



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”

Sulla, Sunamganj



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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.

ABBREVIATIONS

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
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
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 **Sulla** Upazila of **Sunamganj** District.

1 DESCRIPTION OF THE UPAZILA

1.1 GEOGRAPHY AND DEMOGRAPHY

The geographical area of Sulla upazila is 256.03 sq.km. It has 4 unions, 65 mouzas and 116 villages. Sulla is 67 km away from the district headquarters of Sunamganj. It is covered by 11 major haors and there exists 6 rivers flowing over the upazila. The total population of the upazila is 1,13,743 of which 57,316 are male and 59,642 females. Total number of households are 20,299 and average household size is 5.6 and density of population is 444 (*as per population census 2011*).

1.2 EDUCATION FEATURES

According to the information availed from relevant local government offices, there are 48 govt. primary, 54 registered primary, 2 non-government primary, only one kindergarten & 31 NGO schools. On the other hand, Sulla has 11 non-government high schools with an only privet college, and 7 madrashas. The literacy rate for the upazila is 34.3% 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 Sulla 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 Sulla is 272.31 km, out of which 90.55 km paved and 181.76 km earthen.

1.4 AGRICULTURE, FOOD PRODUCTION AND FISHERIES

Agriculture has an average economic importance for the people of Sulla. There are 41,690 acres of arable land in the upazila. As an upazila with major haor zone, Sulla remains inundated for 6-7 months. The agriculture here is of actually single cropped due to the natural bindings. However, paddy and fishes are the main agricultural product of Sulla. In the fiscal year 2010-11 the Rice production was 13,420 metric tons for Boro season.

According to the BBS (2010-11) data Sulla has 25,764 acres of haor, pond & dhighee that produces abundant fishes. There also exists 60 poultry 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 11 hatbazars with 3 growth centres 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-I](#).

2 LOCATION OF THE UPAZILA

Sulla upazila is in the North-Eastern part of the country under Sunamganj district of Sylhet division. The location has been shown in the map. It is surrounded by Derai upazila on the north, Itna and Ajmiriganj upazilas on the south, Baniachang and Ajmiriganj upazilas on the east, Khaliajuri and Itna upazilas on the west. The upazila is entirely a deep haor zone within ‘Sylhet Haor Basin’. The hilly rivers coming down from the ‘Khasi and Jaintia hills’ in Meghalaya, India carry particularly high volumes of water during monsoon as they come from some of the rainiest places in the world, resulting flash flood at the foothills inside Bangladesh. Flood coming from uphill Meghalaya (*where there is Cherrapunji, the wettest place on earth*) during monsoon causes waterlogging within the haor basin for almost half the year. Flash floods induce severe impacts in both the built and the natural environment. The effects of flash floods can be catastrophic and show extensive diversity, ranging from damages in buildings and infrastructure to impacts on vegetation, human lives and livestock.

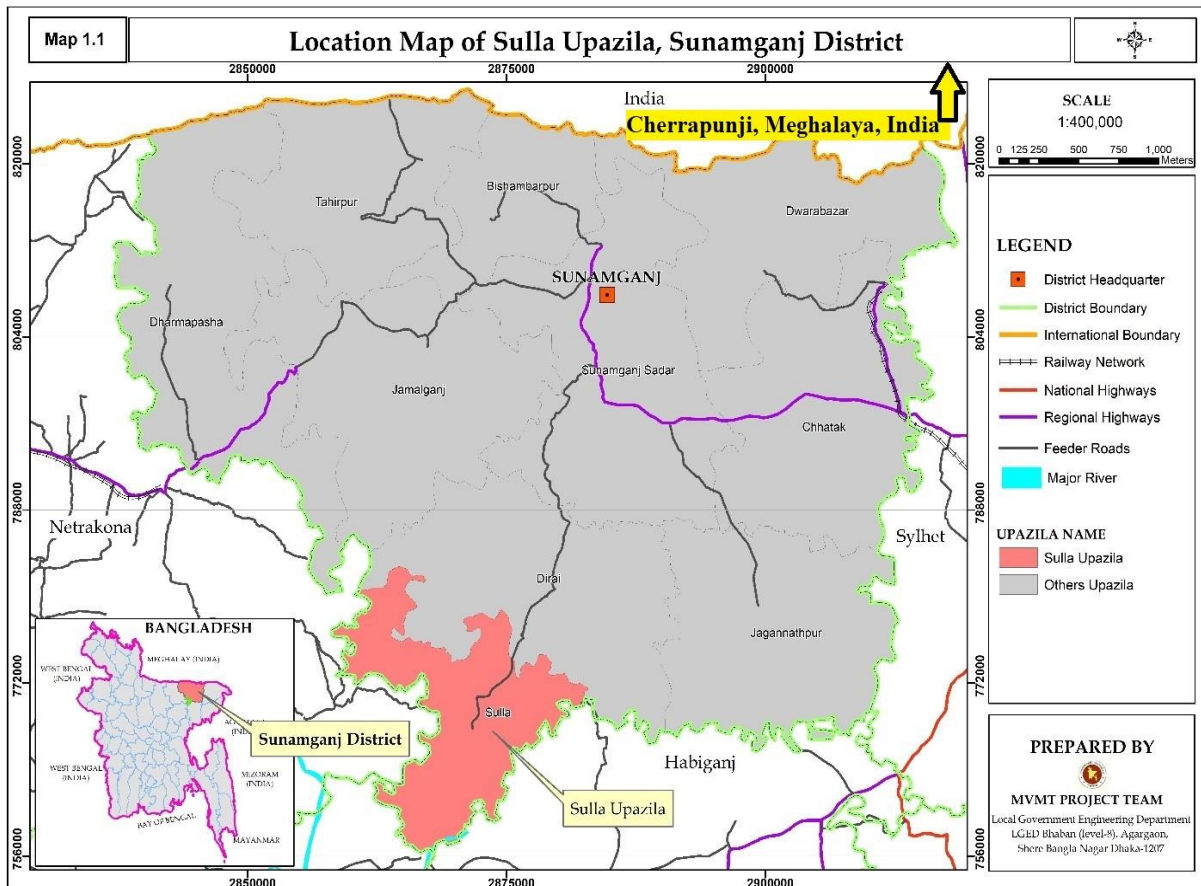


Figure 1: Upazila Location Map.

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.

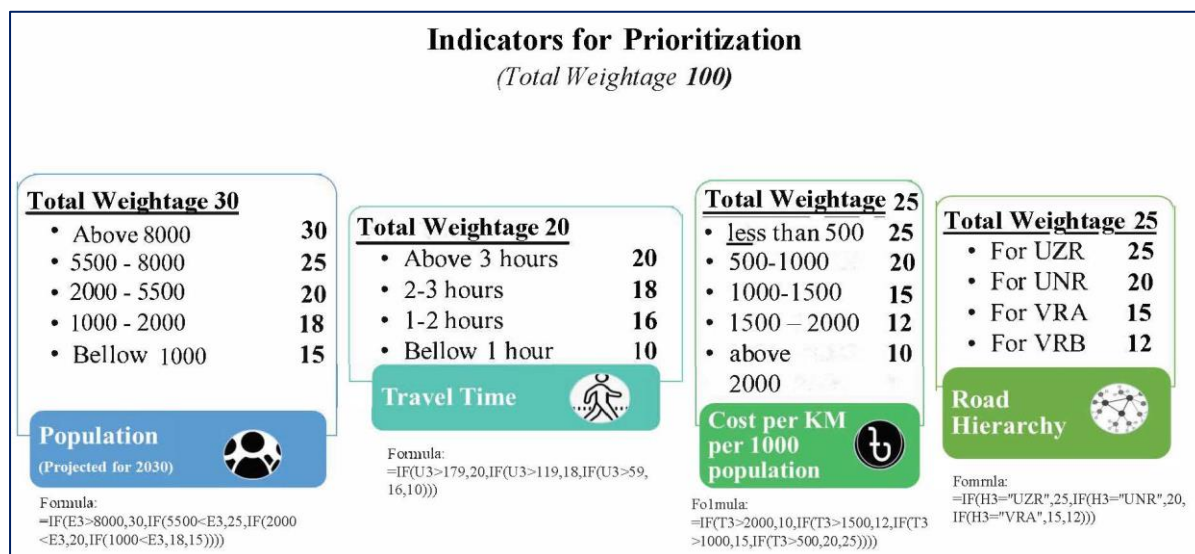


Figure 2: Prioritization indicators & their weightage values

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 DESCRIPTION OF WETLANDS

4.1 DISTRIBUTION OF THE HAORS/ WETLANDS

The upazila is completely a flash flood zone that becomes submerged during monsoon and remain inundated for 6-7 months a year, that requires an attention to take relevant measures during road construction and maintenance.

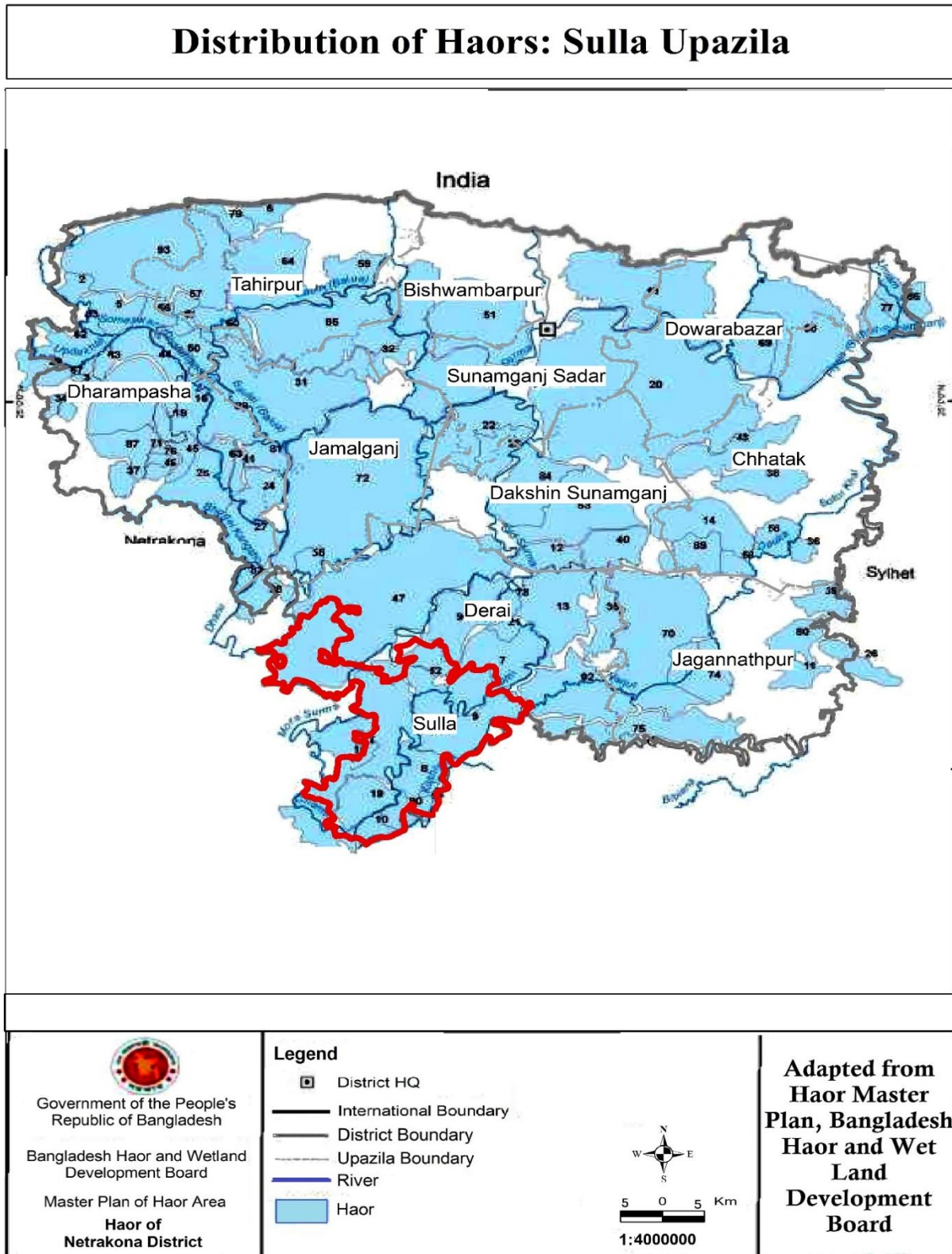


Figure 3: Haor Distribution Map

4.2 HAOR/ WETLAND CATEGORY

However, the upazila is deeply flooded zone. Therefore, road or other infrastructure development in this upazila has major environmental consequences.

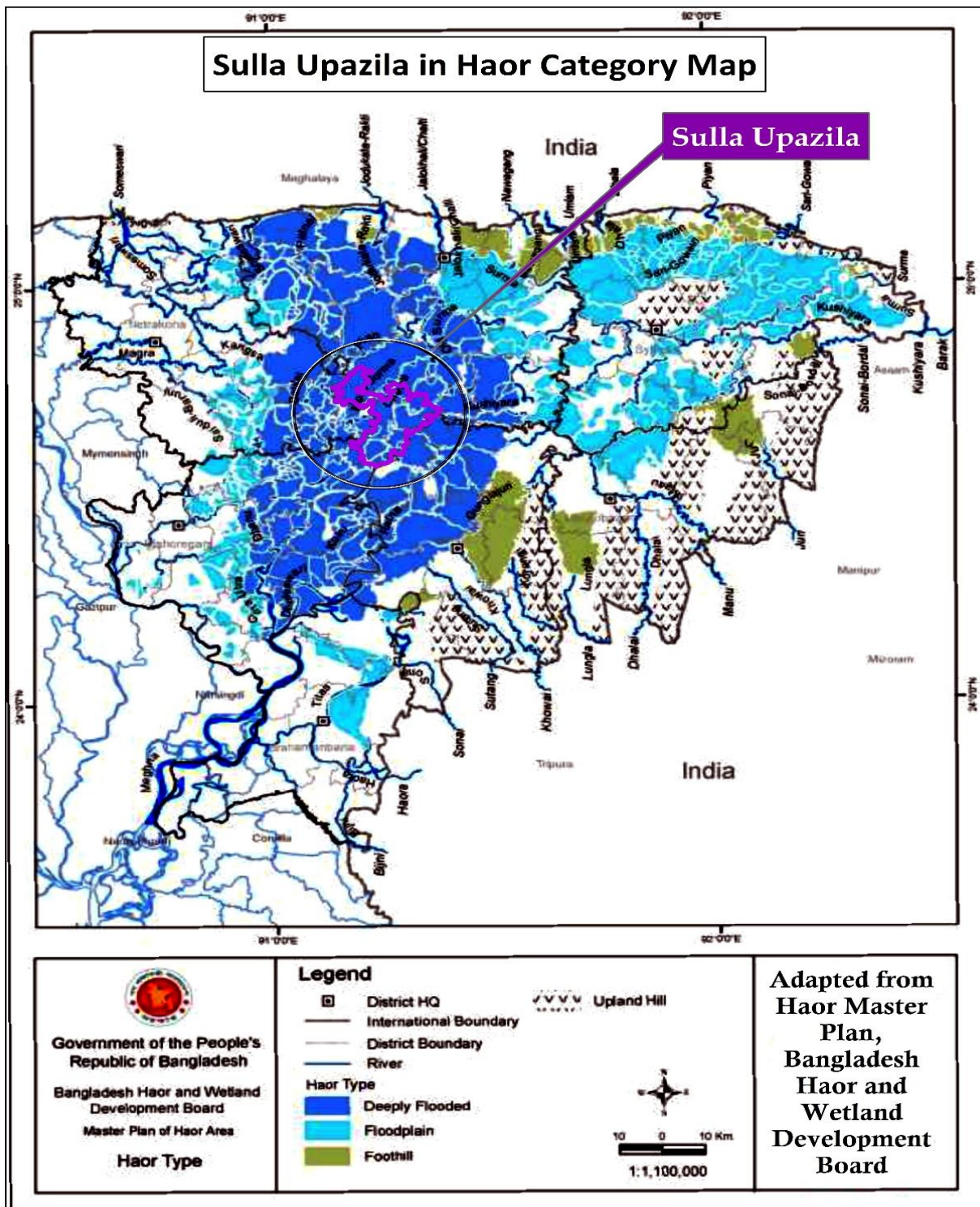


Figure 4: Haor Category Map.

4.3 BIO-ECOLOGICAL CHARACTERISTICS

The Bio-ecological characteristics map of the upazila has been shown below. The map shows that it is completely a haor basin. Therefore, adequate opening for the road and road structures should be maintained.

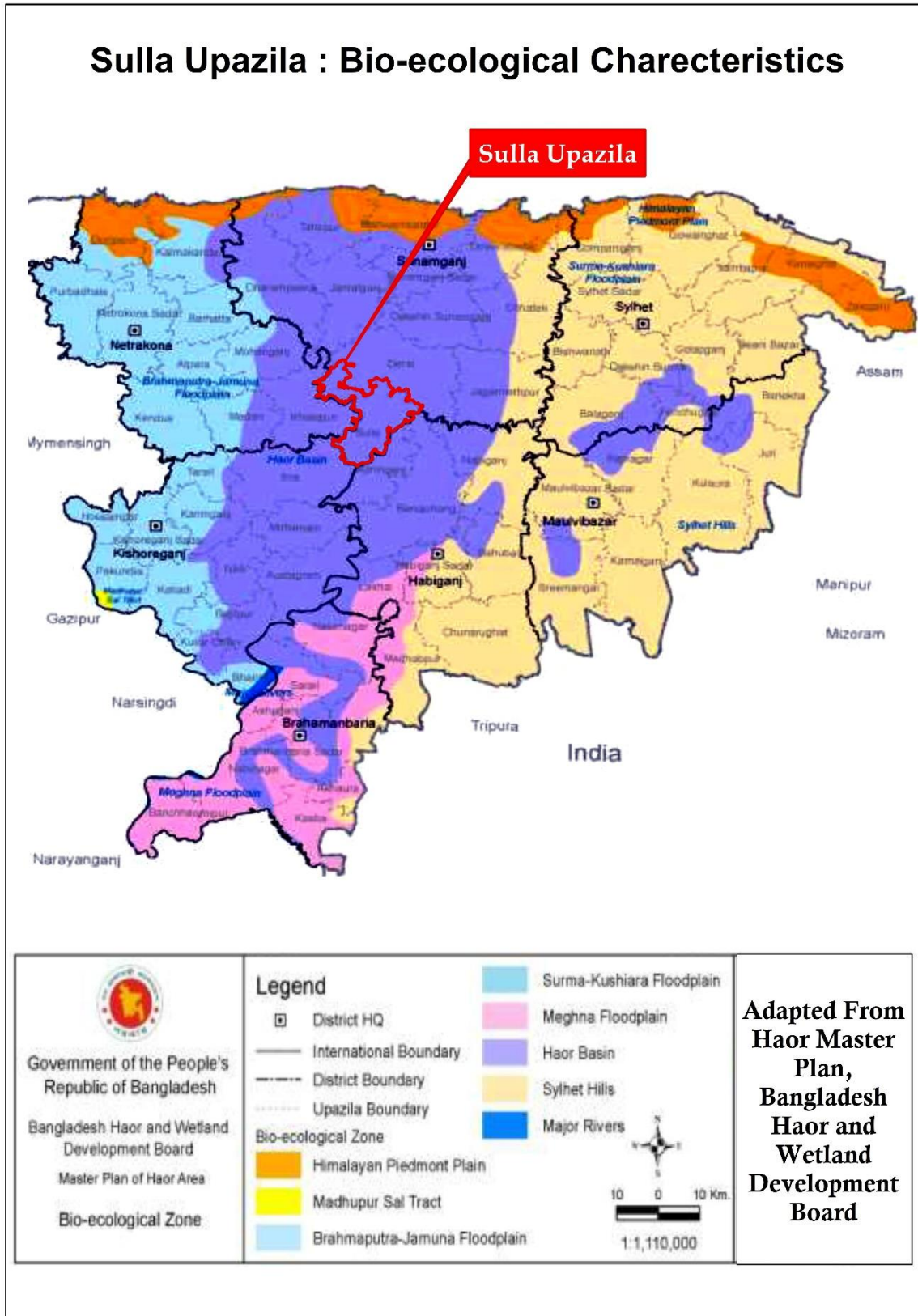


Figure 5: Bio Ecological Characteristics Map

5 RURAL ROAD CONNECTIVITY TO THE VILLAGES

5.1 SUMMARY OF THE VILLAGE CONNECTIVITY

Sulla is an upazila with major haors. The rural road communication is quite poor here. Out of 118 villages, 20 are disconnected from the developed paved road network that brings huge sufferings for the people of those villages. The total rural road network of Sulla is of 272.31 km, out of which 90.55 km paved and 181.76 km earthen.

Table 1: Total villages in the unions and their connectivity

SL No	Union	No of Villages	Connected Villages	Disconnected Villages
1	Atgaon	21	16	5
2	Bahara	36	30	6
3	Habibpur	30	26	4
4	Sulla	31	26	5
Total =		118	98	20

5.2 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 & disconnected villages and their population

Union	Sl. No	Connected Villages	Population 2021 (Based on BBS 2011)	Disconnected Villages	Population 2021 (Based on BBS 2011)
Aigaon (21)	1	Ballabpur	26	Baragaon	1488
	2	Bhatiirabad	2216	Bazirkandi	1257
	3	Chikadubi	116	Daudpur	945
	4	Daulatpur	2524	Mirjapur	1593
	5	Ganganagar	835	Ujangaon	3303
	6	Gobindanagar	394		
	7	Mohammednagar	3748		
	8	Nijgaon	2014		
	9	Paschim Kashipur	2200		
	10	Paschim Niamatpur	4259		
	11	Rahutala	1297		
	12	Sarmakanda	1677		
	13	Sharifpur	852		
	14	Shosharkanda	3162		
	15	Sonakandi	1129		
	16	Ujanirabad	1016		
Sub Total=			27465		8586

Union	Sl. No	Connected Villages	Population 2021 (Based on BBS 2011)	Disconnected Villages	Population 2021 (Based on BBS 2011)
Bahara (36)	1	Angaura	865	Habibpur (Harinagar)	973
	2	Bagerhati	247	Jatrapur	501
	3	Bahara	1581	Mannanpur	288
	4	Bhatgaon	1253	Moktarpur	1841
	5	Dumra	1622	Varadohor	4621
	6	Gangirgaon Chak	234	Rupsha	582
	7	Ghungirgaon	2289		
	8	Haripur	426		
	9	Kalakaldi	223		
	10	Kandakhala	395		
	11	Laxmipasha	0		
	12	Meda	1434		
	13	Meghnapura	225		
	14	Meghnapura-2	1429		
	15	Mirjapur	25		
	16	Mohankalli	383		
	17	Musapur	905		
	18	Nainda	352		
	19	Nayagaon	551		
	20	Panch Brahma	3984		
	21	Pirojpur	1274		
	22	Porarpar	670		
	23	Pratabpur	3615		
	24	Raghunathpur	616		
	25	Shibpur	410		
	26	Sudankalli	383		
	27	Sukhlain	907		
	28	Sultanpur	1192		
	29	Tajpur	285		
	30	Ujan Jatrapur	354		
		Sub Total=	28129		8806
Habibpur (30)	1	Aguai	1033	Faijullahpur	2492
	2	Anandanagar	1379	Habibpur	1512
	3	Anandapur	1958	Markuli	3254
	4	Asanpur	549	Maurapur	1506
	5	Bholanagar	300		
	6	Bilpur	802		
	7	Bisnupur	1140		
	8	Brammangaon	308		
	9	Chakua	1268		
	10	Chargaon	980		
	11	Chattrish	2060		
	12	Dattapara	286		
	13	Ditpur	337		

Union	Sl. No	Connected Villages	Population 2021 (Based on BBS 2011)	Disconnected Villages	Population 2021 (Based on BBS 2011)
	14	Jatgaon	275		
	15	Kashipur	2816		
	16	Khalapara	290		
	17	Narayanpur	521		
	18	Narikila	600		
	19	Niamatpur	911		
	20	Noagaon	923		
	21	Paschimpara	685		
	22	Putka	1109		
	23	Rampur	378		
	24	Sarashpur	919		
	25	Saudisree	2326		
	26	Shashkhai	919		
			Sub Total=	25072	
Sulla (31)	1	Adityapur	1420	Hossepur Bade	1080
	2	Balarampur	289	Kandigaon	1924
	3	Bara Abda	734	Raua	1359
	4	Bhera Mohana	0	Shimarkandi	1281
	5	Chabbisha	1557	Sreehail	1700
	6	Choto Abda	461		
	7	Dampur	1518		
	8	Dulavpur	585		
	9	Goani	437		
	10	Gobindapur	553		
	11	Isakpur	657		
	12	Islampur	267		
	13	Kadirpur	608		
	14	Kamargaon	435		
	15	Kartikpur	1133		
	16	Keruala	363		
	17	Krisnapur	411		
	18	Larabad	1224		
	19	Manua	1264		
	20	Nasirpur	380		
	21	Nawagaon	345		
	22	Rahamatpur	455		
	23	Sen Nagar	756		
	24	Shahadebpur	1624		
	25	Shonkarpur	207		
	26	Sulla	3877		
		Sub Total=	21560		7344

5.3 MAP OF DISCONNECTED VILLAGES & PROPOSED ROADS

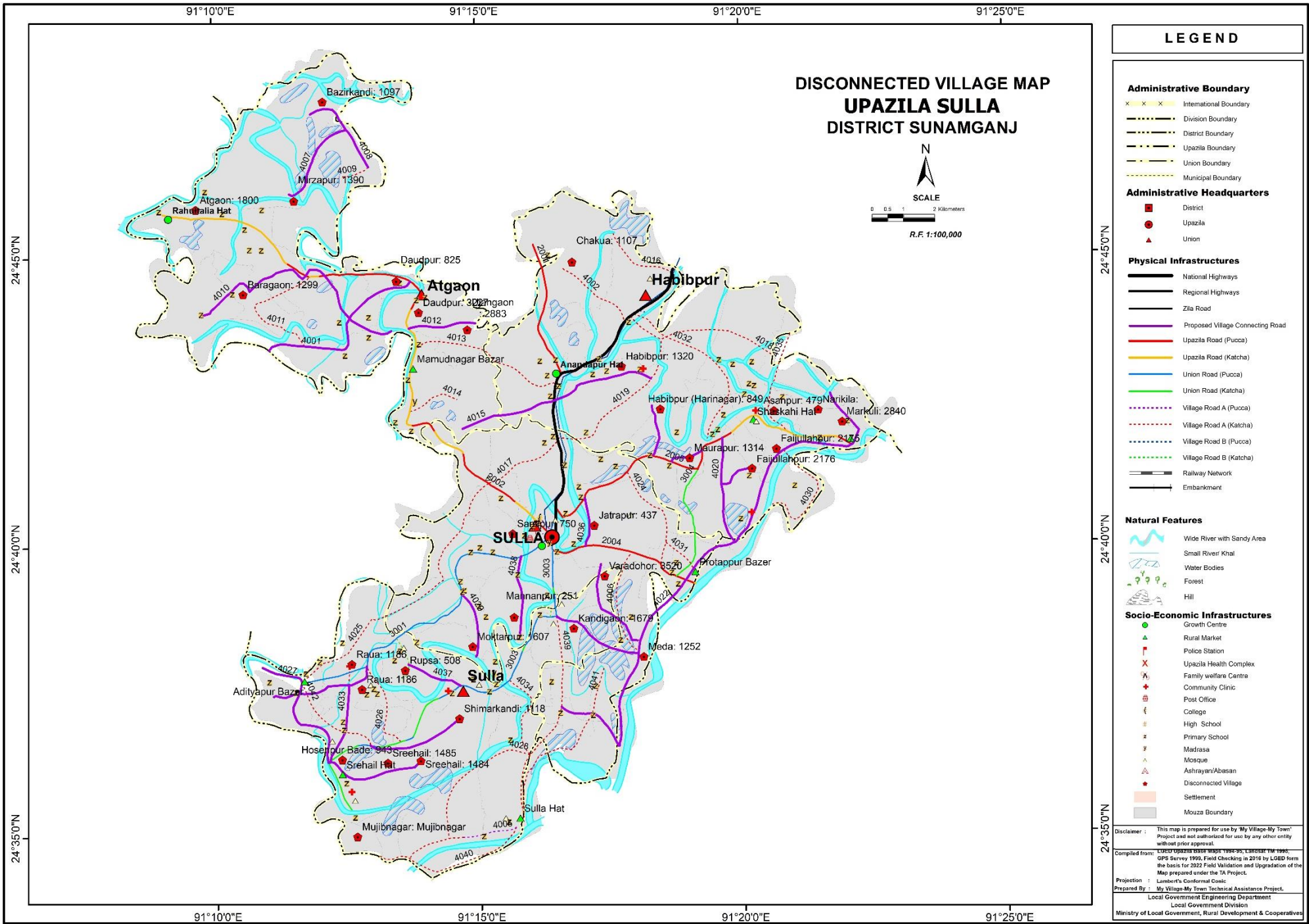


Figure 6: Upazila Map

6 CONSULTATION MEETING & FIELD VISIT

6.1 UPAZILA LEVEL MEETING

The consultant arranged a meeting at upazila conference room with the support of the UE office, Sulla 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.

6.2 VISIT TO CASE STUDY UNION

The team visited Atgaon union in Sulla upazila, along the alignment of “Shosar Kanda-Uzangaon Hoar” having the Road ID: 690864012. The road was selected for the site visit considering the beneficiary population 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, interviewed road users and took photos of the alignment condition.



Figure 7: Condition of the visited road alignment at case study union



Figure 8: Condition of the visited road alignment at case study union



Figure 9: Condition of the visited road alignment at case study union

The length of this submersible road is 2.5 km, totally earthen. The road connects a major village of the union named Ujangaon, having the total population of approx. 3500. People living here doesn't have any good road network with the Upazila HQ due to having unpaved road communication. During monsoon, the road becomes inundated.

7 DATA COLLECTION & ANALYSIS

The consultant collected data from the field on hard to reach/ disconnected 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:6*) showing prioritized roads and disconnected villages. The proposed riverine & road connectivity by the UE office have been discussed in this section.

7.1 PROPOSED RIVERINE ROUTES

As per actual field visit and data analysis from haor development board, Sulla upazila is within deep haor zone. All its area becomes submerged in monsoon. Two rivers have passed through Sulla upazila. That are Darain & Sotuwa river.

At monsoon total area of the upazila gets inundated due to flash flood and heavy rainfall at the uphill. The water level rises resulting the 100% of the upazila submerged. Water depth in the deep haor zone becomes 8-10 feet. Almost 6-7 months a year, waterways become the only mode of transport within the flooded zone. During this part of the year, larger boats and trawlers are readily available to transport community & commodity. During fieldwork, it has been known that, there are 2 riverine routes that can be used as multi-modal transport for part of the year.

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

Table 3: Proposed riverine routes

Sl. No	Name of the Riverine Route	Name of the Stream	Type of the Stream	Types of Water Vehicle	Need of excavation
1	Upazila HQ – Mujibnagar	Darain River	Intermittent (April – Sept)	Small boat, Engine boat, Trawler	Yes

7.2 PROPOSED ROADWAY FOR DISCONNECTED 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. A summary of the rural roads of the upazila is given below;

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 disconnected villages (KM)
272.31	90.55	181.76	76.2

7.2.1 PROPOSED ALL WEATHER ROUTES:

There are no all weather roads proposed to connect the HTRV within the upazila.

7.2.2 PROPOSED SUBMERSIBLE ROUTES:

There are 22 submersible 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 submersible roads in the upazila

Sl. No	Road Name	Road ID	Road Condition	Unpaved length (Km)
1	Daudpur-Kashipur road	690864001	Submersible	3
2	Nizgaon-Mirzapur	690864007	Submersible	2.5
3	Bazarkandi Gps - Nijgao Bazar	690864008	Submersible	2
4	Dorlobepur-Boargoan	690864010	Submersible	10
5	Shosar Kanda-Uzangaon Hoar	690864012	Submersible	2.25
6	Habibpur-Anondopur Hoar Rd	690864015	Submersible	6.5
7	Sahskai (dottopara) - Foyejullapur Dokkinpara	690864020	Submersible	2.2
8	Markoli-Narkila Rd	690864021	Submersible	2
9	Markuli San babu Pond - Bishnupur	690864022	Submersible	2.85
10	Hosenpur-Goani Rd	690864027	Submersible	7
11	Mukterpur-Krishnapur	690864029	Submersible	3
12	Rowa to Ishakpur via Gobindapur road	690864033	Submersible	3.5
13	Sulla HQ to Paharpur UZR - Bahara Somessori Mondir	690864036	Submersible	2.2
14	Rupsa to Monua road	690864037	Submersible	2.5
15	Mannanpur to Sudhonkholli via Meghna para road	690864038	Submersible	3.1
16	Varadohor Noresh House - Nasirpur	No ID	Submersible	3.4
17	Kandigao to Meda Bazar	No ID	Submersible	3.3
18	Sahskai Pacca Road - Mourapur	No ID	Submersible	2.8
19	Sreehail kamarhati GPS - Ishakpur	No ID	Submersible	3
20	Rowa - Satpara bazar	No ID	Submersible	3
21	Semerkanda - Mora Nodi	No ID	Submersible	2.3
22	Purarpar - Horinagar Via Shibpur	No ID	Submersible	3.8

7.2.3 PROPOSED ROADS FOR DISCONNECTED VILLAGES HAVING NO ID:

There are 7 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 disconnected villages having No ID

Sl. No	Road Name	Road ID	Unpaved length (Km)
1	Varadohor Noresh House - Nasirpur	No ID	3.4
2	Kandigao to Meda Bazar	No ID	3.3
3	Sahskai Pacca Road - Mourapur	No ID	2.8
4	Sreehail kamarhati GPS - Ishakpur	No ID	3
5	Rowa - Satpara bazar	No ID	3
6	Semerkada - Mora Nodi	No ID	2.3
7	Purarpar - Horinagar Via Shibpur	No ID	3.8

7.2.4 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.

8 CONCLUSION & RECOMMENDATIONS

- Sulla Upazila is a deeply flooded zone. 6 (six) rivers dominate the ecosystem, transport system of the Upazila. That are Surma, Kalni, Kajuwa, Darain, Andharain & Godi rivers. During monsoon, these rivers carry huge volume of flood water from Khasi & Jainta hills. Though the Upazila has a number of rivers, riverine transport is available in this Upazila only during April – September. Small boats, Engine boats, Heavy trawlers carrying agricultural products and passengers during monsoon. The rivers can supply irrigation water throughout the year but it does not have enough water for riverine transportation except monsoon.
- As the Upazila is heavily flooded during monsoon, rural roads and structures are highly vulnerable in this Upazila.
- The Upazila has a total number of 20 disconnected villages. To develop rural connectivity, there are proposals for only submersible 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 disasters. Due to climate change, the vulnerability is getting intense. The year 2022 has shown catastrophic flood that was not seen over the last 18years (*last in 2004 similar to 1998 & 1988*). Therefore, it is highly recommended to study the road alignments before going for investment.
- Case by case design of roads in this Upazila considering different aspects such as exposure to floods, erosion etc. is highly recommended. A special study regarding the road and structure design of the Upazila Sulla in Sunamganj 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		
Atgaon	Daudpur bazar	HB	Yes	General Market	Both	7	210	1.05	0	1.11	3.42	0.00	0	0
Atgaon	Nizgau bazar	HB	Yes	General Market	Both	7	96	0.46	0	0.50	0.00	0.00	0	0
Atgaon	Mamudnagar bazar	HB	Yes	General Market	Both	0	0	0.00	62	0.00	0.16	0.31	0	0
Atgaon	Rahutala bazar	GC	No	General Market	Both	7	0	0.00	41	0.00	0.00	2.56	0	0
Bahara	Ghungiargoan hat(hq)	GC	Yes	General Market	Both	7	402	2.01	0	0.02	4.30	0.00	241980	200000
Bahara	Meda bazar	HB	No	General Market	Both	7	0	0.00	45	0.00	0.00	1.10	0	0
Bahara	Protappur bazer	HB	Yes	General Market	Both	7	0	0.00	28	0.00	0.30	0.00	0	0
Habibpur	Anandopur bazar hat	GC	Yes	General Market	Both	7	72	0.36	0	0.20	0.72	0.41	1670	1260
Habibpur	Shaskahi hat	HB	Yes	General Market	Both	7	0	0.00	156	0.00	0.40	0.80	0	0
Habibpur	Tukchanpur bazar	HB	Yes	General Market	Both	7	160	7.52	0	1.89	0.00	0.00	0	0
Habibpur	Markuli bazer	HB	No	0	0	0	0	0.00	0	0.00	0.00	0.00	0	0
Salla	Adityapur bazer	HB	Yes	Special Market	Both	7	106	0.53	0	0.00	0.75	2.10	0	0
Salla	Srehail hat	HB	No	General Market	Wholesale	7	0	0.00	25	0.00	6.00	0.00	0	0
Salla	Sulla hat	HB	Yes	General Market	Both	7	0	0.00	48	0.00	0.30	1.00	0	0

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	Habibpur	Markuli	3254	Markoli-Narkila Rd	690864021	VRA	Submersible	2			2	2	360		0	360	1627	111	30	20	10	25	15	70
2	Atgaon	Ujangaon	3303	Shosar Kanda-Uzangaon Hoar	690864012	VRA	Submersible	2.25			2.25	2.25	405		0	405	1468	123	34	20	10	25	15	70
3	Habibpur	Faijullapur	2493	Sahskai (dottopara) - Foyejullapur Dokkinpara	690864020	VRA	Submersible	2.2			2.2	2.2	396		0	396	1133	159	33	20	10	25	15	70
4	Habibpur	Faijullapur	2492	Markuli San babu Pond - Bishnupur	690864022	VRA	Submersible	2.85			2.85	2.85	513		0	513	874	206	43	20	10	25	15	70
5	Habibpur	Habibpur	1512	Habibpur-Anondopur Hoar Rd	690864015	VRA	Submersible	6.5			6.5	6.5	1170		0	1170	233	774	98	18	16	20	15	69
6	Atgaon	Mirjapur	1593	Nizgaon-Mirzapur	690864007	VRA	Submersible	2.5			2.5	2.5	450		0	450	637	283	38	18	10	25	15	68
7	Atgaon	Bazirkandi	1257	Bazarkandi Gps - Nijgao Bazar	690864008	VRA	Submersible	2			2	2	360		0	360	628	286	30	18	10	25	15	68
8	Bahara	Moktarpur	1841	Mukterpur - Krishnapur	690864029	VRA	Submersible	3			3	3	540		0	540	614	293	45	18	10	25	15	68
9	Sulla	Raua	1359	Rowa to Ishakpur via Gobindapur road	690864033	VRA	Submersible	3.5			3.5	3.5	630		0	630	388	464	53	18	10	25	15	68
10	Atgaon	Baragaon	1488	Dorlobepur-Boargaon	690864010	VRA	Submersible	10			10	10	1800		0	1800	149	1209	150	18	18	15	15	66
11	Sulla	Hossepur Bade	1080	Hosenpur-Goani Rd	690864027	VRA	Submersible	7			7	7	1260		0	1260	154	1166	105	18	16	15	15	64
12	Atgaon	Daudpur	945	Daudpur-Kashipur road	690864001	VRA	Submersible	5	2		3	3	540		0	540	315	571	45	15	10	20	15	60
13	Bahara	Rupsha	582	Rupsa to Monua road	690864037	VRA	Submersible	2.5			2.5	2.5	450		0	450	233	773	38	15	10	20	15	60
14	Bahara	Jatrapur	501	Sulla HQ to Paharpur UZR - Bahara Somessori Mondir	690864036	VRA	Submersible	2.2			2.2	2.2	396		0	396	228	791	33	15	10	20	15	60
15	Bahara	Mannanpur	288	Mannanpur to Sudhonkhollia via Meghna para road	690864038	VRA	Submersible	3.1			3.1	3.1	558		0	558	93	1940	47	15	10	12	15	52
16	Bahara	Varadohor	4033	Varadohor Noresh House - Nasirpur	No ID	VRB	Submersible	3.4			3.4	3.4	612		0	612	1186	152	51	20	10	25	12	67
17	Sulla	Kandigaon	1924	Kandigao to Meda Bazar	No ID	VRB	Submersible	3.3			3.3	3.3	594		0	594	583	309	50	18	10	25	12	65
18	Sulla	Sreehail	1700	Sreehail kamarhati GPS - Ishakpur	No ID	VRB	Submersible	3			3	3	540		0	540	567	318	45	18	10	25	12	65
19	Sulla	Shimarkandi	1281	Semeranda - Mora Nodi	No ID	VRB	Submersible	2.3			2.3	2.3	414		0	414	557	323	35	18	10	25	12	65
20	Habibpur	Maurapur	1506	Sahskai Pacca Road - Mourapur	No ID	VRB	Submersible	2.8			2.8	2.8	504		0	504	538	335	42	18	10	25	12	65
21	Sulla	Raua	1359	Rowa - Satpara bazar	No ID	VRB	Submersible	3			3	3	540		0	540	453	397	45	18	10	25	12	65
22	Bahara	Habibpur (Harinagar)	973	Purarpar - Horinagar Via Shibpur	No ID	VRB	Submersible	3.8			3.8	3.8	684		0	684	256	703	57	15	10	20	12	57

*** 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)