



Flood Disaster Adjustment of the Residents of Maner Block of Patna District

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Abstract:

Keywords:-

Introduction

Flood is a natural phenomenon that has presented new challenges to mankind since immemorial and has caused immense loss to people and property. Flood generally means that a large land area remains under water for several days. Floods are the result of excessive rainfall. Floods have been occurring in rivers, lakes, ponds, and coastal areas. All the developed cities built from ancient times till today have been situated on the banks of these water areas because they easily fulfill the needs of their development and urbanization. The flat land of the river valley is fertile and this place is also within the reach of the people. Due to these, facilities it is a suitable place for human development. But these places have always been struggling with the problem of floods. Flood is a complex phenomenon because it occurs in different places under different circumstances and affects people in many ways. The tendency to adjust to a disaster is a natural trait of people. They do this for their survival. In this research paper, a geographical analysis of the traditional methods of adjustment to the regular flood disaster every year by the residents of Maner block of Patna district of Bihar state, situated at the confluence of Ganga and Son rivers, has been done.

Objectives

- (a) To assess the frequency and persistence of floods in the study area.
- (b) To analyze the traditional techniques developed by the inhabitants of the study area to cope with floods in a modern context.
- (c) To assess the level of physical and mental resilience of the inhabitants to cope with the disaster of floods.

Methodology

- (a) Comprehensive and intensive field study.
- (b) Detailed interview of the villagers.
- (c) Study of land revenue maps published in different years of most of the villages of this block, so that the actual situation of flood can be obtained.
- (d) Preparation of diagrams and maps based on the data.
- (e) Geographical interpretation of tables, diagrams, and maps.

Hypotheses

- (a) Most of the villages in the block are affected by floods every year.
- (b) Floods caused extensive damage to the villages.
- (c) People of the flood-affected villages enjoy the floods.
- (d) The residents of the study area have developed many traditional techniques to protect themselves from floods.
- (e) The challenges caused by the flood have not only made the people of the study area physically strong and mentally tough but have also increased their level of self-confidence.

Study Area

The present study area, Maner block, is situated in the north-western region of Patna district of Bihar state. It is situated on the southeastern side of the confluence of the rivers named Ganga and Son. Its proximity to Patna metropolis, the capital of Bihar state, has made it quite important. Delhi-

Howrah National Highway passes through the southern part of the block. This region has been very rich from ancient times in terms of supernatural, humorous, cultural, and economic aspects.

Flood Vulnerability

Singh (2004, p. 392) has rightly said that if there is any river in the country that is notorious for the destruction of dignity, the natural environment, and human life and property, then it is the Ganga and its tributaries. Son (2011, p. 118) has also underlined this fact and said that the Son River, which meets the right bank of the mighty Ganga, has presented a devastating and horrific scene of erosion, transportation, and deposition, which has affected human conditions for a long time. Singh (1973, p. 196) has further said that the Son River has changed its course extensively in the past, whose old paths have been traced to its east (Figures 1 and 2).

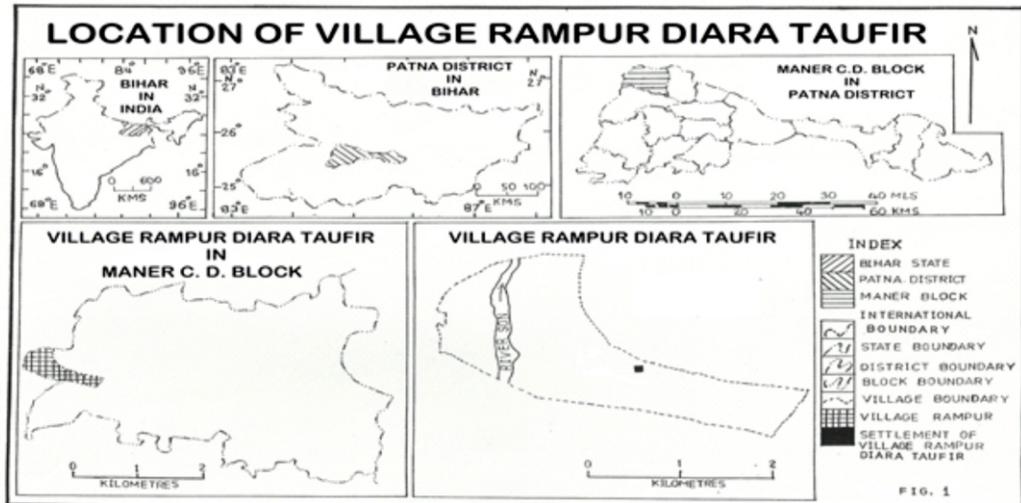


Fig-1, Geographical location of the study area

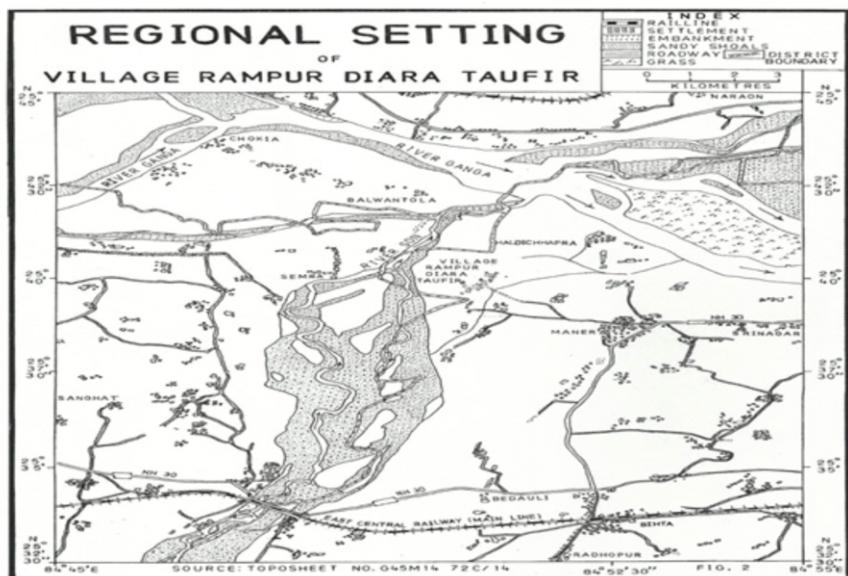


Fig.-2, Regional location of the study area

Thus, both the rivers, Ganga and Son, have caused massive destruction in the affected areas of this block since ancient times. In which not only the fertile soil has been eroded but there has been a great loss of life and property. The Son River has changed its course multiple times which can be identified in most of the villages of this block. For example, the village Rampur Diara Taufir of the block was situated on the western bank of the Son River before 1865 AD and is now situated on the eastern bank of the Son River. This proves that this river had completely washed away the village. Due to this, this village is now settled on the eastern high bank. Apart from this, its abandoned routes can be identified using land revenue and thematic maps of the villages and its evidence can also be seen on the surface.

In the present study, the Son River can be traced in several former routes in the Maner block of Patna district, which is gradually moving westwards from the eastern boundary of the block to its present course. This proves that this river has caused havoc in the entire block by changing its course. For example, the village Suarmarwa situated in this block has been completely eroded and disappeared in the last decade. In this way, it is proved that the changing course of the Sone River has caused havoc in several villages of the block. (Figure- 3).

It is clear from the above-mentioned references that the Ganga and Son rivers in general and the rivers in particular have washed away the fertile land, green fields, gardens houses, etc. of the study area several times. Several abandoned tube wells have been identified in the bed of this river, which are visible at a distance of about 50-60 feet from its bank. This fact proves the erosion caused by the river. These tube wells were installed away from the bank for irrigation of agricultural fields. But now the sandy surface of the river is found in them, showing the erosion on a large scale.

The above examples show the tragedy of the rivers and the loss of life and property on a large scale. Despite this, the people here have engaged themselves in agriculture, animal husbandry, and happy life and have become mentally strong. High self-confidence has given them the strength to fight these floods. The people of this region have developed many traditional techniques. So that they can organize and minimize this type of disaster with courage (Elliott, 2010, p. 172). All these techniques have developed over hundreds of years of struggle and adjustment of these people.

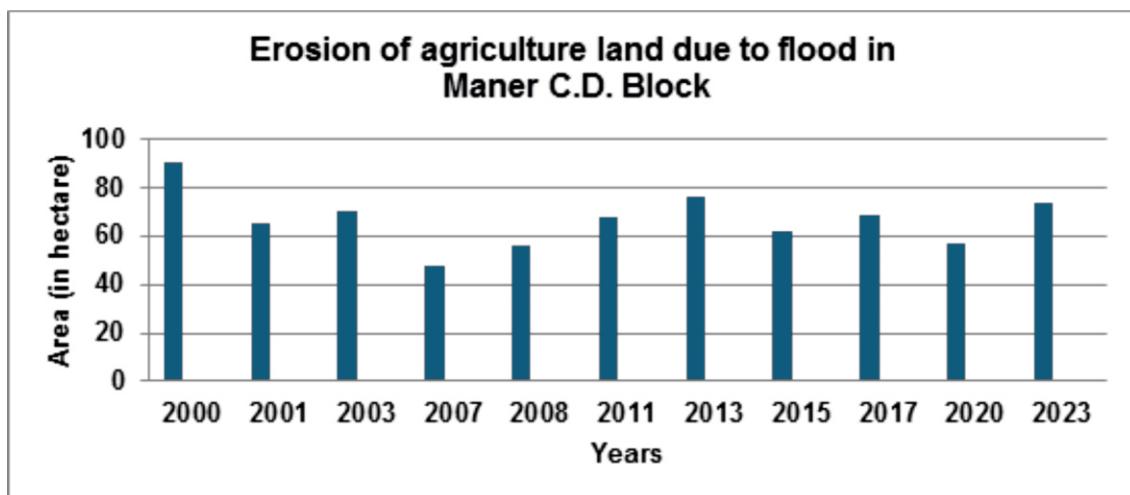


Fig.-3 Erosion of agriculture land due to flood



Photos- Scenario of Flood in the study area

Traditional Techniques of Flood Protection

The people of this study area have developed many techniques to reduce the effects of floods. They have learned the art of flood protection through hundreds of years of adjustment to floods. They have adopted these techniques from generation to generation. Some of the traditional techniques of flood protection are described below:

(a) Growing dense, tall, and hard grasses

The people of this area grow tall, hard, and thick species of grasses along the river bank, which are very tall, sometimes up to six meters high. Many strips of these are also developed between the river and the settlement. Their stems are very hard. These grasses are called reeds. The roots of these reeds are such that they bind to the soil strongly. These grasses prevent soil erosion to some extent. This is the first line of protection from flood water, which acts as a natural barrier. This gives the villagers enough time to save their families and animals.

These grasses are also used as building material, especially for roofing houses. They are used for building houses and at the same time, by threshing these grasses, additional profit is also obtained. In this way, they are also used as a cash crop. When they dry up in summer, they are used for various purposes. Rapid growth of new plants occurs before the arrival of the next rainy season.

(b) Planting a series of gardens around the village

In the villages of this region, gardens are planted as a second line of defense to avoid floods. The trees planted in the gardens stop the flood water to some extent and reduce its velocity, due to which the villagers get enough chance to escape. Apart from this, these trees also provide shelter to the people, wood as fuel, timber and fruits, etc. The roots of the trees also prevent soil erosion.

(c) Construction of pits around each house

As a third line of defense, villagers construct long, wide, and deep pits around their houses. The advantage of this is that if flood water tries to enter the village by crossing the first and second line of defense, it gets collected in these pits so that water does not enter the houses and people get another chance to escape from the flood. The second advantage of this is that by storing this water, underground water gets recharged. This conserved water seeps into the ground because there is a thick layer of sand below the surface. It is because of the Son River which has passed through many parts of the villages since ancient times and has deposited a thick layer of sand at every place. This layer of sand

helps in water seepage. In this way, water goes underground and water is recharged for water supply (Chatwal, 2004, p. 426). After this, it is also used in irrigation and fishing, etc.

(d) Construction of settlements in high places

Houses in these villages are built in high places. These high places are made by collecting soils from the pits, which unable flood water from entering the houses.

(e) Construction of high platforms

Such high platforms are constructed in many parts of the villages so that in case all the security lines fail, the villagers can take their animals and other materials to those high platforms and provide them with safety.

(f) Construction of modern high houses

Many villagers of this area now build their houses in a modern way which are high, multistoried and strong. These modern houses not only provide security to the owner of the house but also provide shelter to the poor families in the neighborhood.

Finally, it can be said in short that the people of flood-affected villages of this region have developed techniques to fight floods in their way, which make them physically and mentally strong. That is, they have become more resilient to the floods that occur here. The second positive side is that they create an environment for human resource development.

Human Resource Development

The people of these areas living in such adverse environments have not only developed ways to survive but have also adopted various arts for human resource development.

(a) Skill in Water Sports

Most of the people living in these areas are skilled in water sports like swimming etc. They have learned this art from their ancestors. They enjoy swimming and can even cover distances of several km in floods. Some of them reach Patna by swimming.

(b) Flood as a Resource

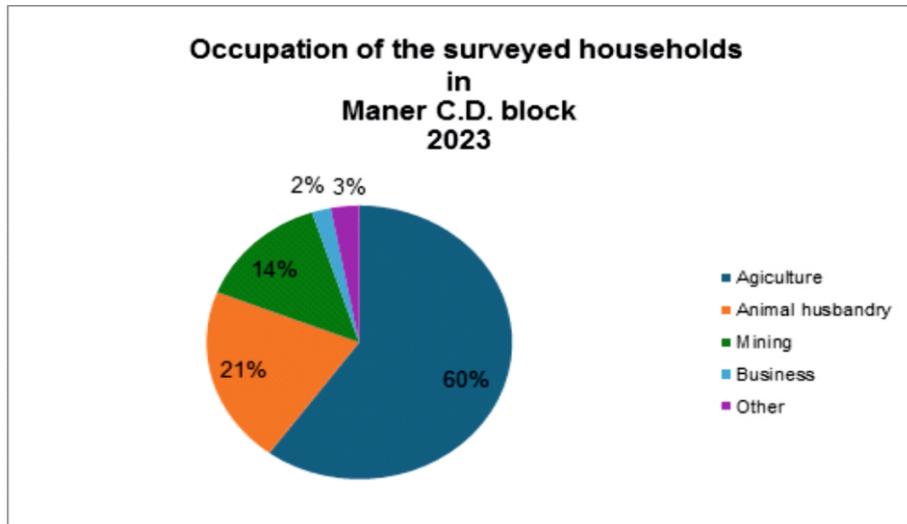
Flood is a resource for the people of the study area. It not only provides people with an opportunity to enjoy water sports but also provides timbers carried by the river from the upper reaches. Apart from this, flood is also helpful in recharging groundwater, deposition of the fertile soil layer, and production of crops.

(c) Agriculture in dry riverbeds

The people of this study area use every opportunity for their prosperity. They farm in the dry riverbeds. These people farm oilseeds, vegetables, wheat, barley, etc. in the dry riverbeds without using irrigation and chemical fertilizers. They also do farming of watermelon and cucumber etc. in the sandy soil of the river. They also grow winter, summer, and spring vegetables in the dry riverbeds.

(d) Sand Mining

As the study area is the confluence of the Ganges and the Son, sand is available in sufficient quantity here, and around 14% of the people are engaged in this work. The mining work is done by boat, which is used for the safety of the people during floods. Also, being an agricultural and mining area, tractors are found in abundance here. These are also used as a means of transport during floods.



(e) Fishing

The people here also do fishing on a large scale in the nearby Son and Ganga rivers and their outfall lakes. Due to floods, fishing has also become a means of livelihood for many people. Fishing has a different and special importance in the economic condition here, because it has become the profession of some specific communities.

(f) Animal husbandry-

With the vast open fields and abundance of water etc., the people here get the opportunity to do animal husbandry on a large scale.

Conclusion

Finally, we can conclude that the unfavorable natural environment of the study area has not been able to discourage the people of the study area. The people here have accepted flood as a challenge. The techniques developed by the people to avoid and adjust to floods are scientific and worth adopting.

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