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Developmental scenario of the Char's dwellers: A case study in Raghunathganj-II block, Murshidabad District, West Bengal

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ABSTRACT:

Chars or river islands are important depositional landform of fluvial system. Many chars are developed in the lower course of Ganga. Murshidabad receives the lower course of Ganga (Bhagirathi). So, numerous chars can be found in this district. Some of them are habitable. Flood, inundation, sandy storm, bank erosion are the age-old problems in the chars. People of char lands suffer from the problem of displacement caused by natural hazards. The people are spending their life with full of difficulties in char lands. The present paper describes the level of human development in chars and their problems on the one hand and on the other hand tries to give necessary remedies to prevent decimation of human resource in chars and focuses on their development issues. To measure human development of char lands in Raghunathganj-II bock, Human Development Index (HDI) propounded by United Nations Developmental Programme (UNDP) has been used here. The result of combined HDI value is 0.4166 which shows low category of human development in chars according to UNDP categorization in respect of human development and the lack of communication of the chars with the main land act as an important barrier for less development of the people in char lands.

KEYWORDS: Char lands, Human development, Human development index (HDI).

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INTRODUCTION

Chars can be termed as sand bars or river islands. Sediments which are carried by the river Bhagirathi-Padma deposited on the river bed which gradually leads to form char lands. The ecological processes of char formation of the Indus-Ganges-Brahmaputra plains can be explained as these rivers are carrying enormous amount of sand, silt or simply debris with them from the mountainous area. And these rivers ultimately deposited the materials at the mouth of the river to extend the Bengal delta. Actually chars area originated as part of the natural fluvial processes in tropical area such as south Asia and they are inseparable part of the ecologies of all most all flood plains and char's formation from Geomorphological point of view, chars can be defined as sand bars or river islands. At the time of formation of chars, river channel is divided into branches and become a 'braided channel'. River carries sediments with itself and when the load of sediments exceeds the velocity of river then river start to store the sediments on flood plains. In this way chars are formed[1]. Raghunathganj-II block of Murshidabad district comes under the rivers track of Padma-Bhagirathi. Presently, Narukhaki, Bajitpur and Phirojpur are the chars under Raghunathganj-II block which are habitable but suffer from lots of problems in terms of vulnerability, lack of modern facilities, inequalities, poverty, agony and indescribable pain. Char lands in Murshidabad and Malda districts suffer by the problem of river bank erosion and reallocation are age-old problem in Chars and people living in chars (the erosion victim) suffer from the settlement >displacement > resettlement > re displacement[2]. Due to river bank erosion problem of the world largest riverine island Majuli in Assam, every year huge lands has been degraded and it has been created problem of displacement and other socio-economic problems[3]. Human life on chars of Malda and Murshidabad lacks facilities of sanitation, education, medical facilities, market and even drinking water[2,4]. The people of the Char land have been forced to spent semi-ancient lifestyle. In this context, in the present paper an attempt has been made to study the level of human development of char lands. Living condition of people in char is very much challenging and also changeable.

OBJECTIVES OF STUDY

- To measure the level of human development in char lands.

- To study the lifestyle of habitats in chars.

- To identify the reasons which act as barriers for less development of the people in chars.

METHODOLOGY

For the fulfillment of objectives of the study, firstly, char lands of Raghunathganj-II block has been identified by field visit. A socio-economic survey (last of 2017) has been done based on simple random sample technique to collect primary data and secondary data has been collected from Government offices e.g. BDO office. The sample sizes have been taken as 388 (22%), 647 (24%) and 740 (21%) of total population from Narukhaki, Bajitpur and Phirojpur chars respectively. Google Earth image (2015) has been used for preparing map to show the char lands. To measure the human development of chars lands, Human Development Index (2011) propounded by United Nations Developmental Programme (UNDP) has been utilized. To categories the level of human development in the study area, the UNDP (2011) categorizations have followed here that is, less than 0.5 indicates Low Human Development,0.5-0.7 indicate Medium Development, 0.7-0.8 indicates High Human Development, 0.8 – above indicate very High Human Development. HDI for chars is calculated based on primary data collecting by using questionnaire. The parameters for calculating HDI for chars under Raghunathganj-II block is dissimilar from HDI propounded by UNDP (2011)[5,6,7,8,9]. The following parameters are used to calculate HDI-

HEALTH INDEX: (Life Expectancy Actual Index + Under 5 Mortality Actual Index + Diseases Affected Population Index)/3.

Life Expectancy at Birth (Years): It will be calculated by mean year of death in different age group people.

Life Expectancy Actual Index: (Life Expectancy at Birth-25(Years)/85-25(Years).

Under 5 Mortality Rate: (No. of deaths in a specific class of children's during the period/ total no. of persons in a specific class at the middle of the period) ×1000.

Under 5 Mortality Index: (U5MR-0/1-0)

Under 5 Mortality Actual Index: (1- U5MI)

Percentage of Diseases Affected Population: (total diseases affected persons of the study area/ total persons of the area) × 100.

Diseases Affected Population Index: (PDAP-0) % / (100-0) %

Diseases Affected Population Actual Index: 1-DAPI.

EDUCATION INDEX: 2/3 (Literacy actual index) + 1/3 (Combined Gross Enrollment Index).

Literacy Rate: Total literate persons (excluding 0-6 years)/total population (excluding 0-6 years) ×100.

Literacy Index: (LR-0) %/ (100-0)% .

Gross Primary Enrollment Index: Total school going children in 6-upto 11 years age group-0/Total children in 6-upto 11 years age group-0.

Gross Secondary Enrollment Index: Total school going children in 12- upto 18 years age group-0/Total children in 12-upto 18 years age group-0.

Gross Tertiary Enrollment Index: Total school going children in 18-upto 24 years age group-0/Total children in 18-upto 24 years age group-0.

Combined Gross Enrollment Index: (Gross Primary Enrollment Index+ Gross Secondary Enrollment Index+ Gross Tertiary Enrollment Index)/3.

INFRASTRUCTURAL INDEX:{Per Capita Small Savings Index(in Rs/Month) + Household Having Toilet Facility Index + Household Having Electric Facility Index + Household Having Drinking Water Facility Index + Doctors Facility Index}/5.

Per Capita Small Savings Index (in Rs/Month): Total small savings of each area/total population of the area.

Household Having Toilet Facility Index: (total no. of household having toilet facility / total no. of household) × 100.

Household Having Electric Facility Index: (total no. of household having electricity facility / total no. of household) × 100.

 (The maximum value will be 100% and minimum value will be 0%)

Household Having Drinking Water Facility Index: (total no. of household having drinking water facility / total no. of household) × 100.

(The maximum value will be 100% and minimum value will be 0%)

Doctors Facility Index: (Total no. of doctors of the area / Total population of the area) × 1000 .

HDI=1/3(Health Index + Education Index + Infrastructural Index).

Dimension Index: (Actual Value-minimum Value/Maximum Value-minimum Value).

Each of these parameters is defined as a dimension with value between 0 and 1 with reference to minimum and maximum value.

STUDY AREA

Nrukhaki, Bajitpur and Phirojpur Char lands of Raghunathganj-II block under Jangipur sub-division of Murshidabad district have been selected as study area. Nrukhaki, Bajitpur and Phirojpur chars are situated on the river Padma which are only habitable among the chars under Raghunathganj-II block.
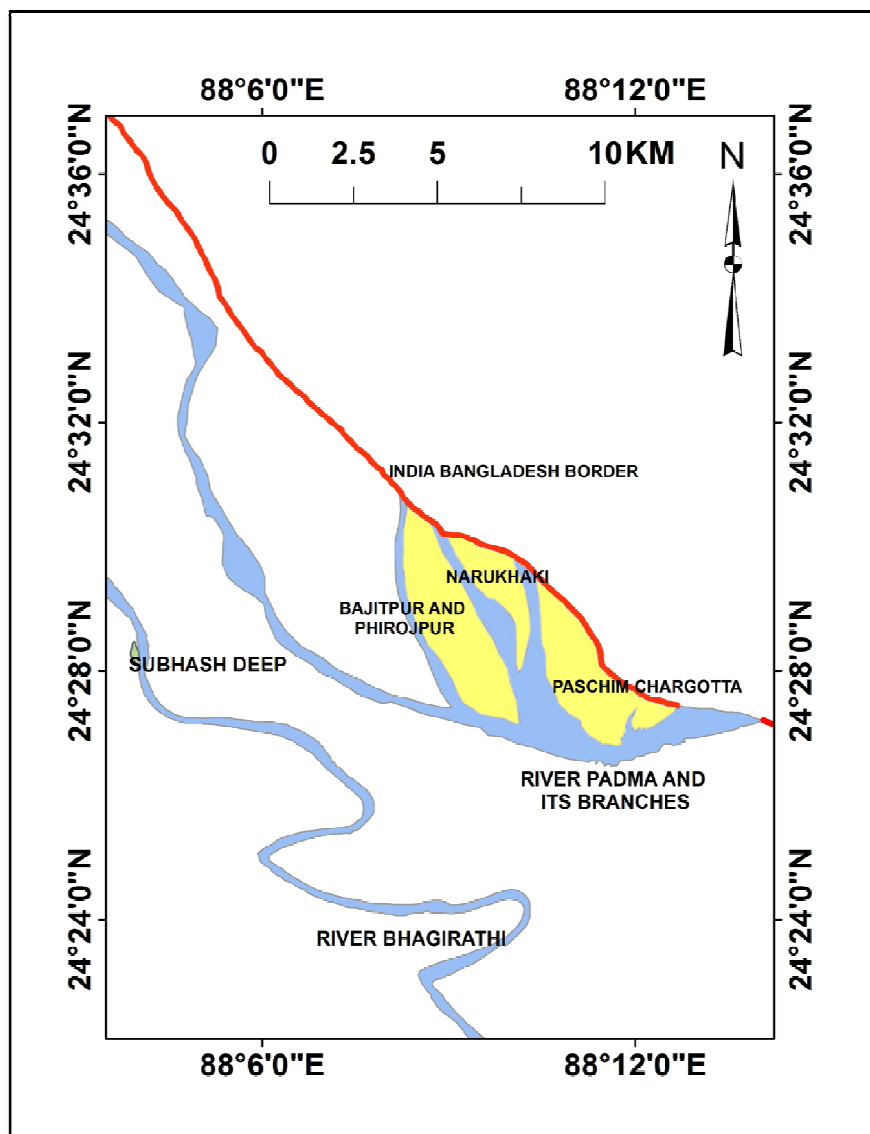

Figure No. 1. Location of study area based on Google earth image, 2015

RESULT AND DISCUSSION

Life style of Char People in Raghunathganj -II Block

Table No. 1: "Distribution of population in char lands"

Chars	Villages	Population			Community
		2001	2011	Sample survey(2016)	
Narukhaki	Jotebiswanathpur, Narukhaki, Chargotha and Hotathpara.	1978	1739	333	Mushlim community
Bajitpur	Bajitpur	1815	2722	647	Mushlim majority , Hindus less in number
Phirojpur	Phirojpur-I and II, Refugeepara	2467	3574	504	Mushlim majority , Hindus less in number

Source: Census report 2001 and 2011 and field survey, 2017.

These char lands are situated along the India- Bangladesh border area (Figure No. 1). Chars are mainly occupied by the Muslim communities and Hindu communities are less in numbers (Table No. 1). Most of the people of chars engaged themselves in both cultivation - animal husbandry and building making activities in other states like Kerala, Orissa etc. Women are engaged in Bidi binding and broom binding (Figures No. 2, 3, 4). But the people of char lands don't get the opportunity to carry out their occupation throughout the year due to almost absent of communication in monsoon season. From figure No. 5, it is clear that the trends of both number of workers connected with the main land and average daily income start to descend after the month of May and again the trends start to ascend after August. So, the three months June, July and August the economy of chars is badly affected. The main reason of limited connection with main land and low average daily income is lack of communication during these months in Narukhaki. Same type of situation is prevailing in case of rests (Figure No. 6). Figure No.7 shows relation between modes communication and percentage of workers in chars where Narukhaki has lower number of modes of communication and percentage of workers than chars Bajitpur and Phirojpur. To correlate communication and occupation, Pearson's method of correlation has been used here. In this regards, numbers of mode of communication of chars with main land and percentage of workers in the char lands have been selected as parameters. The result of **'r' is 0.981981** which indicates a highly positive correlation with them. So, from the fore going discussion it can be concluded that lack of communication with the main land is the crucial factor of less development in char lands. If the communication system can be improved then the residents can get further better condition in respect of economy and social for their survival. Chars offer only primary level of education but the education system is not

sufficient. To get further education students have to go in main land. Figure No. 8 shows the literacy rate of chars which ranges from 43-53%. Here we can see the literacy rate in Narukhaki is higher than rests. Its main reason is Katakhaki School in main land has hostel facility for the students of Narukhaki. Chars are generally less developed but here lack of communication (Table No. 2) is act as the crucial barrier for the further development of Char lands. As a result, not only the occupation education is also hampered. And the development cannot be occurred in Char lands. Char lands are characterized by lack of medical facility also (Table No. 3). The char lands of Raghunathganj-II block devoid from all modern facilities in terms of electricity, sanitation, higher education facilities etc (Table No.6).
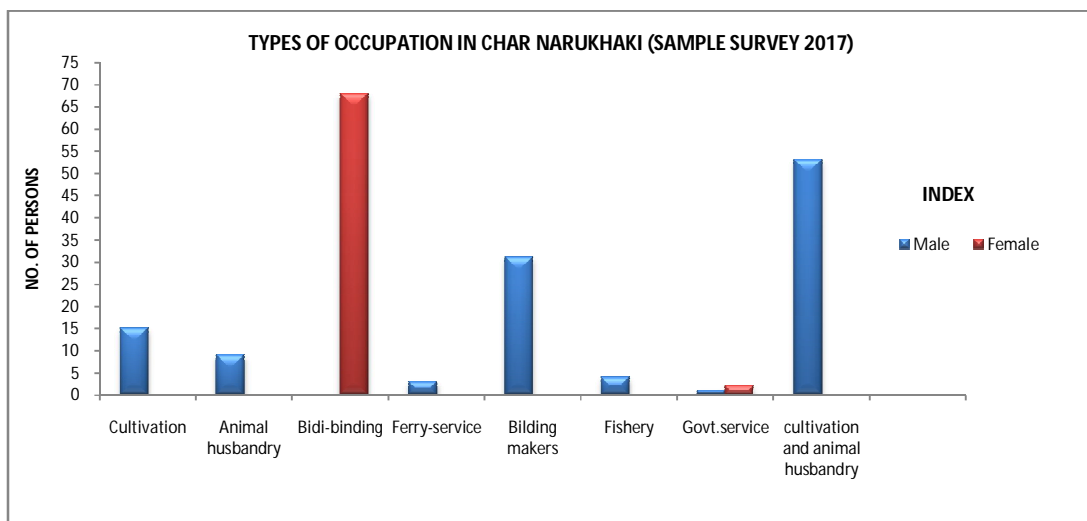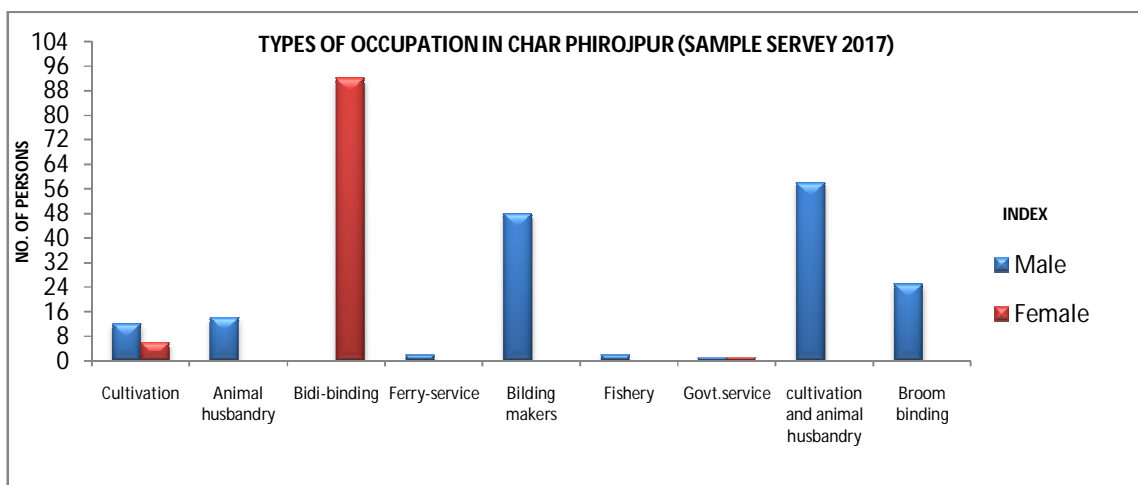

Figure No. 2: Type of occupations in char Nrukhaki

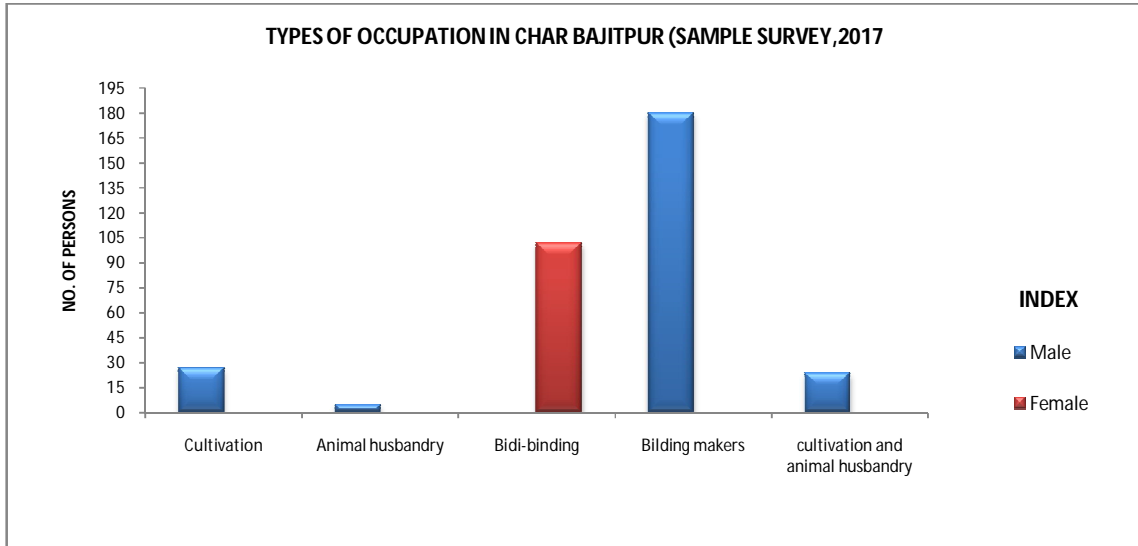**Figure No. 3: Type of occupations in char Phirojpur**

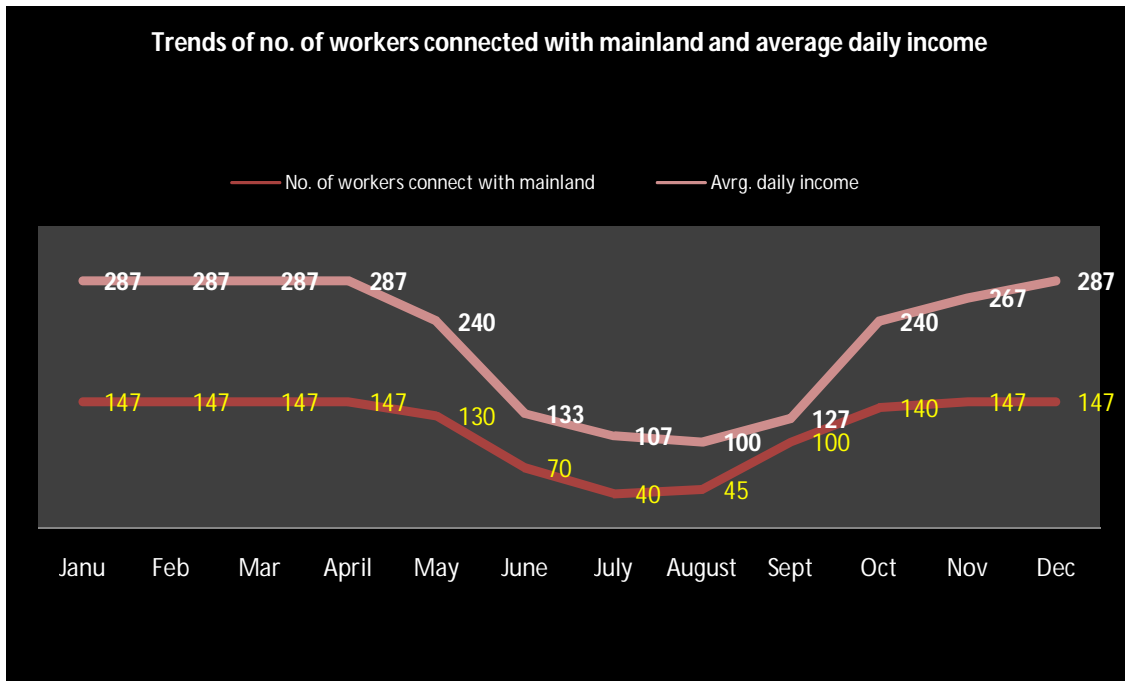**Figure No. 4. Type of occupations in char Bajitpur**

Figure No. 5. No. of workers connected with mainland and Average daily income in char Narukhaki based on field survey
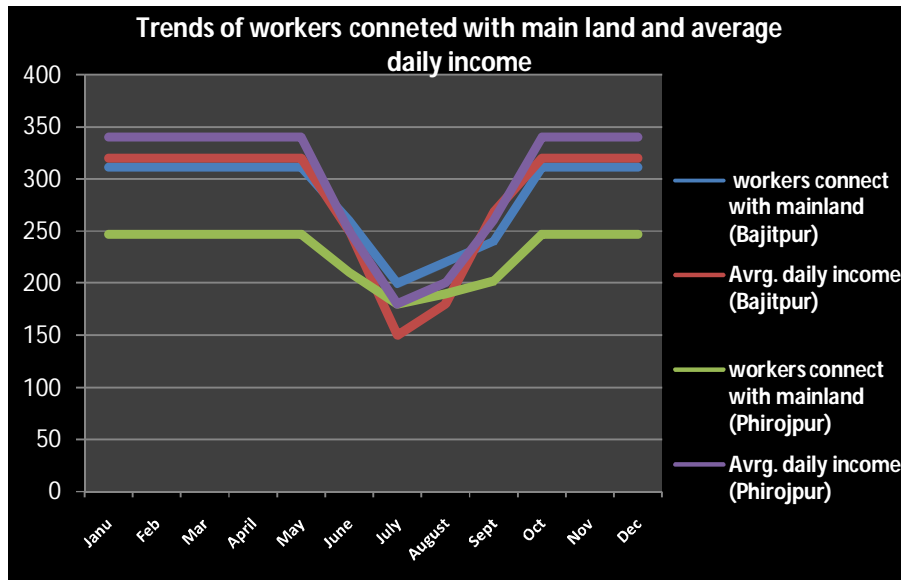
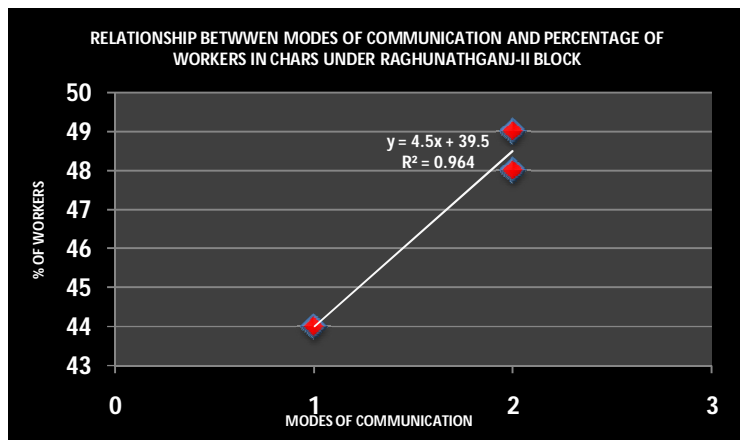**Figure No. 6: Workers connected with mainland and average daily income in chars Bajitpur and Phirojpur**

Figure no. 7: Relation between modes of communication and percentage of workers in chars

Table No. 2: "Communication system of Chars lands"

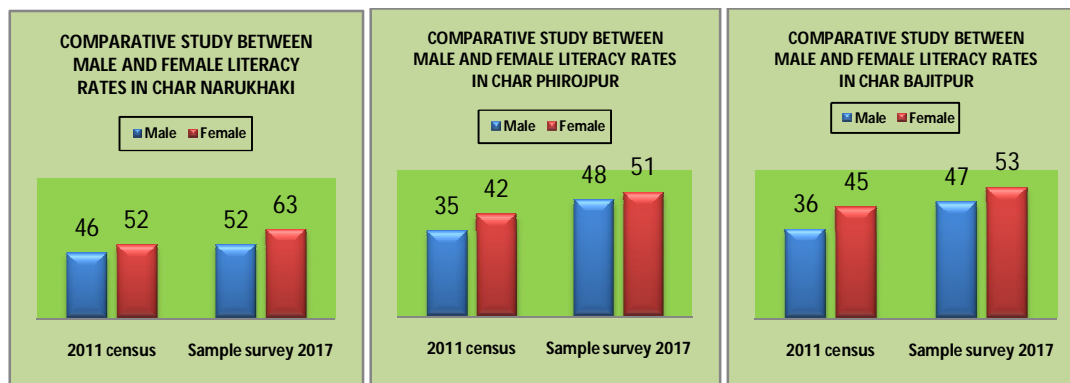| Chars	To reach chars by	Distance to reach villages from ghat	Mode of transport	Nature of way
Narukhaki	Ferry from Katakhali Ghat	4-7 kms	N.A. only pedestrian	Highly risky and lonely
Bajitpur	Ferry from Boltala and Bohara Ghats	8-10 kms	Motorcycle, cycle	Risky and lonely full of pits
Phirojpur	Ferry from Boltala and Bohara Ghats	8-10 kms	Motorcycle, cycle	Risky and lonely full of pits

Source: Field survey, 2017

Table No.3: "Medical facilities of chars"

Chars	No. of primary health centers.	No. of doctors	Hospital distance in km
Narukhaki	Nill	2 quacks(Allopathic)	Teghori and Jangipur about 15-25kms in very risky way
Bajitpur	Bajitpur and Phirojpur togetherly served by 1 poor primary health center	1 quack(Allopathic)	Teghori and Jangipur about 15-20kms in very risky way
Phirojpur	Bajitpur and Phirojpur togetherly served by 1 poor primary health center	2 quacks(Allopathic)	Teghori and Jangipur about 15-20kms in very risky way

Source: Field survey, 2017

From table 3 we can get a scenario regarding the medical facilities. Actually, monthly medical camps have been arranged by the hospital in main lands for the polio, checkup for pregnant mother but it is not sufficient. In case of any heath crisis at night, patient first bring to military camp for asking permission to take him or her to hospital in mainland if the permission is not granted then the patient don't get the least facility of treatment. So, the whole situation denotes a highly risky and vulnerable condition for the people of chars.

Figure No. 8: Comparison between male and female literacy rates of chars
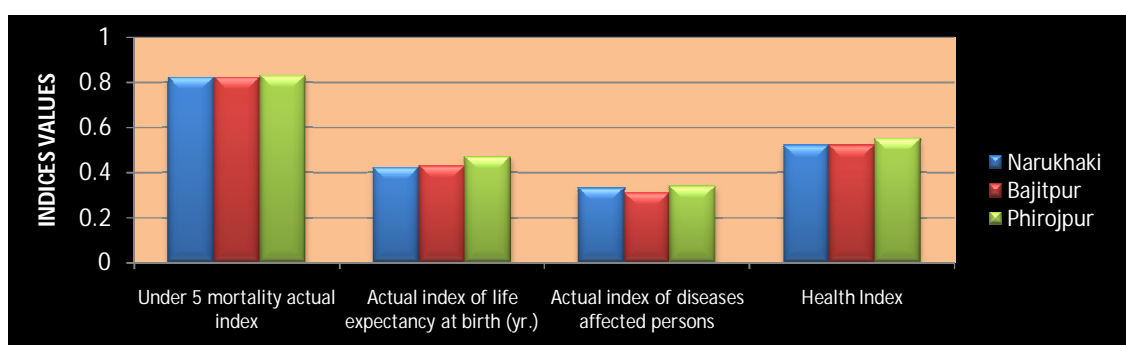
Calculation of Human Development index of char lands

Health Index

Calculation of health indices of three chars of Raghunathganj-II block has been done based on the parameters like- under 5 mortality rate, life expectancy at birth (yr.), diseases affected persons. The results of health indices of three chars exhibit more or less same types of human development in respect of health status where Phirojpur char is slightly more develop then rests. The

indices values are ranging from 0.52-0.55 which indicates medium category of development in respect of health status (Table No. 4 and Figure No. 9). The combined health index shows 0.53 which means medium category of development in respect of health (Table No.4 and Figure No. 9).

Table No. 4: "Calculation table for health index of char lands"

Chars	Under5 mortality actual index	Actual index of life expectancy at birth (yr.)	Actual index of diseases affected persons	Health Index	Combined Health Index
Narukhaki	0.82	0.42	0.33	0.52	
Bajitpur	0.82	0.43	0.31	0.52	0.53
Phirojpur	0.83	0.47	0.34	0.55	

Figure No. 9: Health indices of three chars under Raghunathganj-II block

Education Index

For the calculation of education index, literacy rate and primary, secondary and tertiary gross enrollment have been used as parameters. The result of education indices of three chars shows different types of development in respect of education where char Narukhaki is more develop than rests and char Bajitpur belongs to low category of development in respect of education. And phirojpur and Narukhaki belong to moderate category of development in respect of education (Table No. 5 and figure No. 10).The education indices value ranges from 0.44-0.54. The combined education index shows 0.4933 which means education status is in low category of development.

Table No.5: "Calculation table for education index of char"

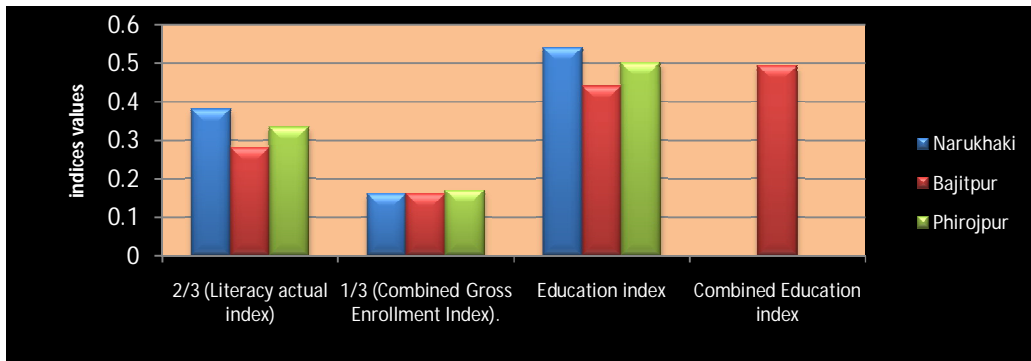| Chars	2/3 (Literacy actual index)	1/3 (Combined Gross Enrollment Index).	Education index	Combined Education index
Narukhaki	0.38	0.16	0.54	
Bajitpur	0.28	0.16	0.44	0.4933
Phirojpur	0.333	0.17	0.50	

Figure No. 10: Education indices of three chars under Raghunathganj-II block

Infrastructural Index

Table No. 6: "Calculation table for infrastructural index of char lands under Raghunathganj-II block"

Chars	Per capita small savings index	Drinking water facility index	Solar system facility index	Toilet facility index	Doctors(quacks) facility index	Infrastructural index	Combined infrastructural index
Narukhaki	0.15	0.069	0.120	0.023	0.005	0.0734	
Bajitpur	0.20	0.300	0.400	0.440	0.002	0.27	0.2044
Phirojpur	0.175	0.360	0.370	0.400	0.003	0.27	

For the calculating infrastructural index, per capita savings, drinking water facility, solar system facility, toilet facility and doctors (quacks) facility have been used as parameters. The result of infrastructural indices shows same kind of development in both chars Bajitpur and Phirojpur but the Narukhaki is totally less developed in respect of infrastructure. The indices values ranges from 0.0734-0.27. From the indices it can be easily concluded that the people of chars are spending their life in a very poor condition. They are unable to use least facilities of modern society. The condition of Narukhaki is worst than rests. The combined infrastructure index shows 0.2044 (Table No. 6 and Figure No. 11) which means very low category of development in respect of infrastructural status.
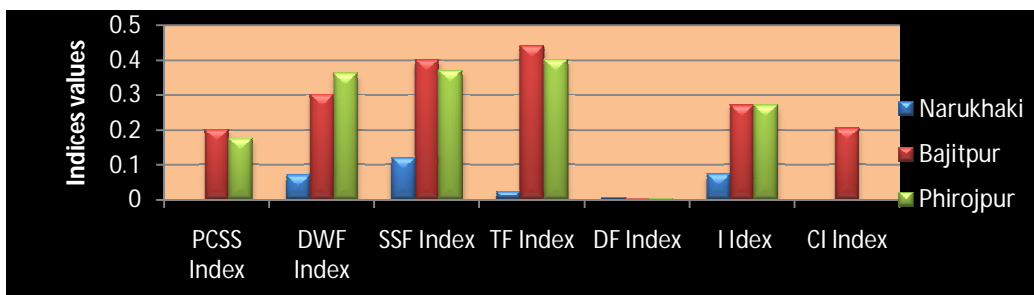

Figure No. 11: Infrastructural indices of three chars under Raghunathganj-II block

Human Development Index

Table No. 7: "Calculation table for HDI of chars under Raghunathganj-II block"

Chars	Health index	Education index	Infrastructural index	HDI
Narukhaki	0.52	0.54	0.0734	0.40
Bajitpur	0.52	0.44	0.27	0.41
Phirojpur	0.55	0.50	0.27	0.44

Table No. 7 and figure No. 12, exhibits the human development index for char lands where the HDI values are 0.40, 0.41 and 0.44 of char Narukhaki, char Bajitpur and char Phirojpur respectively. The values indicates low category of human development according to United Nations Developmental Programme (UNDP) in the year 2011. The combined Human Development Index value of chars is 0.4166 which also shows the same status of human development i.e. low category of human development in chars under Raghunathganj-II block of Murshidabad district. To know the reasons of low category of development a perception study has been done to collect local people response.

Table No. 8: "Perception study based on field survey, 2017"

Chars	Bad communication	Limited Govt. help	Fragility of nature	Fate/ destiny
Narukhaki	**50%**	**38%**	**10%**	**2%**
Bajitpur	**52%**	**30%**	**11%**	**7%**
Phirojpur	**51%**	**35%**	**10%**	**4%**

In three chars 50% -51% population considered bad communication with main lands, 30% - 35% population considered limited Government help, 10-11 percentage of people considered fragility of environment and 2-7 percent of people blame their fate as the reason of their low category of development (Table No. 8).
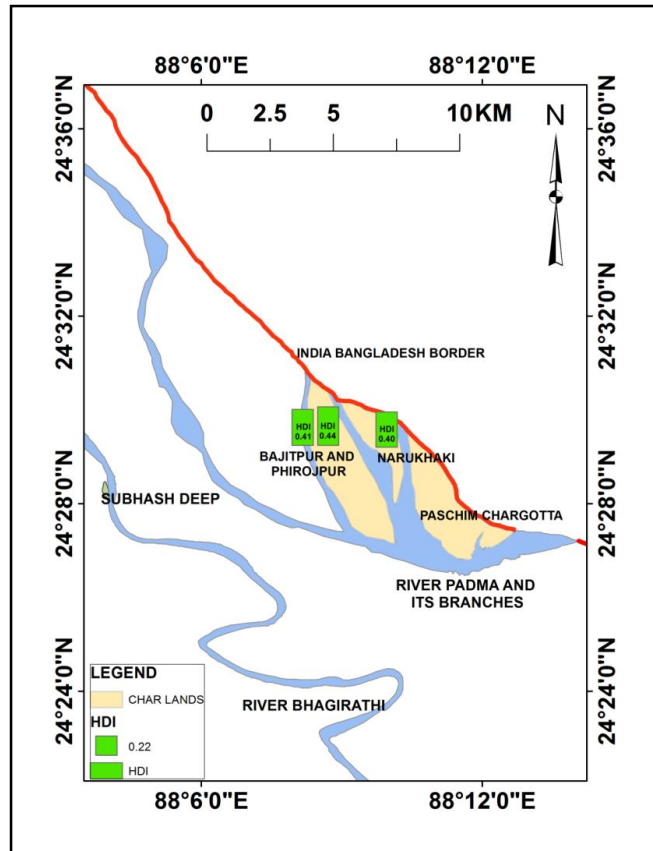
Figure No. 12: Human development index of three Chars

CONCLUSION

Chars are characterized by vulnerability, lack of modern facilities, poverty and inequality. The people in char lands are spending their life in a very poor condition. The result of combined HDI value is 0.4166 which indicates low category of human development in char lands. From the fore going analysis and perception study(Table No. 8), it can concluded that lack of communication facility is decelerating the development process in chars. Bringing improvements in chars is a very difficult task because it is a highly risky zone totally with in water and severely affected by continuous natural hazards like bank erosion, flood, inundation. But in some extent improvements can be brought through upgrading their standard of living, by-

- Increase the frequency of ferry service and by arranging launch service during the monsoon season.
- Arrangement of hostel facility in main land for the student of char lands.
- Increase the frequencies of medical camps.
- Arrangement of solar system at low cost for people in chars by the proper way.
- Arrangement of tube wells and sanitation by the proper way.

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