CAUSES OF FLOOD BY INDIAN RIVER

A CASE STUDY OF

TRANSBOUNDARY RIVER ICCHAMATI IN GANGETIC DELTA

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ABSTRACT:

Decision makers worldwide face a difficult challenge in developing an effective response to the threat of water-induced disasters. After prayers to the rain gods, answered in excess in parts of our country, now, the focus has shifted to floods. Many states in our country are flood prone due to heavy rain or otherwise. The flood causes loss to human life and widespread damage to property. Unimaginable damage to agriculture takes place affecting the State planning and upset the financial budgeting there by slowing down the whole economy of the country. The term "flood" is a general or temporary condition of partial or complete inundation of normally dry land areas from overflow of inland or tidal waters or from the unusual and rapid accumulation or runoff of surface waters from any source. Heavy downpour in the form of rain, brings down more water than can be disposed off by combined factors natural and man made systems causes flooding. The rivers overflow embankments may be breached. Generally rains following storm and hurricane are heavy and bring unmanageable amount of water causing flash floods. The frequency or probability of a flood usually is described by assigning a recurrence interval to the flood at each gaging station. This is accomplished by statistically evaluating long-term annual peak stream flows at a station.

SIGNIFICANCE OF THE STUDY:

Any research gives us a light of new vision. The significance of that research work will help us what are main causes and affect of flood in Bongaon Block by Ichamati river. Local government as well as govt. of India can take necessary step to reduce mitigate, and management of flood in Bongaon Block. Although flood is a natural hazard, but by which of interference by man increase the flood vulnerability that should control by the proper govt. policy as well as people awareness.
BACKGROUND OF THE STUDY:

Bangaon Block is an administrative division in Bangaon subdivision of North 24 Parganas district in the Indian state of West Bengal. Headquarters of this block is at Bangaon. Bangaon Block has an area of 336.70 sq km and is located at 23°04’N- 23.07°N and 88°49’E -88.82°E.

Bongaon Block has an average elevation of 7 metres (22 feet). Bongaon block situated on the northern part of North 24 Parganas district in West Bengal, selected for the experiment. Its eastern side has international border with Bangladesh, Nadia district situated on west, northern side has Bagda block and also southern side bounded by Gaighata block.

Fig-1: Map of the geographical location of Bongaon Block
OBJECTIVES OF THE STUDY:

The Objectives of the investigation has been carried to --

A. To understand the principal causes of flood in Bongaon Block.
B. To identify with focal effects of flood in the investigated area
C. To value the role of disaster management of Government and NGOs during the flood and post flood reconstruction.
D. To find out the way of managerial procedure to reduced flood affection

METHODOLOGY OF THE STUDY:

The methodologies followed in the present report may be divided into three parts –

Pre-field methods consist of collection of secondary date and information from B.D.O office, Ichamati Bachao (Protection) Committee Office. Panchayets, journals, reports, and available literatures etc.

Field methods include collection of primary date from aged person in different G.P. and collection of present condition of Ichamati by photograph in different reliable place of Ichamati river.

Post field methods include date analysis, termination, charts etc and preparation the final report.
LIMITATION OF THE STUDY:

There have some limitations of the research work. First of all the researchers have faced problem when he had gone to the block office, they did not help him properly. The researcher again faced problem when he had gone to the office of Ichamati Banchao Committee, they help but not properly. All panchayets office also did not record properly the flood related data of their office.

RESEARCH DESIGN

Effective Planning of Flood Risk Reduction Management

Site Selection

SAMPLING DESIGN

Investigation Schedule

Information Collection

Information record

Primary Data Collection

1. PRA/ RRA/ FGD with local communities
2. Meeting with administrative officer of Bongaon block
3. Meeting with different govt and NGO officers and related on research work

Secondary Data Collection

1. Different journal,
2. Govt. report of flood
3. NGO report
4. Newspaper
5. Research Report
6. Map collection

DATA COLLECTION

1. PRA/ RRA/ FGD
2. Meeting with administrative officer
3. Meeting with different officers

DATA ANALYSIS

Report finalize after obtaining secondary information of impact communities and govt and NGO activities of flood reduction management

Data compilation and preparation after getting all the information on impact of flood of Bongaon block

Effective Planning of Flood Risk Reduction Management

Table-1: Lay our of the methodology of Present study
RESULTS:

FLOOD OF ICHAMATI:

The areas under Bongaon Block fall more or less in the middle reach of river Ichamati. The water logging and drainage congestion problem in these areas under Bongaon Sub-Division in the District North 24 Parganas mainly centre on the river Ichamti which is virtually in its death throes. During the months of September-October 2000, the people of Bongaon Block experienced the worst water logging and flood problems causing serious dislocation of public life and destruction of basins.

Movement of flood-spill of river Bhagirathi and causes of flood in the river Ichamati. There were breaches of embankments on left bank of river Bhagirathi in many places, the remarkable places being Kalukhall, Mehul_Daspara, Kandagachi, Majhyampur, Dakshinpara in District Murshidabad and Jhaudanga in District Nadia. The flood-spill from the huge upland-discharge of the rivers moved in the southeast direction in conformity with the contour of the area, crossed over to Mathabhanga- Chaurni- Ichamati basins, and flooded the Bongaon Block areas from 25-09-2000 onwards. The huge upland-discharge which entered into the Ichamati- Jamuna basins was much in excess of their carrying capacities.

As a result, the areas under Bagdah-Bangaon-Gatghata and other contiguous low-lying areas of north 24 Parganas District were inundated creating an unprecedented flood situation in a rough 1.5 lakh cusecs of discharge entered into the Ichamati against its normal carrying capacity of 20,000 cusecs. On analysis of the day-to-day report of the flood situation in the Ichamati-Jamuna system. It transpired that the rising of water level was very rapid initially and continued up to 01-10-2000. With the falling of water level in the upper reaches of the Ichamati in Bongaon-Bagdah areas, there was corresponding rise of water level in the lower reaches in Gobardanga, Swarupnagar, Gaighata, Mastandapur, Deganga, Baduria and Habra etc.

Fig-2: Vulnerability of flood in Bongaon Block
CAUSES OF FLOOD AROUND BONGAON BLOCK:

We have observed in last few years history, we show flood of Bongaon Block is regular events. In past day is not any flood in Bongaon Block, that’s not true. In 1971-72 be effected by big flood. But that’s was parted (separated) event. In the present 2000 years big flood from before few years (1995) and then the present time 2010 every year is flooded separated area in Bongaon Block. But why this change? Why once a time fem Bongaon Block, to day every years flood affected? What is this flood or water logging? If we do not any deeply discus we not get right answers. In general we know suddenly heavy rainfall, over load water in river bed etc is main cause for river. But is what heavy rainfall in every years in Bongaon Block and that’s main reason for flood in this region? No, that’s not right. Because Rainfall date in Bongaon Block give not that’s answers.

Actually Ichamati River is flowing in middle point of Bongaon Block origin from Mathabhanga river nears Majdia in Nadia district before Independence Ichamati river was strong current, picture or diagram is main proof. But in present this river converted as pawned water block being concreted by illegal way, house hold, same as and other construction of both side at river bank is increased in river bed. Water hyacinth, fishy dam fishing net, board of fish etc done slow of water current in river. Immobile river is disconnected with inside water body. As a result ordinary rainfall in Bongaon municipal area and 16 gram panchayet did create local flood, mainly that’s we can call water logging for insufficient drainage system. During the investigation, several reasons have been found for the causes of flood due to natural and unnatural events around ichamati river which briefly described as follows:

Disconnection with source of river:

Before independence the characteristics’ of Ichamati river was - Ichamati river get water from Mathabhanga river and Mathabhanga river connection with Padma river. Even high and low tide played up to Datafullia in 1970-71. But at in present is not that. Where the Jalangi river create from Padma river in Murshidabad district there 10 – 19 km ebb-tide from Padma, created of Mathabhanga river that’s place located in Bangladesh. Then windingly some times India, sometimes Bangladesh and finally as a name Icchamati river flowing of Pabakhali at Majdia in Nadia district near Gede border. Moreover in Pabakhali create another river as a name Churni river. From Pabakhali to Arongghata, Kalinarayanpur, Ranaghat to be the Churni river to joined Hooghly river near Chakdata according to folk – tale Maharaj Krishnachandra built a Siba temple near Majdia and he to excavated a channel help by British Government from Pabakhali near Mathabhanga – Icchamati join centre for wall ferry transport and business purpose with Ganga.
excavation of Churni canal to create impediment of water flow in Ichamati river slowly and gently maximum water of rapid Mathabhanga river flowing by Churni canal. As a result Churni is well connected with Mathabhanga river and depth of Churni canal increasing. Churni canal converted as a Churni river. In the other hand Ichamati river not getting enough water, depth decreasing and increasing siltation in river.

Gradually increasing of depth distinguishes between Curni and Ichamati river bed. In the present time difference of depth between this two river is 14 – 15 ft. history says that in 1940 the them British Government built a railway bridge over the river at Majdia. The flow at river was obstructed by large boulders which were not removed there after when completed of bridge in 1950 and from then the river began to the obstructed and gradually came to the dyeing condition which we see at present.

The railway bridge on the Ichamati river has four span. All side of every span and down of rail bridge was well covered by heard boulders for protection of bridge. As a result become not damage of bridge but become die at Ichamati river. In monsoon season silted water obstructed by under ground of railway bridge and siltation process rapidly increased.
Higher abundance of Water hyacinth:

Water hyacinth of river basin of Icchamati is a important reason for slow movement of water current. Ghat Baour to Tentulia a large area is covered by water hyacinth of Icchamati river in Bongaon Block.

Some times take care to do clean of water hyacinth by Government or Non-government. But that take a small role for solution of Actual problem. Some times is closed in general act of ferrying at college ghat and Pikepara in Bongaon Block for heavy water hyacinth. So to do will completely clear of water hyacinth from river bed to get still solution from flood in Bongaon Block.

Illegal Construction of river side:

Embarkment of the Ichamati river is going on by the effort of Govt and different non govt. construction. Non govt construction of the most of the area besides Ichamati river is practiced like brick field, households close to the embarkment of Ichamati river illegally captured the area of river for their living place increased, as a result river are becoming so narrow. Not only this, wrong govt. effort is also practicing around many area of the river. As example, very recently very close to Dinabandhu colleg that situated opposite of Paikpara of Bongaon Block govt. constructed retaining wall, but why this unnecessary wall? Department of Irrigation, Govt of West Bengal said that this wall is for save the Bongaon from flood. But expertise and environmentalist worried that because of retaining wall in right side is cause for flood of left side area of Ichamati river. Bongaon city is diversed by Ichamati river , so it is now major question for left side community that why we are only victim for flood? What is their fault ?
During the earlier, water of monsoon season crossing through Notun Gram, Gopal Nagar and Bardhanbaria canal enter in to the adjacent to Jessore road of Bongaon city and also flowing besides a large bridge (earlier forensic dpt. of Bongaon hospital) near Bonasri cinema hall and finally reach to Ichamati river behind the press of Temple. Another way was from Rangaghat 1 rail gate to 1.4 km flowing on the way to Kolkata on the Jessore road, the monsoonal ware enter by 250 feed ‘Causeway’ and mixed with Ichamati river through large bridge (Jorapol) of Bongaon Berigopalpur road. At present all the way of ware flow is now closed because of unconscionness of govt. and local communities. As a result, Bongaon Block is flooded in every monsoon season.

**Fishery-bunches, fishing nets:**

Fishery bunches, Fishing nets are important part for Ichamati river. Local fisherman to take own separate boundary by fishery bunches to do create complex problem. From Dattafullia to do Beregopalpur in this part of Ichamati river have fully or half fishery bunches more than 12 spots. Some times take a necessary step by Government effort for clearness of fishery bunches, fishing – nets, but that’s not complete solution.

![Fig -6: Fishing activities of Ichamati River](image)

Because after expedition again create problem by new fishery bund has, fishing nets in Ichamati river basin. It could be support of some political leader and social criminal. However this fishery bund has, fishing nets etc to create prevented of natural water flower in Ichamati river. As a result siltation increasing where fishery bund has has, fishing nets. That’s doing depthless in to the Ichamati river bed.

**Siltation:**

Siltation is another important cause for died of river. If present current of water was flowed, silt transferred in sea by current. But disconnection with source of river in present Ichamati river converted to closed water body. As a result siltation has been increasing. Source of Ichamati river from Mathabhanga river in Pabakhali from few years ago is not any source of Ichamati river.
By observation I saw that Pabakhali to local Bhajan ghat like 9 km in river bed is dry, no water. Even this part of river local people do use various daily works like walking, transport, cultivation etc. In 2005 from Kalanchi bridge in Ghaighata to Tentulia bridge in Swarupnagar approx 24 km of river bed reclamation by Government effort. Collecting silt from river bed kept on the river bank. As a result in monsoon season that’s still sifted in river reclamation. Presently in this part of Icchamati river losing his depth by siltation. More over have another reason for siltation In Icchamati river. High and low fides playing to Icchamati river. Where high tides velocity 8-9 km / hr. there velocity of law tides is 5-6 km / hr. As a result high tides that’s amount silt to take come from mouth of river, Low tides can’t to take go from river for his weak current, so easily a large amount silt deposited in Icchamati river bed.

**Problem of Navigation of water body in Icchamati river basin area:**

The Ichamati basin which consists of many canal, khal, beal, baor etc. lost their water capacity due to our ignorance from long periods of time. As a result overflowing both side of the that’s water body at rainy season flooding adjacent places now and then. There is an example about Tangra Colony beal in Bongaon Block.

Every year a large area of GP are flooded during rainy season. As like this beal, lot of water body known as Dudher Beal, Ghat Baor, Gara Pota Beal, Sundarpur Beal, Berigopalpur Khal, Nahata Khal etc. Situation of every khal and beals are same condition. Due to siltation of large time the depth of water body is now similarity comparison to near agriculture field. During the summer and winter season the water body are looking dry land and monsoon season they are flooded after receiving water from raining and submerged the nearest villages and agriculture fields.

**Disconnection of Ichamati with nearest water body:**

Due to reduction of navigation for the water body, connection of this pathway has been losing from main river Ichamati in this region. In the earlier, during the monsoon season water from the water sources entered into the Ichamati river and then finally mixed into the sea through Ichamati. We can example of water body like Dudher Beal located on Ghat Baor GP of Bongaon Block. This beal was a connection through Ichamati by Charuigachi, Boaldaha, Angarpukur, Ramchandrpur, Vire, Chaygharaia area. So, during monsoon the water mixed with Ichamati river
Fig-8: flood affected villages of Bongaon

easily in this way earlier. But at the present time, the connection had stopped and for this reason during rainy season the water body overflowed and submerged the nearest villages and crops land.

Establishment of Brick fields river bank of Ichamati:

Siltation process in Ichamati River have taken an important rnte for flood in Bongaon Block. There will to do mention of (Same as) in both side at Ichamati’s river Bank. Illegal work of brick fields mainly like in scientifically indiscreetly collecting of silt-soil from river basin, illegal construction of river bank near brick fields etc running free of liability.

Fig-9: Brick fields on the river bank of Ichamati

Mainly Eight brick fields have in Bongaon Block in both side of river bank. There are three big brick fields that’s area at every Brick fields more than 500mt and have two medium and three small brick fields.

<table>
<thead>
<tr>
<th>Nature of brick fields</th>
<th>No. of brick fields</th>
<th>Area of brick fields (mt$^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Area</td>
<td>3</td>
<td>&gt;500</td>
</tr>
<tr>
<td>Medium Area</td>
<td>2</td>
<td>300-500</td>
</tr>
<tr>
<td>Small Area</td>
<td>3</td>
<td>&lt;300</td>
</tr>
</tbody>
</table>

Table-2: List of Brick field in the Bongaon Block
If we will go to know about brick fields in river bank side, we found width of river basin is very short than the average width at river basin. Some location this width at river basin is less than 50mt. Its cause illegally construction of river side near brick fields for incensement of brick field’s area. As a result the Ichamati river loosing lug water captured power and that take a main role for flood in Bangaon Block every years in monsoon season.

Decomposition of jute and washing in Ichamati river bed:

Very worst situation of Ichamati river now is due to washing of Jute after harvesting every year. Ichamati river is flowing most of the area we have seen are located beside the agricultural field. During the time of Jute harvesting, it is need to clean and for this purpose Ichamati river water every year used for decomposition of jute by the farmers. To decomposed jute farmers used soil on the jute and time of washing this soil fall down in the river bed. Besides this lot of unwanted products also mixed into the river bed. By this way river bed is becoming depthless, as a result, river are flooding at the monsoon period within a short period of time for a while.

Discharge water from Farakka Barrage:

Devastating flood of 2000 for Bongaon Block was the discharge heavy water from Farakka Barrage. Specially upper stretch of Ganges, like Bihar, Uttar Pradesh were flooded due to heavy rain and the river water reach to danger point. As same lower stretch of Ganges West Bengal had heavy rainfall.

As a result, ganges river was flowing very dangerous level through Farakka Barrage. To protect Farakka Barrage, authority forced to discharge lot of cusec water and these huge water was out of capacity order for Bhagirati-Ichamati- Hooghli river system. As a result 17 districts of west Bengal including Bongaon Block was submerged.In a concluding stage we are furious about that the Gangetic river basin including Ichamati river are now such condition that – over raining and discharge of Farakka Barage will be happened again like 2000 the Gangetic West Bengal including Bongaon Block will be under the water surely.
So, it is utmost necessary to reformation of all the rivers of Gangetic West Bengal including Ichamati river at present, without this economic and human loss will be regular happened due to flood -nothing to do only counted.

**FLOOD RISK REDUCTION MANAGEMENT:**

West Bengal is a land of many rivers. Quite a number of them straddle catchments areas beyond the state of the country boundary. The international rivers like the Ganges or the Brahmaputra drain large catchments beyond the state boundary and enter the state almost at the last lap of their courses. This fact poses two significant problems. During floods the high flow from distant upper catchment creates drainage congestion in the state. During the monsoon season the situation is compounded by local precipitation. Secondly, during the lean season withdrawal in the upper reaches reduces the low flow still further.

<table>
<thead>
<tr>
<th>River Ichamati (levels in m), Majdia</th>
<th>Bongaon (Rakhalbadas Setu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger level</td>
<td>Extreme Danger Level</td>
</tr>
<tr>
<td>7.82</td>
<td>8.24</td>
</tr>
<tr>
<td>River Ichamati (levels in m), 2000</td>
<td></td>
</tr>
<tr>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>River Ichamati (levels in m), 2004</td>
<td></td>
</tr>
<tr>
<td>Not available</td>
<td></td>
</tr>
</tbody>
</table>

Table-3 : Flood signals at different points of the Ichamati River

The river of West Bengal has undergone significant changes due to natural causes. But of late the changes brought about by human interventions have been extremely important. Rapid increase in populations has been creating progressively larger demands on our water resources including the rivers. Hence more interventions are likely to come in future. Consequently it is necessary to conserve the rivers as far as possible so that they may continue to benefit the people for the future. To fulfill this requirement it is considered necessary to draw up a policy on conservation of rivers.

The situation calls for both short-term and long-term remedial measures. As a long-term solution to the problems associated with the river Ichamati. Irrigation & Waterways Department
has a plan to draw up a comprehensive scheme for the entire length of the river Ichamati. In the meantime, however, Irrigation & Waterways Depart mint has already taken up some short-term palliative measures, as drainage improvement work, in phases, in the lower reaches Ichamati for a length of 14.5 km to case out the acute drainage problems of the river by removing the silted up char land up to low-water level from Gholaghat to Tentulia. Similarly, the silt clearance work of river Jamuna by removing char land up to low-water-level has been done from Molladanga to Tippi, for a length of 2.5 km. There were heavy yielded results in the improvement of flow. The work of silt clear will be continued for next 4-5 years.
Table-4 : Flowchart of Managerial action for Flood Reduction Process of Ichamati River
CONCLUSION:

Irrigation and Waterways Department (I& WD) Govt. of West Bengal has already taken up disiltation works in some major reaches of the river. However, the progress is not up to the mark and there is no comprehensive project to solve the problem. Govt. of India has also raised different issues regarding this river with Bangladesh Government through the Joint River Commission (JRC). There has not been any definite response as yet from their side. The alternate proposal given above will not involve Bangladesh; hence Govt. of West Bengal can immediately take up the project without waiting for an understanding with Bangladesh. Districts including Bongaon Sub-division and city of Kolkata will face acute drainage problems and devastating floods. Events of 2000 and 2004 are forerunners to this approaching catastrophic.

For the above reason it is necessary to undertake the alternative proposal including the augmentation of flow in the river Hooghly. I & W Department, Govt. of West Bengal needs immediately to take steps in this direction of the District of Nadia and North 24 Parganas will quickly deteriorate further and the city of Kolkata will face acute problems in its drainage outfall systems.

REFERENCES:


