Environment and Social Impact Assessment

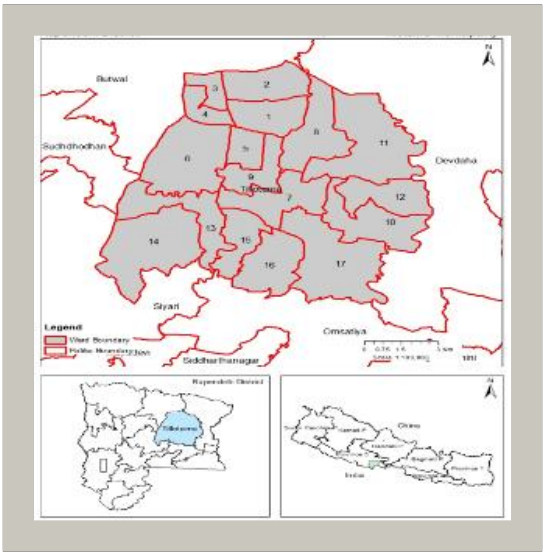
and

Environment and Social Management Plan

of

Upgradation of Mangalapur - Kanchibazar Road

1st DRAFT
September, 2021



TILOTTAMA MUNICIPALITY

ACRONYM

BoQ	: Bill of Quantity
CBOs	: Community Based Organizations
CBS	: Central Bureau of Statistics
DIZ	: Direct Influence Zone
DPR	: Detailed Project Report
DTMP	: District Transport Master Plan
DSC	Design and Supervision Consultant
DTO	: District Transport Office
DUDBC	: Department of Urban Development & Building Construction
EA	: Environmental Assessment
EHS	: Environment, Health and Safety
EPR	: Environmental Protection Rule
ESIA	: Environmental and Social Impact Assessment
ESMP	: Environmental and Social Management Plan
FGD	: Focus Group Discussion
FR	: Feasibility Report
GAP	: Gender Action Plan
HIV AIDS	: Human Immunodeficiency Virus Infection and Acquired Immune Deficiency Syndrome
HR	: Human Resources
IDA	: International Development Association
IIZ	: Indirect Influence Zone
ILO	: International Labor Organization
IP	: Indigenous People
ISR	: Implementation Status Review
KII	: Key Informant Interview
NGO	: Non-Governmental Organization
NUGIP	: Nepal Urban Governance and Infrastructure Project
OP	: Operational Policy
OP/BP	: Operational Policy/Bank Policy
PAP	: Project Affected Person
PCO	: Project Coordination Office
PCU	: Passenger Car Unit
PIM	: Project Implementation Manual
PIU	: Project Implementation Unit
PPE	: Personal Protective Equipment
RAP	: Resettlement Action Plan
RoW	: Right of Way
SEA/SH	: Sexual Exploitation and Abuse/Sexual Harassment
SHE	: Safety, Health and Environment
STD	: Sexually Transmitted Disease
TOR	: Terms of Reference
ULG	: Urban Local Governments

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CHAPTER 1: INTRODUCTION

1.1. Project Background

Nepal has recently transitioned from a unitary to a federal government system, comprised of three tiers of government with seven provinces and 753 local governments for which new legislation, institutions, and administrative procedures are being formalized as constitutionally prescribed. To enable the federal implementation process and to support Urban Local Governments (ULGs) in the efficient provision of assigned service delivery responsibilities in the context of rapid urbanization, the proposed Nepal Urban Governance and Infrastructure Project (NUGIP), with support from the World Bank (WB), aims to address two main challenges under the new federal context: (i) limited institutional systems and capacities of ULGs; and (ii) critical gaps in core municipal services and infrastructure.

The Government of Nepal (GoN) is receiving financing from the International Development Association ("World Bank") towards the cost of the Nepal Urban Governance and Infrastructure Project (NUGIP). The Department of Urban Development and Building Construction (DUDBC) within the Ministry of Urban Development (MoUD) is the primary implementing agency for NUGIP, and bears the complete responsibility of project implementation, management, supervision and coordination. A Project Coordination Office (PCO) has been established under the MOUD, DUDBC for carrying out activities related to the project and is responsible for coordinating implementation on a day-to-day basis. The PCO is comprised of a Project Director (PD), Deputy Project Director (DPD), Project Engineers (PE), and other key project management and technical staff.

The Project Development Objective (PDO) of NUGIP is to strengthen institutional capacity in participating municipalities for strategic municipal infrastructure and service delivery. In particular, NUGIP will aim at: a) improving access to core municipal services (includes expansion of coverage, and construction and rehabilitation of basic infrastructure systems, e.g., urban roads & storm water drainage etc) in participating municipalities; b) strengthening planning, budgeting and implementation systems for municipal service delivery; and c) strengthening municipal finances and financial management systems.

NUGIP is comprised of five components:

- Component One will provide urban development grants (UDGs) to 17 municipalities for strategic municipal infrastructure and service delivery in two priority strategic urban clusters in eastern cluster (Provinces 1 and 2) and western cluster (Provinces 4 and 5). The 17 participating municipalities will be responsible for planning, preparation and implementation of the municipal infrastructure investments with direct support from proposed Design and Supervision Consultants (DSCs) and PCO.
- Component Two will support the 17 participating municipalities under Component One, plus 4 additional municipalities, on institutional strengthening through capacity building programs. The PCO and an Urban Development Support Team (UDST) will support the 21 participating municipalities in planning, preparation and implementation of institutional capacity development programs.
- Component Three will support COVID-19 response and recovery through Labour Intensive Public Works (LIPW) in 12 other municipalities. The 12 participating municipalities will take the overall responsibility of planning, administration, financial management, implementation and monitoring of LIPWs
- Component 4 supports a Contingent Emergency Response, and
- Component 5 supports Project Management and Coordination.

~~The development objective of NUGIP is to expand municipal infrastructure and strengthen institutional and financial systems in participating ULGs in Nepal. NUGIP comprises three components. The first component is investment support for strategic city-wide municipal infrastructure development and local/regional economic development projects. This component will provide financial resources to participating ULGs for financing critical infrastructure requirements, focusing on improving access and quality of core municipal services such as drinking~~

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~~water supply, solid waste management, municipal roads, storm water drainage and street lights. The second component is the capacity building and technical support for improved institutional and financial systems. This component would provide capacity building support and technical assistance to participating ULGs for targeted improvements in institutional and financial systems at the local level. The third component is the project management, co-ordination and monitoring. This component would provide the technical support to the Ministry of Urban Development (MoUD) at the federal level, and the participating ULGs at the local level, for project implementation, coordination, monitoring and reporting.~~

This environmental and social study covers the project connecting Mangalapur at Sidhartha Highway to Rohini Bridge so as to improve livelihood of the local people along the settlement. The project is expected to contribute towards the municipal capacity for urban development planning, infrastructure development and institutional development of the municipality.

1.2. Project Objectives

The objective of the project is to provide better and enhanced services to the road user along with better quality of road and improving the aesthetics of the street. As such, the proposed road subproject serves the purpose to provide basic service to the people and connect the settlements to the local and national strategic road network (SRN). The project comprises of the following components:

a) *Upgradation of existing single lane carriageway into two lanes Carriageway*
b) *Side Drain*
c) *Rehabilitation and Construction of Cross Drainage Structures*
d) *Footpath*
e) *Street light*
f) *Bus Laybys*
g) *Retaining Wall*
h) *Zebra Crossing.*
i) *Major and minor intersection improvements.*
j) *Signage and pavements marking.*
k) *Shifting of utilities.*

The sub-project was chosen based on its economic value addition and urban development requirements. The selection of the sub-projects is based on technical, environmental, social and financial sustainability.

1.3. Project Details

Tilottama Municipality lies in ~~Province 5~~ Lumbini Province, Rupandehi district at the Eastern rim of Lumbini, the birthplace

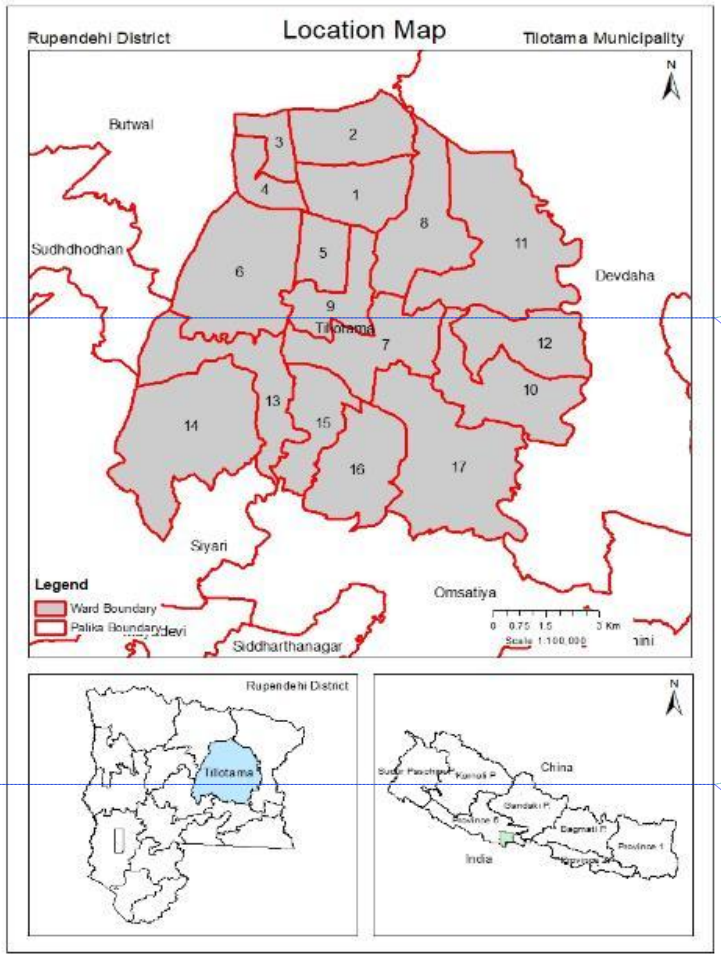

Figure 1.1: Location Map of the Tilottama Municipality

Comment [AF1]: Please ensure latest project information is included here, as provided in the final Project Appraisal Document. NUGIP now has five project components.

Comment [AF2]: And social

Comment [SD3]: Social included

Comment [PA4]: Include couple of sentences for road lenth, present condition and reiterate that this is road upgrading, not new road.

Comment [SD5]: Already in section 1.3 last para, to avoid repetition we have not included details here.

Comment [PA6]: Make sure that these are consistent with project design

Comment [SD7]: These are borrowed from DPR section 2.2 page 12

Comment [PA8]: It is Lumbini now. Please correct where necessary

Comment [SD9]: Replaced with Lumbini Province

of Buddha. Geographically, it is located between 83° 24' 0" to 83^0 33' 30" east longitude and 27° 33' 0" to 27^0 40' 30" north latitude. It is surrounded by Devdaha Municipality in the east, Sudhodhan Municipality and Tinau river in the west, Butwal Sub- Metropolitan in the north and Omsatiya, Siyari in the south. It was formed on 25th Baisakh 2071 with the combination of seven existing VDCs, i.e. Shankarnagar, Aanandaban, Karahiya, Makrahar, Madhwaliya, Tikuligadh and Gangolliya VDCs. The place was named for Tilotama river. Whereas, the Tilottama river was named after an Apsara named Tilottama described in the Hindu mythology. "Tila" in Sanskrit means a sesame seed and "uttama" means better. Tilottama therefore means smallest particle is the finest. It covers an area of 126.3 sq.km with total 17 wards.

~~The proposed study area is located in Tilottama Municipality ([formed by merging the then Shankarnagar VDC, Aanandaban VDC, Karahiya VDC, Makrahar VDC, Tikuligadh VDC, and Madhabaliya VDC and Gangoliya VDC)] of Rupandehi District, Lumbini Province that connects Siddhartha Highway to the Rohini Bridge.~~ The overall length of the proposed road is 5.00 km of with the geographical location of that starting point is 27°36'44.2"N, 83°30'33.71"E (Siddhartha Highway) and end co-ordinate 27°35'30.5"N, 83°30'54.74"E (Bewara Chowk). The location of the project can be depicted from **Figure 1.1**~~Figure 1.1~~.

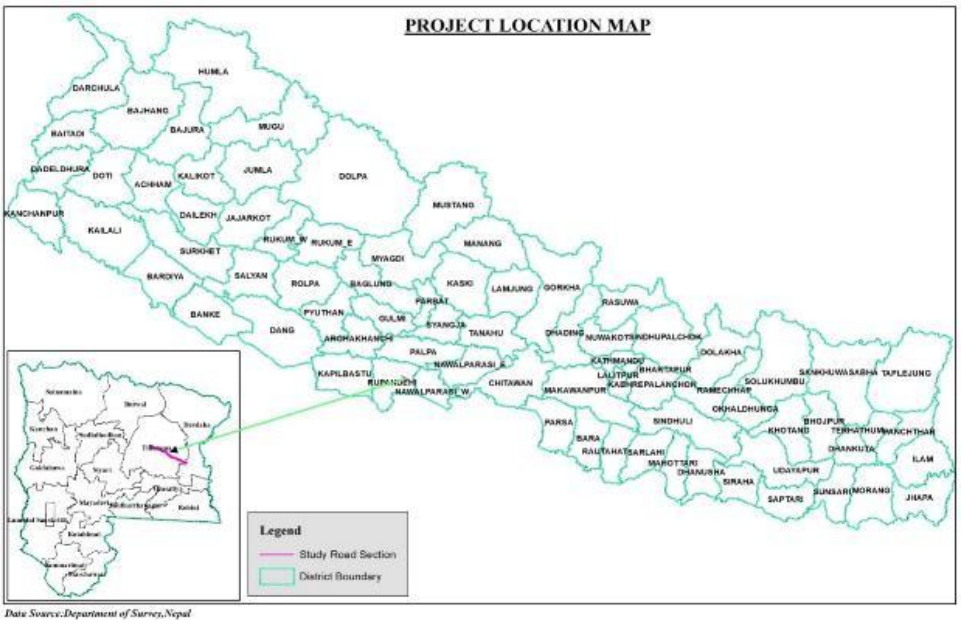

Figure 1.2: Project Location Map

The proposed project involves rehabilitation of the 5.0 kilometers section of the Mangalapur-KanchiBazar Road in Tilottama Municipality of Rupendhi district in Lumbini Province. The road connects Siddhartha Highway with Devdaha Border. The road starts from Mangalapur in Siddhartha Highway and ends at Rohani River Bridge which is the border between Devdaha Municipality and Tilottama Municipality. The road passes through flat lands with almost plain slopes and passes through settlements, agricultural lands. The project road currently has a single lane operational paved carriageway and does not segregate slow-moving vehicles and pedestrians. The road section requires pavement reconstruction to maintain acceptable levels of service. There are no alternative routes to the project road that serve the same function as that of the stated road.

The declared Right of Way of Mangalapur –Kanchibazar[i] road is 13 meter. The project is divided in to three different cross sections viz type –A, type B, and type C. Type A proposed road width is 7.7 meter (from Chainage CH 0+000 to 0+0380), total length of type A is 0.038 Km, ii) type B: proposed road width is 11 meter (at different chainage of settlement area), total length of type B is 0.942 Km. iii) Type C-proposed road width is 13 meter (at different chainage). The total length of type C is 4.02 Km.

Comment [PA10]: Pls avoid repetition

Comment [SD11]: Repetition removed

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Comment [PA12]: Please also include a map of the alignment also showing the existing condition

Even though the RoW of the road alignment is fixed as 13 meter, ~~perhaps~~ differing road widths are proposed along the road alignment other than RoW to avoid the demolition of existing structures that fall with the RoW.

The existing traffic circulation pattern shows that the project road experience heavy traffic during the peak hours i.e morning 9.00 AM to 11.00 A.M and evening at 4.00 PM to 6.00 PM. Most of the trips are home based trips and Manigram, Madhuwaliya, Tikuligadh, Shankarnagar, Kothihawa, Yogikuti are the major destinations.

Mangalapur is a collector road having ROW of 13 m. This road continues joining further to the Devdaha municipality through the proposed road alignment. This road is straight and shortest route to Bewara Chowk, one of the major destination points. There are other numbers of municipal roads coming and meeting as artilleries to this main Mangalapur -Kanchibazar road . This alignment can be used as bypass road in future to connect Siddartha highway and Bhumahi - Parasi Highway through Devdaha Municipality which reduces traffic congestion of Butwal and Bhairahawa.

The total length of proposed alignment is 5.0 km. The project is divided into three different cross section viz Type -~~A, Type -B & Type -C. (i) Type **A** proposed road width is 7.7m. (From CH 0+000 to 0+038), total length of Type -A is 0.038 Km, (ii) Type -**B** – Proposed road width is 11 m. (at different chainage of settlement area) total length of Type -B is 0.942 Km. (iii) Type -**C** – Proposed road width is 13 m (at different chainage). Total length of Type -C is 4.02 Km.~~ The proposed scheme of Mangalapur Kanchibazar Road (upgradation up to Bewara Chowk) compared to the existing scenario is described in **Table 1.1**~~Table 1.1~~.

Table 1.1: Existing Condition and Proposed Scheme Comparison

S. No.	Description	Existing Scenario	Proposed Scheme
1	Length of Road	5.0 km	5.0 km (Mangalapur-Bewara Chowk)
2	Right of Way (RoW)-Declared by municipality	13m	13m
	Total Road Width	4 to 6 m	Type -A-7.7 m width (0+000.00 to0+038.00) – 38 m Type -B -11 m width (different chainage at settlement area) – 0.942 km Type -C – 13 m width (at different chainage) Length - 4.02 km
3	Traffic	i. 567 PCU (traffic count in 2018 at CH 0+250.00) ii. ii) 380 PCU (traffic count in 2018 at CH 6+500.00)	i. 8047 PCU in 2039 at CH 0+250.00 ii. ii) 5053 PCU in 2036 at CH 6+500.00
4	Carriageway	Average 3.75 m	7m for (0+000.00-0+038.00) & 7.5m including shyness for (0+038.00-5+000.00)
5	Pavement type	Single lane blacktopped (poor condition) road	Double lane upgradation with the 40mm of asphalt concrete, 50mm of DBM material, 150mm of base course and 175mm of sub base course with proper grade and camber
6	Median/Landscape or Green land areas	No median Provided and green land area	Median is not provided
7	Parking	Haphazard parking on shoulder and carriage way area obstructing traffic movement.	Due to space restriction, separate parking is not provided.
8	Cycle track	Nil	Nil
9	Side Drain	630m of Masonary Side Drain along the road. About 200 m. length of drain cover's slab as footpath.	Tick drain in both sides from chainage Type A1 0+000.00-0+014.96 (i.e. length = 29.92m)-tick drain (0.3*0.2) Type A2 0+014.96-0+038.00 (i.e. length = 46.08m)-tick drain (0.3*0.3)

Comment [PA13]: Please avoid speculation. Correctly describe why different RoW was chosen

Comment [SD14]: We don't know and there is no reason why different RoW is proposed, the wordings are borrowed from DPR page X "as is". After this comment, the word perhaps is removed

Comment [AF15]: Agree with the above. Please make it clear the ROW along the 5km stretch of road. Is this 13 metres ROW under Government ownership for the entire stretch of road?

Comment [SD16]: The Government ownership is approximately 13 meter, as per our understanding due to structures built in RoW (which is already in GoN name), the varied RoW is proposed avoiding structures

Comment [AF17]: If the road alignment is proposed outside the ROW, this may have impacts re land acquisition. Please clarify what is meant by this statement.

Comment [SD18]: The RoW is varied and max one is 13 meter, none of the sections are outside of 13 meter. So, the understanding of RoW outside RoW is not correct

Comment [PA19]: Please avoid repetition. This has been described already

Comment [SD20]: Thanks;removed

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S. No.	Description	Existing Scenario	Proposed Scheme
			Type B (0.45m*0.4m) (L-2764.8 2m) Type C (0.6m*0.4m) (L-824.92m) Type D (0.75m*0.4m) (L-1723.02m) Type E (0.9m*0.4m) (L-4085.84m) Type F (0.9m* 0.5m)(L-844) note: drain length includes both sides drain length and Size given is internal dimension of drain
10	Cross drainage Structures	12pipe culverts 15 slab culverts	15 pipe culverts 12 box culverts - Rehabilitation of existing pipe culverts and slab culverts in order to make double lane
11	Protection Works	Nil	Retaining wall/slope protection measures as per requirement
12	Traffic signs/signage and road marking	Nil	Provided all along the road to ensure maximum safety to pedestrian and vehicular traffic.
13	Road furniture (street lights, delineators, etc)	Nil	Provided
14	Utility	All wires and cable are hanging above ground and are in unmanaged condition	Unmanaged electric poles and wire are managed according to requirement
15	Trees and plants	Unmanaged plantation	Trees are provided on footpath
16	Total cost of road		NRs 781, 574, 621.29 (including VAT and contingency)
17	Per KM cost of road		NRs. 156,314,924.26

Source: DPR 2021

1.3.1. Existing Road conditions and inventory

The whole route of 5.0 km is black-top surface. The total road width varies from 6.25m to about 8.2m at some places. But the average road width is about 4.5m. This route has 3.5 km of settlement, 1.22 km of agricultural land & 0.28 km of barren land on either side of the road length. The average gradient of the road varies from 0.8 to 1.1 %. The list of some of the prominent features along the 5 KM road section for upgradation includes the following:

Schools :- Gautam Buddha Ma. Vi. (1+140.00, Right side), Government School (2+350.00 ,Right Side), Semra Bazar School (3+400.00, left Side), Namuna Boarding School (4+4350.00 ,Right Side)

Health Post/Hospital:- Semara Heaith Post is found at chainage (3+850.00,.Left Side) Administrative Buildings:- Nepal Telecome Office (0+100.00, Left Side), Ward Office-7 (1+270.00, Right Side), Ward Office-10 (4+500.00, Left Side)

Temple/ Gumba:- Siddharth Gumba (3+010.00 ,left Side), Shiva Tempel (3+050.00, Left Side).
Wating Station/ Chautara:- Wating Station is found along chainage (3+050.00 Left Side) and (3+450.00 Left Side).

The DPR of the project has categorically provided the details along with chainage for Road inventory and conditions, inventory of existing culverts and side drains, minor intersections, existing footpath and ~~cycle tracks~~, electrical poles, existing water supply pipelines and other details.

Comment [AF21]: Are these within the ROW? If not, what is the distance from the road to the temples? Could they be potentially impacted/damaged by road construction?

Comment [SD22]: The distance from Mangalapur to temple, Gumba is mentioned here. It is outside of the proposed RoW in that section.

Comment [AF23]: The information above notes that there are no cycle tracks. Please clarify.

Comment [SD24]: No cycle tracks

1.4. Components of proposed up-grading of road

Detail of the proposed up-gradation of road components are provided below:

1.4.1. Cross-sectional Elements

Detail cross-sectional elements proposed in the Mangalapur-Kanchibazar Road (up gradation upto 5 KM from Mangalapur to Bewara Chowk) are provided in Figure 1.3~~Figure 1.3~~.

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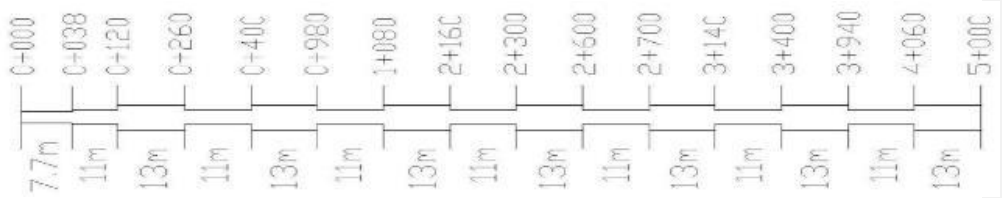

Figure 1.3: Proposed road width and their chainage

Note:

Type A :7.7m
Type – B:11m
Type –C:13m

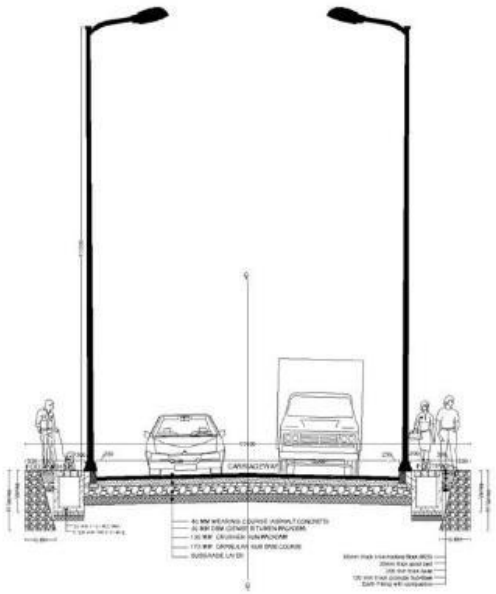

Figure 1.4: Typical Cross section for 11 m road (section Type B)

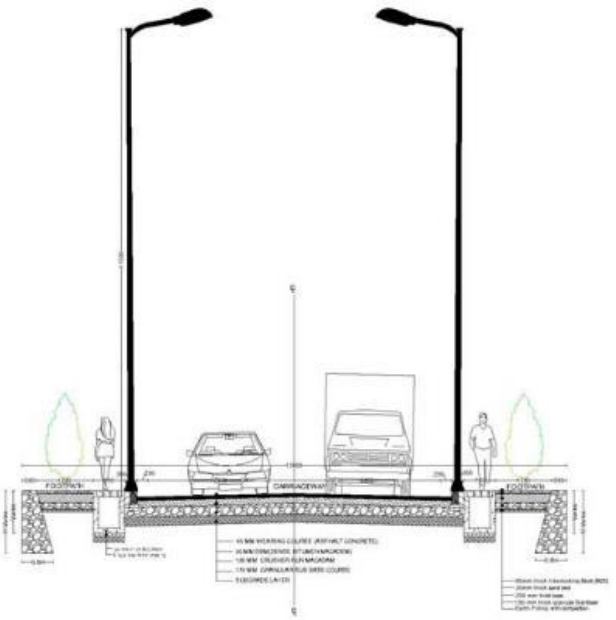

Figure 1.5: Typical Cross Section for 13m road (section Type C)

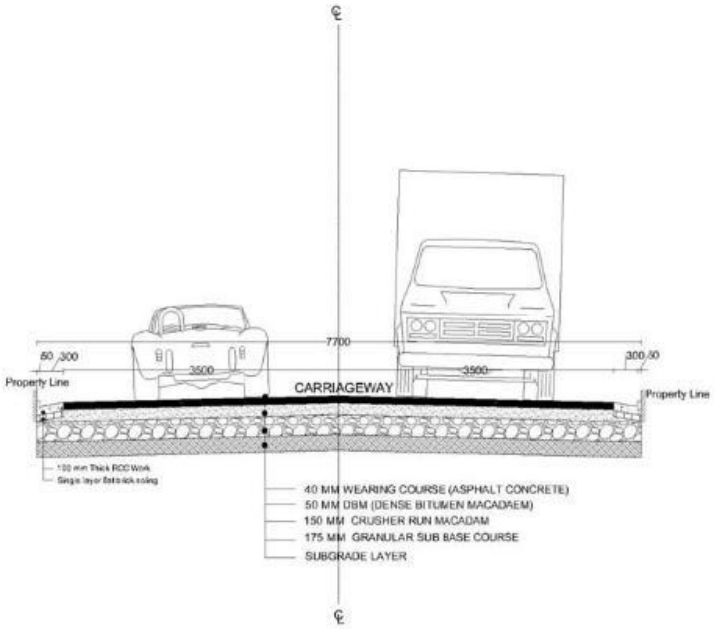

Figure 1.6: Typical Cross section for 7.7 m road (section Type A)

Note: Above figures is general typical cross section. Other typical cross sections in accordance to the surrounding are provided in DPR.

1.4.2. Carriageway

Carriageway width of 2 lanes (3.5 m each) has been provided

1.4.3. Kerbs

Barrier kerbs are designed to discourage vehicles leaving the pavement. In some places height of kerb stone has been lowered for house access for cars and motorcycle. In zebra crossing mountable kerbs is be provided for wheelchair passage.

1.4.4. Median

Median is not provided along the alignment.

1.4.5. Covered RCC drain

Tick drain is provided from chainage 0+000.00 to 0+038.00. RCC covered drain is provided from chainage 0+038.00 to the end of alignment in integration with footpath. Storm water collected are disposed through the nearest culvert sections.

1.4.6. Parking

Due to space restriction, provision separate provision of parking is not provided. However, Alternative parking locations are recommended for urban areas: Kanchibazar, Semara and Mangalapur for future development.

1.4.7. Intersections

As due to availability of less space and low traffic flow movements in junction, physical structures such as roundabouts and islands are not provided. However necessary safety measures such as traffic signs and signals, footpath etc are proposed to be installed. The crossroad upto 15m is proposed to be upgraded.

Comment [AF25]: The ESMP notes that there will be 'roundabouts' to mitigate 'Road Safety' impacts. Please ensure consistency.

Comment [SD26]: Roundabouts removed in ESMP. Since DPR didn't consider it despite its usefulness (may be due to technical reason), roundabouts are removed in ESMP

1.4.8. Road crossings

Zebra crossings in combination with cycle crossing have been provided at locations with high pedestrian crossing areas as well as settlement areas. 47 nos of such crossings have been provided along the alignment.

1.4.9. Ramps

There are 118nos. of Ramps proposed along the Road. The cost for construction of Ramp is stated in BOQ.

Comment [AF27]: The number of ramps needs to be included in the ESMP. Currently the ESMP only refers to ramps without a quantity.

Comment [SD28]: 118 no of ramps Included in ESMP

1.4.10. Shifting of Existing Electric Poles

206 nos. of electric poles lie that are within the proposed road width which are to be demolished and to be replaced and shifted with new one near kerb stone (source: DPR, 2021).

1.4.11. Sewer Drainage

As per discussion with the municipal officials, future planning of any type of sewer drainage projects has not been done. Thus, in future if any plan is made for sewer network, it will be constructed below footpath area.

1.4.12. Manhole

Existing Manholes at existing locations require to be raised to FRLs of the road. Cost of same has to be provided in the cost estimate and BOQ. However, there are no any sewer line system and manhole present along the road.

1.4.13. Water Supply Pipeline

The existing pipeline is in both side of the road for distribution of pipelines. Existing Pipe line between the chaniage of 0+000 to 3+700 has been proposed to be relocated below footpath.

1.4.14. Cross-Roads Development

Stretch of 15 m of each cross-road will be developed under this project. Minimum radius of 6.5 m has been provided for cross roads. This development of cross-roads will include the following aspects:

- Improvement of Carriageway of all major as well as minor intersections.
- Installation of Road markings at all major as well as minor intersections.

1.4.15. Road Signs and Markings

Road Markings has been provided as per Traffic Sign and Marking manual Volume I and II. Broken Line markings have been done separate lanes. There are 94 numbers of informative, regulatory and warning sings proposed at different chainage of 5 KM of road length.

1.4.16. Footpaths and Cycle Track

Dedicated cycle lane is not provided along the road. On chainage 0+000.00 to 0+200.00 (left side),)+100.00-0+200.00 (right side) nearly 200 m of the drain cover's slab has been used as a footpath or walkway near to the location of Mangalapur Bazaar whereas another section of the road alignment is devoid of the footpath or walkway.

1.4.17. 1.4.17 Street Lights and Bollard Lights

Street lights pole @ spacing 2X20m (alternatively) is proposed from chainage 0+000-5+000.

1.4.18. Bus laybys and Bus Shelters

Bus laybys are provided at various locations mentioned below in the table below where public buses or micro buses pull out of the traffic to pick and drop off passengers.

Table 1.2: Location of Bus Laybys

SN	Chainage	Side	Length (m)
1.	0+110.00 to 0+161.00	left	51
2.	0+210.00 to 0+261.00	Right	51
3.	0+429.00 to 0+480.00	Left	51
4.	0+600.00 to 3+380	Right	51
5.	0+880.00 to 0+931.00	Left	51
6.	1+063.00 to 0+114.00	Right	51
7.	1+393.00 to 0+444.00	Left	51
8.	1+980.00to 2+031.00	Right	51
9.	2+103.00 to 2+154.00	Left	51
10.	2+384.00 to 2+435.00	Left	51
11.	2+436.00 to 2+487.00	Right	51
12.	2+935.00 to 2+986.00	Left	51
13.	3+030.00 to 3+081.00	Right	51
14.	3+214.00 to 3+256.00	Left	51
15.	3+342.00 to 3+393.00	Right	51
16.	3+ 537.00 to 3+588.00	Left	51
17.	3+586.00 to 3+ 637.00	Right	51
18.	3+911.00 to 3+ 962.00	Left	51
19.	4+ 131.00 to 4+ 182.00	Right	51
20.	4+ 209.00 to 4+ 260.00	Left	51
21.	4+ 671.00 to 4+722.00	Left	51
22.	4+ 843.00 to 4+ 894.00	Right	51

1.4.19. Hand railings

Hand railings are provided in 8 different locations along the alignment of 5 KM. The cost (Except Culvert) is NRs. 3343690.17 while the cost of Hand Railing for BOX Culvert is. NRs. 664,530.98.

1.4.20. Retaining/ Breast wall

Stone Masonry Retaining wall has been provided along the alignment where embankment is required. The locations and details of retaining walls are given in detail in DPR.

1.4.21. Interlock Concrete Block Pavement Design

The interlock concrete block pavement is proposed for footpath. The typical block pavement composition is given below:

- Concrete paver block-60 mm (Hexagon interlock block with compressive strength M 20)
- Sand Bed : 30 mm
- Base : 200 mm
- Granular sub base : 150 mm

1.5. ESIA Methodology

The study is undertaken following an overarching approach for Environmental and Social Impact Assessment (ESIA) and subsequently developing an Environmental and Social Management Plan (ESMP), following guidance provided by the Environmental and Social Management Framework (ESMF). A consultative and participatory process was adopted to conduct the ESIA and prepare the ESMP for the sub-project of Mangalapur –Kanchibazar road. The strategies to undertake the ESIA and preparing the ESMP required both qualitative and quantitative information gathering at both primary and secondary levels. The project team at Project Coordination Office (PCO) of Department of Urban Development and Building Construction (DUDBC), the World Bank, different national and local level stakeholders involved in NUGIP and the interaction with the community and related stakeholders on technical, environmental and social issues and consultants' observation of the intervention sites were undertaken. The ESIA/ESMP is in compliance with the GoN and the World Bank's policies and builds on the recent approaches and incorporates learning and previous experiences. The stepwise process in the preparation of ESIA/ESMP includes the following activities:

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- Reviewed scope of works in the Terms of Reference (TOR) for the ESIA/ESMP, Project Implementation Manual (PIM), feasibility reports of the sub-project
- Reviewed applicable laws of the GoN and the WB policies.
- Consulted project team, PCO, stakeholders, WB and experts.
- Reviewed the DPR of the proposed project, consulted PCO and DPR consultants.
- Followed checklist for environmental and social data of DPR.
- Prepared safeguard (including resettlement) checklists prior to the field visit.
- Visited sub-project site and consulted municipality office, district level.
- Conducted consultations, Focus Group Discussions (FGDs), Key Informant Interviews (KII), with several stakeholders
- Collected primary data for physical, biological, and socio-economic baseline information. Instrumentation monitoring was performed for air, water, and noise. For biological assessment, vegetation survey was carried out

The representation of the methodologies of the project is shown in ~~Figure 1.5~~Figure 1.5.

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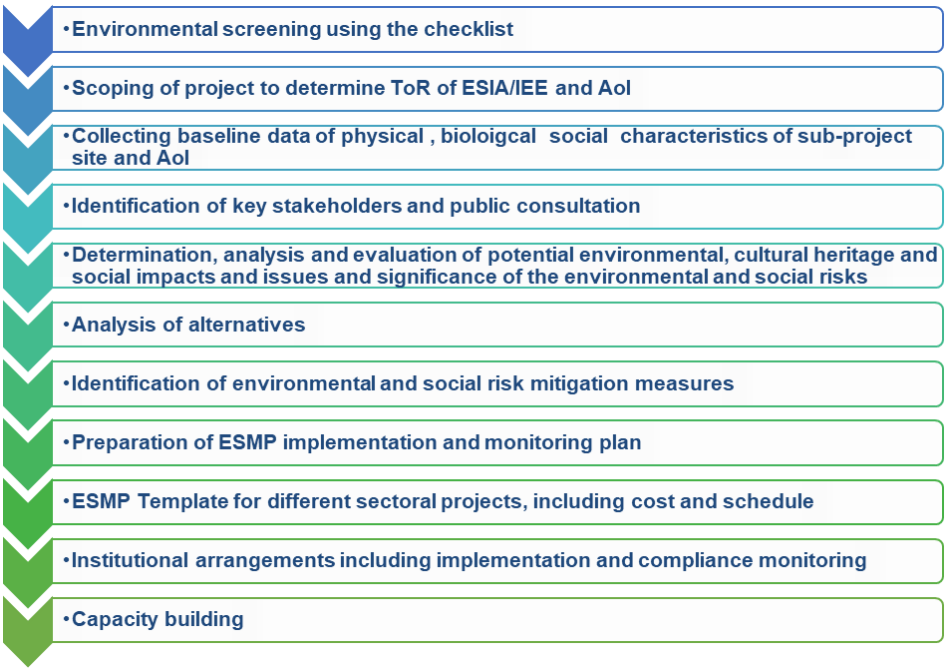

Figure 1.7: ESIA Process for all sub-projects

1.5.1. Baseline study

Baseline data was collected for both environmental (physical and biological environment) and social aspects in conducting the ESIA and was used in developing the ESMP, based on the ESMF.

1.5.2. Stakeholder Analysis

A stakeholder analysis was carried out during the ESIA stage. The following activities were carried out during the analysis:

- Identified stakeholders of the sub-project
- Consulted stakeholders
- Incorporated feedback from the stakeholders into project design
- Incorporated recommendations and mitigation measures during construction and operation
- Involved stakeholders in stages of project implementation for ownership.

Comment [AF29]: Please ensure details of this is included at the stakeholder engagement section eg what feedback, how was it included in project design.

Comment [SD30]: They suggested to avoid structures while designing road which were adopted using varied RoW

1.5.3. Gender assessment and GBV status analysis

The following activities were undertaken for gender assessment.

- Review of the legal policy framework of GoN
- Review of the set-up, capacity, and constrains within relevant institutions
- Analyze the culture amongst women of different cultural groups
- Analyze potential positive and negative impacts on women
- Analyze barriers, challenges, and constrains for the participation of women
- Identify potential entry points and interventions to enhance gender sensitivity
- Recommend project planning and implementation teams in addressing gender context

1.5.4. Assessment of potential environmental and social impacts

- Likely Beneficial Impacts
- Likely Adverse Impacts

1.5.5. Environmental and social screening

Every sub-project under the NUGIP is subject to an environmental and social screening process. The screening process establishes the level of environmental and social assessment required. The screening process intends to identify relevant possible environmental and social concerns as well as suggest any further investigation and assessment as necessary. Primarily, the environmental and social screening exercise is undertaken to determine the key environmental and social issues/concerns and the nature and magnitude of the potential impacts that are likely to arise on account of the proposed sub-projects. The fundamental environmental and social issues to be identified were determined by the type, location, sensitivity and scale of the municipal investment and sub-grant intervention. The results were used to determine the need for detailed assessment and the extent and type of environmental and social assessment.

1.5.6. World Bank Safeguard Policies

The World Bank classifies projects into one of the four categories, depending upon the type of project or specific components which have inherent environmental risks, location proximity to environmentally, socially and culturally important areas, sensitivity, potential impacts which may be irreversible or environment sensitive to changes, the scale and extent of environmental and social issues of the project, and the nature and magnitude of its potential environmental impacts.

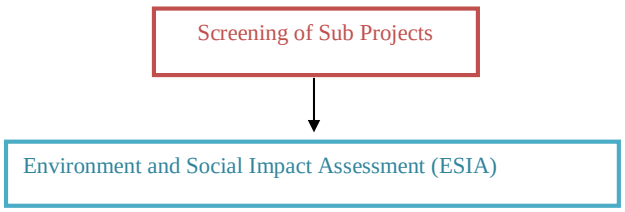

Figure 1.8: Flow of preparation of safeguard instruments for the project

1.5.7. Revision and modification of ESMP

The ESIA and ESMP is an 'up-to-date' document that will be publicly disclosed and disseminated. Unexpected situations in the sub-project or component design would therefore be assessed and appropriate management measures will be incorporated by updating the ESMP. Such revisions will also cover any modifications introduced in the design of sub-project at any stage of the project. Also, based on the experience of application and implementation of such a framework, provisions and procedures would be updated as applicable and when required with due process.

CHAPTER 2: ENVIRONMENT AND SOCIO-ECONOMIC BASELINE

2.1. Physical environment

2.1.1. Physiography, Geomorphology and Geology

Physiographically, Nepal is divided into eight different zones. i.e. Terai, Siwalik, Dun Valley, Mahabharat Range and Midlands (hills), Fore Himalaya (Middle mountain), Higher Himalaya and Trans Himalaya (High Mountain). Each of the above zones has different altitude, topography, climate, soil type, geology and vegetation characteristics. Rupandehi district covers ~~12.41% by Terai zone, 0.6% by Bhabar zone and 86.99% by plain Terai.~~

Chure hills and Duns 12.5%, Bhabar and Teari 87.5% (Rastrapati Churia Conservation Program (2015)

Comment [PA31]: Terai zone and plain Terai?? Please check

Comment [SD32]: The write up is re oriented with citation

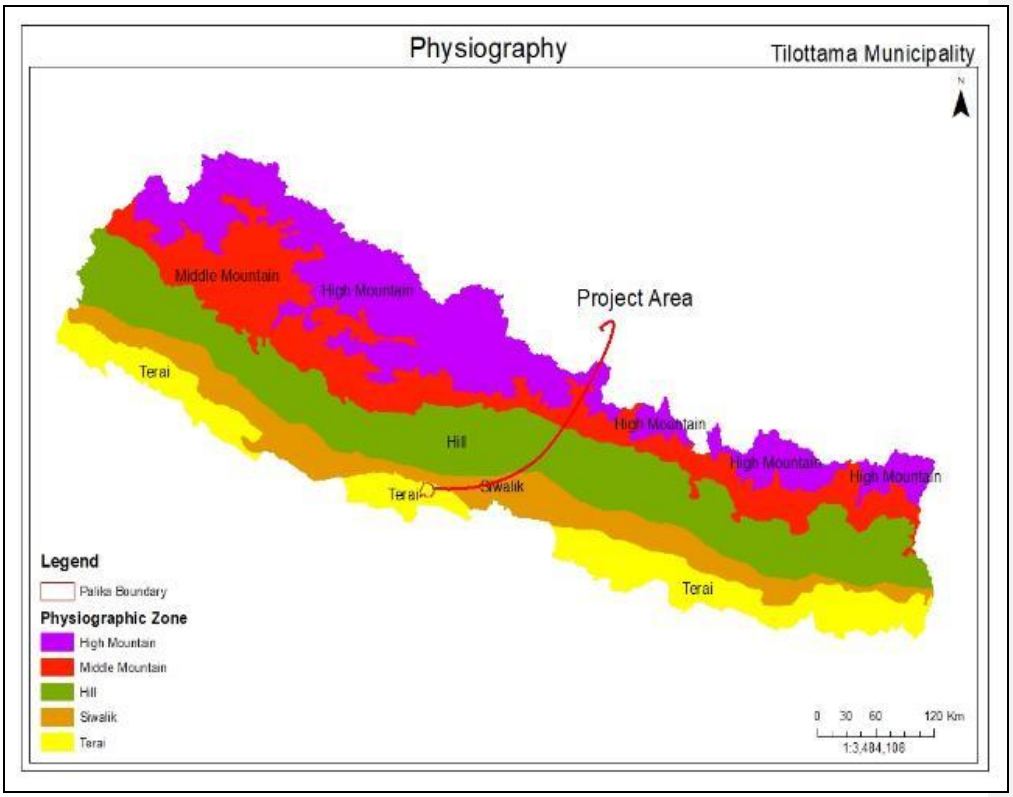

Figure 2.1: Physiographic Division of Nepal and project area

Tilottama Municipality falls on Terai zone. Topographically, Terai is generally flat with minor relief caused by river channel shifting and down warping of the basin.

Tilottama Municipality is characterized by flat plain and lower in elevation. Also, small river valleys are filled up by the alluvial and fan deposit in the northern region. The major rock types are Alluvium (gravels in the north near the foot of the mountain, and gradually becomes finer southward. Boulder, cobble, pebble and sands and pebbly sands, silts, clay and silt in the plain Terai.

Geologically, Nepal is divided into 5 different regions. They are Terai, Siwaliks, Lesser Himalaya, Higher Himalaya and Tibetan Tethys Himalaya.

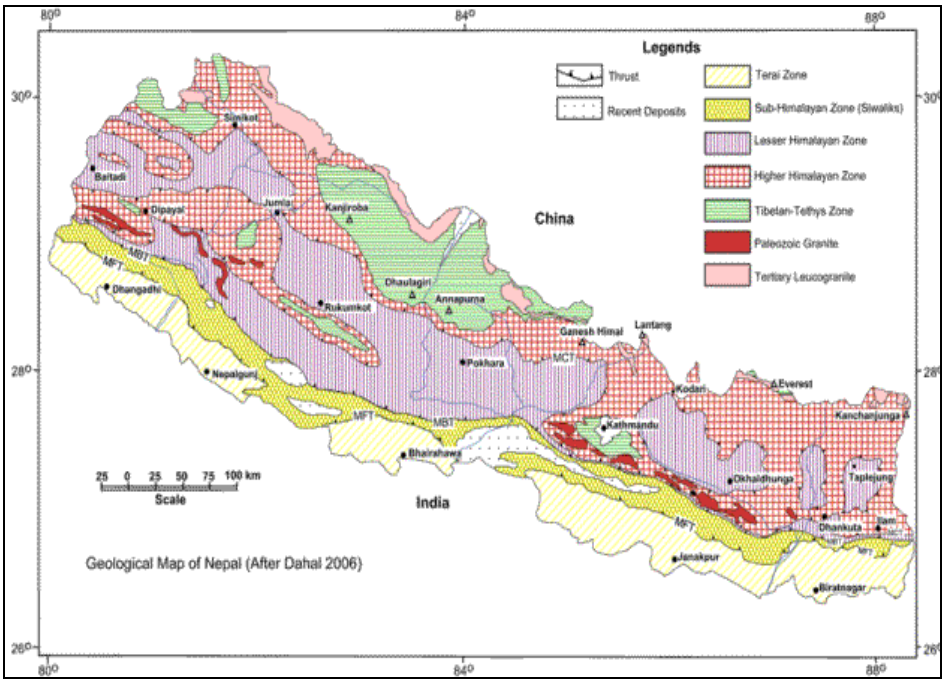

Figure 2.2: Geological map of Nepal

Geologically, Tilottama Municipality falls in the Terai zone. Northern part of the Terai zone is bounded by Main Frontal Thrust (MFT). Tilottama Municipality exhibits Recent Formation (Re), geological class. Recent Formation (Re) is characterized by alluvium, boulders, gravels, sands and clays. Churia hills have contributed to the restoration of soil fertility of this plain in the south.

The municipality is located towards southwest from Kathmandu and the south from the provincial capital of ~~province number 5~~ Lumbini Province of Nepal Physiographically, it lies between the latitudes 27° 36' 34.3" North and longitudes 83° 29' 4.3" East and the altitude varies from 25m to 60m from sea level. It covers an area of 126.2 square kilometers. Two main rivers, the Tinau and the Rohini Khola run from its border to the west and east respectively. The geological map of the project area is shown in Figure 2.3~~Figure 2.3~~.

Comment [PA33]: ??

Comment [SD34]: Lumbini province

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Gological Boundary Map of Project Area

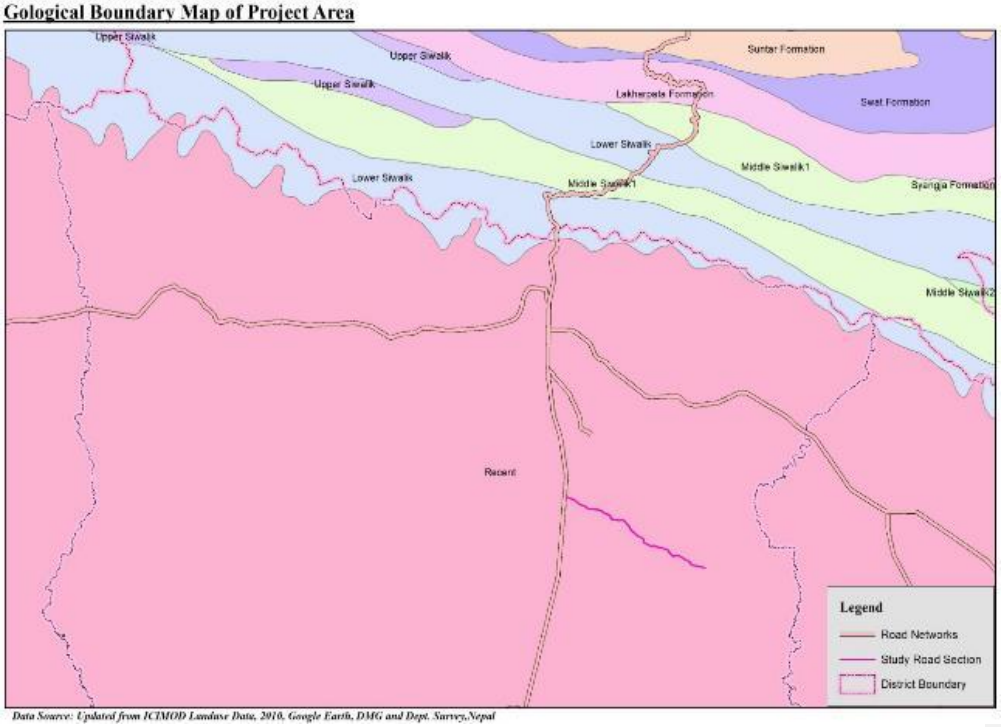

Figure 2.3: Geology of Project Site (Source: Updated from ICIMOD and Google Earth, 2021)

2.1.2. Topography

The municipality is located towards southwest from Kathmandu and the south from the provincial capital of Lumbini province of Nepal. This municipality lies in plain terrain of Terai region. ~~Physiographically, it lies between the latitudes 27° 36' 34.3" North and longitudes 83° 29' 4.3" East and the altitude varies from 25m to 60m from sea level. It covers an area of 126.2 square kilometers.~~ Two main rivers, the Tinau, and the RohiniKhola run from its border to the west and east respectively. The length of the Tinau is 95 km starting from Palpa to Indo-Nepal Border at Marchawar. The catchment area of the river is about 1081 sq.km up to the border. The Rohini River rises in the Chure or Siwalik Hills in Kapilvastu and Rupandehi Districts of Nepal's Lumbini Zone and flows south into Uttar Pradesh state, India. At Gorakhpur it becomes a left bank tributary of West Rapti River, which in turn joins the Ghāghara above GauraBarhaj, then Ghaghara, in turn, joins the Ganges. The municipality was formed by merging existing seven Village Development Committees (VDCs) namely Shankarnagar VDC, Aanandaban VDC, Karahiya VDC, Makrahar VDC, Tikuligadh VDC and Madhabaliya VDC in May 2014 and Gangoliya VDC in September 2015. The municipality is surrounded by Devadaha municipality in the East, Omsatariya and Siyari rural municipalities in the south, Siyari and Suddhodhan rural municipalities in the west and Butwal sub-metropolitan city and Devdaha municipality in the North. In the proposed road alignment and in RoW there is no landslide/flood area and other disaster prone area.

The topographical location of the project area is shown in ~~Figure 2.1~~Figure 2.1.

Comment [PA35]: Please check for repetition. Avoid repeating the write up that has been described already earlier

Comment [SD36]:

Comment [SD37]: Repeated sentences are omitted, rest are kept as is which shows the features of project and surrounding areas

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The start point of Mangalapur - Rohini road section at Siddartha Highway (Tillotama Ward Number 9)

Existing condition of the road

Tree within the RoW to be removed

Electric Poles within the RoW to be relocated

Condition of the road in Ward on 7

Public waiting place along the road alignment in Ward 7

Figure 2.4: Pictorial highlights of the Project Area

2.1.3. Climate and Hydrology

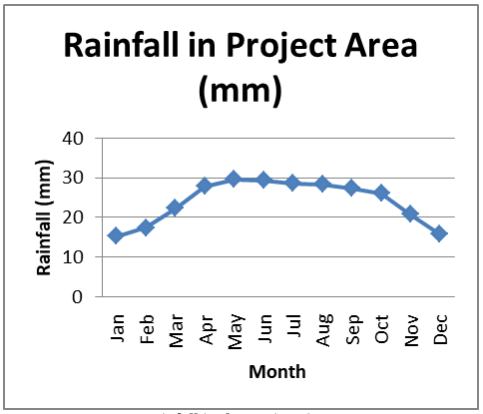
Tilottama Municipality falls on tropical climatic zone. This climate has three distinct seasons. Dry summer season begins in the month of March when the sun starts to move northward from the equator. It lasts till the middle of May. The mean minimum temperature reaches up to 19.32^{o}C and mean maximum temperature is nearly 30.92^{o}C. Rainy season starts from the month of May and ends in September. Winter season begins in the month of October and lasts till February as the sun moves southward from the equator. Higher temperature is observed in the month of April and it remains active till October. Extreme cold starts from November and last till February.

The average annual rainfall is 1753mm. November, December, and February are the driest month and most precipitation falls in July, with an average of 510 mm.

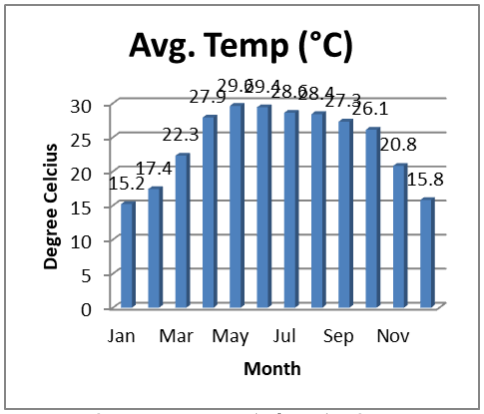
Table 2.1: Weather Data for Project Area

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. Temp (°C)	15.2	17.4	22.3	27.9	29.6	29.4	28.6	28.4	27.3	26.1	20.8	15.8
Min. Temp (°C)	7.9	9.7	13.7	19.7	23	24.4	25	24.7	23.1	21.3	13.9	8.3
Max. Temp °C)	22.5	25.2	30.9	36.1	36.3	34.5	32.2	32.2	31.6	30.9	27.8	23.4
Rainfall (mm)	20	4	15	18	61	335	594	564	312	88	2	2

Source: DPR, 2021



Rainfall in the Project Area



Average Temperature in the Project Area

Figure 2.5: Weather Details for the Project Area

The main rivers of Tilottama are Tinau River, Rohani River &Sukhaura River These river are the main river originating from Mahabharat Mountains and Middle Hills. Sukhaura (27°40‟21.8““N, 83°29‟32.3““E and major stream are originating from the Chure hills and are tributaries of the main rivers of Tilottama Municipality. In the sub-Project Rohani River is the major River that is located at the end of the road and the principle drainage system of project site. Existing drainage system will be managed to reduce the problem of water logging. The relevant DHM established rainfall station for the estimation of the discharges in the natural drains crossing the road is Butwal –Station No. 0703. The latitude, longitude and elevations of these stations are shown in Table 2.2~~Table 2.2~~.

Table 2.2: Hydrology Station of Tilottama Municipality

Stn. No.	Stn. Name	Latitude	Longitude	Elevation(m)
0703	Butwal	27°41’39.8”	83°27’58.7”	180

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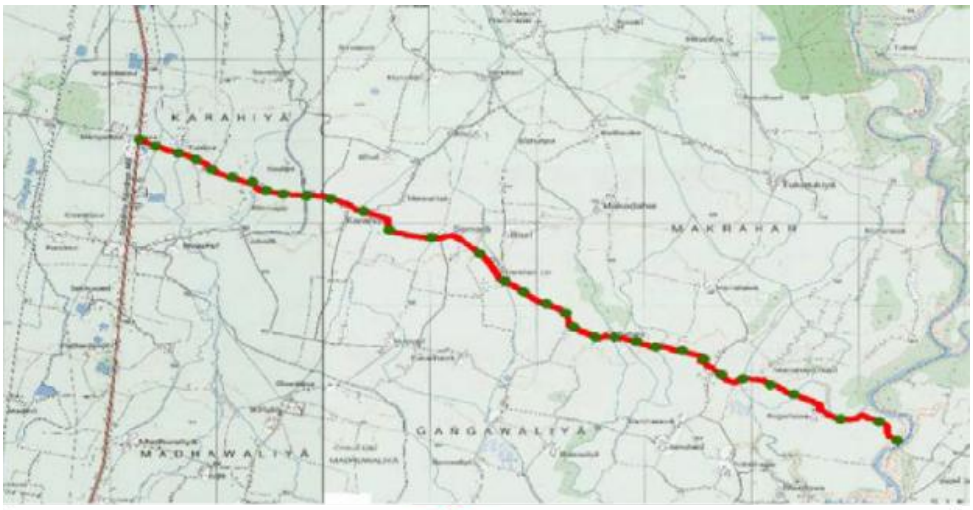

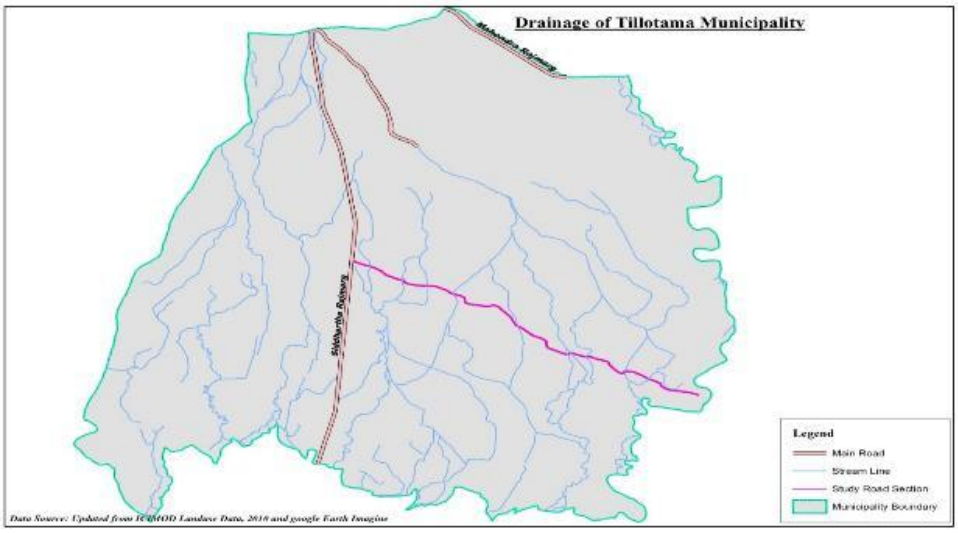

Figure 2.6: Zoning of the Catchment Area of the project (Source: DPR, 2021)

The hydrological catchment area of the project road covers about 6 sq.km including various rivers. The catchment zoning of the culvert points is provided in ~~Figure 2.6~~Figure 2.6.

2.1.4. Liquefaction Susceptibility

The Peak Ground Acceleration (PGA) for the Mangalapur-Kanchibazar site (up gradation up to 5 KM which is Bewara Chowk) has been taken as 0.29g referred from the Seismic Hazard Map of Nepal published by Nepal Seismological Centre. As per the literature reviews the strata with corrected N value greater than 30 are not susceptible to liquefaction. As the site falls under Zone V of seismic zone, the design for seismic forces should be done considering the project in Zone V. Earthquake hazard map of Nepal is shown in ~~Figure 2.7~~Figure 2.7.

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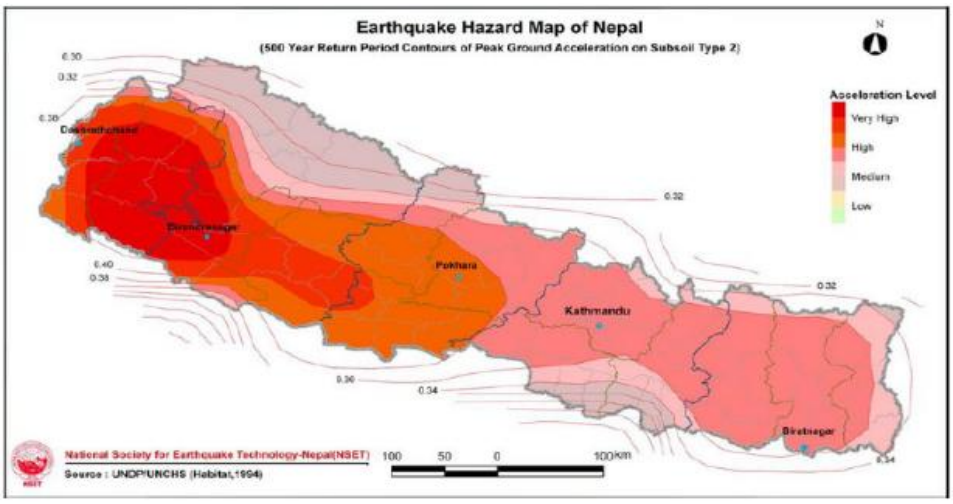

Figure 2.7: Earthquake Hazard Map of Nepal (Source: UNDP/UNCHS, 1994)

The sub-surface strata of the project area primarily consist of boulder and gravel. The liquefaction analysis indicates that the site is not susceptible to liquefaction. The materials to be used for backfilling purposes shall be of selected fill composed of sand and/or granular mixture free from organic matter or other deleterious substances. It shall be spread in layers not exceeding 25cm in un-compacted thickness, moisture conditioned to its optimum moisture content, and compacted to a dry density not less than 95% of the maximum dry density as obtained by modified proctor test (IS 2720 Part 8).

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2.1.5. Land Use

The project area consists of different settlements like commercial, residential, agriculture and open / barren land. This route has 3.5 KM of settlement & 1.22 KM of agricultural land, 0.28 KM of barren land on either side of the road length. The proposed road includes marshes and barren land too along with its alignment and has the problem of water logging in some areas. The proposed road would directly serve about 473 households i.e. about 2365 population of the municipality considering buffer of 500 meter in either direction of proposed road alignment (Project DPR report, Sept 2021). Trees can be seen along the alignment at some places. The land use map of the project area is shown in Figure 2.8~~Figure 2.8~~.

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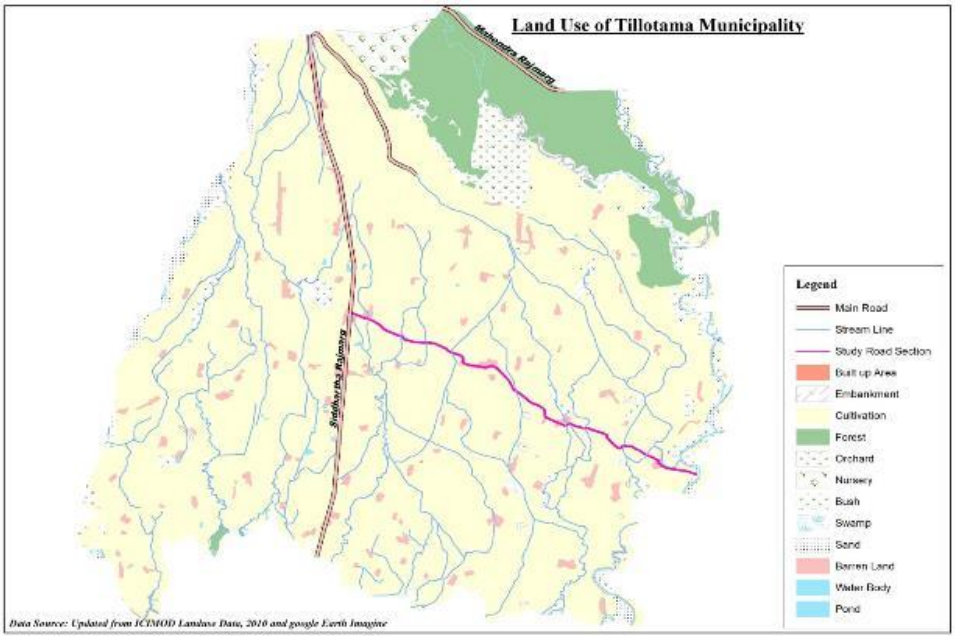

Figure 2.8: Land Use Map of the Project Area

2.1.6. Existing Infrastructures along the road alignment

2.1.6.1. Existing Waste Water/ Sewerage Network

The municipality lacks any kind of systematic sewerage system for urbanizing settlement and market areas. Majority of the households, mainly in urban settlements, have their own septic tanks for collection of seepage which is disposed of via private service providers when filled.

2.1.6.2. Existing Water Supply Network

As per field observation, about 3.7 km (from chainage 0+000 to 3+700) of existing water supply pipe network is located in the proposed alignment. Kariya Makrar KhaniPani tatha Sarsafai Abhiyan and Kariya Kahanepani Thatha Sarsaphai Abhiyan caters the water supply demand of Karahiya, ~~haraliya~~Haraliya, Semara, Ramnagar, Keulani, and Tulshipur area of ward no 9 and 7 and some part of ward 10 area.

The water supply network map shows that distribution of diameter 90 mm HDPE pipelines from Mangalapur to Semara which passes parallel to the project road and is at center of existing carriage way. It has been proposed that the pipe line will be shifted to edge of road i.e under the footpath during the construction of road project. Currently there are no planed or potential sewage and water supply projects in the project area

2.1.6.3. Existing Electrical and Telecom Lines

206 nos. of electric poles lie within the proposed road width which are to be relocated to new place.

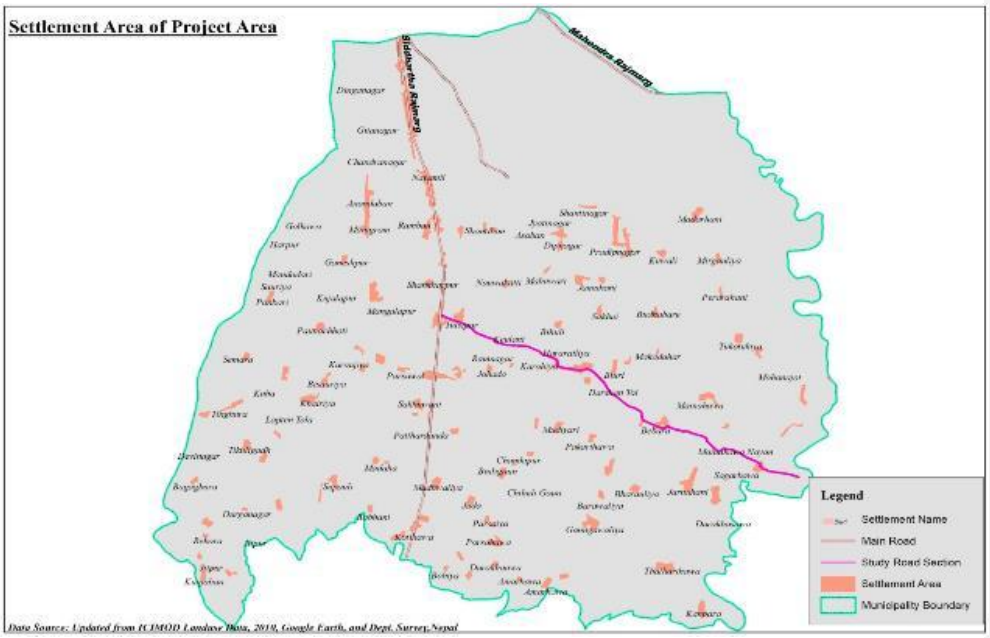

Figure 2.9: Settlement along the Project Area

2.1.6.4. Existing Road Networks

The Municipality has 5.199 km per square km of coverage of roads Municipaity Transport Master Plan (MTMP-2017). The road density per 1000 populations is 5.59 km. Total Road network within Tilottama Municipality is 584.33 km of which Strategic Road Network is 16 km. The current status of road network including strategic, Feeder and some of the Municipal Road network are blacktopped. Although blacktopped, sections of these roads do not have storm water drainage. Out of total road length, 328.75km (56.02%) is graveled, 245.65 km (41.21 %) is black topped and 16.39 km (2.77%) is earthen roads (MTMP-2017). The main and intercity roads lack public facilities like bus stand, street light and intercity bus park. Among total blacktopped road within the municipality, about 30% of road surfaces have worn out. The roads in wards 17, 10, 11, 8 and 3 mostly have graveled road surfaces. Ward 12, 14 and 17 do not have sufficient road networks as compared to other wards. The list of roads is given in Table 2.3~~Table 2.3~~.

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Comment [SD41]: Included Municipality Transport Master Plan (MTMP)

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Table 2.3: Road Infrastructure in the Project Municipality

SN.	Road Name	Total Length (km)	Average Width (m)	Graveled Road (km)	Metalled Road (km)
1.	Harpur-(Ganeshpur-Manglapur) to Kanchibazar	12.68	9.69	1.45	11.23
2.	Manigram-Pradipnagar-Madrahani Road	7.53	8.55	2.35	5.19
3.	Rehara Tikuligadh Road	2.12	6.6	1.01	1.11
4.	Jabarjastpur-SiddharthaLokmarga-Gangoliya-Kanchibazar Road	7.89	8.55	0.48	7.41
5.	Ashaban-Bhalwari-Parsawal Road	4.89	7.11	2.86	2.03
6.	Purano Bato	5.89	7.5	2.93	2.97
7.	Pradipnagar-Jamuhani-Semara Baazar road	7.5	8.15	4.5	3.00
8.	Tilottama Ringroad	30.24	8.77	24.06	6.18
	Total	**78.74**	-	**39.64**	**39.12**

Source: MTMP, 2015

2.1.7. Air and, Water, ~~Land and Sound~~ Quality

During the physical environment survey (air and~~,~~ water~~, noise~~) on project road alignment at recipient level measurement data were obtained. The water samples were collected from the project affected areas and tested in laboratory. The real time based 24 hours average PM_{10}, $PM_{2.5}$ and CO were lesser than 40µg/m^3, 30µg/m^3 and 130µg/m^3 respectively at the site. The observed values were significantly lower than NAAQS 2012 for the respective air quality parameters. The average wind was directed from South to North with maximum with speed of 19Km/hr **(**~~Figure 2.13~~Figure 2.13**).** The water quality report were found complied with National Drinking Water Quality Standards /GoN. The detail of water quality report is enclosed in **Annex V.**

v

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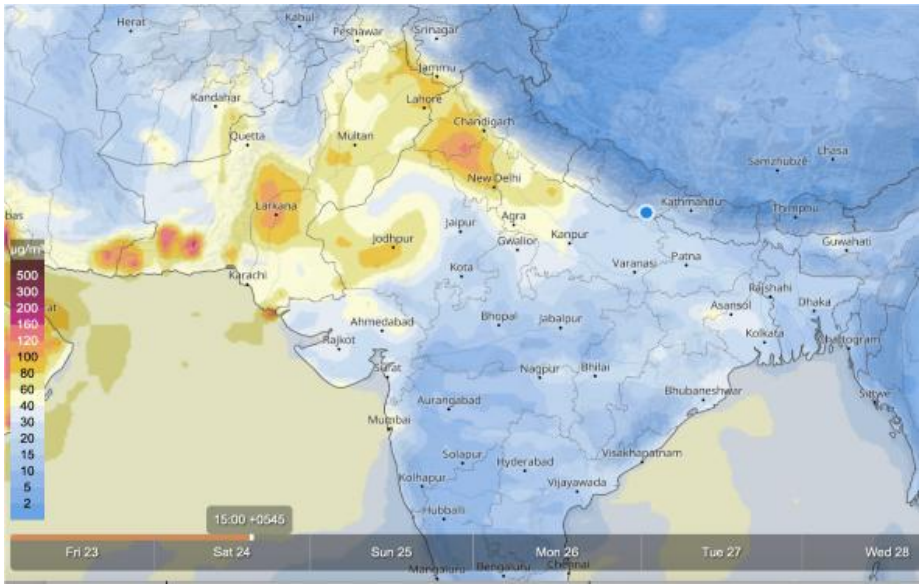

Figure 2.10: PM_{10}

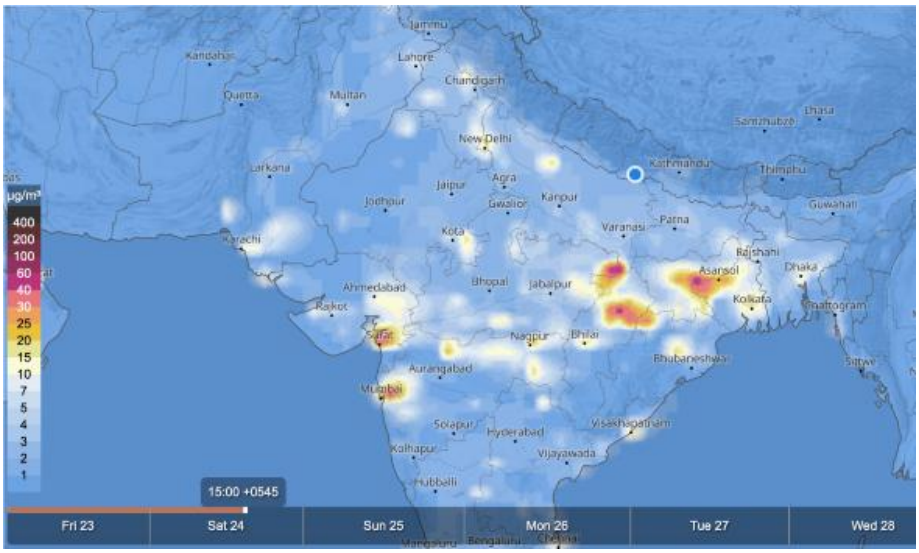

Figure 2.11: $PM_{2.5}$

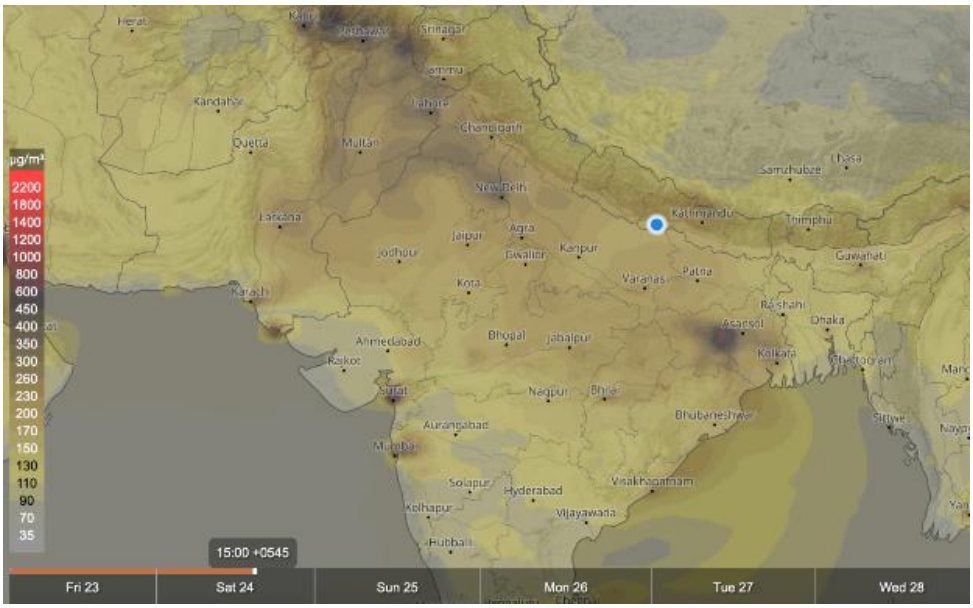

Figure 2.12: CO

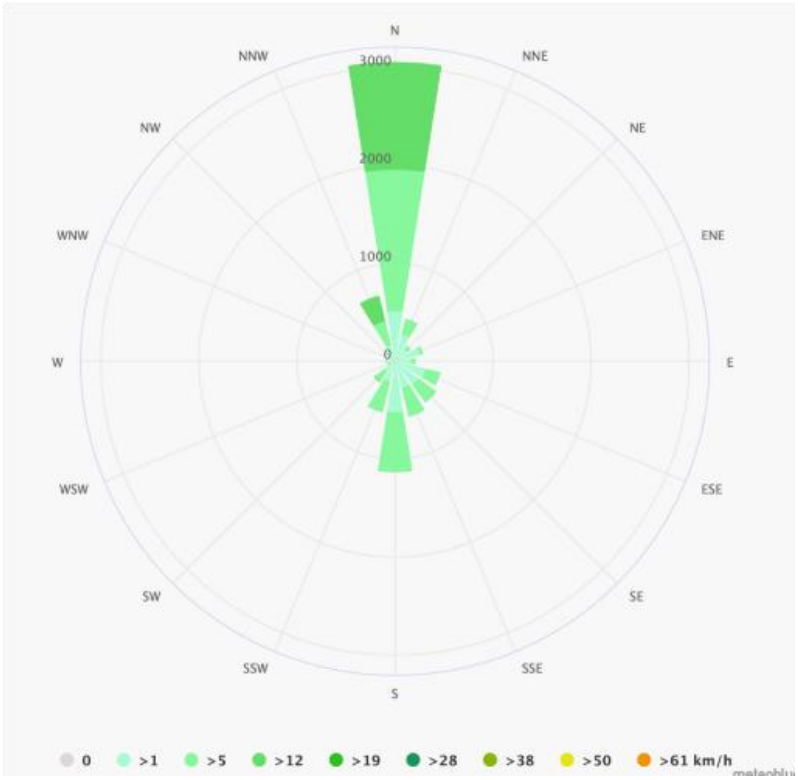

Figure 2.13: Windrose

2.1.7.1. Noise Quality

The daytime and nighttime observed sound pressure level at the monitoring site were 66dB(A) and 67dB(A) respectively. Similarly, the observed day and night sound pressure level was about 69dB(A). The observed daytime and nighttime average sound pressure levels complied the prescribed limits of GoN 2012{L_d: 75dB(A); L_n: 70dB(A)} for industrial area. The details of air, and noise are summarized in Annex V.

Comment [PA42]: Please check

2.2. Biological Environment

The nearby forest is Kariya Community Forest and Banbatika Community Forest at distance of 3.46 km and 4.58 km respectively from project area. The project has built up area and agricultural and, no forest within project area. Some scattered vegetation compositions along the RoW are listed below:

Comment [EMM43]: Could you please provide the area of agricultural land and built-up area along the RoW

Comment [SD44]: The proposed project with varied RoW is existing road no agriculture or built up area lies within it

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2.2.1. Vegetation composition in the project vicinity

The project area is highly influenced by human settlement which reveals low -natural vegetation diversity. Common vegetation found in the project Municipality are Sal (*Shorea robusta*), Asna (*Terminalia tomentosa*), Khayer (*Acacia catechu*), Sissoo (*Dalbergia Sissoo*), Teak (*Tectona grandis*), Simal (*Bombax ceiba*), Aanp (*Magnifera indica*), Bakaino (*Melia persica*),Harro (*Terminalia chebula*), Jamun (*Syzygium operculata*), Kadam (*Anthocephalus chinensis*), Nim (*Melia azadirach*) *and* Aamala (*Phyllanthus emblica*). Community forest is one of the major forest management regimes in the project municipality along with government managed forest and private forest. Nearest forest (community forest) lies about 4 KM far from the project alignment. The study area is highly influenced by human settlement which reveals less low wild -natural vegetation diversity. Common trees in the study area are shown in Table 2.4Table 2.4.

Comment [PA45]: We are more concerned about the vegetation in the project impact area.
Please write a paragraph describing the common vegetation in the project vicinity instead of this table. Better to limit the table to the trees that are found in the alignment. Also describe what is the status of management of this vegetation (Government, community, private etc)

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Table 2.4: List of Vegetation CompositionCommunity Forest in the in Project Municipality

SN	Scientific Name	Common Name	Protection Status	Use
1.	*Acacia catechu*	Khayer		Katha/Timber
2.	*Adina cordifolia*	Haldu		Timber/ Fuelwood
3.	*Aeschynomene indica*	Sola		Fodder/green manure
4.	*Albizzia lebbeck*	Seto Siris		Timber /Fuelwood
5.	*Albizzia procera*	Pink Siris		Timber/Fuelwood
6.	*Alternanthera sessilis*	Saranchi jhar		Fodder
7.	*Anthocephalus chinensis*	kadam		Fruit/ Timber
8.	*Carex spp*			Fodder
9.	*Chrysopogon aciculatus*	Kurkure ghas		Grass
10.	*Cynodon dactylon*	Barmuda ghas		Grass
11.	*Eugenia spp*			Fruit/Timber
12.	*Bombax ceiba*	Simal	GoN P	Timber
13.	*Dalbergia Sissoo*	Sissoo		Timber
14.	*Delonix regia*	Gulmohar		Ornamental Tree/Fuelwood
15.	*Datura metel*	Dhaturo		Manure
16.	*Eucalyptus spp*	Masala		Timber/Fuelwood
17.	*Ficus benghalensis*	Baar		Religious, Fuelwood
18.	*Ficus religiosa*	Peepal		Religious, Fuelwood
19.	*Grevillea robusta*	Kangio		Ornamental Tree/Fuelwood
20.	*Jacranda momosifolia*	Jacreanda		Ornamental Tree/Fuelwood
21.	*Magnifera indica*	Aanp		Fruit/Fuelwood
22.	*Melia azadirach*	Nim		Traditional Medicine/Fodder
23.	*Melia persica*	Bakaino		Fuelwood
24.	*Pithocelbium dulce*	Jalebi		Fruit/Fuelwood
25.	*Shorea robusta*	Sal	GoN P	Timber
26.	*Syzygium operculata*	Jamun		Fruit/ timber
27.	*Tamarindus indica*	Imli		Fruit/Fuelwood
28.	*Tectona grandis*	Teak		Timber
29.	*Terminalia belerrica*	Barro		Traditional Medicine/ timber
30.	*Terminalia chebula*	Harro		Traditional Medicine/ timber

Note: Cutting of trees within the ROW will be compensated from the road side plantation. In addition to, Buffer zones, protected areas, wetlands, conservation areas and eco sensitive areas are not affected by the proposed road.

S.N.	Name of the CF	Household members	CF Area (Ha)	Major Tree Species
1	Shankar nagar CF	1811	584.56	Sal, Asna
2	Kathariaya CF	3285	265.56	Sal
3	Baunnakoti CF	2100	254	Sal
4	Anandaban CF	127	50.84	Sal
5	Madhuban CF	244	17.32	Sal
6	Kalika CF	832	64.93	Sal
7	Sagarhawa CF	96	15.23	Sal
8	Gangajamuna CF	177	15.28	Sal
9	Sukhaura hariyali CF	4334	192.49	Sal, Asna
10	Milan CF	339	164.61	Sal

Major trees found in the RoW of the project are presented in Table 2.4~~Table 2.4.1~~.

Table 2.~~54~~.1: Major tree species found in the RoW of the project

SN	Scientific Name	Common Name	Use
1.	*Dalbergia Sissoo*	Sissoo	Timber
2.	*Magnifera indica*	Aanp	Fruit/Fuelwood
3.	*Melia azadirach*	Nim	Traditional Medicine/Fodder
4.	*Melia persica*	Bakaino	Fuelwood
5.	*Saraca asoca*	Ashoka	Ornamental
6.	*Psidium guajava*	Amba	Fruit/Fuelwood

Note: Cutting of trees within the ROW will be compensated from the road side plantation. In addition to, Buffer zones, protected areas, wetlands, conservation areas and ecosensitive areas are not affected by the proposed road.

There are only 64 trees that need to be removed in 5 KM road up-gradation work.

2.2.2. Mammals

3. A total of 12 mammalian species were reported in the project municipality during the consultations (**Table 2.6~~Table 2.5~~)**. None of these animals were observed during the field visit. It is to be noted that the road alignment is in urban areas with high human population density and these animals are rarely observed in some section of the alignment and since the nearest forest (community forest) lies about 4 KM far from the project alignment, the project area (RoW) is not their habitat. Further, the project alignment is not the biological corridor of these mammals.

~~A total of 12 mammalian species were observed and reported in the project wards of 7, 9, and 10 the details of which is presented in **Table 2.5**. It is to be noted that the road alignment is in urban areas and these animals are rarely observed in some section of the alignment.~~

Table 2.~~65~~: Mammals Found in the Project Area

SN	Common Name	Scientific name	Conservation Status		GoN
			CITES Appendix	IUCN Red List	
1.	Giant Flying Fox	*Pteropus giganteus*	II	-	-
2.	Rhesus Macaque	*Macaca mulatata*	II	LR/nt	-
3.	Hanuman Langoor	*Semnopithecus entellus*	I	LR/nt	-
4.	Red Fox	*Vulpes vulpes*	III	LR/lc	-
5.	Golden Jackal	*Canis aureus*	-	-	-
6.	Bengal Fox	*Vulpes bengalensis*	III	-	-
7.	Common mongoose	*Herpestes edwardsii*	III	-	-
8.	Jungle Cat	*Felis chaus*	II	LR/lc	-
9.	Common Leopard	*Pantthera pardus*	I	LR/lc	-
10.	Spotted Deer	*Axis axis*	-	-	-
11.	Blue Bull	*Boselaphus tragocamelus*	-	-	-
12.	Three-Stripped Squirrel	*Funambulus palmarum*	-	-	-
13.	Roof Rat	*Rattus rattus*	-	-	-

Comment [PA46]: We are more concerned about the vegetation in the project impact area.
Please write a paragraph describing the common vegetation in the project vicinity instead of this table. Better to limit the table to the trees that are found in the alignment. Also describe what is the status of management of this vegetation (Government, community, private etc)

Comment [R47R46]: Paraphrased accordingly

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Comment [PA48]: We are more concerned regarding the wild fauna with in the project influence zone.
Please confirm the presence in the project area and list these species carefully (Observed during field visit were just reported in consultation). If observed; how? What were the methods used? State where their actual habitat is and distance from the project area. Is it within the direct influence zone? Why they travel to project area.
Please reiterate that these species are of larger project vicinity. Also establish that the project area is not their habitat as, pointed out correctly, it is already a built up area with significant human population density.

Comment [R49R48]: Revisited and illustrated accordingly

Comment [PA50]: We are more concerned regarding the wild fauna with in the project influence zone.
Please confirm the presence in the project area and list these species carefully (Observed during field visit were just reported in consultation). If observed; how? What were the methods used? State where their actual habitat is and distance from the project area. Is it within the direct influence zone? Why they travel to project area.
Please reiterate that these species are of larger project vicinity. Also establish that the project area is not their habitat as, pointed out correctly, it is already a built up area with significant human population density.

14.	Rufous Tailed hare	*Lepus nigricollisruficaudata*	-	-	-

IUCN: LR/lc=Lower Risk/least concern, LR/nt=Lower Risk/near threatened, CITES=I-Listed in CITES Appendix I, II-Listed in CITES Appendix II, GON=P-Protected

~~2.2.3.~~3.2.1. Reptiles and Amphibians

4. 21 fauna species are recorded in Rupandehi district (Suwal et. al., 2001), whereas 18 species of reptiles and amphibians were reported in the project area during the consultations (Table 2.7~~Table 2.6~~**). Local people reported that these species are rarely seen in the project direct influence area and** the project area (RoW) is not their habitat.

~~21 fauna species are recorded in Rupandehi district (Suwal et al., 2001), whereas 18 species of reptiles and amphibians were recorded in the project area as presented in **Table 2.6.**~~

Table 2.~~7~~6: ~~Mammals~~ Reptiles and Amphibians Found in the Project ~~Area~~ Vicinity

SN	Common Name	Scientific name	Conservation Status		
			CITES Appendix	IUCN Red List	GoN
1.	Indian bull frog Rana	*Tigerinatigerina*	II	-	-
2.	Marbled Toad	*Haplobatrachustigerinus*	II	-	-
3.	Asiatic rat snake	*Ptyas mucosa mucosa*	II	-	-
4.	Russell's Viper	*Vipera russelli*	-	-	-
5.	Banded Krait	*Bungarus fasciatus*	-	-	-
6.	Binocellote Cobra	*Naja naja*	II	-	-
7.	Common Indian Krait	*Bungarus caeruleus*	-	-	-
8.	Bengal monitor lizard	*Varanus bengalensis bengalensis*	-	-	-
9.	Brahminy skink	*Mabuya carinata*	-	-	-
10.	Brone grass skink	*Mabuya macularia*	-	-	-
11.	Wall Gecko	*Hemidactylus flaviviridis*	-	-	-
12.	Golden Monitor Lizard	*Varanus flavescens*	I	LR/lc	P
13.	Common Garden Lizard	*Calotes versicolor*	-	-	-
14.	Indian Roofed Turtle	*Kachuga tecta*	-	-	-
15.	Indian Burrowing Frog	*Tomopterna breviceps*	-	-	-
16.	Skittering Frog	*Rana cyanophlyctis*	-	-	-
17.	Indo Gangetic Flapshell Turtle	*Lissemys punctate anderson*	-	-	-
18.	Asiatic Rock	*Python molurus molurus*	I	LR/nt	P

IUCN: LR/lc=Lower Risk/least concern, LR/nt=Lower Risk/near threatened, CITES=I-Listed in CITES Appendix I, II-Listed in CITES Appendix II, GON=P-Protected

~~2.2.4.~~4.2.1. Birds

This project wards and surrounding areas has the best known population of the globally threatened Sarus Crane in Nepal and is the only known site in the country where the species breeds regularly. They normally live in pairs and congregate during the non-breeding season (winter and spring season). Their movement is limited to a square 26kilometer during the nesting time. Hunting and the stealing of eggs and chicks is a direct threat to their survival. A total of eight globally threatened birds are listed in the study area including the White-Rumped Vulture, Indian Spotted Eagle and the Aquila Hastata. The Slender-Billed Vulture, Cinereous Vulture and Lesser Adjutant have also been recorded at the site and these are regularly seen in the region (Suwal, 2002) as shown in Table 2.8~~Table 2.7~~. There are areas of tropical dry forests that are known to support significant populations of characteristic species of the Indo-Malayan Tropical Dry Zone biome (Bird Life International 2009).

However, in the project alignment and in RoW, currently there is no any bird's nest within the trees that needs to be cleared. There is no natural habitat and forest area affected by the upgrading project. No such species were observed during the field survey and none of these species habitat lies in the direct influence area of the project.

Table 2.~~8~~7: Birds Species in the Project Area and Conservation Category

SN	Common Name	Scientific Name	IUCN Red List	GoN
1.	Lesser Adjutant	*Leptoptilos javanicus*	VU	-
2.	Pallas's Fish-eagle	*Haliaeetus leucoryphus*	-	P
3.	White-Rumped Vulture	*Gyps bengalensis*	CR	-

Comment [PA51]: Same as above. How were they reported? Please refrain from general statements.

Comment [R52R51]: Revisited and illustrated accordingly

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Comment [PA53]: Same as above. How were they reported? Please refrain from general statements.

Comment [PA54]: Same as above. Where is their exact habitat? How far from the project area? Is their habitat within the direct influence zone? If not, then we need to establish that

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4.	Slender-Billed Vulture	*Gyps tenuirostris*	CR	-
5.	Indian Spotted Eagle	*Aquila hastate*	VU	-
6.	Sarus Crane	*Grus antigone*	VU	P
7.	Bristled Grassbird	*Chaetornis striata*	-	-
8.	White-throated Bushchat	*Saxicola insignis*	-	-

Note IUCN: VU=Vulnerable, CR=Critically Endangered, P=Protected

Source: Bird Life International, 2009: Important Bird Area fact sheet

~~2.2.5.~~4.2.2. Aquatic life

During the monsoon, all the cultivated lands become wetlands with adequate water. During the field survey, the local people highlighted the presence of some species in the region such as Suia (*Gudusia chapra*), Patara (*Notopterus notopterus*), Naini (*Cirrhinus mrigula*), Bam (*Amphipn auscuchia*), Kauwa (*Xenatodon Cancila*), Garahi (*C.punctatus*), Mangoor (*Clarius batrachus*) etc. in near by Rivers and paddy field.

2.3. Socio-economic and Cultural Environment

2.3.1. Socio-economic overview

The road project Mangalpur-Kanchibazar is being implemented in Tilottama Municipality of Rupendehi district. The municipality was formed by merging existing seven Village Development Committees (VDCs) namely Shankarnagar VDC, Aanandaban VDC, Karahiya VDC, Makrahar VDC, Tikuligadh VDC and Madhabaliya VDC in May 2014 and Gangoliya VDC in September 2015. The project area of this proposed project is located in Tilottama Municipality of Rupandehi District, Province No 5 that connects Siddhartha Highway to the Rohini Bridge.

The municipality is surrounded by Devadaha municipality in the East, Omsatariya and Siyari rural municipalities in the south, Siyari and Suddhodhan rural municipalities in the west and Butwal sub-metropolitan city and Devadaha municipality in the north.

2.3.2. Details of settlements within the project area

In the settlements falling within the project area, Tilottama Municipality Ward no. 7 karahiya, Ward 9 and 10 Makrahar.

Table 2.~~98~~: Details of settlements within the project area and distance from the project site

Name of Local Level and Ward No.		Distance from the Project Site
Tilottama Municipality	Ward No. 7, Karahiya	The project passes through the ward
	Ward No.9	The project passes through the ward
	Ward No. 10	The project passes through the ward

Source: City profile of Tilottama Municipality, 2075 B.S

2.3.3. Details of households within the project area

The proposed project lies in Tilottama Muicipality of Rupandehi District in the Lumbini Provience of Nepal. The total population of the district, according to CBS of Nepal, 2011 is 880196 and the number of households is 163916. The average family size of the district is 5.37, which is higher than that of the national average (4.88). The total population of Tilottama Municipality is 123836 and total household is 21957. The average household size of the municipality is 4.56 which is lower than that of district household size (5.37). The details of the demographic character of affected district and municipality are shown in ~~Table 2.10~~~~Table 2.9~~.

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There are different types of houses within the project area. Concrete House, Raw House and Hut Houses are found in this project area. The total numbers of households are 21,957 in Tilottama Municipality

Table 2.~~109~~: Population and Literacy rate in Tilotama Municipality

Description	Population aged 5 years & above	Population			Literacy no stated	Literacy rate
		Can read and write	Can read only	Can't read & write		
Both Sex	92,946	75,055	1488	16282	121	81%
Male	43296	38149	668	4446	33	88%
Female	49650	36906	820	11836	88	74%

Source: Profile of Tilotama Municipality

Table 2.1110: Details of total number of households and average number of households within the project area

Local Level	Name and Ward No.	Total Household	Average Households
Tilottama Municipality	Ward No. 7	2124	4.93
	Ward No. 9	1189	5.05
	Ward No. 10	846	6.15

Source: Central Statistics Department, Census B.Sc.2068

2.3.4. Details of the Ratio of Females to Males living within the project area

Table 2.1211: Proportion of men and women living within the project area

Local Level	Ward No.	Female Population	Male Population	Average Population of Female and Male
Tilottama Municipality	Ward No. 7	5146	5345	0.96
	Ward No. 9	2969	3038	0.97
	Ward No. 10	2539	2666	0.95

Source: City profile of Tilottama Municipality, Census B.S.2075

2.3.5. Details of castes and religious communities residing within the project area

The project area is inhabited by Brahmins, Chhetri, Tharu, Gurung, Magar, Thakali, Kewat, Muhsar, Yadav, Dhobi, Muslim, Chepang, Jogi, Thakuri, Kami, Damai, Chamar, Harijan, Ram and Hindus. Muslims, Christians, Sikhs, etc. are found living in religious communities. There are also Shiva Temple, Durga Temple, Radhakrishna Temple, Mokshyadham, Buddhist Gumba, Stupa, Mosque and Churches. The indigenous people in project area are Gurung, Chepang, Tamang, Tharu, Sherpa, Sunuwar, Rai.

Comment [AF55]: Please include information on indigenous households in the project area, and indigenous communities, and if so, which indigenous groups.

Comment [SD56]: IP in project area are included

Table 2.1312: Details of ethnic, religious communities and religious sites residing within the project area

Name of Local Level	Name and Ward No.	Caste	Religious denominations	Religious places
Tilottama Municipality	All Tilottama municipality	Ahir, Kumal, Brahmin, Kshetri, Gurung, Chepang, Jogi, Thakuri, Tamang, Thakali, Tharu, Pariyar, Dasnami, Magar, Muslim, Rai, Sherpa, Sunuwar	Hindu, Buddhist, Muslim, Christian	Kotahasmai Temple, Vishwashanti Gumba, Mayadevi Buddhist Gumba, Idgah Masjid etc.

Source: City profile of Tiltorama Municipality, 2075 B.S

2.3.6. Details of cultural practices of the castes living within the project area

There is diversity in the cultural practices of the castes within the project area. Cultural festivals like Dashain, Tihar, Chhath, Ram Navami, Shivaratri, Maghi, Buddha Jayanti, Eid, Moharram, Christmas are celebrated in this region which is inhabited by different castes and religions.

Table 2.1413: Details of the cultural practices of the castes living within the project area

Name of Local Level	Name and Ward No.	Cultural Rituals
Tilottama Municipality	All Tilotta municipality	Dashain, Tihar, Teej, Maghi, Holi, Buddha Jayanti, Eid, Moharram, Christmas etc.

Source: City profile of Tilottama Municipality, 2075 B.S

2.3.7. Details of the educational level of the residents within the project area

In the total population (123836) of Tilottama Municipality, Secondary Education Examination (SEE) is obtaining formal education within the project area. Similarly, the number of graduates was high while the number of graduates was low. Similarly, the educational level of the population living in the municipal area was higher than that of the population living in the Rural Municipality.

Table 2.1514: The educational level of the residents living within the project area

Name of Local Level	Name and Ward No.	Educational Level	Total number of passes Population	Percentage of Educational Level
		S.E.E. or Equivalent	19630	15.85%

Tilottama Municipality	All Tilottama Municipality	+2 or Equivalent	17141	13.84%
		Bachelor's Degree	9915	8%
		Master's Degree	3809	3.07%

Source: Central Statistics Department, Census B.Sc.2068

2.3.8. Details of educational institutions falling within the project area

The number of basic schools is highest in the settlements within the project area while the number of higher secondary schools and colleges is low.

Table 2.~~16~~15: Details of educational institutions within the project area

Name of Local Level	Types	Number of Schools
Tilottama Municipality	Community	42
	Religious	2
	Institutional/Private	42

Source: City profile of Tilottama Municipality, 2075 B.S

Table 2.~~17~~16: Schools in and near the road alignment

S.NO.	Name of the school	Number of Students	
		Girl	Boys
1	Sree Semara Secondary School (ward No: 7)	181	136
2	Janahit High School (ward no:10)		
3	Namuna Boarding School (ward No:10)		
4	Sree Gautam Buddha High School		
5	Everest Boarding School		

Source: NESS Field Survey, July 2021

2.3.9. Condition of health, health institutions and sanitation within the project area

The condition of health facilities and sanitation within the affected area of this project has changed satisfactorily. At present there are health posts in all the municipalities and wards and well-equipped hospitals are operating in the Butwal sub-metropolitan area close to the project. Also, every household has built a toilet. Diseases like fever, cold, cough, asthma, hypertension and diabetes have been found in this area. The details of health institutions within the project area are as follows.

Table 2.~~18~~17: Details of Health Institutions within the Project Area

Name of Local Level	Name and Ward No.	Health Post	Clinic/Pharmacy/ Policlinic	Aayurvedic Hospital	Hospital
Tilottama Municipality	All Tilottama Municipality	7	5/12/210 (Estimated)	1	1

Source: City profile of Tilottama Municipality, 2075 B.S

2.3.10. Employment and income status

The main occupations of the residents living within the project area are agriculture, animal husbandry, trade, government jobs and foreign employment. Although some people have gone to the Gulf countries for employment, most of them have moved to different cities of India. Most of the people are found to be running small and medium enterprises at the local level and working for a daily wage while the income of urban dwellers is higher and those living in rural areas are lower.

~~2.3.11. Marginalized Group~~

~~Marginalized groups are not found living in the project affected areas.~~

~~2.3.12.~~2.3.11. Industry and its types

Table 2.~~19~~18: Details of industries within the project area and its types

Name of Local Level	Name and Ward No.	Name of the Industries	Number of Industries	Type of Industries
Tilottama Municipality	All Tilottama Municipality	Agarbatti Industry, Candle Industry, Samil / Furniture Industry, Salt, Sewing-Knitting /	Small Industries - 246, Medium	Small and Medium

Comment [AF57]: How are marginalized groups defined? How has this conclusion been reached.

Comment [SD58]: This has been borrowed from profile of Tilottama municipality, if this creates confusion, it is advisable to remove from the text.

		Cutting, Dhaka and Tan Industry, Crusher Industry, Brick Making, Grill Industry, Poultry, Animal Farm etc.	Industries - 101, Large Industries - 16	Industries

Source: City profile of Tilottama Municipality, 2075 B.S

~~2.3.13.~~2.3.12. Condition of infrastructure

Most of the ward offices in the project affected area are in concrete buildings and some ward offices are under construction. It was found that there were paved roads, gravel roads and unpaved roads, paved bridges connecting one village to another and some bridges were under construction. There are local clubs in different wards. Similarly, access to electricity was extended to all households and poles and trees were used for power transmission lines. Most of the people used mobile phones for communication facilities.

~~2.3.14.~~2.3.13. Roads and its types

The project affected areas have paved, unpaved and gravel roads. In the rural areas, road construction and leveling work is being done and concrete bridges are being built on small and big rivers.

~~2.3.15.~~2.3.14. Value of land

While there are cheap lands in rural areas within the project affected areas, the price of land is also increasing due to increasing population density in urban areas.

~~2.3.16.~~2.3.15. Public facilities

Most of the ward offices in the project affected area are in concrete buildings and some ward offices are under construction. There were paved and unpaved roads, paved bridges connecting one village to another and some bridges were under construction. There are local clubs in different wards. Similarly, access to electricity has reached all the households, most of the people are using mobile phones towards communication facilities.

~~2.3.17.~~2.3.16. Migration Status

In order to get basic amenities in urban areas, to trade, to run small and medium scale industries, to find daily employment opportunities and to make a living by farming in the fertile lands of the Terai. There are many people come from Palpa, Baglung, Gulmi, Arghakhachi district.

~~2.3.18.~~2.3.17. Market and its position

Butwal and Bhairahawa are the main markets for most of the residents living in the project affected areas and goods are being procured at wholesale prices from the same market and transported from the local bazaars and grocery stores to the rural areas. Locally produced food, vegetables, pulses, oilseeds, goats, chickens, fish, etc. are sold in the local market on a daily and weekly basis.

~~2.3.19.~~2.3.18. Potential Development Centers

As various physical infrastructures are being developed around the head office and ward office of the village municipality in the project affected area and on the right and left side of the road touched by the highway, these same areas are being developed as development centers.

Table 2.~~20~~19: List of the Mother/Women Group/Co-operative in the project affected area

S.No.	Ward No	Name of Mother/Women group
1.	Ward no: 7	Pragati Sil Mahila Samuha Semara
2.	Ward No 9	Kalayan kari Ama Samuha
3.	Ward No 9	Ram Janaki Ama Samuha (religious group)
4.	Ward no:10	Sirjansil Ama Samuha, Bebari
5.	Ward no:10	Langghali Ama Samuha , Bebari
6.	Ward no:10	Swarga Rohini Ama Samuha , Sagrahawa

Table 2.~~21~~20: List of temples, rest areas and other community owned properties

S.No.	Ward No	Name	Type
1.	Ward No7	Durga Temple, Samera Bazar	Temple
2.	Ward No 7	Buddha Temple, Samera Bazar	Temple
3.	Ward No 7	Shiva Mandir , Samera bazar	Temple

Comment [AF59]: Where are the temples located, with respect to the road? Are they located in the Direct Impact area / Are they at risk of damage during upgrading works?

Comment [SD60]: This is list of temples and community properties in project wards doesn't fall in RoW or project has any impact on it. This is just a list in order to capture the type of religious places in same ward in which project lies.

Comment [EMM61]: Please mention the cremation place if there is any? Similarly, religious place such as "Dewali ghar"

Comment [SD62]: No such places in and around project areas

4.	Ward No 7	Karahiya Rest area	Waiting Place
5.	Ward No 7	Samera bazar Rest area	Waiting place
6.	Ward No 10	Shiva Temple, Sagrahawa	Temple

~~2.3.20.~~2.3.19. **Existing gender status**

2.3.20.1. Sex Ratio

The average female to male ratio of the affected wards is 97:100 which is considerably higher than the current status of the country. In 2020, male to female ratio for Nepal was **84.55 males per 100 females**. Male to female ratio of Nepal fell gradually from 98.2 males per 100 females in 1950 to 84.55 males per 100 females in 2020.3.2

2.3.20.2 There were only 75,055 people fully literate in Tilottama Municipality as of 2011 who were able to both read and write, while 1,488 people were able to read but not write. In percentage while compared to gender wise population, there were inf percent of male were literate, while the percentage of female literacy was inf only.The literacy ratio between male and female population was nan.

Comment [EMM63]: Please mention educational status such as % of people have primary education, secondary education and higher secondary education

Comment [SD64]: Literacy and education level included

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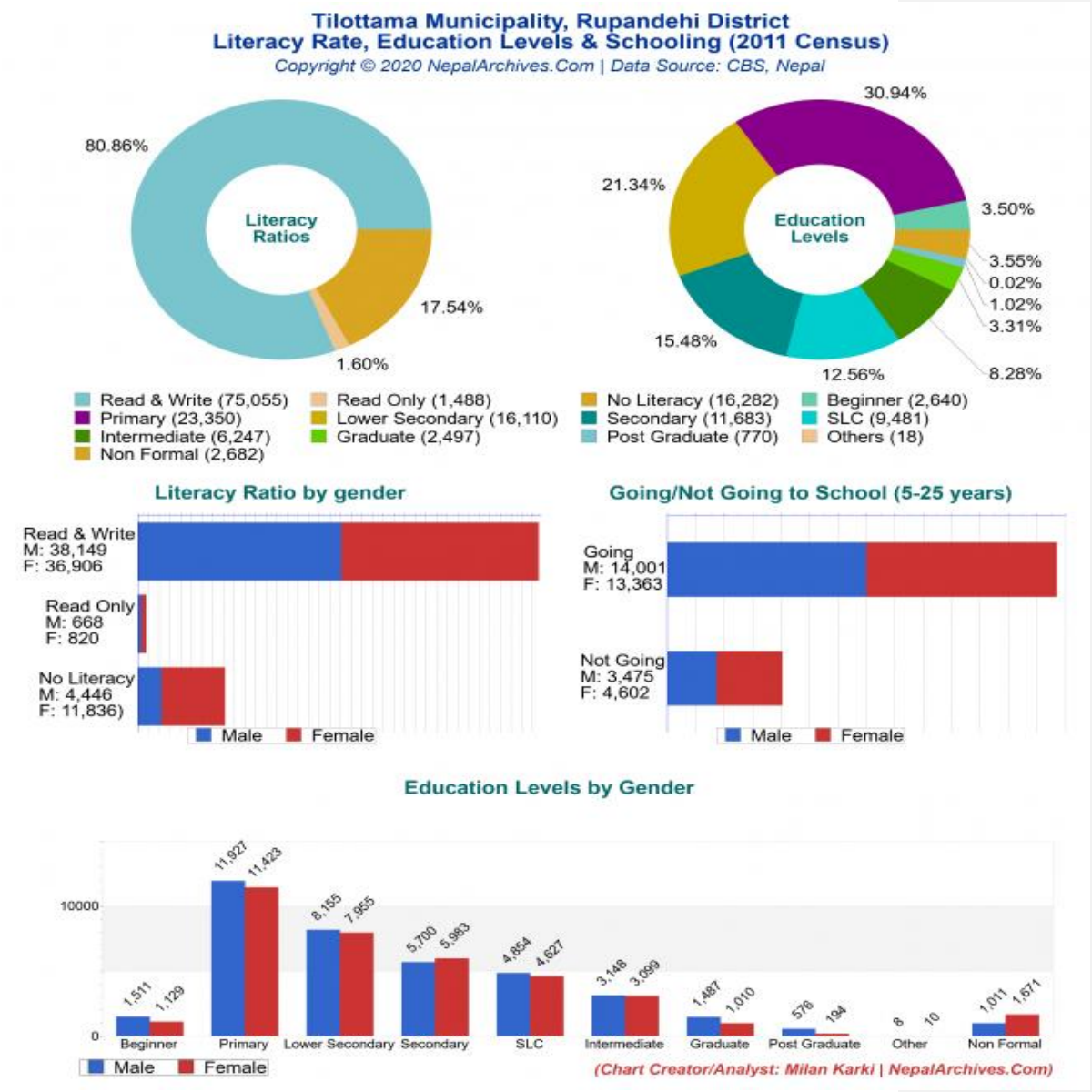

~~2.3.20.2.~~ 2.3.20.3 People with Special Need

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In the society even though every citizen is equal some of them should provide special attention and should provide accordingly. Social security is being considered as a right of the citizens. Social Security is linked to enhancing social equity and justice. A universal flat pension of Rs. 100 to all the elderly people above 75 years was first announced in Nepal on December 26, 1994. Since 1996-97, the Ministry of Local Development has been administering the Old Age Pension (OAP), and the allowances were distributed by the ward offices in the urban areas and by the Village Development Committees in the rural areas. Since 2065/66, the government has been introducing allowances to single women, endangered races and marginalized communities for education allowances.

The demography of beneficiaries of social security as single women, differently abled person, people from the affected wards 7,9 and 10 are as follows:

Table 2.2221: No. of person, people from marginalized group

Elderly citizens	Single woman Widowed	Schedule caste	Differently abled	Schedule caste child support	Marginalized family
896	436	17	121	21	48

Elderly people and differently abled people will have difficulties while construction period. For the easy movement and proper crossings for children and wheelchair, crutches and white cane users, the proper mechanism should be introduced.

Table 2.2322: Violence Reported in Mangalapur Police Station

Gender Based Violence	Lost Women	Lost Men	Lost Girls	Lost Boys
67	31	22	13	6

As reported in Mangalapur police station in the year 2077/78 (one year period) the cases of violence against women are 67 and lost women and girls are 46. Whereas lost men and boy cases are 19. Trafficking is one of the issues where Indian Borders are near and easy to access.

2.3.20.3.2.3.20.2. Women participation at local committees (women leadership and participation)

The Local Level Election Act mandates that two of the ward members elected for each ward must be women and one of the two women must be from marginalized community. Apart from this woman are active in forming different user's group, religious group and actively participating. Women participation in community level committee is sufficient in this area.

In the project area there are more than half a dozen women and users group are active.

CHAPTER 3: LEGAL AND REGULATOTY REQUIREMENT

3.1. Key applicable national environmental and social laws and regulations

A summary of applicable rules and regulations is provided under the Chapter 2 of the NUGIP ESMF. The sectoral and cross-sectoral guidelines and standards promulgated by the GoN in various periods are adequate to mainstream the environmental and social safeguard dimensions in the project preparation and implementation phases. This ESIA has given due attention on the above guidelines and standards in the identification and prediction of the project's impact and in the design of the mitigation actions and monitoring protocols.

Under the Constitution of Nepal, local governments have the autonomy to enact new laws applicable to their municipality. The GoN's applicable laws, regulations, guidelines, standards shall be followed during the construction and operation phases of the project.

Comment [PA65]: Why social only?

Comment [SD66]: Environment included

3.2. List of National Policies, Rules, Laws, Regulations, Relevant to the Project (if construction activities triggers then it applies)

1. Constitution of Nepal
2. Ancient Monument Protection Act 1956
3. Aquatic Animal Protection Act 1961
4. Environment Protection Act 2019
5. Explosive Act 1961 as Amended
6. Forest Act 2019
7. Labor Act 2017
8. Child Labor Act (CLA) 2001
9. Labor Act 2017
10. Gender Equality Act, 2006
11. Land Acquisition Act, 1977 (and amendments 2010) and Land Acquisition Regulations, 1969
12. Local Government Operation Act 2017
13. Motor vehicle and Transport Management Act, 2049
14. National Foundation for the Development of Indigenous Nationalities Act 2002,
15. Plant Protection Act 2007
16. Public Road Act, 1974 and amendment 2010
17. Road Board Act 2059
18. Soil and Watershed Conservation Act, 1982 and Subsequent Amendment
19. Solid Waste Management Act 2011 and Solid Waste management Rules 2013
20. Water Resources Act 1992
21. Environment Protection Rule 2020
22. Forest Rules 1995
23. Water Resources Regulations 1993
24. 20 Year Road Plan, 2059 –2079BS (2002-2022AD)
25. 2002, National Dalit Commission 2002
26. Forest Policy 2015
27. Land Acquisition, Resettlement and Rehabilitation0 Policy for Infrastructure Development Project 2014
28. National Biodiversity Strategy and Action Plan (NBSAP) 2014-2020
29. National Environmental Standards Information Booklet 2018
30. National Human Rights Action Plan 2005, National Women Commission
31. Public Works Directive 2002
32. Work Procedure to Provide Forest Area for other Purposes, 2006
33. EIA guidelines for human settlement and Urban Development Sector 1996
34. EIA guidelines for Road Sector 1994
35. National EIA guidelines 1993
36. Operational Guideline for mainstreaming GESI in MoUD
37. GoN Policies supporting vulnerable communities

3.3. Environmental Standards of GoN

1. Generic Tolerance Limits for Industrial Effluent Discharged into inland Surface water, 2001
2. Nepal Vehicle Mass Emission Standard, 2012
3. Nepal Ambient Air Quality Standard, 2012
4. Drinking Water Quality Standard, 2005
5. Nepal Noise Level Standard, 2012
6. National Indoor Air Quality Standards, 2009

3.4. Relevant sectoral policies and guidelines prepared by DoR

1. Environmental Assessment in the Road Sector of Nepal, January 2000
2. Environment Management Guidelines, GESU/DoR, July 1997
3. Reference Manual for Environmental and Social Aspects of Integrated Road Development, MPPW/DoR, 2003
4. The National Transport Policy, 2001.
5. Land Infrastructure Development Policy 2004
6. Public Infrastructure Built and Operate Policy, (2000)

3.5. International Obligations Conventions

- **List of International Conventions, Relevant to the Project**

1. Convention on Biological Diversity, 1992)
2. Convention on the International Trade in Endangered Wild Fauna and Flora (CITES), 1975
3. United Nations Framework Convention on Climate Change, 1992
4. Gender-Related International Conventions (including Convention on Elimination of All Forms of Discrimination Against Women, CEDAW)
5. ILO Convention on Indigenous and Tribal Peoples, 1989 (No.169)
6. ILO Convention on Worst Forms of Child Labor (C182)

3.6. The World Bank Safeguard Policies

Table 3.1:~~Table 3.1~~ represents the World Bank Safeguard policies that are triggered in the sub-project environmental and social assessment.

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Table 3.1: World Bank Safeguard Policies relevant to Project

World Bank OP	Objective & Brief Description
Environmental Assessment (EA) OP/BP 4.01	An Environmental Assessment is conducted to ensure that Bank-financed projects are environmentally sound and sustainable, and that decision-making is improved through appropriate analysis of actions and of their likely environmental impacts. Any World Bank project that is likely to have potential adverse environmental risks and impacts in its area of influence requires an EA indicating the potential risks, mitigation measures and environmental management framework or plan.
Natural Habitats OP/BP 4.04	The Natural Habitats Policy is triggered by any project (including any subproject under a sector investment or financial intermediary loan) with the potential to cause significant conversion (loss) or degradation of natural habitats, whether directly (through construction) or indirectly (through human activities induced by the project). The policy has separate requirements for critical (either legally or proposed to be protected or high ecological value) and non-critical natural habitats. The Bank's interpretation of "significant conversion or degradation" is on a case-by-case basis for each project, based on the information obtained through the EA.
Forestry OP/BP 4.36	This policy is triggered by forest sector activities and other Bank sponsored interventions, which have the potential to impact significantly upon forested areas. The Bank does not finance commercial logging operations but aims to reduce deforestation, enhance the environmental contribution of forested areas, promote afforestation, reduce poverty and encourage economic development

World Bank OP	Objective & Brief Description
Physical Cultural Resources OP/BP 4.11	The Bank seeks to assist countries to manage their physical cultural resources and to avoid or mitigate adverse impact of development projects on these resources. This policy is triggered for any project that requires an EA.
Involuntary Resettlement OP/BP 4.12	Key objectives of the World Bank's policy on involuntary land acquisition are to avoid or minimize involuntary resettlement where feasible, exploring all viable alternative project designs; assist displaced persons in improving their former living standards, income earning capacity, and production level, or at least in restoring them; encourage community participation in planning and implementing resettlement; and provide assistance to affected people regardless of the legality of land tenure. The policy covers not only physical relocation, but any loss of land or other assets resulting in relocation or loss of shelter; loss of assets or access to assets; loss of income sources or means of livelihood whether or not the affected people must move to another location. When the policy is triggered, a Resettlement Action Plan must be prepared. An abbreviated plan may be developed when less than 200 people are affected by the project. In situations, where all the precise impacts cannot be assessed during project preparation, provision is made for preparing a Resettlement Policy Framework. The Resettlement Action Plan / Resettlement Policy Framework must ensure that all the Bank's policy provisions detailed in OP 4.12 are addressed particularly the payment of compensation for affected assets at their replacement cost
	NOTE: The above OP/BP were proposed to review and integrate in ESMF during the time of submission of proposal. Upon consultation with the World Bank, it is advisable to use the latest standards of the World Bank to be used in ESMF and hence it will be referred and used in the ESIA and in conducting construction phase monitoring. **World Bank Environment and Social Standards** 1. ESS1 Assessment and Management of Environmental and Social Risks and Impacts 2. ESS2: Labor and Working Conditions 3. ESS3 Resource Efficiency and Pollution Prevention and Management 4. ESS4: Community Health and Safety 5. ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement 6. ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources 7. ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities 8. ESS8: Cultural Heritage 9. ESS9: Financial Intermediaries 10. ESS10: Stakeholder Engagement and Information

CHAPTER 4: ENVIRONMENTAL AND SOCIAL SCREENING, SCOPING, IMPACT IDENTIFICATION, PREDICTION AND MANAGEMENT

4.1. Introduction

This chapter is on environmental and social impacts in terms of magnitude, extent and duration likely to occur during construction and operation phases. The issues are separated as beneficial and adverse environmental impacts, including direct, indirect, and induced impacts in the project influence area. The impacts will be related to activities to be carried out during construction of the project and the operation stage of the project. The operational phase impacts of the project will be associated with the activities carried out within the premises. In addition, closure and decommissioning phase impacts of the project are also highlighted. The impacts of the project during each of its life cycle stages (construction, operation and decommissioning) can be categorized into impacts on the biophysical environment, health and safety impacts and socio-economic impacts. The Environmental and Social Management Plan (ESMP) will have measures to avoid, minimize, mitigate, and compensate the adverse impacts and measures to enhance the beneficial impacts. Based on the Safeguard Policies OP/BP 4.01 and OP/BP 4.12 are triggered.

4.2. Zone of Influence of the Project

Direct Impact area of the project is considered as RoW (40 meter from Mangalapur Junction towards Kanchibazar: 7.7 meter, From 40 meter to 1660 meter: 11 meter, Remaining upto 5 KM is : 13 meter) of the project. Similarly, the indirect impact is fall within 50 meters from the edge of the RoW.

Comment [AF67]: Please ensure consistency. Earlier it states that the RoW is 13 metres.

Comment [SD68]: The max width of RoW along the alignment is 13 meters but throughout the alignment it is not uniform. This is consistent throughout the report.

4.3. Environmental and Social Screening Checklist

Table 4.1: Checklist for Environment Screening

SN	Particulars	Yes	No	Remarks
1	Is the site vulnerable to major natural or induced hazards such as landslides flooding storm surge, Severe wind damage, earthquakes, fire, explosion, others (specify)	Yes		Possibility of Earthquake Natural Disaster, flooding
2	Is the project area adjacent to or within any of the following environmentally sensitive areas? Cultural heritage site historical religious traditional or cultural significance Protected areas national parks wildlife reserves hunting reserve conservation areas buffer zone etc. Wetland/Ramsar site/Simsar Forest Special areas for protecting biodiversity Breeding/ nesting ground of wildlife occurrence of migratory species Migration route Wildlife Corridor Any site of national or International Importance		No	The project ~~location~~ RoW is devoid of such archaeologically and culturally significant areas and national parks
3	Likely impacts on trees including Timber and fruit bearing and vegetable cover	Yes		During survey 64 trees were found to be removed. Though the trees need to remove is not in forest land and it falls in RoW of road still as per forest norms 1:10 Compensatory afforestation is recommended
4	Possibility of degradation of land and ecosystem of surroundings		No	Town Area
5	Is the project area densely populated?	Yes		ESMP measures applicable
6	Big Industries nearby and Type		No	Down town area
7	Alteration of surface water hydrology of waterways due to the protect resulting in increased sediment in streams affected by increase soil erosion at construction site?	Yes		ESMP measures applicable
8	Chance of deterioration of surface water due to silt runoff and sanitary waste from worker base camps and chemicals used	Yes		ESMP measures applicable
9	Does the sub project requires significant extraction of		No	

Comment [AF69]: Earlier the ESIA notes that there are temples in the project area. If these are not considered culturally significant, please indicate how this has been confirmed.

Comment [SD70]: The cultural and archeological places doesn't fall within RoW but they are within the project ward.

SN	Particulars	Yes	No	Remarks
	surface or groundwater			
10	Increased risk of water pollution from Oil grease fuel spills and other materials		No	
11	Impact on water quality due to release of sewage sludge		No	
12	Possibility of flooding due to sewage		No	
13	Possibility of increased air pollution during construction and operation phase	Yes		ESMP measures applicable
14	Other pollution concerns relating to the inconveniences in living conditions that may trigger cases of Upper respiratory problems?	Yes		ESMP measures applicable
15	Risk and Vulnerabilities related to occupational health and safety due to physical chemical biological hazards during project construction and operation	Yes		No Biological hazards
16	Noise and vibration due to Civil works	Yes		ESMP measures applicable
17	Possibility of poor sanitation and solid waste disposal	Yes		ESMP measures applicable
18	Creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents		No	
19	Accident risk associated with pre construction and operation phases	Yes		ESMP measures applicable.
20	Large population influx during project construction and operation that causes increased burden on social infrastructure and services such as water supply and sanitation systems		No	
21	Risks to community health and safety due to transport storage and use of construction materials such as gravel and sand and all other disposable Fuel and other chemicals during construction and operation	Yes		ESMP measures applicable.
22	Interference with other utilities and blocking of access to resource utility and households with entrances in the ROW	Yes		
23	Generation of solid waste and hazardous waste during construction and operation of project		No	

Table 4.2: Checklist for Social Screening

SN	Particulars	Details
1	Proposed Site Location	
1.1	Land Requirement for the Project	It is an up-gradation of existing road so no additional land is required.
1.2	Land ownership of the project area by the government or private Land	RoW land is in jurisdiction of Municipality
1.3	Does the project require acquisition of government land structures?	No
1.4	Present use of government land that will be used for the project activities with persons households using	No
1.5	Does the project required acquisition of private land and structure?	No
1.6	Present use of government land that will be used for the project activities with persons households using for agriculture residential commercial and other purposes	The land will be used for the construction of the project only
1.7	Does the project require relocation of encroachers and squatters	No
1.8	Does the project require relocation of community facilities government establishment or any objects that are out of religious and cultural and historical significance	No
1.9	Proposed project located in an area where residents are a) All mainstream, b) Indigenous people, c) Majority mainstream are non-indigenous people, d) Majority indigenous people	~~Majority of the people living in the project area are non-indigenous people~~ The list of indigenous people living in area are mentioned above .
2	Potential social impacts of the project	

Comment [AF71]: If the majority are non indigenous, it should be clear who are the indigenous people. Indigenous people should also be included as part of stakeholder consultations, and this noted in the ESIA.

Comment [SD72]: The list of IPs in area are listed above in the document

2.1	Involuntary resettlement of people? (physical displacement and economic displacement)	No
2.2	Impacts on the poor, women and children, indigenous people or other for vulnerable groups	No such impact on poor women and children, indigenous people, and/or economic displacement.
2.3	Will Community facilities require relocation?	Yes, water supply pipes from the existing road section will be shifted to beneath the footpath of new road section
2.4	Will the sub project disturb any traditional activity on adjoining or nearby	No
2.5	Poor Sanitation and solid waste disposal in construction camps and work sites	Yes
2.6	Possible transmission of communicable diseases such as STI and HIV AIDS from workers to local population	
2.7	P opulation influx during project construction and operation that causes increased burden on social infrastructure and services such as water supply and sanitation systems	Yes
2.8	Social conflicts relating to inconveniences in the living condition while the construction interferes with pre-existing roads	Yes, change in road morphology and disruption in the infrastructure like drinking water, sewere system will cause inconvenience
2.9	Describe any other impacts that have not been covered in the screening	Gender-based violence; road stability and management; impact on Water Supply System and Electricity Poles; impact on existing infrastructures
2.10	Describe alternatives if any to avoid or minimize displacement from private and public lands	No such displacement from private and public lands
2.11	RAP /ARAP requirement	No, the design has avoided structures and land. It is the reason DPR has varied RoW in 5 KM stretch

Comment [AF73]: What kind of social conflicts are being envisaged? And how have these been mitigated in the ESMP?

Comment [SD74R73]: Inclluded

4.4. Impact Summary

Table 4.3: Overall Impact Summary

Summary	Proposed Road
What are the main potential environment and social issues/ risks /impacts/ concerns and/or potential positive impacts	The major positive aspects of road improvement project include easier transportation facility, decreased travel time, decreased travel cost, increased employment opportunities, increased land value, and fostering the community-based tourism industry. The sub project component will most likely create the opportunities for local contractors and suppliers of the construction materials therefore stimulating income generation opportunities for local and employment for the low-skilled local workers. The subproject provides accessibility to schools, health post, ward offices, temples, connection to other villages through village roads, connection to Devdaha. The proposed road project shows limited adverse social impacts in comparison to the benefits. Mangalapur-Kanchibazar (upgradation up to 5 KM, Bewara Chowk only) road does not need deed transfer. Problems likely to be created during the construction stage can be marginalized with the proper precaution and implementing the measures recommended in ESMP Of the number of trees affected, none of them are related to have livelihood harvesting use. The environmental impacts like air, water, noise pollution, obstruction to drainage, issues of waste, issues related to health and safety (accidents), obstruction of natural drainage, issues related to management of traffic, labor camp, spoil disposal area (specific impacts are also spelled out in impact section of report). The site specific project foot prints like spoil disposal area, camp sites, quarry sites, transportation route and number /type of vehicles, labor camps etc are not spelled out in technical report so such foot print specific likely impacts and mitigation measures are not included in ESIA. When the contractor prepares the site specific Environmental Social Management Plan (ESMP) and submit it to the PIU for approval, such site specific

	details, likely impacts and mitigation measures should be used for compliance monitoring and reporting.
Expected positive impacts/benefits to the local communities	The improved economic access to the areas will potentially make them more attractive for business and investments thus stimulating economic growth and employment opportunities. The proposed sub project will help to provide in easy road access, reduce travel time, provide travel and transportation cost saving, promote employment generation, provide easy access to social service facilities, promote market creation for local product, increase land values as beneficial impacts related with the road improvement project. Other positive impacts of this sub-project include socio-economic benefits, environmental benefits, disaster risk management, climate resilience.
Options Analysis	The road already exists and only upgrading work is required. The ROW is clear, minor issues can be mitigated and managed through proper mitigation measures outlined in ESMP. An alternative route will be used by the road users during the construction phase. No alternative road can be analysed as there is no alternative road.

4.4.1. Impacts as per the National EIA Guidelines Numerical Scale

Numerical Scale mentioned as depicted in Table 4.4~~Table 4.4~~ is used to analyze the impact of the proposed subproject. The combine score below 40 shall be termed as insignificant impact (IS). The scores ranging between 40 and 79 shall be termed as significant impact (S), scores ranging between 80 and 99 shall be termed as very significant (VS) and the scores above 100 shall be termed as highly significant impact (HS).

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Table 4.4: Impact Quantification

Magnitude		Extend		Duration	
High (H)	60	Regional (R)	60	Long term (LT)	20
Medium (M)	20	Local (L)	20	Medium Term (MT)	10
Low (L)	10	Site Specific (SS)	10	Short Term (ST)	5

Source: National EIA Guidelines, 1993

4.5. Adverse Impacts - Physical Environment (Pre-Construction and Construction Phases)

4.5.1. Land use

(The land within RoW is already acquired at the time of Bhairahawa Lumbini Ground Water Irrigation Project (BLGWIP) was initially started in 1970's and was completed **in June 1999** with an objective of raising agricultural production through an expansion of the irrigated area of 20,309 ha and thereby raising the living standard of the farmers. Majority of RoW of this road falls on already acquired land area by BLGWIP and some missing land parcels and areas were already under the jurisdiction of municipality, The acquired land is permanently converted within the width of the proposed road. Hence, impact from construction will be direct in nature, low in magnitude, site-specific in extent and of long-term in duration. The indirect area of influence adjacent to RoW contains built structures and cultivated lands.

4.5.2. Quarry operation

The construction of road will require boulders, sand and aggregates in activities like gravelling, construction of retaining walls and other structures. The quarry site will be from the government approve side. The contractor will obtain such materials from the licensed contractor (who has also obtained environmental clearance from the concerned entity) Those places if not restored properly, might lead to other environmental problems, such as river bank cutting leading to erosion of agricultural area. The other potential adverse impacts of quarrying are accelerated erosion, disturbance in natural drainage patterns, water logging and water pollution. Anticipated impacts due to transporting construction materials will be direct in nature, medium in magnitude, local in extent and of short term in duration.

For the up-gradation of the road project ; sand, stone and aggregates can be obtained from two sites: Rohini river and Tinau river at a distance of 3 KM and 8 Km respectively. Likewise, reinforcement and cement can be obtained from Butwal at a distance of 2 Km whereas bricks and soil are locally available materials.

Comment [PA75]: Please include a map of these quarry sites. What is their present status. Their existing access road. Will a new road need to be built?
How much quantities will be required for the project and are these available in these sites.
Have the local governments approved required EIA/IEE of these sites and what is the available quantity in those reports?

Comment [SD76R75]: Included

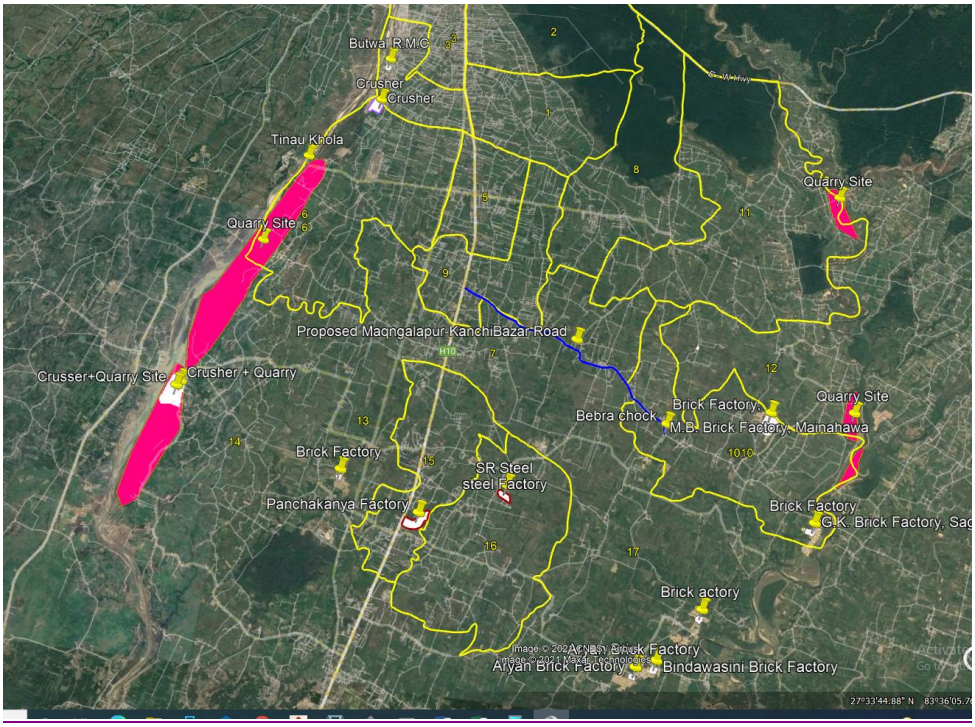

Figure 4.1: Quarries Location

4.5.3. Stockpiling area and construction material

The construction materials need to be stockpiled on the barren land near to the project site till the construction period and later has to be disposed to some place as per the consultation with the locals. The impact will be direct in nature, medium in magnitude, site-specific in extent and of short term in duration.

4.5.4. Noise, air and water pollution

The main construction activities that cause air pollution are earth works (excavation and dredging), asphalt plants etc. These activities generate dust and noise, which directly affect the air quality. In addition, vehicles and machinery emit smoke and fine particles. These substances will increase the local air pollution significantly during the construction stage. Burning of fossil fuels would result in far more environmental pollution due to emission of sulfur oxides (SO_x), nitrogen oxide (NO_x), carbon dioxide (CO_2) and particulates.

Noise impacts will be significant in the RoW and vicinity of the proposed project upgradation area of 5 KM from Mangalapur to Kanchibazar during construction periods due to increase of vehicular movements and machinery equipment. The contaminated soil, oil or bitumen from construction activities if disposed near to river/stream affects aquatic fauna and flora. The construction debris, paints, oil and grease is likely to create water pollution both surface and subsurface. The dust and silt from the construction sites will also create water pollution of the receiving streams. If workers living in tents/camps do not have access to toilet facilities, open defecation may be practiced, which may contaminate water sources, causing health problems. The anticipated impacts on air, noise and water pollution will be direct in nature, low in magnitude, local in extent and of short-term in duration.

4.5.5. Solid waste generation

Some quantities of solid waste will be generated as a result of clearances, excavations and the final construction of the selected roads. Such waste will consist of surplus materials, surplus soil and excavated materials among others. Such solid waste materials can cause negative impacts to the environment through blockage of drainage systems, and negative impacts on human and animal health.

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Comment [PA77]: Where? Potential sites need to be mentioned and showed in a map

Comment [SD78R77]: The sites were not identified in DPR . To ensure the proper consent of land owner, it is spelled out here

Comment [PA79]: Where? Which settlements?

Comment [SD80]: Along the RoW and its vicinity of 5 KM upgradation of road

Table 4.5: Environmental Mitigation Plan for the use of construction equipment

Environmental feature	Project Activities	Material/equipment to be used	Impacts/Waste generated	Mitigation measures
LAND	Planning and Design Phase	No anticipated physical activities or processes		
	Site clearance	Heavy Equipment Power Saws	Cut vegetation Rock debris Noise by power saw	Top soil to be reused for tree, flower plantation, remaining soil to be used for backfilling. Wood to be used for multiple uses by local people
AIR /LAND	Excavation/earth works including removal of top soil	Excavation equipment including caterpillars and haulers	Noise Roots Soil Vibration	Top soil to be used for agricultural field, plantation. The photographic and video evidences of structures prior the construction is recommended to find the status of the structures prior the construction. Less noisy and less vibrating equipment selection are recommended.
	Transportation of materials and maintenance of equipment	Trucks	Used oil, lubricants, air fumes etc.	Reuse, regular and periodic maintenance
WATER	Building materials/construction materials	Cement, soil, timber ,glass, bitumen, oil paper, piles, water and other wastes	Stone, timber broken glass, waste water, plastic, greases spills	Follow 3 R approach
WASTE	Human consumables	Stationeries, medicines, reagents, waste food and water	Used paper, thrown-away clothing, computers, photo	Sell waste paper to dealers. All obsolete materials should be carefully sorted, stored and sold to dealers. Waste from toilets of camps should be managed properly (septic tank)

4.5.6. Disaster Risk of Project

It is envisaged to identify and estimate the risk of disasters in the Mangalapur-Kanchibazar Road alignment and address the associated risks using proactive design incorporations and additional risk management measures that warrant as per site conditions with due consideration to level of exposure of risk to project. The likely environmental impact or disasters are identified and the exposure risks are classified as Low-Medium-High in magnitude. Climate Change and disaster resilience is studied under the adaptation and mitigations measures offered by the designed project against various possible disasters. Flooding, inundation and clogging of cross drainage and longitudinal drainage are the extreme disasters that usually happen in Terai Region of Nepal. The adverse environmental impacts or disasters (both natural and manmade) those may occur should be kept in mind and certain mitigation measures to avoid and minimize such disasters should be proposed. The risks of disaster in this proposed road project has been identified and address the associated risks using proactive design incorporations and

additional risk management measures to be adopted in the context of proposed project development. Flooding, inundation and clogging of cross drainage and longitudinal drainage are the extreme disasters that are likely to happen in this area.

A site specific ESMP is prepared and will be implemented strictly, it is also necessary to monitor whether or not the ESMP applied properly or not during construction and maintenance operation phase of road project. The project is designed to respond to the disasters and it is clearly mentioned in mitigation section of the report.

4.5.7. Road stability and management

During the operation phase, heavily-loaded vehicles may frequently pass through this route to haul raw materials, which may result in the destabilization of the road. On top of that, natural erosion, inadequate or inappropriate drainage work, faulty construction may also damage the road. The impact will be direct in nature, medium in magnitude, site specific in extent and of long term in duration.

4.5.8. Water pollution

The inappropriate driver practices connected with car/truck washing in streams and rivers which can cause local water pollution by leakage of fuel, lubricants and hydrocarbons can cause hazardous to people, animals and crops. The impact will be indirect in nature, low in magnitude, site specific in extent and of long term in duration.

4.6. Adverse Impacts - Biological environment (Pre-Construction and Construction Phases)

The project will have no impact on wild life, avian fauna, aquatic life and reptiles. The project alignment is neither habitat nor biological corridor of the wild animals. Nearest forest (CF) is about 4 KM away from the project alignment. The project will have impact on vegetation and 64 trees (pole and tree size) of different species namely Sissoo (12), Aanp (8), Nim (11), Baikano (8), Amba (6). Ashoka (8) and other species (11) along the project RoW needs to be removed. All these trees are privately owned.

~~85 trees (pole and tree size) along the project RoW needs to be removed.~~

4.7. Adverse Impacts- Socio-economic and Cultural (Pre-Construction and Construction phases)

4.7.1. Impact on Physical Resources

a. Effect of Change in Land Use

The project includes widening and upgrading works of road and drainage structures along the existing RoW, therefore additional land will not be required. Site-specific major works, such as intersection improvement, bank stabilization and drainage improvement also will not require additional land. The major component of the sub-project is the earth-filling necessary for road widening, and borrows pits for earth and gravel need to be identified. The extraction of earth from nearby areas will cause depression in the ground surface will result in water logging problems.

b. Obstruction to Structures

The RoW throughout the entire length of project (5 KM) are varied to avoid the structures along the alignment.

c. Loss of Standing Agricultural Crops due to Construction

There is no encroachment of any standing agricultural crops in the RoW. Therefore there is no loss of agricultural crops due to construction and no consequential income loss.

4.7.2. Impact on Personal Business/Enterprise, Trade Shop/Fishery

These are adjacent to road RoW but no business /enterprise will be affected.

a. Disruption of Water Resources Related Infrastructure

The field survey reveals that 3.7 KM of existing water supply pipelines will be impacted and needs to be replace. During the interaction, the stakeholders have requested to construct the water supply pipeline along the road in 5 Km of the overall road which will be renovated under this project. Impact on Social Services and Cultural Resources

b. Education (School Buildings)

Comment [PA81]: What about the impact on wild life, avian fauna, aquatic life and reptiles? If there is no impact, this should be explicitly mentioned here and the baseline section need to be reviewed carefully.

Comment [PA82]: 64 or 85? Please be consistent.

Also please provide the details of trees. Name of the tress to be removed, their ownership status (private, government, community?), size

Comment [R83R82]: Reviewed and elaborated

Comment [PA84]: 64 or 85? Please be consistent.

Also please provide the details of trees. Name of the tress to be removed, their ownership status (private, government, community?), size

Gautam Buddha Ma. Vi. (1+140, Right side), Government School (2+350, Right Side), Semra Bazar School (3+400, left Side), Namuna Boarding School (4+4350, Right Side), Mission Mount Everest Boarding School (6+000 ,Right Side), Janhit Ma. Vi. (6+450, Right Side).

c. Temporary Disturbances in House Owner's Mobility and Shop Consumer

There will be issue of access to some houses and businesses during the construction phase. Some temporary structures during the construction would be made and permanent ramp is provided for those houses.

d. Road Safety Concerns and Health and Sanitation in Community

During construction phase, increased number of construction vehicles will be plying the road therefore due to pressure and mismanagement accidents may likely occur. Hence, traffic management measures and information signboards need to be placed with the precautionary measures. The haphazard disposal of construction waste will adversely affect the sanitation environment in the area and this problem needs to be minimized through regulatory measures and public awareness. However the road may pose some adverse impacts on the environment at the operational stage, such as increase in traffic accidents due to higher vehicles speed, which must be controlled by putting up speed limit signs and enforcing them. It is recommended that traffic signs are placed at appropriate locations for road safety purposes. The movement of trucks and other equipment in the project area during the works implementation will cause noise and dust if the works will be in dry weather. This noise and dust may also affect the businesses in the vicinity of the construction works.

e. Occupational Health and Safety

Because of the engineering and construction activities including minor excavations, concrete work, and sub-base stone lying among others, construction workers will be exposed to risks of accidents and injuries. Such injuries can result from the hand tools and construction equipment and risk of vehicular accidents to local residents.

f. Social Disturbance / Risk of GBV and HIV AIDs

The project construction may disturb the local population with interactions of non-local workers with residential communities. Girls and women trafficking may arise during the construction phase. Further, it may lead to GBV at household level and afterwards because the frequency of visitors or tourists may increase. This project may lead to an influx of commercial sex workers into the township or lead to contractor workers and other personnel engage in risky sexual behavior that may lead to infections in HIV-AIDS or other sexually transmitted diseases.

g. Limited access to elderly and differently-able

During the construction phase mobility is going to be very limited for elderly and differently-able people. Their daily routine might get affected.

h. Woman and Girl Trafficking

As per the data received from Mangalapur police station, the number of missing women and girls is higher here and with the influx of labor this might spike and could cause some problems. Hiring local people as much as possible for the local work could be the one of the remedies for it but different awareness programs should be implemented for the cause and its prevention.

i. Risk in road crossing of school and hospital

During the construction phase the school going children, elderly and differently abled people might face problems in crossing the roads and walk in the side alignment of the road, especially in rainy season.

j. Risk of Spreading of Diseases

This project may lead to an influx of workers in the area. Influx of labors usually attracts commercial sex workers into the town and that can lead to contractor workers and other personnel engage in risky sexual behavior that may lead to infections in HIV-AIDS or other sexually transmitted diseases.

Other than sexually transmitted diseases (STD), in today's time the risk of the spreading of "corona" and its other variants are also the major concern for the community and eventually for all.

Comment [AF85]: The ESIA needs to include details of the houses and businesses impacted due to hindered access. How many? Have these households and business owners been consulted? What are the mitigation measures?

Further, the screening report noted that there is no issue of access, and the ESMP does not include mitigation measures for access.

Comment [D86R85]: This is very common in the road construction project in urban area.For a short period of time ,the house owner may have difficulties for the access and there will be temporary structure provided by the contractor or the houseowner themselves make some arrangements.This is common practice for the road projects.

Comment [AF87]: What are the mitigation measures for these impacted elderly and differently-abled?

k. Child and forced labor

In conformance with Nepali law project will not employ under-aged workers. The Child Labor (Prohibition and Regulation) Act of 2000 establishes the minimum age for work at **14** and the minimum age for hazardous work at 16. The employer/contractor must ensure the age through citizenship certificates.

Comment [AF88]: Please indicate the minimum age of workers, will this be 18 years? How will proof of age be ensured? Eg provision of identity certificate etc?

Comment [SD89]: included

l. Traffic Management Issues

The flow of traffic along or near the proposed area will be affected and diversions would require managing traffic. Safety barriers and warning signs need to be erected for safety. Half width working approach with signalized traffic control will be adopted to manage the traffic. ~~During the construction phase the school going children might face problems in crossing the roads and walk in the side alignment of the road, especially in rainy season.~~ Safety barriers and warnings signs will be erected where required ensuring safe movement of traffic. An alternative route will be identified to ease the flow of vehicles especially during the rush hour, peak travel periods to ease road congestion.

Comment [AF90]: Please avoid repetition of statements. For simplicity, suggest you combine this with the section on 'risk in road crossing of school and hospital'

Comment [SD91]: Repetition removed

4.8. Adverse Impacts – Socio-economic and cultural (Operational Stage)

There are expected to be no adverse impacts on the local economy during the operational stage, and significant long-term benefits are expected to arise from the proposed sub-project. However, the market will be competitive and the urbanization and semi-urbanization effect may contribute to a higher cost of living. The scale and trend of plotting of agricultural land will increase and there are possibilities of converting the agriculture land into residential and commercial areas. Some industries that are located near the road may also have tendency to relocate to other places with the purpose of developing their properties as commercial areas.

4.9. Beneficial Impacts - Social-economic and cultural (Pre-Construction, Construction Phases)

4.9.1. Social beneficial impacts

The main Benefits of the proposed road will be access of highly equipped urban standard road which will be the milestone project leading to economic prosperity and increase in economic and social sector. With the highly facilitated transportation media, improvement in educational sectors (schools, colleges and universities), health sectors (health posts, clinics and hospitals), communication facilities etc would occur. More numbers of hotels, restaurants, groceries, shops, banks and other business-oriented activities will be increased ultimately aiding to the employment generation and economic prosperity of the people.

a. Social Implications

After implementation of this project, people will have access all weather transportation facilities and improve their socio-economic condition. The subproject will support the community to enhance their access on health facilities in low cost, increase attendance of students and teachers in the school and also increase in communication to other people, support to the poor, Dalit and other marginalized people because of employment generation during construction period, Initiation income generating activities like e.g. small business, groceries shop, and commercial agriculture production and off farm activities, increase in land price by using the improved transportation facilities. It contributes for the minimization in transportation cost of all types of goods as well travel cost, time and assists to minimize living cost. It stimulates to farmers to increase agriculture production, livestock commodities etc as well as support for increased in accessibility of villagers to market centers and major cities of the province. The proposed road subproject shows limited adverse social impacts in comparison to the benefits that the people have been able to realize at large.

This is the route that joins Siddhartha Highway with Devdaha Municipality. Thus, the road can be used for connectivity of two municipalities. The most prosperity for the development of the two 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 municipality.

b. Employment, Skill enhancement of workers and staff, Income Increment

As many local people seek interest in doing work in the road project, the contractors can hire them for unskilled laborers. For skilled laborers, they need to give some training which may help the project in the long run to protect and repair the road on a regular basis.

The sub-project will generate skilled and unskilled employment opportunities throughout the project life cycle. Priority will be given on sourcing labor requirements locally, specific ward, municipality, and district. . In cases that skilled workers are not locally unavailable, they will be recruited from other parts of country. Apart from income, locals will get gain experience and training and open door to opportunities everywhere, thereby increasing the quality of life. Undoubtedly, project impacts can be considered significant, positive, long term, and cumulative people lives changed for the better. The residual impact is the up-lift of the quality of life of the sub-project beneficiaries.

c. Easy Access to different facilities and Mobility

The road is giving proper access for the people planning to migrate in this area for the facilities like hospital, school /college and other required services. The land value itself will grow after the construction of the road. The properly designed sidewalks, enough lights and resting area will make it easy for the people with different needs.
The mobility will be comfortable for women, children and elderly. The school children, differently-able and elderly people will benefit from this road after completion.

d. Increase in Trade and Business

Business opportunities are created during the construction and operation of the road for products and services such as basic building materials, construction equipment, laundry, clothing, food services, cleaning services, excavation, construction material supply, etc. Indirect economic impacts will also occur from increased demand for products and services due to the increased workforce in the area. Business opportunities are a positive impact to host communities which has a multiplier effect. The improved road condition will welcome more tourists into the area, which can help women and persons with disabilities to start their own business.

e. Development of Social Services

Increased employment opportunities, trade and business and other income opportunities will direct considerable amounts of money into the local economy in the area. This will logically increase the income level of the individual household and the local body of the area. In the situation when the increased amount of resources, as well as local bodies, this can help to improve social services such as education/school and health care services.

4.9.2. Beneficial Impacts – Social and cultural (Operation stage)

The qualitative beneficial impacts that are likely to occur when the rehabilitated road is in operation are as follows:

a. Improved Transportation Facilities and Decrease Congestion

The rehabilitation and upgrading of the road will produce benefits through better access and mobility and effective transportation facility. The transportation of goods will make goods cheaper, particularly vegetables and livestock. Importantly, the journey will be more comfortable, the wear and tear of the vehicles will be less, and fuel and maintenance cost of the vehicles also will be less, which will lead to an increase in private savings.

b. Rise of Land Value

Road up gradation often leads to increased land values along the road corridor of Mangalapur–Kanchibazar road and its vicinity and subsequently enhances local peoples/farmers' capability for borrowing loans on collateral. High value lands are acceptable to banks and financial institutions to provide loans. This impact will be an indirect, high, significant, local and long-term in nature.

c. Improvement in Trade and Business

The improved road surface of Mangalapur-Kanchibazar road will ensure continued and smooth flow of products and commodities. It is envisaged that trade and business activities will be further promoted not only in the area but also expanded into others areas having links to this road.

d. Increase in Tourism Sector

Since the project district is connected to the border with India and the Indian tourist and the domestic tourist will pass through this road for getting to the different cities or parts of Nepal. Hence the road improved transportation will help to promote this area as more easily accessible tourism areas also benefit the local economy.

e. Enhancement of the Social Services

This sub-project will increase the availability of safe and quick access to social services, development of the economic center, and increase in economic levels, which will help to improve school education and promote higher education outside the sub-project area. Similarly, local people may spend more on health care, sanitary facilities, education facilities and other social services.

f. Enhancement of Mobility and Reduced workload

The improved mobility will improve comfort for women, children and the elderly. School children, differently-able and elderly people will therefore benefit from this road after completion The improved road condition can help people walking along the foot paths, and using cycles and wheelchairs along the cycle lane. This can reduce the rate of accidents along this route. The workload of women may decrease after the construction of the road given that women may not have to wash clothes every day because of the reduced dust impacts from the upgraded road. Because of such changes, women will benefit from time saved.

4.9.3. Social Mitigation measures

a. Working conditions and management of worker relationship

The project will provide reasonable working conditions and terms of employment, and will conform to requirements for working conditions established by national laws and WB safeguard policies. Nepali law requires equal employment opportunity. The project will give preference to the recruitment of qualified skilled and unskilled local villagers. Migrant workers will likely be engaged by the contractors during construction. The road project will contractually require the contractor to engage migrant workers on substantially equivalent terms and conditions to local workers carrying out similar construction work. During construction, temporary accommodations will be constructed by the contractor and in compliance with national and international standards for quality, security, safety, and professional competency and no forced labor will be used.

b. Occupational Health and Safety (OHS)

The policy applies to employees and contractors, including subcontractors. The project will provide safety equipment with reference to the provisions of Nepali Law and the World Bank Group Occupational Safety Guidelines to ensure the safety of the workers. The project is obligated to report the occupational health and safety conditions to the municipality quarterly. To maintain a healthy environment for the labor force, the project management should put in place suitable measures to clean the environment associated with labor camps. This will include proper disposal of human waste. The contractor needs to put in place mechanisms for the collection of all wastes generated (solid wastes, organic wastes, food remains, garbage etc.), in the labor camps, segregate the various wastes and arrange for subsequent disposal through either efficient incineration or disposal in a sanitary landfill.

c. Child and forced labor

In conformance with Nepali law and the WB policies, the project will not employ children under the age of 16. However, children above the age of 14 can perform some types of labor e.g. non-hazardous/non-harmful.

d. Community health and safety and reduction of incidences of diseases

As a precaution to prevent the spread of HIV/AIDS in the project area, the project municipality and other stakeholders must organize and support education programs to create public awareness regarding HIV/AIDS and other sexually transmitted diseases (STDs). In order to protect the community member especially vulnerable groups such as women, children, infirmed and elderly from project workers, there will be a need for the project contractor to create awareness around STD prevention and contraception.

e. Management of labor force

The labor force engaged in the rehabilitation of the road and construction has the potential to degrade the environment of the project area as discussed in earlier sections of the ESIA. The project management should therefore put in place mechanisms to deter the work force from engaging in cutting of trees for fuel wood, charcoal burning, and building material and for any other purposes. The contractor should use pre-fabricated material (which can later be retrieved at the end of the project) in building the labor camps. This will deter the labor force from unnecessary cutting and trampling of vegetation and enhance the protection of the scanty natural vegetation of the project area.

f. Addressing Gender Issues in Construction, Operation and Monitoring

During project construction and operation, the ESMP should be implemented and activities monitored via the project management system and in accordance with monitoring indicators. In the case of procurement of goods and services, the PCO should ensure that gender-related issues are addressed through terms of contracts and contractor management monitoring. Stakeholder engagement should be continued throughout the project lifecycle, together with any activities related to capacity-building. Receiving feedback from relevant stakeholders is a valuable monitoring tool and any grievance should be dealt with in a timely manner and efficiently. Progress of implementation of the ESMP including results of monitoring should be described in the annual report to the PCO on environmental and social matters. The PCO should also consider reporting gender-related issues as part of any public reporting.

g. Limited access to elderly people and differently-able during construction

Diversions and proper crossings should be in place along the road for elderly and differently-able people during the construction phase. Elderly people should have access to socialize and meet people and their families to nurture their mental needs and health. The design should incorporate disabled-people's needs and incorporate periodic maintenance of disabled friendly designs. As the mobility of differently-able people will be impacted during construction, this should be addressed properly. After completion of the road improvement, training and using of such facilities should be arranged through the project municipality.

h. Safety to school children and pedestrians

During the construction phase, other roads should be used or diversions established, and should be child, elderly and differently able person-friendly. Crossings near school areas should be safe, and the school area should be highlighted properly. An attendant from the school and/or from the contractor will be present at the school crossing during starting and closing times, or in peak traffic hours. Appropriate signage during construction and implementation should be displayed to enhance the awareness of potential safety hazards. After the completion of the road improvement, awareness should be created amongst school children, members from mother and women groups, and other pedestrians (people using the road every day for work or business) of the road signs, and using the road safely through awareness-raising programs in schools, women groups, local media and FM radio.

Comment [AF92]: Please be clear on what mitigation measures should be in place. If an attendant from the school will (not 'should') be in place, please indicate this, and ensure it is captured in the ESMP.

CHAPTER 5: RESETTLEMENT ACTION PLAN

5.1. Background and Objectives of the Resettlement Action Plan (RAP)

5.1.1. Aims of the RAP

This Resettlement Action Plan (RAP) aims to provide policy and procedures of land acquisition, compensation and resettlement of affected persons, if required. It has been prepared based on the findings of a resettlement impact assessment undertaken during detail project design and from updated information. The assessment aimed to identify the impacts on property and income sources of affected persons with documentation of loss of land, houses, trees etc. within the construction width of the proposed road. This RAP identifies safeguard measures including compensation, resettlement and rehabilitation assistances to the affected persons, consistent with the provisions of Resettlement Policy Framework (RPF) provided in the NUGIP Environmental and Social Management Framework (ESMF). This RAP particularly addresses the following considerations associated with road improvement and upgrading works. Social considerations have been incorporated into the road design:

- Private and community resources affected by the project (e.g. houses and infrastructures, which require the provision of appropriate entitlements (only, if applicable and triggers)
- Organizational and institutional requirements for the implementation of compensation, resettlement and rehabilitation activities
- Implementation schedules and monitoring mechanisms
- Compensation, resettlement and rehabilitation cost estimate
- As of now, for this project no physical or economic displacement takes place. The RAP policies and principles are mentioned here in case if there is any likely acquisition that might trigger due to design change or any unavoidable circumstances.

Comment [AF93]: Please be clear upfront the need for the RAP. The information above notes that there will be no physical or economic displacement, so why has a RAP been included?

Comment [SD94]: As of now, for this project no physical or economic displacement takes place. The RAP policies and principles are mentioned here in case if there is any likely acquisition that might trigger due to design change or any unavoidable circumstances. If you think it is not relevant, we would be happy to remove this chapter.

Formatted: No bullets or numbering

5.1.2. Policy and Principles of the RAP

This RAP is prepared on the following policy and principles of the NUGIP ESMF and RPF, which are in harmony with GoN policies and the World Bank Policy on Involuntary Resettlement (OP 4.12). Both the WB policy and GoN legislation emphasize avoiding or minimizing involuntary resettlement. Where the acquisition of private property is unavoidable, involuntary resettlement should be an integral part of project design and preparation.

The acquisition of private assets and the displacement of people will be avoided or minimized to the extent possible, through the incorporation of social considerations into alignment selection and road design. Where asset acquisition and population displacement are unavoidable, the pre-project living standards of affected persons will be restored. Community consultation ensures people's views; concerns and suggestions are incorporated into implementation procedure. An institutional framework will be developed as an integral part of the sub-project to ensure that appropriate social impact management mechanisms are set up and maintained during implementation. These mechanisms and arrangements will ensure that compensation, resettlement and rehabilitation are carried out timely and effectively.

5.2. Operational framework and Methodology of the RAP

5.2.1. Operational Framework

As the project authority, the PCO within the DUDBC will assume overall responsibility for the management procedures as mentioned in the RAP. Key activities to be undertaken to ensure effective implementation of resettlement, compensation and rehabilitation activities are:

- Implementation of procedures to (i) minimize adverse social impacts including acquisition of land and assets throughout the planning, design and implementation phases and (ii) accurately record all project-affected persons, by means of census and asset verification and quantification exercises, and the issuing of identification;
- Establishment of systems and procedures for the co-ordination of resettlement and compensation activities;
- Establishment or strengthening of grievance redress mechanism at the Ward level or municipal level where it is appropriate and practicable to address the social issues associated with the project. The objectives of this will be to: (a) ensure ongoing dissemination of project information to affected households, (b) structure, regulate and strengthen communication between roadside communities, (c)involve affected communities and local government structures in social impact management, grievance resolution and monitoring;

- Distribution of copies of the approved Entitlement Policy, and follow-up community meetings to ensure full comprehension of its contents;
- Capacity-building initiatives to create a supportive environment for the implementation of RAP activities, including training on accepted resettlement and rehabilitation practices, training in the establishment of compensation plans for affected household;
- Coordination with relevant government line agencies (as required)
- Collaboration with non-governmental agencies to provide grassroots expertise and resources in areas such as project information campaigns and impact monitoring.

5.2.2. Definitions

The following definition will be applied in the RAP:

- **Compensation**: The payment in cash or kind for private property acquired by the NUGIP/ Metropolitan, based on replacement value as defined by the Compensation Determination Committee (CDC).
- **Compensation Determination Committee (CDC**): The district-level committee established under Section 13 (2) of the Land Acquisition Act 2034 (1977) to determine replacement value and compensation rates for property acquired under the Act.
- **Cut-off Date for Eligibility to Entitlement**: The cut-off date for eligibility to compensation and assistance will be the date of the joint census of affected households and affected assets.
- **Entitled Person**: Any person who is entitled to compensation due to the loss of privately owned assets and other rehabilitation assistance.
- **Project Affected Person (PAP):** Any person directly affected by the project through the acquisition of assets belonging to him/her of his/her household or community. This includes any person whose rights, standard of living, subsistence and income-generating capacity are adversely affected through the acquisition of assets, whether full/partial, or permanent/temporary.
- **Project Affected Family (PAF):** The group of people residing in one house and operating as a single economic unit, who are adversely affected by the project. Major children over the age of 18 years will be entitled to rehabilitation measures as outlined in the Entitlement Matrix but not to compensation for properties held by other members of the household.
- **Rehabilitation**: The measures taken to mitigate identified social impacts, including compensation, resettlement and rehabilitation and transition allowances where required.
- Replacement Cost: With regard to land and structures, "replacement cost" is defined as follows: For agricultural land, it is the pre-project or pre-displacement, whichever is higher, market value of land of equal productive potential or use located in the vicinity of the affected land, plus the cost of preparing the land to levels similar to those of the affected land, plus the cost of any registration and transfer taxes. For houses and other structures, it is the market cost of the materials to build a replacement structure with an area and quality similar to or better than those of the affected structure, or to repair a partially affected structure, plus the cost of transporting building materials to the construction site, plus the cost of any labor and contractors' fees, plus the cost of any registration and transfer taxes.
- **Titleholder:** The person in whose name the project-affected land and/or building is registered and the person who is authorized by law to receive the compensation granted for the acquisition of land.
- **Tenant**: A person occupying/using land of a titleholder according to the stipulations of the Land Act, 2021 (1964).
- **Vulnerable Groups**: Social categories whose livelihoods may be particularly vulnerable to disturbances created by the project. These groups may include tribal groups, Dalits and landless persons who rely on access to local agricultural work and other support systems built up around the agricultural resources base.

5.2.3. Methodology

The methodology includes review of the sub-project DPR report to understand the project foot prints, visit of project sites by team of experts, and verification of physically and economically displaced households and structures.

While reviewing the DPR report of the project it was noted that the structures and additional land acquisition along the proposed up-gradation project is avoided by adjusting RoW of the road in related sections where such needs to be avoided. Hence, there are no structures or private or public land within RoW of road which requires acquisition. This is verified with DPR consultant and PCO. Hence no RAP related issues triggers for the proposed up-gradation activities.
Though RAP related principles are elaborated in this document, it is for reference if it triggers by any means in future then project needs to abide with it

5.3. Grievance redress

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 project affected persons. These would comprise of consultations towards relocation of the PAPs, relocation of cultural properties, and towards addressing the impacts on common property resources such as places of religious importance, community buildings, trees, etc. Since such type of resettlement and rehabilitation are not envisaged in this project, there is no need to include such aspects in this project. The information provided here are for understanding purpose and if applicable in future (if it triggers)
The stakeholders may raise any grievances related to the impacts on them or any other grievances. Such types of grievances needs to be addressed through grievance redress mechanism (GRM) for timely response on stakeholders query and concerns. 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. Grievance Redress Mechanism overview

A grievance redress mechanism is established to allow stakeholders including PAPs to raise any concerns or complaints, or to appeal any disagreeable decisions, practices and activities arising from the project including compensation for land and assets (if applicable). Stakeholders will be made fully aware of their rights and the procedures.

5.3.1. Current Grievance Redress Processes

Currently all grievances including environmental and social issues are directly submitted to the project municipality's judicial committee (Nyayik Samiti). The views of Environmental and Social Development Unit are taken in decision making process, if the judicial committee determines that is required. Grievances can also be submitted to District Administrative Officer (DAO) at District level or to Ward Chairman at Ward Level. Beside judicial committee, the project municipality also has a separate kiosk to register gender-based grievances/cases. These mechanisms and procedures are not fully operational so need to be strengthened further to perform its role more effectively.

5.3.2. Proposed Grievance Redress Mechanism

Existing mechanisms for grievance redress at the local level will be drawn upon under the project to enable grievant to lodge issues, complaints and requests for information, to help support and build the capacity of local governments.

5.3.3. Structure of the GRM

The project will follow the existing Grievance Redress procedures. Since existing grievance procedures are not fully operational, the following Grievance Redress Mechanism is proposed
The grievant should first raise any project-related grievances with the information office of the subproject, which will decide whether the grievance can be resolved by the ward or other mechanism. A focal~~dedicated~~ person will ~~be placed as a grievance officer to~~ look after grievances issues and the focal person will be one of the member of existing grievance redress committee of the municipality. The person will refer the cases according to the nature of grievances to the concerned entities. The records shall be kept properly.

At the Ward level, the staffing of the grievance redress committee (GRC) will include Ward Chairman, ~~Environmental and Social Officers from Tilotama Municipality~~. The second level will be at the municipality level,

Comment [AF95]: Please move this this detailed discussion on the grievance mechanism into the Section on Stakeholder Engagement.

Further, when discussing the GRM, please make it clear that the GRM is not just for PAPs but for all stakeholders who may have concerns, questions, feedback etc in relation to the subproject.

Grievance redress is an integral part of the stakeholder engagement and is one of the most important topic that cannot be intermingled with other. The GRM includes all stakeholders including the PAP and the same has been written in the report

Comment [AF96]: Please explain who this dedicated person be, for example, the social focal point in the PIU?

Comment [SD97]: This has been agreed with jaya ji from bank, to have a focal person for grievances.

Comment [AF98]: Will the GRC include project manager or engineer from the subproject?

Comment [SD99]: As advised, replaced with engineer from sub project.

engineer from sub project and will comprise the Nyayik Samit. The Nyayik Samiti will discuss the environmental and social concern with E&S section/department of municipality to redress grievance pertaining to gender, vulnerable community, and other social and environmental issues in transparent and effective manner. The third level will be at the PCO level, comprising members from the PCO. Those engaged as the monitoring unit for ESMP, RAP related issues (as of no issues and implications that RAP will trigger for this project) but if triggers due to some circumstances, it could be part of the committee. Special project grievance mechanisms such as on site provision of complain hearings allows project affected persons to get fair treatment on time. The subproject will also handle issues regarding the compensation damages done during construction.

5.3.4. 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 1stlevel 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 compliant, it will be elevated to 3rd level at PCO level. The PCO within 7 days of time should instruct the concerned person at PMC 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.

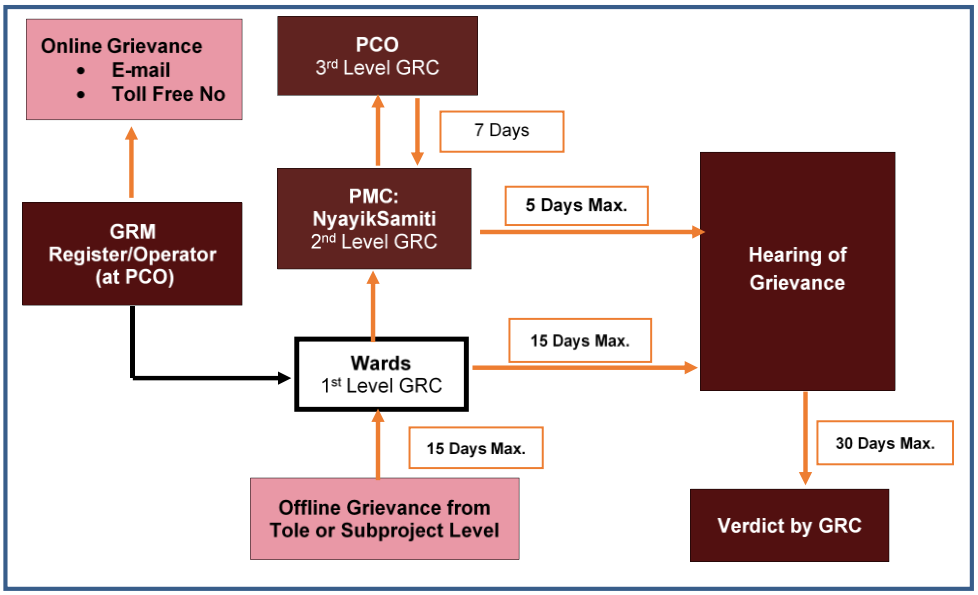

Figure 5.1: Grievance Redress Process

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.

5.3.5. 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 should be established to report back to the concerned community or persons regarding the decision on the complaint. The grievances related to women should 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. Potential grievances which may need to be addressed are listed below:

- Rehabilitation & Resettlement and Compensation issue
- 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

5.3.6. 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.

5.4. Entitlement Matrix

An Entitlement Matrix, as outlined in the ESMF will be followed (if applicable).

CHAPTER 6: SEXUAL EXPLOITATION AND ASSAULTS (SEA)/SEXUAL HARRASSMENT (SH) PREVENTION AND RESPONSE ACTION PLAN

6.1. SEA/SH - National Scenario

The current status of gender inequality and gender-based violence (GBV)in Nepal reveals the serious need to mainstream gender sensitivity and GBV risk mitigation measures, and more specifically, sexual exploitation and abuse, and sexual harassment (SEA/SH) risk mitigation measures at all organization levels and in all phases of project cycles. In Nepal, SEA/SH is prevalent due to unequal gender relations and discrimination towards women in both the public and private sphere. It has direct implications on the reproductive health status of women and on the physical, emotional, and mental health of their children.

Based on the SEA/SH Risk Assessment checklist and assessment carried out for NUGIP by the World Bank, the Project's SEA/SH risks are assessed to be "Low". An SEA/SH Risk Mitigation Action Plan has been developed for NUGIP based on this assessment and includes specific measures that aim to prevent and mitigate GBV, in particular SEA/SH risks that the project activities might trigger. The Plan has also addressed "Table – 1: Recommended actions to address SEA/SH Risks in IPF Projects" as per the "Good Practice Note" published by the World Bank in September 2018. The SEA/SH Risk Mitigation Action Plan is included under Chapter 7 of the ESMF for NUGIP. The plan applies to all sub-projects under NUGIP and provides recommended actions for addressing and mitigating SEA/SH risks.

6.2. The Purpose of SEA/SH Risk Mitigation Action Plan

The Tilottama subproject draws upon NUGIP SEA/SH Risk Mitigation Action Plan to address and mitigate against any SEA/SH risk during subproject implementation, and will make any adjustments as required to meet subproject specific SEA/SH risks that were identified during ESIA preparation. The purpose of the action plan is to identify the issues, stakeholders, possible service providers and assess their capacity and document the legal and institutional mechanisms that aid in accessing grievance redressal. The subproject will focus on sensitizing the communities and other stakeholders and strengthening institutional capacities. A survivor-centric approach is followed whereby all through the subproject, victim/survivors' care and providing access to different referral mechanisms are considered key aspects of this plan.

6.3. SEA/SH Risk Mitigation Action Plan Principal and Approach

The survivor-centric approach is a human-rights based approach which aims to create a supportive environment in which the survivor's rights are respected and in which she is treated with dignity and respect (UNICEF 2010). This approach helps to promote survivor's recovery and ability to identify and express needs and wishes, as well as to reinforce the survivor's capacity to make decisions about possible interventions (GPN – Addressing SEA/SH in civil works, World Bank 2020). The key principals of this approach are:

- To treat victimized women and girls with dignity and respect instead of being exposed to victim blaming attitude.
- Do not deal the issue through the feeling of powerlessness.
- To maintain privacy confidentiality and safety instead of exposure.
- Do not discriminate survivor based on gender, age, race/ethnicity, ability, sexual orientation, HIV status or any other characteristics.
- Enable timely access to quality services as required by the survivor
- Ensure informed consent of the survivor since the survivor has the right to understand the options and decide whether to talk about the incidence or not

6.4. Additional SEA/SH Risks in relation to Labor Influx

Amongst all required human resource needed for the subproject, skilled labor requirements will be less and unskilled labor will be high. All labor requirements cannot be met through hiring from the local community, for various reasons including worker unavailability and lack of skilled labor, therefore the contractor will hire labor externally according to need. In many cases, labor influx is compounded by influx of other people who appear in the project area along with the development of the project for various reasons including to seeking opportunities to sell goods, and services. The social impacts resulting from labor influx are critical to address, as even a modest

labor influx may lead to negative impacts on the host community. Below are potential risks in the subproject area which are associated with labor influx:

- Risk of social conflict due to conflicts like high consumption of alcohol, drug abuse and dispute/fights in the local area
- Increased risk of illicit behavior and crime that includes theft, physical assaults, substance abuse, prostitution and human trafficking.
- Influx of additional population followers like workers families, traders, suppliers, vendors and traders of different types
- Burden on and competition for public service provision due to increased population, increased density of traffic on roads, increased patients and accidents in the workplace
- Increased risk of communicable diseases and burden on local health services
- Child labor and school dropout due to increased job opportunity and forced labor due to poverty
- Increased pressure on accommodations and rents, traffic and inflation of price
- Other SEA/SH related risk

6.5. Mitigating against SEA/SH risks

Mitigation measures against the risk of SEA/SH in the subproject are outlined below:

- Reduce labor influx by using local manpower and prioritizing eccentrically throughout the local ward, municipality, district, province and federal state. Training can be conducted to train or upgrade the performance
- Awareness programs related to community and workers, trafficking, sexually transmitted disease etc to be conducted to both workers and community to adjust the workers with the community
- School-Based Awareness Programs about development, environment, social cultures, probable impacts during construction and operation
- Management of Alcohol and drug abuse through implementation of code of conduct and the provision of punishment for breaching of the code of the conduct
- Building Capacity for SEA/SH mitigation through the integrated approach of local and federal bodies and the locals and the security forces
- Managing the influx of other people into the area:
- Communicable diseases like AIDS, COVID etc and to apply strict preventive measures for the same
- Child labor and school dropout should be enforced by cross examining the use of child labor
- Increased pressure on accommodations and rents, traffic and inflation of price as the workforce will be better using the rented house and due to high demand the price may surge
- 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.

6.6. SEA/SH Risk Mitigation Action Plan

As noted above, the subproject will draw on the SEA/SH Risk Mitigation Action Plan developed for NUGIP, which is included in the NUGIP ESMF and provided in **Table 6.1~~Table 5.1~~.**

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Table 6.1: SEA/SH Risk Mitigation Action Plan

Objective	Indicator	Tilottama subproject measures	Timeline	Responsibility	Cost (NPR)
Include the assessment of SEA/SH risks (as low SEA/SH risk) as part of the social/gender assessment in project's Environmental and Social Impact Assessment (ESIA)	Low SEA/SH risks highlighted and preliminary mitigation measures identified Mapping completed of available, quality services in the project affected area	Consultations have been conducted and identified SEA/SH risks in project areas identified and include the main measure agreed to with the local administrative office Map out SEA/SH prevention and response services in project area of influence – reference to be made from the service mapping that already exists at the national level	Construction Phase (as part of ESIA)	Local Body /PIU	Included in ESIA cost
Reflect SEA/SH risks, and measures to address them, ESMP and contractor ESMP including the costs	SEA/SH risk Mitigation Action Plan included in the ESMP Procurement for SEA/SH-related activities and costs outlined in the contract.	SEA/SH risk Mitigation Action Plan provided and SEA/SH related costs are included in the ESMP and contract documents to mitigate risks.	Year 1 (during preparation of ESMP)	Tilottama municipality (local body) /PIU	SEA/SH costing is included in ESMP
Develop stakeholder engagements plan and inform communities in project areas of SEA/SHrisks and options for response	Number of awareness and consultations held	The plans for stakeholder engagements during the subproject implementation include awareness raising activities (specialized service providers/contractors/NGOs identified and hired under contract) and awareness and consultations carried out. This plan will be implemented during the project construction.	During preparation of ESMP, beginning of construction, and during construction	Local Body /PIU	ESIA covers stakeholder consultation costs; construction phase stakeholder engagements costs should be inbuilt into overall budget
Formulate and adopt code of conduct (CoC) including sections on safety of women and girls	CoC developed, included in all contracts, and staff, consultants, contractors trained.	Developed CoC should be included in all contracts and also in the PIM. Training on the CoC should be provided to all.	Prior to contractor mobilization and during project period.	Local Body /PIU / Contractor	The awareness and orientation program cost to be inbuilt in PIU and at individual contractor level in BoQ
Hiring a Gender Specialist expertise on SEA/SHto advise and monitor action plan during project implementation	Appointment of Gender Specialist Measure effectiveness of the SEA/SH Action plan	~~Gender Specialist (hired for NUGIP at the project level) will provide support for subproject mitigation measures~~. Social specialist/any designated focal person will be assigned to oversight this responsibility.	Year 1	Local Body /PIU	Included in Project Cost
		Coordinate, report to and work closely with the			

Comment [AF100]: Please note that a Gender Specialist will not need to be hired for the subproject. However, someone will need to be assigned as the focal point for SEA/SH related issues, this may be the Social specialist/focal point for the project.

Comment [SD101]: Gender specialist is replaced as advised by social specialist or designated focal person.

Objective	Indicator	Tilottama subproject measures	Timeline	Responsibility	Cost (NPR)
		NUGIP gender specialist on the implementation and monitoring of SEA/SH action plan			
Project Construction					
Codes of Conduct signed and understood	Number of people officially oriented and trained	EnsureCoCs are clearly understood, signed and behaviourally applied to the job site Disseminate CoCs (including visual illustrations) and discuss with employees and surrounding communities.	During subproject implementation	Contractor, PIU	Built into overall project cost
Awareness on SEA/SH	Number of participants and the awareness materials and the resources on project area	Awareness to the woman children school students and the professionals that includes - Community based-awareness program - School based awareness program The project should work with women's groups to support the awareness programs.	During subproject implementation	PIU, Contractor, Gender Specialist, Ward office CBO/NGOs working in area	12 trainings covering all the schools , CBOs, women's group @Rs 50000.00 per training Total NRs 600000.00
Grievance redressal Mechanism	Availability of an effective GRM with multiple channels to initiate a complaint relating to / parallel SEA/SH Number of GRM members trained. Inclusive GRM system in place. Number of SEA/SH issues which have been referred to GBV Services Providers	The GRM allows for the appropriate referral of sub project-related complainants. -Discourage or prevent harassment anti-harassment policies in the workplace. At the subproject level, select one women member as first point of contact for the survivors of SEA/SH and provide appropriate training to them. Undertake stakeholder engagements as outlined in the ESMP and conduct community awareness raising about SEA/SH risk mitigation measures, taking support from local women's groups, for example, CoC, GRM, how to report and provide multiple entry-points Maintain proper documentation is maintained for complaint registration and management	During subproject implementation	~~Gender~~ Social specialist/designated focal person to oversight gender related issues of the Project	Built into overall project cost and SEA/SH awareness raising outlined above
		Have separate, safe and easily accessible facilities for women and men working on the site. Establish locker rooms/secured rooms and/or			

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Comment [AF102]: Please ensure that this is in line with what is being discussed for addressing SEA/SH-related issues under NUGIP at the municipality level.

In particular, the anti-harassment cell needs to be integrated into the GRM – which needs to be tracked – so please ensure this is captured.

Comment [SD103]: The social specialist of the project /through GRM mechanisms the project will Discourage or prevent harassment anti-harassment policies in the workplace, establishing anti-harassment cell for this scale of project is not necessary .Ensuring "no harassment" by awareness, close monitoring and reporting are important.

Objective	Indicator	Tilottama subproject measures	Timeline	Responsibility	Cost (NPR)
Implement appropriate subproject-level activities to reduce SEA/SH risks prior to civil works commencing	Documentation of measures taken to reduce SEA/SH risks.	latrines for workers and project staff, well-lit areas and include the ability to lock them from inside. Visibly display signs around the project site (if applicable) that signal to workers and the community SEA/SH is prohibited. As appropriate, public spaces around the subproject grounds should be well-lit.	During subproject implementation	PIU, Gender Specialist of the project.	Include in Project Cost
Project Monitoring					
Report in the quarterly progress report and review during Implementation Status Review (ISR) missions	Successful implementation of agreed SEA/SH action Plan (Y/N)	Reports SEA/SH-related issues in the quarterly progress report review during ISR missions	Project period	PCO, PIU, Gender specialist	

Note: The requirements of the SEA/SH Risk Mitigation Action Plan must be included in contractor's management plan.

CHAPTER 7: ENVIRONMENT AND SOCIAL MANAGEMENT PLAN

7.1. Background

This Environmental and Social Management Plan (ESMP) for the project identifies the principles, approach, procedures and methods that will be used to control and minimize the environmental and social impacts of all construction and operational activities associated with the project development that is intended to ensure that commitments made to minimize project's related environmental and social impacts are upheld throughout all project phases. The management and monitoring program will involve the following: a) collection and analysis of appropriate environmental social and cultural data; b) preparation of periodic reports including an annual environmental and social performance report to DUDBC and the WB and liaison with other relevant bodies (e.g. ministries, departments and relevant agencies); c) identification of unexpected environmental and social impacts; and d) formulation of mitigation measures for the unexpected negative impacts.

~~7.2.~~ Implementation of Environmental and Social Management Plans

The mitigation measures will be integrated into project design and the agreements/contract documents. The project bid documents will include the implementation and reporting of the ESMP and contractor must follow it. The impact of the construction on the environment will be kept to a minimum and appropriate measures as brought out to in the ESMP are taken to mitigate any adverse effects during the construction. The Environment, Health, and Safety requirements of the construction contractor will be clearly spelled out in the contract document and the necessary cost will be included in the BOQ. The contractor is required to submit the Contractor's Environment, Health, and Safety Management Plan within 45 days of the commencement of the work. The client/consultant will review the Contractors EHS plan and provide approval along with necessary improvements. The regular monitoring will be followed by the PIU/Environmental and Social Monitoring team. It is in this context, the construction contractor is required to provide 1) a sound working environment to all employees involved in the design and construction of road as per national legislations, standards, and guidelines. 2) Must ensure HSE objectives are met during the entire construction, 3) Prepare and submit ESMP plan during construction period of the project. The EHSMP should include; policy statement, roles and responsibilities, site regulations, risk management and hazard identifications, HSE trainings, PPE, Inspection and auditing, site security, medical care and first aid, 4) The contractor must ensure Environmental Management and Mitigations addressing ESMP and mitigation management as shown in **Table 7.1~~Table 7.2~~**.

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Table 7.12: Adverse impacts mitigation measures

Stage	Impact	Mitigation Measure	Responsibility	Cost (Remarks if any)
Physical (Construction Phase)	Impact on property from vibrations due to the use of heavy machinery and other construction activities	▪ Establish photographic and video graphic evidences of structures and properties in and alongside RoW. ▪ Awareness raising, information and disseminiation about ~~on~~ GRM	Contractor	BoQ
	Obstruction due to electric and telephone poles in the ROW	▪ Relocate the 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	Municipality~~DSST~~ and Contractor	(Included in DPR BOQ)
	Removal and re-construction of Water Supply Pipe lines of the water supply scheme	▪ The project must work in close coordination with the Water Supply Management Committee regarding disruption of water supply system of 3.7 km at chainage of (0+000 – 3+700), alternative means of supply during the disruption, re-establishment and reestablishment of the system. Should be completed prior the beginning of the road construction	~~PIU DSST with support of contractor~~Contractor in support with Municipality	(Included in DPR BOQ)
	Land use change	▪ Fertile topsoil will be removed before filling the agriculture land area for road and scientific methods of stabilization will be applied. Prior notification for crop plantation will be given. Should be completed prior the beginning of the road construction	Contractor	Included in the project detail cost
	Protection of water courses crossing the road and alongside the ROW	▪ Construct silt traps and ripraps to maintain the river channels. Dredge the river bottom to ensure free flow of the water	Contractor	Included in the project detail cost
	Quarry Operation	▪ River mining will be forbidden to conserve the spawning ground of fishes. The materials will be received only from licensed vendors having environmental clearance. ▪ The quarried sites as identified in section 4.5.2 and Figure 4.1 will be closed and rehabilitated to suit the local landscape by providing necessary structures.	Contractor	Included in the project detail cost
	Road safety, Sewer, Drainage etc	▪ Provide bus laybys and Bus Shelters Bus laybys are provided at various locations mentioned ~~below~~ inTable 1.2 ~~in the table~~ where public buses or micro buses pull out of the traffic to pick and drop off passengers. ▪ Provide ramps in strategic section of roads as detailed in section 1.4.9. ▪ Sewer Drainage ▪ Manhole Existing Manholes at existing locations	Contractor	Already included in project BOQ

Comment [PA104]: Please update this table after incorporating the comments in the impact section.

Comment [PA105]: A careful review of this need to be carried out. Most of the cost of the mitigation measures is kept under Contractor and is stated that it is part of BoQ and/or project cost. If so, the ...

Comment [SD106R105]: Agreed, this is a small upgradation work, hence it is ...

Comment [SD107R105]: PIM reads Contractors" Environmental and Social ...

Comment [AF108]: What is the mitigation measure? For example, perhaps ensure ...

Comment [PA109]: Who will do this? Contractor? ...

Comment [EMM110]: Please provide chainage for removal area of water supp ...

Comment [AF111]: Please also be clear the timing for this.Will pipelines be ...

Comment [PA112]: Who will do this? Contractor? ...

Comment [SD113R112]: Need to budget under BOQ items of conttractor

Comment [PA114]: Who will do this? Contractor? ...

Comment [EMM115]: Please provide the chainage of this silt trap area in line with ...

Comment [EMM116]: Please provide the name and location of quarry sites in line ...

Comment [PA117]: Who will implement this?

Comment [EMM118]: Mention the name or chainage of these various locations in ...

Comment [EMM119]: Specify this location in line with DPR

Stage	Impact	Mitigation Measure	Responsibility	Cost (Remarks if any)
		require to be raised to FRLs of the road. ▪ Cross-Roads Development Stretch of 15 m of each cross-road will be developed under this project. ▪ Installation of Road markings at all major as well as minor intersections. Road Signs and Markings Road Markings has been provided as per Traffic Sign and Marking manual as per DPR ▪ Hand railings Hand railing to be provided at box culverts and other required section ▪ Retaining/ Breast wall Stone Masonry Retaining wall has been provided along the alignment where embankment is required as stated in the Section 6.3.20 of the DPR and the related drawings and estimates. ▪ Guard Rails and Safety Barriers Guard Rails and safety barriers must be provided in places where serious damage to vehicle and people may occur when an out-of-control vehicle may leave the roadway or hit other objects.		
	Issues of stockpiling	▪ Only barren land will be used for stockpiling and 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 area could be leased or rented based on price not lower than the prevailing market price.	Contractor	Included in the project detail cost
	Construction Safety	▪ RReinforced Cement CoCncrete covered drain must be provided throughout the alignment in integration with footpath. Storm water collected should be disposed through the nearest culvert sections. The contractor will assign a safety officer and the PIU's safeguard specialist will monitor the implementation of the OHS measures. ▪ Hazards will be identified, and workers will correctly wear PPE, will properly use safety equipment, and will follow work safety arrangements. Safety signs and information will be provided and the work space will be barricaded to prevent unauthorized entry.	Contractor	Included in the project BOQ

Comment [PA105]: A careful review of this need to be carried out. Most of the cost of the mitigation measures is kept under Contractor and is stated that it is part of BoQ and/or project cost. If so, the DPR and the BoQ should be looked carefully to make sure that these costs are included.

Comment [SD106R105]: Agreed, this is a small upgradation work, hence it is advisable to assign responsibility to the contractor for majority of environmental and social migiation activities rather than by other entity.

Comment [SD107R105]: PIM reads Contractors" Environmental and Social responsibilities during construction will be included in the bidding documents and contracts, and these will need to be strictly enforced (by the municipality with assistance of the DSST).

Comment [AF120]: In the first section, it notes that there are hand railings provided at 8 locations. Please ensure such details are captured here.

Comment [EMM121]: Please specify this location with chainage in line with DPR

Comment [EMM122]: Please specify stock piling area in line with DPR

Comment [SD123R122]: Stockpiling locations are not found in DPR hence flagged here.

Comment [AF124]: Please expand RCC and include in Acronyms table.

Stage	Impact	Mitigation Measure	Responsibility	Cost (Remarks if any)
		Workers and people at the construction site will be provided with proper training, and to help ensure that workers are trained on what to do in the event that an accident occurs on site.		
	Traffic Management	▪ Emergency traffic management plan should be prepared by the contractor and approved by the Project. This is requried. to cope up with the restriction on the vehicular movement due to closure of road for reasons including construction, floods or other natural calamity. The plan may 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	DSC~~PMST~~ and Contractor	Included in BOQ
	Air /Noise, vibration and Water pollution	▪ Avoid construction during night time ▪ Install sanitary facilities for workers to avoid open defecation by construction of temporary toilet. ▪ Provide PPEs during construction ▪ Surface improvement by adding gravel or slag on dirt road, and watering to suppress dust	Contractor	Costs for activities to control all pollution will be included in the BoQ The national standards for water to be disposed in inland water will be meet.
		▪ Sprinkling water, reducing use of horns, using equipment that meets the government standards ▪ All hot mix plants, stone crushers, diesel generators, haul trucks, pavers, graders, and rollers, required to comply to regulations prior to use ▪ Stockpiles of construction materials will be done away from roadways and from riverbanks. ▪ No firewood for cooking and heating bitumen and incineration of wastes will be allowed by the contractor ▪ Construction camps, maintenance workshops and plants should be located away from sensitive locations ▪ Select equipment and machinery with lower sound power levels for the use ▪ Installation of acoustic barriers to confine noisy equipment near sensitive sites like schools, health		

Comment [PA105]: A careful review of this need to be carried out. Most of the cost of the mitigation measures is kept under Contractor and is stated that it is part of BoQ and/or project cost. If so, the DPR and the BoQ should be looked carefully to make sure that these costs are included.

Comment [SD106R105]: Agreed, this is a small upgradation work, hence it is advisable to assign responsibility to the contractor for majority of environmental and social migiation activities rather than by other entity.

Comment [SD107R105]: PIM reads Contractors" Environmental and Social responsibilities during construction will be included in the bidding documents and contracts, and these will need to be strictly enforced (by the municipality with assistance of the DSST).

Comment [AF126]: Who will prepare the traffic plan? Is this the responsibility of the PMST or Contractor?

Comment [SD127R126]: addressed

Comment [AF128]: What about construction-induced impacts? This needs to be included as another impact, with mitigation measures provided.

The impacts and the mitigation measures are the impacts during the construction phase

Comment [SD129R128]: Comment not clear to us

Stage	Impact	Mitigation Measure	Responsibility	Cost (Remarks if any)
		post, government offices ▪ Good quality vehicles meeting national standards should be used during the construction period .		
	Waste management	▪ Solid waste including construction debris should be properly managed using 3 R principles	Contractor	Included in contract document
	Tree cutting	▪ 64 trees needs to be removed, Replacement of cut trees with seedlings	Contractor	Cost is included in BOQ
	Loss of productive soil and agricultural land	▪ Top soil (0-25 cm) from the productive land will be collected and stored for reuse and final dressing of embankment turfing or given back to the farmers upon request	Contractor	Included in BOQ
	Siltation and contamination of rivers	▪ Protect disposal of excavated spoils and debris in to water bodies ▪ All chemicals and oil will be stored away from water and concreted platform with catchments pits for spills collection	Contractor	Included in BOQ
	Hydrology and drainage-risk of increasing sedimentation and siltation of waterways during construction phase	▪ Existing natural drainage system, including irrigation channels will not be disturbed. As per DPR, causeways and structures will be provided in each perennial and seasonal streams and rivulets. As suggested in DPR, adequate cross drainage structures will be provided to facilitate natural flow of water across road embankment.	Contractor	Included in BOQ
	Obstruction of access to structures	▪ Proper engineering measures to provide access to structures as per DPR, including the provision of constructing steps and 118 number of ramps	Contractor	Cost is included in BOQ
Physical and chemical environment - Operational Phase	Road Stability and Drainage Management	▪ Road side tree plantation, construction of gabion wall and drainage system to mitigate possible inundation in the settlements along the project alignment, Ensure proper compaction as per design	Contractor	Included in DPR and subsequently budgeted in BOQ
	Air pollution	▪ There should be a consensus between metropolitan, District Transportation Office, Transportation Entrepreneur, and the local people regarding the operation of conditioned vehicles	DTO, transportation entrepreneur, local people	~~Costs to be included in BoQ~~ No extra cost will be required.
	Water pollution	▪ The operation of proposed work doesn't pose serious threat on water bodies; however, washing vehicles on fresh water streams will be avoided.	Drivers, Ward, local people	~~Costs to be included in BoQ~~ No extra cost will be required.
	Climate change and Disaster Risk	▪ Nepal lies in Seismic zone-V, hence all the design will be based on IS 1893 to withstand the earthquake. The road is provided with safety features, which likely	PCO	The cost is inbuilt to ESMP - BOQ and in project construction cost

Comment [PA105]: A careful review of this need to be carried out. Most of the cost of the mitigation measures is kept under Contractor and is stated that it is part of BoQ and/or project cost. If so, the DPR and the BoQ should be looked carefully to make sure that these costs are included.

Comment [SD106R105]: Agreed, this is a small upgradation work, hence it is advisable to assign responsibility to the contractor for majority of environmental and social migiation activities rather than by other entity.

Comment [SD107R105]: PIM reads Contractors" Environmental and Social responsibilities during construction will be included in the bidding documents and contracts, and these will need to be strictly enforced (by the municipality with assistance of the DSST).

Comment [EMM130]: Please specify location of these cross drainage structures in line with DPR

Already incorporated in the technical section

Comment [AF131]: Please indicate how many ramps. Section 1 refers to 118 ramps.

Comment [SD132]: included

Comment [EMM133]: Please specify gabion wall area in line with DPR

yes

Stage	Impact	Mitigation Measure	Responsibility	Cost (Remarks if any)
		reduce the chance of accidents in the road alignment. The road assets shall be designed to withstand seismic forces as per IS 1893. ▪ At Mangalapur-Kanchibazzar road (5 KM section from Mangalapur) there will be the problem of drainage system during road upgradation and operation & maintenance. Therefore, provision of prober road side drainage and cross drainage should be made to drain off the storm water from the road so as to mitigate possible inundation along the settlements that exist along the project alignment. ▪ As a mandatory rule, road side tree plantations have been proposed in the ratio of 1:10 to the number of trees that are to be cut down. The project has also proposed tree plantation in foot path areas. This helps in creating a comfortable microclimate, thereby reducing the temperature of the project area by some degrees. The cost of plantation has been included in the cost estimate. ▪ No alteration to the existing drainage channels (natural or artificial) will be done with the thought that they have been well adapted to the existing conditions over a long period of time. ▪ Dust emission and air pollution due to construction activities and operation of heavy equipment and movement of transporting vehicles, to mitigate the impacts water will be sprinkled along the proposed road alignment and nearby dust prone area and repair and maintenance of equipment and vehicles regularly. ▪ Entire process from project selection up to the project design and implementation prioritize wider settlements along with the social and health institutions like schools, hospitals, health posts and so on. These public institutions are very helpful during disaster to use as temporary shelters as well as centers for rescue and rehabilitation. The projects will incorporate various safety measures that also include signboards, information boards, caution sign, barricades to disaster prone areas and accident-prone areas within construction areas. This is also an attempt		

Comment [PA105]: A careful review of this need to be carried out. Most of the cost of the mitigation measures is kept under Contractor and is stated that it is part of BoQ and/or project cost. If so, the DPR and the BoQ should be looked carefully to make sure that these costs are included.

Comment [SD106R105]: Agreed, this is a small upgradation work, hence it is advisable to assign responsibility to the contractor for majority of environmental and social migiation activities rather than by other entity.

Comment [SD107R105]: PIM reads Contractors" Environmental and Social responsibilities during construction will be included in the bidding documents and contracts, and these will need to be strictly enforced (by the municipality with assistance of the DSST).

Stage	Impact	Mitigation Measure	Responsibility	Cost (Remarks if any)
		to incorporate disaster mitigation in the project.		
	Rainfall	▪ High Impact	Design by PCO, construction phase compliance by the contractor	Design consideration for pavement and periodic maintenance for asphalt layer (during operation phase0
	Road Safety	▪ Road safety components such as rumble strips, road humps, visibility improvement at intersections and branch roads, pedestrian crossings and installing proper signs, traffic signs and signals has been incorporated and recommended. Pedestrian crossings (zebra crossing) is proposed in intersections, major junctions, and branch roads and even in road alignment with major places such as schools and commercial establishments in order to cross the road safely across the flow of vehicular traffic. Signalized pedestrian crossings are proposed in order to separate when each type of traffic (pedestrians of road vehicles) can use the crossing. ▪ Road humps are proposed in cross road connections (branch roads) as a part of traffic calming devices that use vertical deflection to slow motor-vehicle traffic in order to improve safety conditions. ▪ The objective of the Road Safety Interventions is to assess it for potential shortfalls in safety and recommend corrective strategies to eliminate/reduce risks of crashes. Various road safety interventions are proposed to make the road safer and reduce traffic accidents. ▪ Improvement of intersections ~~through provision of roundabouts~~, traffic signs installation and improving visibility ▪ Proper Traffic signs and signals and road markings throughout the alignment. ▪ Provision of guard rails, street lights, bollard lights, rumble strips, road humps, pedestrian crossings, ~~parking area,~~ covered drain throughout the alignment Provision of separate cycle lane and footpath ▪ Use of Reflective Pavement Marker (RPM) for lane marking and delineation for night-time visibility.	DSC~~S~~T and Contractor during construction phase, Operation phase monitoring and compliance by the municipality or concerned entity	Costs to be included in BoQ for construction phase including safety signs, warning signs, informative signs/boards etc

Comment [PA105]: A careful review of this need to be carried out. Most of the cost of the mitigation measures is kept under Contractor and is stated that it is part of BoQ and/or project cost. If so, the DPR and the BoQ should be looked carefully to make sure that these costs are included.

Comment [SD106R105]: Agreed, this is a small upgradation work, hence it is advisable to assign responsibility to the contractor for majority of environmental and social migiation activities rather than by other entity.

Comment [SD107R105]: PIM reads Contractors" Environmental and Social responsibilities during construction will be included in the bidding documents and contracts, and these will need to be strictly enforced (by the municipality with assistance of the DSST).

Comment [AF134]: The subproject design notes that parking areas are not included.

Comment [SD135]: removed

Stage	Impact	Mitigation Measure	Responsibility	Cost (Remarks if any)
		Delineators and Object Markers ▪ Roadway delineators are intended to mark the edges of the roadway to guide drivers on the alignment ahead. Object markers are used to indicate hazards and obstructions within the vehicle flow path, for example, channelizing islands close to the intersections.		
Biological -construction	Vegetation clearing	▪ 64 trees/poles of different species need to be removed. The seedlings will be replanted outside RoW as far as practicable ▪ Total plantation proposed is 1:10 (1 removal of RoW plants equivalent to 10 plantations), with these total 640 seedlings/plants to be planted. The local native tree species will be selected for the compensatory plantation as much as possible. In addition project has proposed road side plantations. The cost are	Contractor and oversight by DSC and Municipality	Cost is already included in BOQ The cost for 640 tree seedling, tree guards @Rs 1500/tree guard . The total cost for .plantation comes around Rs.960000.00 . The project has also proposed additional trees plantations in addition to it and cost has been included in BOQ. The total cost of DPR is included in EMP
Biological environmental – Operational stage				
	Impact on Vegetation and wildlife	▪ Since the project doesn't passes through biologically critical areas, encouraging local people for protection of roadside vegetation by plantation.	Project/Contractor/Local Bodies	No additional cost
Social – Construction Stage	Loss of Land or property (as of design for this road it is not applicable as of), If applicable and trigger then	▪ Compensation for loss of property as per the RAP (not applicable as of now: ref DPR report, field observation)	PCO	----------
	Pedestrian Safety	▪ Diversions should be child and elderly friendly as well as to other general pedestrians. Crossings near school area should be safe and the school area should be highlighted. Appropriate signage will be displayed use during construction and implementation of the project to enhance awareness around the potential safety hazards of the construction.	Contractor	----------
	Health and Sanitation	▪ Proper awareness of using latrines, construction of latrine for worker, Piyus(a chlorine solution) will be provided to workers to purify drinking water.	Contractor	Included in the project design cost
	Child labor and forced labor	▪ No child (below 14 years) and forced labor will be employed in project.	Contractor	No cost
	Occupational Health and Safety	▪ Provision of PPE that also includes the protection against covid like use of maks, gloves, and distance	Contractor	Contractor 's responsibility: should be spelled out in

Comment [PA105]: A careful review of this need to be carried out. Most of the cost of the mitigation measures is kept under Contractor and is stated that it is part of BoQ and/or project cost. If so, the DPR and the BoQ should be looked carefully to make sure that these costs are included.

Comment [SD106R105]: Agreed, this is a small upgradation work, hence it is advisable to assign responsibility to the contractor for majority of environmental and social migiation activities rather than by other entity.

Comment [SD107R105]: PIM reads Contractors" Environmental and Social responsibilities during construction will be included in the bidding documents and contracts, and these will need to be strictly enforced (by the municipality with assistance of the DSST).

Comment [AF136]: What is the mitigation, how will this be ensured, for example, will all workers need to provide a form of identification to prove that they are over a certain age? What kind of identification?

Comment [AF137]: What about COVID-related mitigation measures? Discussion on COVID-related risks and impacts, and mitigation measures need to be captured in this ESIA.

Stage	Impact	Mitigation Measure	Responsibility	Cost (Remarks if any)
		maintaining wherever possible ▪ Provision of insurance to cover physical damage to workers. ▪ Induction and refresher training to the workers Workers will also be provided with insurance to cover physical damage to workers. ▪ Basic First aid		contract document
	Traffic and Transport Management	▪ Mobilization of equipment of materials will occur at night(between 6 PM - 9 AM) ▪ A detailed Traffic and Transportation Plan is to be contained in the Contractor Document ▪ Traffic Safety such as street lights, traffic control devices and other features shall be covered through "*Traffic Signs Manuals Vol-I and Vol II*" and "*Road safety manual*" published by the DOR. ▪ Conducting the road safety audit during construction and prior to opening for public ▪ Bus bays are one of the most crucial factors to be considered in market areas as well as settlement areas. ▪ Provision of alternative routes to ease the congestion and built up of traffic	Project contractor	
	Community Health, Safety and Security	▪ 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 ▪ Display appropriate signage for use during construction and implementation of the project to enhance awareness creation on the potential hazards of the project	Project Contractor Publlic awareness campaign by the municipality	Included in the bid document
	Limited Access for elderly and Differently-able People	▪ 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. Elderly people should have access to socialize and meeting people and family to nurture their mental need/health. ▪ The design should incorporate the disabled-friendly measures and will incorporate periodic maintenance.	Municipality/ DSCST Contractor (engineer must ensure this in design)	Contractor's responsibility, supervision by DSCST
	Working conditions and management of worker relationship	▪ The contractor shall provide reasonable working conditions and terms of employment, and in	Contractor	Incluided in BoQ

Comment [PA105]: A careful review of this need to be carried out. Most of the cost of the mitigation measures is kept under Contractor and is stated that it is part of BoQ and/or project cost. If so, the DPR and the BoQ should be looked carefully to make sure that these costs are included.

Comment [SD106R105]: Agreed, this is a small upgradation work, hence it is advisable to assign responsibility to the contractor for majority of environmental and social migiation activities rather than by other entity.

Comment [SD107R105]: PIM reads Contractors" Environmental and Social responsibilities during construction will be included in the bidding documents and contracts, and these will need to be strictly enforced (by the municipality with assistance of the DSST).

Comment [AF138]: Does this mean contractors will need to include this in bidding documents?

Comment [SD139]: Yes the contractor needs to prepare it and ensure to abide with it for unhindered traffic flow during construction stage and for the safety of pedestrians and vehicles plying on the road

Comment [AF140]: Who will be responsible for these information campaigns?

Comment [SD141R140]: Municipality

Stage	Impact	Mitigation Measure	Responsibility	Cost (Remarks if any)
		conformance to working conditions established by National law. During construction, temporary accommodations will be constructed by the contractor and will comply with national and international standards for quality, security, safety, and professional competency.		
	HIV-AIDS and COVID Management	▪ Awareness creation and sensitization to workers and other persons post- project to reduce or eliminate chances of infections of HIV-AIDS and other sexually transmitted diseases ▪ Distribute HIV & AIDS awareness materials in collaboration local health related agencies ▪ Ensure protective measures for COVID is followed, prepare and follow SOPs by all workers and staff for COVID (social distancing, immunization, hand washing, using sanitizer, masks etc) including the community health and safety awareness and management	DSC~~S~~T , Contractor In coordination with Municipality	NRs. 300000.00
	Girls/Women Trafficking	▪ Awareness program will be developed and implemented	DSC~~S~~T in close coordination with Women Development Office, municipality, NGO/Clubs	NRs. 100,000.00
	Impacts on Communities, disease, cultural drain on local resource, etc.	▪ Conduct local cultural awareness orientation training for workforce. ▪ Implement Public Health Awareness Raising Plan to address communicable diseases prevention, hygiene and sanitation, safe sex practices and other community Health issues ▪ Impact Monitoring of Local resources, address gap, and problem as needed	Contractor	Contractor's responsibility
	SEA/SH risks	▪ SEA/SH awareness raising activities, trainings and stakeholder engagements such as: ▪ Community based-awareness program ▪ School based awareness program ▪ Awareness program for women and against the gender based violence ▪ ~~Gender Specialist for NUGIP will provide support in~~	Project Office DSC~~S~~T, Project Contractor, , municipality, NGO/CBO/Local people, Women Development Office	Approx.NPRs 300000.00

Comment [PA105]: A careful review of this need to be carried out. Most of the cost of the mitigation measures is kept under Contractor and is stated that it is part of BoQ and/or project cost. If so, the DPR and the BoQ should be looked carefully to make sure that these costs are included.

Comment [SD106R105]: Agreed, this is a small upgradation work, hence it is advisable to assign responsibility to the contractor for majority of environmental and social migiation activities rather than by other entity.

Comment [SD107R105]: PIM reads Contractors" Environmental and Social responsibilities during construction will be included in the bidding documents and contracts, and these will need to be strictly enforced (by the municipality with assistance of the DSST).

Comment [AF142]: Please see my comments above regarding the impact on "GBV impacts" (these sections should be combined)

Stage	Impact	Mitigation Measure	Responsibility	Cost (Remarks if any)
		~~implementing subproject mitigation measures.~~		NRs. 700,000
	Grievance Redressal	▪ Employ a grievance redress mechanism incorporating a negotiation and/or mediation team or party	DSST , day to day compliance by the contractor	Transportation allowances for project period NRs 300,000.00
Social – Operational	Encroachment of ROW	▪ The municipality will work with wards and local bazaar committees/groups to discourage encroachment into the RoW.	Municipality	Cost will be borne by municipality
	Traffic accidents and associated risks	▪ Raise awareness of traffic rules, pedestrian / cycle lanes and installation of speed bumps to control speed near pedestrian crossing areas	Municipality	Cost will be borne by municipality
	Limited access for elderly and differently-able people	▪ Provide training on the use of facilities; maintain signboards, lights, instructions in strategic locations.	Municipality	Cost will be borne by municipality

Comment [PA105]: A careful review of this need to be carried out. Most of the cost of the mitigation measures is kept under Contractor and is stated that it is part of BoQ and/or project cost. If so, the DPR and the BoQ should be looked carefully to make sure that these costs are included.

Comment [SD106R105]: Agreed, this is a small upgradation work, hence it is advisable to assign responsibility to the contractor for majority of environmental and social migiation activities rather than by other entity.

Comment [SD107R105]: PIM reads Contractors" Environmental and Social responsibilities during construction will be included in the bidding documents and contracts, and these will need to be strictly enforced (by the municipality with assistance of the DSST).

~~7.3.~~ 7.2. Impact and Compliance Monitoring

Impact monitoring involves the monitoring of environmental and social changes and estimates inherent variation within the environment, identifies long term trends in the natural system, and derives conclusions by making comparison against a standard or target. Compliance monitoring is carried out to understand the implementation status of environmental and social requirements as documented in the ESMP and is shown below.

Municipalities will report on the implementation of the ESMP(s) and on the status of compliance with the instruments on a regular basis as part of the trimester progress report (to the DUDBC). Information shall include: 1) measures taken in furtherance of the safeguard instrument, ii) conditions, if any, which interfare or threaten to interfere with the smooth implementation of the safeguard instruments; iii) any feedback~~n~~ under the GRM of the ESMF, and iv) remedial measures taken or required to be taken to address such conditions.

Table 7.24: Selected monitoring indicators

Monitoring Sector	Parameters selected
Slope, stream protection	Effectiveness of slope protection, stream protection works
Socio-economic development in road alignment and ZoI	▪ Number of employment opportunities created ▪ Number of workers received training on enhancement of technical skills ▪ Change in transportation costs and time ▪ Number and type of enterprises, cottage industries established ▪ Change in status of basic services and utilities in the ZoI for e.g. education institutions, access to health infrastructures, water supply, energy status, trade and commerce ventures, shift in livelihood strategies among the populace from the ZoI ▪ Condition of affected infrastructures (if any) ▪ Occupational health and safety measures provided to workers ▪ Increase in number of people receiving social service facilities (school, health post) ▪ Increase in land value ▪ No. of accidents related to road ▪ State of settlement condition (no. of houses, shops, sanitation condition) ▪ Number and status of porter's livelihood

~~7.4.~~ 7.3. Monitoring activities and methods

Table 7.3:~~Table 7.5~~ identifies the specific compliance monitoring activities. Phase-wise/chronological details are provided for the methods, schedules, responsible implementing agency and the responsible monitoring agency. Compliance monitoring refers primarily to the pre-construction and construction stage of the project. The following government standards will be taken as reference for monitoring.

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Table 7.35: Impacts and monitoring of the project

Parameters	Verifiable Indicators	Verification methods	Monitoring locations	Schedule	Monitor agency	Cost
Change in Land Use	Changing Agricultural land, forest land, settlement area and barren land	Site observation, photos, discussion with communities	DIZ, IIZ and project affected wards	Continuous / construction (Yearly)	DSCST	
Quarrying of Construction Materials	Initiated erosion, changes in river regime, erosion by river systems, degradation of vegetation, water logging, waterborne diseases	Site observation, photos Records from local health centres	Quarry site areas	construction (Quarterly)	DSCST	
Noise and dust pollution	Total Suspended Solid, Particulates, noise level	Visual inspection, measurement, and comparing baseline data,	construction sites and at sensitive spots	construction / operation (Quarterly)	DSCST	
Use of bitumen storage, heating, spreading	Contamination of bitumen near water sources, land contamination	Visual inspection, measurement, comparison with baseline data,	construction sites	construction (Quarterly)	DSCST	
Road safety measures	Speed controls, traffic signboards, ROW encroachment, Pedestrian/cycle lane and speed bumps	Observation, photos and interaction with local peoples	ROW	Yearly throughout the project cycle	DSCST	
Road accidents	Type and number of accidents occurred Adequacy of occupational safety measures provided	Observations, photos, spot checks, interview with local peoples	Road alignment	Yearly throughout the project cycle	DSCST	
Cultural, religious and historical sites	Cultural and religious infrastructure, people perception, practices	Records, observations, interview with local people	Project area	operation (Yearly for 2 years)	DSCST	
Occupational and safety hazard	Safety equipment like helmets, globes, boots etc., insurance, potable water, basic first aid kit	Observation, records and interview with workers	camp and working area	construction (daily)	DSCST	
Possible township/ribbon development along the road	Congestions to road users Number of accidents, ROW encroachment	Records, observations	Project Area	operation (Yearly for 2 years)	DSCST	

~~7.5.~~ 7.4. ESMP for Beneficial and Adverse Impact

The measures and actions proposed for augmenting the identified beneficial aspects the Mangalapur-Kanchibazar road development project, as well as proposing a set of mitigation and precautionary measures to minimize or set off the potential adverse impacts is outlined in ~~Table 7.4:Table 7.6~~.

Table 7.~~4~~6: Beneficial impacts of the project

Impact	Enhancement/Mitigation Measure	Enhancement/Mitigation Mechanism/Responsibility	Cost / Remarks
Construction Stage			
Employment opportunities for local people	Involve local people as per skills, qualifications (priority-based to the extent possible)	Contractor (DSC~~ST~~)	No additional cost
Employment to the women and disadvantaged groups	The contractor will coordinate with representative of disadvantaged and women group to employ those people, as many as possible	Contractor	No additional cost
Skills enhancement on construction, carpentry, masonary etc.	Organize skills enhancement training targeting the local youths, women, vulnerable, disadvantaged and skills enhancement of project workers	DSC~~ST~~ can help in coordination with Municipality	Municipality will manage the skill enhancement program under their budget.
Operation Stage			
Improved access and reduced travel time /transport cost	Fixing the minimum transportation cost in agreement with DTO, transport entrepreneurs and local people	Municipality, Transport entrepreneurs and local people	No additional cost
Environmentally friendly construction	The upgraded road will have a cycle track which helps to promote the use of non-motorized vehicles and reduces carbon emissions	Municipality	No additional cost
Maintaining open and green areas	A Green Utility Zone (Greenery) will be provided under the road upgrading, with various trees which will provide shelter from the heat, will create cool surroundings, and will improve the aesthetics of the road. A green area separating the footpath and cycle lane is proposed throughout the alignment. The green area will have tree plantations at certain intervals.	Municipality	Include in project cost
Change in livelihood through the promotion of business and industry	The municipality will facilitate measures to promote the establishment of new businesses and enterprises The PIU will create the suitable environment to promote business and industries based on local resources	Municipality PIU in coordination with local CBO/NGO/GoN offices	No additional cost
Gender and social empowerment	The subproject will serve to mainstream women, dalit, and other marginalized people by providing several income generating trainings and programs	Municipality in consultation with UDST in collaboration with local organizations	No extra cost ,municipality ,we needto incorporate within the every year plan of the municipality.

~~7.6.~~ 7.5. Costs of Executing the Environmental and Social Management Plan (ESMP)

All proposed mitigation measures will be integrated in the project design so that these measures may automatically form part of the construction and operational phases of the project. The cost of executing the ESMP includes cost of suggested mitigation measures such as of slope stabilization, awareness, waste management, bioengineering

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Comment [AF143]: What will this skills enhancement entail? Who will design and deliver the skills enhancement?

Comment [SD144R143]: To enhance the skill of local people, disadvantaged people

Comment [AF145]: Who will be designing and delivering these income generating trainings and programs?

Comment [SD146R145]: Municipality with support of PSST and guidance of UDST

measures and tree plantation, etc. under the mitigation measures of the project. The total cost for the ESMP is outlined in **Table 7.7**.

Table 7.~~5~~7: Cost of ESMP

S.N.	Activities/Measure	Total Cost (NPR)
1.	1.1 Environment Mitigation (Pre construction phase) 1.1.1 Electric /telephone Pole removal and reinstatement (as per BOQ) 206 no of poles @ Rs. 54874.02 1.1.2 Relocation cost of existing water supply (as per BOQ) LS	 11,304048.24 2960000.00
2.	Construction phase and operation mitigation (specific activities not related to construction related mitigation) including GBV , girl trafficking, COVID , HIV/AIDs awareness, etc Awareness program in girl trafficking : NRs. 100000.00 GBV awareness activities: NRs. 300000.00 ~~Hiring of Gender Expert for 18 month: NRs. 2400000.00~~ HIV/AIDS, COVID Awareness and Management: NRs. 300000.00	700000.00
3.	Stakeholder consultations, maintaining GRM at project level	300000.00
	Total	~~3925048.24~~15,264,048.2

~~7.7.~~ 7.6. Monitoring Cost

Environment and Social Unit of the PIU is responsible for monitoring the impact of proposal implementation. The unit will be supported by the Safeguard experts of the DSC so no separate cost will be generated.

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Comment [AF147]: Please review and there will not be a need for a gender expert.

What about costs for stakeholder consultations including for information dissemination (as noted in the stakeholder engagement section) and for maintaining the project GRM?

Comment [SD148R147]: Cost for consultation and maintaining GRM included.

CHAPTER 8: STAKEHOLDER ENGAGEMENT AND CONSULTATATIONS

8.1. Stakeholder engagement overview

Regular stakeholder engagement and consultations are necessary to ensure widespread and meaningful participation of key stakeholders with focus on the project affected people. Successful implementation of the subproject requires coordinated efforts of various stakeholders at different levels. Hence, communication and consultations at different levels were used as a tool to inform and educate stakeholders about the proposed project intervention.

There are two key objectives of effective stakeholder engagement and consultations. First, it is to keep all stakeholders informed of the project activities, and any potential beneficial and adverse impacts. Second, it is to ensure that stakeholders actively participate at all levels of the project cycle, to enable sharing of valuable local knowledge involvement in the development of mitigation plans to minimize the potential negative impacts of the project, and so are well equipped to take over the responsibilities of operation and management once the project phases out. These will ultimately contribute towards narrowing down the gaps between the project officials and beneficiaries, and to help create a conducive environment to mitigate against the adverse social and environmental issues through optimal cooperation from the project beneficiaries themselves.

Community participation can be effective if local people are empowered. The method of community participation needs to be planned to reflect the community profile and nature of the project. Different communication methods are integrated together communicates the community as focus group discussions, meetings, and workshop. The plan ensures the following:

- Ensure local ownership
- Include different types of stakeholder's group in participation process
- Generate and respond to feedback

Public consultation and community participation helps to remove such uncertainty and at the same time help the project implementation with its methodology as well as work plan. It is assisted in the identification of the problems associated with the project, as well as the needs of the population likely to be impacted. This participatory process helps in reducing the public resistance to change and enabling the participation of the local people in the decision-making process. The involvement of the various stakeholders ensures that the affected population and other stakeholders are informed consulted and are allowed to participate at various stages of project preparation. Different strategies have been adopted for communication/ consultation during implementation stages. Stakeholder engagement strategy outlines engagement through the project development phases and recommends a set of stakeholders' engagement activities to be carried out throughout the project development phases. This chapter also outlines the disclosure to be made and other communications to be made during the project cycle.

8.2. Stakeholder Engagement Procedures and process

The subproject will draw on existing mechanisms and procedures established at the local level to carry out stakeholder engagements. The municipality forums will be the primary mechanism for engaging with stakeholders and community participation, to ensure that projects identified reflect local needs and priorities. Other mechanisms for community engagement and consultations include community-based user committees in construction supervision and operations and maintenance, as a social accountability and safeguard mechanism. The stakeholder consultations will draw on mechanisms already established at the local level. Where mechanisms for stakeholder engagement do not already exist, a mechanism elaborated below will be followed:

8.2.1. Stakeholder Mapping

The primary objective of stakeholder analysis is to map the stakeholders, their role, operational network, representation requirements and impact on type of activity in the project to strategically prioritize consultations with them. The stakeholder interactions will be through:

- Focused group discussions (FGD)
- Public consultations
- Key informant interview (KII)
- Indigenous and women groups discussion
- Consultation with institutional stakeholders

Comment [AF149]: This section needs to include which stakeholder consultations have been undertaken, particularly those undertaken as part of subproject identification and prioritization, in line with the PIM and ESMF. Please include details of when these consultations took place, who were the participations, what issues were discussed, and how concerns were included as part of subproject design. Please include any photos if available.

Further, the Annex refers to individuation consultations with women, these should be included here, as well as the FGDs. Were any concerns or feedback raised included as part of project design?

Were any consultations undertaken with women's groups, vulnerable groups, indigenous group, civil society organizations etc?

Annex 1 details the stakeholders consultation details

Comment [AF150]: As noted above, please include the section on grievance redress mechanisms here.

Provided in Section 5.3

The stakeholder mapping is undertaken through formal and informal consultations and their interests concerned with the project activities should be identified throughout the project cycle. The stakeholders identified for the subproject are presented in Table 8.1~~Table 8.1~~.

Table 8.1: Stakeholder roles and responsibilities

Level	Stakeholder	Roles and Responsibilities	
Federal	MoUD DUDBC (PIU)	Facilitate the implementation of the subproject, coordinate with agencies, undertake monitoring and reporting to WB	
	DoR, MoFE, (PIU)	Support coordination, and sectoral policy implementation	
Local	Municipality, Ward Offices Tole Development Committees	Support the process of subproject selection, identify beneficiary and their needs, support coordination, support grievance and dispute resolution	
	NEA, DFO, LRO, DoI DCC, Traffic Police , Water Users Committee	Provide specialized inputs on local conditions, permissions, technical input limitations and needs of the public, provide compensation estimation, provide required assistance during project implementation, and support monitoring	
Subproject Level	Ward representative Associations) and All types of local user groups	Engage and participate in consultations, support in project implementation	
	Extended users of the project		
PCO		Overall Monitoring and Coordination	Executing agency
PMST		To support PCO in monitoring and control ,will work as a helping hand to PCO, coordinate with the municipalities and DSCs of municipalities	Executing Agency
DSST (Design and Supervision Consultant)		Design and overall management of UDG contract in municipality Will help PIU of municipalities in overall design, contract management, supervision will coordinate with PMST	Consultant

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Comment [AF151]: As per above, please include all relevant responsible units including PCO, PMST etc.

Comment [SD152R151]: Included in table

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8.3. Mechanism for Consultation

The consultation process envisages involvement of all the stakeholders' at each stage of subproject planning and implementation. Involvement of the community is not limited to interactions with the community but also disclosing relevant information pertaining to the project tasks. Community participation is and will be ensured at all stages. Dissemination of project information to the community and relevant stakeholders will be carried out by the PIU. The community will be made aware of the project alternatives and necessary feedback will be obtained; other stakeholders will be involved in the decision making to the extent possible.

The outcome of consultations is incorporated as appropriate into the design and ESMP. As part of such consultations, the draft ESMP will be presented and explained to the people on the content and process of the implementation of the plans. Consultations with project affected persons and their profiling are conducted as per the requirements of ESIA, and preparation of the RAP.

8.3.1. Public/Community Consultation Plan

All consultations on social and environmental issues will be carried out during implementation of the project will be done in an inclusive manner, including vulnerable social groups (such poor household, caste, persons with

disabilities, among others) and women. Details of the Project Consultation Plan are presented in Table 8.2~~Table 8.2~~.

Table 8.2: Project Consultation Plan

Objective and Target Goal	Method	Responsibility
I. Build Local Ownership		
Introduce Project DPR Report and its components	Group Meeting/Workshops	DPR Consultant/ PCO/Municipality
Maintain efforts for two-way communication with relevant stakeholders through the project	Face to face meeting with concerned stakeholders	PCO, Design Supervision Consultant, Ward Level Authority
II. 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	PCO, DPR Consultant Municipality Ward Authority
Consult with community representatives and ensure that their concerns with the proposed project are addressed	Face to face meeting with community representative (includes social officer of Municipality, women's representative etc.) Meeting will take place following protocol for meeting (social distancing , wearing of masks by all the participants, use of hand sanitizers, conducting meeting in a open and ventilated places)	PCO, DPR Consultant Municipality Ward Authority
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.)	PCO, Design and Supervision Consultant Municipality Ward Authority
III. 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 Authority
Raise awareness of project activities among potential beneficiaries	Media advertisements and targeted campaign	PCO, Consultant/ 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.)	PCO, Design and Supervision Consultant Municipality Ward Authority
Monitoring and evaluation community involvement	Face to face meeting with affected communities' representative	PCO, Design and Supervision Consultant Municipality Ward Authority
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 local authority	PCO, Design and Supervision Consultant Municipality Ward Authority
Implementation of ESIA	The contractor will prepare the various stand alone plans to comply with ESIA 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 requirements will be included in the contract BOQ	The requirements stipulated in ESIA shall be included in bid document of the contractor. The contractor will prepare the stand alone plans and submit it to the PIU before the construction begins and obtain approval. The stand alone plan includes ; environment, health and

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Comment [AF153]: These plan makes various references to face to face meetings, but given COVID related risks, will these ever take place virtually? What other measures will be included to address COVID-related risks?

Meetings to take place physically with precautions against COVID

Comment [SD154R153]: Addressed

Objective and Target Goal	Method	Responsibility
		safety management plan, traffic management plan, grievance redress plan, spoil management plan, emergency preparedness plan, camp management plan, labor management plan, air/water/noise management plan to name a few.

Comment [AF153]: These plan makes various references to face to face meetings, but given COVID related risks, will these ever take place virtually? What other measures will be included to address COVID-related risks?

Meetings to take place physically with precautions against COVID

Comment [SD154R153]: Addressed

8.4. Information Disclosure

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 planed 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.

An Information Centre will be established at the municipality office 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 Mangalapur-Kanchibazar Road project is presented in **Table 8.3~~Table 8.3~~.**

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Table 8.3:Information dissemination plan

Means of Communication	Timeline & Frequency	Responsibility	Resources
Municipality Website (project details, grievance mechanism)	At the start of the project which will be maintained throughout the project	PIU/ Information Officer	Information Officer
Newspaper and local Radio (project salient features, dates, grievance mechanism etc.)	Project implementation phase Weekly basis	PIU, municipality Information Officer	Radio-program/Talk show, FM Radio Clip
Project leaflets and Fact Sheet	Project details, Implementing agencies, project period - 2 times	PIU, Information Officer	Doubled 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	

Comment [AF155]: Please ensure that these costs are captured in the ESMP implementation costs.

Comment [AF156]: Who is the information officer? Are they already in place in the municipality?

Comment [SD157R156]: Information officer of municipality (position already there at municipality and person is working as information officer)

ANNEXES

Comment [EMM158]: Please add annex of trees to be removed with their scientific and common name

Comment [AF159]: Please ensure that all annexes are referenced in the body of the ESIA.

ANNEX I: CONSULTATION WITH THE WOMEN MEMBERS RESIDING IN DIFFERENT LOCATION OF TILLOTAMA MUNICIPALITY

Comment [EMM160]: Missing with the consultation date

Mangalapur -Kanchhibazar Road Section, Date: 2021/08/04 till 2021/08/06

KII with Women

Tillotama Municipality
ward # 9,7 &10
Rupandehi

Consultation with the women members residing in different location of Tillotama Municipality ward # 7,9 &10 along the road side

S.N.	Name of the Participant	Address/Location	Contact #	Remarks
01	Sarasoti Pandey	Tillotama -7, Semara	9804439835	Quite positive and enthusiastic to support the Govt. /Pjt to construct the road.
02	Yamkala Pandey	Tillotama -7, Dada Bazar, Semara	9867145337	We are in trouble due to the delay for road construction.
03	Rima Karki	Tillotama -7, Semara	9847066254	Increasing the number of accidents. 2/3 accidents per day.
04	Sita Bhandari	Tillotama -7, Pragati Tole, Semara	9847023569	No single person is against the road project.
05	Parbati Pandey	Tillotama -7, Semara	9847016613	
06	Mishu Sashi	Tillotama –9, Mangalapur	9815465405	
07	Sakuntala Thapa	Tillotama –9, Tulsipur	9847131806	The trees needs to be planted by the project
08	Bhagawati Kanel	Tillotama –9, Tulsipur	9847023161	
09	Puspa Subedi	Tillotama –9, Tulsipur	9806909346	Road is our priority. Facing the troubles due to the poor condition of road for last 4 years , hence they are excited that road will be finally built
10	Rama Rana	Tillotama –9, Keuleni	9804467511	There is no serious conflict, all are in favor of road construction
11	Sabitra Tharu	Tillotama –10, Sagrahawa	9806955091	
12	Om Kumari Kunwar	Tillotama –10, Sagrahawa	9825484557	
13	Ratrani Tharu	Tillotama –10, Sagrahawa	9821930006	
14	Tapewari Tharu	Tillotama –10, Sagrahawa	9819400219	Expect that road construction will begin soon
15	Shanti Tharu	Tillotama –10, Sagrahawa	9827590677	

ANNEX II: KEY INFORMANT INTERVIEW (KII)

Key Informant Interview (KII)

1. Mr Basu Dev Ghimire- Mayor, Tilotamma Municipality
2. Mr. Narayan Neupane, Ward Chairman, ward no 7
3. Mr. Madhav Pokharel, Section Officer, Tilotamma municipality
4. Mr Om Prakash Yadav- Bebara, Tilotamma 10, 9847015186
5. Mr. Khilawan Yadav, - Student, Bebara, Tilotamma 10
6. Mr. Shalin Chaudhary-Labor, Bebara, Tilotamma 10
7. Mr Indra Prasad Basel, Rikshaw Driver
8. Ms. Chandra Kala Neupane, Manyata Hotel house owner
9. Mr Min Raj Bhusal, Owner of house of Pradip Kirana Pasal
10. Ms Prem Kala Neupane, Mangalapur
11. Mr. Babu Ram Rana, House owner (AB tailor), Mangalapur

Comment [EMM161]: Please provide table with discussed agenda and responses including date

Comment [AF162]: Agree with the above. Please note issues raised and how if any concerns have been incorporated into project design. If there are any minutes or meeting notes, please capture in Annex.

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Stakeholders Consultation
Nepal Urban Governance and Infrastructure Project (NUGIP)
ESIA and ESMP of Mangalapur-Kanchibazar Road of Tilottama Municipality, Rupandehi
Attendance Sheet

Date. 2021/07/23 .... **Venue:** Tilottama-10, Ward office ....

Name: Byas Muni Tharu ....

Occupation/Organization: Ward Chairman, Tilottama-10 ....

Comments/Suggestions

1) It is main road and set to make exemplary road to make RoW 43 feet & is connecting road to Parasi with many bridges made.
2) All ready to clear RoW in Ward-10 in writing & some have demolished too
3) One Tharu and one Kurmi family will be totally displaced due to RoW extention & resettlement may be needed & land for land is expected by those families.
4) Heath post compound wall of Semara, 1 house with female house head ~~needs~~ is affected & upto 10 house have partial loss to property & house.
5) 1 temple in Sagraha need relocation & have promise to relocated to local elite
6) Municipality Ward-10, is positive & looking forward to working to make the project success & request to make & go to tender soon
7)

Signature:

12.

K11

Stakeholders Consultation
Nepal Urban Governance and Infrastructure Project (NUGIP)
ESIA and ESMP of Mangalapur-Kanchibazar Road of Tilottama Municipality, Rupandehi
Attendance Sheet

Date..2021/07/23.....Venue: ..Tilottama Municipality, Ward-07 Office.....

Name: ..Durga Prasad Pandaya.....

Occupation/Organization: ..Ward-07, Tilottama Municipality, (District).....

Comments/Suggestions

1) This road section is best for Buddha Circuit & has good agriculture land.
2) The public are positive for construction & reconstruction of road & needs it as fast
3) Public are OK to make ROW clear & some are already demolished
4) 2 temples & 1 gumba needs relocation & public OK for it & will look appropriate place if needed to relocate
5) Municipality will be liable for all rehabilitation issues on the project
6) Semara Ma.Vi, Gautam Buddha Ma.Vi compound wall effected
7) Semara Health post effected.

Signature: 08/04/2078

11.

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ANNEX IV: FOCUS GROUP DISCUSSIONS (FGD) WARD NO. 10

Comment [EMM163]: Please provide the scan copy of meeting minutes and summary table of discussed agenda and the suggestion provided on the discussed agenda including photographs

FGD

Stakeholders Consultation
Nepal Urban Governance and Infrastructure Project (NUGIP)
ESIA and ESMP of Mangalapur-Kanchibazar Road of Tilottama Municipality, Rupandehi
Attendance Sheet

Date. 2081/07/23 **Venue:** Sugrahawa, Tilottama-10

Attendees

S.N.	Name	Organization/Title	Contact No.	Signature
1)	दुधनाथ कुर्मी			दुधनाथ
2)	पशुपति थारु	Sugrahawa, 10 ward	9804447924	[signature]
3)	कमलेश्वरी चौधरी	"	9803023440	[signature]
4)	भगवानदास थारु	"	9825455205	भगवान दास
5)	हुकुम थारु	"	9843133444	[signature]
6)	ध्रुव नारायण थारु	"	9804447924	[signature]
7)	मधुमाया चौधरी	"	9826425988	मधुमाया
8)	मनोज थारु	"	9806905591	मनोज
9)	मनिषा कुर्मी	"	9821931291	manisha
10)	प्रदीप थारु	"	9800703674	प्रदीप
11)	परशुराम थारु	"	—	परशुराम

Suggestions

→ दुधनाथ कुर्मी: ६ धुर जग्गा [illegible] [illegible] [illegible] पुरै विस्थापित हुने हुँदा जग्गाको राम्रो [illegible] दिए मनासिब।

→ ROW clear गर्नुपर्ने अविलम्ब हाम्रो तयार (छौं)।

→ चौडा बाटो बनाउनुपर्ने।

FGD

Stakeholders Consultation
Nepal Urban Governance and Infrastructure Project (NUGIP)
ESIA and ESMP of Mangalapur-Kanchibazar Road of Tilottama Municipality, Rupandehi
Attendance Sheet

Date. 2081/07/23.......... **Venue:** ..Sagrahua (सगरहुवा), Tilottama-10,.....

Attendees

S.N.	Name	Organization/Title	Contact No.	Signature
१)	हरिराम थारु	Sagrahua, Tilottama-10	9800921840	हरिराम
२)	बुद्धिराम थारु	"	"	बुद्धीराम
३)	फिरु थारु	"	9825404586	[illegible]
४)	मनोज थारु	"	9806974642	manoj
५)	शालिक अहिर	"	–	
६)	अनिरुद्ध थारु	"	–	अनिरुद्ध
७)	लक्ष्मी थारु	"	–	लक्ष्मी थारु
८)	मीन कुमारी थारु	"	–	मीनकुमारी

Suggestions

1) बाटो बढाउन भनेर धेरै भयो भनेको तर बढेन, चाँडै बढाउन पर्‍यो।
2) बाटो बढाउँदा मुआब्जा दिनु पर्ने
3) पर्ने रुख र संरचनालाई मनासिब क्षतिपूर्ति दिनु पर्ने।

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Stakeholders Consultation
Nepal Urban Governance and Infrastructure Project (NUGIP)
ESIA and ESMP of Mangalapur-Kanchibazar Road of Tilottama Municipality, Rupandehi
Attendance Sheet

Date. 2021/07/23 ……**Venue:** Tilottama-7, Semarabazar………………

Attendees

S.N.	Name	Organization/Title	Contact No.	Signature
1)	अरुण पाण्डे	Tilottama-7	9817042613	[signature]
2)	बुद्धबहादुर गुरुङ	"	9867217157	Bugu
3)	लेख नारायण श्रेष्ठ	"	071-510142	[signature]
4)	रूपा गुरुङ	"	9847030263	Rupa
5)	रिमा गुरुङ	"	9805477808	Rima

Suggestions

→ बाटो बनाउँदा centreline बाट बराबर हिसाब गरेर बिस्तार गर्नुपर्ने।
→ गैलभुजाको नहरलाई व्यवस्थित गर्न पर्ने पर्ने र साइट मात्र एक विस्तार गर्ने।
→ बाटो पक्की जसरी पनि बन्न पर्‍यो।
→ क्षतिपूर्ति मनासिब दिन पर्‍यो।
→ गैलभुजाको नहर साइट यदि घर दिन पर्ने वा आंशिक रूपमा क्षति भएमा पनि यथोचित क्षतिपूर्ति दिनु पर्ने।

FOCUS GROUP DISCUSSIONS (FGD)

~~WARD NO 7~~

~~Ward No 9~~

~~Ward No 10~~

~~(Enclosed separately)~~

Comment [AF164]: As per the comment above, please include all details eg meeting minutes etc here in the Annex.

ANNEX V: LABORATORY REPORTS

NS Accreditation No. Pra. 01/053-54

Date of Monitoring : 25 – 07 – 2021
Sample : Ambient Noise
Client : NUGIP Monitored By : NESS
Location : Ward 10, Tilotama

Community Sound Pressure Level, Tilotama

Sampling Point : Road Side Community, Kanchibazar road ward 10, Tilotama
Monitoring Date : 25-07-2021
Geographical Coordinates : $27^{o}35'$ 00''N; $83^{o}32'1.18$'E
Height from the Floor : 1.5m
Starting Time : 18:00
Ending Time : 15:00
Distance from Road : 45 (appr.)

dB(A)

Noise Descriptors	Monitoring Hours				
	07:00 ~ 10:00	**10:00 ~ 13:00**	**13:00 ~ 15:00**	**17:00 ~ 19:00**	**19:00 ~ 22:00**
L_{min}	53	50	44	40	39
L_{95}	55	51	47	46	42
L_{90}	56	52	48	46	43
L_{50}	63	57	54	49	47
L_{10}	66	64	60	58	54
L_{5}	68	66	61	62	56
L_{max}	78	99	68	73	59
L_{eq}	**65**	**77**	**57**	**57**	**53**

Notes: L_{min}: Minimum Sound Pressure Level; L_{95}: Ninety-five Percentile Sound Pressure level; L_{90}: Ninety Percentile Sound Pressure Level; L_{50}: Fifty Percentile Sound Pressure Level; L_{10}: Ten Percentile Sound Pressure Level; L_{5}: Five Percentile Sound Pressure Level; L_{max}: Maximum Sound Pressure Level; L_{eq}: Equivalent Sound Pressure level; L_{d}: Daytime average Sound Pressure Level; L_{n}: Nighttime Average Sound Pressure level; dB(A): Decibel A-Weighted; GoN: Government of Nepal;

Remarks: The daytime and nighttime observed sound pressure level at the monitoring site were 66dB(A) and 67dB(A) respectively. Similarly, the observed day and night sound pressure level was about 69dB(A). The observed daytime and nighttime average sound pressure levels complied the prescribed limits of GoN 2012{L_{d}: 75dB(A); L_{n}: 70dB(A)} for industrial area.

NESS
Nepal Environmental & Scientific Services (P.) Ltd.
G.P.O. Box 7301, Thapathali, Kathmandu, Nepal
Phone: +977-1-4244989, 4241001, Fax No.: +977-1-4226028,
Email: ness@mos.com.np, Website: www.nesspltd.com

NESS/Lab, M-03/QSR2.3

QSM Test Report / Certificate

NS Accreditation No. Pra. 01/053-54

Entry No. : NCL - 24(W) (1) - 07 - 2021
Sample : Boring Water
Client : Mangalapur- Kanchibazar Road Project
Sampled By : Dwarika Adhikari (NESS)
Coordinates : 27°35'00"N; 85°32'18"E
Altitude : 120m

Date Received : 25 - 07 - 2021
Date Completed : 13 - 08 - 2021
Sampling Date : 24 - 07 - 2021
Location : Tilottama-10, Sagrahawa

S. N.	Parameters	Test Methods	Observed Values	NDWQS, Nepal
1.	pH at 22 °C	Electromeric, 4500 - H^+ B.: APHA	7.6	6.5 - 8.5
2.	Electrical Conductivity, (µS/cm)	Conductivity Meter, 2510 B, APHA	386	1500
3.	Turbidity, (NTU)	Nephelometric, 2130 B, APHA	4	5
4.	Total Hardness as $CaCO_3$, (mg/L)	EDTA Titrimetric, 2340 C, APHA	200	500
5.	Total Alkalinity as $CaCO_3$, (mg/L)	Titrimetric, 2320 B, APHA	237	-
6.	Chloride, (mg/L)	Argentometric Titration, 4500 - Cl^- B, APHA	1.93	250
7.	Ammonia, (mg/L)	Direct Nessierization, 4500 - NH_3 C APHA	<0.05	1.5
8.	Nitrate, (mg/L)	UV Spectrophotometric Screening, 4500 - NO_3^- B, APHA	1.99	50
9.	Nitrite, (mg/L)	NEDA, Colorimetric, 4500 - NO_2^- B, APHA	N.D.(<0.02)	-
10.	Calcium, (mg/L)	EDTA Titrimetric, 3500 - Ca B & 3500 - Mg B APHA	47.3	200
11.	Magnesium, (mg/L)		19.9	-
12.	Iron, (mg/L)	Direct Air - Acetylene AAS, 3111 B, APHA	0.23	0.3
13.	Manganese, (mg/L)		<0.02	0.2
14.	Arsenic, (µg/L)	SDDC, 3500 – As, C. APHA	N.D. (<0.01)	0.05

N.D.: Not Detected

Note:
NDWQS: National Drinking Water Quality Standard - 2063; AAS: Atomic Absorption Spectrophotometer; UV: Ultraviolet; EDTA: Ethyelenediaminetetraacetic acid; NTU: Nephelometric turbidity unit; NEDA: N-1-Naphthyleethylenediamine dihydrochloride; APHA: American Public Health Association.

Remarks: All observed values complied the prescribed NDWQS.

(Analyzed By) (Checked By) (Authorized Signature)

Note:
1. This report/certificate is in reference to Laboratory Quality System Manual, QSM (2021).
2. The result listed refer only to the tested samples & applicable parameters. Endorsement of products is neither inferred nor implied.
3. Liability of our institute is limited to the invoiced test parameters & amount only.
4. Samples will be destroyed after one month from the date of issue of test certificate unless otherwise specified.
5. This report should not be reproduced wholly / partially for any advertising media without our permission.
6. The clients are requested to take back their hazardous samples along with the report/certificate.

ANNEX VI: PICTORIAL HIGHLIGHTS OF FIELD SURVEY WORK

List of Home owners whose house falls adjacent to RoW

Rohini bridge

Shiva Temple at Tilottama-10

School gate and fence adjacent to RoW of road

Physical condition of the road

Hand pump near road RoW

FGD with project affected families at Tilottama-7

FGD with project affected families at Tilottama-10

Comment [AF165]: Please include details of the FDG in the Annex. However are these families 'project affected'?

Comment [AF166]: As above, please include details of the FGD include how are they 'project affected'.

Gate and fence of siddharta gumba adjacent road RoW in Semara

Waiting station near RoW at Semara

Shiva Temple adjacent to RoW of road

Gate and wall near RoW of road in Semara Bazzar School

Pole at RoW

FGD at Tilottama-10

Tilottama-10

Bridge near Tilottama-7 ward office

Semara Bazar Health post

Condition of existing road

Consultation with women's group

Condition of existing road

Comment [AF167]: Please include details of this consultation group.

Comment [SD168R167]: Due to large size written in Nepali Its not

Condition of existing road

Consultation with local stakeholders

Comment [AF169]: Please include details of this consultations

Comment [SD170R169]: Due

ANNEX VII: CADASTRAL MAPS OF ALIGNMENT

[i] Although the road has been named as Mangalapur-Kanchibazar road, the up-gradation is planned for 5 KM from Mangalapur which ends at Bewara Chowk.