

ROLE OF HUMAN INTERFERENCE ON FLOODS: A GEOGRAPHICAL STUDY OF MITHILA PLAIN



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ABSTRACT :

Mithila Plain of North Bihar is the most populous due to the fertile tracts of land and huge potential of water. A large number of people have already encroached the flood plain and different developmental works have been done for the betterment of the society and to control the floods in this region. These activities altered the natural ecosystem of the river like restricting the natural flow of water ways and risen the bed level. Unfortunately the man interference destroys the ecological balance and the area becomes more vulnerable to the floods. With the increasing human interference without taking the ecosystem in consideration

the frequency and vulnerability of flood disaster increases rapidly in this region which destroys the human lives and economy of the region. Now it's necessary to minimize the imbalance of ecology of river basin by adopting the sustainable policy for the developmental work in this region with the help of structural and non structural measures.

KEYWORDS : Fertile tracts, Natural ecosystem, Bed level, Ecology, Flood disaster, Sustainable policy.

INTRODUCTION:

Floods are a natural phenomenon for the Bihar especially in North Bihar plain. Floods have some positive role in ecosystem functioning like- filling wetlands, recharging ground water, promotion of breeding, migration and dispersal of numerous species, making the land fertile and etc.

INTRODUCTION:

North Bihar is the most populous region due to fertile tracts of land and huge water potential both the surface and underground. Consequently due to increasing population various developmental activities there is an increasing encroachment in the flood plains of all the river basins ignoring the rightful requirements of the river for their water ways. It is fact that a large number of people have already encroached the floods plain for their livelihood and are also staying inside the flood plains. The reason for the above may be as following.

- I. The flood plain areas or Khadar areas are very fertile and thus the people are attracted for cultivation.
- II. The cost of agricultural inputs is least in such areas. Thus an efficient agricultural production is possible.
- III. Aqua culture and fish production are very beneficial and possible in such areas only.
- IV. Owing to great scarcity of land and high density of population the people of North Bihar especially the Mithila Plain has no alternative than to occupy the flood plains for their survival.
- V. There is the lack of industries in this region which compel people to depend on agricultural activities.
- VI. To a certain extent socio-economic and political interferences are also responsible for forcing the people to occupy and stay on within the flood belts so as to fetch their fortune in respect of getting free relief from the Governments.

In these areas which have been developed by humans the natural resiliency of ecosystems has been lost and the area becomes more vulnerable to natural disaster. Floods can be very destructive. They can destroy homes and other infrastructure, and can lead to loss of crops, to the spread of waterborne diseases and to a loss of human life. Floods can also disrupt industry, water supplies, waste water treatment, transport, education and health care system, essentially forcing many local economic activities to be halted.

In general due to human interference the bed levels of rivers have risen considerably, providing inadequate drainage for the flood water. As a result of this most of the recent floods even with smaller discharge have proved disastrous. With the increase in flood protection works the flood damage is also increasing. It means that the flood cannot be checked in absolute sense rather the ever increasing losses of life and property may be mitigated.

HUMAN INTERFERENCE ON THE FLOOD:

Naturally caused floods that would have occurred from time to time mostly handled with the natural systems but our unplanned landscape and our consumptive life style have led to an increase in floods frequency and vulnerability.

The following is a list of some of the human induced reason of floods:-

- 1. Development and Infrastructure in Flood Prone Areas-** The development and building of infrastructure in flood prone areas such as along rivers and in their bed plains has to lead to an increase in vulnerability to flooding because the natural resiliency of these ecosystem has been compromised.
- 2. Loss of Natural Defenses:** Plants and geologic features make up an ever-present natural defense against flooding. Grasses, shrubs and trees help keep healthy topsoil in place to absorb excess rainfall, and extensive root systems can absorb some excess water before it overwhelms a region.

Naturally occurring waterways, flood plains and wetlands all serve as safety valves for floods, drawing high waters away and dispersing them safely. Unfortunately, human activities in this region disrupt both of these systems, increasing the likelihood and severity of floods.

- 3. Deforestation-** For the balanced growth of any region 25% of the total area should be under vegetation cover (Ahmad E. 1965, Pp. 68). But ecological imbalance in the catchment areas following unregulated falling of trees, removed of vegetative cover mainly due to many voracious appetite for timber, cleaning of more and more land for agriculture and for infrastructural development also contributed towards the flood problem.

When deforestation occurs in a particular area there are no more trees to help soak up precipitation and reduced water flow over the landscape. Without these natural protections there is an increased risk of flooding and erosion whenever it rains.

Sometimes overgrazing affects forest adversely. Though it does not deforest an area, it retards the growth of vegetation. Hence high density of livestock is considered dangerous for the forest. To check these evil effects of deforestation, Government has initiated, a forestation in the area, but much has to be done regarding this. When ecologists speak of the protective role of trees, they mean dense natural forest with the crowns almost touching one another. If the forest cover is thinned by 40 to 50 percent, its power to protect water and soil is significantly reduced.

- 4. Artificial Leaves or Embankments-** The breaching of the embankments take place time to time because of the best materials are not always present and lack of the engineering skill. This often results in excessive seepage into the embankments, particularly during periods of prolonged high water, which may lead to wetting of the dry slope and causing the instability. In several cases piping may occur near the toe of the embankments and if this goes occurrence of overtopping, such is the usual nature of the constructional materials that overtopping is likely to erode the dry slope and lead to eventual collapse (Ward Ray, 1978, p.148). Moreover, embankments are particularly subject to damage by burrowing and grazing animals. Furthermore when breaching or even severe overtopping occurs there is a sudden and considerably inflow of water in the protected area.

The embankments previously constructed by either by the unskilled labour or by the initiative of the landlords. These embankments were partially useful but on account of their faulty construction they were unable to serve much purpose in case of high flood discharge and frequently caused much damage to crops and dwelling houses. It is reported that during the flood of 1953 the private embankments were responsible for high devastation in the Saran and Champaran districts. In 1954 when the length of embankments is nearly 160 km then the flood area estimated in the state is about 2.5 million hectares. After introducing the flood policy, system construct the embankments, 3465 km and the amount of flood prone land increased to 6.89 million hectares by 2004.

In 2008 a breach in the East Koshi afflux above the dam occurred and the river picked an old channel it had abandoned over 100 years previously and approximately 2.7 million people were affected as the river broke its embankments at Kusaha in Nepal, submerging several districts of Nepal and India. 95% of the Koshi's total flowed through the new course.

Recently Kamla Balan broke the embankments in Jhanjharpur and submerged the entire villages with huge loss of lives and the infrastructure.

Thus it can be said that embankments provide only temporary relief but it becomes more dangerous because of their faulty construction and unable to hold the huge discharge of water.

- 5. Construction of Dam or Reservoirs-** Dams or reservoirs are constructed across the natural flow of river for storing the maximum discharge of water. This damming raises the level of water above the dam. This obstruction naturally sometimes causes the disasters. When dam disasters do occur the accompanying violent flooding normally causes considerable damage and loss of life (Ward

Roy,op.cit.p.53). In times of unusual rain during short period, the storage above the dam may become so much that it becomes the cause of inundation and flooding of the lower region even if the sluice gates are kept open, because the sluice gate is never as wide as the undammed width of the river channel.

- 6. Infrastructure Failure-** Floods can be caused by a breaking or failure of infrastructure that can cause large quantities of water to flood a local area.

Another example is when dams or embankments break due to faulty construction or maintenance, or when they are overwhelmed due to heavy precipitation. Recently the Kamla River breach its embankments near Jhanjharpur districts and devastating flood take place.

- 7. Development and Infrastructure in Flood Prone Areas:-**The natural resilience of the ecosystem has been disturbed by the development and by building of infrastructure in flood prone areas such as along the rivers has to an increase in vulnerability of flood. Chapara-Sugauli-Raxaul road, Motihari-Sugauli-Bettiah road have got inadequate opening and during rainy season are liable to cause flood.
- 8. Impermeable Surfaces-** In the end of development and modernization a large amount of impermeable surfaces like roads and other concrete structures, pakka nalas do not allow water to permeate back into the soil. When heavy rain falls on these impermeable surfaces, the water can accumulate and lead to flooding in low lying areas as it is not directed properly. In 2020 we saw this in Darbhanga and Patna districts when heavy rain occurs the entire town is flooded.
- 9. Construction of Bridge-** Bridge over river can slow down the discharge of water and reduced the rivers capacity to hold more water.
- 10. Climate Change-** Due to the human produced green house gases in the atmosphere; the world's climate is changing and getting warmer. Among many other climate change impacts some regions are now experiencing increased precipitation and flooding.
- 11. Occupying the Chours-** Mithila Plain is reach in chours previously but now a day due to population growth and high demand it vanishes rapidly. Water holding capacity of chours makes it more valuable for ecological balance. As the chours are occupied by different type of works the flood vulnerability increases rapidly and it becomes more devastating.

Some measures that help us to prevent flooding:

As humans we have certainly altered much of the natural landscape of the area, leading to increase of floods, we can also help to reduce the risk of flooding:-

- By restoring of natural ecosystems, such as wetlands can we will restore some of natures capacity to lead with flood events.
- By reducing the deforested area as by planting trees we can restore the landscape's ability to take up and store precipitation.
- By restricting the development of infrastructure within flood-prone areas, such as next to rivers.
- By adopting the sustainable policy like clean energy and by working with natural limits in our own daily lives, we can ultimately help to reduce the risk of flooding as greenhouse gases reduces and we can restore the nature balance.
- We can plant trees in urban areas and intentially develop parks and reserves for natural ecosystems that retain the ability to take up rainwater and other precipitation.
- When we engage in development our development must incorporate permeable surfaces that allow water to recharge groundwater supplies, instead of simply allowing precipitation to runoff and flood vulnerable areas.

CONCLUSION:

It is clear that man's affinity for flood plains exposes him to the risk of flooding. Unplanned infrastructure development and faulty construction with the lack of proper planning and management make the Mithila Plain more vulnerable to flood and causes huge lives and livestock with deterioration in socio and economic development. Lack of awareness and literacy also make it dangerous.

The proper planning is required for the Mithila Plain to eradicate the losses caused by catastrophic floods regularly. Structural measures are not capable to eradicate or mitigate the problem. Now some other measures like GIS , Remote Sensing and other new technology are needed for long term planning to eradicate the losses occurred by regular floods in this reason. We have to make the people aware and literate about flood and ecological balance. Apart from this a strong political will and policy needed for flood disaster mitigation and management for Mithila Plain.

REFERENCE:

1. Bharat, B., (19 October 1980). "Our man made disasters" Patna.
2. Choudhary P.C.R.,(1960). Bihar District Gazetteers of Champaran, Secretariat Press, Patna.
3. Dutt, D. (Editor)., (Oct1979) "Flood control in India" Current Event, India Journal on Current Affairs Vol, xxv No. 7, Dehradun.
4. Indian Nation Press, (10 August 1980) Sunday Magazine, Patna.
5. Malley, O. L.S.S. (1909) District Gazetteers (Munger), Patna.
6. Prasad, T. (1968)" Geography study of floods in Gangetic" A dissertation (Unpublished) Ranchi University.
7. Public, R. Officer (Government of Bihar), (June 1964), "Nine year of Kosi project" River valley project Department, Patna.
8. Puri, G.S.(1960) "Indian Forest Ecology, Vol.II, New Delhi.
9. Ward, R. (1978)"Flood- A Geographical perspective", The Macmillan Press Ltd., London.