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## **Gender Dimensions and Women's Vulnerability in Disaster Situations: A Case Study of Flood Prone Areas Impacting Women in Malabon City, Metro Manila**

By Daniella Dominique Reyes<sup>1</sup> and Jinky Leilanie Lu<sup>2</sup>

### **Abstract**

Disasters are common in the Philippines, the effects of which are more adverse in the metropolis, characterized by population crowding and presence of geophysical hazards. Malabon City in Metro Manila is characterized by such risk factors to disasters. The target population of this study were women as they frequently remain at home while their husbands are out for work. The methodologies were both qualitative and quantitative through the use of key expert and subject interviews, and a survey questionnaire respectively. The objectives of the study were to look into the structure of Philippine disaster management, to investigate the role of institutions in the vulnerability of women to local disasters, and to identify the various experiences of disasters among women. The data showed that gender sensitivity was not included in reaching out to victims of disasters and that resilience is associated with reverting back to pre-disaster conditions without any mechanisms for preventing disasters. From the data, it can be surmised too that institutional intervention was not sufficient to mitigate the adverse effects of disasters due to its weak contribution to gendered social protection, the existence of politically induced discrimination, and the inadequacy of the services of the government. The vulnerability of households and communities to disaster occurrence is dependent on the interplay between natural and socio-economic conditions. In this interplay, the institutional role is vital in responding to mitigating natural disasters and to improve socio-economic conditions both before and after disasters.

*Keywords:* Disasters, Women in disasters, Institutional responses to disasters, Gender sensitivity in disasters

### **Introduction**

This study looked into the function and role of institutional factors particularly the national and local governments in disaster response and mitigation as well as the experiences of women to disaster situations in flood-prone Malabon City in the Philippines. The study site, Malabon City in

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Metro Manila, is referred to as the ‘local Venice’ in the Philippines due to the constant flooding [1]. The households in the study site belong to the low-income groups and the women take the brunt of household responsibilities as they mainly remain in the homes.

Numerous efforts are being made by the government to mitigate the effects of disasters to the Filipino people. However, gender-specific concerns have yet to be concretized in disaster response and mitigation in the country. The intervention of government and other institutions is important in averting the vulnerability of victims and affected communities.

The objectives of the study were to describe the experiences of women living in Malabon during disasters and their coping mechanisms, to identify institutional responses to disasters, and to know where women are in the disaster risk reduction and mitigation program of the government. The target stakeholders are the women victims of disasters, the general public, relevant local and national government institutions, and non-governmental organizations.

It has been shown that women and girls are affected more adversely than men and boys in disaster situations in that the former suffer longer, and experience violence or greater insecurity long after a disaster [1]. Hence, gender issues are key issues in disaster management. In the Philippines, the law provides that women be an integral should factor in gender issues as an integral and substantive component, but in many programs, women are left out or not fully integrated.

### **Theoretical Framework**

The theoretical framework of the study was patterned after the *Access Model* developed by Blaikie et.al. in 1994. The model posits that the vulnerability of certain populations (or individuals) depends on the amount of access that they have towards capabilities, assets, and opportunities [2]. Using the *Access Model*, a high ‘‘access profile’’ will allow the population or the individual to reduce vulnerability to disasters. The model focuses on studying the vulnerability of certain population groups such as women at the micro-level, allowing for the inclusion of specific social organizations, relationships, and experiences [2].

The other components of the conceptual framework include gender sensitivity of the government’s programs and actual female participation in the formulation and implementation of the disaster mitigation programs. Following these theoretical and conceptual frameworks, the results of the study are presented in the following thematic sections: natural hazards and risk factors in Malabon in Metro Manila; the experiences of the women respondents during disasters; access of the women respondents to programs and resources of the government; and then an analysis of the gender component of disaster responses and mitigation of the national government.

### **Structure of Philippine Disaster Risk Reduction**

The Philippine Disaster Risk Reduction and Management Act of 2010 or Republic Act 10121 provides the legal framework for disaster risk reduction in the country. This law establishes the National Disaster Risk Reduction and Management Plan (Philippine Disaster Risk Reduction and Management Act of 2010). The National Disaster Risk Reduction and Management Council is elaborated on Section 5 [3]. It is composed of various governmental departments, agencies, and commissions, with the Department of National Defence as its head. The chairperson of the National Commission on the Role of Filipino Women is automatically a member of the National Council (Philippine Disaster Risk Reduction and Management Act of 2010, Section 5, Subsection W) in order to ensure that women’s concerns are included in the program [3].

The inclusion of gender-related concepts and programs are embodied in the Act. In Section 9, gender analysis is mandated to be institutionalized in the early recovery and post-disaster needs assessment activities of the office. Section 12, subsection C which discusses the functions of the Local Disaster Risk Reduction and Management Office asserts that the delivery of food, shelter, and medical supplies for women and children must be efficient, and has also encouraged the creation of a “special place” where mothers can come together to breastfeed and to find support in one another (Philippine Disaster Risk Reduction and Management Act of 2010) [3].

### *Philippine Agencies Tasked to Respond to Natural Disasters<sup>3</sup>*

There are several agencies in the Philippines tasked and mandated to work together to respond to disasters including preparedness, coping and rebuilding. These are indicated below.

#### *Philippine Disaster Management Program*

The National Disaster Risk Reduction and Management Council (NDRRMC) formerly known as National Disaster Coordinating Council (NDCC) is the main agency responsible for preparing and responding to tragic and emergency situations in the country. It was created during the Marcos regime in 1978 under Presidential Decree No. 1566. Its function was to “advise the President on the status of preparedness programs, disaster operations and rehabilitation efforts undertaken by the government and private sectors.” During the time of Macapagal-Arroyo administration, NDCC was renamed and reorganized as the National Disaster Risk Reduction and Management Council (NDRRMC) through Republic Act No. 10121. NDRRMC is also tasked to “develop a National Disaster Risk Reduction and Management Framework, which shall provide for comprehensive, all-hazards, multi-sectoral, inter-agency and community-based approach to disaster risk reduction and management” [4, 5].

Disaster Prevention and Mitigation; 2) Disaster Preparedness; 3) Disaster Response; and 4) Disaster Rehabilitation and Recovery, and this corresponds to the National Disaster Risk Reduction and Management Council structure [6,7].

## **Methodology**

### *Research Strategy*

This study used a mixed methods approach in data gathering. The research strategy for the study was sequential where quantitative data were gathered from the target population and was supplemented by qualitative data through interviews. Experts and key informants were also interviewed. In a sequential strategy for a mixed method research, the data collection process is described to be iterative where the information in one aspect contributes to the information in the other aspect [8]. Qualitative data were used to fill in the gaps, or enrich further, the information gathered from the quantitative aspect [9]. See Table 1.

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<sup>3</sup> Given the scientific fact of climate change, so-called “natural” disasters are aggravated and can even be initiated by human factors, including weak institutional arrangements in governance. Environmental issues are merely secondary to developmental projects of governments in exacerbating the impacts and even creating the context in which stronger and more frequent storms impact human societies, even if these are environmentally destructive. And even after a disaster has occurred, there is a lack of genuine and appropriate institutional mechanism to address the lingering ill-effects to the community.

**Table 1. Summary of Research Strategy**

Factors	Research Strategy
Implementation	Sequential – Quantitative Aspect first
Priority	Quantitative data - qualitative data to support and enrich quantitative Data
Point of Integration	At data presentation

*Creswell, 2003 [9]*

*Target Population and Unit of Analysis*

The target population of the study consisted of the women in the most flood prone area in the City of Malabon, Barangay Catmon [10]. The City of Malabon is a low-lying coastal city. The city is notoriously known as one of the more disaster prone areas in the capital, due to its geographical make up. Three rivers encircle the city, namely the: Tullahan, Malabon, and Navotas Rivers which, during high tide, cause flooding in the adjacent areas. In addition, high population density and improper waste management contribute to the intensity of the flooding. Aside from flooding, the area is also susceptible to earthquakes, liquefaction, and storm surges [10]. The study focused on Barangay Catmon. The barangay is considered as one of the most disaster-prone areas in the city to typhoons [11].

For the qualitative part, purposive and criterion sampling was employed [12]. The inclusion criteria were: (1) women who experienced disasters in their locality, but had (2) survived it and are (3) now part of community-based disaster response programs or the local government. Six women were interviewed.

For the quantitative part, simple random sampling within the barangay was used. The sample size for the target population is 68 computed using 90% margin of error. The formula used was [13]:

$$ss = \frac{Z^2 * p * (1-p)}{C^2}$$

Where:

Ss = Sample Size

Z = Degree of Reliability (1.645 for 90% Margin of Error)

p = True proportion of getting a good sample (0.5)

C = Margin of error (0.10 for 90%)

The above equation generated a total sample of 68. The data provided by the local city government for the population size of the entire Malabon City was 353,337 as of 2010 (latest data available) wherein 176,817 were women, and 176,073 were males (representing almost a 1:1 female-male ratio). In the specific target area, Barangay Catmon, the most flooded among all the communities in Malabon, the population is 36,420 (no gender-disaggregated data, however, the mean household size is 5). The survey targeted the households as the unit of analysis. The female head of the household was selected for the survey.

The survey data were encoded and analyzed using SPSS 13.0. The key informant interviews were encoded thematically based on the variables being investigated in this study.

The core ethical principles of respect and beneficence were ensured. The contents of the survey and the informed consent form were explained to the respondents beforehand. The contribution of the study to the discipline of gender studies and disaster mitigation was elaborated.

#### *Data Collection Method*

In line with the mixed methods approach, the study employed both qualitative and quantitative methodologies with respondents coming from the community, the government (local and national), community-based organizations, and the academe in order to triangulate the research findings.

For the qualitative aspect, the study utilized interviews and documentary research. The interview consisted of two parts. The first part was unstructured interviews on the disaster stories of the respondent-victims. The life story part was followed up with questions regarding their coping strategies, and whether the experiences have made them more resilient or vulnerable. The second part was a semi-structured interview concerning the process of empowerment and their involvement in the disaster risk reduction and mitigation programs in their community. This part of their interview aims to uncover the processes that these women underwent from victimization to empowerment, if any.

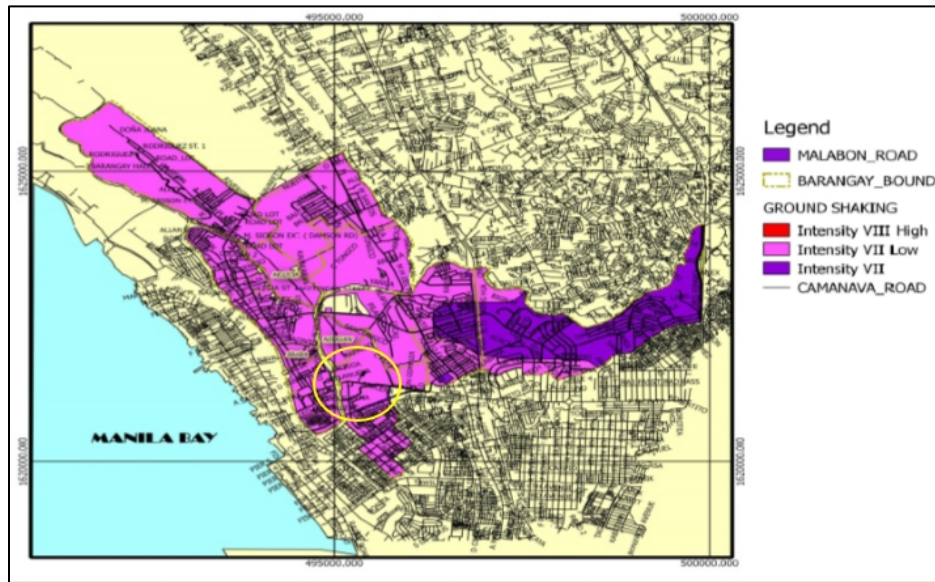
#### **Data Presentation**

##### *Natural Hazards and Risk Factors in Malabon in Metro Manila*

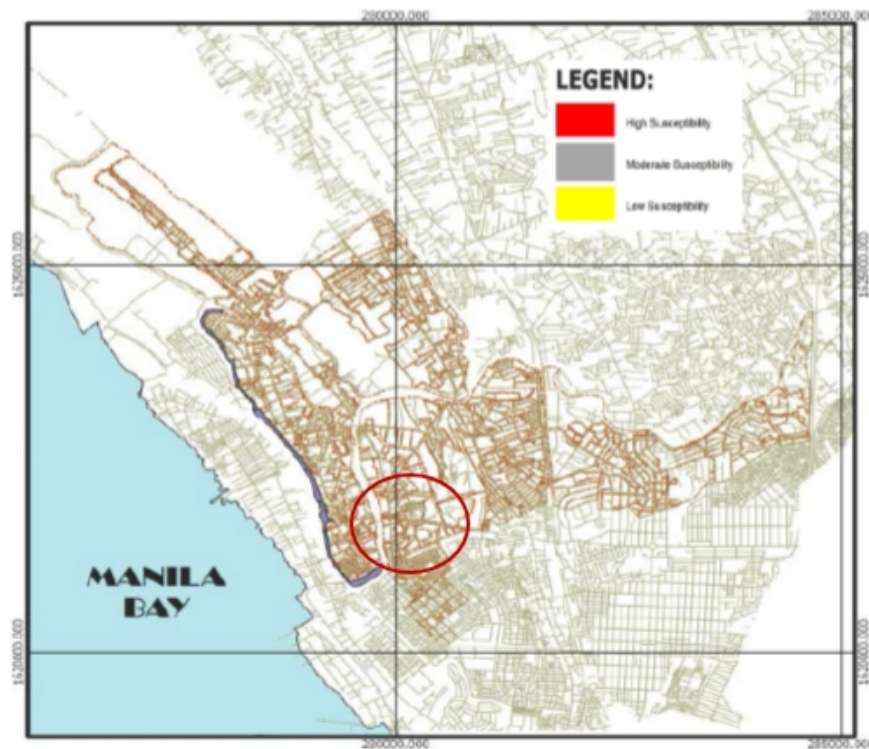
Based on the Malabon Socioeconomic Profile Material provided by the City Planning and Development Office, the top environmental hazards faced by the city are: ground shaking, liquefaction, tsunamis, flooding, and storm surges. This is due to the proximity of the city to the Manila Bay, as well as the existence of three rivers that extend inward to the city from the bay [10]. See Figures 1-3.

As shown in the figures, the flood risk grades depend on population density, gender, age, community structural materials, and flood levels. We postulate, therefore, that there is a higher risk to disaster when there is a higher population density, and in line with the UP School of Regional Planning's Worst Case Scenario (see below), more women, elderly and children, the weaker the structural materials, and the higher the flood levels. Low risk is negligible but felt, moderate risk is a considerable risk to property and lives, and needs attention, and high risk involves destruction of properties and lives.

**Figure 1. Ground Shaking Hazard Map**

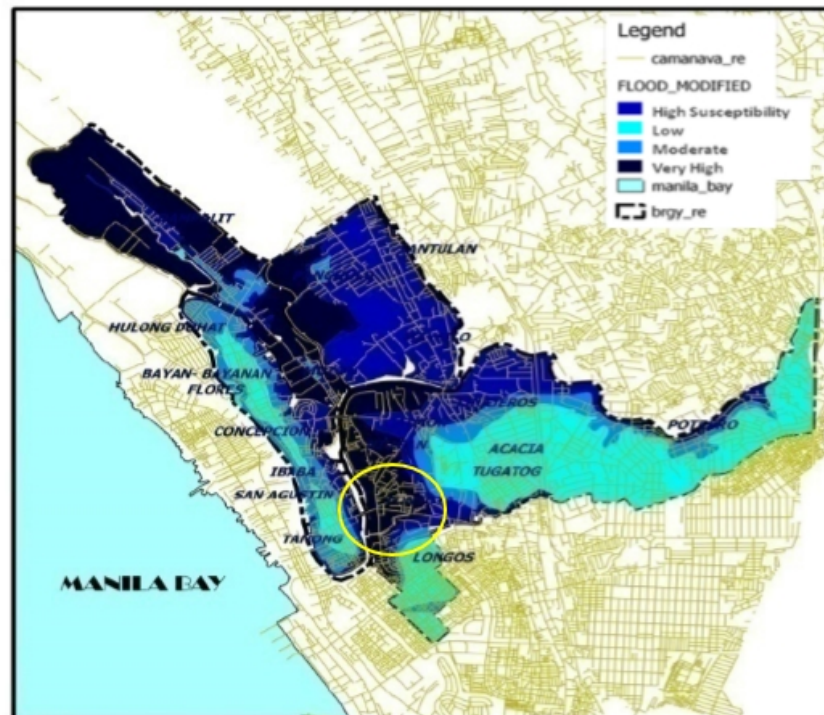


**Figure 2. Storm Surge Map**





**Figure 3. Flooding Hazard Map**



The encircled areas in the hazard maps above point to the target site of the study. In the last ten years, *Typhoons Ondoy and Glenda* were the most severe, but the city's experience with *Habagat 2012* was the most traumatic because six people died. The risk of flooding and subsidence are reiterated in the findings of the Institute of Environmental Science for Social Change [18]. In their assessment of the housing sites of Habitat for Humanity (in which Malabon is one), they found that the top disaster hazards in the city are flooding, slow subsidence, as well as storm surges. The frequent floods and gradual subsidence are due to the reclamation of lands that were formerly fishponds and the poor quality of landfill that were used [14]. In the study conducted by the UP School of Regional Planning the city ranks predominantly high in the Worst Case Scenario for Flood Risk in years 2020 and 2030. The hypothesis for the study is, "the higher the population density, the more women, elderly, and children, the weaker the structural materials, the higher flood levels recorded, more vulnerable" [15]. According to the study, the city ranks 10th in population density and 13th in vulnerable populations. Despite this, the country is still very vulnerable due to the weak structural materials that most houses are made of.

#### *Results of the Survey and Key Informant Interviews*

The socio-demographic profile of the respondents for the survey and interview are shown in Tables 2 and 3.



**Table 2. Socio-Demographic Profile of the Women Respondents in the Survey**

Socio-Demographic Profile	Statistics
Number of Respondents	68
Age group	41-55 (42.6%)
Educational Attainment	High School Level/Graduate (55.9%)
Marital Status	Married (50%) Single parents (32.3%) Widow (20.6%)
Number of Children	1-5 (58%)
Household Size	1-5 (51.5%)
Mean Income	P 9,726.00
Job	Housewife (35.3%) & Tindera (35.3%)

**Table 3: Socio-Demographic Profile of the Women Respondents in the Key Informant Interview**

Socio-Demographic Profile	Statistics
Number of Respondents	6
Mean Age	50.83
Mean Years of Stay	30.33
Mean Household Size	4.33
Mean number of Children	3
Number of Children living with	1.17
Mean Income	P11,167
Mean years of being part of DRR Training	4

*Women's Experiences of Disasters and the Corresponding Institutional Response*

In the survey, 69.1% of the respondents mentioned that they needed the assistance of the government during disasters, and 66.2% said that the government is readily accessible. It is noteworthy to mention that regarding the Republic Act 10121 which created the National Disaster Risk Reduction and Management Council, 91.2% of the respondents expressed familiarity with a national policy concerning disasters.

In terms of disaster preparation, 91.2% of the respondents mentioned that the local government prepared for the disasters as soon as the advisories were made on impending disasters including typhoon surges. But this pertains only to typhoons and flooding. The community is also prone to fires, and the interview respondents mentioned that fire trucks have no easy accessibility to the area. The residents were left putting off the fire by themselves in one incident (key interviews). Services and infrastructures that should be provided during disasters such as evacuation centers were not readily accessible and available.

Only 47.1% of the respondents said that relief goods contained female basic necessities. Only 14.7% participated in forced or pre-emptive evacuation. See Table 4. The main evacuation center for all residents in the area is the elementary school. The interview and survey respondents mentioned that there are no women-only places in evacuation centers for women. The officers of the Disaster Risk Reduction and Management Office, however, said that there is a limit on the number of families per room which is five families per classroom.

**Table 4. Availability and Accessibility of Government Services Concerning Disasters**

Government Services	Percentage
Relief goods that contain female necessities	47.1%
Partaking in forced/pre-emptive evacuation	14.7%
Women only places in the evacuation centers	11.8%
Disaster Risk Reduction and Management Training/Process	22.1%
Text-brigade membership	17.6%

In relation to text brigades, one respondent from the key informant interview from the Disaster Risk Reduction and Management Office said that only 30% of Malabon City residents are currently enrolled. To make up for this, they turn to social media such as the internet for announcements. However, during field work, majority of the respondents did not have computers and internet connections at home.

The representative from the Disaster Risk Reduction and Management Office admitted that gender and development initiatives are fairly new to the city initiated only since November 2014. She mentioned that the office began some disaster risk reduction and mitigation trainings, but women in the locality had not shown interest.

For relief goods, it must be noted that some women (52%) were not able to receive them. Subject interviewees said that the reason behind this is that only those with personal connections with barangay and community officials were able to receive “tickets” which would give a person access to relief goods.

In the personal interviews, the women said that some local government trainings on disaster preparedness helped them during disasters. The women related that there were trained on how to use rubber boats for rescue operations, carry out first aids, and pump out water from a flooded area. Another woman respondent said that the trainings help them how to evacuate and help a drowning person. This was confirmed by another respondent who said that, “trainings teach us how to rescue victims and people. We are taught how to give first aid to injured people and those whose blood pressure increase due to stress.” There are also seminars on how to protect the environment in order to prevent flooding such as proper waste disposal. Usually, only women participate in trainings. They say that men are either at work or are not as responsive or interested in community trainings. Women involve themselves in disaster response training because they are the first victims of disaster. One respondent said,

“There is a need to include women in disaster risk reduction program of the government. The people from government, both local and national representatives, take time to come to our rescue when disasters strike. The women stay at home, and should be readily capacitated to respond to immediate impacts of disasters.” (translated)

Another respondent related,

“In the previous storm surge, our community was flooded up to waist level. At first, the flood was up to my ankle, and then suddenly it was rising up at waist level. I cried especially because my husband was not at home. We all went to our neighbor’s house which was elevated, and we were terrified that the house would crumble with the number of people inside. After that, I joined disaster training

sessions so I would know what to do primarily how to rescue my children.”  
(translated)

Another life story was shared. One interviewee explained,

“The women in Barangay Catmon are always inundated by storm surges. Hence, we are used to it. During typhoon Ondoy, I was selling some groceries. At one moment, the water level reached my ankle. After a short time, it was up to my knees. So I immediately tried to reach a higher ground. I saw the neighboring community, and it was submerged in water.” (translated, 2015)

The women were also given some kind of assistance. The women respondents said they were given around USD50.00 by a civil society, and it was a big help for them. There is double burden on women because of a lot of responsibilities and cares, but they were able to tide over. They live in a squatter’s area, and they are really dependent on assistance from both government and private entities.

#### *Women’s Personal Experiences of Coping during Disasters*

Women are important in disaster response because they stay at home while their husband is out for work. One respondent said, “So, our women’s association is vital during disasters because both the national and local governments’ assistance come in quite much later. Our immediate response to the disaster comes from collective women’s effort within the community.”

The personal interviews with women respondents also give a human face to the experiences of women victims during disasters. For instance, during typhoon Ondoy that devastated the whole of Metro Manila in 2009, one woman respondent related that she was trapped in her home during the storm surge. She almost drowned because she did not know how to swim. She only survived because her neighbor helped her. She related,

“We live in a reclaimed area. Hence, it is subject to frequent flooding and inundation because the ground is unstable. In the previous storm surge, I almost drowned. I was strapped inside our house. I was so anxious, and cried for help. I couldn’t go out of the house. My neighbor broke open and destroyed the door, and it was only that time that I was able to go out.” (translated)

Another respondent related,

“Another problem during disaster is food supply. Even if you have cash, there are no goods to buy. It is good that we have a convenient store where we got supplies of noodles, biscuits, eggs and sardines. During Typhoon Ondoy, our neighbors were trapped in the upper levels of their home because the ground floor was submerged in water. All furniture and appliances in the ground floor were destroyed.”

Communication is also an important aspect during disasters. Text brigade, which is the use of text messaging to give alerts on impending disasters to all registered members of the community,

was a helpful strategy in the experiences of the women. One woman related, “Communication is very important. Text brigading will prompt other women and wives to immediately evacuate.”

*Aftermath and Coping*

50% of the respondents mentioned that their lives went back to normal after the disasters that they experienced. However, the interviewees said that “normal” means the previous standard of living which was way below the poverty line. 42.6% said that their lives became worse. The interviewees said that this was due to the destruction of their properties and the cost involved in repairing damages brought about by the flooding.

When asked about post-disaster preparedness, 67.7% said that they started to prepare for the next disaster. See Table 5.

**Table 5. Post-Disaster Preparedness**

Post-Disaster Changes	Percentage
Did you make any changes in your preparation after what you have experienced?	67.7%
Was it effective?	65.7%

In terms of coping, all interviewees in the key informant interview mentioned that prayer and faith in God played a big role in their coping and recovery process. The women also mentioned that friends and family also helped them cope with the disaster. One respondent said that just merely listening to their plight would really enable them to get through the burden. Another respondent even said,

“I must not give up pushing hard to make both ends meet. Disasters can sometimes stop you from sending your children to school. But I cannot give up. If I don’t have the resource, I can still borrow money for my kid’s education.”  
(translated).

It is also worth mentioning that in the survey, 98.5% of the respondents said that their disaster experiences have made them resilient. This was qualified in the qualitative interview where a respondent said that resilience means being able to survive the disaster and getting by, however difficult it was. It was more of a strength to tide over the basic necessities, especially those concerning children for schooling and food. Another mentioned that she has been encouraged to participate in community trainings for disaster risk reduction and mitigation. Three interviewees said that resilience means not to panic too much each time another disaster comes because they know they could cope somehow.

*Why a Gender Perspective is Important in Disaster Response Programs*

Interviews were conducted with both government and non-government organizations which included the Philippine Commission on Women, Malabon City Disaster Risk Reduction and Management Office, Citizen’s Disaster Response Center, and the College of Social Work and Community Development.

Mandated by the Republic Act 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010, the Philippine Commission on Women (PCW), or the National Commission on the Role of Filipino Women in the Act) is part of the National Disaster Risk

Reduction and Management Council (NDRRMC) (“The Philippine Disaster Risk Reduction and Management Act”, 2010). The main role of the Commission is to equip, capacitate various national government agencies, the NDRRMC included, to enable them to do gender mainstreaming. Therefore, the PCW does not directly provide services to women. However, the PCW oversees the activities of the NDRRMC and ensures that their activities and programs are gender responsive (quoted from PCW expert interviewee). The expert interviewee said that the inclusion of women in the disaster processes is already a milestone particularly in the policy-making aspect. Women are involved in the formulation and there are policies directed towards them. However, there are still challenges to overcome particularly towards implementation.

“We have laws that integrate gender aspects, such as the climate change act, and disaster response and mitigation law. We also have the Magna Carta on Women. We have so many plans at policy levels. But these plans and policies are not translated at the community level. This is the challenge, not just for our commission, but for the entire bureaucracy.” (translated; quoted from Philippine Commission Women expert interviewee).

When asked about how disaster situations are gendered, the expert interviewee from the Philippine Commission Women said that,

“Disaster situations are gendered in many aspects. We’ll start with the role of women in the family and the community. Roles are gendered. Traditionally, women are in charge of the home and the family. For instance, if we will look at the case of women and disasters, many of those who are hardest hit are poor women. For instance, in Banda Aceh in Indonesia, their culture dictate that women should not leave the home and must remain in the family. During the tsunami disaster there, many victims were women because they remained at home, and were not allowed to go out because they had to stay with the family.”

In the Philippines, women remain at home too.” She continues,

“In the evacuation center, the woman takes the lead role. She makes sure that the children are safe. She is the one who persistently waits in queue for food rations. She attends to the sick and injured family members. She is also more likely to be the volunteer in disaster situations. And they are unpaid volunteer workers.”

According to the academic and NGO experts, women who are left at home are usually killed first in disaster situations while their husbands remain safe because they work far away. She explained,

“It is mandatory that disaster response programs should have a gender lens because women are at the forefront during disaster situations. She remains at home. She takes care of the children and elderly in the family. In a patriarchal society, women are expected to remain at home, take care of the children and perform household chores. The mother-wife is the last to evacuate and be rescued

because she must stay with the family, and should make sure that all are safe first.”

Hence, the expert said that a gender lens is needed in the formulation of programs on disaster mitigation.

It is also important that women are part of the local governance so that women’s concerns are included in disaster programs. The key expert explained,

“Even at the barangay level, women officials are key to addressing the special needs and concerns of women during disasters because they are women, and they know the needs of women. They should participate in the governance process as such in participation in crafting gender-sensitive programs, and in community mobilization in addressing disaster management.”

On the other hand, the local officer said that most of the relief goods still come from the private sector, and women’s basic necessities are rarely included in these relief goods. The interviewee mentioned that their office is trying to intensify the involvement of the women in gender and development programs of the city government. However, some women seem to be disinterested. The representative of the office recognizes however that women could contribute additional manpower in disaster situations.

The academic expert echoed the concerns raised by the representative from the PCW with regards the implementation and the role of the local government who said that gender sensitivity in the Philippines is not yet completely integrated. There is awareness at all levels, but the implementation is lacking due to various institutional and cultural factors.

The interviewee from the Citizens’ Disaster Response Center mentioned that women’s concerns are being taken into consideration by the organization in their service provision. Integral to their disaster program is the involvement of the women themselves such as how to prepare for disasters, how to prevent it, and how to deal with disasters.

## Discussion of Results

It is apparent that the women respondents of Malabon City had very personal experiences of the disasters in their area. A thematic table can be constructed based on their experiences. See Table 6.

**Table 6. Thematic Table of Personal Experiences of the Women Respondents**

Personal Accounts of the Women	Thematic Discourse
“The storm surge was sudden. At one minute, the water level was at the ankle level, then at the knee level, and then up to the waist level.”	There is urgency of the disaster situation and the impending unsafe condition.
“My husband was out working in another city. I was left alone. I did not know what to do.”	There is apparent patriarchal orientation of needing the men take the lead in disaster situations.

“I do not know how to swim. The storm surge was so sudden, and the ground floor of our home was already submerged.”	There is urgency for disaster preparedness and relocation efforts.
“I cannot run away and leave the home even if the water was swiftly rising. My children and family members were trapped inside the house.”	Women assume major responsibility in taking care and saving their family members.
“There were no women-friendly spaces in the evacuation center.”	Gender sensitivity was not incorporated in the design of relocation centers.
“There were no feminine items or hygiene items for women in the relief goods.”	Gender sensitivity was not included in reaching out to victims of disasters.

Likewise, there were varied understandings of the meaning of resilience among the women respondents. From the data, Table 7 shows the various meanings of resilience to the women respondents.

**Table 7. Meaning of Resilience to the Women Respondents**

Responses of Women on the Meaning of Resilience	Analytic Understanding
Lives went back to normal	Resilience is associated with reverting back to pre-disaster condition without mechanism for preventing disasters.
Standard of living was still the same which is below poverty line.	Resilience has not incorporated strategies for rising above poverty line.
Lives became worse because of destruction of livelihood.	Vulnerability is expressed as difficulty in rebuilding livelihood.
Lives became worse because of the time and resource needed in rebuilding damaged properties.	Vulnerability is shown in difficulty in rebuilding properties.
Became resilient because they were able to survive and get by the next disaster.	Resilience is associated with getting by the next disaster without any deeper investigation of structures to avert disasters.
Prompted the women to participate in emergency response trainings in the local community.	Resilience is associated with involvement in trainings. However, these trainings are merely to respond to disasters, and not to prevent disasters.

The response of the women regarding their life situation post-disaster, shows that they are able to bounce back from their disaster experiences fairly quickly. However, it is necessary to assess whether the respondents were truly resilient or merely coping.

The traditional definition of resilience posits the ability of a person, or a group of people to “absorb disturbances or shocks”; a definition closely linked to the concept of “resistance”. However, the redefinition of the term posits that resilience should be the “regenerative abilities of a social or an ecosystem, encompassing the ability to learn and adapt to incremental changes and sudden shocks” [16]. From this, women are resilient if adhering to the traditional definition.



However, using the contemporary definition, the respondents cannot be considered as resilient because they are merely reverting back to their normal, disaster-prone lives.

Coping capacity is defined by Birkmann as “a combination of all strengths and resources available within a community organization that can reduce the level of risk, or the effects of a disaster” [16]. Following this definition, the coping capacity of the respondents is also very low due to the seemingly cyclical nature of disasters and destruction in the area.

From the data, it can be surmised that the institutional factor is not able to mitigate the adverse effects of disasters due to its weak contribution to social protection, the existence of politically induced discrimination, and the inadequacy of the services of the government. This finding is reiterated by the local office overseeing disaster responses who said that gender and development initiatives are fairly new to the city, and none so far has been integrated into disaster programs.

The resilience of women is construed by the women themselves as merely coping because they are faced with the same disaster over time. There is none so far related to strengthening the institutional arrangement for preventing flood, building sturdier houses, and making available more stable forms of income and employment. The impact on employment and productivity brought about by disasters can be disastrous. This has been documented by Hague and Jahan in Bangladesh as the result of flood disasters in the coastal regions of Bangladesh [14].

Based on the results of the study, another thematic table can be constructed on the responses of the local government to disasters. See Table 8.

**Table 8. Thematic Table on Responses of Local Government to Disaster Situations**

Personal Accounts of the Women and Expert Interviewees	Analytic Understanding
“Text brigade was helpful in communicating to us the urgency of the storm surge.”	Social media is now an important tool in disaster situations. This should be tapped by local communities.
“Only those with personal connection with the local government officials had a better access to relief goods.”	There is paternalistic orientation of disaster response among local government units.
“There were trainings on use of rubber boats, ropes as anchors, among others, during flooding.”	There is an apparent readiness of local communities to provide emergency response trainings prior to disasters in the local area.
“Only trainings and environmental protection are provided to us. We do not know of other government endeavor on how to prevent floods and disasters.”	There is a kind of stop-gap nature of programs of local governments on disasters. There is no long standing and more enduring program on how to prevent and mitigate disasters.
“There is a corollary training on how to protect the environment such as not throwing garbage anywhere, waste segregation, and planting trees.”	There is an environmental component of disaster mitigation.
“The women take the lead role in responding to disasters because they are left in the home while their husbands are out for work.”	There is a need for gender sensitivity in disaster responses by institutions.

<p>“We do not know how to integrate gender into our local programs. We only have budget allocation of 5% for gender issues.”</p>	<p>There is a lack of a true gender-sensitive program of the government.</p>
<p>“We have good laws on disaster response. However, these are not implemented on the ground.”</p>	<p>Formulating laws is not sufficient to respond to disasters. There should be an effective mechanism by which institutions are able to implement laws on disaster response and mitigation.</p>

For the processes relating to disaster responses and the factors that influence these responses, Blaikie’s model can be used again [2]. According to the model, the normal life of the household (or individual) is shaped by the interplay of social relations and structures. Households or individuals create a form of social protection that exists on the individual and social level. Unsafe conditions affect the household’s situation and therefore contribute to vulnerability. Disasters occur when a hazard that has been triggered breaks through the social protections in place, or there are insufficient protections. Institutions and structures can make the adverse effects of disasters worse [2]. This model demonstrates how a disaster is institutionally facilitated. As shown in the data, the weakened respondents were able to create social relationships that enabled them to respond to disaster situations, and to cope with the aftermath. Social mechanism included accommodating the less fortunate into their homes, helping families who are trapped in their homes, text brigading, among others. Training and awareness programs for first responders in disasters are encouraged [18]. Likewise, natural disasters such floods, drought and earthquakes should lead to more risk-mitigating innovations including technologies and programs [18]. However, the institutional arrangement at the moment is focused on short-term solutions and tiding over a disaster situation. There should be a more comprehensive program that deals with preventing disasters, strengthening livelihoods and sources of income, infrastructure projects to prevent flooding, among others.

The model also calls for the examination of the changes done post-disaster which can be used to predict whether the hazards that would follow would be a disaster as well [2]. It is in this area that governmental and institutional activities and performances are vital. The vulnerability of households and communities to disaster occurrence is dependent on the interplay between natural and socio-economic conditions. In this interplay, the institutional role is vital in order to mitigate the impact of natural disasters and to improve socio-economic conditions both before and after disasters [19].

In the Philippines, the Republic Act No. 10121 of 2010 is the legal basis for policies, plans and programs to deal with disasters, and this includes community-based disaster response, with the aim of empowering and giving tools and resources to the local communities themselves. The same was established in Kashmir, Pakistan where the National Disaster Management Authority (NDMA) was created in response to the Kashmir quake and to handle future disasters coupled with the establishment of the Provincial Disaster Management Authority in all the provinces. However, in a paper by Ainuddin et al., the authors found that the disaster institutions and mechanisms have not been fully integrated at the district and community levels, rendering victims more vulnerable to their effects of disasters [20].

For disaster response and mitigation at the institutional level to be effective, an examination of the structure of disaster response in the Philippines should be performed. Based on the interviews with key experts from government, academe, and non-government organizations, as

well as secondary data analysis, there are still gaps in the structure and institutional system for effective programs. These are discussed below.

#### *Integration of Permanent LGU Disaster Risk Management*

A permanent structure of disaster risk management can be effected both at the national and local levels, with efforts at both levels coordinated and harmonized. There is a need for harmonized and coordinated effort from the lowest level to the highest level. The disaster plan should be a national plan that involves various agencies of government, and how communities can coordinate with each other in order to pool resources, or complement resources, and to learn the best practices in disaster prevention and management. There should be an increased level of awareness and capacity-building in dealing with threats, risks, and impacts of disasters among communities.

There is also a need for harmonization of awareness, perceptions, and responses among officials involved in disaster preparedness and mitigation. The lack of communication and linkages often derail the delivery of needed assistance to disaster-affected families and communities. While the national government structure should consider the community-level structure, there is also a need likewise for the local institutions to develop direct linkages with national institutions at different levels. Hence, there is a two-way integration between the local and national. This has proven to be the needed response in the analysis of the Delhi institutional disaster structure done by Madan and Routray [21].

#### *Broader Institutional Arrangement for Disaster Management*

There is a need for broader institutional intervention in disasters management. The stop-gap intervention such as providing transport for evacuating affected families must be complemented with contingency plans that are robust. There should be safe evacuation centers to accommodate large evacuees, efficient administration of basic services including food, health, and other basic necessities based on acceptable standards during or immediately after a disaster. This also calls for mainstreaming of disaster management plans in the development processes including policy formulation, programs for socio-economic development, budgeting and finances. Disaster planning is incorporated in all areas of government programs of urban planning, water, health, energy, housing climate change, land-use, infrastructure, environment, agriculture, education and poverty reduction. This should also include human-induced disasters such as civil conflicts and wars that result in internally displaced persons and socio-political instability. The latter calls for the inclusion of conflict resolution within the framework of disaster management.

#### *Strengthened Vertical and Horizontal Integration of Disaster Risk Reduction Plans*

There is a need for harmonized and coordinated efforts from the lowest to highest levels. The disaster plan should be a national plan that involves various agencies of government, and how communities can coordinate with each other in order to pool resources, or complement resources, and to learn the best practices in disaster prevention and management. There should be an increased level of awareness and capacity-building in dealing with threats, risks, and impacts of disasters among communities.

#### *National Platform for Disaster Risk Reduction*

The restoration efforts after a disaster should prepare the community to be stronger and more able to prevent and respond to future disasters. This needs improving facilities, livelihood and living conditions, and organizational capacities of affected communities. This is aligned with

the “building back better” principle in dealing with disasters. Likewise, there should be a capacitating mechanism of individuals and communities with necessary skills and tools in coping with disasters. A national platform for disaster risk reduction is defined as a “nationally owned and nationally led forum or committee for advocacy, coordination, analysis and advice on disaster risk reduction” [22].

#### *Gender Mainstreaming of Disaster Response Programs*

Gender inequality has been shown to prevent women from participating fully in disaster risk reduction processes. In an area where a large gender gap exists, women are most likely to be excluded in the policy-making process [3]. When women are excluded from the decision-making process, the inclusion of their interests in the programs is not likely.

The institutional factors that contribute to the vulnerability of women to disasters have been attributed mostly to the disaster risk reduction and management process. Due to the exclusion of women in the decision-making emanating from the inequality in power relations, women are not able to institute coping and preventive mechanisms that could help mitigate the effects of disasters towards them [3]. In the study, the gender insensitivity of disaster risk reduction program and the lack of participation of women in its formulation have been operationalized as the main determinant of the inadequacy and loophole in the said programs and services. In addition, interviews from the female survivors also brought to the fore the necessity of gauging the accessibility and more importantly accessing these programs and services [3].

Gender mainstreaming is necessary in disaster responses. The World Health Organization underscores that gender roles dictate that in disaster situations, women must assume the role of caretaker, and must be responsible for those affected by disasters, particularly children, the elderly, and the disabled [23]. This substantially increases their workload (in addition to keeping the home, or even making a living), and also has emotional implications. In some cases, women are also blamed for being unable to come to the aid of those under their care in some disaster situations [24]. This bolsters the emotional and even psychological burden that women face.

#### **Conclusion**

The study has shown that the women of Malabon in Metro Manila were confronted with disasters, particularly typhoons and flooding. The study has underscored the importance of gender mainstreaming in disaster management because women are the first victims of disasters as well as the more likely individuals to care for the household during and after disasters. The study has also shown the short-term responses of institutional factors, particularly the local government to disasters such as the provision of trainings for emergency responses and giving aids. There is a need for a more integrated approach to dealing with disasters and helping victims through a long-term and comprehensive program including the prevention and mitigation of disasters and improving resilience of victims by the provision of better infrastructure and socio-economic capability of the households.

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