FLOOD DISASTER AND ITS IMPACT ON THE PEOPLE IN KOSI REGION, BIHAR

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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 excessive silt and sand, resulting in changing the courses of the river. During the past, the river has kept on changing its courses between Purnea 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 Kursela in the neighbouring Nepal on the 18th of August 2008. A tragedy of unparalleled dimension unleashed was over three million people living in 995 villages spreading in seven districts of Kosi region, viz. Supaul, Araria, Madhepura, Saharsa, Purnia, Khagaria and Katihar.

Objectives:

The purpose of the paper is to investigate the damage caused by the devastating floods due to the turbulent river Kosi recurrently and its impact on the socio-economic life of the people inhabiting in the region which is densely populated but with poor economy. The objective refers to the sustainability of an agricultural region to the occurrence of a natural disaster. The objective is to achieve in order to create a sustainable system in environmental, social and economic terms. The other objective aims to preserve or improve characteristics of the environment such as biodiversity, soil, and water and air quality. These indicators act as the base for environment impact of floods on the farming system in the study area. The main purpose is to determine the impact of floods in the Kosi region of Bihar. A huge toll of life, property, livestock and standing crops are damaged resulting into a chos and confusion in the minds of he people robbed of all their belongings.

Data Base and Methodology:

Data regarding the study are based on both primary and secondary sources. Primary data have been collected from door to door field survey from selected sample villages. Secondary data have been procured from Annual Report on Ganga Flood control commission, Govt. of India, Patna and Disaster Management Department, Govt. of Bihar, Patna. Some of the data have been obtained from internet and other publications.

The methodology of the research is based on the following flood related variables:

(a) The period of flood for Kosi region to know the year when flood actually occurred somewhere in the region.

(b) The number of village 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) Whether flood causes 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?

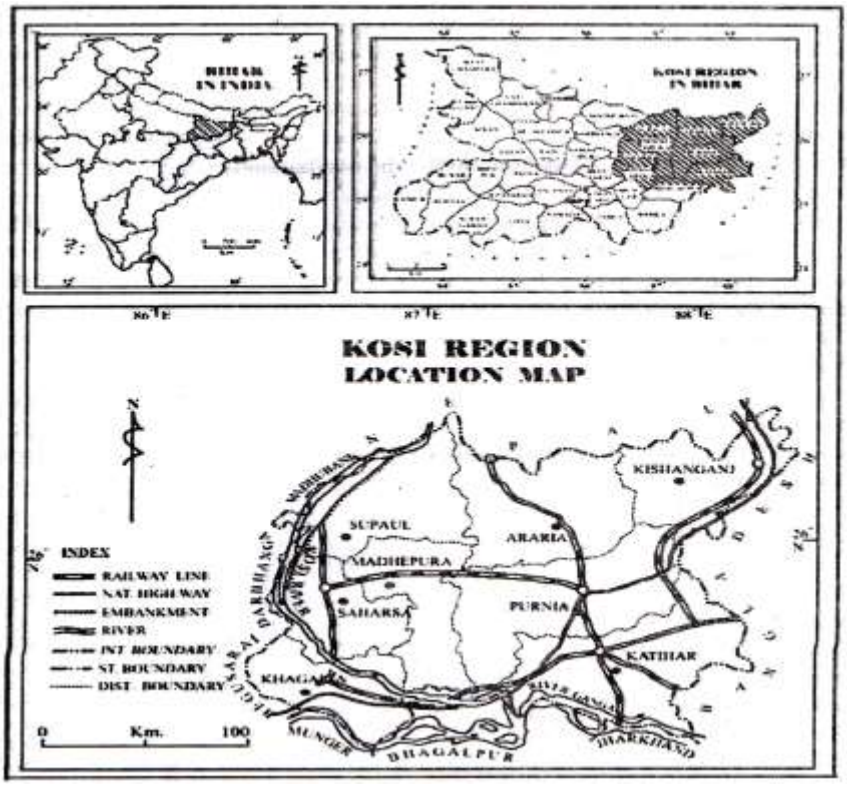
(f) Are the effects of moderate floods different from that of the extreme floods?

(g) Is the floods responsible for migration of the poor people for unemployment in cities?

Study Area:

The study area *i.e.* North eastern past of Bihar is 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 region is a well defined geographical unit having internal homogeneity. It is delimited by the mighty Kosi in the West, the Ganga in the South, Indo-Nepal boundary in the east. The region encompasses 07 districts of North-eastern Bihar.



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 (Bhanumurti, 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 Bihar Floods in Bihar are a recurring disaster which come 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 he 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 district.

Changing Courses of Kosi :

The shifting courses of the Kosi are most important because they cover a large part of the north-eastern Bihar under their floods. The most flood affected districts are Purnia, Katihar, Araria, Supaul, Saharsha, Madhepura and Khagaria including northern part of he Bhagalpur districts. 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 – 01 and 02 show the damage during the floods of 2003 and 2008.

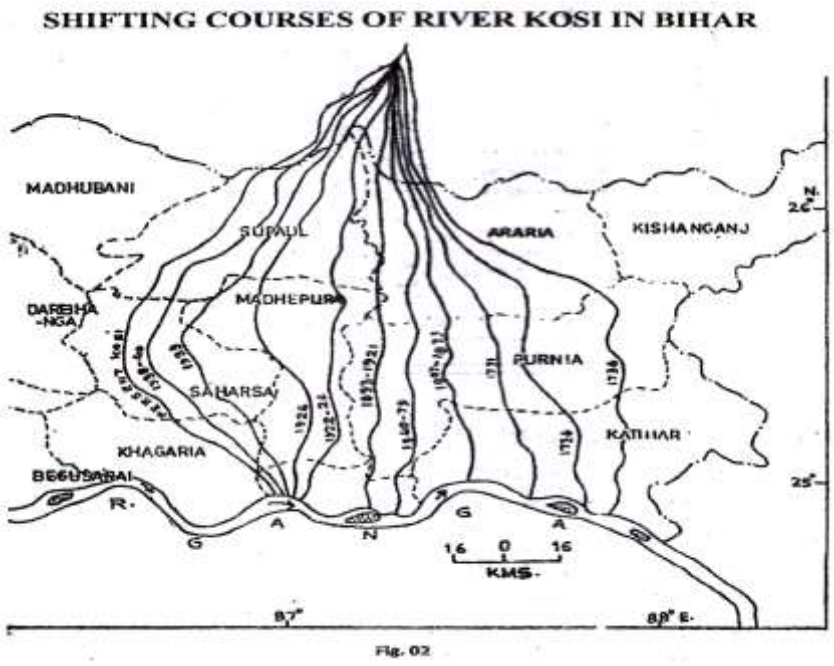


Fig. 02

TABLE: I 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

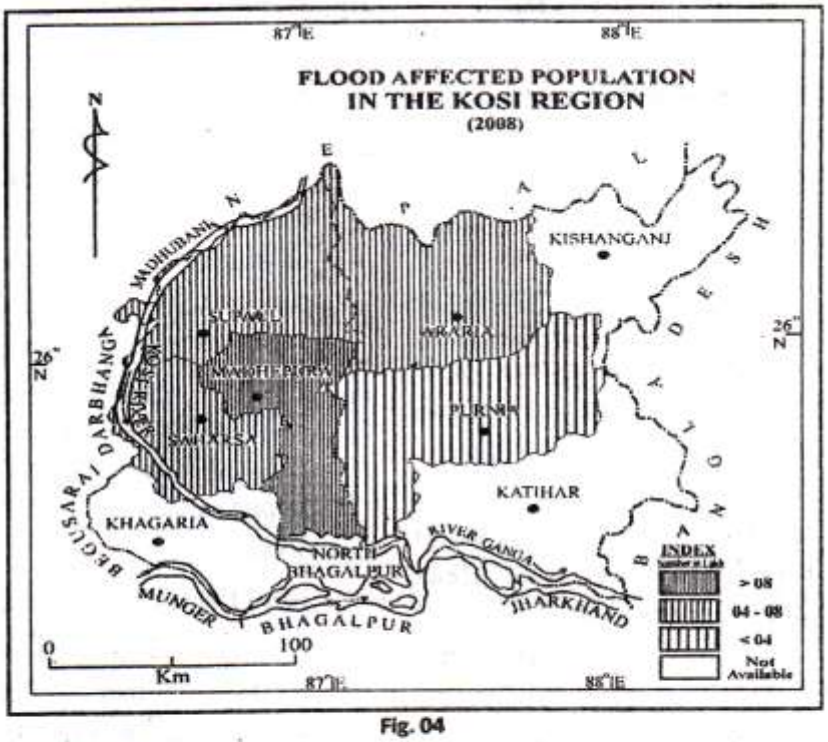
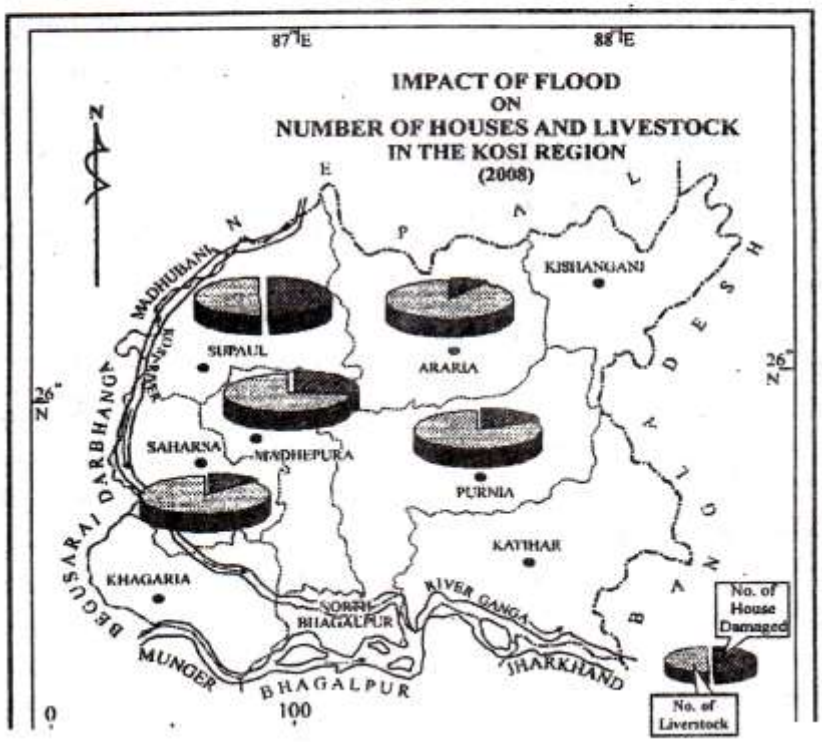


Fig. 04



IMPACT OF FLOODS ON THE PEOPLE:

The impacts of floods are direct and indirect both.

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 majorities 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 Rs. 283.5 lakh. In the 2008 flood 2, 85,798 houses were destroyed. Greatest number of houses was 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 latch rupees. Standing crops of paddy, vegetables, fruits and pulses were damaged. During the flood of the year 2008 number of villages affected were 993. At least 340,000 hectares of cropped area was destroyed during 2008 flood.

(c) Total 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 figures are grossly under reported. Reports from field workers of Action Aid (An NGO) and other organizations particularly the Citizen's Initiative on Flood in Bihar, place death estimates at 2,000. Media reports estimate still higher figures. Government figures are 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 flood affected people is linked with various factors including access to appropriate foods, health care services, and proper feeding practices for infants and young children, safe water, hygiene and sanitation (Few. R, Ahren. M. Matthies F. and Kovats, S., 2004). 60% of households reported that the nearest health care facility was damaged by the flood in 2008. Almost two-thirds of the affected households stated 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 main 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 milion in aid for the region. Rescue operations 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 owner driven 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 means 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 advises 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 uncertainly 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 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 infact devastating 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.

REFERENCES:

1. V. Bhanumurty (2004) NRS A Contribution in Flood Management Using Satellite Data, National Workshop on Flood Disaster Management - Space Input - 3-4 June, Hydrabad.

2. Singh, G.N. (2012) Flood Problem in Bihar, Adhunik Bihar ka Bhaugolik Swaroop, R.K. Books, New Delhi; pp-54-69.

3. http://disastermg.

4. Kosi ayog.bih.nic.in/doc/letter-45.pdf.

5. ODRC, Patliputra Colony, Patna.

6. Hussain M.(2000) India Tata McGraw Hill education Pvt. Ltd. New Delhi.

7. Kumar, M. and Singh, A.K. (2010) Kosi 'Pralaya' of 2008 : An Appraisal of Rehabilitation and Rettlement, Geographical Perspective, Vol. 11, pp-37-42.

8. Guria, N and Sinha, M.K. (2012) Natural Hazards Impacts on Crops and Human Life : A Case Study of Namkhana Block (W.B), India, Journal of Integrated Development and Research, Balia (U.P), Vol.2, No. 2 pp. 22-28.

9. Bhattacharya, P.K. (2001) Flood in North Bihar, Problems and Management, Patna. Vol. 2.