

Disaster Risk Management Strategies of Small Administrative Divisions in Catubig Valley, Philippines: Basis for Intervention Design

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ABSTRACT

This descriptive study investigated the disaster risk management (DRM) strategies of the elected officials in the 12 disaster-prone small administrative divisions along the riverbanks of Catubig Valley in Northern Samar, Philippines. Survey questionnaire and personal interviews were employed for data retrieval.

The study revealed that the DRM was “moderately managed”. It further highlighted eight (8) DRM-related problems which ranged from low awareness of accountability and poor know-how on DRM to insufficient time-preparation and lack of equipment/machinery, among others. These were the raw-bases in framing the intervention design.

KEYWORDS: *disaster, risk management strategies, small administrative divisions, elected officials, Catubig Valley, DRM intervention design*

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1. INTRODUCTION

Disaster is inevitable. It invades places at different times, and in capacities beyond human imagination. It leaves nothing but trauma, fears, and emotional imbalance to people. It causes social unrest, economic crisis, health threats, and political tests, among others.

Geological and hydro-meteorological hazards can be accounted for most disaster events. Much is known about the physical processes and forcing mechanisms of geohazards including the role of anthropogenic activities (Gupta 2011; Bobrowsky 2013; Alcántara-Ayala 2014). Extra-large super cyclones such as Typhoon Haiyan in 2013 are increasing due to continuous energy supply from the warmer sea surface temperature (Pun, Lin, and Lo, 2013).

History has shown that societies sustain annual losses due to the impact of natural and anthropogenic hazards on unnaturally created vulnerable circumstances. The notion of disaster has undergone a dramatic transformation of meaning over time (Quarantelli, 1998).

As in the case of typhoons, they can be predicted, but along with other forms of natural disasters they can never be prevented. However, the depth and width of their impact can be mitigated. Hence, the calls for disaster risk management (DRM) strategies.

The ISDR (2004) defines DRM as the systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards. As in the words of Ayala *et al.* (2015), DRM can help communities and governments become more resilient and reduce the human and economic impacts of disasters.

Present day risk management seeks to reduce to extreme natural events so that even if such events occur they do not

result in disaster (FMCED, 2015). It is in this context that this study is conducted to determine the disaster risk management strategies of the elected officials in the small administrative divisions of Catubig Valley in Northern Samar, Philippines. The town has been hardly hit during the onslaught of typhoons Nona (2015), Tonyo (2019) and Ambo (2020).

2. Objectives

The study sought to:

- A. find out the disaster risk management strategies of the elected officials in the small administrative divisions of Catubig Valley, Northern Samar;
- B. determine the problems encountered on their disaster risk management strategies; and
- C. Prepare DRM intervention design.

3. Review of Literature

The trend during the last three (3) decades shows an increase in the number of both natural disasters and affected populations (UN/ISDR, 2004a). In an effort to take countermeasures against the threats posed by future natural disasters, the United Nations adopted “Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and its Plan of Action” (UN/ISDR, 1994) by providing guidance on reducing disaster risk and the impacts of disasters. Disaster Management as defined by the UNDP (1992:21) is “the body of policy and administrative decisions and operational activities which pertain to the various stages of a disaster at all levels.”

There is a broad consensus in the literature that challenges and activities of disaster management can be classified along the pre-disaster phase (preparedness), the during disaster phase (response), and the post disaster phase (recovery) (IFRC, 2010, Chen et al., 2008; Turoff, 2002; Hale, 1997;

5. Results and Discussion

Table 1: Disaster Risk Management Strategies of Elected Officials in the Small Administrative Divisions of Catubig Valley, Northern Samar

Disaster Risk Management Strategies	Mean	Interpretation
The <i>barangay</i> has ensured that all communities and family members living in flood prone areas understand the dangers properly.	3.79	Well Managed
Evacuation plans have been made in advance by the local authorities. Each member of the family has been given specific instruction and responsibilities in case of evacuation.	3.72	Well Managed
Elected officials have organized a first aid team and ensured it has proper first aid equipment and emergency medicine kit.	3.68	Well Managed
Elected officials have organized a search and rescue (S&R) team and identified the areas which will be isolated in case of flooding and prepare a plan for the S&R team.	3.66	Well Managed
Local doctors, nurses, and other medical personnel are trained for disasters.	3.63	Well Managed
Local authorities have provided information to communities in relation to hazards, vulnerabilities, risks, capacities, and preparedness action.	3.61	Well Managed
Information boards are placed in important places like church, schools, stores, and transportation facilities.	3.60	Well Managed
The <i>barangay</i> has built an evacuation center for the community.	3.58	Well Managed
There are local organizations working on disaster reduction.	3.54	Well Managed
Elected officials have established community and local level information centers to disseminate information about disaster risk reduction management.	3.51	Well Managed
Funds are available for disaster reduction and preparedness.	3.49	Well Managed
The <i>barangay</i> has conducted community based-based programs on disaster reduction.	3.47	Well Managed
There were orientations conducted about disaster risk reduction.	3.43	Well Managed

Ajami and Fatahi 2009), which can be arranged in a life-cycle (Chen *et al.*, 2008).

An effective disaster prevention, preparation, response and relief is costly and inadequate funds, resources, technology and technical know-how cripple disaster management organizations’ effectiveness (Gyawu, Haridu, & Blako, 2018). Lack of political will to place disaster management as a high government priority can have a significant negative effect on the effectiveness of disaster management. Apart from adequate security needed to control crowd and theft, demand form relief supplies varies in terms of magnitude, criticality, type of required materials and the level of predictability of disasters. This makes it difficult for responsible agencies to well budget and manage resources (Kovács & Spens, 2007) and predict the lead time in obtaining rapid response and relief items (Balcik *et al.*, 2010).

4. Methodology

The study was conducted in Catubig Valley, Northern Samar in the Philippines in 2019-2020. It made use of descriptive research design and employed survey questionnaire and personal interviews as research tools.

Purposive sampling was employed to determine the 70 research participants. They were elected *barangay* (smallest administrative division) officials residing in the 12 disaster-prone areas along the Catubig Valley riverbanks, to wit: Anongo, Hibubullao, Libon, Magtuad, Nabulo, Nahulid, San Miguel, San Vicente, Sulitan, 1, 7, and 8.

The participants supplied the data for the first two objectives, wherefrom the researchers came up with an intervention design.

The <i>barangay</i> has disaster preparedness plans.	3.41	Well Managed
Elected officials have explained the actions that individuals, households, and community groups can undertake to prepare for impending disasters, responded to them and recovered from their impacts.	3.36	Moderately Managed
Elected officials have conducted trainings to households and community groups on how to minimize the risk from floods, typhoons, drought, and fire.	3.33	Moderately Managed
Disaster reduction and response policies are in place.	3.33	Moderately Managed
The <i>barangay</i> had organized study visits for community groups to show model hazard mitigation projects in the community.	3.27	Moderately Managed
There is technical expertise of the <i>barangay</i> officials for disaster reduction.	3.24	Moderately Managed
Training of swimming for men, women, and kids were conducted to save themselves during floods.	3.23	Moderately Managed
Hazard specific response drills and simulation exercises and trainings for structural mitigation were conducted in the local <i>barangay</i> .	3.22	Moderately Managed
The elected officials have utilized multiple communication systems: e.g. radios, TV, public address systems, mobile phones, internet, newspapers, posters, exhibitions, and rallies to ensure they reach the at-risk communities and groups.	3.22	Moderately Managed
Local carpenters have trained for construction of boats for evacuation.	3.21	Moderately Managed
The Local <i>barangay</i> unit has enough employees trained in disaster management.	3.19	Moderately Managed
Individual actions training were conducted to avoid injury and casualty in an emergency.	3.16	Moderately Managed
There is availability of micro-finance services for disaster reduction.	3.16	Moderately Managed
Trainings for food storage to avoid loss during flood were conducted among households.	3.13	Moderately Managed
The <i>barangay</i> has constructed a place of evacuation for animals.	3.02	Moderately Managed
Equipment and machinery are available for disaster reduction.	2.98	Moderately Managed
The community has trained masons who know how to construct typhoon safer houses.	2.96	Moderately Managed
Mean Average	3.37	Moderately Managed

Table 1 presents the data on disaster risk management strategies of the elected officials in the small administrative divisions of Catubig Valley, Northern Samar. The elected officials were “well managed” in an aspect like, the elected has ensured that all communities and family members living in flood prone areas understand the dangers properly (3.79). This data, however, disconfirms with the findings in the study of Bhat *et al.*, (2017) where the respondents were not well aware regarding disasters. The elected officials were also “well managed” on evacuation plans as they have been made in advance by the local authorities and each member of the family has been given specific instruction and responsibilities in case of evacuation (3.72). On one hand, in the study of Kangabam, *et al.*, (2012), it was revealed that most of the respondents don’t have any disaster home plan and family disaster plan except few of the members of the group. And, the elected officials were “well managed” because as elected officials they have organized a first aid team and ensured that it has proper first aid equipment and emergency medicine kit (3.68).

On the other hand, the elected officials in Catubig Valley were “moderately managed” in terms of, the *barangay* has constructed a place of evacuation for animals (3.02); equipment and machinery are available for disaster reduction (2.98); and the community has trained masons who know how to construct typhoon safer houses (2.96). These areas of concern should be addressed as it was said that to mitigate the negative impacts of disaster, human preparedness is key to averting such a situation or reducing the level of impact by providing counter measures, infrastructures, and strategic plans of relief operations in advance (Nikbakhsh & Farahani, 2011). Kay (2003) also reiterated that all the physical structures should be checked by competent authorities before they are declared safe for use of the occupants.

With a weighted mean of 3.37, the risk reduction management strategies of the elected officials in Catubig Valley, Northern Samar was “moderately managed”.

Table 2: Problems Encountered on Disaster Risk Management Strategies

Problems Encountered on Disaster Risk Management Strategies	Frequency	Rank
Poor awareness of elected officials on their responsibility in times of disaster and lack of knowledge and skills in DRM.	70	1
Lack of equipment/machinery for risk reduction.	69	2
Lack of time preparation for disaster.	59	3
Slow coordination among elected officials.	52	4
Insufficient fund for DRM-related trainings of barangay officials.	48	5
Lack of support of other elected officials on DRM activities.	38	6
Poor moral support from the LGU and at times does not encourage barangay officials to participate in DRM.	35	7
Lack of support from the community.	12	8

Table 2 shows the problems encountered by the elected officials in the small administrative divisions in Catubig Valley, Northern Samar on their disaster risk management strategies. On top, with a frequency of 91, poor awareness of elected officials on their responsibility in times of disaster and lack of knowledge and skills in DRM. This finds support in the study of Wanjala and Onyango (2018) where 81.4% of the officials indicated that they have never attended workshops and seminars on disaster awareness and preparedness and the few who attended have only done so on rare occasions. These means that disaster awareness and risk management strategies-related workshops and seminars have not been given priority or that the dissemination of information on these workshops and seminars to elected officials is inadequate. On the other hand, the study of Kanyasan, Nonaka, Chatouphonexay, Hernandez, Kounnavong, and Kobayashi, (2018) concludes that in Lao PDR the policy on disaster risk management was disseminated through meetings, trainings, workshops, and mass media including a television program, radio and newspapers, seasonal notifications through village sound systems and leaflets, school activities, and community visits.

Second, lack of equipment/machinery for risk reduction, 69; and third, lack of time preparation for disaster, 59. The data further revealed that there is slow coordination among elected officials, 52; lack of support of other elected officials on DRM activities, 38; and poor moral support from the local government unit (LGU) and at times does not encourage elected officials to participate in DRM, 35. It was highlighted in the literatures of Gyawu, Haridu, & Blako (2018) that lack of political will to place disaster management as a high government priority can have a significant negative effect on the effectiveness of disaster management.

Insufficient fund for DRM-related trainings of elected officials, 48 was also mentioned as a problem. Let it be known however that preparation, response and relief is costly and inadequate funds, resources, technology and technical know-how cripple disaster management organizations' effectiveness (Gyawu, Haridu, & Blako, 2018). Apart from adequate security needed to control crowd and theft, demand form relief supplies varies in terms of magnitude, criticality, type of required materials and the level of predictability of disasters. This makes it difficult for responsible agencies to well budget and manage resources (Kovács & Spens, 2007) and predict the lead time in obtaining rapid response and relief items (Balcik et al., 2010).

Lastly, the lack of support from the community, 12 was also felt. The study of Doroteo (2015) indicates the importance of the civil society's support to community-based DRRM.

Accordingly, disaster risk management strategies will be more effective if social, political, and economic conditions of potentially affected communities and the country in general are well diagnosed, objectives for timely and priority actions for communication and information management are well defined, target audience are well identified, strategies are well determined, communication tools are well determined, programs or activities and time lines are well outlined, and adequate budget is well allocated under an effective leadership (Gyawu, Haridu, & Blako, 2018).

Table 3: DRM Intervention Design

Concern	Intervention Outcomes	Mechanisms	Partners
Poor awareness of elected officials on their responsibility in times of disaster and lack of knowledge and skills in DRM	Highly knowledgeable and skillful elected officials on DRM.	Info-drive campaigns through orientation and seminar-workshops on DRM	Local Government Unit (LGU) and Municipal Disaster Risk Reduction Office (M-DRRMO)
Lack of equipment/machinery for risk reduction	Provision of DRM materials/ machinery	Purchase of DRM materials/ equipment/ machinery	LGU, MDRRMO, and Private sector
Lack of time preparation for disaster	Sufficient time preparation for disaster	Strengthening the capacity of the elected officials to allot sufficient time preparation for disaster Frequent/strategic monitoring of the LGU and MDRRMOs as regards elected officials' time preparation for disaster	LGU and MDRRMO

Slow co-ordination among elected officials	Active, timely, and fast co-ordination among elected officials	Deployment of MDRRMO field officers to conduct frequent monitoring as regards coordination among elected officials	LGU and MDRRMO
Insufficient fund to facilitate trainings of elected officials.	Meaningful fund to support the trainings for elected officials	Increase fund allocation for the trainings of elected officials	LGU and <i>Barangay</i> Council
Lack of support of other elected officials on DRM activities.	Highly supportive barangay officials on DRM activities	Timely monitoring on the participation of the elected officials on DRM activities. Requiring the elected officials to submit timely accomplishment reports	<i>Barangay</i> Council
Poor moral support from the LGU and at times does not encourage elected officials to participate in DRM.	Collective actions between the LGU and elected officials on DRM	Inclusion of the LGU in the planning, implementation, and evaluation of DRM activities	LGU, MDRRMO and <i>Barangay</i> Council
Lack of support from the community	Active participation of the community in DRM activities	Intensified provision of disaster-related drills. Inclusion of community representatives in the planning, implementation, and evaluation of DRM activities	<i>Barangay</i> Council

The problems earlier cited were treated as concerns which served as the grounding data of the researchers in coming up with an intervention design. Each concern comes along with an intervention outcome, mechanism, and partners.

Info-drive campaigns on DRM are a powerful weapon. Kangabam, *et al.* (2012) strongly asserted that one of the most important components of mitigation strategy is the training of technical staff members who are going to play in the forefront in case any occurrence of the earthquakes in the region. An extensive campaign is conducted to increase the public awareness of disaster risk reduction. It is done before, during, and after disaster through trainings, campaigns, manuals, bulletins and media. The civic consciousness is enhanced through special events like fire prevention month and the disaster consciousness week. Watershed management projects with reforestation efforts have been employed (MMDA, 2010; Oxfam, 2011).

According to Waugh (2000) the activities that are commonly associated with disaster risk management strategies include developing planning processes to ensure readiness, formulating disaster plans, stockpiling resources necessary for effective response and developing skill and competencies to ensure effective performance of disaster-related tasks. It is on this light that the researchers proposed amendments on to counter issues on lack of equipment/machinery for risk reduction, lack of time preparation for disaster, and slow coordination among elected officials. Kangabam, *et al.* (2012) suggested that the most important need is to strengthen or developed the capacity building to handle disaster mitigation strategy.

There is a need to cultivate support from the community because as cited by Kangabam, *et al.* (2012) they are the immediate victims of adverse effects of a disaster. They have the best knowledge about their local surrounding in terms of the most disaster-prone areas, the demography of their community and their social and traditional organization. It is important that they have the capacity to cope with the

impacts of a disaster and are involved in the development of disaster preparedness activities right from the initial planning stages. Community participation can also make them more confident in their capabilities to act in the event of a disaster leading to a self-reliant community. Inviting them to drills is very much essential to make them aware on how to cope up at the time of disasters. Indeed, pre-disaster awareness is always better than post disaster response. In one way or another, this supports the call for disaster safety education as proposed by Bhat, *et al.* (2017).

6. Conclusions

This study zoomed in its lens on the disaster risk management strategies of the elected officials in the 12 small administrative divisions in Catubig Valley, Northern Samar, Philippines. Data revealed that with a weighted mean of 3.37, the DRM was “moderately managed”.

Findings also highlighted eight (8) DRM-related problems, which included: poor awareness on their responsibility in times of disaster and lack knowledge and skills in DRM, lack of equipment/machinery for risk reduction, and lack time preparation for the disaster, among others. The intervention design was anchored on these results.

7. Recommendations

On the basis of the highlights of the study, the hereunder recommendations are set forth.

1. Enhance the risk management strategies of the small administrative divisions.
2. Streamline concrete and deliberate actions to counter DRM-related shortcomings.
3. Consider the intervention design for future DRM plans.
4. Replicate the study with wider setting and broader scope.

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