



THE IMPACT OF FLOOD ON THE RESIDENTS OF ANIL NAGAR, GUWAHATI, ASSAM WITH REFERENCE TO THEIR HEALTH AND SOCIAL LIFE.

Ms. Juhi Kalita

Ph.D. Scholar

Department of Sociology,
SNDT Women's University, Mumbai

Abstract: The purpose of the research is to access the impact of flood on health and social life of human beings. Flood is basically world's most common Natural Disaster, but somehow it also become Manmade disaster., And their impacts are very dangerous. The researcher tends to delineate the flood effected areas people located in the province of Anil Nagar, Guwahati Assam. In every year because of flood Anil Nagar people faced lots of health issues and it also hamper social life of a people. The objective of the studies are as follows -

- To understand the causes of flood and the role of Guwahati Municipal Corporation.
- To study the impact of flood on health and social life of the residents in the area.

The study is purely based on primary data and with the help of Interview Schedule, the Researcher will collect the data and analyze it in the proper manner manually as well as with the help of Computer. Based on the Collected Data, the researcher will furnish the Conclusions and Suggestions of the study.

Key Words - Flood, Disaster, Natural disaster, Manmade disaster, social life, Global warming, Unplanned expansion

INTRODUCTION

A disaster can be defined as a serious disruption in the functioning of the community or a society causing wide spread material, economic, social or environmental losses which exceed the ability of the affected society to cope within its own resources. It is a result from the combination of hazard, vulnerability and insufficient capacity or measures to reduce the potential chances of risk.

Most of the disasters have a natural origin; however, some disasters are man-made as well. On this basis disasters can be broadly classified into two groups:

1. **Natural Disasters:** When disasters occur due to natural forces, they are called natural disasters, over which man has hardly any control. It is impossible for one to stop such kind of disasters but what we can do is be prepared for these.

Some common natural disasters are earthquakes, landslides, forest fires, floods, droughts, cyclone, hurricanes etc. Tsunamis, volcanic eruptions and wildfires are also included under natural disasters. Natural disasters like earthquake, floods, etc. have also occurred before when modernization was not an issue.

2. **Man-made Disaster:** Disasters that are caused due to carelessness of human or mishandling of dangerous equipment's they are called man-made disasters. Examples of these disasters are wars, aero plane crashes, collapse of buildings, bridges, mines, tunnels, etc. Man-made disaster provokes a serious disruption of the economy, agriculture and health-care sectors of a society.

Flood is among the world's common largest natural disaster. Flood occurs due to excessive rain, rapid melting of snow or ice, overflow of the dam region. Its impact on both individuals and communities has social, economic and environmental consequences. Flood in agricultural production areas also leads to widespread damage to crops and loss of livestock.

Climate change is one of the main reasons for the increase in the earth's temperature leading to global warming which increases the risk of flood in the low-lying areas, destroying the habitat of the people, agricultural properties,

Flood in Assam is one of the most devastating cause leading to a major problem for the state. Assam is a land of two different mighty rivers. One is the Brahmaputra and another is the Barak. This vast creation of both these rivers causes flood and make huge destruction in people's life, property, livestock and many more things. More than 15 districts including upper and lower Assam faces this problem every year. They are especially Sivasagar, Lakhimpur, Dhemaji, Golaghat, Jorhat, Nagaon, Chirang and Barpeta, etc. Guwahati city is highly affected by the flash flood and heavy rainfall during summer.

Theoretical Framework:

- 1) **Louis Wirth (1897-1952) U. Of Chicago – Micro-Sociological (The empirical extrapolation of Simmelian urban hypotheses):** Louis Wirth developed the first urban theory in US. Previous urban sociology comprised essentially descriptive studies. He has focused on Urbanism (Urban lifestyle) more than on structure. Definition of city was that it was large, dense with permanent settlement and socially and culturally heterogeneous people. And so urbanism was a function of population density, size and heterogeneity:
- Population Size:** Creates great diversity because large numbers of people coming together logically increase potential differentiation among themselves, and with migration.
 - Population density:** Intensifies effects of large population size on social life; manifests quality of separateness, e.g., economic forces and social processes produce readily identifiable distinct neighborhood, "ecological specialization"; fosters a loss of sensitivity to more personal aspects of others, instead tendency to categorize and stereotype; results in greater tolerance of difference but at same time physical closeness increases social distance; may increase antisocial behaviors.
 - Population heterogeneity:** With social interaction among many personality types results in breakdown of the rigidity of caste lines and complicates class structure, thus increased social mobility; with social mobility tend to have physical mobility; leads to further depersonalization with concentration of diverse people.
- According to Wirth, in order to actualize the total system of the city, to enable the "community as-a-whole" to act as a unit we have to increase reliance upon rational-comprehensive urban planning. To achieve this objective he wanted to assign important political functions to urban planners. Urban planning represents the formal, institutional attempt to regulate the physical, ecological, and social dimensions of urban growth and structure according to specific objectives and interests seeks to "harness" urbanization systematically, intersecting with urban planning -- personal and social space, special invasion and territoriality in cities, urban renewal, urban populism, urban municipal reorganization and development of new communities.
- 2) **Sociology of Disaster:** Sociology of disaster is the sociological or social scientific study of the social structure adjustment preceding and following the precipitating event or disaster agent. The emphasis on the precipitating event, or disaster agent, directs the focus of the study to the social structure defined as operative prior to the event as well as the process resulting in a critical mass of both victims and responders within a community, primarily leading to the perception that continued adherence to the routine social structure is unsustainable and must be temporarily replaced by social structure that meets the emergent needs of the community. The focus being on the process of change from the daily routine to the emergence of a temporary alternative has resulted in the anomic struggle of disaster sociologists. The precipitating event's potential or actual widespread destruction and distress is the disaster. The prior social structure and resulting adjustments are the focus of the sociology of disaster.

REVIEW OF LITERATURE

The aim of a literature review is to show particular reader that researcher have read, and have a good grasp of, the main published work concerning a particular topic or question in specific field. The work may be in any format, including online sources. To conduct a literature review, researchers must first find all previous research done on the topic they are studying. This review of the literature provides a thorough introduction to the reader on the topic and presents all the analysis and findings of previous studies.

Article I: A case study on the flood situation of Assam State. Author: Ar. Rakesh Kumar, Ar. Agrawal Raghav.

Objective: To conduct a review of flood studies conducted for Guwahati which cover disaster risk related issues including the risk related to climate change and different vulnerabilities that triggering the impact of floods. The review also reflects the findings and suggestions in short and long run.

Content: The author has said that the periodic flood is one of the main reasons that have interrupted the economic status of the people. The state has to lose huge quantity of cultivation apart from river bank erosion. Failures of embankments are the main cause of river bank erosion. Various flood management activities were taken up by the Brahmaputra Board, Ministry of Water Resources and Water Resource Department of Assam under various policy initiatives.

Conclusions: The authors had concluded the entire study with the discussion that Assam is mainly dependent on cultivation and hence flood affects the economy of the state along with its cultural and social status.

- Lack of proper actions might take away the lives of people.
- The authors suggested that the vulnerable sections of the Brahmaputra River should be determined and geo-mat should be provided to stop erosion.

Article II: Flood disaster in Assam: Socio-Economic vulnerability and control measures. Author: Manuranjan Gogoi.

Objective: Cause of flood disaster in Assam.

- The socio-economic impact of flood in Assam.
- Major steps initiated by the government for the victims.
- Suggestive measures to reconstruct the state.

Content: The author stated that one of the most important factors of flood is the excessive rainfall in the state during monsoons and also the geographical location of Assam which is surrounded by hills; inadequate drainage capacity along with deforestation is also one of the man-made causes of flood in Assam; accelerated rate of basin erosion, seismic activity, high population growth are also responsible factors which causes flood in the state. The author has also stated some of the socioeconomic impacts of flood in Assam.

Conclusions:

- Flood in Assam serves as the major cause of disturbances in socio-economic set up of the state.
- The State and Central government has not executed the flood management and mitigation strategies.

- As Assam is mainly dependent on agriculture, a systematic integrated framework is urgently needed for the construct of the economy of Assam.

RESEARCH METHODOLOGY

Statement of the Research Problem: The Impact of flood on the residents of Anil Nagar, Guwahati, Assam with reference to their health and social life. **Objectives of the study:**

- To understand the causes of flood and the role of Guwahati Municipal Corporation.
- To study the impact of flood on health and social life of the residents in the area.

Area of the study:

The Guwahati city lies between the mighty Brahmaputra and the Shillong plateau. The city is surrounded by hills on all sides. To the west of Guwahati is the Nilachal hill, to the North is the Chitrachal hill and to the south lays the Narakasur hill. The city has a sub-tropical climate condition. It experiences moderate climate throughout the year. Summer in Guwahati is accompanied by high humidity; the monsoon months experience heavy showers while winters are mild and pleasant. As per provisional reports of Census India, population of Guwahati in 2011 is 957,352; of which male and female are 495,362 and 461,990 respectively. Hence, the researcher has taken this topic for the research.

Sampling:

The researcher has collected the data through simple random sampling which is a sub type of probability sampling with the help of 10 households from Anil Nagar area of Guwahati, Assam for the first objective. For the second objective, the researcher has collected data with the help of secondary data.

Data Collection:

The researcher will collect information from the two sources i.e. primary data and secondary data.

Primary data: The data will be collected from the residents of Anil Nagar, Guwahati with the help of interview schedule.

Secondary data: The data will be collected from books, articles, journals, newspapers, authentic websites and resource persons.

Data Analysis:

Data analysis is an important part of the research as it helps to give a proper conclusion of the study. After collecting the data with the help of interview schedule and with the help of secondary data, the detail data is analyzed with the help of the computer and also manually. The conclusions and suggestions are then refurbished after the complete data collection.

Significance of the study:

- This study will help in understanding the role of Guwahati Municipal Corporation and their flood mitigation strategies.
- This study will also help in highlighting the problems of the people residing in Anil Nagar during floods and its impact on them.
- This study will help to guide the flood affected people to overcome the problems.

Limitations of the study:

This study is only restricted to the response given by the respondents and the data collected through various websites, journals, etc.

RESULTS AND DISCUSSION

Flood and Guwahati Municipal Corporation: This chapter helps us to understand the causes of flood and the role of Guwahati Municipal Corporation. Some of the prime causes of flood in Guwahati are

1. The natural drainage system in the city is insufficient.
2. There are frequent blockages in the drains
3. The artificial drainage system is not sufficient as compared to the population.
4. Due to illegal construction in the wetland areas.
5. Lack of open areas due to construction of buildings for unplanned expansion of the city.

There are many regions which are highly affected by the flood such as zoo road tiniali, chandmari, maligaon, nabin nagar, ganeshguri, jonali, ambikagiri nagar, santipur bharalumukh, Gandhi basti, lamb road, ambari, etc.

The Guwahati Municipal Corporation has few responsibilities to mitigate the urban flood. Some of them are –

- Construction of new drainage system, culverts, for ensuring the smooth flow of the drainage water.
- Removal, cleaning of the feeder drains.
- Rain water conservation in the newly constructed buildings, flats.

The Guwahati Metropolitan Development Authority with the help of the Water Resources Department and Guwahati Municipal Corporation had undertaken few steps during the year 2015 to mitigate the flood hazard in the city.

Impact of flood in Anil Nagar, Guwahati

This chapter is the analysis of the data collected based on the second objective of this research, i.e. to study the impact of flood on health and social life of the residents in that area.

This objective is essential in this study to understand how the urban flood in Guwahati has affected the people residing in Anil Nagar. This objective also aims to understand the socio-economic condition and health condition of the residents during the flood and after the flood. As noted in the previous chapter (methodology), the data for this research has been collected by the researcher with the help of primary data collection through interviews with 10 households. The respondents were chosen with the help of simple random sampling and the interviews were conducted through a carefully formulated interview schedule by the researcher. These interviews were conducted through medium like

in person interview. The analysis of the data has been done through thorough tabulation of the collected data. Each responses was speculated which gave final tabulated response. This analysis will help to formulate conclusions based on which suggestions for further studies will be developed.

A. Personal Profile of the Respondents:

This section of the chapter covers the personal profiling and socioeconomic background of the residents interviewed with questions about their age, religion, occupation, marital status, type of family, no. of family.

Table 1- AGE

Age groups	Frequency	Percentage
Below 20	0	0
20-40	3	30%
40-60	6	60%
Above 60	1	10%
	Total = 10	100%

Table 1 represents age group of respondents, there were no respondents below 20 years of age, 30% were between 20-40 years of age, 60% were between 40-60 years of age while there was only 10% above 60 years.

Table 2- Religion

Religion	Frequency	Percentage
Hinduism	8	80%
Islam	2	20%
	Total = 10	100%

The Table 2 indicate religious backgrounds of the respondents in which, out of 10 respondents, 80% belonged to Hinduism and 20% belonged to Islam.

Table 3 – House Types

Type of House	Frequency	Percentage
Apartment	1	10%
RCC Building	3	30%
Assam Type	5	50%
Kutcha House	1	10%
	Total = 10	100%

As per table 3, Out of 10 respondents, 10% of them lives in apartment, 30% of them lives in RCC buildings, 50% of them lives in Assam type house and 10% of them lives in kutcha house.

B. Tabulation and Interpretation of the data

In this section the data is tabulated using graph and pie charts and given a brief description of the interpreted data.

Table 4- Month of Occurrence of flood

Month	Frequency	Percentage
November- April	1	10%
May- October	8	80%
Any month	1	10%
	Total= 10	100%

Table 4 represents that 80% respondent said that flood mostly occurs between May-October during monsoons. Again 10% of them said that it occurs between November- April. And 10% of them said that there is no specific month for the occurrence of flood. Whenever it rains heavily, flood occurs in their area.

Table 5 – Occurrence of flood every year

Responses	Frequency	Percentage
Yes	10	100%
No	0	0
	Total= 100	100%

Table 5 shows that out of 10 respondents 100% of them had agreed they go through such situation every year.

Table 6 - Duration of Flood

No. of days	Frequency	Percentage
0-5 Days	4	40%
6-10 Days	3	30%
11-15 Days	2	20%
Above 15 Days	1	10%
	Total = 100	100%

The Table 6 indicate out of 10 respondents, 40% of them said that the flood sustains in their area from 0-5 days. 30% of them have said 6-10 days, 20% of them have said 11-15 days and 10% of them have said that the flood water sustains for more than 15 days.

Table 7 – Affect in Transportation

Response	Frequency	Percentage
Transportation through vehicle is not possible during the flood.	10	100%
	Total= 10	100%

The Table 7 shows that, the question recorded a 100% same response from the respondents. They have given the same opinion that all of them find difficulty in travelling as the roads get totally flooded and going out even by foot is not possible for them.

Table 8 – Provision of drinking water

Response	Frequency	Percentage
Provided by the Government.	7	70%
Buy packaged drinking water.	2	20%
Mixed responses.	1	10%

According to the Table 8, Out of 10 respondents, 70% have said that the government provides them drinking water. 20% of them have bought packaged drinking water. 10% of them have given mixed responses. They have said that even though the government provides drinking water most people do not get it due to mismanagement.

Table 9 – Suggestions to the Guwahati Municipal Corporation

Response	Frequency	Percentage
Water diversion measures are Necessary.	5	50%
In need of a better drainage System.	5	50%
	Total = 10	100%

Table 9 shows that the suggestions that the respondents have given does not differ much. 50% of them have suggested that water diversion measures should be implemented as Anil Nagar is in the middle of the city and all the water from its nearby area gathers in this area which results in flood. Another 50% have suggested that the area needs a better drainage system and the drains should be cleaned regularly.

CONCLUSION & SUGGESTIONS

❖ Conclusion

In the conclusion we find that the area of Anil Nagar is highly affected by the devastated flood causing lot of harm to the normal people lives. It helps to draw the outcome of the findings and provide suggestions to the problems arised.

Conclusions are formulated based on the analysis.

- Flood in Guwahati has both natural and man-made causes. One of the most important causes of flood in the Guwahati city is the increase in population due to rapid urbanization.
- There is lack of open areas due to construction of unauthorized buildings which has resulted in shortage of water storage areas.
- There are almost more than 20 areas in the city which are highly affected by flood during the monsoons.
- The Guwahati Municipal Corporation (GMC) has certain responsibilities in order to mitigate the problem of flood in the city.
- GMC has the responsibility of constructing new drains and roads and culverts for the outfall of the water.
- There should be some permanent precautionary measures to deal with urban flood in the city.
- People who were interviewed by the researcher, residing in the Anil Nagar area are mostly middle-aged people and belong to Hindu religion.
- Most of them are married and lives in a small family.
- These types of houses that are mostly affected by floods are the Assam type houses because these types of houses are constructed on flat grounds.
- The flood affected people are relocated to the relief camps that are set up at nearby government institutions and primary schools. Few of them also move to their relative's place for few days.
- The food and drinking water are provided by the government to the flood victims. They are provided with packaged drinking water. Even drinking water tanks are sent to the area by the government.

❖ Suggestions

After completing the entire study, the researcher has furnished few suggestions based on the findings. Some of the suggestions are as follows-

- The construction of unauthorized buildings in the city should be stopped.
- Proper urbanization planning should be implemented so that increase in population doesn't become a cause of flood.
- The Guwahati Municipal Corporation along with the Guwahati Metropolitan Development Authority must take proactive measures to mitigate flood in the city.
- Anil Nagar lies in the middle of the city and all the water from its nearby area gathers in this area and gets flooded easily. Guwahati Municipal Corporation should plan up diversification of the gathered water in order to lessen the flood.
- Cleaning up of the drains should be practiced frequently.
- Instead of building their houses on flat grounds, the residents of Anil Nagar should raise their base of the house.
- More water pumps should be installed in Anil Nagar to drain out the flood water.
- As preventive measure, the residents should place their belongings at a high up place and pile up the others above tables, stools, etc.
- There should be an emergency medical unit near this area so that the old aged people get emergency treatments in no time.
- The government should shut the schools for few days so that the children residing in this particular area do not miss their regular classes.
- There should be a proper management of food distribution among the flood victims so that not a single person is missed out.
- The drains and the surroundings of the area should be cleaned post-flood in order to keep the area clean and hygienic.
- The victims should be given financial support by the government in order to recover from their losses.

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