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POST DISASTER ADAPTATION OF FACULTY MEMBERS IN EASTERN SAMAR STATE UNIVERSITY (ESSU): PROPOSED INTERVENTION PLAN

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ABSTRACT

Post-disaster adaption is the time between the tragedy and the rehabilitation and reconstruction necessary to return people's lives to normal. This study aimed to investigate the post-disaster adaptation of faculty members in Eastern Samar State University (ESSU) that will result in an intervention plan in order to minimize the climate-related disaster impacts caused by typhoons and other similar natural calamities. The areas of concern of the study included the following: the socio-economic profile of the faculty members in terms of age, residence location, household size, monthly income, member of DRRM, and highest educational attainment, the extent of the impact of the climate-related disaster as perceived by the faculty respondents in terms of awareness, vulnerability, and preparedness for natural disaster occurrence. The findings revealed that majority of the faculty members have multiple adaptation measures or strategies that were formulated and implemented and were found to be very effective in responding and minimizing the impact of climate-related disasters and the socio-economic profile of the faculty members in terms of age, residence location, member of DRRM, and highest educational attainment was not significantly related to the perceived level of awareness on typhoon and other climate-related disaster but was significantly related to the variables household size and monthly income. Moreover, the socio-economic profile of the faculty members in terms of age, residence location, household size, monthly income, and member of DRRM was not significantly related to the perceived extent level of preparedness on typhoon and other climate-related disaster but was significantly related to their level of educational attainment.

KEYWORDS: Post-disaster Adaptation, strategies, intervention plan, awareness, preparedness, quantitative, Philippines.

INTRODUCTION

Natural disaster represents one of the most hazardous environmental risks of people lives. Its impact is felt everywhere for it hits all areas worldwide in different intensities and in various forms. The global community is experiencing an increasing number of disasters that ranges in all forms of great devastation (Agapito,2020).One of these natural disasters is tropical cyclones which are the most damaging events of all-natural disaster that occurs in yearly cycles and affects the coastal population (De Groeveet. al., 2006). Accompanied by this tropical cyclone is storm surge which is generated by storm winds and can reach the heights well over 20 feet and can span hundreds of miles of coastline (U.S. Department of Commerce, NOAA and NWS, 2011).

Moreover, tidal flooding, which contributes a great impact to the coastal areas and is caused by high precipitation and rainfall intensity induces flooding in an inland coast approximating hundreds of kilometers from the coastal areas. This result to coastal erosion, saline intrusion, contamination of fresh water supplies, and the destruction of crops and livestock which often lead to longer-term problems, such as loss of livelihoods, diseases and famine, and many effects to the economy for years (Multi-Cluster Initial Rapid Assessment,2013).

The Philippines, which is an archipelago is located in the western rim of the Pacific and along the circum-pacific belt or ring of fire and hence is highly exposed to variety of natural disasters of which 60% of the total land area is exposed to multiple hydro-meteorological and geophysical hazards such as storms, typhoons, floods, droughts caused by El Nino, earthquakes and volcanic eruptions. It is ranked as the second highest country as disaster-prone in terms of risk natural disaster worldwide (Mcpherson et. al, 2015). Due to the location of the country, there is an increased risk from the impacts of more frequent and extreme climate-related events.

Moreover, Eastern Samar is a province in the Philippines that covers a total area of 4,660.47 square kilometers occupying the eastern section of Samar Island and Eastern Visayas region. The province is bordered to the north by Northern Samar and to the west by Samar, to the east lies the Philippine Sea, part of the vast Pacific Ocean while to the south lies the Leyte Gulf. Since the province faces the Philippine Sea of the Pacific Ocean, the province of Eastern Samar suffers heavily catastrophe such as powerful typhoons.

On November 8, 2013, Typhoon Haiyan (local name ‘Yolanda’), a super typhoon of extraordinary power, made landfall over Guiuan, Eastern Samar, Philippines, with a storm surge of 5 -6 meters. It was recorded as the strongest typhoon to have ever made landfall in the Western North Pacific causing massive devastation across multiple islands. Particularly affected were among communities along the coastal seaboard of the islands such as Western, Central and Eastern Visayas (McPherson et al., 2015). The typhoon devastated the entire region as it made landfall five times while crossing the overall central Philippine islands. It caused extensive damage to life, housing, livelihoods, and infrastructure resulting in a large number of informal settlements.

The storm affected 44 provinces and 10,436 barangays in 575 municipalities (Multi-Cluster Initial Rapid Assessment,” 2013) when it hit land with sustained winds of 190 to 195 mph (Yamada, S. et. al., 2014) which ripped off roofs, collapsed buildings, shattered windows and inundated coastal

regions. Most of the casualties and damage from cyclones are caused by a storm surge which swallowed houses and people, crops, fishing inputs and left the majority of homes either completely destroyed or uninhabitable (Multi-Cluster Initial Rapid Assessment,” 2013).

In the outcome, Disaster Risk Reduction and Management Council (2013) reported that a total of 3,424,593 families and 16,078,181 persons were affected in 12,139 barangays in 44 provinces, 591 municipalities and 57 cities of Regions IV-A, IV-B, V, VI, VII, VIII, X, XI and Caraga. It was also being reported that the total casualties as of November 9, 2013, was about 6,300 dead individuals, 28,688 injured, and 1,062 are still missing. Statistically, out of 93.68% of the total number of deaths, 94.72% of missing and 91.28% of these injured came from Region VIII. Damage houses reports remain at 1,140,332 houses (440,928 completely destroyed, and 589,404 were partially damaged). An estimated 9.584 trillion pesos was damage to the infrastructure sector, 42.981 trillion pesos to the social sector, 1.749 trillion pesos for the productive sector and 3.069 trillion pesos for the cross-sectoral sector.

According to the United Nations of the Coordination of Humanitarian Affairs (2013), millions of affected persons were depending on the daily food aid that was provided by the local government units however although food remains the basic needed for almost all families affected by the typhoon. It should be necessary to address the food shortage by restoring livelihoods that were lost. By doing so, it will quickly change the scenario of the used for food.

Eastern Samar State University is a state university in the Philippines located at Borongan Eastern Samar which has five (5) satellite campuses such as Guiuan Eastern Samar, Salcedo Eastern Samar, Maydolong Eastern Samar, Can-Avid Eastern Samar and Arteche Eastern Samar, however, Arteche, Eastern Samar Campus is newly opened external Campus of ESSU and was opened after Yolanda made its dramatic landfall over the province.

Guiuan Eastern Samar campus which is approximately 24.7 kilometers distance to Salcedo Eastern Samar is the most affected as typhoon Yolanda made its landfall. Over 90 percent of the school was damaged such as school buildings, school materials, medical supplies and equipment which become a major problem of the faculty (Multi-Cluster Initial Rapid Assessment, 2013).

CONCEPTUAL FRAMEWORK

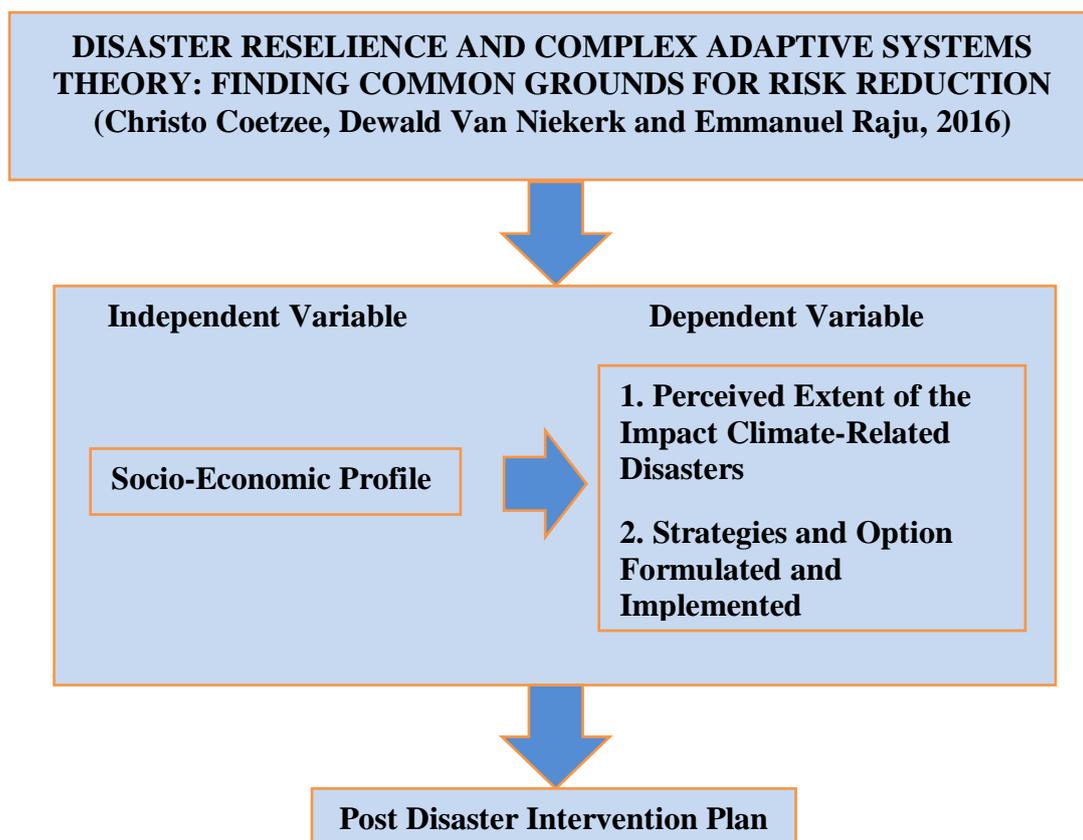


Figure 1. Schematic Diagram on Post Disaster Adaptation of Faculty Members of ESSU Salcedo and Guiuan

As shown in figure 1, the independent variables comprised of the socio-economic profile of the faculty members that includes the age, residence location, household size, monthly income, position on disaster risk reduction management, and educational attainment was related to the dependent variables which includes respondents' perceived extent on the impact of the climate-related disasters in terms of awareness, vulnerability and preparedness on natural disaster occurrence. From the respondents' observation, a post-disaster strategies and options were investigated in terms of their adaptation measures, level of effectiveness, the source of adaptation, and coping strategy. These post-disaster strategies and the option of the respondents gave result to post-disaster intervention plan which would minimize the impact of the climate-related disaster.

OBJECTIVES OF THE STUDY

This study aimed to investigate the post-disaster adaptation of faculty members in Eastern Samar State University (ESSU) that will result in an intervention plan in order to minimize the climate-related disaster impacts caused by typhoons and other similar natural calamities.

METHODOLOGY

Research Design

The study is quantitative research employing descriptive correlation with a survey questionnaire in gathering the data from the respondents. The data that were obtained were the socio-economic profile, perceived respondent's awareness, vulnerability, and preparedness to typhoon disaster occurrence, adaptation measures and their level of effectiveness, sources of adaptation, and coping strategy on post-disaster impacts that would lead to the proposed intervention plan.

Instrument

A self-made questionnaire was used to gather the needed data. The questionnaire has three parts which were follows: Part I measures the socio-economic profile of the respondents in terms of age, residence location, household size, monthly income, members of DRRM and highest educational attainment; Part II dealt with the respondents' perceived extent awareness, vulnerability and preparedness on the typhoon and other climate related-disaster occurrence; Part III dealt with the respondents' adaptation measure and its level of effectiveness and usefulness, source of adaptation measures, and coping strategies to minimize the impact of climate-related disaster.

Ethical Consideration

To ensure the quality and integrity of the research, the study utilized the elements of ethics based on the beneficence, respect to human dignity, and justice to the participants. The study used the process consent principle as a qualification for the commitment of the participation of the participants. The participants know and understand the reasons and risks of their participation in the study. Moreover, it was stated that their involvement has to be self-imposed and not because of force and intimidation. Hence, the study observed ethical guidelines based on the broad principle.

Statistical Analysis

SPSS analysis software using descriptive analysis was used in the computation of frequency and percentage of the socio-economic profile of the faculty, adaptation measures, source of adaptation measures and coping strategies formulated and implemented to minimize the impacts of climate-related disasters. Weighted mean with assigned scales was used in the computation of perceived extent awareness, vulnerability, preparedness on the typhoon and other climate-related disaster occurrence and the level of effectiveness and usefulness of adaptation measures formulated and implemented by the faculty respondents. The descriptive correlation using crosstabs and Cramer's V Correlation was used to compute significant relationship among variables at 0.05 level of significance.

RESULTS AND DISCUSSION

Table 2. Age of Faculty Members Affected of Typhoon and Other Climate-Related Disaster, S.Y. 2018-2019.

Age	Frequency	Percent
60 – 65 years old	2	1.4
40 – 59 years old	74	51.7

26 – 39 years old	52	36.4
18 – 25 years old	15	10.5
Total	143	100.0

Table 2 reflects the age distribution of the faculty respondents in terms of frequency and percentage rank of the one hundred forty-three (143) respondents. The result showed that majority of the respondents about 74 or 51.7 percent of them were mainly 40-59-year-old classified as early later years. About 52 of them or 36.4 percent aged 26-39 years old classified as a young adult. Moreover, 15 about 10.5 percent of them belonged to age ranging from 18-25 years old categorized as fairly young adult and 2 of them about 1.4 people aged 60-65 years old categorized as later years. Pabelonia (2008) categorized the age distribution as follows: 18-25 years old (fairly young adulthood), 26-39 years old (young adulthood), 40-59 years old (early later years) and 60-65 (later years).

The data implies that most of the faculty respondents are well experienced to different disaster occurrence such as typhoons. Hence, with the experience they have, they could be better prepared to disaster and most likely knows how to cope up with the changing environment. This is supported by the study of Mohammad-Pajoo (2014), that states that there was an advantage of elder people on the awareness of the surroundings and experience to a natural disaster which makes them familiar with a natural disaster that results to the ability to overcome the disaster more effectively. They are also capable of the task that was assigned in terms of research, instruction and extension.

Table 3. Residence Location of Faculty Members Affected of Typhoon and Other Climate-Related Disaster, S.Y. 2018 – 2019.

Residence Location	Frequency	Percent
High-lying lands	30	21
Low-lying lands	86	60.1
Coastal areas	27	18.9
Total	143	100.0

Table 3 shows the residence location of the faculty respondents. The result showed that 86 or 60.1 percent of the respondents reside in the low-lying land, that is 50 meters away from the coastal areas, and 30 or 21 percent live in the high-lying lands, this means that these respondents are living in areas away from the danger zone considering the storm surge occurrence. This implies that these respondents are better aware of the consequences of living near or in the coastal areas, hence, decided to build their houses away from the coastal zone. However, 27 or 18.9 percent reside in the coastal areas which were categorized as residents living in the danger zone. This means that these respondents need to consider finding a place away from the danger zone.

Table 4. Household Size of Faculty Members Affected of Typhoon and Other Climate-Related Disaster, S.Y. 2018 – 2019.

Household Size	Frequency	Percent
Small (6 and below)	107	74.8
Big (more than 6)	36	25.2
Total	143	100.0

Table 4 reflects the household size of the faculty respondents. It can be gleaned from table 5 that majority of the respondents about 107 or 74.8 percent of them were from the small household size and 36 or 25.2 percent were from big household size. This means that the family household of the faculty respondents were mostly fewer members and that they can easily mobilize in terms of evacuation to a safer place. This also implies that in terms of disaster occurrence the economic dependency burden in these families is low. This is because they have income that would suffice the need of small family size. However, during a disaster, there is a need to adjust economically and live just within their means in order to cope with disaster.

Table 5. Monthly Income of Faculty Members Affected of Typhoon and Other Climate-Related Disaster, S.Y. 2018 – 2019.

Monthly Income	Frequency	Percent
Php20,000.00 and above	119	83.2
Php15,000.00 – 19,000.00	5	3.5
Php10,000.00 – 14,999.00	14	9.8
Php5,000.00 – 9,000.00	4	2.8
Php4,999.00 and below	1	0.7
Total	143	100.0

Table 5 reflects the approximated monthly income of the faculty respondents. The result revealed that 119 or 83.2 percent of the respondents belonged to a monthly income ranging from 20,000.00 and above, followed by 14 or 9.8 percent on the respondents belonged to a category ranging from 10,000.00-14,999.00. Fewer (5 or 3.5 percent) of the respondents have an income ranging from 15,000.00 – 19,000.00 and the least with 4 or 2.8 percent have declared that their monthly income ranged from 5,000.00-9,000.00, furthermore, the declared income within 4,999.00 and below makes 1 or 0.7 percent.

It can be assumed from the results that most of the faculty respondents have a higher monthly income. This implies that the greater proportion of the faculty respondents have the financial

resources to spend when preparing for the occurrence of the typhoon and other climate-related disasters.

Table 6. Member of DRRM of Faculty Members Affected of Typhoon and Other Climate-Related Disaster, S.Y. 2018 – 2019.

Member of DRRM	Frequency	Percent
Yes	10	7
No	133	93
Total	143	100.0

Table 6 presents the involvement of faculty respondents to Disaster Risk Reduction and Management of the University. The result showed that majority of the respondents about 133 or 93 percent of them have no involvement on disaster risk and reduction management and 10 or 7 percent of the faculty respondents were members of disaster risk reduction and management. This means that most faculty respondents of the study are not oriented on disaster risk and reduction management of the campus to respond to typhoon and other climate-related disasters. This implies that despite the increasing number of the typhoon and other related climatic disaster occurrences, faculty members of ESSU are still to be oriented on the importance of actively participating in the Disaster Risk Reduction Management Activities of the school. Hence, orientations, training and seminars related to DRR for the faculty respondents need to be taken into consideration by the school.

Table 7. Highest Educational Attainment of Faculty Members Affected of Typhoon and Other Climate-Related Disaster, S.Y. 2018 – 2019.

Household Size	Frequency	Percent
Doctorate Degree	19	13.3
Doctoral Units	23	16.1
Master's Degree	52	36.4
Master's Units	41	28.7
Bachelor Degree	8	5.6
Total	143	100.0

Table 7 presents the highest educational attainment of the faculty respondents. The result showed that 52 or 36.4 percent of the faculty respondents earned a Master's Degree holder, 41 or 28.7 percent earned Master's Units, 23 or 16.1 percent earned Doctoral Units, 19 or 13.3 percent earned Doctorate Degree, 8 or 5.6 percent earned Bachelor Degree.

It can be gleaned from the results that most of the faculty respondents of the Eastern Samar State University Salcedo and Guiuan campus have better educational attainment. Majority of them are Master's Degree holder. This means that faculty respondents do not just end up in getting a college diploma but rather enrolled in further studies for professional development and for promotional purposes that could help increase their monthly salary, thus increasing their monthly income for themselves and for their families.

Furthermore, this implies that with this level of educational attainment of the faculty respondents they could have higher learning knowledge to cope with post-disaster adaptation strategies and could be able to create post-disaster intervention plans.

PERCEIVED EXTENT OF THE IMPACT OF CLIMATE-RELATED DISASTER TO FACULTY RESPONDENTS

Awareness and preparedness to climate-related disaster are significant nowadays especially to those areas that are most vulnerable to a natural disaster. In the province of Eastern Samar, typhoon Yolanda and other climate-related disasters brought tremendous destruction to the houses, schools and even human lives. Hence, this study viewed the awareness, preparedness, and vulnerability of the respondents to a natural disaster. This was determined on the bases of their observation of the climate-related disaster that occurred in the schools and households.

Table 8. Perceived Extent of Awareness on the Typhoon and Other Climate-Related Disaster Occurrence, CY 2018

Natural Disaster	Weighted Mean	Standard Deviation	Interpretation
Greenhouse effect means the process that occurs when the gases in Earth's atmosphere traps the Sun's heat making Earth's atmosphere much warmer than it would be.	2.51	0.55	Highly Aware
Global warming means a gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, chlorofluorocarbons, and other pollutants.	2.52	0.55	Highly Aware
Climate change occurs when changes in Earth's climate system result in new weather patterns that last for at least a few decades, and maybe for millions of years.	2.48	0.57	Highly Aware
Climate change may cause stronger typhoon that may lead to the destruction of lives and properties	2.36	0.55	Highly Aware

Natural Disaster	Weighted Mean	Standard Deviation	Interpretation
Torrential rainfall may lead to flooding and destruction of lives and properties	2.28	0.56	Aware
Climate change causes lung problems and diseases	2.15	0.53	Aware
Climate change leads to the changes in the atmospheric conditions	2.26	0.54	Aware
Climate change leads to poverty through its activities	2.18	0.60	Aware
Climate change is caused by industrial and vehicular pollution	2.27	0.57	Aware
Climate change is caused by persistence deforestation	2.30	0.57	Aware
Climate change caused solar radiation	2.20	0.52	Aware
Climate change is a result of the production of gas	2.22	0.51	Aware
Torrential rainfall leads to landslides	2.25	0.62	Aware
Climate change leads to sea level rise and storm surge	2.14	0.69	Aware
Climate change leads to coastal erosion	2.11	0.73	Aware
Climate change leads to earthquake	2.25	0.60	Aware
Burning fuel contributes global warming	2.33	0.53	Highly Aware
Ocean warming and warm weather are some indicators of global warming	2.24	0.54	Aware
One effect of climate change are the increasing number of vector-borne diseases like dengue and malaria	2.18	0.58	Aware
Burning garbage turns out to be a significant source of the greenhouse gases causes climate change	2.24	0.50	Aware
Factor Average	2.27	0.60	Aware

*Note: Multiple response items

2.31-3.00 – Highly Aware 1.61-2.30– Aware
 1.00-1.60 – Not Aware

The data showed that in terms of the perceived extent of Awareness on the Typhoon and Other Climate-Related Disaster Occurrence the respondents are ‘aware’ with a factor average of 2.27. This implies that respondents were aware of the typhoon and other climate-related disaster occurrence. Specifically, they are aware of the climate change phenomena issues. This indicates that the faculty respondents were aware of effective risk communication strategies. This only revealed that the faculty respondents are knowledgeable on the effects of climate change in their respective locality because of the several typhoon occurrences which they may have experienced.

Table 9. Perceived Extent of Vulnerability on the Typhoon and Other Climate-Related Disaster Occurrence, CY 2018

Natural Disaster	Weighted Mean	Standard Deviation	Interpretation
Typhoon	2.28	0.56	Moderate
Flood	2.02	0.75	Moderate
Landslides	1.77	0.72	Moderate
Storm Surge	1.87	0.69	Moderate
Sea level rise	1.79	0.68	Moderate
Coastal erosion	1.71	0.66	Moderate
El Nino	1.83	0.55	Moderate
La Nina	1.80	0.57	Moderate
Habagat	1.81	0.55	Moderate
Amihan	1.81	0.55	Moderate
Factor Average	1.87	0.63	Moderate

*Note: Multiple response items

2.31 – 3.00 High 1.00 – 1.60 Low
 1.61 – 2.30 Moderate

Table 9, presents the faculty respondents perceived extent of vulnerability on the typhoon and other climate-related disaster occurrences.

The result showed that the faculty respondents were moderately exposed to typhoon, flooding, landslides, storm surge, sea level rise, coastal erosion, el nino, la nina, habagat, and amihan. This ‘moderate vulnerability’ of the respondents to the identified natural disaster occurrences could be because most of them have residential areas located away from the coastal zone, they have houses that may withstand stronger typhoons, they have financial resources that they could use during a disaster and they belong to small size families. This just implies that the faculty respondents have mitigation measures in times of disaster, it may not be very strong, and the reason that they are still moderately vulnerable, but then it could be good enough to cope with disaster. This also suggests that being a member of DRRM in school and being active in schools and community activities that relate to disaster risk reduction could be helpful to lessen vulnerability. This further implies that respondents’ vulnerability is not low because of the geographical location of research locale, which is prone to natural hazards. However, they could use their experience of being exposed to several natural disaster occurrences for them to develop resiliency.

Table 10. Perceived Extent of Preparedness on the Typhoon and Other Climate Related-Disaster Occurrence, CY 2018

Disaster Preparedness Practices	Weighted Mean	Standard Deviation	Interpretation
Inspect the house for necessary repairs such as a leaky roof, cracked walls, or broken doors and windows.	3.98	0.99	Often
Elevate home furniture and appliances such as refrigerators, televisions, and electric fans.	3.90	1.10	Often
Attentive to the weather updates	4.15	0.90	Often
Discussed disaster preparedness with the family	3.58	1.12	Often
Prepared a 3-day disaster supplies	3.71	1.10	Often
Prepared a 3-day emergency supplies kit for the family	3.70	1.12	Often
Make relocation plan	3.50	1.26	Often
Have a member to be trained in first aid and basic life support	3.44	1.14	Often
Be an active member of DRRM in school and community	3.57	1.19	Often
Safeguard family records	3.85	0.97	Often
Safeguard student’s records	3.85	0.96	Often

Disaster Preparedness Practices	Weighted Mean	Standard Deviation	Interpretation
Have a family disaster communication plan	3.39	1.24	Occasionally
Have an out-of-town contact	3.56	1.18	Often
Have a plan to compensate the loss of electricity, water, or gas	3.80	1.09	Often
Know the disaster preparedness plan of the community	3.59	1.16	Often
Know the Early Warning System of the school and community	3.71	1.12	Often
Attend in schools and community drills	3.83	0.97	Often
Know the nearest evacuation site from the school and or residential location	3.80	1.05	Often
Attend in DRRM training and orientation	3.73	1.10	Often
Be familiar with the disaster evacuation signage of the school and the community	3.78	1.04	Often
Know the Cellphone/Phone numbers of the appropriate person to contact with during disaster	3.81	1.02	Often
Factor Average	3.73	1.09	Often

*Note: 4.21 – 5.00 Always 1.81 – 2.60 Seldom
 3.41 – 4.20 Often 1.00 – 1.80 Never
 2.61 – 3.40 Occasionally

The data implies that because of the number of typhoons and other natural calamities occurring in the province, the respondents oftentimes do the disaster preparedness practices in anticipation of a natural disaster. This only means that respondents prepare themselves and their family oftentimes for disaster, that in cases of natural calamities they could withstand with it.

However, one statement was rated by the respondents as occasionally, this is: ‘‘ Have a family disaster communication plan’’. This only means that though respondents oftentimes discussed with their family the family preparedness plan and prepares emergency supply kit for the family, they only occasionally develop a family disaster communication plan, which is equally important for the safety of everyone.

The data further implied that the respondents can easily respond appropriately to the possible effects of the typhoon and other climate-related disasters since they oftentimes do most of the disaster preparedness practices.

STRATEGIES/OPTIONS FORMULATED AND IMPLEMENTED TO MINIMIZE THE IMPACTS OF CLIMATE-RELATED DISASTERS.

The table below shows the strategies or options of the faculty respondents to mitigate negative impacts of climate-related disasters. These were measured by whether the respective Universities have adaptation measures or strategies being formulated and implemented. This also measures the level of effectiveness and usefulness on each particular adaptation measures and strategies. Furthermore, the study also indicates the sources of adaptation measures and coping strategies to mitigate the impacts of climate-related disasters.

Table 11. Adaptation Measures/Strategies Formulated and Implemented by the Faculty Respondents to Minimize the Impacts of Climate-Related Disasters, CY 2018

Adaptation Measures/Strategies	Frequency	Percentage	Rank
Prepare household needs and safety precautions	131	91.6	1
Restructure housing unit that will sustain heavy disaster conforming to building standards	128	89.5	2
Transfer to evacuation area temporarily	126	88.1	3
Provide early warning system	119	83.2	4
Relocate residence to a safe place permanently	118	82.5	5
Construct structure conforming to Philippine Building Standards	118	82.5	5
Improve the dike system or canal near the residence	113	79.0	6
Build stone breakwater	112	78.3	7
Change livelihood and sources of income	107	74.8	8
Change land use to fit new condition	102	71.3	9
Average	117.4	82.08	

*Note: Multiple response items

Table 11, presents the adaptation measures or strategies that were formulated and implemented by the faculty respondents to minimize the impact of climate-related disasters. Using rank 1 to 10, the top 5 adaptation measures or strategies that were formulated and implemented by the respondents were the preparation of the households needs and safety precautions (91.6%), restructure housing

unit that will sustain heavy disaster conforming to building standards (89.5%), transfer to evacuation area temporarily (88.1%), provide early warning system (83.2%), relocate residence to a safe place permanently (82.5%) and construct structure conforming to Philippine Building Standards (82.5%). Other adaptation measures indicated were: prepared to improve the dike system or canal near the residence (79.0%), build stone breakwater (78.3%), change livelihood and sources of income (74.8%) and change land use to fit new condition (71.3%).

This indicates that the faculty respondents have implemented a number of adaptation measures ranging from simple to complicated ones. This implies that the respondents have a high adaptation to natural disaster as indicated in the number of adaptations measures, they have identified. This further suggests that respondents highly know the possible impacts and effects of natural disaster hence have developed adaptation measures that they could use in times of disaster. This indicates that this behavior is closely related to their level of educational attainment, they could easily understand that being prepared and adaptive to natural calamities could be the only means to survive in this fast-changing environment.

Table 12. Level of Effectiveness and Usefulness of Adaptation Measures Formulated and Implemented by Faculty Respondents to Minimize the Impacts of Climate-Related Disasters, CY 2018

Level of Effectiveness	Weighted Mean	Standard Deviation	Interpretation
Prepare household needs and safety precautions	2.48	0.60	Very Effective
Restructure housing unit that will sustain heavy disaster conforming to building standards	2.23	0.62	Effective
Transfer to evacuation area temporarily	2.61	0.54	Very Effective
Provide early warning system	2.37	0.66	Very Effective
Relocate residence to a safe place permanently	2.43	0.63	Very Effective
Construct structure conforming to Philippine Building Standards	2.30	0.68	Effective
Build stone breakwater	2.10	0.77	Effective
Improve the dike system or canal near the residence	2.61	0.51	Very Effective
Change land use to fit new condition	2.60	0.60	Very Effective
Change livelihood and sources of income	2.61	0.58	Very Effective
Factor Average	2.43	0.62	Very Effective

*Note: Multiple response items

2.31-3.00 Very effective 1.61-2.30 Effective
 1 - 1.60 Less Effective

These respondents consider the adaptation measures or strategies as significant in responding to a natural disaster. This implies that the lesson learned from the effect of typhoon Yolanda in which most of the structures, health, livelihoods, education and even human lives were heavily devastated was the reason why these respondents are doing their part in reducing the impact of disaster through developing and practicing adaptation measures

Table 13. Source of Adaptation Measures to Minimize the Impacts of Climate-Related Disasters by the Faculty Respondents, CY 2018.

Particulars	Frequency	Percentage	Rank
Learned from the media	120	83.9	1
Trainings and Seminars	103	72.0	2
Learned from the community	65	45.5	3
Indigenous knowledge	53	37.1	4

*Note: Multiple response items

The results revealed that media was the most source of adaptation measured; this is because of the availability of mass media making information more and easily accessible to a number of people. Information can be easily accessed on the internet and even through listening to television. Hence, expanding the source of adaptation measures is beneficial in all stage of emergency management.

Table 14. Coping Strategies by the Faculty Respondents to Minimize the Impacts of Climate-Related Disasters, C.Y. 2018

Particulars	Frequency	Percentage	Rank
Received support from the government	77	53.8	1
Used family savings	77	53.8	1
Own initiative (work/business)	63	44.1	2
Support from family/relatives	59	41.3	3
Got a loan from a money lender	38	26.6	4
Got a loan from friends, relatives, and other persons	29	20.3	5

Asked/received grants	16	11.2	6
None	2	1.4	7
Sold land	1	0.8	8

*Note: Multiple response items

Table 14, presents the coping strategies practiced by the respondents to minimize the impacts of climate-related disasters. The result showed that majority of the respondents identified “received support from the government” (77 or 53.8%) as their coping strategies to withstand from the effect of natural disasters. The majority also mentioned of “using family savings” (77 or 53.8%), as the key to handle the impact brought by natural disasters. The close majority made mention on “initiating their own such as having work or business” (63 or 44.1), and “support from family or relatives” (59 or 41.3%) to cope the impact brought by natural disasters. Some respondents used strategies to mitigate the impact of natural disasters such as: “got a loan from a money lender” (38 or 26.6), “got a loan from friends, relatives, and other persons” (29 or 20.3%), “asked or received grants” (16 or 11.2%) and “sold land” (1 or 0.8%). Among the 143 respondents, very few indicate that they have no identified coping strategies (2 or 1.4%). It appears that in times of disaster, the majority of the respondents only relied on the support they received from the government and from their family savings. This can be implied that respondents have only minimal coping strategies; hence, this suggests that respondents have to find other means that could help them in order to easily cope with disaster.

Table 15. Relationship Between the Socio-economic Profile and the Perceived Extent Level of Awareness of the Effects of Typhoon and Other Climate-Related Disasters Occurrence of Faculty Respondents, CY 2018.

Socio-economic Profile	Index of Correlation	p-value	Interpretation
Age	0.091	0.888	Not Significant
Residence location	0.097	0.624	Not Significant
Household size	0.239	0.019	Significant
Monthly income	0.325	0.000	Significant
Member of DRRM	0.070	0.708	Not Significant
Highest educational attainment	0.142	0.695	Not Significant

Table 15 presents the relationship between age, residence location, household size, monthly income, member of Disaster Risk Reduction and Management, and highest educational attainment and the respondents perceived extent level of awareness of the effects of the typhoon and other

climate-related disasters occurrence. The results revealed that there was no significant relationship exists between the socio-economic profile of the respondents in terms of age, residence location, member of DRRM and highest educational attainment with p-value greater than the level of significance which was set at .05 and the perceived extent level of awareness. However, a significant relationship exists on the socio-economic profile of the respondents in terms of household size and monthly income with a p-value lower than the level of significance.

Hence, the hypothesis stated that there is no significant relationship between the socio-economic profile and the perceived extent level of awareness of the faculty respondents was accepted in the variables age, residence location, member of DRRM and highest educational attainment but was rejected on the variable's household size and monthly income.

This means that the age, residence location, member of Disaster Risk Reduction and Management, and highest educational attainment have no bearing on the perceived extent level of awareness and preparedness of the faculty respondents. However, is significantly related to household size and monthly income. This result conforms to the study of Predo (2010), that bigger number of household member with bigger houses would have greater exposure to the typhoon and other climate-related disasters that make them vulnerable to such events. Moreover, the result also conforms to the study of Adger (2003), that those who enjoy higher social status such as higher income is more resilient because they have a capability to extend their social resources and allow them to avoid, adapt, and recover faster from hazard impacts.

Table 16. Relationship Between the Socio-economic Profile and the Perceived Extent Level of Preparedness of the Effects of Typhoon and Other Climate-Related Disasters Occurrence of Faculty Respondents, CY 2018.

Socio-economic Profile	Index of Correlation	p-value	Interpretation
Age	0.192	0.219	Not Significant
Residence location	0.189	0.266	Not Significant
Household size	0.137	0.625	Not Significant
Monthly income	0.133	0.878	Not Significant
Member of DRRM	0.127	0.689	Not Significant
Highest educational attainment	0.262	0.001	Significant

For the relationship between the socio-economic profile and the perceived extent level of preparedness, Table 16 showed no significant relationship exists between socio-economic profile of the respondents and their perceived extent level of preparedness in terms of age (0.219 p-value), residence location (0.266 p-value), household size (0.625 p-value), monthly income (0.878 p-value), and member of Disaster Risk Reduction and Management (0.689 p-value). However, there

is a significant relationship existing between socio-economic profile of the respondents in terms of education attainment and extent level of preparedness of the effects of the typhoon and other climate-related disaster occurrence.

Therefore, it revealed that the null hypothesis stating that no significant relationship exists between the socio-economic characteristics profile and the perceived extent level of preparedness was accepted in the variables age, residence location, household size, monthly income and member of DRRM, this denotes that the mentioned profiles were not reliable measures of the state of perceived extent level of preparedness of the faculty respondents for the occurrence of the typhoon and other climate-related disasters, and that their level of preparedness does not rely on the above-mentioned profiles. However, the null hypothesis stating that there was no significant relationship exists between economic – profile in terms of highest educational attainment and perceived extent level of preparedness was rejected. This only implies that the higher the educational attainment of the faculty respondents the better they are prepared on disaster occurrences.

However, in terms of age, the result contradicts to the study of Mohammad-Pojooh and Ab. Aziz (2014), that older people seemed to less prepared and more vulnerable in the event of natural disasters. In terms of residence location, the result contradicts with the study of Unaldi (2008), that the proactive strategies on disaster preparedness are high in the rural areas than in urban areas. In terms of household size and monthly income, the results contradict to the study of Bagarinao (2016), that preparedness of household’s purchasing power is usually reduced with the increasing a number of household size while the income of the family remains the same. In terms of membership to DRRM, the results negate to the study of Van Kriekan, Kulatunga and Pathirage (2017), that individual community participation from the aftermath of the natural disasters is essential for successful recovery in an efficient and effective manner.

Table 17. Summary of the Relationship Between the Socio-economic Profile and the Perceived Extent Level of Awareness and Preparedness of the Effects of Typhoon and Other Climate-Related Disasters Occurrence of Faculty Respondents, CY 2018.

Socio-economic Profile	Interpretation	
	Perceived Awareness	Perceived Preparedness
Age	Not Significant	Not Significant
Residence location	Not Significant	Not Significant
Household size	Significant	Not Significant
Monthly income	Significant	Not Significant
Member of DRRM	Not Significant	Not Significant
Highest educational attainment	Not Significant	Significant

The data on Table 17 negates to the findings of Forthergill (1996) as cited in the study of Elacion (2015) that some factors influence preparedness behaviors to vary considerably with the socio-economic profile. Individuals of different social groups receive and evaluate risk information differently and have unequal resources to carry out preparedness measures.

CONCLUSIONS

Based on the results and findings of the study, the following conclusions were drawn;

The faculty members of ESSU- Guiuan and Salcedo Campuses were mostly in early later years with aged ranging from 40-59 years old, residing in low-lying lands, living in a small household, has a monthly income ranging from 20,000 pesos and above, majority was not a member of Disaster Risk Reduction and Management, and mostly earned masters' degree holder.

The faculty members are aware of the perceived extent of the impact of climate-related disaster, moderately vulnerable to natural disaster, and oftentimes performed different disaster preparedness to respond to typhoon and other climate-related disaster occurrence.

Majority of the faculty members have multiple adaptation measures or strategies that were formulated and implemented and were found to be very effective in responding and minimizing the impact of climate-related disasters. Moreover, majority of the faculty members prefer to get adaptation sources from media, and they rely only on the support given by the government and used their family saving as coping strategies to respond to post-disaster effects of the typhoon and other related natural disasters.

The socio-economic profile of the faculty members in terms of age, residence location, member of DRRM, and highest educational attainment was not significantly related to the perceived level of awareness on typhoon and other climate-related disaster but was significantly related to the variable's household size and monthly income. Moreover, the socio-economic profile of the faculty members in terms of age, residence location, household size, monthly income, and member of DRRM was not significantly related to the perceived extent level of preparedness on typhoon and other climate-related disaster but was significantly related to their level of educational attainment.

RECOMMENDATIONS

Based on the findings of this study, the researcher recommends the following:

Faculties should involve themselves in any organizations related to Disaster Risk Reduction such as training, seminars and workshops so that they will be empowered and gain scientific knowledge in planning and implementation of post-disaster responses and to enhance more their capacity of acquiring life coping skills and disaster risk reduction activities in the schools and household through structured learning.

Faculties should conduct a study about indigenous knowledge in the formulation and implementation of post-disaster adaptation to respond to natural disasters. This is also one way to directly recover to the effects of a typhoon or other climate-related disasters most especially that in urban areas where the locale is located, electricity, and water consumption and even transportation are not functional after the calamities.

Considering the number of adaptations measures practiced by the faculty members, they should consider conducting extension service programs that will awaken the populace of the community on the importance of developing several adaptation measures during a disaster.

Considering that significant relationship exists between monthly income and household size to the perceived extent level of awareness to typhoons and other disasters, the study recommends that the faculty members of ESSU Guiuan and Salcedo Campus needs to consider findings other means of source of income that could be used to enhance their awareness on climate-related disasters such as attending seminars, training and conferences or updating news through television and subscribing magazines and other related sources of information. Furthermore, they could as well help their family members to be better aware of climate disasters. Moreover, since a significant relationship exists on education attainment in the perceived extent level of preparedness, the study recommends that faculty members need to enroll or pursue further studies related to disaster preparedness and management to be better prepared to several disasters' occurrences.

A further study may be conducted on post-disaster adaptation based on the intervention plan learned in the study initiated by the students and stakeholders of Eastern Samar State University Salcedo and Guiuan Campus to collate best practices.

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