



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 9, Issue, 6(D), pp. 27485-27488, June, 2018

**International Journal of
Recent Scientific
Research**

DOI: 10.24327/IJRSR

Research Article

'PERCEIVED FACTORS AFFECTING THE LEVEL OF AWARENESS ON INDIGENOUS PEOPLE-CENTERED EARLY WARNING SYSTEM

Rene N. Rabacal*

Central Bicol State University of Agriculture

DOI: <http://dx.doi.org/10.24327/ijrsr.2018.0906.2269>

ARTICLE INFO

Article History:

Received 16th March, 2018

Received in revised form 25th
April, 2018

Accepted 23rd May, 2018

Published online 28th June, 2018

Key Words:

Level of awareness, indigenous people-centered, early warning system

ABSTRACT

The study determined perceived factors affecting the level of awareness of indigenous people-centered Early Warning Systems (EWS) in the selected coastline communities in Camarines Sur. The researcher used descriptive method and structured survey questionnaire was employed to determine the level of awareness of the household communities in selected municipalities in Camarines Sur. The results of the study on the perceived factors on EWS along behavioral. The results showed that: Listening to advisories was ranked first, with a mean rating of 3.28; social acceptability on the use of traditional early warning system, ranked as second, with a mean rating of 3.03; observance of members' action on the practice of traditional EWS, ranked third, with a mean rating of 3.01; and observance and practices on the use of EWS, ranked fourth, with the mean rating of 3.00. The results on the perceived factors on EWS along cultural showed that the communities rely on spiritual devotion to saints for their safety which ranked first, with a mean rating of 3.38; perform spiritual sacrifices for the provision of rains, which ranked as second, with a mean rating of 2.69; offering of goods "alay" in exchange of a sunny weather, ranked third, with a mean rating of 2.60; and transmit early warning communications by the use of smoke, which ranked fourth, with the mean rating of 2.41. The results of the study on the perceived factors on EWS along economic showed that repair of dwellings in case of impending disaster ranked first, with a mean rating of 3.43, observance preparedness by buying first aid/emergency kit, ranked as second, with a mean rating of 3.37, buying of buffer goods and other primary commodities, ranked third, with a mean rating of 3.38, and property rehabilitation through insurance, ranked fourth, with the mean rating of 2.98.

Copyright © Rene N. Rabacal, 2018, this is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Camarines Sur and Catanduanes provinces are considered among the most disaster prone areas in Bicol region. An estimated 44,000 and 28,000 individuals reside in these disaster-prone areas for Camarines Sur and Catanduanes, respectively. The vulnerability of the provinces to typhoons, landslides, floods, storm surge, tsunami, and volcanic eruption and their impact on life, property, livelihood, and the environment emanates from a combination of factors such as geographical location, socio-economic, and cultural behavioral conditions, capacity and readiness of the households and agencies (ACF International, 2010). On 30 November and 1 December 2006, Typhoon "Reming" (Durian) entered the Philippine Area of Responsibility (PAR) passing thru Southern Catanduanes and Tabaco City and exited through Camarines Sur. In its path, it left billions of pesos worth of damage to infrastructure and agriculture throughout the Bicol Region and its neighboring Provinces notably Camarines Sur and

Catanduanes (ARDC, 2009). The vulnerability of population and critical infrastructures such as healthcare, communication, or food and water supply has not been integrated into, making it difficult to predict where help will be needed most urgently. To this date, the early response decisions are largely based on experience instead of structured decision support (Van de Walle & Comes, 2014). Although interventions have been made by the local government units, there is a need in raising disaster awareness, improve knowledge and understanding of the natural hazards and in order to reinforce the early warning systems in the coastline municipalities.

Timely information has been described as key to disaster response (IFRC 2014, Kamissoko *et al.* 2014,b). Understanding and adequately reacting to early warning signs, before these become manifest and turn into acute needs is in many cases more effective and efficient than responding only after a disaster hit (Swithern, 2014). Ideally, early warning signals should trigger appropriate actions

*Corresponding author: **Rene N. Rabacal**
Central Bicol State University of Agriculture

to prevent harm from the population, such as evacuation, or to get ready to respond, such as pre-positioning of goods and deployment of responders (Comes, *et al.*, 2015). The Republic Act 10121, an Act Strengthening the Philippine Disaster Risk Reduction and Management System paved the way to provide the national framework and National Disaster Risk Reduction and Management Plan (NDRRMP) (2011-2018), and along this the change in the use of calamity funds and prioritizing the establishment of early warning systems and how various disaster risk reduction and management programs are going to be funded (GIZ, 2012).

The capability of the early warning systems in the coastline municipalities of Tinambac, Garchitorena, Siruma, San Jose, Lagonoy and Presentacion, Camarines Sur will be an advantage in lessening the impact of damages, livelihood and possible disaster (Poyarkov, 2005), properties brought about by natural hazards. The study will benefit the community, local Government Unit (LGU), Philippine Atmospheric Geophysical Astronomical Service Administration (PAGASA), Department of Science and Technology (DOST), and Media practitioners in disaster risk reduction and management.

The study benefited the community in terms of general public awareness on the natural hazards and early warning systems. The use of the early warning systems in the community can provide information on the impending hazards. The study also provides the Local Government Units the knowledge as to which element of the early warning system needs to be improved and how the indigenous knowledge of the community in terms of disaster risk reduction can be conserved. The formulation of effective policies and programs on disaster risk reduction can be prioritized by the Local Government Units. The Philippine Atmospheric Geophysical Astronomical Service Administration (PAGASA) can be provided with the insights for the improvement and upgrading of early warning devices. The results of the study will serve as basis for the media practitioners on how to effectively translate and communicate warning signals to the public. Emergency warning alert systems should be available to warn the potentially affected public that a disaster has occurred or that there is an imminent threat of

Objectives of the Study

This study was conducted to determine the level of awareness on indigenous people-centered early warning system along behavioral, cultural, and economic factors in coastline municipalities of Tinambac, Garchitorena, Siruma, San Jose, Lagonoy, and Presentacion, Camarines Sur Philippines.

MATERIALS AND METHODS

The researcher used descriptive method to determine the level of awareness of the household communities in selected municipalities in Camarines Sur. A structured survey questionnaire was employed to collect the needed data. The responses of the people interviewed were validated by asking for the secondary opinions and views of the barangay officials and household heads in the community.

RESULTS AND DISCUSSIONS

Perceived Factors on the Level of Awareness along Behavior
The results of the study along behavioral showed that:

Listening to advisories was ranked first, with a mean rating of 3.28; social acceptability on the use of traditional early warning system, ranked as second, with a mean rating of 3.03; observance of members' action on the practice of traditional EWS, ranked third, with a mean rating of 3.01; and observance and practices on the use of EWS, ranked fourth, with the mean rating of 3.00.

This means that the behavior of the people in these vulnerable communities towards their response to impending disasters is primarily affected by the extent of time they listen to radio. As cited by the respondents during the interviews, since television signals are difficult whenever available is of low-quality, and expensive if accompanied by satellite disks, radio remains the number one source of information in these communities.

Perceived Factors on the Level of Awareness along Cultural

The results on the perceived factors on EWS along cultural showed that the communities rely on spiritual devotion to saints for their safety which ranked first, with a mean rating of 3.38; perform spiritual sacrifices for the provision of rains, which ranked as second, with a mean rating of 2.69; offering of goods "alay" in exchange of a sunny weather, ranked third, with a mean rating of 2.60; and transmit early warning communications by the use of smoke, which ranked fourth, with the mean rating of 2.41.

The people in these areas sometimes believe that they can still prevent disasters by simply communicating to God and other environmental elements. This was supported by the study conducted by Menes (2013), that the extent of people's spiritual practices in dealing with calamities was also measured because most of the marginalized vulnerable constituents were very dependent on God's intervention particularly prayers, masses, covenant to the lord, procession of miraculous icon/image and reading of "oracio imperata" prepared by a bishop during Eucharistic celebration. Some people believed that natural calamities cannot be totally prevented by humans. Marginalized communities give more time on spiritual activities such as participating in procession and conducting spontaneous prayers to prevent devastation brought about by disasters and calamities. With this, the local government units in the province should introduce programs to make people resilient through their own initiatives, simultaneous with their religious practices such as prayer and other devotional conduct. Although it has already been proven that recitation of "Oratio Imperata" in all masses and just to prevent devastating catastrophe was very much effective, it can also be done in asking for something which they believe can only be given by the Heavenly Father, through his son Jesus Christ. For the believers, this "oration Imperata" can be used as weapon to resilient on climate change and other phenomenon.

The Catholic Bishops' Conference of the Philippines (CBCP) through Secretary Msgr. Joselito Asis (2012) encourages Catholics to recite in churches the "Oratio Imperata" for deliverance from calamities. The prayer was first said in the Diocese of Legazpi in 2009 after the province of Albay was severely damaged by a series of super typhoons. The CBCP quoted Asis as saying that there was a need for prayer because of the damage that continuous heavy rains brought. In the oratio, the faithful ask for forgiveness for not taking good care of the environment, and those phenomena like global warming, floods and other natural calamities are the consequences.

The cultural aspect of the respondent communities pertains to the different biases that they have in appreciating the information that they get. Because of these biases, a person remains blind to the necessity for change in his beliefs or assumptions. When finally this necessity is recognized, a person often chooses the very first alternative that offers a way out, and instead of radically changing his views just adds some exceptions and superficial changes to his existing outlook.

The above notions may explain why early warning signals are not identified or why they are interpreted wrongly. If, for instance, the water level suddenly rises to a much higher level that was thought possible, it might be difficult to imagine that this could happen and take the appropriate measures, even if early warning signals would show the opposite to be the case (Hellenberg, 2007).

Perceived Factors on the Level of Awareness along Economic

The results of the study on the perceived factors on EWS along economic revealed that repair of dwellings in case of impending disaster ranked first, with a mean rating of 3.43, observance preparedness by buying first aid/emergency kit, ranked as second, with a mean rating of 3.37, buying of buffer goods and other primary commodities, ranked third, with a mean rating of 3.38, and property rehabilitation through insurance, ranked fourth, with the mean rating of 2.98.

According to Philippineheritage.com.ph(2012), seventy percent (70%) of Philippine communities are located in the coastal areas; thus the Philippines is particularly vulnerable to the impacts of climate change. The increase in temperature is already causing irregular monsoon and extreme weather events in recent decades that devastate the fishery sectors. The impact of natural disasters on the poor can be identified in three specific ways: disruption in earnings, reduction of personal assets and loss of essential public infrastructure (Taylor & Francis, *et.al.*, 2009).

People in low-income countries are four times as likely as those in high income ones to die in natural disaster. The poor are particularly hit hard because injury, disability and loss in life directly affect their main assets: food production for self-consumption and real labor income. Long term destruction of assets can be push families into chronic poverty. The poor also have a large and important stake in public infrastructure which, when destroyed by a disaster, becomes difficult to replace. Replacements are often delayed, and poverty alleviation projects. Disasters therefore, induce destitute, due to their vulnerability and inability to mitigate the losses (Taylor & Francis *et al.*,2009).

The economic aspect pertains to the ability of the people to respond to the impending disasters as forewarned using these early warning systems. Theoretically, people who are better off economically will have the better chances of being able to respond affirmatively. Further discussion on these factors affect the early warning systems are shown below.

The result of the summary of the perceived factors onEWS in the coastline communities indicated that across the six (6) municipalities, economic factors have a mean of 3.29; 3.08 for behavioral factors; and 2.77 for the cultural factors, which were ranked accordingly.

Raising awareness on these factors that may affect the implementation of the early warning systems and taking actions about the risks that communities face and using past experiences as guiding principles can help both DRR implementing partners and communities understand why certain risks are prioritized. Considering these factors, these awareness-raising sessions that use participatory methodologies (e.g. oral history, focus groups), would be the first step in developing a people-centered EWS. At the end of the day, it is important that community members themselves determine the risks to which they are most exposed and vulnerable, and that DRR implementers concede that these may not match their own assessment of the situation (OCHA and FAO, 2014).

CONCLUSIONS AND RECOMMENDATIONS

The behavioral, cultural, and economic factors significantly affect the level of awareness of the indigenous people-centered early warning system.

In developing early warning systems it is essential to recognize that different groups have different vulnerabilities according to culture, gender or other characteristics that influence their capacity to effectively prepare for, prevent and respond to disasters; information, institutional arrangements and warning communication systems should be tailored to meet the needs of every group in every vulnerable community considering the different factors that affect the awareness of the people; The researcher recommended that LGUs shall develop and implement an effective early warning system which includes the contribution and coordination of a diverse range of individuals and groups; and public awareness strategies and programs must be evaluated at least once per year and updated where required.

Likewise, assessments of risk by the LGUs through systematic collection and analysis of data and should consider the dynamic nature of hazards and vulnerabilities that arise from socio-economic conditions and changing environment. The hazard and vulnerability information is central to almost every aspect and every stage of natural disaster risk management; and weaknesses in monitoring and forecasting the hazards should be identified and research should be conducted to strengthen the technical capability.

References

- Early Warning Practices can Save Lives, Good Practices and Lessons Learned. International Strategy for Disaster Reduction (UNISDR) Platform for Promotion of Early Warning, August 2010. Retrieved: February 26, 2015.
- Beyond Early: Decision on Support for improved Typhoon Warning Systems. Comes, *et al.* Centre for Integrated Emergency Management (CI-DM). Retrieved: February 26, 2015
- Villar, M (2016).Traditional & Scientific Early Warning System of Eastern Coastline Communities of Lagonoy, Camarines Sur. Unpublished Master's Thesis. Retrieved: April 19, 2016.
- Guillermo,(2014)."Community Awareness and Effectiveness of Early Warning System in Selected Barangays in Albay". Unpublished Master's Thesis. Retrieved: February 26, 2015

- Maferethane, O., (2012). "The Role of Indigenous Knowledge in Disaster Risk Reduction: A Critical Analysis. Retrieved: April 19, 2016
- UNDP., "Sustainable Development Goals". Retrieved: February 26, 2015
- European Commission. "The EU Strategy for Adaptation to Climate Change. Retrieved: February 26, 2015
- United Nations International for Disaster Risk Reduction (UNISDR). "Making the Case for Disaster Risk in Africa". Retrieved: February 26, 2015
- Sendai Framework for Disaster Risk Reduction 2005-2030. Retrieved: February 26, 2015
- United Nations. "Global Survey of Early Warning Systems: An assessment of capacities, gaps and opportunities towards building a comprehensive global early warning system for all natural hazards www.unisdr.org/2006/ppew/info.../Global-Survey-of-Early-Warning-Systems.pdf. Retrieved: February 26, 2015
- Macarenhas, O., (2004). "The Role of Indigenous Knowledge in Disaster Risk". Retrieved: February 26, 2015.
- Unisdr, (2009). "Terminology on Disaster Risk Reduction. Geneva, Switzerland. Retrieved: February 26, 2015. "Municipalities". Quezon City, Philippines Department of Interior and Local Government. Retrieved: February 28, 2015
- MCLUP, LGU San Jose. "Municipal Comprehensive Landuse Plan & Zoning Ordinance (2000-2010). Retrieved: February 28, 2015
- LGU San Jose (May 2015). "Souvenir Program of San Jose, Town Fiesta 2015. Retrieved: June 22, 2015
- LGU San Jose, MPDC (2015). "Brief profile of the Municipality of San Jose, Camarines Sur". Retrieved: June 22, 2015
- LGOO, DILG (2014). "Barangay Disaster Risk reduction and Management Profile". Retrieved: June 22, 2015
- "Province: Camarines SUR". PSGC Interactive. Makati City, Philippines: National Statistical Coordination Board. Retrieved: June 22, 2015.
- "Total Population by Province, City, Municipality and Barangay: as of May 1, 2010" (PDF). 2010 Census of Population and Housing. National Statistics Office. Retrieved: June 22, 2015.
- NIEVA, L., (2010). San Jose at its Great Serenity and Pride (1st ed.). San Jose, Camarines Sur: Local Government of San Jose. Retrieved: June 22, 2015
- MPDC, LGU San Jose (2014). "CBMS Barangay Profile". "Province of Camarines Sur". Municipality Population Data. Retrieved: June 22, 2015.
- LWUA Research Division. Retrieved: June 22, 2015.
- "San Jose, Camarines Sur: Average Temperatures and Rainfall". World Weather Online. Retrieved: June 22, 2015.
- Jack Levin, James Alan Fox and David R. Forde, Elementary Statistics in Social Research. 11th ed. (Boston: Allyn & Bacon, 2010).
- Ken Black, Business Statistics. 3rd ed. (Singapore: South Western, 2001).
- PERSSON, E., (2015). "Flood Warning in a Risk management Context: A Case of Swedish Municipalities. Retrieved: February 26, 2015
- Kellman, I. AND M.H. GLANTZ (2014) early warning systems defined. In Reducing Disaster: Early Warning Systems for climate change. Singh, A. and Z. Zommers (Eds.). London, UK: Springer.
- Senaratna, N., *ET AL.* (2014). Natural hazards and climate change in Kenya: Minimizing the impacts on vulnerable communities through Early Warning Systems. In Reducing Disaster: Early Warning Systems for climate change. Singh A. and Z. Zommers (Eds.). London, UK: Springer.
- Zommers, Z. (2014). "Follow the Spiders" Ecosystems as Early Warnings. In Reducing Disaster: Early Warning Systems for climate change. Singh A. & Zommers Z. (Eds.). London, UK: Springer.
- UNEP, (2012). Early Warning Systems: A State of the Art Analysis and Future Directions. Division of Early Warning and Assessment (DEWA), United Nations Environment Programme (UNEP), Nairobi
- Guillermo, L., (2012) "Assessment of Early Warning System in Mitigating the Effects of Natural Hazards in Camalig, Albay." Retrieved: February 26, 2015
- Deutsche Gesellschaft For Internationale Zusammenarbel-GIZ (2013) "People Centered Early Warning System." Retrieved: February 26, 2015
- Velasquez, J. (2012) "Project NOAF-DOST National Operational Assessment of Hazards." Retrieved: February 26, 2015
- Steiner, A., (2008). "Indigenous Knowledge in Disaster Management in Africa". February 26, 2015.
- Guillermo, L., (2014) "Community Awareness and Effectiveness of Early Warning System in Selected Barangays of Albay." Retrieved: February 26, 2015
- NG, K., (2014) "The Philippine Government Disaster Warning System." Retrieved: February 26, 2015
- Hyogo Framework for Action: 2005-2015. Building the Resilience of Nations and Communities to Disaster. www.unisdr.org/wcdr. Retrieved: February 26, 2015
- MENES, W., (2013). "People's Behavior, Awareness and Resiliency on Climate Change in Vulnerable Areas in Camarines Sur". Dissertation Thesis. Retrieved: February 26, 2015
- DROBOT & PARKER, (2007). "Early Warning Systems for Climate Change". Retrieved: February 26, 2015.
- VICTORIA, L., (2006). "Combining Indigenous and Scientific Knowledge in the Dagupan City Flood Warning Systems". Retrieved: February 26, 2015.
- UNISDR, (2006). "Global Survey of Early Warnin Systems. Retrieved: February 26, 2015.

How to cite this article:

Rene N. Rabacal. 2018, 'Perceived Factors Affecting the Level of Awareness on Indigenous People-Centered Early Warning System. *Int J Recent Sci Res.* 9(6), pp. 27485-27488. DOI: <http://dx.doi.org/10.24327/ijrsr.2018.0906.2269>
