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Land: Informative website about landslides.

**Chapter 1:**

**Introduction**

***Background of the study***

According to PAGASA (2014), "Climate change is one of the most fundamental challenges ever to confront humanity." Climate change nowadays are far more obvious and affects larger numbers of people including other living things such as plants and animals compared from the past generations. PAGASA also stated that climate change may intensify and grow worse over time if nothing is done to reduce the possibility that time will come nature will overcome all living things for the reason that people did not take care properly and just took advantage of nature. The only cure to prevent the worsening state of climate is to keep up with the climate and figure out how to make the climate better than its state today only then people must start to save the earth, climate and all living things.

According to Smith & Petley (2009), as people continue to damage the earth because of continuous illegal and harmful activities such as burning of garbage, leaves etc. it causes global warming which is the number one cause of the climate change. "Over the coming decades, the expected temperature change will be greater and faster than any time in the past 10,000 years." Areas which will be most affected by global warming and will face physical consequences are those from the low-lying coasts, especially where natural ecosystems are removed, damaged or naturally dead. Places with less trees, places full of buildings, tunnels etc. where part of nature is covered or removed will look modern but as time pass by people living on places stated will most likely be future victims of natural disasters because there are no more natural saviors and/or stoppers.

As stated by USGS (2013), "The USGS Landslide Program conducts research in order to make accurate landslide hazard maps and forecasts of landslide occurrences." The USGS makes sure that their team have analyzed specific areas which are landslide prone or to where landslides have occurred, so as for the next happening their team will be able to determine what caused the landslide? How fast and how strong the landslide was? What areas are damaged?

As stated by Capistrano (n.d.), "The Pacific Rim is not only a community of the fastest growing and most dynamic nations in the world. It is also the area exposed to a wide range of natural disaster." Philippines experience numerous typhoons because the Philippines is located near the Pacific Ocean in which the Pacific Ocean is where storms are formed. People living in the Philippines have a tropical weather but because of the location people experience numerous floods, storms, storm surges, which also triggers landslides and other forms of devastation. Philippines also is located/ is on the ring of fire where continental plates collide which causes earthquakes and volcanic eruptions. Because of the major exposure to several natural disasters it made the country more attentive and alert to disaster reduction.

As stated by Smith, & Petley (2009), areas full of mountains is the most common and mass movement/landslide prone places. "Mass movement is the displacement of surface materials down-slope under the force of gravity and it can occur in almost any environment in which slopes are present." Mass movements have different variations depending of the speed and the size mass movements covers. And because of the large capacity it covers, mass movements are responsible for large amounts of damages and injuries because of its speed and weight wherein people cannot even handle it and can barely survive from it that is why it causes the greatest loss of life.

According to Pei et al. (2011), "Landslides and debris flows are typical geo-hazards which occur in hilly or mountainous regions." In conclusion, when a person or residents are living on hills or the location is high compared to others, during intense rain and other natural disasters, expect landslides to happen. Conditions like living on a mounted location is a definite prone to landslides. And especially when earthquakes are present, expect even worse landslides. Because earthquakes give land more chances of falling down and destroying everything on their way.

According to Smith & Petley (2009), most mass movements almost never happens without a reason, the most common natural cause of mass movements is triggered by earthquakes and intense rainfall. But not all disasters are because of nature, some are caused by humans. Because people are always seeking for something new and invents something different often nature is the most affected such as on mining and deforestation. People damages the mountains which triggers the mountains to fall apart which is called landslides and on deforestation people cuts down trees which are the natural stoppers of landslides. Without the presence of trees the soil and rocks are then free to fall down. The term 'disaster' has no definite meaning because there is no agreed definition for disaster for the reason that disaster can be applied to a wide range of events may it be natural disasters or simple but disturbing disasters on people's daily lives. The government agencies, weather researchers and media reporters often experience arguments regarding weather reports. "The term landslide describes the down slope movements of soil and rocks under the influence of gravity. Whilst many landslides do occur through the process of rock or soil sliding on a distinct surface."

***Significance of the study:***

The purpose of this study is to analyze how, when, and why landslides happen. This is made to give people the right amount of warning and information they need to know for their own safety. Not only the victims of landslides will be benefited but also students and/or researchers as well.

***Statement of the problem/s:***

The main research problem is how the website can inform people about landslides.

***Objectives;***

* To create a website which will inform people on landslides.

**Chapter II:**

**Review of Related Literature**

**Introduction**

In this chapter, the researchers' study is strengthened with the use of foreign and local literature about landslides that happened from different countries.

**History**

According to Bressan (n.d.), "Landslides belong to a class of geological phenomena which occur rapidly." Landslides are often caused by mass movements or earthquakes which are catastrophic and aftermaths are expected and recognized even by non geologists. "Ancient myths in the Alps often refer to landslides as punishment for greedy people – god or the spirits of the mountain punish the village or man who denied help to others or became corrupted by wealth by entombing it/him alive." Because people back then were not educated of what earthquake-triggered landslides were. That is why the people assumed that, that natural disaster was caused on purpose.

As stated by Bressan (n.d.), in 1618, the recorded landslide destroyed the Swiss village of Plurs that killed 1 000 residents and this natural disaster was explained as a divine act. The people then said that the first occurrence of earthquake-triggered landslide was done by god. But the disaster was then recognized in publications in the year 1757 and 1806 as landslides connected to earthquakes. Also in 1806, the recorded landslide of Goldau destroyed the entire village and killed 457 people and later was considered as the first landslide describes and explained in a naturalistic approach.

**Foreign Literature**

According to Xu, Xu, & Yu (2013), "Landslides are the most important and hazardous ground failure phenomena during an earthquake event. In recent years, remote sensing and Geographic Information Systems (GIS) technologies have significantly promoted the ability to map earthquake-induced landslides." There are numerous records of earthquake-triggered landslides in China alone. Listed are the recorded earthquake-triggered landslides along China: A.). May 12, 2008 Mw 7.9 Wenchuan earthquake. B.). October 8, 2005 Mw Kashmir earthquake. C.). October 23, 2004 Mid-Niigata earthquake. D.). September 21, 1999 Mw 7.5 Chichi earthquake. E.). January 17, 1994 Mw 6.7 Northridge earthquake. F.). September 26, 1997 Umbria-Marche earthquake. G.). January 17, 1995 Hyogo-ken earthquake. On April 14, 2010 at 7:49 Beijing Time,Yushu County in Qinghai Province China was struck by Ms 7.1 earthquake which was later called the Yushu earthquake. After the horrible earthquake, the Government of China recorded over 2036 landslides that was triggered. The landslides that were interpreted from aerial photographs and satellite images and were verified by selected field checking. The landslides took cover about a total area of 1.194 km2. the massive 7.1 earthquake along with 2036 landslides terribly left China distressed. Killing over 2698 people, 270 missing and 12,135 injured people and destroyed almost 15, 000 houses.

As stated by Xu, Xu, & Yu (2013), the Yushu earthquake triggered over 2036 landslides. All of the recorded earthquake-triggered landslides were studied and was called in various types which are the; A.).Shallow, disrupted landslides - because the majority os slopes had exposures of weathered bedrock and experienced strong ground shaking during the earthquake. B.). Rockfalls were individual boulders or disrupted masses of rock that rests on descended slopes that later rolls or takes free fall. C.). Deep-seated landslides, the movement of deep-seated landslides are slipping and are generally short. The measures tend to be larger due to the thicker depths. D.). Liquefaction-induced landslides are mainly affected by waater infiltration and strong motion.

**Local Literature**

According to Jol (2006), the recorded landslide in the Guinsaugon, Philippines 139 people were found dead, 973 went missing and later was presumed dead. Only 580 people survivors were recorded and 1875 villagers were able to evacuate from Guinsaugon with a distance of 550-600m away. All of their houses were either covered by water or debris. However, there are list of what caused the disaster: A.). Slash and burn techniques used to clear the land for agricultural use. B.). Deforestation of the jungle in Leyte due to illegal logging. C.). Located in low latitude and the typhoon belt, the Philippines gets a lot of rain each year. D.). 674mm of rainfall was recorded from Feb. 8 to Feb. 17 2006

As stated by reliefweb (2014), on 10th of January 2014, a low pressure area was seen and started to bring heavy rainfall in the southern Philippines, which caused floods and landslides. On 17th of January, the low pressure area became into a Tropical Depression called Agaton and maintained its strength until the 20th of January. After 7 days, the Government reported 64 deaths and more than 11,480,000 people were badly affected in regions X, XI, XII, CARAGA and ARMM. While from 260,450 evacuated people decreased down to 108, 991 people as of 27th of January. On 1st of February, another tropical storm struck central Philippines named Basyang, which caused floods and landslides in Cebu and Southern Leyte. 3 people died and over 18, 000 people evacuated.

According to Allad-iw (2009), there were 40 recorded landslides which occurred on Baguio City which caused 250 deaths and many were missing after the non-stop rain brought by Typhoon Pepeng. "Provincial governors are claiming even higher numbers, as rescue and recovery teams are finding more bodies in mud and debris." Because the location of the area was the western half of the rugged Cordillera mountain range. According to Allad-iw (2009), Mt. Province Governor Maximo Dalog said that his province has recorded 40 deaths and 10 people were missing. He also requested for search dogs to sniff out bodies buried in the mud and choppers for evacuating the wounded including one survivor who needed a foot amputation to save his life. The governor also added that the intensity of the landslides was the first time in recent memory. The province also experienced loss of electricity along with the damages of the province.

**Internet as Communication Tool**

For years, the internet have already used by millions of people. The internet has made peoples' lives easy connecting from one person to another even with different locations and time zones. The internet can be used as a communication tool especially on the researcher's study through website. The website cannot be viewed by the target readers without internet connection.

**Website as Promotional Tool**

According to Spritz Web Solutions (2012), "An attractive site is far more likely to generate a positive impression and keep visitors on your site once they arrive." A good website is a definite go-to of readers. Once the readers appreciate the design and the information stated on a website, the readers will always visit and read from the website, thus making the researchers' goal. Which is to inform readers about the harmful effects of landslides and on how the readers can prepare.

**Synthesis**

On this study, the researcher was able to gather information about different occurrences of landslides from the local references and on foreign as well. The researcher will be using a website as the key to promoting the researcher's study and through internet as well. The researcher was able to find different kinds of occurrences of landslides from the intensity of the disaster and to the effects the landslides have caused. Using website and nternet, the researcher will be able to make the target readers receive or know about the website. Then, the researcher can inform the readers about landslides.

**Definition of Terms**

**Bedrock** - the solid rock that lies under the surface of the ground.

Weathered - seasoned by exposure to weather.

**Ms & Mw** - moment magnitude scale , abbreviated MW. The moment magnitude scale is based on the total moment release of the earthquake.

**Slope** - an upward or downward slant.

**Rockfall** - a mass of falling or fallen rocks.

**Infiltration** - is the process by which water on the ground surface enters the soil.

**Liquefaction** - conversion of soil into a fluidlike mass during an earthquake or other seismic event.

**Alps** - a high rugged mountain

**Slash and burn** - method of agriculture in which existing vegetation is cut down and burned off before new seeds are sown, typically used as a method for clearing forest land for farming.

**Typhoon Belt** - is the area where most typhoons occur.

**Internet** - an electronic communications network that connects computer networks and organizational computer facilities around the world.

- is a global network connecting millions of computers.

**Website** - a place on the world wide web that contains information about a person, organization, etc. and that usually consists of mny web pages joined by hyperlinks.

**Phenomena** - an extraordinary occurrence or circumstance.

Mass movements/Earthquakes - a shaking of a part of the earth's surface that often causes great damage.

**Hazardous** - full of risk.

**Chapter III:**

**Theoretical Framework**

On this chapter, the readers will see how the study of the researcher will be strengthened by the website and be viewed by the target readers.

**Information Theory**

The first theory that can support this study is the Information theory. According to Cisne, Ziombowski, & Schwager (2010), "Theorizing about how best to recover accurate messages from noisy signals goes back many centuries to scholars who endeavored to reconstruct ancient texts from variously miscopied manuscripts." Failures of sending and receiving of messages not only occurred today but also from centuries ago.

As stated by Fromer (n.d), Fromer quoted Shannon, C. (1948) saying "Shannon sought to explain how much information could be sent per second over communication channels, and how best to encode messages to transmit them over these channels." Fromer (n.d), then added that, "Shannon's information theory overs all sorts of communications, such as written and spoken language, musical sounds, and films." Creating and transmitting messages becomes more complicated when the communication channel or the website or telephone are experiencing noise or the slow or the loss connection, thus the channel corrupts or loses upon transmission. After having the unfortunate experience with such noise, the recipient then receives a message different from the one originally sent or worse, receives nothing at all.

**Information Richness Theory**

The second theory that can support this study is Information Richness theory. According to Bidin, Tamam, & Ahmad (2011), Rich media are considered as good and effective to be used at any informative paper, website, etc. Information Richness Theory was described as a communications medium because of its ability to reproduce the information sent over it. "Media Richness Theory says that the criteria for ranking a medium's ability to carry information can be based on the ability of the media to; relay immediate feedback, provide feedback cues such as body language, allow the message to be created or altered specifically for an intended recipient, and transmit the feelings or emotions of the communicators. Media properties such as richness are posited to be subjective influenced to some degree by attitudes, statements, and behaviors of others in the workplace."

As stated by Patrakosol & Lee (2013), "Delivering rich information is the key success factor for service business websites." Because websites rich in not only plain informations but also with photos and videos and other related graphic designs are said to be more interesting to read and to look at not only for teenagers or children but to adults as well. Having rich media websites increases the viewers attention, thus making the viewers more interested to the website and to the company itself. "Providing rich information through their websites is an essential part of successful service business. Rich information on website helps a business effectively communicate about itself and its products and services to its customers." The richer the website is with informations and other helpful graphics the better. Because rich information helps the viewers deal with their confusion on their own. Rich information leaves individuals to read and clearly understand the stated information on a specific website. Obviously, websites with low richness or lean mediums hinders the viewers from understanding the website. On the researcher's website, information richness will take a huge role on making the viewers easily understand what the researcher wants the viewers to understand.

**Network and Analysis Theory**

The last theory that can support this study is the Network and Analysis Theory. According to Rauch (2010), with the help of connections from one to another person, no one will ever suffer. People can use the connections in order to update a specific person regarding a specific study. Therefore, through the passing of information from one to another all the participants will be benefitted. Just as how the researcher's website will be known to the student body and from outside the campus. People will know about the website and soon will be able to view and read about landslides.

Figure I:

Theoretical Framework

ENCODER

MESSAGE

SOURCE

NOISE

CHANNEL/RICH MEDIA

DECODER

/NODE

/NODE

/NODE

RECEIVER

RECEIVER

RECEIVER

Figure I Illustrates the theoretical foundations of this study the Information Theory, Information Theory and Network and Analysis Theory. The theories used in this study mainly focused on how the information will be distributed or on how the information will reach the target audience. The Information Theory is the main figure on this diagram where it shows that the message or the information from the top will be delivered to the bottom or to the receivers successfully or not. The Information Richness Theory is located in the middle because it will be a great help especially to the website. The Network and Analysis Theory is at the bottom part where the receivers are, because this theory is responsible on how the website and the contents will be spread about even without Internet Connection but from one viewer who will inform other people such as friends, classmates, family members, etc.

Figure II:

Conceptual Framework

SOURCE

INTERNET CONNECTION

INFORMATION

RICH MEDIA WEBSITE

DEVELOPER

BROWSER

USERS

USERS

USERS

Figure II shows the Conceptual framework wherein the shown diagram illustrates hints on what the theories tries to explain. Starting from the source the information will be created and posted by the developer to the rich media website. Then the information will be seen at the desired browser but the transmission of the message depends on whether the rich media website will be experiencing the noise which is the internet connection. If the connection is not interrupted then the information will then be received by the users, which will be passed on to user 1, user 2, and user 3.

Figure III:

Operational Framework

SOURCE

SLOW OR NO INTERNET CONNECTION

DO’S AND DON’TS DURING, BEFORE AND AFTER THE OCCURRENCE OF LANDSLIDES

landmoves.com WEBSITE WITH INFORMATION, PHOTO AND VIDEO

DEVELOPER

GOOGLE CHROME

RESEARCHERS

CONCERNED

CITIZENS

AND ABOVE

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Figure III illustrates the diagram of the Operational Framework which shows the exact framework to be done by the researcher. The researcher's project contains the do's and don'ts during, before and after the occurrence of landslides to be encoded/developed by the developer which will be posted on the rich media website which will be the [landmoves.com](http://landmoves.com) which will have informations, photos and videos because the researcher used the information richness theory. The website will be viewed on the browser which is the Google Chrome but that depends on whether the viewers have internet connection if not, the viewers will not be able to see the website. If so, the viewers will then see, read and learn from the website and will possibly pass on the information from other researchers, students or non-students age 12 and above and to concerned citizens. Only then, the researcher's website will be helpful to not just the researchr itself but also to many people.

Chapter 4

Research Methodology

**Research Design and Methods**

The Researcher will be using quantitative method. To be specific, survey questionnaire will be used to gather information from students. The study will be focusing on the students from St. Scholastica's College Manila. The questionnaires will be given to them personally inside the campus because the place is convenient for both the researcher and the students who will be included.

**Variables and measures**

The [landmoves.com](http://landmoves.com) website will be designed to researchers aged 12 and above or as long as the reader is able to understand what will be stated on the website. The website could only be accessed with an Internet Connection and on Google Chrome, to be specific. The researcher will be using quantitative method where the researcher will be using the information from the answers of the students from the survey questionnaires. Since the study is about landslides, the website will be created for both men and women. The website will also be an informative website which will give the readers information not only about what landslides are but also percentages of people around the campus who are knowledgeable about landslides and/or who experienced landslides.

**Research instruments**

On this particular study, the researcher will be using the quantitative method. Which will require the usage of survey questionnaires. The researcher thinks that this method to be used is best for the study. The researcher will be constructing series of questions for the questionnaire regarding landslides. The survey questionnaires will be given to the high school students and also to college students depending on who are free to answer the questionnaires. The researcher will be using the quantitative method partnered with survey questionnaires because this will give the researcher the number of people or students who knows or who experienced landslides.

**Units of Analysis**

The researcher needs students who is knowledgeable about landslides or, if possible, students from St. Scholastica's College Manila who experienced the terror of landslides.

**Data Gathering**

The survey will be conducted during lunch break and on dismissal time, where students are free and will be able to answer the questionnaires to be given. The survey questionnaires will be distributed to the students during their free time and the researcher will also be conducting surveys using google to be sent through facebook to other students who have time to answer the survey and will be retrieved after they have answered the questionnaires.

**Data Analysis**

Since the researcher will be using quantitative method, the retrieved responses from the respondents will be analyzed in terms of the similarities and differences on their answers. All similar responses will be grouped together.

**Scope and Limitations**

The study will be focusing on the development of an informative website about landslides. The target viewers of the website will be students ages 12 and above, specifically from the High School and College Department, who are knowledgeable regarding landslides and/or who experienced landslides. The website will also be free to access by non-students of St. Scholastica's College Manila who are interested in learning more about landslides. The website will be covering information about landslide with its effects on people and also to nature, also the researcher will be adding preventive tips before, during and after the occurrence of landslides.

**B. Project Development Methodology**

The researcher will research more about landslides with the help of survey questionnaires from different respondents to build an informative website. The contents of the website will base on the information gathered from different articles and books along with the answers of the respondents. The researcher will be creating a rich media website which will be seen with texts about landslides, photos of the different types of lansdlide to be expected, and the researcher will also include a video to help the viewers to learn more not just by simply reading.

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