

# IMPLEMENTATION OF POLICIES AND PROGRAMS ON DISASTER RISK REDUCTION AND MANAGEMENT

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**Abstract**— Natural disasters are predominant in the Philippines, especially typhoons and floods, where poor communities are affected; it is inevitable in nature. However, these consequences of devastating effects can be prevented and mitigated through proper and efficient implementation of programs and policies related to disaster risk reduction and management. This paper aims to determine the compliance and implementation of policies and programs of the disaster-prone barangays in Tuguegarao City, Cagayan, related to disaster risk management before, during, and after disasters, particularly on typhoons. The study utilized both qualitative and quantitative types of research, which included in-depth interviews and questionnaires as the main instruments. In-depth interviews were conducted with the citizens and barangay officials to determine the different programs and activities related to disaster risk management. Meanwhile, a standard questionnaire was utilized to determine the compliance and implementation of the Barangay Government Unit on Disaster Risk Management. Results reveal that subject barangays are not that efficient and active in the compliance and implementation of disaster risk management programs and policies in their community. In which geographical location and rural-urban community classification affect the implementation of the different programs and policies related to disaster risk management. Furthermore, the study found out that there is a significant difference in the extent of compliance and implementation of Republic Act 10121 when grouped according to barangays. Overall, the different programs and policies of the barangays related to disaster risk management are not efficiently implemented. The results lend ideas for future implementation and execution of policies and programs directly concerning managing disasters, particularly typhoons.

**Keywords**— *Disaster Risk Management, Policies and Programs, Barangay Government Unit, Typhoons*

## I. INTRODUCTION

The Philippines has a unique geographical position, located along the Pacific region near the equator, which is prone to tropical storms and cyclones. The country lies on the western rim of the Pacific Ocean, where 50 percent of the world's typhoons originate. Typhoons are the main disaster events in the Philippines (Maskrey, 2011); an average of 20 typhoons enters the Philippine Area of Responsibility (PAR). Among the disaster-prone cities in the Philippines, Tuguegarao City has been ranked as the second most at risk in terms of disasters

and calamities according to Maplecroft (2015). One of the most devastating surges or typhoons that ever made landfall is the typhoon Lawin, regarded as the most powerful typhoon we encountered and experienced in 2016. This fact describing the effects of Lawin in terms of human lives and properties is not at all surprising given the fact that Lawin packed an initial maximum of storm signal number 5 before it made landfall and became even stronger as it hit the islands of Cagayan, Isabela, and other neighboring provinces and islands (Mangosing, 2016). A disaster is a consequence of a sudden disastrous event that seriously disrupts the normal function of the society or the community to the extent that it cannot subsist without outside help. It is not just the occurrence of events such as earthquakes, floods, health epidemics, or industrial accidents; disaster occurs if that event or process negatively impacts human populations, and it is inevitable in nature (Gero, Méheux, & Dominey-Howes, 2011). However, these consequences can be prevented and mitigated through the common approach in alleviating and managing disasters, as it enhances the inherent capabilities of local communities to reduce the effects by implementing laws and executing programs and activities relevant to Disaster Risk Management and Mitigation (Orencio, 2006; Fujii, 2006). Disaster practices include disaster preparedness as the key for every community to better cope with disastrous calamities through the different barangay plans and strategies, most especially through their implemented actions (Rachel, 2008). Also give importance to activities revolving around community awareness and understanding, contingency planning, the conduct of local drills, and the development of a national and local disaster response plan (Karan, 2011).

Meanwhile, the Philippine government continuously implements laws and programs regarding disaster risk management to lessen the effect of such disasters (Pelling, 2015; Matyas, 2015). One of those laws is the Republic Act No. 9729, also known as the "Climate Change Act." This act mainstreams climate change into government policy formulations, establishing the framework strategy and program in climate change. Another is the Republic Act No. 10121, known as the "Philippine Disaster Risk Reduction and Management Act of 2010". This law established a council that is responsible for ensuring the protection and welfare of the

people during disasters or emergencies (Delica, 2011; Briones, 2012).

However, despite those existing laws, a huge gap between recognition and active implementation of disaster management programs exists in the Philippines, which is often attributed to the failure of the government to provide adequate resources, education, and awareness related to mitigating various hazard threats, especially to local government units. Substantial evidence and valid investigations reveal that the country lacked a master plan for natural disaster risk management, including prediction, warning, mitigation, and preparedness; an unspecified responsible government authority; an unclear line of authority; ineffective collaboration among institutions at different levels; a lack of encouragement for participation of local government units and international NGOs; a lack of education and knowledge for future catastrophe in potential disaster-affected communities; and a lack of information management or database system (Orencio, 2006; Fujii, 2006; Pelling, 2015; Matyas, 2015). In addition, the increasing number of natural hazards and phenomena due to climate change variability has resulted in numerous disasters and catastrophes in developing countries, which is expected to be more common in coastal areas, where the Philippines resides (Gailard, 2006; Liamzon, 2007; Villanueva, 2007).

Hence, this study is conducted to determine what the policies, programs, and activities of Local Government Units (LGUs) are that are implemented, especially at the barangay level, which pertain to disaster risk reduction management and mitigation, and to know the extent of their implementation before, during, and after disasters, particularly typhoons.

## II. METHODS

This study utilized both qualitative and quantitative types of research. The respondents of this study were the barangay officials and the constituents of the subject barangays in the City of Tuguegarao. Five barangay officials and fifty constituents were randomly interviewed. Meanwhile, quota sampling was utilized to determine the total number of constituents of the different barangays.

This study utilized document analysis, in-depth interviews, and a questionnaire as the main instruments in the study. Document analysis was conducted to determine the profile of the barangays. In-depth interviews were conducted with the citizens and barangay officials to determine the different programs and activities related to disaster risk management and mitigation. Meanwhile, a standard questionnaire was utilized to determine the extent of implementation of disaster risk management and mitigation practices and activities. The questionnaire was adopted from the study of Pradhan (2013). Before the conduct of the study, a reliability test was conducted to determine the suitability of the questionnaire for the study. The result of the test revealed that the reliability value is 0.938. Hence the questionnaire is reliable and suited for the study.

## III. RESULTS AND DISCUSSION

The study of Maplecroft (2015) found out that Tuguegarao City has been considered one of the 8 cities in the Philippines that is most at risk in terms of disasters and calamities. Hence, the study aims to determine and to evaluate the extent of implementation of the different ordinances, programs, and activities of Local Government Units (LGUs), specifically from the Barangay level, which pertain to Disaster Risk Reduction Management and Mitigation. This study is also conducted to assess the effectiveness of the programs and activities in their respective community and to adjudicate in terms of necessity, efficiency, and reliability in the realization of productive and high-quality public governance focusing on the constituent welfare. The researchers sought approval and permission from the City Disaster Risk Reduction and Management Council (CDRRMC), as the one who identified the disaster-prone communities in Tuguegarao City, namely Balzain East and West, Linao West and East, and Annafunan East.

It can be gleaned in the results that the five most disaster-prone barangays are geographically located in the centro and northern parts of the city as identified by the City Disaster Risk Reduction Management Council (CDRRMC). The report of Rappler (2016) revealed that barangays located in the northern part of the city are considered typhoon-prone communities since these are located near the Cagayan River and considered to be low-lying areas. These barangays include Linao West, Linao East, and Annafunan East. Meanwhile, the latest report of the CDRRMC-Tuguegarao (2015) also revealed that Balzain East and West are also considered disaster-prone communities, specifically with typhoons because of their proximity to the creek connected to the Pinacanauan River. Further, its clogged drainage and low density of land also cause these two barangays to be a flood-prone area. The study of Wamsler (2007) emphasized that urban-poor settlements that are known to be prone to disasters are located on marginal land near rivers or on steep slopes and have substandard housing and infrastructure. Among other risk factors are leaking sewage pipes from better-off settlements that pass through slum areas, lack of water and waste management services, limited access to information, and overcrowding. While poverty reinforces people's vulnerability to natural hazards, disasters make their already precarious living conditions worse, creating a vicious circle of poverty.

Meanwhile, the results also revealed that most of the disaster-prone communities in the city are classified as urban barangays. The findings affirmed the study conducted by Pornasoro, Munarriz, Silva, Capaque, and Estepa (2014) that in the Philippines, there is a greater tendency that urban communities are more prone to disasters than those in rural communities. This could be attributed to the fact that urban areas experience population congestion and rapid increases in infrastructure and even an emergent problem in the environment that makes the place more prone to different disasters, especially floods during typhoons and earthquakes.

## **Disaster Risk Reduction Management and Mitigation Practices of the different Barangays**

### *Pre- Disaster Risk Reduction Management and Mitigation Practices of the Barangays*

Pre-disaster risk reduction management is important in every community to lessen the presumptive effects of devastation that might happen in the community. Based on the results of the interview conducted on the different disaster-prone communities in Tuguegarao City, it was revealed that the majority of the barangay officials stressed that they are initiating pre-emptive evacuation and forced evacuation as a disaster preparedness activity in their barangays. The findings uphold the roles of every barangay unit as stipulated in the Local Government Code of 1991, stressing that barangay officials should be proactive and the first ones to initiate pre-disaster activities such as pre-emptive evacuation and even forced evacuation. Further, the results of the study revealed that indeed, the different barangays in the city integrated pre-disaster risk reduction and management into their plans and activities as stipulated in RA 10121. However, it is important to note that most of the responses of the constituents of the different barangays revealed that they are not aware of any pre-disaster activities being initiated by the barangay council. As such, the findings also revealed that the affected residents are only depending on social media, streamed through radio or television, and relaying the information to their neighbors to institute basic preparations on disasters. The above-mentioned contradictions in the results of the study between the responses of the barangay officials and their constituents imply that coordination and information dissemination, as well as active participation of the people in the communities, should be emphasized and should be given proper attention since it may lead to more serious problems within the community. Previous literature and studies conducted revealed that limited coordination of the barangays led to problems such as destruction of infrastructures and houses, agricultural damages, and even injuries and death (Enriquez, Gallardo, & Villa, 2012; Colance, Landong, & Manda, 2012). On the end, Rachel (2008) stipulated that disaster preparedness is a key for every community to better cope with disastrous calamities through the different barangay plans and strategies most especially through their implemented actions.

### *Disaster Risk Reduction Management and Mitigation Practices of the Barangays during Disasters*

During the occurrence of the disaster, it was revealed in the study that the main activities being conducted by the different barangays, as assessed by the barangay officials, are force evacuations and rescue operations. Typically, the Barangay Tanods and the Barangay Health Workers are the ones who are doing the said activities. However, the majority of the barangay officials admitted that activities conducted during disasters are not that effective because they themselves can only manage to save and to help their own families and are unable to help out

other families within their locale. Further, since these communities do not have an existing Barangay Disaster Risk Reduction Management Council, they depend only on the actions and decisions initiated by the City Disaster Risk Reduction Management Council. Meanwhile, the responses of the constituents revealed that they are not aware of any activities conducted and implemented by the barangay during disasters. In fact, as also emphasized by constituents, barangays are only depending on the aid of the CDRRMC and other government and non-government agencies, such as the Philippine National Police (PNP) and the Department of Social Welfare and Development (DSWD), capable of providing necessary help and actions. Cawis (2011) revealed that most of the barangays and communities in the Philippines were unable to follow their respective disaster management plans. Further, Presse (2011) enumerated problems and issues experienced by the community during disasters. Some of the issues that were also presented by the respondents that are cognizant of the findings of Presse (2011) are delayed mobilization of the rescue teams, irritability of the victims since some of them do not want to leave their houses, and delayed rescue operations due to impassable roads.

### *Post- Disaster Risk Reduction Management and Mitigation Practices of the Barangays*

After the disaster, the results revealed that most of the barangays are initiating distribution of relief goods and distribution of materials for rehabilitation and cleaning operations but focused more on rehabilitation. Further, the results of the interview revealed that part of the allocation of the annual budget of the five barangays is on post-disaster activities and programs. Moreover, they emphasized that besides the aid given by the government, many non-governmental organizations in Tuguegarao City are also helping the barangays, especially in the distribution of relief to the victims. However, most of the constituents stressed that their barangay officials are not that active and reliable enough in the distribution of relief goods and in the need for materials for rehabilitation for those who are extremely affected and have totally damaged properties. Another important finding is that private institutions, such as the religious sector and other governmental bodies, particularly the Department of Social Welfare and Development (DSWD) and the Red Cross, are observed to be more active in responses and actions after disasters, especially typhoons, than their own barangay government. It is also important to consider that nepotism, the kumpadre system, or the palakasan system are also observed as some of the contributing problems as to why relief goods and in-need materials are unjustly distributed and excessively delayed. In the aftermath of natural disasters, barangay units and other government agencies usually lead in disaster recovery efforts. Community roles in post-disaster recovery programs have already been recognized to be vital and important, as stipulated in the Code of Conduct for Disaster Relief, as it acknowledges the need to strive to achieve full community participation in relief and rehabilitation programs (Florano, 2014).

### **Compliance of different programs, policies, and activities on Disaster Risk and Reduction Management (RA 10121)**

Every community in the Philippines upholds the constituents' rights on addressing the root causes of vulnerabilities of disasters within their locale through strengthening the community's institutional capacity for disaster risk reduction and management and building the resilience among the citizens of the locale as one of the basic prior preparations in moments of disasters (Viloria, 2012). The barangay government plays one of the most vital roles in disaster risk management as stipulated in RA 10121. The results revealed that disaster risk management and mitigation practices as stipulated in RA 10121, also known as the Disaster Risks Reduction Management Act of 2010, are being implemented in the three disaster-prone barangays in Tuguegarao City, particularly barangays that belong to the urban class. Barangays are located within the assumption that the more the community owns disaster management plans, aids, and resources, the easier it is to implement them (Florano, 2014). In fact, urban barangays are allocated larger funds and resources given by the city government and CDRRMC, for they have a larger population to accommodate and developed areas to manage. However, it is important to note that the study also reveals that two of the barangays are not implementing the Disaster Risk Management and Mitigation provisions. Barangays that belong to the rural class are not active in implementing the Disaster Risks Reduction Management Act of 2010, as they are geographically located in the northern part of Tuguegarao City, which is known to be far from Centro. Proximity is one of the main reasons why RA 10121 is not so well implemented in the two barangays, as it lacks supervision and support from the city government, which includes allocation of sufficient funds to establish necessary facilities and in-need equipment. Another is the lack of coordination between barangay officials and the constituents. APDC (2008) stipulated that communities are considered as the key resource and frontline actor in disaster risk management and mitigation implementation. Further, more proper coordination from the involved government agencies and the constituents plays a vital role in implementation. Priority is given to the local people as the main actors and prime movers in reducing disaster risks in their community through multi-stakeholder participation and involvement in vulnerability assessment, planning to implementation, identification of disaster mitigation and preparedness measures, decision-making, response, rehabilitation, monitoring, and evaluation. Overall, results revealed that the subject barangays are not that active in the implementation of disaster risk management and mitigation.

#### **IV. CONCLUSION AND RECOMMENDATIONS**

In light of the findings of this research, it is concluded that most of the constituents of the five disaster-prone barangays are not that aware of the implementation of programs and policies related to disaster risk management and mitigation, particularly before, during, and after disasters, such as typhoons. Moreover, barangay local government units are not that active in the

compliance and implementation of policies and programs directly concerned with addressing the effects or vulnerabilities of disasters within their community. In the five disaster-prone barangays in Tuguegarao City, four of them depict close results on the extent of compliance and implementation of programs and policies relevant to disaster risk management and mitigation as assessed and evaluated by its constituents; barangay Linao West, on the other hand, unveils the lowest extent of implementation. However, among the four barangays that depict close results, only three of them are at least able to comply and initiate necessary actions and responses as a preparation for disasters, particularly on typhoons. Barangay geographical location and urban-rural community classification are the major factors affecting the inactive and inefficient implementation of disaster risk management and mitigation. Geographical aspects such as barangay location and its proximity to the city government, capable of providing supervision, aids, and assistance; urban-rural community classification, which includes allocation of funds; are the significant reasons behind the ineffective implementation of disaster risk management and mitigation in the community.

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