

Running Head: Flood Control and Management and its Effects on the Psychological Aspect

Flood Control and Management and its Effects on the Psychological Aspects of Life when
Exposed to Traumatic Experience of Flood

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Introduction

In the course of a year it is not a rare sight to see a barangay get ravaged by a typhoon; strong unrelenting forces devastate lives, destroy establishments and businesses, crops and farmlands. In particular, the Philippines being located within the Pacific Ring of Fire, has been classified among the top ten hazardous countries in the world on account of the numerous natural geo-meteorological hazards to which it is constantly exposed. (Viloria Barangay Government Disaster Preparedness, 2014). Not to mention the houses and properties that were built with sweat and blood being destroyed in a blink of an eye. We ourselves are witnesses to these kinds of events that frequently occur in our country. Yet at this frequency we tend to ignore and disregard the danger it brings, for we think that such kinds of situations occur less than we expect. Now as time goes by typhoons and floods get more and more perilous, the danger it brings results in great catastrophes in consequence proliferates a high rate of casualties. This research focuses on how the local government units and the national sector deal with these kinds of trials, moreover it focuses on determining solutions on flood control and management in order to capitalize on the prevention of losing lives. In line with this typhoons don't only result in bringing down constructive establishments but also to the psychological consequences it brings.

This research revolves on the development of local communities in order to safeguard their environment. Our approach on this goal is through developing certain areas related to the rampant elevation of floods; in examples, enhancing sewage systems, development of roads, water reservoir and cleaning of rivers and creeks. Moreover, the contribution and cooperation of the people involved are quintessential parts of the improvement of flood control and management. Furthermore, the solutions to be presented are based on what the LGU's will conduct.

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Mainly, the research focuses on the development and proliferation of the Local Government units and the national sector in creating preventive measures suitable to the barangay they're in. It will also focus on the psychological effects that the typhoon leaves to the people. More so are the economical downfall during catastrophes or natural calamities. In addition to this, the government should do precautionary measures in handling the situation and should create and should long term projects for the barangays. On the economical side, we will also decipher solutions that will contribute to the development rather than the concentration on the disadvantages that can occur on the onset of calamities.

Sub-Heading 1

In a calamity, the local government is always the first to take action. This research will include the protocols and actions that the local government takes during floods and typhoons. In this research, we will not only focus on the local government but also the people. Let us remember that properties are not the only ones affected during a flood. Although the government takes actions in floods and typhoons, it cannot undo the damages to the properties and psychology of the citizens in the barangay. This research will focus not only the local government's actions, but also the flood's effect on the people's lives and psychology. We also need to take into account the psychological effects these calamities bring to the people and their daily lives.

In this research, we will ask the local government some questions about their flood and management plans. Such as, what are the reaction times during a typhoon? Another is, what methods of flood control are used when there is a flood in the majority of the houses in a barangay?

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To fully grasp the coverage of the topic flood control and management, some of the citizens of the barangay will be asked questions such as, what measures are given by the local government to ensure that you, as citizens, are properly taught how to handle floods and the evacuation routes and other important actions that needs to be done by the citizens themselves to lessen the casualties during a flood.

In summary, the research will be focusing on a wide variety of topics related to flood control and management. It will emphasize on the local government's actions and protocols when it comes to flood with compliance of being the first hand responders in conducting SOPs during flooding of cities and municipalities. On the other hand, it will also venture on the psychological impact on a person affected by floods. In order to gather information's and data's we would like to conduct surveys and questions that would cater to our need of factual evidences on the study. Lastly, we would like to induce knowledge to local officials of being able to handle flood occurrences around the vicinity.

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Review of Related Literature

In our qualitative research, the main topic to be discussing is about the flood control and management of a barangay, and the flood's effect on the daily lives (psychological effects) of the people. For us, this is a very important topic, mainly due to the fact that floods and the disasters it causes are very rampant and common in the Philippines. Nature cannot be stopped, but disaster can be. This review of related literature will focus on sources and references from books or articles that has touched the topics of flood management and its effects on the daily livelihood of people. We are also interested on this topic, because as Filipinos, we are also affected by the floods that devastates houses and lives.

This review of related literature will consist of 2 themes. The first theme discusses the actual flood control and management. The last theme emphasizes on the effects of flood in the psychology and daily lives of the people.

The first thing that we would want to cover in this review of related literature are the ways and steps on how the barangay should practice or implement programs about proper flood control and management. This theme will also emphasize on the solutions, causes and variables concerning flood control and management, preferably in the urban areas. There was one source gathered wherein it was stated that "Community participation in flood risk assessment as well as in planning and implementation of risk management measures is a key for the success of flood risk plans"(Tingsanchali, 2012). In relation to the causes of flood that affects urban areas, the main causes are: 1) Excessive spill over from the Marikina Watershed, 2) Overflowing riverbanks and 3) Abundance of low-lying areas, according to Singson R. (2012). For the solutions to the flood we have found two literatures that pertain to natural and man-made solutions. In line with this, the literature that tackles natural solutions states that there are

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growing evidences that solutions can be developed through marshes, forests and in creating a more spacious environment to inject flood water onto rivers and lakes; in addition, restoring reefs and shore lines would greatly affect and contribute to the solutions on over flooding, these natural solutions cater on cost effectiveness since natural coasts, reefs and natural flood plain are largely self-sustaining and it grows stronger. (Smith, M., 2016). Besides natural solutions, man-made creations will also aid on flood management. These solutions according to Green, C.H., Parker, D.J., Tunstall, S.M., (2000) are dams or rather storage that can provide and reduce flood losses. This has an identifiable role to play in some circumstances. In order to conduct the success of these man-made solutions, authorities are required to have a logical approach by analyzing the nature of the flood problem in the area and to identify the available options.

The ways on how the people cope-up with the effects of the flood will be placed in this part as well. Also, the people's resilience on facing such disasters would also be stated here. There are some scales that are created to know the side effects of these floods to the people that were affected. Such scales like "Brief Cope Survey" Connor-Davidson Resilience Scale". Would be used to identify the emotional quotient. (Docena, P., 2015). This is an important factor in implementing a program because with having surveys like this, it would be a big help for the barangay in supplying the needs of their people. Most studies on displaced disaster survivors tend to focus on challenges and needs of survivors from a traumatic perspective. This study sought to fill a gap in the literature by taking positive, agentic, and ecological perspective in examining disaster survivors using the conservation of resources theory as flame. (Docena, P., 2015). In the light of this disasters, traumatic experiences tend to occur and grow because of stresses and depression when survivors experience loss and grief. According to Nadelson, T., (2016), post-traumatic stress disorder (PTSD) is a psychological illness where people repeatedly

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remember, relive or dream about a terrible experience. This disorder may result from a severely upsetting event or psychological trauma. In some circumstances, patients that has this disorder show evident symptoms that include dreams, memories, and flashbacks of the events or mostly tragic incidents that had happened from their past. It may persist for many years.

In conclusion with the existing literatures gathered, I can say that they contribute greatly to the field that they have researched. For students such as myself, or anyone wanting to learn about these topics were to search for it. They would surely find a good research on it. One more contribution would be that other researchers may continue their research one step ahead, for there is already existing research on other topics, they can make a step forward on the research, thus advancing the research. I would say the overall strength of the existing literature would be that they have explained their research in detail. You can grasp the meaning that they want to portray and teach you. Their research truly brings knowledge to the reader. The overall weakness however, was that the research they made, may not be applicable to other countries. For a lot of countries have different cultures, people and a lot of other variables that may make their research not applicable to those countries. That would be in our opinion, the overall weakness of this research. The missing parts of the existing literature could be that some of them could not be up to date. Although they may be 10 years before the current year, that is still a long time, and a lot of changes could have happened. This missing parts could be fixed by updating the research by making another one similar to the previous research. But it still depends on the type of research.

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Methodology

Our research question, “How do citizens cope up with the effects and adversities brought upon by flood?” was our working statement in order to initiate the need of conducting the interview based solely on the situations regarding flood occurrences in the vicinity. In addition, our first research is also guided with our second statement “What actions do local governments take to ensure the safety of the barangay from flood?” in this regarding the actions imposed by the LGUs whenever flood strikes. The topic highlighted points regarding the perspective of different individuals about the procedures made during flooding circumstances. The questions that were inquired to the residents placed great importance of their experiences; it is essential that the questions would be easily understood so that the interviewees wouldn’t have a hard time to analyze and relate with it. Moreover our questions focused on how the residents handled the situation if there is flood in which the barangay has gone through, and how to barangay enforced preemptive measures in ensuring the safety and well-being of the citizens

Our study approach was to recognize the people on their experience on flood in which they were identified to accomplish individual responsibilities during floods. We were able to formulate questions about our concern/topic due to the prominent need of reestablishing the procedural methods that would be needed during flood occurrences. The case that we were able to present would identify the feasibility of the safety procedures when flood occurs according to the need of the barangay and as stated by the barangay official interviewed. In this light our team is the need to know the different protocols and procedures the barangay and its citizen used in dealing with flood. Also, to know the effects of flood on the minds of the citizens.

Our population in the barangay was compassed with 5 people whom we were to interview in which they have their respective roles in the barangay and citizens in the area. Our

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research tool (interview) was the only visible way to receive information or data to prove this research credibility and validity. In gathering data on the psychological impact of flood occurrences. In addition, we are solely reliant to the interview and answers of barangay official regarding their preemptive measures during flood in the barangay. Our questionnaire consists of 3 General Questions and the inclusion of several follow-through question that would gather specifics regarding concerned matters. The research were expect answers based on the nature of their experiences most especially on the psychological matters. The team were to conduct interview with 1 Barangay official, 2 Full-Time worker, and 2 unemployed residents.

Interview protocol was an action to take on interviewee if s/he is ready or not for an interview. In addition, our protocol whenever an interviewee wouldn't fully disclose his/her own opinion is to resort in restating the question or paraphrasing it in order for the interviewee to fully comprehend the question given. If and when the questions wouldn't apply to the interviewee we would instead create or formulate similar questions related to the previous one.

I. General Question: Does your house flood when it storms or rains?

A. How high does the flood infiltrate the house?

B. Did you try to use any countermeasures against the flood?

C. Do you evacuate after your house has been flooded? Where do you stay?

(If no)

A. Why do you think the flood does not penetrate your house?

B. Did you use any countermeasures to prevent flood in your house?

C. Do you help your neighbors after the flood?

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II. General Question: Did the barangay teach you any flood prevention techniques?

A. Where did they teach you these flood prevention techniques?

B. What did they tell you?

C. Do you apply the teachings they've given you? Are they effective?

(If no)

A. They did not even tell you the basics?

B. Did you construct your own plans?

C. How effective are your own formulated plans?

III. General Question: How does flood affect your mental well-being?

A. Do you fear rain after witnessing flood? Do you panic?

B. What is the greatest thing you lost to the flood?

C. What ways do you use to cope up with such trauma?

In the data that will be gathered, it will be themed in these ways. First will be the participant. This theme will be dependent as to who the participant is, and as to what their social status is. The second theme will be about the answers about flood and control management. This theme will rely on both the first theme and the responses as to how flood is managed. More themes can be added depending on the response. If there are a lot of responses with varying meaning a new sub-theme will be made to ensure a more effective coding. The reliance of the second theme on the first theme is because the responses, apart from the themes, will be segregated into who responded, whether the person was a barangay official, worker, or an

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unemployed citizen. The last anticipated theme is very similar from the second anticipated theme as I stated earlier. Since the only difference would be that instead of asking questions about flood and control management, the questions would be about the psychological impact of flood on the respondent. The response will still be segregated into the social status of the respondent whether they are a barangay official, worker, or unemployed citizen. And these responses will also be themed depending on the variety of the questions. If the responses are far from each other, new themes will be created in order for the code to be more proper and effective. This is how the data that will be gathered will be coded.

Information alone is not enough. Our data was validated through the method of triangulation. Triangulation is to triangulate different data sources of information (at least 3) by examining evidence from the sources and using it to build a coherent justification for themes. If themes are established based on converging several sources of data or perspectives from participants, then this process can be claimed as adding to the validity of studies. Three sources were gathered to effectively use this method. The 3 sources were: 1) Barangay Officials, 2) Workers, and 3) Unemployed citizens. The 3 sources were chosen due to each person's different perspective and social status. The barangay officials were in-charge of the barangay. The workers were the middle class of the society. Lastly, the unemployed citizens were on the lower class due to their lack of work. Each person in a different status in life has different perspectives on opinions, and by having chosen citizens with different social statuses, we were able to properly triangulate and validate the data that were gathered.

By having 3 kinds of participants: 1) Barangay Officials, 2) Workers, and 3) Unemployed citizens. We have anticipated 3 ethical issues for each one of our participants. The first anticipated issue, was that we might collect harmful information that is unrelated to the flood. It

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is because we thought that the participant might discuss concerns unrelated to flood. The second anticipated issue was our tone with the people in different status might not be the same. Having this issue may lead to information with discrepancy. The last issue that we have anticipated was that with the little time we have for the interview. We do not have enough time to build up trust for personal questions. This may lead to generic or unpersonal responses. These was our anticipated ethical issues regarding our interview.

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Results and Findings

In this chapter, we look into the specific parts of the answers of the participants in which we are after to the descriptive results on how they cope in the situation in flood and psychological impacts on human beings. We analyzed the data by the means of the themes we used; namely flood, effects of flood, flood description, barangay countermeasures, personal countermeasures, psychological and psychological impacts. In this manner, we would deeper understand the essence of finding the answers of our objectives in this research.

The datas gathered were subjected to a triangulation method of validation in order to procure a fundamental and evident result from the sources that we had. The following sub-units are emanating from complex information found from the research results, the following sub-units are as follows:

- 1.) Flood
 - a.) Description
 - b.) Effects
- 2.) Psychological
 - a.) Impact
- 3.) Barangay
 - a.) Countermeasures
- 4.) Personal
 - a.) Countermeasures

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These sub-unit are key points and guidelines for easier categorization of the results that were gathered by the research team. Such sub-units are needed in order to briefly classify each information gathered on the concern that the group raises. Whenever information from the respondents are given it is duly transcribed and coded later categorized from complex data to the simplified form of data gathered and received.

Table 1: Descriptive Statistics

Participants	Sex	Age	Short description
Ms. Upson	Female	20	Works at a computer shop
Mr. Manny	Male	39	Stays at home
Mr. Exceed	Male	29	Has his own small water business
Mr. Avenue	Male	45	Has a lot of experiences in flood, sometimes take posts at the barangay.
Barangay Captain	Male	59	A public employee, currently a Brgy. Captain at barangay St. Peter

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Table 2: Summary of Theme and Sub-themes

Themes	Sub-themes	Typical Answer
Flood	Flood Description	The flood is an ankle and knee height.
	Flood Effects	The street in front has a flowing water.
	Personal Countermeasure	Taking the things up to the second floor.
Barangay	Barangay Countermeasures	They patrol, warn, and teach about flood prevention techniques.
	Barangay Additional Information	The barangay responds if you call them for help.
Psychological	Psychological Impacts	Stress and fear

The research topic on “Flood control and management and its effects on the psychological aspects of life when exposed to traumatic experience of flood” garnered several data and information from the respondents, these data’s were complex and unfiltered, so to interpolate and analyze these complex records the team is to discuss different results that arose

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from the data's and validate the information's received. The validation method to be used is the Triangulation method as stated above.

Our evaluative hypothesis to the end results of our research is that Flood enters the vicinity and houses within the jurisdiction of barangay St. Peter. This was later on disproven due to our further investigations which are passed and emanated from results gathered from the research participants. This constitutes that the hypothesis stated before was invalid as a formative conclusion to the topic.

The research is connected on our previous findings found on the review of related literatures. Such literatures connected to the findings of our team are:

“Community participation in flood risk assessment as well as in planning and implementation of risk management measures is a key for the success of flood risk plans” (Tingsanchali, 2012). (Related to Flood Description and Effects) and

“In the light of this disasters, traumatic experiences tend to occur and grow because of stresses and depression when survivors experience loss and grief. According to Nadelson, T., (2016)”

Likewise, such information's are decoded into simpler data's that can be easily interpreted. Such data's fall to 3 Themes that contains sub-themes in which summarize the statements of the respondents.

The results on the theme on flood are as follows: 1.) Under the sub-theme of flood description, the typical answer is that the depth flood is at the ankle or knee level 2) Under the sub-theme flood effects, the typical answer is that the street in front is flooded by flowing water;

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this is due to the fact that the streets has a downward slope towards Retiro 3) Under the sub-theme of personal countermeasure, the typical answer is that the things in the first floor are brought up to the second floor. This is to ensure that if it floods, even though it seldomly does, the things in the first floor will not get wet.

For the results on the theme of the barangay, under the sub-theme of Barangay Countermeasures, the group's participants stated that the barangay officials and tanods patrol Barangay St. Peter whenever there is a strong typhoon coming and when there are already flooded areas near the barangay. Also, when the PAG-ASA has already issued a warning, the barangay officials announce it to the area covered by the barangay and that they ensure that everyone is well informed. The participants also stated that the barangay teaches them about flood prevention techniques and that they usually teaches them at the vicinity of the barangay. As for the sub-theme of Barangay Additional Information, the participants stated that the barangay immediately responds once you called them for help.

The results on the psychological theme and its sub-theme Psychological Impact, most of the participant are stressed whenever there is a flood at their area and that they also feel fear and hoped that the flood wouldn't get any worse or any higher.

The literature pertaining to Tingsanchali's research coincided with the claim of the barangay captain we interviewed. The barangay captain stated that the monthly Kapihan (meeting) the barangay and their citizens ensured that everyone was informed of necessary information for flood, and other preventions concerning the barangay.

With our results the team has foreseen that the data's were closely relevant and connected to the review of related literature due to the similarities in risk management and countermeasure.

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In addition, the second review of related literature connected to our research synthesizes the psychological data that arose from the information's gathered. Although the team has found sufficient related information regarding the psychological and flood themes, the team wasn't able to find relevant literature regarding the barangay theme. Due to the reasons that no literature focuses on barangay issues if and when flood occurrences arise or rather that the literatures that focuses on the barangay doesn't scope our topic.

Research projects don't come without limitations. The limitations encountered in our data gathering were the number of people, the area, and the excluded economical aspect of our research. In the limitation concerning the number of people. We were limited by the people that wanted to be interviewed. No matter how we may want, if the citizens themselves were not cooperative, the research may come to a halt. It was very hard to interview due to the fact that a lot of citizens were busy at the time. To fix this limitation, the group highly suggests to increase the time to interview so that the researches may become more flexible to the interviewee's schedule. The second limitation encountered was the fact that it is a seldomly flooded area where we are assigned to interview at, we cannot interview outside the vicinity of the barangay of St. Peter, for the area was imposed on us and we had no other choice. Thus, our interview questions were not relevant to the lives of the citizens for they were not that affected by the flood. The group highly suggests to interview in areas with high flood susceptibility rate in the next researches to come. The last limitation encountered in our research was the economic effect of flood to the citizens of the barangay, besides the management and psychological. We had to exclude this aspect for the data needed for the economic aspect were more in the quantitative side, and it was also difficult to assess the statistical data in the barangay. The group highly

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suggests for the next researchers to include this aspect if they have more time, resources, and experience to properly pursue this aspect.

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Conclusion

In the group's research topic on "Flood control and management and its effects on the psychological aspects of life when exposed to traumatic experience of flood" the group was able to say that the area of barangay St. Peter that the group covered was not prone to flood. Although in some cases few respondents were able to experience flood, like in the events of Ondoy and Habagat. Despite of the tragic events, the barangay still uphold programs to promote awareness to the residents of Barangay St. Peter about the countermeasures on flood and the things they need to take note off. Still, they don't lose their resiliency about their past events because of the barangays preparedness from the actions they did in order for the residents to live safely.

To reiterate the group's research questions, these are: 1) How do citizens cope up with the effects and adversities brought upon by flood? and 2) What actions do local governments take to ensure the safety of the barangay from flood? These questions gathered results with identical answers that paved us to understandably construct theoretical basis on the conclusion that Brgy. St. Peter isn't affected or minimally affected if and when flood or heavy rainfall occurs.

Due to the area covered for the interview that was conducted, the group's participants were not able to give detailed responses on as at how do they cope up with the effects of flood. In addition, they weren't also able to lay out complete procedural methods or even indicators of what they do if and when their house or residence is subjected to flood. Rather they are complacent to their assertion that flood isn't an issue at all whenever it rains heavily since there houses are found at high rise areas of the city.

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Now that the research has been completed, the group assessed that there are four things that need to be improved in the research. First is the location, given that we were assigned a barangay that rarely has problems with flood, it was challenging to get clear results from the participants of the interview. Second, it is highly advised by the group to increase the number of participants. By increasing the number of participants, the amount of data will increase and thus, the group can learn more about the effects of flood in assigned Barangay. Third, for those interested in conducting and further continuing this study, the group recommends that they widen the array of queries and questions to be presented and investigated at. Since more information regarding a wider scope of question could proliferate and increase in a deeper perspective about the topic. Look into details that could be further investigated in order to increase the information that can be gathered. Fourth, it is also relevant to familiarize oneself to the environment and to the personality of the participant. We can accomplish this by allocating more time in the interviewing process. This excludes the persons you know already.

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