



Rajbiraj Municipality
Office of Municipal Executive
Nepal Urban Governance and Infrastructure Project (NUGIP)
Rajbiraj, Saptari
Madhesh Province

**Volume IV:
Environment and Social Management Plan (ESMP)
Report**

Up-gradation of Different Inter-connected Roads within
Rajbiraj Municipality, under Consulting Services for Design
& Supervision Consultant (DSC), Rajbiraj

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Acronym

BoQ	: Bill of Quantity
CBS	: Central Bureau of Statistics
CESMP	: Construction Environment and Social Management Plan
CoC	: Code of Conduct
DPR	: Detailed Project Report
DSC	: Design and Supervision Consultant
DUDBC	: Department of Urban Development & Building Construction
EA	: Environmental Assessment
EHS	: Environment, Health and Safety
EPR	: Environmental Protection Rule
ESMP	: Environmental and Social Management Plan
FGD	: Focus Group Discussion
ILO	: International Labor Organization
NUGIP	: Nepal Urban Governance and Infrastructure Project
OHS	: Occupational Health & Safety
OP/BP	: Operational Policy/Bank Policy
PCO	: Project Coordination Office
PIM	: Project Implementation Manual
PIU	: Project Implementation Unit
PPE	: Personal Protective Equipment
RoW	: Right of Way
SEA/SH	: Sexual Exploitation and Abuse/Sexual Harassment
STD	: Sexually Transmitted Disease
WB	: World Bank
WASH	: Water, Sanitation and Hygiene

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1. PROJECT INTRODUCTION

The Department of Urban Development and Building Construction (DUDBC) under Ministry of Urban Development (MoUD) of Government of Nepal has been executing the Nepal Urban Governance and Infrastructure Project (NUGIP) within the strategic framework for urban development envisaged in National Urban Development Strategy since the fiscal year 2077/78 B.S.

The DPR of *Up-gradation Works of Different Inter-connected Roads within Rajbiraj Municipality (Badi Nahar, Kadmaha Tole - Damawati - Piprahi - Khado Khola, Khado Khola – Piprahi Bhelahi – Lawa Toliya Bhelahi, Cold Store Road – Shiva Temple – Khado Khola Bandh, Sujit Pokharel House to north Chandi Das Mill – Shiva Temple, Jhalahi – Sano Nahar- Bharuwa point- Padariya-Dighwa, Boriya – Ranjitpur – Airport Road, Badi Nahar (along bank of Sano Nahar) to Piprahi, Maleth Nahar Chowk to West Thalahi Canal Road and Rupani Road to Biharpur Krishna Nagar north canal Road)* of Rajbiraj Municipality ward no. 1, 7, 9, 10, 11, 12, 13,15 and 16 has been prepared as per the Contract between the Office of the Municipal Executive of Rajbiraj Municipality; Nepal Urban Governance and Infrastructure Project (NUGIP) (Client) and Digicon Engineering Consult (P) Ltd. (DIGICON), GOEC Nepal (P) Ltd. (GOEC), BEAM Consultant Pvt. Ltd. (BEAM), IMPULSE Consultant Pvt. Ltd. (IMPULSE) and Smart Engineering and Design Solution (P) Ltd. (SEDS) JV which have entered into the agreement, for performing work REF No: NP-DUDBC-216350-CS-QCBS, into effect from 20th April 2023 to provide services on Detailed Engineering Design and Construction Supervision (DSC) covering the up-gradation works. The project is expected to contribute towards the municipal capacity for urban development planning, infrastructure development and institutional development of the municipality together with the improvement of livelihood of the local people along the settlement.

List of Roads under Rajbiraj Municipality are as follow.

Table 1-1: List of Different Inter-connected Roads Project within Rajbiraj Municipality

S/N	Name of the road	Length, km	Ward Number	Road Classification
1.	Up-gradation of <i>Badi Nahar, Kadmaha Tole - Damabati - Piprahi - Khado Khola Road</i>	2.385	12, 13	Local Road
2.	Up-gradation of <i>Khado Khola - Law Toliya Bhelahi Road</i>	0.778	13	Local Road
3.	Up-gradation of <i>Cold Store-Ram Janaki Mandir- Khado Bandh Road</i>	0.773	15	Local Road
4.	Up-gradation of <i>Sujit Pokhrel House to North Chandi Das Mill-Shiv Mandir Road</i>	0.766	7	Local Road
5.	Up-gradation of <i>Jhalahi-Sano Nahar-Bharuwa Point-Padariya-Dighwa Road</i>	4.226	1, 10, 11	Local Road
6.	Up-gradation of <i>Boriya - Ranjitpur - Airport Road</i>	1.715	16	Local Road
7.	Up-gradation of <i>Badi Nahar along bank of Sano Nahar to Piprahi Road</i>	1.263	13	Local Road

ESMP for the Up-gradation of Different Inter-connected Roads within Rajbiraj Municipality

S/N	Name of the road	Length, km	Ward Number	Road Classification
8.	Up-gradation of <i>Maleth Nahar Chowk to West Thalahi Canal Road</i>	1.258	9	Local Road
9.	Up-gradation of Rupani Road-Biharpur-Krishna nagar-North canal Road	1.087	9	Local Road

The study for Environmental and Social Management Plan of *Up-gradation Works of Different Inter-connected Roads within Rajbiraj Municipality* was conducted in November 2023. The study and preparation of the ESMP is guided by the Environmental and Social Management Framework (ESMF) for NUGIP.

Start/Completion Date:	January 2024 - July 2025

2. DESCRIPTION OF THE PROJECT SITE

Rajbiraj is a midsized municipality in the southeastern region of the Madhesh Province of Nepal. It is also the head quarter of Saptari District. It lies in between 26°32'26" N latitude 86°44'55" longitude. It is the first urban planned city of Nepal. Rajbiraj Municipality has an extensive area of 55.64 sq.km. and comprises of 16 new wards and is nourished by various rivers. As per the Nepal census of 2021, the population of Rajbiraj Municipality was 70,803 with total number of 14,133 households.

2.1 Location of the project

The proposed roads alignment lies in Rajbiraj Municipality of Saptari district. The road passes through and links different localities with different populations with different caste, culture and livelihood.. The project sub-project roads are located in wards 1, 7, 9, 10, 11, 12, 13, 15 and 16 of Rajbiraj Municipality.

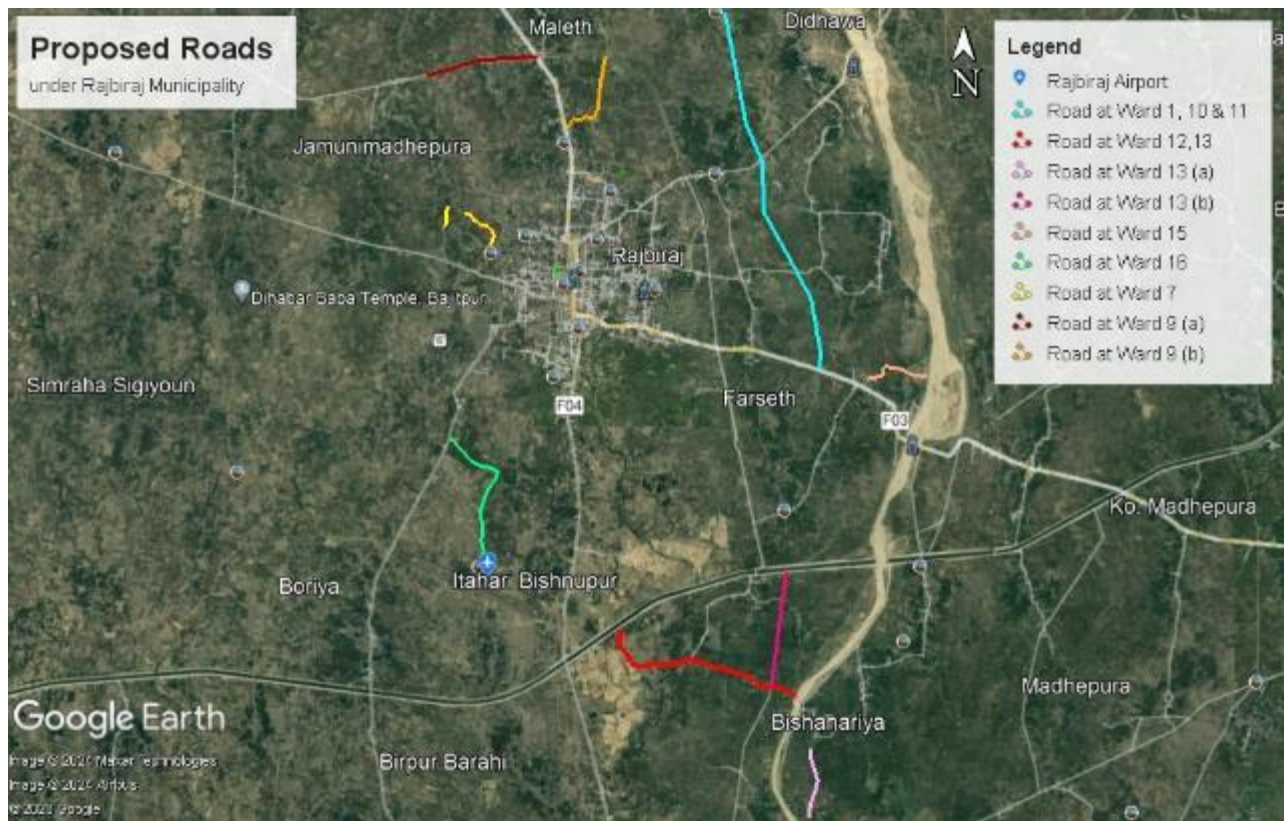


Figure 2-1: Location Map of Proposed Road

2.2 Land use

2.3 Topography and Hydrology

The project area, which is part of the Rajbiraj Municipality, is located in the flat Terai belt, which is home to a large Madhesi population and is distinguished by highly fertile alluvial soil. **Climate and Vegetation**

The climate and weather are typically hot due to the location's plain terrain. The climate in Rajbiraj Municipality is especially tropical. The municipality experiences summers from early April to August with average yearly temperatures ranging from 70 to 460 degrees Celsius due to its location in an arid and semi-arid hydrological zone. July sees the arrival of the monsoon, which is accompanied by dust storms and lightning. October through March is when winter is in full force. The wintertime temperature ranges from 70 to 300 degrees Celsius. Between 1589 and 2096 millimeters of rain fall on average each year during the monsoon season. The driest month is December, with an average rainfall of 5 mm, while July has the highest average precipitation of 546 mm.

The road alignment as tropical vegetation types with dominance of different trees. Kadam (*Anthocephalus chinensis*), Sissau (*Dalbergia sissoo*), Khayer (*Acacia catechu*), Sal (*Shorea robusta*), Simal (*Bombax ceiba*), Teak (*Tectona grandis*), Masala (*Eucalyptus camaldulensis*), Bar (*Ficus benghalensis*), Peepal (*Ficus religiosa*), Aanp (*Mangifera indica*), Mewa (*Carica papita*), Katahar (*Artocarpus heterophyllus*), Amba (*Psidium guajava*), Kera (*Musaceae banana*), and Nariwal (*Cocos nucifera*). These trees provide timber, fuel-wood, fodder, fruits, and some have ethnobotanical value. There are 8 peepal trees along the different sections of the road which need to be protected during road construction the necessary mitigation measures are included in BOQ. The road alignment does not pass through any type of forest.

Table 2-1: List of Peepal Trees

S.N.	Road Name	Chainage
1	Badi Nahar, Kadmaha Tole – Damawati – Piprahi – Khado Khola Road	Ch: 0+160, Ch: 2+120, Ch: 2+130, Ch: 2+145, Ch: 2+200
2	Khado Khola – Piprahi Bhelahi – Lawa Toliya Bhelahi Road	Ch: 0+745
3	Sujit Pokharel House to north – Chandi Das Mill – Shiva Temple Road (Section 1)	Ch: 0+020, Ch: 0+419

Source: Field Survey, 2023

2.4 Air Quality, Water Quality, and Noise level

The baseline data for Air, Water Quality, and Noise Level are setup from Rajbiraj Airport. The proposed road does not affect any water source.

Air and, Water Quality

The project area's air and water quality were examined. Measurement data were acquired during the physical environment survey (air and water) on the project road alignment at the recipient level.

Water quality was not observed for the road, because proposed road does not affect significantly to any water sources.

The ambient air quality of the project area does not show critical state. The air quality index of Rajbiraj and surroundings shows that the AQI is 110, with PM_{2.5} level of 39.2 µg/m³ and (Source: *Rajbiraj Airport on November 2023*). However, the project area is relatively less urbanized, hence air quality is better. The primary source of ambient air pollution is due to dust from vehicles plying on earthen roads. **Annex 5** contains the detailed report on the quality of the air and noise.

Noise Quality

Noise levels were measured using an android application, and a continuous measurement was conducted along the road alignment at intervals of around 30 minutes during daytime over two days of field observation works. Following table presents the data;

At the monitoring site, the recorded sound pressure levels were 65.25 dB (A) during the day first day and 64.71 dB (A) at second day. The noise quality was measured near airport area. Since, the road lies near Rajbiraj Airport. The average sound pressure levels during the day and at night that were recorded met the guidelines set forth in GoN Noise level standard 2069 for urban residential areas. The noise details report is condensed in **Annex 5**.

2.5 Existing infrastructures/ utilities (Electric poles, Irrigation canal, etc)

The details of existing irrigation canal are as follow which that need to be protected during road construction phase.

Table 2-2: Existing Irrigation Canal within Proposed Road.

S/N	Name of the road	Length , km	Ward Number	Existing Irrigation Canal
1.	Up-gradation of Badi Nahar, Kadmaha Tole - Damabati - Piprahi - Khado Khola Road	2.385	12, 13	Cross Irrigation Canal at Ch: 2+090
2.	Up-gradation of Khado Khola - Law Toliya Bhelahi Road	0.778	13	N/A
3.	Up-gradation of Cold Store-Ram Janaki Mandir-Khado Bandh Road	0.773	15	N/A
4.	Up-gradation of Sujit Pokhrel House to North Chandi Das Mill-Shiv Mandir Road	0.766	7	N/A
5.	Up-gradation of Jhalahi-Sano Nahar-Bharuwa Point-Padariya-Dighwa Road	4.226	1, 10, 11	Road lies in Right embankment of Irrigation Canal.
6.	Up-gradation of Boriya - Ranjitpur - Airport Road	1.715	16	N/A
7.	Up-gradation of Badi Nahar along bank of Sano Nahar to Piprahi Road	1.263	13	Road lies in Left embankment of Small Irrigation Canal
8.	Up-gradation of Maleth Nahar Chowk to West Thalahi Canal Road	1.258	9	Road lies in Left embankment of Koshi Irrigation Canal
9.	Up-gradation of Rupani Road-Biharpur-Krishnanagar-North canal Road	1.087	9	Road ends at canal embankment road.

School

The school boundary wall of Shree Adharbut Vidyalaya, Pirprahi in Badi naha, Kadmaha Tole-Damawati-Piprahi-Khado Khola Road needs to be shifted from the upgrading works of the road. The location of the school with road chainage is presented in Table below. The cost for shifting of boundary wall of the school has been allocated in the ESMP.

Table 2-3: School in and near the road alignment

S.N.	Chainage	School Name	Road Name	Remarks
1	2+140 – 2+200	Shree Adharbut Vidyalaya, Piprahi	Badi nahar, Kadmaha Tole – Damawati – Piprahi – Khado Khola Road	School boundary wall shifting cost is allocated in ESMP.

Source: Field Survey, 2023

Ponds

The list of ponds which lies along the alignment are presented below. The road constructions works will not affect the ponds structure, however protective measures will be considered as required.

Table 2-4: Pond in and near the road alignment

S.N.	Chainage	Settlement Name	Road Name
1	2+100– 2+145	Piprahi	Badi nahar, Kadmaha Tole – Damawati – Piprahi – Khado Khola Road
2	0+000- 0+070	Bhelahi	Khado Khola – Piprahi Bhelahi – Lawa Toliya Bhelhai Road
3	0+200- 0+230	Kharshal Pond	Sujit Pokharel House to north – Chandi Das Mill – Shiva Temple Road
4	0+950- 1+020	Biharpur	Rupani Road to Biharpur Krishna Nagar Canal Road

Source: Field Survey, 2023

Electrical Poles

The number of electrical poles listed below need to be shifted during the construction phase.

Table 2-5: Existing electric pole within Badi Nahar, Kadmaha Tole – Damawati – Piprahi – Khado Khola Road

S.N.	Chainage	Side from (Center Line of Road)	S.N.	Chainage	Side from (Center Line of Road)
1	0+000	Left	16	1+668	Right
2	0+055	Left	17	1+710	Right
3	0+110	Left	18	1+747	Right
4	0+180	Left	19	1+778	Right
5	1+160	Left	20	1+799	Right
6	1+208	Right	21	1+905	Left
7	1+258	Right	22	1+960	Left
8	1+309	Right	23	2+042	Right
9	1+350	Right	24	2+090	Right
10	1+455	Right	25	2+158	Left
11	1+496	Left	26	2+212	Right
12	1+530	Right	27	2+262	Right
13	1+570	Left	28	2+335	Right
14	1+580	Left	29	2+380	Right
15	1+620	Right			

Table 2-6: Existing electric pole within Khado Khola – Piprahi Bhelahi – Lawa Toliya Bhelahi Road

S.N.	Chainage	Side from (Center Line of Road)	Remark
1	0+000	Left	
2	0+055	Left	
3	0+110	Left	
4	0+180	Left	
5	0+258	Right	
6	0+309	Right	
7	0+350	Right	
8	0+455	Right	
9	0+530	Right	

Source: Field Survey, 2023

Table 2-7: Existing electric pole within Cold Store Road – Ram Janaki Mandir – Khado Bandh Road

S.N.	Chainage	Side from (Centre Line)	Remark
1	0+350	Left	
2	0+565	Left	

Source: Field Survey, 2023

Table 2-8: Existing electric pole within the Sujit Pokharel House – north Chandi Das Mill – Shiva Temple Road

S.N.	Chainage	Side from (Centre Line)	Remark
1	0+005	Right	
2	0+075	Right	
3	0+105	Right	
4	0+160	Left	
5	0+195	Right	
6	0+350	Right	
7	0+392	Right	
8	0+438	Right	

Source: Field Survey, 2023

Table 2-9: Existing electric pole with in Jhalahi – Sano nahar – Bharuwa Point – Padariya – Dighawa Road

S.N.	Chainage	Side from (Centre Line of Road)	Remark
1	1+145	Left	
2	2+500	Right	
3	2+560	Right	
4	2+600	Right	
5	2+625	Left	
6	2+900	Left	
7	3+260	Right	
8	3+660	Right	
9	3+850	Left	
10	4+210	Left	

Source: Field Survey, 2023

Table 2-10: Existing electric pole within Boriya (Petrol Pump – Ranjitpur – Airport Road

S.N.	Chainage	Side from (Centre Line of Road)	Remark
1	0+005	Left	
2	0+120	Left	
3	0+490	Right	
4	0+518	Right	
5	0+560	Right	
6	0+600	Right	

S.N.	Chainage	Side from (Centre Line of Road)	Remark
7	0+630	Left	
8	0+670	Right	
9	0+720	Left	
10	0+780	Left	
11	0+880	Left	
12	0+935	Right	

Source: Field Survey, 2023

Table 2-11: Existing Electric pole within Badi Nahar (Along bank of Sano Nahar) – Piprahi Road

SN	Chainage	Side from (Centre Line of Road)	Remark
1	0+056	Right	
2	0+115	Right	
3	0+120	Right	
4	0+166	Right	
5	0+217	Right	
6	0+275	Right	
7	0+280	Right	
8	0+340	Right	
9	0+410	Right	
10	0+481	Right	
11	0+520	Right	
12	0+560	Right	
13	0+628	Right	
14	0+710	Right	
15	0+795	Right	
16	0+860	Right	
17	0+922	Right	
18	0+981	Right	
19	1+057	Right	
20	1+117	Right	
21	1+170	Right	2 poles of Transformer

Source: Field Survey, 2023

Table 2-12: Existing electric pole within Maleth Nahar Chowk to West Thalahi Canal Road

S.N.	Chainage	Side from (Centre Line of Road)	Remark
1	0+005	Left	
2	0+034	Left	
3	0+069	Left	
4	0+120	Left	
5	0+170	Left	
6	0+225	Left	
7	0+375	Left	

Source: Field Survey, 2023

Table 2-13: Existing electric pole within Rupani Road – Biharpur Krishna Nagar Canal Road.

S.N.	Chainage	Side from (Centre Line of Road)	Remark
1	0+075	Right	
2	0+336	Right	
3	0+369	Right	
4	0+371	Left	
5	0+495	Left	
6	0+568	Left	
7	0+651	Left	
8	1+041	Left	

Source: Field Survey, 2023

2.6 Demography of the project area

According to NPHC 2021, the total population of Rajbiraj Municipality is 70,803 with 36,284 males and 34,519 females. The total households recorded in the municipality is 14,133. The population density of the municipality is 12.81 and sex ratio 1.051.

Table 2-14: Ward wise Population of Rajbraj Municipality

Ward	Male	Female	Total	Sex Ratio
1	3375	3333	6708	1.013
2	2997	2855	5852	1.050
3	1236	1176	2412	1.051
4	1419	1328	2747	1.069
5	1416	1311	2727	1.080
6	3234	3135	6369	1.032
7	2719	2443	5162	1.113
8	2864	2564	5428	1.117
9	3932	3919	7851	1.003
10	2387	2517	4904	0.948
11	2199	2040	4239	1.078
12	1786	1660	3446	1.076
13	1953	1761	3714	1.109
14	1394	1362	2756	1.023
15	1883	1729	3612	1.089
16	1490	1386	2876	1.075
Total	36284	34519	70803	

Source: NSO, 2021.

2.7 Settlements

The major settlements existing along the proposed road alignment are presented in figures below..

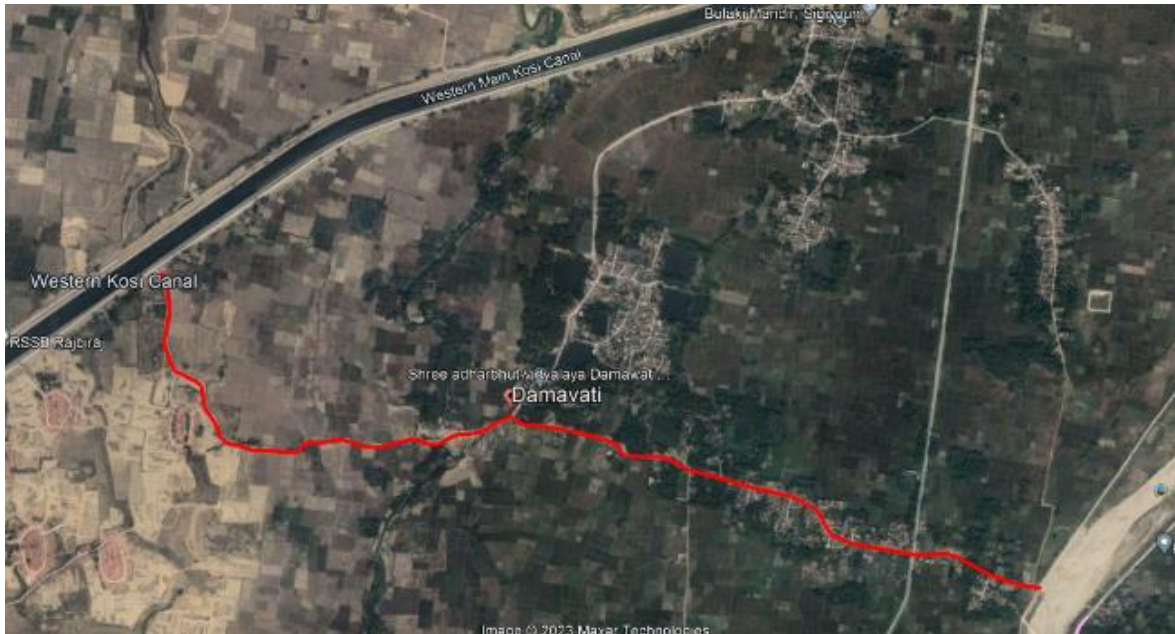


Figure 2-2: Major Settlement at Badi Nahar, Kadmaha Tole –Damavati –Piprahi- Khado Khola Road, Ward 12 & 13

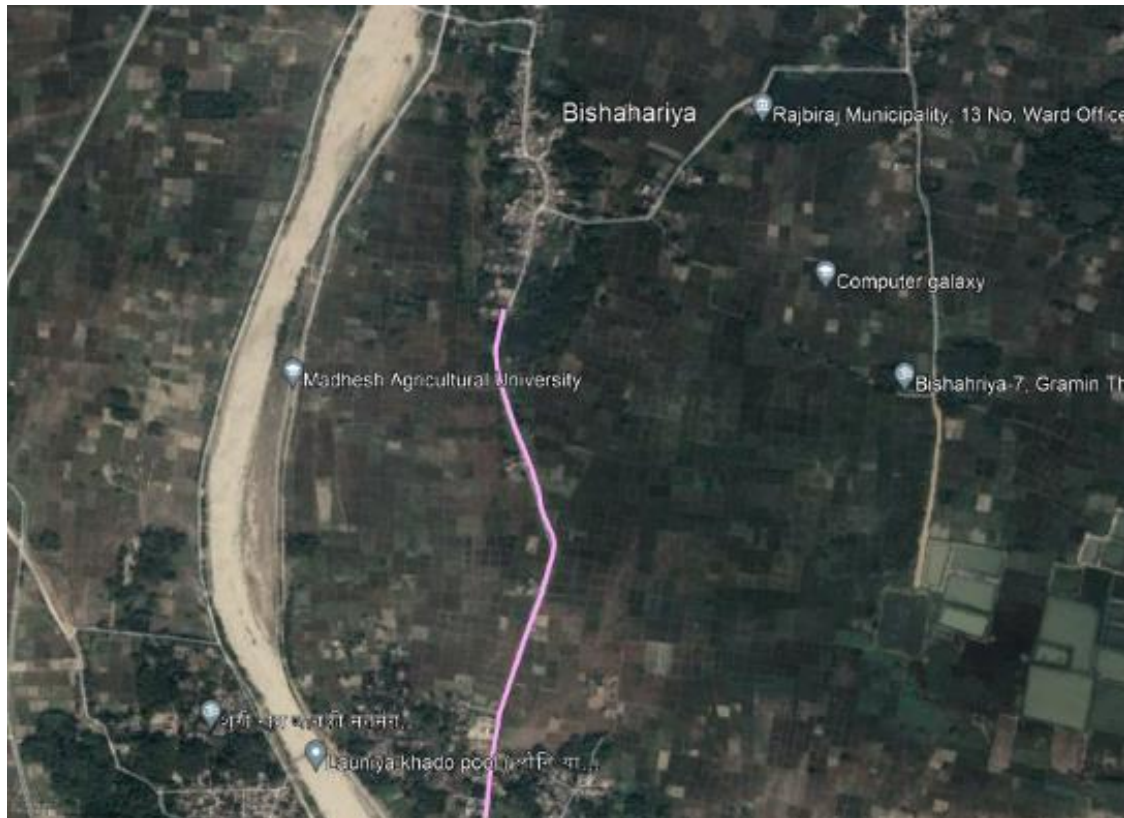


Figure 2-3: Major Settlement at Khado Khola – Piprahi Bhelahi – Lawa Toliya Bhelahi Road, Ward 13

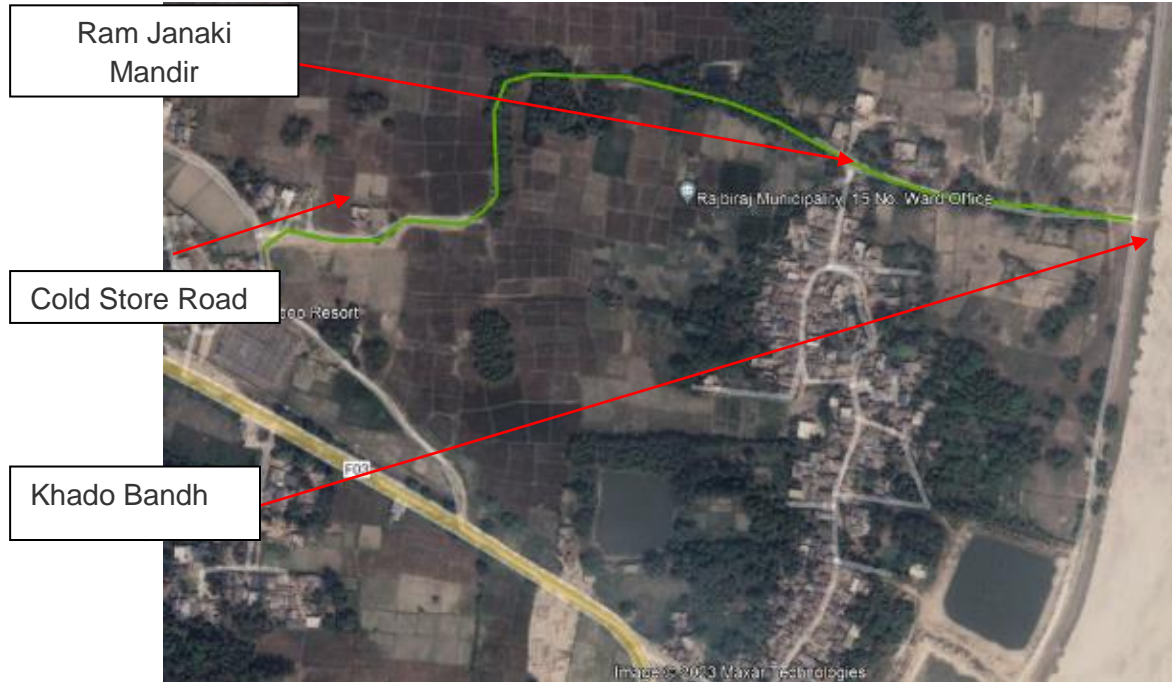


Figure 2-4: Major Settlement at Cold Store Road – Ram Janaki Mandir – Khado Bandh Road, Ward 15



Figure 2-5: Major Settlement at Sujit Pokharel House to north Chandi Das Mill – Shiva Temple Road, Ward 7

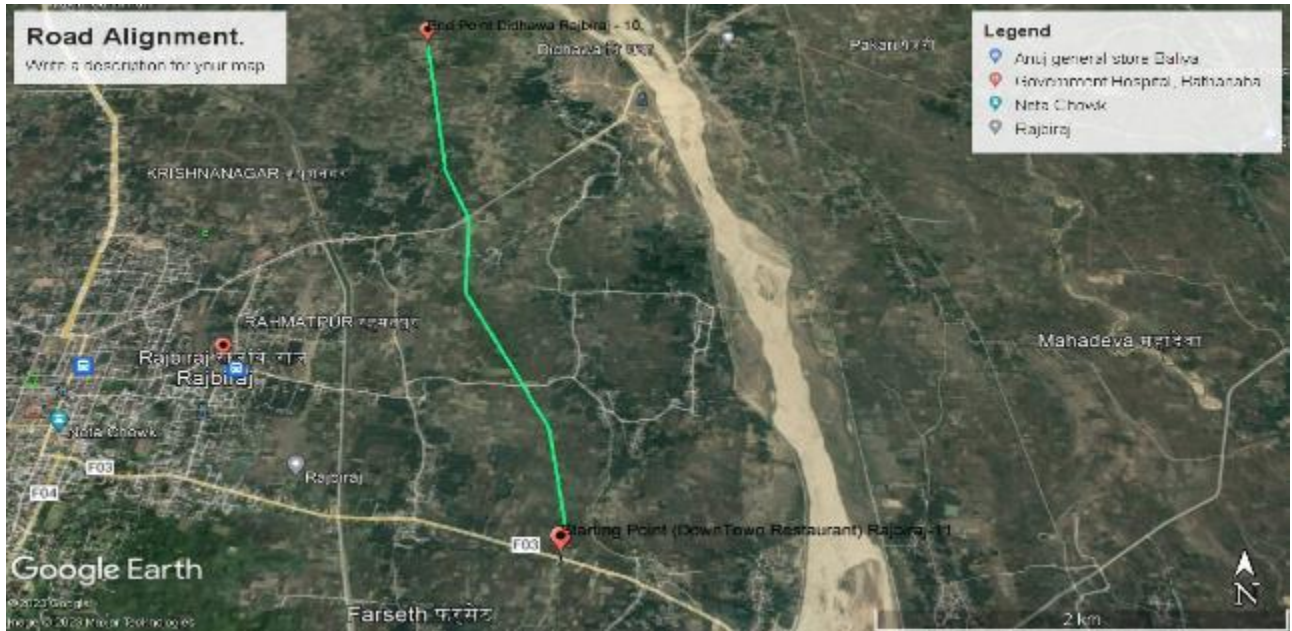


Figure 2-6: Major Settlement at Jhalahi ,Sano Nahar- Bharuwa Point – Padariya – Dighawa Road, Ward 1, 10, 11

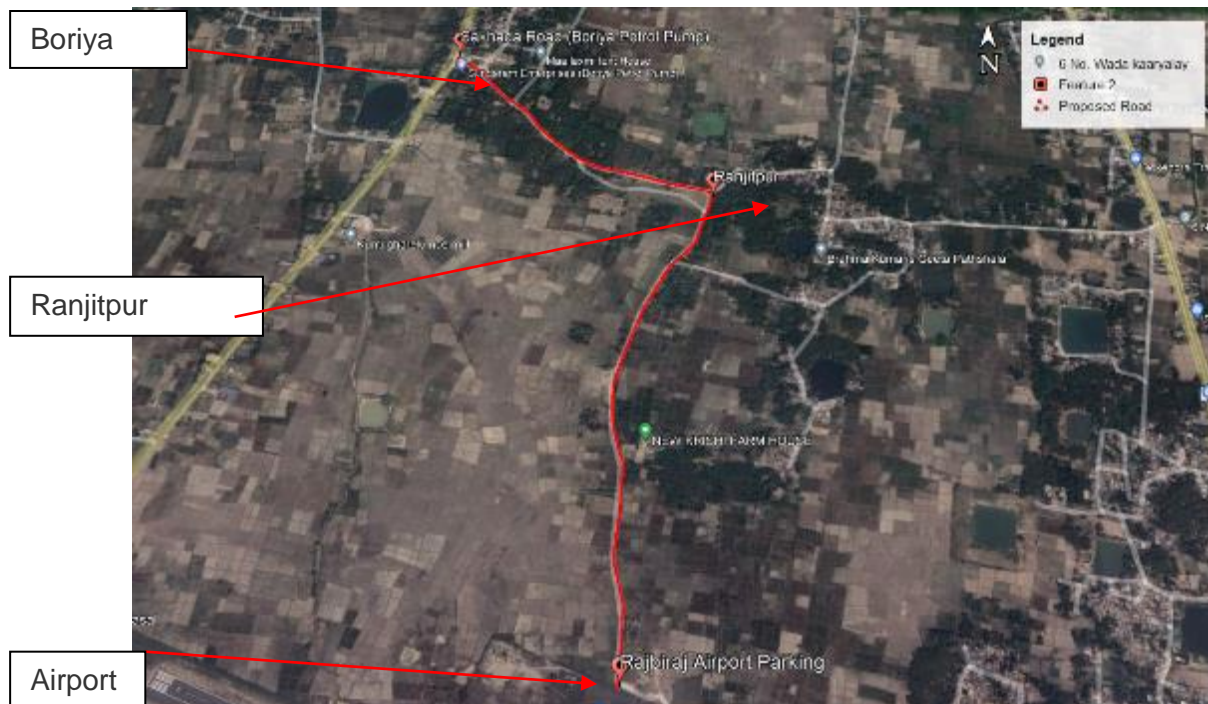


Figure 2-7: Major Settlement at Boriya – Ranjitpur – Airport Road, Ward 16

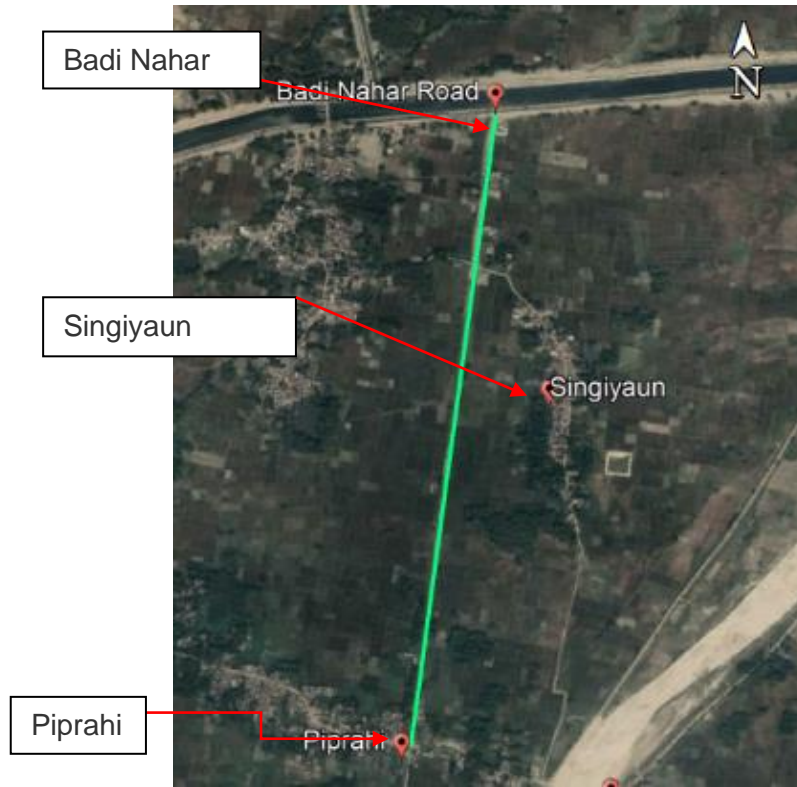


Figure 2-8: Major Settlement at Badi Nahar (Along bank of Sano Nahar) – Piprahi Bhelahi Road, Ward 13



Figure 2-9: Major Settlement of Maleth Nahar Chowk – West Thalahi Canal Road, Ward 9

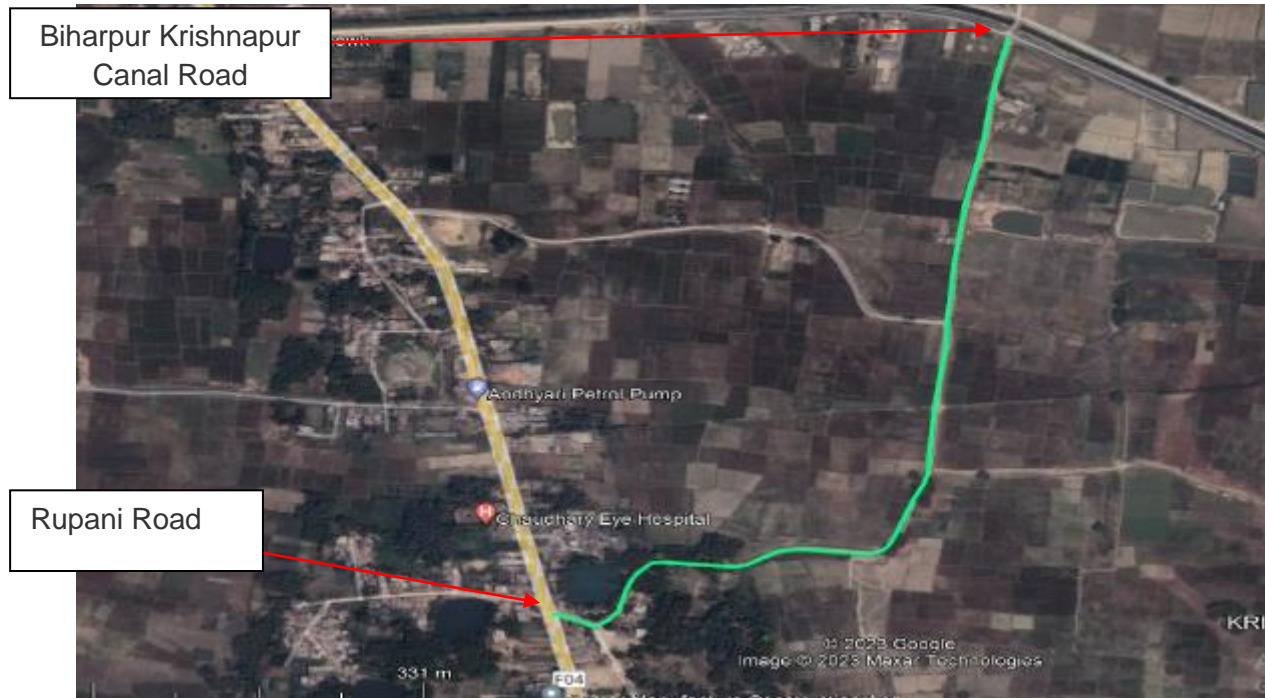


Figure 2-10: Major Settlement at Rupani Road to Biharpur Krishna Nagar Canal Road, Ward 9

2.8 Land availability

The project area consists of settlement areas and cultivated land. The RoW of the sub-project roads was declared 10m on December 2012. In addition, the roads are already demarcated in the cadastral map and the ownership lies with the municipality (Annex 9) apart from the proposed three roads (i.e. Maleth Nahar Chowk – West Thalahi Canal Road, Jhalahi, Sano Nahar – Bharuwa Point – Padariya – Dighwa Road and Badi Nahar along the sano Nahar – Piprahi Road) which ownership lies with the Department of Irrigation (DOI), Koshi Pump, and Chandra Nahar Irrigation Management Office. DOI has permitted for the road design works and will provide the necessary permission only after the review of prepared road design. Thus, land ownership transfer for the proposed sub-project roads is not required. The joint meeting of Rajbiraj Municipality, Koshi Pump Nahar Project Office and DO Irrigation User Committee was held on 25th February 2024. From the meeting, permission was granted for the construction of the proposed three roads (i.e. Maleth Nahar Chowk – West Thalahi Canal Road, Jhalahi, Sano Nahar – Bharuwa Point – Padariya – Dighwa Road and Badi Nahar along the sano Nahar – Piprahi Road) passing along the embankment of canal. The meeting minutes and letter received from DOI, Koshi Pump, and Chandra Nahar Irrigation Management Office is attached in Annex 2.

Although, the land ownership is already under Government ownership (Rajbiraj Municipality and DOI), the width of the road from 10m for some of the proposed sub-project roads is reduced as per the site condition to avoid the permanent structures shifting and to minimize the associated adverse impacts. The cadastral map of proposed road section has been attached in Annex-9. The Badi Nahar, Kadmaha Tole – Damawati– Piprahi –Khado Khola Road alignment passes through Musahar settlement, a marginalized community from Ch. 1+180 Km to Ch. 2+385 Km. The houses of Musahar Community in this section lie within the Right of Way (RoW) of the road and

are built in the Government land without adequate space for shifting adjacent to its existing location.). The existing width of the road in this section is varying from 4m to 5m. Therefore, to avoid adverse impacts from structure relocation and shifting on the Musahar community, the proposed road formation width has been reduced upto 5-6m in this section. By reducing the road to this width the proposed road will be constructed within existing available width. Remaining road section of this road is clear in terms of structures and publicly in use. Separate consultation with the community lies in this road was also carried out which are included in Annex 2.

Similarly, in Sujit Pokharel House to north – Chandi Das Mill – Shiva Temple road, width is reduced to 8.5m from chainage 0+410 to 0+430) to protect the Peepal tree with remaining section in public use. From the meeting between DOI and Rajbiraj Municipality (Annex 2), it was recommended to consider carriage width 4.5m for Up-gradation of Jhalahi – Sano Nahar – Bharuwa Point – Padariya _Dighawa Road and 6.0m for Badi Nahar along bank of Sano Nahar to Piprahi Road. Similarly, it was recommended to consider 6.0m carriage width for Maleth Nahar Chowk to West Thalahi Canal Road.

The local communities are willing to provide necessary support for the implementation of the project as discussed documented from the public consultation. The consultation meeting minutes in presence of ward chair was conducted for all the sub-project roads and is attached in Annex 2.

Thus, there are no any impacts on, private or public or permanent structures, and additional land due to up-gradation works. The necessary consultation with locals in presence of ward chairs was conducted (Meeting Minutes is attached in Annex 2).

2.9 Impact and Mitigation Measures at Musahar Community Settlement

The Badi Nahar, Kadmaha Tole – Damawati – Piprahi Tole – Khado Khola Road Section pass through a Musahar settlement. Since the existing road width is up to 4-5m and clear formation width of 6m, the road section is reduced up to 5-6m for the adverse impact in the settlement of these communities. Asphalt concrete is purposed as finishing pavement in all roads. Here, in these settlement most of house were constructed with bamboo structure in mud mortar. These structures might be severely affected by vibration produced due to use of heavy equipment. Hence, to avoid the impact in this settlement, rigid pavement is purposed instead of flexible pavement (asphalt concrete).

Musahar community (falls under vulnerable category, hence vulnerable community development plan (VCDP) report is prepared for uplifting their living standard which is attached in Annex 12. The household survey of individual indicates that most of the people work as daily wage labours. To enhance the living standard for these communities, a construction skill training will be conducted which are detailed in VCDP report. Through these training, people from these communities would be benefit and employment opportunity for them will also be given during the construction period.

Due to narrow existing road width, following mitigation measures are listed below.

- CGI Barrier will be installed at the side of the road along the Musahar Community to avoid direct impact upon the community due to the construction activities.

- The construction work will be carried out in phase wise. Rigid pavement has been proposed along the Musahar Community with the total length of 200m. The construction will be carried out manually without applying any machinery appliances along the section. Construction of rigid pavement will be carried out half width along the alignment. Remaining half width of the alignment will be paved after the operation of the constructed half width along the Musahar Community.
- Further, the adequate safety signs will be installed at different locations to avoid accident.
- Safety awareness and trainings will be provided to the Musahar community (priority will be given to Women and Children) prior to and during the time of construction.
- Contractor will provide employment to the family members of the affected households along the Musahar community during the time of construction.

2.10 Physical Structures

There are no public as well as private structures present along the formation width of this project area, however in road Badi Nahar, Kadmaha Tole – Damawati – Piprahi Tole – Khado Khola Road irrigational canal crosses at chainage 2+090 m During separate consultation with marginal Musahar community, land & property owner along the road, information about project and possible impact due to road were discussed. As per the consultation minutes, road formation width was reduced to 5-6 m to avoid the adverse impact in the temporary and permanent of marginal community from ch: 1+180 – 2+385. Similarly, three roads (Jhalahi – Bharuwa Point – Padariya – Dighawa Road, Maleth Nahar Chowk – West Thalahi Canal Road & Badi Nahar (Along bank of Sano Nahar) – Piprahi Road) lies in embankment of canal and necessary protection measures need to be obtained. Table below shows numbers electricity poles need to be relocated before construction works. The cost of shifting these 85 electric poles is included in BOQ which is estimated by Nepal Electrical Authority (NEA), Rajbiraj for shifting. However, there are 21 number of electrical poles lies in road way in Badi Nahar (along the bank of Sano Nahar) – Piprahi Tole but none of them need to be shifted because all of the lies in canal side. (Cost Estimate is attached in Annex 7).

Table 2-15: Electric Poles that need to be shifted

S/N	Name of the road	No. of Electrical Poles
1.	Up-gradation of Badi Nahar, Kadmaha Tole - Damabati - Piprahi - Khado Khola Road	29
2.	Up-gradation of <i>Khado Khola - Law Toliya Bhelahi Road</i>	9
3.	Up-gradation of <i>Cold Store-Ram Janaki Mandir-Khado Bandh Road</i>	2
4.	Up-gradation of <i>Sujit Pokhrel House to North Chandi Das Mill-Shiv Mandir Road</i>	8
5.	Up-gradation of <i>Jhalahi-Sano Nahar-Bharuwa Point-Padariya-Dighwa Road</i>	10
6.	Up-gradation of <i>Boriya - Ranjitpur - Airport Road</i>	12
7.	Up-gradation of <i>Badi Nahar along bank of Sano Nahar to Piprahi Road</i>	21
8.	Up-gradation of <i>Maleth Nahar Chowk to West Thalahi Canal Road</i>	7
9.	Up-gradation of <i>Rupani Road-Biharpur-Krishnanagar-North canal Road</i>	8

Source: field study 2023

2.11 Caste/Ethnicity

According to NPHC 2021, the proposed project area is inhabited by Terai Brahmin, Yadav, Musalman, Musahar, Dhanuk etc. The caste/ethnicity details of proposed road alignment are presented below.

Table 2-16: Caste/Ethnicity of People along proposed road alignment

Caste/Ethnicity	Ward number								
	1	7	9	10	11	12	13	15	16
Yadav	1892	1456	2214	1383	1195	972	1047	1019	811
Musalman	792	609	926	579	500	407	438	426	339
Dhanuk	490	377	573	358	309	252	271	264	210
Teli	483	372	565	353	305	248	267	260	207
Musahar	302	232	353	221	191	155	167	163	129
Kathabaniyan	288	222	338	211	182	148	160	155	124
Khatwe	241	186	283	177	153	124	134	130	104
Chamar/Harijan/Ram	228	176	267	167	144	117	126	123	98
Brahman - Tarai	228	176	267	167	144	117	126	123	98

Caste/Ethnicity	Ward number								
Dev	195	150	228	142	123	100	108	105	83

Source: NPHC 2021

2.12 GBV, SEA / SH

Based on data gathered from Gajendra Narayan Singh Hospital in Rajbiraj, many forms of gender-based violence (GBV) are present in the project area and municipality. During the course of ESMP preparations, consultations were held with 416 participants. This consultations also included gathering information on GBV and SEA/SH issues. The participants included 320 (76.92%) male participants and 96 female participants (23.08%). The consultant meetings participants data disaggregated by gender, caste and ethnicity is provided in Table 2-15.

Locals who participated in the meetings and discussions reported that there is domestic (mental and physical) abuse as well as drug and alcohol consumption within the project area. The District Police Office's records also demonstrate the existence of violence in the Municipality. The table below provides specifics about the prevalence of violence in the municipality.

Table 2-17: GBV cases details of Municipality

GBV cases details of Municipality					
F/Y	Rape	Sexual Abuse	Domestic Violence	Child Marriage	Others
2079/80	50	10	328	1	30
2080/81	15	8	170	0	14
Total	65	18	498	1	44

Source: Gajendra Narayan Singh Hospital, Rajbiraj (Refer Annex 8)

The data that was previously presented indicates that there are many forms of GBV present in the project area and municipality. Thus, the highest priority GBV and SEA/SH concerns are being planned for mitigating actions. Plans and implementation of necessary mitigation programs take place while the subproject is being built. Prioritizing the following topics related to violence:

- Domestic Violence (Physical, Mental and Economic abuse)
- Rape
- Child Abuse/Marriage
- Gender Based Violence

Locals brought up violence-related issues such as drug misuse, economic violence, and physical and mental abuse throughout the talks. We go over further information below.

AS part of the SEA/SH mitigation measures and project compliance, an Anti-Harassment Cell with a designated focal person has been established in Rajbiraj Municipality. As the municipality's GBV focus person, Mrs. Kanchan Kumari Das has been appointed as the focal person. The letter pertaining to the focal person's deputation is included in the Annex 2. The role and responsibilities of the Anti-Harassment Cell's founding was to address sexual harassment situations quickly, offering the victim compassionate support and guaranteeing that harassment would not occur again by handling the issue appropriately.

Table 2-8: Consultation meeting participants details disaggregated by Gender, Cast and Ethnicity

SN	Category	Road 1		Road 2		Road 3		Road 4		Road 5		Road 6		Road 7		Road 8		Road 9		Total	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1	Yadav	24	4	16	7	23	4	22	3	42		12	2	19	5	11	5	11	5	180	35
2	Musalman															1	2	1	2	2	4
3	Dev			3					2		8	1	1	2		1	4	1	4	8	19
4	Sutihar				1					1				7	4		1		1	8	7
5	Shah					3		2		3				6	2					14	2
6	Das									1		10	4							11	4
7	Khang	6	1	1						16	2			1	1					24	4
8	Chaudhary	2		2		1		1	1	4	2	1		4		1		1		17	3
9	Brahmin							1	2	1		2		1	1					5	3
10	Mandal	9	8			1		3		3		1		5	1	2	1	2	1	26	11
11	Mohato																			0	0
12	Thakur															9	1	9	1	18	2
13	Others									1						3	1	3	1	7	2
	Total	41	13	22	8	28	4	29	8	72	12	27	7	45	14	28	15	28	15	320	96

Note:

- Road 1 Up-gradation of Badi Nahar, Kadmaha Tole - Damabati - Piprahi - Khado Khola Road
- Road 2 Up-gradation of Khado Khola - Law Toliya Bhelahi Road
- Road 3 Up-gradation of Cold Store-Ram Janaki Mandir-Khado Bandh Road
- Road 4 Up-gradation of Sujit Pokhrel House to North Chandi Das Mill-Shiv Mandir Road
- Road 5 Up-gradation of Jhalahi-Sano Nahar-Bharuwa Point-Padariya-Dighwa Road
- Road 6 Up-gradation of Boriya - Ranjitpur - Airport Road
- Road 7 Up-gradation of Badi Nahar along bank of Sano Nahar to Piprahi Road
- Road 8 Up-gradation of Maleth Nahar Chowk to West Thalahi Canal Road
- Road 9 Up-gradation of Rupani Road-Biharpur-Krishnanagar-North canal Road

Source: Field study 2023

Mitigation measures for GBV/SEA/SH issues in project area with stakeholders

In order to mitigate SEA/SH and GBV during the construction phase, the following actions are suggested and will be carried out; these must also be continued during the operating stage. A mitigation action plan and an estimated budget is estimated and is included in the DPR in order to carry out these operations. Contractors have overall responsibility for carrying out these tasks in close collaboration with PIU/DSC.

- Awareness programs related to women/girls of project area and workers, for **reduction of rape cases/Attempt to rape cases**.
- Awareness program for local peoples regarding **Domestic Violence (Physical, Mental and Economic abuse)** present in the project area.
- Orientation to girls in Schools and local people for **reduction of Child abuse and Child Marriage**.
- Awareness program **for Dowery System (marginalized Madheshi communities)**
- Establishment of Anti-Harassment Cell in Municipality and assign a Focal Person in the Municipality.
- Conduct an orientation program on code of conduct for contractors and subcontractors to manage GBV/SEA/SH risks during construction phase and Implementation of Code of Conduct on SEA/SH behavior and the provision of punishment for breaching of the code of the conduct. SEA/SH related orientation to female workers by providing female labor-centric facilities such as separate female toilets, separate female camps, separate family camps and mother's rooms on the site.

The implementation Schedule for Mitigation Measures for GBV, SEA/ SH is attached in Annex 8.

3. DESCRIPTION OF THE PROJECT AND ITS ACTIVITIES

The proposed road project is one of the major road alignments of Rajbiraj Municipality. It serves the agriculture as well as tourism area of the municipal area and as connect local settlement to National Highway and Feeder Road. Increment of agricultural production, promotion of local tourism and accessibility to local and urban market are keys outcome for the development of the municipalities and adjoining areas depends on this road. At the same time, the proposed road will bring social justice for the balance development of the entire city.

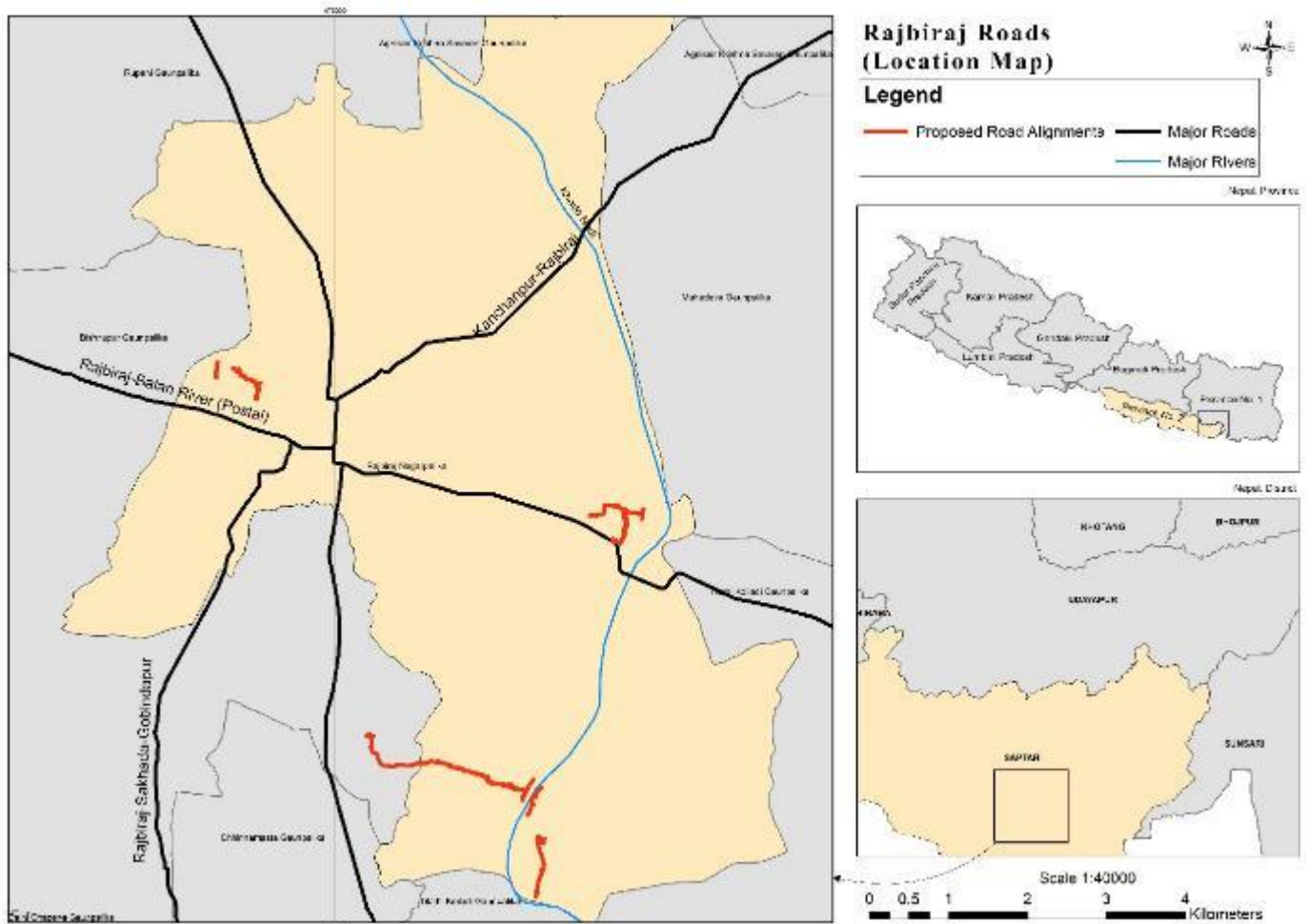


Figure 3-1: Index Map

3.1 Salient Features of the Project

The project is expected to contribute toward the connectivity of local backward settlement to urban area promoting local production and tourism, infrastructural development and institutional development of municipality.

Table 3-1: Details of Proposed Road Up-gradation Project

Name of Project: Design and Supervision Consultancy for Nepal Urban Governance and Infrastructure Project (NUGIP)			
Features	Badi Nahar, Kadmaha Tole – Damawati – Piprahi – Khado Khola.	Khado Khola - Law Toliya Bhelahi Road	Cold Store-Ram Janaki Mandir-Khado Bandh Road
Geographical Location	Province : Madhesh		
	District : Saptari		
	Starting Point: Kadmaha Tole (Badi Nahar) Coordinates: 86°45'13.09"E 26°30'15.96"N	Starting Point: Khado Khola Coordinates: 86°46'29.77"E 26°29'33.22"N	Starting Point: Cold Store Coordinates: 86.781458° 26.529474°
	Ending Point: Khado Khola Coordinates: 86°46'24.60"E 26°29'52.81"N	Ending Point: Lawa Toliya Bhelahi Coordinates: 86°46'24.60"E 26°29'52.81"N	Ending Point: Khado Khola Bandh Coordinates: 86.788108 26.529670
Geographical Feature	Physiography: Terai Terrain : Plain Climate : Humid Sub Tropical Geology : Fluvial Deposits mostly containing sand, silt, clay and boulders		
Classification of Road	Classification : Urban Roads Existing Surface : Gravel road Design Speed : 60 kmph		

	Traffic (PCU) : 182.37				Traffic (PCU) : 111.32				Traffic (PCU) : 154.13			
	MSA Value : 0.73				MSA Value : 0.37				MSA Value : 0.44			
Length of Road	2.385 km				0.778 km				0.77263 km			
Cross Section of Road	Right of Way (Proposed) : 10m											
	Road Attributes:				Road Attributes:				Road Attributes:			
	Existing			Proposed	Existing		Proposed		Existing		Proposed	
	Road Width : 6 m upto Ch: 1+130 & 4m (Ch:1+130 to 2+385 section)			Road Width : 10 m [proposed (4-5 m.) in Ch: 1+1800 to 2+385 section]	Road Width : 4 - 6 m		Road Width : 10 m		Road Width : 4 - 6 m		Road Width : 10 m	
	Carriageway Width : 4 m with 1.0m shoulder (upto Ch: 1+130)			Carriageway Width : 6.0 m (proposed 3.0 m. in Ch: 1+180 to 2+385 section)	Carriageway Width : 3 m with 4m		Carriageway Width : 6 m		Carriageway Width : 3 m with 4m		Carriageway Width : 6 m	
	Shoulder Width : 2.0 m (Only on non-settlement area for further Extension)											
	Footpath : 0.65 m and 1m covered drain total 1.65m											
	Width of Side Drain				Width of Side Drain				Width of Side Drain			
	Top Width	Bottom Width	Depth	Length	Top Width	Bottom Width	Depth	Length	Top Width	Bottom Width	Depth	Length
	1.0m	1.0m	0.6-0.8 m	425 m	1.0m	1.0m	0.6-0.8 m	62m	No	No	No	No Drain

		(clear)				(clear)		Drain	Drain	Drain	
	Type of Drain : RCC Cover Drain										
	Camber Slope : 2.50%										
	Minimum Radius of Horizontal Curve : 110m (Reduced up to 60% for Intersection)										
	Maximum Gradient : 3%										
	Minimum Gradient : 0.3%										
	Design Life : 20 Years										
	Estimated Construction Period : 13 Months										
Pavement Details	Sub-base : 150mm										
	Base : 150mm										
	Pavement : 40mm Asphalt Concrete										
Structures	Culverts:	Bridges	Culverts:	Bridges	Culverts:	Bridges					
	Pipe Culverts: Diameter: 0.9m Numbers : 9 Length of Each : 10m	Existing Bridge. Span : 35m Carriage Width: 6m Number : 1 Chainage: 0+910 – 0+945	Pipe Culverts: Diameter: 0.9m Numbers : 3 Length of Each : 10m		Pipe Culverts: Diameter: 0.9m Numbers : 4 Length of Each : 10m						
	Slab Culverts:		Slab Culverts:		Slab Culverts:						

Earthworks	Cut	Fill	Cut	Fill	Cut	Fill
	3439.03 cum	6037.02 cum	658.211 cum	3746.27 cum	495.22 cum	3717.59 cum
Surfacing	Sub-base	Base	Sub-base	Base	Sub-base	Base
	2747.47 cum	2045.69 cum	1112.97 cum	725.90 cum	1289.53 cum	788.47 cum

Name of Project: Design and Supervision Consultancy for Nepal Urban Governance and Infrastructure Project (NUGIP)

Features	Road From Sujit Pokharel House – Chandi Das Mills – Shiva Temple	<i>Jhalahi – Sano Nahar – Bharuwa Point – Padariya – Dighwa Road</i>	<i>Boriya (Petrol Pump) - Ranjitpur - Airport Parking Road</i>
Geographical Location	Province : Madhesh; District : Saptari		
	Starting Point: Sujit Pokharel Coordinates: 86°44'20.35"E 26°32'34.29"N	Starting Point: Opposite of Downtown Restaurant (Jhalahi, Rajbiraj Road) Coordinates: 86°46'33.82"E 26°31'49.39"N	Starting Point: Cold Store Coordinates: 86.781458° 26.529474°
	Ending Point: Shiva Temple Coordinates: 86°44'1.94"E 26°32'42.55"N	Ending Point: Dighwa Canal Road Coordinates: 86°45'55.56"E 26°34'0.96"N	Ending Point: Khado Khola Bandh Coordinates: 86.788108 26.529670
Geographical Feature	Physiography: Terai Terrain : Plain		

	Climate : Humid Sub Tropical					
	Geology : Fluvial Deposits mostly containing sand, silt, clay and boulders					
Classification of Road	Classification : Urban Roads					
	Existing Surface : Gravel road					
	Design Speed : 60 kmph					
	Traffic (PCU) : 129.87		Traffic (PCU) : 108.46		Traffic (PCU) : 117.03	
MSA Value : 0.33		MSA Value : 0.36		MSA Value : 0.39		
Length of Road	0.766 km		4.266 km		1.715 km	
Cross Section of Road	Right of Way (Proposed) : 10m					
	Road Attributes:		Road Attributes:		Road Attributes:	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
	Road Width : 4 - 6 m	Road Width : 10 m (proposed 8.5 m from chainage 0+410 to 0+430)	Road Width : 4 - 6 m	Road Width : 10 m	Road Width : 4 - 6 m	Road Width : 10 m
	Carriageway Width : 3 m - 4m	Carriageway Width : 6 m	Carriageway Width : 3 m - 4m	Carriageway Width : 4.5 m	Carriageway Width : 3 m - 4m & (4m RCC pavement road (Ch:0+400-0+600))	Carriageway Width : 6 m & (6m RCC pavement road (Ch:0+400-0+600))

	Shoulder Width : 2.0 m (Only on non-settlement area for further Extension)											
	Footpath : 0.65 m and 1m covered drain total 1.65m											
	Width of Side Drain				Width of Side Drain				Width of Side Drain			
	Top Width	Bottom Width	Depth	Length	Top Width	Bottom Width	Depth	Length	Top Width	Bottom Width	Depth	Length
	1.0m	1.0m	0.6-0.8 m (clear)	192 m	No Drain	No Drain	No Drain	No Drain	No Drain	No Drain	No Drain	No Drain
	Type of Drain : RCC Cover Drain											
	Camber Slope : 2.50%											
	Minimum Radius of Horizontal Curve : 110m (Reduced up to 60% for Intersection)											
	Maximum Gradient : 3%											
	Minimum Gradient : 0.3% but for <i>Jhalahi – Sano Nahar – Bharuwa Point – Padariya – Dighwa Road it is 0.2%.</i>											
	Design Life : 20 Years											
	Estimated Construction Period : 13 Months											
	Pavement Details	Sub-base : 150mm										
Base : 150mm												
Pavement : 40mm Asphalt Concrete												
Structures	Culverts:			Bridges			Culverts:			Bridges		
	Pipe Culverts:						Pipe Culverts:					

	Diameter: 0.9m Numbers : 4 Length of Each : 10m		Diameter: 0.9m Numbers : 14 Length of Each : 7.5m		Diameter: 0.9m Numbers : 5 Length of Each : 10m	
	Slab Culverts:		Slab Culverts:		Slab Culverts:	
Earthworks	Cut	Fill	Cut	Fill	Cut	Fill
	853.61 cum	1968.10 cum	2597.14 cum	11284.17 cum	904.034 cum	9272.65 cum
Surfacing	Sub-base	Base	Sub-base	Base	Sub-base	Base
	1714.92 cum	819.39 cum	3824.14 cum	3996.80 cum	2864.72 cum	1557.29 cum

Name of Project: Design and Supervision Consultancy for Nepal Urban Governance and Infrastructure Project (NUGIP)			
Features	<i>Badi Nahar (along bank of Sano Nahar) – Piprahi Road</i>	<i>Maleth Nahar Chowk to West Thalahi Canal Road</i>	<i>Rupani Road to Biharpur Krishna Nagar Canal Road</i>
Geographical Location	Province : Madhesh		
	District : Saptari		
	Starting Point: Piprahi (Sano Nahar, Slab Culvert) Coordinates: 86°46'13.96"E 26°29'55.49"N	Starting Point: Maleth Nahar Chowk Coordinates: 86°34'38.62"E 26°33'44"N	Starting Point: Rupani Road Coordinates: 86°44'50.22"E 26°33'19.09"N

	Ending Point: Badi Nahar Canal Road Coordinates: 86°46'20.09"E 26°30'36.44"N	Ending Point: West Thalahi Canal Road Coordinates: 86°44'03.52"E 26°33'39.36"N	Ending Point: Biharpur Krishnanagar Canal Road Coordinates: 86°45'06.98"E 26°33'44.95"N			
Geographical Feature	Physiography: Terai Terrain : Plain Climate : Humid Sub Tropical Geology : Fluvial Deposits mostly containing sand, silt, clay and boulders					
Classification of Road	Classification : Urban Roads Existing Surface : Gravel road Design Speed : 60 kmph					
	Traffic (PCU) : 164.12	Traffic (PCU) : 147	Traffic (PCU) : 121.3			
	MSA Value : 0.75	MSA Value : 0.57	MSA Value : 0.46			
Length of Road	1.263 km	1.257 km	1.087 km			
Cross Section of	Right of Way (Proposed) : 10m					
	Road Attributes:		Road Attributes:		Road Attributes:	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
	Road Width : 4 - 6 m	Road Width : 10 m	Road Width : 4 - 6 m	Road Width : 10 m	Road Width : 4 - 6 m	Road Width : 10 m
	Carriageway	Carriageway	Carriageway	Carriageway	Carriageway	Carriageway

Road	Width : 3 m - 4m		Width : 4.5 m		Width : 3 m - 4m		Width : 6 m		Width : 3 m - 4m		Width : 6 m	
	Shoulder Width : 2.0 m (Only on non-settlement area for further Extension)											
	Footpath : 0.65 m and 1m covered drain total 1.65m											
	Width of Side Drain				Width of Side Drain				Width of Side Drain			
	Top Width	Bottom Width	Depth	Length	Top Width	Bottom Width	Depth	Length	Top Width	Bottom Width	Depth	Length
	No Drain	No Drain	No Drain	No Drain	1.0m	1.0m	0.6-0.8 m (clear)	660 m	No Drain	No Drain	No Drain	No Drain
	Type of Drain : RCC Cover Drain											
	Camber Slope : 2.50%											
	Minimum Radius of Horizontal Curve : 110m (Reduced up to 60% for Intersection)											
	Maximum Gradient : 3%											
	Minimum Gradient : 0.3%											
	Design Life : 20 Years											
	Estimated Construction Period : 13 Months											
	Pavement Details	Sub-base : 150mm										
Base : 150mm												
Pavement : 40mm Asphalt Concrete												
Structures	Culverts:		Bridges		Culverts:		Bridges		Culverts:		Bridges	

	Pipe Culverts: Diameter: 0.9m Numbers : 4 Length of Each : 7.5m		Pipe Culverts: Diameter: 0.9m Numbers : 4 Length of Each : 10m		Pipe Culverts: Diameter: 0.9m Numbers : 4 Length of Each : 10m	
	Slab Culverts:		Slab Culverts:		Slab Culverts:	
Earthworks	Cut	Fill	Cut	Fill	Cut	Fill
	526.04 cum	5131.57 cum	417.01 cum	9037.63 cum	933.06 cum	8697.85 cum
Surfacing	Sub-base	Base	Sub-base	Base	Sub-base	Base
	1135.45 cum	1186.90 cum	1343.49 cum	1302.52 cum	1702.32 cum	1023.66 cum

3.2 Proposed Campsite and Stockpile Area

According to the field investigation, there is an open space owned by Mr. Shiva Ram Das and Tej Narayan Das near Ranjitpur Tole at Ward No. 16 that can be used for both the contractor's campground and the storage of building supplies. The total area proposed for the campsite & stockpile as per site visit is about 5,150 sq. m. The contractor will lease the land, which is privately owned. Currently, the proposed land is being used for cultivation. The landowners are ready to rent their property for a stockpiling area and campground during the construction phase (Refer Annex 2). Male and female restrooms and toilets will be separate. The land's proposed location is listed below:



Figure 3-2: Proposed Campsite and stockpiling area at Ranjitpur

3.3 Solid Waste Management

Solid waste generated from labour camps will be disposed only at the designated campsite, far from any adjacent bodies of water. Construction activity will follow strategies for recycling, reduction, and reuse to keep this trash to a minimum. The solid waste management (collection & disposal) system of the municipality will be utilized to dispose of the garbage from the temporary campsite in compliance with the local ward/municipal authority. Reusable materials like cardboard, plastic, bins, and the like will be sold, and scrap metal will either be sold to scrap dealers or delivered there. The land will be cleared and restored to the satisfaction of the local authority or the proprietor or land holder. Septic tanks or soak pits will be installed in the sanitary units/latrines.

Here, the construction time period for the roads project is 13 months. Most of road works are carried out using both manual and mechanical means. Most manpower are required for civil works during road construction. Based on volume and time period of the projects, about 70-80 person are required each day for successfully completing the construction works. As per ADB report on

Municipal Solid Waste Generation and Collection, 2013, 265.59 gram/ capita/ day of solid waste are generated in Rajbiraj Municipality. Therefore, considering 80 per capita per day at campsite a total of 82868,286.408 kg of solid waste will be generated. As per ADB report, the solid composition was organic waste 66%, followed by plastic with 12%, paper and paper product with 9% and others (glass, metal, textile, rubber and leathers).

3.4 Spoil Management

As per the DPR of roads, there is earth cutting (11,148.02 m³) of earthwork is less than filling work (58,953.21 m³). The estimated spoilage amounts pale in comparison to the necessary backfilling. The majority of this will be used again when backfilling is done. The spoils that cannot be backfilled will be disposed of at ward number 15. Necessary consultation was done and letter from ward office is attached in Annex 2. Construction debris will be disposed at designated spoil site only ad effort will be made to minimize such waste through reuse, reduction, and recycling concepts. While hauling and storing spoil, temporarily will covered with plastic/ tarpaulin over. Construction trash should only be disposed of at approval spoil site that are far from water sources.

Table 3-2: Detail of Spoil generated by project

SN	Description of Work	Cutting (m ³)	Filling (m ³)
1	Earthwork	11,148.02	58,953.21



Figure 3-3: Spoil Disposal Location at Ward 15

3.5 Quarry Sites

The approved and licensed crusher plants will supply the quarry materials. Bardibas Quarry is the designated and suggested quarry site for the project. The contractor will not run a quarry under its own name. The crusher plants will supply all of the quarry materials.

These supplies are coming from the Bardibas Municipality's Ratu River and Crusher. The quarry site is located at ward no. 14, which is 113 km far from project area. The quarry site is accessible through well connected road network (i.e. East West Highway – Rupani Biharpur Feeder Road and other local road). The list of IEE approved quarry site's details are mentioned in Annex 3.

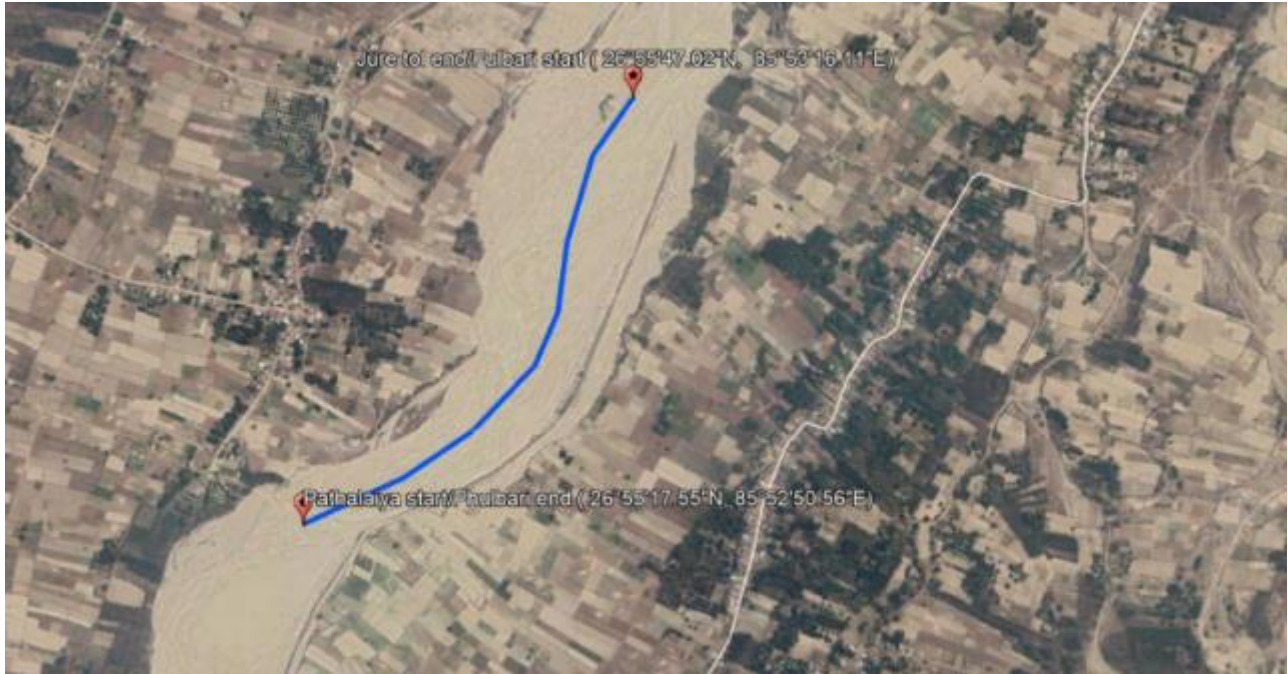


Figure 3-4: Proposed Quarry site at Bardibas Ratu Khola (Fulbari Tole)

3.6 Borrow Pits

It will take a total of 47,805.18 cums of earth material to upgrade and improve the suggested roads alignment. The following borrow pits will be used to extract the earth material needed for the grade and sub-grade; if the contractor establishes borrow pits by purchasing any private land, the contractor will be in responsible of carrying out the rehabilitation's necessary steps. The contractor will also be in responsible of upholding the terms of the landowners' agreement. Further, the contractor should develop the source pit with environment friendly by fishery or by re-filling with the proper cultivable land.

For borrow pits, municipality had provide the location at Gotham, Rajbiraj ward no. 16 which location is shown below.

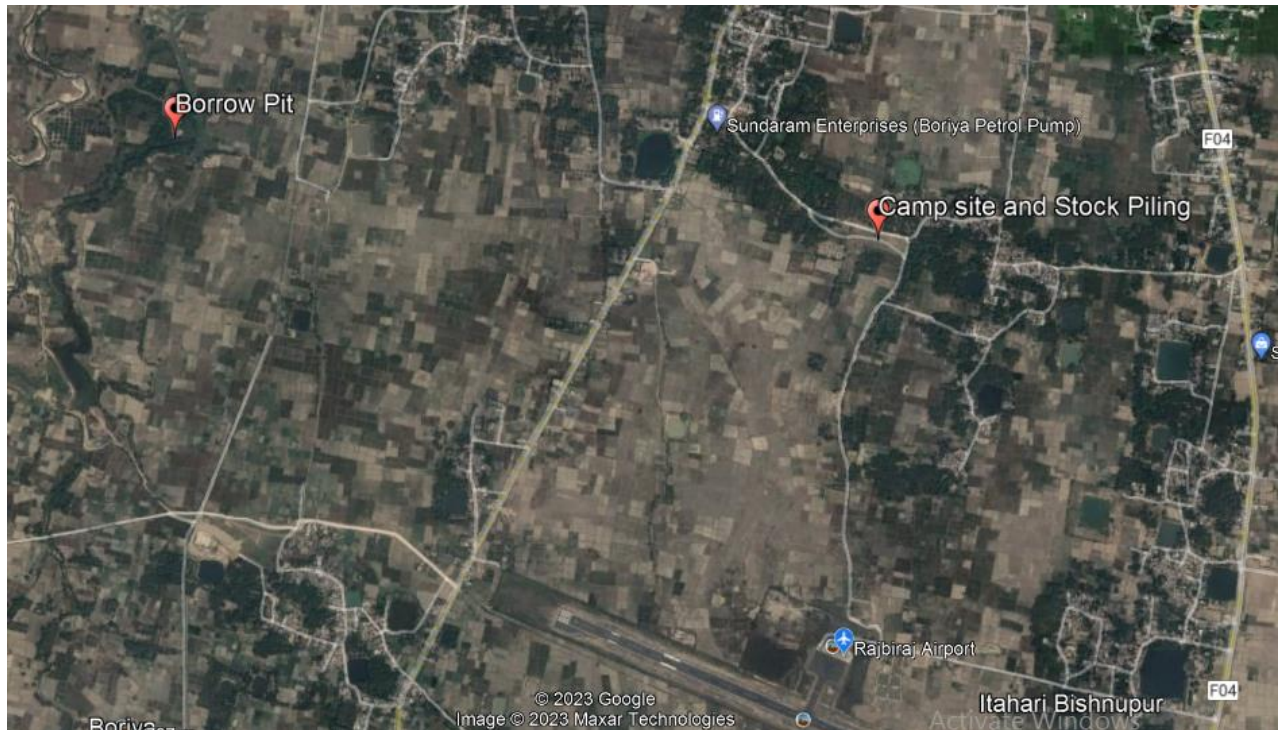


Figure 3-5: Proposed Borrow Pit site at Gotham

3.7 Other facilities

Workshop area, concrete batch plant, crusher plant will not be set for the proposed road as it is economical to transport for existing plant nearby. These facilities are available within 100km range of the project proposed road.

4. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 Social and Environmental Screening:

This sub-project is an up-gradation of an existing road. The A social and environmental screening of the sub-project has been done to assess any potential risk associated with the road up-gradation in the required format. The checklists of screening of social and environmental safeguards are provided in Annex 1. The screening shows that the project area doesn't have major social or environmental risks. The roads are already demarcated in the cadastral map and the ownership lies with municipality (Annex 9) apart from the proposed three roads (i.e. Maleth Nahar Chowk – West Thalahi Canal Road, Jhalahi, Sano Nahar – Bharuwa Point – Padariya – Dighwa Road and Badi Nahar along the sano Nahar – Piprahi Road) which ownership lies with Department of Irrigation (Annex 2). Most of road are existing gravel/ earthen road where vehicle are plying through it. Documents regarding declaration of the RoW by the Rajbiraj Municipality are provided in Annex 2 of this document. As per section B & C of Appendix C of Environmental and Social Management Framework (ESMF, August 2020) of NUGIP, it can be concluded that the proposed road up-gradation project falls under 'Low to Medium impact project' under Category B. Hence an abbreviated ESMP is sufficient for the proposed project. This ESMP document has been prepared as per Appendix C of the ESMF.

4.2 Scope of Environmental and Social Management Plan:

The scope covers potential impacts, related mitigations and monitoring aspects related to activities under the proposed road up-gradation works in Rajbiraj Municipality. These are summarized in Table 4-1 below;

4.3 Objectives of ESMP:

The overall objective is to ensure that the environment and its surrounding areas are protected and developed to meet the needs of the local stakeholders and safeguard the requirements of the local people. The basic objectives of the EMSP are to:

- To ensure that all mitigation measures and monitoring requirements will actually be carried out at different stages of project implementation and operation - pre-construction, construction, and operation and maintenance;
- Establish the roles and responsibilities of all parties involved in the project's environmental and social management; and
- Ensure the budget required for implementation of recommended actions aimed at environmental and social management and its enhancement.

4.4 Implementation of Environmental and Social Management Plan

The sub-project ESMP implementation arrangements can be summarized as follows;

Table 4-1: Roles and responsibility for ESMP implementation

SN	Stakeholder	Role & Responsibilities for ESMP implementation
1	Rajbiraj Municipality/PIU	<ul style="list-style-type: none"> ✓ The overall project environmental management is the responsibility of PIU ✓ The regular monitoring will be carried out by the PIU
2	Contractor	<ul style="list-style-type: none"> ✓ The contractor is required to submit C-ESMP along with Contractor's Environment, Health and Safety Management Plan within 45 days of commencement of the work. ✓ Implement the mitigation measures and provisions as per ESMP and DPR of the Project
3	DSC	<ul style="list-style-type: none"> ✓ Preparation of ESIA/ESMP during DPR phase ✓ Supervision support to the Contractor to implement the ESMP ✓ Monitoring of implementation of ESMP and its compliance ✓ The E&S safeguards specialists of DSC will work closely with its technical staff to ensure project implementation in accordance to World Bank's safeguard standards.
4	PCO & PMST	<ul style="list-style-type: none"> ✓ The PCO will have overall responsibility to ensure compliance with pertaining laws, policies, regulation for all sub projects ✓ The PCO with support from PMST will review implementation support of environmental and social safeguard studies/ management plan prepared by PIU/DSC .

4.5 ESMP Matrix:

Following project interventions and related mitigation measures have been planned in relation to the existing status and potentials improvements for the proposed road alignments;

Table 4-2: Environmental and Social Management Plan (ESMP) Matrix

S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility*	Cost, NPR
Physical Environment (Construction Phase)				
1.	Land use concerns	<ul style="list-style-type: none"> ▪ Leaseholder or rental contract will be maintained for temporary use of land required for campsite and stockpile site for the project. ▪ Fertile topsoil will be conserved and reapplied as and when possible. All the temporarily acquired land will be rehabilitated into previous state or better than the earlier state maintaining natural drainage and acceptable to the land owner/DSC. ▪ Prior notification (2 months' before award of construction contract) for crop plantation will be given. Municipality has published prior notification for each road for crop plantation. 	Contractor Municipality	This will be the part of Contractor's Responsibility under Contractor Cost. This will be included in CESMP
2.	Quarry Sites	<ul style="list-style-type: none"> ▪ Contractor will obtain required construction materials from the legally operating crusher industries only. Quarry materials will be purchased from legally operating crushers plants at Bardibas, which is close to the road alignment, and the map of proposed quarry sites are provided in Figure 3.4 ▪ PIU & DSC will check the site requirements and quality of quarrying material and approve it. 	Contractor DSC/client	Included in BOQ.
3.	Borrow Pits	<ul style="list-style-type: none"> ▪ In case of borrow pits, the borrow pit sites will be well demarcated, regularly monitored and topsoil will be collected. Later, the topsoil will be put back on the surfaces and the areas revegetated, if required. ▪ Contractor will prepare borrow pit management and rehabilitation plan as part of the C-ESMP and will seek approval from the Design and Supervision Consultant. ▪ Contractor will be responsible for the rehabilitation of each excavated borrow pits after the completion of extraction of approved quantity (implementation of the borrow pit rehabilitation plan). Earth material Quantity required of the filling works, sub-grade, and grade, base and sub-base. ▪ Stock piling of top soil near campsite. ▪ Reclamation of borrow pits, landscaping and tree plantation along the excavated borrow pits, which will be converted to pond for fish farming as per the requirement of landowner. 		This will be the part of Contractor's Responsibility under Contractor Cost. This will be included in CESMP

S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility*	Cost, NPR
4.	Issues related to Campsite and Stockpiling	<ul style="list-style-type: none"> ▪ Campsite is proposed at a private land of Mr. Shiva Narayan Das and Mr. Tej Narayan Das at ward no. 16, near Ranjitpur. The total area for the campsite as per site visit is about 5150 sq. m. The proposed camp site is 400m far from Rajbiraj Sakhapur – Gobindapur Feeder Road and 200m far from settlement of Ranjitpur. ▪ The site will be provisioned with proper drinking water facilities, WASH provisions (separate male and female toilets), and lighting system. ▪ Camp site will be provided with well ventilation, adequate bedding material, first aid facility, maintain security provisions, washing and bathing facility, kitchen with cooking facility, storage of foods for the labors. The contractor will maintain health and hygiene within the camps. ▪ Using fuelwood will be prohibited strictly for cooking, heating, and other construction purposes. ▪ Proper insulator cover and proper drain will be managed to store the chemical to avoid the leakage of chemicals. ▪ Stock of sand will be set wet to prevent it from blowing with the wind; water sprinkler will be used for this purpose. ▪ The places used for the stockpiling of construction materials will be cleaned promptly after the completion of the project. ▪ The site will be well fenced, and provided with a 24-hour guard. ▪ The contractor will rehabilitate camp and stockpiling area after the demolition of the sites. 	Contractor	This will be the part of Contractor's Responsibility under Contractor Cost. This will be included in CESMP
5.	Slope stabilization	<ul style="list-style-type: none"> ▪ Plum Concrete Wall are purposed for the road embankment. The road lies in plain terrain; hence, slope protection is not required. ▪ However, in Badi Nahar, Kadmaha Tole – Damawati – Piprahi - Khado Khola Road (355 m), Sujit Pokharel House to north – Chandi Das Mill – Shiva Temple Road (61m) and in Jhalah, Sano Nahar – Bharuwa Point – Padariya – Dighawa Road (120 m), require breast wall for the protection of road embankment. 	Contractor	Included in BoQ no. 5
6.	Air pollution in the construction locality	<ul style="list-style-type: none"> ▪ Water sprinkling (at least 3 times a day) at Settlement area mainly, (Pirpahi Tole (Ch:1+520 – 2+320) in Badi Nahar, Kadmaha Tole – Damawati – Piprahi – Khado Khola road, Lawa Toliya Bhelahi (Ch: 0+700) in Khado Khola-Piprahi Bhelahi- Lawa Toliye Bhelahi Road, Kharshal Tole (Ch: 0+000 – 0+200) in Sujit Pokharel House to North Chandi Das Mill – Shiva Temple Road, Sigiyoun (Ch: 0+000-0+200) in Badi Nahar (Along bank of Sano Nahar) to Piprahi Road, Maleth Nahar Road (Ch:0+000 to 0+500) in 	Contractor (Supervision support of Design & Supervision Consultant)	Cost for all road which will be use as per requirement in each road. NPR NPR

S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility*	Cost, NPR
		<p>Maleth Nahar Chowk to West Thalahi canal road and Bharuwa in Cold Store Road to Khado Bandh Road etc. where dry exposed surfaces and stockpiles of aggregates as necessary.</p> <ul style="list-style-type: none"> ▪ Require trucks delivering aggregates and cement to have tarpaulin cover. ▪ All diesel generators, haul trucks, pavers, graders, and rollers, required to comply with regulations ▪ The contractor will not allow firewood for cooking and heating bitumen and incineration of wastes. ▪ Burning of waste (from campsite) will be strictly prohibited. ▪ Maintenance of vehicles on regular basis. ▪ Ensure use of equipment and fuel complying with applicable emission standards. ▪ Air quality monitoring (at least 2 times during construction phase). 		<p>285,000</p> <p>(for air quality monitoring)</p>
7.	Noise nuisance	<ul style="list-style-type: none"> ▪ Sensitive Settlement of Musahar Community and Representative of Shree Adharbut Vidyalaya (in Badi Nahar, Kadama Tole – Damawati – Piprahi – Khado Khola Road) and local stake holders of project roads will involve in planning the work program so that any particularly noisy or otherwise invasive activities can be scheduled to avoid sensitive times. ▪ Operation of heavy equipment/vehicles, and noisy construction works will be stopped during the night time between 10.00 pm to 6.00 am. ▪ Drop heights for loading and unloading coarse aggregates will be minimized. ▪ Soft horns to be used, and use silent type generators (if required). ▪ If it is not practicable to reduce noise levels to or below noise exposure limits, the contractor will post warning signs in the noise hazard areas. ▪ Contractor will monitor noise level along the construction site monthly. ▪ Complete work in settlement areas as quickly as possible. 	<p>Contractor</p> <p>(Supervision support of Design & Supervision Consultant)</p>	<p>Cost of Noise level monitoring comes within the Air Quality monitoring phase</p>
8.	Impact on water bodies	<ul style="list-style-type: none"> ▪ Earthworks generating higher amount of spoil will be conducted during dry season to avoid the difficult working conditions that prevail during monsoon season such as problems from runoff. ▪ Location for stock yards for construction materials are identified at least 100 m away from water courses. Place for storage of fuels and lubricants will be away from any drainage leading to water bodies. ▪ Washing of project vehicles at river banks will be restricted. ▪ Proper storage of chemicals and lubricants, use of spillage kit to avoid spillage. Take all precautions to prevent entering of wastewater into 	<p>Contractor</p> <p>(Supervision support of Design & Supervision Consultant)</p>	<p>NPR 165,000</p> <p>Above Cost for all 9 road</p>

S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility*	Cost, NPR
		<p>streams, watercourses, or irrigation system. Install temporary silt traps or sediment basins. All the chemicals and oil containers will be stored on the concrete surface to avoid contamination and spillage into land, surface, and ground water.</p> <ul style="list-style-type: none"> ▪ While working across or close to any water body, the flow of water must not be obstructed. Ensure no construction materials like earth, stone, are disposed in a manner that may block the flow of water of any water course ▪ Three roads lies in the embankment of irrigation canal and, Badi Nahar, Kadmaha Tole – Damawati – Piprahi – Khado Khola road cross stream at Ch: 0+957, irrigation canal at Ch: 2+090 and ponds at Ch:2+110. Bridge has already been constructed at stream culvert and retaining walls are purposed. ▪ Others road also pass through pond structure but road construction will not effect on water bodies as retaining structures are provided as per requirement in design. 		which will be use as per requirement in each road sub-project.
9.	Solid waste	<ul style="list-style-type: none"> ▪ It was estimated that about 8286.408kg of soildsoil waste would be generated during construction time period. The solid waste would compose of organic waste as lead constituent following plastic, paper product, glass, metals etc. ▪ Waste minimization and waste segregation will be prioritized; 3R approach will be promoted. ▪ Composting of organic waste generated from the camps will be disposed within the proposed camps. ▪ Containment of hazardous waste will be carried out. ▪ Awareness raising event will be carried out. ▪ Decommissioning waste will be re-used, sold to local scrap dealers. ▪ Coordination with local municipality team for final disposal into the municipality's waste collection & disposal system. ▪ It has been planned that basic facilities like composting, waste segregation, etc. will be started from first month/quarter of contractor's mobilization; other practices under 3R approach (e.g. waste minimization) will be carried out through out; and awareness events will be carried out every quarter (detailed plan will be provided in C-ESMP). 	Contractor	<p>NPR 325,000</p> <p>Above Cost for all 9 road which will be use as per requirement in each road.</p>
10.	Spoil Disposal	<ul style="list-style-type: none"> ▪ As per DPR of roads, earthwork in cutting (1,1148.02 m³) and earthwork in filling (58,953.21 m³). Here, estimate spoilage amounts pale in comparison to the necessary backfilling. Although most of the spoil will be used for back 	Contractor	Included in BOQ.

S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility*	Cost, NPR
		<p>filling if possible. Those material which are not useable for backfilling would be disposed at designated site. The municipality has located the spoil disposal location at ward no. 15. (Refer Annex 2) and</p> <ul style="list-style-type: none"> ▪ Disposal of spoil into water bodies will be strictly prohibited. ▪ Generated spoil will be disposed only at designated spoil disposal sites. Details of disposal sites will be confirmed during construction by the contractor and will be presented in the C-ESMP. 		
11.	Others (Crusher, asphalt plant, if proposed in the project)	<ul style="list-style-type: none"> ▪ As one of the Climate Resilience actions, during hydrological calculations, additional 10% weight-age has been included for hydraulic design of drainages and cross-drainages ▪ The Contractor will develop and maintain emergency response system in order to address any accidents or other emergency situation or disaster at site such as fall of workers from height, collapse of pier, flood, earthquake, accident, etc. <p>The Contractor will dispose all the chemical wastes and wastewater generated during the time of construction safely without interrupting the existing nearby settlements, water bodies, forests, and wildlife.</p>	Contractor	Included in BOQ.
Physical Environment (Operation & Maintenance Phase)				
12.	Road Stability and Drainage Management	<ul style="list-style-type: none"> ▪ Regular/periodic maintenance of the road ▪ Construction of drainage system to mitigate possible inundation in the settlements along the project alignment ▪ Ensure proper compaction as per design ▪ Awareness activities to be carried out in community level to reduce the incidences of disposal of waste into road-side drains 	Rajbiraj Municipality	Included in BoQ,
13.	Air pollution and Noise nuisance	<ul style="list-style-type: none"> ▪ There should be a consensus between Rajbiraj Municipality, District Transportation Office, Transportation Entrepreneur, and the local people regarding the operation of conditioned vehicles ▪ The local authority can initiate campaigns like 'No Horn' and use of soft-horns. 	DTO, transportation entrepreneur, local people	No extra cost will be required.
14.	Water pollution	<ul style="list-style-type: none"> ▪ Disposal of any septic or industrial wastewater into the roadside drains will be strictly prohibited ▪ Washing of public and private vehicles at river banks will be restricted 	Rajbiraj Municipality	No extra cost will be required.
Biological (Construction Phase)				

S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility*	Cost, NPR
15.	Vegetation loss	<ul style="list-style-type: none"> ▪ As per Table no. 2-1, 8 nos. of peepal trees are listed which are along the proposed roads. These peepal trees need to be conserved. Hence for the beautification and protection the cost is included in BOQ. ▪ In Badi Nahar, Kadmaha Tole – Damawati – Piprahi – Khado Khola Road and Sujit Pokharel House to north - Chandi Das Mill - Shiva Temple Road, the formation width (road width) is reduced for the protection of these peepal trees. ▪ In Sujit Pokharel House to Chandi Das Mill – Shiva Temple Road, about 200 m of bio-engineering aspect are considered for the beautification of road. ▪ Additional locations will be identified for the compensatory plantation during time of joint survey and the identified locations will be included in C-ESMP. 	<p>Contractor</p> <p>Rajbiraj Municipality for care-taking works</p>	Included in BOQ
Socio-economic and Cultural (Construction Phase)				
16.	Impact on property from vibrations due to the use of heavy machinery and other construction activities	<ul style="list-style-type: none"> ▪ In Badi Nahar, Kadmaha Tole – Damawati – Piprahi – Khado Khola Road width at Piprahi was identify as potential risk from vibration damage and avoiding any use of pneumatic drills or heavy vehicles in the vicinity of settlement areas. For the mitigation measures road width were made narrow (at Ch: 1+520 -2+320) at settlement area. However, the boundary wall of school building (Ch: 2+140 – 2+200) needs to be shifted from the original location and alternative route for school must be prepared. Cost has been allocated for shifting and alternative route preparation. ▪ The land & property owner agreed to relocate of temporary structures and provide essential cooperation for successful construction of road. ▪ There are no issues on other road. ▪ Establish photographic and video graphic evidences of structures and properties in and alongside proposed road width; cracked walls will be reinstated ▪ Conducting excavation works at critical sites under close observation of the local representatives 	Contractor	NPR, 590,000
17.	Disturbance to electric poles in the proposed road width	<ul style="list-style-type: none"> ▪ As per the Table 2-15: Electric Poles that need to be shifted, 85 nos. of electric poles along the alignment in coordination with the local electricity office and telecommunication authority ▪ Should be completed prior the beginning of the road construction 	Rajbiraj Municipality and Contractor	NPR: 3,134,134.23 (As per NEA Estimate, Annex 8)

S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility*	Cost, NPR
18.	Reinstatement of Water Supply Pipe lines	<ul style="list-style-type: none"> ▪ The project must work in close coordination with the locals and User Committees. ▪ Most of the water source is tube well in adjoining settlements of the proposed road that does not lies in ROW of proposed roadway. 	Contractor in support with Rajbiraj Municipality	
19.	Difficulties in access & mobility to private properties and premises	<ul style="list-style-type: none"> ▪ Diversions and proper crossings will be available for elderly and differently able people in the construction phase to ensure their mobility is not impacted during construction. ▪ Metal planks and wooden planks will be placed to ease the access to private houses and shops. ▪ The road pass through dense settlement of Musahar Community where the road formation width were narrow up to 6m to avoid adverse impact from structure relocation. ▪ Contractor will allocate alternative route in coordination with DSC/municipality for safety of pedestrian using the road. 	Contractor (Supervision support by DSC)	
20.	Road safety & Community safety	<ul style="list-style-type: none"> ▪ 'Drive slow' messages will be placed along the active sites. ▪ Signboards with safety messages and warnings will be placed in local languages all along the alignment at the construction sites and at the trench excavation area. ▪ Construction works to consider elderly, women, child & differently able people (EWCD) requirements ▪ Trenches will be backfilled with immediate effect. ▪ Awareness activities will be conducted to inform & aware locals. ▪ Carry out site management practice such as the fencing around work area and road signage. ▪ Increase public awareness of safety, health, and environmental issues by providing information directly and indirectly through campaign. ▪ The contractor will assign a safety supervisor and will monitor daily construction works in terms of health and safety. ▪ The Contractor will comply with the requirements of the Environmental, Health, and Safety (EHS) General Guidelines of the World Bank, April, 2007 and the statutory norms of safety during construction 	Contractor	Included in BoQ

S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility*	Cost, NPR
21.	Occupational Health & Safety	<ul style="list-style-type: none"> ▪ Personal Protective Equipment (PPEs) will be provided to the workers, and its use will be monitored closely. ▪ Replacement of PPEs after 'wear & tear' - at least every quarter ▪ First aid boxes will be provided at campsites as well as active working sites (the kits to be refilled and updated every month). ▪ CoC will be implemented for the engineers, operators, drivers and labourers ▪ Proper WASH provisions will be provided in the labour camps ▪ Drinking water quality monitoring (at least once every 6 months; total of at least 3 times) ▪ Provision of potable water for the workforce will be ensured ▪ Toilets will be provided at the ratio of at least 1 unit for 15 workers. ▪ Provision of insurance to cover physical damage to workers. ▪ Drivers with authorized license holders will only be allowed for the operation of construction vehicles. ▪ Workers and staff at the construction site will be provided with proper training to ensure that workers are trained on what to do in the event that an accident occurs on site. ▪ The contractor's supervisors will be instructed to conduct 'pre-work instructions' to the workers everyday - explaining them about the nature of works, condition of the site, and associated risks as well as safety measures. ▪ Agreement with nearby health institution will be in place by the contractor. ▪ Contractor will be responsible to maintain the records of each and every accident and incidence and will make available to DSC/PCO/PMST as and when required. 	Contractor (Supervision support by DSC team)	Included in BOQ, 0.1% of total cost excluding PS and contingency)

S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility*	Cost, NPR
22.	GRM/ Risk of SEA/SH, GBV and Stakeholder Consultation	<ul style="list-style-type: none"> ▪ (i) Regarding SEA/SH, GBV ▪ Awareness programs related to women/girls of project area and workers, for reduction of rape cases/Attempt to rape cases. (2nos x Nrs, 60,000 = Nrs. 120,000) ▪ Awareness program for local peoples regarding Domestic Violence (Physical, Mental and Economic abuse) present in the project area. (2nos x Nrs, 60,000 = Nrs. 120,000) ▪ Orientation to girls in Schools and local people for reduction of Child abuse and Child Marriage. (3nos x Nrs, 60,000 = Nrs. 180,000) ▪ Awareness program for Dowry System (1nos x Nrs, 60,000 = Nrs. 60,000) ▪ Establishment of Anti-Harassment Cell in Municipality and assign a Focal Person in the Municipality. ▪ Employ a grievance redress mechanism incorporating a negotiation and/or mediation team or party ▪ Clear and timely dissemination of project information, and safeguards aspects including anti-harassment cell; Coordination with the local stakeholders ▪ Awareness raising, information and dissemination about GRM and GBV (meetings, monitoring and logistic costs@ 1 meeting every month) (Nrs 485,000) ▪ Production of leaflets, and information dissemination through local media of ESMP, project provisions including GRM and SEA/SH and ESMP document in ward offices. (1nos x Nrs, 60,000 = Nrs. 60,000) ▪ GRM will include mechanism for referring SEA/SH-related grievances. ▪ ▪ Orientation Programs on code of conduct for contractors and subcontractors to manage GBV/SEA/SH risks during construction phase and Implementation of Code of Conduct on SEA/SH behavior and the provision of punishment for breaching of the code of the conduct. (1nos x Nrs, 30,000 = Nrs. 30,000) ▪ GRM will include mechanism for referring SEA/SH-related grievances. ▪ ▪ Orientation program for SEA/SH related to female workers by providing female labor-centric facilities such as separate female toilets, separate female camps, separate family camps and mother's rooms on the site. (2nos x Nrs, 30,000 = Nrs. 60,000) ▪ GRM will include mechanism for referring SEA/SH-related grievances. ▪ ▪ 	PIU/DSC	<p>NPR, 630,000</p> <p>Above costs are for all 9 road which will be use as per requirement in each road.</p> <p>NPR, 485,000</p>

S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility*	Cost, NPR
23.	SEA/SH risks	<ul style="list-style-type: none"> ▪ Orientation Programs for Conduct an orientation program on code of conduct for contractors and subcontractors to manage GBV/SEA/SH risks during construction phase and Implementation of Code of Conduct on SEA/SH behavior and the provision of punishment for breaching of the code of the conduct. (1nos x Nrs, 30,000 = Nrs. 30,000) ▪ GRM will include mechanism for referring SEA/SH-related grievances. ▪ ▪ Orientation program for SEA/SH related to female workers by providing female labor-centric facilities such as separate female toilets, separate female camps, separate family camps and mother's rooms on the site. (2nos x Nrs, 30,000 = Nrs. 60,000) ▪ GRM will include mechanism for referring SEA/SH-related grievances. ▪ 	Contractor	Contractor responsibility under contractors cost
24.	Child labour, forced labour and wage discrimination And Others	<ul style="list-style-type: none"> ▪ Child labour & forced labour will be strictly prohibited ▪ Copies of citizenship card or other valid personal ID card will be kept in record of the workers ▪ Awareness among the workers and the local community will be conducted ▪ Equal wage for male and female workers will be ensured ▪ Information dissemination regarding project details, Grievance Mechanism, and environmental & social safeguards aspects will be disseminated to the local through leaflets, and local media 	Contractor (Supervised by local authority and DSC)	NPR, 90,050 Above cost is for all 9 road which will be use as per requirement in each road
25.	Traffic Management	<ul style="list-style-type: none"> ▪ Traffic signboards and messages, in local languages, will be placed at main chowks, junctions and start-end points. ▪ Emergency traffic management plan should be prepared by the contractor and approved by the Project as part of the C-ESMP. The plan will include informing about the scheduled road closure and the alternative routes identified to divert the normal traffic flow, transport material during off-peak time. ▪ Provide advance notice to stop vehicles by erecting indicator signs at a necessary distance in order to reduce congestion at the site of work, thus enabling making of proper security arrangements, or lane wise traffic management. ▪ Provision of alternative routes to ease the congestion and built up of traffic. ▪ Traffic management and scheduling of construction activities of these roads will be carried out. 	Contractor	Included in BoQ (Abstract of Cost)

S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility*	Cost, NPR
26.	Livelihood Enhancement and Awareness Programme	<ul style="list-style-type: none"> ▪ Livelihood Enhancement Training will be given to Musahar Settlement for uplifting their living standard. ▪ Skilled that can be utilized during the construction of road are given preference. ▪ Awareness program for women health safety are also included. 	Rajbiraj Municipality/ PIU	NPR, 11,00,000.00
Socio-economic and Cultural (Operation & Maintenance Phase)				
27.	Traffic accidents and associated risks	<ul style="list-style-type: none"> ▪ Awareness will be raised on traffic safety ▪ Speed limits will be defined and installation of speed humps to control speed near pedestrian crossing areas ▪ Traffic sign boards and messages, in local languages, will be placed at main chowks, junctions and start-end points 	Rajbiraj Municipality	Cost will be borne by municipality
28.	Community Health and Safety	<ul style="list-style-type: none"> ▪ Installation of road markings at all major as well as minor intersections. Road Signs and Road Markings have been provided as per Traffic Sign & Marking manual as per DPR ▪ Reinforced Cement Concrete covered drain will be provided throughout the alignment in integration with footpath. 	Rajbiraj Municipality	Included in BoQ (Abstract of Cost)
29.	Impacts due to poor maintenance of road-drains	<ul style="list-style-type: none"> ▪ Awareness activities will be carried to stop disposal of waste into the road-side drains ▪ Drainages will be regularly cleared under periodic maintenance ▪) 	Rajbiraj Municipality	Cost will be borne by municipality

*The DSC team will responsible for monitoring the above-mentioned construction phase works

The contractor will take prior approval from Rajbiraj Municipality and the DSC team for expenses under provisional sum of the contract document.

4.6 Environmental & Social Monitoring

Environmental and social monitoring is an essential tool to make ensure the implementation of mitigation measures and to know the effectiveness of those measures. ESMP monitoring is necessary for the following purposes;

- to track the impacts,
- to evaluate the effectiveness of proposed mitigation measures, and
- to suggest improvements, if any new circumstances arise.

The following table summarizes the plan for environmental and social monitoring for the proposed project;

Table 4-3: Environmental & Social Monitoring Plan

SN	Monitoring Aspects	Location	Parameters	Methodology	Frequency	Responsibility
A	Construction Phase					
1.	Air quality monitoring	Settlement areas near road alignment	At least TSP; PM ₁₀ /PM _{2.5}	Air Sampler / Detector	Quarterly	DSC, PIU/ PCO
2.	Noise Levels	Settlement areas near road alignment	Average noise levels (L _{eq})	Noise Meter / Android Application	Every Month	DSC PIU/ PCO
3.	Water Quality	River; near disposal site and Campsite	Parameters as per ESMF of the project	Laboratory Analysis	Quarterly	DSC, PIU/ PCO
4.	Spoil disposal	Along road alignment	Spoil tip sites; road sections where haphazard dump of spoil material, rehabilitation of the sites	Site verification	Every Month	DSC, PIU/PCO
5.	Road Traffic safety	Along road alignment	Status of road for use; road accidents records, Management of diversion, traffic signboards, flow of existing traffic, accessibility to the locals, grievances etc.	Use of Logs; Records of complaints	Every Month	DSC, PIU/PCO
6.	Campsite monitoring	Construction Campsite	Space for workers; Potable water; Sanitation facilities; waste management, First Aid, rehabilitation after closure of the camp sites etc.	Site verification; records of provisions of WASH materials;	Every Month	DSC, PIU/PCO
7.	Occupational Health & Safety	Active construction sites; campsite	Provision/Use of PPEs; First Aid/treatment; Awareness/orientations conducted for workers	Site verification; records of supply of PPEs; records of events	Every Month	DSC, PIU/PCO
8.	Solid Waste Management	Camp site and along the alignment and other construction areas	Types of waste generation, quantity, disposal practice	Observation	Every Month	DSC, PIU/PCO
9.	Loss of vegetation; greenery promotion	Active construction sites; road sections passing through	Site clearance at vegetated areas; plantation works, maintenance etc. as per	Site verification; records of trees cut; records of newly	Every Month	DSC, PIU/PCO

ESMP for the Up-gradation of Different Inter-connected Roads within Rajbiraj Municipality

SN	Monitoring Aspects	Location	Parameters	Methodology	Frequency	Responsibility
		vegetated area	EMP.	planted trees		
10.	Impact upon physical structures	Along the alignment	Public and private structures affected, compensation distributed, loss of business, rehabilitation and relocation (106 electric poles), RP preparation etc.	Site verification, observation, documents in place.	Every Month	DSC, PIU/PCO
11.	Quarry sites	All the quarry sites	Land slide, water logging, impact upon public, impact upon water bodies, dust, impact upon physical structures, complain and grievances, rehabilitation of the sites etc.	Observation	Every Month	DSC, PIU/PCO
12.	Borrow pits	All the borrow pits excavated for the project	Landslide, water logging, dust, and impact upon private land, impact upon physical structures, complain and grievances, rehabilitation of the sites etc.	Observation	Every Month	DSC, PIU/PCO
13.	Water logging	Borrow pits, access roads, roadside embankment etc.	Inundation, ponding, water logging area.	Observation	Every Month	DSC, PIU/PCO
14.	GBV aspects	Work sites; settlement areas near campsite	Laborers' records; Cases of GBV in relation to project works; any unrecorded cases	Community consultation; GRM records	Every Month	DSC, PIU/PCO
15.	Other facility sites established by the contractor	Camp, stockpiling area, batch plant if any.	Impact upon water, air, public and private structures, accessibility of the locals etc.	Observation	Every Month	DSC, PIU/PCO
B	Operation & Maintenance Phase					
1	Road stability	Road alignment	Status of slopes along road alignment; status of road components	Site verification; ward records; traffic police office records	Every 3 months - 1 st year; Bi-annually after that	Rajbiraj Municipality

SN	Monitoring Aspects	Location	Parameters	Methodology	Frequency	Responsibility
2	Water pollution	Surface flows (natural drainages & irrigation canals)	Parameters as per standards (Annex 4)	Laboratory Analysis	Every 6 Months only within DLP	Rajbiraj Municipality
3	Vegetation/tree survival rate	Plantation sites identified by the municipality or along the road side	Number of surviving trees; status of planted trees	Site verification; interaction with road-side communities	Every 6 Months	Rajbiraj Municipality
4	Road safety	Road alignment and adjacent settlements	Road accidents; status of road components	Site verification; interaction with road users	Every Month	Rajbiraj Municipality

Monitoring activities during O&M Phase will need to be scheduled based also on the site requirements and need of the communities using the road services. Contractor will be responsible for monitoring during DLP period. After the DLP period, Rajbiraj Municipality will be totally responsible for the O&M phase.

5. STAKEHOLDER ENGAGEMENT AND INFORMATION DISSEMINATION

5.1 Stakeholder Engagement

The local community, ward offices, Rajbiraj Municipal Office, water supply user committees, Community Forest User Group members, local businesspersons, labourers and farmers were consulted during the preparation of the ESMP. Consultations were also carried out with the women and musahar communities living along the proposed road alignment. (Annex 2)

Focused group discussions (FGDs), formal consultation meetings, and Key informant interview (KII) were used to engage as many locals as possible during the public consultation process. The details of design aspects of the road, social & environmental safeguards, and GBV aspects were discussed during the public consultations. The list of people and institutions consulted are given in table below.

Table 5-1: Lists of People and Institutions Consulted for Selection of Road

SN	Name	Organization/Address
1	Mrs. Ishrat Parbin	Deputy Major (Acting Mayor), Rajbiraj Municipality
2	Mr. Chandra Shekhar Chaudhary	Chairperson, Ward No. 1, Rajbiraj Municipality
3	Mr. Arun Kumar Yadav	Chairperson, Ward No. 2, Rajbiraj Municipality
4	Mr. Anil Kumar Das	Chairperson, Ward No. 3, Rajbiraj Municipality
5	Mr. Dinesh Kumar Shah	Chairperson, Ward No. 4, Rajbiraj Municipality
6	Mr. Bindu Lal Das	Chairperson, Ward No. 5, Rajbiraj Municipality
7	Mr. Sashi Kumar Chaudhary	Chairperson, Ward No. 6, Rajbiraj Municipality
8	Mr. Shubhash Chandra Yadav	Chairperson, Ward No. 7, Rajbiraj Municipality
9	Mr. Jay Narayan Mandal	Chairperson, Ward No. 8, Rajbiraj Municipality
10	Mr. Jabahar Yadav	Chairperson, Ward No. 9, Rajbiraj Municipality
11	Mr. Gangaram Khang	Chairperson, Ward No. 10, Rajbiraj Municipality
12	Mr. Udit Narayan Yadv	Chairperson, Ward No. 11, Rajbiraj Municipality
13	Mr. Ram Chandra Yadav	Chairperson, Ward No. 12, Rajbiraj Municipality
14	Mr. Triloki Nath Chaudhary	Chairperson, Ward No. 13, Rajbiraj Municipality
15	Mr. Jagdish Mandal	Chairperson, Ward No. 14, Rajbiraj Municipality
16	Mr. Om Narayan Sah	Chairperson, Ward No. 15, Rajbiraj Municipality
17	Mr. Ram Akalwal Yadav	Chairperson, Ward No. 16, Rajbiraj Municipality
18	Mr. Bhogendra Prasad Yadav	CEO, Rajbiraj Municipality
19	Mr. Manoj Kumar Sah	Member, Municipal Office
18	Mr. Mo. Iiyash Miya	Member, Municipal Office
21	Mr. Lalita Devi Karn	Member, Municipal Office
22	Mr. Rekha Mandall	Member, Municipal Office
25	Mr. Ashok Kumar Das	Engineer, Rajbiraj Municipality

SN	Name	Organization/Address
26	Mr. Prabhu Narayan Chaudhary	Engineer, Digicon-GOEC-BEAM-IMPULSE-SEDS JV

The meeting and consultation were carried out for each road separately. The meeting minutes and consultations minutes are attached in Annex 2. The municipal level and ward level meeting were conducted with individual consultation and opinion were collected and attached in Annex 2. The provision of environment and social safeguard were distributed and issue, grievance and opinion were collected. In Badi Nahar, Kadmaha Tole – Damawati – Piprahi – Khado Khola Road, a separate consultation with marginal community (Musahar community) and a least one member from a house along the road alignment was carried out (Annex 2). Most of participate on consultation were positive toward the development of road. They are willing for essential cooperation during the road construction.

Followings are the details of the public consultations carried out during the field study;

Table 5-2: Stakeholder consultations detail of Up-gradation of different Inter-connected roads within Rajbiraj Municipality

SN	Meeting	Date	Total Participants	Outcomes
1	Stakeholder consultation held at Rajbiraj Municipal Office	15-Aug-23	Total -26 (M-20, F-6)	Discussion about the NUGIP project and selection of road for the feasibility and DPR Study.
2	Stakeholder consultation held at Rajbiraj Municipal Office	21-Sep-23	Total -26 (M-20, F-6)	Discussion about the different NUGIP project and selection of road for the feasibility and DPR Study.
A	Badi Nahar, Kadmaha Tole - Damabati - Piprahi -Khado Khola Road, Khado Khola - Piprahi Bhelahi- Lawa Toliya Bhelahi Road			
3	Community Consultation held at Piprahi	11-Aug-23	Total -56 (M-56, F-0)	Detailed Discussion on avoiding vegetation loss; land requirement, land acquisition process and on social, right of way of road.
4	Community Consultation held at Damawati	7-Nov-23	Total - 12, (M-10, F-2)	Detailed Discussion on updated design aspects; discussion on avoiding vegetation loss; land requirement, land acquisition process and on social and environmental aspect including GBV, SEA/SH; discussion about air, and noise pollution and its mitigations and their measures.
5	Community Consultation held at Damawati	7-Nov-23	Total - 51, (M-44, F-7)	Detailed Discussion on updated design aspects; discussion on avoiding heritage and religious important location; land requirement, land acquisition process and on social and environmental aspect;

SN	Meeting	Date	Total Participants	Outcomes
				discussion on employment generation.
B	Cold Store Road – Ram Janaki Mandir – Khado Bandh Road			
6	Community Consultation held at Hanuman Nagar	11-Aug-23	Total -56 (M-56, F-0)	Detailed Discussion on avoiding vegetation loss; land requirement, land acquisition process and on social, right of way of road.
7	Community Consultation held at Hanuman Nagar	7-Nov-23	Total - 12 (M-10, F-2)	Detailed Discussion on updated design aspects; discussion on avoiding vegetation loss; land requirement, land acquisition process and on social and environmental aspect including GBV, SEA/SH; discussion about air, water and noise pollution and its mitigations and their measures.
8	Community Consultation held at Hanuman Nagar	7-Nov-23	Total - 51, (M-44, F-7)	Detailed Discussion on updated design aspects; discussion on avoiding heritage and religious important location; land requirement, land acquisition process and on social and environmental aspect; discussion on employment generation.
C	(Sujit Pokharel House – Chandi Das Mill – Shiva Temple Road)			
9	Community Consultation held at Kharshal Tole	11-Aug-23	Total -56 (M-56, F-0)	Detailed Discussion on avoiding vegetation loss; land requirement, land acquisition process and on social, right of way of road.
10	Community Consultation held at Kharshal Tole	7-Nov-23	Total - 12, (M-10, F-2)	Detailed Discussion on updated design aspects; discussion on avoiding vegetation loss; land requirement, land acquisition process and on social and environmental aspect including GBV, SEA/SH; discussion about air, water and noise pollution and its mitigations their measures.
11	Community Consultation held at Kharshal Tole	7-Nov-23	Total - 51, (M-44, F-7)	Detailed Discussion on updated design aspects; discussion on avoiding heritage and religious important location; land requirement, land acquisition process and on social and environmental aspect; discussion on employment generation.
D	(Jhalahi – Sano Nahar, Bharuwa point – Padariya – Dighwa Road)			
12	Community Consultation held at Padariya (Jhalahi – Sano Nahar, Bharuwa point – Padariya – Dighwa Road)	8-Dec-23	Total - 12, (M-10, F-2)	Detailed Discussion on updated design aspects; discussion on avoiding vegetation loss; land requirement, land acquisition process and on social and environmental aspect including GBV, SEA/SH; discussion about air, water and noise pollution and its mitigations and their measures.

SN	Meeting	Date	Total Participants	Outcomes
13	Community Consultation held at Padariya (Jhalahi – Sano Nahar, Bharuwa point – Padariya – Dighwa Road)	8-Dec-23	Total - 56, (M-44, F-7)	Detailed Discussion on updated design aspects; land requirement, land acquisition process and on social and environmental aspect; discussion on employment generation; discussion about installation of light.
E	(Boriya – Ranjitpur – Airport Parking Road)			
14	Community Consultation held at Ranjitpur	20-Nov-23	Total - 24, (M-20, F-4)	Detailed Discussion on updated design aspects; discussion on avoiding vegetation loss; land requirement, land acquisition process and on social and environmental aspect including GBV, SEA/SH; discussion about air and noise pollution and its mitigations and their measures.
15	Community Consultation held at Ranjitpur (Boriya – Ranjitpur – Airport Parking Road)	20-Nov-23	Total - 12, (M-9, F-3)	Detailed Discussion on updated design aspects; discussion on avoiding heritage and religious important location; land requirement, land acquisition process and on social and environmental aspect; discussion on employment generation and road side plantation.
F	(Badi Nahar, Along Bank of Sano Nahar - Piprahi Road)			
16	Community Consultation held at Piprahi	11-Aug-23	Total -56 (M-56, F-0)	Detailed Discussion on avoiding vegetation loss; land requirement, land acquisition process and on social, right of way of road.
17	Community Consultation held at Damawati (Badi Nahar, Along Bank of Sano Nahar - Piprahi Road)	7-Nov-23	Total - 12 (M-10, F-2)	Detailed Discussion on updated design aspects; discussion on avoiding vegetation loss; land requirement, land acquisition process and on social and environmental aspect including GBV, SEA/SH; discussion about air and noise pollution and its mitigations and their measures.
18	Community Consultation held at Damawati (Badi Nahar, Along Bank of Sano Nahar - Piprahi Road)	7-Nov-23	Total - 51 (M-44, F-7)	Detailed Discussion on updated design aspects; discussion on avoiding heritage and religious important location; land requirement, land acquisition process and on social and environmental aspect; discussion on employment generation.
G	Maleth Nahar Chowk to West Thalahi Canal Road and Rupani Road to Biharpur Krishna Nagar Canal Road section			
19	Community Consultation held at Ward 9 (Maleth Chowk to west,	16-Oct-23	Total -46 (M-40, F-6)	Detailed Discussion on avoiding vegetation loss; land requirement, land acquisition process and on social, right of way of road.

SN	Meeting	Date	Total Participants	Outcomes
	Thalahi Canal Road)			
20	Community Consultation held at Ward 9 (Maleth Chowk to west, Thalahi Canal Road)	8-Nov-23	Total - 12, (M-10, F-2)	Detailed Discussion on updated design aspects; discussion on avoiding vegetation loss; land requirement, land acquisition process and on social and environmental aspect including GBV, SEA/SH; discussion about air, water and noise pollution and its mitigations and their measures and installation of light.
21	Community Consultation held at Ward 9 (Maleth Chowk to west, Thalahi Canal Road)	8-Nov-23	Total - 26, (M-20, F-6)	Detailed Discussion on updated design aspects; discussion on avoiding heritage and religious important location; land requirement, land acquisition process and on social and environmental aspect; discussion on employment generation.

The major concerns discussed during the public consultations were as followings;

- Priority for road construction was requested, and the locals also demanded for employment opportunities in the project's construction works
- The locals requested to protect/conservate public utilities like, temples in Badi Nahar, Kadmaha Tole- Damawati – Piprahi – Khado Khola Road at Ch: (0+000 and 2+130), Sujit Pokharel House to north, Chandi Das Mill – Shiva Temple Road at Ch(0+200 and 0+700), also in Cold Store Road – Ram Janaki Mandir – Khando Bandh Road at Ch:0+560, and irrigation canals. The discussions also focused on the timely reinstatement of any private or public properties damaged during the construction phase.
- Awareness of workers and locals regarding social harmony was also discussed
- Environmental and Social Safeguard provision were circular during ESMP consultation, individual opinion on ESMP were collected which are attached in Annex 2. Major concerns of dust problem, and disturbances due to noise during construction phase were raised as a concern as there are settlements.
- In Badi Nahar, Kadmaha Tole – Damawati – Piprahi – Khado Khola Road, dust problem, and disturbances due to noise during construction phase raised as a potential concern as there is schools (Ch: 2+140) along the road alignment.
- It was discussed that open land at Ranjitpur (ward no 16) can be used for campsite & stockpile site.
- Quality of the road construction works was one of the concerns raised.

The minutes of the meetings are provided in Annex 2. Public engagement has been considered as one of the key tools to ensure the safeguards aspects of the project. Hence, public consultation will be taken as a regular process during the construction phase as well.

5.2 Information Dissemination

For the success of the project, all information about the proposed activities and their expected results will be publicly shared with the affected people and interested stakeholder. In collaboration with the relevant local authorities, NGOs and other community groups, the project will disclose all the relevant information in the various stages of project cycle. Agencies working for environmental and social aspects will also be informed about the ongoing and planned activities, to identify jointly appropriate protective or corrective measures. The following approaches will be adopted to make information accessible to all the concerned stakeholders throughout the project cycle;

- Mass Media: Use local media like newspaper, radio and TV.
- Meeting/Workshops
- Distribution of project documents: Certain project documents will be disclosed in Nepali (or other relevant local language). Project-related information materials will be distributed prior to each construction work to local officials, local people, stakeholders and other concerned offices like municipality, Ward, Tole Committee etc.

Point of information will be defined at the municipality office level during implementation to disseminate all the documents related to the project activities. Based on the public information disclosure policy, PCO and the municipality will unveil the information through its website. The information dissemination plan for the project is presented in Table 5.3

Table 5-3: Information Dissemination Plan

Means of Communication	Timeline & Frequency	Responsibility	Resources
Municipality Website (project details, GRM)	At the start of the project, & maintained throughout	PIU/ Information Officer	Information Officer
Newspaper and local Radio (project salient features, dates, GRM etc.)	Project implementation phase Weekly basis	PIU, municipality Information Officer	Radio-program, FM Radio Clip
Project leaflets and Fact Sheet	Project details, Implementing agencies, project period - 2 times	PIU, Information Officer	Double-sided color A4 (500 copies)
Face to face engagements - meetings, focus group discussion with relevant stakeholders	Project Main Activities, Financial Assistance, Implementing agencies, project period etc. 2 time in year	PIU, Information Officer	
Ward offices and Municipal social section/Library (Hard copy of ESMP)	Project period- 2 times	PIU/Municipality	Focal person

5.3 Public/Community Consultation Plan

During project implementation phase, all consultations on social and environmental issues will be conducted in a way that includes women and vulnerable social groups (such as low-income households, members of certain castes, and people with disabilities, among others). Details of the Project Consultation Plan are presented in Table 5.17

Table 5-4: Stakeholder Consultation Plan

Objective and Target Goal	Method	Responsibility
Build Local Ownership		
Introduce Project DPR Report and its components	Group Meeting/Workshops	DSC/ Municipality
Maintain efforts for two-way communication with relevant stakeholders through the project	Face to face meeting with concerned stakeholders	DSC, Ward Level Representatives.
Start Consultation Process with Potentially Affected Communities by construction and operation of road		
Identify communities to be potential affected by project	Electronic and face to face communication with relevant stakeholders and implementing agencies	DSC, Municipality Ward Representatives
Consult with community representatives and ensure that their concerns with the proposed project are addressed	Face to face meeting with community representative Meeting will take place following protocol for meeting.	DSC, Municipality Ward Representatives
Ensure that the views and needs of vulnerable segment (if required) of communities, including but not limited to poor, women, elderly, and are addressed by the subproject	Face to face meeting with affected communities' representative (including social officer of Municipality, women's representative etc.)	DSC, Municipality Ward Representatives.
Implementation Phase		
Maintain effective communication with PIU	Electronic and face to face communication with representative of relevant agency /organization	PCO, Design and Supervision Consultant Municipality Ward Representatives
Raise awareness of project activities among potential beneficiaries	Media advertisements and targeted campaign	DSC/ Municipality
Maintain consultation process with a potential affected communities and beneficiaries	Face to face meeting with affected communities' representative (including social officer of Municipality, women's representative etc.)	Design and Supervision Consultant Municipality Ward Representatives
Monitoring and evaluation community involvement	Face to face meeting with affected communities' representative	Design and Supervision Consultant Municipality Ward Representatives
Reports outlining progress of activities related to engagement and communication	Collation of progress report, self-evaluation by PCO	PCO
Agreement on operation and maintenance system	Electronic or face to face communication with relevant stakeholder Face to face meeting with	Design and Supervision Consultant Municipality Ward Representatives

Objective and Target Goal	Method	Responsibility
	local authority	
Implementation of ESMP	The contractor will prepare the various standalone plans to comply with ESMP requirements. By including all the stand alone plans, the contractor will prepare Contractor's Environmental and Social Management Plan (ESMP) and submit it to PIU. This requirement will be included in the contract BOQ	The contractor's bid document must include the requirements outlined in the ESMP. Before work starts, the contractor will draft the stand-alone plans, present them to the PIU, and get permission. The standalone plan comprises, among other things, a management plan for the environment, health, and safety; a strategy for traffic; a plan for handling complaints; a plan for managing spoils; a plan for disaster readiness; a plan for managing camps; a plan for managing labor; and a plan for managing air, water, and noise.

5.4 Grievance Redress Mechanism (GRM)

As part of the implementation stage the PIU, the project municipality, project engineers and Environment and Social staffs will directly interact and consult with the people of project alignment.

At first instance, the project-affected grievant should raise their grievance with the information office of the project, and the information office will determine whether it can be resolved within the project, at the ward level, or whether another mechanism should be used. More details regarding the GRM are discussed in the following sections.

5.4.1 Structure of the GRC

Two-level Grievance Redress Committee (GRC) has been formed for the sub-project. The composition of the proposed GRC is given below. The formation related municipal letter and minutes is attached in Annex II.

a. The first level of GRC sits at the project site level. It is composed of the following team:

Chairperson of ward	– Coordinator
Female ward member	– Member
Representative from Tole Land Organization (Project area)	– Member
Female representative from the Project Affected Households (PAHs)	– Member
Representative from the DSC (Supervision Engineer/Social/Environmental Safeguard Specialist)	–Member Secretary
Representative from the construction company	– Invited Member

b. The second level GRC at the municipality level. It is composed of the following team:

Ms. Israt Prabin, Acting Mayor	– Coordinator
Mr. Bishnu Pd. Gurung, Chief Administrative Officer	– Member
Mr. Ashok Kumar Das, Focal Person of Municipality, NUGIP	– Member
Mr. Manoj Kumar Yadav, Planning and Social Development section head	– Member
Mr. Ramchandra Das, Municipality's Grievance Officer	– Member
Mr. Er. Prabhu Narayan Chaudhary, DSC	– Member-secretary

- c. The third level GRC has been established in PCO level.

5.4.2 Processes of the GRM

Grievances shall be submitted through various mediums, including in person, in written form to a noted address, through a toll-free phone line or through direct calls to concerned officials, and emails. The PCO will appoint a person (Operator) at PCO- Kathmandu to receive such calls and online messages. The person (Operator) based on nature of complaint, will forward the same to the information office or ward committee. A ticket or a unique number will be generated for all such call, messages, and letters. The complainant will follow up based that unique number with Operator at PCO-Kathmandu. All complaints will be responded within two weeks at any level. In case response is not received from 1st level within 15 days, the complaint will be escalated to next level. If complaint remains unaddressed at 1st and 2nd within maximum 30 days after registering the complaint, it will be elevated to 3rd level at PCO level. The PCO within 7 days of time should instruct the concerned person at Rajbiraj Municipality level to arrange for a hearing within maximum 5 days of time. Effort will be given by all levels of GRCs to conduct hearing and resolve the concern at their level up to the satisfaction of complainant within the stipulated timeframe. In case 1st and 2nd level GRCs are unable to resolve the concern up to the satisfaction of complainant, these GRCs' or Complainant may approach to 3rd level of GRC at PCO Level. After conducting hearing at any level of GRC, the decision will be communicated to complainant within maximum 30 Days of time.

For grievance redress, a register has maintained in each sub-project site for collection complains, and will document following information (i) name of the person (ii) date complain was received, (iii) nature of complaint, (iv) location and (v) how the complaint was resolved. All local contact information and options for complaint submission will be available on site, on Toles, Wards, municipality office, PCO on information boards and the project municipality websites. A half yearly report on Grievance Redress by the subproject project will be prepared and will be sent to the project municipality's GRCs by Wards' GRCs and ultimately to GRC of PCO. The PCO will forward the same to the World Bank.

The project GRM will include a process for addressing any SEA/SH-related grievances, including the appointment of a focal person to specifically address SEA/SH cases and to provide training/orientation on SEA/SH cases.

5.4.3 Further details of the GRM

The functions of grievance mechanism include redressing grievances of community / beneficiaries /project affected persons in all project respects, providing rehabilitation and resettlement assistance and related activities, and hearing grievances from workers involved in the project at any level or phase. The system will be established to report back to the concerned community or persons regarding the decision on the complaint. The grievances related to women will be dealt by women officer. As required, the social mobilizers will be recruited. GRC will deal/hear the issues related to Environment, R&R and individual grievances and will give its decision/verdict within 30 days after hearing the aggrieved person. The final verdict of the GRC will be given by the Head of GRC in consultation with other members of the GRCs and will be binding to all other members. No any grievances have been registered till to date. Potential grievances which may need to be addressed are listed below:

- Loss of livelihood
- Access to resource /utility/facility

- Ambient air and noise Quality
- Impact on water quality/resource
- Grievance from vulnerable community
- Gender related issues
- Grievances from workers
- Safety and risk repeated to project development

5.4.4 Other Mechanisms for Grievance Redress

All complainants have the option to approach court/judiciary or the World Bank's Grievance Redress Service in case he or she is not satisfied with the verdict provided.

6. CAPACITY DEVELOPMENT & TRAINING

Knowledge transfer

Knowledge transfer during road construction is a vital process that ensures the active involvement and understanding of the local community. Transparent communication channels play a pivotal role in disseminating information about project timelines, potential disruptions, and construction activities. Regular town hall meetings, newsletters, and dedicated project websites keep residents informed, fostering a sense of trust and cooperation. Engaging the community through initiatives such as focus group discussions and public forums allows them to voice concerns and contribute to decision-making processes, creating a collaborative atmosphere. Educational programs tailored for the local population further enhance knowledge transfer by covering technical aspects of construction, safety guidelines, and the anticipated impact on daily life. Providing information on traffic diversions, alternate routes, and expected delays helps individuals plan their commutes efficiently, minimizing inconvenience. Visual aids, such as maps and 3D models, facilitate a better understanding of the construction process, while embracing technologies like virtual or augmented reality enhances engagement. Environmental considerations are also addressed through education, encouraging eco-friendly practices and promoting environmental stewardship within the community. Regular monitoring and feedback mechanisms ensure that knowledge transfer strategies remain effective and responsive to the evolving needs of the local population. Overall, effective knowledge transfer creates an informed, engaged, and supportive community, contributing to the successful execution of road construction projects while minimizing disruptions and fostering a sense of shared responsibility for the project's outcomes.

Road construction workshop and training

Implementing road construction training and workshops for the local community is an essential initiative that empowers residents with valuable skills and insights into the construction process. These training programs aim to bridge the knowledge gap, providing locals with a comprehensive understanding of the technical aspects of road construction. Workshops can cover a range of topics, including construction methods, safety protocols, and the use of construction equipment. Practical demonstrations and hands-on experiences allow participants to gain firsthand knowledge, fostering a sense of confidence and competence. Additionally, these training sessions can highlight the economic opportunities generated by road construction projects, encouraging locals to explore potential employment within the construction industry. By offering specialized training tailored to the unique needs of the community, individuals can acquire skills that are directly applicable to the ongoing construction activities, promoting inclusivity and community involvement. Moreover, these workshops serve as a platform for open dialogue, enabling construction experts to address any concerns or queries raised by the participants. This interactive approach enhances community engagement and collaboration, creating a more informed and cooperative environment. Overall, road construction training and workshops for the local population not only contribute to the overall success of the project but also leave a lasting impact by empowering individuals with valuable knowledge and skills that

can extend beyond the construction phase, fostering a sense of self-sufficiency and community development.

Local employment

Road construction projects offer a significant avenue for local employment generation, providing a valuable opportunity for community members to contribute to and benefit from infrastructure development. By actively involving locals in various aspects of the construction process, such as labor, skilled trades, and support roles, these projects become catalysts for economic growth within the community. This not only addresses unemployment concerns but also fosters a sense of ownership and pride among residents as they actively participate in the development of their own surroundings. Local employment generation during road construction goes beyond financial benefits; it creates a skilled workforce within the community, enhancing the overall employability and self-sufficiency of individuals. Moreover, by prioritizing local hiring, construction projects can positively impact the socio-economic fabric of the community, promoting social cohesion and stability. Training programs and skill development initiatives can complement these efforts, equipping local workers with the necessary expertise to contribute effectively to the construction process. Ultimately, the emphasis on local employment in road construction projects establishes a symbiotic relationship between the construction team and the community, fostering a collaborative approach that not only builds infrastructure but also contributes to the sustainable development and prosperity of the local residents.

The costs for these training and capacity development programs are included in ESMP..

7. COST ESTIMATES

Cost Estimate of the proposed road is as follow.

Rajbiraj Municipality
Office of Municipal Executive
Nepal Urban Governance and Infrastructure Project (NUGIP)
Saptari District, Madhesh Province
Nepal.

Summary of Cost

Project : *Up-gradation of Different Inter-connected Roads within Rajbiraj Municipality*
Location: *Rajbiraj, Saptari*

Bill No.	Description	Amount (NRs)	Remarks
1	General Item	7,234,445.67	1.51%
2	Site Clearance and Earthwork	36,481,792.86	7.62%
3	Drain and Cross Drainage Work	120,717,257.63	25.20%
4	Retaining Works	23,768,114.87	4.96%
5	Pavement Work	268,059,083.06	55.97%
6	Bio-engineering	99,461.78	0.02%
7	Road Furnitures	9,553,441.34	1.99%
8	Footpath and Kerbstone Work	11,003,129.10	2.30%
9	Day Works	2,055,109.00	0.43%
10	Environment and social safeguards	5,989,134.23	
	Sum of Sub-Total	478,971,835.32	100.00%
	4% Contingency	19,158,873.41	
	13% VAT	62,266,338.59	
	Total PS	5,989,134.23	
	Total with PS	566,386,181.55	
	10% Physical Contingency	47,897,183.53	
	10% Price adjustment Contingency	47,897,183.53	
	Grand Total	662,180,548.62	
	Cost per Km	48,454,598.90	

9 Environment and social safeguard						
Item No.	SS	Description	Unit	Total Quantity	Amount (NRs)	Remarks
9.1	111	Relocation of public utilities/services and repairing for existing infrastructure (electricity poles) as instructed by engineer (Ref-NEA).	PS	1.00	3,134,134.23	NEA (Nepal Electricity Authority)
9.3	111	Environment Monitoring Works: Air quality, Noise Level, and Water Quality Testing and Monitoring as per instruction of Engineer (SS/SP-111)	PS	1.00	450,000.00	
9.4	111	Environmental and Social Mitigation Works: Provision of PPEs; Solid Waste Management Works; Safe Storage of Chemicals and lubricants; Public Safety (metal/wooden Planks, sign boards, etc.); Damage Repairing of any vibration related damages and other relocations; Greenery Promotion works (Relocation of Trees) as per instruction of Engineer (SS/Sp 111)	PS	1.00	980,000.00	
9.5	111	Public Awareness and Public Participation: Awareness on OHS, Child Labour, Environmental Conservation; Activities to mitigate against SEA/SH-related risks including formulating and adopting Code of Conduct, including sections on safety of women and girls, which will be included in all contracts and signed by workers, and provision of training on the CoC provided to all workers; stakeholders consultations including dissemination of project information, maintaining a functional GRM at the project level to address timely the project-related grievances of communities and other stakeholders, and Site Monitoring as per instruction of Engineer. (SS/SP-111)	PS	1.00	1,425,000.00	

List of References

- *Environment Protection Act, Government of Nepal, 2019*
- *Environment Protection Regulations, Government of Nepal, 2020 (and amendments)*
- *Environmental and Social Management Framework, Nepal Urban Governance and Infrastructure Project, August 2020, the World Bank*
- *Final Detailed Project Report on Up-gradation of Different Inter-connected Roads Within Rajbiraj Municipality, November 2023*
- *Nepal Human Rights Year Book 2023, Informal Sector Service Center (INSEC), Kathmandu.*
- *Project Implementation Manual, Nepal Urban Governance and Infrastructure Project, December 2022, the World Bank*
- <https://censusnepal.cbs.gov.np>

List of Annexes

Annex 1: Environmental and Social Screening Checklists

Annex 2: Minutes, Public Notice and Letters

Annex 3: Proposed Typical Cross Sections & Quarry Site at Bardibas

Annex 4: GoN Permissible Environmental limits/standards

Annex 5: Air, Water, and Noise Quality Test Report

Annex 6: Code of Conduct (CoC) on GBV

Annex 7: NEA Pole Shifting Cost

Annex 8: OCMC Data and Implementation Schedule

Annex 9: Cadastral Map

Annex 10: Meeting & Site Photographs