

Urbanization and its Impact on Coastal Eco Tourism in West Bengal

Pijush Kanti Dandapath¹, Manojit Mondal²

¹Research Scholar, Ranchi University, Ranchi, Jharkhand, India
Assistant Professor of Geography, Bajkul Milani Mahavidyalaya, West Bengal, India
pkdandapath@gmail.com

²Research Scholar, Department of Geography
Ranchi University, Ranchi, Jharkhand, India
manojitmondal0@gmail.com

Abstract: *Urban land use of growing city is often associated with vertical and horizontal change in which various functional characteristics of the city added. The changing urban features are characterized with increase of urban population and development activities that magnify centripetal forces in most developing countries. In developing countries urban area as well as their population is growing at a fast rate and the growth of cities is not observed in planning specify urban activity locations and spatial structure of urbans that impacts spatial flow of humans and commodity in urban surface and energy consumption for transportation between destinations which in turn affect land quality. Eco-tourism is a nature base travel to relatively undisturbed natural area with the specified object of studying admiring and enjoying the scenery and its wild plants and animals as well as any existing cultural aspect (both the past or the present) found in these area. Long coastal tract of Purba Medinipur district, West Bengal, presents significant role of eco-tourism. Purba Medinipur with colonial legacy present an interesting course of transformation of traditional rural society leading to urbanization between 1901 to 2011, urban percentage geared from 12.2 % to 35.5 % while urban area increased from 1.03 % to 4.5 % to the district's total area. This clearly entails to speed and sale of urban land use change and urbanization. The present study deals with the reasons of the urban land use change and impact on eco-tourism in coastal area.*

Keywords: Urban land use; Eco-tourism; Coastal Tract

1. Introduction

At present both urbanization and indiscriminate expansion of tourism industry due to urbanization has led to the deterioration in environmental quality. The States of West Bengal accounts for 28.03 0/0 of total population (80176179) concentrated in urban areas which is marginally higher than the national average (about 28 0/0). The level of urbanization is a good indicator of level of development and also provides the base for analyzing the quality of life in spatial perspective. Curie (1966) supports the idea that Urbanization is crucial for accelerating the nation's socio-economic development. On the other hand we have seen that there is inverse relation between the growth of urbanization and degree of environment because as like developing countries

- It is a degrading agent of physical environment as well as deterioration in environmental quality or negative impetus to establishment the eco-tourism.

In that context we an attempt has been made to examine the levels of urbanization and its impact on coastal eco-tourism in West Bengal.

2. Objectives

To assess the linkage in-between the developmental parameters of Urbanization vies-versa population pressure, Tourism industry and Environment and their impact in the costal West Bengal Tourist Destinations.

3. Methodology

The present paper intended to be empirical study designed

condition, the indiscriminate expansion of urbanization is a general scenario of West Bengal.

West Bengal with colonial legacy presents an interesting course of transformation of traditional rural society leading to urbanization between 1901 and 2001, towns multiplied in number and from 74 to 446, urban area increased from 1.030/0 to 4.50/0 and urban dwellers increased from 2.06 million to 18.7 million. This clearly entails to speed and scale of population pressure to urban growth and urbanization and that situation may be accelerating the natural phenomena of West Bengal in two ways:

- Accelerate the establishment of eco-tourism or grow up the nature based tourism and other hand.

for a Micro Level investigation this involves gathering of information and collection of data at both case study and survey method. Degree of Urbanization will be analyzed from the Census data and its impact will be drawn through the intensive field survey.

4. Concept of Eco Tourism

Now we attempt to clear the concept of eco-tourism that, at the tourist places, indiscriminate expansion of the tourism industry has resulted in some ecological and cultural damages to the host country, for this reason, after 1980s the concept of eco-tourism has been popularized rapidly by the Hector Ceballos Lascurain in 1983 initially the term (eco-tourism) used as - " Travelling to relatively undistributed and uncontaminated natural areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural

manifestations (both past and present) found in these areas.” So eco-tourism is nature based tourism and it is an effective instrument for enhancing method of conservation of environment, many income generating activity (through earning revenue, foreign exchange, hotel business, commodity selling hotel boy service, guide etc.) of the local population, economic benefits of the host communities of the state or country and rejuvenation of the culture and tradition there by facilitating overall development.

It also give us that eco-tourism is a positive source of fascination for man and one of the causes of his psychological peace, mental solace and enjoyment and it rejuvenates man’s sprit to explore nature again and again, revives his vitality and gives fillip to his energy after churned out by the routine work of his monotonous life.

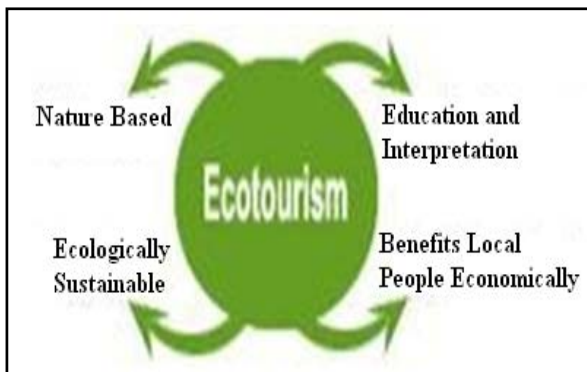


Figure 1: Concept of Eco Tourism

5. Location of Study Area

The states of West Bengal are comprised of 19 districts including Kolkata. It lays between 21°05' N lat. to 26°05' N lat. & 86°30' E long. to 89°05' E long. respectively with an area about 88,752 sq km where the coastal stretch of West Bengal extends from the mouth of the river Subarnarekha on the West (bordering the state of Orissa) to the mouth of river Haribhanga on the east (bordering Bangladesh) between longitude 87°03'E and latitude 21° 37.012'N to 89°03' E. and latitude 21°40.849'N respectively with a length about 350 km comprises the two districts-East Midnapore and South 24 Paraganas. The long coast line of West Bengal along the Bay of Bengal is dominated by Ganga Delta which occupies around 60% of this coast line.

Physiographical, the entire coastline may be subdivided into three principal coastal zones, such as:

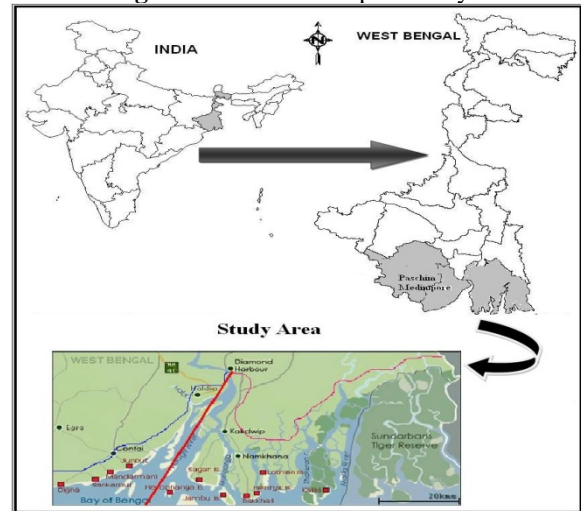
- a) From the mouth of Harinbhanga river to the mouth of Hugli river, known as the Sundarban Delta Zone” (Eastern sector);
- b) Saline tidal regime of the Hugli river, stretching upto Kulpi Point and the Haldia Port (Central Sector);
- c) Digha-Junput coastal plain along the sea (Western Sector).

But areas for intensive coastal tourism in West Bengal could be distinctly divided into two major zones, such as;

- a) Digha-Shankarpur zone in Purba Medinipur - District

- (Destination:-Digha / Shankarpur/Tajpur/Mandarmoni/ Junput/Gopalpur)
- b) Sundarban in South 24 Parganas District (Destination: Sagar Island / Haribhanga Island / Bakkhali / Frazerganj / Henrys Island / Jambu Island / Kolas Island etc

Figure 2: Location Map of Study Area



6. Basic Physical features of the study area

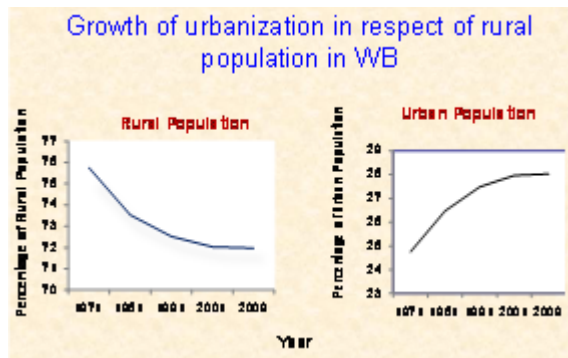
West Bengal has golden opportunities for the establishment of eco-tourism due to characterized by the Royal Bengal Tiger, Mangrove Forest (Sundarban-world largest Zoogeographical region), wide and hard beaches (Bay of Bengal coastal tract in West Bengal like Digha, Sankarpur, Mandarmoni, Sagar Island, Bakkhali etc) where the sightseer play and enjoy romance with sun, sand and sea in the sea beaches and different types of aquatic life, flora- fauna, rolling seas, sand dunes, casuarinas forest, red crabs, eye catching beautiful scenario, which has kept her doors wide open to established the eco-tourist destination. This region is a transitional zone in-between sea and land where the mangrove forest are whispering, sea are roaring, the flora and fauna are blooming and where visitors can rejuvenate yourself in the company of sand, sea and sun in the pristine open air. Each part of the coastal region of West Bengal is nothing short of spectacular view wearing a green blanket the coastal area seems like an emerald of West Bengal. Among these rich flora and fauna are the major eco-tourism resources, which help to increase the glamour of the eco-tourism industry in West Bengal coastal region. In coastal region of West Bengal, there are varieties of trees, shrubs, climbers, herbs, and medicinal plants etc. which are creating a colourful spectrum of bio-diversity. Except these, many endangered flora and faunas are also the chief source of tourist attraction, and, although, eco-tourism is the nature based tourism so it can be said that rich flora and fauna also make a way to ripen eco-tourism industry in West Bengal coastal region. But all the West Bengal coastal zone environments provide a unique combination of resources and constrains (like beaches, sand dunes, wetlands, barrier island, reefs etc. and storms/cyclone, sea level rise, more vulnerable erosion by fluvio-marine processes and anthropogenic

activities etc) which may be considered to explore the opportunities for development of eco-tourism which is one of the assuring effective management of the coast.

7. Levels of Urbanization in West Bengal

Generally the term urbanisation is taken as the percentage of population living in urban centre or increased number of urban centre. In West Bengal with colonial legacy presents an interesting course of security leading to urbanization. Between 1901 to 1981 and 2001, towns multiplied in number from 74 to 385 and 446 respectively, urban dwellers increased from 2.16 million to 18.7 million urban percent geared from 12.2% to 28.03% while urban area increased from 1.03% to 4.5% of the state’s total area.

Figure 3: Growth of Urbanization in West Bengal



Levels of urbanization in West Bengal (District Wise)

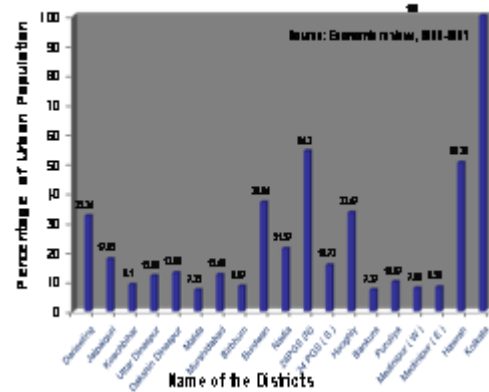


Figure 4: Level of Urbanization in West Bengal

Table 1: Level of urbanization respect of rural population in West Bengal

Population Size Class	1971		1981		1991		2001	
	Villages	Towns	Villages	Towns	Villages	Towns	Villages	Towns
Below 500	18561	-	15923	1	13474	-	11752	-
500-999	9085	-	9396	2	9227	-	8725	-
1000-1999	6622	-	7538	1	8065	2	8529	4
2000-4999	3342	9	4383	18	5819	18	6292	19
5000-9999	412	59	702	75	1117	126	1312	151
10000-19999	52	60	82	80	190	95	220	110
20000-49999	-	49	-	52	17	64	11	73
50000-99999	-	31	-	38	1	35	-	40
100000-& above	-	15	-	24	-	42	-	49
Total	38,074	223	38,024	291	37910	382	36841	446

Figure 4 shows 5 districts of the state – West Bengal are placed under highly urbanized group. Wherein highest urbanization is recorded in Kolkata (100 0/0), followed by North 24 PGS (54.30 0/0), Hawrah (50.36 0/0), Burdwan

(36.94 0/0) and Hooghly (33.47 0/0). These districts are located in southern part of the State. This clearly entails the speed and scale of urban growth and urbanization.

7.1 Progress of Tourism in the two coastal districts (like East Midnapore and South 24 PGS) of West Bengal

Tourism is a major contribution to the economy of the coastal zone. The beaches of Digha, Shankarpur, Bakkhali etc. attract a large number of tourists each year. Digha beach alone attracts 1.5 lakh tourists per year. The annual pilgrimage of Ganga Sagar brings more than one lakh pilgrims every year. The Lothian Island Sanctuary (Bhagatpur Crocodile farm) attracts 30,000 tourists while Sundarban Tiger Reserve gets about 50,000 tourists per year.

Table 2: Environmental impact of different Sea urban centre

Destination		Period of Emergence	Site and Situation	Tourist Carrying Capacity at present	Impact
DIGHA	Old	Late 1950s	Water front	250 H, 21 HH & many no. of houses cum guest house are there.	Shore line water table change, sea beach Vanishing, Failure sea guard wall structure, flooding and inundation and anthropogenic pollution etc.
	New	Mid 1980s	Back shore	155H & 30 HH & Other houses cum guest house.	Built up Dune Surface but erode sand dunes by wind action due to remove casuarinas forest in large scale for converting the land into urban habitat.
Sankarpur		1990s and onward	Low land behind the Dune Barrier	8H	Reduced beach width and erode dune in massive scale. Geo-Tube concept failure so storm tide caused flood and salty and marshy land formed, damage agricultural field.

Tajpur-Mandermoni.	2003 and onward	Back shore	More than 13H	Built up Dune Surface but erode sand dunes by wind and Storm Wave action due to remove casuarinas forest in large scale for converting the land into urban habitat.
Fresergunge	Early 1950s	Beach-Dune Complex	0B and 3R (Under fishery Dept. of WB. Govt.).	Damaged by erosion and cyclone waves in different times.
Bakkhali	Mid 1960s	Mangrove forest belt with sandy shore line.	25-30 H/L	Inundation beach erosion, loss of Mangrove and casuarinas forest.
Sagar Island	Mid 1980s	Reclaimed sand bar areas in the mouth of Ganga and previously mangrove forest belt.	1H, 2YH, 7GH, 5A, 1P and temporary Tourist habitat at the time of famous fair.	Bank eroded, marshy land reduced, flooding and inundation.

Tourism in the Sundarbans can also lead to a profitable activity for local population. Tourist statistics indicate that at present 1, 80,000 tourists annually visit Sundarban area. An opinion poll about tourism attraction indicate that most of the participants (100%) are interested in inter island boat trips, besides showing interest in bird watching (50%), turtle nesting (33%) and recreational fishing (17%). The tourism activity can further be augmented by interdicting underwater Plexiglas capsule for watching the marine life. As many as 83% of the tourists have shown interest in this regard. The local people could therefore be engaged in inter island boat trips, as guides for bird-watching, turtle nesting sites and recreational fishing. The employment of the local people in all other promotional activities should form an important component of management strategy.

The coastal town of Digha has changed from a small village to a tourist resort over a period of four decades. Initially, lack of communication and transport had kept the influx of the tourists at a low order. During the last four decades road connections have improved and a fleet of transport operations led to significant influx of tourists, which in turn necessitated development of hotels, holiday houses, private lodges, etc.

7.2 Environmental Impact

Such a development took place without appropriate land use planning. The Geological Survey of India in its report on the Digha coastal belt pointed out that the active processes of erosion and accretion have been accelerated by several man-made interventions including removal of sand dunes, leading to mushrooming of construction near the coastline. The exact impact of tourism on the coastal belt of Digha cannot be quantified but, the continuing dumping of solid waste and raw sewage in the coastal water bear testimony to an alarming situation which increases with every tourist season. The Digha-Junput coastal tract is being eroded by sea-water resulting in lowering of the beach and recession of the bank. The rate of erosion has been found to be about 17 meters per year at some parts. Besides erosion, beach lowering (submergence) by about 15 to 20 cms per year appears to continue unabated (Bhattacharya S, 1992).

Apart from coastal erosion caused by wave actions and storms, removal of sand for construction of roads and hotels, exploitation of Casuarinas trees on the dune-tops for fuel wood and building materials also cause destruction of sand dunes and erosion of beach. Artificial methods of beach protection at some places also accelerate coastal erosion elsewhere. Coastal accumulation is occurring at Shankarpur. Increasing pressure of human activities on the Hugli unstable coastal zone has been assessed by IIT, CSME and GSI during last 15 years, but no effective action plan for controlling the phenomenon is yet visible.

8. Conclusion

So, now days the coastal plain of West Bengal suffers by many problematic issues which have created conflicts between various resource users and interest groups, between developers and ecologists/environmentalist, engineers and geoscientists and land owners and economists in West Bengal. The coastal zone management in West Bengal has been suggested under both regulatory and non regulatory system. Under regulatory system, it is recommended that critical ecosystem like mangrove forest in Sundarbans and sand dunes in Digha etc. should be protected from any changes. Aquaculture should also be regulated with a total ban on conversion of mangrove area, controlled abstraction of groundwater and appropriate treatment of effluents before being discharged into the surface water system. Similarly, regulatory measures should also be adopted to control dredging activities, discharge of burnt oil, leakage of oil due to bad maintenance of vessels, limiting setback lines for coastal construction etc. It is also emphasized that EIA study should be made mandatory for any large coastal project.

Under the non-regulatory measures, control of urban run-off, erection of flood protection barrier, formulating oil spill contingency plan, use of remote sensing for identifying potential fishing zone, appropriate storm forecasting, restoration of derelict wetland can be listed as major recommendation. Simultaneously steps are to be taken for technical training on coastal zone management increasing awareness in the community and ensuring a system of monitoring.

In spite of the immense potentialities (which I mentioned before) of eco-tourism development in coastal region, the region has not been highlighted and developed as a eco-tourist destination. The principles of eco-tourism are not scientifically followed in the region, a number of local communities are still unemployed, and infrastructure does not follow the eco-tourism concept. But, at present time the new government of west Bengal try to develop the infrastructure for established the tourism industry in West Bengal from Pahar (North) to Samudra (South).

Yet we can say, all the west Bengal coastal zone environments provide a unique combination of resources and constrains (like beaches, sand dunes, wet land, barrier island, reefs etc. and storms / cyclone, sea level rise, more vulnerable erosion by fluvio-marine process and anthropogenic activities etc.) which may be considered to explore the opportunities for development of eco-tourism which is one of the assuring effective management of the coast.

References

- [1] Cheshire, P., and Sheppard, S. (2002). The welfare economics of land use planning. *Journal of Urban Economics*, 52, 242–69.
- [2] Cho, Seong-Hoon, Wu, J., and Boggess, W.G. (2003). Measuring interactions among urbanization, land use regulations, and public finance. *American Journal of Agricultural Economics* 85, 988–999.
- [3] Czech, B., Krausman, P.R., and Devers, P.K. (2000). Economic associations among causes of species endangerment in the United States, *BioScience* 50, 593–601.
- [4] Daniels, T. (1999). *When city and country collide*. Washington, DC: Island Press.
- [5] Glaeser, E.L., and Ward, B.A. (2006). The causes and consequences of land use regulation: evidence from greater Boston. Harvard Institute of Economic Research, Discussion Paper Number 2140. http://www.economics.harvard.edu/pub/hier/2006/HIER_2124.pdf. (accessed November 19, 2007)
- [6] Glaeser, E.L., and Gyourko, J. (2002). The impact of zoning on housing affordability. Harvard Institute of Economic Research, Discussion Paper Number 1948. http://www.economics.harvard.edu/pub/hier/2002/HIER_1948.pdf. (accessed November 19, 2007)
- [7] Lisansky, J. (1986). Farming in an urbanizing environment: agricultural land use conflicts and rights to farm, *Human Organization*, 45, 363–71.
- [8] Larson, J., Findeis, J., and Smith, S. (2001). Agricultural adaptation to urbanization in southeastern Pennsylvania.

- Agricultural and Resource Economics Review, 30, 32–43.
- [9] Lockeretz, W. (1988). Urban influences on the amount and structure of agriculture in the North–Eastern United States. *Landscape and Urban Planning*, 16, 229–244.
- [10] Lopez, R.A., Adelaja, A.O., and Andrews, M.S. (1988). The effects of suburbanization on agriculture. *American Journal of Agricultural Economics*, 70, 346–358.
- [11] Lubowski, R.N., Vesterby, M., Bucholtz, S., Baez, A., and Roberts, M.J. (2006). Major uses of land in the United States, 2002. *Economic Information Bulletin No. (EIB–14)*.
- [12] Paul, A. (2002) Coastal Geomorphology and Environment.
- [13] Lynch, L., and Carpenter, J. (2003). Is there evidence of a critical mass in the mid–Atlantic agricultural sector between 1949 and 1997? *Agricultural and Resource Economics Review*, 32, 116–128.
- [14] Marland G., R.A. Pielke Sr., M. Apps, R. Avissar, R.A. Betts, K.J. Davis, P.C. Frumhoff, S.T. Jackson, L. Joyce, P. Kauppi, J. Katzenberger, K.G. MacDicken, R. Neilson, J.O. Niles, D.D.S. Niyogi, R.J. Norby, N. Pena, N. Sampson and Y. Xue. (2003). The climatic impacts of land surface change and carbon management, and the implications for climate-change mitigation policy. *Climate Policy* 3:149-157.
- [15] Oregon Department of Land Conservation and Development (ODLCD). (2008). Measure 49 Guide. http://www.oregon.gov/LCD/MEASURE49/docs/general/m49_guide.pdf (accessed August 4, 2008).
- [16] Oregon Department of Land Conservation and Development. (2007). Measure 37. http://www.oregon.gov/LCD/MEASURE37/about_us.shtml (accessed November 7, 2007).
- [17] Soulé, M.E. (1991). Conservation: tactics for a constant crisis. *Science*, 253, 744–50.
- [18] Trust for Public Land. (2007). LandVote® http://www.tpl.org/tier3_cd.cfm?content_item_id=12010&folder_id=2386 (accessed October 31, 2007)
- [19] U.S. Department of Housing and Urban Development. (2000). The state of the cities 2000. Washington, D.C.: U.S. Department of Housing and Urban Development.
- [20] U.S. Environmental Protection Agency. (2007). Smart growth and open space conservation. <http://www.epa.gov/smartgrowth/openspace.htm> (accessed November 8, 2007).
- [21] Walsh, R. (2007). Endogenous open space amenities in a locational equilibrium. *Journal of Urban Economics*, 61, 319–44.
- [22] Wu, J. (2006). Environmental amenities, urban sprawl, and community characteristics. *Journal of Environmental Economics and Management*, 52, 527–547.
- [23] Wu, J., and Cho, S. (2007). The effect of local land use regulations on urban development in the western United States. *Regional Science and Urban Economics*, 37, 69–86.
- [24] Wu, J., and Irwin, E. (2008). Optimal land development with endogenous environmental amenities. *American Journal of Agricultural Economics*, 90, 232–248.
- [25] Laljee B. and Facknath S. 2008. A Study of the Historical and Present Day Changes in Land use Profile, and Their Driving Forces in Mauritius. *Land Use Reflection on Spatial Informatics, Agriculture and Development*. Edited by M.M. Jha and R.B. Singh. Concept Publishing Company, New Delhi.

Author Profile



Pijush Kanti Dandapath received educational degree in and outside of West Bengal (B.A. Honours in Geography from Trivenidevi Bhalotia College, under Burdwan University, Ranigaunj, West Bengal, M. A. in geography from C.S.J.M. University, Kanpur, U.P., India, and M. Phil from Calcutta University, Kolkata, West Bengal, India). He has now an assistant Professor of Geography at Bajkul Milani Mahavidyalaya, P.O.-Kismat Bajkul, Dist.-Purba Medinipur, West Bengal and Research Scholar under Department of Geography, of Ranchi University, Ranchi, Jharkhand, India and also had done different project works under West Bengal Biodiversity Board at Saltlake, West Bengal, India.



Manojit Mondal received the B. Sc. In Geography from Vidyasagar University, West Bengal, India in 2003 and M. Sc. Geography from Chatrapati Sahoji Maharaj University, Kanpur, India in 2005. During 2005-2009, he stayed as part time Lecturer at Tamralipta Mahavidyalaya, Tamluk, West Bengal, and Research Scholar under Department of Geography of Ranchi University, Ranchi, Jharkhand, India. He has now Teacher-in Charge in Paramhansapur Barkatia High Madrasah, Nandakumar, Purba Medinipur, West Bengal, India.