AN INFOMATIVE WEBSITE OF FLOODS

In partial fulfillment for Capstone Proposal

Bachelor of Science in Information Technology

With Multimedia Arts

School of Arts and Sciences

Department of Information and Technology

St. Scholastica's College - Manila

**Flood Protection**

Cheyenne T. Suarez

March 2015

**Table of Contents**

CHAPTER 1: INTRODUCTION

Background of the Study 4

Statement of the Problem 4

Objective 4

Significance of the Study 6

CHAPTER 2: REVIEW OF RELATED LITERATURE

Flood in Philippines 7

Flood in Other Country 10

Role of the internet 10

Safety Measures 11

Synthesis 12

CHAPTER 3: STUDY FRAMEWORKS

Information Theory 14

Information Richness Theory 14

Network and Analysis Theory 15

Theoretical Framework 16

Conceptual Framework 17

Operational Framework 18

CHAPTER 4: METHODOLOGY

Research Design and Methods 19

Concepts and Indicators / Variables and Measures 19

Research Instruments 20

Questionnaire (Research method)

Personal Interview Guide (Research Method)

Units of Analysis 20

Data Gathering 20

Data Analysis 21

Scope and Limitation 21

Project Development Methodology 22

REFERENCES 24

**Chapter 1: Introduction**

**Background of the Study**

The Philippines is located in the Pacific typhoon belt with most of the population. According to [Wyrsch](http://search.proquest.com/indexinglinkhandler/sng/au/Wyrsch,+Dave/$N?accountid=34320) (2009) Flood is a terrible consequences that can cause. According to Slater, Singer and Kircher (2015) Flood is a major hazard to lives and infrastructure. According to Environmental Protection Agency (n.d) flood is the rising of water in rivers, creeks, lakes and other bodies of water overflows to lower areas. This could be the result to the destruction of property and loss of life. According to Joshuad (2012) Floods occur when water overflow in any bodies of water.

According to Redd (2012) A fast and slow moving of water, it can create in the sense of problems for people who underestimate their power. According to Environmental Protection Agency (N.D.) attempting to drive through flood water is the leading cause of [flood related injury and death](http://www.livescience.com/19087-hidden-flood-health-risks.html). The Six inches of moving water can cause losing balance and fall. The plan is to avoid flood water when at all possible and to make for higher ground or go to the evacuation center and wait for the flood to be vanish. Flood is the rise of water in rivers, creeks, lakes and other bodies of water overflows to lower areas. This could be the result to the destruction of property and loss of life.

According to [Sunmoni](http://www.blogger.com/profile/15507254472621987700)(2012) A flood is caused by a combination of heavy rainfall and overflow of any bodies of water, cause of too much rainwater that overflow rivers, lakes, creeks and bodies water that can spread. Flood can be when lots of heavy rainfall it can happen quickly in a short period of time. Flooding is primarily caused by natural weather events in heavy rain. When there is heavy rainfall in a short period of time, ready for flood approach. The extensive rainfall for a long or short period of time it can cause of flood. A flood is also occur when the water it overflows, which cause of heavy rainfall. Plug drainage basic problem in all areas because of trash and other that cause can of plug drainage. The effects of flooding includes damage to homes and properties, loss of lives, destroy in livelihood and communications and economic loss to the Government. Because businesses may lose stock, sponsorship and productivity. Flooding can also affect infrastructure. In Tourism, agriculture and transportation can also be affected. In Road links, canals, rail links may become damaged. The repair cost of the damaged infrastructure is very high and long period of time to replace. Water supply can lost or contaminated to the health effects as well. Dam are built along the course of a river. This helps to control the amount of water available for discharge and excess water is held back in this way and released in a controlled manner. This approach helps to reduce the risk of flooding. Drainage should be properly planned and well maintained. Clogging is cause of litter of trash it can cause of increase the risk of flooding. A forestation or the planting of trees should be practiced in areas that prone to flooding. This is a environmentally friendly approach to reduce and prevent floods.

**Statement of the Problem**

How can the Flood Protection website inform the people about floods?

**Objective**

The main objective of this project is to create a website that inform the people of flood.

**Significance of the Project**

The significance of this informative website is to give benefits to Flood websites, Target users, and other researchers and to the researcher himself/herself. The website has an basic information that will helpful to the users.

1. **Flood websites:**  This study has significance to the Flood Protection in providing basic information regarding to the government website that is highly advance. The website providing basic information about floods.
2. **Target users:**  This study has significance to the target users of the Flood Protection is children ages 7- 12 years old. Because it can help the users to know more about Flood, the user can get information about flood like what is flood. cause and effect of flood, before and after the flood, flood hazard.
3. **Other researcher:** This study has significance other researcher because it can provide information about flood.

**Chapter 2:Review Related Literature**

In this study, the researcher planned to have a website that would determine the definition of floods, type of floods, cause and effect of floods, Floods hazard term and before and after the floods. The effectiveness and useful for having a website with photos and animation. The Purpose of the website to show the users, especial children to know about floods with more information to help them gain more knowledge.

According to Beal (n.d.) A site on the [World Wide Web](http://www.webopedia.com/TERM/W/World_Wide_Web.html) (WWW). Each Website has a [home page](http://www.webopedia.com/TERM/H/home_page.html) that can contain information to the users. It can be an pdf, text, document. An individual, company or organization is own and manage in each site. According to Beal (n.d.) Internet is a global [network](http://www.webopedia.com/TERM/N/network.htm) connecting millions of [computers](http://www.webopedia.com/TERM/C/computer.htm). It is link to exchanges of [data](http://www.webopedia.com/TERM/D/data.htm), news and opinions, Internet users worldwide. Host is a independent to each Internet computer. Operators can choose which Internet services to use and which [local](http://www.webopedia.com/TERM/L/local.htm) services to make available to the global Internet community. There are a variety of ways to [access](http://www.webopedia.com/TERM/A/access.htm) the Internet. Online services offer access to Internet services. It is also possible to gain access through a commercial [Internet Service Provider (ISP)](http://www.webopedia.com/TERM/I/ISP.htm).

**Flood in Philippines**

According to Stoutjesdijk (2014) Metro Manila and surrounding areas, is exposed to frequent flooding. In 2009, Tropical Storm Ondoy and Typhoon Pepeng brought extensive rainfall over the area, most of the city under water, affecting the population and assets of the entire Manila region. In total, the losses caused by Tropical Storm Ondoy and Typhoon Pepeng amounted to approximately US$4.4 billion or 2.7 percent of the gross domestic product (GDP).

According to Larano, Cuneta (2014) The National Disaster Risk Reduction and Management Council reported the total number of people is 132,379 have been evacuated in 10 provinces due to floods caused by rains brought by the Northeast monsoon due Typhoon Yolanda.

According to Salaverria (2014) There are three projects. First project to be completed in July is the P1.5 billion Valenzuela - Obando - Meycauayan project, which consists of the construction of a flood control wall along the Meycauayan River in Valenzuela City and Obando, Bulacan. The second is the P600 million Kamanava Project that consists of the drainage rehabilitation. The rehabilitation of the riverwall along the Malaban-Tullahan River, and the construction of pumping stations and floodgates in the area. The Caloocan-Malabon-Navotas-Valenzuela area is flood prone. The waters rise in the streets even if there is little or no rain. The third project to be completed by the end of the year in 2014 is expected to reduce floods in Manila, including the regularly submerged areas near the University of Sto.Tomas. The P479 million Blumentritt Interceptor Catchment Area is a 3.3 kilometer long and two meter deep culvert that runs all the way to Tondo. It will drain water from Quezon City that goes to the Sampaloc area in Manila and drain it toward Manila Bay.

According to Larano (2014) [typhoons](http://online.wsj.com/articles/remote-villages-in-philippines-still-struggling-after-super-typhoon-1405414386?KEYWORDS=typhoon%20haiyan) occur in the Philippines from July through November, which causes widespread damage. [Typhoon Kalmaegi](http://online.wsj.com/articles/typhoon-kalmaegi-hits-the-philippines-1410753807?KEYWORDS=typhoon%20kalmaegi) (Luis) killed eight and displaced around 18,000 people in northern Philippines. Weather bureau PAGASA said 268 millimeters (10.5 inches) of rain fell over the capital over a 24-hour monitoring period. A volume that was almost equivalent to the average rainfall for the entire month of September. After the flood events brought about by typhoons Ondoy and Pepeng in September and October 2009, that caused severe damage in Metro Manila and surrounding areas. World Bank has provided a technical grant in the amount of $1.5 million under the Global Facility for Disaster Reduction and Recovery Trust Fund of the Australian Agency for International Development (AusAID).

According to Mullen (2013) the disaster council reported that seven people had so far died as a result of the rain and floods, most of them by drowning. The deaths occurred across various provinces on the main Philippine island of Luzon. More than 130,000 people have had to leave their homes and seek shelter with friends and relatives or in evacuation centers, the council said.

According to Celis and Directo(2013) eight people have died, including four who drowned north of Manila. The dead included a 5-year-old boy whose house was hit by a concrete wall that collapsed, and a 3-year-old boy was drown in the river in Mariveles town in Bataan province and four people are missing. Social Welfare Secretary Corazon Soliman said more than 200 evacuation centers were opened in Manila and the surrounding provinces, filled with tens of thousands of people. Overall, more than 600,000 people have been affected by the floods.

According to Gomez and Cerojano(2014) the Philippine Red Cross said a man drowned in Caloocan City and the Office of Civil Defense reported that a 2-year-old girl drowned in nearby Quezon City.

According to Macaraig (2012) Damaged watersheds, massive squatter colonies living in danger zones and the neglect of drainage systems are some of the factors that have made the disorder city of 15 million people much more expose to massive floods.

**Floods in other Country**

According to Phiri (2015) The United Nations World Food Programmed ([WFP](http://www.wfp.org/)) announced today that it has begun distributing high-energy biscuits in Malawi following the devastating flooding that displaced more than 100,000 people and reportedly killed at least 50 others in recent weeks. Relief efforts in Malawi and neighboring Mozambique, where heavy rains have caused severe flooding, displaced thousands of people and left scores dead.

Luo, Maddocks, Iceland, Ward, Winsmius(2015) September in 2014 a heavy monsoon rains triggered floods in India and Pakistan that claimed more than 500 lives. More people are affected by floods than by any other type of natural disaster.

According to Carbone and Hanson(2012) The devastating nature of recent floods in Australia have meant that they often hit the headlines. Atleast 951 people were killed by floods, another 1326 were injured, and the cost of damage reached an estimated $4.76 billion dollars. Floods can devastate local communities.

**Role of Internet to Flood**

Järvinen (2014) Social networks serve as a channel quick sharing of information. They were in a key role in facilitating evacuations and rescue, and become even more important than the mainstream media as sources of information.

In the Philippines, The DOST, Project NOAH, and PAG-ASA give to the users the information that they need to know, like areas are prone to floods, warning system and many more.

**Safety Measure**

### To increase or ensure safety or protection from danger of flood According to [SES :: Flood Information](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=7&ved=0CDsQFjAG&url=http%3A%2F%2Fwww.ses.sa.gov.au%2Fsite%2Fcommunity_safety%2Ffloodsafe%2Fflood_information.jsp&ei=nDwFVbi7E-PDmQW7xYLIDg&usg=AFQjCNHyn5Vm7mqwXoP2yT16tD2m-c6JXw&sig2=8E_9qY21i87VncpUJ3pEPg&bvm=bv.88198703,d.dGY&cad=rja) (n.d.) the researcher list the highlight of safety measure.

#### Before a flood

* You should prepare an emergency plan and an emergency kit in advance
* Keep drains clear of debris; sweep up fallen street tree leaves
* Move valuable items, and hazardous items and chemicals that may react with water, to a higher level
* listen to your local radio station for forecasts and warnings
* Place important documents, personal effects and vital medical supplies in a waterproof case
* Ensure your pets are safe by including them in your emergency plan

#### During a flood

* To report an emergency
* Secure your property and valuables
* Turn off power sources and do not turn anything on again until it is safe to do so
* Have waterproof bags ready to protect clothing
* Never attempt to drive in floodwaters
* Stay in evacuation center
* Stay tuned to local radio for current weather advice and warnings

#### After a flood

* Before entering your property make sure it is safe to do so and the floodwater has dropped below floor level
* Do not turn on any lights or power until a qualified electrician has checked the entire electrical system in your home, including all appliances
* Do not allow children to play in or near floodwaters
* Boil tap water until supplies have been declared safe
* When floodwater rises, it is common for spiders, snakes, rats and mice to look for a drier home - often inside our properties. If you have floodwater through your property check for unwanted visitors

**Synthesis**

Thought internet it can be present all over the world. Using Website as the tool is the cheapest way to be discovered at every time. It can also quickly notice the website, in order to gain attention to the users. Website can become so popular because, providing two major benefits to the users: the information and convince to the users. The internet truly changed the world in today's generation.

The role of internet has truly changed people's life today. The society has become more independent with it especially when it comes to seeking information. The internet has made doors to more websites that about floods in different own ways. The internet brought a lot of advantages to websites users. The internet is a growing, but in flood its growing to the cause of casualties that in each country has an effect on it like many people who are affected, killed, injured, manmade like clogged drainage, need a relief good and economic related like farming, poultry, meat and other.

It opportunity to spread the ideas that users should know. For every users that seek more about in flood. The website will inform the users about floods that the cause and the effect, safety measure and other knowledge about of floods that the user need to know. The role of information technology to floods to help the users inform more about what the users need to know about flood like cause and effect of flood, flood alert level, safety measure flood and other basic like what to bring in evacuation center and stock before the flood.

**Chapter 3 : STUDY FRAMEWORKS**

Theoretical foundation is about giving the theories that can support this study.

**Information Theory**

The first theory that can support this study is the Information theory. According to Shannon (1948) Information Theory is a mathematical communication, it is representation of condition and parameters affecting the transmission and processing. Information theory had element which are Source, Encoder, Channel, Noise, Decoder and Receiver. The source is the one who produce the message, the encoder is the one to connect, the channel is the medium to connect, the noise is the problem where the channel had difficulties to connect, decoder is when reach to the other person to connect and lastly the receiver is the recipient.

Information theory can be seen in this study for Flood Protection Website is informative and it will gives out the information needing by the users. The information theory can help to make a Flood Protection Website, that will able the users to know when before and after and cause and effect of flood when at their area occur. The information theory will completely support this study for the website and it will be informative and useful to all users.

**Information Richness Theory**

The second theory that can support my this study is the Information Richness Theory, sometimes it is referred to Media Richness and introduced by Richard L. Draft and Robert H. Lengel (1984). According to Daft and Lengel (1984) Information richness as the ability of information to change understanding within a time interval. The communications that can overcome different types of reference and clarify the issues to understanding the timely manner are considered more rich. the communications that take a longer time to convey understanding are less rich. in addition the Information Richness has to elements one is leaner medium and the another one is Rich Medium. Leaner Medium when it will apply into the website the users can found out only text only, while in Rich Medium when it will apply into the website the user can found out are more in graphic and few text.

The Information Richness Theory will show in this study that Rich Medium will be the users choice in which page tend to go and the content of the website are graphics and few text. Flood Protection Website will be an instrument for the children 7-12 years old and will able to inform the users what they need to know more.

**Network and Analysis Theory**

The third theory that can support this study is the Network and Analysis Theory. Network and Analysis Theory have an alternative names Network Theory and Social Network Analysis. According to Simmel and Durkheim (n.d.) the concept of social network. According to Gretzel (2001) that cited Simmel and Durkheim (n.d) Social network analysis is based on an given of the importance of relation among interacting units. Social Network analysis views social relationship in terms of network theory consisting of nodes and ties. Node are the individual actors within the network and ties are the relationship between the actors.

The Network and Analysis it will show in this study is the Nodes and Ties. Nodes will be the users, that will be children around 7-12 years old that will access the website and the ties will be the each user that will be connected to each other.

**Theoretical Framework**

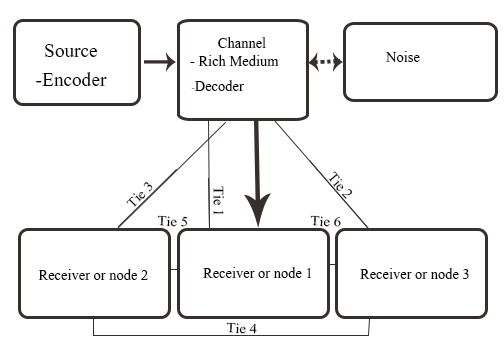
****

Figure 1: Theoretical Framework

Figure 1 Illustrate that Information Theory, Information Richness Theory and Network Analysis Theory. The source and encoder will be put into one place because the source will be encoder as well. Then it will go to the Channel in the channel there will be the Rich medium and Decoder. Then it will go to the noise if there is a problems and it will go back to the Channel. Then it will go to the receiver or Node and the receiver has receivers or Node 1, receiver or Node 2, receiver or Node 3 and more. Lastly the Tie that connect each Receiver or Node to each other and to the channel.

**Conceptual Framework**

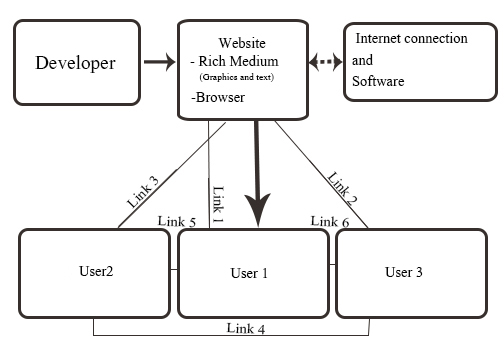
 Figure 1 Illustrate that Information Theory, Information Richness Theory and Network Analysis Theory. Developer to the Website the rich medium is base content Browser Sometimes there will be a problem maybe it will be not readable of the software using to the browser or the internet connection. Then the user will access the website in each user who will access the have link to each user and the website.

Figure 2: Conceptual Framework

**Operational Framework**

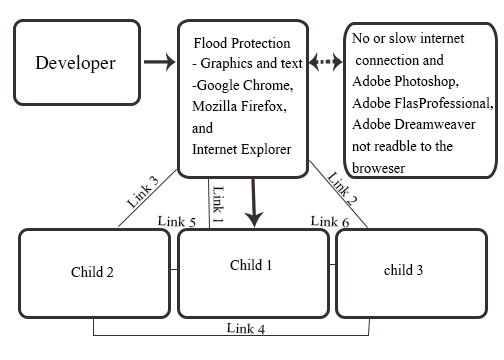
****

Figure 3: Operation Framework

Figure 3 Illustrate that Information Theory, Information Richness Theory and Network Analysis Theory. The Developer will be in charge to the source and the encoder. Then the Flood Protection will be contain graphic and few text and it can view by using Google Chrome, Mozilla Firefox and other browser. Sometimes there will be a problem maybe it will be not readable of Photoshop, flash, Dreamweaver to the Google Chrome, Mozilla Firefox, and others or the no or slow internet connection. Then the child will access the Flood Protection in each child who will access the have link to each user and Flood protection.

**Chapter 4: Methodology**

**Research Design and Methods­­**

The aim of this study able to create an informative website about floods. In order to satisfy the user needs, the researcher will conduct a multi method research. The research will conduct, first a quantitative method through a survey that will cover the questions about the users need of a website. The data will gathered from it will be use for a basis for the design and information of the website. Second a qualitative method will be done through personal interview where the researcher will interview the children ages 7-12, able to gather information about the children knowledge about floods and it will help to the researcher able to build the website that the user needing for the information in the website.

The researcher intend to use the multi method approach because it will provide information for the researcher able to meet the expectation of the users. It is important for the researcher to able consider and set the user's needs as the important factor in creating a website.

**Concepts and Indicators / Variables and Measures**

The study will be focused on children to collect different perspectives and point of view about floods. Children to richness their idea about floods. This is participate by children range of the ages 7-12 years old because it is the main purposed of this capstone project.

**Research Instruments**

**Questionnaire (research method)**

The researcher will conduct an survey to a random children ages 7-12 years old regard to the location. The survey will cover the questions their age, experience of floods in their place , floods hazard, type of floods, cause and effect of floods.

**Personal Interview Guide (research method)**

The researcher will perform a personal interview with the children ages 7-12 years old, to allow the researcher to gather information what they knowledge about floods it will allow the researcher to know what information and design to put in creating the website the researcher will benefit in the interview, for the researcher it will gather all the information about the needing of the users would want and would like to see in the website.

**Units of Analysis**

The survey used individual and group interview as its units of analysis, if it focused on every individual who would take part in the study to determine their point of view and perspective about floods. The collection of data it will help to have useful website for them to use.

**Data Gathering**

A random sampling will be given to different children ages 7-12 years old, it will be composed of question that will be answer in their needs as a users of the website. After the survey the researcher will summarize all answers. On the other hand the interview will be done through one too many to the children, the researcher will gather relevant information that will be useful for the users.

**Data Analysis**

The descriptive statics will be applied to the data that the researcher will be the one collecting data from the survey and analyze the data from the interview able to allow the researcher to study the concept and its effect to the users.

**Scope and Limitation**

The study will focus on the floods. The researcher will focus on the information gather to develop a website that the layout and content it would base on the survey and interview of the users, the users will be at the range of 7-12 years old only. To create a website software using Adobe Photoshop for the layout and photo editing, Adobe Flash Profession for the animation and Adobe Dreamweaver for the coding of the website. The content of the website definition of floods, type of floods, cause and effect of floods, Floods hazard term and before and after the floods. Able to create an informative website of floods, which named the website Floods Protection.

**Project Development Methodology**

**INPUT**

KNOWLEDGE REQUIREMENTS

* Information about floods.

SOFTWARE REQUIREMENTS

* ADOBE PHOTOSHOP: use to edit interface and editing photos.
* ADOBE FLASH PROFESSIONAL: use to create an short animation.
* ADOBE DREAMWEAVER: use for the development website
* WEB BROWSER
* Google Chrome
* Internet Explorer
* Mozilla Firefox
* XAMPP
* PHP, MYSQL

HARDWARE REQUIREMENTS

* Laptop/Personal Computer
* Internet Connection
* Flash/Hard Drive

**PROCESS**

DATA GATHERING

DESIGN

* Interface Design
* Web page layout
* Photos of flood
* animation of flood
* Navigation Buttons

DEVELOPMENT

* Create an interface design using Adobe Photoshop l
* Create Banners and animation in using adobe Flash Professional
* Coding in Adobe Dreamweaver to make a website
* add important information to the website
* Testing and Debugging
* Hosting Service
* Upload on Website
* Test all navigation buttons
* Invite Users

**OUTPUT**

*FLOOD PROTECTION*

**Evaluation**

Conduct a survey or system Evaluation

**Figure 4: INPUT-PROCESS-OUTPUT**

In the figure 4 above, the researcher in the Input, must have an knowledge on floods, the researcher have knowledgeable at the software using in Adobe Photoshop, Adobe Flash Professional, Adobe Dreamweaver. The website it can access to any browser like Mozilla Firefox, Internet Explorer, and Google Chrome. Xampp in PHP and MSQL it can help to create a website. In the Process the developmental stage of the website that the design is being process and the output it will be the website itself it is called Flood Protection and lastly the evaluation if the website if it is helpful to the users.

**References:**

Beal, Vangie (n.d.) Website. Retrieved March 8, 2015 From http://www.webopedia.com/TERM/W/web\_site.html

Beal, Vangie (n.d.) Internet. Retrieved March 8, 2015 From http://www.webopedia.com/TERM/I/Internet.html

Carbone, Delana & Hanson Jenna(2012)Floods: 10 of the deadliest in Australian history. Retrieved March 8, 2015 from http://www.australiangeographic.com.au/topics/history- culture/2012/03/floods-10-of-the-deadliest-in-australian-history/

Celisa, Noel & Directo, Jay(2013) Record-breaking floods in the Philippines kill at least 8.Retrieved March 8,2015 from http://www.nydailynews.com/news/world/record- breaking-floods-philippines-kill-8-article-1.1431854

Cerojano, Teresa &Gomez, Jim (2014)Flood shut down Philippines capital, 3 killed. Retrieved March 8, 2015 From http://www.usatoday.com/story/news/world/2014/09/19/philippine-capital- floods/15886695/

Draft, Richard L. &Lengel, Robert H. (1984) Media Richness Theory. Retrieved March 9,2015 From https://www.chds.us/coursefiles/IS4010/lectures/tech\_media\_richness\_long/page\_ 2.html

Draft, Richard L. &Lengel, Robert H. (1984) Media Richness Theory. Retrieved March 9,2015 From http://www.campus- adr.net/ODRmodule/media\_richness\_theory.html

Durkheim, Emile & Simmel, Greorg (n.d.) Social Network Analysis: Introduction and Resources. Retrieved March 9, 2015 From http://train.ed.psu.edu/WFED- 543/SocNet\_TheoryApp.pdf

Gretzel, Ulrike (2001)Social Network Analysis: Introduction and Resources. Retrieved March 9, 2015 From http://lrs.ed.uiuc.edu/tse-portal/analysis/social- network-analysis/

# Joshaud(2012) Floods Causes, Effects, Prevention and Control Measures. Retrieved March 8, 2015 from http://joshuad.hubpages.com/hub/Floods-Causes- Effects-Prevention-Control- Measures

Larano,Cris & Cuneta , Josephine (2014) Deadly Flooding Hits the Philippines At Least 13 Killed by Drowning, Landslides After Days of Incessant Rain. Retrieved March 8, 2015 from http://www.wsj.com/articles/SB1000142405270230404970457931757051201373 0

# Larano, Cris (2014) Tropical Storm Fung-Wong Causes Floods in Philippines. Retrived March 8, 2015 From http://www.wsj.com/articles/tropical-storm-fung-wong- causes-floods-in-philippines-1411112762

# Luo,Tianyi; Maddocks, Andrew; Iceland, Charles; Ward,Philip & Winsemius,Hessel (2015) World’s 15 Countries with the Most People Exposed to River Floods Retrived March 8,2015 From http://www.wri.org/blog/2015/03/world%E2%80%99s-15-countries-most- people- exposed-river-floods

Macaraig, Mynardo(2012) Philippine floods a man-made disaster-expert. Retrieved March 8, 2015 from http://newsinfo.inquirer.net/246867/philippine-floods-a-man- made-disaster- experts

Mullen, Jethro (2013) 7dead as flooding in Philippines bring Manila to a standstill. Retrieved March 8, 2015 from http://www.cnn.com/2013/08/20/world/asia/philippines-floods/index.html

#### Phiri, Dannie (2014) Major floods in Malawi, Mozambique force thousands to flee their homes – UN. Retrieved March 8, 2015 From http://www.un.org/apps/news/story.asp?NewsID=49820#.VP0ChxZ4nIU

#### Philiri, Dianne (2014) Flood victims in Malawi in urgent need of food, other relief aid, UN warn. Retrieved March 8, 2014 From http://www.un.org/apps/news/story.asp?NewsID=49894#.VP0CgxZ4nIU

# Redd, Nola Taylor (2012) Flood Facts, Types of Flooding, Floods in History. Retrieved March 3,2015 from http://www.livescience.com/23913-flood-facts.html

# Salaverria, Leila B.(2014) 3 flood-control projects to be completed in 2014, says DPWH. Retrieved March 3,2015 from http://newsinfo.inquirer.net/600754/3-flood- control-projects-to-be-completed-in-2014-says-dpwh

### [SES :: Flood Information](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=7&ved=0CDsQFjAG&url=http%3A%2F%2Fwww.ses.sa.gov.au%2Fsite%2Fcommunity_safety%2Ffloodsafe%2Fflood_information.jsp&ei=nDwFVbi7E-PDmQW7xYLIDg&usg=AFQjCNHyn5Vm7mqwXoP2yT16tD2m-c6JXw&sig2=8E_9qY21i87VncpUJ3pEPg&bvm=bv.88198703,d.dGY&cad=rja) (n.d) *Flood Information*. Retrived March 15,2015 From http://www.ses.sa.gov.au/site/community\_safety/floodsafe/flood\_informati on.jsp

Shannon Claude(1948) A Mathematical Theory of Communication. Retrieved March 9,2015 from http://cm.bell-labs.com/cm/ms/what/shannonday/shannon1948.pdf

[Slater, Louise J](http://search.proquest.com/indexinglinkhandler/sng/au/Slater,+Louise+J/$N?accountid=34320); [Singer, Michael Bliss](http://search.proquest.com/indexinglinkhandler/sng/au/Singer,+Michael+Bliss/$N?accountid=34320) & [Kirchner, James W](http://search.proquest.com/indexinglinkhandler/sng/au/Kirchner,+James+W/$N?accountid=34320)(2015) Hydrologic versus geomorphic drivers of trends in flood hazard, 42(2), 370-376. Retrieved March 8, 2015 from http://search.proquest.com/docview/1655707129?accountid=34320

Stoutjesdijk, Joop (2014)Towards Integrated Flood Risk Management. Retrieved March 8, 2015 From http://www.gfdrr.org/sites/gfdrr/files/publication/Pillar\_2\_Metro\_Manila.pdf

[Sunmoni](http://www.blogger.com/profile/15507254472621987700), Mobalaji(2012) Flood:Cause and Effect. Retrieved March 8, 2015 from http://ecoremediation.blogspot.com/

[Wyrsch, Dave](http://search.proquest.com/indexinglinkhandler/sng/au/Wyrsch,+Dave/$N?accountid=34320) (2009) What's your flood zone, 81(3),53. Retrieved March 8, 2015 from http://search.proquest.com/docview/194914365?accountid=34320