

**DISASTER PREPAREDNESS OF CELINA HOMES IV SUBDIVISION
BARANGAY BURGOSRODRIGUEZ, RIZAL, PHILIPPINES: A COMMUNITY-
-CENTERED EVALUATION**

Shiela May Corona, Angela Kate Cruz, Hennessy Jane Debalocos,
Joever John Burigsay, Ethelbert Justine Pascua, Renzo Miguel Siao,
Einstine Albert Sison, Marc Joseph Tabangay & Rose Marie Mendoza

Far Eastern University – Nicanor Reyes Medical Foundation, General Education
Department, Quezon City, Philippines

Abstract

The disaster preparedness and awareness of the community of Celina Homes IV Subdivision in Barangay Burgos Rodriguez, Rizal was assessed and evaluated. A descriptive cross-sectional research was employed to assess the disaster preparedness among the one hundred eighty-three (183) residents of Celina Homes IV Subdivision, Barangay Burgos, Rodriguez, Rizal. The findings showed that the level of disaster preparedness of the Celina Homes IV Subdivision community in terms of preparations for incoming disasters, knowledge on disaster prone areas, availability of disaster equipment and supplies, safety measures in the community, and seminars and information campaign on disaster preparedness is high, and that the level of disaster awareness of the community of Celina Homes IV Subdivision on different natural disaster like earthquakes, flashfloods/floods and landslides is also high. However, the results revealed that the community lack exposure to seminars and information campaigns that will help enhance and update their readiness to disasters. Results further reveal that the residents need a disaster readiness campaign that is highly recommended to all ages. In line with these findings, a disaster preparedness infographic was crafted to enhance the disaster preparedness and awareness of the community.

Keywords: Disaster Preparedness, Disaster Awareness, Community, Natural Disasters

1.0 INTRODUCTION

The Philippines straddles the Ring of Fire, an area where many earthquakes and volcanic eruptions occur in the basin of the Pacific Ocean (Garcia, 2015). Different disasters either natural or man-made such as, typhoons, floods, earthquakes, landslides, volcanic eruption, terrorist attacks, etc., could occur and hit certain places anytime and anywhere (Vergano, 2013). The Philippines is one of the countries that were able to surpass several calamities over the year with a lot of citizens and communities in the left devastated, majority of them--due to lack of knowledge on safety measures and disaster preparedness. In the onset of disasters and calamities, much is attributable to the ability of the people at least prepare for it as it happens and prevent further damage to life and property rather than cope with it and the destruction each calamity and disasters bring. The community is therefore, being prepared and equipped by the local government with necessary skills to help the citizens deal with each disaster that will strike.

Region IV--A, also called "CALABARZON", is known for different environments, ranging from low coastal areas to rugged mountainous ones (Department of Environment and Natural Resources, 2017). This is also one of the regions that is most frequently visited by calamities and disasters.

Celina Homes IV Subdivision is one of the communities in CALABARZON, is located at Barangay Burgos Rodriguez, Rizal – a town within the CALABARZON area. Celina Homes IV Subdivision is strategically situated in one of the low-lying areas of Rodriguez, Rizal, which is adjacent to Metro Manila and Marikina City. As a province, the community is also near mountains and dams, which contribute as being a disaster-prone area.

For the last 10 years, Celina Homes IV Subdivision was subjected to different disasters because of its geographical location. The community experienced multiple earthquakes since it lies within the East Valley Fault (PHIVOLCS, 2015). The most catastrophic event that happened in the community was set in 2009 when typhoon Ondoy hit the Philippines, which caused many deaths within the community. The flooding was caused by the opening of the gate of the dams at that time, without prior notice to the community. The flooding lasted a day and left a thick mud in the community. Months have passed before the community had fully recovered from the devastating event. Before typhoon Ondoy, there were still floods that occurred in the community, not because of the strong typhoon, but because of clogged drainages. After typhoon Ondoy, the community was highly vulnerable to hazards, that every time there were heavy rains, the community was always flooded. Sad but true, the residents are used to this kind of situation until today.

Rodriguez, Rizal, has a population of 369,222 people and in Barangay Burgos, as of 2015, it has a population of 44,100 (Philippine Statistics Authority, 2015). All in all, showing a huge amount of population and being a disaster prone area, Bgy. Burgos particularly Celina Homes IV has been a very interesting community to investigate with respect to disaster preparedness and readiness.

Disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society. This causes widespread human, material, and economic or environmental losses and impacts, that exceeds the ability of the affected community to cope using its own resources (Labuguen, Espiritu, Vidal, Benigno & Leste, 2016), while preparedness is a pre--disaster action and measure being undertaken within the context of disaster risk reduction and management. It is based on sound risk analysis as well as pre--disaster activities to prevent or lessen loss of life and property. This also includes the development of an overall preparedness strategy, policy, institutional structure, warning and forecasting capabilities, and plans that define measures geared to help at--risk communities safeguard their lives and assets by being alert to hazards and taking appropriate action in the face of an imminent threat or an actual disaster (Labuguen et al., 2016).

Therefore, people in communities should have knowledge on disaster preparedness and management, and safety measures to be ready and to be aware of calamitous events or hazards that could happen in the future. Each type of emergency, which also includes acts of terrorism and epidemic or disease outbreak, among others, requires different measures to keep us and our loved ones, safe. As always, the best defense against casualties is knowledge and right preparation for these unforeseen forces (Garcia, 2015).

With the present drive of the government to make communities prepared for disasters to prevent the tragic aftermaths of Typhoon Yolanda and Ondoy, communities like Celina Homes IV Subdivision in Bgy. Burgos, Rodrigues, Rizal becomes the center of attention as to what is its present level of awareness on disaster preparedness as does the community in general facilitate disaster and preparedness and readiness of each household. The study also identifies the present needs of the community to help them enhance their own disaster preparedness and readiness which can give way to a healthier community and an educated society capable of doing necessary measures to preserve life and properties.

2.0 LITERATURE REVIEW

Disaster Preparedness in the Philippines

In the book entitled "Understanding the Science and Practical Knowledge of Preppin' for Disasters" by Labuguen et al. (2016) defined disaster preparedness as the knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of current hazard events or conditions. Preparedness action is carried out within the context of disaster risk reduction and management, which aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response to sustained recovery.

In relation to this, Galindo et al. (2012) also emphasized in their study that disaster preparedness results in a more effective response to disasters, better coordination during disasters, and a speedier recovery from a disaster. However, results showed that organizations are perceived to be less prepared to moderately prepared when it comes to natural disasters as reflected in the average weighted values. Based on that

results, the organizations should be well prepared and improve effective response to any disaster that might occur.

As to the kind of results showed in the country, Ilarde (2017) elaborates that Filipinos must always be ready for any upcoming disaster. He also mentioned about the head of the Philippine Institute of Volcanology and Seismology, Renato Solidum, who has been reminding the country about the "Big One" that might happen anytime in particular locations here in the Philippines. It is necessary for Filipinos to be prepared and not sow fear and panic when a disaster strikes. In connection to what has been stated, the research of Nivera et al. (2017) also emphasized that disastrous endings from natural calamities in the Philippines, such as Typhoon Yolanda, have made disaster preparedness a main concern in the nation.

In an article by Yee (2017), it is claimed that the Metropolitan Manila Development Authority (MMDA) appealed to the public for the third metro--wide quake drill in Metro Manila that is expected to ground traffic to a near standstill. This practice was just to simulate the effects of the movement of the West Valley Fault that is expected to generate 7.2 magnitude quakes, which could make disastrous consequences happen especially to the place where the location of West alley Fault hits the place where a lot of people live. The drill also serves as a test for those authorities to respond to the worst--case scenarios that may happen when an actual disaster happens. To be effective on the actions and response on disaster preparedness, Verghese (2015) stated in "Disaster Preparedness Guide for Elders" that there are many different types of disasters that can force people to evacuate their own homes. In preparing the things for incoming disasters, time management is necessary to reduce the possibilities of having injuries or loss of lives. Further, he also stated that people must locate and secure important papers, such as insurance policies, wills, licenses, stocks, and jewelries that are properly secured in a bag. In case of any emergency, very family must have the list of the different emergency hotline numbers even the contact numbers of each family member to easily communicate when a disaster strikes. In addition, elderly family members must identify the potential home hazard and must have the initiative to be prepared for any evacuation that may occur in the community.

In terms of actions and response, the article of De Leon (2014) published by the DOST Digest stated that the Department of Science and Technology (DOST) needs more disaster response leaders. Although mayors and organizations are all committed to disaster response stand at the frontline of disaster management, this does not exempt any other member of society from becoming a responsible disaster leader. Mayors need responsible barangay chairmen and other dedicated people working under their stewardship in order to effectively carry out their tasks when disasters occur. The message here is that disaster management or disaster response is everybody's business.

Existing Disaster Facilities, Equipments, and Supplies

Bobban (2013) explained that radio operator's set--up and organize communication networks locally for governmental, emergency officials, and non--commercial communication for private citizens that are affected by a disaster. Radio operators are most likely to be active after disasters have damaged regular lines of communications

and have caused power outages and destruction of telephone, cellular and other infrastructure--dependent systems. Because of this, citizens are forced to buy power generators.

As mentioned by Bishop (2015), power generators are expensive, and it usually requires gasoline to operate, which would cost citizens even more. A generator is simply not as necessary as many folks believe since its only function is keeping life--saving equipment on. An individual can cook with more stable fuels such as wood, propane, butane, kerosene, isopropyl alcohol, rolled newspapers, charcoal, and solar. Individuals can live off eating plenty of items that don't need to be cooked or refrigerated, and they can have light via a candle and several other fuels. Using the same fuels, together with quality cold--weather clothing, blankets, and sleeping tents and bags, can provide an individual and their family the warmth they need.

Besides power, a community should also focus on food and water. As stated by Emergency Essentials (2015), water is essential and must be the first thing to start with in disaster preparations since it will be used for hydration and sanitation. After all, the body is made up of about 60% water, so when an emergency happens, an individual would want to keep it nice and healthy in order to perform the necessary tasks involved for surviving. On the other hand, Castillo (2016) believed that one should have at least a seven--day supply of shelf--stable, no--refrigeration--needed foods since it is necessary to pack in as much protein, carbohydrates, and fats as fast as possible for these will keep your energy up while helping you stay healthy and nourished until a disaster ceases.

Laws, Orders, and Policies

In accordance to policies, Sullivan (2012) explains that global policies on disaster risk reduction have highlighted individual and community responsibilities and roles in reducing risk and promoting coping capacity. This emphasized that strengthening local preparedness is viewed as an essential element in effective response and recovery to reduce the risk of hazards that may occur once a disaster strikes.

As far as disaster is concerned, a law has been stated in the study of The Palladium (2014) that the Philippine Senate and the House of Representatives who legislated Republic Act No. 10121, explains the strengthening of the Philippine Disaster Risk Reduction and Management system. This will focus on improving and strengthening the capability of the Philippines for a disaster. For this to happen, Disaster Risk Reduction and Management system framework and organizing plans will be needed, and appropriating funds for other purposes.

The article of Blanco (2015) focuses on different guides and lessons that may be needed in time of a disaster, in which different branches of the government are involved with. Hence, the article proposes future challenges and directions in the conduct of disaster governance in the Philippines in terms of policies and programs. Both national government and local government must play an important role on disaster governance through the means of policy--making and the proper implementation of various policies that connotes disaster preparedness.

3.0 Methodology

The study utilized the descriptive--evaluative design (Mendoza, 2015) which assessed and evaluated the level of awareness of the residents of Celina Homes IV Subdivision, in Bgy. Burgos, Rodriguez Rizal in the types of disasters delimited to earthquakes. Flash floods and landslides (common disasters that struck the community) and their level of disaster preparedness as to preparation for incoming disasters, disaster prone areas, availability of disaster equipment and supplies, safety measures available in the community and seminars and information campaign on disaster preparedness. Purposive sampling was employed as a sampling technique where major criteria to become participant of the study is that the respondent should be 18 years old and above and has been living in the community for a year or more. A total of 183 respondents were included in the study through a total enumeration or population census recruitment of respondents.

The study utilized a validated Community Disaster Preparedness and Readiness Questionnaire (CDPRQ--52) composed of 14 indicators on types of disasters and 38 indicators on community disaster preparedness. The overall questionnaire reliability using Cronbach Alpha Coefficient of internal consistency is 0.9361. The respondents participated the study through a signed informed consent.

4.0 Findings

Community Awareness on the Types of Disaster

Table 1: Awareness on the Type of Disasters (that commonly strikes the community)

Type of Disaster	Weighted Mean	Standard Deviation	Descriptive Equivalent
Earthquake	3.47	0.019	Highly Aware
Flash Floods	3.46	0.033	Highly Aware
Landslides/Mudslides	3.43	0.029	Highly Aware
Overall	3.45	0.021	Highly Aware

The community is highly aware of the disasters that commonly strikes their place as depicted in Table 1. This high awareness could indicate a first--hand experience of the residents themselves of the disasters enumerated of they have a very good account of the disasters based on the experiences of family members. This very high awareness of the community on the types of disasters indicates that the respondents also understand the depth or degree of destruction each disaster could bring to an unprepared community. This high awareness therefore becomes a very important tool in educating the community on how they can be prepared when before and during disaster strikes, not only for themselves but also for the community.

Disaster Preparedness of the Respondents

Table 2: Awareness on Preparation for Incoming Disasters

Indicators	Weighted Mean	Descriptive Equivalent
The residents were informed to have:		
1. All the necessary things like documents, passports and jewelries ready in a bag.	4.29	Strongly Agree
2. A first aid kit at home.	4.12	Agree
3. A complete contact lists of family and government response team (e.g. police station, hospitals, NDRRMC, etc.) always accessible at home.	4.02	Agree
4. Food and supplies ready in a bag at all times.	4.09	Agree
5. Mandatory attendance to disaster drills coordinated by community leaders and staff.	3.91	Agree
6. Inspected and secured structures within our houses that might be torn apart during disasters.	3.84	Agree
Overall	4.05	Agree

Table 3: Awareness on Disaster Prone Areas

Indicators	Weighted Mean	Descriptive Equivalent
We as residents were made aware:		
1. On the different fault lines (e.g. East and West Valley Fault) within our area.	4.10	Agree
2. On the different mountains around our community.	4.17	Agree
3. On the different bodies of water (e.g. rivers, lakes, and seas).	4.14	Agree
4. To be able to recognize areas and spots in the community that is of great hazard during disasters (e.g. electric posts, lamp post, falling debris, construction sites, etc.)	3.86	Agree
Overall	4.07	Agree

The disaster preparedness of the community as to the preparation for incoming disasters indicate that the respondents have a high level of preparedness as indicated by the responses that ranges from agree to strongly disagree. It was revealed that though the respondents agree that they have a high level of preparedness on incoming disasters, the community need to conduct inspections on the structures that might easily get torn apart when disaster strikes and needs to intensify the attendance of the residents in community and government--initiated disaster drills. This two can be intensified by imposing mandatory attendance to such disaster drill to make the community more prepared.

Table 4: Awareness on Availability of Disaster Equipment and Supplies in the Community

Indicators	Weighted Mean	Descriptive Equivalent
The community has adequate and functional equipment that can be used if a disaster strikes in terms of:		
1. Rescue Equipment	3.64	Agree
2. Power Generator	3.05	Moderately Agree
3. Fuel	3.11	Moderately Agree
The community has enough of these supplies when calamity strikes:		
1. Water	4.27	Strongly Agree
2. Foods	4.22	Strongly Agree
3. Clothes	4.20	Strongly Agree
4. Beddings/mats/toiletries	3.96	Agree
5. Medications and First aid kits	3.97	Agree
The community has adequate shelter equipment for evacuees in terms of:		
1. Heating equipment	3.62	Agree
2. Tents	3.73	Agree
3. Lightings	3.78	Agree
The community has adequate communication equipment when a disaster strike:		
1. Telephone	3.97	Agree
2. Megaphone	3.49	Agree
3. Radios	3.81	Agree
Overall	3.77	Agree

In the average, the respondents moderately agree on the presence of adequate and functional equipment that can be used if a disaster strikes such as power rescue equipment, power generators and fuels as shown in Table 4. Knowing this, the community can adjust to such state of the supplies by avoiding being rescued, thus adopting a satisfactory disaster preparedness and readiness plan and having their own flashlights, rechargeable fans and lights during evacuation. On the other hand, the respondents in the average strongly agree that the community has enough supply of water, food, clothes while slightly short of beddings and medications. Similarly, the community also needs some more heating equipment, tents and lightings, and communication equipment in terms of telephones, megaphones and radios. In the overall, the very far score of 3.77 from the maximum score of 5.0 indicates the need of the community to furnish themselves with these supplies to be able to cope up with the needs of the residents should a disaster strike. On the lighter side, the respondents knowing the present state of these equipment and supplies can plan on the contents of the disaster kits or disaster bags. The inadequacy on the community's side can be remedied by having residents ready for disasters. The beddings and medicines can be part of their disaster kit or disaster bag as well as flashlights, blows and whistles and batteries for future use.

Table 5: Awareness on the Safety Measures available in the community

Indicators	Weighted Mean	Descriptive Equivalent
1. Earthquake drills, fire drills and flood drills are performed by the community on a regular basis.	3.43	Agree
2. An alarm in the community is activated when a disaster is near.	3.67	Agree
3. There are designated evacuation areas within the community.	3.80	Agree
4. There are emergency management in the community to make sure that it is compatible with the municipality's emergency operations plan.	3.27	Moderately Agree
5. The community has enough staff to perform disaster preparedness drills.	3.19	Moderately Agree
6. Disaster monitoring and evaluation reports are being reported to the residents.	3.21	Moderately Agree
Overall	3.43	Agree

In general, the community agree that there are safety measures available in the community such as the regular conduct of disaster drills, disaster alarms, evacuation areas municipality emergency operation plans and staff and disaster monitoring system as illustrated in Table 5. However, there is more attention to be given into the municipality emergency plan and community disaster preparedness staff that the residents must work with. The overall mean of 3.43 indicates that not all community members are aware that these are existing, while if it does not all residents of the community are aware of it. Similarly, this is an area that needs to be focused on by the community.

From Table 6, it can be gleaned that much of the inadequacy of the community is a regular information campaign on disaster preparedness and readiness. As indicated, the respondents agree that the community needs first an foremost, leaflets and pamphlets about disaster preparedness to be circulated in the community, implementation of a disaster risk and management preparedness, education campaigns to be conducted after every disaster, and early warning systems to be disseminated in the community. Further, the results revealed by Table 6 indicated the need of the community on education campaigns and information drive as part of the disaster risk and management preparedness framework of the community.

Table 6: Awareness on Seminars and Information Campaign of the community on Disaster Preparedness

Indicators	Weighted Mean	Descriptive Equivalent
The community prepares annual seminars and trainings regarding disaster preparedness in terms of:		
1. Fire	3.02	Moderately Agree
2. Earthquake	3.02	Moderately Agree
3. Floods/flashfloods	3.09	Moderately Agree
4. Landslides/mudslides	2.95	Moderately Agree
5. An education campaign is being conducted by the community after every disaster.	2.87	Moderately Agree
6. Leaflets and pamphlets are circulated within the community regarding disaster preparedness.	2.77	Moderately Agree
7. Early warning systems are disseminated within the community.	2.95	Moderately Agree
8. Disaster risk and management preparedness is being implemented in the community.	2.85	Moderately Agree
Overall	2.94	Moderately Agree

The Community--Centered Infographic on Disaster Preparedness and Readiness

The foregoing results have driven this study to address one of the needs of the community which is a custom infographic on disaster preparedness and readiness . The infographic can be printed as a leaflet or a pamphlet to be distributed in the Celina Homes IV Subdivision and can be enlarged as a poster to be displayed in the areas of the community frequently visited by the residents such as basketball court, playground, barangay hall or office, even in churches and parks.



Figure 1: Disaster preparedness and readiness infographic leaflet

5.0 CONCLUSIONS

The disaster preparedness of the residents of Celina Homes IV Subdivision in Bgy. Burgos, Rodriguez, Rizal was assessed and evaluated. It was found that the respondents are highly aware of the types of disasters that usually strikes the community. This is attributed mostly to their first-hand experience of the disaster over the years. The respondents were known to strongly agree that that community is prepared for incoming disasters and is aware of the disaster prone areas in the community. While they moderately agree to agree in terms of the availability of disaster equipment and supplies, safety measures availability in the community and the availability of seminars and information campaign on disaster preparedness. Results further revealed that the community residents themselves are more in need of the information campaign that can be highly recommended to all ages and that it can be made readily available for

all such as leaflets and pamphlets on disaster preparedness. This study responded to this need by designing an infographic on disaster preparedness for Celina Homes IV Subdivision, which can be distributed as leaflet or a pamphlet for everybody or can be considered as a print material like a poster to be posted on frequently--visited areas in the community. Through this infographic, one of the needs of the community in addressing disaster preparedness was addressed and the community can look forward to the availability of these information at hand or anywhere in the community.

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