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Research Paper

Disaster Management of Public Secondary Schools in Antique Province

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ABSTRACT
Objective - *This descriptive study primarily aims to assess the level of disaster management of public secondary schools in Antique Province, Philippines*
Methodology *- The study was conducted using the descriptive survey design. Data were gathered using an instrument on Safety Checklist and interpreted using frequency, percentage, and mean. The researchers adapted the standardized questionnaire from Gawad KALASAG (National Disaster Risk Reduction Management).*
Finding *- Findings revealed that as an entire group and in terms of school size and location, the schools are less prepared in the conduct of drills and school mapping, prepared in school preparedness plan.*
As to safety check on health and environment, schools are prepared in school safety but very prepared in school security and health and environment safety and when categorized as to variables. Regardless of size and location, school safety is less prepared.
In conclusion, most schools have not undertaken any drill on tsunami and landslide but are prepared for earthquake and fire drills. It is recommended that local government units should coordinate with schools to achieve its mandate on disaster management.
Novelty *- The study proposes planning programs and strategies to achieve the mandate of schools and LGUs on disaster management. Likewise, secondary schools proposes an E- School Investment Plan and Annual Investment Plan on disaster preparedness, and effort should be exerted to conduct drills on flood, landslide, mudslide and tsunami to heighten the awareness and preparation of the students and faculty to continuously improve on the Disaster Risk Reduction and Management.*
Type of Paper *- Empirical*
JEL Classification *- I21, I28, Q53, Q54*
Keywords*: disaster management, local government unit, public secondary schools, Antique, Philippines*

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I. Introduction

The Philippines has been battered by many catastrophic storms and other man-made disasters since time immemorial due to its geographic location at the Typhoon Belt and the Ring of Fire. The country is prone to multiple recurring hazards such as cyclones, floods, earthquakes and landslides (COA, 2010).

The province of Antique was hit by the Super typhoon Yolanda on November 8, 2013. It brought much suffering to the people due to damages to property and crops, and loss of lives. Provincial Disaster Risk Reduction and Management Council reported the consolidated damage and loss summary report in the last November 18, 2013 incident. The entire province was heavily damaged by the typhoon with a total of 472 affected barangays and 258,672 total affected persons. This record of destruction on lives and properties ostensibly indicate how unprepared the local government and the inhabitants were.

The Department of Education (DepEd) issued a DepEd Order No. 50, s. 2011 which mandates the creation of Disaster Risk Reduction and Management Office, which will initiate and spearhead the establishment of mechanisms which prepare, guarantee protection and increase resiliency of the Department of Education constituents in the face of disasters.

Still along this line, the Department of Education issued different orders and memoranda related to disaster management in schools which aim to heighten awareness and consciousness among school administrators,

teachers, personnel and school children nationwide on what to do before, during and after the occurrence of all forms of possible hazards in their respective areas.

Strengthening disaster prevention, mitigation and preparedness is one of the key strategies to address the vulnerabilities of the children inside and outside the school. With the increasing effects of climate change, it is important to raise the capabilities of teachers and school administrators to prepare for and manage possible disaster/or emergencies.

In the future, will schools which are the second homes of the students be safe and prepared for disasters which are brought about by wrath of nature? How do public secondary schools manage and prepare for disasters and what is their safety check on health and environment?

These questions and the past disastrous events that occurred in the province and the nation as a whole motivated the researcher to conduct a study on the status of disaster preparedness of public secondary schools in Antique.

The main purpose of the study was to determine the level of disaster management of public secondary schools in Antique. The specific objective was to predict the level of disaster management of public secondary schools in terms of disaster preparedness and safety check on health and environment when they are taken as an entire group and when they are classified as to location of school and school size.

II. Literature Review

2.1. Types of Disasters, Their Causes and Effects

Each year, schools all over the world suffer more damaging disasters ranging from small to large that seriously affect the operation of the school. The school management spends millions of dollars in repairing or replacing schools after disasters. Further, students are left anxious, uprooted, and out of classrooms for long periods of time or relocated to other facilities disrupting their education and increasing their stress. There is no single school that is not vulnerable to disasters (FEMA, 2009). In order to mitigate any disaster, the causes of the problem must be brought to the fore. To this effect, school disasters have a multiplicity of causes and by extension effects.

The most damaging disasters that affect the schools are the natural disasters. A natural disaster is a major adverse event resulting from natural processes of the earth; examples include floods, volcanic eruptions, earthquakes, tsunamis, and other geologic processes. A natural disaster can cause loss of life or property damage, and typically leaves some economic damage in its wake, the severity of which depends on the affected population's resilience or ability to recover. An adverse event will not rise to the level of a disaster if it occurs in an area without vulnerable population. In a vulnerable area however, such as Japan an earthquake can have disastrous consequences and leave lasting damage and requiring years to repair. There are many kinds of natural disasters that heavily affect the people and the environment namely: geological, hydrological, and metrological.

Geological disasters are catastrophes that include earthquakes, mudslides, landslides, and volcanic eruptions.

An earthquake is the result of the sudden release of energy in the earth's crust that makes seismic waves. At the earth's surface, earthquakes manifest themselves by vibration, shaking and sometimes displacement of the ground. Earthquakes are caused mostly by slippage within geological faults, and also by other events such as volcanic activity, landslides, mine blasts and nuclear tests. Earthquakes by themselves rarely kill people or animals. It is usually the second event such as building collapse, fire, or tsunami that triggers the human disaster.

On the other hand, mudslide/landslide is a geological phenomenon that includes the wide range of ground movements, such as rock falls, deep failure of slopes and shallow debris flows. It occurs after water rapidly saturated the ground on the slope, such as during heavy rainfall.

Volcanic eruptions can cause widespread destruction and consequent disaster in several ways. The effects include the volcanic eruption itself that may cause harm following the explosion of the volcano or the fall of rock. Second, lava may be produced during the eruption of a volcano. As it leaves the volcano, the lava destroys many buildings, plants and animals due to its extreme heat. Third, volcanic ash, generally the cooled ash, may form a cloud ash, and settle thickly in nearby locations. When mixed with water, this forms a concrete-like material. In sufficient quantity, ash may cause roofs to collapse under its weight but even small quantities will harm humans if inhaled. Since the ash has the consistency of ground glass, it causes abrasion damage to moving parts such as engines. The main killer of humans in the immediate surroundings of a volcanic eruption is the pyroclastic flow, which consists of a cloud of hot volcanic ash which builds up in the air above the volcano and rushes down the slopes when the eruption no longer supports the lifting of the gases.

Hydrological disasters include flood and tsunami that are usually experienced by people living on low lying places, near the river banks and coastal areas.

A flood is the overflow of water that submerges land. It is defined as a temporary covering by the water of land which is usually not covered by water. Flooding may result from the volume of water within the body of water, such as river or lake, which overflows causing the result that some of the water escapes its usual boundaries.

On the other hand, tsunami is a series of waves in a water body caused by displacement of a large volume of water, generally in an ocean or sea. It can be caused by undersea earthquakes, by landslides and by volcanic eruptions.

The Indian Ocean Tsunami of 26 December 2004, the worst natural disaster in the history of the Maldives, affected the entire country. All but nine islands were flooded and 13 islands were totally evacuated. The disaster claimed 82 lives, left 26 people missing and displaced over 15,000 people (about 5.5 per cent of the population). The tragedy shattered the livelihoods of a third of the population causing widespread trauma and distress.

Metrological disasters are tropical storms and typhoons that often visit countries located above the equator.

Tropical storms are low pressure systems that form over warm tropical waters and have gale force winds (sustained winds of 63 km/h or greater and gusts in excess of 90 km/h) near the center. Technically, they are defined as a non-frontal low pressure system of synoptic scale developing over warm waters having organized convection and a maximum mean wind speed of 34 knots or greater extending more than half-way around near the center and persisting for at least six hours.

Heavy rainfall associated with the passage of a tropical cyclone can produce extensive flooding. This can cause further damage and death by drowning. The heavy rain can persist as the cyclone moves inland and decays, hence flooding due to a decayed cyclone can occur a long way from the tropical coast as the remains of a cyclone move into central and southern parts of the continent.

The Philippines is one of the most vulnerable countries in the world to disaster and climate change. With over 7,000 islands, and over 36,000 kilometers of coastline, nearly everyone – 74 per cent of the population – and everywhere – 80 per cent of the land area – are vulnerable to disaster, with Metro Manila, the capital city considered at "extreme risk."

Typhoons and storms, which make up 58 per cent of all disasters in the country, related flooding (25 per cent) and landslides (six per cent) pose the greatest threats to the country. Storms surpass all other disasters in terms of number of fatalities, people affected and economic
damage. Though less regular than hydro meteorological disasters, earthquakes (five per cent), volcanic eruptions (five per cent) and drought (one per cent) can also have devastating effects. Cumulatively, these disasters cause an average of over 1,000 deaths per year.

The Philippine government, international NGOs and local NGOs are all making attempts to address climate change and disasters at various levels. However, many of the resources put aside for this purpose are re-directed to emergency response when disasters strike, such as Typhoon Yolanda (known as Haiyan internationally) in November 2013, and the flash floods caused by Typhoon Sendong (Washi internationally) in Mindanao in December 2011.

Attempts to defend the nation against disasters are complicated by social forces, such as high poverty rate, urbanization in coastal regions, and environmental destruction including illegal mining and logging. The Filipino population and economy are growing rapidly, especially in urban centers, where over 65 per cent of the country lives, 45 per cent of it in poverty. While the urbanization policy has been good for economic growth, it has also increased the vulnerability of its 25 largest cities, most of them on riverbanks and coastlines. Urban vulnerability is made worse by poor housing conditions, and the low adaptive capability of the urban poor. As stated by Antonia Loyzaga of the Manila Observatory, "the Philippines is an archipelagic country with a declared government policy that supports the urbanization of coastal cities in order to spur economic growth. Hyper-concentrating people and economic resources in coastal areas – without investing in the institutional capacity to build a shared understanding of the science of integrated risks from climate change and geological hazards – is a recipe for disaster."

Outside of the cities, the farmers and fishermen are most affected by natural disasters. With one-third of the population working in agriculture, natural disasters also threaten food security and major sources of livelihood. Droughts, floods and cyclones all affect the agricultural sector and the livelihoods of farmers and fishermen. Frequent storms increase the salinity level of irrigated land, leaving it unfit for agriculture, while warmer ocean water damages coral reefs, the feeding grounds for many species relied upon by local fishermen. Environmental degradation, including logging and mining, also exposes communities to higher risks. Specifically, these factors contributed directly to devastating flash floods that struck Mindanao in 2011.

Climate Change Impact. The Philippines is one of the most vulnerable countries in the world to climate change. Rising sea levels is a direct threat to approximately 70 per cent of the 1,500 municipalities in the Philippines, many of which may need to relocate as a result. Climate change has also increased the frequency and severity of natural disasters. Studies and climate change simulations show that rainfall will increase in intensity during the wet season in the Central Visayas and Southern Tagalog provinces. The country is also expected to experience longer dry seasons, exacerbated by El Nino Southern Oscillation in Mindanao.

Typhoons, Floods and Landslides. For the last five years, 2008-2012, the Philippines was in the top three countries for the number of natural disasters, with the most frequent being storms and floods. Storms surpass all disasters in the country in terms of highest number of fatalities, people affected and economic damage. Furthermore, the strong winds and heavy rainfall which accompany typhoons often lead to flooding or landslides. Most typhoons originate from the southeast and travel north, increasing in speed and intensity as they approach the Philippines. Luzon, Samar, Leyte, Eastern Quezon Province and the Batanes Islands are most prone to typhoons.

From 1983 to 2012, 24, 281 people were killed by storms, with another 99.6 million people affected. Economic losses for the country have totaled $5.9 billion. Typhoon Yolanda in late 2013 increased these totals by between 15 and 25 percent. Floods and landslides commonly occur as secondary hazards induced by typhoons and monsoons. The

Philippines has mountainous terrain with a sharp drop to coastal areas, exposing communities in low-lying areas to high risk.

Geophysical Vulnerability. Located on the Pacific Ring of Fire, the location of 90 per cent of the world's earthquakes, the Philippines has experienced numerous high magnitude seismic events. The country also has 22 active volcanoes. Both events are rare, but extremely destructive.

In 2004, the Philippine government, and Japan International Cooperation Agency, studied the Valley fault which runs through Metro Manila and its environs in order to identify vulnerable areas, according to flammability, evacuation difficulty and building collapse.

2.2. Philippine Disaster Risk Reduction and Management

Philippine Disaster Risk Reduction Management is included in Section 2, Declaration of State Policy of the Philippine Constitution. It shall be the policy of the State to:

(a) Uphold the people's constitutional rights to life and property by addressing the root causes of vulnerabilities to disasters, strengthening the country's institutional capacity for disaster risk reduction and management and building the resilience of local communities to disasters including climate change impacts;

(b.) Adhere to and adopt the universal norms, principles and standards of humanitarian assistance and the global effort on risk reduction as concrete expression of the country's commitment to overcome human sufferings due to recurring disasters;

(c) Incorporate internationally accepted principles of disaster risk management in the creation and implementation of national, regional and local sustainable development and poverty reduction strategies, policies, plans and budgets;

(d.) Adopt a disaster risk reduction and management approach that is holistic, comprehensive, integrated, and proactive in lessening the socioeconomic 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;

(e.) Develop, promote, and implement a comprehensive National Disaster Risk Reduction and Management Plan (NDRRMP) that aims to strengthen the capacity of the national government and the local government units (LGUs), together with partner stakeholders, to build the 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;

(f) Adopt and implement a coherent, comprehensive, integrated, efficient and responsive disaster risk reduction program incorporated in the development plan at various levels of' government adhering to the principles of good governance such as transparency and accountability within the context of poverty alleviation and environmental protection;

(g) Mainstream disaster risk reduction and climate change in development processes such as policy formulation, socioeconomic development planning, budgeting, and governance, particularly in the areas of environment, agriculture, water, energy, health, education, poverty reduction, land use and urban planning, and public infrastructure and housing among others;

(h) Institutionalize the policies, structures, coordination mechanisms and programs with continuing budget appropriation on disaster risk reduction from national down to local levels towards building a disaster-resilient nation and communities;

(i) Mainstream disaster risk reduction into the peace process and conflict resolution approaches in order to minimize loss of lives and damage to property, and ensure that communities in conflict zones can immediately go back to their normal lives during periods of intermittent conflicts;

(j) Ensure that disaster risk reduction and climate change measures are gender responsive, sensitive to indigenous know ledge systems, and respectful of human rights;

(k) Recognize the local risk patterns across the country and strengthen the capacity of LGUs for disaster risk reduction and management through decentralized powers, responsibilities, and resources at the regional and local levels;

(l) Recognize and strengthen the capacities of LGUs and communities in mitigating and preparing for, responding to, and recovering from the impact of disasters;

(m) Engage the participation of civil society organizations (CSOs), the private sector and volunteers in the government's disaster risk reduction programs towards complementation of resources and effective delivery of services to the citizenry;

(n) Develop and strengthen the capacities of vulnerable and marginalized groups to mitigate, prepare for, respond to, and recover from the effects of disasters;

(o) Enhance and implement a program where humanitarian aid workers, communities, health professionals, government agencies, donors, and the media are educated and trained on how they can actively support breastfeeding before and during a disaster and or an emergency; and

(p) Provide maximum care, assistance and services to individuals and families affected by disaster, implement emergency rehabilitation projects to lessen the impact of disaster, and facilitate resumption of normal social and economic activities.

Aspects to Disaster Risk Reduction. Disaster risk reduction is the application of policies, strategies and practices to minimize vulnerabilities and disaster risks throughout the society to avoid or to limit the adverse impact of disasters. It includes disaster mitigation, early warning, disaster preparedness, recovery and support to livelihood.

Disaster mitigation are structural and non-structural measures undertaken to limit the adverse impact of natural hazards; for example, planting mangroves to reduce the risk posed by tidal surges or raising awareness of natural hazards through school-based education projects.

Early warning is the provision of timely information enabling people to take steps to reduce the impact of hazards. Early warning is typically multi-hazard and requires genuine ownership of, and participation by, communities and other stakeholders, e.g., access to information by local people concerning an approaching typhoon or tropical storm.

Disaster preparedness are measures that help ensure a timely and effective "first line" of response supported by National Societies' volunteers, branches, regional and national capacities, example community action teams backed up by National Society contingency planning and regional and or international response teams.

Recovery involves decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the affected community, while facilitating necessary adjustments to reduce disaster risk, e.g., assessing levels of future risk when planning housing projects in the aftermath of a disaster.

Support to livelihoods are projects that strengthen or diversify livelihoods that enable individuals or households to develop strategies to reduce risk, e.g. home gardening can improve nutrition and increase reserves in the time of drought.

Reducing Risk from Natural Disasters. There are activities to consider that would provide outright avoidance of the adverse impact of hazards related to natural disasters.

It is harmless to install and maintain storm shutters to protect all exposed windows and glass surfaces, and use them when severe weather threatens. Besides protecting against wind, shutters also prevent damage from flying debris.

A safe room may be installed in homes or businesses to protect them against severe wind hazards. Homes should also be inspected by a building professional to ensure that roof and other building components are capable of withstanding wind effects.

Earthquakes. Before the earthquake, the key to effective disaster prevention is planning:

The first move is to improve. This would include knowing the earthquake hazard in the area; following structural design and engineering practices when constructing a house or building; evaluating the structural soundness of the building and houses; strengthening or retrofitting if necessary; prepare the homes, workplace or schools; strapping or bolting heavy furniture/cabinets to the walls; checking the stability of the hanging objects like ceiling fans and chandeliers; storing properly breakable items, harmful chemicals and flammable materials in the lowest secured shelves.

During the earthquake, one should stay calm and when inside the building or home stay there. One should also duck under the sturdy desk or table and hold to it, or protect head with arms. One should also beware of falling objects, stay alert and keep eyes open.

After the earthquake one should be prepared for aftershocks. Once shaking stops, he/she should take the fastest and the safest way out of the building, avoid using elevators, should not panic and be kept updated on disaster prevention instructions from battery-operated radios.

Flooding. Valuables and appliances should be moved out of the basement of the home or business if it is prone to flooding. This will increase the chance that belongings will remain dry when a flood occurs. The main breaker or fuse box and the utility meters should be elevated above the anticipated flood level in home or business, so that flood water would not damage utilities.

One should also listen to radio, television and internet to be updated of the latest weather forecast; prepare necessary materials needed for evacuation like potable water, candles, foods, clothes medicines, blankets, mats battery-operated radio, flashlight and cellphones and prepare and put inside a plastic envelope important documents like birth certificate, marriage certificate, land titles, work appointment and ID.

Hurricanes and Tornadoes. Hurricane straps should be installed in home or business to better secure the roof to the walls and foundation. This will reduce the risk of losing roof to high winds.

2.3. Schools and Disaster Susceptibility

Children, who are commonly identified as one of the vulnerable groups, should be equipped with capacity to know, understand and apply safety and protection mechanisms to build the foundation of their resilience. With the increasing effects of climate change, it is important to raise awareness and capacities of children to prepare for and manage possible disasters and or emergencies.

Worldwide, 875 million school children live in high seismic risk zones with 32 million of these children newly enrolled in primary education (Wisner et.al 2004).

On the other hand, earthquakes are one of the most damaging disasters that affect the schools, teachers and students.

In China an estimated 10,000 plus children died in their schools and an estimated 5,000 classrooms were destroyed by an earthquake in 2008.

In 2005, 17,000 students died at schools, and 50,000 were seriously injured, many were disabled, 10,000 school buildings were destroyed and 300,000 children were affected in Kashmir, Northern Pakistan districts, 80% of the schools destroyed.

Also in the same year, 56 schools were destroyed while 1,162 were damaged, 700 schools were closed 372,000 children and 73,000 college students were displaced in Gulf States, USA. The estimated amount spent by the government to educate the students for a year was $2 billon.

In 2003, in Bam, Iran 67 of 131 schools collapsed, the remaining were heavily damaged, 10, 000 school children and 1, 200 teachers did and more than 32, 000 students were adversely affected.

In 2003, 84 children and teachers died in a collapse of a school building in a moderate earthquake, 4 schools, collapsed 90 per cent of schools were impeded and education was disrupted in Bingol, Turkey.

In 2001, in Bhuj, India, 971 students and 31 teachers were killed by an earthquake, though most children were outside for Republic Day Celebration almost 1, 884 schools collapsed, destroying 5, 950 classrooms including 78% of public secondary schools and 11,761 school buildings suffered major damage 36, 584 unusable classrooms.

In 1998, in Spi Tak, Armenia 2/3 of the 25, 000 earthquake deaths were school children killed in their schools. 400 school children died in one school alone and 32, 000 school children were evacuated in a safe place.

The occurrence of man-made and natural disasters had a great impact on schools in different countries all over the world. Natural disasters like earthquakes, volcanic eruptions, tsunami, floods and others have devastating effect to their education and life. Disasters can disrupt school's learnings of children and causes them to drop out of school.

According to Hassanain (2006) schools' occupants are children and youth who can easily panic and become difficult to manage in case of emergencies or crisis and damages are enormous when a school is destroyed by earthquake, floods, tsunamis, and storms. Disasters will disrupt school operations will have psychological impact to students, families and teachers and will impair the learning environment.

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2.4. Republic Acts and DepEd Memoranda on Disaster Risk Reduction and Management

Republic Act No. 10121 entitled The Philippine Disaster Risk Reduction and Management Act of 2010, mandates all national government agencies to institutionalized policies, structures, coordination and mechanisms and programs on Disaster Risk Reduction Management from the national and local levels. The Department of Education issued DepEd Order No. 50, s. 2011 which mandates the creation of Disaster Risk Reduction and Management Office, which will initiate and spearhead the establishment of mechanisms to prepare, guarantee protection and increase resiliency of the Department of Education constituents in face of disasters.

The Department of Education issued different orders and memoranda related to disaster management in school which aims to heighten awareness and consciousness among school administrators, teachers, personnel and school children nationwide on what to do before, during and after the occurrence of all forms of possible hazards in their respective areas. DepEd Memorandum No. 69 s. 2015 included on its school calendar that the month of July is considered as the National Disaster Consciousness Month. Another DepEd Order No. 21 s. 2015 known as the Disaster Risk Reduction and Management Coordination and Information Management Protocol enumerates the roles and responsibilities of the DepEd region, divisions and schools, including the DRRM coordinators and thier objective is to provide guidance to regions and schools division including DRRM coordinators on how to act before, during and after disasters. DepEd Order No. 23, s. 2015 entitled Student-Led School Watching and Hazard Mapping aims to increase the participation of children in addressing potential disasters by reducing vulnerabilities; and inculcate a culture of safety in the day-to- day experience of children in school. DepEd Order No.48, s. 2012 requires all public and private schools are enjoined to undertake the Quarterly Conduct of the National School Based- Earthquake Drill and Fire Drills. This activity aims to generate the highest level of awareness among the public on Disaster Risk Reduction and Climate Change Adaptation.

In 2009, the Congress enacted the Climate Change Act, RA 10121 or the Philippine Disaster Risk Reduction and Management Act (PDRRM). The twin laws on Disaster Risk Reduction Management have common goals and objectives which are to increase the resilience of vulnerable communities and the country against disasters and to reduce the damage and loss of lives and properties. In particular, RA 10121 provides for the development of policies and plans and the implementation of actions and measures pertaining to all aspects of DRRM, including good governance, risk assessment and early warning, knowledge building and awareness rising reducing underlying risk factors and preparedness for effective response and early recovery. The law acknowledges that there is a need to adopt a disaster risk reduction and management approach that is holistic, comprehensive, integrated and proactive in lessening the socio economic and environmental impact of disasters including climate change and global warming.

In line with the goals and objectives of the RA 10121 or Philippine Disaster Risk Reduction and Management Act, the Department of Education as member of the National Disaster Coordinating Council ensure that it will work together for the implementation of the provision of the law. The role of Department of Education to advocate safety in schools cannot be overemphasized because the provision of quality education goes hand in hand with safety measures and risk reduction in schools. Safety of schools requires the proactive engagement of all stakeholders, school officials, teachers and parents. Recognizing the welfare and safety of the students in schools are their foremost concern and responsibility.

Education is a human right, universal and inalienable. Education is especially important in enabling people to reach their full potential and exercise other rights. This right does not disappear or get suspended because of disasters and emergencies. When education is interrupted or limited, students drop out, with negative and permanent economic and social impacts for students, their families, and their communities. Natural hazards are part of the context for educational planning. Whether it is annually recurring floods, a once-in-5- generation earthquake, the increasing severity of storms and cyclones, water shortages, or the slow onset of rising sea water levels, these known and expected hazards can be mitigated with the determined application of knowledge, education, and ingenuity (IFC, 2009).

III. Research Methodology

This descriptive study aimed to find out the level of disaster management of public secondary schools in the Division of Antique, Philippines. The respondents were the 54 school disaster risk reduction and management coordinators of all the public secondary schools in the Division of Antique. The schools were further categorized

as to school size as big, medium and small. The location of the school was also considered whether it is plain, coastal, and mountainous.

The study used a questionnaire checklist on disaster-management which consists of two parts, namely personal information and checklist on disaster preparedness and safety check on health and environment. The checklist is adopted from Gawad KALASAG (National Disaster Risk Reduction Management).

To interpret the data gathered in this study, the researcher used frequency counts, percentage, and weighted mean.

The level of disaster preparedness and safety check on health and environment of the respondents was interpreted using the following scale:

3.26 – 4.00	Very prepared
2.51 – 3.25	Prepared
1.76 – 2.50	Less prepared
1.00 – 1.75	Not prepared

The instrument used in this study is adopted from the standardized questionnaire on Safety Checklist in School for Gawad KALASAG Project of National Disaster Risk Reduction Management Council.

This instrument consisted of two parts. Part 1 called for information on the name of respondent, position, name of school, school size, and location of school. Part two covered two areas, namely: disaster preparedness and health and environment safety check. To answer the instrument, the respondents are instructed to check the level of their preparedness by using the choices with 4 - very prepared 3 - prepared 2 - less prepared 1- not prepared.

IV. Results and Discussions

4.1.1 Disaster Management of Public Secondary Schools in Terms of Disaster Preparedness

The disaster management of public secondary schools in terms of disaster preparedness taken as an entire group was determined using frequency, percentage, and mean.

The public secondary schools in terms of disaster preparedness are Less prepared in the regular conduct of drills with a mean of 1.96 and school mapping with a mean of 2.19. However, they are Prepared in the school preparedness plan with a mean of 3.08.

Specifically, they are Prepared for fire and earthquake drills but Not prepared for flood, landslide, mudslide, and tsunami. Likewise, they are also Less prepared when it comes to having a hazard map and identification of risk prone areas.

Table 1 shows the data.

Table 1. Disaster Management of Public Secondary Schools in Terms of Disaster Preparedness as an Entire Group

No.	Items	Mean	Description
1.	**Regular conduct of drills**	**1.96**	**Less prepared**
a.	Fire and earthquake drill	2.87	Prepared
b.	Flood, landslide and mudslide	1.63	Not prepared
c.	Tsunami	1.37	Not prepared
2.	**School preparedness plan**	**3.08**	**Prepared**
a.	School improvement plan incorporating Disaster Risk Reduction Management	3.43	Very prepared
b.	School Disaster Risk Reduction Management Organizational Structure	3.20	Prepared
c.	Provision of contingency plans/measures	2.72	Prepared
d.	School personnel/students attended trainings, seminars, capacity building and workshop on Disaster Risk Reduction Management	2.89	Prepared
e.	Communication and mechanism (cellphone, telephone, handheld, radio, megaphone, etc.)	2.87	Prepared
f.	School Emergency Warning Devices (posters, flag lets, whistle, evacuation plan)	3.09	Prepared
g.	Adequate space and facilities to be used as evacuation center	3.30	Very prepared
h.	Temporary learning center	2.81	Prepared
i.	Training and awareness activities on disaster awareness and control	2.70	Prepared
j.	Disaster preparedness and management are taught in any subjects in school	3.26	Very prepared
k.	Teacher assigned as disaster preparedness coordinator	2.83	Prepared
l.	Awareness of any national/local level disaster management program	3.33	Very prepared
m.	Awareness of any laws/policies/directives/ related to disaster preparedness and management for school	3.13	Prepared
n.	Linkages of school to other agencies	3.50	Very prepared
3.	**School Mapping**	**2.19**	**Less prepared**
a.	Presence of hazard map	2.24	Less prepared

b.	Risk prone areas are identified	2.15	Less Prepared

4.1.2. Disaster Management of Public Secondary Schools in Terms of Disaster Preparedness as to Location of School

When classified as to location of school, the public secondary schools were categorized as plain, coastal, and mountainous.

The disaster management of public secondary schools in terms of disaster preparedness include regular conduct of drills school preparedness plan, and school mapping.

The result of the study revealed that the disaster management as to regular conduct of drills of all three locations showed that they were Less prepared with means of 1.85, 2.25, and 1.89 for plain, coastal, and mountainous locations respectively.

On the other hand, the disaster preparedness as to school preparedness plan revealed that those located in the plain, coastal, and mountainous areas had means of 3.21, 3.00, and 3.00 respectively which are all interpreted as Prepared.

Finally, the disaster preparedness as to school mapping of the public secondary schools were found to be Less prepared with means of 2.25, 2.0, and 2.25 respectively for plain, coastal, and mountainous areas.

All three locations are Prepared for fire and earthquake drills but are Not prepared for flood, landslide, mudslide, and tsunami. They are also Less prepared when it comes to having a hazard map and identification of risk prone areas.

Schools located in plain areas are Very prepared for school emergency warning devices which include posters, flag lets, whistle, and evacuation plan compared to coastal and mountainous areas which are Prepared. The same is true with adequacy of space and facilities for evacuation center and teaching of disaster preparedness in schools. Those located in plain areas were found to be Very prepared while from coastal and mountainous areas are only Prepared.

Table 2 shows the data.

Table 2. Disaster Management of Public Secondary Schools in Terms of Disaster Preparedness as to Location of School

No.	Items	Plain		Coastal		Mountainous	
		Mean	Desc	Mean	Desc	Mean	Desc
1.	**Regular conduct of drills**	**1.85**	**LP**	**2.25**	**LP**	**1.89**	**LP**
a.	Fire and earthquake drill	2.85	P	2.92	P	2.86	P
b.	Flood, landslide and mudslide	1.35	NP	2.17	LP	1.59	LP
c.	Tsunami	1.35	NP	1.67	NP	1.23	NP
2.	**School preparedness plan**	**3.21**	**P**	**3.00**	**P**	**3.00**	**P**
a.	School improvement plan incorporating Disaster Risk Reduction Management	3.40	VP	3.33	P	3.50	VP
b.	School Disaster Risk Reduction Management Organizational Structure	3.25	P	2.58	P	3.18	P
c.	Provision of contingency plans/measures	2.60	P	2.83	P	2.91	P
d.	School personnel/students attended trainings, seminars, capacity building and workshop on Disaster Risk Reduction Management	3.10	P	3.00	P	2.73	P
e.	Communication and mechanism (cellphone, telephone, handheld, radio, megaphone, etc.)	2.95	P	2.92	P	2.73	P
f.	School Emergency Warning Devices (posters, flag lets, whistle, evacuation plan)	3.45	VP	3.17	P	2.86	P
g.	Adequate space and facilities to be used as evacuation center.	3.45	VP	2.83	P	3.23	P
h.	Temporary learning center	3.10	P	2.67	P	2.55	P
i.	Training and awareness activities on disaster awareness and control.	2.80	P	2.92	P	2.64	P
j.	Disaster preparedness and management are taught in any subjects in school.	3.45	VP	2.92	P	3.27	VP
k.	Teacher assigned as disaster preparedness coordinator	2.95	P	2.92	P	2.68	P
l.	Awareness of any national/local level disaster management program	3.50	VP	3.17	P	3.27	VP
m.	Awareness of any laws/policies/directives/ memoranda related to disaster preparedness and management for school	3.05	P	3.17	P	3.18	P
n.	Linkages of school to other agencies	3.85	VP	3.33	P	3.27	VP

3.	**School Mapping**	**2.25**	**LP**	**2.00**	**LP**	**2.25**	**LP**
a.	Presence of hazard map	2.40	LP	2.00	LP	2.23	LP
b.	Risk prone areas are identified	2.10	LP	2.00	LP	2.27	LP

4.1.3. Disaster Management of Public Secondary Schools in Terms of Disaster Preparedness as to School Size

When classified as to school size, the public secondary schools were categorized as small, medium, and big.

The result of the study revealed that on disaster preparedness as to regular conduct of drills, small, medium and big public secondary schools have means of 1.81, 1.95, and 1.95 respectively which are interpreted as Less prepared. As to school preparedness plan, all three sizes had means of 2.99, 3.12, and 3.12 respectively which are interpreted as Prepared.

Finally, as to school mapping, all three sizes had means of 2.43, 1.97, and 2.18 respectively which are interpreted as Less prepared. Specifically, small, medium, and big sized schools were Not prepared for flood, landslide, mudslide, and tsunami drills but Very prepared for school improvement plan incorporating disaster risk reduction management.

Table 3 shows the data.

Table 3. Disaster Management of Public Secondary Schools in Terms of Disaster Preparedness as to School Size

		Small		Medium		Big	
No	Items	Mean	Desc	Mean	Desc	Mean	Desc
1.	**Regular conduct of drills**	**1.81**	**LP**	**1.95**	**LP**	**1.95**	**LP**
a.	Fire and earthquake drill	2.75	P	2.73	P	2.88	P
b.	Flood, landslide and mudslide	1.71	LP	1.47	NP	1.64	NP
c.	Tsunami	1.00	NP	1.53	NP	1.33	NP
2.	**School Preparedness Plan**	**2.99**	**P**	**3.12**	**P**	**3.12**	**P**
a.	School improvement plan incorporating Disaster Risk Reduction Management	3.75	VP	3.27	VP	3.36	VP
b.	School Disaster Risk Reduction Management organizational structure	2.86	P	3.13	P	3.21	P
c.	Provision of contingency plans/measures	2.86	P	2.33	P	2.79	P
d.	School personnel/students attended trainings, seminars, capacity building and workshop on Disaster Risk Reduction Management	2.86	P	2.60	P	2.94	P
e.	Communication and mechanism (cellphone, telephone, handheld, radio, megaphone, etc.)	3.00	P	2.53	P	2.91	P
f.	School Emergency Warning Devices (posters, flag lets, whistle, evacuation plan)	3.29	VP	2.67	P	3.15	P
g.	Adequate space and facilities to be used as evacuation center	3.71	VP	3.00	P	3.24	P
h.	Temporary learning center	2.43	P	2.27	LP	3.06	P
i.	Training and awareness activities on disaster awareness and control.	2.14	LP	2.47	LP	2.85	P
j.	Disaster preparedness and management are taught in any subjects in school.	3.14	P	3.27	VP	3.18	P
k.	Teacher assigned as disaster preparedness coordinator	2.43	LP	2.60	P	2.94	P
l.	Awareness of any national/local level disaster management program	3.14	P	3.13	P	3.36	VP
m.	Awareness of any laws/policies/directives/ memoranda related to disaster preparedness and management for school	3.00	P	2.29	P	3.15	P
n.	Linkages of school to other agencies	3.43	VP	3.20	P	3.55	VP
3.	**School Mapping**	**2.43**	**LP**	**1.97**	**LP**	**2.18**	**LP**
a.	Presence of hazard map	2.43	LP	2.00	LP	2.24	LP
b.	Risk prone areas are identified	2.43	LP	1.93	LP	2.12	LP

4.2.1. Disaster Management of Public Secondary Schools in Terms of Safety Check on Health and Environment

The disaster management of public secondary schools in terms of safety check on health and environment was categorized into school safety (warning signs), school security, and health and environmental safety.

The result of the study revealed that as an entire group, the public secondary schools are Prepared for school safety (warning signs) with a mean of 2.45. As to school security and health and environmental safety, they are Very prepared with means of 3.64 and 3.36 respectively.

Specifically, schools were Less prepared for loading, unloading signs and signs for physically impaired but were prepared for pedestrian lane markings and signs for physically impaired. Although they were Very

prepared for health and environmental safety, the teachers were found to be Less prepared in terms of attendance to symposia, trainings, and workshops on psycho-social debriefing.

Table 4 shows the data.

Table 4. Disaster Management of Public Secondary Schools in Terms of Safety Check on Health and Environment as an Entire Group

No.	Items	Mean	Description
1.	**School safety (warning signs)**	**2.45**	**Prepared**
a.	Pedestrian lane markings	2.89	Prepared
b.	Loading/unloading signs	2.41	Less prepared
c.	Stop and go signs for traffic coordinators, humps	2.74	Prepared
d.	Signs for physically impaired	1.76	Less prepared
2	**School security**	**3.64**	**Very prepared**
a.	Gate passes/security rounds/schedule	3.72	Very prepared
b.	School security personnel	3.57	Very prepared
c.	Cockpits, video gaming stations, bars and gambling places or where nocturnal activities happen within 30 meters radius	3.76	Very prepared
d.	Electrical post hazardous or other structures of facilities inside the school premises	3.50	Very prepared
3.	**Health and Environmental Safety**	**3.36**	**Very prepared**
a.	Regular schedule of trash disposal	3.63	Very prepared
b.	Possible areas/places for mosquitos breeding and bats	3.28	Very prepared
c.	Stray animals inside the school premises	3.24	Prepared
d.	School first aid kits are available, accessible and adequate	3.41	Very prepared
e.	Implementing school waste management program	3.48	Very prepared
f.	With clear and strict regulations on drugs, cigarettes, alcohol and vandalism in school	3.80	Very prepared
g.	Water source, wash facilities and sanitation facilities are properly located	3.63	Very prepared
k.	Implement safety measures during school activities, spots and experiments	3.76	Very prepared
i.	Have a transportation means during emergency class	3.70	Very prepared
j.	Health advocacy campaign on dengue, malaria, etc.	3.30	Very prepared
k.	Conducting wash and health activities (hand washing, tooth brushing and medical dental	3.31	Very prepared
l.	Teachers/personnel attended symposia, trainings, workshop on Psycho-social debriefing	1.76	Less prepared

4.2.2. Disaster Management of Public Secondary Schools in Terms of Safety Check on Health and Environment as to Location of School

As to location, the public secondary schools were classified as plain, coastal, and mountainous.

The result of the study revealed that as to location, the public secondary schools along plain areas are Prepared with a mean of 2.64, but coastal and mountainous areas are Less prepared with means of 2.40 and 2.31 respectively.

All locations are Very prepared as to school security with means of 3.76, 3.58, and 3.56 respectively and as to health and environmental safety with means of 3.42, 3.29, and 3.34 respectively.

Specifically, the schools located along coastal and mountainous areas are Less prepared for loading/unloading signs.

Teachers located in plain, coastal and mountainous areas are Less prepared for attendance to trainings and symposia on psychosocial debriefing.

Table 5 shows the data.

Table 5. Disaster Management of Public Secondary Schools in Terms of Safety Check on Health and Environment as to Location of School

No.	Items	Plain		Coastal		Mountainous	
		Mean	Desc	Mean	Desc	Mean	Desc
1.	**School safety (Warning signs)**	**2.64**	**P**	**2.40**	**LP**	**2.31**	**LP**
a.	Pedestrian lane markings	3.14	P	3.08	P	2.73	P
b.	Loading/unloading signs	2.95	P	2.50	LP	2.45	LP
c.	Stop and go signs for traffic coordinators, humps	2.30	LP	2.42	LP	2.64	P
d.	Signs for physically impaired	2.25	LP	1.85	NP	1.41	NP
2.	**School security**	**3.76**	**VP**	**3.58**	**VP**	**3.56**	**VP**
a.	Gate passes/security rounds/schedule	3.85	VP	3.75	VP	3.59	VP
b.	School security personnel	3.7	P	3.50	VP	3.50	VP

c.	Cockpits, video gaming stations, bars and gambling places or where nocturnal activities happen within 30 meters radius	3.85	VP	3.75	VP	3.68	VP
d.	Electrical post hazardous or other structures of facilities inside the school premises	3.65	VP	3.33	VP	3.45	VP
3.	**Health and Environmental Safety**	**3.42**	**VP**	**3.29**	**VP**	**3.34**	**VP**
a.	Regular schedule of trash disposal	3.85	VP	3.50	VP	3.50	VP
b.	Possible areas/places for mosquitos breeding and bats	3.25	VP	3.42	VP	3.23	P
c.	Stray animals inside the school premises	3.35	VP	3.17	P	3.18	P
d.	School first aid kits are available, accessible and adequate	3.35	VP	3.42	VP	3.45	VP
e.	Implementing school waste management program	3.45	VP	3.42	VP	3.55	VP
	With clear and strict regulations on drugs, cigarettes, alcohol and vandalism in school	3.85	VP	3.60	VP	3.68	VP
g.	Water source, wash facilities and sanitation facilities are properly located	3.70	VP	3.67	VP	3.55	VP
h.	Implement safety measures during school activities, spots and experiments	3.95	VP	3.58	VP	3.68	VP
i.	Have a transportation means during emergency class	3.85	VP	3.33	VP	3.77	VP
j.	Health advocacy campaign on dengue, malaria, etc.	3.60	VP	3.00	P	3.18	P
k.	Conducting wash and health activities (hand washing, tooth brushing and medical dental	3.35	VP	3.25	VP	3.32	VP
l.	Teachers/personnel attended symposia, trainings, workshop on Psycho-social debriefing	1.45	LP	1.83	LP	2.00	LP

4.2.3. Disaster Management of Public Secondary Schools in Terms of Safety Check on Health and Environment as to School Size

The disaster management of public secondary schools in terms of safety check on health and environment include school safety (warning signs) school security, and health and environmental safety.

The study revealed that on school safety (warning signs) small, medium sized, and big schools had means of 2.18, 1.97, and 1.65 respectively interpreted as Less prepared. As to school security, all sizes are Very prepared with means of 3.39, 3.42, and 3.68 respectively. On the other hand, as to health and environmental safety, the public secondary schools had means of 3.40, 3.26, and 3.29 respectively which are all interpreted as Very prepared."

Specifically, medium sized schools were Less prepared for pedestrian lane markings while big and small schools were Prepared. All schools were Not prepared when it comes to trainings of teachers/personnel in attendance to symposia and trainings on psycho-social debriefing.

Table 6 shows the data.

Table 6. Disaster Management of Public Secondary Schools in Terms of Safety Check on Health and Environment as to School Size

No.	Items	Small		Medium		Big	
		Mean	Desc	Mean	Desc	Mean	Desc
1.	**School safety (Warning signs)**	**2.18**	**LP**	**1.97**	**LP**	**2.65**	**LP**
a.	Pedestrian lane markings	3.14	P	2.40	LP	2.97	P
b.	Loading/unloading signs	1.86	LP	1.93	LP	2.67	P
c.	Stop and go signs for traffic coordinators, humps	2.17	NP	2.13	NP	2.94	P
d.	Signs for physically impaired	1.00	NP	1.40	NP	2.03	LP
2.	**School security**	**3.39**	**VP**	**3.42**	**VP**	**3.68**	**VP**
a.	Gate passes/security rounds/schedule	2.86	P	3.53	VP	3.82	VP
b.	School security personnel	4.00	VP	3.27	VP	3.76	VP
c.	Cockpits, video gaming stations, bars and gambling places or where nocturnal activities happen within 30 meters radius	3.57	VP	3.60	VP	3.67	VP
d.	Electrical post hazardous or other structures of facilities inside the school premises	3.48	VP	3.27	VP	3.48	VP
3.	**Health and Environmental Safety**	**3.40**	**VP**	**3.26**	**VP**	**3.29**	**VP**
a.	Regular schedule of trash disposal	3.71	VP	3.42	VP	3.55	VP
b.	Possible areas/places for mosquitos breeding and bats	3.86	VP	3.13	P	3.12	P
c.	Stray animals inside the school premises	3.43	VP	3.40	VP	3.03	P
d.	School first aid kits are available, accessible and adequate	3.86	VP	3.20	P	3.30	VP
e.	Implementing school waste management program	3.29	VP	3.33	VP	3.48	VP
f.	With clear and strict regulations on drugs, cigarettes, alcohol and vandalism in school	4.00	VP	3.60	VP	3.73	VP
g.	Water source, wash facilities and sanitation facilities are properly located	3.86	VP	3.47	VP	3.55	VP
h.	Implement safety measures during school activities, spots and experiments	3.57	VP	3.73	VP	3.70	VP
i.	Have a transportation means during emergency class	3.86	VP	3.67	VP	3.58	VP
j.	Health advocacy campaign on dengue, malaria, etc.	3.00	P	3.13	P	3.33	VP

k.	Conducting wash and health activities (hand washing, tooth brushing and medical dental	3.14	P	3.27	VP	3.27	VP
l.	Teachers/personnel attended symposia, trainings, workshop on Psycho-social debriefing	1.29	NP	1.60	NP	1.88	NP

V. Conclusion

On the basis of the foregoing findings, the following conclusions were drawn:

The disaster management of public secondary schools are almost the same in most aspects. Most schools have not undertaken any drill on tsunami, flood and landslide which results to tendency to panic due to lack of proper training and misinformation.

Though they may be prepared for earthquake and fire drills as this is a regular mandate for schools, they are not ready for tsunami, flood, mudslide, and landslide drills since drills of this type require real experts for which the school does not have. Hence, this results to lack of awareness and preparedness among the students and faculty members when this type of disasters occur.

The public secondary schools have ready school preparedness plan which can be attributed to the fact that schools are required to come up with E- School Improvement Plan every three years incorporating Disaster Risk Reduction and Management including communication, school emergency warning devices, facilities for evacuation centers and linkages to other agencies among others.

Only a few students and teachers, however are sent to attend trainings on disaster awareness and control making them inadequate to deal with disasters.

School safety on warning signs like loading and unloading signs should be part of the schools' responsibility to secure safety of teachers and students.

Both size and location show that schools are very prepared for security which includes gate passes and security rounds and school security personnel. Again, the provision for security is also included as part of the E-School Improvement Plan (SIP). When the researcher made a verification, it was found out that in other schools, parents pay for security guards or request for the services of barangay tanod to ensure the safety and security of their children in school.

VI. Recommendation

On the basis of the findings and conclusions made, the following were recommended:

1. Local Government Unit, may coordinate with the public secondary schools in planning programs and strategies to achieve its mandate on disaster management.
2. School – community relations may be improved through proper coordination before, during, and after disasters to lessen casualty when disasters occur.
3. Researchers may conduct other studies in coordination with the public secondary schools disaster risk reduction and management coordinators to ensure further safety of the students and teachers.
4. The proposed plan of this study maybe adopted by schools in their implementation of E- School Investment Plan and Annual Investment Plan since it is based on the result of the study.
5. Since public secondary schools are found to be less prepared in their disaster preparedness, effort should be exerted to conduct drills on flood, landslide, mudslide and tsunami to heighten the awareness and preparation of the students and faculty.
6. The implementation of E- School Improvement Plan should be continuously improved especially on the Disaster Risk Reduction and Management. Since the schools are less prepared as to training and disaster awareness activities and control, school heads should allocate time and resources to address the need.
7. Parents should continue to be partners of the secondary schools in providing security personnel to ensure that their children are safe in school.
8. More teachers should be given training on psychosocial debriefing since victims of calamities need to be assured that things can still be well after disasters and they can move on with life.

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