

A Study of River Channel Modifications of Jorhat District of Assam*

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1. INTRODUCTION

The Jorhat District is situated in the East Central part of Brahmaputra valley of Assam. An ethnic group known as Kachāri or Dimāsā (means offspring of river) has survived in the southern part of the district from hoary past. In 9th century, the Dimāsā group of people had established their kingdom in the Central and eastern part of Assam. In 1086 AD, about 78 years before the Ahoms entered Assam; the Dimāsā capital was shifted from Jorhat to Dimapur of Naga Hills, not due to political, but most likely natural cause. When Ahoms had shifted their capital to Jorhat in 1794, there was a scarcity of water in Jorhat. As a result Ahoms King Kamaleswar Sinha (1795-1810) made arrangements to change the course of the pre-existing river Disoi to the Jorhat town to solve the problems of water.

Considering the above historical background of Dimāsās and Ahoms, and present geographical description as well as local legend of the area, following questions may arise regarding the paleochannels of Jorhat –

As Dimāsās were known to live near big river. Except one or two small stream no big river could be found in the area where this ethnic group is living today. This raises the question - was there a big river in that area where Dimāsās used to live. If yes, where has it gone?

When the Ahoms first visited this area in 15th century, and then shifted the capital to the

present study area in the month of July, 1794, the Northern part of the present Jorhat was ruin swampy area. Still there was scarcity of water for which Ahoms had to divert the river Disoi to a newly channelized Bhogdoi. Here the question arises – where was the course of earlier river?

As per the legend among the people living in the southern part of the Jorhat District, there was a big river flowing through that area. The cultural and economic development of the area was much dependent on that river. Was it true?

Keeping these perspectives in view the present study is aimed at the identification of the ancient course of the river in the area along with their dimensions and age. Efforts were made to study the contribution of the river to the socio-economy of the society. So the project started with the following objectives:

- (a) To identify the signatures of the paleochannels of Jorhat District from different sources and establish relationship among identified paleochannels.
- (b) Determination of age of the paleochannels and their chronological occurrence by OSL method.
- (c) Construct a palaeo river map of the study area.
- (d) Correlate different historical events associated with the river course change and try to substantiate Assam history with the help of data generated through the study.

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The work was accomplished under the following chapters:

- I. Introduction
- II. Collection of history of River Channel Modification in the area
- III. Field studies
- IV. Laboratory work
- V. Result
- VI. Discussion and Conclusion

2. DISCUSSION

The present work is intended to address two basic issues. Does the ethnic group called Dimāsā, known to live near river, lived in a place where today no major river could be seen? What had compelled them to migrate from southern part of Jorhat to Dimapur? Second, the presence of the river Bhogdoi in the Jorhat town today is not due to any natural process but intervention of anthropogenic activities, i.e. diversion of river by Ahom king. Which pre existing river they had diverted? In addition to that, effort was also made to correlate the present study to the socio-cultural practices of the past society.

The issue related to the presence of the Dimāsās in a non riverine area has been addressed by the local legend for long time as belief of existence of a big river in the area. The present study has authenticated the belief through systematic scientific approach. The present study has shown that the belief of the presence of a big river in the area is not wrong. The geomorphological features seen in the area are found to be formed by fluvial processes. Presence of different sedimentological evidences like sedimentary structures like current bedding and associated sedimentary facies can be cited as evidence in this regards. Though, at present few small streams are flowing in the area, it does not show any noticeable sedimentary deposits in and around its channel. As no other

geomorphological processes are known to operate in the area for long geological time and the sedimentological evidences pointing toward existence fluvial processes the landforms found in the area validate the argument of the presence of river. Though, there is further scope for the study of the subsurface sand bodies, from the present study it can be confirmed that there was existence of a river of considerable size in the studied area.

The sediment dated through OSL dating method indicates the age of the sediment as in between 620 to 800 BP (before present), i.e. around 1100 to 1300 AD . Further the AMS radiocarbon dating of the fossil wood is found to be around 1420 to 1450 AD. As per the historical documents Dimāsā people were in that area till 1100 AD and present study has indicated that the existence of the river is till about 1400 AD. So, a big river was there during the time of the stay of the Dimāsā people. They lived there with a river. Then, why Dimāsās were migrated from that place to Dimapur? As stated earlier that considering distribution of different ethnic groups in the Brahmaputra valley and the prevailing political condition during the time in question, the cause of migration seems not to be political. It may be due to a natural cause.

The OSL dating of sediment samples of some locations indicate the age of the paleochannels as 620 BP (around 1300 AD) where as samples of other locations indicate it to be 800 BP (around 1100 AD). It suggests the presence of river at different locations at different time, which may be due to shifting of the river from one place to other. Assam is situated between two tectonically active belts i.e. Himalaya in the north and Naga Patkai in the south and east. Apart from that Assam is also known for its high density of rivers. So, in such a tectonically disturbed area river shifting is not uncommon. The present study also indicates similar phenomenon. Based on the sample locations and their OSL dating two probable

courses of the paleochannels could be identified. It means the present study leads to identification of two different paleochannels, which may be two different positions of the same river channel at different time. The earlier channel was flowing during 1100 AD, at the time when Dimāsās were there in the area of present study. The other channel was flowing few kilometers northward in around 1300 AD. Shifting of the channel took place between 1100 and 1300 AD. According to the history Dimāsās people migrated to Dimapur in and around 1150 AD. It shows the shifting of channels and migration of Dimāsās people took place almost at the same time.

The AMS radiocarbon dating of the fossil trees had indicated its age as 1420 to 1450 AD. Finding huge number of such buried trees in the area indicates that there might be many natural calamities during that period which to destruction of huge numbers of trees. But this phenomenon does not coincide with the time of migration as stated in history. Dimāsās' capital was shifted to Dimapur more than 200 years before the identified natural disaster had occurred.

Addressing the second issue of river diversion by the Ahoms King Kamaleswar Simha (1795-1810), after the shifting of Ahoms' kingdom to Jorhat in 1794, to meet the scarcity of water in Jorhat, the present study could throw some light on it. All historical documents refer to the diversion of one river named Disoi which was later known as Bhogdoi in its new course. The basic question was if river Disoi was diverted to present course of Bhogdoi, then, where was the old course of river Disoi. So, far no effort has been made to answer this question? The present study could throw light on this issue. The OSL and AMS radiocarbon dating indicates that the river activities were there in the southern part of Jorhat till 1450 AD or so. The analyzed samples were collected from a depth of around 2 to 3mts. The sediment deposited afterwards might lead us to some later dates, which means the rivers

might have been flowing to a later period. The anthropogenic intervention of the river or the said diversion took place just after 1795. Considering the geomorphological setting of the area, it is not possible to fit another river of the dimension of Bhogdoi in the area under study which can be diverted to present position of Bhogdoi. The paleochannel signatures from satellite images also suggest that all paleochannels were flowing through the same area and direction along which the present study indicates. Considering these it can be suggested that the paleochannel, whose remnants are identified in the form of sand deposits today, was the river which was diverted by the Ahom King to present Bhogdoi, i.e. old course of Disoi. River Disoi had a tendency to shift from South to North. Later, the Ahoms might have successfully utilized this tendency of the river and diverted the river further north as Bhogdoi, in 1795-1810 AD.

An effort was made to study pollen and phytolith found in the sediments collected during the field work. Due to unknown natural causes preservation of spores and pollens were not up to the expectation, for which no study on pollens could be made. Phytolith analysis was made to get some idea about the anthropogenic activities. The phytolith analysis of paleochannels sediments indicates cultivation of rice during the period under study, which is an indication of a stable farmer society. Along with this presence of flora like bamboos wash also indicated. There was also indication of dry-wet-dry phase of climate, which gives some idea about the climatic condition of the period under consideration.

The study area has shown some very interesting geological points. Though the area bears signature of two different big river, the satellite image never indicate any presence of any palaeochannel. So the method adopted here is to follow the legend and make trenches. Alignment of the trenches and OSL and radiocarbon data indicate a presence of two different palaeochannels. The

OSL date indicates the age of one river a 800 BP (Sample No. DSG). The OSL date and AMS radiocarbon date indicate the age of the other river is 600 BP (Sample No.CBG and tree trunk collected at Majgaon). Data indicates that two channels were flowing in different time. The age difference indicates a gradual shift of the river from south to north.

3. CONCLUSION

It was considered that both field and laboratory work proved the existence of two palaeo rivers. The rivers were flowing before 800 and 600 years back. The same river was shifted from south to north. Shifting of Dimāsā capital may be related with this river channel migration. Diversion of Disoi river to present Bhogdoi, in 18th century by the Ahoms, was just channelization of the northward migration of the palaeo river.

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