Initial Environmental Examination (IEE) Study of

Pathari Sanishchare Municipality Slaughterhouse

Pathari Sanishchare Municipality-8, Morang

Submitted To:

Pathari Sanishchare Municipality
Office of the Municipal Executive
Province No. 1, Pathari, Morang

Submitted By:

Great Himalayan Research and Consult Pvt. Ltd.
Buddhanagar-10, Kathmandu
Province No. 3, Nepal

June, 2020

EXECUTIVE SUMMARY (NEPALI)

१. प्रस्तावको नाम, प्रस्तावक र प्रतिवेदन तयार पार्ने संस्था

यस प्रस्तावको नाम पथरी शनिश्चरे नगरपालिकाको बधस्थलको प्रारम्भिक वातावरणीय परिक्षण अध्ययन प्रतिवेदन तयार गर्नु रहेको छ ।

१.१ प्रस्तावकको विस्तृत ठेगाना

पथरी शनिश्चरे नगरपालिका

नगर कार्यपालिकाको कार्यालय

प्रदेश नं. १, मोरङ्ग ,नेपाल

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फोन नं. ०२१-५५६११३

१.२ प्रतिवेदन तयार पार्ने परामर्शदाता संस्था

प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन अध्ययन तथा प्रतिवेदन तयार गर्ने संस्था इन्जिनियरीङ परामर्शदाता संस्था रहेको छ र सो को विस्तृत जानकारी तल उल्लेख गरिएको छ ।

Great Himalayan Research and Consult Pvt. Ltd.

बुद्धनगर १०, काठमान्डौ महानगरपालिका

फोन नं. ९८५१२०३४५३

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२. अध्ययन गर्नुको औचित्य

पथरी शनिश्चरे नगरपालिकाले वातावरण तथा प्राकृतिक स्रोत संरक्षण ऐन, २०७६ तथा तत् अनुसारको वातावरण संरक्षण नियमावली, २०७७ अनुसार बधस्थल निर्माण तथा सन्चालन पुर्व प्रारम्भिक वातावरणीय परिक्षण गर्नु पर्ने कानुनी प्रावधान रहेको छ ।

वातावरण संरक्षण नियमावली, २०७७ को अनुसूची—२ (नियम ३ को उपनयिम (१) संग सम्वन्धित) को

ओ) कृषि क्षेत्र अन्तर्गत

२. निर्माण सम्वन्धि देहायका काम गर्ने

ङ) वधशाला निर्माण गर्न प्रारम्भिक वातावरणीय परिक्षण आवश्यक रहन्छ ।

३. प्रस्तावको विवरण

प्रस्तावित बधस्थल सुधार तथा निर्माण कार्य हाल सन्चालनमा रहेको बधस्थल रहेको स्थलमा गरिनेछ । यो वडा नं १, पशुहाटमा रहेको छ। यसको जिपीएस 87°33'25.004" E, 26°39'33.549" N रहेको छ । यस बधशालाबाट कुखुरा, खसी, राँगा, र बँगुर आदीको स्वस्थकर मासु उत्पादन हुनेछ । यस बधस्थल निर्माण तथा सुधार कार्यको लागत रु. ७५,१४,४५१.०० रहेको छ ।

४. आयोजनाको वातावरण सम्बन्धी जानकारी

प्रारम्भिक वातावरणीय परिक्षण प्रतिवेदनको लागि प्रारम्भिक भौतिक, जैविक, सामाजिक तथा आर्थिक वातावरण सम्बन्धि जानकारीहरु अति महत्वपूर्ण छन् । यी जानकारीहरुले वातावरणीय अनुगमन तथा परिक्षण प्रभाव न्यूनिकरणको उपयोगिताको बारेमा जानकारी दिन मद्दत पुर्याउछ ।

क. भौतिक वातावरण

यस परियोजना तराई क्षेत्रमा पर्दछ । यो क्षेत्र समुन्द्री सतहबाट ११२ मिटर माथि रहेको छ । यस क्षेत्रको औषत तापकम २४.५ डिग्री सेल्सीयस रहेको छ भने वर्षा २१०० मिलिलिटर प्रति वर्ष रहेको छ ।

दीशा	हालको भू उपयोग
पूर्व	बस्ती, नगरपालिका कार्यालय, २०० मि
पश्चिम	पथरी खोला, श्रीजंगा धार्मिक बन
उत्तर	बस्ती, पूर्व पश्चिम रागमार्ग, २०० मि
दक्षिण	सुनाखरी माछा पोखरी, सुनाखरी बिद्यालय

ख.जैविक वातावरण

उक्त परियोजनाको क्षेत्र वरीपरी कदम, सिसौ, लिच्ची, टिक लगायतका रुखहरु पाइन्छन् । त्यस्तै ढुकुर, परेवा, भगेंरा, काग जस्ता चराचुरुङ्गी पाइन्छन् । आयोजना स्तल नजिकको खोलामा भ्यागुता पाइन्छ ।

ग.सामाजिक, आर्थिक र साँस्कृतिक वातावरण

यस मोरङ्ग जिल्लाको पथरी शनिश्चरे नगरपालिका वडा नं. ८ को जनसंख्या ९,८६८, मा पर्दछ जसको कुल जनसंख्या ६११५ रहेको छ भने नगरपालिका कुल जनसंख्या ४९,८०८ रहेको छ (केन्द्रिय तथ्याङ्क विभाग, २०११)। यस क्षेत्रमा धान, मकै, गहुँ उत्पादन गरिन्छ साथै गाई, बाख्रा, भैँसीपालन पनि गरिन्छ ।

५. वातावरणीय प्रभावको पहिचान, मुल्याङ्कन

राष्ट्रिय वातावरणीय प्रभाव मुल्याङ्कन, १९९३ को निर्देशन बमोजिम प्रारम्भिक वातावारणीय परिक्षण अध्ययन गरिएको छ । जसअनुसार वातावरणीय प्रभावको आकार, क्षेत्र र समय अवधिको ध्यान दिई अध्ययन गरिएको छ । वातावरणीय प्रभाव ३ वर्षसम्म रहनेलाई छोटो अवधिको प्रभाव, २० वर्षसम्म रहने प्रभावलाई मध्ययम स्तरीय प्रभाव र २० वर्ष भन्दा माथि रहने प्रभावलाई लामो प्रभाव भनि वर्गिकरण गरिएको छ । प्रत्येक पहिचान भएका वातावारणीय प्रभावहरुका लागि निराकरणका उपायहरु प्रस्ताव गरिएको छ ।

५.१ सकारात्मक प्रभावहरु

यो बधस्थलको निर्माण तथा संचालनबाट स्थानीय क्षेत्र र समाजमा निम्नअनुसारका सकारात्मक प्रभावहरु ल्याउन सक्ने देखिन्छ ।

- स्थानीय स्तरमा रोजगारीको अवसर सृजना तथा स्थानीय कामदार र प्राविधिकहरुको क्षमतामा बृद्धि हुनेछ ।
- व्यापारका अवसरहरुको सिर्जाना तथा स्वस्थकर मासु बेचविखन हुन सक्नेछ ।
- सम्भावित माहामारी नियन्त्रण हुन सक्छ।
- पशुपालनमा प्रोत्साहन हुनेछ ।

५.२ प्रतिकूल प्रभावहरु

क) भौतिक तथा रसायनिक वातावरण

निर्माण चरण

- मानव स्वास्थ्यमा असर गर्न सक्नेछ ।
- आयोजनाको निर्माणको कारणले माटो तथा भुबनोट परिवर्तन हुने ।

- निर्माण कार्य गर्दा निस्किएको फोहोरले पानीको गुणस्तरमा असर गर्ने ।
- धुँवा धुलोले हावाको गुणस्तरमा असर गर्न सक्ने ।
- निर्माणजन्य फोहोर तथा कामदारको फोहोरले समस्या हुन सक्ने ।

सञ्चालन चरण

- जनावरको ओसारपसार ।
- जावरको खानपीनको समस्या ।
- पशुजन्य फोहोर (मल मुत्र, रगत, हड्डी, खुर) व्यवस्थापनको समस्या हुन सक्ने ।
- दुर्गन्ध, झिगां, किरा तथा फट्याँग्रा बृद्दि हुन सक्ने ।
- सम्भावित माहामारी पनि हुन सक्छ।

ख) जैविक वातावरण

निर्माण चरण

- आयोजना स्थलका ससाना बोट विरुवा नास हुन सक्ने ।

सञ्चालन चरण

- आयोजना सञ्चालनको क्रममा चराचुरुङ्गी तथा जनावरमा माहामारी हुन सक्ने ।

ग) सामाजिक, आर्थिक तथा साँस्कृतिक वातावरण

निर्माण चरण

- भुबनोट परिवर्तन हुने ।
- निर्माणका कामदारहरुलाई दुर्घटनाबाट चोटपटक लाग्न सक्छ, स्वास्थ्य तथा सरसफाइका समस्या बढ्न सक्ने ।
- कामदारको ज्यालासँग सम्वन्धित समस्या आउन सक्ने ।

सञ्चालन चरण

- व्यवसायिक स्वास्थ्य सुरक्षाको समस्या आउन सक्ने ।
- गाडीको भिडकाड बढ्न सक्छ।
- मासु पसल व्यवसेथमपनको समस्या ।
- मासुजन्य रोग फैलिन सक्छ ।

६. प्रभाव निराकरणका र बढोत्तरीका उपायहरु

यस आयोजनाले भौतिक, जैविक र सामाजिक, आर्थिक तथा सांस्कृतिक वातावरणमा पार्ने नकारात्मक असरहरुलाई न्यूनिकरण गर्न तथा सकारात्मक असरहरुलाई बढोत्तरीका लागि निम्न उपायहरु अपनाइने छ ।

क) भौतिक तथा रसायनिक वातावरण

निर्माण चरण

- निर्माण र अन्य सामाग्रीको तोकिएको स्थानमा मात्र व्यवस्थापन गर्ने ।
- धुलो उड्न नदिनको लागि सकेसम्म छोपेर कामहरु गर्ने तथा निर्माणास्थलमा बिहान बेलुका पानी छ्याप्ने।
- निर्माणको क्रममा सुरक्षित सामाग्री जस्तै पन्जा, चस्मा तथा हेल्मेटको प्रयोग गर्ने ।

सञ्चालन चरण

- विभिन्न उपकरणको नियमित मर्मत संभार गरिनेछ ।
- भरसक टाढाबाट जनावर नकिन्ने, स्थानीयस्तरको जनावर किन्न प्रोत्साहन गर्ने ।
- आयोजना संचालनबाट उत्पन्न हुने फोहोरमैला व्यवस्थापन उचिग ढङ्गबाट गर्ने ।
- पशुजन्य अधिकाँस फोहोर (मालपुत्र, रगत) बायोग्यासको माध्यमबाट ईन्धनमा परिणत हुने र अन्य (छाला, हडि र खुर) फोहोर विक्री वितरण
- स्वास्थ्य जनावर मात्र किन्ने ।
- स्थानीय कृषि क्षेत्रमा लागेका कृषकलाई जनचेतनामुलक कार्यक्रम गर्ने ।

ख) जैविक वातावरण

निर्माण चरण

- सकेसम्म रुख बिरुवालाई असर नपुर्याइ निर्माणको काम गर्ने ।

सञ्चालन चरण

- आयोजना स्थल वरपर हरियाली प्रवर्धन गरिनेछ ।

ग) सामाजिक, आर्थिक तथा साँस्कृतिक वातावरण

निर्माण चरण

- कामको तिब्रता हेरि कामदारको माग गरिनेछ ।
- रोजगारीका लागि स्थानीय वासिन्दालाई प्राथमिकता दिइनेछ ।
- बालबालिकाको प्रयोग गरिने छैन ।

सञ्चालन चरण

- आयोजना क्षेत्र तथा समाजमा फोहोरमैला तथा स्वास्थ्यसँग सम्बन्धित सचेतना कार्याक्रम गरिनेछ ।
- बालबालिकाको प्रयोग गरिने छैन ।
- होडीङ बोर्ड तथा गाडीको गती नियन्त्रणको लागि बोर्ड राख्ने ।
- बधस्थल समयअनुकुल सरसफाई गर्ने ।

७. वातावरणीय व्यवस्थापन योजना

वातावरणीय व्यवस्थापन योजना अन्तर्गत मुख्यगरी प्रभाव न्यूनीकरण तथा अभिवृद्धि कार्यक्रम, वातावरणीय प्रभावको अनुगमनका कार्यहरु पर्दछन् । आयोजनाको संचालनको समयमा तीन प्रकारका अनुगमन कार्यान्वयन गर्न प्रस्ताव गरिएको छ ।

क) आधाररेखा अनुगमन

ख) प्रभाव अनुगमन

ग) अनुपालक अनुगमन

आयोजना निर्माणको अवस्थामा गर्नु पर्ने माथि उल्लेखित प्रत्येक अनुगमनको लागि सूचक मापन तरिका, कार्य तालिका तथा अनुगमन गर्ने निकायहरु मूल प्रतिवेदनमा समावेश गरिएको छ । प्रभाव न्यूनिकरण तथा अभिबृद्धि कार्यक्रम, आधारभूत अनुगमन, आयोजना संचालनको समयमा हुने अनुगमन र आन्तरिक परिक्षणका उपायमा लाग्ने अनुमानित रकम प्रतिवेदनमा उल्लेख गरिएको छ ।

८. निष्कर्ष

यस आयोजनाले भौतिक, जैविक तथा सामाजिक वातावरणमा न्यून प्रतिकूल प्रभाव पार्ने देखिन्छ । आयोजनाको आकार अनुसार यसबाट पर्ने प्रभावहरु न्यून प्रकृतिका छन् र आयोजनाका मुख्य वातावरणीय प्रभावहरुलाई प्रभावको स्तर हेरी निकै हदसम्म न्यूनिकरण गर्न सकिने देखिन्छ । प्रस्तावित आयोजना प्राविधिक, वातावरणीय र आर्थिक दृष्टिकोणले पनि सक्षम रहेको पाइएको छ । तसर्थ, यस आयोजनाको सिघ्र कार्यान्वयन बाट हासिल गर्न सकिने उपलब्धिको बहुआयामिक विकासका साथै यस क्षेत्रको आर्थिक समृद्धिमा सकारात्मक योगदान पुर्याउन सक्ने कुरामा पूर्णरुपमा विश्वस्त हुन सकिन्छ । वातावरण संरक्षण ऐन तथा नियमावलीबाट जारी गरिएका नियम, कानूनको कडाईका साथ पालना गरी यो प्रारम्भिक वातावरणीय परिक्षण प्रतिवेदन तयार गरिएको छ । प्रस्तुत प्रारम्भिक वातावरणीय परिक्षण प्रतिवेदनले भौतिक, जैविक, आर्थिक, सामाजिक तथा सांस्कृतिक वातावरणमा सकारात्मक र नकारात्मक प्रभाव पार्ने कुरा औल्याएको छ । नकारात्मक प्रभावहरु प्राय अल्पकालीन स्तरका पाइएको हुनाले न्यूनिकरणका उपायहरु सजिलै कम गर्न सकिन्छ । त्यसैले वातावरणीय व्यवस्थापन योजनालाई राम्रोसँग कार्यान्वयन गर्दै प्रस्तुत आयोजना कार्यान्वयन गर्न उपयुक्त देखिएको छ ।

EXECUTIVE SUMMARY

1. Name of Project, Proponent and Institution Preparing the Report

The name of the project is Initial Environmental Examination (IEE) Study of Upgrading and Construction of Pathari Sanishchare Municipality Slaughterhouse.

1.1 Name and Address of Proponent

The name and address of the proponent are as follows:

Pathari Shanishchare Municipality
Province No.1, Morang, Nepal
Email: patharishanishcharemun@gmail.com
Website: http://www.patharishanishcharemun.gov.np/
Contact: 021- 556113

1.2 Institution Preparing the Report

This Initial Environment Examination (IEE) study report is prepared by engineering consulting firm and details about the consultant has been given below:

Great Himalayan Research and Consult Pvt. Ltd.
Buddhanagar-10, Kathmandu Metropolitan City
Contact no: 9851203453
E-mail: ghrc2018@gmail.com
Website: www.ghrc2018.com

2.Rationale of Study

Pathari Sanishchare has promulgated Environment and Natural Resource Protection Act, 2076 (EPA) and Environment Protection Rule, 2077 (EPA) as guiding principle for conducting mandatory environmental assessment studies. As per the Environment Protection Regulation (EPR), 2077 Schedule-2, Agriculture Sector (2) (E), IEE is mandatory for the establishment of slaughterhouse which falls under this domain, IEE is mandatory for this proposal.

वातावरण संरक्षण नियमावली, २०७७ को अनुसूची—२ (नियम ३ को उपनयिम (१) संग सम्वन्धित) को

ओ) कृषि क्षेत्र अन्तर्गत

२. निर्माण सम्वन्धि देहायका काम गर्ने

ङ) वधशाला निर्माण गर्न प्रारम्भिक वातावरणीय परिक्षण आवश्यक रहन्छ ।

3. Project Description

Proposed Upgrading and Construction of Slaughterhouse is proposed to be established on land owned by municipality itself and currently some meat shops and sheds are established and run by local shopkeepers. The GPS location is 87°33'25.004" E, 26°39'33.549" N. It lies in ward no. 1 of municipality, Pashuhaat. The slaughter house will produce hygienic meat of chicken, goat, pig and buffalo as per the demand. The total cost of the project is Rs. 75,14,451.00

4. Existing Environmental Condition of the Project

The information about the existing Physical, Biological, Socio-Economic and Cultural Environment of the project are very important and it helps in environmental monitoring and impact monitoring.

a) Physical Environment

The proposed project area lies in Terai zone. The altitude of the project location is 112 m amsl. The average temperature of the project area is 24.5° C and the area receives average rainfall of 2100 mm per year.

Directions	Current Land Use
East	Settlement, Municipality office, 200 m
West	Pathari Khola, Shrinjunga Religious Forest
North	Settlement, East-West Highway, 200 m
South	Sunakhari Machha Pokhari and Sunakhari School

b) Biological Environment

Kadam (*Neoloamarckia cadama*), Sisoo (*Dalbergia sissoo*), Litchi (*Litchi chinensis*), Teak (*Tectona grandis*) are some of plant species found nearby the project location. Dove (*Streptopelia species)*, Rock pigeon (*Columba livia*), House sparrow (*Passer domesticus*), Crow (*Corvus splendens*) are the common birds found in the project area. Common frog (*Rana temporaria*) is commonly found amphibian in nearby river.

c) Socio -economic and Cultural Environment

The total population of Pathari Shanishchre Municipality is 49,808, where 9,868 in Ward No. 1 according to the National Population and Housing Census 2011. The main crops cultivated in the region are rice, wheat, potato and maize. People also raise cattle; buffalo, cow, goat, fish and chicken were mainly raised by people of this area.

5. Identification of Impacts

The IEE study has been conducted as per the National EIA Guidelines, 1993. The impact of the project has been identified and categorized on the basis of their nature, extent and duration. The effects which impact the environment for 3 years have been classified as short-term impact while those which have impact for 20 years have been classified as mid-term impact. Impacts which last more than 20 years have been classified as long-term impacts. Mitigation measures have been proposed for each of the identified environmental impact.

5.1 Beneficial Impacts

The beneficial impacts during construction and operation phase of the project are given below:

- Employment opportunity and skill enhancement
- Supply of hygienic meat
- Control of possible disease outbreak
- Promote livestock farming

5.2 Adverse Impacts

A) Physical and Chemical Environment

Construction Phase

- Impact on human health
- Degradation of soil and change in land use
- Water pollution
- Air and noise pollution
- Construction waste and construction workers waste disposal

Operation Phase

- Transport of livestock
- Animal feed management
- Slaughter waste
- Carcass and dead animal management
- Flies/insect/rodent management
- Sanitation and foul odor management
- Surface water pollution
- Foot-Mouth Disease
- Zoonotic Disease Transmission
- Disease outbreak problem
- Air and noise pollution

B) Biological Environment

Construction Phase

- Impact on flora and fauna

Operation Phase

- Possibility of disease outbreak in birds and wild animals

C) Socio-economic and Cultural Environment

Construction Phase

- Change in land use
- Occupational hazard and safety
- Child labour

Operation Phase

- Traffic congestion.
- Waste and odour
- Cultural issue
- Meat shop management
- Disease transmission

6. Impact Enhancement and Mitigation Measures

The project will have both beneficial as well as adverse impacts on physical, biological and socio-economic and cultural environment. The enhancement measures will boost beneficial impacts whereas mitigation measure will minimize the adverse impacts as follows;

A) Physical and Chemical Environment

Construction Phase

- All necessary gears and protective devices like gloves, boots, goggles and helmets will be provided to workers
- Manage open space for infiltration
- Make waste collection yard and organic pit on the construction site

Operation Phase

- Purchase livestock and avoid long distance purchase if possible
- 3R principle will be followed to manage solid waste generated
- Provide separate feeding compartment for different group of animals

- Waste like animal waste, intestinal waste, blood and urine is send to biogas plant resulting in biogas and fertilizer
- Purchase animal with health certificate or quarantine certificate
- Awareness program on livestock disease among local farmers, community members.

B) Biological environment

Construction phase

- Avoid harming of trees and vegetation as far as possible.

Operation Phase

- Plantation/greenery will be developed within project location.
- Safe disposal of carcass on disposal site
- Avoid contact between wild species and slaughter animals through proper fencing

C) Socio-economic and Cultural Environment

Construction Phase

- Priority will be given to the local people for employment.
- Child labour will be strictly prohibited during construction activities.
- Health and accidental insurance policy of workers.

Operation Phase

- Health and sanitation awareness campaigns will be organised for the workforce as well as the community people.
- Child labour will be strictly prohibited during operation of slaughterhouse.
- Install sign boards and speed limit
- Routine cleaning and disinfection of slaughterhouse

7. Environmental Management Plan

Under Environment Management Plan (EMP), impact mitigation and enhancement measures, environmental impact monitoring and examination are various management plans required for the project. In project operation phase, three types of monitoring are proposed.

a) Baseline Monitoring
b) Impact Monitoring
c) Compliance Monitoring

In the operation phase of project, identification of indicators, indicators evaluation procedures, time schedule and environmental management structure are included in the report for each monitoring. The cost for impact minimization and enhancement measures, baseline monitoring, monitoring in the time of construction and internal examination is included in the report.

8. Conclusion

The project does not seem to affect physical, biological and social environment in highest scale. Majority predicted impacts are significant and most of the impacts can be easily mitigated to acceptable limit. The project is highly feasible from the technical, environmental and economic point of view. Hence, prompt implementation of the project will contribute in multidisciplinary development and economic prosperity of the area.

This IEE report has been prepared strictly to comply EPA, EPR, laws, policies, guidelines and regulations. Similarly, the report has also identified various positive and negative impacts of

the project implementation on physical, biological and socio-economic and cultural environment at the project area. Those long term but can be minimized or mitigated through various mitigation measures as prescribed in the report. Hence, the project should be allowed to be implemented following the environmental management plan described in the report to gain its profit.

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ABBREVIATIONS

Amsl	Above Mean Sea Level
CBS	Central Bureau of Statistic
dB	Decibel
EHS	Environmental, Health and Safety Guidelines
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environment Protection Act
EPR	Environment Protection Rule
GoN	Government of Nepal
IEE	Initial Environmental Examination
kW	kilowatt
kWhr	kilowatt hour
LPG	Liquefied Petroleum Gas
m^2	square meter
m^3	cubic meter
masl	meters above sea level
MoITFE	Ministry of Industry, Tourism, Forest and Environment
MoLMAC	Ministry of Land Management, Agriculture and Cooperatives
NEA	Nepal Electricity Authority
NRs	Nepalese Rupees
pH	Hydrogen Ion Concentration
PPE	Personal Protective Equipments
SMF	Social Management Framework
ToR	Terms of Reference

1. NAME AND ADDRESS OF THE PROPONENT AND INSTITUTION PREPARING THE REPORT

1.1 Name of the Proposal

The name of the proposal is **"*Upgrading and Construction of Slaughterhouse in Pathari-Shanishchare Municipality, Morang*"** in Province No. 1, Nepal. It lies in Ward No. 1, Pashuhaat, Bange Bazar.

1.2 Name of Proponent

The name and address of the proponent are as follows:

Pathari Shanishchare Municipality
Morang, Nepal
Email: patharishanishcharemun@gmail.com
Website: http://www.patharishanishcharemun.gov.np/
Contact: 021- 556113

1.3 Name and Address of Institution Preparing IEE Study

The proponent is responsible for carrying out the IEE study of the proposal. The ToR and IEE for this proposal have been prepared for the project proponent by the following engineering consultancy firm:

Great Himalayan Research and Consult Pvt. Ltd.
Buddhanagar-10, Kathmandu
E-mail: ghrc18@gmail.com
Website: www.ghrc2018.com

1.4 Team for IEE Study

The Table 1 shows the experts who were involved in preparation of this IEE study.

Table 1: List of Experts involved for IEE Study

S. No.	Name	Responsibility	Qualification
1	Er. Subash Dhakal	Team Leader/ Environmental Specialist	Masters in Environment Science
2	Er. Ashish Koyu Rai	Water and Waste management Expert	Bachelor in Environmental Engineering
3	Er. Santosh Kattel	Civil Engineer	Bachelor in Civil Engineering
4	Mr. Binod Chandra Acharya	Sociologist	M.A. in Sociology
6	Rakshya Pathak	Environmentalist	Masters in Environmental Science
7	Nir Singh Rai	Biologist	MSc. in Botany
8	Dr. Amir Sadaula	Livestock Expert	Masters in veterinary science

2. SUMMARY OF THE PROPOSAL

2.1 Introduction

The name of the study is **"Initial Environmental Examination (IEE) Study of Construction of Slaughterhouse in Pathari Sanishchare Municipality."**. The proposed slaughterhouse site lies in Pashuhaat, Bange Bazar, Ward No. 1 of Pathari Shanishchre Municipality, Morang District. Currently, this land is owned by municipality and some sheds are run by local people where manual slaughtering is being practiced. In order to upgrade and maintain hygiene in animal slaughtering, construction of slaughterhouse is proposed and IEE Study report is mandatory.

2.2 Objectives of the Project

The objective of the proposed project are as follows:

- To produce and supply hygienic meat.
- To promote animal husbandry at local level.
- To set example by developing hygienic slaughter house.

2.3 Relevancy of the Proposal

With the high meat consumption pattern of the town's dwellers, has created the highest demand for livestock products mainly meat. To satisfy this demand, large number of livestock is being slaughtered haphazardly and unhygienic. Unmanaged and littering of animal slaughtered waste may create major environmental impacts including flu outbreak and unhealthy environment. With this regard, Pathari Shanishchre Municipality has proposed to upgrade and construct a slaughterhouse so as to assure the supply of safe meat to the public. Anticipating the issue, the implementation of the project requires due consideration on design, operation module and schedule, technology and other associated activities to reduce adverse and augmentation of beneficial environmental impacts. Also, the project will provide safe and hygienic meat to the costumers meanwhile it is liable in controlling the disease (bird flu and swine flu) outbreak in that particular area.

2.4 Rationality of IEE

Pathari Sanishchare has promulgated Environment and Natural Resource Protection Act, 2076 (EPA) and Environment Protection Rule, 2077 (EPA) as guiding principle for conducting mandatory environmental assessment studies. As per the Environment Protection Regulation (EPR), 2077 Schedule-2, Agriculture Sector (2) (E), IEE is mandatory for the establishment of slaughterhouse which falls under this domain, IEE is mandatory for this proposal.

वातावरण संरक्षण नियमावली, २०७७ को अनुसूची–२ (नियम ३ को उपनियिम (१) संग सम्वन्धित) को
(ओ) कृषि क्षेत्र अन्तर्गत
२. निर्माण सम्वन्धि देहायका काम गर्ने
(ङ) वधशाला निर्माण गर्न प्रारम्भिक वातावरणीय परिक्षण आवश्यक रहन्छ ।

2.5 Objectives of IEE

The objectives of the IEE study are as follows:

- To collect baseline information of existing physical, biological, socio-economic and cultural environment of the proposal affected area.
- To identify, evaluate and classify the impacts.
- To develop mitigation measures to avoid/reduce/mitigate adverse impacts due to implementation of the Proposal.
- To develop enhancement measures to enhance the beneficial impacts due to implementation of the Proposal.
- To formulate Environmental Management Plan (EMP).
- To assess the level of environmental assessment required.

2.6 Adverse Impact on Environment, Impact on Human Life, and Population Pressure

The predicted environmental and social impacts will be of both beneficial and adverse during the construction and operation phase. Impacts are limited to occupational and health safety issues, major animal waste management issue and impacts on nearby river.

The adverse impacts during the construction and operation phase are generation of waste. However, minor emission is predicted due to the dust particles generated during the operation which have an adverse effect on environment and human health.

Regarding impact on human life and wellbeing, the major impacts are health and sanitation issue in and around the slaughterhouse location and occupational health risks. In addition, disaster related risks like earthquake and fire hazards could pose threats to life and damage of properties if occurred. The project is located nearby human settlement and river; hence additional population pressure is expected.

3. DESCRIPTION OF THE PROPOSAL

3.1 Background

The government approach to uplift the living standard of people through development of agricultural sector that shows significant impact on economic activity and nutrition supply. The consumption of per capita meat product has been increasing steadily in recent years. Meat product has been a major source of protein in Nepalese diet. Supply of clean and healthy meat products along with establishment of value chain among farmers and market has been a major concern among the stakeholders. The rapid increase in meat production and demand in both local and commercial market has made large population highly vulnerable to endemic as well as vector borne diseases due to poor management and processing practice.

A slaughter house is a facility where animals are killed and processed into meat products. It acts as a starting point of the meat supply chain, where stock comes from farms to enter the food chain. Generally, the slaughter activity in Nepal is being practiced on conventional way. The importance of modern facilities to develop safe slaughter spot is being observed from national to local level. Also, the management of a slaughter house is an essential feature for the civic management system of a city. Improper management of slaughter house is not only an environmental health hazard but also affects the aesthetics of a city. In an urban area where municipal waste management system is not fully or properly functional, the region is highly susceptible for health-related hazards. Daily hundreds of birds and animals are slaughter and processed through a conventional practice in varied regions of the Municipality. The fresh houses are being managed by the owner themselves, suffer from a number of environmental problems, in addition to operational and financial problems. In order to improve the deteriorating environmental conditions of the city, Pathari Sanishchare has proposed construction of slaughter house and IEE preparation for the project implementation. It is compulsion that the proponent will address the physical, biological and social issues and implies the mitigation measures during construction and operation phase of the slaughter house. Acknowledging the current issue, Pathari Sanishchare has proposed for establishment of modern slaughter house. The facility will only slaughter legally permit able animals ensuring clean and healthy meat products with good environmental practice. The proposed slaughter house will comprise all the facility for the hygienic processing of meat, such as office building, quarantine yard, feeding room, cutting room, hanging room, freezer room, toilet bathroom, office and lab room and selling room. Also, the slaughter house will be obliged with statutory legal requirements and best practices.

3.2 Salient Features of the Proposal

Salient features of the proposal are given below in Table 2.

Table 2: Salient features of the project

Salient Features	Description
Name of the project	Upgrading and Construction of Slaughter House
Province	Province No.: 1
Address	Pathari-Shanishchre Municipality, Ward-1, Morang

GPS	87°33'25.004" E, 26°39'33.549" N
Geographical feature	Terai
Type of Livestock for slaughter	**Quantity of meat in kg per week**
Goat (50; 35Kg per Goat)	12,250 Kg
Pig (50; 65 Kg per Pig)	22,750 Kg
Buffalo (5; 120 Kg per Buffalo)	4,200 Kg
Total	39,200 Kg
Distance from Forest	Adjacent, west
Distance from densely populated area	Adjacent, east
Distance from river	Adjacent west, Pathari Khola
Land Use	Barren and some built up sheds
Land Ownership	Owned by Local Government
Source of Animal	Pathari, Pashuhaat, Pathari- Sanishchare Municipality and nearby area
Building Structure	Total Area (5500 sq. m)
Construction Period	3 months
Lairage Chamber	2
Slaughter Chamber	3 (Each for Goats, Pigs and Buffaloes)
De- haring and De- skinning Chamber	2
Tripping and De- boning Chamber	1
Supervision / Laboratory Chamber	1
Freezing and Selling Chamber	7
Source of Animals	Local Market and Pashuhaat, Bange Bazar
Feeding Material	Local Farmland and Agriculture Area
Estimated Total Water Required Amount (Operation Phase)	
Water requirement per day	7000-8000 liters per day
Water Storage Capacity	18,000 liters
Source of Water	Boring, Rain water harvesting and Pipeline
Estimated Wastewater discharge	4 m^3/s
Wastewater Treatment	Wastewater will be collected in a pond and treatment plant will be established within 5 years of operation of slaughterhouse.
Estimated Total Waste Generation	250 kg/day (Maximum)
Types of Waste	Paunch manure, Bones, skin, blood, hair, etc
Energy Required	
Source of Energy	NEA grid
Back up	15 kV Generator
Estimated Meat Production	
Total weekly production	39,200 Kg
Working days	350 days (Other days cleaning and maintenance process carried out)

Expected Market area	Pathari, Pashuhaat
Total Investment	Rs 75,14,451.00

3.3 Location of Proposal

The proposed project site lies in Pashuhaat, Bange Bazar, Pathari Shanishchre Municipality, Ward No. 1. The proposed area for construction of slaughterhouse is about 5500 sq.m., which is about 300 m. south from away from Pathari Bajjar in East-West Highway. The projects geographical location is 87°33'25.004" E and 26°39'33.549" N. The proposed project lies in existing slaughterhouse shed area and the land is owned by Pathari-Sanishchare Municipality itself. It is around 200 m away from Pathari Municipality office. The proposed location is 112 meters above mean sea level. It is adjacent to settlement area and adjacent to *Pathari khola* and *Shirijunga* Religious Forest. Construction of slaughterhouse is aimed to be started after the approval of IEE and other legal procedures. The choice of this site is appropriate from the point of view that it is existing location of slaughterhouse but unorganized and proximity to livestock markets. The google location of the proposed site is given in Figure 1 and Figure 2

Figure 1: Proposed location of Construction of Slaughterhouse in Google Earth

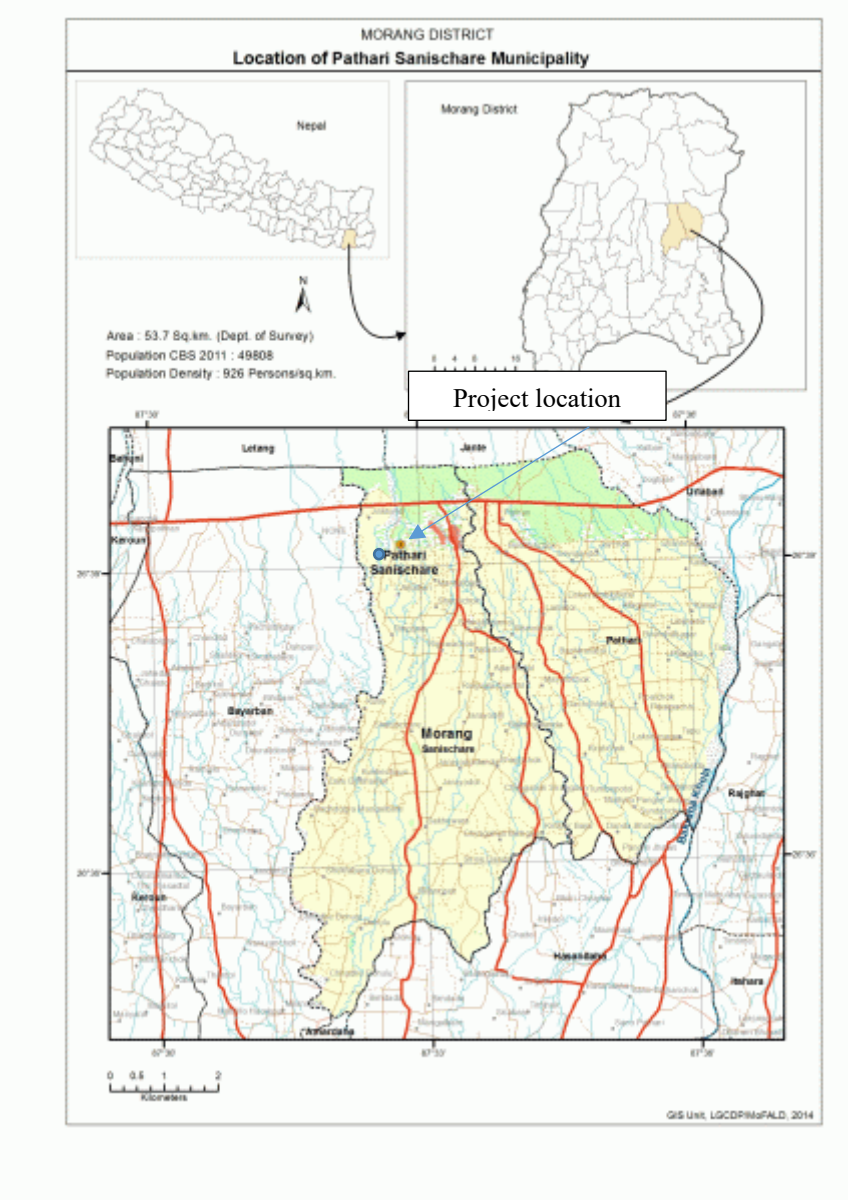


Figure 2: Project location map in country map

3.4 Impact Area Delineation

The project's zone of influence is defined on the basis of nature of project against likely direct and indirect impacts envisaged due to the implementation of the project activities. The industry is "point project" in nature and the building sufficiently leave the open spaces in all directions to buffer the potential impacts. Therefore, project implementation area and the land or built up area adjacent to it are defined as the direct impact area i.e. the area adjacent to the industry within 50m radius from the boundary of the project site is expected to be directly affected by the activities. Similarly, area within 150m radius from the direct impact area is considered as indirect impact area. The slaughterhouse is perceived to have no significant impact beyond 200m radius from the site. The impact area delineation is depicted in table below:

Table 3: Area of Influence and Impact Area Delineation

Impact Area	Description

Direct Impact Area	Slaughterhouse site, land and built-up area adjacent to the site within 50 meters radius from the slaughterhouse boundary.
Indirect Impact Area	Area within 150 meters periphery beyond direct impact area
Zone of Influence	Ward No. 1 of Pathari Sanishchare Municipality is considered as ZoI

3.5 Details of Technology

The slaughter of livestock involves three distinct stages: preslaughter handling, stunning and slaughtering is illustrated in Figure 3.

Figure 3: Flow Diagram of Slaughtering Process

Preslaughter handling

Preslaughter handling is a major concern specially the pork. Stress applied to the livestock before slaughter can lead to undesirable effects on the meat produced from animals. Preslaughter stress can be reduced by preventing the mixing of different groups of animals, by keeping livestock cool with adequate ventilation, and by avoiding overcrowding. Before slaughter, animals should be allowed to access to water but held off feed for 12 to 24 hours to assure complete bleeding and ease of evisceration (the removal of internal organs).

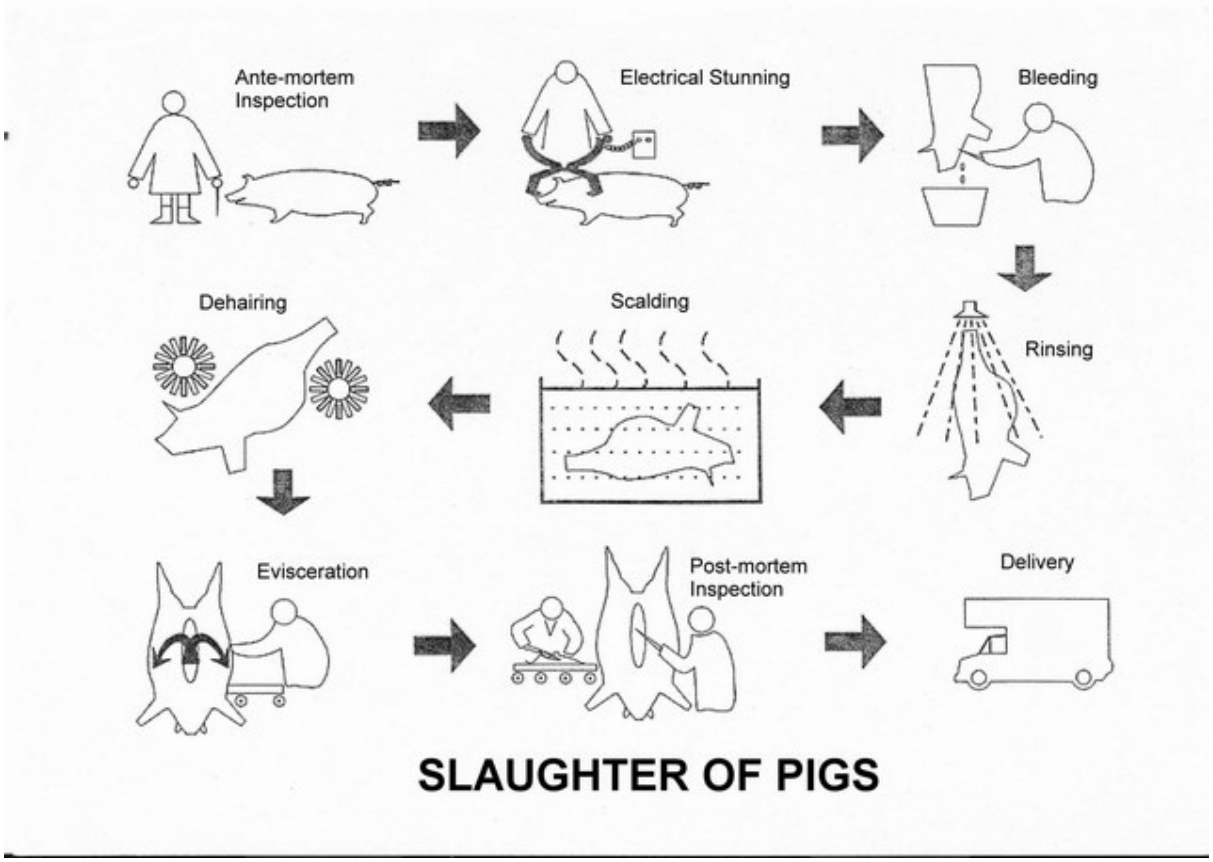
Stunning

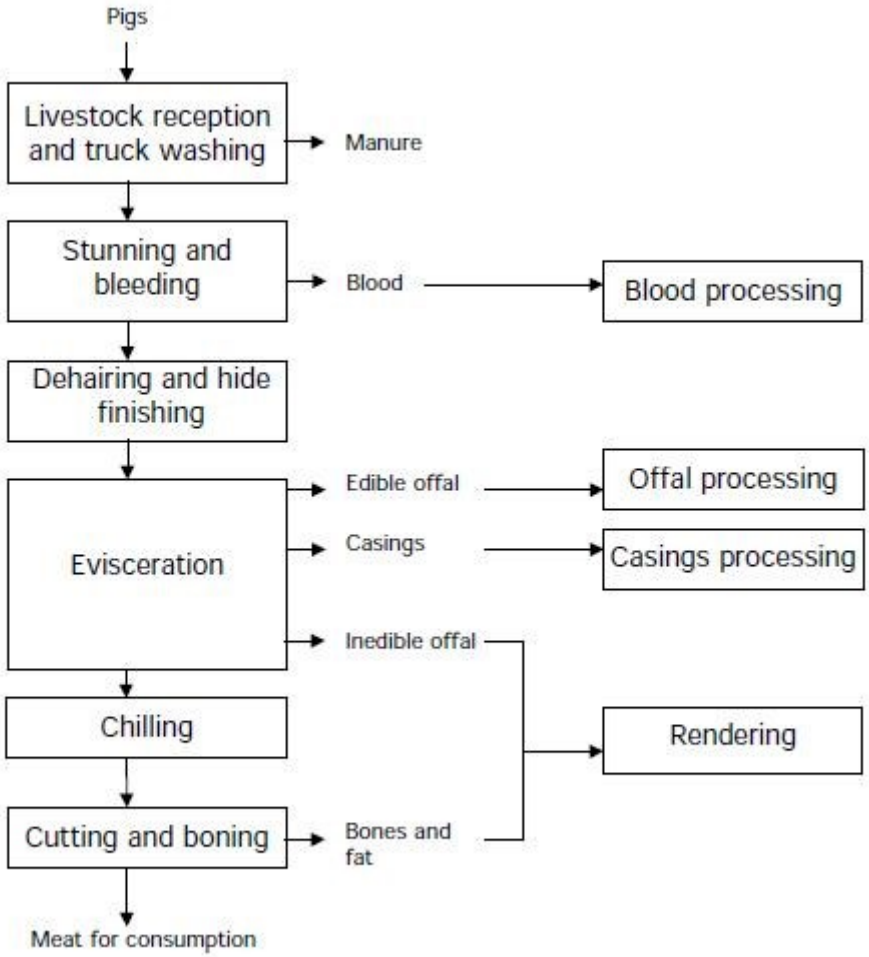
As the slaughter process begins, livestock are restrained in a chute that limits physical movement of animal. Once restrained, the animal is stunned to ensure a humane end with no pain. Stunning also results in decreased stress of animal and superior meat quality. The three most common methods of stunning are mechanical, electrical, and carbon dioxide (CO_2) gas. The end result of each method is to render the animal unconscious. Mechanical stunning

involves firing a bolt through the skull of the animal using a pneumatic device or pistol. Electrical stunning passes a current of electricity through the brain of the animal. CO_2 stunning exposes the animal to a mixture of CO_2 gas, which acts as an anesthetic.

Slaughtering

After stunning, animals are usually suspended by a hind limb and moved down a conveyor line for the slaughter procedures. They are typically bled (a process called sticking or exsanguination) by the insertion of a knife into the thoracic cavity and severance of the carotid artery and jugular vein. This method allows for maximal blood removal from the body. At this point in the process, the slaughtering procedures begin to differ by species.





By-products

By-products are the nonmeat materials collected during the slaughter process, commonly called offal. Variety meats include livers, brains, hearts, sweetbreads (thymus and pancreas), fries (testicles), kidneys, oxtails, tripe (stomach of cattle), and tongue. Bones and rendered meat are used as bone and meat meal in animal feeds and fertilizers. Gelatin, obtained from high-collagen products such as pork snouts, pork skin, and dried rendered bone, is used in confections, jellies and pharmaceuticals. Intestines are used as sausage casings. Hormones and other pharmaceutical products such as insulin, heparin, and cortisone are obtained from various glands and tissues. Edible fats are used as lard (from hogs), tallow (from cattle), shortenings, and cooking oils. Inedible fats are used in soap and candle manufacturing and in various industrial grease formulations. Lanolin from sheep wool is used in cosmetics. Finally, hides and pelts are used in the manufacture of leather.

Sanitation

Sanitation is maintained at all meat-packing and processing facilities by mandatory inspection both before and during production process. This includes floors, walls, ceilings, personnel. Clothing, coolers, drains, equipment, and other items that come in contact with food products. In addition, all water used in the production process must be potable (reasonably free of contamination).

3.6 Human Resources Requirement

Since the project is in construction, the table bellows shows the work force required for the construction work as well as in the operation phase.

Table 4: Required Human Resources

Construction Phase	
Skilled	4
Unskilled	8
Operation Phase	
Skilled	6
Unskilled	10

3.7 Resources Required for the Implementation of the Proposal

3.7.1 Total Cost of the Project

The total cost of this project is NRs. 75,14,451.00. It includes construction of slaughterhouse.

4. METHODOLOGY ADOPTED

4.1 Desk Study

During preparation of IEE report, different published literatures (data and information) were reviewed in order to get required information for conduction of this study and report preparation. The following steps were followed during the desk review:

- Collection and review of secondary sources of information from various sources including internet or websites, similar reports from previous studies.
- Delineation of geographical boundary of the influence area
- Preparation of project specific checklist.

Relevant information for the study was collected through extensive review of literature. Relevant documents and reports were collected and reviewed to detail out the nature of the project and identify the preliminary list of potential environmental impacts. The available maps (land use maps) and images (aerial photographs and google images) etc. were used and reviewed to generate the baseline environmental database of the project area.

4.2 Public Notice

A 10 days public notice was published in *Udhghosh* National Daily on 2077/02/27, Tuesday (2020/06/09). The copy of the published public notice is presented in **Annex 2** of the report.

4.3 Field Observation

In order to know the project location and basic environmental situation of project location, a field visit was conducted from 2076/09/15 to 2076/09/17. ToR was prepared accordingly and after the approval of ToR of IEE study on 2077/02/26. A copy of TOR approved letter and TOR has been attached in **Annex 1.** A study team's professionals visited and collected the overall basic information regarding the project site area and site-specific information. The data collection and field study were carried out from 2077/02/27 to 2076/02/29.

4.4 Deed of Enquiry and Recommendation Letter

A 10 days' public notice was affixed on notice board of Pathari Sanishchare Municipality, Ward office of Ward No. 1 and 10, Shrinjunga Community Forest. which is attached in **Annex 3**. The recommendation letter was collected from the respective project affected ward which is shown in **Annex 4.** A written comments and suggestion were obtained from Shrinjunga Community Forest on the stipulated time period.

4.5 Field Study and Collection of Baseline Data

The detail field study was conducted to generate information on physical and biological resources and social data. The brief description on the field study methods is discussed below:

Physical Environment Survey

Field observation and walk-through survey was adopted to verify information. The physical factors have direct impact on the construction and operation of the project to the project site. The required data from physical aspects includes;

- Topographical data: Altitude and landscape
- Land use and land use pattern

All these data and other relevant information were collected from available land use map, aerial photographs and site observation consultation with local communities of the project site.

Biological Environment Survey

During the biological survey, information related to biological environment were obtained from public consultation. The project site lies adjacent to religious forest area.

Socio-economic and Cultural Environment

Information on socio-economic and cultural features of the project area including population, caste and ethnicity, occupation status, education, were collected through field visit. The secondary information of Pathari Sanishchare Municipality was collected by reviewing different published literatures and report of CBS.

4.6 Data Analysis

Data analysis has been carried out using the standard methods and techniques for impact identification, prediction, and evaluation. The tools given in the National Environmental Guidelines,1993 were followed. All the field data and secondary data were analyzed and interpreted in quantitative and narrative form to establish baseline condition and predict the change on physical, biological and socio-economic and cultural environment of the project area. All the collected information was analyzed based on the expert's judgement (National EIA Guidelines, 1993).

4.7 Evaluation of Impacts

The impacts are broadly categorized in two categories–identified impacts and predicted impacts. In general, direct impacts are identified and indirect impacts are predicted.

Direct impacts are site specific and as a direct consequence of the project activity in the environment. e.g.: clearing of the trees in any project activity and demolishing of structures.

Indirect impacts refer to such impacts when the effects of project activity on one component creates/ affects the other components. e.g.: loss of forest area leading to decline in endemic species.

These identified and predicted impacts have been evaluated to know their environmental significance, taking into consideration of: **Magnitude, Extent and Duration.**

The impacts were further categorized as high, moderate, and low in terms of magnitude; site specific, local and regional in terms of extent and short term, medium term and long term in terms of duration. The criteria for the rating of impacts in terms of their magnitude, extent and duration are elaborated below.

4.7.1 Magnitude of Impact

The magnitude of impact is determined on the basis of each potential impact's severity. It also indicates whether or not the impact is reversible. Parameters are described below.

Low Impact (L)	If the impacts are reversible with potential rate of recovery, then magnitude of impact would be considered as low.
Moderate Impact (M)	If the impact makes the resources still usable with some inconvenience to public, then magnitude of impact would be considered as medium.

High Impact (H)	If the adverse impacts cannot be mitigated then the magnitude of impact is considered high.

4.7.2 Extent of Impact

The spatial extent or the zone of influence of the impact should always be determined. The extent of an impact may be confined to the project site or area. Parameters are summarized below.

Site Specific (SS)	If the impact is limited to the site itself then it is termed as site specific impact.
Local (L)	If the impact extends to the adjoining wards/municipality then it is termed as local impact.
Regional (R)	If the impact of the works extends to the entire district or further, then it is termed as regional impact.

4.7.3 Duration of Impact

As environmental impacts have a temporal dimension, they should be discovered through an Initial Environmental Examination. Impacts arising at different phases of the project cycle need to be appropriately considered. The types of impact produced during different phases of construction of a project are generally of temporary nature. Parameters are summarized below.

Short term (ST)	If the duration of impacts lasts only for 3 years after project initiation, it is considered as a short-term impact.
Medium term (MT)	If the impact continues for more than 3 years but less than 20 years, it is considered as medium-term impact.
Long term (LT)	If the impact lasts beyond 20 years, it is considered to be the long-term impact.

The allocation of scores for the Magnitude (high, medium & low), Extent (regional, local & site-specific) and Duration (long-term, medium-term & short-term) for each impact is done as per the *National EIA Guidelines, 1993,* which recommends the following scoring values.

Magnitude	High = 60	Medium = 20	Low = 10
Extent	Regional = 60	Local = 20	Site Specific = 10
Duration	Long-Term = 20	Medium-Term = 10	Short-Term = 5

According to this guideline, the total scores of impacts of over 100 is considered very significant; impacts having 50 to 100 are considered significant; and impacts having total scores of less than 50 are considered insignificant for this project. However, some of the impacts whose total score exceeds 50 may not be significant in view of the nature of the predicted impacts. Some impacts having less than 50 score could also be considered significant. For example, impacts likely to occur outside the project's core area and of indirect nature may not be significant although the total score exceeds 50. The impacts evaluation is done based on the above scoring method.

4.8 Detail Particular of the Area (Baseline Information)

This section describes the existing baseline environmental condition of the project area based on the detailed site investigation during the IEE process. The municipality level information of

the project was gathered from secondary sources. The existing environmental conditions such as physical, biological and socio-economic and cultural environment are described below:

4.8.1 Physical Environment

Topography

The project site lies in south eastern part of Nepal in Terai region. The project site lies in plain terrain with an elevation of 112 m amsl. There is scattered settlement around the project area.

Table 5: Project location and surrounding area

East	Human settlement, Municipality Office, 200 m
West	Pathari Khola and Shrinjunga Religious Forest
North	Human settlement, East West Highway, 200m
South	Sunakhari Machha Pokhari and Sunakhari School

Geology

The proposed project area lies in the Terai zone. The Terai is the southern part of Nepal and is an extension of the Gangetic plains. It covers 13% of the total land area land with altitude between 63m to 300m, providing excellent farming land as well as space for large industrial areas. The plain land has easy access in comparison to other regions therefore, people have migrated from the mountainous and hilly regions and adopted agriculture as their main occupation. The proposed site is composed of alluvial soils of Terai region.

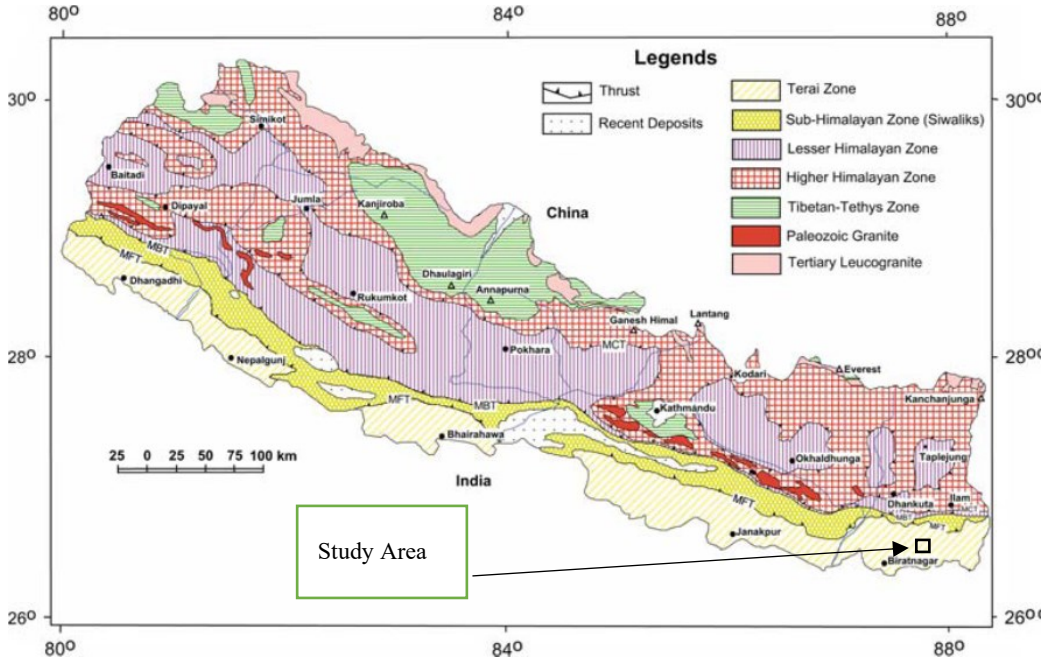


Figure 4: Generalized geological map of the Nepal Himalaya showing study area

Seismicity

For the minimum acceleration of 100-gal, reduction factor of 0.5, the calculated effective design seismic coefficient is approximately 0.05 (Thapa, 2018). The effective design seismic coefficient is determined by using the simplest method, the following equation:

Aeff = R*Amax/980, where Aeff is effective design seismic coefficient, R is reduction factor (empirical value R=0.5-0.65). The proposed site falls in the seismic zone of 4, high seismic hazard area.

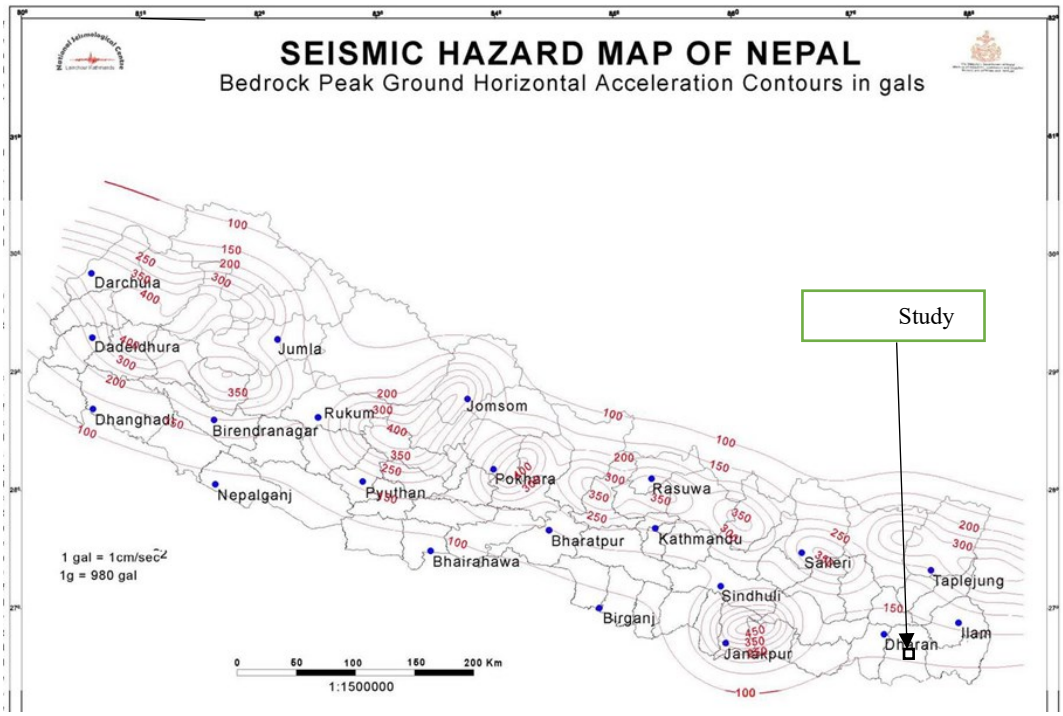


Figure 5: Seismic hazard map of Nepal

Source: Government of Nepal, 1996

4.8.2 Biological Environment

Flora: The flora species found nearby project area are Siris (*Albizia procera*), Kadam (*Anthocephalus chinensis*), Bakaino (*Melia azederach*), Sisau (*Dalbergia sissoo*), Simal (*Bombax ceiba*), and groves of Bamboo (*Dendrocalamus hamiltoni*). Other fodder tree species reported are Padari (*Stereospermum personatum*), and Pipal (*Ficus religiosa*). Common roadside and canal species include Masala (*Eucalyptus spp.)* and Jacaranda (*mimosa folia*). Kans (*Saccharum spontaneous*) is found in the flood plain and banks along the river. The forest of the project area is of tropical forest type. Forests are dominated by Sal (*Shorea robusta*), Bayer (*Zizyphus retundifera*), Guava (*Psidiun guajava*) etc.

Fauna: Mammals reported from the project area are; Nyauri (*Herpestes auropunctatus*), Syal (*Canis aureus*) and Musa (*Rattus rattus*). Major bird species reported are; Battai (*Turnix suscitator*), Bhangera (*Passer domesticus*), Lahanche (*Chrysocolaptes lucidus*), Bakula (*Bubulcus ibis*), Parewa (*Columba livia*), Dhukur (*Streptopelia chinensis*), Dangre (*Acriotherus tristis*) and Kauwa (*Corvus splndens*).

4.8.3 Socio-Economic Environment

The total population of Pathari Shanishchre Municipality is 49,808, where 9,868 in Ward No. 1 according to the National Population and Housing Census 2011. The main crops cultivated in the region are rice, wheat, potato and maize. People also raise cattle; buffalo, cow, goat, fish and chicken were mainly raised by people of this area. Public vehicles are abundant which operate in different routes of the area. Telephones, mobile services and internet services can be used as communication in this municipality. Few people are dependent on remittance from foreign employment. The main crops cultivated in the region are rice, wheat, maize, and sugarcane. People also raise goats, chicken, buffalo.

5. POLICIES, LAW, RULES AND MANUALS TO BE TAKEN INTO ACCOUNT WHILE PREPARING THE REPORT

Limiting within the scope of the works, following policies, legislation (with amendments) and guidelines and appropriate information shall be incorporated into the IEE report. They are as presented hereunder:

i.) Constitution

Constitution of Nepal

The constitution of Nepal focuses on raising the standards of living of the general public. The constitution asserts that; The State will pursue a policy of raising the standards of living of the general public through the development of infrastructures such as education, health, housing and employment of the people of all regions, by equitably distributing investment of economic investment for the balanced development of the country.

Similarly, Article 30 (Right regarding clean environment) states that the state will make such arrangements as may be required to keep the environment clean. The State will give priority to the prevention of adverse impacts in the environment from physical development activities, by increasing the awareness of the general public about environmental cleanliness, as well as to the protection of the environment.

ii.) Plan, Policies and Strategies

Approach Paper for 15th Plan (2076/77-2080/81 B.S.)

The government of Nepal has prepared an approach paper for 15th five-year plan with the vision of balanced economic growth, prosperity, good governance and happiness of its citizens. This 15th five-year plan is prepared with the plan of upgrading the country from under-developed country to developed country within 2079 B.S. by increasing the income, developing the quality of life of people and mitigating the economic risks and then ultimately reaching its sustainable development goal within 2087 B.S.

Nepal being located in seismically active zone and being prone to many natural disasters, effective response system, disaster preparedness plan and recovery procedure should be developed. The restoration and re-construction process should be carried out with the concept of "Build Back Better". The disastrous earthquake of Baisakh, 2072 B.S. highlighted the importance of strict implementation of National Building Code and its modifications with time and safety/risk examination of the existing buildings. The construction of buildings with clean and sustainable environment meeting the technical requirements should be encouraged and the traditional technology of construction as well as the architecture should also be maintained.

Land Use Policy, 2072 (2015)

The National Land Use Policy, 2013 prioritized the protection of arable lands ensuring food security. The devastating Gorkha Earthquake and aftershocks thereto have exposed us to non-vulnerable secured human settlement in the country. So then, awareness has come that only guided activities are allowed to be operated in such identified areas of natural disasters. In erecting physical infrastructures from onwards, it is realized that we should take accounts of probabilities of newly created hazards among natural disasters–including earthquakes. In order

to address all these contemporary issues on a long-term basis, the Land Use Policy, 2015 has come into existence upon making a review over the Land Use Policy, 2013.

National Biodiversity Strategy and Action Plan (2014-2020)

The GoN prepared and implemented Nepal Biodiversity Strategy in 2002 and Nepal Biodiversity Strategy Implementation Plan in 2006. Useful experience and lessons have been learnt from the implementation of the strategy and the plan. Moreover, substantial changes have taken place in the socio-political and environmental contexts of the country over the last decade. Several new themes and issues have emerged or gained prominence since 2002. In light of these changes, MoFSC has prepared this revised 'National Biodiversity Strategy and Action Plan (NBSAP) 2014-2020'. It has been prepared to meet the national needs for managing biodiversity on a sustainable basis for the benefit of present and future generations, and also to fulfill the country's international obligations. It has a long-term (i.e. 35 years) vision, and includes specific short-term (up to 2020) strategies and priorities for action.

National Agriculture Policy, 2004

The National Agriculture Policy, 2004 follows an objective of creating enabling environment for agriculture-led rural development. It emphasizes competitiveness of agriculture sector encouraging farmers to go for commercial production. The policy divides farmers into two groups small and big and aims to provide more resources to the small farmers. Those owning less than four hectares of land are labeled as resource poor farmers. They enjoy government assistance provision to boost their productivity. The policy aims at increasing productivity and promoting natural resources to utilize them in the interest of farmers. The long-term vision of the agriculture sector is to bring improvement in the living standards through sustainable agricultural development by transforming subsistence agricultural system into a commercial and competitive agricultural system. The policy aims at achieving high and sustainable economic growth through commercial agriculture system contributing to food security and poverty reduction.

National Contingency Plan for Prevention and Control of Avian Influenza in Nepal, 2060

Formulation of National Contingency Plan for Prevention and Control of Bird Flu, 2060 has been felt needed in order to safeguard the national poultry wealth and public health through immediate implementation of suitable measures against the Highly Pathogenic Avian Influenza (HPAI) which is spreading in the Asian countries. The aim is to prevent the entrance and control of HPAI and the plan will remain active until the country is free from HPAI. In case of HPAI outbreak following measures should be adopted ; detention of suspected birds/flocks in provisional infected zone, declaration of restriction zone (20 km from the point of outbreak),declaration of infected zone (3 km from the point of outbreak), High risk zone (3 to 20 km from the point of outbreak) , Surveillance zone (the rest of area), movement control from the infected zone, coordinate at global and regional level, carcass disposal and disinfection, vaccine and vaccination, rehabilitation and restocking.

iii.) Acts

Environment and Natural Resource Protection Act, 2076 (2019)

Nepal has enacted a comprehensive and umbrella type Act, the Environment Protection Act (EPA), 2076 which is now enforced through appropriate regulatory measures. The EPA

provides a legal basis for the concerned authorities for regulation of brief environmental study, IEE or EIA. Similarly, Pathari Sanishchare has enacted Environment and Natural Resource Protection Act, 2076 and accordingly, municipality itself can approve brief environmental study and IEE study report.

Forest Act, 2076 (2019)

This act mainly focuses on the utilization of forestland area for the national prioritized project, national pride project. Forest Act considers forests as "resources oriented" rather than "use oriented". Schedule 12 (Section 42) of the Act empowers the government to provide the parts of the forest areas to implement national priority project and the project approved from Investment Board for Investment only if the project activities do not create adverse impacts on environment after study of Environmental Impact Assessment of the project. This Section has provisions like; the project should be of national priority, there is no alternative other than to use the forest area, and the project should not have significant impact on environment. Thus, if there is no alternative except the use of forestland is available for the implementation of the project, given it a national priority, the Government of Nepal can permit forest use, where there will be no adverse effects on the environment. These criteria must be fulfilled for the implementation of project of any sector in any category of forest areas. The project should carry out compensatory plantation activity in national forest close to the project area having similar terrain and topography if plantation area within the project is not available. Project shall bear required cost for the protection and survival of planted saplings for 5 years. Article 5, 6, 7, 8 of the Act empowers GoN to use any forest. Government of Nepal may give assent to use any part of Government Forest as Community Forest, Partnership Forest, Lease hold Forest or Religious Forest for the protection of forest.

Article 15 Section 49 of the Act prohibits reclaiming lands, setting fires, grazing, removing or damaging forest products, felling trees or plants, wildlife hunting and extracting boulders, sand and soil from the National forest without the prior approval. The Act has provision of imprisonment of up to 5 years and fine of up to 50 thousand Nepali Rupees if any one identifies such wrongdoing.

Animal Health and Livestock Services Act, 2055 B.S

This act has given provision to establish temporary or permanent Animal Quarantine check post and the quarantine officer will be the chief of the post. The Quarantine Officer can issue a certificate in a prescribed format for animal and products inputs kept in Quarantine, after the completion of examination. The official can prohibit the entry of animal if they are brought from the outbreak area of contagious diseases, in case of failure to submit the prescribed certificate of disease free and soundness certificate of animal, if animals are found dead, vehicle carrying the imported animal are found contaminated. Also, the movement and transport of animal is restricted within the country during the outbreak of contagious diseases. There is also the provision of the penalty if the animals do not go through the quarantine.

Animal Slaughterhouse and Meat Inspection Act, 2055 B.S

This act provides necessary arrangement related to Animal Slaughterhouse and Meat Inspection. Nobody can establish a slaughterhouse or become a meat seller without obtaining license under this act. A person or an organization interested to establish a slaughterhouse shall have to apply for a license in the prescribed format to the prescribed officer. Government has

appointed Meat inspector and Meat supervisor in order to examine meat, animals and slaughterhouse. The act has provision of examination of animal before slaughter, slaughtering of animals at slaughterhouse, examination of meat of slaughter animals, prohibit on sale of dead or infected animals. Also, there is the provision of penalties for those who violets the act.

Labor Act, 2074 (2017)

The Act has also made provision of labor court and department of labor. The Act clearly mentions that the appointment letter should be issued to all the employees which include their working hours, working time, wages and other benefits. The Act allows for the time bond contract for the manpower required for development work. The Act specifies that working hours for the Anabolic and women must be within 6 AM to 6 PM which clearly restrict to deploy women in night works. The Act also states that equal opportunity shall be given to women as men. Similarly Working Hours continue to be 8 hours a day and 48 hours a week, overtime has been increased to 24 hours per week from 20 hours a week. The overtime wages are also continued to be on e and half time of his/her ordinary rate of wages. The New Labor Act provides that the minimum remuneration of workers, public and weekly holidays should be as prescribed. The employer can deduct the expenses incurred in providing food and lodging from the remuneration if such is provided. Domestic workers should be allowed to celebrate festivals as per their culture, religion, tradition.

Child Labor Prohibition Act, 2058 (2002)

The Child Labor (Prohibition and Regulation) Act, 2056 is enacted and enforced adopting International Labor Organization (ILO) Convention concerning Elimination of Worst Forms of Child Labor and Minimum Age Convention. This Act has defined the 'Child' as a person who has not achieved the age of 16 years. Article 3 bans the employing a child below the age of 14 to work as a laborer and engaging a child in the hazardous and risky works listed in the Schedule of the Act. It is mandatory for the proponent to follow the Child Labor (Prohibition and Regulation) Act, 2056 (2000) during the project implementation phase.

Local Government Operation Act, 2074 (2017)

The Local Government Operation Act, 2074 that came into effect since 15 October 2017 has paved a strong legal foundation towards institutionalizing legislative, executive and quasi-judiciary practice of the newly-formed local government. Local Government Operation Act, 2074 empowers the local bodies for the Conservation of soil, forest and other natural resources and implements environmental conservation activities. Sections 28 and 43 of the Act provide the Municipality/Municipality a legal mandate to formulate and implement programs related to protection of environment and bio-diversity. Similarly, Sections 189 and 201 of the Act provide that the District Coordination Committees are liable to formulate and implement programs related to protection of environment and give adequate priority for protection of environment during formulation and implementation of district level plan (s). As this is the provincial project, the respective Municipality/Municipalities and DCC can regulate monitoring during the construction and operation of the stadium.

Soil and Water Conservation Act, 2039 (1982)

In order to manage watersheds of Nepal, the Soil and Watershed Conservation Act (SWCA), 1982 was enacted. The act is devoted to the protection of watersheds. Under Section 10 of SWCA, power is extended to the Watershed Conservation Officer to grant permission to

construct dams, drainage ditches and canals, cut privately owned trees, excavate sand, boulders and soil, discharge solid waste and establish industry or residential areas within any protected watersheds. The Act outlines the essential parameters necessary for proper watershed management.

The Act is relevant to the proposed project as the project will utilize the soil for mounting structures and other physical facilities in proposed site. There is likely to impact on soil and watershed condition of the project area. Hence, the project is obliged to follow the SWCA, 2039 (1982) during project implementation.

Water Resource Act, 2049 (1992)

The objective of the Water Resources Act, 2049 is to make legal arrangements for determining beneficial uses of water resources, preventing environmental and other hazardous effects thereof and also for keeping water resources free from pollution. The Act strives to minimize environmental damage to water bodies, especially lakes and rivers through environmental impact assessment studies and the proponents who wish to use water resources for various purposes should prepare IEE report before a license can be granted. The Act stipulates that soil erosion, flooding, landslides or any significant impact on the environment should be avoided in all uses of a water resource. The provisions made in Water Resources Act, 2049 (1992) is mandatory in case of the implementation of the proposed project. As per the provision, the environmental impact mitigation and enhancement measures have been proposed in view of environment conservation.

Solid Waste Management Act, 2068 (2011)

Article 4 rests the responsibility of the solid waste management under the prescribed standards with the persons or institution that has generated the waste; Article 5 mandates reduction of the waste at source and making arrangements to dispose the disposable (biodegradable/ Organic) solid waste within their own area or making arrangement for the reuse thereof and discharging the remaining solid waste thereafter; Article 9 make the institution responsible to transport the solid waste to the waste disposal facility; Article 18 provisions for the service for the solid waste management; Article 21 make local body responsible for the monitoring of solid waste management; Article 38 stipulates discharge of solid waste without the consent of the local body as an offense and Article 39 provisions for the punishment /penalty in case of offense.

Consumer Protection Act, 2054 (1998)

Consumer protection Act 2054 is expedient to make provisions for protecting consumers from irregularities concerning the quality, quantity and prices of consumer goods or services, ensuring that no one lowers or removes the attributes or usefulness of consumer goods or services, preventing circumstances in which monopolies and unfair trading practices may lead to an increase in prices, as well as false and misleading propaganda about the use and usefulness of consumer goods or services, selling, supplying, importing, exporting and storing safe and quality consumer goods or services, and protecting the rights and interests of consumers through the establishment of an agency for redressing the hardships of consumers, and thus maintaining the health, convenience and economic welfare of consumers. Under rule 6 of Consumer Protection Act, promotion and protection of consumer's right have enforced. Similarly rule 7, 8, 9, 10 and 11 states about the goods and services that to be delivered to the consumer and right to the consumers.

Food Act, 2023

The act gives the legal provisions to maintain proper standard of foodstuffs and to prevent any undesirable adulteration in foodstuffs or prevent from reducing in, or extracting, any natural quality or utility from foodstuffs in order to maintain health and convenience of the general public. The act has prohibition on production, sale or distribution of adulterated foodstuff or sub-standard foodstuff. A person who produces, sells, distributes, exports or imports the sub-standard foodstuffs may be penalized with a fine from one thousand rupees to two thousand rupees for the first time and from the second time onwards the fine will be two thousand rupees to five thousand rupees or with an imprisonment for a term from six months to one year or with both penalized at same time.

iv.) Rules/Regulations

Animal Health and Livestock Services Regulation, 2056

In exercise of the powers conferred by Section 33 of the Animal Health and Livestock Services Act, 2055 (1999), Government of Nepal has framed these rules. According to this rule quarantine check post should be established on the International point, International airport and the area where there is more import and export of animal and its products. Quarantine time for the diseases will be prescribed so as to match the incubation period after the entry of biological pathogen into the body. The examination of the livestock will go through the physical, clinical and laboratory examinations as per need. In case of doubt of infectious disease, the other procedures or techniques of examination of disease may also be used. Thus, after the completion of Quarantine, examination certificate will be provided by the office as soon as possible. In the case of disposing the livestock or its products have to be burnt or engulfed by digging up the three-feet-deep hole of disposed in accordance with the procedures set forth by the Department.

Animal Slaughterhouse and Meat Inspection Regulation, 2057 BS

A person or institution desiring to establish and operate a slaughterhouse in a non-governmental sector have to submit for license, an application along with a proposal of plan and a recommendation of local body to the office in the format of Schedule -l. To operate a slaughter house various standard should be maintained such as separate place to keep animals before and after ante-mortem examination, separate place to keep sick animals, the floor area of animal's health examination place, slaughtering place, meat examination place should be durable, impermeable and easily cleansed with proper arrangements of drainage. There must be separate place for the slaughter of the Buffalo, Swines, Avian species, Caprines and Ovines. The slaughter house must be disinfect each day by following the procedure set forth in schedule-9. Also, the person suffering from tuberculosis, skin infection and other disease should not allow to enter the slaughter, biannual health checkup of the person working in slaughter house is also mandatory. The slaughter waste (urine, blood, non -edible parts) must be dispose in appropriate manner within eight hours of completion of slaughtering of animal. The inappropriate animal parts for consumption must be disposed or destroyed in presence of the meat inspector or meat supervisor. In case of meat seller; must not spray water in meat, or not sink meat into water or not cover meat with wet clothes, must not use color, medicine or chemical of any type in order to increase attraction to meat, or to prevent meat from being decompose likewise the intestine,

abdomen, legs, head and meat must be sold by keeping separately. Also, the meat shop should prevent rat, birds, insects and dirt by covering with the net or glass. The ante- mortem and post -mortem examination should follow the schedule-5 and schedule-6 respectively.

Forest Rules, 2051 (1995)

The Forest Rules 1995 (amendment 1999) further elaborate legal measures for the conservation of forests and wildlife. Based on forest legislation, thirteen plant species are included in the level protection list. Of them, GoN has banned the felling, transportation and export of Champ (*Michelia champaca*), Khayer (*Acacia catechu*) and Sal (*Shorea robusta*). The Rule also stipulates that the entire expenses for cutting and transporting the forest products in a forest area to be used by the approved project shall be borne by the proponents of the project.

Labor Rules, 2075 (2018)

Rule 16 of the Labor Rules provide flexibility to the employer to determine the work hours. The employer can determine the work hours in the basis if the nature of the work of the entity. The notice of the work hours however, should be given to all employees.

The Labor Rules also provides that the employer may not put employee to work on rotation-based nature of its work. It seems that the labor rules envisaged putting the employee u different shifts.

The labor rules require the employer to provide additional rest period for certain female employees. The employer should provide half an hour additional time for female employees (a) who has baby below 3 years for breast feeding, and (b) who is pregnant.

The Labor Rules specifically require the employer to pay the salary to the employee for weekly off. The Labor Act also authorizes the Ministry of Labor to specify the employer who should pay the salary to the employee through banking channel.

Similarly, Labor Rule also states about Occupational Safety and Health Policy "Employers are required to maintain an occupational health and safety policy". The policy should cover different measures in accordance with the entity's nature of business. The policy should be drafted in a way which includes provisions related to arrangements Employee's safety and security, Employee's health, probable accident in workshop, precautions to be taken operating devices and machines in workshop and precautions to be taken while using chemical substances.

Child Labor (Prohibition and Regulation) Rules, 2062 (2006)

In exercise of the powers conferred by Section 27 of the Child Labor (Prohibition and Regulation) Act, 2056 (1999 A.D), Government of Nepal has framed the following Rules.

These Rules may be termed " Child Labor (Prohibition and Regulation) Rules, 2062 (2006 A.D). which shall come into force immediately.

Certificate of eligibility has to be prepared before employing a child:

- Before, employing a child as a Labor an application shall be filed in the Labor office to examine his /her health in relation to his/her ability and inability to do the work, mentioning about the nature of the work and the age of the child.
- After obtaining an application pursuant to Sub- rule (1), the Labor Office shall cause a doctor to examine the health of the child.
- If on an examination done pursuant to Sub- rule (1), the child is found to be capable for the work, the doctor shall provide a certificate of eligibility to pursuant to the Schedule.

Local Government Operation Rules, 2074 (2017)

The Government of Nepal ("GoN") has framed the Local Government Operation Rules, 2075 ("Local Government Operation Rules"). This rule empowers the local bodies for the Conservation of soil, forest and other natural resources and implements environmental conservation activities. As this is the national level priority project, the respective Municipality/Municipalities and DCC can regulate monitoring during the operation of a project.

Environment Protection Rules 2077 (2020)

EPR was endorsed in May and was made under the provisions of the Environment and Natural Resource Protection Act. Annex 1 and 2 lists out the projects which has to undergo through Brief Environmental Study or Initial Environmental Examination (IEE) respectively. If a proposal is implemented without the approval from the concerned Ministry or relevant government agency, or the person implementing the proposal is not complying with the conditions of the approval or license, the authorized official is empowered to close down that activity and may impose fine of up to NRs. 25,00,000 on such person or organization. Under this Rules, the IEE study of the proposed project has to be carried out by the proponent and get approval from the municipality prior to the project implementation.

Solid Waste Management Rules, 2070 (2013)

Solid Waste Management Rules, 2070 have been issued by the government of Nepal by power conferred by section 50 of the solid waste management act 2068. Rule 3 of this rules enforced the segregation and management of the solid waste. Sub rule 1 of this rule stipulates the segregation and management of the solid waste at least organic and inorganic solid waste at its source under section 6 have to management and segregation of harmful and chemical waste separately. The responsibility of managing of the chemical and harmful solid waste under sub rule 1 shall be a concern generator. Rule 4 of this rules endorsed the discharge the solid waste as comfortable manner for transportation, processing and final discharge by taken into account the possible adverse effect on the public health and environment and the ways of reduction of such effects.

Food Regulation, 2027

If a food is not edible because of decayed, perished, rotten or full of insects or otherwise in a clearly visible manner while it is being produced or sold or put for sale, and it is sent for test, and the food may get further perished if it is kept on until its report is received, the food inspector may immediately destroy such food by burying or burning it or through any other means. No person shall, in a manner contrary to the provisions contained in schedule-10, produce, sell, distribute or export a food mixed with a color, or keep such mixed substance for any of such purposes. The food inspector finds any person engaged in selling or preparing a food or sitting in the place of its manufacture is suffering from a communicable and infectious disease or harboring the germs of such disease, that person has to undergo medical examination.

v.) Standards, Guidelines and Codes

National Building Codes, 2060 B.S. (2004)

The national building code of Nepal was endorsed for the Government building after cabinet decision in 2060/4/12. The code was endorsed in 58 municipalities, districts' headquarters VDCs and urbanizing VDCs in the country in 2005. The code deals primarily with the matters relating to the strength of the building sites considerations safety during construction and fire hazards, construction materials, electrical designs etc. it has provisioned that while designing the multi-stores building in municipalities and VDC, the developers must follow the NBC.

Animal Welfare Directory, 2073

The main purpose of this document is to prevent the ruthless activities and to manage, develop and enhance the quality of animal life. This document is developed to assure the animal welfare given by the Animal Health and Livestock Services Act, 2055 and developed as per right given by the Animal Health and Livestock Services regulation ,2056, Rule (22). It has provision that animal should be free from hunger, thirst, fear, pain, disease, extreme heat condition and extreme cold conditions.

National Control Strategy for the control of Foot and Mouth Disease in Nepal (2015-2025)

The Foot and Mouth disease is a contagious disease of all cloven-footed animals. The disease is endemic in Nepal and frequently outbreak have been reported in the country throughout the year. This disease is causing substantial economic loss to livestock industry due to the and morbidity and mortality. It is estimated that between (20 – 40) % of household within an (village) outbreak suffer clinical Foot-and-Mouth Disease (FMD). However, the number of households may vary from 50 to 200 in a village. Mitigation can be done awareness, training of technical staff at VDC and district level. The National Control Strategic Plan (NCSP) for Foot-and-Mouth Disease (FMD) in Nepal has been formulated to implement FMD control in Nepal in a phase wise manner for 2015-2025.

National Ambient Air Quality Standards (NAAQS), 2069 (2012)

The new National Ambient Air Quality Standard (NAAQS) 2012 that came into effect requires effective monitoring and collection of eight-hour and 24-hour samples of air pollutants like Total Suspended Particulates (TSP), Particulate Matter (PM_{10} and $PM_{2.5}$), carbon monoxide, lead and ozone levels for at least 347 days out of a 365-day year. The NAAQS further states that no particular place should fail to monitor air samples for two consecutive days. TSP consist of solid and liquid particles in the air that are harmful to health while PM10 is an air particle with a volume less than 10 micron that can easily enter into the end of the respiratory tract and cause serious health impacts. Both TSP and PM_{10} are considered major air pollutants.

Table 6: Table7: National Ambient Air Quality Standard, 2069 (2012)

Parameters	Units	Averaging Time	Concentration Ambient Air, maximum	Test Methods
TSP	$\mu g/m^3$	Annual	-	
		24-hours*	230	High Volume Sampling
PM_{10}	$\mu g/m^3$	Annual	-	
		24-hours*	120	Low Volume Sampling
Sulphur Dioxide	$\mu g/m^3$	Annual	50	Diffusive sampling based on weekly average

Parameters	Units	Averaging Time	Concentration Ambient Air, maximum	Test Methods
		24-hours**	70	To be determined before 2005 AD
Nitrogen Dioxide	µg/m^3	Annual	40	Diffusive sampling based on weekly average
		24-hours**	80	To be determined before 2005 AD
Carbon Monoxide	µg/m^3	8 hours**	10,000	To be determined before 2005 AD
		15 minutes	100,000	Indicative samplers ***
Lead	µg/m^3	Annual	0.5	Atomic Absorption Spectrometry, analysis of PM10 samples ****
		24-hours	-	
Benzene	µg/m^3	Annual	20*****	Diffusive sampling based on weekly average
		24-hours	-	

* Note: 24 hourly values shall be met 95% of the time in a year. 18 days per calendar year the standards may be exceeded but not on two consecutive days.

** Note: 24 hourly standards for NO_2 an SO_2 and 8 hours standard for CO are not to be controlled before MoPE has recommended appropriate test methodologies. This will be done before 2005.

*** Note: Controlled by spot sampling at roadside locations: Minimum one sampler per week taken over 15 minutes during peak traffic hours, i.e. in the period 8am-10am or 3pm-6pm on a work day. This test method will be re-evaluated by 2005.

**** Note: If representativeness can be proven, yearly averages can be calculated from PM10 samples from selected weekdays from each month of the year.

***** Note: To be re-evaluated by 2005.

National Drinking Water Quality Standard (NDWQS), 2062 (2005)

Major tasks during monitoring to be performed by water supplier are cited as follows:

a) Controlling regularly the quality to ascertain that the water supplied complies with the NDWQS.
b) Periodic monitoring of all the components of the water supply system from the perspective of sanitation and risk to health.
c) Proper supervision, inspection and maintenance as part of operation of the water supply systems.
d) Development of necessary infrastructure like water quality testing laboratory and quality control.

Following factors should be considered while monitoring:

a) Type and quality of water sources i.e. surface water, springs, dug-wells, shallow wells, deep wells
b) Type and size of the water supply system (pipe system, treatment facilities)
c) Local environmental settings (physical infrastructure, geography, etc.)
d) Sanitation and hygienic condition surrounding the water supply system.
e) Socio-economic environment at the local level.
f) Site specific conditions for complying with the standards
g) User's opinion and suggestions regarding water quality
h) Health and Hygiene Information (information on water related diseases)

Noise Emission Standard, 2069 (2012)

The National Noise Standard 2012 that came into effect as per the rule 15 of Nepal Government Environmental Protection Regulation 1997 that requires effective monitoring and collection of Day-time and Night-time noise level permitted limits as in the following Table 7.

Table 7: National Noise Level Standards for Nepal

Area	Permitted Noise Level (Leq dBA)	
	Day Time	Night Time
Industrial Area	75	70
Commercial Area	65	55
Rural Residential Area	45	40
Urban Residential Area	55	50
Mix Residential Area	63	55
Protected Area	50	40

Child Labor Inspection and Monitoring (CLIM) Guideline

Child labor inspection and monitoring guideline has been prepared with an objective to eliminate child labor and to make child labor inspection and monitoring process easy, simple and effective. Child labor Inspection and Monitoring Guideline is based on Good Governance Act 2064, Nepal's Constitution, Child Labour (Prohibition and Regulation) Act 2056, Child Labor Prohibition and Regulation Rules 2062 and international treaty signed by Nepal government to eliminate child labor. It includes provisions, mechanism and procedures for child labor inspection and monitoring. The Guideline also includes roles and responsibilities of different actors involved in the inspection and monitoring along with required forms and formats. It has also provisioned for ways to manage required resources.

National Environmental Impact Assessment Guidelines, 2050 (1993)

The National EIA Guidelines, 1993 set out the process for the environmental review and management of infrastructure projects in all sectors and the respective roles of certain GoN agencies and project proponents. The guideline is part of a comprehensive program to develop the national and sectorial guidelines for establishing a national system for EIA which is part of GoN's National Conservation Strategy. The EIA Guideline was endorsed by GoN on 27 September 1992 and gazette on 19 July 1993. The schedules attached to the Guidelines include:

Schedule 1 : Projects requiring an IEE Report

Schedule 2	:	Projects requiring an EIA
Schedule 3	:	EIA based on project sites
Schedule 4	:	Projects requiring an IEE Report
Schedule 5	:	Format for TOR
Schedule 6	:	Environmental Impact Report Format

It is mandatory to follow the National EIA Guidelines, 2050 (1993) during the IEE. Following the guidelines, the environmental impact prediction and evaluation of the proposed project has been done on physical, biological and socio-economic and cultural environment of the project area. The guideline is used for analysis of significant issues.

6. IMPACTS OF IMPLEMENTATION OF THE PROJECT ON THE ENVIRONMENT

The impacts are examined on the basis of baseline condition of project area and likely impacts during construction and operation phases. Such impacts have been identified based on-site observation, field survey and information obtained from the stakeholders and few were identified from value judgment. The impacts are expressed in terms of their magnitude, extent and duration. For the impact evaluation, the matrix method with numerical ranking will be used for the quantitative ranking of the predicted impacts. The impact scoring system is shown Table 8 and Table 9.

Table 8: Impacts scoring system

D: Direct		ID: Indirect	
H: High (60)	R: Regional (60)	LT: Long Term (20)	VS: Very Significant
M: Medium/ moderate (20)	Lo: Local (20)	MT: Medium Term (10)	S: Significant
L: Low (10)	SS: Site Specific (10)	ST: Short Term (05)	IS: Insignificant

Table 9: Significance of impacts

Total Score	Significance
More than 100	Highly Significant
80 to 100	Very Significant
40 to 80	Significant
Less than 40	Insignificant

Here, the environmental examination covers construction and operation phase of the industry. The likely impacts were assessed covering both adverse and beneficial issues.

6.1 Beneficial Impacts

6.1.1 Construction Phase

I. Employment Opportunities

Construction work is one of the prime activities of this project at initial stage of project life cycle that prepares various structure such as Quarantine chamber, feeding chamber, slaughter chamber, tripping chamber, supervision/Laboratory chamber, freezing and selling chamber. The construction period will run for around 3 months in total. The construction work requires almost 20-25 individuals. Local people or contractor will be given priority in the construction activities. The impact will be direct in nature, medium in magnitude, local in extent and short term in duration.

II. Skill Enhancement

Construction period of the project provide opportunity for local workers to work with professionals of respective fields so that local workers can enhance and sharpen their skill. For the construction activities, manpower like electricians, painters, sanitary fixers, welders, carpenters, engineers, accountants and others will be hired locally and regionally for a short period. This will not only provide them a better opportunity to enhance and refine their personal skills but also will increase their horizon of experience. This will be a plus point for future

carrier and wages increment. The impact will be direct in nature, medium in magnitude, local in extent and long term in duration.

III. Promotion of local Business and Economy

The initiation of the construction activities at the project sites will open opportunities not only for the construction workers but also for number of local suppliers to supply different construction materials such as cement, steel, bar, gravel, sand etc. and construction equipment such as excavator, concrete mixer, vibrator, loader etc. during construction. As a result, the local suppliers will be benefited economically. Economic activities like groceries and local hotels will increase promoting the local business. The impact will be direct in nature, medium in magnitude, local in extent and short term in duration.

6.1.2 Operation Phase

I. Production of Quality Meat

At the present context people are buying meat from the traditional meat shop. It lacks the basic facility of meat freezing, proper slaughtering, clean water and hygienic selling chamber. Also, faces the problem of waste management and odor. Thus, Hygienic slaughter house is prior. After the operation slaughter project, people will get hygienic meat at affordable price and at the same time it will also address the environmental issue. The impact will be direct in nature, medium in magnitude, local in extent and long term in duration.

II. Increase in Livestock Farming

This slaughter house will be the only slaughter house in the Pathari Sanishchare Municipality. Thus, it will encourage neighboring municipalities to establish hygienic and modern slaughter house in their areas. Thus, this slaughter will encourage local farmer in commercial and professional livestock farming. It will also act as the catalyst to open the business related to the meat and meat products. Such as sausage industry, food court, restaurants, egg supplier and leather business. The impact will be indirect in nature, medium in magnitude, local in extent and long term in duration**.**

III. Control of Possible Disease Outbreak

The livestock coming to the slaughter house might be infected from disease like skin disease, mouth-foot disease, Avian Influenza and Swine flu etc. Every animal will go through the quarantine, ante- mortem and post -mortem examination with the direct supervisor of veterinarian. Thus, it will help to identify the condition of the farm animal and prevent the possible outbreak. The impact will be direct in nature, medium in magnitude, local in extent and long term in duration.

IV. Production of Biogas and Manure

The slaughter house will install the biogas plant for the treatment of the animal's waste and dung. This plant will produce biogas as fuel and waste output as the organic manure. The cost of the biogas is not mention on the project estimate however the Kamal municipality has committed to construct the plant from the municipality fund. The impact will be direct in nature, medium in magnitude, local in extent and long term in duration.

6.1.3 Scoring of Beneficial impacts during construction and operation phase

The scoring of beneficial impacts during construction and operation phase activities are given in Table 10.

Table 10:Beneficial Impact Identification and Evaluation Matrix

S.N.	Issues	Impacts	Impact Rating				
			Nature	Magnitude	Extent	Duration	Rating
	Beneficial Impact						
A	**Construction Phase**						
A1	Employment Opportunities	Employment generation and local employment	D	M (20)	Lo (20)	ST (05)	Significant (45)
A2	Increase in income and local business	Business promotion	D	M (20)	Lo (20)	ST (05)	Significant (45)
A3	Enhancement of Technical Skills of Local Labors	Skill enhancement	D	M (20)	Lo (20)	LT (20)	Significant (60)
B	**Operation and Maintenance Phase**						
B1	Production of quality meat	Quality and hygienic meat to local people	D	M (20)	Lo (20)	LT (20)	Significant (60)
B2	Increase in livestock farming	Increase the number of livestock farming for business purpose	ID	M (20)	Lo (20)	LT (20)	Significant (60)
B3	Control of Possible Disease Outbreak	Control of disease outbreak in community	D	M (20)	Lo (20)	LT (20)	Significant (60)

6.2 Adverse Impacts (Construction Stage & Operation & Maintenance Stage)

The likely adverse impacts by the project in terms of physical, chemical, biological, socio-economic and cultural aspects due to the construction and operation of the slaughterhouse were identified, predicted and evaluated. Based on the identified issues, appropriate mitigation measures are recommended. The identified adverse impact on physical, chemical, biological and socio-economic and cultural environment are given below:

6.2.1 Impact on Socio-Economic and Cultural Environment

A. Construction Stage

I) Land Use Change

The project area is the government own land and will be totally covered by the concert structure. The cultivable fertile land will be occupied by the slaughter house. The impact will be direct in nature, low in magnitude, local in extent and long term in nature.

II) Occupational Health and Safety

The construction period will last around 3 months. Total 20-25 people will be directly engaging in the construction work. The issue of normal injury during construction work is excepted. The impact will be direct in nature, low in magnitude, local in extent and long term in nature.

III) Child Labor

In some part of country children are found involved in construction works. This kind of possibility is very low in the project locality. However, the impact will be direct in nature, low in magnitude, local in extent and long term in nature.

B. Operation and Maintenance Stage

I) Traffic Congestion

The access road to slaughter house is 100 meters from the main Pathari bazar. This road is normal paved road and lacks the proper traffic sign board and speed limit. The establishment of the slaughter will increase the flow of the traffic in that area. Thus, the impact will be direct in nature, low in magnitude, local in extent and long term in nature.

II) Slaughter Waste and Odor Problem

The slaughter waste is the organic waste generated from the animals before and after the slaughter. Generally, these waste starts to decay and produce foul smell after 8 hours. These wastes could be fetal to the society if the animal is found carrying disease or infection. Thus, the impact will be direct in nature, low in magnitude, local in extent and long term in nature.

III) Disease Transmissions

In some case disease can be seen on the slaughter animals. These diseases can be easily transmitted to the people if the meat of such animals is consumed. Furthermore, if the domestic animals like dog, cat and street cows comes in contact with the sick slaughter animals or vice versa, there could be the possible disease outbreak situation. Such risk is very high in the slaughter house staff. Thus, the impact will be direct in nature, medium in magnitude, local in extent and long term in nature.

IV) Meat Shop Management Issue

The project has only 8 meat shop. It will be difficult to incorporate the local meat seller in this slaughter house. This might possibly create conflict between slaughter administration and local

meat seller. Thus, the impact will be direct in nature, medium in magnitude, local in extent and long term in nature.

V) Cultural Issue

Some of our religion and culture have their own view regarding the consumption of the meat. Some cultural groups do not consume meat and meat products whereas some do and have their own choice of meat. For example, Muslim dose eat or purchase meat where there is the slaughter of pigs. Same culture can be seen among some Hindu groups. Thus, the impact will be direct in nature, medium in magnitude, local in extent and long term in nature.

6.2.2 Impact on Physical and Chemical Environment

A. Construction Stage

I) Impact on Human Health

At the construction phase of the project, there might be some construction accidents like the cuts, burns and bone fracture. In addition to accidents, there could be dust problem of soil, sand and cement. These will directly affect the health of the construction workers. The impact will be direct in nature, low in magnitude, local in extent and short term in duration.

II) Degradation of Cultivable land and Land Use Change

The project occupies about 2951.24 sq. ft of the land. This area will be occupied by slaughter house. The structure will be one storied with cemented floor and roof truss. Project area is the government own land and will be permanent covered by the concert structure. Thus, there will the land Use change and degradation of cultivable land. The impact will be direct in nature, low in magnitude, local in extent and long term in duration.

III) Water Pollution

During the construction period there will be some excavation of the land for the foundation work. It will result in the deposition of loose soil. The Pathari Khola is passing aside the project. so, there might be the possibility of the siltation and even high chance of blockage or hindrance of flow. The impact will be direct in nature, low in magnitude, local in extent and short term in duration.

IV) Air and Noise pollution

The project site is at a distance of 200 meter from the East West Highway and it is connected by the paved road. During the construction phase there will be the regular transport of the construction material. Thus, due to the unfair road condition and relative dry season during the construction period. There might be the possibility of air pollution due to the dust emission. Also, the movement of vehicles are liable in generating noise. The impact will be direct in nature, low in magnitude, local in extent and short term in duration.

V) Construction Waste and Construction Workers Waste Disposal

The construction waste might be refused bricks block, cement sacks, pipe offcuts, rod offcuts, scrap waste and wiring waste. In addition to that, solid waste from the worker will be another type. The impact will be direct in nature, low in magnitude, local in extent and short term in duration.

B. Operation and Maintenance Stage

I) Transport of Livestock

Local product will be given priority in this slaughter house. Most of the slaughtering business is unhygienic and selling their livestock for the purpose of the meat. Therefore, Pashu-haat of Pathari will be the primary source of livestock. In case of high demand or festival seasons, animals will be imported. Sometime due to the longer time travel and negligence by the transport company, animals get physical injury. It results the restlessness and stress in animal. The quality of the meat might be affected if the animal is slaughter in such condition. The impact will be direct in nature, medium in magnitude, local in extent and long term in duration.

II) Animal Feed Management

Animal brought from local market will be kept in the quarantine chamber. The quarantine process may be going from days to weeks. Thus, different groups of animals are kept in the separate chambers. Providing adequate food, care and water to each animal is a challenging and vital task for the slaughter management. The impact will be direct in nature, medium in magnitude, local in extent and long term in duration.

III) Animal/Slaughter Waste Management

Animals waste include different kind of waste included the Urine, dung or excretion. Typical slaughter waste includes the blood, fats, intestinal waste, non-edible parts of the animals, Body hair, Horns, claws, skin etc. Safe disposal of these waste is main environmental issue of slaughter house. The impact will be direct in nature, medium in magnitude, local in extent and long term in duration.

IV) Carcase and Dead Animal Management

Different animals are brought to the slaughter house form different places. Some may be from the local places and some may not be from the local places. Due to the sudden change in their environment condition, extreme weather condition and transportation injuries. Animals might pass out or die. Also, the disease and infection will be the other case. Thus, management of dead body is one of the major issues of slaughter house management. The impact will be direct in nature, medium in magnitude, local in extent and long term in nature.

V) Flies/Insect/Rodent Management

Mainly there are two type of waste in slaughter house. One is the animal wastes from the live animals and slaughter wastes from the body of dead animals. Both of waste are preferred by the Flies/insect/rodent. Feeding by adult flies on the blood of their hosts exposes the hosts to pathogenic organisms that are infecting the fly, this can lead to acute disease of the host's blood and other organs. Larvae of some files are adapted to feed on the tissue of their host, causing direct pathological damage to the organs. E.g. mosquitoes, horse-flies, blow-flies and warble-flies. The impact will be direct in nature, medium in magnitude, local in extent and long term in nature.

VI) Sanitation and Foul Odor Management

The unhygienic waste management or irregular waste management practice results the odor problem in and around the slaughter house. More odor in the vicinity higher will results the risk of the disease transmission. The impact will be direct in nature, medium in magnitude, local in extent and long term in nature.

VII) Surface Water Pollution

When liquid waste (animal blood and urine) discharged into the water source it causes the water pollution. The liquid waste not only degrades the water quality but also transmit the harmful disease. The impact will be direct in nature, medium in magnitude, local in extent and long term in nature.

VIII) Foot-Mouth Disease (FMD)

Foot and Mouth Disease is a contagious disease of all cloven-footed animals. The disease is endemic in Nepal and frequent outbreak have been reported in the country throughout the year. FDM affects by the high morbidity and some mortality in young animals (claves and kids). From the year (2004-2013), the number of reported outbreaks in Ilam was 12 and 169 in Morang. The impact will be direct in nature, medium in magnitude, regional in extent and long term in nature.

IX) Zoonotic Disease Transmission

A zoonotic disease is an infectious disease that is transmitted between species from animals to humans (or from humans to animals). Direct contact is one potential cause of the spread of zoonotic diseases. Direct contact involves coming into contact with the bodily fluids of an infected animal, such as saliva, blood, urine, mucus, or feces. This can happen because of merely touching or petting infected animals, or being bitten or scratched by one. e.g. Rabies, Animal flu, Bird flu, Bovine tuberculosis, Hepatitis E, Ringworm and Swine flu etc. The impact will be direct in nature, medium in magnitude, regional in extent and long term in nature.

X) Disease Outbreak Problem

In some cases, disease like bird flu (Avian Influenza) sawn flu and FMD could be found in the vicinity of the slaughter house or even in the slaughter house animals. This problem could promote form local to regional and regional to national. Thus, special precautionary measures should be adopted. The impact will be direct in nature, medium in magnitude, regional in extent and long term in nature.

XI) Air and Nosie Pollution

The main purpose of the slaughter house is to provide fresh and hygienic meat. For the freezing of meat refrigerating devices should be functional every time which requires the continues power supply. Thus, for the continues power supply generator of 15 KVA will be on standby. It will be liable from the noise and air pollution. The impact will be direct in nature, low in magnitude, local in extent and long term in nature.

XII) Water Demand and Ground Water Depletion

The slaughter house need water for the sanitation work, feeding animals, rest room and other purpose. The total water demand of this slaughter house rages from 7,000-8,000 liter per day. Total 25,55,000 liter of water will be consumed per year. Thus, the impact will be direct in nature, low in magnitude, local in extent and long term in nature.

6.2.3 Impact on Biological Environment

A. Construction Stage

(I) Impact on Flora and Fauna

There is Shrijunga Religious Forest nearby the project location. The project will not replace any kind of protected plant species. The construction area will be covered with proper fencing

to avoid any kind of animal entry to avoid the possible incident. Thus, it can be expected that the impact is negligible.

B. Operation and Maintenance Stage

(I) Possibility of Disease Outbreak in Birds and Wild Animals

The wild animals like Jungle cat and Golden jackal are always attracted to the meat products. They might come in contact with slaughter waste. Thus, there will be possibility of disease transmission from wild to livestock and vice versa. Same is the case for the scavenger birds. The impact will be direct in nature, low in magnitude, local in extent and long term in nature.

6.2.4 Scoring of Adverse Impacts during Construction and Operation Phase

The scoring of adverse impacts during the construction and operation phase is given in Table 11.

Table 11:Adverse Impact Identification and Evaluation Matrix

S.N.	Issues	Impacts	Impact Rating				
			Nature	Magnitude	Extent	Duration	Rating
	Adverse Impacts						
1	**Socio-Economic and Cultural Environment**						
A	**Construction Stage**						
A1	Land Use Change	Conversion to build up area	D	L (10)	SS (10)	LT (20)	Significant (40)
A2	Occupational Hazards and Safety	Accident and injuries to the labors	D	L (10)	SS (10)	ST (05)	Insignificant (25)
A3	Child Labor	Use of child labor	D	L (10)	SS (10)	ST (05)	Insignificant (25)
B	**Operation and Maintenance Stage**						
B1	Traffic congestion	May increase traffic congestion	ID	L (10)	SS (10)	LT (20)	Significant (40)
B2	Waste and odor	Waste and odor problem	D	L (10)	SS (10)	LT (20)	Significant (40)
B3	Cultural issue	Cultural issue	ID	L (10)	SS (10)	LT (20)	Significant (40)
B4	Meat shop management	Hygienic and quality meat	D	L (10)	SS (10)	LT (20)	Significant (40)
B5	Disease transmission	Disease transmission	D	M (20)	R (60)	LT (20)	Very Significant (100)

S.N.	Issues	Impacts	Impact Rating				
			Nature	Magnitude	Extent	Duration	Rating
2	**Physical and Chemical Environment**						
A	**Construction Stage**						
A1	Impact on Human Health	Impact on human health	D	L (10)	SS (10)	ST (10)	Insignificant (30)
A2	Degradation of soil and change in land use	Change in land use	D	L (10)	SS (10)	LT (20)	Significant (40)
A3	Water Pollution	Water pollution	D	L (10)	SS (10)	LT (20)	Significant (40)
A4	Air and Noise Pollution	Noise and air pollution	D	L (10)	SS (10)	ST (05)	Insignificant (25)
A5	Construction Waste and Construction Workers Waste Disposal	Waste Management problem	D	L (10)	SS (10)	ST (05)	Insignificant (25)
B	**Operation and Maintenance Stage**						
B1	Transport of Livestock	Transporting livestock	ID	M (20)	Lo (20)	LT (20)	Significant (60)
B2	Animal Feed Management	Feed management	D	M (20)	SS (10)	LT (20)	Significant (50)
B3	Slaughter Waste	Waste management	D	M (20)	SS (10)	LT (20)	Significant (50)
B4	Carcase and Dead Animal Management	Dead animal management	D	M (20)	SS (10)	LT (20)	Significant (50)
B5	Flies/Insect/Rodent Management	Flies management	D	M (20)	SS (10)	LT (20)	Significant (50)

S.N.	Issues	Impacts	Impact Rating				
			Nature	Magnitude	Extent	Duration	Rating
B6	Sanitation and Foul Odor Management	Sanitation	D	M (20)	SS (10)	LT (20)	Significant (50)
B7	Surface Water Pollution	Water pollution	D	M (20)	R (60)	LT (20)	Highly Significant (100)
B8	Foot-Mouth Disease	Foot-Mouth Disease	D	M (20)	R (60)	LT (20)	Highly Significant (100)
B9	Zoonotic Disease Transmission	Disease Transmission	D	M (20)	R (60)	LT (20)	Highly Significant (100)
B10	Disease Outbreak Problem	Disease outbreak	D	M (20)	R (60)	LT (20)	Highly Significant (100)
B11	Air and Noise Pollution	Air pollution	D	L (10)	SS (10)	LT (20)	Significant (40)
3	**Biological Environment**						
A	**Construction Stage**						
A1	Impact on Flora and Fauna	ID					
B	**Operation and Maintenance Stage**						
Onsite Impacts							
B1	Possibility of Disease Outbreak in Birds and Wild Animals	Disease outbreak	D	L (10)	Lo (20)	LT (20)	Significant (40)

7. ALTERANTIVES FOR IMPLEMENTATION OF PROPOSAL

Alternative analysis is an integral part of the IEE study, which involves an alternative way of achieving the objectives of the proposal. The aim of alternative analysis is to enter at a development option, which maximizes the benefits while minimizing the unwanted impacts.
The assessment of the alternative analysis of the proposal is evaluated based on the considerations of the following issues:

7.1 No Project Option

No Action Option for the proposed project implies non implementation of the proposed project. So, this option will reject the hygienic slaughtering process. Furthermore, per capital meat consumption is increasing and the municipality lacks such facility. Hence, this option is rejected.

7.2 Design

This slaughterhouse will be constructed and operated in designated area. Hence, the design is prepared meeting the land shape and size. The layout of all services is as per attached design and drawings attached in **Annex 6**. The construction approach selected is labor based approach with minimum utilization of the machineries. The approach is considered beneficial as it provides hygienic meat to to the local residing nearby project area.

7.3 Project Site (Location)

Location plays an important role in implementation of the project. The slaughterhouse proposed to be located at Pathari Sanishchare Municipality, Ward No. 1 nearby main market. It is an existing slaughterhouse area having some sheds with no good sanitation and hygienic environment. Therefore, the proponent has considered present location as the best location for its construction and operation.

7.4 Time schedule

The working schedule is 300 days per annum, single shift 8 hours per day which is most suitable in the context of Nepal. Hence, process and time schedule won't be changed.

7.5 Raw Materials to be Used

The design has followed the principle of the hygienic slaughter house which include the quarantine chamber, lairage chamber, slaughter chamber, de-haring, tripping chamber, supervisor room, freezing and selling room. Every livestock will go through hygienic slaughtering process before reaching the consumer level. Only the healthy and adult livestock will be purchased.

8. MEASURES TO REDUCE OR CONTROL THE IMPACT OF THE IMPLEMENTAITON OF THE PROPOSED-ON ENVIRONMENT

This section of the report has prescribed about the practical and cost-effective enhancement measures for beneficial impacts and mitigation measures to minimize and compensate the effects of adverse impacts to acceptable level. The project proponent ensures to implement these measures during the construction and operation of the project.

8.1 Beneficial Augmentation Measures

8.1.1 Construction Phase

Based on the identification and prediction of the impacts, the appropriate enhance measures will be explored to maximize the project benefits. The beneficial impacts are considered from physical, biological, socio-economic and cultural environment. The major beneficial impacts are given below:

Employment Opportunities

- Mostly local people will be hired as per skills for construction of building.
- Benefits to unemployed and semi-skilled human resource.
- No biasness will be made in the wages paid among the workers for the same nature of work.
- No child labor will be used in construction phase.
- Disadvantaged groups will be prioritized for employment opportunity.

Increase in Income and Local Business

- Increase in local tea shops, vegetable market and grocery shops.
- Suppliers of construction materials, equipment's will be benefited during construction activities of the building.

Enhancement of Technical Skills of Local Labors

- Unskilled young and enthusiastic people will be encouraged for employment.
- Increase in technical skills of labors.
- On the job trainings opportunity will be provided to the employees.

8.1.2 Operation Phase

Production of quality meat

- Quality meat and hygienic environment
- Management of waste

Promote livestock farming

- Increases economic status of local people
- Provide timely training to people about livestock farming.

Control of Possible Disease Outbreak

- Awareness and training on livestock disease
- Operation of laboratory with the qualified veterinarian

The details about enhancement measures of beneficial impacts along with time of action and cost is shown in Table 12.

Table 12:Benefits Augmentation and Enhancement Measures

Issues/Impacts	Enhancement Measures	Time of Action	Responsible Agency	Cost (NRs.)/year	Remarks
Benefit Augmentation Measures					
Construction Phase					
Employment Opportunity	Priority to locals and disadvantaged group No biasness in wages No child labor	Construction Phase	Proponent/ Contractor	No cost	
Increase in Income and Local Business	Facilitate with local business activities and local supplier Promote local entrepreneurs and local business	Construction Phase	Proponent/ Contractor	---	
Enhancement of Technical Skills of Local Labors	Job training opportunity Skill enhancement of project workers	Construction Phase	Proponent/ Contractor	20,000	
Operation Phase					
Production of quality meat	Follow hygienic slaughtering process Quality meat supply	Operation Phase	Proponent	---	
Promote Livestock Farming	Purchase healthy livestock from the local market and farms Organize training on commercial livestock farming	Operation Phase	Proponent	50,000	
Control of Possible Disease Outbreak	Awareness training on livestock disease Purchase healthy animals from the local market Import quarantine certified livestock Operation of laboratory with the qualified veterinarian	Operation Phase	Proponent	50,000	
Total Enhancement Cost				**120,000**	

8.2 Adverse Impact (Construction & Operation & Maintenance Stage)

8.2.1 Impact on Socio-Economic and Cultural Environment

i. Construction Stage

Land Use Change

- Wise use of available land
- Manage open area for infiltration.

Occupational Hazards and Safety

- Adoption of safety measures and use of Personal Protective devices
- Mandatory insurance policy to the workers

Child Labor

- Awareness program on local community
- No use of child labor

ii. Operation and Maintenance Stage

Traffic Congestion

- Systematic and adequate parking space
- Install sign boards and speed limits

Waste and Odor Issue

- Install biogas plant for treating intestinal waste, urine and blood waste
- Proper and scientific management of waste
- Allocation of separate land for safe disposal of dead animals with proper fencing

Cultural Issue

- Separate meat shop for different animals

Meat Shop Management Issue

- Good housekeeping
- Priority to local butcher
- Fix rate of meat shop by the municipality which includes management charge, laboratory charge and inspection charge

Disease Transmissions

- Avoid contact between slaughter animals and outside animals with proper fencing
- Purchase animals with the health certificate or quarantined livestock before slaughtering
- Regular health checkup of slaughter staff
- Awareness program on livestock disease for worker and community people

8.2.2 Impacts on Physical and Chemical Environment

i. Construction Stage

Impact on Human Health

- Personal protective device for the individual workers
- Provide first aid box at construction site
- Prevent the entry of unwanted people in construction site

Degradation of land and change in land use

- Wise use of available land
- Manage open space for infiltration

Water Pollution

- Avoid construction work at rainy season
- Build temporary rest rooms
- Make siltation pond

Air and Noise Pollution

- Covering of fine sad materials.
- Sprinkling of water in access road
- Masks will be provided to workers

Construction Waste and Workers Waste Disposal

- Apply 3R principle as much as possible
- Dispose the waste in the landfill site after construction
- Make waste collection yard and organic pit on the construction site

ii.Operation and Maintenance Stage

Transport of Livestock

- Purchase livestock from local haat bajjar
- Reject livestock with injury
- Avoid long distance purchase if possible

Animal Feed Management

- Provide separate feeding compartment for different group of animals
- Provide safe and adequate water

Carcass and Dead Animal Management

- Identify safe and secure area away from the dense settlement for disposing dead animals
- Follow the disposing procedure provided by Animal Health and Livestock Service Rule, 2056 (Chapter 4)

Flies/Insect/Rodent Management

- Regular cleaning of the slaughterhouse by selecting appropriate disinfectant method given by Animal Health and Livestock Service Rule, 2056
- Construct the meat shop as per term and condition provided by the Slaughterhouse and Meat Inspection Regulation, 2057

Sanitation and Foul Odor Management

- Sanitation training program for workers
- Regular clean each station of the slaughter with the appropriate disinfectant

Slaughter Waste

- Waste like animal waste, intestinal waste, blood and urine goes through biogas plant and results in fertilizer
- Animal hair will be decomposed in a pit

- Dead animals will be buried in safe area in supervision of veterinarian

Surface Water Pollution

- Collect liquid waste (Urine and blood) through the drainage and send it to the biogas plant.
- Sewage resulting from the sanitation work (other than blood and urine) should go through the slow sand filter before releasing to the drainage

Food-Mouth-Disease (FMD)

- Void purchase of livestock from the area with history of FMD outbreak
- Separate treatment for the FMD infected animals
- Awareness program on FMD

Zoonotic Disease Transmission

- Purchase animal with health certificate or quarantine certificate
- Avoid entry of unwanted people on the sensitive area of slaughterhouse
- Regular cleaning of slaughter area
- Regular health checkup of slaughter staff

Disease Outbreak Problem

- Avoid purchase of livestock from the area with history of disease outbreak
- Inform veterinary officer if any suspicious behavior or symptoms are seen in livestock
- Awareness program on livestock disease among local farmers, community members and meat seller

Air and Noise Pollution

- Maintenance of access road to slaughterhouse
- Use of eco-friendly generator
- Manage the vehicle movements

8.2.3 Impacts on Biological Environment

i. Construction Stage

Impact on Flora and Fauna

- Maintain greenery around the project area

ii. **Operation and Maintenance Stage**

Disease Outbreak in birds and wild animals

- Avoid contact between wild species and slaughter animals through proper fencing
- Safe disposal of carcass on disposal site

The summary of mitigation measures including time of action along with cost details of adverse environmental impacts is shown in Table 13.

Table 13:Adverse Impact and Mitigation Measures

Impacts	**Mitigation Measures**	**Time of Action**	**Responsible Agency**	**Cost (NRs.)/year**	**Remarks**
Socio-Economic and Cultural Environment					
Construction Stage					
Land Use Change	- Wise use of the available land. - Manage open area as much as possible for the infiltration.	Construction Period	Proponent	Included in Project Cost	
Occupational Hazards and Safety	- Adoption of safety measures and use of Personal protective devices. - Mandatory insurance policy for the workers.			50,000	
Child Labor	- Awareness program on local community.	Construction Period	Proponent	20,000	
Operation and Maintenance Stage					
Traffic congestion	- Develop fair road to the slaughter house - Systematic and adequate parking space. - Install sign boards and suitable speed limit.	Operation period	Proponent	20,000	

Impacts	Mitigation Measures	Time of Action	Responsible Agency	Cost (NRs.)/year	Remarks
Waste and Odor	- Proper and scientific waste management practice. - Allocate separate land for the safe disposal of dead animals with proper fencing. - Install biogas plant for treating intestinal waste, urine and blood waste. - Routine cleaning and disinfecting of the slaughter house. - Training regarding waste management and use of disinfectant.	Operation period	Proponent	20,000	
Cultural Issue	- Separate meat shop for different animal.	Operation period	Proponent	Included in Project Cost	
Meat shop management Issue	- Give priority to local butcher. - Consult with meat sellers and local leaders before fixing the shop rent, which must include the waste management charge, laboratory charge and inspection charge.	Operation phase	Proponent	20,000	
Disease Transmissions	- Sometime disease may be found on the slaughter animal or outside animals (dogs, cat, and street cow). - Avoid the contact between the slaughter animal and outside animals with proper fencing. - Purchas animal with the health certificate or quarantine the livestock before slaughter.			40,000	

Impacts	Mitigation Measures	Time of Action	Responsible Agency	Cost (NRs.)/year	Remarks
	- Prohibit the entry of general public in quarantine chamber. - Regular heath checkup of the slaughter staff. - Awareness program on livestock disease for works and community people.				
Physical and Chemical Environment					
Construction Stage					
Impact on Human Health	- Personal protective device for the individual workers. - Provide first aid box at the construction site. - Cover the construction area properly to minimize the nuisance dust dispersion. - Prevent the entry of the unwanted people in the construction.	Construction Period	Proponent/ Contractor	Included in Project Cost	
Degradation of land and Land Use Change	- Wise use of the available land. - Manage open area as much as possible for the infiltration.	Construction Period	Proponent	20,000	

Impacts	Mitigation Measures	Time of Action	Responsible Agency	Cost (NRs.)/year	Remarks
Water pollution	- Avoid the construction work at rainy season. - Build temporary rest rooms. - Make siltation pond. - Strict regulation on open defecation near the water resources.	Construction Period	Proponent/ Contractor	30,000	
Air and Noise pollution	- Speed limit and no horn policy for the construction material transporting vehicle. - Regular spray water on the road.	Construction Period	Proponent	30,000	
Construction Waste and Construction Workers Waste Disposal	- Make waste collection yard and organic pit on the construction site. - Apply the 3R principal as much as possible. - Dispose the waste in the landfill site after construction.			Included in Project Cost	
Operation and Maintenance Phase					
Transport of Livestock	- Purchas livestock from the local haat bajar. - Reject the livestock with transport injury. - Avoid the long-distance purchase if possible. - Manage adequate space for the animals on the transporting vehicle.	Operation period	Proponent	No additional cost	

Impacts	Mitigation Measures	Time of Action	Responsible Agency	Cost (NRs.)/year	Remarks
Animal Feed Management	- Provide separate feeding compartment for different groups of animals. - Provide adequate and safe water. - Coordinate with commercial agriculture groups for the supply of the feeding material.	Operation Phase	Proponent	No additional cost	
Carcase and Dead Animal Management	- Identify safe and secure area away the dense settlement for dispose of the dead animals. - Follow the disposing producer given by the Animal health and livestock services rule,2056 (chapter 4)	Operation Phase	Proponent	No additional cost	
Flies/Insect /Rodent Management	- Regular cleaning of the slaughter house by selecting the appropriated disinfectant method given by Animal health and livestock services rules,2056 - Construct the meat shop as per term and condition provided by the slaughter house and meat inspection regulation 2057.	Operation period	Proponent	No additional cost	
Sanitation and Foul Odor Management	- Sanitation training program for the workers - Regular clean each section of slaughter with the appropriate disinfectant. - Proper facility of the rest room	Operation period	Proponent	20,000	

Impacts	Mitigation Measures	Time of Action	Responsible Agency	Cost (NRs.)/year	Remarks
Slaughter waste	- Waste like animal waste, intestinal waste, blood and urine will go through the biogas plant and result as the fertilizer. - The slow-decomposable (horns and hoof) parts will be collected in a separated compartment for the disposal. - Animal hair will be decomposed in a pit. - Collect and sell the bones and skin. - Dead animals will be buried in safe area in supervision of veterinarian.	Operation period	Proponent	No additional cost	
Surface Water Pollution	- Collect the liquid waste (Blood and urine) through the drainage and send it the biogas plant for the treatment. - Sewage resulting from the sanitation work (other than blood and urine) should go through the slow sand filter before releasing to the drainage.	Operation period	Proponent	No additional Cost	
Foot-Mouth Disease (FMD)	- Avoid the purchase of livestock from the area with history of FMD disease outbreak. - Inform the veterinarian if symptoms area seen in slaughter animals. - Separate treatment for the FMD infected animal. - Awareness program on FMD	Operation period	Proponent	30,000	

Impacts	Mitigation Measures	Time of Action	Responsible Agency	Cost (NRs.)/year	Remarks
	- Follow the "National control strategy for the control of foot mouth disease in Nepal 2015-2025)				
Zoonotic Disease Transmission	- Purchase the animal with health certificate or quarantine certificate. - Avoid the entry of unwanted people on the sensitive area of slaughter house. - Effective implementation of quarantine procedure. - Ante- mortem and Post mortem of the slaughter animal. - Regular health checkup of the slaughter staff. - Regular cleaning of the slaughter area. - Avoid the contact between slaughter animal and outside animals.	Operation period	Proponent	20,000	
Disease Outbreak Problem	- Avoid the purchase of livestock from the area with history of disease outbreak. - Purchase the animal with health certificate or quarantine certificate. - Inform the veterinary officer or quarantine officer if any suspicious behavior or symptoms are seen in livestock - awareness program on livestock disease among the local farmers, community members and meat seller.	Operation period	Proponent	30,000	

Impacts	Mitigation Measures	Time of Action	Responsible Agency	Cost (NRs.)/year	Remarks
Air and Nosie pollution	- Maintenance of access road to slaughter house. - Use of eco-friendly generator - Manage the vehicle moments.	Operation period	Proponent	No additional cost	
Biological Environment					
Construction Stage					
Impact on Forest Resources	- Roadside plantation and greenery development in open spaces. - Avoid unnecessary built-up area. - Avoid mishandling of construction materials.	Construction/ Phase	Proponent	No Cost	
Operation and Maintenance Stage					
Disease Outbreak in birds and wild animals	- Avoid contact between the wild species and slaughter animal through proper fencing - Safe disposal of carcass on disposal site	Operation and Maintenance Phase	Proponent	50,000	
Total Mitigation Cost				4,00,000.00	

9. MATTERS TO BE MONITORED WHILE IMPLEMENTING OF THE PROPOSAL

The purpose of Environmental Management Plan (EMP) is to minimize potential environmental impacts due to proposed project. EMP is required for formulation, implementation and monitoring of environmental protection measures during project development. EMP reflects the commitment of the industry to safeguard the environment as well as the surrounding population. Similarly, EMP has been prepared for the slaughterhouse to set out environmental management requirements and to develop procedures to ensure that all mitigation measures and monitoring requirements specified in this Initial Environmental Examination (IEE) study report will be carried out in subsequent stages of project development and operation

The issued terms of reference of the study suggests that EMP should comprise of implementation of the mitigation measures, environmental monitoring plan, and the institutional arrangement for the implementation of EMP.

9.1 Environmental Management System

For the effective and consistent functioning of the project, an Environmental Management System (EMS) should be established at the site. The EMS should include the following.

- An Environmental Management Unit
- Environmental Monitoring
- Personnel Training
- Documentation: Standard operating procedures Environmental Management Plans and other records

9.2 Environmental Management Unit

Apart from having an Environmental Management Plan, it is also necessary to have a permanent organizational set up charged with the task of ensuring its effective implementation of mitigation measures and to conduct environmental monitoring. The major duties and responsibilities of Environmental Management Unit shall be implementation of environmental management plan, regulatory compliance with all relevant rules and regulations, regular operation and maintenance of pollution control devices, minimization of environmental impacts, implementation of environmental monitoring as per approved schedule, documentation of good environmental practices and applicable environmental laws, Coordination with regulatory agencies and external consultants, keeping of log book for public complaints and the action taken, formulation of the waste management plan etc.

9.3 Organizational Chart

The organizational arrangement of this proposed project is as follows. Each and every member has their own responsibilities to monitor and manage the environmental status of the industry.

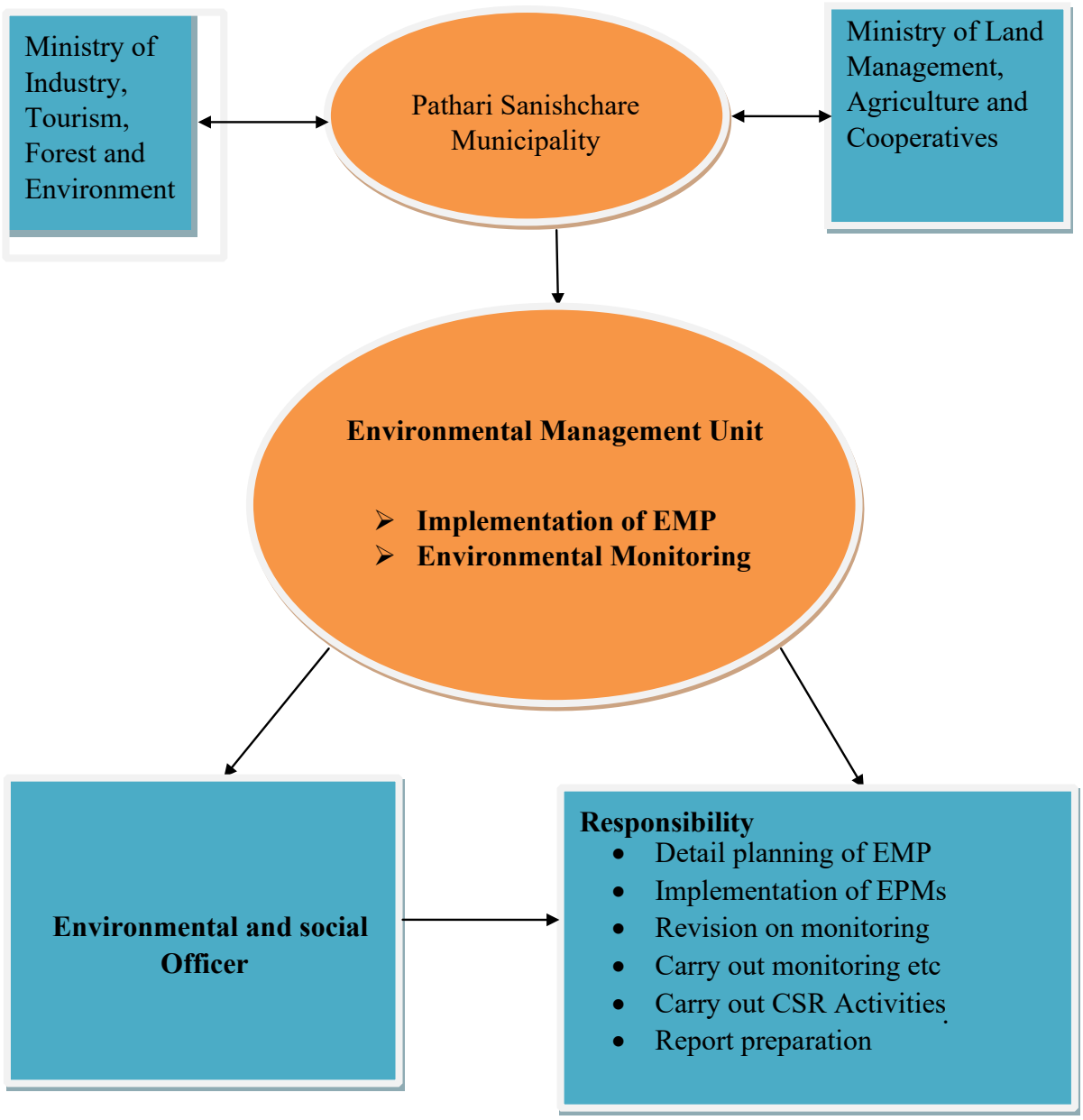


Figure 6: Organizational set up for proposed Slaughterhouse

9.4 Environmental/Mitigation Management Plan

The environmental mitigation measures described in Chapter 8 will be implemented in different phases of proposal implementation. Environmental management actions are taken and adopted for the realization of mitigation measures for construction and operation of project. The proponent and EMU will responsible to implement the Environmental Mitigation Management Plan.

9.5 Environmental Monitoring Plan

Regular monitoring in a systematic and standardized manner helps in assessment of current environment and provides information on operational performance of installed pollution control facilities and activities. The environmental monitoring plan designed for the project has three main objectives;

- To ensure that the project baseline conditions were adequately documented such that a comparative evaluation of the project baseline before and after commencement of the project could be made precisely for impact evaluation.
- To ensure minimizing the adverse impacts and maximizing the beneficial impacts is actually implemented by the project or not so.
- To verify that the project impacts were within the limits of the IEE impact prediction or some unforeseen impacts also occurred during project development and what measures were taken to minimize the unforeseen impacts.
- Identifying the sources and characteristics of all observed environmental effects;
- Quantifying claims on resources and discharges to the environment;

Taking into account of the above objectives and procedures three types of monitoring are envisaged in the plan, namely: Baseline Monitoring, Compliance Monitoring and Impact Monitoring. Since the required databases for the environmental baseline are already collected by the IEE study, the project need not envisaged to require baseline monitoring. Table 14, Table 15 and Table 16 presents the baseline monitoring plan, compliance monitoring plan and impact monitoring plan in a matrix format showing monitoring indicators, monitoring methods, development phase and frequency of monitoring of the various environmental parameters during the different stages of the proposal implementation. For any type of monitoring the project proponent will be the responsible agency and Provincial Government of Province No. 1 specially Ministry of Industry, Tourism, Forest and Environment, Ministry of Land Management, Agriculture will be the monitoring agencies.

9.5.1 Baseline Monitoring

Baseline monitoring is the part of IEE, which collects the environmental baselines of the project impact area; Monitoring of baseline needs to be revisited in the case of delaying of projects. The baseline monitoring plan is given in Table 14.

Table 14:Baseline Monitoring Plan

Parameter Of Monitoring	Indicators of Monitoring	Methods of Monitoring	Monitoring Location	Monitoring Frequency	Responsible Agency	Monitoring Agency
Air Quality	Ambient air quality for TSP/PM_{10}	High/Low volume sampler, inspection, measures and comparison of the data with ambient stander	Project Construction Site	Once before implementation/ Operation	Proponent	MoITFE, MoLMAC
Water Quality	Water quality (BOD, COD, Iron, Arsenic, E.coli, Ammonia)	Water quality test kits Laboratory study report	Project Construction Site	Once before implementation	Proponent	MoITFE, MoLMAC
Noise Level	Noise Level (dB)	Measurements of noise using Noise level meter.	Project Construction Site	Once before implementation	Proponent	MoITFE, MoLMAC

9.5.2 Compliance Monitoring

This compliance monitoring plan is given in Table 15

Table 15:Compliance Monitoring Plan

Parameters	**Responsible Implementing Agency**	**Verifiable Indicators**	**Verification Methods**	**Schedule**	**Responsible Monitoring Agency**	**Reporting Schedule**	**Reporting Authority**
Compliance with the benefit augmentation and impact mitigation measures listed out in Chapter 8	Pathari Sanishchare Municipality	As relevant for the specific parameter	Visual observation, routine / regular supervision, record books, Lab report questionnaire survey from respective stakeholders etc.	During the construction Phase	Provincial Government	Yearly	MoITFE, MoLMAC
Compliance with the relevant legal measures as discussed in Chapter 5	Pathari Sanishchare Municipality	As relevant for the specific parameter	Visual observation, routine / regular supervision, record books, lab report questionnaire survey from respective stakeholders etc.	During the construction Phase	Provincial Government /Environmental Safeguard Unit	Yearly	MoITFE, MoLMAC
Compliance with directive regarding Slaughter house	Pathari Sanishchare Municipality	As relevant for the specific parameter	Visual observation, routine / regular supervision, record books, lab report questionnaire survey from respective stakeholders etc.	During the construction Phase	Provincial Government	Yearly	MoITFE, MoLMAC

9.5.3 Impact Monitoring

The impact monitoring plan is given in Table 16.

Table 16:Impact Monitoring Plan

Parameter	Indicators	Methods	Monitoring Location	Monitoring Frequency	Responsible Agency	Monitoring Agency
Construction Phase						
Air Quality	Ambient air quality for TSP/PM10	High/Low volume sampler, inspection, measures and comparison of the data with ambient stander	project construction site	Once (At the mid stage)	Pathari Sanishchare Municipality	MoITFE, MoLMAC
Water Quality	Water quality (BOD, COD, Iron, Arsenic, E. coli, Ammonia)	Water Quality lab report	Project construction site	Once (At the mid stage)	Pathari Sanishchare Municipality	MoITFE, MoLMAC
Noise Level	Noise Level (dB)	Measurements of noise using Noise level meter.	Project construction site	Once (At the mid stage)	Pathari Sanishchare Municipality	MoITFE, MoLMAC
Solid waste	Site of open defecation and garbage or solid waste disposal	Direct observation	Adjoining areas within 100m from the project site	Weekly	Pathari Sanishchare Municipality	MoITFE, MoLMAC Municipality, Ward

Parameter	Indicators	Methods	Monitoring Location	Monitoring Frequency	Responsible Agency	Monitoring Agency
Condition of built structure	Default on the design and structure	Direct observation	Project construction site	Twice (mid stage and final stage of construction)	Pathari Sanishchare Municipality	MoITFE, MoLMAC
Air Quality	Ambient air quality for TSP/PM10	High/Low volume sampler, inspection, measures and comparison of the data with ambient stander	project construction site	Once (At the mid stage)	Pathari Sanishchare Municipality	MoITFE, MoLMAC
Operation Phase						
Air Quality	Ambient air quality for TSP/PM_{10}	High/Low volume sampler, inspection, measures and comparison of the data with ambient stander	project site	Once a year	Pathari Sanishchare Municipality	MoITFE, MoLMAC
Water Quality	Water quality (BOD, COD, Iron, Arsenic, E. coli, Ammonia)	Water Quality test report	Project site	Once a year	Pathari Sanishchare Municipality	MoITFE, MoLMAC
Noise Level	Noise Level (dB)	Measurements of noise using Noise level meter.	Project site	Once a year	Pathari Sanishchare Municipality	MoITFE, MoLMAC

Parameter	Indicators	Methods	Monitoring Location	Monitoring Frequency	Responsible Agency	Monitoring Agency
Waste and odor	clean and hygienic surrounding	Direct observation	Project site	Daily	Pathari Sanishchare Municipality	MoITFE, MoLMAC
Hygienic slaughter process	Quarantine process, feeding pattern, slaughtering process, use of disinfectant	Direct observation	Project site	Daily	Pathari Sanishchare Municipality	MoITFE, MoLMAC
Disease outbreak analysis	Disease outbreak event	Direct observation and document of livestock health or economic loss	Nearby settlement and project site	Quarterly	Propo Pathari Sanishchare Municipality nent	MoITFE, MoLMAC
Slaughter house assessment	Consumption rate of meat, increase in the livestock farms.	All the financial data sheets	Project site	Once a year	Pathari Sanishchare Municipality	MoITFE, MoLMAC

9.6 Monitoring Cost

In the development phase, the supervising engineer of the developmental civil works will be entrusted for the environmental monitoring, where as in the operation phase an Environmental Management Unit will be established within the hospital from among the senior members from different departments. The members of the environmental management unit will be made responsible for the monitoring. Hence, the management cost for the monitoring is not envisaged to be involved as a separate cost. However, instrumental monitoring such as water quality, air quality and noise are not in the scope of the on built mechanism of the environment management system within the slaughterhouse requires outsourcing services. The cost of such monitoring for every year is presented in Table 17.

Table 17: Monitoring parameter and cost

S.N.	Monitoring Parameter	Lab test/year	Unit Rate (NRs.)	Total
1	Air Quality	One	30,000.00	30,000.00
3	Water Quality	Four	5,000.00	20,000.00
4	Noise	Twice	5,000.00	10,000.00
	Total yearly cost			60,000.00

9.7 Grievance Redresses Mechanism and Reporting Mechanism

Along with the construction and operation of slaughterhouse, the people may have complaints on different activities of the project. Procedure of lodging complaint will be established to allow local people and other relevant institution to appeal any disagreeable practices and activities arising from the project activities.

There is the potentiality for grievance related to slaughterhouse, CSR activities, community infrastructure and other community related issues. The proponent will formulate the grievance redress committee to resolve complains. The local and other stakeholder can lodge their complain to municipality. The municipality will verify the issues and provide decision within 7 days of the compliant registered in the office. If the issue is settled, the process ends. In case it is not settled, legal procedures will be followed to further resolve the issue.

10. CONCLUSION AND RECOMMENDATIONS

10.1 Conclusion

The Pathari Sanishchare Slaughter house will produce hygienic meat by adopting the rule of animal's slaughter. The major challenge of slaughter house is the management of the animal waste. The waste like intestinal waste, blood and urine of the livestock will be treated by the biogas plant. The dead animals or carcass will be disposed safely in the secure location. Furthermore, every livestock will go through the quarantine process under the supervision of the veterinarian before the slaughtering process followed by the Ante- mortem and Post mortem.

At the same time, it will also encourage local community toward the consumption of healthy meat. It will also promote the local livestock farming by purchasing the livestock from the local market. This project will be milestone regarding the modern meat production practice in the district itself. This project will act as the catalyst in opening modern slaughter house in other cities and town as well.

From the findings of the study, it is concluded that the proposed location, design and technology is suitable to upgrade and construct slaughterhouse. The major impacts will occur during operation phase which will be controlled and mitigated by implementing above mentioned mitigation measures in Chapter 8 and Environmental Management Plan (EMP). The IEE has shown that none of the anticipated environmental impacts of constructing the proposed project is significant enough to need a detailed follow-up EIA study.

Most of the identified and perceived negative impacts of this proposed slaughterhouse are of low significance. With the set of proposed mitigation measures, most of the adverse impacts can be minimized and/or compensated and limited to locality during both construction and operation period. Once the measures outlined in the mitigation and enhancement measures and or EMP are implemented, there is less risk for residual impacts that may affect the physical, biological, socio-economic and cultural environment of the proposed area. Hence, it is suitable to implement the proposed project addressing the impacts through the mitigation and enhancement measures suggested by this IEE Study report, considering the nature of the industry, its location, and people's positive perceptions and identified environmental impacts. As a whole, this IEE study is considered sufficient for this project.

10.2 Recommendation

The study concluded the following recommendations to control and minimize the adverse impacts;

a) The community is unaware about the benefit of Slaughterhouse so awareness is highly recommended.
b) The Slaughter house should strictly follow the rules of animal slaughtering.
c) Dead animal disposing site should be away from the residential area and must be selected after pubic consultation.
d) Slaughter house should give priority to local livestock farmers and must purchase healthy and adult livestock.

ANNEXES

1. Annex ToR approval letter and Approved ToR

पथरी शनिश्चरे नगरपालिका

नगर कार्यपालिकाको कार्यालय

email: pathrimun@lfb@gmail.com
फोनः०२१-५५२१२,५५६११२,५५६१
फयाक्सः ०२१५५५२९६

पशुपन्छी शाखा
पथरी,मोरङ्ग

पत्र संख्याः०७५/७६
च.न.

१ नं. प्रदेश, नेपाल

मिति : २०७७/०२/२६

विषय : प्रारम्भिक वातावरणीय परिक्षणको कार्यसूचि (TOR) स्वीकृत भएको सम्बन्धमा ।

श्री ग्रेट हिमालयन रिसर्च एण्ड कन्सल्ट प्रा.लि.
बुद्धनगर, काठमाण्डौ ।

प्रस्तुत विषयमा यस नगरपालिकाको बधस्थल निर्माण सुधार कार्यक्रम अनुरुप आवश्यक पर्ने प्रारम्भिक वातावरणीय परिक्षण(IEE) को कार्यसूची (TOR) यस नगरपालिकामा पेश भएकोमा मिति २०७७/०२/२६ को निर्णय अनुसार कार्यसूची (TOR) स्वीकृत भएको ब्यहोरा अनुरोध छ ।

तपशिल

१. बधस्थल छेउछाउको क्षेत्रको हालको वर्तमान वस्तुस्थिती, सामाजिक, आर्थिक तथा जैविक विविधताको तथ्याङ्क समेत IEE प्रतिवेदनमा उल्लेख गर्ने ।
२. रसायनिक तथा जैविक तत्व लगायतका परिस्थीतिकीय प्रणाली (Ecological system) मा पर्न सक्ने असरहरुको स्पष्ट रुपमा आकलन गरी न्यूनीकरणका उपायहरु समेत IEE प्रतिवेदनमा उल्लेख गर्ने ।
३. वातावरण व्यवस्थापन योजना (EMP) अनिवार्य रुपमा IEE प्रतिवेदनमा उल्लेख गर्ने ।

नगरपालिका प्रमुख प्रशासकीय अधिकृत
उप-सचिव

2. Annex: Public Notice

पथरी शनिश्चरे नगरपालिका

नगर कार्यपालिकाको कार्यालय

email: pathrimunllfb@gmail.com
फोनः०२१-५५२१२,५५६११२,५५६१
फ्याक्सः ०२१५५५२९६

पशुपन्छी शाखा
पथरी,मोरङ्ग

१ नं. प्रदेश, नेपाल

पत्र संख्याः०७५/७६
च.न.

प्रारम्भिक वातावरणीय परीक्षणसम्बन्धी सार्वजनिक सूचनाको

बधस्थल निर्माण सुधार आयोजनाको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन तयारी सम्बन्धी सार्वजनिक सूचना

प्रकाशित मिति: २०७७/०२/२६

प्रदेशनं. १, मोरङ्ग जिल्लाको पथरी शनिश्चरे नगरपालिकाद्वारा निम्न बमोजिमको प्रस्ताव कार्यान्वयन गर्न लागिएको छ ।

प्रस्तावको व्यहोरा	बधस्थल निर्माण सुधार आयोजना
प्रभाव पर्न सक्ने जिल्ला/न.पा.	मोरङ्ग जिल्ला, पथरी शनिश्चरेन.पा., वडानं. १

माथि उल्लेखित प्रस्तावको प्रारम्भिक वातावरणीय परीक्षण (IEE) अध्ययनसम्बन्धी प्रतिवेदन तयारी गर्ने क्रममा सो क्षेत्रहरुको भौतिक तथा रसायनिक प्रणाली, जैविक प्रणाली, सामाजिक प्रणाली, सांस्कृतिक प्रणाली र आर्थिक प्रणालीहरुमा के कस्तो प्रभाव पर्दछ भनी यकिन गर्न सो स्थानको न. पा. तथा त्यस क्षेत्रका विद्यालय, अस्पताल, स्वास्थ्य चौकी तथा सरोकारवाला व्यक्ति वा संस्थाको लिखित राय सुझाव लिन आवश्यक भएकोले यो सार्वजनिक सूचना प्रकाशन भएको मितिले १० (दश) दिनभित्र निम्न ठेगानामा आई पुग्ने गरी लिखित राय सुझाव उपलब्ध गराई दिनु हुन अनुरोध गरिन्छ ।

राय सुझावको लागि पत्राचार गर्ने ठेगानाहरुः

प्रस्तावकको नाम र ठेगाना	पथरी शनिश्चरेन.पा.,नगर कार्यपालिकाको कार्यालय इ-मेल: patharishanishcharemun@gmail.comफोन नं.: ०२१-५५६११३
परामर्शदाताको नाम र ठेगाना	ग्रेट हिमालयन रिसर्च एण्ड कन्सल्ट प्रा.लि., बुद्धनगर-१०, काठमाडौं इ-मेल: ghrc018@gmail.com फोन नं.: ९८५१२०३४५३

अम्बिका [illegible]
प्रमुख प्रशासकीय अधिकृत
उप-सचिव

सत्यको शंखघोष, दैनिक उद्घोष

उद्घोष

राष्ट्रिय दैनिक

सौगात प्रकाशन प्रा.लि.

वर्ष ३०, अंक २९३ | २०७७ जेठ २७ मंगलबार | Tuesday 9 June 2020 | UDGHOSH NATIONAL DAILY | www.udghoshdaily.com

बधस्थल निर्माण सुधार आयोजनाको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन सम्बन्धी सार्वजनिक

सूचना

प्रकाशित मिति: २०७७.०२.२७

प्रदेश नं. १, मोरङ जिल्ला पथरी शनिश्चरे नगरपालिकाद्वारा निम्न बमोजिमको प्रस्ताव कार्यान्वयन गर्न लागिएको छ।

प्रस्तावको व्यहोरा	बधस्थल निर्माण सुधार आयोजना
प्रभाव पर्न सक्ने जिल्ला र न.पा.	मोरङ जिल्ला, पथरी शनिश्चरे न.पा., वडा नं. १

माथि उल्लेखित प्रस्तावको प्रारम्भिक वातावरणीय परीक्षण (IEE) अध्ययन सम्बन्धी प्रतिवेदन तयारी गर्ने क्रममा सो क्षेत्रहरुको भौतिक तथा रसायनिक प्रणाली, जैविक प्रणाली, सामाजिक प्रणाली, सांस्कृतिक प्रणाली र आर्थिक प्रणालीहरुमा के कस्तो प्रभाव पर्दछ भनी यकिन गर्न सो स्थानको न. पा. तथा त्यस क्षेत्रका विद्यालय, अस्पताल, स्वास्थ्य चौकी तथा सरोकारवाला व्यक्ति वा संस्थाको लिखित राय सुझाव लिन आवश्यक भएकोले यो सार्वजनिक सूचना प्रकाशन भएको मितिले १० (दश) दिनभित्र निम्न ठेगानामा आई पुग्ने गरी लिखित राय सुझाव उपलब्ध गराई दिनु हुन अनुरोध गरिन्छ।

राय सुझावको लागि पत्राचार गर्ने ठेगानाहरु:

प्रस्तावकको नाम र ठेगाना	पथरी शनिश्चरे न.पा., नगर कार्यपालिकाको कार्यालय इ-मेल: patharishanishcharemun@gmail.com फोन नं.: ०२१-५५६११३
परामर्शदाताको नाम र ठेगाना	ग्रेट हिमालयन रिसर्च एण्ड कन्सल्ट प्रा.लि., बुद्धनगर-१०, काठमाडौं इ-मेल: ghrc018@gmail.com फोन नं.: ९८५१२०३४५३

3. Annex: Deed of Enquiry

पथरी शनिश्चरे नगरपालिका
१ नं वडा कार्यालय

पथरी, मोरङ,
१ नं.प्रदेश

प.स.: २०७६/०७७
च.न.: १३२१

मिति: २०७७/०२/२८

श्री पथरी शनिश्चरे नगरपालिको
नगर कार्यापालिकाको कार्याल
पशुपन्छी,शाखा

विषय : सुचना टास गरि जानकारी पठाएको बारे।

प्रस्तुत बिषयमा यस पथरीशनिश्चरे नगरपालिका वडा नं. १ मा त्यहा कार्यालयबाट च.न. ३२२६ मिति २०७७/०२/२६ प्राप्त पत्रअनुसार संगलन सुचना पान १ यस कार्यालयको सुचना पाटीमा टास गरि सोको जानकारी पठाएको व्याहोरा अनुरोध छ।

रोमान्सी गुरुङ
कार्यवाहक

"गर्वले तिरौं कर, पारौं समुन्नत पथरी शनिश्चरे नगर"
web.: www.patharishanishcharemun.gov.np

लिखितम् तपसिलका मानिस आगे पथरी शनिश्चरे नगर पालिका भित्र पशु पंछि बधशालाको मिति २०७७-२-२६ गते प्रकाशित भएको सार्वजनिक सुचना यस सिरीजंगा स्मृति धार्मिक वन समुहको कार्यालयको सुचना पाटीमा टाँस भएको बढि बाचि टाँस भएको मुचुल्कामा सहीछाप गरियौं।

(१) कुल बहादुर हाङ्स्रोङ
(२) कोपिला हाङ्गाम
(३) रविन मायाँ लिम्बु
(४) सन्तोष सिरेङ
(५) केशव लिम्बु
(६) देउमान सिरेङ
(७) एलबहादुर तामाङ

इति सम्वत २०७७-२-२६ गते रोज २ शुभम्

4. Annex: Recommendation Letter

"चिरन्या शपी वन जोगाऔं, सिरिजंगा मित्र जाऔं प्रकृतिमा रमाऔं"

दर्ता नं : १/२०७२/०७३

[illegible]

श्री सिरिजंगा स्मृति धार्मिक वन समूह

पथरीशनिश्चरे न.पा -१० मोरङ

स्था: २०६२

च.सं.: २०७६/०७८

च.नं.: १८

मिति: २०७६-२-३०

श्री नगर पालिकाको कार्यालय

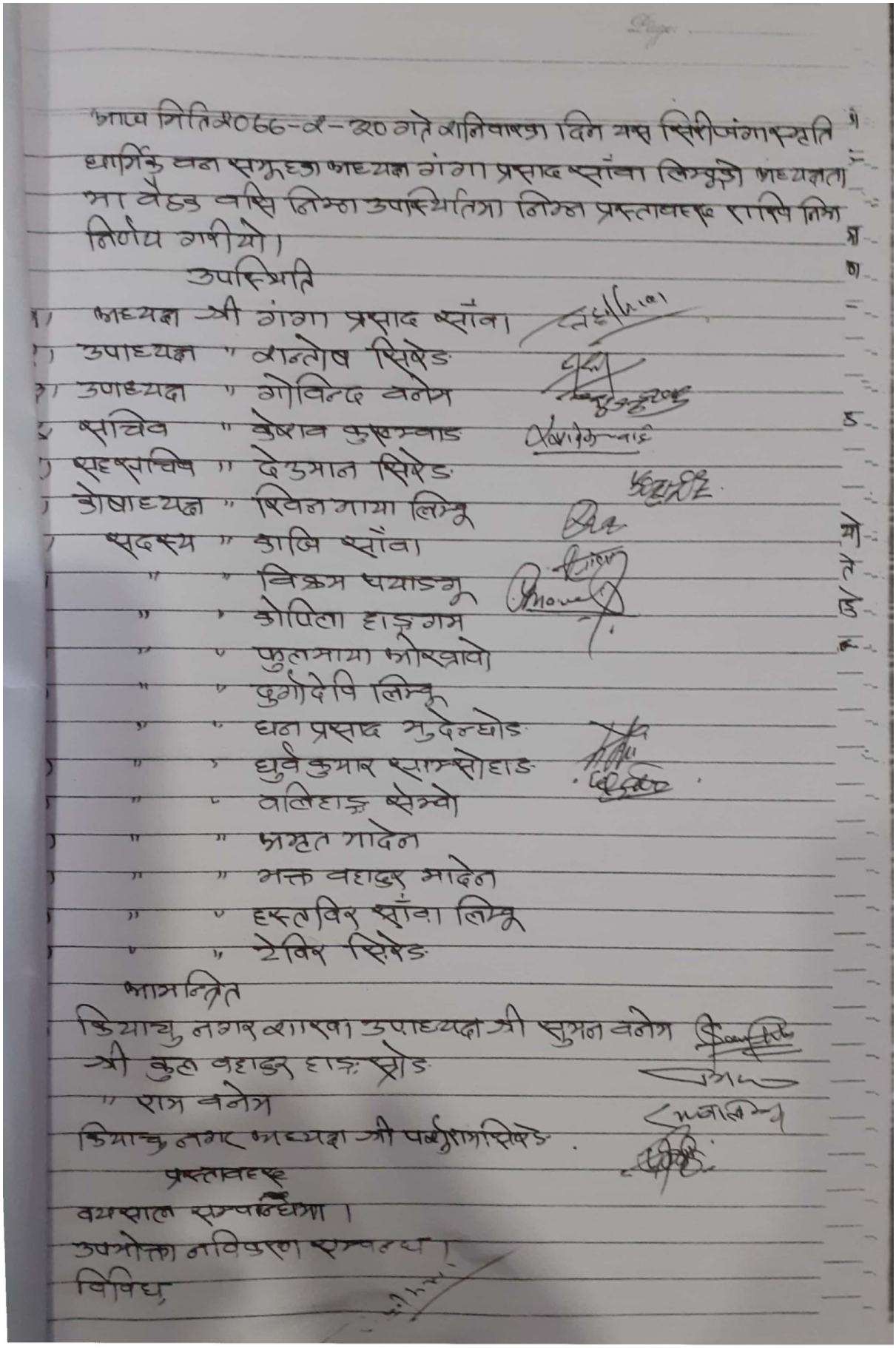
पथरी शनिश्चरे नगर पालिका, प्रदेश नं. १ मोरङ

विषय: राय पेश गरेको सम्बन्धमा।

उपरोक्त सम्बन्धमा पथरी शनिश्चरे नगर पालिका कार्यालय पर्यो पत्रि शाखा को च.नं. ३२२६ को मिति २०७६-२-२५ गते सार्वजनिक सूचना टाँस भएको सूचना अवगत भयो. उक्त सूचनामा उल्लेखित पथरी शनिश्चरे नगर पालिका वडा नं. १ मा निर्माण हुन लागेको वधस्थल IEE अध्ययन प्रति वेदन तयार गर्ने क्रममा आयोजना संग नजिक रहेको सिरीजंगा धार्मिक स्थललाई पर्यटकिय क्षेत्र घोषणा हुन अन्तिम अवस्थामा रहेको र उक्त क्षेत्रमा विभिन्न मोठ मन्दिर रहेको हुँदा वधस्थललाई वातावरणीय दुषित रहित व्यवस्थापन गर्नका लागि समितिको निर्णयको फोटो कपि सहित संलग्न राखि पेश गरीएको व्यहोरा अनुरोध छ।

सचिव
केशव कुरुम्बाङ

अध्यक्ष
गंगा प्रसाद साँवा



आज मिति २०७८-४-२० गते बनिवासरका दिन बस्ने सिरीजंगा स्मृति धार्मिक वन समुहका अध्यक्ष गंगा प्रसाद स्याँवा लिम्बुको अध्यक्षता मा बैठक बसि निम्न उपस्थितिमा निम्न प्रस्तावहरु राखिए निम्न निर्णय गरीयो।

उपस्थिति

१) अध्यक्ष श्री गंगा प्रसाद स्याँवा
२) उपाध्यक्ष " बान्तोष सिवेड
३) उपाध्यक्ष " गोविन्द बनेम
४) सचिव " केशव कुमाखाड
५) सहसचिव " देउमान सिवेड
६) कोषाध्यक्ष " सिवन माया लिम्बू
७) सदस्य " काजि स्याँवा
" " विक्रम घयाङमू
" " कोपिला हाङगम
" " फुलमाया मोख्रावो
" " फुगोदेपि लिम्बु
" " धन प्रसाद सुदेन्घोड
" " ध्रुवे कुमार स्याम्सोदाङ
" " बलिहाङ्ग खेम्बो
" " अमृत गादेन
" " भक्त बहादुर गादेन
" " हस्तविर स्याँवा लिम्बू
" " देविर सिवेड

आमन्त्रित

कियाचु नगर सारवा उपाध्यक्ष श्री सुमन बनेम
श्री कुल बहादुर हाङ्ग्रोड
" राम बनेम
कियाचु नगर अध्यक्ष श्री पर्वुराम सिवेड

प्रस्तावहरु

बयसाल सम्बन्धमा।
उपभोक्ता समिति सम्बन्धमा।
विविध

प्रस्ताव नं. १ माथि छलफल गर्दा पथरी शनिश्चरे नगरपालिकाको कार्यालय पशु पन्छी शाखाको च.नं. ३११८ मिति २०७७-१-२५ गते प्रकाशित भएको तथा सार्वजनिक ठाउँमा टाँस भएको सार्वजनिक सूचना अवगत भयो उक्त सूचनामा उल्लेखित पथरी शनिश्चरे नगरपालिका वडा नं. ५ सिंगा डुबा लागेको ~~काम स्थलको~~ वधस्थल IEE अध्ययन प्रतिवेदन तयार गर्ने क्रममा आयोजनासँग नजिक रहेको सिरीजंगा धार्मिक स्थललाई प्रयोरक्रिय क्षेत्र घोषणा हुन अन्तिम अवस्थामा रहेको र उक्त क्षेत्रमा विभिन्न मठ मन्दिर रहेको हुँदा वधस्थलहरूलाई वातावरणीय ~~सहित~~ दुषित रहित व्यवस्थापन गर्नेको लागि आफ्नो बैठकले ध्यानाकर्षण गराउने भनि सर्वसम्मत निर्णय पारित गरियो

प्रस्ताव नं. २ माथि छलफल गर्दा यस सिरीजंगा स्थित धार्मिक वन समूहमा समावेश भएका सम्पूर्ण उपभोक्ताहरूलाई विधान नविकरण गर्नको लागि उपभोक्ता सदस्यहरूलाई नविकरण दस्तुर रु. २००/- लिने र नविकरण रसिद २०० प्रति छपाई असार ५ गते सम्ममा नविकरण गरी सक्नु पर्ने भनि सर्वसम्मत निर्णय गरियो।

5. Annex: Pictorial Highlights of Project Site

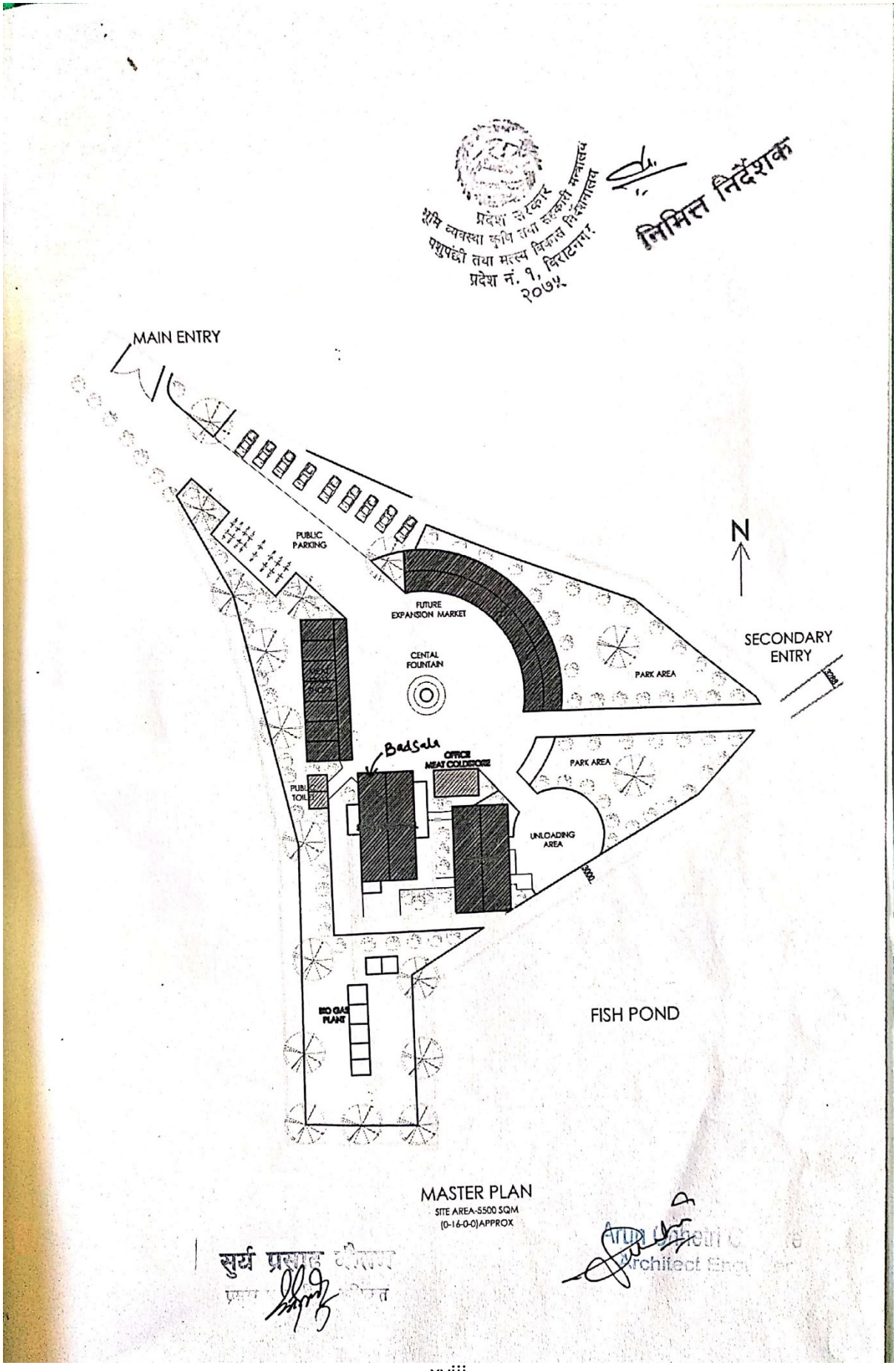
Photo: Pathari Khola

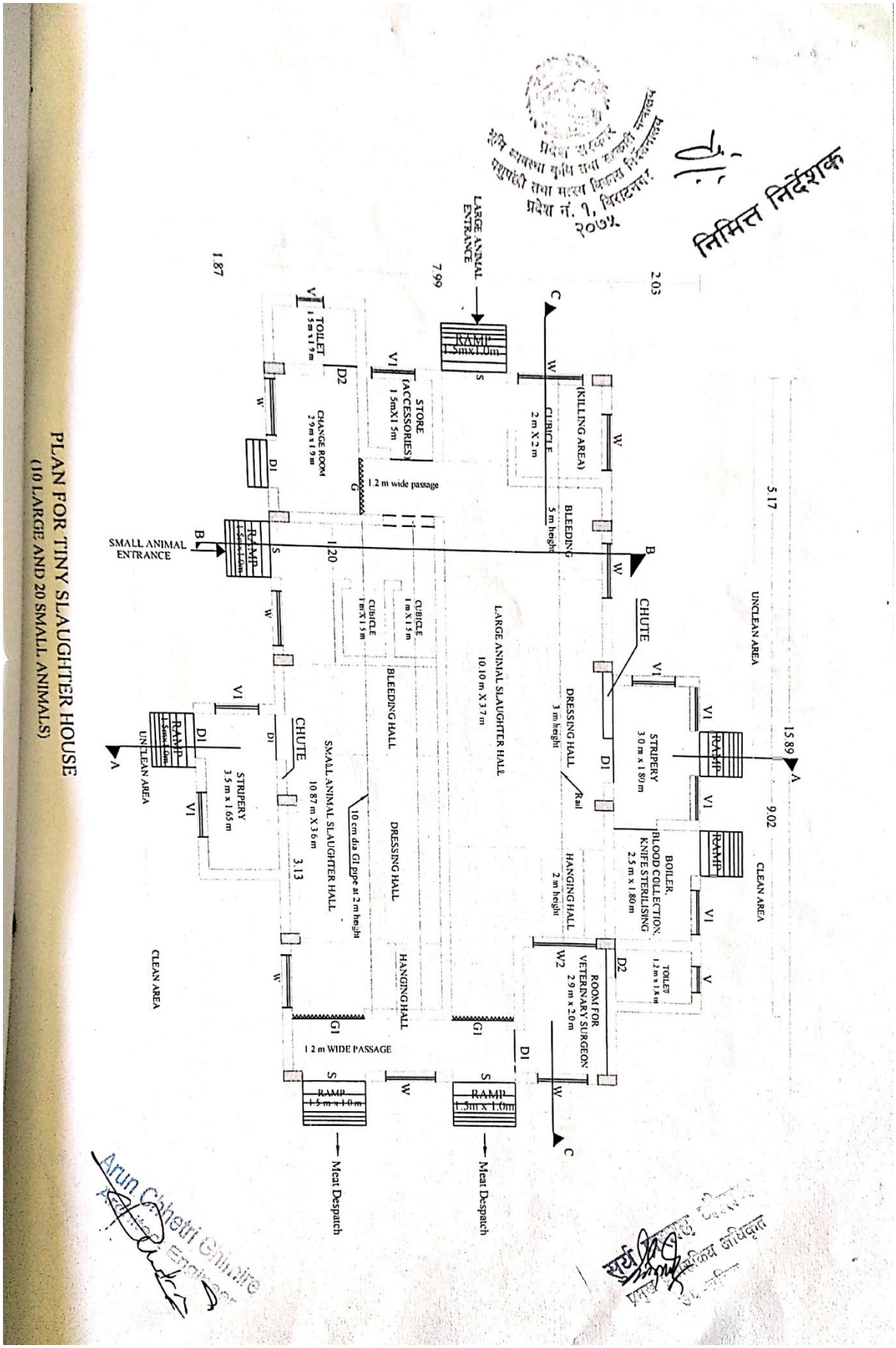
Photo: Existing Shed in the proposed area

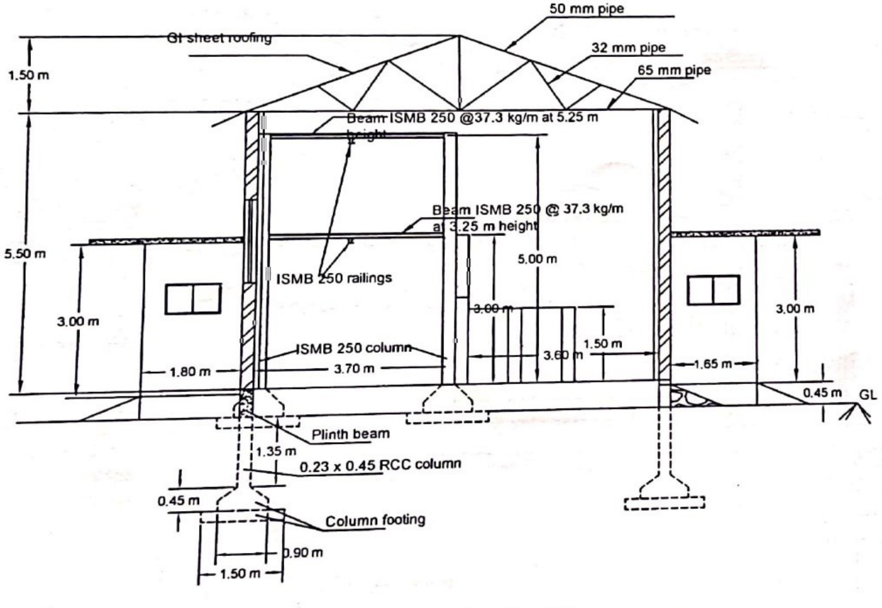
Photo: Existing meat shop in proposed slaughterhouse

Photo: Existing shed in proposed slaughterhouse location

6. Annex: Design and Drawings


MAIN ENTRY
PUBLIC PARKING
FUTURE EXPANSION MARKET
CENTAL FOUNTAIN
PARK AREA
SECONDARY ENTRY
N
OFFICE
MEAT COLDSTORE
PARK AREA
UNLOADING AREA
BIO GAS PLANT
FISH POND
MASTER PLAN
SITE AREA-5500 SQM
(0-16-0-0) APPROX


PLAN FOR TINY SLAUGHTER HOUSE
(10 LARGE AND 20 SMALL ANIMALS)
LARGE ANIMAL ENTRANCE
SMALL ANIMAL ENTRANCE
(KILLING AREA)
CUBICLE 2 m X 2 m
BLEEDING 5 m height
LARGE ANIMAL SLAUGHTER HALL 10 10 m X 3 7 m
DRESSING HALL 3 m height
HANGING HALL 2 m height
CHUTE
STRIPERY 3 0 m x 1 80 m
BOILER, BLOOD COLLECTION, KNIFE STERILISING 2 5 m x 1 80 m
TOILET 1 2 m x 1 x m
ROOM FOR VETERINARY SURGEON 2 9 m x 2 0 m
UNCLEAN AREA
CLEAN AREA
STORE (ACCESSORIES) 1 5mX1 5m
TOILET 1 5m x 1 9m
CHANGE ROOM 2 9m x 1 9m
1.2 m wide passage
CUBICLE 1 m X 1 5 m
BLEEDING HALL
SMALL ANIMAL SLAUGHTER HALL 10 87 m X 3 6m
DRESSING HALL
HANGING HALL
10 cm dia GI pipe at 2 m height
1 2 m WIDE PASSAGE
STRIPERY 3 5 m x 1 65 m
RAMP 1 5m x 1 0m
Meat Despatch
5.17
9.02
15 89
2.03
7.99
1.87
3.13
1 20

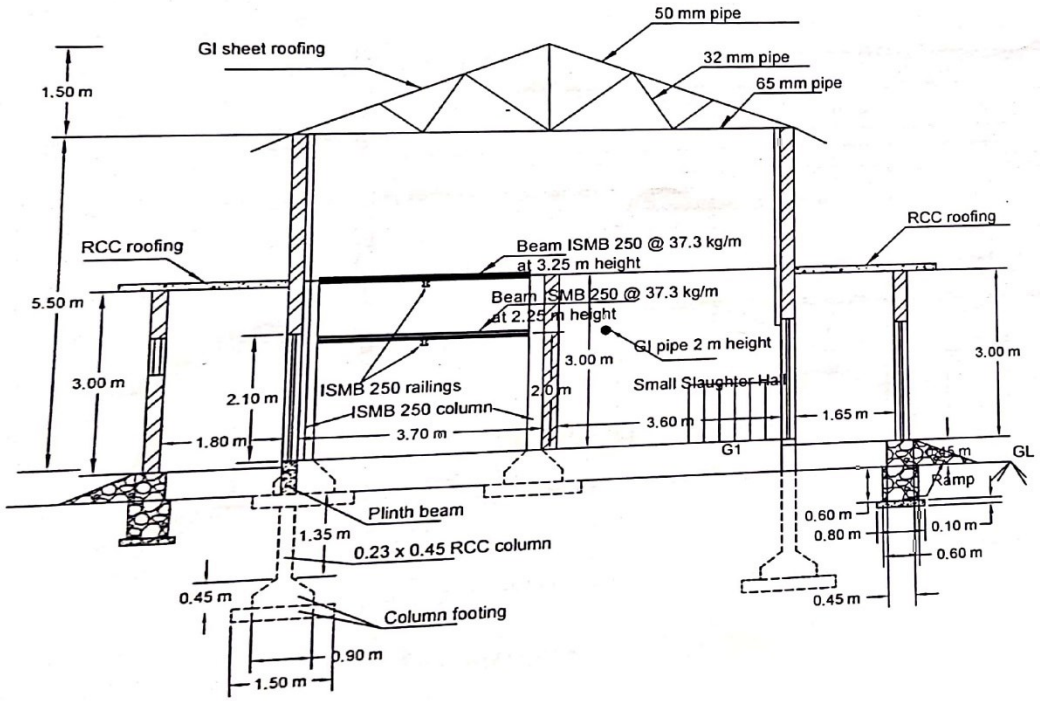


TINY TYPE SLAUGHTER HOUSE - SECTION BB

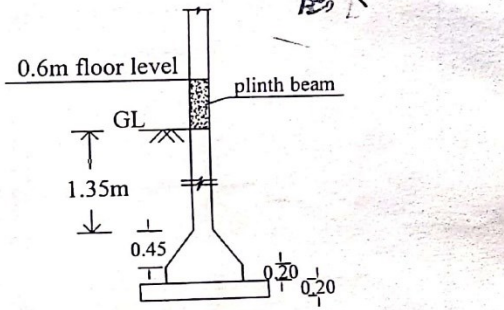
JOINERY DETAILS		
D1	STAINLESS STEEL DOOR	100 X 210
D2	PVC DOOR	80 X 210
G	GLASS DOOR	200 X 250
G1	GLASS DOOR	150 X 250
S	ROLLING SHUTTER	200 X 240
S1	ROLLING SHUTTER	150X 240
W2	GLASS WINDOW	120 X 120
W	WELDED MESH(BOTTOM)	150 X 120
W	WELDED MESH(TOP)	150 X 165
V	VENTILATOR	60 X 45
V	VENTILATOR	100 X 60

DRAWN TO SCALE
ALL DIMENSIONS ARE IN METRES (m)

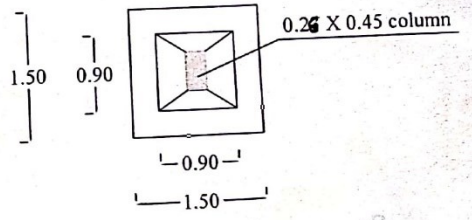
PLUMBING DETAILS	
◯	LEG OPERATED WASH TAP



TINY TYPE SLAUGHTER HOUSE - SECTION AA

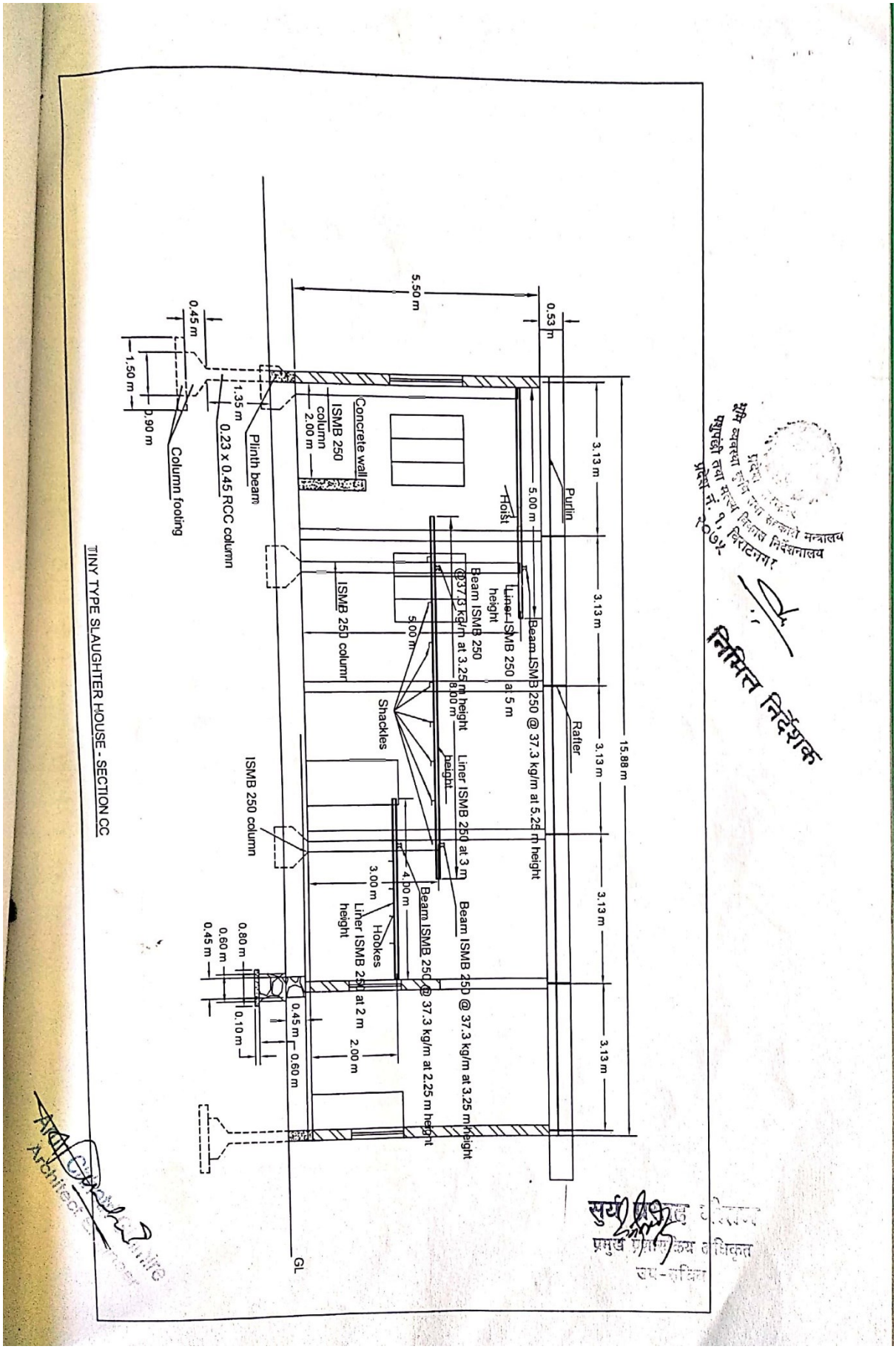


ELEVATION



PLAN

DETAILS OF COLUMN FOOTING


TINY TYPE SLAUGHTER HOUSE - SECTION CC
5.50 m
0.53 m
15.88 m
3.13 m
3.13 m
3.13 m
3.13 m
3.13 m
5.00 m
0.45 m
1.50 m
0.90 m
1.35 m
0.23 x 0.45 RCC column
Plinth beam
Column footing
Concrete wall
ISMB 250 column
2.00 m
Hoist
Purlin
Rafter
Beam ISMB 250 @ 37.3 kg/m at 5.25 m height
Liner ISMB 250 at 5 m height
Beam ISMB 250 @37.3 kg/m at 3.25 m height
ISMB 250 column
5.00 m
8.00 m
Shackles
Liner ISMB 250 at 3 m height
ISMB 250 column
3.00 m
4.00 m
Hookes
Liner ISMB 250 at 2 m height
Beam ISMB 250 @ 37.3 kg/m at 3.25 m height
Beam ISMB 250 @ 37.3 kg/m at 2.25 m height
0.80 m
0.60 m
0.45 m
0.10 m
0.45 m
0.60 m
2.00 m
GL