THE IMPLEMENTATION OF DISASTER RISK REDUCTION MANAGEMENT PROGRAM IN PREPAREDNESS AND AWARENESS FOR SCHOOL SAFETY: BASIS FOR INTERVENTION PLAN

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ABSTRACT

This study determined the level of implementation of disaster risk reduction management of the public elementary school administrators and teachers in the three municipalities of the Province of Surigao del Sur during the school year, 2016-2017. It focused on four components, namely: Understanding disaster risk; Strengthening disaster risk governance to manage disaster risk; Investing in disaster risk reduction for resilience; and Enhancing disaster preparedness for effective response. Descriptive method of research was employed using the questionnaire as the main data-gathering tool. Focus Group Discussion (FGD) was also employed to supplement the responses of the participants. There were 152 participants who comprised of school administrators and teachers. A 5-point Likert Scale was utilized in scoring the data. The data were treated using the mean, standard deviation, frequency and percentage. Findings revealed that the school administrators and teachers *always* implemented all the activities in the four components of DRRMP for school safety. The foremost problems encountered by the participants in the implementation of DRRMP were: lack of thorough conduct on disaster preparedness; no constructed school gate; unsafe building structures for evacuation centers; and scarcity of food. A proposed intervention plan was designed to address the problems.

Keywords: Disaster, management, school safety, intervention plan.

INTRODUCTION

Disaster Risk Reduction (DRR) is an approach to systematically identify, assess and reduce that risk. Specifically, the purpose of DRR is to minimize vulnerabilities and disaster risks throughout society to avoid or lessen the adverse impacts of natural hazards, as well as, to facilitate sustainable development. The Department of Education always advocates the disaster drill on Disaster Risk Reduction in the field, to heighten the level of awareness of school administrators, teachers, pupils, and stakeholders.

Disaster Risk Reduction Program is a program of the government which aims to build resiliencies of communities to disasters and reducing vulnerabilities and risk to hazards such as preparedness, mitigation, prevention, and rehabilitation. Disaster refers to a serious disruption of how a society or community functions causing extensive human,

material, economic, or environmental losses exceeding the ability of the affected community or society to recover using its resources. A disaster is a function of the risk process resulting from the combination of hazards, vulnerability conditions, and insufficient capacity or measures in reducing the possible risks (UN/International Strategy for Disaster Reduction, 2004).

Since schools are universal institution for sharing knowledge and skills, schools are expected to be role models in disaster prevention. Successful disaster mitigation is one of the ultimate tests of the success of the education provided over generations. With this, DRRMP was implemented in the school system to keep the environment for children and their families' safe during the emergencies. Natural calamities can hamper and devastate the learning process of learners; it may be formal or informal.

These disasters, whether natural, bio-hazard or man-made, have particularly affected school communities with students, teachers, and school staff also among those injured, displaced or killed. Schools often serve as evacuation centers which further contribute to the disruption of classes. To reduce disaster-related risks and to mitigate their effects, there is an urgent need to integrate and promote disaster risk management initiatives. One example is developing plans of action for infant and young child feeding in emergencies (IFE) to increase the resiliency of schools, particularly those located in high-risk communities.   The Philippines has been committed to mainstream disaster risk reduction (DRR) into the education sector. In 2007, the Secretary of the Department of Education (DepEd) issued an order memo to all offices of the department especially the public and private schools to prioritize the mainstreaming of disaster risk reduction management in the school system and ensure implementation of programs and projects related to DRR. So, the MDRD Education program worked from this strong foundation and commitment.

According to Hassanain (2006), the disruption of school operations may cause psychological damage to pupils, families, and teachers after the event. This will impair the learning environment. School occupants mostly untrained children on evacuation drills are at risk of incurring a high rate of fatalities and injuries because they may be less able to take the necessary quick action.

In 2006, the global campaign of the UNISDR aptly called '*Disaster Reduction Begins in School,'* strengthened the tested concept that education and disaster prevention go hand-in-hand. DRR education equips the community with knowledge and skills to save lives and prevent injuries during times of disaster. It also ensures that learners recognize valuable lessons, develop helpful practices as a community, and build the individual's confidence to be resilient towards hazards. The resilience of a community during a disaster is determined by the degree to which the community has the necessary resources and is capable of organizing itself both before and during times of need (UNISDR Terminology in Disaster Risk Reduction, 2009).

The City Disaster Risk Reduction Management Office (CDRRMO) has conducted an orientation among members of the tri-media and the academe to shed light on their role

on disaster risk reduction and management should natural and man-made calamities strike the city. The media should know where to go and get the right information and data, so the public will not be misled. The role of media is very important and crucial to disaster management.

Ma. Aletha Nogra of the Office of Civil Defense (OCD) Region 6 stated that the Philippines is vulnerable to all types of hazards. The country is experiencing an average of 20 typhoons a year and has 22 out of 300 active volcanoes. The Philippines topped the World Disaster Risk Index in 2011 as the most number of cases in natural and human-induced disasters, and number 3 and number 2 in 2013 and 2014, respectively.

The Province of Surigao del Sur experienced different catastrophic calamities such as floods, earthquakes, and typhoons for the past years. When Typhoon Pablo hit the place on December 4, 2012, houses in the community collapsed. The strong wind blew off the roofs. Schools were not exempted from that tragic situation. Books, pupils' documents, instructional materials made by the teachers were also destroyed. Many school-age children suffered much from trauma and were injured, as well.

When typhoon was over, many families were left homeless and stayed for a while in an evacuation center as provided by the LGU for them. School administrators and teachers made an initiative to conduct feeding program since many of the children suffered from hunger as the disaster happened on the early dawn. Children are the most vulnerable to disaster on slaught. The typhoon serves as a wake-up call to everyone to be more observant on the day-to-day weather condition, to avoid the experience again. Wisner (2006) pointed that this disaster awareness should begin at school which aims to promote the integration and enhance the capacity of children and community on disaster resilience of disaster risk reduction into government plans for school curricula and ensures that the buildings are safe from the impacts of natural hazards.

It is this contention that the researcher attempts to determine the level of implementation in the three municipalities particularly in all public elementary schools about school safety. Based on the map given by the planning office, these places are prone to any disaster that may come. With conviction, the researcher believes that any time of the day, people could experience unexpected calamity. With this prevailing situation, the researcher was prompted to investigate the level of DRR implementation for school safety in the municipalities.

REVIEW OF LITERATURE
Legal Basis of Disaster Risk Reduction Program
The Department of Education has adopted the following guiding principles in disaster risk reduction management.

Republic Act No. 10121 of 2010 provides a legal basis for policies, plans, and programs to deal with disasters. It acknowledges the need to "adopt a disaster risk reduction and management approach that is holistic, comprehensive, integrated, and proactive in lessening the socio-economic and environmental impacts of disasters

including climate change, and promote the involvement and participation of all sectors and all stakeholders concerned, at all levels, especially the local community." The law led to the formulation of the National Disaster Risk Reduction and Management Plan (NDRMMP), a roadmap on how DRRM shall contribute to sustainable development. The National DRRM Council through the Office of Civil Defense (OCD) formulated and implemented the NDRRMP, a document that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives. It outlines the activities aimed to strengthen the capacity of the national government and local government units with partner stakeholders, to build disaster resilience of communities and to institutionalize arrangements and measures for reducing disaster risks, including projected climate risks and enhancing disaster preparedness and response capabilities at all levels. By law, the OCD formulates and implements the NDRRMP and ensures that the physical framework, social, economic and environmental plans of communities, cities, municipalities, and provinces are consistent with such plan.

Rule 1040 of the *Occupational Safety and Health Standards* states that each agency must organize disaster control groups/ safety committees in every place of employment and conduct periodic drills and exercises in workplaces.

The Committee Report No. 2491 of the House Committees of National Defense, Appropriations and the Special Committee on Millennium Development Goals, endorsed House Bill No. 6985. According to Ocampo (2010), "The bill will mandate the government to assess its capabilities to lead and implement disaster relief campaigns. The country is naturally disaster-prone, but preparedness should be a top priority for the government. The threat and possibility of hundreds of thousands suffering and dying in floods and earthquakes can decrease significantly if we prepare in advance for calamities to save lives and minimize damage to infrastructure. We don't want the Philippines to suffer like Haiti during the earthquake."

Also, the Executive Order No. 159, series of 1968, mandates the establishment of disaster control organization to all heads of departments, bureaus, offices, agencies, instrumentalities and political sub-divisions of the government, including all corporations owned and controlled by the government, the armed forces, government hospitals, and public educational institutions.

In line with the Hyogo Framework for Action (HFA) 2005-2015, UNICEF and UNESCO have developed a technical guidance to support national efforts of integrating Disaster Risk Reduction (DRR) into the school curriculum. The technical guidance is the most comprehensive resource to date advocating for the holistic integration of DRR into the curriculum. It is written for those working at all levels of curriculum development process – from policymakers and curriculum developers to headmasters and teachers. The HFA itself is a response to the increasing number and scale of disasters around the world. The average frequency of disasters was 384 per annum throughout the 2000s, which represents a dramatic increase since the 1970s and 1980s. Among those who are most vulnerable to disaster are children who are often excluded

from DRR decision-making and education. The HFA was adopted by 168 governments in January 2005 at the World Conference on Disaster Reduction in Kobe, Japan. Among the five HFA priorities, Priority 3 is the most relevant to the education. It encourages the governments, regional and international organizations and other stakeholders, to 'use knowledge, innovation and education in building a culture of safety and resilience at all levels.' It also identifies school-related activities.

The reviewed literature and readings on some legal bases help to provide more information and relevant insight to further strengthen the study on the basis for the DRR implementation for school safety.

Understanding Disaster Risk

According to United Nations Development Program (UNDP, 2010), disaster preparedness involves forecasting and taking precautionary measures before an imminent threat. Preparedness planning improves the response to the effects of a disaster by organizing the delivery of timely and effective rescue, relief, and assistance. UNDP further stated that preparedness involves the development and regular testing of warning systems and plans for evacuation or other measures to be taken during a disaster alert period. This is to minimize potential loss of life and physical damage. Preparedness also includes the education and training of officials, intervention teams, and the population at risk, and the establishment of policies, standards, organizational arrangements and operational plans following a disaster.

The Department of Education through the Technical Working group of the Disaster Risk Reduction Management conceptualized the hazard/disaster awareness promotion to manage impacts, and to help all school communities to reduce the risk of threats from natural and human-made/induced disasters (DepEd Manual, 2014).

The *International Strategy for Disaster Reduction* (ISDR, 2002) defines disaster preparedness as activities and measures taken in advance in ensuring effective response to the impact of disasters. It includes the issuance of early warnings and the temporary removal of people and property from a threatened location.

Director Health and Education reported in *International Finance Corporation*, (IFC, 2010) that planning for natural disasters and an emergency is something every educational institution must consider, regardless of its size or location. It is not possible to plan for every eventuality that might occur. However, preparation is a key to saving lives if a disaster strikes.

Though practice for evacuation from the building is commonly done, it would not be enough unless someone will educate the people on the things they should do and prepare them for the evacuation (Goedken, 2007). Evacuation drill could also be a way to identify weaknesses in the system, critical points that can make evacuation unsuccessful.

According to Ozmen (2006), many states require specific disaster preparedness activities in the school systems after spending millions on repairing schools after a disaster. Further, he pointed out that officials must plan to mitigate risk, to protect the safety of students and educators and to ensure that schools recover quickly.

Moreover, Twig (2004) mentioned that helping people avoid impending disaster threats and putting plans, resources, and mechanisms in place to ensure that those who are affected can receive adequate assistance are the main aims of disaster preparedness.

According to Romero (2012), loss and damage from the disaster could be prevented or minimized if the school-community, the people, and the government are prepared, well-informed and can bounce back after a disaster strikes. Graham, Shirm, Liggin, Aitken, and Dick (2006) pointed that it is important for schools to be prepared for disasters as there is always a possibility of a crisis event at school.

Preparedness focuses on plans to respond to a disaster threat or occurrence (UNESCO, 2010).It includes an estimation of emergency needs and identifies the resources to meet these needs and highlights preparedness objectives which include: to reduce disaster impact through appropriate actions and improve the capacity of those who are likely to be affected most; to ensure that ongoing development continues to improve the capacities and capabilities of the system to strengthen preparedness efforts at the community level; and to guide reconstruction ensuring reduction and vulnerability.

The reviewed readings on understanding disaster risk widen the perception of the researcher in conceptualizing and preparation of items for the instrument to be utilized in the study.

Strengthening Disaster Risk Governance to Manage Disaster Risk
Disaster prevention and mitigation refer to those activities that provide an outright avoidance of the adverse impact of hazard and related environmental, technological and biological disasters (NDRRMC, 2013).

Education, disaster prevention, and mitigation go together. Recognizing and assessing the future impact of hazards, vulnerabilities, and risks and identifying strengths and capacities happen to contain the fundamentals of scientific thinking, as well as, the basics of good citizenship and participatory governance. Petal (2011) cited that the values, attitudes, and technologies needed for physical protection, informed planning, environmental stewardship, disaster-resilient design, and construction are fundamental to sustainable development and livelihood security.

It is important to take prevention and mitigation actions to lessen the impact of a hazard. No one can stop natural hazards from happening, but we can reduce the damages by taking measures to avoid an event turning into a disaster. Disaster prevention includes planting trees to avert erosion, landslides, and drought. On the other hand, mitigation measures reduce vulnerability to hazards which include improved building practices and standard designs to ensure that school buildings are

constructed in risk-free school sites, houses and hospitals can withstand an earthquake or a typhoon (Safer Schools Resource Manual, 2014).

DepEd Order no. 5 s. 2014 provides guidelines in integrating the *Gulayan sa Paaralan,* ecological solid waste management and tree growing and caring as components to attain the goals of DepEd on food security, biodiversity conservation and climate change mitigation and adaptation. The *National Greening Program* (NGP) when implemented in all the public schools of the Philippines has the potential to become a massive DRR effort. More trees will absorb more pollution from the air and will prevent soil erosion.

Despite the advances in knowledge in the disaster research field, the effects of disasters on children and youth have been under studied. Anderson (2005) said that having a deeper understanding of the effects of disasters on society provides a firmer basis for disaster management policy and practice.

Disaster reduction begins at school was not just the catchy slogan for the UN International Strategy for Disaster Reduction's 2008 global campaign.

The literature reviewed broadens the insight of the researcher on the disaster prevention and mitigation. To eliminate or reduce the impacts and risks of hazards, one should take proactive measures before an emergency or disaster occurs.

Investing in Disaster Risk Reduction for Resilience
According to Romero (2012), the realization that loss and damage from the disaster could be prevented or minimized if the school-community, people and government are prepared, well-informed and can bounce back after a disaster strikes.

Eyre (2006) mentioned that disaster training and response should engage those professionals working with children and young people within the community such as teachers, educational psychologist and youth workers before as well after incidents occur.

The guidelines in assessing disaster resilience and vulnerability suggested that one should prepare the magnitude and duration of any social and psychological effects to identify potential disasters, examine their potential impact and determine the vulnerability and level of resilience among people and communities (Buckle, et al. (2001). In previous decades Mitchell's (2001) *Critical Incident Stress Debriefing* (CSID), a widely used model of psychological intervention was used as a preventive intervention with significant populations exposed to disasters based. Through CSID, the survivors share their experiences in a structured and supportive environment to reduce feelings of abnormality and facilitate on adaptive coping responses. However, research has shown that mental health services are not widely applied after disasters and are often perceived to be unhelpful to people who need more goods and services (Hutton, 2001).

Recently, resilience literature has examined the processes of adjustment and self-organization from a more dynamic and complex perspective (IFRC 2004; Gardner and Dekens 2007). The resilience perspective attempts to look into adaptation to change from a more positive angle than the vulnerability perspective which focuses on people's strengths rather than on their vulnerabilities.

The reviewed literature adds insight and broadens the perspective of the research in conceptualizing the study and in the preparation of the instrument, as well.

Enhancing Disaster Preparedness for Effective Response

The Recovery/Mitigation Committee works with the community before and after a disaster to articulate a vision of community disaster recovery. The recovery process needs to strike a balance between corporate-centered and community-based economic development (Blair and Bingham, 2000). According to a corporate-centered economic development, usually advocated by the local business community, the government provides resources such as land and money to the private sector to invest without any restrictions. This market-based strategy produces results that are good in aggregate but results to an inequitable recovery. By contrast, community-based economic development involves active participation by the government to ensure that the economically-disadvantaged segments of the community will share the benefits of recovery. Communities must also consider the long-term economic consequences of disaster recovery. They can attract new businesses if they have a skilled labor pool and good schools – especially colleges whose faculty and students can support knowledge-based industries. Other assets include low crime rates, low cost of living, housing, and environmental amenities such as mountains, rivers, or lakes (Blakely, 2000).

In the studies of Castro, (2013) and Tolibas, (2011) building community linkages involved community stakeholders in the school development and outreach program. The studies revealed that the school administrators and teachers are in a large extent in establishing good community partnership. Strong community linkages contributed to school development program.

The affected community can recover best by exercising a high degree of self-determination. It is the coordinated process of supporting communities affected by disaster or emergencies including terrorist incidents, in the reconstruction of infrastructure and the restoration of their emotional, social, economic and physical well-being (EMA, 2004).

According to World Health Organization (2011), access to safe drinking-water is an important public health concern in an emergency setting. The waterborne risk to health is the transmission of fecal pathogens. WHO considers water safety plans as a risk management tool to ensure the safety of potable water. Contaminated water is commonly the source of outbreaks of diseases such as cholera, dysentery, typhoid fever and acute diarrhea. Plans should include control measures for all identified risk factors.

The reviews and reports reflect the changing conceptualization of disaster management including the increasing recognition of the importance of mitigation recovery which unlike response and relief has significant impact on broader and more complex social policy issues such as education, health, welfare and indigenous policy (Dwyer, 2006).

The more recent literature emphasizes a socio-cultural framework which more strongly involves collaborative social and community processes. Gist, et al. and Stephens (2004) found that whatever positive effects formal debriefings may have more natural activities like talking with family and friends have greater effects. In several cases, people may benefit most from concrete, explicit and directive assistance which enable them to attain the tangible goods and services required to overcome the material losses of a disaster (Flyn, 1999; Slazer & Bickman, 1999 in Hutton, 2001).

The gathered readings and materials help and give ideas to the researcher in the formulation of the instrument. Moreover, these readings serve as a guide in the analysis and interpretation of the result of this study.

METHODOLOGY
The Research Locale
This study was conducted in three municipalities of Surigao del Sur particularly in all public elementary schools of Barobo 1 and 2 Districts, Lianga District and Tagbina District. There were 152 participants consisting of both teachers and school administrators who were the subject of the investigation regarding the level of DRR implementation for school safety. Figure 2 shows the map of the three municipalities namely: Barobo, Lianga and Tagbina, Surigao del Sur.

Surigao del Sur is lining the South-western boundary of the Diwata Range and has irregular coastlines and boundary lines on the east and the west, respectively. Highlands and mountains consist about 16.30 percent of the total land area of the province. The hilly land constitutes the biggest area, about 45.77 percent of the total land area of the province. The upland is about 16.0 percent while lowland covers 21.28 percent of the total land area.

The general shape of the province is elongated which extends from the northeastern part of Carrascal to the southernmost Municipality of Lingig. It is approximately 300 kilometers in length and 50 kilometers in its widest stretch running from Cagwait to San Miguel.

The province falls under Type II of climate in the Philippines characterized by rainfall distributed throughout the year, although a distinct rainy season begins from November and ends in March. July to October have low rainfall with September as the driest month. November to June are the wet months with January as the wettest month.

Surigao del Sur has substantial quantities of metallic minerals like copper, gold, chromite, cobalt, nickel, lead, and zinc. There are also deposits of non-metallic

minerals like limestone, coal and feldspar, clay diatomite/bentonite and coarse/fine aggregates.
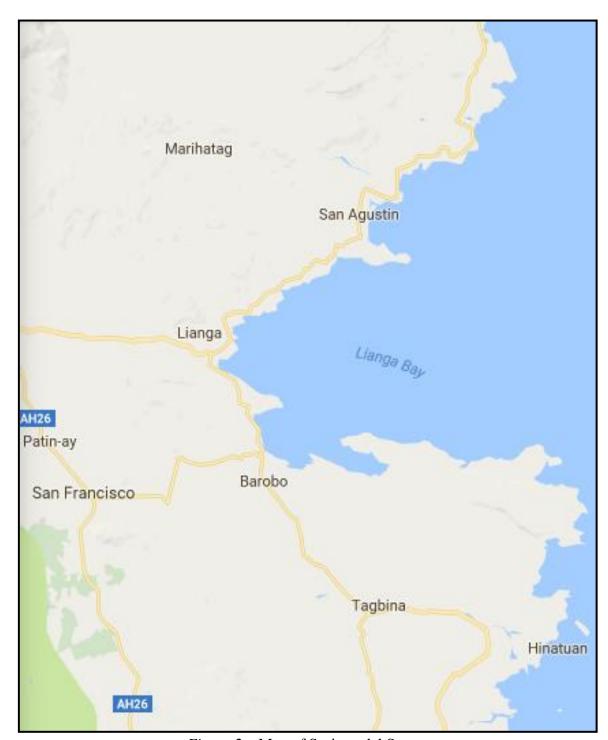

Figure 2. Map of Surigao del Sur.

The Participants of the Study

The participants of this study are all public elementary teachers including school administrators in the municipality of Barobo, Lianga, and Tagbina which compose of 16 schools with 152 number of participants. All teachers and school administrators were involved in the conduct of this study since they are responsible for helping the DRR management program so that the level of awareness would be improved. School administrators are the direct contact persons in case of emergency while teachers are the ones who implement activities in the field to ensure the successful implementation and realization of the program.

Displayed in Table 1 are names of schools and the number of participants in the study.

The Research Instrument

The instrument used in this study was a researcher-made questionnaire composed of three parts. The first part is on the level of DRR implementation for school safety with four indicators namely: (1) Understanding Disaster Risk, (2) Strengthening Disaster Risk Governance to Manage Disaster Risk, (3) Investing in Disaster Risk Reduction for Resilience and (4) Enhancing Disaster Preparedness for Effective Response and to *"Build Back Better"* in Recovery, Rehabilitation, and Reconstruction.

Part two asked for the problems encountered by the focal persons and the teachers in the implementation of DRR for school safety. Part three dealt with the intervention plan to be designed to address the problems encountered.

Table 1

Number of Participants by School in Barobo 1 and 2, Tagbina and Lianga Districts

Participants	School Administrators	Teachers
Barobo Central Elementary School	1	7
Barobo Townsite Elementary School	1	14
Dughan Elementary School	1	7
Unidad Elementary School	1	7
Gamut Elementary School	1	12
San Roque Elementary School	1	5
Wakat Elementary School	1	12
Talisay Elementary School	1	12
Anunang Elementary School	1	2
Cabacungan Elementary School	1	6
Ban-as Elementary School	1	7
R. Moreno Elementary School	1	12
Payasan Elementary School	1	9
Baucawe Elementary School	1	8
Anibongan Elementary School	1	7
Quezon Integrated School	1	9
Total	16	136

Administration of the Instrument

Before the conduct of the study, the researcher asked permission through a letter to the office of the Graduate School of Bukidnon State University. After it was approved, request was sent to the Schools Division Superintendent, District Supervisors and all school administrators of Surigao del Sur to gather the needed data for the study.

Before the distribution of the questionnaire, the researcher clarified to the participants that whatever their response to each item will remain confidential. After which, the researcher personally distributed the instrument to every participant to ensure the 100% retrieval. On the following day, the researcher collected and checked the questionnaire if there were no missed items. Upon leaving from the place, the researcher thanked the participants for their valuable support and cooperation.

Scoring Procedure

In this study, the researcher utilized Likert Scale type of rating. The participants were asked to respond to each item on the questionnaire by checking their choices.

Scale	Ranges of Mean	Qualitative Description	Qualifying Statement
5	4.21 - 5.00	Always	When the activity is practiced in all situations.
4	3.41 - 4.20	Oftentimes	When the activity is practiced in most situations.
3	2.61 - 3.40	Sometimes	When the activity is practiced in some situations.
2	1.81 - 2.60	Seldom	When the activity is rarely practiced.
1	1.00 - 1.80	Never	When the activity is not practiced at all.

Treatment of Data

The following statistical tools were employed to arrive at a logical interpretation:

Mean and Standard Deviation were used to answer problem 1 which determines the level of implementation of DRR for school safety in four areas: (1) Understanding Disaster Risk, (2) Strengthening Disaster Risk Governance to Manage Disaster Risk, (3) Investing in Disaster Risk Reduction for Resilience and (4) Enhancing Disaster Preparedness for Effective Response.

Frequency and percentage were also used to answer the problems encountered by the teachers and their proposed actions to be taken in the implementation of DRR.

RESULT AND DISCUSSION

Level of the Implementation of DRRMP for School Safety on Understanding Disaster Risk

Presented in Table 2 is the level of implementation of DRRMP for school safety on understanding disaster risk. It shows that both school administrators and teachers *always* practiced the implementation of DRRMP for school safety on understanding disaster risk. The overall result of both school administrators and teachers indicates that they *always* practiced the DRRMP for school safety on understanding disaster risk. The result implies that the school administrators and teachers practice in all situations the activity on understanding on disaster risk in the implementation of DRRMP.

Table 2: *Level of the Implementation of DRRMP for School Safety on Understanding Disaster Risk*

Indicators	Administrators			Teachers		
	Mean	s.d.	Qualitative Description	Mean	s.d.	Qualitative Description
As a teacher/ school administrator, I…						
keep constantly remind to be keen observer about the day to day weather conditions.	4.60	0.51	Always	4.45	0.69	Always
encourage to participate and take seriously in any disaster drill activity.	4.60	0.51	Always	4.49	0.58	Always
prepare and keep an up-to-date set of documentation.	4.60	0.51	Always	4.25	0.69	Always
keep on reminding to be ready for everything at all times (first aid Kit, food supplies, etc.)	4.53	0.52	Always	4.45	0.63	Always
increase the level of awareness and enhanced capacity to the threats and impacts of all hazards.	4.47	0.64	Always	4.45	0.63	Always
identify area/areas which are prone to hazard or risk.	4.47	0.52	Always	4.40	0.68	Always

equip myself with necessary skills and capability to cope with the impacts of disasters.	4.40	0.63	Always	4.37	0.62	Always
strengthen partnership and coordination among all key players and stakeholders.	4.40	0.74	Always	4.32	0.72	Always
develop and implement comprehensive local	4.40	0.63	Always	4.26	0.72	Always
preparedness and response policies, plans, and systems make an emergency exit plan.	4.33	0.72	Always	4.22	0.78	Always
Overall	4.48	0.59	Always	4.37	0.67	Always

Results revealed that school administrators have higher means compared to teachers, this is because school administrators are the ones executing the activities, since they are the team leaders of the implementation.

Looking at the specific items "keep constantly reminded to be keen observer about the day to day weather conditions, encourage to participate and take seriously in any disaster drill activity and prepare and keep an up-to-date set of documentation" got the highest mean. The school administrators and teachers *always* implemented this item. The school administrators keep on reminding the teachers, as well as, pupils to be more vigilant about weather conditions. Another thing is the conduct of drill on different types of disaster. School administrators want to take the conduct of drill properly for the teachers and pupils to learn. During the drill, the participants executed the activities before, during and after the disaster. Bringing evacuees to the evacuation centers were emphasized so that more lives can be saved.

According to Goedken (2007), though evacuation from a building is a common part of a drill, it could not improve a lot if the leaders do not tell people what to do and prepare them for the evacuation. Evacuation drill could be a tool to identify weaknesses in the system, critical points that can make evacuation unsuccessful.

However, the item with the lowest mean is on "make an emergency exit plan." This finding implies that not all classrooms have an emergency exit plan. The Bureau of Fire and Protection (BFP) requires every building to have an emergency exit plan that is conspicuously posted so that when something wrong happens, the teachers and the pupils will know what to do. There should be greater emphasis on school preparedness since a crisis is unavoidable (Graham, Shirm, Liggin, Aitken, and Dick, 2006).

Level of the Implementation of DRRMP for School Safety on Strengthening Disaster Risk Governance to Manage Disaster Risk

Table 3 reflects the level of implementation of DRRMP for school safety on strengthening disaster risk governance to manage disaster risk. It shows that the school administrators and teachers *always* implemented this activity. Both reflected an overall means qualitatively described as *always*. Moreover, the obtained standard deviation of the responses of the participants was close to others.

Data revealed that the school administrators and teachers have *always implemented* the following activities: reporting to school head/proper authority if big cracks are found on school wall and floor; occasionally checking electrical wirings inside the classroom/in school; coordinating and asking assistance with parents for the repair of any

Table 3: *Level of the Implementation of DRRMP for School Safety on Strengthening Disaster Risk Governance to Manage Disaster Risk*

Indicators	Administrators			Teachers		
	Mean	s.d.	Qualitative Description	Mean	s.d.	Qualitative Description
As a teacher/ school administrator, I…						
report to school head/proper authority if I found big cracks on school wall and floor.	4.73	0.46	Always	4.46	0.57	Always
occasionally check electrical wirings inside my classroom/in school.	4.67	0.49	Always	4.34	0.66	Always
coordinate and ask assistance with parents for the repair of any damaged part in the classroom/school.	4.67	0.49	Always	4.17	0.86	Often
constantly remind to stay away from the electric post and other dangerous areas.	4.67	0.49	Always	4.55	0.57	Always
intensify orientation on the disaster to be always aware an reminded.	4.60	0.51	Always	4.32	0.70	Always
refrain from hanging fragile and heavy materials inside the classroom.	4.60	0.63	Always	4.44	0.65	Always
always keep the surrounding free from hazard or risk.	4.60	0.63	Always	4.53	0.58	Always
integrate DRR in my lessons across all learning areas if possible.	4.53	0.64	Always	4.28	0.78	Always

ask contact numbers of the Head of LGU in case of emergency.	4.53	0.64	Always	4.20	0.73	Often
intensify planting trees and other plants to prevent soil erosion.	4.47	0.64	Always	4.18	0.79	Often
Overall	4.61	0.56	Always	4.35	0.69	Always

damaged part in the classroom/school; and reminding learners to stay away from electric post and other dangerous area.

The findings imply that school administrators and teachers show a high degree of concern for their children to keep them safe and sound *always.* All of the school officials from higher authorities down to school level are intensifying and making sure that all children are secure and free from possible accidents. The school administrators *always* emphasize to the teachers to keep their assigned area and classroom away from hazards or risks.

There are 3 items where teachers differ in their ratings from the administrators. While the administrators *always implement* all the indicators, the teachers *often implement* DRRP in the following items: "coordinate and ask assistance with parents for the repair of any damaged part in the classroom/school; ask contact numbers of the Head of LGU in case of emergency; and intensify planting trees and other plants to prevent soil erosion."

The item which got the least mean is on "intensify planting trees and other plants to prevent soil erosion." This implies that school administrators and teachers are not giving much emphasis on this activity probably because schools have no enough space for the tree planting activity. Aside from this, most schools are near the coastal area. However, DepEd Order no. 5 s. 2014 provides the guidelines in the integration of *Gulayan sa Paaralan*, ecological solid waste management, and tree growing and caring as components in attaining the goals of DepEd on food security, biodiversity conservation, and climate change mitigation and adaptation.

In the same reference, *The National Greening Program* (NGP) when implemented in all the public schools in the Philippines, has the potential to become a massive DRR effort. More trees will absorb more pollution from the air and will prevent soil erosion.

Level of the Implementation of DRRMP for School Safety on Investing in Disaster Risk Reduction for Resilience
Reflected in Table 4 is the level of implementation of DRRMP for school safety on investing in disaster risk reduction and resilience. Looking at the overall mean, it shows that the school administrators and teachers perceived that the DRRMP activities are

always implemented. The standard deviation reveals that the responses of the administrators and teachers were homogeneous.

Further, the table shows that the administrators and teachers have *always* implemented the following: "making their room available as evacuation center; teaching the students to be calm and avoid panic during an emergency; and reminding the students to stay away from broken glasses, fallen electric post". The findings manifest that school

Table 4: *Level of the Implementation of DRRMP for School Safety on Investing in Disaster Risk Reduction for Resilience*

Indicators	Administrators			Teachers		
	Mean	s.d.	Qualitative Description	Mean	s.d.	Qualitative Description
As a teacher/ school administrator, I…						
always make my room available as an evacuation center.	4.73	0.46	Always	4.51	0.58	Always
teach them to be calm and avoid panic during an emergency.	4.67	0.49	Always	4.54	0.58	Always
constantly remind to stay away from broken glasses, fallen electric post.	4.67	0.49	Always	4.60	0.51	Always
coordinate well with disaster response operations and assistance.	4.60	0.51	Always	4.34	0.66	Always
establish and maintain coordination with the stakeholders.	4.60	0.51	Always	4.46	0.56	Always
apply first aid in case of emergency.	4.53	0.52	Always	4.43	0.55	Always
coordinate with parents in preparing accessible potable water supply.	4.47	0.52	Always	4.30	0.72	Always
Overall	4.61	0.50	Always	4.45	0.59	Always

administrators and teachers are willing to extend help to those who need their services. Aside from these their degree of concerns are very evident. They make sure that everybody is in a safe and secure area.

On the other hand, the item that got the lowest mean is on "coordinate with parents in preparing accessible potable water supply," though both the school administrators and teachers rated the implementation of this activity as *always*. Asking parents to have potable water supply is somewhat difficult in a sense that these municipalities are flood-prone areas. The flood-water and hazardous waste materials contaminate the water. According to World Health Organization (2011), access to potable water is an

important public health concerns in an emergency setting. The transmission of fecal pathogens is a waterborne risk to health. Contaminated water is commonly the source of outbreaks of diseases such as cholera, dysentery, typhoid fever and acute diarrhea. The WHO considers that having a water safety plans is a risk management tool in ensuring the safety of drinking water.

Level of the Implementation of DRRMP for School Safety on Enhancing Disaster Preparedness for Effective Response

Table 5 presents the level of the implementation of DRRMP for school safety on enhancing disaster preparedness for effective response and to "build back better" in recovery, rehabilitation, and reconstruction.

Table 5: *Level of the Implementation of DRRMP for School Safety on Enhancing Disaster Preparedness for Effective Response*

Indicators	Administrators			Teachers		
	Mean	s.d.	Qualitative Description	Mean	s.d.	Qualitative Description
As a teacher/ school administrator, I…						
extend my helping hand to bring back classrooms to its essence as a conducive learning environment.	4.67	0.62	Always	4.45	0.60	Always
involve myself in the conduct of feeding activities to those families who are affected by such disaster.	4.67	0.62	Always	4.21	0.77	Always
intensify information drive on disaster risk reduction.	4.40	0.63	Always	4.30	0.65	Always
help to get parents involve in the reconstruction and rehabilitation the destroyed classrooms.	4.33	0.82	Always	4.08	0.93	Always
approach external stakeholder to ask donations or in kinds for the provision of children's school supplies.	4.27	1.16	Always	4.00	0.90	Always
coordinate with other agency for stress-debriefing.	4.27	0.80	Always	4.12	0.74	Always
Overall	4.44	0.78	Always	4.19	0.77	Always

The table shows that school administrators and teachers *always* implement DRRMP for school safety. This indicator obtained an overall mean which is qualitatively described as *always* implemented. Responses of both school administrators and teachers were close and did not disperse much from the mean which indicates that their ratings are homogeneous.

The topmost item rated by the school administrators and teachers as *always* implemented is "extend my helping hand to bring back classrooms to its essence as a conducive learning environment, involve myself in the conduct of feeding activities to those families who are affected by such disaster and intensify information drive on disaster risk reduction." This statement corresponds to what happened when the researcher's place was hit by a typhoon. School administrators and teachers together with the parents work hand-in-hand to repair damaged classrooms with the aid of LGUs, NGOs. Despite the calamity that occurred in the Province of Surigao del Sur, the people remained firm and resilient to continue on their journey in life.

Teachers together with the Barangay Health Workers (BHW) graciously conducted feeding program to all the victims. Many families suffered much from the calamity but the LGU and NGOs helped in distributing relief goods and in kinds to the victims. School MOOE funds were used to replace the damaged school supplies of the pupil; thus, they were able to continue their studies.

One item on "intensify information drive on disaster risk reduction," was rated by school administrators and teachers as *always* implemented. It is always an advocacy of the school to inform and remind parents, stakeholders, and people in the community during PTA assemblies because calamity or disaster may happen any time of the day. Thus, one must always be ready and vigilant.

The item that got the lowest mean is on "approach external stakeholder to ask donations or in kinds for the provision of children's school supplies and coordinate with other agency for stress-debriefing." This result implies that the school administrators and teachers are not used to approaching other stakeholders in the community because of some unknown reasons. Recent literature emphasized the importance of well-targeted interventions to address the social and psychological impacts of disasters. The model of psychological intervention widely used with significant populations exposed to disasters is Mitchell's (2001) *Critical Incident Stress Debriefing* (CSID). In this model, the survivors have the opportunity to share their experiences in a structured and supportive environment that will reduce feelings of abnormality and facilitate core adaptive coping responses. However, research has shown that mental health services are not usually used in the aftermath of disasters. According to Hutton (2001), these services are often perceived to be unhelpful to people who are in need of more tangible goods and services.

Summary of Level of the Implementation of DRRMP for School Safety
Table 6 presents the summary of the level of the implementation of DRRMP for school safety. Data revealed that the school administrators and teachers perceived that they have *always implemented* all the indicators. Among the items, "investing in Disaster Risk Reduction for Resilience" and "Strengthening Disaster Risk Governance to Manage Disaster Risk" similarly obtained the highest mean as determined by school administrators and teachers.

Findings indicate that both groups of participants in the study have dominantly implemented these indicators. This is because teachers and school administrators want to ensure and reduce the number of casualties if possible when calamity comes. One of the principals during the interview stated that they are serious in conducting school disaster drill to strengthen and intensify the level of awareness among pupils. By having such knowledge and skills, their lives would be out of danger, or they can also save lives.

Table 6: ***Summary of Level of the Implementation of DRRMP for School Safety***

Indicators	Administrators			Teachers		
	Mean	s.d.	Qualitative Description	Mean	s.d.	Qualitative Description
Investing in Disaster Risk Reduction for Resilience	4.61	0.50	Always	4.45	0.59	Always
Strengthening Disaster Risk Governance to Manage Disaster Risk	4.61	0.56	Always	4.35	0.69	Always
Understanding Disaster Risk	4.48	0.59	Always	4.37	0.67	Always
Enhancing Disaster Preparedness for Effective Response	4.44	0.78	Always	4.19	0.77	Always
Overall	4.36	0.61	Always	4.34	0.68	Always

The last indicator of DRRMP for school safety is on "enhancing disaster preparedness for effective response". This indicator is also *always implemented* as rated by both groups. Knowing that there are people who care and look after one's safety is

important. In school, buildings and learning materials are not the only things that should be built back but also the emotional stability of the pupils after experiencing a traumatic phase in life brought about by a natural or a
human disaster.

Problems Encountered and Proposed Intervention to be Taken on Understanding Disaster Risk

During the focus discussion, the school administrators and teachers have identified problems that they encountered in understanding disaster risk. Frame 1 illustrates the excerpt from the interview with the school administrators and teachers on their problems in implementing understanding disaster risk.

Frame 1: *Excerpt from the Interview with the School Administrators and Teachers on their Problems Encountered in Implementing Understanding Disaster Risk*

Q. What do you need to implement the understanding disaster risk?

Responses made by the School Administrators

RSA1- We need to Attend Seminar workshop to raise the level of
        awareness.

RSA2- We need to Develop and implement comprehensive local
        preparedness and response policies and plans

Responses made by the Teachers

RT1- We need Serious Implementation of the safety measures for any
        disaster that may come to our place.

RT2- We need to broaden the school pathway.

Among the identified problems by the school administrators and teachers, lack of thorough conduct on disaster preparedness got the highest frequency due to lack of first aid kits and other facilities to be used during the drill.

Some teachers said during the interview that poor participation of the stakeholders is one of the reasons also why they cannot achieve a better and safe learning environment for the pupils. There are schools with big trees in front of their classroom. The school personnel decided to ask assistance from MDRRMC and maximize the participation of the stakeholders to make the school safe from any hazard or risk.

Another problem encountered by the participants is the lack of first aid kits. When the school has first aid kits, pupils who are wounded or hurt especially during a disaster can receive immediate attention and thus avoid further complications. By conducting an orientation about the importance of having first aid kits would make the school administrators and teachers more aware and informed.

Problems Encountered and Proposed Intervention to be Taken on Strengthening Disaster Risk Governance to Manage Disaster Risk

The participants identified their problems and their proposed action to be taken to strengthen disaster risk governance to manage disaster risk. Frame 2 illustrates the excerpt from the interview with the school administrators and teachers on their problems encountered in strengthening disaster risk governance to manage disaster risk implementation.

With the discussion of the participants, the researcher identified the top four problems. These were as follows (1) the school has no established school gate; thus, pupils are free from going in and out; (2) the post of the classroom was destroyed by termites; (3) school location is susceptible to soil erosion; and (4) lack of coordinator to government agencies.

Frame 2: ***Excerpt from the Interview with the School Administrators and Teachers on their Problems Encountered in Strengthening Disaster Risk Governance to Manage Disaster Risk Implementation***

Q. What do you need to strengthen disaster risk governance to manage disaster risk?

Responses made by the School Administrators

RSA1- We need to encourage parents to participate actively.

RSA2- We need to and intensify or require the teacher to conduct tree planting activity.

Responses made by the Teachers

RT1- We need to construct a barrier to prevent water from flooding the school premise.

RT2- We need to replace broken windows blades to avoid an accident.

During the interview on how they can strengthen disaster risk governance to manage disaster risk, they suggested some actions to be taken to remediate the problems encountered. The problem on "schools which has no gate or pergola," teachers are worried because pupils can just go out anytime they want to. This scenario makes the

teacher uncomfortable during school days. Pupils may become prone to accident. They suggested to put up a school gate to secure the pupils from possible harm or danger.

Aside from this, teachers noticed that the termites had destroyed most of the posts of their school buildings. They agreed to tap BLGU to extend financial assistance for the repair which will be done by the parents. Another thing is, the school is susceptible to soil erosion. The school administrators resorted to intensify the tree planting activity. Lastly, to solve the problem of lack of coordination with government agencies, the school administrators could attend seminars and conferences on the conduct of DRRMC to get some information and updates.

Problems Encountered and Proposed Intervention to be Taken on Investing in Disaster Risk Reduction for Resilience

Along with the discussion with the school administrators and teachers, they identified top problems on investing in disaster risk reduction for resilience. One of their major problems is that the structure of their building is not safe anymore to serve as an evacuation center. According to some teachers, though the building posts look durable, one can hear a hollow sound if knocked. This situation needs an immediate action. So, they decided to construct a building as evacuation center by asking assistance from BLGU or financially-stable individuals. The school administrators also submitted pertinent documents for the repair of school buildings.

Water source or supply is also a problem of most schools. They find it difficult especially when dry season last long because flowering plants become withered. When there is a typhoon, they could hardly access potable water. So, they agreed to put up a deep well and construct concrete water reservoir.

During the interview, the participants raised their problems on the lack of communication, orientation and having not enough knowledge of disaster. The teacher cannot respond immediately. Sometimes they need to call up other teachers from another classroom to give first aid to the victim. In this case, they agreed to hold a seminar-workshop on how to respond and extend help to somebody in times of disaster or accident.

Frame 3 illustrates the excerpt from the interview with the school administrators and teachers on the problems encountered investing in disaster risk reduction for resilience.

Frame 3: *Excerpt from the Interview with the School Administrators and Teachers on their Problems Encountered Investing in Disaster Risk Reduction for Resilience*

> *Q. What do you need to implement in investing in disaster risk reduction for resilience?*
>
> *Responses made by the School Administrators*
>
> RSA1- We need to make a contingency and evacuation plan.
>
> RSA2- We need to initiate fund-raising activity.
>
> *Responses made by the Teachers*
>
> RT1- We need to find other place or building to be utilized as an evacuation center.
>
> RT2 - We need to coordinate with BLGU officials and other government agencies.

Problems Encountered and Proposed Intervention to be Taken on Enhancing Disaster Preparedness for Effective Response
During the discussion, participants identified the top three problems and agreed on their proposed plan. Frame 4 illustrates the excerpt from the interview with the school administrators and teachers

Frame 4: *Excerpt from the Interview with the School Administrators and Teachers on their Problems Encountered in Enhancing Disaster Preparedness for Effective Response*

> *Q. What do you need to implement in investing in enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction?*
>
> *Responses made by the School Administrators*
>
> RSA1- We need to approach stakeholders for assistance and donations.
>
> RSA2 - We need to ask support from the BLGU for repair.
>
> *Responses made by the Teachers*
>
> RT1 - We need to encourage everyone to help one another in the reconstruction and rehabilitation.
>
> RT2 - We need school vehicle in transporting affected families.

on the problems encountered in enhancing disaster preparedness for effective response.

Scarcity of food is evident during this time because crops and production were damaged. If there were relief goods to be distributed, some families did not receive because they are hard to reach. Food donations could be difficult to distribute, especially when the area is far and the roads are not passable.

Another problem is the poor participation of the stakeholders. Some of the stakeholders entrust the rehabilitation and reconstruction to the local officials. To remediate, they came up to revive the "Bayanihan System."

Most of the teachers identified sustaining the cleanliness of the classrooms as a problem. According to them, they are open to accepting evacuees to utilize their classroom as evacuation area or center but it sad to note that after occupying for a couple of days, they left the classrooms topsy-turvy with school materials destroyed. With this, they came up with a solution to orient families or evacuees before occupying or using the classroom.

Proposed Interventions to the Problems Encountered
From the top most problems encountered the proposed interventions are suggested. Matrix 1 shows the topmost problems, the number of respondents who considered this as problems and the proposed interventions and the number of respondents who suggested these interventions.

Matrix 1. *Problems Encountered and Proposed Intervention of Participants*

Topmost problems Encountered	*Frequency (N-152)*	*%*	*Proposed Intervention*	*Frequency (N-152)*	*%*
Understanding Disaster Risk					
• Lack of thorough conduct on disaster preparedness	146	96.05	Ask assistance from MDRRMC for a drill.	144	94.74
• Poor participation of the stakeholders	139	91.45	Encourage stakeholders to participate.	132	86.84
• Lack of first aid kit	134	88.16	Procure first aid kit.	128	84.21
• The school does not have an emergency plan.	121	79.61	Make an emergency plan.	118	77.63

Strengthening Disaster Risk Governance to Manage Disaster Risk					
• The school has no established school gate; thus, pupils are free from going in and out.	146	96.05	Allocate funds to construct a concrete pergola or school gate.	141	92.76
• The termites destroyed the posts of the classroom	139	91.45	Ask assistance from parents, BLGU to repair.	138	90.79
• School location is susceptible to soil erosion.	126	82.89	Intensify tree planting activity.	123	80.92
• Lack of coordinator to government agencies.	117	76.97	Attend seminars, conferences conducted by DRRMC.	110	72.37
Investing in Disaster Risk Reduction for Resilience					
• Structure of the buildings is not safe to serve as evacuation center	148	97.37	Request to construct evacuation center by asking financial assistance from BLGU/ financially stable individuals	146	90.10
• No source of water supply.	137	90.13	Construct water supply such as deep well within the school premise	133	87.50
• Lack of communication and orientation	121	79.61	Conduct orientation and intensify the dissemination of information	116	76.32
• Teachers do not have enough knowledge of disaster response.	114	75.00	Conduct a seminar-workshop on first aid	105	69.80

Enhancing Disaster Preparedness for Effective Response					
• Scarcity of food	143	94.08	Conduct feeding program for the victims.	141	92.76
• Poor participation of the stakeholders	135	88.82	Revive Bayanihan System	130	85.53
• Classrooms were left dirty and topsy-turvy	123	80.92	Conduct an orientation to the evacuees on cleanliness	110	72.37

CONCLUSION

Based on the gathered data, the salient findings of the study are as follows:

    1. The school administrators and teachers *always* implemented all the activities in the four components in the implementation of DRRMP for school safety, with "investing in DRRR" and "strengthening disaster risk governance to manage DRR," topping the list.

    2. The top problems encountered by the participants in the implementation of DRRMP were: "lack of thorough conduct on disaster preparedness; no constructed school gate; unsafe building structures as an evacuation center; and scarcity of food.

    3. A proposed intervention plan was designed to address the problems.

Based on the findings of this study, the researcher concluded that:

    1. School administrators and teachers *always implemented* all the activities of DRRMP, therefore, all the activities are implemented at all times.

    2. The school administrators and teachers encountered problems because they could not force parents or the people in the community due to the voluntary nature of assistance that these stakeholders extend.

    3. The proposed plan must be realized by utilizing and implementing the suggested activities.

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REFERENCES

Afedzie R., & McEntire D.A. (2010). *Rethinking disasters by design. Disaster prevention and management,*19 (1): 48-58.

Anderson A. (2010). *Combating climate change through quality education,*   U.S., Washington D.C.

Blaikie, P., Cannon, T., Davis, I and Wisner, B. 2004. *At risk, Natural   Hazards, People's Vulnerability, and Disasters.* 3rd edition.   London: Harper Collins.

Blair, J. P.,and Bingham,R.D. (2000). *Economic analysis*. In Hoch, C. J.,   Dalton, L. C., and So, F. S. (eds.), The Practice of Local   Government Planning, 3rd ed. Washington, DC: International   City/County Management   Association, pp. 119–137.

Blakely, E .J., 2000. *Economic development*. In Hoch, C. J, Dalton, L. C., and So, F. S. (eds.), The Practice of Local Government Planning,   3rd ed. Washington, DC: International City/County Management Association, pp. 283–305.

Buckle, Marsh, and Smale, (2001). *Reframing risk hazards*.

Castro T, (2013). *The extent of school and community linkages in public elementary schools*. Unpublished master's thesis. Bukidnon State University, City of Malaybalay.

DepEd Order no. 5 s. (2014). *Guidelines for integrating the Gulayan sa Paaralan, ecological solid waste management and tree growing and caring*. DepEd Resource Manual, (2014).

Eyre, (2006). *Assessment of personnel and community resilience*.

Flynn, Salzer and Brickmann, (1999). *Psychological Aspects of Recovery.*

Gardner, J.S.; Dekens, J. (2007). 'Mountain Hazards and the Resilience

of Social-ecological Systems: Lessons Learned in India and in Canada.' In *Natural Hazards*, 41(2): 317336.

Graham, J., Shirm, S., Liggin, R., Aitken, M.E., & Dick, R., (2006). Mass casualty events at schools: A national preparedness survey.   *Pediatric.*117 (1). E8-15. doi: 10.1542/peds. 2005-0927.

Hutton (2001). *Reconfiguring Public Relations: Ecology Equity Enterprise.*

ISDR, (2002). *Living with risk: a global review of disaster reduction initiatives.* Geneva: Switzerland.

IFRC (2004). *World Disaster Report. Focus on Community Resilience*. Geneva: Jonathan Walter International Federation of Red Cross and Red Crescent Societies.

Goedken A. K. (2007). Evacuation planning, *Building magazine*, Stamats Communications Inc.

Guidelines for drinking-water quality, Fourth edition. Geneva, World Health Organization, 2011. Retrieved from: http://apps.who.int/ iris/bitstream/10665/44584/1/9789241548151_eng.pdf [accessed 12 August 2015].

Kesten, A. R. (2006). *Disaster Management Principles*. Presentation to DIMTEC students in January 2008. University of the Free State, Bloemfontein.

Ozmen, F. (2006). *The level of preparedness of the schools for disasters from the aspect of the school principals, Disaster prevention and management* 15 (3): 270-277.

Presidential Decree No. 1566 of June 1978, "Strengthening the Philippine Disaster Control, Capacity and Establishing the National program on Community Disaster preparedness." Rule 1040. *Occupational Safety and Health Standards.*

Safer School Manual, (2014).

Stephenson, R. S. (1994a). Disaster assessment. 2nd edition. UNDMTP. S.l: Artifax.

Tuguinayo, (2013). DRR in school curriculum.

Twig, J. (2004). Good practice review. Disaster risk reduction: mitigation and preparedness in development and emergency programming-Humanitarian practice network: ODI, United Kingdom.

UNDP, (2010). Millennium development goals.

UN/ISDR. 2002. *Living with risk. A global review of disaster reduction initiatives*. Geneva and New York: United Nations. Retrieved from: http://www.unisdr.org/eng/about_isdr/bdlwr-2004-eng.htm [2008, March 01].

UNESCO (2010). *Scientific literacy and natural disaster preparedness: reorienting teacher education to address Sustainable development, Guidelines and Tools.*

UNESCO/UNICEF. (2012). *Disaster Risk Reduction in School Curricula: Case Studies from Thirty Countries*. Paris/Geneva: UNESCO/UNICEF.