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Anthropogenic impact on river of sundarban deltaic settlement area; with special references to the Piyali River, South 24 Parganas, West Bengal, India

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Abstract

Sundarban was a dense mangrove in the 12th century in 24 parganas and the rivers were a tidal estuary with destructive aquatic animal like crocodile, shark and other, but the immigrant people have come here and built up inhabitant in this area. So interventions of the flocked people on different resources were helped them to expend their life. Such as different river in the Sundarbans have affected by the intervention of man that was helping to imbalanced to the environment and ecosystem. So this paper deals with the anthropogenic impact on the river Sundarbans special references to the Piyali river. After analysis the data Suggests different type of sustainable use of the river as wetland as a resourceful Location.

Piyali River, now total length of this river 43.64 k.m, is a one of the most important tidal estuary river in the Sundarban deltaic area of the Kultali and the Canning block in the South 24 Parganas, West Bengal, India. It is a tidal water river, which is joined with the east Calcutta wetland, impact on human being with socio-economically. But the Anthropogenic impact on the river Piyali effect on environment, flow of the river, ecosystem also socio-economic status in the surrounding area. This paper deals with the anthropogenic impact on the river in the Sundarbans deltaic inhabitant area special references to the Piyali river and after analysis the data suggests the different type of sustainable use of the river to save the river.

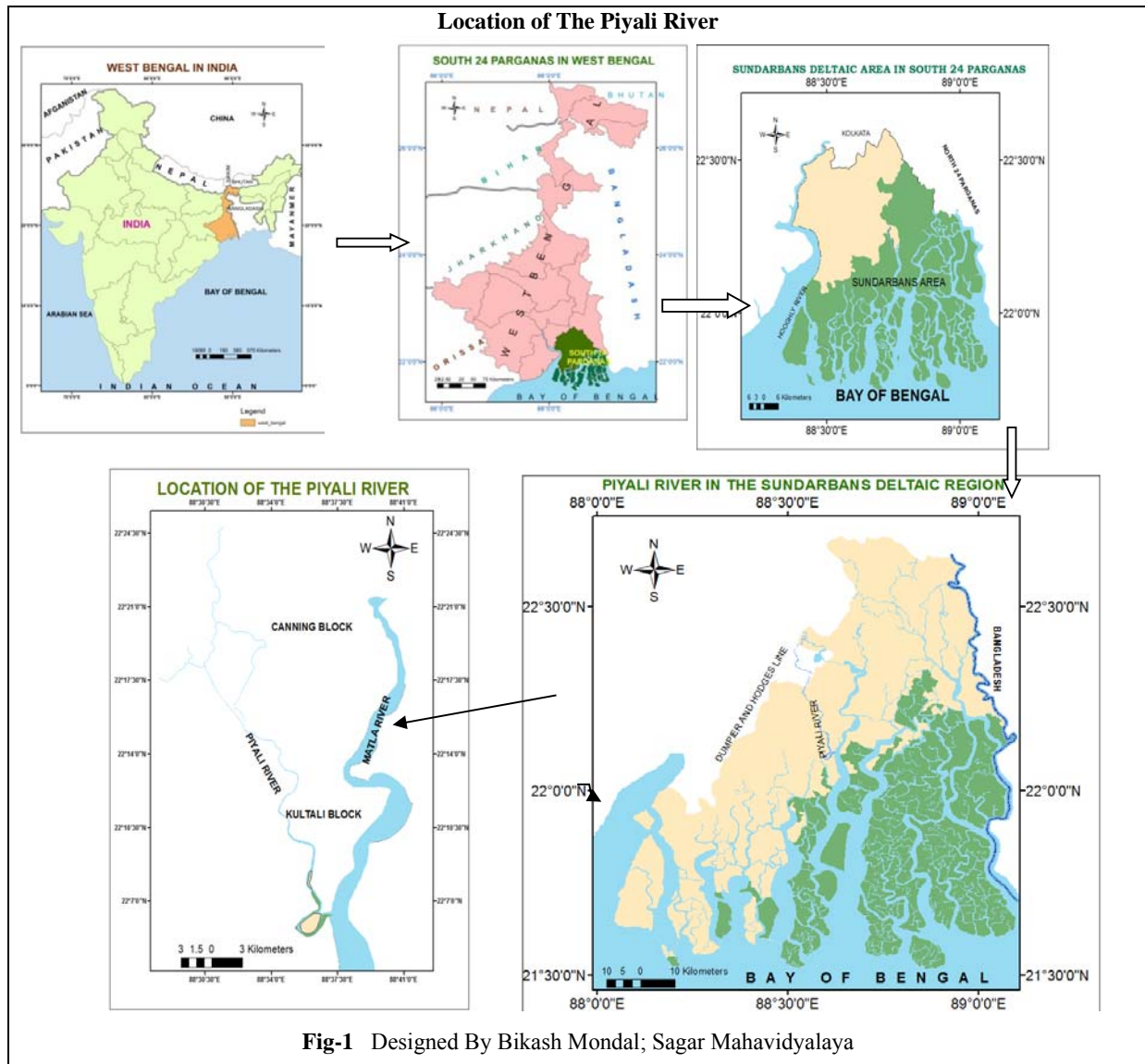
Keywords: Anthropogenic Impact, Flocked People, Intervention of Man, Mangrove, Tidal Estuary, the Sundarbans.

1. Introduction

Piyali River, now total length of this river 43.64 k.m, is a one of the most important tidal estuary in the Sundarban deltaic area of the Kultali and the Canning block in the South 24 Parganas, West Bengal, India. It is a tidal river, which is joined with the east Calcutta wetland, impact on human being with socio-economically. But the Anthropogenic impact on the river Piyali effect on environment, river course, ecosystem also socio-economic status in the surrounding area. This paper deals with the anthropogenic impact on the river in the Sundarbans deltaic inhabitant area special references to the Piyali River and after analysis the data suggests the different type of sustainable use of the river to save the tidal estuary.

Location:-The Piyali, a river in the Sundarbans Area, is the link river of the river Matla which was the ones upon a time an extended part of the east Calcutta wetland, situated in the Kultali and canning block and Joynagar block, South 24 Parganas, West Bengal, India. Total length of this river was 51.254k.m but now this river length is 43.64k.m, due to anthropogenic impact. This river is flowing now from the northward to southward in the locality of Piyali, Marapai, Piruldah, Nabagram, Tilpi, Badukhola, Merigaunj, Kirtankhola, Kaksha, Andhari, Kundhankhali, Garankhati, etc in canning Subdivision. Latitudinal and longitudinal extensions are from 22°06' N to 22°24'30" N and 88°30' E to 88°37'30" E.

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Aim and Objectives:- Different types of the tidal water river are the source of occupation of human life in the Sundarbans area. But the intervention of the man on river such as Piyali river impact on the environment, Siltation, loss of water flow, pollution, narrowing the river course are the main problem of this area. So this paper analysis the Anthropogenic Impact on River of Sundarban Deltaic habitat Area; with Special References to the Piyali River.

The main objectives of this study are:-

- i. Why the river is abolishing in this area.
- ii. Cause of siltation.
- iii. Identified the importance of the river like Piyali.
- iv. Identified the anthropogenic impact
- v. Suggest the Sustainable use of river to save the flow of this river.

Characteristics of the Piyali River and surrounding area:-

- i) Piyali, in the Kultali and Canning Block, is locating as a tidal river, which is a joining with the Upper and lower course of the river Matla.
- ii) This river is the one of the most extraction of Water River from the east Calcutta wet land and this river played the

- role of Bypass River which is turn out excess water of the river Matla in the upper course.
- iii) It was silted by the sediment in the flowing sediments of the east Calcutta wetland as a result this river bed have been rising up from the normal level.
- iv) The nearest areas of this river have flooded by this river as a result the backwaters are found in the side area of this river.
- v) Recently the river course has been reducing for the inhabitant of this area. . It was 51.2k.m length. But now length of the river is 43.64k.m and cross section length of this river has minimised by the anthropogenic impact and it is now existing as a cannal or channel in the upper stream and situated as closed wetland.
- vi) Monsoon climate is controlled the local rainfall and temperature. In the month of May March to September are identified as a summer monsoon at the last o portion of the summer monsoon means middle of May last of August is identified as a rainy season. But other month is known as dry season. In the summer season in the month of May, high temperature is found 38⁰C and low temperature is recorded 12⁰C in the month of January. The maximum rainfall is recorded in the month of June and July, mean

annual rainfall is recorded 1358.10mm. This rainfall is the also source of the water in this river.

- vii) In the dry season this river bed transform into playground, pasturing ground lack of water.
- viii) In the last two decade of the 20th century this river mouth is acquired by the local and immigrated people from the different part of the west Bengal and built up settlement area as a result water supply has reduced and river bed has silted by the leaching soil from the agricultural land beside the river. It is noted that upper stream of this river is built up a dense populated area and built up a town name as Piyali Town.
- ix) In the dry monsoon the river beds also transform into a road to communicate the opposite side of this river with the unstable soil which is the one of the other culprit to interrupt the river course.
- x) Overuse and abuse of ground water in agricultural field and domestic use as a result ground water level has been reducing as a result the water level of the Piyali river have been reducing from normal level.

Anthropogenic Impact on The Piyali River: -A large no of river in the south 24 parganas have affected by the human activities so different problem are found in that area like Piyali river. Different types of anthropogenic impact as following as is the problematic issues of this river:-

- i) **Siltation:** - Siltation is the one of the main impact of the Piyali River to continue the normal course of the river flow. This river flow is interrupted by the human activities like building up settlement, embankment across the cross-section of this river.
- ii) **Cultivated area:**-The bank side of the river Piyali is begging to cultivate at the last decade of the 20th century. Most cultivated area is found Koabati or Kothabati, Mahishmari, Dhosa, Dhankhola, Goradaha, Dandapur etc. So the eroded soil in these area are transported by the water and deposit on the river bed of the Piyali River as a result the normal flow of this river has been stopped. More over the cultivation in the river bed is the problem of the river flow due narrow of the river bed.
- iii) **Brick Industry:**-the bank side of the river built up the brick industries because the river bed is the source of the raw materials, soil which is suitable to make up the brick. Low labour cost, and marginal labour, and also poverty, illiteracy of the population are the main favour to develop this industries. Along river bank there are 38 brick factory have been building up As a result wastage of the brick industry and unscientific construction is the indicator of the interrupted of the river course.

Bank side	RightBank	LeftBank
Brick Industries	36	12

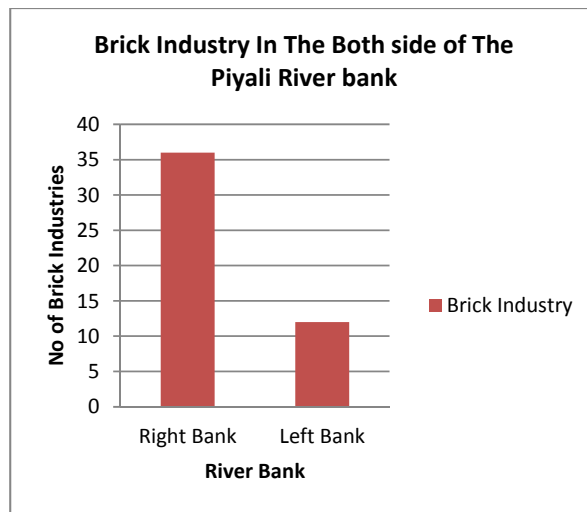


Fig 2: Data:-Primary Source

- iv) **Road And Rail Bridge:**-In the time of Construction of the road and rail bridge construct the pillar on the river bed to continue rail and road over the river as a result the river course has been reducing in cross section of the Piyali river in the Canning block, three road And rail bridge communicate between the opposite side of the river. Three road bridges also connect the opposite side of the Piyali river. State highway and local linkage road between two sides of this river have constructed on the river along the constructed on the river bridge.
- v) **Fishing:**-In the time of catches fish people of this area have formed embankment or other construction as a result a wide area have been forming a isolated water bodies which is dissected by the embankment from the Piyali River main flow. There are three point of the Piyali river have constructed embankment to catches fish and connect the opposite side of this river. Now maximum fisher man catches pin of prawn in the lower part of this river from kella to the confluences of this river as a result the bank is eroding by these people and at the confluences of the Piyali river near Kundankahli ,Garankhati, and Balaharania built up fisheries which is the destructed indicator of the biodiversity.
- vi) **Settlement:**-Increasing Human settlement have acquired of this river side to build up settlement and other construction. Most of the people have come from the East Pakistan (Bangladesh) and opposite of the Hooghly, The Midnapur, and Orissa and adjoin area of the Orissa. About 68% of inhabitant in The Piyali station area is immigrated from the Lower part of the Sundarbans deltaic area and most of them about 86% have come also East Pakistan and Sundarbans deltaic area and 9% come from the Sundarbans deltaic area and Medinipur adjoining area. About 2% of the inhabitant is the people of the canning block have build up the settlement.
- vii) **Growth of Hyacinth:**-For stopping the flow of the Piyali because of the embankment along cross section and sluice gate as a result river hyacinth is growing in the river as a result utropication, B.O.D, C.O.D are affected in the river ecosystem as a result the ecosystem of this river is destructed and increasing the crisis of the river fish.
- viii) **Tourist spot:**- Tourist spot has built up at the lower part of the Piyali river in the kella and the Piyali Islands which is connected by the bridge which is the indicator of the siltation on the river bed as a result the affected the normal ecosystem in this area. Every year more than three

thousands of tourists have come here to come mainly arrange picnic as a result local mangrove ecosystem is affected.

- ix) **Pasturing:** - Piyali river is already affected by the settler in this area. And the river bed and bank are used to pasturing and others activities which affect the river course of the Piyali.

Conclusion:-From the above analysis it is cleared that anthropogenic impact on the Piyali River that is endangered to the existence of this river and destructing the ecosystem of this river. Upper course of this river has acquired by the migrated people and this course has abolished and river flow is stopped and river is changed into settlement area. River length is also reduced by the anthropogenic impact.

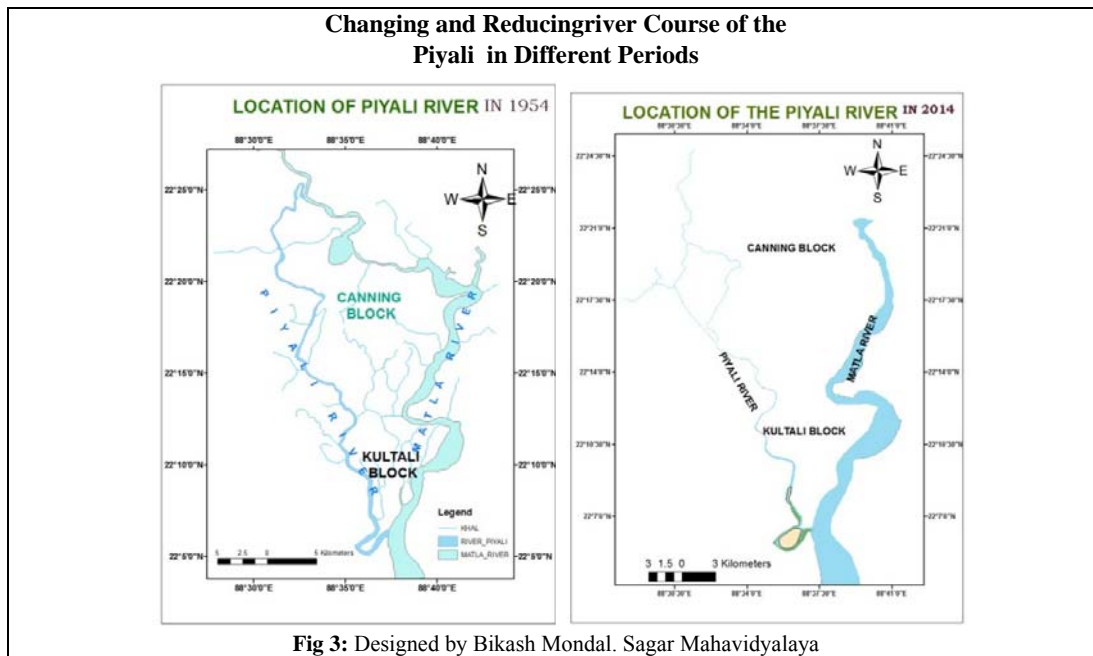


Fig 3: Designed by Bikash Mondal. Sagar Mahavidyalaya

Suggestions: - Any kinds of river are the life line of the people in a region and also build up an ecosystem in bases of the river. But the anthropogenic impact destroys of interrupt the normal flow of the river and ecosystem. Acquiring the east Calcutta x. wetland and upper course of the river Matla is the most destructive decision of this settler that is affected in the Piyali River. To reclaim the normal flow and uninterrupted flow of a xi. river should abide by the flowing suggestion:-

- i. To save the Piyali river find out the basin area of this river.
- ii. Find out original river course area and reclaim this course area.
- iii. Settler area should be built up in the save distance from the river.
- iv. Uninterrupted the water supply may be saved the Piyali river course. So the river mouth should be clearing to remove sediment and settlement area.
- v. Building up the Brick industries should not entertain the river bank with the help of the soil on the river bed. This industrial wastage should be purified before the thrown in the river.
- vi. Soil erosion is the one of the most vital problem in respect of the river. Eroded soil from river bank deposits in the river and its bed is uplifted from normal level.
- vii. In the agricultural land beside this river use fertilizer and pesticide which are the harmful of the river ecosystem. So
- viii. Fisher men have used different type of catcher to catches fish as a result river flow is interrupted. So to save the flow of the Piyali River should not unexpected build up in the river.
- ix. Extended part of the river bank which is built up by the deposition of the river, could not allowed building up

settlements. More over unexpected settlement beside the river bank should not encourage by the any political party or person to save the river course.

Unexpected soil or Sand cutting up from the river bed should not entertain because possibilities of the river ecosystem and river flow are destructing.

Different types of construction like road bridge, rail bridge are reduced the cross length of the river like near the Piyali railway station in the building up the railway bridge pillar is constructed on the river bed and could not abide by the environmental situation of this river.

Different type Road Bridge, made with bamboo, Cement by the local people of the river basin of the Piyali River, as a result cross section of the river has reduced, should be constructed by the scientific way.

More over a river is the source of the different resources in our civilization, so our duty is reclaimed the losing life of this river.

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