



Government of Nepal
Ministry of Physical Infrastructure and Transport
Department of Roads
Development Cooperation Implementation Division (DCID)
Babarmahal, Kathmandu

Name of the Sub-Project: ACCESS-1

Environmental and Social (E&S) Screening
for Bridge Construction Works on Tinau River in Rupandehi District of Lumbini
Province



Prepared by
Department of Roads
Development Cooperation Implementation Division
Babarmahal, Kathmandu

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Acronyms and Abbreviations

BES	Brief Environmental Study
E&S	Environmental and Social
EPR	Environment Protection Rules
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
EWB	East West Highway
GoN	Government of Nepal
HHs	Households
IPs	Indigenous Peoples
SIA	Social Impact Assessment
WB	World Bank

1. Description of the Sub-project

Butwal city is at the intersection of Nepal's two different National Highways: Mahendra (East-West) Highway and Siddhartha Highway. It links western Nepal with Kathmandu through the East-West and Siddhartha Highway and air links (via the Gautam Buddha international airport at-Bhairahawa). After the promulgation of new constitution in 2015, Butwal was categorized as a sub-metropolitan city which enhanced its strategic importance and fastened its development hub for trade and infrastructure. It is one of the fastest-growing cities in Nepal for education, health and other infrastructures, highway, , communication, trade, and banking sectors. It has highway connections to the Indian border at Sunauli and to the hilly towns in Tansen and Pokhara valley. Tinau river flows across the Butwal Sub-Metropolitan city dividing it into two parts, Batauli (Old Butwal) and Khasauli (New Butwal).

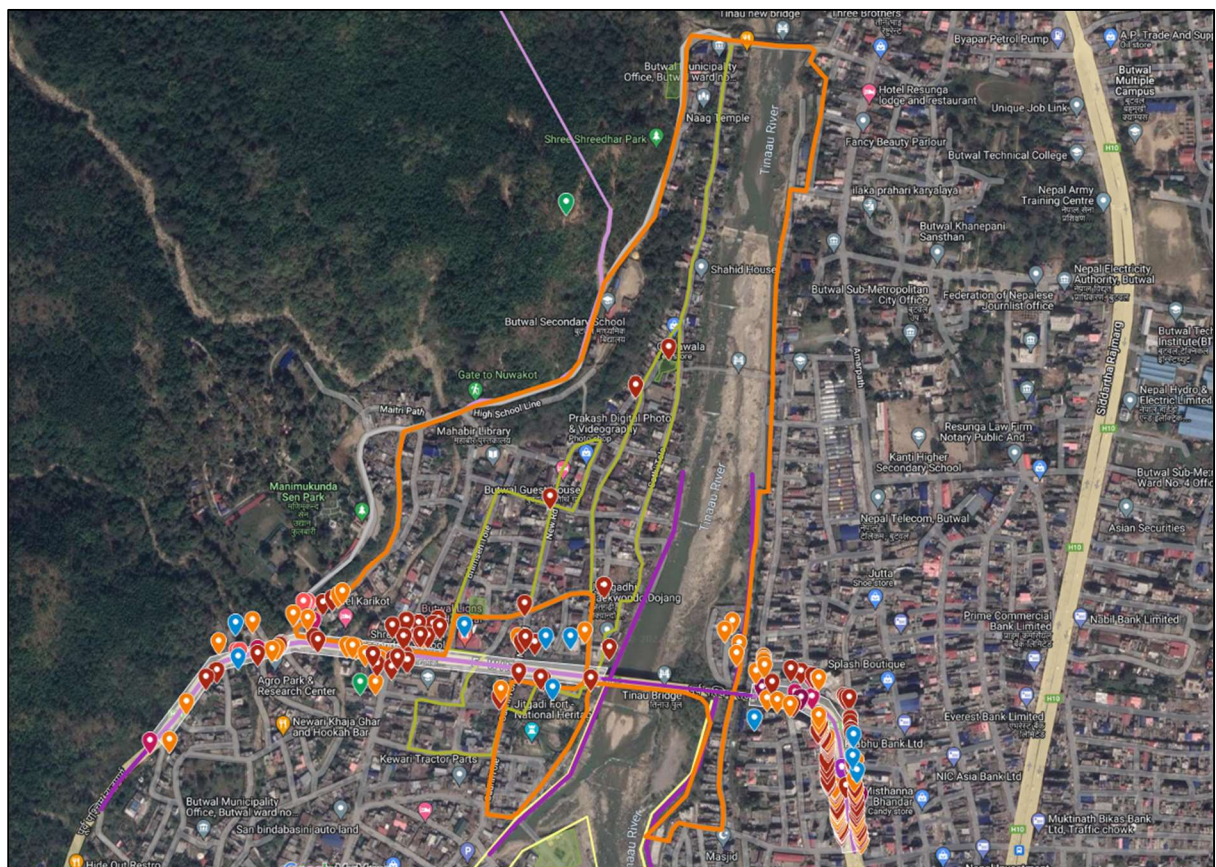


Source: DoR 2022

Butwal sub-metropolitan city is located in the Lumbini Province. The city stands beside the bank of Tinau River, and at the northern edge of the Terai plain below the Siwalik Hills. The Tinau river is a Class-II category River originating from the Mahabharat Mountains and flowing through the Siwalik Hills and Terai Plain at Butwal, Nepal. 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 Tinau River is one of the important rivers to be investigated in terms of ecology and sustainability. This is the heart of Rupandehi District and has the potential to attract domestic as well as international tourists. The river could be one of the important tourist destinations in future.



Source: google map@2024



Location of Tinau Bridge in google map (source: adapted from Feasibility and Conceptual design report-GRUB)

Project's General Information

Name of the Subproject	Construction of Green and Resilient Signature Bridge
Name of the Bridge	Tinau
Name of the Province/state	Lumbini
Name of the District/Municipality	Rupandehi/Butwal Sub-Metropolitan City
Left bank	Batauli (Butwal Bazar)
Right Bank	Jitgadhi and Khayauli
Name of the Settlement	Batauli and Khasyauli under Butwal Sub-Metropolitan City
Road name and type	East West Highway, Blacktopped
Latitude	27°42'13.9" N
Longitude	83°27'45.4" E
Brief Description of Subproject	Construction of four lane green and resilient bridge

1.1 Salient Features of Tinau Bridge

- a. Length (m): 228.85 m with number of span- 6
- b. Lane: existing: 2 and purposed 2 to four lanes. 2 lane carriage way in each direction
- c. width (m)- 30 m
- d. river trainings work- applicable
- e. approach road (m) and embankments- 300 m east and 800 meter west
- f. temporary river crossings/diversion etc.-has been proposed from the upstream-near Gol park and downstream from Yogikuti and Milan Chowk
- g. construction materials from natural sources: sand, gravel, water

XXX**1.2 Projects General Information:**

The Construction of Green and Resilient Signature Bridge at the Tinau River have been proposed to replace the existing bridge of the Tinau River along the section of east-west highway. The proposed bridge lies within the Butwal Sub-Metropolitan city in the Rupandehi districts, in Lumbini province. The adjoining wards are the ward 1, 2, 3 and 11 of the Butwal Sub-Metropolitan city. Batauli bazar is located int the left bank of the bridge, followed by Jitgadi and Khayuali in the right bank of the river.

The existing length of the bridge is 228.85 m, 2 lanes with number of spans is 6. The approach road and embankments are towards 300 m east and 800 meter west of the existing bridge. Width of the proposed bridge will be 30 m. (within RoW) four lane standards. As per the feasibility study carried out in 2022, different models of bridges have been proposed. The first one is Arch Bridge followed by Cable-Stayed Bridge which will be constructed after dismantling the existing Tinau Bridge. During the construction, the temporary diversion has been proposed from the upstream side -near Gol Park and at downstream side from Yogikuti and Milan Chowk.

2 Methodology:

Desk study has been carried out date in the months of December, 2023. During desk study, review of concept design report of Tinau Bridge, profiles of affected wards of Butwal sub-metropolitan city, ESMF of ACCESS project, ESIA and RAP report of BG road and other relevant literatures. Preparation and finalization of E & S screening checklist jointly considering the feedbacks from World Bank.

The field visit has been carried out from 23-27 January, 2024 and 14-16 March, 2024. During the field visit, walkover survey, observations, interview group discussion and stakeholder consultation has been carried out. Stakeholder consultation was carried out Butwal Sub-Metropolitan City (BSMC) with the representatives of traffic police, federation of chambers and commerce Butwal, drinking water users committee, Bus and Truck transportation service committee, local business persons and political leaders. And group discussion was carried out with local people surrounding the bridge area. Besides, this separate meetings with the adjoining ward (left and right bank of Tinau Bridge) chair of BSMC has also been conducted. In addition, interview with local people has also been carried out. Information for the E & S screening has been collected from 1 km, upstream and downstream of the existing Tinau Bridge.

2. Environmental & Social Baseline

Location

The Tinau River originates in the Mahabharat range of Palpa District in the Lumbini province of Nepal and emerges onto the Terai Plains through Butwal city. The Tinau bridge at the Butwal along east-west (E-W) highway. It is located between 27°42'13.9" N to 83°27'45.4" E.

The left and right bank of the Tinau River in the Butwal Sub-Metropolitan City is divided into two parts as Batauli (Ward 1 and 2) and Khasauli (Wards 5, 11, and others). Batauli is the old city centre historically serving as the trade centre and route, whereas Khasauli is the newly developed city of Butwal Sub-Metropolitan City which has been developed further after the construction of both highways.

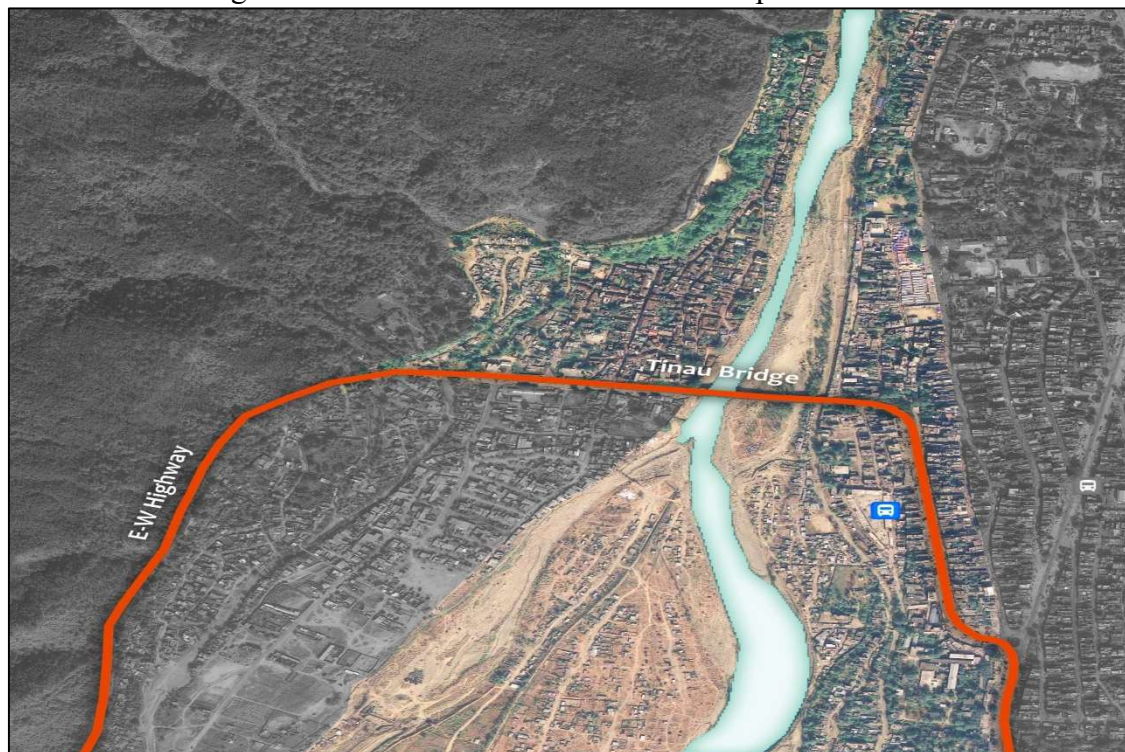
The Tinau River in the Butwal city is exposed to a range of natural hazards and extreme weather events, particularly flash floods and landslides, due to its location within mountain river catchments as well as due to human activities such as mining. Along with the environmental issues, the area near Tinau River faces connectivity issues as well. East-West Highway (EWH) connects Butwal's main road and further linking it to India in the South, Lumbini in the west and Kathmandu in the East and through Siddhartha highway it further connects Pokhara at the northern side. The present Right of Way (RoW) of the bridge is 30m. and approach roads is 10.5 m which is insufficient and causes traffic congestion.

Environment Conditions

The peripheral area of the project is not directly susceptible to landslide or erosion; however, a long-standing landslide is located more than 1 km western side of existing bridge along E-W highway. From the last decades, the river is in the degrading stage in the upstream, and it changes its regime to aggrading stage after entering the Terai plain. This can be observed along the vicinity of E-W highway also. The deposition of debris from different sources in the Tinau

increases when the river flows towards the Terai Plain (especially from Butwal to Bethari). The Tinau River is being exploited massively in terms of river-bed materials since 2004 generating high incomes for Municipalities and District Coordination Committee (DWIDP 2011)¹.

The Climate of Butwal is warm, temperate and subtropical monsoon type and receive most of the rainfall during the summer. The temperature of Butwal varies between 17 °C to 34 °C with an annual average of 25 °C. The maximum absolute temperature since 2014 has reached 42.5



°C and minimum was recorded at 7.5 °C

Figure 3: Location Map Tinau River along E-W highway

The Butwal community forest areas located at the right bank upstream and have not seen major impacts due to the river flow. Butwal Community forest found in the northern Chure hills. Chure forests are dense and high in altitude. Other smaller community forests with small plants are found in the southern per-urban plain. Not any protected or endangered species listed by the CITIES has been recorded in those forest areas. Some *Dalbergia sissoo trees* are along the left bank upstream and downstream as well as few of them located in the right bank upstream and downstream. There are no any protected or conservation areas and buffer zone located in the vicinity of the project site, no protected wildlife species were recorded during the preliminary assessment. *Terminallia tomentosa* (Asana), *Senegalia catechu* (Khayar), *Ficus glomerata* (Bar) and *Bombax ceiba* (Simal) are the species located in the nearby flood plain of Tinau river.

The Tinau River originates from Mahabharat range surrounding Mandi phaath of palpa district and tributaries contribute to the Tinau from much of Western Palpa and include streams such as the Kusum, Dobhan, Sisne and Jhumsa. Tinau then flows through the gorge of Churia hills before reaching the town of Butwal in Rupandehi district, comprising a length of 95 km from

¹ Disaster Review Report, DWIDP 2011

the source to the Indian border. The river bifurcates into two branches from the sides of Butwal bazaar the eastern side is called Tinau and the western side is Dano. The river is perennial with peak flow during the monsoon. The major water bodies are the different types of fishes. According to the studies, the flow in Tinau River is extremely variable across seasons. The flow of Tinau River in Butwal is about 25 m³/s. Dry season flow is derived from the groundwater and base flow contribution. The average monsoon flow in August can be as high as 110 m³/s and the instantaneous peak is close to 2,500 m³/s. Watershed in the monsoon season (June to September, Tinau receives an average of 1,637 mm of rainfall, which comprises 82.26% of total annual average of 1,985 mm in the watershed. This rainfall itself is much greater than Nepal's national average of 1,700 mm a year.

Geology

Geographically, Buwal lies in the *Bhabar* (hilly) zone at the lower part of the Siwalik hills between 27°40'-27°44'55" north latitude and 83°22'-83°30'20" east latitude.² This is part of the Indo-Gangetic plane. The Siwalik hill rock sequence consists of colourful fine sandstone. It is divided into three parts: The Lower Siwalik Formation is represented by fine-to medium-grained, hard, light grey sandstone alternating with colourful mudstone, siltstone, and shale. The predominance of mudstone over sandstone is generally observed. The thickness of the Lower Siwalik is 2,100 m. Further, the Middle Siwalik Formation is divided into two parts: Lower Middle Siwalik Formation and Upper Middle Siwalik Formation. Lower Middle Siwalik Formation is medium- to coarse-grained, thick-bedded, grey sandstone alternating with purple, yellow, and grey mudstone, calcareous siltstone, and grey shale (with plant fossils). The dominance of sandstone over mudstone is observed. The thickness of lower-middle Siwalik is approximately 1,200 m. Upper Middle Siwalik Formation on the other hand is gravelly/pebbly, coarse-grained, pepper and salt sandstone, and varicoloured mudstone. The approximate thickness is 700 m. It has a high potential for infrastructure development and development is mainly concentrated in the North of Tinau Khola and Dobhan Khola confluence.

Agriculture and Irrigation

The agricultural lands are located in the northern and southern part of Tinnu bridge, approximately 1 km downstream. Paddy is the major crops here followed by maize and wheat. There is one historical irrigation channel named Sorah-Chhattis Mauja³ This irrigation facilities is being in the practice from ancient period adjoining Tinau River near Butwal. The local Tharu-framer community-developed and managed irrigation systems, located in the plains of the river basin just downstream of Tinau bridge, have a history of more than 175 years (Moench, Caspari, and Dixit 1999). The Sorah (16) and Chhattis (36) Mauja systems have the command areas of about 1,500 and 3,500 hectares of land respectively, and were originally built by the Tharu community this is the good exemplary systems in the domain of managing water by the users themselves. But now this became a public domain and used by mixed group communities residing nearby area."

² BSMC profile

³ The re-thinking of mosaic, a case study of local water-management Tinau-river basin, see in page 89

Social and Cultural Condition

The total population of Butwal Sub-metropolitan city is 194355, followed by male population is 94849 and female population is 99486 (CBS 2021). The settlement pattern at the northern and southern part of Tinaru River which flows through the central part of Butwal are found mostly mixed group settlement. Some squatter settlements located at the peripheral area of Tinaru River at the right and left bank. These are dispersed and developed without integrated planning. The city population increased about 6.96% from 1981 to 1991, 5.47% from 1991 to 2001, 6.29% from 2001 to 2011, and 3.47% in the period 2011 to 2021. The population of Butwal has been increasing since 1981 because of its highway connections to the Indian border at Sunauli and to the hilly towns in Tansen and Pokhara valley.

According to the profile of Butwal Sub-metropolitan city mostly inhabited by the people of Brahmin-Hill caste followed by other caste and ethnic group such as Magar, Newar, Tharu, Gurung, Tamang, Thakali, Rai, Damai/ Dhobi, Muslim, Kathbaniyan, Sarki, Kumal, Sanyasi Kami / Dashnami, Yadav, Haluwai, Teli, Chhantyal/ Chhantel, Terai Others Hajam/ Thakur, Kalwar, Chamar/ Harijan/ Ram, Badi, Brahmin - Tarai, Marwadi, Dhobi, Majhi, Rajput, Kayastha, Kahar, Kurmi, Gharti/ Bhujel, Thami, Kanu, Koiri/ Kushwaha, Sunuwar, Badhaee, Mallaha, Dhanuk, Lohar, Musahar, Limbu, Dusadh/ Pasawan/ Pasi, Undefined Others, Baraee, Sherpa, Punjabi/ Shikh, Gaine, Ghale etc.

The most spoken language in Butwal is Nepali. However, other languages, such as Magar, Tharu, Newar, Gurung, Bhojpuri, Hindi, Maithili, Urdu, Avadhi, Chhantyal, Tamang, Thakali, Kham, Rai, Rajasthani, Doteli, Kumal and Limbu found in the Butwal city. The indigenous groups are the newar at the 500 m radius from the existing Tinaru Bridge followed by the minority groups as Muslims. The vulnerable groups are also located at the peripheral area of the river which have income below poverty level.

The major livelihood options are business, agriculture farming, farm and non-farm wages followed by the services at government and private institutions. The Jitgadhi fort is the major archeological place located at the left bank downstream of the river followed by mosque (*masjid*), 'Madrssa' and Mani-Mukunda Sen School in the left bank upstream and Radha Krishna temple in the right bank downstream.

One boarding (private) school located at the left bank upstream and Ujir Singh secondary school located at the left bank downstream of the Tinaru bridge. Drinking water pipelines are located at the upstream and downstream of right bank of the river and irrigation channel is originating right bank upstream towards the downstream side of the river that connects with the settlement of the Butwal city.

3: Potential Risk and Impacts

The wildlife in the right and left bank upstream of the river will not be affected due to the project activities. The dominant species recorded in the flood plain and approach of Tinau at the left and right bank is Sissoo (*Dalbergia sissoo*) with 60 in number followed by 13 species of chilbil (*Holoptelea integrifolia*) and one pipal (*Ficus religiosa*). These species will be felled down during the construction of new Tinau bridge. Birds such as Koteri Munia (*Lonchura punctulata*), House sparrow (*Passer domesticus*) were the most abundant species followed by House crow (*Corvus splendens*) and Common pigeon (*Columba livia*) in the peripheral area of Tinau which will not have major impact due to sub-project activities. Seven common species of fish has been recorded in the study of Tinau River (Rijal, 2015⁴). Habitat for fresh water fishes as snow trout (*Schizothorax richardsonii*), catfishes (*Siluriformes*), stone loaches (*Barbatula barbatula*), sucker heads (*Garra gotyla*), etc along with thirty-five different fish species were recorded from the Tinau River (Sharma and Shrestha, 2001)⁵.

Tinau river watershed in the monsoon season (June to September) receives an average of 1,637 mm of rainfall, which comprises of 82.26% of total annual average of 1,985 mm in the watershed. This rainfall itself is much greater than Nepal's national average of 1,700 mm per year. In Butwal, Tinau is the major river flowing through the middle of the city. This river is prone to flash floods during summer monsoon rain. The most serious environmental issue is flooding during and immediately after rainfall. Cloudbursts in Palpa and landslides in upstream of Butwal are the immediate physical drivers for floods in Tinau and inundation in the watershed.⁶ The two major floods referred by the Butwal survey respondents are the floods in 1970 and 1981. Both the floods were caused by landslides in the Tinau watershed of Palapa district. The landslides blocked the river and the spontaneous peak flow reached 2,500m³/s for a few hours. A maximum of 24-hour rainfall recorded in 1981 was 320 mm. In 1981, the flood caused sediment deposition, caused by landslide in the upstream areas which blocked the river for several hours and then breached the river bank. It caused big floods leading to devastation in downstream settlements and agriculture areas in Butwal and lands further south⁷. The river is known for causing flooding, inundation, river cutting, and damage to human life, settlements and irrigation systems on a regular basis.

During discussion with local people, municipality officials and respective ward chairs of Buwal sub-metropolitan city, they have highlighted about the future risk due to flood and bank cutting if cloud burst or heavy rainfall or landslide occurs at the upstream of the Tinau river catchment.

According to the locals, the effects of the Tinau River in terms of immediate physical manifestation are threefold called cutting of river banks, deposition of sediment load carried by the river into agricultural lands and settlement and inundation of low lying areas in Butwal city. The squatter settlement along the bank of Tinau river have chance to be affected from

⁴ Master's thesis carried out by Birkram Rajal in 2015(Tribhuvan University) in fish and fishes of Tinau river

⁵ Sharma CM and Shrestha J (2001), Fish Diversity and Fishery Resources of The Tinau River, Western Nepal, journal of Environment and Agriculture: Biodiversity, Agriculture and Pollution in South Asia, pp. 78-83.

⁶ Tinau River Conservation and Integrated Water Resource Management 2012

⁷ Disaster Risk Management and Meso-Level Institutions in Nepal: A Case Study of Floods in Tinau River in Western Terai 2016

such phenomenon if high flood will occur due to cloudburst or landslides in the upper part of the Tinau catchment.⁸

The potential risk and impacts from this sub-project is loss of some private structures and livelihoods. During the screening, it is identified that about (20) private structures will be affected partially. Based on the detailed design and E&S impact assessment study report, RAP can be prepared if required. In addition to that, (1) well, (1) religious structure called “*Maraham Taji*” used for religious rituals during Roza and (1) Chautari in the right bank of Tinau bridge will be affected. Some electric poles and transformer and drinking water pipeline along with sewerage system will also be damage and need to relocate both Right and left (HH) Bank of Tinau Bridge. The impact on ethnic minorities/vulnerable including IPs at household level.

Regarding cultural and historical public spaces identified on the east side include a temple, two bus stands and one public toilet and on the west side two temples, Jitgdhi fort, Mosque, two private hospitals, two private school (Ujir Singh Secondary School and Mani-Mukunda Sen School) and two bus stands may have indirect impact.

The east side of the area is primarily commercial whereas the west side is primarily residential. This area has grown without proper urban planning and is highly congested. The bridge and its riverfront have been encroached. The open space and sidewalks of roads is utilized by street vendors, parking for loading and unloading. The Street vendors and hawkers with the movable carts selling vegetable, fruits, and small manufactured goods use the highway and bridge as selling spots, hindering the traffic flows. Many of the temporary structures and street vendors are located around the bus stops nearby Tinau Bridge may have indirect impact and this needs to be mitigated during project implementation.

4: Applicable Requirements and Standards

As per the initial assessment in the proposed sub-project location, potential impact could arise due to flood and bank cutting at the adjoining settlement and infrastructures. There will be minor impacts in the aquatic habitat and wildlife of the peripheral areas. There is also, possibility of felling down of 74 number of trees.

As per Environment Protection Regulation (EPR-2020) (with amendment-2022) of GoN, preparation of Brief Environment Study (BES) will be required for the construction of bridge having length up to 250 m. As the proposed length of Tinau bridge is up to 250 m, so preparation of BES is recommended from the Environmental and Social Screening. Similarly, for World Bank requirement, there are moderate level risks to the forest, biodiversity and socio-economic and cultural aspects. Based on the initial findings of detailed design study, resettlement action plan (RAP) will be prepared if required. The E&S screening recommends for site specific environmental and social management plan or further study if required.

5: Environmental and Social Impacts

⁸ Disaster Risk Management and Meso-Level Institutions in Nepal: A Case Study of Floods in Tinau River in Western Terai 20016

As per the findings of E&S screening report, the impact predicted as moderate to substantial level as the construction of the Tinau Bridge will be carried out within the confined RoW (30 m; 15 either side). The level of impact can be minimized and mitigate through preventive and compensatory measures. Furthermore, E & S risk can be finalized by detailed designed and E & S assessment study. There are alternative routes available for the traffic diversion. There will be additional impacts traffic congestion due to the diversion of traffic during construction phase. The proposed project has less environmental and social impact during construction and operation and maintenance phase. The civil works will be carried out within the confined RoW. During stakeholder consultation, they highly recommended for the protection of cultural heritage sites. Which is lies beyond the RoW.

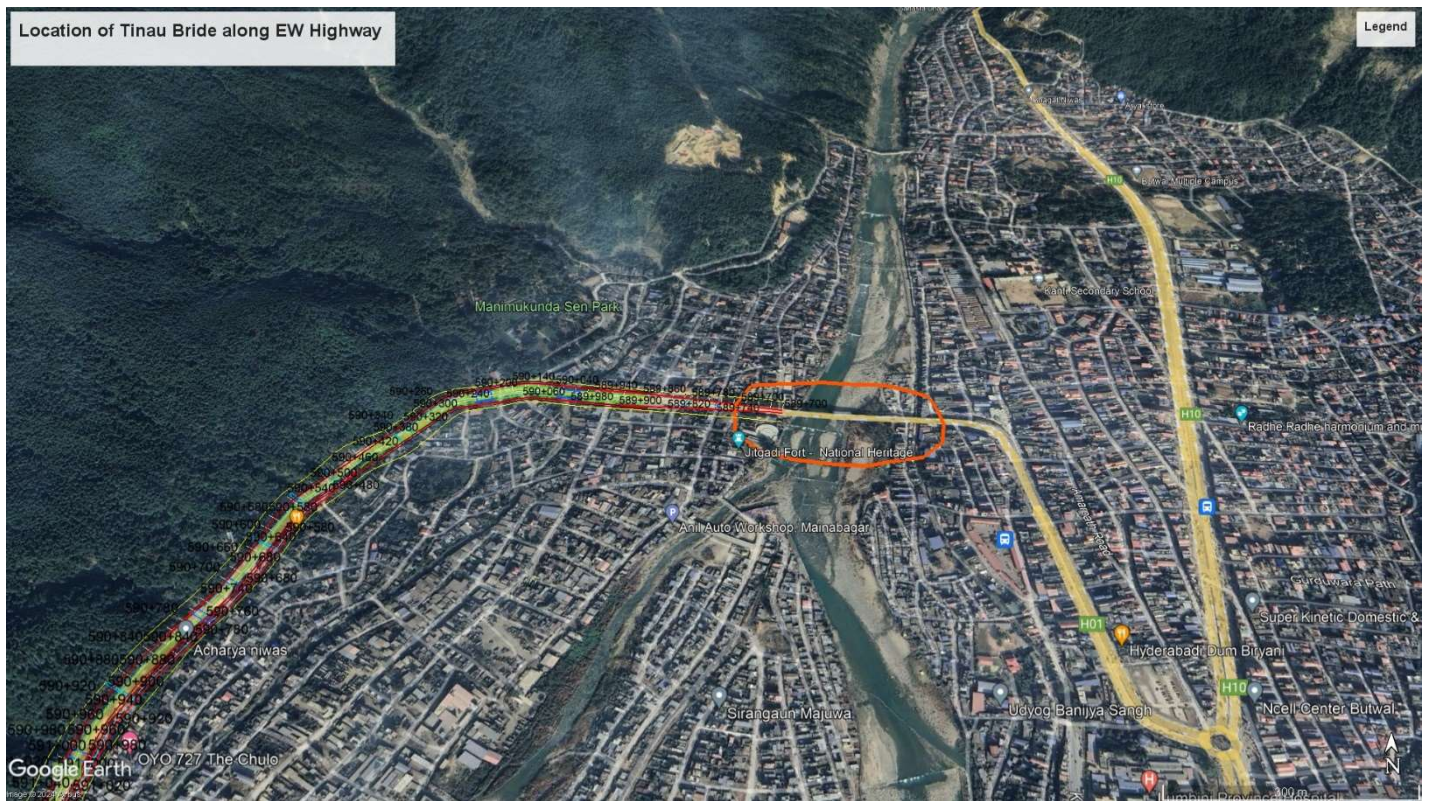
The possible impacts will be expected as temporary in nature and low in magnitude. The river training works will be carried out at the upstream and downstream of the sub-project. The require construction material will be managed from the nearby licensed quarry sites. The detailed assessment will be carried out during the Brief Environment Study.

6. Conclusion and Next Step

The level of impact from E&S assessment could be moderate to substantial. Most of the impacts are short term to long term and reversible. As per EPR-2020 with amendment (2021) schedule-1 rule 3 D-1 (for road sector, construction of bridge with length up to 250 meter) conduction of BES study is required. The length of Tinau Bridge is 228.85 meter, So that E&S screening of the proposed sub-project have recommended for BES study and prepare site specific Environmental and Social Management Plan (ESMP) to fulfill the requirement of GoN and the World Bank. RAP and IPDP will be developed as per requirement based on detailed design and E & S impact study. The inter-agency coordination is required before, during and after the execution of the sub-project.

Annexures:

Annex 1- Locational Map



Google Map of the sub-project location

Annex 2- Details of Consultations with stakeholders

आज प्रातः २०८० माघ १० गते पूर्व सुस्नात करीजिम बुझ्बलको तिहार
त्रिडाया वल हाँगेको पुनः र कुटल गोरुपिँडो सहक पुनर्निर्माणका
सामान्यमा डाफिड व्यवस्थापनका विषयमा आजीजित वैडक बुझ्बल
उपमहानगरपालिकाका प्रमुख डीप्राण खेहराज पाण्डेय जेडको अध्यक्षता र
निम्हानुवाडेको उपस्थितिमा वैडक वसी निम्हानुवाए प्रितीय गरियो।
आस्थिति:

उपस्थितिः

क्षी खेनराज पाठडेय, प्रमुख वृत्तन उपमहाखाण्डिहा - (केल ५)

81) सावित्री देवी शर्यल मप प्रमुख पुखन " कि॥ जलल

३१० मित्रमणि खतल प्रमुख प्रशासकरीय अधिकृत : (३१०)

श्रीम बहादुर ए. सी. मेजरा प्रभु रन, कुल्लु गौदसिंगे

चन्द्रोदा सउय गेजना

शान्ति प्रसाद आचार्य पृ. ४५. गुल्मी - जेष्ठसिद्धिचर्चा। हस्त-प्रतः

मुवाज सुमान पातपठा विन, ल. वि. वि. त. ५ न. वासाय १५५

रमा कुमारी शैल्य झापा लोकवाक्छन विद्या ॥

पु.म.उ. होम कहाडू। बापू। नेपाल प्रहरी २ जमर्ण शुक्रा स्था की-व-म.

अध्यक्ष राधेन्द्र मानाश्रम बुरुलयालायालयालायाला

सपन सपनाय लम्बिय सपना वायुमल्लिका राशि व. सं.

हविः पक्वान् शीतलः नृपः प्रपन्नः ३. शमिः प्रजापतिः ॥ २३ ॥

हॉर प्रबोध गुरुदेव वडा प्रभुदेव कु. डी. मधुसूताजीदेव उ. म. २८
 लखि नर नरदेव कु. म. १३ प्रियदा कु. म. १३ आ. प्र. नि. १३

दाखिल न ३३२८ ल अध्येष पत्र चंगु न भर लो मागि Lesson
 वास्ता प. पौड इम्पालद " " " " कन

नरेश वसंत जगन्नाथ 9

नारायण पत्र वडील १३

दाक्षिण त्वाणने वडाभयडा-१४

എയ്ഡ്സ് ബാധിതരുടെയും കുടുംബങ്ങളുടെയും പ്രശ്നങ്ങൾ പരിഹരിക്കാനും സാമ്പത്തികമായി സഹായിക്കാനും പദ്ധതികൾ തയ്യാറാക്കിയിട്ടുണ്ട്.

અનિર્ણયિત ગુણો: ૫

विष्णु टंडान, बडाचण्डा, बखल-५

गोलम गोविन्द, ३ काठे, छु. उ. र. म.

समाप्त दिनांक ३.३.२०१०

प्र. भा. उ. विनय राज पण्डित - ई. प्र. अ. कृष्णल

41.35 மாநில சபை நடவர, அமைதி, ஸ்தலாதி, சூழலியல், உயிரியல் அ. சி. சிவசுந்தரம்

[illegible]

नाम प्रकाश चौपान कुल - 96 का 1344 Rms

सद्वृत्त शिवाजी पुस्तकालय - ११ (१९९५)

कमिश्नर, नवलपि अक्टो २०१८, पुष्पकान्तप्रसादसिंह

निर्णयः

(4) निराउ रदीया Urban Resilience 4 लामे पुस्त निर्माण गर्ने युद्धाती कलकल गहो हाल रहेको पुस्तको कपसभका मन्दि, माजिद, मीकाही किस्ता र वस्ती सभेत बेहेबेले हाल रहेको पुस्त भन्दा कथा बाधा गर्न मिल्कि भएकिले अहिले रहेको पुस्त भन्दा रहेको पुस्तको शीर्ष स्थानमा निमोन गर्न गयी डिजाइन तथा गर्न अनुमोद गर्न र डिजाइन फाईल गर्नुभन्दा अगाडी पुस्तक कपसभामा राखिमात्रा कलकल गर्न गयी स्थलस्थान गर्न राख्नु निमोनमा अनुमोद गर्न निमोन गरिने

(2) बृहन्न - जोरु सिडे एडक विस्तार गर्त कक्षा हदीया कले 44ano

[illegible]

(क) बुद्धि कसर खाना सवादी साधनका बाजो जीहपाके - पुच्छीर
इडे पाहपाणी

(२) सारा सारी साक्षरता जाति निवारे - वसुधैव कुटुम्बकम्

(ग) ब्रह्मा द्वापरी काल (वसुधैव कुटुम्बकम्) ब्रह्माणि योजिकुर्य - श्रीगुरु
पुत्र प्रथमा गयी वनकड्डा पुत्रे ।

(2) अन्वेषित निर्माण १२५ कार्योन्मथन पूर्व वैवाहिक मान्य सुख
निर्माण सामाग्री अन्वेषित रूपान्तरण सामाग्री मान्यतायत प्राप्तव्य
कार्य पूर्व अवस्थित अन्वेषित कार्योन्मथन, कार्योन्मथन, कार्योन्मथन
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Annex 3- Photographs



Meeting with BSMC majors, PIC and ward chairs



Meeting with ward president of BSMC ward 3



View of Jitgadi fort



Discussion with local people



Government School Located at the Left Bank Upstream of Tinau River



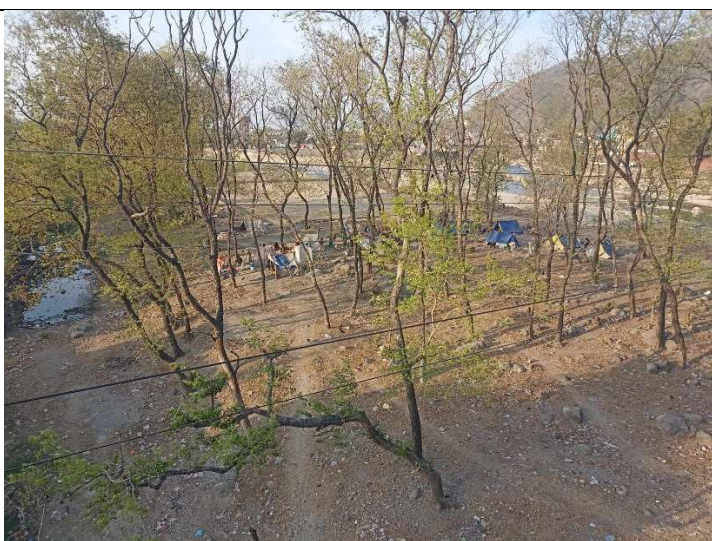
Foot Trail at the left bank downstream of Tinau River



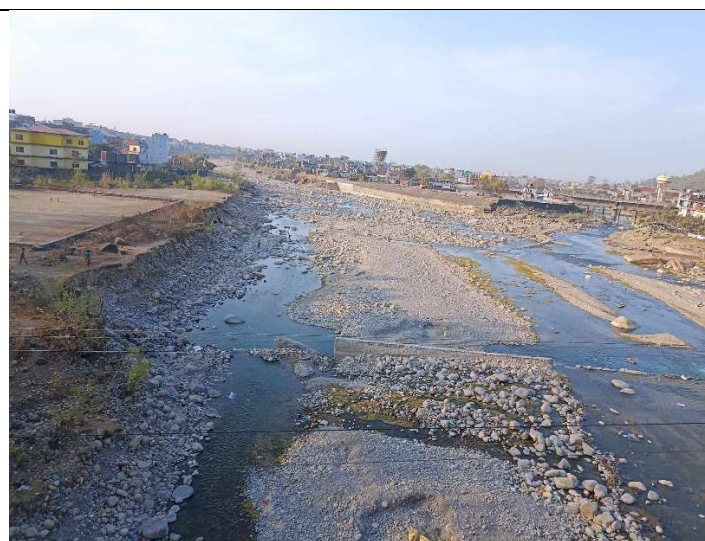
Radha Krishna temple



Mosque



Trees located at bridge site



View of Tinau River



Structures located at the Bridge Site



Well located at the Bridge Site

Annex 4-Environment and Social Screening Checklist

Environmental Screening: Checklist

<i>Description</i>	<i>Yes</i>	<i>No</i>	<i>Reasons, explanation and conformation of the answers</i>
1. Is the sub-project located in the following environmentally sensitive areas?			
A. Sensitive area/location (National Park, Buffer zone, Biosphere Reserve, Wildlife/Bird Sanctuary, Reserved/Protected Forest, wetlands)		No	No any protected areas, buffer zone or wetlands are located within 1 km vicinity of Tinau Bridge
B. Other category of Forest			
i. <i>National forest (left bank/right bank approach)</i>	Yes		Some tree species are located at the left and right bank (flood plain of Tinau river)
ii. <i>Community forest (left bank/right bank approach)</i>		No	
iii. <i>Private forest (left bank/right bank approaches)</i>		No	
iv. Whether the work requires clearing the forest area? If yes, area of clearance, and type of forest/trees and number of trees/poles to be removed.	Yes		The construction of bridge requires the clearance of some tree species which is located in the flood plain of Tinau River
v. Will the subproject features, components and/or subproject operation/ activities likely to have an impact or changes or degradation on forest areas or other existing natural habitats (Modified Habitat/ Natural Habitat/ Critical Habitat) including on wildlife movement routes/ corridor.		No	The work undergoes within the RoW of Bridge so only the trees located at the Bank/flood plain of the river need to be felled down.
vi. Will the subproject impact on Biodiversity? Does the subproject have the potential to generate impact on threatened and/or endangered and/ or migratory species and their habitats? Is the site located within the area of rare, endemic endangered flora and fauna? Whether the subproject, its component and activity site is located within or adjacent to or close to environmental and social sensitive areas (protected area, buffer zone, forest, wildlife corridor/ movement route, wetlands, cultural heritage site, habitat of important species or area not-designated yet as legally protected area but known to have high environmental value or other sensitive area?	Yes		Minor impacts on the aquatic habitat, impact on fishes and other aquatic organisms during pre-construction and construction period.
C. Rivers/Streams			
i. <i>Seasonal</i>			

Description	Yes	No	Reasons, explanation and conformation of the answers
ii. Perennial (aquatic species availability)	Yes		Fish, snake
iii. Is there risk/Impact on waterways due to subproject? Changes in the flood plain? Impact on wetlands?	Yes		There might be possible risk of floods of bank cutting in the rainy season during the construction because of water diversion
iv. Will the activity have any impact on sub-surface water channels? Does it block the flow path, or will the activity have significant disturbances in the sub-surface water level? Such as Chances of any changes to springs, waterways, stream due to the subproject? Etc.	Yes		Less possibility to have impact on the sub-surface water channels
v. Will subproject affect natural drainage system? Will it create or worsen waterlogging, inundation?	Yes		May cause minor disturbance during monsoon season during construction and may have some disturbance if water will not channelize during construction
vi. Will the subproject lead to riverbed rise or lowering/ scouring? Or the subproject likely to be affected by the rise or lowering of riverbed? (E.g. from quarrying or borrowing in the river flood plain?)		No	Water level can rise in the monsoon season during construction but have less chance for impact to sub-project
vii. Will the subproject contribute to riverbank cutting/ erosion? Or subproject likely to be affected by the riverbank cutting / erosion?	Yes		Heavy rainfall might cause riverbank cutting/erosion due to flooding and the sub-project is likely to be affected.
D. Fish and Aquatic Fauna			
I. Are there important aquatic life / fishes in the river/ stream? Do the fish move upstream/ downstream (in which season/ months)? Are these likely to be affected?	Yes		Some species of Fish (snow trout (Schizothorax plagiostomus), catfishes (Glyptothorax gracilis), stone loaches(Schistura rupecula), sucker heads) available in the river and can have impact during construction. Fish movement can be happen during monsoon and winter as well
E. Are there chances of air, water & noise pollution, and vibration? What may be affected by these? What are the impacts on environmentally sensitive areas?	Yes		During construction
2.Is the proposed site located in a landslide/ erosion prone area		No	Not in the vicinity but an old landslide is located more than 1 km western side of bridge along E-W highway
3. Is the location susceptible/Vulnerable to river bank cutting due to flood			
i. Left bank (upstream(u/s) /downstream(d/s))		No	Occasionally
ii.Right bank (upstream(u/s)/downstream(d/s))	Yes	No	Occasionally

Description	Yes	No	Reasons, explanation and conformation of the answers
4. Impact on forest area and water way due to diversion works			
<i>i. Water way</i>	Yes		There may be possible impacts on fish species of river
<i>ii. Forest area(upstream(u/s)/downstream(d/s))</i>		No	
<i>iii. Possibility of diversion or if not what are the option available for diversion</i>		No	In in dry seasons temporary diversion may require during construction
5. Public Water Supply Areas from Rivers/Surface Water Bodies/Ground Water Sources			
6. Deterioration of surface water quality due to silt runoff and sanitary wastes from work-based camps and chemicals used in construction?	Yes		Chances of likely impacts during construction
6. Will the construction or operation of the subproject use non-living natural resources, or raw materials, especially any resources which are non-renewable or in short supply (sand/aggregates/stones/riverbed materials that originate from areas where there is risk of sourcing from local riverbank)?	Yes		The sourcing of the construction materials like sand/gravels etc. will be done from the licensed site with permission from the local government body
7. Possible camp site/stockpiling location available within proposed bridge location away from forest area, water sources, agricultural land		No	the stockpiling location is not available in the flood plain or adjoining to bridge. The suitable location needs to be identified
<i>i. Left bank (upstream(u/s)/downstream(d/s)) (coordinate if applicable)</i>		No	
<i>ii. Right bank (upstream(u/s)/downstream(d/s)) (coordinate if applicable)</i>		No	
8. Wild life movement			
<i>i. Is the project location or area is habitat for wild animals.</i>		No	Not in the direct vicinity but community forest areas area located at the north western side of the river
9. Are there chances of air, water & noise pollution, and vibration? What may be affected by these?	Yes		Chances of likely impact during construction. Local people and project personnel can be affected.
10. Is there possibility of generating solid or liquid wastes, including hazardous wastes? (Admixtures, chemicals mixed spillage etc.).	Yes		Waste generation and management plan will be prepared separately and mitigation hierarchy will be applied
11. Will the activity have impacts on the quality of surface water? Will water become unfit for existing or planned usage? Etc.	Yes		River and pond water is not being used for the drinking purpose. Associated water pipe lines need to be relocated before construction

Social Screening: Checklist

Description	Yes	No	Reasons, explanation and conformation of the answers
A. Socio-economic Environment			
1. Does the sub-project activity require acquisition of land?		×	Not require because the sub- project will be confine within the RoW. The existing RoW of Tinau Bridge area is 30 m. (15m. either side) and up to 300m. from the bridge edge East and West
If YES Give the following details:			
a. Private Land (sq. m. /Ha.)		NA	This sub-project does not require any land acquisition
b. Govt. Land (sq. m. /Ha.)			
c. Forest Land (sq. m. /Ha.)			
d. Other Land (sq. m. /Ha.)			
1.1 Will the subproject require the involuntary acquisition of new land (will the government use eminent domain powers to acquire the land)?		×	No not at all
1.2 Is private land require for the subproject activity being voluntarily donated to the project?		×	No not at all
1.3 Are there any associated facilities needed for the subproject (such as access roads or bridge approach) that will require the involuntary acquisition of new land?		×	No not at all
2. Does the proposed sub-project activity result in demolition/removal of existing structures?	√		Yes, some private structures needs to be demolished partially. Most of the structures are residential purpose
If YES Give the following details:			
a. Number of public structures/buildings:		X	No public structures
b. Number of common property resources (such as religious/cultural/drinking water/wells/Utilities etc.):	√		1 well using 10 Muslim families at left bank of Tinau bridge The religious structures using in their Roza Some electric poles need to relocate both Right and left Bank of Tinau Bridge One Chautari need to relocate at the right bank of Tinau
c. Number of private structures (located on private or public land):	√		Approximately, 20 private structures are located in Right and left bank of Tinau Bridge adjoining to RoW.
3. Does the proposed project activity result in loss of crops/trees?		×	No not at all

<i>Description</i>	<i>Yes</i>	<i>No</i>	<i>Reasons, explanation and conformation of the answers</i>
4. Will the subproject lead to economic displacement (such as loss of assets or livelihoods, or access to resources due to land acquisition or access restrictions)?	√		But not due to land acquisition, Some fruits and vegetable vendors are surrounding the bridge area, they may lose their livelihood for short term.
5. Does the proposed activity result in loss of community forest/pastures on which nearby residents/local population are dependent?		×	No not at all
If yes, give the details of the extent of area to be lost (in acres/Ha.)		NA	
6. Does the proposed site location/area lies in densely/settlement area i. Estimate the HHs/Population/HHs with Caste and Ethnic Distribution.	√		Yes, It is densely populated area; both old Batauli and Khasuli Bazar now called Butwal. The estimated population is 15, 6576 (BSMC profile 2020).
7. Will the subproject lead to temporary or permanent physical displacement (including people without legal claims to land)? Will any disadvantaged and vulnerable people be displaced?	√		Yes, some Muslim minorities and indigenous will be temporarily and permanently displaced by this sub-project. Actually, GoN had paid compensation for 110 feet (52.5 feet either side) during the period of Tinau Bridge construction time. Therefore, there will be no legal claims for land.
8. Does the activity result disproportionate impacts on the poor, women and children, indigenous people or other vulnerable groups	√		Yes, some poor households and indigenous households may lose their structures and livelihoods.
9. Will the activity have serious negative social impact? Are these impacts sensitive, diverse or unprecedented?		×	No there is not any unprecedented impact will be occurred but some adverse social impacts will be there
10. Possibility of Social conflicts if workers from other regions or countries are hired.	√		Yes, there may be labor influx issues.
11. Is there any presence of squatters, tenants, encroacher who may be affected due to interventions?	√		Yes, there are some encroacher and occupants. They may lose their structures and livelihoods due to this project intervention.
12. Whether the activity affects ethnic minority/vulnerable communities and indigenous population?	√		Yes, but only at households level. Due to project activities, some ethnic minority/vulnerable communities and indigenous population may be affected at household level. They may lose their structures and livelihoods but not at community level
13. Are there any groups of indigenous people present/ residing in and around the project area?	√		Yes, some households but not in groups or community..

Description	Yes	No	Reasons, explanation and conformation of the answers
i. Estimate the HHs/Population			
14. Will the project intervention have adverse impacts on land and natural resources that are under customary use or occupation of IPs?		×	No not at all
15. Will the project intervention cause relocation of indigenous peoples from land and natural resources under traditional/customary use or occupation?		×	No not at all
16. Will the project intervention have significant impacts on indigenous people's tangible and intangible cultural heritage?		×	No not at all
17. Is there possibility of potential disruption to common property, traffic system etc. due to the activity?		×	No not at all
18. Are the local communities/households prohibited from using their daily economic resources during/after the implementation of project activities (such as fishing sites, farming forests etc.)?		×	No not at all
19. Will the activities affect other communities who rely (or might become dependent) on the same resources that the proposed activity will be using?		×	No not at all
20. Is there a potential for employment of community workers, vulnerable individuals or groups, such as women, people with disabilities, migrant workers?	√		Yes, some people are running their business nearby bridges
21. Will the activities result in loss or impacts on Cultural/heritage properties?		×	No, but we have to protect 4 cultural heritage properties like Radha Krishna Temple, Masque, Jitgadhi fort as demanded by local people and local authority
22. Any risk of impact on public property (e.g. irrigation canals / structures, water supply, access road, foot trail, telephone / electric pole etc.)	√		Yes, drinking water pipeline, foot trail to village, electric transformer, telephone line and pole in both side
23. Are the local people aware of the proposed activity?	√		Yes, they are aware about the projects.

Description	Yes	No	Reasons, explanation and conformation of the answers
24. Are the local peoples willing to work for implementation of the activity?	√		Yes, some people are showing their interest to work during consultation.
25. Are skilled and unskilled labor available for construction works?	√		Yes, both type of workers is there
26. Is there a risk that women may be underpaid for similar works when compared to men when working on the project construction?	√		Possibility at local level but it should be assured for underpaid to women through labor management plan
27. Does the subproject involve uses of goods and equipment involving forced labor, child labor, or other harmful or exploitative forms of labor?		X	No labor management plan will guide all these things
28. Will implementation of this project risk the spread of communicable diseases such as STDs and HIV/AIDS due to increased labor force?	√		Yes, there may be chance, because labor influx related issues may arise during construction time. Due to migrant workers, possibility is in higher side
29. Is there a risk that SEA/SH may increase as a result of project works?	√		Yes, may be, though the CSEAH risk is moderate level.
30. Is an influx of workers, from outside the community, expected? Would workers be expected to use health services of the community? Would they create pressures on existing community services (water, electricity, health, recreation, others?)	√		Yes. Due to migrant workers, possibility is in higher side
31. Would any public facilities, such as schools, health clinic, temple, mosque, Stupa (dome shaped shrine), shrine, Choutara (Resting Place), church be negatively affected by the construction?		×	No but indirect impact like dust nuisance, disturb in access and mobility, noise pollution will be there
32. Will the subproject require the government to retain workers to provide security to safeguard the subproject?		×	No
33. Does the project lead to any risks and impacts on, individuals or groups who, because of their	√		Yes, It is expected impact is in individual level, not in group level

<i>Description</i>	<i>Yes</i>	<i>No</i>	<i>Reasons, explanation and conformation of the answers</i>
particular circumstances, may be disadvantaged or vulnerable ⁹			
B. Impact on cultural/ Religious/ Cremation/Graveyard and Heritage sites			
1. Archaeological monuments/ Historic Places, Religious Places (regionally or locally important)	√		Right bank Jitgadhi fort
1.1 Temple /shrine at Left bank (upstream(u/s) /downstream(d/s))	√		Left bank Radha Krishna temple
1.2 Cremation/Graveyard at Left bank (upstream(u/s) /downstream(d/s) sites		X	Not at all
Temple/Shrine at Right bank (upstream(u/s)/downstream(d/s) (coordinate if applicable	√		Right bank Masque
Cremation/Graveyard Right bank (upstream(u/s)/downstream(d/s) (coordinate if applicable		X	Not at all

⁹ “Disadvantaged or vulnerable” refers to those individuals or groups who, by virtue of, for example, their age, gender, ethnicity, religion, physical, mental or other disability, social, civic or health status, sexual orientation, gender identity, economic disadvantages or ethnic peoples status, and/or dependence on unique natural resources, may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project’s benefits.