

## Prospects And Potentialities Of Economic Development In Bhogdoi River Basin, Assam, India

Sahitya Jyoti Das



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### ABSTRACT

Water as resource is the abode of prosperity. Paradise itself has been imagined to be a place where water is plenty and river basins are the economically most prosperous region of the habitable portion of the world. Bhogdoi River is the southern sub-tributary of Brahmaputra though it was an active tributary of Brahmaputra in recent past. Bhogdoi River flows through the heart of the city Jorhat, the last capital town of the Ahom Kingdom. Down the ages, the Jorhat city is a successful thriving modern city with a lot of commercial and economic development. Further, the river flows through the Malow Pathar, the 'rice-bowl' of the region. The region is prosperous in tea cultivation, pisciculture, handloom and textile, sericulture etc. Moreover Jorhat, the cultural centre of Assam, today is witness to a lot of tourists due to its innate beauty and its resilient effect. Although the inhabitants of the region seem to be concerned for rapid economic progress but the pace of development is not come up to the level of satisfaction at the need of the time.

In this paper, an attempt has been made to highlight the prospects and resource potentialities of the basin based on the fact and data collected from primary and secondary sources. The collected data have been tabulated, processed up to desired level and depicted in the form of maps, graphs etc. in due interpretation. Results, suggestions for better economic development and conclusion of study are drawn based on analysis and field observation in the basin area.

#### Keywords:

Prospects, potentiality, Bhogdoi basin, sub-tributary, economic prosperity, pace of development.

#### 1. Introduction

Water is a basic resource on earth for all living organisms including mankind and for development and survival of plant community. Environmental processes of biosphere are also regulated by water. Evidence of importance of water is found in the form of human settlements near water. Availability of water motivates development, whereas absence of water leads to destruction. Water being related to various systems of environment, occupies a central position in nature. Its availability at the right place and at the right time maintains environmental balance.

The river is a blue planet with the longest life, regardless of the length of her room or the length of time, or to expand the breadth of her space. River basin is considered as a basic unit of water resources. It is the most advantageous location for economic prosperity due to its manifold prospects and potentialities in the field of agriculture, industries, navigation, irrigation etc.

Bhogdoi river basin of present study falls within the eastern part of Upper Brahmaputra Valley in the district of Jorhat, Assam. It is a flat plain of newer and older alluvium deposits. The basin is prosperous in all types of resources, such as water, land, forest, wetland resources etc. Based on the available resources, the dwellers of the basin have earn their livelihood

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SRF, Geography Dept., Gauhati  
University, Guwahati, Assam, India.

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through various economic activities related to different types of rice cultivation, tea plantation, animal husbandry, dairy farming, pisciculture, sericulture, various small and cottage industries etc.

Economic development of the region is lies in the fact of fuller utilization of the existing resources at right time and right place through adjusting and to some extent modifying the nature.

#### **OBJECTIVES:**

The main objectives of this research work are-

- (1) To highlight the resource potentialities of the basin.
- (2) To find out the main causes of the slow pace of economic development in the region.
- (3) To suggest some measures for better economic development in the region.

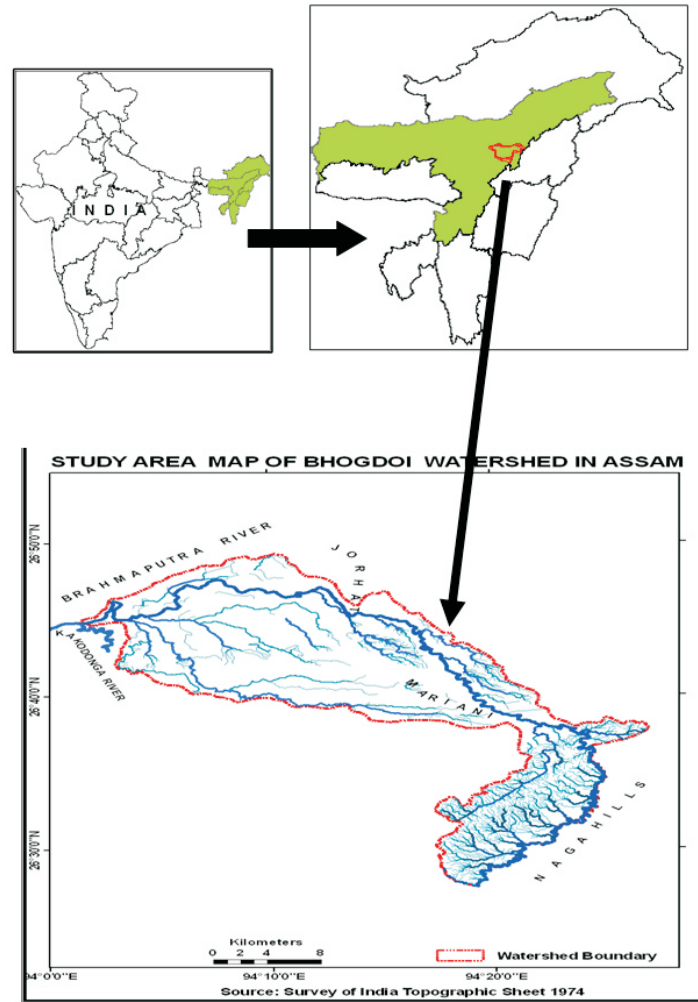
#### **DATABASE AND METHODOLOGY:**

This research work is mainly confined to empirical studies based on data collected from primary and secondary sources. Primary data are collected through extensive field study and spot observation. Apart from this, some related literature and information have been gathered from secondary sources like books and journals, some official records etc. Moreover, drainage basin sheets of 83 J/1, J/2 and J/6, Survey of India at 1:50000 scales used for mapping the study area of the Bhogdoi basin.

The collected data are then tabulated, analyzed and presented in the form of charts, diagrams to observe a meaningful relationship between the existing realities and the collected data.

#### **STUDY AREA:**

The study area is lies in the eastern part of the Brahmaputra Valley of Assam with an area of 543.98 sq. Km (Figure 1). Its geographical location is in between 26028' N to 26049' N latitude and 94003' E to 94028' E longitude. It is bounded by Brahmaputra River in north and Mukokchung district of Nagaland in south. In its east, there is Sivsagar district and in west, Kakodonga river. The Bhogdoi River is a sub-tributary of Brahmaputra. It has its source at Long Samtang of Mukokchung (Naga Hills) and is falling down at Kakadonga River in North-west of Jorhat flowing for 160 km through the Jorhat town.



**Fig.1: Location map of the study area of Bhogdoi Basin, Assam.**

#### **ANALYSIS AND FINDINGS:**

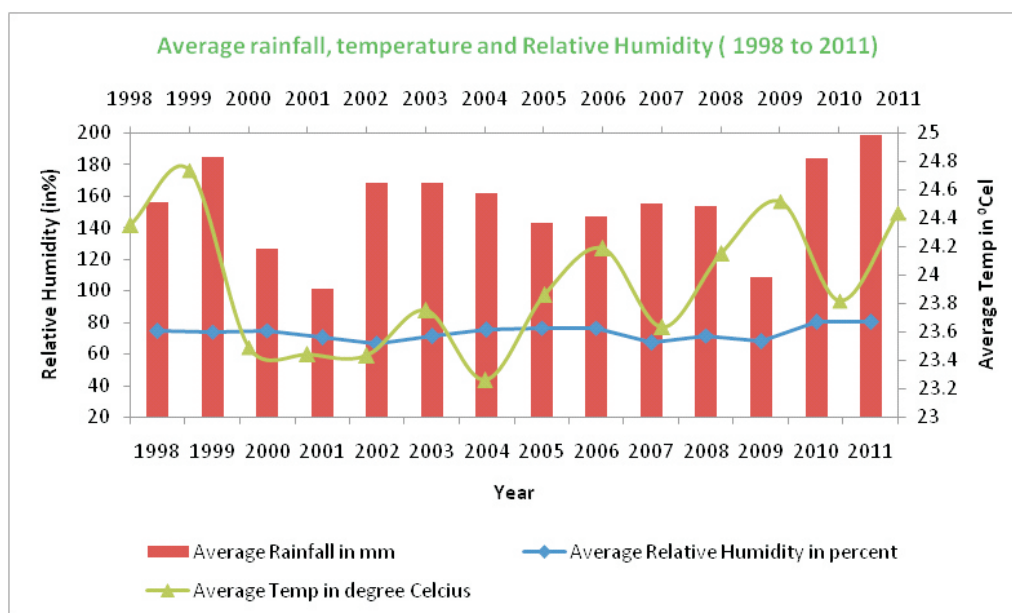
The Bhogdoi basin is situated in the eastern most part of the Upper Brahmaputra Valley. It is a riverine flat plain which is formed due to the continuous geomorphic actions of the Bhogdoi River and its tributaries viz. Toklai, Tarajan, Rowraiya, Dholi etc. The topography of the area was modified by the Great Earthquake of 1897 and 1950. The highland plain is graded from the south to north and is formed by the tributaries coming down from the highlands. Its boundary is sealed by the long wall of Naga Hills.

Within this highland plain, there are long narrow troughs, locally known as 'holas' with a depth of 1-2 meter and these are favorable sites for rice cultivation. The relatively high but gently sloping built-up areas, locally known as 'tings' are the most selective places for tea gardens in the region. Low-lying areas of the basin consist of new alluvium. The region is of immense human significance with high population density, rich agricultural fields and a network of roads and railways. The bed and banks of the Bhogdoi River is dotted with numerous sandbars of varying sizes locally called 'chars and chaparis' (semi permanent riverine islands)

**Table.1: Average relative humidity, rainfall and temperature of study area (1998-2011).**

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Average Relative Humidity in percent	74.59	74.13	74.97	70.19	66.23	71.21	75.1	76.55	76.63	66.99	71.45	68.09	80.29	79.93
Average Rainfall in mm	155.92	184.65	126.87	101.39	168.5	168.7	162.2	142.8	147.37	155.5	153.99	108.55	183.93	198.52
Average Temp in °Cel	24.35	24.74	23.49	23.44	23.43	23.75	23.26	23.86	24.19	23.63	24.15	24.52	23.82	24.44

Source: Agrometeorology Department, Assam Agriculture University, Jorhat, Assam.



The study area has a sub tropical location and is characterized by monsoon resulting in seasonal variations of weather. Average temperature of the region is 240 to 270 Celsius and average rainfall of the region is 154.20 mm. The climate of the area is generally humid with average humidity 73%.

Bhogdoi basin is rich in both natural and man-made resources and available resources of the region provide all possible potentialities for over all development of the economy of the entire region. Land and water of the region sustain the agriculture production that is the life blood of the economy of the two third of the basin dwellers. The economy of the region is dependent on Agriculture and Tea. The predominant field crop is rice with per capita food grain production of 205 kg per annum. Most part of the basin is surrounded by tea plantations and tea factories. There are about 85 tea gardens including out gardens have surrounded the basin. Moreover, the emergence of small tea growers has proclaimed a new improvement in the region. Small scale tea growers have gotten considerable frame here because of large incomes. It has caught the desire of unemployed people to take owing tea-gardens as their profession.

The flat plain of the basin provides easy construction of houses and other establishments, roads and railways. Roads in the region play more than the usual role. Flood plain of the basin provides fertile soil for agriculture, tea plantation, sericulture etc. It provides favorable sites for human habitation. Dairy, cattle, chicken, egg, hog, fruit and feed and vegetable crop production can all be found within the basin. Some of the most fertile land in the Assam is located in the basin i.e., Malow Pathar, known for extensive paddy field and huge production of rice in the state.

Bhogdoi basin is endowed with many forms of water resources scattered throughout the entire region. These water bodies are in the form of river, streams, ponds, swamps and

paddy fields. Most of the people living in the basin depend upon the Bhogdoi and its tributaries for their potable water. Of course, the waterways of the basin receive the waste water from the basin's residents. River water is used for irrigation purposes in the crop fields and it provides water to the agro based and forest based small and cottage industries of the region. Commercial shad fishing is conducted in the river. River is used for recreational purposes viz. Bird watching, boating, canoeing, fishing, hunting and swimming. Moreover, the river carries lots of sediments from its upper reaches and a small part of it used in construction purposes and rest helps people by filling the pits and down lands which later makes the area fruitful for cultivation. The river helps in making high land through silting up and turns into grazing lands. The Maharani grazing land of 100 bighas in Bormergaon, Solmara is a good example.

**Table 1: Collection of sand from Bhogdoi river bed by trucks (2012)**

Sand collection sites	Average daily no. of trucks in winter months	Average daily no. of trucks in summer months	Daily average no. of trucks
Mariani-1	35	20	27.5
Mariani-2	25	10	17.5
Kathanibari	42	18	30
Pukhuria	30	14	22
MES Gate	15	8	11.5
Jorhat	45	30	37.5
Malow Ali	30	18	24
Solmora	1	1	1
Total	233	119	171

Source: Water Resource Dept., Govt. of Assam, Jorhat, India

Forest resources of the region are the source of raw materials for cottage and small scale industries of the region. Moreover, grasslands provide extensive ground for animal husbandry by the rural communities. Based on the grazing land dairy farming was introduced in 1937 at Randhanijan named as 'Malow Cooperative Dairy Farm' in an area of 120 bighas. The condition of the farm is not good at time due to lack of entrepreneurship and faulty management though it was quite famous dates back as it supplied milk to far flung distance of the whole district of Jorhat.

Wetlands of the floodplain provide fishing grounds and other related activities. Large and small scale fisheries of private and government ownership are found in the flood free or occasionally flooded areas like Randhanijan, Roumari, Nahatia, Solmora etc. (Botalikhusa fishery of 200 bigha under government ownership at Solmora). There are 17 numbers of government fisheries in 78.90 Hectare and 488 numbers of private fisheries in 97.60 Hectares of area in the basin.

The forest and water attract outdoor enthusiasts from all over the state and the country thus creating a steadily growing tourism potentiality in the region. These are- Gibbon Wild life sanctuary in Mariani, Historic Borbheti in Malow Pathar, Shanty Ashram in Kokilamukh, Suka-pha Samannay Kshetra in Mohbondha, Health resorts-Ayur Sanjeeva in Tilikium, Lachit Borphukon's Maidam, Raja Maidam, Jorhat Gymkhana, Chandra Kanta Handique Bhawan and many other historic places.

Despite all such resource potentialities and possibilities of economic development, the region is economically not so sound. The main obstacle in front of rapid economic development is regular flood of Bhogdoi. Due to the heavy precipitation in the monsoon month of the year

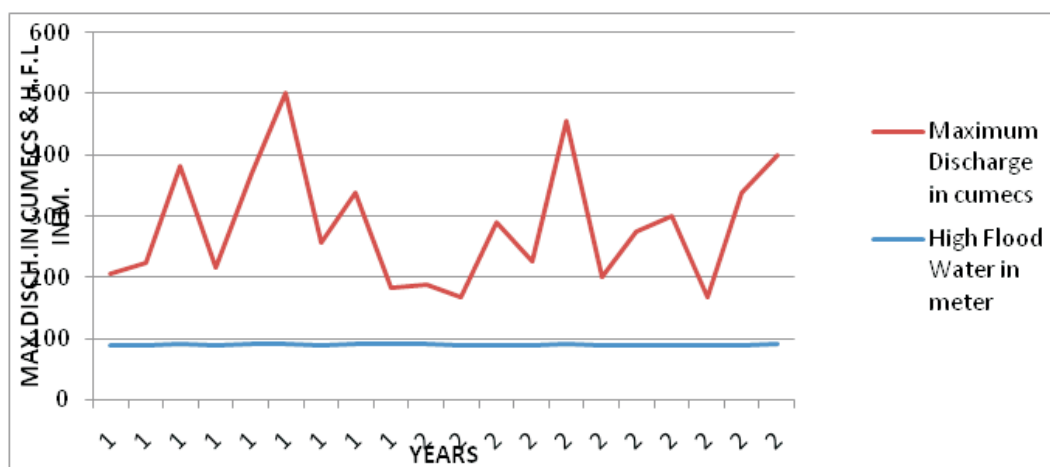
and continuous shallowing up of the river bed (1.75 m during last 40 years at place where river crosses the A.T. Road) the Bhogdoi River remains in high spate.

**Table.2: Highest Flood Level (H.F. L) and Maximum Discharge of the Bhogdoi River at A.T.Road Crossing (1991-2010). (Danger level is 89.00 m)**

Year	Date	High Flood Water in meter	Date	Max. Discharge in cumecs
1991	19.9	89.85	19.9	116.84
1992	22.7	89.73	8.8	134.99
1993	23.6	90.06	23.6	292.4
1994	2.7	89.68	2.7	126.64
1995	26.8	90.2	26.8	278.88
1996	31.7	90.45	31.7	410.98
1997	10.8	89.8	10.8	168.04
1998	11.7	90.17	11.7	248.1
1999	29.8	90.15	25.6	95.05
2000	17.6	90.41	23.8	98.66
2001	2.10	89.65	19.9	80.29
2002	12.8	89.98	12.8	201.75
2003	16.7	89.58	16.7	136.41
2004	25.7	90.86	15.7	365.5
2005	20.8	89.67	20.8	113.08
2006	20.7	89.57	20.7	186.5
2007	5.9	89.75	5.9	210.32
2008	29.6	89.26	10.7	79.61
2009	9.7	89.48	8.7	250.2
2010	1.6	90.4	10.8	308.3

Source: Upper Assam Water Resource Division, Jorhat, Assam, 2012.

### HIGH FLOOD WATER AND MAXIMUM DISCHARGE GRAPH



The highest flood level of 90.86 meter occurred on 25th July, 2004. Other high levels of water in 90.45 meter (31st July, 1996), 90.41 meter (17th June, 2000). Likewise, minimum value of high flood level was 88.26 meter (29th June, 2009). The maximum value of high discharge recorded was 410.98 cumecs on 31st July, 1996 and the minimum figure for the

high discharge was 79.61 cumecs measured on 10th July, 2008

The study area which is fall within the district of Jorhat occupies an insignificant place so far as its industrial development is concerned. Except a few engineering works, saw mills and rice mills, all other industrial units are very small and they add little contribution to the economic development. It may be reiterated that the underdevelopment of industries has greatly stood in its way of rapid development. However there is enough scope for the development of a number of small scale industries, based on local available resources of agriculture, tea and forests.

The tourism sector in the region is getting lack of attention from the government and proper exposures in the domestic and international field. Moreover, the inefficient and underdeveloped means of transportation, especially railways, have greatly stood in the way of its development, particularly in the fields of commerce and industry in the region.

### **SUGGESTIONS**

Based on the study, some suggestions may be put forward for economic development of the region. These are summarized as-

- (1) Fuller utilization of the existing resources at right time and right places for rapid economic development of the region.
- (2) Digging of the bed of the Bhogdoi River can reduce the flood damages in the low lying areas of the basin. It can provide opportunities for more and more production of rice in the flood effected regions of fertile crop fields.
- (3) Proper emphasis should be given to the development of small and cottage industries based on available local resources.
- (4) In the basin area, agriculture is subsistence in nature. For economic development of the region, proper attention should be given on commercial basis of paddy cultivation.
- (5) Emphasis should be given in more and more production of tea both in large scale and small scale and increase of tea factories in the basin. It can provide opportunities of employment generation for unskilled and semi-skilled labour of the basin.
- (6) Proper attention should be given on commercial dairy farming and pisciculture in a more scientific basis and planned way with better management system. Moreover, reintroduce the 'Malow Cooperative Dairy Farm' of Randhanijan which was established at 1937. Special consideration should be given on participation of local people in entrepreneurship level or as shareholders.
- (7) Government should be concerned in the development of recreation and tourists places of the region in a more scientific way through better means of transport and communication, hotels, marketing facilities etc.

### **CONCLUSION**

River basins are the most advantageous location of the world for human habitation as these are the region of economic prosperity and development. Likewise, the study area i.e., the Bhogdoi river basin of Assam has manifold prospects and potentialities for economic development based on existing resource base. It may be reiterated that to improve the environmental quality and economic conditions of the basin dwellers, various effective measures as suggested here should be taken in right earnest and expeditiously.

### **REFERENCES:**

1. Gurjan, R.K. & Jat, B.C. (2008): Geography of Water Resources, Rawat Publications, Jaipur. pp- 5-8.
2. Goswami, D.C. (1990): Impact of the Pagladiya River on human occupation in its lower basin, Assam, an unpublished M. Phil. Dissertation, Geography dept. of Gauhati University, Assam.
3. Hazarika, M. (2006): Strategies for Area development in Bornadi and Nonai basin, Assam, an unpublished Ph. D. Thesis of Geography dept. of Gauhati University, Assam.
4. Hazarika, M. (2003): Pattern of Rural development in Jorhat Development Block, Jorhat, Assam, an unpublished M. Phil. Dissertation, Geography dept. of Gauhati University, Assam.
5. Karimi, S.M. (1977): Blessings and Threats of Rivers to Patna, Geography, Bull. of India, Vol-

1, pp. 15-20.

6.Sharma, H.N. (2010): Jorhat Town during the Nineteen Sixties. Guwahati, p. 156.

7.Thomas,W.L.ed.,(1956): Man's Role in Changing Face of the Earth, Chicago, p. 143.