

Educational Vulnerability Assessment of Youth on Natural Disasters: The Case of Brgy. Paciano Rizal, Bay, Laguna

Sandra S. Samantela^{1*}, Serjen Lara M. Chua², Althea Marie A. Cinco³,
Alfi Lorenz B. Cura⁴, Katherine C. Mojica⁵, and Ma. Charisma T. Malenab⁶

¹Department of Community and Environmental Resource Planning,
College of Human Ecology, University of the Philippines Los Baños, Laguna 4031

²Office of the Undersecretary for Special Concerns, Department of Agriculture,
Elliptical Rd., Diliman, Quezon City 1100

³Berkman International Inc., Unit 301 ALCCO Bldg., Ortigas Ave., Brgy. Greenhills, San Juan, Manila

⁴UPLB Phil LiDAR 1, 2F College of Human Ecology (CHE) Research and Extension Center,
University of the Philippines Los Baños, Laguna 4031

⁵Department of Science and Technology, NCR Regional Office, Upper Bicutan, Taguig, Metro Manila

⁶Department of Social Development Services, College of Human Ecology,
University of the Philippines Los Baños, Laguna 4031

Corresponding Author: sssamantela@up.edu.ph

ABSTRACT

This study assessed the educational vulnerability of youths in Brgy. Paciano Rizal, Bay, Laguna, by determining their perceived level of awareness on natural disasters and disaster management. Seventy youth respondents aged 13 to 19 years old were randomly selected using stratified random sampling. The data were gathered through the personal interview method. The data were analyzed using descriptive statistics and thematic analysis and with reference to Maskrey's concept of educational vulnerability. Results of the study describe that the youth in Brgy. Paciano Rizal perceived themselves to have a high level of awareness on natural disasters and disaster management. The two main sources of information regarding natural disasters and disaster management are media and school. With the determined high level of awareness on the concepts of disaster and its correctness, the youth in Brgy. Paciano Rizal, Bay, Laguna, have low educational vulnerability to natural disaster. Having a low level of vulnerability, the youth in Paciano Rizal could be involved and empowered in disaster management by translating their knowledge and skills into actions. Moreover, the youth can be a major human resource of the community during disasters.

Keywords: disaster, youth, vulnerability, awareness, education

1. INTRODUCTION

Disasters are damaging and destructive events that cause serious losses, destructions, and hardships in society and the environment. Disasters brought upon by typhoons and strong monsoons are becoming more prevalent in the Philippines. A number of these disasters were attributed to the advent of climate change (Anderson & Bausch, 2006). According to a report of the International Federation of Red Cross (IFRC), Asia experienced a total of 229 natural and human-induced disasters in 2014. Meanwhile, the 2014 World Disaster Risk Index says that the Philippines is the second most vulnerable country to climate change and disasters. Almost Php 40 billion worth of damages in the Philippines was recorded during the 2014 typhoon Glenda (international name, Rammasun) alone according to the National Disaster Risk Reduction and Management Council (NDRRMC). This is alongside the 490 natural hazards monitored in the same year.

During disasters, the youth are considered as one of the vulnerable sectors of the population. However, according to Save the Children, the youth should be perceived not as mere victims but as capable and efficient actors using their fullest potentials in the process of risk reduction. The youth have capacities that can be harnessed to contribute in the different phases of disaster management in the community. With the usual top-down approach and absence of information dissemination, the youth's competence to lower disaster risk and to alleviate disaster effects is often limited and neglected (NYC, 2010).

At present, the youth's role in disaster preparedness, response, and recovery is starting to be recognized. Different organizations such as the Federal Emergency Management Agency (FEMA), Citizen Corps, and Red Cross involve youth efforts in disaster

management programs. Also, Republic Act No. 10121 or the Philippine Disaster Risk Reduction Management (PDRRM) concerning disaster management encourages the involvement of youth in programs that would empower them and utilize their skills and potentials. However, not all youth groups have the capacity to be involved due to lack of information or misinformation regarding risk scenarios. This is referred to as educational vulnerability according to Maskrey (cited by Global Crisis Solutions, n.d.).

Thus, a study on the educational vulnerability of a village in Laguna was conducted to assess the present status of youth in disaster management. Vulnerability assessments are prerequisites for target actions in all government levels.

The chosen area is Barangay Paciano Rizal, which was categorized as a non-flood zone area. However, in 2006, as Super Typhoon Milenyo (Typhoon Xangsane) landed in the Philippines, certain areas of the barangay were severely affected. The study focused generally on assessing the educational vulnerability of the youth by determining their perceived level of awareness of risk scenarios specifically in the management of natural disasters occurring in the area. The study also determined the youth's knowledge of correct information through the sources of information about natural disasters and their practices on disaster preparedness, response, rehabilitation, and recovery. Results of the study will guide barangay officials on what actions to take to involve the youth in Disaster Reduction and Management (DRRM) towards a prepared and resilient community.

The study was only based on and limited to the youth respondents, 13 to 19 years old, residing in the four *puroks* of Brgy. Paciano Rizal, Bay, Laguna. Another limitation of the study is that the survey questions did not expound on the youth's knowledge in the present efforts/projects/programs performed

in their community/nationwide regarding disaster risk reduction. This study was conducted in September 2013.

2. METHODOLOGY

A. Conceptual Framework

The study, as shown in Figure 1, operated on the premise that the perceived level of awareness of youth affects their educational vulnerability. Moreover, the level of awareness is related to their involvement in disaster preparedness, response, recovery, and rehabilitation in such a way that the more they are aware, the higher is the probability of their involvement. Different sources of information and knowledge influence the awareness, skills, and knowledge of the youth. The higher the level of awareness of the youth, the less vulnerable they become during natural disaster occurrences.

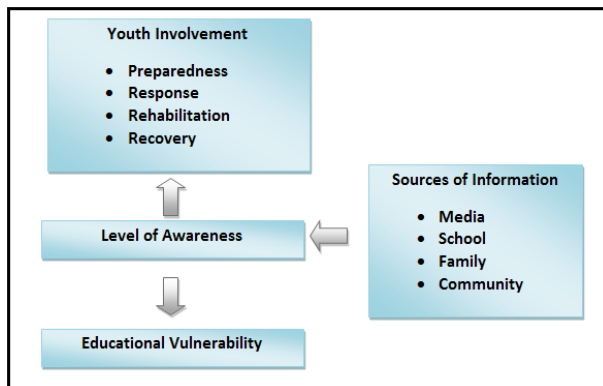


Figure 1. Conceptual Framework of Educational Vulnerability Assessment of Youth on Natural Disasters: The case of Brgy. Paciano Rizal, Bay, Laguna

B. Data and Data Gathering

Seventy youth respondents of Brgy. Paciano Rizal, aged 13 to 19 years old, were randomly interviewed to determine their educational

vulnerability to natural disasters. The representative sample sizes per *purok* were generated through proportional allocation. On the other hand, the specific respondents were determined through a random number generator and countered from the list of youth from the barangay (BMIS, 2013). Figure 2 below shows the location map of the study site.

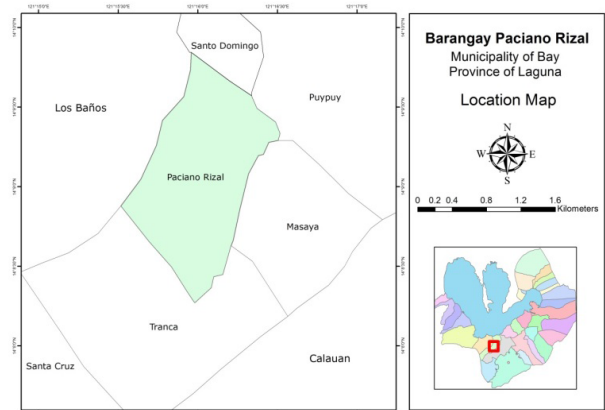


Figure 2. Location Map of Brgy. Paciano Rizal, Bay, Laguna

3. RESULTS AND DISCUSSION

Youths identified typhoon as one of the natural disasters mostly experienced in Brgy. Paciano Rizal, as this village is located at the foot of Mt. Maria Makiling and is included in the “Upland Group” or *katihan* among the barangays in Bay, Laguna (BDC, 2011). Typhoon accompanied by flooding is seldom experienced, with the general topography of the municipality with forest covers and mostly rural barangays. In few instances when typhoon occurs, floods do not usually exceed knee-deep water level except in 2006 when Typhoon Milenyo (Xangsane) struck (youth respondent). According to the youth and based on damage assessment reports, Xangsane was the most devastating typhoon experienced in the past 10 years in the area causing damages to its natural resources and infrastructural

facilities. In addition, flooding in some low-lying parts of the village is caused by wastes clogging the drainage and overflow of water from the river.

The educational vulnerability was identified through assessment of the perceived level of awareness of natural disasters of 70 youth respondents aged 13–19 in Brgy. Paciano Rizal, Municipality of Bay, Laguna. Respondents were almost equally distributed among males (51%) and females (49%) who were mostly at the high school level.

A. Youth's Perceived Level of Awareness of Natural Disasters

The perceived level of awareness was based on the respondents' self-assessment. Researchers used the Likert scale as reference to provide the degree of awareness, from which the respondents chose from *unaware* (if not at all aware), *slightly aware* (if level of awareness is insufficient and needs more information), *aware* (if level of awareness is sufficient yet still needs some information), and *highly aware* (if level of awareness is more than sufficient). As shown in Table 1, results of the study showed that 91% of the youths are aware (including highly aware and slightly aware) of the occurring natural disasters or calamities not only in their community but in general.

Table 1. Level of Awareness of Natural Disasters of Youth in Paciano Rizal

Level of Awareness	Percentage (%)
Unaware	8.57
Slightly Aware	42.86
Aware	42.86
Highly Aware	5.71
Total	100.00

The youth's major source of information is the media and school, television and newspapers also being the most influential sources. Despite

the high proportion of youths who are aware, majority did not consider themselves being highly aware because they thought that their level of preparedness and knowledge are not yet fully enhanced. According to Shaw (cited by Roy, Pal, & Pradhan, 2014), schools play a significant role in promoting awareness among students, because when the youth are more aware of hazards and risks, there is a high probability that adults are educated as well through knowledge sharing at home. Oftentimes, women and children are said to be the most vulnerable sectors during disasters; however, if they participate in disaster preparedness activities, they will develop skills that will prepare them for any threat (Akeyo, 2010).

With the extent of their awareness, the youths' perceived solution in solving flooding areas in the area is through proper waste management, promoting clean and healthful surroundings, and being involved in environmental advocacy projects. These perceptions of the youth are aligned with the Hyogo Framework of Action (2005–2015), which outlined five priorities for action towards building resilience among nations, one of which is the use of knowledge, innovation, and education in building a culture of resilience at all levels.

B. Familiarity With the Concept of Disaster Risk Reduction and Management (DRRM)

Most of the respondents (74%) are familiar with the concept of Disaster Risk Reduction and Management (DRRM). Forty-one percent also said that DRRM topics are discussed in their respective schools; others are informed through the media, their families, and the community. This result presents that the youth were aware of the existence and they believe in the importance of DRRM regarding its relation to human safety and environmental integrity. For them, DRRM provides awareness of disaster preparedness to the people in the

community including safety practices during disasters and how to help the people who are severely affected.

C. Suggested Disaster Risk Reduction and Management (DRRM) Topics

The respondents were given the opportunity to freely suggest three (3) Disaster Risk Reduction (DRR)–related concepts to be tackled in their respective schools. Hence, the variation in the answers. The researchers then categorized and grouped the responses. Among the 15 categorical topics, results showed that most of the topics suggested are geared towards “disaster preparedness.” Table 2 presents the consolidation of the youth’s suggested topics on DRRM to be taught in their schools and the number of respondents who suggested the topics.

Table 2. Suggested Topics on DRRM to be Discussed in Schools

Suggested Topics on DRR to be Discussed in Schools	Frequency <i>n</i> = 70
Preparedness	17
Rehabilitation and recovery	10
Emergency drills	10
First aid	9
Rescue	9
Response	7
How to help affected people	7
Involvement in environmental projects	6
Proper waste management	3
How to share information to students	2
Prevention	2
Seminars regarding floods	1
Awareness	1
Law implementation	1
Others (planting, cleaning)	4

Integrating disaster preparedness in curricula of schools inculcates alertness and certain degree of self-protection in the students. The Department of Education (DepEd) passed DepEd Order No. 48 series of 2012 or the Quarterly Conduct of the National School-Based Earthquake and Fire-Drills. This enables the faculty, students, and school management to plan and assess their current practices when an earthquake and/or fire occurs.

In addition, DepEd in partnership with the United Nations Children’s Fund (UNICEF) and Plan International Philippines also published a Disaster Risk Reduction Resource Manual in 2008. The manual is a well-rounded compendium that aims to increase the adaptability of Philippine schools in managing losses and preparing students during a calamity. It likewise shows basic knowledge of natural hazards, global warming, and climate change adaptation. It also has records in response to various human-induced disasters like car accidents, civil disorder, and other crimes. The presence of DepEd-assisted materials on DRRM may be a reason why the youth in Paciano Rizal, Bay, Laguna, perceived themselves to be aware of DRRM.

Prevention is more beneficial and efficient to prevent damages from occurring than repairing the damages that may occur. In this light, the youth can promote prevention by being geared as capital during disasters than being seen as dependent sectors. The youth can be viewed as instruments in disaster preparedness and management with their eagerness to learn more about the concepts of DRRM and also given the right opportunities.

D. Actions to Limit Impacts of Disasters

The respondents enumerated personal measures to possibly limit the disaster impacts in their community. Respondents suggested

Tree planting and *Solid waste segregation* as the most viable actions to lower disaster risk. In 2011, by virtue of Executive Order (EO) No. 46 or the National Greening Program (NGP) issued by President Benigno Aquino III, 1.5 billion trees were targeted to be planted in 1.5 million hectares nationwide. The said EO was supported by various environmental government agencies in the Philippines that aim to reforest the logging areas, enlarge carbon sink, and reduce poverty. In 2015, 766 million seedlings were planted across 1.2 million hectares nationwide contributing to larger carbon sequestration in the country. Moreover, solid waste segregation is not new in Philippine policies. Under Republic Act No. 9003 or the Ecological Solid Waste Management Act of 2000, the government aims to reduce and manage solid waste thru recycling, composting, and recovering materials thus institutionalizing public participation in securing environmental integrity. The youth's perceived efforts in limiting disaster impacts already have massive efforts performed nationwide.

4. CONCLUSION

The results of the study showed that 91% of the youths were aware (highly aware, slightly aware, and aware) of the occurring natural disasters or calamities not only in their community but in general. Awareness is an important element that will allow the youth to deal with risks and uncertainties.

In relation to the level of awareness of the youth of natural disasters and disaster management in Brgy. Paciano Rizal, it can be concluded that the youths perceived themselves to have a high level of awareness of natural disasters and calamities because of their access to a wide range of sources of information about natural disasters, including the practices on disaster preparation, response, rehabilitation,

and recovery. With the determined high level of awareness, it is therefore concluded that the youth has low educational vulnerability to natural disaster. Having a low level of vulnerability, the youth in Paciano Rizal could be more involved in disaster management by translating their knowledge into actions.

Despite the high proportion of youths who are aware, majority did not consider themselves as highly aware because they thought that their level of preparedness and knowledge are not yet fully enhanced. Youths who are more aware will most probably be involved in any form of activities or advocacies given that they are encouraged and capacitated. Despite having measures in disaster risk reduction performed in the country, the youth were unaware of these programs due to a lack of information dissemination. For this issue, the government may take a pivotal step in ensuring the strength of information dissemination. According to Akeyo in 2010, the involvement of the youth in disaster preparedness is encouraged through education and information sharing because usually the youth are not aware of what the emergency response leaders or community leaders expect them to do or know during disasters. Examples of information sharing are youth forums, conferences, and workshops.

Sharing relevant information on disasters between young people and emergency response leaders is vital to the success of disaster preparation and response. It is an effective emergency management strategy that would improve resiliency and preparedness in the community, thus also reducing the level of vulnerability of the community to disasters. It is important to recognize youth engagement initiatives, collaboration, and partnerships in Disaster Risk Reduction and Management (DRRM) to increase the level of resiliency of the community. These would be possible with the community-based disaster risk reduction approach embedded in Republic Act 10121, the

Philippines' National Disaster Risk Reduction and Management Act. At the barangay level, the youth can be mobilized by including and recognizing them in the programs and projects in the Barangay Development Plans. Moreover, the youth can be organized as part of the DRRM response teams or assigned specific tasks that will involve them during disasters.

5. REFERENCES

- Akeyo S.O. (2010). *Youth involvement in disaster management*. Indiana: Indiana University. Retrieved from <http://poseidon01.ssrn.com/delivery.php?sa=4130740311110700920070901230700241060020540270610230620270940090900120270301010731240421000170070240220450091100870840180220960390100110610187064064116122099090011120024095079&EXT=pdf>
- Anderson and Bausch (2006). *Climate change and natural disasters: Scientific evidence of a possible relation between recent natural disasters and climate change*. Retrieved from https://www.google.com.ph/url?sa=t&ret=j&q=&esrc=s&source=web&cd=8&cad=rja&uact=8&ved=0ahUKEwid-cL4z6nNAhUI4WMKHbNzBl8QFghkMAC&url=http%3A%2F%2Fecologic.eu%2Fsites%2Ffiles%2Fproject%2F2013%2FBrief_CC_and_natural_disasters_scientific_evidence_of_relation_Jan_2006_EP_version.pdf&usg=AFQjCNH5Dpe1N1KL-2rPBWmD67DdB9uNLg&sig2=c1hM8SHbneydZx0KoBr6aw
- Barangay Development Council. (2011). *Barangay profile of Paciano Rizal, Bay, Laguna*. 2nd ed.
- Barangay Information Management System (BMIS). (2013). *Barangay Paciano Rizal, Bay, Laguna*.
- Citizens' Disaster Response Center (CDRC). (2014). *Philippine disaster situation 2014, understanding the root causes of the country's vulnerability to disasters*. Retrieved from <http://www.cdrc-phil.com/wp-content/uploads/2015/08/2014-Philippine-Disaster-Report.pdf>
- Cura, A.L., et al. (2013). *Barangay integrated development plan (BIDP) of Barangay Paciano Rizal, Bay, Laguna*.
- dela Cruz, G. (2014, August 14). *NYC: More involvement for young Pinoys in disaster planning*. Retrieved from <http://www.rappler.com/move-ph/65995-more-involvement-disaster-management-young-pinoys>
- Department of Education, Republic of the Philippines. (2008). *Disaster risk reduction resource manual*. Retrieved from <http://www.deped.gov.ph/sites/default/files/Disaster%20Risk%20Reduction%20Resource%20Manual.pdf>
- Department of Education, Republic of the Philippines. (2012). DepEd Order No. 48, s. 2012. *Quarterly conduct of the national school-based earthquake and fire drills*. Retrieved from http://www.deped.gov.ph/sites/default/files/order/2012/DO_s2012_48.pdf
- Department of Environment and Natural Resources. National Greening Program. Retrieved from <http://www.denr.gov.ph/priority-programs/national-greening-program.html>
- Federal Emergency Management Agency. *Youth disaster preparedness and recovery*. Retrieved from <http://findyouthinfo.gov/youth-topics/youth-disaster-preparedness-and-response>
- Global Crisis Solutions, Training Unit, Support to Program Quality Project. (n.d.). *Understanding vulnerability ensuring appropriate and effective responses*.
- International Federation of Red Cross and Red Crescent Societies. (2014). *World disasters report 2014—Data*. Retrieved from <http://www.ifrc.org/en/publications-and-reports/world-disasters-report/world-disasters-report-2014/world-disasters-report-2014---data/>
- National Greening Program. Retrieved from <http://ngp.denr.gov.ph/index.php/newandevents/news/1559-executive-order-193>
- National Youth Commission. (2010). *Highlights of the 2010 Youth Study: The situation from the perspective of the youth*. Retrieved from https://doc-0k-9o-docs.googleusercontent.com/docs/securesc/ha0ro937gcuc717deffksulhg5h7mbp1/uljt5h43i9jg1tggfankfbo9fjddv4c5/1377338400000/09617139187852850057*/1dXAeYpCXvsPaDWkJ4TSokFdVH-

- UwJJlO630WxMAroq9N1WfV207rTZODXQ-k?h=16653014193614665626&e=download
Official Gazette. Republic Act No. 9003. Retrieved from <http://www.gov.ph/2001/01/26/republic-act-no-9003-s-2001/>
- Roy, S., Pal, P. K., and Pradhan, K. (2014). Awareness of rural youth towards disaster management: A gender disintegrated study. *Indian Res. J. Ext. Edu.* 14(1). Retrieved from https://www.google.com.ph/l?sa=t&rc=t=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwi0_orvp4rMAhVKppQKHXYXHBfwQFggqMAA&url=http%3A%2F%2Fwww.seea.org.in%2Fvol14-1-2014%2F14.pdf&usg=AFQjCNE6Nt5N5A6-sskFDLHgygGubjY8QA&sig2=gKv3p9owChSiJ-6Vs5YcQA&bvm=bv.119408272,d.dGo
- SEAMEO-Innotech. (2014). *Building disaster-resilient school communities in Southeast Asia*. Retrieved from http://www.seameo-innotech.org/wp-content/uploads/2014/11/DRRM%20TOOLKIT%20BOOK_FINAL.pdf
- United Nations International Strategy for Disaster Reduction. (2007, July). *Hyogo Framework for Action 2005–2015: Building the resilience of nations and communities for disasters*. Retrieved from http://www.unisdr.org/files/1217_HFABrochureEnglish.pdf