

**THE CHANGES OF THE LOWER COURSES OF RIVERS RAIDAK- SANKOSH
INTERFLUVES AND IMPACT ON THEIR SURROUNDING ENVIRONMENT**

Saroja Subba*

Abstract

The rivers, Raidak and Sankosh covers a considerable part of Jalpaiguri district. These rivers are responsible for flood and the courses changes frequently from the lower section. Therefore, Raidak-Sankosh has been chosen as a study area to see how much changes has occurred in the courses and their impact on the surrounding areas. The prime objective of the study is to collect the primary and secondary information about the discharge of the amount of water and the deposition of debris, rise of river bed and to also prescribe some management strategies. Various man-made factors are responsible for overspilling of channel every year during the rainy month and the change of natural course of rivers.

Introduction

Raidak is a major river in Jalpaiguri and West Bengal and is one of the tributaries of Brahmaputra. The river rises in the Himalayas and empties into The Brahmaputra in India. Sankosh is a river that rises in the northern Bhutan and empties into the Brahmaputra, in the state of Assam in India. But the present courses of these rivers are not same as it was in the historical periods. As these river changes their courses from time to time and from year to year as a result a great change has been observed in the long profiles as well as in the channel area of the lower section of this river especially in between the period of 1931 to 1983.

Comparative study of the Changing nature of the Lower section of the Long profile

The long profiles of the channels have shown significant changes in their length of the lower courses with the passage of time. The lower courses of the streams are the portion of the channels where lateral erosion has prominently taken place to broaden the channel width along with the deposition of pebbles, cobbles, coarse and fine sediments carried by upstream. (Chorley, R.J. 1969) In 1931 we have found in the topographical map that the lower course of Raidak River was smaller than the present course. The total length of the lower courses of the channel was about 9km in 1931. With the passage of time lateral erosion of the channel is found to have extended 4km and the total length of the lower course of the channel has thus attained a length of 13km up to 1983. Then the headward lateral erosion of the channel took place rapidly and there has been a very little change of the lower course of Raidak.

*Guest Lecturer, Department of Geography, Cluny Women's College

Similar change has been observed in the river Sankosh the main tributary of river Brahmaputra. In 1931 the channel was about 17km. The lateral erosion of the channel is found to have extended about 5km. Thus the total length of the lower course of the channel has attained a length of about 22kms in 1983. On the plain or fan surface the trunk streams have fed the distributaries channel and water discharge has diminished along their courses with resultant lateral erosion (Morisawa,1968). Thus with the passage of the time the materials carried by the turbulent upstream have started to heap up along the river courses and the stream courses have gradually broadened their widths. Consequently sandbars have been developed along the lower sections of the channels to give raises the distinct braided pattern.

Comparative study of the Channel area of the Lower Courses of Basin

With the increase of the channel widths the channel area of the lower courses is found to have changed significantly. The following table shows the quantitative increases of the channel widths(in sq.km area) with advancement of time.

The change of the area of the lower channel courses of the Raidak Catchment

YEAR	AREA	INCREASED FROM 1931	% OF AREA INCREASED
1931	36	0.00	0.00
1983	52	16	44.44

From the above table, it is apparent that the total area of the lower channel course of the basin increased to about 52sq.km in 1983 from 36 in 1931. In percentage the area of the courses has increased to about 44.44 Sq.km from 1931 (Bhattacharya, 1993).

Factors responsible for the change of the lower Courses

The factor which is responsible for the changes of the lower courses of the river Raidak and Sankosh may be grouped into two categories:

- Natural causes includes flood, heavy rainfall, silt deposition.
- Manmade/ anthropogenic causes include construction of bridge, railway, road, dams, and deforestation.

As a result, a great change has been observed in between 1931-1983 in the long profiles as well as in the channel area of lower section of these rivers.

Impact

The changing courses of the river Raidak and Sankosh has a great impact on the surrounding environment and in turn it indirectly affects the human life. The most damaging effect of these changes is the colossal loss of life and property.(Lama,2003). Other includes damage to crops, cattle loss; break down of communication, dislocation of transport system of essential and

disruption of essential services. The changing nature of the lower courses of these rivers affected the environment in the following way:

- i) The changes in the courses of these rivers aggravate many physical problems including floods which have a multi-prolonged effect on environment as well as human life.
- ii) Due to the change in the course the rivers created numerous swamps, abandoned loops on the plain of Jalpaiguri district and adversely affected the environmental balance. The changes in the river courses have destroyed affected the environmental balance. The changes in the courses have destroyed a huge amount of arable land and in most of the cases such destroyed land has been converted into fallow land which become unproductive.

Conclusion

In conclusion, it can be said that the natural causes are responsible for the changes in the courses of river but the anthropogenic factors have dominant impact over the courses of the rivers Raidak and Sankosh. Therefore, the anthropogenic causes as construction of bridges, culverts, dams, roads and railways interrupted especially at the channel segment along which the bridges are built up which constrict the channel width and thereby hinder the passage of water. Therefore, the bridges should be constructed by construction Authority very carefully maintaining the length of natural channel width not reducing the width of the courses, so the water of the channel will get sufficient space to flow through the channel free.

Dams should be constructed where there is entire need only. Similarly, embankment should follow the same rule. They should only be constructed in strategic and high priority area with prior layout and the materials. De-silting of wetland depression, cut-offs channel, palaeo - channels for promoting rainwater harvesting and also to act as detention basin.(Cooke,1969). The overall economic situation of the basin area is degenerating and proper scientific management of the basin is the immediate need.

References

- Bhattacharya, S.1993: A Comprehensive Study on the Problems of Management of the Rakti Basin in Darjeeling Basin in Darjeeling Himalaya, Unpublished Ph.D. Thesis North Bengal University.
- Chorley R.J 1969: The Drainage Basin as a Fundamental Geomorphic Unit.
- Cooke, R U and Doornik J. C 1996: Geomorphology in Environmental Management: An Introduction, Oxford University Press G.B 128-166p.
- Lama, I 2003: Study of the Environmental Geomorphology in the Balason Basin, Darjeeling, Unpublished Ph.D. Thesis, University of North Bengal.
- Leopold, B.L Wolman M.G and Miller J.P 1964: Fluvial Processes in Geomorphology, Freeman and Co.
- Morisawa, M 1968: Streams- Their Dynamic and Morphology, MC Graw Hill Book Company.