. Coloconto	149	2	8
4. Escribano	540	8	30
5. Hugom	222	3	12
6. Janaojanao	315	5	18
7. Laiya Aplaya	1,251	19	70
8. Libato	836	12	47
9. Pulangbato	532	8	30
10. Quipot	596	9	33
11. Sampiro	609	9	34
12. Sapangan	538	8	30
<b>Total</b>	<b>6,751</b>	<b>100</b>	<b>378</b>

**Data Gathering Instrument.** The researchers used the survey questionnaire and interviews as the main tools in data gathering. The questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents. The questionnaire will be composed of three parts. The first part will focus on the assessment of the awareness of women in San Juan, Batangas to natural and human-induced disasters relative to fire, flood, typhoon, landslide, and earthquake. Part II will deal with the evaluation of the level of participation of women to disaster preparedness in the abovementioned variables. The last part will put emphasis on the extent of women’s involvement in the response capacity of the Municipality of San Juan, Batangas with regards to Incident Command System and communication strategies, medical and mental health services, transportation, emergency evacuation and shelter and evacuation area.

**Data Gathering Procedure.**

Before the administration of the questionnaire and the conduct of the surveys and interviews, the researchers will prepare the necessary documents required for the conduct of this research. The researchers will also seek approval from the Local Government Unit (LGU) of the Municipality of San Juan, Batangas. A Memorandum of Understanding will also be prepared in order to seek support from the Municipal Government. Several meetings, discussions, and open-forum will also be conducted in order to inform the officials of the municipality regarding the objectives and purposes of this research. During the consultation meetings, the significance of the research will also be identified and stressed. Upon establishing approval and gaining support from the LGU, the researchers will then proceed to the distribution.

After the validation of the research instrument, the researchers will need 21 enumerators for the efficient and effective distribution of the questionnaire. Each enumerator will be assigned to two (2) barangays relative to their location. Since the study will utilize respondents coming different geographical locations, the enumerators will first undergo an orientation and workshop seminar regarding the administration of the questionnaire. They will inform and will explain the objectives of this research work to the selected respondents.

**IV. RESULTS AND DISCUSSIONS**

Upon the results of the survey were consolidated; data cleaning will be employed to ensure that all the information obtained are valid and reliable. The researches will proceed to the presentation, interpretation and analysis of the data obtained. The researchers will also draft the conclusions and recommendations based on the results of the study. A meeting with the LGUs will also be conducted to inform them with the results of the study. They will also be consulted with regards to the preparation of the plan of action and programs to be implemented to address the identified

problems. Lastly the terminal report and consolidated papers will be prepared and the researchers will provide copies for the Mayor’s Office, 42 Barangays of the Municipality of San Juan, Batangas, University’s Research, Development and Extension Office, and the Gender and Development Office.



The above image in the left side is the political map of the Municipality of San Juan, Batangas. It is overlapped into the Google image of the Municipality specifically identified map hazard in disaster preparedness and response.

Based on the aforementioned results of statistical analysis, most of female respondents are from age group 18-35 with frequency of 616 or equivalent to 54.6%. Age group 36-55 is the second in rank with frequency of 420 or equivalent to 37.2%. The least is from the age group of 56 and above with frequency of 93 or equivalent to 8.2%. It appears in this study that majority of the female respondents are ages 18-35 years of age. Based on the personal observations of researches, ages 18-35, who are professionals and college students, seem to be more interested in answering the questionnaires. Most of the parents with ages 56 and above will just delegate to their daughters who falls under the age group 18-35. Age group 56 and above is the least in the rank since they lack interest in answering the questionnaires because according to enumerators the find the questionnaires tedious to understand.

**4.1. Profile of the Respondents**

		Age	
Age Group	Frequency	Percentage	
Valid	18 - 35	616	54.6
	36 - 55	420	37.2
	56 and above	93	8.2
<b>Total</b>		<b>1129</b>	<b>100</b>

**4.2 Civil Status**

Civil Status	Frequency	Percentage
Single	576	51.0
Married	537	47.6
Widow	16	1.4
<b>Total</b>	<b>1129</b>	<b>100.0</b>

With respect to civil status of the respondents, based on the above-data single status is the most numbers respondents with frequency of 576 or 51.0% since most the questionnaires were distributed at the senior high school, college students, teachers and young professionals. Married status ranks second with frequency of 537 or 47.6% and the least is widow with frequency only of 16 or 1.4%. In this study, majority of respondents whose civil status is single and married with minimal share from widow. This is because most of the respondents are from the bracket ages of 18-35 years. The percentage of 56 and above in terms of age group is also minimal with correspondence with the statistical table on the civil status of the widow.

#### 4.3 Ecological Setting

Ecological Setting	Frequency	Percent
Lowland	610	54.0
Upland	145	12.8
Coastal	374	33.2
<b>Total</b>	<b>1129</b>	<b>100.0</b>

In this study with respect to the ecological setting, most of the respondents are from the lowland with frequency of 610 or 54.0%. Second to the rank is the coastal area with frequency of 374 or 33.2%. Third or last to the rank is the upland ecological setting with frequency of 145 or 12.8%. The statistical analysis shows that respondents of female in San Juan, Batangas preferred to the lowland and coastal ecological setting rather than in upland areas since living in lowland and coastal areas have more economic opportunities than the upland areas. Likewise, the density of population in San Juan, Batangas shows that most of the residential areas are living in lowland and coastal areas.

#### 2. Assessment on the Natural and Human-induced Disasters in San Juan, Batangas relative to:

2.1 Fire	Weighted Mean	Verbal Interpretation
1. May be caused by accident, human negligence or	3.3460	Agree
2. Occurs due to increased ambient temperature and very high during summer season.	3.2180	Agree
3. Caused by easily burnt materials such as paper, fabric, wood and most kinds of light trash in our Municipality.	3.2980	Agree
4. Triggered by flammable fluids such as gasoline,		

petroleum oil, paint and combustible gases such as propane and butane.	3.3160	Agree
5. Can be caused by liven up electrical equipment such as engines, transformers, and appliances, faulty electrical wirings and overloading.	3.32400	Agree
6. Caused combustible metals such as potassium, sodium, aluminum, and magnesium seen on laboratories, factories, and industrial buildings are evident in our Municipality.	2.9940	Agree
7. May result from ignition of lubricants like cooking oil and greases such as plant and animal fats.	3.0060	Agree
8. Affects human health and can spread diseases, particularly eyes and lung-related diseases.	3.1880	Agree
9. Generates a black, impenetrable smoke that blocks vision and stings the eyes.	3.2000	Agree
10. May lead to loss of livestock, property and human life.	3.3480	Agree
11. Can inflict damage to public infrastructure and facilities such as schools, administrative building and public market.	3.3260	Agree
12. May generate traumatic experiences to the people of the affected community.	3.3640	Agree
13. Can cause soil damage through combustion in the litter layer and organic material in the soil.	3.1200	Agree
14. Can be caused by firecrackers, pyro-techniques and other related fireworks.	3.1960	Agree
15. Occurs during the burning of sugarcane fields and other for "kaingin" method.	3.1500	Agree
<b>Composite Mean</b>	<b>3.2263</b>	<b>Agree</b>



From the above-tabulated data, it appears that the top five (5) highest weighted mean in terms of Natural and Human-induced Disasters caused by fire are the following:

- 1) #12 May generate traumatic experiences to the people of the affected community with weighted mean of 3.3640,
- 2) #10 May lead to loss of livestock, property and human life with weighted mean of 3.3480,
- 3) #1 May be caused by accident, human negligence or by arson with weighted mean of 3.3460,
- 4) #11 Can inflict damage to public infrastructure and facilities such as schools, administrative building and public market with weighted mean of 3.3260, and
- 5) #5 Can be caused by liven up electrical equipment such as engines, transformers, and appliances, faulty electrical wirings and overloading with weighted mean of 3.32400.

Based on the above-statistical analysis, the traumatic experiences to the people of the affected community have the highest weighted mean of 3.3640 and verbally interpreted as agree. Whether the fire may be caused by accident, human negligence or intentional fire, the assessment shows that respondents are highly aware that the disaster caused by fire is traumatic to people affected, his relatives and community. The disaster caused by fire is very much upsetting, shocking and painful to the lives of the people affected. While the destruction of fire cause too much miseries and agonies, it bears a psychological disorder or demoralize ways of living to an individual to cope up with every life.

Second to the highest survey is the loss of livestock, property and human lives that have a weighted mean of 3.3480. The havoc caused by fire is obviously the most destructive disasters. It takes lives and properties that since time immemorial has been taken care of and as invested by individuals. While it is very traumatic, the devastation caused by fire makes life more miserable. Based on survey by enumerators, none of the respondents were able to insure their respective properties except those rare resort owners that coupled with business interest. It is a common situation and practices that the citizens in the Municipality of San Juan does not usually insure their properties in the advent of fortuitous event such as fire or other calamities.

Likewise in this study, the top five (5) least weighted mean are as follows:

- (1) #6 Caused combustible metals such as potassium, sodium, aluminum, and magnesium seen on laboratories, factories, and industrial buildings are evident in our Municipality with weighted mean of 2.9940,
- (2) #7 May result from ignition of lubricants like cooking oil and greases such as plant and animal fats with weighted mean of 3.0060,
- (3) #13 Can cause soil damage through combustion in the litter layer and organic material in the soil with weighted mean of 3.1200,
- (4) #15 Occurs during the burning of sugarcane fields and

other for “kaingin” method with weighted mean of 3.1500, and

- (5) #8 Affects human health and can spread diseases, particularly eyes and lung- related diseases with weighted mean of 3.1880.

The above-mentioned listed top five (5) least weighted means in term of assessment of fire-disasters are ignitions which are less concern by the respondents. While they are verbally interpreted as agreed, it seems that there level of awareness is not as high as those mentioned in the above discussion. Nevertheless, combustions and ignitions are highly scientific. Most of the respondents have little ideas of such fire-disasters. Combustible materials are mostly prohibited during travels alike. It because of the identified questions listed are highly scientific in terms of creating fire, where respondents are slightly aware.

Second in the rank among the least refers to question number seven (7) which states that fire-disasters may result from ignition of lubricants like cooking oil and greases such as plant and animal fats with weighted mean of 3.0060 or verbally interpreted as agree. Third in the rank among the listed least refers to question number thirteen (13), where fire can cause soil damage through combustion in the litter layer and organic material in the soil with weighted mean of 3.1200 or verbally interpreted as agree.

Relatively in average weighted mean are the following:

- (1) #4 Triggered by flammable fluids such as gasoline, petroleum oil, paint and combustible gases such as propane and butane with weighted mean of 3.3160,
- (2) #3 Caused by easily burnt materials such as paper, fabric, wood and most kinds of light trash in our Municipality with weighted mean of 3.2980,
- (3) #2 Occurs due to increased ambient temperature and very high during summer season with weighted mean of 3.2180,
- (4) #9 Generates a black, impenetrable smoke that blocks vision and stings the eyes weighted mean of 3.2000, and
- (5) #14 Can be caused by firecrackers, pyro-techniques and other related fireworks with weighted mean of 3.1960.

The aforementioned- relatively average weighted means in terms of fire-disasters are generally high ignition and combustible substances. It is relatively average since the respondents were not in the level of high or low awareness. They are commonly verbally interpreted as agree where the respondents are likewise averagely aware. They are relatively average according to respondents since the aforementioned incidents from questionnaires are common causes of fire-disasters. Whether or not intentional or non- intentional fire, the high ignitions and combustible substances in the questionnaires are usually and commonly caused the fire in the households and business enterprises.

The respondents assess that the fire occurs due to increase ambient temperature and very high during summer season. It

obtained a weighted mean of 3.2180 or verbally interpreted as agree. The study reveals that respondents are aware that fire maybe caused by extremely hot and high temperature during summer seasons. Dryness of surrounding coupled with steadfast air alongside could easily cause a fire in the surroundings. The researchers observe that a cigarette butt that was thrown in the dried surrounding is the primary cause of bust fires. It shows that respondents are aware that human activities may cause fires during a very high temperature.

The research shows that fire is caused by easily burnt materials such as paper, fabric, wood and most kinds of light trash in the Municipality of San Juan, Batangas. It obtains a weighted mean of 3.2980 or verbally interpreted as agree. The study shows that respondents are also mindful of the fact that fire is caused by natural and human activities through easily burnt materials such as paper, fabric, wood and light trashes. Other causes of fire-disasters which are relatively average refers to high temperature during summer, impenetrable smoke and due to firecrackers, pyro-techniques and other related fireworks.

The research shows that the assessment on the natural and human-induced disasters in the Municipality of San Juan, Batangas relative to fire has a composite mean of 3.2263 and verbally interpreted as agree. The assessment shows that the respondents are aware that fire maybe caused by natural and human activities. In fact, the researcher views that any condition, which may cause an increase in the probability of the fire occurrence, is considered as fire hazard that may cause to unfortunate tragedy. The findings also support the ideas of Masellis that man-made fires are caused by human and machine errors.

### Flood

<b>Flood</b>	<b>Weighted Mean</b>	<b>Verbal Interpretation</b>
1. Caused by the large amounts of rain water which cannot be absorbed in to the ground, drainages and canals.	3.4740	Agree
2. Caused by the presence of risk from the nearby bodies of water such as rivers and seas.	3.2820	Agree
3.Can be caused by the urban development like Conversion of agricultural land to commercial, housing, etc.	3.2360	Agree
4.Usually caused by a temporary rise or the overflowing of a river, stream, or other water course, flooded adjacent lands and fields.	3.2680	Agree

5. May be caused by storm surges, and tsunami along coastal areas.	3.2420	Agree
6. Occur along coastal areas when there are tropical storms, which produce heavy rains.	3.2860	Agree
7. May be results of human activities like unregulated cutting of trees and urbanization of large areas.	3.3080	Agree
8. Usually last for one or more weeks to months in us locality.	3.0160	Agree
9. Can be slow or fast rising, but generally develop over a period of hours or days.	3.1140	Agree
10. Incurs more damages and poses greater risk to life and property even it only lasted for one or two days.	3.1560	Agree
11. Inflicts partial damage to houses and other infrastructures as well as private and public utility vehicles.	3.2240	Agree
12. Leads to insufficient food storage and supply, and unavailability of the means of communication.	3.1920	Agree
13. Results to the outbreak of diseases such as leptospirosis and other water related diseases.	3.2700	Agree
14. Leads to loss of livestock, damage to agricultural products, roads and bridges.	3.2580	Agree
15. Incurs great damage to the affected areas even within minutes or a few hours after heavy rainfall or tropical storm.	3.2300	Agree
<b>Composite Mean</b>	<b>3.2371</b>	<b>Agree</b>

From the above-tabulated statistical data, it appears that the top five (5) highest weighted mean in terms of Natural and Human-induced Disasters caused by flood are the following:

- (1) #1 Caused by the large amounts of rain water which cannot be absorbed in to the ground, drainages and canals with weighted mean of 3.4740,
- (2) #7 May be results of human activities like unregulated cutting of trees and urbanization of large areas with weighted mean of 3.3080,

- (3) #6 Occur along coastal areas when there are tropical storms which produce heavy rains with weighted mean of 3.2860,
- (4) #2 Caused by the presence of risk from the nearby bodies of water such as rivers and seas with weighted mean of 3.2820 and
- (5) #13 Results to the outbreak of diseases such as leptospirosis and other water related diseases with weighted mean of 3.270.

Based on survey, the highest weighted mean on natural and human-induced disaster caused by flood is through large amounts of rainwater, which cannot be absorbed in to the ground, drainages and canals. It registered a weighted mean of 3.4740. It is verbally interpreted as agree where the respondents are aware that flood-disasters in the Municipality of San Juan, Batangas is caused by the huge volume of rain water which cannot immediately immerse into the canals, rivers and waterways. The drastic and rapid compound of rainwater from the upland or topographical higher areas is the primary concern of the respondents. Since majority of the Barangays in San Juan have rivers along towards the coastal areas, the massive amount of rainwater cannot be easily absorbed underneath. It is either due to canal or river blockage and other debris that hinders the waterways. Likewise, the emergence of water flows is too rapid where roots and huge rocks cannot even hold the water flows.

In this research study, the top five (5) least weighted mean in terms of natural and human-induced flood-disaster in the Municipality of San Juan, Batangas are as follows: (1) #8 Usually last for one or more weeks to months in our locality with weighted mean of 3.0160, (2) #9 Can be slow or fast-rising, but generally develop over a period of hours or days with weighted mean of 3.1140, (3) #10 Incurs more damages and poses greater risk to life and property even it only lasted for one or two days with weighted mean of 3.1560, (4) #12 Leads to insufficient food storage and supply, and unavailability of the means of communication with weighted mean of 3.1920 and (5) #11 Inflicts partial damage to houses and other infrastructures as well as private and public utility vehicles with weighted mean of 3.2240.

For purposes of this study, the least among the natural and human induced activities with regards to flood-disaster is from question number eight (8), which states that flood usually last for one or more weeks to months in our locality. It has a registered weighted mean of 3.0160. It is also verbally interpreted as agree. It means that while question number 8 is quite the least, nevertheless, the respondents are still aware that flood merely last for one or more weeks to months of August to December or during the Hagabab period. Second among the least is the fact that flood-disaster can be slow or fast rising and develop over long period of hours in holding period. It has a weighted of 3.1140 or verbally interpreted as agree. It means that respondents are aware of the fact that flood can sometimes be drastic in character and it developed gradually over of time. During heavy rains and strong

typhoon, flood is fast-rising especially along the river basin and after such incidents floodings still occurs until the huge amount of water is being dispense. Third in the rank on flood-disasters refers to question number ten (10) which states that flood incurs more damages and poses greater risk to life and property even it only lasted for one or two days. It has a weighted mean of 3.1560 or verbally interpreted as agree. It means that destruction to properties and livelihood including risk to live happened when the massive flood lasted for one or two days. The situation is most likely to happen especially in the lowland and populated areas because there is holding to large amount of volume of waters in the canals, roads and bridges.

Relatively in average weighted mean in terms of flood-disaster in Municipality of San Juan are the following:

- (1) #4 Usually caused by a temporary rise or the overflowing of a river, stream, or other water course, flooded adjacent lands and fields with weighted mean of 3.2680,
- (2) #14 Leads to loss of livestock, damage to agricultural products, roads and bridges with weighted mean of 3.2580,
- (3) #5 May be caused by storm surges, and tsunami along coastal areas with weighted mean of 3.2420,
- (4) #3 Can be caused by the urban development like conversion of agricultural land to commercial, housing, etc with weighted mean of 3.2360, and
- (5) #15 Incurs great damage to the affected areas even within minutes or a few hours after heavy rainfall or tropical storm with weighted mean of 3.2300.

The research shows that the assessment on the natural and human-induced disasters in the Municipality of San Juan, Batangas relative to flood has a composite mean of 3.2371 and verbally interpreted as agree. In general average, the study shows that the respondents are generally and averagely are aware those floods maybe cause nature and human interventions. The researchers observe that increase of probability of occurrence of flood in the Municipality of San Juan is considered hazardous in character. The geographical location of Municipality of San Juan is prone and vulnerable flood since majority of barangays have a lot of rivers and generally along coastal with mountainous areas alongside.

The respondent women of the Municipality of San Juan are mindful of the fact that natural and human induced flood-disaster is prevalent in their municipality based on their personal experiences and likewise due its geographical location. The women's awareness is very important in the integration of Magna Carta for Women under Republic Act No. 9710 in the local governance in terms of their respective protection and security in times of disaster, calamities and other crisis situation. Aside from the Big One, the country is very vulnerable to the disaster of flooding. According to ADB citing the study of Potsdam Institute for Climate Impact Research entitled "A Region at Risk: The Human Dimensions of Climate Change in Asia and the Pacific", a

one-meter rise in sea-level means that coastal and low-lying areas in the region (Philippines) will be at an increased risk of flooding. Since 2012, study by ADB already raised the alarm on the country that it is prone to flooding since the Philippine archipelago has a population of 6.81 million situated at the coastal flooding and 3.71 million Filipinos vulnerable to inland flooding.

**Typhoon**

<b>Typhoon</b>	<b>Weighted Mean</b>	<b>Verbal Interpretation</b>
1. Caused by an intense circulation of the weather system over tropical seas and oceans accompanied with very strong winds, heavy rains and large ocean waves	3.4260	Agree
2. Caused by a low-pressure area rotating counterclockwise and containing rising warm air that forms over warm water in the Western Pacific Ocean.	3.3160	Agree
3. Puts moderate to heavy impact on affected area due to topographical location.	3.2200	Agree
4. Inflicts damages due to thunderstorms, violent winds, torrential rain, floods, landslides, and storm surges.	3.2880	Agree
5. Results to very light damage to some houses composed of very light materials or makeshift structures in our communities.	3.2080	Agree
6. Destroys, damages, and uproots plants and trees.	3.3380	Agree
7. Results to moderate damage on unshielded, old rundown school buildings, huts, and other structures of light materials.	3.2600	Agree
8. Peels or blows-off some old galvanized iron roofs, tilts some old wooden electric posts during and after it strikes our community.	3.2280	Agree

9. Makes houses, warehouses and bodega-type structures in the community unroofed.	3.2140	Agree
10. Results to very heavy damage to many houses built of medium-strength material, most were unroofed, and some with collapsed walls and with extensive damage to doors and windows.	3.2360	Agree
11. Results to widespread damage on structures of light materials, especially in highly exposed coastal areas.	3.2900	Agree
12. Incur huge economic losses, especially in island states, by damaging dwellings, infrastructure, power and electricity supply, telecommunications, roads, and fisheries.	3.3080	Agree
<b>Composite Mean</b>	<b>3.2777</b>	<b>Agree</b>

From the above-tabulated data, it appears that the top four (4) highest weighted mean in terms of Natural and Human-induced Disasters caused by typhoon are the following:

- (1) #1 Caused by an intense circulation of the weather system over tropical seas and oceans accompanied with very strong winds, heavy rains and large ocean waves with weighted mean of 3.4260,
- (2) #6 Destroys, damages, and uproots plants and trees with weighted mean of 3.3380,
- (3) #2 Caused by a low-pressure area rotating counterclockwise and containing rising warm air that forms over warm water in the Western Pacific Ocean with weighted mean of 3.3160, and
- (4) #12 Incur huge economic losses, especially in island states, by damaging dwellings, infrastructure, power and electricity supply, telecommunications, roads, and fisheries with weighted mean of 3.3080.

From the above-statistical data, the study shows that in the Municipality of San Juan in terms of survey on highest level of awareness in natural and human induced typhoon disaster refers to question one (1), which states that typhoon is caused by an intense circulation of the weather system over tropical seas and oceans accompanied with very strong winds, heavy rains and large ocean waves. It registered with weighted mean of 3.4260. It is verbally interpreted as agree. It means that the women respondents are aware of the fact that the

intense movement of the weather system over tropical seas and oceans accompanied with very strong winds, heavy rains and large ocean waves caused the typhoon. Since the Municipality of San Juan, Batangas is situated in a tropical weather condition along the coastal areas; the strong winds couple with heavy rains makes the Municipality prone and vulnerable to disaster of typhoon. Respondents are mindful of the fact the strong typhoons are both natural and human induced calamities brought about by climate change. The warming of temperature makes the movement of weather condition so strong coupled with accumulation of heavy and rapid winds. Similarly, the third in rank is relative to the question number (2) that obtained a weighted mean of 3.3160 and verbally interpreted as agree. The question number 2 states that typhoon caused by a low-pressure area rotating counterclockwise and containing rising warm air that forms over warm water in the Western Pacific Ocean.

The second next in rank in terms of typhoon-disasters is under question number six

(6) where typhoon destroys, damages, and uproots plants and trees. It has a weighted mean of 3.3380. It is verbally interpreted as agree. It means that the female respondents are cognizant of the fact that calamities caused by typhoon constitute destruction of agricultural livelihood commodities in the Municipality of San Juan. During the typhoon Ofel (October 2012), the damages and uprooted crops consist of coconut trees and banana plantation. Typhoon Ofel likewise brought havoc at Barangay Hugom, where resorts and households have greatly damage including the recorded death of a child during the landslide. During the said typhoon, banana plantation in San Juan was total wreck and cost a high price of banana in the market due lack of supply.

Discussion is parallel ranked fourth in terms of typhoon-disaster survey in the Municipality of San Juan, Batangas under question number twelve (12) which states that typhoon incurs huge economic losses, especially in island states, by damaging dwellings, infrastructure, power and electricity supply, telecommunications, roads, and fisheries. It has a recorded weighted mean of 3.3080 and verbally interpreted as agree.

In this research study, the top four (4) least weighted mean in terms of natural and human-induced typhoon-disaster in the Municipality of San Juan, Batangas are as follows:

- (1) #5 Results to very light damage to some houses composed of very light materials or makeshift structures in our communities with weighted mean of 3.2050,
- (2) #9 Makes houses, warehouses and bodega-type structures in the community unroofed with weighted mean of 3.2140,
- (3) #3 Puts moderate to heavy impact on affected area due to topographical location with weighted mean of 3.220, and
- (4) #8 Peels or blows-off some old galvanized iron roofs, tilts some old wooden electric posts during and after it

strikes our community with weighted mean of 3.2280.

According to survey, the top least in term of typhoon-disaster refers to question number five (5) which states that the typhoon results to very light damage to some houses composed of very light materials or makeshift structures in our communities. It registered with weighted mean of 3.2050 and verbally interpreted as agree. While the respondents agree, they are least aware of the fact the sometime typhoon cause light damage, nevertheless it appears that it is less significant to them. Other related typhoon-disaster which is included in the least or in the low awareness level among the choices of the respondents refers to question number nine (9) which states that typhoon makes houses, warehouses and bodega-type structures in the community unroofed with weighted mean of 3.2140. Likewise, low level of awareness based on the survey refers to moderate to heavy impact on affected area due to topographical location with weighted mean of 3.220 and typhoon peels or blows-off some old galvanized iron roofs, tilts some old wooden electric posts during and after it strikes our community with weighted mean of 3.2280.

Relatively in average weighted mean in terms of typhoon-disaster in Municipality of

San Juan are the following:

- (1) #11 Results to widespread damage on structures of light materials, especially in highly exposed coastal areas with weighted mean of 3.2900,
- (2) #4 Inflicts damages due to thunderstorms, violent winds, torrential rain, floods, landslides, and storm surges with weighted mean of 3.2880,
- (3) #7 Results to moderate damage on unshielded, old rundown school buildings, huts, and other structures of light materials with weighted mean of 3.2600, and
- (4) #10 Results to very heavy damage to many houses built of medium-strength material, most were unroofed, and some with collapsed walls and with extensive damage to doors and windows with weighted mean of 3.2360.

In aforementioned stated relatively average weighted mean, it seems that the typhoon causes lot destruction especially in the highly exposed coastal areas. It has weighted mean of 3.2900. The respondents are averagely aware that geographical situation of San Juan along coastal areas is vulnerable to calamities of strong typhoon. Common cause of typhoon damages are household, school buildings, chapels, and huts including unroofed, collapsed of walls, doors and breakage of windows of the said infrastructures.

**Floods**

<b>Landslide</b>	<b>Weighted Mean</b>	<b>Verbal Interpretation</b>
1. Triggered by other natural hazards such as prolonged, heavy rainfall, and typhoon or by other sources of water which increases the water content of the slope materials.	3.4200	Agree
2. May be caused by other geological hazard such as earthquake or volcanic eruption.	3.3200	Agree
3. Caused by an abrupt movement of masses of geologic materials, such as rocks and boulders.	3.2340	Agree
4. Can be caused by the modification of slopes, hills or mountains by construction of roads, buildings, mining and quarrying activities, and excavation or displacement of rocks.	3.3020	Agree
5. Occurs when water rapidly collects in the ground and results in a flow of water-soaked rock, soil and debris.	3.2180	Agree
6. Leads to an outbreak of diseases, injury, death, and property damage.	3.2440	Agree
7. Affects water supplies, fisheries, sewage disposal systems, forests, dams and roadways.	3.2700	Agree
8. Damages and interrupts transportation routes, roadways, bridges, utilities, and buildings	3.2820	Agree
9. Affects water recourses in the area by blocking rivers and irrigation channels, diverting water ways, and reducing storage capacity of tanks, reservoirs, and ponds.	3.2280	Agree
10. Leads to loss in productivity of agricultural or forest lands	3.2540	Agree
11. May be caused by engineering works consisting of road widening and building bridges.	3.2000	Agree
12. Occurs during the quarrying and small-scale mining including other inform of extraction of minerals underneath the soil.	3.2340	Agree
<b>Composite Mean</b>	<b>3.2672</b>	<b>Agree</b>

From the above-tabulated data, it appears that the top six (6) highest weighted mean in terms of Natural and Human-induced Disasters caused by landslide are the following:

- (1) #1 Triggered by other natural hazards such as prolonged, heavy rainfall, and typhoon or by other sources of water which increases the water content of the slope materials with weighted mean of 3.4200,
- (2) #2 May be caused by other geological hazard such as earthquake or volcanic eruption with weighted mean of 3.3200,
- (3) #4 Can be caused by the modification of slopes, hills or mountains by construction of roads, buildings, mining and quarrying activities, and excavation or displacement of rocks with weighted mean of 3.3020,
- (4) #8 Damages and interrupts transportation routes, roadways, bridges, utilities, and buildings and infrastructures with weighted mean of 3.2820,
- (5) #7 Affects water supplies, fisheries, sewage disposal systems, forests, dams and roadways with weighted mean of 3.2700 and
- (6) #10 Leads to loss in productivity of agricultural or forest lands with weighted mean of 3.2540.

According to the survey, the natural and human induced disasters caused by landslide is under question one (1) which states that landslide is triggered by other natural hazards such as prolonged, heavy rainfall, and typhoon or by other sources of water which increases the water content of the slope materials. It has a recorded weighted mean of 3.4200. It is verbally interpreted as agree. It means that female respondents of San Juan are aware of the fact that landslide was primary due to the lengthy and huge volume of amount of water due to rainfall and typhoon. Researchers observed that upland and lowland areas experienced the landslide especially when their respective households are situated in quarrying sites.

The second next in rank in terms of landslide-disaster in the Municipality of San Juan is under question number two (2), which states that landslide is caused by other geological hazard such as earthquake or volcanic eruption. It registers a weighted mean of 3.3200 and verbally interpreted as agree. It means that female respondents are San Juan concurs that landslide is likewise due to geological such as earthquake or volcanic eruption. In 2017, the respondents actually experience series of earthquake hitting the Batangas Province that caused landslide in some upland areas. The landslide due to earthquake or volcanic eruption is deemed natural hazard and no human intervention.

In this research study, the top six (6) least weighted mean in terms of natural and human-induced landslide-disaster in the Municipality of San Juan, Batangas are as follows:

- (1) #11 May be caused by engineering works consisting of road widening and building bridges with weighted mean of 3.2000,
- (2) #5 Occurs when water rapidly collects in the ground

and results in a flow of water- soaked rock, soil and debris with weighted mean of 3.2180,

- (3) #9 Affects water recourses in the area by blocking rivers and irrigation channels, diverting water ways, and reducing storage capacity of tanks, reservoirs, and ponds with weighted mean of 3.2280,
- (4) #3 Caused by an abrupt movement of masses of geologic materials, such as rocks and boulders with weighted mean of 3.2340,
- (5) #12 Occurs during the quarrying and small-scale mining including other form of extraction of minerals underneath the soil with weighted mean of 3.2340 and
- (6) #6 Leads to an outbreak of diseases, injury, death, and property damage with weighted mean of 3.2440.

According to research, the top least assessment in terms of natural and human induced landslide-disaster refers to question eleven (11) which states landslide may be caused by engineering works consisting of road widening and building bridges. It has a weighted mean of 3.200 and verbally interpreted as agree. It means that the respondents slightly concur of the fact the landslide-disaster was due to the fact of engineering works such as roads and bridges construction. Since most of the respondents are from lowland, it is only those in the upland that construction of roads and bridges cause landslide-disaster. For purposes of this study, there is no recorded landslide-disaster in the upland based on survey due to construction of roads and bridges.

Likewise, according to survey, one of the least in terms landslide-disaster refers to question number five (5) where landslide occurs when water rapidly collects in the ground and results in a flow of water-soaked rock, soil and debris. It has a weighted mean of 3.2180 and verbally interpreted as agree. Respondents marginally assent that landslide was due to incidence of drastic water-flow accumulation unto the ground that resulted to the flow of water-soaked rock, soil and debris.

- (9) Third in the list of the least in terms landslide-disaster refers to question number nine where landslide affects water recourses in the area by blocking rivers and irrigation channels, diverting water ways, and reducing storage capacity of tanks, reservoirs, and ponds. It has a weighted mean of 3.2280 and verbally interpreted as agree. Respondents slightly assent that landslide was due to changes of waterways through the congested rivers and irrigations and through reducing storage of tanks, reservoirs, and ponds.

In this research study, the composite mean in terms of Natural and Human-induced Disasters caused by landslide is 3.2672 and verbally interpreted as agree. It means the female respondents of San Juan, Batangas assent and mindful of the fact that landslide in San Juan refers to sudden and drastic water flows downstream and due to the incidence of quarrying. During the typhoon Ofel on October 2012, the strong typhoon that hits the Municipality of San Juan brought destruction of some resorts in the Laiya.

**Earthquake**

Earthquake	Weighted Mean	Verbal Interpretation
1. Caused by sudden slippage of rock masses below or at the surface of the earth.	3.3720	Agree
2. Maybe caused by man-made activities such as detonation of explosives, deep mining activities, etc.	3.1840	Agree
3. Begins with a noticeable slight swinging of at rest indoor and hanging objects.	3.2360	Agree
4. Causes dinner plates, glasses, windows and doors to rattle, people to lose balance, and motorists to feel like driving their vehicles in flat tires.	3.2980	Agree
5. Makes people frightened and ran outdoors.	3.3267	Agree
6. Destroys practically all man-made structures.	3.3180	Agree
7. Makes people feel dizzy and nauseated due to its light vibrations.	3.2665	Agree
8. Damages some well-built buildings and infrastructures in the Municipality.	3.2620	Agree
9. Destroys and tilts most buildings, bridges, elevated concrete structures, numerous utility posts, towers, and monuments in the Municipality.	3.3260	Agree
10. Results to massive landslides, large scale sinking and uplifting of land forms and many ground fissures, and many toppled, broken and uprooted trees.	3.3080	Agree
<b>Composite Mean</b>	<b>3.2893</b>	<b>Agree</b>

From the above-tabulated data, it appears that the top Human-induced Disasters caused by earthquake are the following:

- (1) #1 Caused by sudden slippage of rock masses below or at the surface of the earth, with weighted mean of 3.370,
- (2) #5 Makes people frightened and ran outdoors with weighted mean of 3.3267,
- (3) #9 Destroys and tilts most buildings, bridges, elevated concrete structures, numerous utility posts, towers, and monuments in the Municipality with weighted mean of 3.3260,

- (4) #6 Causes dinner plates, glasses, windows and doors to rattle, people to lose balance, and motorists to feel like driving their vehicles in flat tires with weighted mean of 3.3180, and
- (5) #10 Results to massive landslides, large scale sinking and uplifting of landforms and many ground fissures, and many toppled, broken and uprooted trees with weighted mean of 3.3080.

For purposes of this study, the research reveals that the highest survey in terms of Natural and Human-induced Disasters caused by earthquake is question number one (1), which states that earthquake is caused by sudden slippage of rock masses below or at the surface of the earth. It has weighted mean of 3.370 and verbally interpreted as agree. It means that respondents assent and highly aware of the fact that earthquake was due to abrupt movement of rock masses below the surface of the earth. This form of earthquake is mainly a natural form of disaster or the forces of nature. It has nothing to do with human interventions. During the month of April 2017, Batangas Province was shaken by series of earthquakes. While the epicenter is in the Municipalities of Mabini, Tingloy, Batangas City, Tanauan, the San Juan likewise experienced the series of earthquakes. Fortunately, no incidence of disaster was reported at the Municipality of San Juan, Batangas.

The second next in rank in terms of earthquake-disaster in the Municipality of San Juan is under question number five (5), which states that earthquake makes people frightened and ran outdoors. It has a weighted mean of 3.3267. It is interpreted as agree. It means that female respondents concur to the fact that earthquakes cause people to be scared, terrified and panicked. Their normal tendency is to run outdoors where there are no edifices that will fall upon them. Most of the respondents experienced the same incidence during the Batangas earthquake in April 2017.

The third in rank in terms of earthquake-disaster in the Municipality of San Juan is under question number nine (9), which states that earthquake destroys and tilts most buildings, bridges, elevated concrete structures, numerous utility posts, towers, and monuments in the Municipality. It has a weighted mean of 3.3260 and verbally interpreted as agree. It means that respondents are aware and assent to the fact that earthquake devastates and inclines building structures and similar edifices. During the recent earthquakes, numerous households and buildings in the Province of Batangas were destroyed including those ancestral heritages like Taal and Batangas City Basilica, public buildings like the Tingloy Municipality, schools and hospitals.

The fourth in rank in terms of earthquake-disaster in the Municipality of San Juan is under question number six (6), which states earthquake destroys practically all man-made structures. It has a weighted mean of 3.3180 and verbally interpreted as agree. Respondents are aware of the fact that strong intensity and high magnitude of earthquake inevitably cause devastation of any form of man-made structures,

especially those in the upland and coastal areas. Drastic movement in the earth surfaces will certainly move any structures built into.

The fifth in rank in terms of earthquake-disaster in the Municipality of San Juan is under question number ten (10), which states that earthquake results to massive landslides, large scale sinking and uplifting of land forms and many ground fissures, and many toppled, broken and uprooted trees. It is registered with weighted mean of 3.3080 and verbally interpreted as agree. It means that respondents are aware that during and after earthquakes, it may cause landslides, sinking and uplifting of landforms. During the 2017 earthquakes, those respondents in upland areas experienced some landslides in their respective areas. While it is not massive that cause uprooting of trees and sinking of landforms; nevertheless, they were shocked by such incidence.

In this research study, the top five (5) least weighted mean in terms of natural and human-induced earthquake-disaster in the Municipality of San Juan, Batangas are as follows:

- (1) #2 Maybe caused by man-made activities such as detonation of explosives, deep mining activities, etc, with weighted mean of 3.1840,
- (2) #3 Begins with a noticeable slight swinging of at rest indoor and hanging objects with weighted mean of 3.2360,
- (3) #8 Damages some well-built buildings and infrastructures in the Municipality with weighted mean of 3.2620,
- (4) #7 Makes people feel dizzy and nauseated due to its light vibrations with weighted mean of 3.2665 and
- (5) #4 Causes dinner plates, glasses, windows and doors to rattle, people to lose balance, and motorists to feel like driving their vehicles in flat tires with weighted mean of 3.2980.

According to female respondents in the Municipality of San Juan, Batangas, the top least on the survey in terms of earthquake-disaster refers to question number two (2), which states that earthquake maybe caused by man-made activities such as detonation of explosives, and deep mining activities. It has a weighted mean of 3.1840. It is verbally interpreted as agree. It means that respondents slightly agree and aware of the fact the detonation of explosives in deep-mining activities. Since there is no deep-mining activities, nowhere from the respondents personally experienced such fact. There is low level of awareness among respondents because deep-mining activities were prohibited in the Municipality of San Juan, Batangas. In 2012 at Barangay Hugom, detonations of explosives were being done to facilitate and hasten the construction of roads and bridges to link the Hugom, San Juan and Malabrigo, Lobo. Nevertheless, blasting is not deemed deep-mining activities for purposes of this study.

Likewise, survey reveals that in terms of second least assessment, respondents are aware of the fact that earthquake caused slight swinging of indoor and hanging objects under question number three (3). It has a weighted mean of 3.2360



and verbally interpreted as agree. During the earthquakes, the respondents inevitably experienced the slight swinging of household’s materials especially those hanging objects such as picture frames, some furniture, ornaments, figurines, lights, curtains and other dangling materials inside the households.

This survey is almost similar to the result in question number four (4) with a weighted mean of 3.2980, which states the earthquake causes dinner plates, glasses, windows and doors to rattle, people to lose balance, and motorists to feel like driving their vehicles in flat tires. It is verbally interpreted as agree. It means that respondent concurs and mindful of the fact that earthquakes trigger the clatter of household chores, respondents tend to lose equilibrium and motorists felt like driving their vehicles in flat tires. According to survey, it is still fresh in the feelings based on personal experience of respondent of the clattering of household chores and to feel imbalances during the 2017 Batangas earthquake.

Third among the least in terms of survey is under question number eight (8) which states that earthquakes damage some well-built buildings and infrastructures in the Municipality. It has a weighted mean of 3.2620 and verbally interpreted as agree. Respondents are aware of the fact the earthquake-disaster may cause edifices, buildings and infrastructures be ruined, cracked or damage. Since there are numerous ancestral houses in the Municipality of San Juan, respondents are concurring that strong intensity may cause wrecked in those ancestral houses and heritage.

Fourth among the least in terms of statistical data is under question number seven (7) that states that earthquake makes people feel dizzy and nauseated due to its light vibrations. It has a weighted mean of 3.2665 and verbally interpreted as agree. It means that respondents somewhat concur to the fact that during and after earthquake they sometimes felt shaky and nauseous.

Fifth in the ranking among the least in terms is under question number four (4) that state earthquake causes dinner plates, glasses, windows and doors to rattle, people to lose balance, and motorists to feel like driving their vehicles in flat tires. It has a weighted mean of 3.2980 and verbally interpreted as agree. It is one of the least since most of the respondents have never experience the disaster of earthquake during the driving their vehicles. In this research study in terms of natural and human induced disasters with regard to earthquake, the composite mean shows 3.2893. It is verbally interpreted as agree. It means that most of the female respondents are aware that earthquake is due forces of nature and human induced activities such as blasting activities may cause that earthquake-disaster. They are also mindful of the fact the disaster caused by earthquakes is frightening, shocking, and traumatic in personal experiences. In terms of effect due to earthquakes, the damages are inevitable especially to light materials households, and ancestral houses. Nowadays, the Big One has been an issue to address the earthquake in the country. Scientists warned that a major

earthquake that could hit Metro Manila could cause extensive death and devastation due to the movement in the West Valley Fault.

**Extent of Women’s Participation in Disaster Preparedness and Response Practices in the Municipality of San Juan, Batangas**

participate in...	Weighted Mean	Verbal Interpretation
1. Conducting hazard mapping, risk and vulnerability assessments in various areas in the Municipality with the aid of scientific agencies for the availability of information, studies, risk maps and appropriate tools.	2.5500	Moderately Participating
2. Consolidating and identifying local disaster risk information which includes natural hazards, vulnerabilities, and climate change risks, and maintains a local risk map.	2.5480	Moderately Participating
3. Developing and establishing several early warning systems and devices such as sirens for schools and barangays in various areas in the Municipality.	2.6000	Moderately Participating
4. Formulating and implementing comprehensive, integrated and functional Municipal Disaster Risk Reduction and Management Council (MDRRMC) in accordance with the National, Regional and provincial framework, and policies on disaster risk reduction in close coordination with the Local Development Councils.	2.4820	Slightly Participating
5. Forming and mobilizing women’s group in the local government units during disaster to protect and meet the necessary needs of women.	2.3380	Slightly Participating

6. Conducting search, rescue and recovery operations and in coordinating for emergency vehicle assistance composed of Local Government Unit (LGU) personnel and complemented with personnel from other concerned agencies.	2.3420	Slightly Participating	Disaster Risk Reduction and Management (DRRM) to residents of disaster-prone barangays.		
7. Ensuring the functionality of the community evacuation plans and continuous improvement and maintenance of school and barangay evacuation center buildings equipped with basic support facility.	2.4840	Slightly Participating	14. Designing the Annual Municipal Disaster Risk Reduction and Management Planning and Budgeting Conference.	2.3860	Slightly Participating
8. Providing first-aid and immediate medical assistance during and after disasters.	2.6960	Moderately Participating	15. Formulating disaster preventive and protective measures and mechanisms such as flood control system, early warning system and communication system.	2.3620	Slightly Participating
9. Coordinating with the Municipal Social Welfare and Development Office (MSWDO) and other government agencies and private organizations for relief operation and assistance.	2.4800	Slightly Participating	16. Establishing websites and social networking accounts for references and updates.	2.4100	Slightly Participating
10. Trainings and other various capacity building activities related to disaster preparedness and response, search, rescue and retrieval operations.	2.5640	Moderately Participating	17. Monitoring the fire safety compliance of public and private establishments.	2.4220	Slightly Participating
11. Conducting quarterly drill exercises like fire,	2.7920	Moderately Participating	18. Maintaining a fully-equipped storage facility for stockpiling.	2.3980	Slightly Participating
12. Disseminating information regarding the suspension of offices and or classes on the basis of advisories given by the warning agencies and/or the national government.	2.7120	Moderately Participating	19. Making standard reporting system in assessing disaster situations and needs assessment for purposes of immediate action and submits consolidated reports of casualties and damages to the Provincial Disaster Risk Reduction and Management Council (PDRRMC).	2.4080	Slightly participating
13. Conducting of symposiums, forums, orientation seminars, training and drills on	2.4700	Slightly Participating	20. Evaluating the trainings, implementation and other related activities regarding the women's preparedness during disasters and response at San Juan, Batangas	2.4620	Slightly Participating
			21. Campaign awareness during disaster and rescue relative to the protection of women's right in accordance with the Magna Carta for Women.	2.4520	Slightly Participating

22. Researching scientific data to support and justify the proposal for MDRRMC.	2.3820	Slightly Participating
23. Securing the women’s right in times of disasters, calamities especially in all phases of relief, recovery, rehabilitation and construction efforts.	2.4740	Slightly Participating
24. Providing humanitarian assistance, allocation of resources and early resettlement.	2.4640	Slightly participating
25. Responding to disaster situations including the provisions of services such as psychological support, livelihood support, education and comprehensive health services.	2.4980	Slightly Participating
<b>Composite Mean</b>	<b>2.4870</b>	<b>Slightly Participating</b>

It means that the respondents merely occasionally partake into the said activities in the Municipality of San Juan, Batangas. From the 1,129 female respondents, few of them rarely participate in the disaster risk reduction management activities. Most of them rather chose to be a typical and common housewife or engage into their livelihood or profession instead of engaging into training and development for disaster preparedness activities.

The analysis and interpretation of the assessed extent of women’s participation in disaster preparedness and response practices in the Municipality of San Juan, Batangas were divided into two parts and ranked the top five most slightly participating and top five least moderately participating. It is ranked based on the obtained weighted mean in its successive order.

Based on the tabulated data, the following are the slightly participating activities or referred thereto as sometime participates in its sequential order. The top most slightly participating activities is under question number five (5) with tabulated weighted mean of 2.3380. It states that female respondents slightly or sometimes participate in forming and mobilizing women’s group in the local government units during disaster to protect and meet the necessary needs of women. In the conduct of this study, the only active women group in the Municipality of San Juan, Batangas is the United Women of San Juan, Batangas Incorporated (UWSB Inc). Its President Mrs. Teresita B. Manalo, the wife of the incumbent Municipal Mayor Rodolfo H. Manalo, headed the UWSB Inc. As of the moment, there is no known women organization in the said Municipality that advances, specializes and focuses on the developing the skills and awareness of women in risk reduction and disaster training. Republic Act No. 9710 or the Magna Carta of Women enunciates those women have the right to equal participation especially in activities relative to disaster preparedness. Furthermore, in the said law, women have the right to protection and security in times of disaster, calamities and other crisis situation.

The second next rank in terms of assessment of level of women’s participation in disaster related activities is under question number six (6) which states that respondent is participating in conducting search, rescue and recovery operations and in coordinating for emergency vehicle assistance composed of Local Government Unit (LGU) personnel and complemented with personnel from other concerned agencies. It has a recorded weighted mean of 2.3420 and verbally interpreted as slightly participating. It means the respondents sometimes participates in the in the search, rescue and recovery in all phases of relief, rehabilitation in times of disaster and calamities. The REACT LAMBAYOK Group is the organization in the Municipality of San Juan, Batangas that is usually active in search, rescue and recovery during calamities. Since the said non-government organization is dominantly male group, women merely and slightly participate in the conduct of operation during disasters and calamities.

The aforementioned tabulated refers to the assessment of the level of participation of women in terms of their participation to disaster preparedness activities in the Municipality of San Juan, Batangas. This data provides an answer to the statement of the problem specifically number three (3), which states “To what extent do the respondents participate in disaster preparedness and response practices in the Municipality of San Juan, Batangas?”

The following are the scale ranges, questions options and the verbal interpretation as being presented below for reference purposes:

- |        |              |                        |
|--------|--------------|------------------------|
| Option | Scale Ranges | Verbal Interpretation  |
| 4      | 3.51 – 4.00  | Always Participate     |
| 3      | 2.51 – 3.50  | Frequently Participate |
| 2      | 1.51 – 2.50  | Sometimes Participate  |
| 1      | 1.00 – 1.50  | Never Participate      |

In this study, it shows that the level of participation of women to disaster preparedness activities is slight. It has a recorded composite mean of 2.4870, which is within the scale ranges of 1.51–2.50 under option number two (2). Since it is within the scale ranges of 1.51-2.50 that resulted to composite mean of 2.4870, it has verbal interpretation that respondent women “sometimes participate” into the disaster preparedness activities. Most of the answer is in the scale ranges of 1.51 to 3.50 under option either 2 or 3. Based on survey, there is no significant indication that female respondents participate into disaster preparedness activities.

The third in rank in terms of assessment of level of women's participation in disaster related activities is under question number fifteen (15), which states that respondent is participating in formulating disaster preventive and protective measures and mechanisms such as flood control system, early warning system and communication system. It has a weighted mean of 2.3620 and verbally interpreted as slightly participating. It means that respondents occasionally partake in the operations of instruments to monitor any form of disasters and calamities. Most of the mechanisms such as flood control system, early warning system and communication system are operated and controlled by male officials and employees. In this research, very few female respondents are skilled in handling radio communication system that will be used during calamities and disasters.

The fourth in rank in terms of assessment of level of women's participation in disaster related activities is under question number twenty-two (22), which states that female respondent is participating in researching scientific data to support and justify the proposal for MDRRMC. It has a recorded weighted mean of 2.3820 and verbally interpreted as slightly participating. While the head of Municipal Disaster Risk Reduction Management Office of San Juan, Batangas is female employee named Noralyn A. Nera, the participation of its women in tabulating and analyzing scientific data were rare and few.

The fifth in rank in terms of assessment of level of women's participation in disaster related activities is under question number twenty-four (24), which states that female respondent is participating in providing humanitarian assistance, allocation of resources and early resettlement. It has a recorded weighted mean of 2.3860 and verbally interpreted as slightly participating. It means respondent sometimes join the operation in times of disaster and calamities by providing humanitarian assistance including allocation of resources and early resettlement. It is either they hesitate personally to volunteer or no one invites their participation.

In terms of ranking of assessment of frequently or moderately participating in disaster preparedness activities in the Municipality of San Juan, Batangas, the study shows that the highest in ranking is under question number eleven (11) which states that respondent is participating in conducting quarterly drill exercises like fire, earthquake, and evacuation drills. It has the highest weighted mean of 2.7920. It is verbally interpreted as moderately participating. It means that respondent frequently joins the municipal quarterly drill exercises of natural and human induced disasters and evacuation drills. On October 2016, the Batangas State University- San Juan Campus through the Extension office conducts skills training and workshop on disaster risk reduction preparedness and response. Maligaya Search and Rescue Inc. conducted and facilitated the said training at the campus. While the BatStateU invited barangay local officials and employees, few of them participated in the said training.

Second next in rank in terms of survey on most moderate participation of female respondent in disaster preparedness activities refers to question number twelve (12), which states that respondent participates in disseminating information regarding the suspension of offices and or classes on the basis of advisories given by the warning agencies and/or the national government. It has a weighted mean of 2.7120 and verbally interpreted as moderately participating. It means that respondents are frequently engaged in information propagation especially on the suspension of offices and classes. The female respondents fairly involved in the distribution of advisories given by the warning government agencies. The primary reason according to personal survey is due to lack of instruments like smart phones and laptops including load that dissemination cannot rapidly spread among the social networks.

The third in ranking in terms of highest number of frequently participating disaster activities refers to question number eight (8) which states that respondent participates in providing first-aid and immediate medical assistance during and after disasters. It has a weighted mean of 2.6960 and it is verbally interpreted as moderately participating. It means that respondents frequently participate during and after calamities especially in providing health and medical support.

The fourth in ranking in terms of highest number of frequently participating disaster activities refers to question number ten (10) which states that respondent participates in trainings and other various capacity building activities related to disaster preparedness and response, search, rescue and retrieval operations. It has a weighted mean of 2.5640 and verbally interpreted as moderately participating. It means that respondents often participate in training, drills and workshop on disaster risk reduction preparedness and response. Similar analysis is employed in the aforementioned discussion under question eleven (11) of this tabulated data.

The fifth in rank in terms of highest number of frequently participating disaster activities refers to question number three (3) which states that respondent participates in developing and establishing several early warning systems and devices such as sirens for schools and barangays in various areas in the Municipality. Based on the survey, few of the respondents partake into the development of various instruments and devices with regard to early warning systems in their respective barangays and schools. While there are warning devices that was built in in the Municipality of San Juan like the flood warning devices and telecommunication system, the respondents frequently participate in such development and installment thereof.

#### **Profile of the Respondents and their Assessment on the Natural and Human-induced Disasters in San Juan, Batangas**

The study shows that the disasters such as fire and flood have no significant relationship in terms of age of the respondents; whereas the disasters such as typhoon, landslide and earthquake has a significant relationship. It means that

the age of the female respondents is not relevant in disasters of fire and flood. Irrespective of the age, gender, civil status, citizenship, and religion of any individual, the calamities brought by fire and flood permeates and may cause destruction at all ages. It reveals that women in San Juan have various perceptions on disasters they are experiencing. As such, women from the lowland areas may experience frequent flooding than those who reside in the upland areas, while residents from the coastal areas may experience strong winds and heavy rains than those of the residents from the mentioned ecological setting. From the given findings, training and workshops relative to disaster preparedness in the Municipality should address these setting-based variations in order to further strengthen and intensify the disaster preparedness and response capacity of women in San Juan, Batangas. The importance of women and its being vulnerable is necessary to the development programs of San Juan. The perception of women respondent in the disasters like fire, flood, typhoon, landslide and earthquake should give a consideration in their importance participation in calamities preparedness, rescue and response activities. It is vital importance that any trainings and skills development relative to disaster preparedness must taking into account the gender and development of women.

**V. CONCLUSIONS**

This chapter states the summary or conclusion of the study based on the findings of statistical data and its interpretation. The statement of the problems accordingly guided the presentation below.

1. What is the profile of the respondents in terms of;
  - 1.1. age;
  - 1.2. civil status;
  - 1.3. residence’s ecological setting; and

Respondent’s Profile	Highest Frequency	Percentage	Relative Profile
Age	616	54.6%	18-35
Civil status	576	51.0%	Single
Ecological setting	610	54%	Lowland

**VI. RECOMMENDATIONS**

Considering the aforementioned conclusions, the following recommendations are hereby presented

- Disasters
- Highest and Lowest Weighted Mean

**A. Fire**

- #12 May generate traumatic experiences to the people of the affected community
- Basic needs for the survival counseling including

psychological, emotional and family support.

Support and assistance from the LGUs and other agencies in case of traumatic experiences

- #10 May lead to loss of livestock, property and human life
- Proper training and skill development for small scale enterprise

- Seminars and symposium for the mother and father regarding fire disaster related activities

- Safety measures through proper labeling of combustible materials its storage and disposal

- Fire extinguisher must be secured at all establishments and institutions

- Comprehensive loan from the financial institutions

**B. Flood**

- #1 Caused by the large amounts of rain water which cannot be absorbed in to the ground, drainages and canals

- Tree planting activity must be initiated and engaged all sectors of the society

- Drainage must be fixed prior to rainy season and continuously done especially on the roads, barangay and schools canals

- Women must know the basic operation of the early warning devices relative to floods.

- Identify the high-risk hazard areas especially along the coastal and river areas.

- #7 May be results of human activities like unregulated cutting of trees and urbanization of large areas

- Memorandum of Agreement between the LGU and citizenry regarding the strict implementation of cutting of trees to secure full support of the community.

**C. Typhoon**

- #1 Caused by an intense circulation of the weather system over tropical seas and oceans accompanied with very strong winds, heavy rains and large ocean waves

- Immediate information dissemination regarding the forthcoming advisory typhoon and the cancellation of classes

- Keep monitoring updates of early warning weather forecast using the tri-media

- #6 Destroys, damages, and uproots plants and trees

- The Municipal Agriculture Office and Environmental Office must provide seedlings to replenish the damaged and uprooted plants and trees

**D. Landslide**

- #1 Triggered by other natural hazards such as prolonged, heavy rainfall, and typhoon or by other sources of water which increases the water

- Strict implementation of quarry activities in the upland areas

- Tree Planting activities must be made at the quarrying sites
- Advise the community to evacuate immediately especially on the prone areas.

- #2 May be caused by other geological hazard such as earthquake or volcanic eruption

Engage, coordinate and establish volunteerism in the event of disasters

Signage must be put in place especially in the identified hazard places

#### **E. Earthquake**

#1 Caused by sudden slippage of rock masses below or at the surface of the earth

All citizenry must know and participate in the hazard mapping in their respective community.

#5 Makes people frightened and ran outdoors

Awareness campaign with the parents and children

Earthquake drills must be participated by the PTA

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