



Journal Homepage: - www.journalijar.com
**INTERNATIONAL JOURNAL OF
 ADVANCED RESEARCH (IJAR)**

Article DOI: 10.21474/IJAR01/4851
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/4851>



RESEARCH ARTICLE

**KNOWLEDGE, ATTITUDE AND PRACTICES ON DISASTER RISK REDUCTION AND
 MANAGEMENT OF THE BARANGAY OFFICIALS OF BALER, AURORA, PHILIPPINES**

Robelita Negradas -Varona, RN, RM, MAN, Daryne Aya H. Bolla, RM, Maria S. Bolinget, RM and Hosea D. Illab, RM.

Manuscript Info

Manuscript History

Received: 14 May 2017
 Final Accepted: 16 June 2017
 Published: July 2017

Key words:-

disaster risk reduction & management,
 barangay officials, natural disaster

Abstract

Natural disasters like typhoons and earthquakes are now frequently occurring in the country. The Philippine government had increased its efforts to implement the disaster risk reduction management (DRRM) program as its answer to the frequent occurrence. The program is supported by two laws Republic Act 10121 or the Philippine Risk Reduction Management Act and Presidential Decree No. 1566, Strengthening the Philippine Disaster Control Capability and Establishing the National Program of Disaster Preparedness. With these laws, it is believed that the impact of disaster is minimal and the Filipinos are more safe and resilient. The laws emphasize the role of the local government officials from governors, to mayors and barangay officials to be responsible and take the lead in their respective areas on matters related to Disaster Risk Reduction and Management. This study mainly aims to assess the knowledge, attitude and practices on disaster risk reduction and management of the barangay officials of the thirteen barangays of Baler, Aurora, Philippines considering that this province is prone to natural disasters because of its geographic location. A total of 118 respondents participated in this study. Descriptive-correlational research design was employed. Statistical tests employed were frequencies, percentages and Chi-square test. Results showed that barangay officials were knowledgeable about disaster risk reduction and management, they have a positive attitude to this and almost all activities of this program have been practiced by the barangay officials. It is being recommended that these strengths of the respondents be sustained by continuously conducting information, education, communication (IEC) campaign on DRRM, trainings and drills related to its programs and guidelines by collaborating with government and non-government agencies. On matters wherein they have less information and training like the psychological care of people who have been traumatized by the disaster's impact it's paramount that they coordinate with other agencies who have expertise on this aspect.

Copy Right, IJAR, 2017.. All rights reserved.

Introduction:

Climate change has brought tremendous ranges of effects to many countries' ecosystems bringing about extreme weather conditions. Inevitable natural disasters have long been occurring in the country but these become more frequent, stronger and hazardous in the recent years.

The Philippines, a Southeast Asian nation is the most exposed country in the world to tropical storms of which frequently make landfall on the islands of Eastern Visayas and Northern Luzon. The country is prone to typhoon because it is geographically located along the Pacific region near the equator. Tropical storms are formed in areas near the equator because of the warm water of the biggest ocean, the Pacific Ocean, which is the country's neighbor. Typhoons trigger landslides and flash floods because it brings with its strong winds and torrential rains and sometimes storm surges. (<http://www.ifrc.org/Global/Case%20studies/Disasters/cs-philippines.pdf>)

In 2013, the deadliest typhoon that caused catastrophic destruction entered the Philippine area of responsibility, specifically in Eastern Visayas, it was named internationally as Haiyan but locally named Yolanda. The destruction was on a massive scale, thousands of lives were lost, infrastructures were devastated, the means of livelihood of many people were damaged and the economy of the region was greatly affected.

The archipelago likewise is within the famous volcanic region or along the Pacific ring of fire, thus earthquake is another natural calamity that frequently occurs. The earthquake fault runs from Northern Luzon to Mindanao passing many provinces including the Aurora and Leyte Provinces as Philvolcs reported (http://www.phivolcs.dost.gov.ph/index.php?option=com_content&view=article&id=379&Itemid=500023) Still in 2013, just ahead of Haiyan, another destructive earthquake hit Bohol with the same effects on the people and area as typhoon Haiyan (Yolanda).

Eastern Visayas region and the Province of Aurora are similar in terms of its location and being at risk for the disastrous natural calamities like typhoons and earthquakes. Aurora Province is a coastal area east of the Pacific Ocean located in the Northern part of the Philippines or North Luzon. In addition, the province's geographic location increases its risk for the incidence of flooding and land slide as an effect of typhoon. In the past three years, a total of nine major tropical storms struck the province, affecting fifty-one thousand families or two hundred thirty thousand (230,000) individuals. Historically, a tsunami has caused the loss of lives of many in Baler, Aurora hundreds of years ago (Aurora Provincial Disaster Risk Reduction Management Office, 2016).

The Province is composed of eight municipalities with Baler, the capital town. Baler is composed of thirteen (13) barangays three of which are coastal barangays. Seven major tropical storms hit the municipality in the past three years. The hazard map of Aurora province shows the effects of typhoon and identified Baler to have a moderate susceptibility to flooding, rain induced landslides of moderate to high susceptibility and storm surges of four meters to twelve meters in some areas. (APDRMO, 2016)

The natural calamities that frequently affected the country was observed to be disastrous and its effects lead to the sufferings of its people. The effects of disaster keep on challenging the government officials from the lowest local level of the government (the barangay) up to the highest national level. The hardships caused by the hostile environment have to be counteracted as government officials observed, thus the conceptualization of the Disaster Risk Reduction and Management Program. It is believed that with this program the hazardous effects of natural disasters will be prevented or minimized.

To support the DRRM program, Republic Act 10121 or Philippine Disaster Risk Reduction Management Act was signed into law in 2010. The law stipulates that a local Disaster Risk Reduction Management Office (DRRMO) shall be established in every province, municipality and barangay. The local DRRMO functions in the formulation of Disaster Risk Reduction Management (DRRM) plans and activities like implementation of risks and hazards vulnerability assessments, organization of training programs and respond to and manage negative effects of local emergencies during natural calamities. A law before Republic Act 10121 is the Presidential Decree No. 1566, or Strengthening the Philippine Disaster Control Capability and Establishing the National Program of Disaster Preparedness. This law further states that responsibility for leadership during natural calamities lies in the governor, mayor and barangay chairman. Moreover, the law declares that local officials and their constituents have to develop self-reliance by promoting and encouraging the spirit of self-help and mutual assistance (<http://www.lawphil.net/statutes/repacts/ra2010/ra-10121-2010.html>)

The World Health Organization defined disaster as “a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources, necessitating a request to national or international level for external assistance.” (<http://www.who.int/hac/about/definitions/en/>) Natural disaster cannot be prevented, but its life-threatening effects can be prevented or lessened. Therefore, knowledge on DRRM is a must for local government officials being the leaders in their respective communities having the responsibility to lead in terms of DRRM activities. The National Disaster Risk Reduction Management Plan of the Philippines has four thematic areas each with their goals. These are (a) disaster prevention and mitigation, (b) disaster preparedness, (c) disaster response, and (d) disaster rehabilitation and recovery. The plan aims to strengthen the capacity of the national government and local government units for a safer and resilient Filipino communities (Calde, 2008). Therefore, being aware and having an attitude to follow the mandate may benefit the communities by preventing the harmful effects of disaster and build on their capacity to respond if disasters will happen. Though disasters have been occurring already in the province, no assessment has ever been conducted on knowledge, attitude and practices on disaster risk reduction and management among local government officials specifically barangay officials in the municipality of Baler, thus this study was conceptualized. This study is of great significance to the local government officials because it can determine and identify how prepared they are when disaster occurs, and the result will serve as a spring board that will help determine the weak and strong areas in terms of DRRM. The result can identify gaps in knowledge, attitude and practice on DRRM that will become the basis for knowledge and skills enhancement in terms of seminars and trainings as well as a motivation to change their behavior that will lead to a positive attitude towards disaster risk reduction management activities. With prepared leaders, the survival of the barangay constituents is ensured in times of natural disasters.

The primary objective of the study was to assess the Knowledge, Attitude and Practices of barangay officials in Baler, Aurora on disaster risk reduction and management during natural disasters.

Specifically, the study Seeks:-

1. To determine the sociodemographic profile of the respondents in terms of age, gender, position in the barangay, educational attainment and years in service as barangay official;
2. To assess the level of knowledge of the barangay officials on disaster risk reduction and management for natural disasters;
3. To assess the attitude of barangay officials towards disaster risk reduction and management;
4. To identify the programs and activities on disaster risk reduction and management which are being practiced by barangay officials;
5. To determine the relationship of the socio-demographic profile of the barangay officials to their level of knowledge on disaster risk reduction and management for natural disasters;
6. To determine the relationship of the socio-demographic profile of the barangay officials to their attitude towards disaster risk reduction and management for natural disasters;

Research Hypotheses:-

Ho₁: There is no relationship between the socio-demographic data of the barangay officials and their knowledge on disaster risk reduction and management.

Ho₂: There is no relationship between the socio-demographic data of the barangay officials and their attitude toward disaster risk reduction and management.

Materials and Methods:-

Research Design:-

The research design employed was descriptive-correlational. Descriptive design was used since this can portray more accurately the details regarding knowledge, attitude and practices on disaster risk reduction and management of the barangay officials while correlational design can determine if a relationship exist between the socio-demographic profile of the respondents to their knowledge and attitude on DRRM. (Cristobal & Cristobal, 2009)

Research Locale:-

The study was conducted in the thirteen barangays of Baler, Aurora. The barangays were Barangay 01, Barangay 2, Barangay 3, Barangay 4, Barangay 5, Buhangin, Calabuanan, Obligacion, Pingit, Reserva, Sabang, Suklayin and Zabali. The town of Baler was selected for a certain reason that this town is one of the disaster-prone municipality of Aurora province in the Philippines.

Respondents of the Study:-

All barangay officials of the thirteen (13) barangays were selected as respondents, using the non-probability purposive sampling method. The barangay officials were composed of the barangay captains, the councilors, secretaries and treasurers. A barangay is composed of ten (10) officials, therefore all of the 130 officials were listed as respondents, but only 118 were present during the actual gathering of data.

Research Instrument:-

The study utilized a questionnaire which consisted of four parts. Part one was on sociodemographic data of the respondents, part two consisted of questions on knowledge of the officials regarding DRRM, part three on attitudes of the officials towards DRRM, and part four the programs and activities on DRRM practiced by the officials. The questionnaire was made by the researchers and the questions on DRRM were based on the guidelines in the Philippines' National Risk Reduction and Management Plan for 2011-2028.

Statistical Treatment:-

Descriptive statistics were utilized like frequencies and percentage distribution to describe the socio-demographic data, and Chi-Square test of independence was employed for relational determination and hypotheses testing of socio-demographic variables and knowledge & attitude on DRRM.

Results and Discussions:-

The results of the study are presented in the following tables and discussions.

Table 1:- Socio-Demographic Profile of the Barangay Officials of Baler, Aurora

Category	Frequency	Percentage
Age		
65 & above	12	10.17
55-64	19	16.10
45-54	40	33.90
35-44	31	26.27
35 & below	16	13.58
Sex		
Female	48	40.68
Male	70	59.32
Distribution of Barangay Officials According to Position		
Barangay Captain	13	11.02
Barangay Councilor	82	69.49
Barangay Secretary	12	10.17
Barangay Treasurer	11	9.32
Highest Educational Attainment of Barangay Officials		
Tertiary Education	89	75.42
Secondary Education	25	21.19
Primary Education	4	3.39
Number of Years in Service of the Barangay Officials		
12 years and above	28	23.73
9-11	22	16.64
6-8	33	27.97
3-5	31	26.27
2 & below	4	3.39
Total	118	

Table No. 1 shows the demographic data of the respondents. The age category shows that most respondents belonged to the middle age group, as 45-54 years old age range has the highest percentage (33.90%) and 35-44 years old follows (26.27%). Arlene F. Harder, MA, MFT elaborated the developmental stage of Erik Erikson, and according to her, people who are on this stage are creative and think of meaningful work for the family and community, and so they are productive and can contribute to the betterment of the society (<http://www.isd361.k12.mn.us/schools/fhs/developmenterikerikson.pdf>). On sex category, majority of the

respondents were males (59.32%). Males are perceived to be more active during natural calamities. However, the study of Ganpatrao (2014) contradicts this study's findings, because females were comparatively more knowledgeable on disaster management than males. The barangay development council consisted of a barangay captain, councilors, secretaries and treasurers. It is shown that all barangay captains participated in this study. Since the council has more councilors, it is expected that their number is higher (69.49%) than the rest of the respondents. Republic Act 10121 states that the Barangay Disaster Risk Reduction and Management Committee (BDRRMC) will be composed of the Barangay Development Council (BDC), headed by the Barangay captain. Findings on highest educational attainment shows that most respondents have reached tertiary level of education with 75.42% (or 89 out of 118). Educated individuals are expected to have more knowledge on a lot of issues because they can access information more easily (Asfaw and Admassie, 2004). Therefore, knowledge and competence they have gained may be applied during DRRM. Length of service of the barangay officials shows that the highest percentage (27.97%) are barangay officials with 6-8 years of service, followed by 26.27% of barangay officials with 3-5 years of service. This implies that most have experiences in managing the community and are more familiar with the dynamics of the area they are handling and therefore knows what to do during disasters.

Table 2:- Knowledge on Disaster Risk Reduction and Management (DRRM) of Barangay Officials of Baler, Aurora

Knowledge on Disaster Risk Reduction and Management	WEIGHTED MEAN	PERCENTAGE
1. Knows what Disaster Risk Reduction & Management is.	2.04	68.08
2. Knows the Disaster Risk Reduction & Management guidelines	1.83	61.02
3. Knows the four priority aspects of Disaster Risk Reduction & Management	1.38	46.05
4. Knows the activities under disaster prevention and mitigation	2.14	71.19
5. Knows the activities under disaster preparedness	2.49	83.05
6. Knows the activities under disaster response	2.28	75.99
7. Knows the activities under disaster rehabilitation and recovery	2.47	82.49
8. Knows their role in Barangay Disaster Risk Reduction Management Council	2.27	75.71

Table no. 2 presents the knowledge on Disaster Risk Reduction and Management of the respondents. Among the eight (8) items, item number five - knowledge on activities under disaster preparedness has the highest weighted mean (2.49) and percentage (83.05%), and the lowest was item number three (3), knowledge on the four priority aspects of DRRM with a weighted mean (1.38) and percentage of 46.05. The over-all knowledge of the respondents is good as most of their weighted mean is more than 1.5 out of 3 points or 50%. Only one item has below 1.5 weighted mean.

Table 3:- Attitude Towards Disaster Risk Reduction and Management of the Barangay Officials of Baler, Aurora

Items on Attitude	WEIGHTED MEAN	PERCENTAGE
1. Disaster Risk Reduction & Management is a great help to the community.	4.88	97.63
2. Learning about disaster risk management is necessary for barangay officials	4.94	98.81
3. Willing to apply disaster risk reduction and management activities in my community	4.73	94.58
4. Disaster prevention and mitigation activities can reduce the impact of a disaster.	4.87	97.46
5. Disaster preparedness is the primary means of reducing the impact of disasters	4.84	96.78
6. An efficient disaster response can help reduce the impact that a disaster could bring	4.90	97.97
7. Disaster rehabilitation and recovery activities should be conducted after a disaster occurs.	4.83	96.61

As presented in table no. 3, the result implies that most of the respondents have a positive attitude towards disaster risk reduction and management, as the weighted mean of all the items on attitude were almost 5 and had a 90 and

above percentages. Noticeable that the item with the highest weighted mean is item no. 2 and this is 4.94, with 98.81% respondents who agreed that learning about disaster risk reduction and management is necessary. The findings show that many respondents believe in the importance of disaster risk reduction & management in the community and that continuous learning about it is necessary. The positive attitude of the respondents is a factor that motivated them to be trained and to practice disaster risk reduction management activities.

Table 4:- Relationship Between the Socio-Demographic Data of Barangay Officials and Their Knowledge on DRRM

Socio-Demographic Data	Knowledge on DRRM	
	X ²	p-value
Age	4.4015	0.3544 ^{ns}
Sex	0.1802	0.6712 ^{ns}
Position	5.7551	0.1242 ^{ns}
Educational Attainment	3.2996	0.1921 ^{ns}
Length of Service	4.4179	0.3524 ^{ns}

Legend: ns – not significant * - significant (0.05 level of significance)

The findings on the relationship of the socio-demographic data of the respondents and their level of knowledge on disaster risk reduction management is presented in Table no. 4. Using the Chi-square test of independence set at 0.05 level of significance, no *p-value* is less than 0.05, therefore none of the socio-demographic data has a relationship to the level of knowledge, so this indicates that there is no significant evidence to reject the null hypothesis in this study. The result of this study specifically on the educational attainment and knowledge on DRRM relationship is opposite to the findings of Taghizadeh, et. al. (2012) wherein their result showed a high correlation of educational attainment and disaster preparedness.

Table 5:- Relationship Between the Socio-Demographic Data of Barangay Officials and Their Attitudes Toward DRRM

Socio-Demographic Data	Knowledge on DRRM	
	X ²	p-value
Age	0.9051	0.9238 ^{ns}
Sex	1.6035	0.2054 ^{ns}
Position	0.8983	0.8258 ^{ns}
Educational Attainment	8.2167	0.0164 *
Length of Service	4.1077	0.3916 ^{ns}

Legend: ns- not significant * - significant (0.05 level of significance)

On the relationship of the socio-demographic profile of the respondents to their attitude towards disaster risk reduction and management as table no. 5 presents the result, shows that only the educational attainment has a *p* value of 0.0164 ($p < 0.05$). With the Chi-square test, this means that only this variable has a significant relationship to the attitude towards DRRM. There is a significant evidence that the null hypothesis can be rejected but only for this variable. This implies that respondents with higher educational attainment (as most of them reached tertiary level) have better attitude towards disaster risk reduction & management. The findings on position and years of service is similar to the study of Robas (2014) wherein there was no significant relationship between the variables affiliation, position and length of service and DRRM. On the other hand, the findings in the study if a relationship exist between age & sex variables and attitude towards DRRM, the findings of Taghizadeh et al (2012) has contradicting result to this study's findings.

Table 6:- Programs and Activities Based on the National Disaster Risk Reduction Management Plan Practiced by the Barangay Officials

Programs / Activities on Disaster Risk Reduction and Management	ALWAYS		SOMETIMES		NEVER	
	No.	%	No.	%	No.	%
<i>Disaster Prevention and Mitigation</i>						
1. Make and update the BDRRM plan	13	100				
2. Conduct community based disaster risk assessment	13	100				

3. Conduct hazard mapping analysis and monitoring	13	100				
4. Coordinate to effective and applicable disaster risk financing and insurance agencies	13	100				
5. Operate an early warning system, to provide accurate and timely advice to emergency response	12	92.31	1	7.69		
<i>Disaster Preparedness</i>						
6. Conduct Information Education Communication (IEC) campaigns about disaster risk management information	6	46.15	7	53.85		
7. Organize and conduct training, orientation, and knowledge management activities on disaster risk reduction and management at the community	4	30.77	9	69.23		
8. Established a barangay disaster risk reduction and management operations center	13	100				
9. Developed and implemented comprehensive local disaster preparedness policies, plans and systems	13	100				
<i>Disaster Response</i>						
10. Operationalize partnership or networking with the private sector, CSOs, and volunteer groups for disaster risk management	11	84.62	2	15.38		
11. Conduct adequate and prompt assessment of needs and damages	12	92.31	1	7.69		
12. Implement integrated and coordinated search, rescue and retrieval capacity	12	92.31	1	7.69		
13. Activate an evacuation system	12	92.31	1	7.69		
14. Provide basic needs such as shelter and medical care needs to the affected families	13	100				
15. Implement a psychosocial program or conduct psychosocial debriefing for affected persons after a disaster					13	100
<i>Disaster Rehabilitation and Recovery</i>						
16. Conduct post-disaster needs assessment one month after the occurrence of disaster	13	100				
17. Identify the needed assistance and formulate and implement appropriate programs to restore, strengthen or expand economic activities						

Table No. 6 presents the programs and activities on disaster risk reduction and management which were practiced by the respondents. This is based on the guidelines of the National Disaster Risk Reduction and Management plan. There are four priority areas of this program and they are namely disaster prevention and mitigation, disaster preparedness, disaster response and disaster rehabilitation and recovery. The respondents here were mainly the barangay councils as a whole, that's why there were only thirteen (13) respondents. As shown in the table, items no. 1,2,3,4,8,9,14,16 and 17 have always been carried out by the respondents as the findings show a 100% result. On the other hand, items no. 5,11,12,13 shows a result of above 90% which are also always done and the one with the least result is item no. 6 and 7. Obviously, item no. 15 has never been done as 100% or all the barangays of Baler answered never. The overall result however implies that the respondents are aware and responsive to the guidelines of the National Disaster Risk Reduction and Management plan since all practiced the activities except for one item which was no. 15. Moreover, the result tells that there is a need to strengthen items no. 6, 7, and 15, since the result is very low to none at all.

Conclusion:-

The respondents (barangay officials) of the thirteen barangays of Baler in the Aurora Province, Philippines are knowledgeable on Disaster Risk Reduction and Management, they have a relatively positive attitude towards DRRM, and all the barangays in Baler practice most of the DRRM programs and activities which are indicated in the Philippine National DRRM plan. The knowledge, attitude and practices of the respondents on DRRM has a

great impact to the barangays they are leading especially during times of disaster. Therefore, the town of Baler is somehow prepared when hazardous natural calamities strike this disaster-prone area.

Recommendations:-

1. The knowledge, attitude and practices on DRRM must be sustained and must be passed from generation to generation as these are important strengths that a community should have in times of the inevitable natural disasters. Thus, the conduct of information, education and communication campaign, drills and training on DRRM must be enforced and be always practiced. To carry out these activities, they have to collaborate with government organizations and Non-Government Organizations who have specific programs related to DRRM plans and guidelines.
2. The barangay council should coordinate with other agencies to address the psychological needs of affected constituents every after disaster.

References:-

1. Asfaw and Admassie, (2004). The Role of Education on the Adoption of Chemical Fertiliser Under Different Socioeconomic Environments in Ethiopia. Retrieved from https://www.researchgate.net/publication/4741044_The_role_of_education_on_the_adoption_of_chemical_fertiliser_under_different_socioeconomic_environments_in_Ethiopia
2. Calde, Nimreh L (2013). Module 2: The Legal Framework of the Disaster Risk Reduction and Management Policy. Retrieved from <http://cordillerastudies.upb.edu.ph/ktrc/downloads/pdf/modules/module-2.pdf>
3. Cristobal, A. & Cristobal, M.C. (2009). *Guidebook in Research Writing Preparing the Nursing Thesis Proposal*. Quezon City: C&E Publishing.
4. Ganpatrao, JS. (2014). Knowledge and Practices of School Teachers Regarding Disaster Management. *International Journal of Health System and Disaster Management*, 2(2). Retrieved from <http://www.ijhsdm.org/article.asp?issn=2347-9019;year=2014;volume=2;issue=2;spage=98;epage=102;aulast=Ganpatrao>
5. National Risk Reduction and Management Plan 2011-2028. Retrieved from <http://www.ndrrmc.gov.ph/index.php/13-disaster-risk-reduction-and-management-laws/41-national-disaster-risk-reduction-and-management-plan-2011-2028>
6. PD 1566: Strengthening the Philippine Disaster Control Capability and Establishing the National Program on Community Disaster Preparedness. Retrieved from <http://www.lawphil.net/statutes/repacts/ra2010/ra-10121-2010.html>
7. Philippine Fault Zone Maps, Philvolcs. Retrieved from (http://www.phivolcs.dost.gov.ph/index.php?option=com_content&view=article&id=379&Itemid=500023)
8. Risk Reduction in Practice: A Philippine Case Study. Retrieved from <http://www.ifrc.org/Global/Case%20studies/Disasters/cs-philippines.pdf>
9. Robas, R.J.O. (2010). Flood Disaster Risk Reduction and Risk Management of Pasig City. Retrieved from https://www.academia.edu/7294706/Flood_Disaster_Risk_Reduction_and_Risk_Management_of_Pasig_City
10. WHO Humanitarian Health Action, Definition: emergencies retrieved from <http://www.who.int/hac/about/definitions/en/>