

FLOOD DISASTER IN ASSAM: SOCIO- ECONOMIC VULNERABILITY AND CONTROL MEASURES

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Abstract

Flood is the major recurrent natural disaster of Assam. The economy of Assam mainly is based on agriculture, a large number of agrarian people and a vulnerable section of the society affected by flood in every year. The heavy monsoon coupled with various unscientific human activities is causes of heavy flood in the state. In every year during the successive waves of floods, thousands of people are rendered homeless; causing widespread damages of agricultural crops, properties (public and private) including communication system between regions, leads negative impacts in the economic activities. Thus, the monetary value of the flood damage is showing an increasing trend and the state is losing a good percentage of its GDP in flood disaster, which is creating hindrance to the progress of the economy. Government of India along with state Government has initiated various measures and approaches to mitigate the flood victims and also taken many initiatives every year to control flood and erosion. Modern technology and proper implementation of government schemes are needed to reconstruct the whole situation. Thus, here an attempt is made to analyze the economic impact of flood, role of governments for the victims with remedial measures to correct the critical situation.

Keywords: *Flood, Assam, Economy, Government*

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Introduction

Assam is a state of North- East India, Located south of the eastern Himalayas, comprises the Brahmaputra Valley and the Barak Valley and it is situated 90° to 96° North latitude and 24° to 28° East longitude. The total geographical area about 78,438 sq.km and out of which 56,194 sq.km and 22,244 sq.km fall under Brahmaputra and Barak valley including two hill districts respectively. The Economy of the state based on agriculture and about more than 50% of the total population are engaged in agriculture, according to census 2011 and all agricultural activities depends on climate. The two Main River of the state Brahmaputra and Barak are the main source of agriculture and water transportations among the regions. But in the time of monsoon both the river creates a situation like flood disaster due to its low capacity of conserving water level and creates a situation like erosion. Flood is one of the most important environmental problems of Assam, cause sudden disruption to the normal life of a society and cause enormous damage of property to a great extent. Its vast network of rivers is prone to natural disaster like flood and erosion which has a negative impact on the process of overall growth of the state. The Brahmaputra and Barak along with their tributaries are the causes of flood in every successive waves of monsoon. There have been various references to disastrous floods in the past, caused by Brahmaputra and Barak. Thus, it is not a new chapter for Assam and for its citizens.

Objectives

Flood is not a new phenomenon of Assam. Millions of people are badly affected by this disaster in every year and the region is totally disrupted, losses prosperities and life. Thus, here an attempt is made to analyze

1. The causes of flood disaster in Assam
2. The socio-economic impacts of flood in Assam
3. Major steps initiated by the government for the victims
4. Suggestive measures to reconstruct the state

Methodology

The study is descriptive in nature and based on various secondary sources like journals, News papers, reports, and various association reports prepared by various writers, internet, text books and some governmental websites of different departments such as water resource department of Assam, Water Resource Information System of India, Brahmaputra Board etc.

Causes of Flood in Assam

There are several natural factors coupled with various unscientific human activities are responsible for recurrent flood in Assam.

- i) One of the most influential factors of flood in the state is that the excessive rainfall in the time of monsoon and it is unique in nature, because in every year a large part of the state badly affected by flood.
- ii) The geographic setting of the region also responsible for occurs the critical situation, because the region is surrounded by hills, the rain water and the snowmelt in the hilly areas directly flows towards the downstream and at a situation the volume of river water increases and forcing to break the embankments of the rivers.
- iii) Inadequate drainage capacity and drainage congestion due to roads and bridges, railway tracts and buildings, construction of sluices have restricted the natural flows of waters, forcing to break the embankments in vulnerable areas.
- iv) Deforestation is one of the important man made cause of flood in Assam. Continued deforestation has led to massive amount of top soil coming down during rains. The soil flows into river and the river water collects a tremendous amount of silt and sediment which raises the level of the river beds. That make impossible for the main channel to cope with the vast volume of water received during the rains.
- v) Accelerated rate of basin erosion, seismic activity, high population growth especially in flood prone belt are also the responsible factors which causes flood in Assam.

Brahmaputra and Barak, Role to mitigate flood in Assam

About Brahmaputra

The Brahmaputra is one of the longest rivers in the world. It originates from Kailash ranges of Himalayas. The average width of Brahmaputra valley is about 80km and average width of Brahmaputra river is about 5.46 km. Brahmaputra sub-basin extended over an area of 580,000 sq.km lying in Tibet(China), Bhutan, India and Bangladesh. The drainage area lying in India is 194,413sq.km, which is nearly 5.9% of the total geographical area of the country.

About Barak

The Barak River rises in the Indian state of Nagaland at an elevation of approximately 2,300 meters and passes through the Manipur Hills of Manipur state, first in a southwesterly and then in a northerly direction, over a river length of nearly 400 kilometers. It then flows generally westward from Lakhimpur through the Cachar Plains region of Assam over a river length of approximately 130 kilometers to enter Bangladesh near Bhanga. The drainage area of the Barak River is approximately 14,500 square kilometers where it enters the Cachar Plains and 25,000 square kilometers where it divides at the Bangladesh border.

Both the river Brahmaputra and Barak and their tributaries play the uneven role of flood in every year. The prevailing weather patterns have a strong bearing on the occurrence and intensity of flood in both the valleys of the state. Monsoon rains from June to September feed the Brahmaputra and Barak with their tributaries with excessive water and create the situation of flood. The flood prone area of the state as assessed by the Rastriya Barh Ayog (RBA) is 31.05 lakh hectares against the total area of the state 78.523 lakh i.e. about 39.58% of the total land of Assam and this the area about 9.40% of total flood prone area of the country. The flood prone area of the country as a whole stands at about 10.2% of the total area of the country, but flood prone area of Assam is 39.58% of the total area of the state. During post independence mainly after the 1950's earthquake, Assam faced major floods in 1954, 1962, 1972, 1984, 1988, 1998, 2002, 2004, 2012 and recently during this year also the state activities largely paralyzed by flood.

Almost every three to four waves of flood ravage the flood prone areas of Assam and about average annual loss is to tune of Rs 200 crores. According to water resource department of Assam, during the season of monsoon flash flood by the river flowing down from the neighboring state and creates flood in Assam. Due to cloud burst in the catchment area of Meghalaya which experienced flash flood with high magnitude in south bank tributaries of Brahmaputra in lower Assam in during the year of 2004 and 2014. During the month of August, 2011, due to cloud burst in Arunachal Pradesh the river gainadi and jiadhal also experienced flash flood of high magnitude

Socio-Economic Impacts of Flood in Assam

Floods in Assam causes huge destruction and irreparable loss of infrastructure facilities, roads, transports, electricity, drainage, schools, health centers, community centers, public drinking water sources and the agriculture sector. In current flood of 2016 about 17,94,554 people are affected and it submerged 3,374 villages under 81 revenue circles of 22 districts, according to Assam Tribune report 29 July 2016. Many people have injured and died in flash floods. In addition to this, flooding brings a lot of diseases and infections including military fever, pneumonic plague, dengue, dysentery etc. Numbers of people are dead during the recent flood in July 2016.

A) Impacts on Agriculture and allied activities

Agriculture is the main source of the Assam's Economy. Huge amounts of agricultural plot coupled with different seasonal and non-seasonal crops are also affected by flood in every year. During this year, the current flood has damaged a total crop area of 99,416.44 hectares, according to Assam Tribune report of 26 July 2016.

Livestock remains as the supplementary source of income for the rural population. As a consequence of flood, a huge number of livestock are suffers from various diseases and at the end they accepts death.

B) Effects on Roads and communication, leads to impacts on general price level

Most of the roads were severely damaged including the State Highways, Bridges, PWD roads due to the inundation and water logging caused serious communication which leads to scarce of goods and tends to high inflation in the flood affected areas of the state. Due to this endangers of flood also cause disruption in relief and rescue operations. In the year 2011 it was happened in NH 15 in Lakhimpur district, the Ronganadi Bridge was badly affected by flood which creates a problem in communication system of Dhemaji and Lakhimpur district with rest of the regions for few hours.

C) Impacts on Employment and labour force creates poverty

In Assam the incidence of unemployment is more pronounced in the rural areas at the time of flood disaster. Agriculture is a principal occupation in the rural areas of the state of the country is seasonal in nature. They cannot work in their fields for few months after the flood, which creates a situation like unemployment.

Due to the flood disaster there is increased land less labours in the rural areas and farmers suffers from indebtedness due to destruction of their agricultural crops and lands, which creates poverty in the state's economy also creates hinder of capital formation in the flood affected areas, because capital cannot form due to lack of production, which turns lack of income due to their indebtedness the farmer does not make capital formation which leads to lack of funds.

D) Impacts on wildlife, forest resources and development activities

Assam is one of the richest biodiversity zones in the world and consists of various forests and wildlife sanctuaries including 5 most popular national parks. Assam is famous for Wild elephant, Swamp deer, tiger, wild horse, leopard, buffalo and mainly for one horn Rhino. During the season of flood in every year the resources are badly affected and numbers of animals killed by this disaster. The worst and the most pathetic situation is that some animals especially the calves and aged ones and deer species are sometime washed away by the current of the flood of turbulent river Brahmaputra.

The high cost of relief and recovery may adversely impact investment in infrastructure and other developmental activities in the area and in certain cases may cripple the frail economy of the region. Recurrent flooding in a region may discourage long-term investments by the government as well as private parties alike. Lack of migration, infrastructure combined with skilled labour and inflation may have a negative impact on the region's economic growth. Loss of resources in every year leads to high costs of governments to providing services and developmental schemes.

Major steps initiated by the government

Government of India announced a national flood policy after the 1954 unprecedented floods in the country. The ministry of planning, irrigation and power formulated the policy statement by taking an objective that how to save human life from the harm and devastation by taking adequate measures and policy prescriptions.

A) National Flood Commission,(Rastriya Barh Ayog) -1980

National Flood Commission released their report in March,1980 and recommended total 207 activities. Some of the important recommendations are:

- i) Data collection for providing information on their long term performance and their impact on various socio-economic factors.
- ii) Legislation and enforcement by States to prevent unauthorized river bed cultivation and encroachments into drains etc.
- iii) Separate reporting of flood damage for protected, unprotected and areas situated between the embankments.
- iv) Legislation for flood management.

B) Water resource department of Assam & Brahmaputra Board

In Assam flood control activities mainly started after the announcement of National Water Policy. Till date, Water Resource Department has taken many initiatives for rural sector and for protection of Major Township in both Brahmaputra and Barak valley. No long term measures are

implemented by the water resource department, only the immediate and short term initiatives are taken to control flood. The department has provided reasonable protection to about 16.50 lakh hectares of flood affected areas out of the total 31.05 lakh hectares.

The Government of India set up Brahmaputra Board under Brahmaputra Board Act, 1980 under the Ministry of Water Resources. The board has the responsibility to do survey and investigations in the Brahmaputra valley and to prepare master plan for control floods, bank erosion and prepare plans to inadequate drainage system. The Board also prepares plans for utilizing water resources of Brahmaputra valley for irrigation, hydropower, navigation and other beneficial purposes.

D) Assam State Disaster Management Authority (ASDMA)

Disaster Management Act 2005 provides that there shall be a Disaster Management Plan for every state. The State Plan shall be prepared by the State Executive Committee and shall be approved by the State Authority. This plan is prepared under the provisions outlined in the Disaster Management Act 2005 and Section 5 (State Plan) of Assam State Disaster Management Rules 2010. All hazard events, whether natural or man-made the state is vulnerable to, will be managed in accordance with the ASDMP. This Plan will be further supported by hazard specific plans; department wise preparedness, mitigation and emergency response plan; state disaster management guidelines (SDMG).

E) Extra Departmental Supervisory/ Monitoring Agencies and Initiatives

- i) Schemes under FMPs:** For the 11th Five Year Plan the Ministry of Water Resource Government of India has given financial approval to 73 nos. of schemes with benefited areas of about 3,12,672 hectare.
- ii) NABARD Sponsored schemes:** The schemes and programs executed from the funding by NABARD also monitored and field verification done by NABARD official before releasing the funds and installment. Under NABARD (RIDF-XV) has sanctioned a loan amount of 48.0925 crore for 13 numbers of schemes for the year 2009-10.

- iii) **Schemes under ACA/ State plan:** District level committee headed by Deputy Commissioners as chairman and members from different engineering and other department monitor the quality and execution of works.

F) Immediate measures taken by govt. and NGOs

In the situation of flood disaster in Assam, SDRF, NDRF and Army have been deployed ever since the floods started for search and rescue operation as immediate action. Both central and state government announced huge package of funds to the flood victims and try to provide essential commodities and hospital facilities for the victims. The Non Governmental organization also tries to give full support for the victims by providing their essentialities.

G) Some Ongoing Projects

Under FMP XII Plan

- i) Anti-erosion measures at Panchgram Das Colony area from the erosion of river Barak on its left bank (0-800 m) (in Hailakandi)
- ii) R/S to Dehing bund left bank from Joongaon to Laibeel including anti erosion measures at different reaches (in Sivasagar)
- iii) Protection of Makadhuj area from the erosion of river Brahmaputra (Construction of land spur at ch9560m) (in Kamrup)

Under CM Package

- i) Strengthening and widening of embankment from Anipur to Mookamcherre covering both bank of river Shingla (in Karimganj)
- ii) Protection of erosion from river Borak at Bagmara area at Katakhal (in Hailakandi)

Suggestive measures against flood disaster

A) Afforestation and Reforestation

Most of the heavy construction unit destroys the environmental resources. It is permitted by some heavy official employees to make factories illegally and unscientifically, which creates

damages of forests leads to erosion and flood disaster. The first and foremost strategy is developing strong awareness programs among the citizens about importance of trees, afforestation and reforestation. Afforestation reduces soil erosion and as a result accumulation of sediment on the river bed reduce, which lessen the effects of flood and bank erosion.

B) Modern Agriculture and Crop Insurance

Huge amount of agricultural crops are damaged in every successive waves flood, in that sense, the new concept of GMS (Genetically Modified Seeds) will give some hope among the victims. But till today the many rural farmers are not concerned about GMS and many government schemes. So, it is important to provide trainings and awareness programs among the farmers about modern agriculture.

Crop insurance is an another way provided by the government to the farmers to promote agriculture from the situation of risk. Assam agriculture department recently introduced a new concept of soil health card and new agricultural insurance scheme for the farmer and the concept is now under process.

C) Income generating activities

It is strongly recommended that the income generating livelihood activities/programs needs to be initiated urgently to support the agrarian society. Government investments as well as training and awareness programs about multi-cropping system are needed to fulfill the lack of production and income after the flood.

Conclusion

Recurring Flood in Assam serves as the major cause of disturbance in socio-economic set up of the state. The flood combined with river erosion has significant impacts each year which destructs human life, crop and other livelihood. For the development of the flood affected regions it is important to address the issues relating to proper management of natural resources and minimizing loss of infrastructure and property both public and private. The flood management and mitigation strategies are not sincerely and honestly executed by state

and central government of India for which seasonal flood hazards stand as barrier for economic development in the state. Assam is mainly dependent on Agriculture not only for its economy but also for the overall development. Thus, a systematic integrated framework is urgently needed for construct the economy of Assam. If proper actions are not taken against flood then it may affects the future generation of the state.

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