

Proposed Disaster Risk Reduction Management Project for Coastal Areas^[1]Fe M. Fallurin, ^[2]Randy M. Baja, ^[3]Raquel B. Ranchez^[1]Principal II, Banaba South Elementary School, Batangas City, Philippines^[2]College Dean, Sta Theresa College, Bauan, Batangas, Philippines^[3]Project Development Officer, Schools Division of Batangas City, Batangas City, Philippines

Abstract. Preparedness for an unpredictable phenomenon that happens in any place is essential to be resilient in the face of disasters. Using the descriptive method of research, the school program implementation of disaster risk reduction and management in coastal areas in the Schools Division of Batangas City was determined from the 33 school heads and coordinators and 180 teaching and non-teaching personnel through the assessment of the extent of implementation of the four areas, the risk commonly experienced, the performance of duties and functions and the issues and challenges using the purposive and stratified random sampling through interview from selected participants. The data were analyzed using weighted mean, standard deviation, ANNOVA and Scheffe's test. Results showed significant difference in prevention and mitigation as well as in recovery and rehabilitation; typhoon, earthquake and flood, thunderstorm, and seawall destruction were the risks commonly experienced; school heads and coordinators greatly manifest performance of duties and functions in terms of organizing DRRM team to support the implementation of preparedness and response measures as well as in preparing and submitting reports on the effect of any hazards; and trainings/seminar on disaster risk reduction of school heads and teachers and the availability of equipment when conducting earthquake drill were the topmost issues and challenges, thus, the study led to the preparation of project CARED toward culture of safety and resilient school community.

Keywords: Resilient, coastal area, Scheffe's test, Batangas City, Philippines

Introduction

Disasters are unpredictable occurrences that could strike anytime in any place in which incidences cause injuries, displacement of population, destruction of livelihood, damage to properties, disruption of services, spread of diseases and the worst of all is the loss of lives of the victims. These could be the eventualities of the natural and human-induced hazards. School preparedness in all forms of disasters promotes and maintains school-wide safety and minimize effects which can be achieved through adoption of disaster risk reduction management policies and guidelines that are aligned in the attainment of the vision and mission of the organization. Learners are safeguarded and prepared to succeed in a structural safe learning environment.

Each year, disasters have major impact on the education systems, children youth and education systems, (Ireland, 2016) where in most cases, children are among those who belong to the most vulnerable groups in times of disasters and the risks of such cases. In disaster prone region of the Asia Pacific, around 200 million per year have their lives severely affected and disrupted by disasters. These truly deprive the children of their right to quality education in a safe learning environment and threaten their lives and their families' as well. Educational inequities are made worse because of schools being damaged or destroyed. Schools being used as evacuation centers on the other hand contribute to the said problem. In this scenario, the disaster risk reduction (DRR) policies should be adequately resourced or prioritized by the different levels of government and the community as well.

Geographically, the Philippines is exposed to risks and hazards of disasters due to several factors such as volcanos in the Pacific Ring of Fire, active fault lines for earthquakes, trenches

for tsunamis, and the Pacific Ocean for tropical cyclones. According to World Economic Forum 2018, Philippines ranked third in terms of disaster risks among all the countries with highest risks worldwide which was revealed in the World Risk Report (UNDRR, 2019). With this report as relevant and reliable information, it is quite evident, that the Philippine government should never stop initiating meaningful measures to mitigate the effects of disasters in the country and build resilient learning communities.

Truly, preparation and effective implementation of plans are the key to be safe in times of disaster that is why emergency preparedness could greatly help any institution and organization maximize responsive actions to any unexpected scenarios in life. Rijumol, Thangarajathi and Ananthasayanam (2010) pointed out that actions are taken in response to unexpected events that are adversely affecting people or resources. Moreover, Ahmad (2015) considered disaster preparedness as the first phase of disaster management procedure which include forecasting about the forthcoming disaster, minimize the effects of it by taking measures, to expedite emergency action, rehabilitation, and reconstruction. Second, disaster response means to integrate actions like warning, evacuation, search and rescue, emergency relief, trauma management, security, communication and information management, rehabilitation and reconstruction, taken by the local people and the concerned authority. Third, disaster assessment reveals the socio-economic losses of the disaster affected area. Lastly, disaster mitigation encompasses all pre-disaster measures for the long-term situation.

The Department of Education, as a member of the National Disaster Risk Reduction and Management Council (NDRRMC), is committed to implement DRRM in basic education within the thematic areas namely prevention and mitigation, preparedness, response, and recovery and rehabilitation. Thus, in adherence to the Republic Act No. 10121 otherwise known as The Philippine Disaster Risk Reduction and Management Act of 2010, the DepEd as a national agency issued DepEd Order No. 50, s. 2011 entitled Creation of Disaster Risk Reduction and Management Office. This office of the DepEd is mandated to initiate and spearhead the establishment of mechanisms to prepare, guarantee protection and increase resiliency of the Department of Education constituents in the face of disaster. Furthermore, this office acts as the focal point in planning, implementing, coordinating, monitoring of activities related to DRRM as well as in developing and recommending policy standards.

Apparently, according to DepEd Order No.83 s. 2011, it is quite important for teachers and school administrators to be more concerned in providing safety and protection through disaster preparedness, mitigation and prevention measures for natural disasters such as typhoons, flooding, landslides, tornadoes among others to reduce the risks to provide the correct response as well as possible recovery and rehabilitation measures for the safety of the pupils or students (Fraizer, 2018). With these, plans and actions, the learners will be equipped with the capacity to know, understand, and apply the safety and protection mechanism that will help build strong foundation of their resilience in times of disasters. Hence, increasing learners' awareness on the hazards and possible risks they might be facing inside their school is foremost consideration. Collaboration among pupils, teachers and administrators is truly imperative for the disaster risk reduction and management towards the attainment of the department's ultimate goals and objectives.

Moreover, to establish a system of coordination and information management in the regional, division and school levels, DepEd Order No. 21 s. 2015 was issued. This order provides clear and specific roles and functions of various offices, including the coordinators in regional, division, and school levels, in the efforts toward resilience building and continuity of learning in the face of disaster. The school level tasks to be performed by the designated personnel conform to the provisions specified in the DepEd order. Aside from it, there are still more department issuances that are anchored on the activities to be done or performed by the schools relative to disaster risk reduction and management. These serve as the guidance to

schools in exercising the risk reduction which eventually gives greater chance of ensuring safety of all learners and personnel as well as in safeguarding its properties and facilities.

However, despite the availability of implementing guidelines in disaster risk reduction and management, a high percentage of risk still occurs. Record of Batangas City Disaster Risk Reduction and Management Council Plan (BCDRMC 2017-2019) shows a disaster risk of 21.20 percent in natural hazards, 21.91 percent in human-made, and 56.90 percent in other hazards. The record further shows that the city experiences an average of four to five typhoons in a year and preparation for this needed. These data from the 105 barangays of the city where schools are part is alarming. Percentage of risk can be lessened by identifying the hazards where schools are exposed which should be followed by assessment of the risk. These actions lead to possible defenses, provision of various strategies and support to disaster risks reduction effort. Schools have the capacity to educate every member of the organization and demonstration of proper values and attitude counts most in this endeavor to build a culture of safety and resilience.

In the recent eruption of the Taal Volcano in January 2020, about 42,000 individuals of the affected areas from Taal, Lemery, Agoncillo, and other nearby municipalities were accommodated in evacuation centers and houses of relatives of Batangas City residents. There were 30 evacuation centers which were used as temporary shelters of evacuees during the volcano eruption and 16 of them were schools in Batangas City, managed by school personnel whose knowledge and training are inadequate in terms of providing appropriate management of the camp. Minimum standard for accommodating evacuees in the center was not observed. Intervention program like the psychosocial first aid as part of recovery and rehabilitation in disaster for school-age children as well as other activities for other individuals while in the school evacuation center did not take place. Guidelines and protocols on the use of schools as evacuation centers in general were not followed and the proper coordination with concerned offices was not done despite the provisions and mandate in the Republic Act 10821.

The Schools Division of Batangas City has 105 school heads who most of them are new in the position and some are not residents of the community at the same time some are assigned in mainland, but others are in coastal areas who are prone and vulnerable to hazards. People living in coastal areas are exposed to various hazards from large-scale cyclone, typhoons, to tsunamis and smaller-scale disasters like environmental degradation and disease (Clark-Ginsberg, 2015). Wherever their assignment is, all of them perform at the same level in times of disaster but their level of performance in disaster areas vary because it depends on understanding and compliance with the orders and memoranda. The impact of hazards may be determined on the activities conducted and the execution of emergency plan in times of disaster.

With these problem scenarios in Batangas City relative to responding to the disaster risks reduction and management, it is high time to seriously take the guidelines and policies on disaster risk reduction and management program. It is not enough to have numerous guidelines if the standard and actual implementation in times of disaster is not applied. In the event of disaster, it is important that all parties or individuals concerned are prepared and proactive and the review of the issued guidelines and policies, regular training and reorientation are deemed necessary to implement well the program and are all contributory factors in harmonizing the implementation of the program and management. The percentage of risk can still be minimized, and adverse impact of hazard can be limited for the safety of every Batangueño learner if appropriate measures are put in place and in force.

This research considers the above premise to address issues and problems relative to the implementation of DRRM programs in the schools under study. With the realities of the perennial issues and challenges in the attainment of the goals and objectives of basic education due to the mentioned barriers and hindrances backed up by the data and information on the said

topic, the researcher is determined to assess the disaster risk reduction and management program implementation and propose a project in coastal areas of the Schools Division of Batangas City.

Objectives

This study focused on determining the extent of implementation of DRRM in Coastal Areas in the Schools Division of Batangas City by school heads, school disaster risk reduction coordinators, and the teaching and non-teaching staff with an end in view of preparing risk reduction management project. It determined (1) the extent of performance in terms of prevention and mitigation, preparedness, response, recovery and rehabilitation, (2) comparison of assessments by the three groups of respondents (3) the risks commonly experienced in coastal areas, (4) the manifestation of performance of duties and functions of the school heads and coordinators relative to DRRM, and (5) some issues and challenges in the disaster risk reduction management.

Framework

The theory upon which this study was conceptualized is on Lewin Change Theory Model, a three-step process, Unfreeze-Change-Freeze that is fundamental approach to improvement (Hussain et al., 2016; Morrison, 2014). It gives a manager or other change agent a framework to implement a change effort which is always sensitive and should be as seamless as possible. To come up with a change, there are two forces that need to be determined to understand the concept of Lewin.

This theory argues that two sets of opposing forces within an organization determine how the change will take place. These opposing forces are categorized as to forces for change and resistances to change. The former motivates the organization to increase level of efficiency to have better results and increase level of performance to some extent while the latter pushes down the organization for a change. To determine how change will take place, there is a need to increase forces for change and reduce resistances for change. It can also be the combination of the two. This theory emphasizes the three processes to make change really happen. There is a need to unfreeze the organization from its present state, make the desired change and refreeze the organization in a new desired state.

Another theory used in framing this study was in Reciprocal Safety Culture Model of Cooper (2000) which is based on treating safety culture as a sub-culture of an organization's overall culture, while highlighting that it is the product of multiple goal-directed interactions between people as the psychological aspect, jobs as behavioral, and the organization as the situational. The psychological, behavioral, and situational aspects are the inputs to the safety culture construct with the key transformation process to achieve the organizations goals, expectations, and managerial practices to create the prevailing safety culture product. The prevailing safety culture is reflected in the dynamic reciprocal relationships between members' perception and attitude towards operationalization of the organizational safety goal, members' day to day goal-directed safety behavior and the presence and quality of the organization's safety systems and sub-systems to support the goal oriented behavior.

The risks and hazard assessment play a vital role to attain school safety (Sagara & Saito, 2013). There is a need to ensure that duties and functions of the school heads are well executed. School leadership counts most to think and feel about safety. The DRRM coordinators' assistance is undeniably important in the operationalization of various safety measures. Members of the DRRM committees in disaster areas namely prevention and mitigation, preparedness, response, and recovery and rehabilitation should be also aware of their functions and in the operationalization of the activities relative to the areas they are assigned are very vital and geared towards school safety. DepEd CALABARZON (2015) have a unitary and

standardized organization that will establish proper coordination and information management relative to division and school levels DRRM implementation.

According to Reyes (2017), the principles of risk reduction are adopted in Hyogo Framework for Action (HFA) 2005-2015 which is Building Resilience of Nations and Communities to Disaster. The framework lays out what is required from all sectors and actors to reduce disaster losses. HFA outlines five priorities for action and enumerates the guiding principles for achieving disaster resilience. The first- priority for action is ensuring disaster risk reduction in a national and local with strong institutional basis for implementation while the second is identifying, assessing, and monitoring disaster risks and enhance early warning systems. It mandates the countries to nurture a culture of disaster resilience. However, the third priority action in HFA is the use of knowledge, innovation, and education to build a culture of safety and resilience at all level. Reducing the underlying risks factors is the fourth priority in HFA where communities can reduce disaster risk by reducing exposure to risks and vulnerabilities. The last action is strengthening disaster preparedness for effective response at all levels.

Rimando (2016) mentioned some activities for disaster risk reduction under preparedness and prevention and mitigation which can be done before the strike include but not limited to building code revision implementation, hazard and vulnerability analysis, zoning of land use management, public awareness education, early warning system including forecasting and dissemination of warnings. Comparably, earthquake drill is an activity that is given high regard in risk reduction. According to Izadkhah and Amini, (2017), the nationwide school earthquake drill in Iran started in 1996 and it was managed to reach students across the county at all levels as well as expand the program to engage community members outside the schools. On the other hand, hazard mitigation and risk assessments are the crucial first step in disaster risk management and the basis for formulating DRM policies (Sagara & Saito, 2013). They should consider worst-case scenarios in the event of the largest possible hazard while recognizing that hazard assessments of earthquakes and tsunamis will always have their limitations and associated uncertainties. As described by Uitto (2016), sustainable development and disaster risk reduction are intrinsically intertwined. A single major natural disaster-be it tsunami earthquake, or a landslide can do progress made and set back development by years. Environmental factors contribute to the increase in disasters because societies build infrastructures in place exposed to the forces of nature and does not stand up to hazard. A thorough assessment of hazards and identification of risks are important factors towards risk reduction mechanisms to avoid losses in various forms. The success of risk reduction endeavor should be sustained.

Two of the main threats that coastal communities face are natural disasters and shoreline erosion where such communities are particularly vulnerable to hurricanes and tsunamis, and as more people move to the coast, the potential of such events causing catastrophic loss of life and property damage also rises. Based on Great Lakes, Coastal Resilience (n.d) shoreline erosion, a worldwide phenomenon that is often exacerbated by coastal storms, is also increasing due to multiple factors, including sea level rise and loss of wetland buffer areas. Enhancing the ability of these communities to absorb impacts and bounce back to develop hazard-resilient communities from various threats is critical, but preparation reduces the lives lost in disasters, secure the economic stability of these communities, and support the health of our coastal ecosystems, including wetlands which are essential for reducing storm impacts on our coastal communities.

In the implementation of the DRRM program, issues and challenges are faced. Nguyen, (2019) mentioned common issues such as lack of capacity and coordination with the national level, gaps in legal framework and lack of guidance for implementation and lack of focus on cities and urbanization. Kanyasan et al. (2018) cited that implementers had difficulty in

implementing the policy because of unclear provisions in the national legislation, unclear mandates, poor monitoring system, insufficient human resources, and lack of public-private partnerships. In addition, Apronti, et al. (2015) pointed out that Ghana faced numerous issues such as annual flood, droughts, health epidemics, fire outbreaks, earth tremors, infestations from pests and parasites. The impact of these disasters is exacerbated by weak early warning systems, slow response mechanism, poorly planned infrastructure development, and high level of poverty. Common problems in disaster risk management involve the flow of information and coordination responsibilities.

According to UNISDR (2014), the role of national government in providing local government with an enabling environment is vital for facilitating policies. Effective DRM needs both national and local support and a clear exchange of information and lessons learned. Vertical coordination between national and local level governments must therefore be improved with each role and responsibility clarified. The duties and responsibilities as regard to Disaster Risk Reduction and Management are spelled out in the Department of Education Order No. 21, s. 2015 which are categorized into school, division, and regional offices. These are lodged through the school heads to be executed in their respective station in collaboration with internal and external stakeholders. Through the leadership of the school heads, the 19 duties and functions enclosed in the order lead to establishment of culture of safety and resilience if properly implemented while 13 for the School Disaster Risk Reduction coordinators who serve as the point or focal persons for collaboration and coordination with local DRRM council and other partner organizations.

Methods

Study Design

The study utilized descriptive method of research to understand the nature, characteristics, components, and characteristics of respondents under study in which according to Palar-Calmorin (2016) focuses at the present situation. The purpose is to find the new truth which may have different forms such as increased quantity of knowledge, a new generalization, increased insights into factors which are operating, the discovery of new causal relationship, a more accurate formulation of problems to be solved, and many others. Hence, the researcher deemed it as the appropriate design to assess the implementation of disaster risk reduction and management in coastal areas in the Division of Batangas City which included the four areas of disasters, the risk commonly experienced, performance of school heads and coordinators, and the issues and challenges in the implementation of the program.

Participants

The participants included in this study were the 33 school heads, 33 SDRRM coordinators, 180 teaching and non-teaching personnel in the coastal areas of Batangas City division. Sampling technique was used in this study. Moreover, Slovin's formula was used to determine the number of sample size which served as basis for the stratified random sampling.

Research Instrument

The data gathering instruments used in this study were questionnaire and interview. The researcher utilized one set of questionnaires intended for the three groups of respondents-SDRRM coordinators, school heads, and teaching and non-teaching personnel. The questionnaire has four parts which included the extent of implementation in terms of prevention and mitigation, preparedness, response, and recovery and rehabilitation, hazards commonly experienced in coastal areas, the manifestations of duties and performance in disaster risk reduction and management, and the issues and challenges in DRRM. Moreover, interview was

utilized to gather in-depth understanding and perception about the program of internal and external stakeholders. It allowed the researcher to ask questions and clarify some information which helped support the findings and analyses drawn by the researcher. In the interviews using guide questions, the researcher was able to explore their experiences and capture the insights on the risks commonly experienced and the issues and challenges in the implementation of the program.

For the extent of implementation of the four disaster areas, hazards commonly experienced in coastal areas, duties and responsibilities, and issues and challenges, the instrument used 4 points Likert scale with the corresponding verbal interpretation: (4) 3.50-4.0 Great Extent/ Greatly Manifest/Strongly Agree; (3) 2.50 - 3.49 Moderate Extent/Moderately Manifest/Agree; (2) 1.50 - 2.49 Slight Extent/ Slightly Manifest /Disagree; (1)1.00 - 1.491.00 - 1.49 Least Extent/ Least Manifest/ Strongly Disagree

Data Collection

After the approval of the survey questionnaire, the researcher prepared a letter of request to seek permission from the Schools Division Superintendent to distribute the questionnaire in four districts. She also secured consent from the district supervisors, and school heads of the four districts in the Division of Batangas City and distributed the questionnaires to the target respondents. She discussed with the heads of the target schools the purpose of her research. The questionnaires were then retrieved, responses were tallied and tabulated, analyzed and interpreted using the appropriate statistical treatment.

Statistical Analysis

Statistical tool such as weighted mean, standard deviation, ANOVA, and multiple comparisons of means using Scheffe's test were utilized. Tables were presented, analyzed, and interpreted in order to arrive at meaningful conclusions and recommendations.

Results and Discussion

Table 1 below presents significant findings in disaster areas which focused on the top three and bottom three which revealed significant difference. As seen in the table, ensuring safety site selection for the establishment of buildings obtained the highest overall weighted mean of 3.59 with standard deviation of 0.51 interpreted as great extent by the three groups of respondents, coordinators, school heads, and teaching and non-teaching personnel. The results may be attributed to the fact that respondents are aware that site or location for any building to be constructed in the existing school environment or even for the establishment of new school site is given importance and consideration to ensure safety for all beneficiaries or end users. This affirms with what is in Educational Facilities Manual (2010) that prior to the construction of school building or even to the acquisition of prospective site, the suitability study is initially conducted. This undertaking ensures that school is one that best serves educational activities, enables the optimum utilization of resources, hence shall met the requirements on location, accessibility, topography, soil condition, size, and disaster risk reduction measures.

Implementing ecological solid waste management such as reduce, reuse, and recycle had the same overall weighted mean of 3.59 and a standard deviation of 0.53 described as great extent. The results indicate that school heads, teaching and non-teaching personnel practice waste management principles such minimization. Resources conservation and recovery, segregation, reduction, recycling, reuse, and composting are done to promote environmental awareness and action among the students. In addition, it shows that RA 9003- Ecological Solid Waste Management Act and the enacted Environmental Code in 2010 known as Batangas E-Code were adhered.

Accordingly, DepEd Order No. 107 s. 2010 provides guidelines on the condemnation and demolition of school building to be followed by school heads. Coordination with the building officials like city engineers, or head of the District Engineers Office whoever is available is essential. On the contrary, respondents revealed that the installation of drainage and canals as the least performed activity which gained overall weighted mean of 2.93 and standard deviation of 0.83 described as moderate extent.

On the contrary, respondents revealed that the installation of drainage and canals as the least performed activity which gained overall weighted mean of 2.93 and standard deviation of 0.83 described as moderate extent. Based on the interview, installation of drainage and canal was not included in the school Annual Implementation Plan. This further shows the need to comply with DepEd Order No. 10 s. 2016 where school should ensure clean and safe through school-based installation of proper drainage.

Table 1. Extent of performance in disaster areas

	Overall		
	WM	SD	VI
Prevention and mitigation			
1. Ensure safe site selection for the establishment of buildings and other learning facilities	3.59	0.51	GE
2. Implement ecological solid waste management such as reduce, reuse, recycle	3.59	0.53	GE
3. Report condemnable buildings for appropriate action of concerned officials	3.57	0.54	GE
4. Conduct regular inspection electrical and water supply in the school	3.24	0.67	ME
5. Plant trees and fruit bearing trees to prevent soil erosion	3.17	0.70	ME
6. Considers installation proper drainage and canals	2.93	0.84	ME
Composite Mean	3.40	0.39	ME
Recovery and rehabilitation			
1. Ensure safekeeping of school records	3.68	0.49	GE
2 Prepare reports of damaged facilities and properties that need repair or replacement	3.66	0.52	GE
3. Coordinate with barangay officials, LGU and other concerned authorities for support and assistance	3.62	0.52	ME
4 Cordon off and post safety signage on the ongoing construction and damaged/unserviceable facilities	3.43	0.74	ME
5. Solicit support from other sources/ agencies.	3.42	0.59	ME
6. Conduct psychosocial first aid / support services in the school	3.22	0.75	ME
Composite Mean	3.52	0.43	ME

Note: 3.50-4.00 GE – great extent; 2.50-3.49 ME – moderate extent

Other activity assessed with low and had an overall mean of 3.17 with standard deviation of 0.70 described as in moderate extent was shown in planting of trees and fruit bearing to prevent soil erosion. It showed unavailability of space to plant in the school premise. In the current situation, schools are surrounded with grown up trees which were planted in the previous years in response to the call and support to tree planting activity in schools and communities.

Likewise, conducting regular inspection of electrical and water supply in schools was the third with low assessment with overall mean is 3.24, described as moderate extent by coordinators and school heads, teaching and non-teaching personnel. These results indicate that

respondents' performance on inspection was not done regularly. It is commonly programmed and scheduled every opening of classes as one of activities in the Brigada Eskwela. Another attribution for receiving such rating is the fact that some respondents are from Verde island and coastal areas. Solar panel and reserved rain- water are available in these schools.

Generally, it can be noted that the three groups of respondents regarded prevention and mitigation in moderate extent of performance as overall composite mean of 3.40 and 0.39 standard deviation were obtained.

For recovery and rehabilitation, the top three activities that obtained highest weighted mean include ensuring safekeeping of school records with an overall weighted mean of 3.68. The assessment of respondents conform with Amanchukwu, Stanley and Ololube (2015) that record keeping is generally administrative activity and concerned with achieving cost-effectiveness and efficiency in the creation, maintenance, use and disposal of the records of educational institutions throughout the entire life cycle and in making the information they contain accessible in support of the school business administration. Thus, it is essential that records are kept in school for effective administration, because proper record keeping facilitates retrieval of valuable information that might be helpful in day-to-day operations and decision making in school systems globally. The importance of good record keeping transcends into short and long-term benefits and affects the overall achievement of educational objectives.

The preparation of reports of damaged facilities and properties that need repair or replacement which obtained an overall weighted mean 3.66 imply that this activity was given priority by the schools under study. In Maine University (n.d), recovery funding for damaged property is based on the least cost following the actual cost repair, replace or rebuild. Property must be repaired or replace or rebuilt in the same location, with other property with other property of comparable size material, quality, and function. Funding is not available until the property is repaired, replaced, or rebuilt.

Meanwhile, coordination with barangay officials, LGU and other concerned authorities for support and assistance obtained an overall weighted mean of 3.62. This activity is actively exercised by respondents. As stated in DepEd Memorandum No. 58 (2015) Department of Interior and Local Government together with the Department of Public Works and Highway are lead agencies that supports for disaster preparedness and disaster recovery and rehabilitation. The allocation and utilization of the Local Disaster Risk Reduction and Management Fund is clearly defined in Joint Circular No 2013-1 among the NDRRC, DBM and DILG.

An overall composite weighted mean of 3.52 and the standard deviation of 0.43 was verbally interpreted as in great extent of performance.

Table 2. Comparison on the responses of respondents

Items	ANOVA			SCHEFFE'S TEST (Comparison of Means)				
	f-value	p-value	Significance	Grp 1	Grp 2	Mean Difference Grp1-Grp2	p-value	Significant
1. Prevention and Mitigation	3.32	0.04	Significant	Teaching and non-teaching	Vs School Head	0.18	0.045	Significant
2. Recovery and Rehabilitation	4.09	0.02	Significant	Teaching and non-teaching	Vs School Head	0.19	0.05	Significant

As seen in Table 2, prevention and mitigation, using ANOVA, the f-value of 3.32 and the p-value of 0.04 was computed for this area. Comparing the means between teaching and

non-teaching personnel versus school head, the difference of 0.18 was noted with 0.045 probability value using the Scheffe's Test. This is also true in recovery and rehabilitation which showed the f-value of 4.09 and the probability value of 0.02. The mean difference of 0.19 in the assessment between teaching and non-teaching versus school heads with probability value of 0.05 was noted. When compared, it shows significant difference on their assessments in two areas of disaster – prevention and mitigation – that activities are carried out. However, results in terms of recovery and rehabilitation can be reasoned out on fact that the teachers and non-teaching actively partake in the implementation of activities for this area. Partnerships are being done for assistance to restore or reconstruct the damage facilities brought by disaster or emergency.

Table 3. Risks commonly experienced in coastal areas

Items	Overall		
	WM	SD	VI
1. Typhoon brings out loss of properties.	3.59	0.58	SA
2. Earthquake causes fire, creates tsunami that brings damage of buildings, and human properties.	3.54	0.76	SA
3. Flood causes temporary rise and overflow of rivers or streams.	3.52	0.68	SA
Composite Mean	2.72	0.40	A

Note: SA – strongly agree; A – agree

Table 3 is a presentation of the highlighted significant risks which revealed high weighted means as rated by the three groups of respondents. Typhoon got the highest overall weighted mean of 3.59 and 0.58 standard deviation among the twelve items. Results imply that respondents have common experiences about the typhoons that strike in the area and they are aware of damages/ destruction and loss of properties in the coastal areas. Typhoon got the highest weighted mean which was described as strongly agree. As experienced by respondents along the coastal and Verde Island and the report of PHIVOLCS, the occurrence of tsunami was after the Mindoro earthquake 7.1 magnitude earthquake in 1994, and this earthquake was tsunamigenic. The tsunami hit approximately 40-km of the northern and eastern shoreline of Mindoro island from Puerto Galera up to Pinamalayan which also affected islands north of Mindoro mainland, namely Verde Island and Baco Islands. It smashed the shoreline, destroying completely the houses nearshore and leaving persons dead.

Earthquake received high overall weighted mean of 3.54 and the standard deviation was 0.76 and interpreted as strongly agree. This shows that strong implementation or performance earthquake drill plays a vital role. It should be applied in the actual occurrence in ensuring one's safety and emergency plan set must work. according to Manalo, an earthquake that hit Batangas province in 2017 caused several landslides and damage to properties. The Philippine Institute of Volcanology recorded four strong earthquakes within the province on Saturday of April 8 afternoon. A 5.4-quake also shook the town on Tingloy which also tend roads in barangays Dela Paz, Ilijan and Pagkilatan in Batangas City, and in Barangay Bilibinwang, Agoncillo town not become passable due to landslide

Likewise, respondents agreed that flood is also a risk experienced along the coastal area which garnered an overall weighted mean of 3.52 and SD of 0.68 from the three groups of respondents described as strongly agree which signifies awareness that floods cause rise and overflow of rivers and streams which affect learners in coming to school. Proper measures during this period were cleared to respondents and parents' discretion is applied.

Table 4. Manifestation of duties and functions relative to DRRM

Items	Overall		
	WM	SD	VI
1.Ensuring availability of updated baseline education data of the school for easy reference.	3.56	0.54	GM
2.Pre-identifying Temporary Learning Spaces (TLS) and alternative delivery mode of education	3.49	0.53	MM
3.Prioritizing capacity building activities for teachers, non-teaching, and learners relative to DRRM	3.46	0.55	MM
Composite Mean	3.62	0.37	GM

Note: GM – greatly manifest; MM – moderately manifest

The items in Table 4 are those that need to be given focus by personnel involved in the implementation of DRRM due to the received low assessment. Prioritizing capacity building activities for teachers, non-teaching, and learners relative to DRRM obtained an overall weighted mean of 3.46 and 0.05 standard deviation and interpreted as moderately manifest. The results mean that respondents lack capacity building activity in terms of disaster risk reduction and management. If personnel are not equipped with the knowledge and skills, it may lead to the failure of the program. It is therefore important to increase and strengthen the skills, knowledge, and the resources of all teachers, non-teaching and even students in the coastal areas to take necessary and appropriate actions relative to the DRRM program. The results show that provision of capacity building for should be prioritized also. To address the issue and emerging need for this activity, the school Learning Action Cell (LAC) maybe conducted as stated in DepEd Order No. 35 s. 2016.

The pre-identification of Temporary Learning Spaces (TLS) and Alternative Delivery Mode (ADM) of Education obtained also low weighted respondents with an overall weighted mean of 3.49 and standard deviation of 0.53 interpreted as to moderately manifest show that respondents are not fully aware about the TLS and ADM. The result implies that they are one in idea that this activity should be understood so that right steps and procedure are followed without violating the policy and guidelines set for conducting and doing these activities when needed.

For the ensuring of the availability of updated baseline education data of the school for easy access reference obtained an overall weighted mean of 3.56 and standard deviation of 0.54 interpreted as greatly manifest. It shows that respondents are aware that baseline is used for future actions and strategies towards improvement of the existing program. As seen in the table, this item was in the bottom five as assessed by respondents thus, collaboration and unity towards making base line data always available and learning the correct processes to be undertaken should manifest. Additionally, respondents agreed with Hampton, et.al, (2019) that baseline data which can help figure out something that might be too enormous and complicated to understand. It is essential in making decision for the right time to start an intervention or action of a perceived solution. Likewise, baseline guides anyone if the methods and strategies are effective or not. The results may be compared from the previous data. Possible changes whether it is gain or gap may again be utilized for further intervention.

Table 5. Issues and challenges in disaster risk reduction and management

Items	Overall		
	WM	SD	VI
1. Trainings / seminars on disaster risk reduction of school head and teachers	3.66	0.51	SA
2. Availability of equipment when conducting earthquake drill	3.63	0.53	SA

Composite Mean	3.44	0.33	A
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Table 5 presents the topmost issues and challenges in the implementation of DRRM. Trainings/seminar on disaster risk reduction of school head and teachers obtained an overall weighted mean of 3.66 and standard deviation of 0.51 and interpreted as strongly agree. The results indicate that three groups of respondents are in unison looking forward to attend trainings in the district and division to enhance knowledge and skills. They perceived that having exposed to the trainings about various activities relative to DRRM, they will feel confident in delivering program from their end. In the part of school heads, their high rating all interpreted as great extent. Chopra (2015) affirms that if employees have attended the right trainings, lesser supervision and guidance are afforded to them. Training develops necessary skills sets in employees and able to make them address independently. Moreover, it allows employees to acquire new skills, sharpen existing ones, perform better, increase productivity and to be better leaders.

The availability of equipment when conducting earthquake drill was considered by respondents as one of the highest issues which garnered an overall mean of 3.63 and standard deviation of 0.53, interpreted as to strongly agree. This suggests that to make it effective and in accordance with the standard procedure, it should be supported with appropriate equipment. It includes but not limited to spine boards, wheelchair, ambulance vehicle, amateur radio emergency communication, complete set of first aid kits and emergency kits.

Proposed Project for Coastal Areas

Title of the Project: CARED (Coastal Areas Resilient Endeavors in Disaster)

Project Overview

Project CARED for Coastal Areas in the Division of Batangas City is a capacity building designed to strengthen essential knowledge, and skills of the school heads, coordinators, teaching and non-teaching personnel to respond efficiently and effectively in times of disaster is hereby proposed. Through this project, probability of high risks that affect people and properties is expected to lessen, and performance of the entire school organization may improve which lead to a safe and resilient school in the face of disaster. The bases of the proposed project are the results and findings found in the study.

Goal

The fundamental goal of this project is to strengthen the capacity of school personnel in the coastal areas in four areas of disaster in order become efficient and effective in managing risk reduction, respond appropriately in times of disaster, and resolve underlying issues and concern in its implementation.

Project Objectives:

1. Recognize the policies and guidelines anchored in the disaster risk reduction and management
2. Use knowledge, innovative skills, and education to build a culture of risk reduction and safety
3. Strengthen the capacity on disaster preparedness, response, prevention and mitigation, and recovery and rehabilitation
4. Develop strong partnership with school stakeholders and elicit maximum involvement and support in risk reduction and management
5. Encourage learners' active participation in disaster risk reduction activities and transfer learnings at home and in the community to be safe anytime and anywhere

Scope/Deliverables

1. Policies and guidelines related to the low assessed items/activities in each area of disaster namely prevention and mitigation, preparation, response, and recovery and rehabilitation

will be revisited by school heads, coordinators, teaching and non-teaching personnel to strengthen extent of implementation. Scenarios will be presented and will encourage reactions after the revisit of the guidelines to harmonize the implementation in all schools in coastal areas. Carousel strategy will be employed to determine the learnings and appropriateness of actions on areas with low extent of implementation.

2. Tabletop exercises will be done to evaluate program plans, procedures, and capabilities of school DRRM teams in commonly experienced hazard like typhoon, earthquake, flooding, earthquake, and sea wall destruction through the guidance of the facilitator. One or more scenarios will be discussed to validate the plans and capabilities of schools in coastal areas. Through this exercise, response in specific event will be strengthened, and possible risks may be reduced.
3. Walkthrough of the duties and functions that are not manifested greatly will be conducted. Simulation or role playing will be presented to validate the performance with the process and guidelines set. Through this endeavor, school personnel manifestation of performance will improve to its greater height.
4. Group discussion/ brainstorming/think pair share and workshop will be used to determine the capacity of school heads, coordinators, and other personnel on addressing issues and challenges in coastal areas. Facilitators will provide inputs to enrich capacity in providing solutions and continue manage the program along with other programs that need to be implemented in the school. Through this endeavor, school's resilience will be ensured.
5. Application of the knowledge and skills gained in the Project CARED is required and school innovation which is the end-result of the project will be presented it at the end of the year. The success of the schools' implementation lies in strong collaboration and partnership with various stakeholders.

Strategies

Project CARED will undergo coordination and partnership with City DRRMO and SDO DRRM Focal Person. The strategies to be employed during the conduct of the project, the capacity building, are interactive lecture, discussion, carousel, tabletop exercises, demonstration, and simulation or role playing.

Risk Management

Approval from the Schools Division Superintendent may not be that easy because some teachers are also involved and may violate DepEd Order No. 9, s. 2005 entitled Instituting Measures to Engage Time-On-Task and Ensuring Compliance Therewith. Close coordination with the Division DRRM Focal Person will be done to present the project and elicit consent. Memorandum of Agreement (MOA) may be possibly done to include it and be part of the Division DRRM endeavor.

Participants/Persons Involved

The proposed project has a total of 210 participants. These will include six resource persons, six members of training team, 33 school heads, 33 SDRRM coordinators, and 132 teaching and non-teaching personnel. Each school will send four personnel composed of teaching and non-teaching who are the chairpersons or co-chairpersons in every committee of School DRRM Team for the four areas of disasters.

Source of Fund

Expenses to be incurred in the project pertains to foods for the participants, and supplies. Special Education Fund (SEF) or Schools Division Office DRRM.

Proposed Period of Implementation

This will be conducted during the In-Service Training (INSET) and LAC Session in 2021.

Monitoring and Evaluation

Monitoring and evaluation through google form will be done every day during the conduct of the capacity building. Coordination with the SDO M&E Section for the provision of standard tools to monitor the conduct of programs or project will be undertaken.

Sustainability

After the attendance of school DRRM team to the capacity building, the following endeavors will be conducted/ performed in respective school in the coastal area. The application of knowledge and skills gained to reduce risks and appropriate response measures in times of disaster is expected. These are the DRRM activities in prevention and mitigation areas with low assessment rate to be led by chairperson of this committee.

Conclusion

Based on the results of findings, DRRM areas are performed in great extent as assessed by respondents except on prevention and mitigation which is on moderate extent. Assessment revealed significant difference on the assessment in prevention and mitigation, and recovery and rehabilitation. Prevalent risks experienced in coastal areas are typhoon, earthquake, and flood. School heads and coordinators greatly manifest performance of duties and functions in organizing DRRM team to support the implementation of preparedness and response measures as well as in preparing and submitting reports on the effect of any hazards but moderate in in prioritizing capacity building activities, pre-identification of TLS, ensuring availability of baseline data. Meanwhile, the topmost issues and challenges are the trainings/seminar on disaster risk reduction of school heads and teachers and the availability of equipment when conducting earthquake drill.

Recommendations

The recommendations of this study were based on the conclusions. The validation of Project CARED by the Division DRRM Focal person may be done to address the underlying concerns in DRRM implementation in coastal areas which can be referred for the approval for the conduct of the project maybe referred with the concerned Official in the Schools Division Office which in turn lead to policy recommendations. The Camp Management Training maybe conducted to prepare school personnel in times of inevitable use of school as evacuation center times of disaster. Future researches maybe encouraged to conduct similar studies intendent for risk reduction and management to make schools safe and resilient in the face of disasters. roposed using various strategies to attain the objectives.

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