

Disaster Readiness and Risk Reduction (DRRR) Awareness and Practices of Grade 11 Students of University of Santo Tomas-Legazpi

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Printed in the Philippines ISSN no: 2476-5644 incidents before, during and after a disaster. In conclusion, the Grade 11 students of University of Santo Tomas-Legazpi are much aware when it comes to geologic and hydro-meteorological hazards. The respondents had been practicing practical skills and knowledge when it comes to DRRR practices at home and at school. They also had outstanding insights on DRRR awareness and practices and how each practice could be improved and utilized.

Keywords: Disaster Readiness and Risk Reduction, Grade 11 students, awareness, practices

ABSTRACT

Due to its geographical conditions, the Philippines is highly vulnerable to natural disasters (World Bank, 2005). Bicol Region is one of the regions often visited by these disasters. *The Philippine Disaster Risk Reduction and Management Act of 2010 was established to reduce disaster risks by integrating disaster risk education in school curricula (DepEd., 2015).* This study aimed to determine the level of Disaster Readiness and Risk Reduction (DRRR) awareness and practices of Grade 11 students of University of Santo Tomas-Legazpi. Specifically, this aimed to; (1) determine the level of awareness of the students in terms of (a) geological hazards, (b) hydro-meteorological hazards; (2) determine the DRRR practices of students; and (3) identify the students' insights on how DRRR awareness and practices in terms of geological and hydro-meteorological hazards can be improved. This study used descriptive research method to gather the necessary data needed. This study utilized survey research design with 129 Grade 11 students as respondents. Results showed that the overall mean rating on the level of DRRR awareness of students in terms of geological and hydro-meteorological hazards is 3.94 with a descriptive rating of "Much Aware". The students got the highest mean rating in terms of earthquake (M=4.19), followed by typhoon (M=3.97), landslide (M=3.83), and flood (M=3.78), each having a descriptive rating of "Much Aware". The results also revealed that the students are aware of the DRRR practices which include identifying a hazard, having a disaster family preparedness plan, and preparing for a disaster. The students' insights on DRRR awareness and practices showed that there is a need to create Community Emergency Response Teams (CERTs), to be familiar of the basic first aid practices, to involve the local media in information dissemination, and to locate safe places inside the homes in order to avoid untoward

INTRODUCTION

The Philippines is well-known for its vulnerability to natural disasters. In terms of catastrophe risk vulnerability, the country is placed third out of 173 countries (WorldRisk Index, 2011), and is considered as among the most vulnerable to climate change impacts. The Philippines is situated in the Pacific Ring of Fire, a ring of active volcanoes and earthquake producers that encircles the Pacific Ocean. It is also in the path of violent typhoons, with an average of 20 passing through the Philippine area of responsibility each year. The Philippines' coastal areas are more vulnerable to storm surges, tsunamis, and sea level fluctuations due to their archipelagic character. Flooding is also prevalent owing to precipitation produced by typhoons and the monsoon, especially in urban areas (Management, 3rd AIPA Report).

The study of Belardo, S.B. in 2020 suggested that towns situated around the circumference of Mayon Volcano, particularly those nearest to the volcano's rivers, are highly susceptible to eruptions and flooding. Tropical storms, typhoons, and tsunamis all constitute the same threat to towns along the east coast. Hurricanes, earthquakes, floods, tsunamis, tornadoes, heavy storms, drought, fire, and sea level rise all have significant environmental, financial, and social consequences (Foster, 2015).

The Philippines is frequently mentioned in the DepEd K-12 curriculum as one of the top countries most vulnerable to catastrophes. While disasters can occur due to man-made causes, natural disasters are unavoidable, even without scientific analysis. Typhoons, earthquakes, volcanic eruptions, and fires have all had an impact on everyday living and national growth in the

Printed in the Philippines ISSN no: 2476-5644
service delivery, and increase the education sector's contribution to disaster prediction, prevention, and preparedness.

Philippines. This aligns disaster development education with everyone's interests. Even if studying disasters is part of understanding the sciences, this will provide a chance to make DRRR as a subject matter relevant to the lives of people, particularly students (Hilotin, 2019).

The Philippine Department of Education's goal of ensuring that students understand disasters and assisting them in becoming more vigilant in their homes and communities so that lives can be saved is institutionalized more specifically in the implementation of the K to 12 curriculum of Senior High School (SHS) Core Subject on Disaster Readiness and Risk Reduction (DRRR) (Abelita, 2018).

Education has been shown to have immensely positive benefits on vulnerability reduction and catastrophe risk management in the past through experience, initiatives, and programs. Children and adults who have been taught how to react in the event of a disaster, community leaders who have learned to warn their people in a timely manner, and entire social layers who have been taught how to prepare for natural hazards have all contributed to better mitigation strategies and the dissemination of information on the dangers of hazards. People have been given skills for reducing vulnerability and developing life-improving self-help tactics thanks to education and knowledge (Shaw, 2009).

The Philippines' calamities prompted DepEd (Department of Education) officials to incorporate disaster risk mitigation and management into their courses. The DepEd, among other agencies, is required by Section 14 of Republic Act 10121 (or the Philippine Disaster Risk Reduction and Management Act of 2010) to integrate the curricula. DRRM (Disaster Risk Reduction and Management) education has not been designated a stand-alone subject for elementary and junior high school students, but rather a component of disciplines such as science, technology, and social science. The Department of Education, on the other hand, has designated DRRM education as a separate topic for senior high school students (Echavez, 2018).

Student involvement in school and community resilience building was also evident in the 2007-12 Education in Emergencies and Post-Crisis Transition (EEPCT) program, which aimed to improve the quality of educational response to emergencies, increase the resilience of education

The 2016 study by Roman Hoffmann and Raya Muttarak contributed to our understanding of the mechanisms from which education contributes to enhancing household disaster resilience while also providing comprehensive empirical evidence showing the significant role education plays in mitigating disaster risk.

Traditional information can be used to better understand and promote the incorporation of climate change adaptation and disaster risk mitigation in post-disaster recovery, and if this isn't achieved, it will be a missed (and possibly misused) growth opportunity (Sharma, 2014)

According to Odiase, O. et. al 2020, despite the fact that there was a link between risk awareness and preparedness, the connection was not linear due to intervening variables between risk and decision. The variables were responsible for the community's lack of emergency readiness.

UNISDR (2019) defined hydro-meteorological hazards as a process or occurrence of the atmosphere, hydrology, or oceanography that may result in death, injury, or other health consequences, property damage, loss of livelihoods and services, social and economic disruption, or environmental degradation. Examples are tropical cyclones (also known as typhoons and hurricanes), thunderstorms, hailstorms, tornadoes, blizzards, heavy snowfall, avalanches, coastal storm surges, floods (including flash floods), drought, heatwaves, and cold spells. Other dangers, such as landslides, wildfires, locust plagues, epidemics, and the movement and spread of poisonous compounds and volatilities, can be influenced by hydro-meteorological circumstances.

Geological hazards on the other hand refers to Property destruction, loss of livelihoods and services, social and economic disruption, or environmental damage may result from a geological process or phenomena. Internal earth activities such as earthquakes, volcanic activity, and emissions, as well as related geophysical processes like mass movements, landslides, rockslides, surface collapses, and debris or mud flows, are all examples of geological hazards. Some of these processes are influenced by hydro-meteorological elements. Tsunamis are difficult to classify because, while they are generated by undersea earthquakes and

other geological phenomena, they are primarily an oceanic phenomenon that manifests themselves as waves.

There are studies conducted regarding the integration of Disaster Readiness and Risk Reduction in the Junior High School and this study aims to assess whether or not the integration of the said subject has been effective and/or evident.

This study aimed to determine the level of Disaster Readiness and Risk Reduction (DRRR) awareness and practices of Grade 11 students of University of Santo Tomas-Legazpi. Specifically; (1) determine the level of awareness of the students in terms of (a) geological hazards, (b) hydro-meteorological hazards; (2) determine the DRRR practices of students; and (3) identify the students' insights on how DRRR awareness and practices can be improved in terms of geological and hydro-meteorological hazards.

The study was significant to the grade 11 DRRR teachers of UST-Legazpi in preparing their lessons and activities in line with geological and hydro-meteorological hazards. This study will further school administrators and DRRM coordinators as this will help them further reassess and evaluate their existing programs and formulate plans that will benefit the school and community in general and the victims of calamities in particular.

On the other hand, the students will be able to teach their family members and even community residents about the many methods available to them before, during, and even after the disaster, as well as cope with the natural disasters that their community will face. This research can also be a useful source of information for those researchers who might want to conduct a similar study in the future.

The study focused on the officially enrolled grade eleven (11) students of University of Santo Tomas-Legazpi for the school year 2021-2022.

METHODS

Research design

This study used descriptive research method to gather the necessary data needed for the study. This study utilized both quantitative and qualitative data to answer the objectives presented.

In terms of research design, survey research design was used. Survey research design uses procedures in which investigators administer a survey to a sample or to the entire population of people to describe the attitudes, opinions, behaviors or characteristics of the entire population. In this procedure, survey researchers collect quantitative, numbered data using questionnaires and interviews (Tanny, 2018). Instead of the face-to-face survey, this will be conducted by using online platforms such as Aralinks and Google meet.

Sampling Procedure

The respondents of the study were the incoming Grade 11 students of University of Santo Tomas Legazpi for the school year 2021-2022 with a total population of 377 students. To determine the sample size, the researchers used Cochran's formula. The Cochran formula allows you to calculate an ideal sample size given a desired level of precision, desired confidence level, and the estimated proportion of the attribute present in the population. Cochran's formula is considered especially appropriate in situations with large populations. A sample of any given size provides more information about a smaller population than a larger one, so there's a 'correction' through which the number given by Cochran's formula can be reduced if the whole population is relatively small.

The Cochran formula for sample size calculation in smaller calculations is given by:

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

Where n_0 is computed using the formula:

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where e is the desired level of precision (i.e., the margin of error), p is the (estimated) proportion of the population which has the attribute in question, and q is $1 - p$ (Statistics How To, n.d).

Using the aforementioned formula, the supposed respondents of the study are the 191 Grade 11 students of UST-Legazpi. However, due to the limitations brought about by the pandemic, only 129 responses were retrieved.

Printed in the Philippines ISSN no: 2476-5644
instruments were adopted from other sources and studies such as the Survey Questionnaire on Disaster Risk Level of Awareness. This instrument was adopted and modified from the study of Padernal (2016).

Research Instruments

The main goal of the present study was to determine the level of Disaster Readiness and Risk Reduction (DRRR) awareness and practices of Grade 11 students of University of Santo Tomas-Legazpi as well as to identify the students' insights on how this could be improved. The researcher used the following instruments to gather the needed data:

a. Survey Questionnaire on Disaster Risk Reduction Level of Awareness. In gathering the data, the survey questionnaire was used which was adapted and modified from Padernal (2016) of Surigao State College of Technology. This questionnaire was used to determine the level of awareness in disaster risk reduction of the students for earthquakes, typhoons, flood and landslides. Indicators were stated and a five-point scale was used to determine the student's level of awareness namely: 5-very much aware, 4-much aware, 3-aware, 4-slightly aware, and 1- not aware.

b. Survey Questionnaire on Disaster Preparedness Practices. This is a researcher-made instrument which was used to determine the different practices of students in preparing for a disaster. This consists of three categories: (a) Identifying hazards, (b) Family emergency planning, and (c) preparing for a disaster.

c. Interview Sheet on student's insights. This instrument was used to determine the students' insights on how DRRR awareness and practices can be improved in terms of geological and hydro-meteorological hazards. This consists of three questions which was used to solicit students' suggestions to improve the level of DRRR awareness and practices.

Data Gathering Procedures

Prior to this, the researchers sought permission from the Principal of the Basic Education Department of University of Santo Tomas-Legazpi to allow them to conduct the study to selected Grade 11 students. The data gathering procedure included the following phases:

a. Development and Validation of Instruments used. The instruments used in the study were developed such as the survey questionnaire on disaster preparedness practices and the interview sheet on student's insights. Other

After the development, the instrument was subjected to validation. Three (3) teachers handling Disaster Readiness and Risk Reduction subject in Grade 11 was asked to give their comments and suggestions to further improve the instruments before using it in actual implementation. This was then incorporated in the final instrument which was encoded in Aralinks, the online platform that the researchers will use to conduct the survey.

b. Implementation. For ethical considerations, the researchers made sure that the responses of the students will remain confidential. The research study ensured that all people involved in the research will be protected from any harm, emotional or physical. Since it is still not possible to conduct the study by doing face-to-face survey and interview, the researchers used online platforms namely Aralinks and Google meet. The selected students will use their Aralinks account to open and answer the Survey Questionnaire on Disaster Risk Level of Awareness and Disaster Preparedness Practices.

In addition, ten (10) students from the same group were asked to give their insights on how DRRR awareness and practices can be improved in terms of geological and hydro-meteorological hazards using Google meet.

c. Final Evaluation and Statistical Treatment. The results gathered from the Survey on Disaster Risk Reduction Level of Awareness and Disaster Preparedness Practices were put under statistical treatment to determine the students' level of awareness and practices. The mean was used to express the mean rating of the students per indicator, both on the level of awareness and practices.

Weighted mean was used to analyze the students' level of awareness by getting the average rating of students per category—hydrometeorological hazards (typhoon and flood) and geological hazards (earthquake and landslide). This was also used to analyze the responses of students on their disaster preparedness practices. The responses from the interview on students' insights were also analyzed to serve as qualitative basis.

RESULTS AND DISCUSSION

This study generally aimed to determine the level of Disaster Readiness and Risk Reduction (DRRR) awareness and practices of Grade 11 students of University of Santo Tomas-Legazpi. The presentation, analysis, and interpretation of data are arranged as follows: (1) Students' level of DRRR awareness in terms of (a) earthquake, (b) typhoon; (c) flood; and (d) landslide (2) DRRR practices of students; and (3) Students' insights on how DRRR awareness and practices can be improved.

Students' Level of Disaster Readiness and Risk Reduction (DRRR) Awareness

The concept and practice of disaster risk reduction is defined as systematic efforts to analyze and manage the causal factors of disasters, including reduced exposure to hazards, reduced vulnerability of people and property, wise land and environmental management, and improved preparedness for adverse effects (USAID, 2011). Awareness on the nature of the different hazards, the different local government programs on disaster risk reduction, and basic knowledge on what to do during a disaster is important in reducing the casualties during a disaster. In this study, the level of DRRR awareness of one hundred twenty-nine (129) Grade 11 students was determined. Specifically, responses on the students' level of awareness regarding the most common hazards such as earthquake, typhoon, flood and landslides were gathered through the adopted Survey Questionnaire on Disaster Risk Level of Awareness of Students. During the administration of the instrument, the respondents rated their level of awareness using a Likert scale (5-very much aware, 4-much aware, 3-aware, 4-slightly aware, 1- not aware). The computed mean for every indicator was measured using the given Likert scale interval: 1.00-1.80 not aware, 1.81-2.60 slightly aware, 2.61-3.40 aware, 3.41-4.20 much aware, 4.21-5.00 very much aware.

Earthquake. An earthquake is a weak to violent shaking of the ground produced by the sudden movement of rock materials below the earth's surface (PHIVOLCS, n.d.). Table 1 shows the mean, standard deviation, and description of the level of awareness in disaster risk reduction issues along earthquake among the Grade 11 students.

Table 1. Level of Awareness in Disaster Risk Reduction Issues as to Earthquake among Students

Indicators	Mean	Std. Deviation	Description
1. There are earthquake hazard prone areas here in Albay	3.47	1.19	Much Aware
2. The first thing to do during an earthquake is to duck, cover and hold.	4.50	0.81	Very much aware
3. Earthquakes are not predictable therefore one must have presence of mind all the time.	4.35	0.82	Very much aware
4. Houses that follow correctly the guidelines on the building code will not easily collapse even at higher magnitude earthquake.	3.98	1.00	Much Aware
5. Areas near the fault line have higher earthquake risks.	4.30	0.86	Very much aware
6. One must know how to put off the possible fire caused by an earthquake.	3.79	0.99	Much Aware
7. An earthquake drill is necessary to help us prepare and act properly during possible earthquake.	4.32	0.91	Very much aware
8. It is necessary to know how to administer the basic first aid for minor injuries caused by earthquakes.	4.09	0.93	Much Aware
9. It is important not to forget to turn off the electrical supply during an earthquake.	4.20	0.95	Much Aware
10. Open fields are safer place to stay to avoid falling debris or objects caused by earthquakes.	4.44	0.85	Very much aware
11. It is important to always bear in mind the entrance and exit location of a house or building so one can manage to move out even in the absence of light especially when earthquakes happen during night time.	4.46	0.75	Very much aware
12. It is not good to stay inside a building after an earthquake due to possible aftershocks that might cause this structure to collapse.	4.45	0.80	Very much aware
13. It is dangerous to place large and heavy furniture near the door, this might block the exit during an earthquake.	4.16	0.96	Much Aware
14. Heavy objects must not be placed in high shelves because they have the potential to injure a person.	4.32	0.89	Very much aware

15. One be tsunami ready because it might be caused by an earthquake.	4.17	0.91	Much Aware
16. It is important to store food before an earthquake and know how to prolong its shelf life after an earthquake.	4.18	0.97	Much Aware
17. It is important to know the emergency numbers like that of the Bureau of Fire, Local Hospital and Emergency Response Team	4.02	1.06	Much Aware
Overall Mean	4.19	0.92	Much Aware

The data shows that the level of awareness of students on each indicator ranges from much aware to very much aware. Indicator 1 got the highest mean of 4.50 which indicates that the students are very much aware that an emergency kit is a necessary preparation for typhoons which includes food supply, flashlight, medical kit etc. The students are also very much aware in terms of indicators 5 and 9 “Typhoon Public Information dissemination is done by the PAG ASA and PHIVOLCS through radio, social media and text blasts” and “People should avoid building directly on the coastline because they are at high risk on storm surge” which both resulted to a mean of 4.29. The results also show that the students are much aware on the rest of the indicators with indicators 3 to 5 having the three of the lowest means. These indicators focus on the awareness of students on the number of siren signals and its corresponding meaning. This implies that there is a need to emphasize this matter to students. In general, the data resulted to an overall mean of 3.97 which indicates that the students are much aware on the Disaster Risk Reduction Issues regarding typhoons. As a region which is particularly vulnerable to typhoons, it is a must that awareness regarding this matter should be promoted and intensified.

Flood. Flood is among the most prevalent natural hazards affecting people around the world. A flood is a state in which water from the sea, lakes, rivers, canals or sewers temporarily enters and covers land where it normally doesn't. The Philippines ranks eighth among the top 10 countries whose 29.1 million of its people are exposed to significant flood risk. The number represents 27.7 percent of its national population (Federigan, 2021). Table 3 shows the students' level of awareness in terms of flood.

Table 3. Level of Awareness in Disaster Risk Reduction Issues as to Flood among Students

Indicators	Mean	Std. Deviation	Description
1. There is a local warning system on flood.	3.89	0.98	Much Aware
2. It is not safe to build houses and live in flood prone areas.	4.56	0.80	Very much aware
3. It is important to recognize the danger of the flood prone-areas in our community.	4.37	0.83	Very much aware
4. Reclaimed areas and expansion for urban settlements are usually flood prone areas.	3.47	1.11	Much Aware
5. The health of coastal reefs and mangrove areas could help lessen the impact of flood.	3.83	1.10	Much Aware
6. The local officials have evacuation plan for those at flood risks especially for the elderly and the young.	3.64	1.03	Much Aware
7. It is not safe to build houses along the roadside of the hills.	4.15	0.98	Much Aware
8. Drill on flood evacuation is necessary to keep us safe.	3.92	1.05	Much Aware
9. The local official flood assistance hotline of our municipality.	2.67	1.32	Aware
10. Local flood level gauge of Albay will serve as a guide when to evacuate.	3.29	1.15	Aware
Overall mean	3.78	1.03	Much Aware

The table shows that the level of awareness of students on each indicator ranges from aware to very much aware. The students are very much aware that it is not safe to build houses and live in flood prone areas as revealed by the mean result of indicator 1 which is 4.56. They are also very much

aware of indicator 2 which states that it is important to recognize the danger of the flood prone-areas in our community (M=4.37). On the other hand, the students are aware of indicators 9 and 10 which are about the local official flood assistance of their municipality (M=2.67) and the local flood level of Albay (M=3.29), respectively. The responses of the students along indicator 9 got the lowest mean which implies that there is a need to intensify the dissemination of information regarding the local flood assistance hotline in each municipality. The rest of the indicators got a descriptive rating of “Much Aware”. Overall, the students are much aware of the Disaster Risk Reduction issues in terms of flood with a mean of 3.78 and a standard deviation of 1.03.

Landslide. Since the Philippines is prone to a variety of natural hazards, including typhoons and earthquakes, landslides are unavoidable. The most effective prevention and mitigation techniques against potential landslide dangers in the community are awareness and preparedness (PHIVOLCS, n.d.). Table 4 reveals the students’ level of awareness in Disaster risk reduction specifically in terms of landslide.

Table 4. Level of Awareness in Disaster Risk Reduction Issues as to Landslide among Students

Indicators	Mean	Std. Deviation	Description
1. Tension cracks on the ground indicate a possible landslide.	3.71	1.12	Much Aware
2. There are landslide-prone areas in our locality.	3.85	1.04	Much Aware
3. Building codes and standard, emphasize the use of materials to reinforce structures resilient to landslides.	3.59	1.10	Much Aware
4. One must know the local contingency plan for people to evacuate on time due to landslide related harm.	3.79	0.99	Much Aware
5. Forest must be protected and that illegal logging must be banned to avoid landslides.	4.42	0.82	Very much Aware
6. When the ground is saturated or full of water it	3.96	1.05	Much Aware

may result to landslide.			
7. Drainage, building of tunnels and trenches must be improved to stabilize slopes to avoid landslides.	3.95	1.03	Much Aware
8. Rapid increase in creek water levels accompanied by increased soil turbidity is an indication for possible landslide occurrence.	3.42	1.20	Much Aware
9. Concrete retaining wall must be built in order to secure towns, villages and tunnels located at the bottom slopes prone to landslide.	3.75	1.04	Much Aware
10. Structural measures are implemented to provide stabilization of slopes, redesigning river protection to reduce soil erosion and modifying geometrical characteristics of the slope in order to avoid landslide.	3.87	1.01	Much Aware
Overall mean	3.83	1.04	Much Aware

The results on the students’ level of awareness on the disaster risk reduction issues along landslide ranged from much aware to very much aware. The students are very much aware that forests must be protected and that illegal logging must be banned to avoid landslides as revealed by the mean rating of 4.42 along indicator 5. The results also show that the students are much aware on the rest of the indicators with indicator 8 “Rapid increase in creek water levels accompanied by increased soil turbidity is an indication for possible landslide occurrence” having the lowest mean rating. The general results of descriptive statistics revealed that the respondents are much aware about the preventive measures in times of landslides with a mean of 3.83 and SD of 1.04.

Table 5. Summary of the level of DRRR awareness of students on the different types of hazards

Type of Hazard	Mean	Description
Earthquake	4.19	Much Aware
Typhoon	3.97	Much Aware
Flood	3.78	Much Aware
Landslide	3.83	Much Aware
Overall mean	3.94	Much Aware

Table 5 shows the summary of the level of DRRR awareness of students on the different types of hazards. The results show that the overall mean rating on the level of DRRR awareness of students on the specified hazards is 3.94 with a descriptive rating of “Much Aware”. The students got the highest mean rating in terms of earthquake (M=4.19), followed by typhoon (M=3.97), landslide (M=3.83), and flood (M=3.78), each having a descriptive rating of “Much Aware”. This implies that overall, the students already have a basic understanding of the necessary information in order to reduce the risks brought by these hazards. However, there is still a need to strengthen the efforts of schools in promoting disaster risk reduction awareness among students.

Disaster Readiness and Risk Reduction (DRRR) Practices of Students

Various types of disasters and hazards may occur in different communities. Thus, knowing these disasters and hazards would allow individuals to plan and prepare to reduce the possible impacts they may encounter. Practicing disaster risk reduction requires knowledge and understanding to come up with sound decisions and coordinated actions (Weichselgartner & Pigeon, 2015). In this study, the different practices of grade 11 students were determined. Specifically, students’ practices in terms of hazard identification, family emergency planning, and disaster preparedness preparations.

Identifying Hazards

Identifying a hazard is the first step in reducing the risk and prevention of any major

damage to humans and in our environment (Gan, 2019). The survey showed that the majority of the students were aware of the different hazards that would likely to happen in their area. Out of 129 students who participated in the study, all of them knew their community warning systems and signals like sirens and text messages, the different local organizations that perform emergency management and how to contact them. This indicates that majority of the students have at least the basic knowledge of the hazards and how to prepare for each.

Family Preparedness Plan

Holding a family meeting allows each member of the family to be aware on their responsibilities before, during, and after a disaster. This allows each member of the family to be ready and prepared to do what you need to survive the situation (Plan, 2018). Students were aware of the importance of having a disaster family preparedness plan. Among the practices of the students cited were, discussion of disaster plan and its importance among the members of the family, reviewing of the types of disasters that most likely to occur, and explain what to do in each situation. Students also cited about the assignments of responsibilities to each family members and plan to work together as a team. Some also indicated their plan in case they will be forced to evacuate and where they will meet unless a disaster strike. Some also consider the members of their family with special needs especially the seniors, infants, young children, and even their pets.

Preparation for a Disaster

Disaster preparation helps lessen the impact of disasters on vulnerable populations, this could potentially save the maximum number of lives and property during a disaster, and it aims to return the affected populations to normalcy as quickly as possible (Ferry, 2017). The following practices were indicated by the students who participated in the study, preparation of disaster supply kit, identification of safe places and evacuation routes in their house. Also cited were training to do CPR and first aid, how to shut off utilities like gas tank, electricity, and water supply, knowing how to use fire extinguisher, and familiarity of the emergency contact numbers of each family members, neighbors, friends, police, etc.

The results showed that majority of the students have a general idea of the kind of hazards that may occur in their respective communities. The participating students were all from different provinces from across Bicol which considered as one of the most disaster-prone areas in the Philippines (Mascariñas, 2013). Because of its

geographical location, hazards like typhoons, earthquakes, and volcanic eruption commonly occurs. Having these practices would allow students and in the members of their family to reduce the impacts of different hazards.

Students' Insights on DRRR Awareness and Practices

It was evident that responses in all cases of disaster awareness and risk perception were significantly different. In fact, thirty-six percent of respondents indicated that they occasionally become acquainted with the various local emergency management groups, and knew how to call them, while eighteen percent indicated that they rarely have the capacity to do so. As a result, collaboration with local community emergency response teams is critical (Reynoso, 2021). It is worth noting that these groups are made up of local residents who are already aware that being prepared is a vital stage in which students can actively engage. Community Emergency Response Teams (CERTs) are groups of local volunteers who have been trained to assist in disaster planning, offer first aid, and provide other support in the event of an emergency (Brennan, 2007).

Twenty-three percent of the respondent were sometimes trained for first aid and CPR. The study of Pregoner, J. D. et. (2020), showed that there is a need to hold an activity like build-an-emergency-kit party. Invitation to citizens who did not have an emergency kit for an informational meeting would also be plausible. Handouts about emergency kit contents and few kits to display were used in hosting workshops to design a financial first aid kit. A health education course named First Aid and Emergency Preparedness was devised and given twice at a local senior center according to Kulangara, A. J. (2020), to target elderly residents and promote proactivity and healthy behaviors.

Twenty percent of the respondents sometimes posted emergency contacts (friends, family, neighbors, police, fire, etc.) on a visible place (e.g., refrigerator) thus, partnership with local merchants to set up an emergency kit display area in their store could work. The creation of a list of emergency kit items and display of items in the same place could work as much like the shopping lists that schools provided to local stores at the beginning of the school year (Lasco, Pulhin, Delfino, & Rangasa, 2010).

Santos, M. A. B., & Arguilles, N. O. (2017), suggested that hosting evacuation workshops will be successful in partnership with local churches and other mass-care facilities to involve more citizens in the operations of a mass-care facility. This entailed encouragement of facilities to conduct a drill and "activate the shelter."

Consequently, police and fire vehicles must be on static display, provision of demonstrations and emergency respondents, establishment of exchange programs so that emergency planners and facility managers could meet to discuss issues.

The study of Takahashi, B. et.al (2015), showed the involvement the local media especially twitter on the aftermath of typhoon Haiyan in the Philippines. This indicated that even on the planning process, local media partnership can inform citizens of evacuation routes, and made the maps accessible online. Local media outlets posted links to the evacuation maps on their Web sites to provide relevant disaster preparedness information on the department/agency website.

Also, Liu, T., et.al (2021), suggested that social media's purpose in natural disaster risk communication was primarily to impact information transmission; while, social media's role in man-made disaster risk communication was to transfer information as well as to communicate emotions. Congjuico, T. et.al (2014), on the other hand attempted to describe the nature of social media and their technological affordances, addressed the communication needs of people at risk that social media could meet, and the important functions of social media in times of crisis were also identified. Since thirty-three percent of the respondents sometimes reviewed the types of disasters that were most likely to occur, and could explain what to do in each situation, the study Yamamoto, K. (2020) in Japan, suggested the utilization of the ICT thus the development of PSAs for radio, TV and social media advertisements is a must.

Le Masson, V. (2015), inferred the location of safe places in our home for each type of disaster and knowing how to use a fire extinguisher and where to find one can be mastered through partnership with schools to have discussions with students about disaster preparedness. The study of Wolshon, B. et. Al (2005), focused on the state's evacuation procedures including command and control tactics, evacuation types, and implementation and enforcement requirements having evacuation models covered, as well as recent transportation community activities. Although the focus of this research was on hurricane evacuations, many of the conclusions apply to multi-hazard evacuation planning and operations as well.

CONCLUSIONS AND RECOMMENDATIONS

The results indicated that the level of awareness in Disaster Risk Reduction as regards to earthquake, flood, landslide, typhoon with an overall mean of 4.19, 3.97, 3.78, 3.83 respectively, showed that for each hazard students have much

awareness. Although the result shows a positive implication it would still be better to address the weak points found in the conduct of the study. Specifically, familiarization of hazard maps, clear signages, and intensification and development of strong preventive measures to ensure the safety and minimum damages to humans and to the different sectors of the community.

In terms of the DRRR practices of students, the results showed that most of them are in depth of identifying hazards, creating family preparedness plan and preparation for a disaster as a whole when it comes to disaster readiness and risk reduction (DRRR) practices of students.

The students' insights on DRRR awareness and practices showed that there was a need to create Community Emergency Response Teams (CERTs) in order to get the community be acquainted with the various local emergency management groups and knew how to call them. Since most were not familiar with having the basic first aid kit, the need to hold an activity like build-an-emergency-kit party, provision of handouts, practical demonstration of how-to and the involvement of all even the senior citizens be implemented. In addition, hosting evacuation workshops in partnership with local churches and other mass-care facilities since most religious institutions here in Albay were being transformed to evacuation centers aside from schools that are not vulnerable to disasters.

The involvement of the local media, may it be in print or online could aid in the haste of communication for the preparation, onslaught, status of the disaster as well as impacts. Finally, the location of safe places in our home for each type of disaster could also be vital to avoid untoward incidents before, during and after a disaster also to add up to the creation of emergency preparedness plan of the family and/or the community.

In conclusion, the grade 11 students of University of Santo Tomas-Legazpi are very much aware when it comes to geologic and hydro-meteorological hazards. They had been practicing practical skills and knowledge when it comes to DRRR practices at home and at school. They had outstanding insights on DRRR awareness and practices and how each practice could be improved and utilized.

For the future researchers, the group will have to recommend on the conduct of the same

study for the employees of the UST-Legazpi. It is important that teachers who taught the subject be excluded in the respondents. It is also a must to look for the students and faculty awareness regarding the level of DRRR awareness in terms of volcanic eruption, tsunami, fire, common practices of students on these and insights on how DRRR awareness and practices on the abovementioned hazards can be improved.

In this way, the UST-Legazpi community's awareness regarding the hazards inside and outside the school and the community be quantified and measured as to identify points to be improved.

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APPENDICES

Survey Questionnaire on Disaster Risk Level of Awareness of Grade 11 Students

Name: _____ Age _____ Gender: _____
 Grade and Section _____

The researchers are working on their research entitled “**Disaster Readiness and Risk Reduction (DRRR) awareness and practices of Grade 10 students of University of Santo Tomas-Legazpi.**” In this regard, the researchers are asking for your valuable participation to answer this survey to determine your Disaster Readiness and Risk Reduction (DRRR) level of awareness in terms of hydrometeorological and geological hazards such as typhoon, flood, earthquake and landslide.

Kindly put a check mark under the rating that corresponds to your awareness to the indicators specified. The ratings correspond to the following: 5-very much aware, 4-much aware, 3-aware, 4-slightly aware, 1- not aware.

Thank you and God bless!

Level of Awareness in Disaster Risk Reduction Issues as to Flood among Students 5-very much aware, 4-much aware, 3-aware, 4-slightly aware,1- not aware					
Indicators	5	4	3	2	1
1. There is a local warning system on flood.					
2. It is not safe to build houses and live in flood prone areas.					
3. It is important to recognize the danger of the flood prone-areas in our community.					
4. Reclaimed areas and expansion for urban settlements are usually flood prone areas.					
5. The health of coastal reefs and mangrove areas could help lessen the impact of flood.					
6. The local officials have evacuation plan for those at flood risks especially for the elderly and the young.					
7. It is not safe to build houses along the roadside of the hills.					
8. Drill on flood evacuation is necessary to keep us safe.					
9. The local official flood assistance hotline of our municipality.					
10. Local flood level gauge of Albay will serve as a guide when to evacuate.					

Level of Awareness in Disaster Risk Reduction Issues as to Typhoon among Students					
Indicators	5	4	3	2	1
1. An emergency kit is a necessary preparation for typhoons which includes food supply, flashlight, medical kit etc.					
2. One short siren signals alert level one alerting the public to be vigilant for upcoming disaster, pre-schools are suspended.					

3. Two short siren signals alert level 2, alerting the public for possible evacuation, elementary and secondary classes are suspended.					
4. Three short siren signals alert level 3 alerting the public to commence evacuation (for those high risks areas).					
5. Typhoon Public Information dissemination is done by the PAG ASA and PHIVOLCS through radio, social media and text blasts.					
6. Damage caused by typhoons could be reduced by doing structural measures or by building strong structures to with standard impact caused by winds.					
7. Be flood ready because it could also be caused by cyclones.					
8. Wind-proof buildings are needed to provide communities with shelter.					
9. People should avoid building directly on the coastline because they are at high risk on storm surge.					
10. Mangrove trees and coral reefs should be protected as they act as natural wave breakers, wetlands and forests can serve as flood control system, storing large amount of floodwater should also be conserved.					
11. There are evacuation centers allotted for those people living in medium built houses or houses that are not so well constructed and made up of light materials only.					

Level of Awareness in Disaster Risk Reduction Issues as to Earthquake among Students					
Indicators	5	4	3	2	1
1. There are earthquake hazard prone areas here in Albay					
2. The first thing to do during an earthquake is to duck, cover and hold.					
3. Earthquakes are not predictable therefore one must have presence of mind all the time.					
4. Houses that follow correctly the guidelines on the building code will not easily collapse even at higher magnitude earthquake.					
5. Areas near the fault line have higher earthquake risks.					
6. One must know how to put off the possible fire caused by an earthquake.					
7. An earthquake drill is necessary to help us prepare and act properly during possible earthquake.					
8. It is necessary to know how to administer the basic first aid for minor injuries caused by earthquakes.					
9. It is important not to forget to turn off the electrical supply during an earthquake.					
10. Open fields are safer place to stay to avoid falling debris or objects caused by earthquakes.					

11. It is important to always bear in mind the entrance and exit location of a house or building so one can manage to move out even in the absence of light especially when earthquakes happen during night time.					
12. It is not good to stay inside a building after an earthquake due to possible aftershocks that might cause this structure to collapse.					
13. It is dangerous to place large and heavy furniture near the door, this might block the exit during an earthquake.					
14. Heavy objects must not be placed in high shelves because they have the potential to injure a person.					
15. One be tsunami ready because it might be caused by an earthquake.					
16. It is important to store food before an earthquake and know how to prolong its shelf life after an earthquake.					
17. It is important to know the emergency numbers like that of the Bureau of Fire, Local Hospital and Emergency Response Team					

Level of Awareness in Disaster Risk Reduction Issues as to Landslide among Students					
Indicators	5	4	3	2	1
1. Tension cracks on the ground indicate a possible landslide.					
2. There are landslide-prone areas in our locality.					
3. Building codes and standard, emphasize the use of materials to reinforce structures resilient to landslides.					
4. One must know the local contingency plan for people to evacuate on time due to landslide related harm.					
5. Forest must be protected and that illegal logging must be banned to avoid landslides.					
6. When the ground is saturated or full of water it may result to landslide.					
7. Drainage, building of tunnels and trenches must be improved to stabilize slopes to avoid landslides.					
8. Rapid increase in creek water levels accompanied by increased soil turbidity is an indication for possible landslide occurrence.					
9. Concrete retaining wall must be built in order to secure towns, villages and tunnels located at the bottom slopes prone to landslide.					
10. Structural measures are implemented to provide stabilization of slopes, redesigning river protection to reduce soil erosion and modifying geometrical characteristics of the slope in order to avoid landslide.					

Adopted from the study of Padernal (2016) of Surigao State College of Technology

Disaster Preparedness Practices Survey

Name: _____ Age _____ Gender: _____
Grade and Section _____

The researchers are working on their research entitled “**Disaster Readiness and Risk Reduction (DRRR) awareness and practices of Grade 11 students of University of Santo Tomas-Legazpi.**” In this regard, the researchers are asking for your valuable participation to answer this survey to determine your disaster preparedness practices.

Interview Questionnaires:

1. What are your disaster practices as regards identifying hazards in your community? Enumerate as many as possible.
2. Do you participate in your family’s emergency plan meeting? If yes, how do you assign the responsibilities? What are the things included in your plan?
3. What are the practices you do when preparing for a disaster? Enumerate as many as possible.
4. What suggestions/recommendations can you give to improve the level of awareness and practices of the students in University of Santo Tomas – Legazpi?

September 6, 2021

CIELO L. ALCERA, LPT
Principal, Senior High School Department
University of Santo Tomas-Legazpi
Rawis, Legazpi City

Dear Ms. Alcera:

Greetings of Peace!

The undersigned faculty members are currently working on their faculty research entitled, “Disaster Readiness and Risk Reduction (DRRR) Awareness and Practices of Grade 11 Students of University of Santo Tomas-Legazpi”. In the conduct of his study, the researchers aimed to determine the level of Disaster Readiness and Risk Reduction (DRRR) awareness and practices in terms of hydrometeorological and geological hazards such as typhoon, flood, earthquake and landslide of Grade 11 students of University of Santo Tomas-Legazpi.

In line with this, the researchers would like to ask permission from your good office to conduct their study in the Senior High School Department of University of Santo Tomas – Legazpi. The researchers are looking forward to your approval.

Thank you very much and God bless!

Respectfully yours,

JOHN PAULO M. ALCANTARA, LPT

BEVERLY S. BARRO, LPT

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