



GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
MINISTRY OF LOCAL GOVERNMENT, RURAL DEVELOPMENT AND CO-OPERATIVES
Local Government Engineering Department (LGED)
Agargaon, Sher-E-Bangla Nagar, Dhaka-1207

Final Report on Study-03
‘My Village -My Town’ -Technical Assistance Project
“Feasibility Study for Rural Connectivity including Multi-Modal Transport
System in Char and Haor Areas”

Char Rajibpur, Kurigram



dat•Ex
DATA EXPERTS
Data Experts (Pvt.) Limited

 **Delight**
Engineers & Consultants Ltd. (DECL)
Delight Engineers & Consultants Ltd.

July, 2022

CONTENTS

GLOSSARY	i
Abbreviation	ii
Background	iii
1 Description of the Upazila	1
1.1 Geography and Demography	1
1.2 Education Features.....	1
1.3 Rural Road Communications.....	1
1.4 Agriculture, Food Production and Fisheries.....	1
1.5 Growth Centre and Hatbazar.....	1
2 Location of the Upazila	2
3 Approach & Methodology.....	3
3.1 Study Team Composition.....	3
3.2 Study Area.....	3
3.3 Database Review and Analysis	3
3.4 Prioritization Criteria of Sub-projects	4
3.5 Weightage Distribution for Prioritization.....	4
3.6 Mapping Hard-to-reach Villages & Population.....	5
3.7 Wrap Up Meeting.....	5
3.8 Validation Workshop.....	5
3.9 National Workshop.....	6
4 Rural Road Connectivity to the Villages	7
4.1 Summary of the Village Connectivity.....	7
4.2 Villages and their connectivity – Union level.....	7
4.3 Map of Hard-to-Reach Villages & Proposed Roads.....	10
5 Consultation Meeting & Field Visit	11
5.1 Upazila Level Meeting	11
5.2 Visit to Case Study Union.....	11
6 Data Collection & Analysis	13
6.1 Proposed Riverine routes	13
6.2 Proposed Roadway for Hard-to-Reach Villages:.....	14
6.2.1 Proposed All Weather Routes:	14
6.2.2 Proposed Submersible Routes:.....	15
6.2.3 Proposed Roads for Hard-to-Reach Villages Having No ID:	15
6.2.4 Priority for Road Development	15
7 Conclusion & Recommendations	16
Annexure - 1.....	17

Annexure - 2.....	18
--------------------------	-----------

List of Figures

Figure 1: Location Map of the Upazila.....	2
Figure 2: Prioritization indicators & their weightage values	5
Figure 3: Upazila Map	10
Figure 4: Condition of the visited road alignment at Case Study Union	11
Figure 5: Condition of the visited road alignment at Case Study Union	12
Figure 6: Condition of the visited road alignment at Case Study Union	12

List of Tables

Table 1: Total villages in the Unions and their connectivity.....	7
Table 2: Union wise connected & Hard-to-Reach Villages and their population	7
Table 3: Proposed riverine routes of the Upazila	13
Table 4: Summary of the rural roads in the Upazila.....	14
Table 5: Proposed all weather roads in the Upazila	14
Table 6: Proposed roads for Hard-to-Reach Villages having No ID.....	15
Table 7: Considered weightage values for the prioritization.....	15

GLOSSARY

Hard-to-reach Villages mean in the Study those villages that are not connected by any paved road with the respective Upazila HQ and/or Union Parishad, and to the nearest economic activity hub and social service centres. The following explanations is important for the concept of hard-to-reach villages.

- In haor areas, Village connected with submersible roads dry season and connected with riverine/haor routes in monsoon season has been considered as accessible and excluded from hard-to-reach villages.
- Within Upazila, Villages that needs a bridge to connect has not considered as hard-to-reach villages.
- In case of island Upazilas, villages that are accessible with paved roads from Upazila HQ has been considered as accessible and excluded from hard-to-reach villages.
- In case of villages that are connected with HBB (Herring-Bone-Bond) or Brick flat soling routes has been considered as hard-to-reach villages

Mauza is normally the geographical expression of a unit of landmass for revenue settlement and revenue collection, whereas, the village is a human settlement within a Mauza with strong social bond. Within a Mauza there could be more than one village.

Union Bangladesh has 3-tiers local government system: District, Upazila and Union. Union is the lowest level of local government below Upazila Parishad

Upazila Sub-District; the third level of government administration below division and District.

Hat Synonym of bazar or market

Walking Trail mean in the Study the village pathway or access used for walking by commuters, in the most cases do not have gazetted or established or commonly used alignment, and to the most, passable by bi-cycle or motor bike. These village trails are not passable by motorized jeep or mini truck or emergency service vehicle or not even by any three wheelers.

Unpaved Roads have no pavement or surface material. They are usually the earthen roads.

Vulnerability is the human dimension of risk that is defined as conditions determined by physical, social, economic, environmental, political, cultural and institutional factors or processes which increases the likelihood of an individual or a community to the impacts of shocks and hazards.

Climate-Resilience is expressed as the ability of a community to resist, absorb, adapt to and recover better from the impacts of disaster like flood and landslides in a sustainable way.

ABBREVIATION

ADB	– Asian Development Bank
BBS	– Bangladesh Bureau of Statistics
BC	– Bitumen Carpeting
DatEx	– Data Expert (Pvt.) Limited
DECL	– Delight Engineers and Construction Ltd.
DoE	– Department of Environment
DPHE	– Department of Public Health Engineering
DPP	– Development Project Proposal
FGD	– Focus Group Discussion
GIS	– Geographic Information System
GOB	– Government of Bangladesh
HBB	– Herring-Bone-Bond
HQ	– Headquarter
HTRV	– Hard-to-Reach Village
JV	– Joint Venture
KII	– Key Informant Interview
LGD	– Local Government Division
LGED	– Local Government Engineering Department
LGI	– Local Government Institute
MVMT	– My Village My Town
NGO	– Non-Government Organization
PD	– Project Director
PMO	– Project Management Office
RCC	– Reinforced Concrete
RHD	– Roads & Highways Department
SDGs	– Sustainable Development Goals
TA	– Technical Assistance Project
UE	– Upazila Engineer
UNDP	– United Nations Development Programme
UNO	– Upazila Nirbahi Officer
UNR	– Union Road
UP	– Union Parishad
UPZ	– Upazila Road
VRA	– Village Road A
VRB	– Village Road B

BACKGROUND

Context of the Project

The Government of Bangladesh made massive plans to ensure equitable development around the country. Under this development philosophy, the GoB requirements are to reduce rural-urban divide to foster developmental benefits for all citizens. As part of this, the government declared an election manifesto on the eve of the national parliament election 2018 uniting the theme **Bangladesh on the March Towards Prosperity** aiming at transforming Bangladesh into a developed nation by 2041. Under this, villages have been considered the basic unit of prosperity for building a developed nation.

This firm commitment was declared following the light of the philosophy of the Father of Nation Bangabandhu Sheikh Mujibur Rahman to build ‘Sonar Bangla’ (Golden Bangla) through inclusiveness, balanced and development for all.

Following the philosophy of the Father of the Nation, the government declared election manifesto 2018 titled ‘My Village-My Town’- Extension of Modern Civic Amenities in Every Villages. The Local Government Division under the Ministry of Local Government, Rural Development and Cooperatives has prepared a comprehensive work plan to make this election commitment a reality. The Local Government Division with its two agencies, Local Government Engineering Department (LGED) and Department of Public Health Engineering (DPHE) has undertaken a technical assistance project named ‘My Village-My Town’- Technical Assistance Project. Under this project, 36 studies and 30 guidelines are being developed on eight thematic components related to mandate of Local Government Division. The eight thematic components are Rural Communications, Growth Centre and Hat bazar, Rural Water Supply and Sanitation, Rural Waste Management, Community Space and Recreation Facilities, Upazila Masterplan, Rural Housing and Capacity building of Upazila and Union Parishad. Besides this, a coordination framework is being developed among the other ministries involved in implementation of My Village-My Town election manifesto. It is notable to mention that a coordination committee has been formed comprising 21 ministries to implement the program in a coordinated way under the leadership of the Minister of Local Government, Rural Development and Co-operatives.

Context of the Report

This report is a part of study of the component ‘Rural Connectivity’. Rural connectivity is the basic of all amenities in the villages. Rural connectivity works as the conduit that can supply a number of bare necessities such as access to market, health, education, employment etc. In general Bangladesh has remarkable progress in rural connectivity. Instead of this, a number of regions of the country are geographically sensitive where rural connectivity is not easy and has lot of challenges. These regions are -Haor, Beel, Hills, Chars, Islands etc. The people residing in these regions has considerably low access to civic amenities compared to other villages of the country. Therefore, study and plan development of improvement of rural connectivity is one of the important assignments of the technical assistance project. The project undertook Upazila based special study on the villages of these geographically sensitive regions that are mentioned before.

This report contains rural connectivity status and priority plan of the **Char Rajibpur** Upazila of **Kurigram** District.

1 DESCRIPTION OF THE UPAZILA

1.1 GEOGRAPHY AND DEMOGRAPHY

The geographical area of Char Rajibpur Upazila is 111.03 square kilometers and has 3 Unions, 26 mouzas and 99 villages. The Upazila is 62 km away from the District headquarters of Kurigram. There are 3 rivers flowing over the Upazila- Brahmaputra, Halhali & Jinjiram. The total population of the Upazila is 73,373 of which 35,372 are male and 38,001 female, total number of households are 17,310 and average household size is 4.24 with a population density of 661 (*as per population census 2011*).

1.2 EDUCATION FEATURES

According to the information of the relevant local government offices there are 21 government, 33 registered, 2 non-government primary schools, 13 NGO schools & only a kindergarten school. On the other hand, Char Rajibpur has 10 non-government high schools with 2 private colleges, and 20 madrasahs. The literacy rate for the Upazila is 36.5% as per BBS 2011.

1.3 RURAL ROAD COMMUNICATIONS

Bangladesh scored in the rural accessibility index at around 87 per cent among South Asian and some other Africa countries. Generally, the people of Bangladesh get all weather within 2 kilometers adjacent to their living places. But the feature of rural roads communications in Char Rajibpur Upazila is contrasted. There are many villages, disconnected from the developed paved road network that brings huge sufferings for the people of the villages. The total rural road network of Char Rajibpur is 183.19 km and out of which, 59.60 km paved and 123.59 km earthen.

1.4 AGRICULTURE, FOOD PRODUCTION AND FISHERIES

Agriculture has a major importance for the economy of the people of Char Rajibpur. There are 12,442 acres of arable land in the Upazila. In the fiscal year 2010-11 the Rice production was 10,7375 & 12472 metric tons for Aus, Aman & Boro seasons respectively. The Upazila also produced 3,245 metric tons of Wheat, 8150 metric tons of Jute, 3245 metric tons of Potato, 3,660 metric tons of Oilseed and 1560 metric tons of Onion in the same fiscal year 2010-11. A notable quantity of fruits and vegetables are also produced here in this Upazila. There also exists only 5 poultry & 4 dairy farms.

1.5 GROWTH CENTRE AND HATBAZAR

Growth Centre and Rural Hatbazar is one of the main centres of the rural economy. Hatbazar is like the heart for the development of the rural economy. Rural hatbazar plays a role in increasing production and creating employment impacting on the supply chain of agriculture and non-agriculture products. There are 8 hatbazar and 3 growth centers in the Upazila. The structural development of hatbazar and growth is pivotal to boosting up the rural economy. A details of the growth center & hatbazar of the Upazila has been attached in the [Annexure-1](#).

2 LOCATION OF THE UPAZILA

Char Rajibpur Upazila is located in the Northern Bangladesh under Kurigram District in Rangpur Division. The location has been shown in the map. It is surrounded by Roumari and Chilmari Upazilas and Jamuna (Brahmaputra) river on the north, Dewanganj and Gaibandha Sadar Upazilas and Jamuna River on the south, Assam state of India on the east, Sundarganj Upazila and Jamuna River on the west. The Upazila is located within the **Brahmaputra River Basin**. The river, Brahmaputra is a trans-boundary river which flows through Tibet (mountains), India (Arunachal Pradesh & Assam), and Bangladesh and is the 9th largest river in the world by discharge. The river is prone to catastrophic flooding in the summer & monsoon (March – October) when the Himalayan snow melts along with the heavy rainfall in Meghalaya, India. During monsoon, the Brahmaputra discharges a large volume of water coming from upstream and at the same time brings in huge amounts of sediments. The entire lower Brahmaputra (*i.e., the part inside Bangladesh and also known as Jamuna River*) consists of a vast network of channels, that are dry in the pre & post monsoon but are submerged during the monsoon. It has numerous islands due to the heavy sedimentation that are locally known as chars and the ‘Char Rajibpur’ is a Upazila with plenty of such chars. The huge amount of water Jamuna River carries during monsoon, overflows its carrying capacity and inundates the northern part of the country within its basin as well as the Upazila. The effects of flooding can be devastating and cause significant damage to crops and households, serious bank erosion with consequent loss of structures, land, and loss of many lives and livestock.

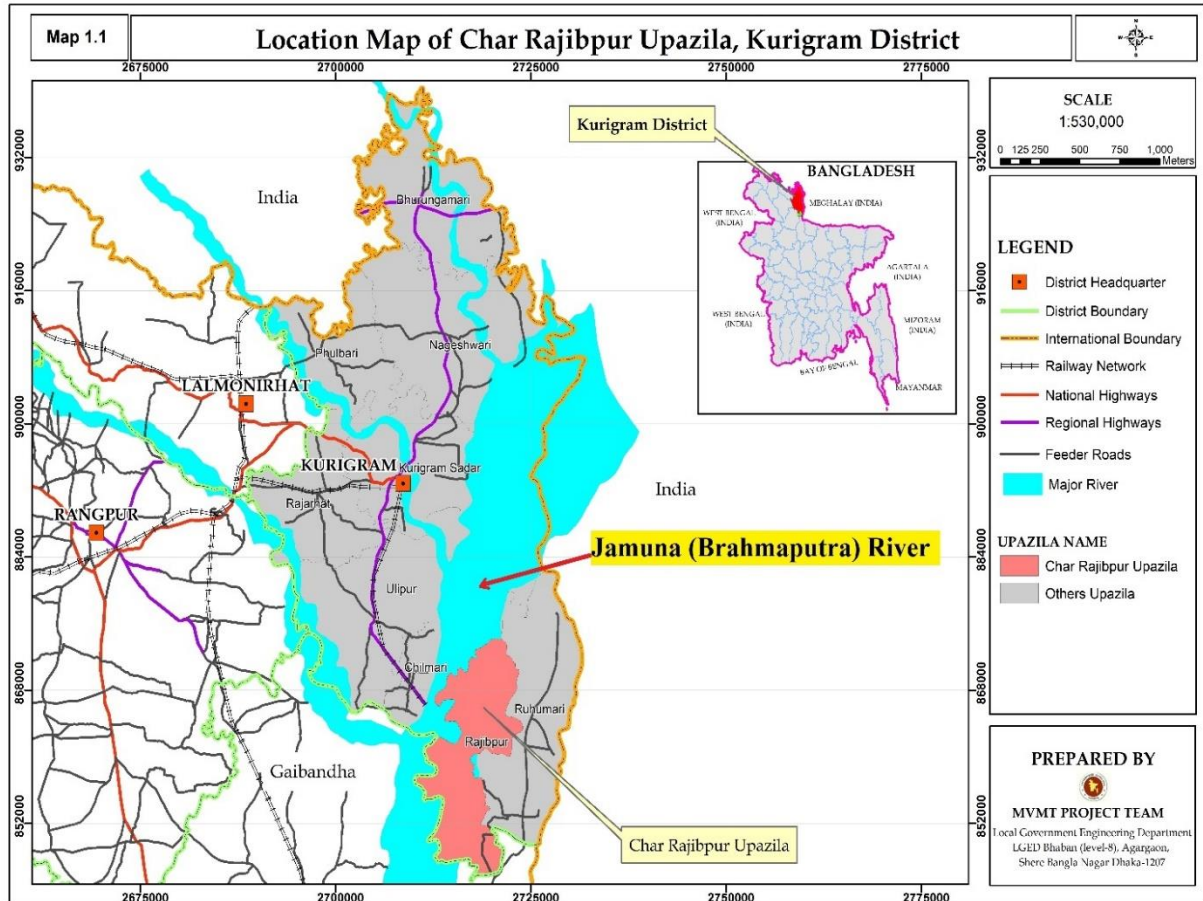


Figure 1: Location Map of the Upazila.

3 APPROACH & METHODOLOGY

3.1 STUDY TEAM COMPOSITION

A team consisting of Senior Rural Road Infrastructure Specialist, Associate Rural Infrastructure Specialist, Assistant Engineer engaged by Project Management Office (PMO) conducted the study. On the other hand, A team consisting of Deputy Team Leader cum Rural Infrastructure Engineer, Junior GIS expert and Junior Engineer engaged by consulting firm (datEx & DECL JV) conducted the study. Participatory approach to review the database and identify priority transport infrastructure needs ('sub-projects') was instrumental. At the stakeholder consultation meeting held in each District, the database was reviewed, priority needs identified and mapped working together with the LGI representatives and LGED technical team. LGED and LGI representatives were surveyed each Upazila for collection of detailed observations and validations of the proposed priority needs.

Stakeholder Consultation Meeting

- Hard-to-reach Village Database and database of sub-projects reviewed
- Prioritization of sub-projects for each Upazila with LGI and LGED representatives
- Hard-to-reach villages and priority sub-projects mapped in the LGED GIS Map

3.2 STUDY AREA

The Study was conducted in 72 Upazilas of haor areas, 3 Upazilas of Beel areas, 8 Upazilas of Char areas, and 4 Upazilas of Island areas during the period from December 2021 to June 2022. Apart from this, PMO team conducted the study in 50 Upazilas of Haor areas and rest of the Upazilas of Haor, Beel, Char and Island areas are conducted by consulting firm team. The Upazila technical staff of LGED supported in organizing stakeholder consultation meetings and in database review and mapping the Hard-to-reach villages and population during this study period. They also supported in the field work and authentication check by visits to the sub-projects in their respective Upazila, and looking at the feasibility of some proposed sub-projects from technical, social and environmental perspectives.

3.3 DATABASE REVIEW AND ANALYSIS

The Study applied both qualitative (e.g., focused group discussions and in-depth case study field work) and quantitative (structured and semi structured interviews) approach and methods in reviewing and conducting field work in all the haor areas to understand the need and impact of rural accessibility in remote village contexts. The most applied methods in the reviewing and conducting field work were:

- Key Informants Interview (KII)
- Focus Group Discussion (FGD)
- Case Study for authentication check and individual sub-project feasibility study.

- ❖ Review Hard-to-reach village database at the ‘Stakeholder consultation meeting’ participating by local government representatives such as UP chairman and members, Upazila chairman, vice-chairman, and UNO.
- ❖ FGD and KII were conducted using a checklist. Composition in the FGD included local community people: male and female, teacher, local farmer, trader, and student depending on the availability.
- ❖ KIIs of Union Chairman, Upazila chairman, UNO male and female, and teacher depending on availability.
- ❖ Authentication and feasibility check by visits to the sub-projects reviewed and listed for the 40 selected case study Unions under MVMT project.
- ❖ Survey with GPS machine and Google apps in collecting Hard-to-reach village location, landmark, chainage at gaps, village road at section vulnerable to land erosion damage, narrow existing width or sharp slope location.

3.4 PRIORITIZATION CRITERIA OF SUB-PROJECTS

Prepare a priority list of sub-projects by Upazilas that includes gazette ID roads and non-gazette roads (No ID) with attributes like name and number of villages and population. The criteria used in the prioritization are described below.

- Population, travel time needed from the remotest villages to the Upazila HQ, road type and cost per km per 1000 population are the indicators weighted giving a value in a formula.
- Priority is given to single connection with no alternative transport road and multi-modal transport route to connecting the villages with Upazila HQ and Union Parishad, growth centre and important markets and social service centres; villages with higher number of population and travel time get higher weightage;
- Priority is given to roads, ghats and collection points that will facilitate agricultural diversification, reduce transportation cost, ensure fair price and create farm and non-farm employment and income;
- Priority is given to roads’ development and inland waterways dredging that will enable year-round mobility of general public and villagers in particular, health workers, teachers and students, and tourists to facilitate tourism development, quality education and better health service in the District and region;
- Special priority is given to sub-projects of roads, riverine routes/inland waterways that will mainstream deprived communities living in the hard-to-reach villages;
- Identified sub-projects more cost-effectiveness than others using per km per 1000 population cost for each sub-project;
- Every sub-project(s) is to be climate-resilient, sustainable and cost-effective.

3.5 WEIGHTAGE DISTRIBUTION FOR PRIORITIZATION

The approaches and methodologies of the Study for reviewing database and prioritization are synthesized in the diagrams below, noting that the proposed sub-projects of roads in the databases are prioritized based on weightage calculated on the set criteria (as shown in the diagram). People’s demand and local need are reflected in the prioritization which were

determined by the Study, working together with LGI representatives and LGED field level technical staff at the stakeholder consultation meetings held in each Upazila.

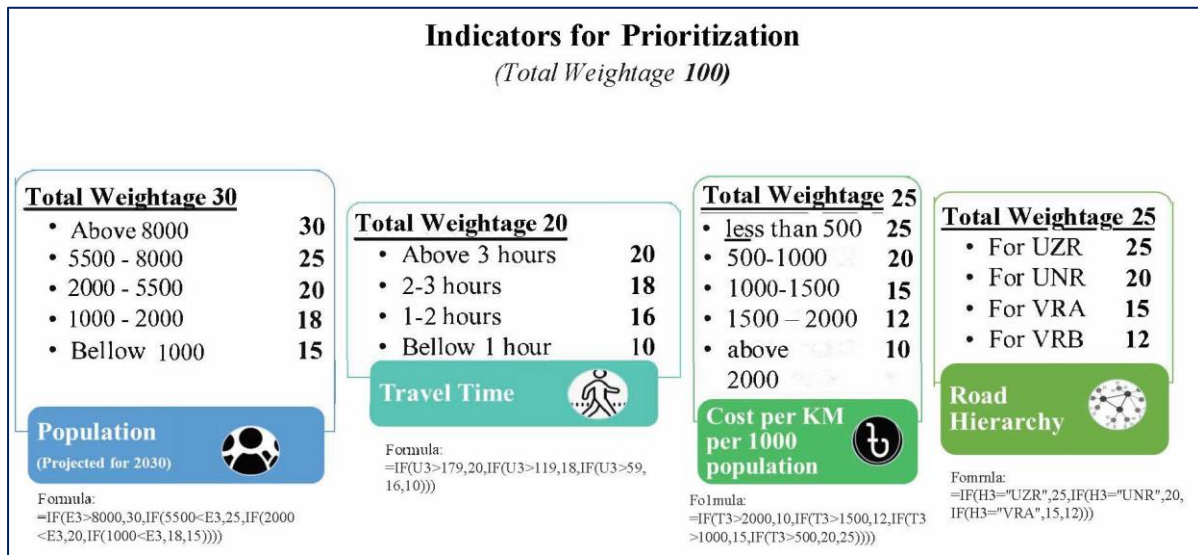


Figure 2: Prioritization indicators & their weightage values

3.6 MAPPING HARD-TO-REACH VILLAGES & POPULATION

- With the active support of LGED technical staff, first, draw every priority listed MVMT roads and Hard-to-reach villages on the LGED GIS map in presence of Union Chairman and members who knows the sub-project and area the best. This was not in scale but approximation was reached by triangulation. Then digitized on screen using GIS, and validate with Google map and checked with data and information on important features and points collected using GPS during field visits.
- There were challenges in deciding on starting node and/or zero chainage of the non-gazette (No ID) road, because not all non-gazette sub-projects were visited and surveyed by the Study team.

3.7 WRAP UP MEETING

Wrap up the field work progress at each District holding a meeting chaired by the Executive Engineer, LGED and participated by all Upazila engineers of the respective District. On completion of the fieldwork, this was conducted to share issues and updates to the District Executive Engineer for feedback and action, as necessary.

3.8 VALIDATION WORKSHOP

On completion of data analysis and drafting of the database and mapping, the Study outputs were shared with the respective Districts and Upazilas for final review. Later validation workshop was held at the respective District on the Draft Report to share and validate the findings. This was participated by the LGED Division, District and Upazila officials and technical staffs.

3.9 NATIONAL WORKSHOP

The Draft Report is finalized, incorporating comments received from the validation workshop, LGED head office staff and PMO office. A National Level workshop was held at LGED HQ for sharing and disseminating the results of the Study.

4 RURAL ROAD CONNECTIVITY TO THE VILLAGES

4.1 SUMMARY OF THE VILLAGE CONNECTIVITY

Char Rajibpur is an Upazila with plenty of Chars. The rural road communication is quite poor here. Out of 105 villages, 33 are disconnected from the developed paved road network that brings huge sufferings for the people of those villages. The total rural road network of Char Rajibpur is 183.19 km and out of which, 59.60 km paved and 123.59 km earthen.

Table 1: Total villages in the Unions and their connectivity

SL No	Union	No of Villages	Connected Villages	Hard-to-Reach Villages
1	Char Rajibpur	52	42	10
2	Kodaikati	17	8	9
3	Mohanganj	36	22	14
Total =		105	72	33

4.2 VILLAGES AND THEIR CONNECTIVITY – UNION LEVEL

The consultant arranged a meeting at Upazila conference room with and all the UP Chairmen & their secretaries. The team interviewed representative of each the Union and collected data about the HTRV.

Table 2: Union wise connected & Hard-to-Reach Villages and their population

Union	Sl. No	Connected Villages	Population 2021 (Based on BBS 2011)	Hard-to-Reach Villages	Population 2021 (Based on BBS 2011)
Char Rajibpur (52)	1	Adarsa Gram	456	Dakshin Maricha Kandi	532
	2	Asgardewani Para	524	Dakshin Maricha Kandi	745
	3	Balialari Naya Para	1088	Karati Para	1830
	4	Baliamari Mandal Para	0	Bil para	462
	5	Baraidangi	0	Dhakaiya para	
	6	Baul Para	473	Madhya Maricha Kandi	474
	7	Bazarpara	674	Purba Badarpur	1401
	8	Bhuiyan Para	520	Shiberdangi	2681
	9	Char Rajibpur Mandal Para	810	Shiberdangi Naya Para	797
	10	Collegepara	589	Uttar Maricha Kandi	0
	11	Dasgharia Para	0		
	12	Dhubalia Para	957		
	13	Dhulauri	1621		
	14	Garaimari	599		
	15	Haji Para	0		

Union	Sl. No	Connected Villages	Population 2021 (Based on BBS 2011)	Hard-to-Reach Villages	Population 2021 (Based on BBS 2011)
	16	Jahir Mandal Para	659		
	17	Jalchira Para	1229		
	18	Kachari Para	2029		
	19	Kachari Para	401		
	20	Karaidangi	599		
	21	Karigar Para	954		
	22	Kechomary	1024		
	23	Lamba Para	730		
	24	Madaner Para	463		
	25	Madrassa Para	479		
	26	Mandal Para	684		
	27	Mandal Para	0		
	28	Member Para	972		
	29	Miah Para	1140		
	30	Munshi Para	525		
	31	Nama Para	1651		
	32	Paschim Bepari Para	739		
	33	Paschim Para	561		
	34	Paschim Rajibpur	0		
	35	Purba Beparipara	643		
	36	Rajibpur Bazar & Upz.com	0		
	37	Sabujbag	1015		
	38	Sadek Dewani Para	733		
39	Sandar Para	249			
40	Tangali Para	2547			
41	Uttar Borai Dangi	726			
42	Yad Ali Sarkar Para	650			
		Sub Total=	29713		8922
Kodailkati (17)	1	Dakshin Kodailkati	0	Dakshin Sajai	1813
	2	Madhya Sajai	929	Madhya Char Sajai	542
	3	Master Para	573	Madhya Char Sajai	516
	4	Paschim Sajai	0	Paikantary para	183
	5	Puba Sajai	1385	Sajai sorker para	2292
	6	Purba Char Sajai	632	Sajai sorker para	2292
	7	Sankar Madhabpur	657	Uttar Char Sajai Mondol para	1692
	8	Uttar Char Sajai	1692	Uttar Kodailkati	1822
	9			Uttar Sajai	2784
			Sub Total=	5868	

Union	Sl. No	Connected Villages	Population 2021 (Based on BBS 2011)	Hard-to-Reach Villages	Population 2021 (Based on BBS 2011)
Mohanganj (36)	1	Baraber Master Para	843	Dakshin Baraber	0
	2	Baraber Sarkar Para	1141	Sannyasikandi	1258
	3	Bhelamari	0	Shylet para	2036
	4	Charaihati	139	Kolkihara	
	5	Chathal	198	Uttar Baraber	1756
	6	Dhakai Para	409	Goalpara	2573
	7	Dhalagachha	19	Purbo Modonpar	
	8	Diarar Char	3226	Kolpara	
	9	Haji Para	0	Joanipara	2395
	10	Kirtaniatari	429	Patadhoya para	
	11	Madhya Baraber	545	Milonpur	
	12	Munshi Para	0	Ajmirpara	2094
	13	Naya Char	15571	Jigapara	
	14	Panjar Para	72	Modonpara	
	15	Paschim Baraber	0		
	16	Paschim Para	0		
	17	Patdaha	0		
	18	Purba Para	0		
	19	Sarkar Para	0		
	20	Sekh Para	0		
	21	Swikarpur	0		
	22	Tarabar Elangjani (Chat Ta)	0		
Sub Total=			22592		12112

4.3 MAP OF HARD-TO-REACH VILLAGES & PROPOSED ROADS

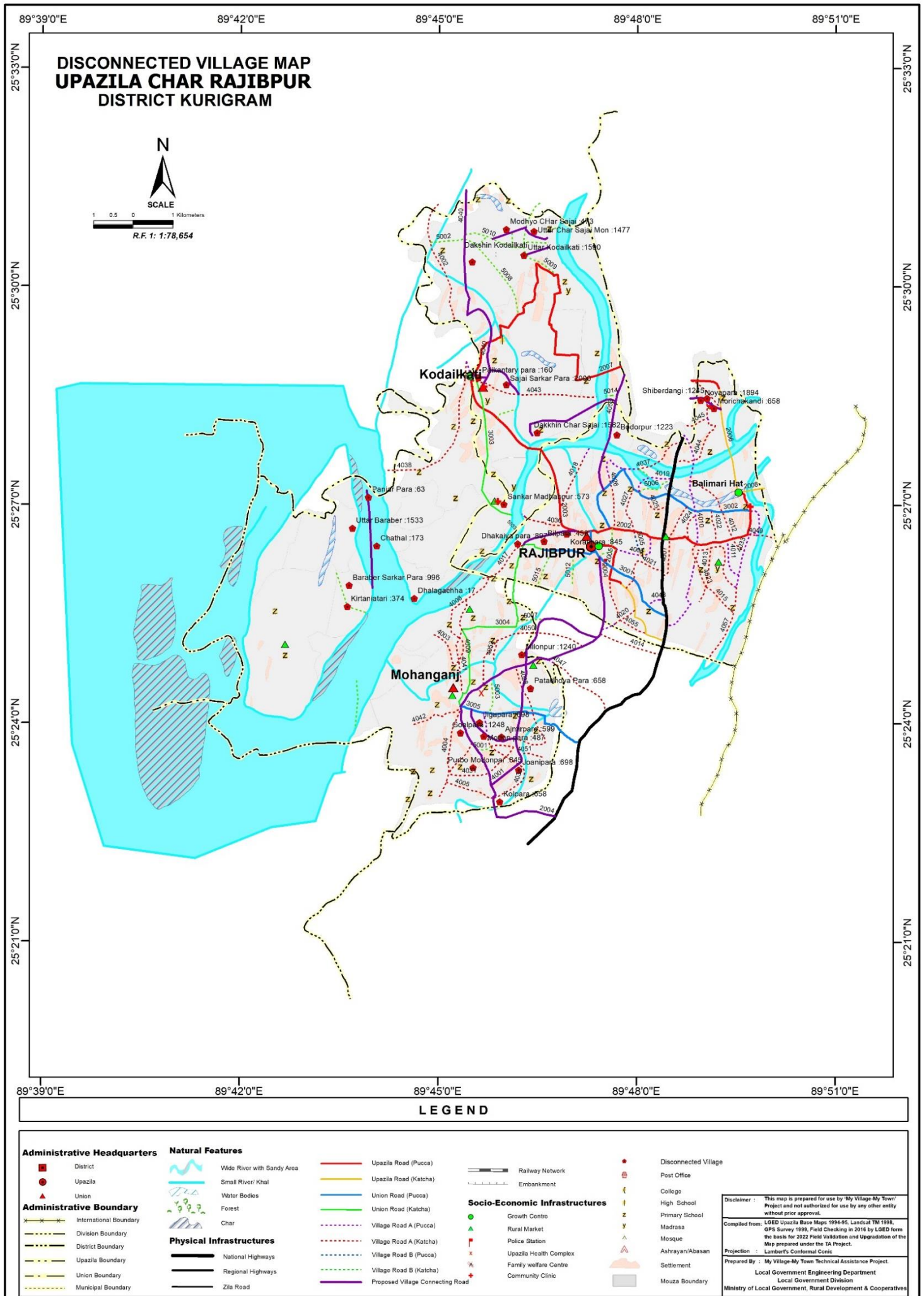


Figure 3: Upazila Map

5 CONSULTATION MEETING & FIELD VISIT

5.1 UPAZILA LEVEL MEETING

The consultant arranged a meeting at Upazila conference room with the support of the UE office, Char Rajibpur that was participated by UNO, UE and all the UP Chairmen & their secretaries. During the meeting, consultant team briefly discussed about the project and instructed the UP Chairmen and UE office for the database correction along with mapping procedure. The team worked on both the database and Upazila map and obtained the necessary outputs subsequently.

5.2 VISIT TO CASE STUDY UNION

The consultant visited “Kodalkati ghat - Kodalkati GC via H/O Kalam Army Road” having the Road ID: 149084040 in Kodalkati, the case study Union. The road was selected for the site visit considering the beneficiary population, educational institutes along the road and the recommendations of the UE office as the road has a priority within the Union.

The consultant observed and collected necessary information for the study discussing inhabitants and UE office. Team recorded GPS data, took photos, interviewed road users.



Figure 4: Condition of the visited road alignment at Case Study Union



Figure 5: Condition of the visited road alignment at Case Study Union



Figure 6: Condition of the visited road alignment at Case Study Union

The length of the road is 3.00 km, having 1.4 km HBB and 1.6 km earthen. The road connects 7 villages of the Union, that are Uttar Char Sajai Mondol Para, Moddha Char Sajai, Char Sajai Master Para, Sajai Sarkar Para, Kalam Army Para, Bazar Para, Paikantari Para; having the total population of approximately 15,000. People living here doesn't have any good road network with the Kodalkati Union porishad, Kodalkati Ghat, Kodaikati bazar and Upazila H/Q as well due to having unpaved road communication. During monsoon, the road becomes partially inundated. There exists, 3nos. madrassha, 3nos. primary schools and a high school along the alignment of this road.

6 DATA COLLECTION & ANALYSIS

The consultant collected data from the field on hard to reach/ Hard-to-Reach Villages. Data were collected of those villages including population, road alignment information (*type, length, condition*), travel time, structure required on the alignment, potential riverine routes that can be used for multi-modal transport system etc. The data then analyzed, categorized and finally used to obtain a priority list along with a map (*Figure:3*) showing prioritized roads and Hard-to-Reach Villages. The proposed riverine & road connectivity by the UE office have been discussed in this section.

6.1 PROPOSED RIVERINE ROUTES

Char Rajibpur Upazila is located within the *Brahmaputra River Basin* that has plenty of chars. As per actual field visit and data analysis, obtained from the UE office, Chowhali; about 50% of the total area of Char Rajibpur are char, topographically low land in the dry season but submerged during monsoon. Waterway becomes the only mood of transport during monsoon. According to the UE, Char Rajibpur there exists 5 riverine route that can be used mostly throughout the year and connects the chars with the Upazila HQ. Generally Small Boat, Engine Boat & Trawler are used to transport community & commodity.

The name of the riverine route & the associated streams with types of water vehicle are as follows;

Table 3: Proposed riverine routes of the Upazila

Sl. No	Name of the Riverine Route	Name of the Stream	Type of the Stream	Types of Water Vehicle	Need of excavation
1	Upzila HQ – Rajibpur Munshi Para Ghat – Modoner char vill – Fothik para vill – Kodalkati Ghat	Sonavori River	Intermittent (Apr - Sept)	Small Boat, Engine Boat & Trawler (Carrying aggregates)	No
2	Upzila HQ – Khajar ghat Tangalia Para Vill- Pakhiura Vill – Sajai Vill – Kader member Para Vill – Kodalkati Up.	Sonavori River	Intermittent (Apr - Sept)	Small Boat & Engine Boat	No
3	Upzila HQ – Nayachar ghat – Shikarpur Vill – Dhalagacha vill – Kirtontari bazar ghat – Bangla bazar Vill.	Brahmaputra River, Shikarpur Khal	Perennial, Intermittent (Apr - Sept)	Small Boat, Engine Boat & Trawler (Carrying aggregates)	No
4	Upzila HQ – Nayachar ghat – Kirtaniatari Vill – Borober Ashrayan Kendro	Brahmaputra River, KirtontariKhal	Perennial, Intermittent (Apr - Sept)	Small Boat, Engine Boat & Trawler (Carrying aggregates)	No
5	Upzila HQ -Nayachar ghat – Charaihati Vill – Uttar Borober Vill – Dhokhin Borober Vill – Borober Charaihaty ghat	Brahmaputra River, Charaihaty Khal	Perennial, Intermittent (Apr - Sept)	Small Boat, Engine Boat & Trawler (Carrying aggregates)	No

6.2 PROPOSED ROADWAY FOR HARD-TO-REACH VILLAGES:

At present, roads are the most dominant mode of transportation. Most of the structures were built on the rivers to make the road communication effective. Yet, 4 (four) bridges are needed to fulfil the purpose.

Table 4: Summary of the rural roads in the Upazila

Total Road Length of the Upazila (KM)	Paved Length (KM)	Unpaved Length (KM)	Length of unpaved roads of Hard-to-Reach Villages (KM)
183.19	59.60	123.59	38.1

6.2.1 PROPOSED ALL WEATHER ROUTES:

There are 15 all weather roads proposed to connect the HTRV within the Upazila. The road name, ID, road condition and the length of the unpaved roads are as bellow;

Table 5: Proposed all weather roads in the Upazila

Sl. No	Road Name	Road ID	Road Condition	Unpaved length (Km)
1	Upazila HQ - Sanandabari GC via Nayarchar GC	149082004	All Weather	4
2	Barober P/School - Amkhousa ghat	149084001	All Weather	1.57
3	H/O Jan box Hazi - Tarabar Ghat	149084003	All Weather	0.5
4	Pachmim Rajibpur P/School more to UR No 3025 via Dagu member house	149084016	All Weather	4.15
5	Bhutangpara - Kolkihara via Modonpara Non GPS	149084029	All Weather	0.3
6	RHD near Roumari border emb. More - Shiberdangi bazar via Meherjamal house	149084034	All Weather	2.5
7	Tangaliapara - Pakhiura	149084053	All Weather	0.06
8	Ward no 6 Dulal more via west side of Bodi's house more - north side of hamid master house	No ID	All Weather	5
9	Ward no 7 Shah alam's house - Taher member's kheya ghat	No ID	All Weather	3
10	Masud member house -towards south side of uttar kodalkati khaya ghat	No ID	All Weather	3
11	Kirtontary bazar ghat - Borober Choraihaty GPS.	No ID	All Weather	3
12	Ward No 04 Joynal khar house via Forid munshir house - Bokkar Secritary house	No ID	All Weather	3
13	Sannashi kanthi river ghat - Hamidul's house road	No ID	All Weather	2
14	Ward no 5 Abdul hai house - north side of Nuruzzman house	No ID	All Weather	3
15	Ward no 3 Kodalkati bazar - Toslim's house via Rofik's house	No ID	All Weather	3

6.2.2 PROPOSED SUBMERSIBLE ROUTES:

There are no submersible roads proposed to connect the HTRV within the Upazila.

6.2.3 PROPOSED ROADS FOR HARD-TO-REACH VILLAGES HAVING NO ID:

There are 8 roads proposed to connect the HTRV within the Upazila that have no ID yet. The road name, ID and the length of the unpaved part are as bellow;

Table 6: Proposed roads for Hard-to-Reach Villages having No ID

Sl. No	Road Name	Road ID	Unpaved length (Km)
1	Ward no 6 Dulal more via west side of Bodi's house more - north side of hamid master house	No ID	5
2	Ward no 7 Shah alam's house - Taher member's kheya ghat	No ID	3
3	Masud member house -towards south side of uttar kodalkati khaya ghat	No ID	3
4	Kirtontary bazar ghat - Borober Choraihaty GPS.	No ID	3
5	Ward No 04 Joynal khar house via Forid munshir house - Bokkar Secretary house	No ID	3
6	Sannashi kanthi river ghat - Hamidul's house road	No ID	2
7	Ward no 5 Abdul hai house - north side of Nuruzzman house	No ID	3
8	Ward no 3 Kodalkati bazar - Toslim's house via Rofik's house	No ID	3

6.2.4 PRIORITY FOR ROAD DEVELOPMENT

Considering resources constraint, benefited group of people, time required to travel & road hierarchy, a priority list has been developed (*Annexure-2*) for the HTRV (Hard to Reach Villages). The priority score has been determined according to following

Table 7: Considered weightage values for the prioritization

Criteria	Weightage
Population	30
Travel Time	20
Cost per 1000 Population	25
Road Type	25
Total=	100

It has been observed that, there are a number of roads that bear same score. At these cases, the minimum budget required for providing connectivity to thousand people- will get more priority compared to more budget required roads. The roads bearing ID will have the higher priority than the roads without ID.

7 CONCLUSION & RECOMMENDATIONS

- Char Rajibpur Upazila is located within the *Brahmaputra River Basin* that has plenty of chars, topographically low land in the dry season but submerged during monsoon. The Upazila has enormous agricultural potential due to highly fertile soil gains from heavy sedimentation. There exist 3 (three) rivers that dominates the ecosystem and transport system of the Upazila, that are Brahmaputra, Halhali & Jinjiram rivers. Though the Upazila has a number of rivers, few of the riverine transport is available in this Upazila only during Apr – September and some can be used throughout the year. Generally Small Boat, Engine Boat, Trawler are used to transport community & commodity.
- The Upazila faces extensive flood and river erosion during monsoon, rural roads and structures are highly vulnerable in this Upazila.
- The Upazila has a total number of 33 Hard-to-Reach Villages. To develop rural connectivity, there are proposals only all weather roads. This report contains a list of roads with their priority. The priority has been determined based on Population, Travel Time, Cost per KM/1000 people & Road Hierarchy.
- This Upazila is highly vulnerable to flood. Due to climate change, the vulnerability is getting intense.
- Case by case design of roads in this Upazila considering different aspects such as exposure to flood, erosion etc. is highly recommended. A special study regarding the road and structure design of the Upazila Char Rajibpur in Kurigram District is highly recommended

ANNEXURE - 1

DETAILS OF GROWTH CENTER & HATBAZAR

Union	Market Name	Market Category (GC=Growth Center, HB=Hat Bazar)	Market Listed? (Yes/ No)	Market Category (General/ Special/ Collection center)	Market Category (Wholesale/ Retail/both)	Hat Day	Chandina Viti (Number)	Chandina Viti (Land)	Chandina Viti (Shop)	Land Area (Acre)			Lease/ Khas Collection BDT (2020)	Lease/ Khas Collection BDT (2019)
										Toha	Khas	Private		
Kodalkati	Kodalkati hat	GC	Yes	General Market	Wholesale	2	4	0.80	65	0.90	2.93		170000	135000
Kodalkati	Shankormadhobpur Hat	HB	Yes											
Mohanganj	Nayarchar	HB	Yes	General Market	Wholesale	2	4	0.50	40	0.50	1.00		207000	52000
Mohanganj	Charnewazi hat	HB	No											
Mohanganj	Mohanganj(Barober) Hat	HB												
Mohanganj	Nayarchar Patadhwa Para hat	HB												
Rajibpur	Rajibpur hat	GC	Yes	General Market	Both	3	8	2.90	66	2.50	5.76		6200000	5000000
Rajibpur	Baliabari hat(baliamari)	GC	Yes	General Market	Both	3	4	1.94	60	0.94	1.94		195100	156000
Rajibpur	Bot Tala Hat	HB	No	General Market					40			0.80		
Rajibpur	Jawneer Char Hat	HB												
Rajibpur	Sheberdangi hat	HB	No	General Market					30			0.20		

ANNEXURE - 2

PRIORITY LIST FOR ROAD DEVELOPMENT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Priority	Connecting Union	Connecting Village	Population 2021 (Based on BBS 2011)	Road Name	Road ID	Road Type	Road Type by Surface Condition	Total Road Length (10+11+12)	Paved length (km)	HBB Length (km)	Unpaved length (km)	HBB + Unpaved (11+12) in (km)	Approx. Cost of Road (lac)	Structure/ Gap (meter)	Cost of Structure (in Lac)	Total Cost (in lac) (Roads + Structures)	Population /KM (4-13)	Tentative Budget/1000 Population (in lac)	Travel Time (in min)	Weightage for Population	Weightage for Travel Time	Weightage for Cost per 1000 Population	Weightage for Road Type	Total Weightage (21+22+23+24)
1	Mohanganj	Goalpara, Purbo Modonpar, Kolpara	2573	Upazila HQ - Sanandabari GC via Nayarchar GC	149082004	UZR	All Weather	6.07	2.07		4	4	480		0	480	643	187	60	20	16	25	25	86
2	Rajibpur	Korati praa, bil para, dhakaiya para	2292	Pachmim Rajibpur P/School more to UR No 3025 via Dagu member house	149084016	VRA	All Weather	4.15			4.15	4.15	498		0	498	552	217	62	20	16	25	15	76
3	Rajibpur	Morichakandi, Shiberdangi, Noyapara	5229	RHD near Roumari border emb. More - Shiberdangi bazar via Meherjamal house	149084034	VRA	All Weather	2.5			2.5	2.5	300		0	300	2092	57	38	20	10	25	15	70
4	Mohanganj	Joanipara, Patadhoya para, Milonpur	2395	Barober P/School - Amkhoua ghat	149084001	VRA	All Weather	2.91	1.34		1.57	1.57	188.4		0	188.4	1525	79	24	20	10	25	15	70
5	Mohanganj	Shylet para, Kolkihara	2036	H/O Jan box Hazi - Tarabar Ghat	149084003	VRA	All Weather	2		1.5	0.5	2	240		0	240	1018	118	8	20	10	25	15	70
6	Mohanganj	Ajmirpara, Jigapara, Modonpara	2094	Bhutangpara - Kolkihara via Modonpara Non GPS	149084029	VRA	All Weather	2.3		2	0.3	2.3	276		0	276	911	132	5	20	10	25	15	70
7	Rajibpur	Bodorpur	1401	Tangaliapara - Pakhiura	149084053	VRA	All Weather	3.422	3.362		0.06	0.06	7.2	90	810	817.2	23354	583	1	18	10	20	15	63
8	Kodalkati	Dokkhin Char Sajai	1813	Ward no 6 Dulal more via west side of Bodi's house more - north side of hamid master house	No ID	VRA	All Weather	5			5	5	600		0	600	363	331	75	18	16	25	15	74
9	Kodalkati	Sajai sorker para	2292	Ward no 7 Shah alam's house - Taher member's kheyra ghat	No ID	VRA	All Weather	3			3	3	360		0	360	764	157	45	20	10	25	15	70
10	Kodalkati	Uttar Kodalkati	1822	Masud member house -towards south side of uttar kodalkati khaya ghat	No ID	VRA	All Weather	3			3	3	360		0	360	607	198	45	18	10	25	15	68
11	Mohanganj	Uttar Boroer, Dokhin Boroer	1756	Kirtontary bazar ghat - Boroer Choraihaty GPS.	No ID	VRA	All Weather	3			3	3	360		0	360	585	205	45	18	10	25	15	68
12	Kodalkati	Uttar Char Sajai Mondol para	1692	Ward No 04 Joynal khar house via Forid munshir house - Bokkar Secretary house	No ID	VRA	All Weather	3			3	3	360		0	360	564	213	45	18	10	25	15	68
13	Mohanganj	Sannyasikandi	1258	Sannashi kanthi river ghat - Hamidul's house road	No ID	VRB	All Weather	2			2	2	240		0	240	629	191	30	18	10	25	12	65
14	Kodalkati	Modho Char Sajai	542	Ward no 5 Abdul hai house - north side of Nuruzzman house	No ID	VRA	All Weather	3			3	3	360		0	360	181	664	45	15	10	20	15	60
15	Kodalkati	Paikantary para	183	Ward no 3 Kodalkati bazar - Toslim's house via Rofik's house	No ID	VRA	All Weather	3			3	3	360		0	360	61	1964	45	15	10	12	15	52

*** Cost for Roads & Structures; (All Weather Rd= 120 lac/km, Submersible= 180 lac/km, Structure= 9 lac/m)
 *** Weightage Values; (Population = 30, Travel Time= 20, Cost per1000 people= 25, Road Hierarchy= 25)