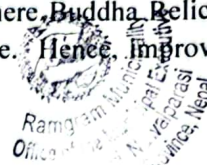


and hence this will enhance their businesses also. During its operation phase, the project will also enhance trade & business of the nearby and surrounding areas of the project area.

d. Increase in Tourism Sector

Nawalparasi (West) district is connected to the border with India. Hence, not only local tourists but also the Indian tourist will pass through this road for travelling to the different cities of the country. Moreover, Ramgram Municipality comprises Ramgram Stupa where Buddha Relic is situated and is considered as a part of greater Lumbini - a historical place. Hence, improved road transportation will help to promote this area as tourism area.



e. Enhancement in Access to Social Services

People living along the road alignment, or living close to the road alignment, and people living at other side of Turiya river will have improved accessibility to social services like educational institutions, health care facilities, and other social services. Safer and quicker accessibility to available social services means enhancement in use of these social services by the locals.

f. Increased time saving and reduced travel exhaustion

Better road facility will reduce the time of travelling through connectivity improvement and through smooth travelling experience. Upgradation of the road with urban standard design means easiness for the drivers as well as the travelers. So this will reduce the difficulties of travelling along partially maintained or gravel/earthen roads. While this will save time and exhaustion for all road users, this will be significant especially for women, children, differently-able and the elderly people.

8.5 Environmental and Social Management Plan (ESMP)

8.5.1 ESMP and its Implementation

This 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 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 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 contractor must ensure Environmental Management and Mitigations addressing ESMP and mitigation management as shown in table below;




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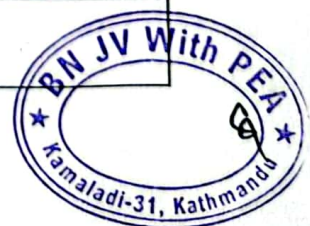


Table 8-2: Environmental and Social Impact Mitigation Plan

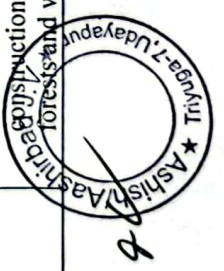
S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility	Cost, NPR
	Physical (Construction Phase)			
1.	Land use concerns	- Leaseholder or rental contract will be maintained for any temporary land required for the project. - Fertile topsoil will be conserved and reapplied as and when possible. - Prior notification (2 months' before award of construction contract) for crop plantation will be given. - All the temporary acquired land will be rehabilitated into previous state or better than the earlier state maintaining natural drainage and acceptable to the land owner/DSC. - Spoil disposal sites will be rehabilitated into - Launching apron and gabion revetment is proposed for protection of roadway embankment near Turiya khola.	Contractor Ramgram Municipality	
2.	River bank instability (Turiya river)	Launching apron and gabion revetment is proposed for protection of roadway embankment near Turiya khola.	Contractor	BoQ - Abstract of Cost - H
3.	Use of quarry and borrow materials	- Contractor will obtain required construction materials from the legally operating crusher industries only. - PIU & DSC will check the site requirements and quality of quarrying material and approve it. - In case of borrow pits, the borrow pit sites will be well demarcated, regularly monitored and topsoil will be collected. Later, the topsoil will be put back on the surfaces and the areas revegetated, if required.	Contractor DSC/client	
4.	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 site will be well fenced, and provided with a 24-hour guard. - The site will be provisioned with proper lighting system.	Contractor	
5.	Ambient air Air pollution in the	- Water sprinkling (3 times a day) at dry exposed surfaces and stockpiles of aggregates as necessary. - Require trucks delivering aggregates and cement to have tarpaulin cover. - Limit speed of construction vehicles in access roads to maximum - All diesel generators, haul trucks, pavers, graders, and rollers, required to comply to regulations prior to use of 30kph. - No firewood for cooking and heating bitumen and incineration of wastes will be	Contractor (Supervision support of Design & Supervision Consultant)	Included within BoQ, Abstract of Cost B-6



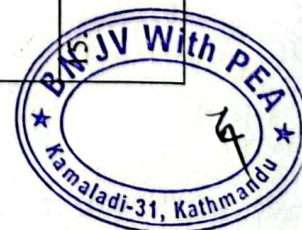
S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility	Cost, NPR
	construction locality	- allowed by the contractor. - Burning of waste (from campsite) will be strictly prohibited. - Maintenance of vehicles on regular basis. - Ensure use of equipment and fuel complying with applicable emission standards. - Stockpiles of construction materials will be done away from roadways and from riverbanks. - Air quality monitoring (at least 3 times).		NPR 270,000 for air quality monitoring
6.	Noise nuisance	- Involve the local authority and the community in planning the work program so that any particularly noisy or otherwise invasive activities can be scheduled to avoid sensitive times - Restrict noisy construction activities at night-time - Minimize drop heights when loading and unloading coarse aggregates - Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach - Utilize modern vehicles and machinery with the requisite adaptations to limit noise and exhaust emissions, and ensure that these are maintained to manufactures' specifications at all times - Soft horns to be used, and use silent type generators (if required) - If it is not practicable to reduce noise levels to or below noise exposure limits, the contractor will post warning signs in the noise hazard areas. Identify any building at risk from vibration damage and avoiding any use of pneumatic drills or heavy vehicles in the vicinity - Contractor will monitor noise level along the construction site monthly. - Complete work in settlement areas as quickly as possible	Contractor (Supervision support of Design & Supervision Consultant)	Cost of Noise level monitoring comes within the Air Quality monitoring phase
7.	Impact on water bodies (Turiya khola)	- Earthworks generating higher amount of spoil will be conducted during dry season to avoid the difficult working conditions that prevail during monsoon season such as problems from runoff. - Location for stock yards for construction materials are identified at least 300 m away from water courses. Place for storage of fuels and lubricants will be away from any drainage leading to water bodies. - Washing of project vehicles at river banks will be restricted. - Proper storage of chemicals and lubricants, use of spillage kit to avoid spillage. Take all precautions to prevent entering of wastewater into streams, watercourses, or irrigation system. Install temporary silt traps or sediment basins - While working across or close to any water body, the flow of water must not be	Contractor (Supervision support of Design & Supervision Consultant)	NPR 150,000



S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility	Cost, NPR
		obstructed. Ensure no construction materials like earth, stone, are disposed in a manner that may block the flow of water of any watercourse - Proper and timely implementation of design measures to avoid impact of water discharge at the outfall point - Water quality monitoring (Turiya khola & station will be where the road alignment intersects) to be carried out as per requirement (at least 6 samples; 1 before starting work and should be included as baseline in CESMP, 4 quarterly, and 1 during end period of the project) and the parameters will be as per the requirements provided in Annex 6 - Any disposal on Turiya river will be prohibited; fishing by the workforce will be strictly prohibited; Washing of project vehicles along the river bank will also be prohibited; - Awareness activities will be carried out for the workforce (during 1st & 3rd Quarters - Yr. 1; at least 30 participants/event)		NPR 120,000
8.	Solid waste and spoil generation	- Waste minimization and waste segregation will be prioritized; 3R approach will be promoted. - Composting of organic waste generated from the camps will be disposed within the proposed camps. - Containment of hazardous waste will be carried out. - Awareness raising event will be carried out. - Decommissioning waste will be re-used, sold to local scrap dealers. - Coordination with local municipality team for final disposal into the municipality's waste collection & disposal system. - It has been planned that basic facilities like composting, waste segregation, etc will be started from first month/quarter of contractor's mobilization; other practices under 3R approach (e.g. waste minimization) will be carried out through out; and awareness events will be carried out every quarter (detailed plan will be provided in CESMP document) - Disposal of spoil into water bodies will be strictly prohibited. - Generated spoil will be disposed only at designated spoil disposal sites. Details of disposal sites will be confirmed during construction by the contractor and will be presented in the C-ESMP.	Contractor	NPR 200,000
	Others	Contractor will dispose all the chemical wastes generated during the time of construction safely without interrupting the existing nearby settlements, water bodies, forests and wildlife.		

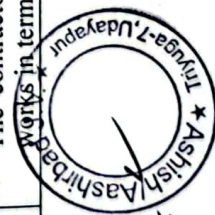


S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility	Cost, NPR
	Physical (Operation & Maintenance Phase)			
10.	Road Stability and Drainage Management	- Regular/periodic maintenance of the road - Construction of drainage system to mitigate possible inundation in the settlements along the project alignment - Ensure proper compaction as per design - Awareness activities to be carried out in community level to reduce the incidences of disposal of waste into road-side drains	Ramgram Municipality	Included within BoQ, Abstract of Cost B-6
11.	Air pollution and Noise nuisance	- There should be a consensus between metropolitan, District Transportation Office, Transportation Entrepreneur, and the local people regarding the operation of conditioned vehicles - Campaigns like 'No Horn' and use of soft-horns can be initiated by the local authority	DTO, transportation entrepreneur, local people	No extra cost will be required.
12.	Water pollution	- Disposal of any septic or industrial wastewater into the roadside drains will be strictly prohibited - Washing of public and private vehicles at river banks will be restricted	Ramgram Municipality	No extra cost will be required.
	Biological (Construction Phase)			
13.	Vegetation loss	- Compensatory plantation of 290 trees, @ 1:10 for each tree cut - Greenery promotion works will be carried out - Compensation of 14 private trees @ NPR 2500 per timber tree (5), and @ NPR 3500 per fruit trees (9); total NPR 44,000 to be provided by Ramgram Municipality	Contractor Ramgram Municipality	NPR 450,000
	Socio-economic and Cultural (Construction Phase)			
14.	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; cracked walls will be reinstated - Conducting excavation works at critical sites under close observation of the local representatives - Awareness raising, information and dissemination about GRM (meetings, monitoring and logistic costs @ 1 meeting every month)	Contractor	NPR 300,000 NPR 350,000
	Disturbance to electric poles in the RoW	- Relocate 170 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	Ramgram Municipality and Contractor	Included in BoQ (Abstract of cost, D-9)



S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility	Cost, NPR
16.	Reinstatement of Water Supply Pipe lines, hand-pumps and irrigation crossing pipeline	- The project must work in close coordination with the locals and Water Supply Management Committee regarding disruption of water supply system; alternative means of water supply (e.g. potable drinking water through tanker supply) during pipeline disruption, re-establishment and reestablishment of 280 m of pipelines of the system (as detailed in Table 2.6) should be addressed without any delay - The hand pumps should be shifted/reinstated before starting construction works in the concerned alignment - The project will timely reinstate 10 m of irrigation crossing pipeline with CI pipeline at Ch. 0+375 of section I in coordination with the local users	Contractor in support with Ramgram Municipality	Included in BoQ (Abstract of cost, A-2)
17.	Difficulties in access & mobility to private properties and premises	- Diversion 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. - Metal planks and wooden planks will be placed to ease the access to private houses and shops (tentatively 30 sites) - In total 77 ramps have been provisioned	Contractor (Supervision support by DSC)	NPR 150,000 Included in BoQ (Abstract of cost, K)
18.	Road safety & Community safety	'Drive slow' messages will be placed along the active sites. - Barricades will be placed to avoid any accidental falls - Sign boards with safety messages and warnings will be placed in local languages all along the alignment at the construction sites and at the trench excavation area. - Trenches will be backfilled with immediate effect. - Awareness activities will be conducted to inform & aware locals. - Carry out site management practice such as the fencing around work area and road signage. - Increase public awareness of safety, health and environmental issues by providing information directly and indirectly through campaign. - Display appropriate signage for use during construction and implementation of the project to enhance awareness creation on the potential hazards of the project. - The contractor will be supervised to prepared a Traffic Management Plan. - The contractor will assign a safety supervisor and will monitor daily construction works in terms of health and safety.	Contractor	Included in BoQ (Abstract of cost, I) NPR 50,000


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S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility	Cost, NPR
19.	Occupational Health & Safety	- Personal Protective Equipment (PPEs) will be provided to the workers, and its use will be monitored closely. - Replacement of PPEs after 'wear & tear' - at least every quarter - First aid boxes will be provided at campsites as well as active working sites (the kits to be refilled and updated every month). - CoC will be implemented for the operators, drivers and labourers - Proper WASH provisions will be provided in the labour camps - Drinking water quality monitoring (at least 1 sample/quarter x 6 times) - Provision of potable water for the workforce will be ensured - Toilets will be provided at the ratio of at least 1 unit for 15 people. - Provision of insurance to cover physical damage to workers. - Drivers with authorized license holders will only be allowed for the operation of construction vehicles. - Workers and staff at the construction site will be provided with proper training to ensure that workers are trained on what to do in the event that an accident occurs on site. - The contractor's supervisors should conduct 'pre-work instructions' to the workers everyday - explaining them about the nature of works, condition of the site, and associated risks as well as safety measures. - Agreement with nearby health institution will be in place by the contractor. - Contractor will be responsible to maintain the records of each and every accident and incidence and will make available to DSC/PCO/PMST as and when required.	Contractor (Supervision support by DSC team)	To be included within contractor's overhead (General Condition of Contract document) NPR 120,000 for drinking water quality monitoring

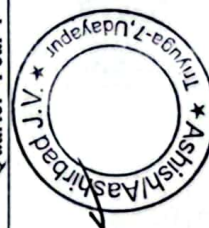
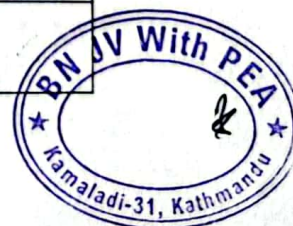


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S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility	Cost, NPR
20.	Social Disturbance / Risk of SEA/SH, Human trafficking, GBV, HIV AIDS and CoVID	(i) Regarding SEA/SH, GBV - Locals will be given due priority for any employment opportunity - CoC will be implemented for the operators, drivers and labourers - Separate toilets will be provided for male and female workers - SEA/SH, GBV 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 will be conducted for the workers as well as the local community regarding these concerns 2 orientations/trainings with at least 45 participants in each training; to be conducted during first 2nd & 3rd Quarter - Year 1 (ii) HIV AIDS & CoVID - 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 - Health screening of the workers will be carried out before joining them into workforce - Emergency Response Plan will be implemented during any critical circumstances (e.g. CoVID spread) 2 orientations/trainings with at least 30 participants in each training; 1 event during 1st Quarter-Year 1, another to be scheduled as per requirement (iii) Human trafficking - focused on women & girl trafficking - Awareness program will be developed and implemented 2 orientations/trainings with at least 30 participants in each training; during 3rd & 4th Quarter-Year 1	Contractor with consent, & coordination support from municipality office (Women Development Office), mobilization of NGOs/CBOs/ Clubs	NRs. 350,000 NRs. 250,000.00 NRs. 250,000



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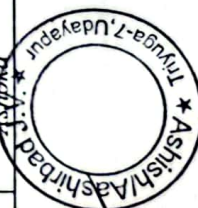
S. N.	Project Phase & Impacts	Mitigation Measures	Responsibility	Cost, NPR
21.	Child labour, forced labour and wage discrimination	- Child labour & forced labour will be strictly prohibited - Citizenship card or other valid personal ID card - Awareness among the workers and the local community - Equal wage for male and female workers will be ensured	Contractor (Supervised by local authority and DSC)	NPR 50,000
22.	Traffic Management	- Traffic sign boards and messages, in local languages, will be placed at main chowks, junctions and start-end points. - Emergency traffic management plan should be prepared by the contractor and approved by the Project. 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.	Contractor	Included in BoQ (Abstract of cost, I)
	Socio-economic and Cultural (Operation & Maintenance Phase)			
23.	Traffic accidents and associated risks	- Raise awareness of traffic rules, and installation of speed humps to control speed near pedestrian crossing areas - Awareness will be raised regarding traffic safety - Speed limits will be defined - Traffic sign boards and messages, in local languages, will be placed at main chowks, junctions and start-end points	Ramgram Municipality	Cost will be borne by municipality
24.	Community Health and Safety	- Provide bus laybys and Bus Shelters Bus laybys are provided at various locations where public buses or micro buses pull out of the traffic to pick and drop off passengers. - Provide ramps in strategic section of roads - 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 & Marking manual as per DPR - Reinforced Cement Concrete covered drain must be provided throughout the alignment in integration with footpath.	Ramgram Municipality	Cost will be borne by municipality
25.	Impacts due poor maintenance of road-drains	- Awareness activities will be carried to stop disposal of waste into the road-side drains - Drainages will be regularly cleared under periodic maintenance - Road side plantation of aromatic and green-cover plants like <i>Chumeli</i>, <i>Kapur</i> and	Ramgram Municipality	Cost will be borne by municipality

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8.5.2 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 measures and tree plantation, etc. under the mitigation measures of the project. The total cost for the ESMP is outlined in Table 8.3 below;

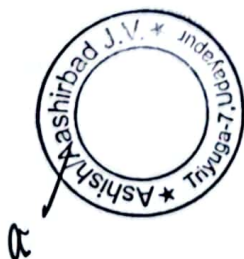
Table 8-3: Cost of ESMP Implementation

SN	Items & Headings	Unit	Qty	Rate	Total, NPR	Reference
	Provisional Sum amount					
1	Water quality test	Samples	12	20000	240,000.00	Table 6.1; S. N. 7
2	Air quality & Noise monitoring	Samples	3	90000	270,000.00	Table 6.1; S. N. 5
3	SWM works				200,000.00	Table 6.1; S. N. 8
4	Storage of chemicals & lubricants				150,000.00	Table 6.1; S. N. 7
5	Public safety (planks, etc)				150,000.00	Table 6.1; S. N. 17
6	Damage repairing for any vibration related damages				300,000.00	Table 6.1; S. N. 14
7	Greenery promotion				450,000.00	Table 6.1; S.N. 13
8	Awareness on Health & safety, child labour, environmental conservation		6		150,000.00	
(i)	Environmental Awareness (during 1 st & 3 rd Quarters - Yr. 1; at least 30 participants/event)	Events	2	25,000		Table 6.1; S.N. 7
(ii)	Road safety & Community HS	Events	2	25,000		Table 6.1; S.N. 18
(iii)	Child Labour	Events	2	25,000		Table 6.1; S.N. 21
9	Awareness on Communicable Diseases, CovID, Girls/Women Trafficking, SEA/SH risks, GBV (Events will be conducted for workers as well as community)	Events	6		850,000.00	
(i)	SEA/SH, GBV (at least 45 participants in each orientation/training, during first 2 nd & 3 rd Quarter - Year 1)	Events	2	175,000		Table 6.1; S.N. 20 (i)
(ii)	HIV AIDS & CoVID (at least 30 participants in each orientation/training; 1 event during 1 st Quarter-Year 1, another to be scheduled as per requirement)	Events	2	125,000		Table 6.1; S.N. 20 (ii)
(iii)	Women/Girl Trafficking (at least 30 participants in each orientation/training; during 3 rd & 4 th Quarter-Year 1)	Events	2	125,000		Table 6.1; S.N. 20 (iii)
10	Social safeguards (grievance)	Meetings	18		450,000.00	Table 6.1; S.N. 13

	meetings, site monitoring, etc)	/Events				
	Total				3,210,000.00	

The total cost of implementation of ESMP activities is NPR 3,210,000 (*In words: Thirty two lakhs ten thousands*).

Note: A Separate Volume of ESIA document with ESMP has been prepared and submitted.



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