



Disaster Risk Reduction Management in Carcar Central Elementary School Cebu City

Juvelyn B. Bacus

Department of Education- Carcar City Division, Cebu, 6019 Philippines

ABSTRACT

School children are the most vulnerable group in times of disaster and empowering them to prepare for and respond to disaster is imperative. The creation of the culture of safety in school is one of the aims of any educational institution and Disaster Risk Reduction Management (DRRM) is its key. This study aims to determine the Disaster Risk Reduction Management in a public elementary school in Carcar City. A descriptive survey method was utilized in this study, where 71 respondents comprising administrators, teachers, PTA officers and student leaders were involved. Instruments used were the School Emergency and Disaster Preparedness Level of Knowledge, Level of Implementation, and an Interview Guide for the Focused Group Discussion which dealt on the challenges and opportunities in the implementation of DRRM. Findings revealed that the level of knowledge by the respondents is only "fair" while the level of implementation is at "low extent" only. Their insufficient awareness on different DRR measures lead its implementation not an impressive one. This was attributed to various challenges and barriers that hinder its effective implementation. They were not that familiar with their roles and responsibilities as the actors in the program implemented. It is therefore recommended that the proposed action framework, crafted by the researcher and the rest of the school's DRR team, and with the participation of CDRRMO and the barangay captain, be utilized.

Keywords: action framework, a culture of safety, implementation level, knowledge level

INTRODUCTION

Children are the most vulnerable group when disaster strikes in school. Schools should ensure the safety of these children by exposing them with various disaster risk reduction measures to empower them to prepare for and respond to disasters. According to studies, there are 175 million children who are likely to be affected by natural disasters each year. Boon & Pagliano (2015) said that children's vulnerability might be reduced when they are provided with opportunities to participate in disaster preparedness and response activities and can access personal and communal support. Therefore, schools play a vital role in preparing children to become more resilient to disasters.

The Philippines experienced two most destructive calamities- the 7.2 magnitude earthquake in Bohol, which affected 275,855 school children and the mega-typhoon Yolanda (Haiyan), which affected 1.4 million school-aged children. (UNICEF, 2013) According to Global Risks 2014 Report, World Economic Forum, the significant number of casualties could have been remarkably reduced if the community had understood and prepared enough for disasters. Having adequate awareness of hazards is very significant to be self-reliant. As mentioned by Paño, et al. (2014), preparedness is the key to safety. The culture of school safety in the Philippines is translated through Republic Act No. 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010.

However, it has been observed that the Disaster Risk Reduction Management (DRRM) in most of the public

elementary schools seems to be one of its weak points. Though, a lot of programs and pieces of training have been conducted to make schools much safer, still many schools are prone to disasters and that addressing the issue of safety is less prioritized. School children have the right to be both safe and secured in school. Paño (2014) said that the foremost desire of every stakeholder is to ensure the safety and well-being of the children while in school. The Mines and Geosciences Bureau (MGB) 7, an agency under the Department of Environment and Natural Resources, designated cities in Central Visayas that are highly susceptible to landslide and flooding and Carcar City is one of the identified towns in Cebu. The city was hit by Typhoon Seniang last December 29, 2014 and brought a lot of damage to the entire city. The city is composed of 49 public schools, both elementary and high schools. Carcar Central Elementary School is situated near a river which poses a high vulnerability to school children in case of a calamity. The school's parameter fence and a lot more of the classrooms were damaged by the said typhoon, important documents in the school were not also retrieved. The necessity of a disaster risk reduction management deems it indispensable for the safety of the school community. However, the schools do not have a Disaster Risk Reduction Management (DRRM) manual yet. It is in the preceding situation that this study was conceptualized. It seeks to determine the DRRM in Carcar

Corresponding author:

Juvelyn B. Bacus

Email Address: juvelyn.bacus002@gmail.com

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Central Elementary School with the hope of providing a workable action framework.

Thus, it is interesting to determine the Disaster Risk Reduction Management in Carcar Central Elementary School, Carcar City Division this School Year 2018 – 2019. The basic questions then would be: First, what is the respondents' level of knowledge on Disaster Risk Reduction Management as to prevention and mitigation, preparedness, response, recovery and rehabilitation? Second, What is the level of implementation of Disaster Risk Reduction Management in terms of the areas mentioned above? Third, What are the challenges and opportunities in the implementation of DRRM?; and lastly, Based on the findings, what action framework may be designed?

METHODOLOGY

The study was conducted at Carcar Central Elementary School, Carcar I of Carcar City Division, located in P. Nellas St., Poblacion III, Carcar City. The school is situated near a river which is considered as one of the flood-prone areas in the said city. This poses a high vulnerability and hazard in case of a calamity such that last December 29, 2014, the said school was devastated by Typhoon Seniang, as the river overflowed.

This study employed a descriptive survey method of research since it aims to describe the level of knowledge, its level of implementation, and the challenges and opportunities encountered in the implementation of DRRM. Qualitative questions were also formulated to gather the needed data in identifying the problems and prospects of the said program and to validate the qualitative aspect of the study.

The respondents of the study were chosen using purposive sampling. It covered some of the Division Office personnel like the Schools Division Superintendent of Carcar City Division and the Division DRRM Focal Person. The target school in this study was the Carcar Central Elementary School with its school principal, school DRRM coordinator, classroom teachers, and the student leaders.

Research Instruments

Primary data were utilized in this research. A School Emergency and Disaster Preparedness Level

of Implementation Instrument using Likert scale was being used in the entire study to assess the level of implementation on DRRM of the school community. It is an instrument adapted from the study of Paño in 2014 entitled "Disaster Risk Reduction Management: A Push for Institutional Safety, Resiliency and Sustainability". It is a ten-page instrument answered by the various sectors of the school, focusing on the four thematic areas of disaster risk reduction management namely: Prevention and Mitigation, Disaster Preparedness, Response and Rehabilitation and Recovery. It made use of a five-point likert scale which aims to determine the disaster risk reduction level of implementation of Carcar Central Elementary School. The five-point likert scale signifies the various extent of implementation with the following interpretations: 5 – very high extent; 4 – high extent; 3 – average; 2 – low extent and 1 very low extent.

For the level of knowledge and the challenges and opportunities encountered in implementing the DRRM, researcher-made questionnaires were designed. The said questionnaires were patterned on the previous instruments discussed above. The level of knowledge questionnaire is a six-page instrument that also uses a likert scale with the following interpretations: 5 – very much knowledgeable; 4 – very knowledgeable; 3 – knowledgeable; 2 – fairly knowledgeable and 1 – not knowledgeable at all.

Qualitative questions were also formulated to verify data in identifying the challenges and prospects of the said program and to validate the qualitative aspect in the study. This method has a potential to make detailed description about the existing phenomena, justify current conditions and practices to make solution for improvement. The 15 DRRM indicators stipulated in the interview guide were answered by the respondents during the focused-group discussion about the challenges and opportunities. Respondents were encouraged to give their feedback and suggestions about the different factors along with the four thematic areas of DRRM.

The research instruments were checked and verified by the experts from the field of Disaster Risk Reduction, Dr. Jennifer Paño, Dr. Erik Remoroza and Dr. Isabelo Genegaboas. These three experts were affiliated with Cebu Normal University.

Table 1

Level of Knowledge on DRRM

Thematic Areas	Mean	Level
Mitigation and Prevention	2.63	Knowledgeable
Preparedness	1.90	Fairly Knowledgeable
Response	2.51	Knowledgeable
Rehabilitation and Recovery	1.68	Fairly Knowledgeable
Average Weighted Mean	2.18	Fairly Knowledgeable

Legend:

4.50-5.00 = Very Much Knowledgeable
3.50- 4.49 = Very Knowledgeable

2.50-3.49 = Knowledgeable
1.50-2.49 = Fairly Knowledgeable

1.00-1.49 = Not Knowledgeable

RESULTS AND DISCUSSION

There are four thematic areas in disaster risk reduction in the Philippines. These include 1) prevention and mitigation, 2) preparedness, 3) response, and 4) rehabilitation and recovery.

As shown in Table 1, the respondents were knowledgeable in the area of mitigation and prevention as it got a weighted mean of 2.63. They have enough knowledge about the different measures that will help in lessening the adverse impacts of disasters that may come. Likewise, they were knowledgeable on the engineering techniques that the school must have. This knowledge maybe attributed on their active participation on the training conducted by the Department of Education.

On the area of Disaster Preparedness, respondents perceived themselves to have a fair knowledge since it has only a mean of 1.90 which means that they were a little aware of the things ought to be prepared in an event of calamity. This may be because a few teachers and staff were able to attend pieces of training and that information was not completely cascaded to everyone. Hence, the school community lacks awareness which is necessary to build the culture of safety in school. This negates the study of Paño, et al. which stated that the key to safety is preparedness. As to disaster response, the respondents in this study perceived to be knowledgeable as it got a mean of 2.51 which means that they have adequate awareness with regards to disaster response measures. This means that the constant conduct of emergency drills and involving everyone one as the key actors help them gain the basic knowledge on how to respond in an event of disaster.

However, the respondents' knowledge is limited as to the area of preparedness and rehabilitation and recovery. This may mean that the school community lacks with involvement as to executing roles and responsibilities in the implementation process. A lot of disaster measures need to be introduced in depth for them to execute what they supposed to.

To sum- up with, having only a fair knowledge on DRRM implies that the children in school are not that

secured when disaster strike. One of the goals stipulated in Comprehensive School Safety is to protect students and educational personnel from death and injury in schools. Apart from this, children should be empowered to become self-reliant, hence rigid training for all school personnel is recommended to acquire basic knowledge on DRR. As stated by Weichselgartner & Boon (2015), knowledge is required in incorporating different DRR measures.

Disaster Risk Reduction Management encompasses the four areas. As presented in the above table, the four areas of DRRM were implemented in low extent. Hence, the implementation process is not impressive. However, the school to have a successful outcome, the school personnel should have the adequate awareness regarding the entire areas. The awareness will serve as the base line for its implementation.

The school's overall implementation on DRRM as perceived by the respondents under the area of mitigation and prevention got only a weighted mean of 2.19 which corresponds to low extent. This may be because the school is just newly guided and has just participated lately on different DRR training. Thus, a great performance is not expected but, should and must be improved.

Same with its disaster preparedness, a low extent in its implementation implies that the school's emergency and disaster preparedness plan is not effectively executed. The school community is ineffectively performing their roles and responsibilities. This may be attributed to the fact that school personnel were bombarded with so many functions in the department. Moreover, executing one's responsibilities without a deep understanding of its vision and value may also be the reasons for this. As suggested by UNISDR (2010), teachers should take an active role in DRRM since they are always in contact with the students. Thus, it is a great challenge to every administrator to heighten the motivation of teachers in performing such responsibilities and involving every teacher to participate in training.

In the area of disaster response, which has the highest mean of 2.47, though it was still implemented to a low extent, shows that the school has great gaps to be

Table 2

Level of Implementation of DRRM among the Four Thematic Areas

Thematic Areas	Mean	Level
Mitigation and Prevention	2.19	Low Extent
Preparedness	2.03	Low Extent
Response	2.47	Low Extent
Rehabilitation and Recovery	2.32	Low Extent
Average Weighted Mean	2.25	Low Extent

Legend: 4.50-5.00 = Very High Extent
 3.50- 4.49 = High Extent
 2.50-3.49 = Average
 1.50-2.49 = Low Extent
 1.00-1.49 = Low Extent

addressed to make improvement in its implementation process. This further implies that conducting regular emergency drills is not enough to ascertain that the school is disaster responsive. Nevertheless, if the rest of the parameters pertaining to school emergency drills will be undertaken, improvement towards being responsive actors in an event of disaster will improve.

Lastly, the low extent in its implementation level in the area of disaster rehabilitation and recovery may indicate that the school community was not effectively involved in these activities, thus they were unaware of other things to be done after a disaster. This can also be attributed to the fact that these activities entail big amount of budget and that collaboration of manpower to facilitate the activities are at hand.

Table 3 reveals the different challenges and opportunities encountered in the implementation of Disaster Risk Reduction Management. Weaknesses are always part of any newly implemented program. This does not entail that the program was a failure. This only means that there is always room for improvement. The respondents in this study pointed out some challenges that somehow hinder the effective implementation of DRRM. These are as follows;

Lack of Resources Committed to DRRM as stated in the World Disaster Report in 2002, DRRM budget was set aside due to major conflict across the globe. The same thing in the Department of Education, a lot of programs were taken care of. In implementing a program, budget allocation is needed. Respondent 1 claimed that the school has an insufficient budget for a fire extinguisher. She further says that...

"How can we know how to use a fire extinguisher? We don't have any experience on how to manipulate it. We are just given instructions on how to use it."

With this, the respondent suggests that DRRM allocation must be included in SIP and strengthening partnership with stakeholders and agencies seem to be of great help.

Unavailability of an emergency warning system opposes the mandate of RA 9514 or The Revised Fire Code of the Philippines to have fire alarms in schools. Respondent 2 said...

"We don't know, and we are confused if that bell is for the drill, recess time or just for the arrival or garbage collector."

With the use of a school bell only, early warning signals may not be understood. Respondent 3 added that the population staying at the back could not hear the sound; they just knew that emergency drill was on-going since other classes already went out from their rooms. This further opposes the suggestion of UNISDR (2010) that warnings must be timely and understandable.

Limited Space to be used during evacuation assembly is one of the reasons why children cannot correctly execute the actions and measures they have

learned. This is due to the current building constructions in the school. Respondent 4 emphasized that...

"It is challenging for the children to evacuate because of the limited space, we even occupy areas which are not supposed to be stayed due to current building constructions, anyway if installation is done, the space intended can be used."

With this, having the exit routes as well during the evacuation drill seems to be very difficult because of the large population. Twigg (2004) said that operational size influences the rate of change, and this variable is beyond teacher's control. However, teachers continue to look for other possibilities that will help to address the gap.

Unclear Task Designation due to the recent movement in the organization becomes another challenge in the implementation process. The turning over of roles and designation is not yet finalized; hence creating effective communication is hindered. Respondent 5 said that...

"It's unclear as to whom we will be approached, if we go to this person, we will then be recommended to go to another person. They do not know their roles."

With this scenario, the school is having a hard time in cascading information previously learned, and that intervention of administrators in this area must be executed.

Lack of experience in the conduct of several disaster measures is the reason why some vital DRR measures were not realized. Because of unawareness on the actual conduct of environmental assessments, many actions were left aside. As mentioned by Respondent 6...

"We don't even have experience that LGU or an NGO will be around when we will have our hazard mapping, how much more on the actual conduct of environmental assessments."

The school has just guided with the technical assistance of a certain NGO on how to conduct environmental inspections per classroom. However, due to time constraints and huge population, since PTA officers were also part of the crowd, the school community was not able to grasp all the things being taught. And that further activity and feedbacking must be done to improve and achieve the target.

Proposed Action Framework

Rationale:

Unquestionably, the objective of Disaster Risk Reduction Management is both noble and attainable. However, in order for DRRM implementation to fully work and achieve its purpose, all the elemental requisites of its implementation should be in place. The most significant of these requisites is the awareness of all the actors about the basics of DRRM that play a vital role in the program.

The successful DRRM implementation needs diligent

and courageous personnel. Unfortunately, though, the teachers in Carcar Central Elementary School of Carcar City Division had so many apprehensions when the programs started. This concern is traceable to lack of appropriate training. To rectify this, an Action Plan is formulated by the researcher together with the Division DRRM Focal person, the school DRRM coordinator and the whole DRRM school team. The plan was based on CDRRMO's disaster risk assessment/evaluation which aims to supplement the knowledge and to enable them to develop lifelong skills in the DRRM implementation.

Objectives:

The action framework will secure the corrected, remediated and ultimately, successful implementation of the Disaster Risk Reduction Management in Carcar City Division. Focused on this goal, the program purposely outlines activities that will enrich the basic knowledge of the administrators, teachers and students about DRRM as well as hone their skills in its implementation. Table below presents the suggested action plan.

CONCLUSION

The school has done the necessary emergency preparedness, helping children and the rest of the community more aware of what DRR is. However, the

knowledge gained by the respondents on different DRR measures is not enough. They were not highly involved in DRRM. Their insufficient awareness on different DRR measures lead its implementation not a successful one. The following summarizes the result:

1. The School Community was fairly knowledgeable on the various actions and measures on Disaster risk Reduction.
2. The school's implementation level is at a low extent only.
3. Several challenges and opportunities were encountered by the respondents in the implementation of DRRM.
4. An Action Framework was formulated to enhance the knowledge level and its implementation level on Disaster Risk Reduction Management.

RECOMMENDATIONS

From the evaluation of the relevant aspects in the implementation of the Disaster Risk Reduction Management of the school in Carcar, City, the researcher submits the following recommendations:

1. that the Disaster Risk Reduction Management allocation may be included in the School Improvement Plan (SIP)
2. that Carcar City Division may allocate resources for

Table 4

Action Plan

CONCEPTS TO BE APPLIED/ SHARED	ACTIVITIES OR PROJECTS & OBJECTIVES	DATE AND DURATION (beginning & ending dates)	HUMAN RESOURCES NEEDED	FINANCIAL RESOURCES NEEDED	MATERIALS AND OTHER RESOURCES NEEDED	INDICATORS OF SUCCESS
DRR Knowledge Building School Safety Concept	Training-workshop	October 23, 2019	SEEDS Asia, SDRRM Team and the teachers	Php 3,000.00	projector manila paper, markers, meta cards	95- 100% of the teachers, PTA representatives, Student leaders will join the workshop /training
Learning PAGASA/ PHIVOLCS updates, preparedness measures	Symposium Earthquake drill	October 24, 2019	Resource Speakers From PAGASA and PHIVOLCS	Php 2,000.00	projector manila paper, markers, meta cards	95- 100% of the teachers, PTA representatives, Student leaders will join the symposium /training
Learning about fire and how to fight fire. Applying First aid procedure	Fire Drill Drill on first aid-application	October 25, 2019	Bureau of Fire Protection CDRRMO (Mr. Kim Lauron)	Php 5,000.00	projector	95-100% of the teachers, PTA representatives, Student leaders will join the Emergency drills and first aid application

the DRR programs to be conducted to administrators, teachers, and students to involve them further and to build better awareness about DRR

3. that Carcar Central Elementary School, together with some division personnel may use the action framework formulated by the researcher which geared towards the effective implementation of DRRM. The action framework should, among others:
 - a. design assessment methods that will accurately evaluate the awareness of teachers and students on DRR ;
 - b. provide training to overcome issues on the lack of know-how and skills of the administrators, teachers and students, and thereby, motivate them in committing themselves in the DRRM implementation.
 - c. conceptualizes and come up with localized DRR activities in integrating DRR into lessons.
4. that teachers may be provided with training to acquire deeper awareness and new techniques in facilitating disaster preparedness measures; and
5. that the students and the whole school community may be made aware on the implementation of the DRRM through advocacy campaign.

REFERENCES

- Akumu, O. (2013). Disaster Awareness and Preparedness of Secondary Schools in Homa Bay, Kenya. Retrieved: <https://bit.ly/2VRZ8zy>
- Boon, H. & Pagliano, P. (2015) Disaster Education in Australian Schools. Article in Australian Journal of Environmental Education · Retrieved: <https://www.researchgate.net/publication/277619629>
- Kwach, J. (2018). Strategy in Implementation Process: meaning and components Retrieved:<https://www.tuko.co.ke/286159-strategy-implementation-process-meaning-components.html#286459>
- Lopez, A. & Sales, E. (2018). Level of Compliance with the Risk Reduction and Disaster Preparedness Program among Public Secondary Schools in Buenavista, Bohol. Retrieved: <https://bit.ly/2AExfSL>
- Muttarak, R. & Pothisiri, W. (2013) The Role of Education on Disaster Preparedness: Case Study of 2012 Indian Ocean Earthquakes on Thailand's Andaman Coast. Ecology & Society, 18 (4). pages. 1-16. ISSN 1708-3087 Retrieved: <http://epub.wu.ac.at/5778/>
- Najafi, M., Ardalan, A., Akbarisari, A., Noorbala, A. & Elmi, H. (2017). The Theory of Planned Behavior and Disaster Preparedness. Retrieved: <http://bit.ly/2LdEmW4>
- Paño, J. (2014). Disaster Risk Reduction Management: A Push for Institutional Safety, Resiliency, and Sustainability.
- Paño, J., Abao, E., & Boholano, H. (2015). Higher Education Institutions' Risk Reduction Implementation: Victor or Victim?. *Management and Administrative Sciences Review*. Retrieved: <http://bit.ly/2B2oqS3>
- Petal, M. (2008). Disaster Prevention for Schools Guidance for Education Sector Decision-Makers Consultation version. Retrieved: https://www.preventionweb.net/files/7344_DPforSchoolsm.pdf
- The Lawphil Project (2008): Revised Fire Code of the Philippines of 2008 Retrieved: https://www.lawphil.net/statutes/repacts/ra2008/ra_9514_2008.
- Tuladhar, G., Yatabi, R., Dahal, R., & Bhandary, N. (2014). Knowledge of disaster risk reduction among school students in Nepal.
- Twigg, J. (2004). Good Practice Review. Disaster Risk Reduction. Mitigation and Preparedness in development and emergency programming Retrieved: https://www.ifrc.org/PageFiles/95743/B.a.05.%20Disaster%20risk%20reduction_%20Good%20Practice%20Review_HPN.pdf
- Vicario, A. & Sallan, J. (2017). A comprehensive approach to managing school safety: case studies in Catalonia, Spain. Retrieved: <https://bit.ly/2Fr8k98>
- Weichselgartner, J & Pigeon, P. (2015). The Role of Knowledge in Disaster Risk Reduction. Retrieved file: <:///C:/Users/PC/Downloads/WeichselgartnerPigeon2015-TheRoleofKnowledgeinDisasterRiskReduction.pdf>
- Disaster Risk Reduction and Management in the Philippines (2014). Retrieved: <http://www.drrplatform.org/images/DocPub/RiskAssessment.pdf>
- Journal of Sustainable Development Education and Research | Vol. 2, No.1, 2018, pp. 51-57 Introducing Education for Sustainable Development in the Educational Institutions in the Philippines. Retrieved: <http://bit.ly/2RQ1Gfn>
- Republic Act No. 10121. Philippine Disaster Risk Reduction and Management Act of 2010. Retrieved: <http://bit.ly/2BZAJdk>
- SEEDS Asia Cebu Project Philippines (Newsletter Issue No. 2 August 2015-August 2016) Retrieved: <http://bit.ly/2zQLwv2>
- School Disaster Risk Reduction and Management Manual Booklet 2 Retrieved: <https://bit.ly/2QvQzvy>
- UNISDR and Global Assessment Report on Disaster Risk Reduction 2014: Enabling Knowledge for Disaster Risk reduction and its integration into Climate Change Adaptation. Retrieved: <https://pdfs.semanticscholar.org/6436/635e67b018eaaae0547d1f22244ee1eafb57.pdf>
- United Nations Office for Disaster Risk Reduction (UNISDR) 2017: Hyogo Framework for Action (HFA) Retrieved: <http://bit.ly/2UAX8v1>
- UNISDR Asia and the Pacific. (2010). Guidance Notes School Emergency and Disaster Preparedness. Retrieved: <https://www.unisdr.org/>

files/15655_1msshguidenotesprefinal0313101.pdf

World Disasters Report 2002. Retrieved: <https://bit.ly/2V3w1ZD>

United Nations International Children's Fund (UNICEF) 2014. One Year after Typhoon Haiyan, Philippines. Progress Report. Retrieved: <http://uni.cf/2Qn7WhM>

World Economic Forum: Global Risk 2014. Retrieved: <http://bit.ly/1dT64y3>

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