

IMPACT OF FLOODS ON THE PEOPLE OF KOSI REGION

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ABSTRACT

The Kosi a trans boundary river between Nepal and India, is often referred to as the 'Sorrow of Bihar'. The flow of the river contains heavy silt and sand, resulting in changing the river courses. During past the Kosi has kept on changing its courses between Purnia district in the east and Darbhanga and Madhubani districts in the west. The recent disaster was created by the breach in the eastern Kosi embankment upstream of the Indian border at Kushaha in the neighbouring Nepal on the 18th of August 2008. A human tragedy of unparalleled dimension was unleashed over three million people living in 993 villages in the seven districts of Kosi Region viz. Supaul, Araria, Madhepura, Saharsa, Purnia, Khagaria and Katihar. The damage by the floods was enormous. It killed 250 people and displaced nearly 3 million persons from their homes. More than 3,00,000 houses were destroyed and at least 3,40,000 hectares of cropped area was damaged. The fury of flood was such that the villagers in the flood affected zone ate raw rice and flour mixed with polluted water.

Hunger and disease were widespread. Supaul district was the worst-hit, in which surging water swamped 1,000 square kilometers of farmlands destroying large area under crops. The present paper is a modest attempt to analyse the impact of floods on the lives of the people in Kosi region.

Keywords: - Flood, Embankment. Human Tragedy, Disaster Management, Conservation Measures.

INTRODUCTION

The Kosi, a trans-boundary river between Nepal and India is often referred to as the "Sorrow of Bihar". The flow of the river contains heavy silt and sand resulting in changing of the river courses. During past the west has kept on changing its courses between Purnia district in the east and Darbhanga and Madhubani districts in the west. The recent disaster was created by the breach in the eastern Kosi embankment upstream of the Indian border at Kushaha in the neighboring Nepal on the 18th of August 2008. A human tragedy of unparalleled dimension was unleashed over three million people living in 993 villages in the seven districts of Kosi Region viz. & Maul. MVO, Madhepura, Sabana, Purnia, Khagaria and Katihar.

SOURCE OF DATA AND METHODOLOGY

Primary data have been collected from door to door field survey for some sample villages. Secondary data have been collected from Annual Report Ganga Flood Control Commission. Government of India, Patna,

and Disaster Management Department. Government of Bihar, Patna. Some of the data were obtained from internet and other publications. The methodology of the research is based on the following flood related variables (Guria and Sinha, 2012) :

- (a) The Period of flood for Kosi Region to know the year when flood actually occurred somewhere in the region.
- (b) The number of villages inundated during flood indicates where the flood has occurred in a year.
- (c) Relative flood proneness of the. areas indicates whether or not a region is geomorphologically more prone to flooding.
- (d) Do flood cause any significant fluctuations in agricultural wage rates in Kosi region?
- (e) Does the magnitude of impact of flood on agricultural wages depend on how much the region is frequently flooded?
- (f) Are the effects of moderate floods significantly different from that of the extreme floods?

OBJECTIVE OF THE STUDY

Environmental impact assessment generally, refers to the sustainability of a farming region to the occurrence of a natural disaster. This objective should be achieved in order to create a sustainable system in environmental, social and economics terms. The other objectives aim to preserve or improve characteristics of the environment such as biodiversity, soil quality and water and air quality. These indicators act as the basis for environmental impact of floods on the farming system of the area.

The main objective is to determine the impact of floods in the Kosi region of Bihar. The standing crops are damaged, houses collapse, men and livestock are killed or displaced and infrastructure like roads, buildings and bridges are damaged. The authors will try to evaluate the damage done to the people of the region during the last two floods of the year 2003 and 2008.

STUDY AREA

The area of study is the North Eastern part of Bihar, drained by the Kosi, the Mahananda and their numerous tributaries. The region is ravaged by the notorious Kosi, the Sorrow of Bihar, almost every year. The recent floods of 2003 and 2008 have left their scar of poverty and deprivation on the face of the region.. The area is a well defined geographical unit showing internal homogeneity. It is delimited by the mighty Kosi in the west, the Kosi and the Ganga in the south, Indo-Nepal boundary in the north and Bihar-West Bengal boundary in the east.

THE FLOODS OF KOSI REGION

Bihar is India's most flood-prone state, with 76% of the population in the north Bihar living under the recurring threat of flood devastation. The most flood prone area in India is its northern eastern part where 60% water of the country flows through different rivers (Bbanumuni. 2004). This is an area of high rainfall of 100-200 cm. The rainfall is concentrated in four months of the year from June to September. The slope of the North Bihar plain has low gradient as a result of which heavy siltation occurs in the lower courses of the rivers and their water spreads in agricultural fields. About 16.5% of the total flood affected area and 20% of flood affected population of India is located in the Bihar. Floods in Bihar are a recurring disaster which comes on annual basis and destroys thousands of human lives apart from livestock and assets worth millions. On an average the flood in Bihar affect 15 lakh hectares of land and 76 lakh population. The damage caused by the flood is of the tune of about rupees hundred crore every year.

In Bihar the floods of Kosi region is one of the most disastrous. The Kosi is a transboundary river between Nepal and India and is one of the largest tributaries of the Ganga. To tame the mighty Kosi, a dam was built in Nepal and the eastern and western Kosi embankments were also built in late 1950s.

But then there were breaches in the Kosi embankment during 1963, 1968, 1971, 1980, 1984, 1991 and 2008. Even without any breach in the embankments there are recurrent floods in the Kosi basin. The Kosi is known for changing its courses. Previously Kosi was flowing near Purnia in the east but during the last 200 hundred years it has shifted its course near the border of Darbhanga and Madhubani districts.

CHANGING COURSES OF KOSI

The shifting courses of the Kosi are most important because they cover a large part of the non-eastern Bihar under their floods. The most flood affected districts are Purnia, Araria, Supaul, Saharsa, Madhepura and Khagaria including northern part of the Bhagalpur district. During the two recent floods of 2003 and 2008. There was enormous damage of crops, residential houses and public property. The floods destroyed lakh of acres of cropland thousand of houses and killed hundreds of men and cattle (Singh G.N., 2012). Table-1.1 show the damage during the floods of 2003 and 2008.

Table : 1.1
Impact of flood in the Kosi Region, 2008

Sl. No	Districts	No. of villages affected	Flood affected population (In lakh)	No. of houses damage	Livestock affected	No. of livestock Death	No. of Human Death
1	Supaul	173	6.71	130,207	132500	97	211
2	Saharsa	169	4.49	25,045	161000	22	44
3	Madhepura	370	14.20	114,545	303640	10725	272
4	Araria	141	6.26	8,439	80000	0	2
5	Purnia	140	1.64	7,562	35000	0	1
	Kosi Region	993	33.30	2,85,798	712,140	10,844	530

Source: Disaster Management Department, Govt. of Bihar

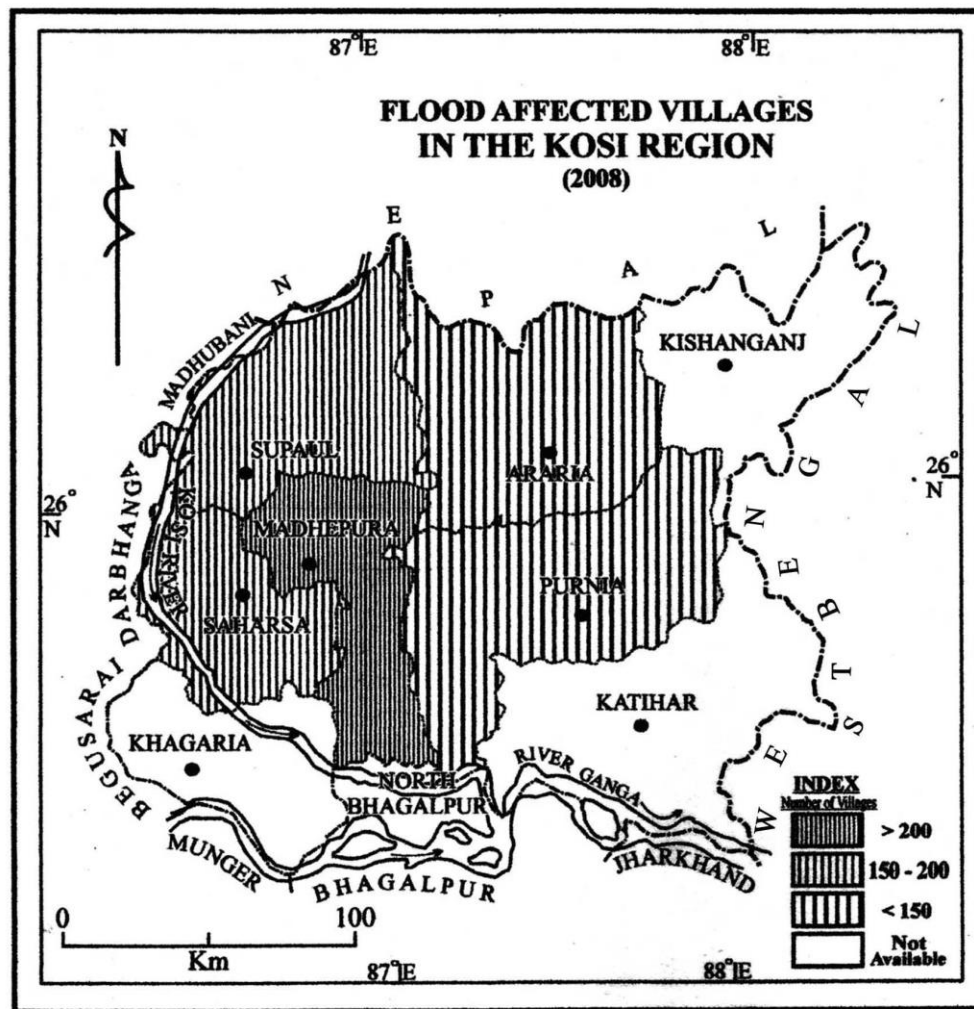


Fig. : 1.1

IMPACT OF FLOODS ON THE PEOPLE

We may classify the impacts of floods as direct and indirect.

A) DIRECT IMPACT

The following damages are included under the direct impact of floods:

(a) Damage to Infrastructure :

Damage to roads was extensive; it resulted into cutting off many communities from essential supplies. The damage was greatest in the areas where many bridges collapsed due to flash food rendering some areas completely inaccessible. The flood caused significant damage to telephones lines, electricity supply and installations. The majority of ground water wells were clogged up with mud and silt and were unusable.

During the flood of 2003 altogether 11,600 houses collapsed and their price was Its. 283.5 lakh. In the 2008 flood 2,85,798 houses were destroyed. Greatest number of houses were damaged in Supaul and Madhepura districts where more than one lakh houses in each district were damaged. Heavy loss of public property costing Rs.352.22 lakh was recorded in 2003 floods. Araria and Katihar districts were the most affected in this respect during 2003 floods. Under public property we include Schools, Hospital, Panchayat Bhawan and other structures.

(b) Damage to Agriculture & Crops :

Flood water enters into the agricultural fields and remains there for weeks thus damaging the standing crops. About 2.122 lakh hectares of cropland was damaged during 2003 floods, the price of which was estimated to 921.95 lakh rupees. Standing crops of paddy, vegetables, fruits and pulses were damaged. During the flood of the year 2008 number of villages affected was 993. At least 340,000 hectares of cropped area was destroyed during 2008 flood.

(c) That Population Affected :

The total population affected in the 2003 flood was 19 lakh whereas over 33 lakh persons were affected during the 2008 floods. In the recent flood of 2008 Madhepura, Supaul and Araria district were the worst affected, where 14 lakh, 6.7 lakh and 6.2 lakh people were affected respectively. During 2003 flood the most affected districts were Purnia, Katihar and Saharsha where largest number of population was affected.

(d) Loss of Human Life :

Even for human population the damage by the floods was enormous. In 2003, it killed 29 persons but in 2008 a total of 530 people died due to floods and many were reported missing. In government statistics death figure is grossly under reported. Reports from field workers of Action Aid (An NGO) and other organisations particularly the Citizen's Initiative on Flood in Bihar, place death estimates at 2,000. Media reports estimate still higher figure. Government figure is much lower because they only include those whose bodies have been recovered. (Kumar. M. and Singh, A.K., 2010)

(e) Loss of Live Stock :

The total number of animal death during 2008 flood was 10,844. In an agrarian society of Kosi region livestock are important part of agricultural population: The death of their animals is a greater loss than the damage of crops or houses. The losses are extremely high for an average household which lost almost 65% of their livestock in the flood affected areas. While many families managed to bring some or all of their livestock from affected areas, many others have been forced to sell their cattle in exchange for cash or food, as fodder was in limited supply in the relief camps.

(B) INDIRECT IMPACT

The health and nutritional wellbeing of the affected people is linked with various factors including access to appropriate foods, health care services, proper feeding practices for infants and young children, safe water, inept and sanitation (Few. R. Ahren. M. Manhies F. and Kovats, S. 2004). 60% of the affected reported that the nearest healthcare facility was damaged by the flood in 2008. Almost two-thirds of the affected households reported that they could not reach to the nearest health care facility within an hour.

Results for food consumption intake, as measured by dietary diversity and frequency over the past week, indicate that flood affected household ate cereals on an average more than 10 days in two weeks. Milk and dairy

products were consumed on average 3 to 4 days in one week. In contrast fruits, meat, fish were almost consumed in 3 days in one week. The deterioration in household food security is also shown by the number of people skipping meals. The majority of the households (85%) stated that their plain water sources before the flood crisis was protected hand pumps. The other sources were rivers and ponds (14%) and unprotected hand pumps (1%). These water sources were perceived to be insufficient and of not a good status during the flood crisis.

Fisheries sector in the state have suffered huge losses on account of the devastation brought by floods. The households whose livelihoods were most affected have the lowest levels of income: out of those who reported that their income was reduced by 75% or more, 25% live below the national poverty line. According to the survey data, farmers and livestock owners bore the brunt of the flood impact.

The immediate impact of climate change on rice production systems and flood security will be felt in the form of adverse effects of extreme weather events on rice production. Floods also cause indirect damage to rice production by destroying the properties and production means of farmers and infrastructures supporting rice production such as dams, dikes, roads *etc.* (De U.S. and K.S. Joshi; 1998).

MEASURES FOR RELIEF AND REHABILITATION

In 2003, as per the reports available from the Bihar Government, a corpus fund of Rs. 108.97 crores was available in CRF with the state in August 2003. Out of this money, only Rs. 19 crores were released from the fund for carrying out relief operations in the state till August. Yet, the Rabri Devi government in Bihar was flaying the central government for not helping the state with the requisite money.

In 2008, widely reported as the region's worst flood in 50 years, Nitish Kumar (Chief Minister of Bihar) met Indian Prime Minister Dr. Manmohan Singh to seek his help in dealing with the 'catastrophe'. The Prime Minister declared a "National calamity" on 28 August and earmarked US \$230 million in aid for the region. Rescue operation were carried out by the Indian Army. National Disaster Response Force (NDRF) and non-government organizations. Indian Air Force helicopters dropped relief supplies in the worst -hit districts. Chief Minister Kumar requested a rehabilitation package of Rs. 14500 crore from the Central government for the flood ravaged Kosi region. On 1st September, describing the floods as a "disaster" the Dalai Lama gave one lakh rupees to the Bihar government for relief work. The Government of Bihar initiated Kosi reconstruction and rehabilitation programme covering 30,000

affected families in Saharsa, Supaul and Madhepura districts based on a pilot project implemented by ODR collaborative, a network of organizations supporting the government and an ownerdriven reconstruction policy was formulated to support each family with Rs. 55,000 to construct their own houses. After signing an agreement with the World Bank in January 2011, this programme has been made to cover 1 lakh families for reconstruction of hazard safe houses. The Government of Bihar has also partnered with ODR collaborative and UNDP to continue the social, technical facilitation and capacity building for this owner driven reconstruction programme.

The Rs. 14,808.95 crore multipurpose Kosi Rehabilitation and Reconstruction policy -2008 aimed to providing income of livelihood, community facilities and reconstructing the houses of those displaced by the severe flood has already got the state cabinet's nod paving way for formal beginning of reconstruction work in flood affected areas of all six districts. ORDC reports that in Supaul, Madhepura and Saharsa districts 1981 bank advances for this purpose have been issued and 788 house owners have already withdrawn the money from the bank by July, 2010. In this way, there is no doubt that the present government of Bihar has tried its best to help the flood affected people in rehabilitation and reconstruction. Still there was uncertainty in the life of the people. Most of them did not yet know when they will be able to return home and resume their livelihoods (Jadhav, H.V. 1994).

CONCLUSION

The Kosi is a transboundary river having its origin in Tibet (China), passing through Nepal and bringing flood havoc to the plains of Bihar. There is a regular spell of floods in the Kosi region and most of the districts of the region are regularly affected by floods. The 2003 and 2008 floods were infestive which damaged several lakhs of houses and affected almost 30 lakhs of population. Although a great amount of relief and rehabilitation work was done to mitigate the suffering of the people, but still the scar of poverty and deprivation in the region has not been obliterated.

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