AN ASSESSMENT OF THE DISASTER RISK REDUCTION AND MANAGEMENT PROGRAM OF BARANGAY PALIPARAN III, DASMARIÑAS, CAVITE

[1]CUYOS, FAYE PATRICIA, [2]AL AWWAD, TAGHRID, [3]SHIN, GO EUN

[1,2,3]Social Sciences Department, De La Salle University - Dasmariñas
E-mail: [1]faye.cuyos@gmail.com, [2]chiawad96@gmail.com, [3]euna7076@gmail.com

Abstract - The study analyzes the implementation of the Barangay Disaster Risk Reduction and Management Plan (BDRRMP) of Barangay Paliparan 3 in the city of Dasmariñas, province of Cavite. Barangay Paliparan 3 is the town with the most number of families living in danger zones in the city with 360 families. This number is mainly composed of the infor-mal settlers who live near the riverbanks of the barangay. The study was done through qualitative interviews and partic-ipant observation with the main stakeholders, the residents of the barangay and barangay officials. The study will pre-sent and show the relationship between the barangay and the residents, the programs and systems being implemented, and the perceived effectiveness of said programs and efficacy of the officials and residents in the event of a disaster. The study recommends that the barangay extend its efforts in educating the residents regarding disaster preparedness, apply-ing participatory communication, and possibly relocating the informal settlers.

Index Terms - BDRRMP, disaster preparedness, informal settlers, participatory communication

I. INTRODUCTION

According to United Nations Disaster Risk Reduction (UNISDR), the Philippines ranks 4th among the nations hit by natural disasters globally. In a previous research conducted by UNISDR and CRED (Centre for Research on the Epidemiology of Disasters), the Philippines has been visited by 274 disasters from 1995-2015[1]. With these figures, it is essential that the Philippines has to take steps in order to alleviate the risks brought about by these disasters. Disasters could be caused by natural or man-made that cannot be handled by affected communities who experience severe danger, incur loss of lives and properties causing disruption in its social structure, environment and prevents fulfilment of all or some of the affected community's essential functions. According to Robert Glasser, Secretary General of CARE International, poverty causes disasters and disasters cause poverty[2]. The lack of education and capability to cope with such events exacerbates the exposure of developing nations to the risks of natural disasters. It is a must for national government and local government units (LGUs) to create a disaster risk reduction management plan that is tailor fitted to different areas depending on the need.

Generally, this includes programs wherein the community members are supplied with basic coping knowledge as well as government-provided response measures and recovery organizations.

The National Disaster Risk Reduction & Management Council (NDRRMC), formerly known as the National Disaster Coordinating Council (NDCC), is a working group of various government, non-government, civil sector and private sector organizations of the Government of the Republic of the Philippines established by Republic Act 10121 of 2010. It is administered by the Office of Civil Defense (OCD) under the Department of National Defense. The Council is responsible for ensuring the protection and welfare of the people during disasters or emergencies. According of Republic Act 10121, various local governments throughout the country should establish Local DRRM Offices at the regional, provincial, municipal, city and barangay levels[3]. As functional arms of the local governments, these Offices are responsible to create a Local Disaster Risk Reduction and Management Plan according to the framework of the NDRRMC covering four aspects including disaster preparedness, response, prevention and mitigation, and rehabilitation and recovery[4]. An important link in the national-local chain are the Regional Disaster Risk Reduction and Management Councils (RDRRMCs) and the Local DRRMCs.

The RDRRMC shall take the overall lead in ensuring that DRRM-sensitive regional development plans contribute to and are aligned with the National DRRM Plans (NDRRMPs). Local DRRM Plans (LDRRMPs) which OCD is tasked to evaluate, shall ensure that Disaster Risk Reduction (DRR) measures are incorporated into the Comprehensive Development Plan (CDP) and the Comprehensive Land Use Plan (CLUP) of the local government units. In addition, the Office of Civil Defense has the main responsibility of ensuring the implementation and monitoring of the NDRRMP. The Local DRRM Plans (LDRRMPs) shall be developed by the Local DRRM Offices (LDRRMOs) at the provincial, city and municipal levels and the Barangay Development Councils. These offices shall play a critical role in attaining community resilience against disasters (National Disaster Risk Reduction and Management Plan (2011-2028)).

A.DRRM in the City of Dasmariñas

According to the data from the City Disaster RiskReduction and Management Office of the City of Dasmariñas, Barangay Paliparan 3 is the barangay

with the most number of families living in danger zone areas with 360 families. The barangay has an estimated population count of more than 60,000 residents as of 2017. There are four kinds of residents living in the barangay - relocatees from reclamation areas in Pasay, low-cost subdivision dwellers, displaced farmers who were the original settlers of the barangay, and squatters (Cuyos, 2008).

Informal settlers are mostly affected during the disasters because they are not capable of preparing it and respond to the coming disasters. Usually, their houses are made of lightweight materials that are not strong and could easily be destroyed by any kinds of disasters. While the Philippine national government has devoted significant resources to building disaster capacity, training government staff, and legislating comprehensive disaster management laws, there remain significant gaps in capacity to implement these laws, especially at the local government unit (LGU) level.

The National Economic and Development Authority (2011) reported thatinformal settlements have grown by leaps and bounds.In Metro Manila, households in informal settlements increased by more than 81% between 2000 and 2006[5]. With rural urban migration expected to continue, and six out of ten Filipinos living in urban areas, addressing the housing problem must be embedded within a larger urban development framework for environmental sustainability. While the MDGs on access to safe drinking water and sanitary toilets have already been achieved, land use and green technology for housing construction can be tackled only within an action plan for climate change adaptation including disaster risk management. Porio (2003) wrote thatthe proliferation of informal settlers in urban places has been caused by "rapid urban growth, high population densities, increasing poverty and an escalation of land prices."[6] She explained that these factors have led to the shortage of affordable housing, thereby leaving poor households without a security of tenure. Thus, people squatting on public or private lands do not have any right at all to occupy the land and to enjoy whatever benefits are derived from such occupation. Neither do they have the right to improve the land nor dispose of these improvements.

II. METHODOLOGY

A. Research Design

This study used a descriptive qualitative method of research. The study aimed to assess the effectiveness of the disaster risk reduction and management programs of the barangay of Paliparan 3, Dasmariñas City, Cavite in terms of disaster preparedness, response, and rehabilitation. Selected households of Paliparan 3 have been interviewed regarding the above-mentioned components. Responses from the interviews were used as references to evaluate the said programs. The study also utilized the DRRM plan of the barangay as a self-evaluation tool in terms of achieving the plan's goals.

B. Sampling

Purposive sampling was used in interviewing individuals and barangay officials chosen as respondents. The researchers interviewed the individuals who were former informal settlers relocated to this barangay and affected by disasters. For the barangay officials, the researchers interviewed those who are responsible for enacting the local DRRM plans for their firsthand knowledge in the topic.

C. Method of Gathering Data

The study used direct and indirect methods of gathering data. It utilized an interview type as the direct method of data gathering. In this approach, the researchers visited the respondents' homes for household head respondents. The researchers also visited the offices of government officials concerned for interview. In this approach, the interviews were conducted orally whilst being recorded with the con-sent of the respondent. The interviews were conducted in either English or Filipino depending on the preference of the respondent. A recording of the interview was kept for transcription. In addition, participant observation was conducted wherein the re-searchers will immerse themselves in the community in the event of heavy rains. The study utilized the DRRM program plan collected from the barangay and NDRRMC to evaluate its effectiveness in terms of achieving its goals.

III. RESULTS AND DISCUSSION

A. Characteristics of the Respondents and their Area of Residence

Majority of the respondents are women with large families that are poor or earning minimum wage and received little to no education. It can be seen in Fig. 1 that eight or 27% said that they earn Php 1,500 and below on a weekly basis, twelve or 40% said that they earn Php 2,500 and below on a weekly basis, four or 13% said they earn 3,500 and below on a weekly basis, and six or 20% said that they earn 4,000 and below on a weekly basis. Nine or 30% of the respondents were able to study an undergraduate course in college but did not graduate, fourteen or 47% were able to only attend high school, and seven or 23% were able to only finish elementary school. Among all the thirty respondents, 27 or 90% are female and 21 or 77.78% of these women are housewives or work odd jobs. For the number of family members, seventeen or 57% of the respondents had families ranging for 3-6 people in their household while thirteen or 47% had families ranging from 7-10 people in their household.

Fig. 2 shows the community map of the barangay covering all 5 phases and its physical traits. Phase 1 and Phase 5 are the phases that are least affected by disasters as they are the furthest from Baluctot River.

Phase 2, Phase 3, and Phase 4 are the phases that the river crosses. In Phase 2, the local government has started building a dike and has relocated most of the informal settlers who used to live there. In Phase 3, there is a settlement by the cliff where some waterways lead to the river. Residents also said that there are times when the streets are flooded because there is a clogged drainage near the marketplace. In Phase 4, the residents live under the bridge that leads to the next barangay of Victoria and is the area with the most experience with disasters.

It is important to take note that most of the families living in danger zones are considered to be informal settlers by the barangay because they are squatting in the excess lots that are ten meters away from the rivers, despite warnings from the officials that it is illegal and dangerous.

B. Looking at the Safety Programs

Barangay Paliparan 3's BDRRMP is divided into three parts. The pre-disaster activities done by the barangay includes the budget allocation for the program, procurement and maintenance of resources such as emergency tools and vehicles that need to be used in case of a disaster, loudspeaker announcements, an early warning system in the form of a tarpaulin, seminars and trainings for barangay officials and at schools, and the block leader system of information dissemination. The activities done during disaster consist of the rescue, evacuation, and the provision of food, clothing, and shelter of affected residents. The post-disaster activities done by the barangay include the extension of help in rebuilding the homes destroyed and rehabilitating affected residents, creating livelihood trainings, as well as the evaluation and replanning of their programs.

Barangay Paliparan 3 is implementing a "block leader system" of information dissemination (Fig. 3). There is a flag ceremony held every morning in front of the barangay hall where the barangay officials make announcements to a select group of people called the "block leaders" who represent a particular block in every phase of the barangay. These block leaders are then expected to distribute the information that they have to their neighbors in their blocks. This is an effective way of disseminating information in theory, but there are still problems being encountered in the form of attendance to the flag ceremony, some block leaders not fully understanding what their role in the community is, and some block leaders being unable to disseminate the information that they have gathered to every resident in their respective block.

At the beginning of the studies, the researchers assumed that the evacuation center was Paliparan III Senior High School but from the interviews and data gathered, it was discovered that the evacuation centers were the covered courts. Each phase has a covered court nearby where an estimation of 500 people can fit inside. One of the concerns for this evacuation center is that they don't have any windows or cover-ups corresponding to typhoons or floods and the lack of comfort rooms.

According to interviews, the Barangay Disaster Risk Reduction and Management Committee through the Sangguniang Barangay of Paliparan 3 has provided different kinds of equipment and vehicles like two units of rescue vehicle, two units of ambulance, one unit of loading utility vehicle, one fire truck at the same support for fire incident, two other units for regular service and five motorcycle for roving patrol.

C. Real Views on the Programs

Based on the interviews, the barangay does not organize or conduct trainings on disaster risk preparedness or in the occasion that they do, only a select people are informed about such activities. Only those who live close to the barangay officials are the ones who are informed thus knowledge on their DRRM plans are not enough. This selectiveness is not limited on just the dissemination of information, however, some of their shortcomings are that sometimes when they extend help, it doesn't reach the right people. Sometimes affected residents only get the leftovers. However, while majority of the residents are dissatisfied with the barangay's performance, some try to understand the difficulties in the situation. Sentiments such as "Maybe because they have too much to do, they are unable to do everything" and "They don't lack reminders, it's just that people here are hard-headed. The people should really listen, the captain is okay, he gives us reminders. They help and help but people are abusive" were heard from some respondents.

The barangay mainly disseminates information through loudspeaker announcements and sometimes by going house to house or texting them. However, some residents said that they don't hear from the barangay even through a loudspeaker, most likely because they live in the innermost parts of the barangay where it is far from the highway. Furthermore, while the barangay can easily contact the residents through the blockleaders, it seems that it is difficult for the residents to contact the barangay.

Among the respondents, only 4 out of 30 had encountered major disasters in recent years and most of them agree that they are well informed and in fact, the programs seem effective. Although majority of the respondents were seeing the barangay in a positive light, not everyone is contented with the barangay's performance. Some residents believe that the barangay tanods need to make more rounds around the community, some say that the process for getting financial help or emergency services takes too long, while some say that the health centers don't have enough medicine in stock. There are also a lot of doubts regarding their performance in case a major disaster strikes, particularly with the availability of funds.

14 out of the 30 responds said that they didn't know if the barangay had evacuation centers or

ambulances/fire trucks and have not attended any seminar about disaster awareness. 9 out of the 30 respondents were aware of the presence of evacuation centers, 3 out of 30 were aware of them and had attended a seminar, 2 out of 30 knew about the presence of both evacuation centers and fire trucks and have attended a seminar, 1 out of 30 said that they have attended a seminar, and 1 out of 30 said that they knew only about the ambulances/fire trucks. These are inconsistent with the previous table where majority of the people said that they are well-informed about the programs.

Despite the presence of a BDRRMP, there are issues in actual implementations due to the lack of cooperation especially from the informal settlers who are most vulnerable. According to the barangay the informal settlers are afraid of reporting because they're aware that they are violating the rules by establishing their homes in those areas. Thus, whenever they are in danger they would rather face it on their own than to seek help.

D. Shift to Participatory Communication

Currently, the flow of information from the barangay to its constituents is mostly one way. Policies and programs are formulated by the barangay through guidelines set by the local government of Dasmariñas and this is then disseminated to the people through the aforementioned mediums. However, with the results gathered by the researchers, information dissemination strategies by the barangay are shown to be ineffective due to factors such as distance, access to cellular devices and apathy.

The barangay is not subject to frequent disasters thus possible creating a sense of apathy within the members of the community. This behavior is explained in R.W. Rogers' Protection Motivation Theory[7] which is designed to test how fear influenced individuals to change their behaviors. Due to the current lack in visible risk for most parts of the barangay, majority of the respondents are satisfied with their knowledge of the barangay's DRRM Plan. Misperception of risk is important because it is likely to produce ineffective or even detrimental behavior adaptation. Further, risk is subjective, thus it is important that the barangay engages in participatory communication in formulating their programs.

According to Thomas Tufte and Paolo Mefalopulos, participatory communication focuses on dialogical communication which focuses on participatory and collective processes in research, problem identification, decision making, and evaluation of change[8]. While the barangay is practicing the "block leader system" in order to disseminate information to the constituents as well as a medium of communication from the latter to the barangay officials, this method clearly needs improvement as well as proper implementation. Additionally, having firsthand knowledge of the effects of disasters, constituents, especially those living near the river, should be involved in the planning process. Through participatory communication, the barangay may be able to encourage its constituents to be more involved in the decision making and planning of the BDRRM thereby lessening apathy. Through empowerment participation, people are actively encouraged and mobilized to take part in the actualization of projects.

E. Figures and Tables

Variables	Frequency	Proportion	%
Gender			
male	3	0.1	10%
female	27	0.9	90%
Age			
67 - above	2	0.07	7%
58 - 66	4	0.13	13%
49 - 57	8	0.27	27%
40 - 48	8	0.27	27%
Below - 39	8	0.27	27%
Mean Age			**47.8**
Number of Families			
7 - 10	13	0.43	43%
3 - 6	17	0.57	57%
Education Attainment			
Elementary levels	7	0.23	23%
High school levels	14	0.47	47%
College levels	9	0.3	30%
Employment Status			
Employed	21	0.7	70%
Not-employed	9	0.3	30%
Family income (weekly)			
3,500 - above	6	0.2	20%
2,501 - 3,500	4	0.13	13%
1,501 - 2,500	12	0.4	40%
Below - 1,500	8	0.27	27%
Religion			
Catholic	19	0.63	63%
Christian	6	0.2	20%
Others, etc.	5	0.17	17%

Fig. 1. Demographic Information of Residents

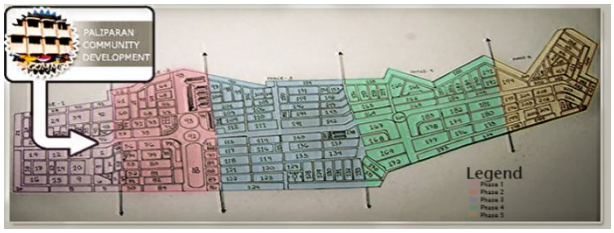

Fig. 2. Community Map of Paliparan 3



Fig. 3. Block Leader System

CONCLUSION

The BDRRMP of Barangay Paliparan 3 was studied and major conclusions are as follows:

1. The barangay is currently equipped with a good number of emergency rescue and equipment, as well as several programs and warning and communication systems in place. There are also covered courts in each phase to serve as the evacuation centers. However, these may not be sufficient to support the whole community in the event that a major disaster occurs.

2. The barangay also appears to be selective in the distribution of information regarding their programs, most likely due to the fact that the barangay has a large area and population, therefore making it hard to reach the whole audience.
3. The barangay already has a good system in place to address this issue which is the block leader system strategy but due to several factors such as the attendance, lack of training, and inability to properly disseminate information of some of the block leaders, it is currently not working as efficiently as it should thus leaving a large number of the residents are uninformed and unprepared. Implementing participatory communication and the empowerment of the block leaders may address such problems.
4. Majority of the residents have not experienced disasters and as such, are not that concerned about preparing for it and only a few of them have attended seminars on disaster preparedness. The ones who do experience them are the informal settlers who live near the river and cliff sides, who despite knowing how dangerous it is and that it is illegal, continue to live there as they have no other place to go. Thus, the residents are dependent on the barangay to help them when a crisis occurs.

REFERENCES

[1] UNISDR. (2015). Retrieved March 2017, http://www.unisdr.org/2015/docs/climatechange/COP21_WeatherDisastersReport_2015_FINAL.pdfJ. U. Duncombe, "Infrared navigation—Part I: An assessment of feasibility," IEEE Trans. Electron Devices, vol. ED-11, pp. 34-39, Jan. 1959.

[2] Poverty causes disasters and disasters cause poverty. (2011). Retrieved from http://careclimatechange.org/files/media/Disaster%20Risk%20Reduction_CARE_060511.pdf

[3] Philippine Disaster Risk Reduction and Management Act of 2010. Retrieved from http://pcw.gov.ph/law/republic-act-10121

[4] Wikipedia, National Disaster Risk Reduction and Management Council, Retrieved from https://en.wikipedia.org/wiki/National_Disaster_Risk_Reduction_and_Management_Council

[5] National Economic Development Authority. Social Development. Retrieved from http://www.neda.gov.ph/wp-content/uploads/2013/09/CHAPTER-8.pdf

[6] Porio, Emma (2003). Property rights, security of tenure and the urban poor in Metro Manila. Retrieved from http://lynchlibrary.pssc.org.ph:8081/bitstream/handle/0/1097/Property%20rights,%20security%20of%20tenure%20and%20the%20urban%20poor%20in%20Mtero%20Manila%5B1%5D.pdf?sequence=1&isAllowed=y

[7] Boer, H., & Seydel, E. R. (n.d.). Protection Motivation Theory. Retrieved October 19, 2017, from https://ris.utwente.nl/ws/portalfiles/portal/5592716.

[8] Tufte, T., & Mefalopulos, P. (2009). World Bank Working Paper No. 170. Participatory Communication: A Practi-cal Guide. Retrieved October 19, 2017, from https://orecomm.net/wp-con-tent/uploads/2009/10/Participatory_Communication.pdf.

[9] AMS. (2012, August 20). Climate Change: An Information Statement of the American Meteorological Society. Re-trieved from https://www.ametsoc.org: https://www.ametsoc.org/ams/index.cfm/about-ams/ams-statements/statements-of-the-ams-in-force/climate-change/

[10] Bollettino, Vincenzo 2016, Harvard Humanitarian Iniative, Retrieved from http://hhi.harvard.edu/sites/default/files/publications/disasternet_philippines_scoping_study_071116.pdf

[11] Carreño, M. L., Cardona, O. D., & Barbat, A. H. (2007). A disaster risk management performance index. Natural Hazards, 41(1), 1-20

[12] Cuyos, Fanny A. (2008) A Phenomenological Inquiry if the Bahay-Lingkod Community Center: An Experience of People Empowerment and Integral Evangelization.

[13] Disaster Risk Reduction and Management in the Philippines.Retrieved from http://www.drrplatform.org/images/DocPub/RiskAssessment.pdf

[14] Disaster Risk Reduction and Management in the Philippines.Retrieved from http://www.drrplatform.org/images/DocPub/RiskAssessment.pdf

[15] Give2Asia. Disaster Preparedness and Resiliency: The Philippines. Retrieved from http://www.give2asia.org/disaster-preparedness-and-resilience-philippines/

[16] IPCC. (2007). REPORTS - ASSESSMENT REPORTS. Retrieved from http://www.ipcc.ch/ipccreports/tar/wg2/index.php?idp=644#1823

[17] National Disaster Risk Reduction and Management Plan (NDRRMP) 2011-2028). Retrieved from http://www.ndrrmc.gov.ph/attachments/article/41/NDRRM_Plan_2011-2028.pdf

[18] National Disaster Coordinating Council 2009, Strategic National Action Plan 2009 - 2019 Retrieved from http://www.adrc.asia/countryreport/PHL/2009/PHL_attachment.pdf

[19] NASA. (2011, October 26). What Are Climate and Climate Change? Retrieved from https://www.nasa.gov: https://www.nasa.gov/audience/forstudents/5-8/features/nasa-knows/what-is-climate-change-58.html

[20] Olan, Sarah Jane (2014). Looking back: the records of Ondoy. Retrieved from http://www.rappler.com/move-ph/issues/disasters/70240-ondoy-records

[21] Perdikaris, John, (2014). Physical Security and Environmental Protection. Retrieved from https://books.google.com.ph/books?id=5MuSAwAAQBAJ&printsec=frontcover&dq=Physical+Security+and+Environmen-tal+Protection&hl=ko&sa=X&redir_esc=y#v=onepage&q=Physical%20Security%20and%20Environmental%20Protection&f=false

[22] The National Disaster Management Program. Retrieved from http://www.adrc.asia/management/PHL/Philippines_Disaster_Plans.html?Frame=yesUNFCCC. (2010, October).

[23] UNISDR 2005 Retrieved from https://www.unisdr.org/we/coordinate/hfa

[24] UNISDR. (2008). Retrieved from eird.org: http://eird.org/publicaciones/Climate-Change-DRR.

[25] United Nations 2014, Progress and Challenges in Disaster Risk Reduction, Retrieved from http://www.preventionweb.net/files/31182_snapfinalversion-230.pdf

[26] World Health Organization (2007). Risk reduction and Emer-gency Preparedness, Retrieved from http://www.who.int/hac/techguidance/preparedness/emergency_preparedness_eng.pdf

[27] Wikipedia. Protection Motivation Theory. Retrieved from https://en.wikipedia.org/wiki/Protection_motivation_theory

[28] Wikipedia. Vested Interest (Communication Theory). Retrieved from https://en.wikipedia.org/wiki/Vested_interest_(communication_theory)