

Thakurbaba Municipality
Office of The Municipal Executive
Sainawar, Bardiya
Lumbini Province, Nepal

Terms of Reference (ToR)
For
The Consulting Service for
Initial Environmental Examination (IEE) of
Sustainable Extraction of Riverbed Materials from
Different Location of Babai River and Orai River (Khola).

Oct, 2026

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प्रमुख प्रशासकीय अधिकृत

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1. Introduction

1.1 Background

Thakurbaba Municipality, Office of the Municipal Executive, Lumbini Province, Bardiya, issues this Request for Proposal (RFP) to solicit technical and financial proposals from qualified and experienced engineering consulting firms to conduct an Initial Environmental Examination (IEE) for the extraction of riverbed materials (sand, gravel, and stone) from the Babai River and Orai River (Khola).

Concurrently, rapid infrastructure development has accelerated the demand for these riverbed construction materials. While excessive sediment accumulation can aggravate water-induced disasters by raising riverbeds and altering natural flow paths, unregulated mining can severely destabilize river morphology. Therefore, the primary objective of this IEE study is to determine the scientifically sound, environmentally sustainable volume of sand, gravel, and stone that can be safely extracted. The study will identify, predict, and evaluate potential environmental impacts, recommend robust mitigation measures to minimize or avoid adverse effects at extraction sites, and prescribe appropriate, sustainable extraction methodologies.

1.2 Legal Relevancy

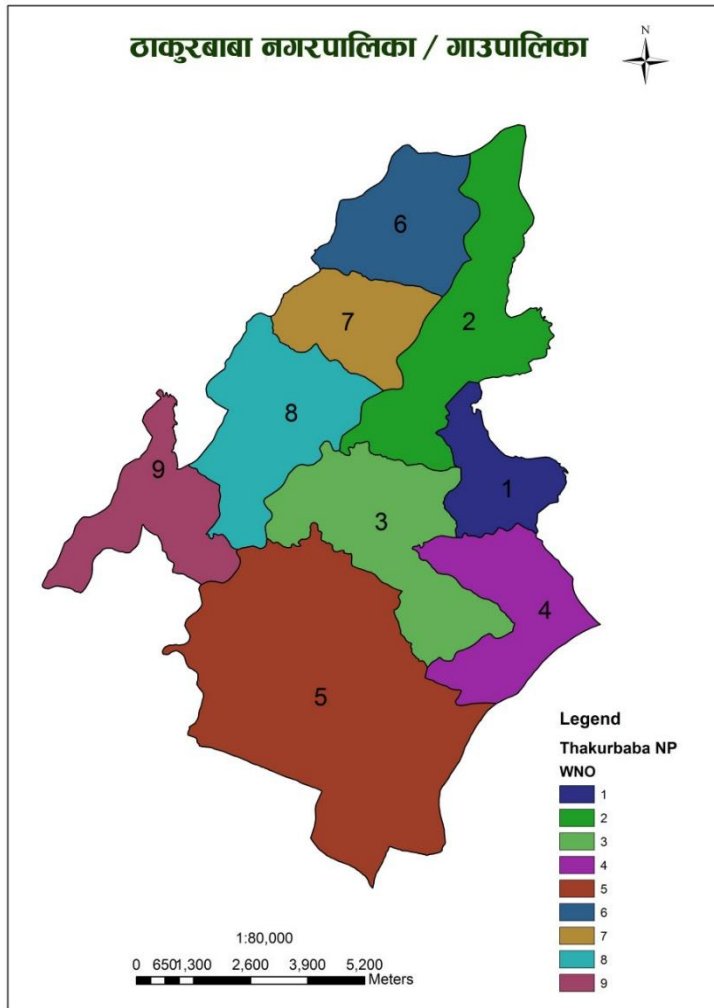
In Nepal, the integration of environmental conservation with development endeavors is strictly reinforced by national and provincial legislation. This proposed consulting service is mandatory under the statutory provisions enforced through the **Environment Protection Act, 2076 (EPA)**, the **Environment Protection Rules, 2077 (EPR)**, and the **Lumbini Province Riverbed Material Management Regulation, 2075**, लुम्बिनी प्रदेश आर्थिक ऐन २०८३

Specifically, as per **Schedule-2, Section (ग) खानी क्षेत्र, Clause (७) नदिनाला** of the regulatory framework of **Environment Protection Rules, 2077 (EPR)**, an IEE is legally required for the following threshold:

"नदिनाला सतहबाट दैनिक १०० घनमिटर भन्दा बढि ३०० घनमिटर सम्म बालुवा, ग्राभेल, गिर्खा माटो निकाल्न प्रारम्भिक वातावरणीय परीक्षण (IEE) गर्नुपर्ने व्यवहारा उल्लेख छ।"

Location of the project site

The Project site lies within the municipality.



2 Objectives of the work

The objective of the consulting service is to conduct the following tasks:

- To review existing environmental conditions of the project area and identify relevant environmental issues and concerns for inclusion in the ToR for IEE study of Sand, Gravel, and stone extraction.
- To specify the volume of Sand, Gravel, and stone that could be extracted in an environmentally sustainable manner
- To specify the extraction and collection methods
- To determine the major biological, physical, chemical, social, and cultural environmental impacts.
- To suggest effective mitigation measures to overcome the negative impacts.
- To suggest measures to increase positive impacts
- To formulate an Environmental Management Plan and Environmental Monitoring Plan for the monitoring of implementation of proposed mitigation measures.

3 Scope of the Services

The principal services to be provided by the consultants to fulfill the objective of the services are detailed below. However, these services indicate the overall tasks the consultants will perform. The consultant shall be responsible for carrying out all necessary office and field work, including topographical map study, alignment assessment, geological assessment, and necessary laboratory testing to prepare the ToR and Report, which shall incorporate all the priority issues of work by categorizing them into physical, biological, socio-economic, and cultural aspects of both Beneficial and Adverse types, for both pre-excavation, excavation, and post- excavation stages, as per EPA 2077.

The consultants should refer to other project reports and literature; however, the responsibility for verification of the accuracy of the data, findings, and conclusions contained therein shall rest with the consultants. The entire task must follow the requirements and standards acceptable to the Municipality Office and should be based on current proven and accepted practices. The consultant shall carry out their services in accordance with accepted professional standards, utilizing sound engineering and economic practices.

3.1 IEE Preparation

- Baseline Survey
- Impact Identification, Prediction and Evaluation
- Environmental Impact Mitigating Measures
- Environmental Monitoring Plan
- Environmental Management Plan
- Detailed engineering survey with section details and volume calculation
- Draft Report Preparation
- Public Hearing Program
- Public Notice
- Final Report Preparation

4 Methodology

The Consultant shall adopt appropriate, scientifically rigorous methodologies to gather all necessary site-specific data as prescribed by national legislation and municipal working procedures. The assignment must be executed sequentially, beginning with preparing the Terms of Reference (ToR) in strict accordance with **Schedule-8** of the Environment Protection Rules (EPR), 2077. Pursuant to the decentralized authority granted by the EPR 2077, Thakurbaba Municipality itself reserves the statutory power to review and approve both the ToR and the final Initial Environmental Examination Reports. Upon receiving formal ToR approval from the municipality, the Consultant shall prepare the draft IEE report and organize a formal Public Hearing program within the project impact area. To ensure transparent stakeholder engagement, the Consultant must publish a mandatory **seven (7) day public notice** in a National Daily Newspaper to solicit feedback regarding potential impacts on the Biological, Physical, Socio-Economic, and Cultural environments. All constructive feedback and institutional concerns gathered from local stakeholders must be systematically addressed and incorporated into the final IEE report, which must be compiled in strict compliance with the format outlined in **Schedule-5** of the EPR 2077 prior to its final submission to Thakurbaba Municipality for executive approval.

4.1 PREPARATORY WORKS FOR IEE STUDY

4.1.1 Desk Study

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

- Collection and review of secondary sources of information from various sources, including the internet, websites, or previous IEE report
- Delineation of the geographical boundary of the influence area on the topographical map.
- Preparation of project-specific checklist.

4.1.2 Literature Review

Relevant information for the study shall be collected through extensive review of literature. Relevant documents and reports shall be collected and reviewed to detail the nature of the Project and identify the preliminary list of potential environmental impacts. 1: 25,000 topographic maps, geological maps, and Google Maps of the project area should be collected and studied. Information could be collected and reviewed from Thakurbaba Municipality, Office of the Municipal Executive.

After the review of literature and documents, the Study Team should delineate the areas where the Project is expected to have its impacts. Maps should be prepared showing potential development areas, natural resources, and possible impacts on them from Project activities. Based on this information, a base map of the Project area should be prepared for its use during field surveys.

4.1.3 Review of Relevant Government's Acts, Policies, Laws, Guidelines and Manuals

The proposed project attracts various Acts, Regulations, Policies, Guidelines, Manuals and Standards of the Government of Nepal (GoN). The consultant should make a proper review of the relevant aforementioned acts, regulations, policies, guidelines, and manuals.

4.1.4 Study of Topographical Maps/Other maps

Topographical maps shall be analyzed carefully at the project location together with field verification by all experts analyzing direct and indirect impact zones in the project area. Topographical map interpretation could be useful in analyzing forest area and past river alignment. Similarly, geological maps and Google satellite images could be used to study the existing geology of the proposed area.

4.1.5 Detail Engineering Survey and Demarcation of Extraction Boundary

After a site visit and proper study of the location, a detailed engineering survey must be conducted to calculate the volume of suitable riverbed material extraction. From the survey data, an X-section of every 10m should be plotted of the area of demarcation from which material can be extracted.

4.2 PREPARATION OF IEE REPORT

4.2.1 Data Collection, Compilation of Baseline Information, Impact Identification, Prediction and Evaluation

The ToR should clearly state methods and techniques which shall be employed during data collection.

ToR should indicate the data sources and data collection methods, particularly the primary and secondary data. It should include methods that shall be used while collecting the information. The ToR may include the following methods:

Physical Environment – Walkthrough/Direct observation, inventory, literature review, sample collection and laboratory analysis for physical entities if deemed necessary, sound level measurement, map study and national-level databases

Biological Environment - Identification of species, including protected species around the project site. Walkthrough/Direct observation, sampling, transect walk, key informant interview

Socio-Economic and Cultural Environment - Semi-structured interview with key informants, discussion with stakeholders, focus group discussion, group discussion,

Based on the primary and secondary information, the baseline information related to the issues as indicated in the IEE report should be compiled and presented. The possible environmental impacts shall be identified considering proposed project activities and their interaction with the surrounding environment in time and space, and accordingly the impacts should be evaluated and presented in the IEE report in accordance with Schedule 5 of EPA, 2077.

Evaluation of Impacts

The impacts are broadly categorized into two categories – identified impacts and predicted impacts. In general, direct impacts are identified, and indirect impacts are predicted. These identified and predicted impacts should be evaluated to know their environmental significance, taking into consideration of: Magnitude, Extent, and Duration.

The environmental impacts should be ranked either High, Medium or low Magnitude in the basis of judgmental evaluation of the impact according to the nature and size of the Project activities. Similarly, the impacts should be categorized into Long-term, Medium-Term and Short-term according to the impact's likely lasting duration due to the operation of the Project.

Magnitude of Impact:

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

High/Major Magnitude	The magnitude of impact is considered to be serious of a major adverse impact cannot be mitigated. A major adverse impact would affect the potential subsistence, recreational and commercial use of biophysical resources, with the result that the value of resource would be reduced far below public acceptable level.
Medium Magnitude	Moderate to minor unmitigated impacts of a similar nature would make the resources still usable but at some inconvenience to the public

Low Magnitude	Minor impacts which could be mitigated through general mitigation measures that do not have significant impact on local environment.
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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.

Regional	An impact area is considered to be of regional level if it extends beyond the Direct Impact Area to a larger region
Local	If the impact of the proposed Project is limited to the Direct Impact Area alone, it is called a local impact.
Site Specific	If the impact is confined to the Project site alone, it is a site-specific impact.

Duration of Impact:

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

Long Term	An impact that lasts beyond 20 years is considered to be long term
Medium Term	An impact that continues for more than 3 years but less than 20 years may be considered as medium term
Short-Term	An impact that lasts for only 3 years after Project initiation may be classified as short term

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/Major = 60	Medium = 20	Low = 10
Extent:	National/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 75 is considered Very Significant; impacts having 50 to 75 are considered Significant; and impacts having total scores of less than 50 are considered Insignificant for this Project.

4.2.2 Mitigation and Enhancement Measures, Monitoring and Auditing

The mitigation and enhancement measures should be proposed in order to ameliorate the beneficial impacts and avoid or mitigate the adverse impacts, considering the identified impacts, their nature, extent and complexity, identified during the IEE exercise. While recommending the mitigation option, a realistic approach should be applied such that the measures could be employed in the local context. A monitoring plan should be formulated to assess the effectiveness and implementation status of mitigation and benefit augmentation measures.

4.2.3 Preparation of Environment Management Plan (EMP)

Environment Management Plan (EMP) shall be prepared to ensure and evaluate the effectiveness of each of the mitigation and enhancement measures adopted to minimize the environmental impacts and to ameliorate the overall environmental conditions within the region of influence. EMP clearly spells out the environmental concerns of the Project and prescribes a systematic environmental management system to be followed to attain the environmental improvements in and around the project vicinity. The associated costs for adopting mitigation measures and enhancement measures should also be estimated and proposed.

5 Time Schedule and Reporting Requirement

The consultant should commence the work from the date of signing of the agreement. The assignment has to be completed within **35 days** starting from the date of assignment. The following table gives the indicative time period for the execution of the activities mentioned in the ToR. The Consultant shall prepare and submit the following reports to the Thakurbaba Municipality office within the prescribed time. The time frame for the preparation of the report is shown in Table 1.

Table 1: Time frame for the preparation of IEE report

S.N.	Report	Time to Submit	Procedure	Minimum Contents of the Report
1	Terms of Reference (ToR) submitted to Thakurbaba Municipality	Within 2 weeks after issuance of work order	Presentation of ToR, comments incorporation, and ToR approval	Detailed work plan, Project Area Delineation (DIZ, IIZ, ZOI), methodology, literature review and preliminary findings from desk study
2	Draft Report submission	Within 4 weeks after approval of ToR	Public consultation with stakeholders, field visit and primary data collection on physical, biological, socio-economic and cultural aspects. Presentation of draft IEE report in Thakurbaba Municipality	Impact identification in DIZ, IIZ, ZOI, alternative analysis, mitigation measures for impacts identified, preparation of Environmental Management Plan

				(EMP) and monitoring plan.
3	Final Report	Within 2 weeks after submission of Draft Report	Final IEE approval from Thakurbaba Municipality Office	All comments incorporated

6 Study Team Composition

The consultant should include the following team members as shown in Table 2 for the assignment.

Table 2: Designation and Qualification of team composition to carry out IEE

S. N.	Designation	Qualifications
1	Environmental / Forestry Specialist / Ecologist (Team Leader)	Minimum Master's degree in Environmental Science or Environmental Engineering, having been involved in at least five environmental studies
2	Geologist/ Geotechnical Engineer	Minimum Master's degree in a related field, having been involved in at least three environmental studies
3	Natural Resource Expert	Minimum Master's degree in a related field, having been involved in at least three Environmental Studies
4	Hydrologist	Master's degree in a related field
5	Socio-Economist	Master's degree in a related field

7. Data and Assistance to be provided by the client

The following shall be provided to the Consultant by Thakurbaba Municipality Office

- Related reports available in Thakurbaba Municipality Office
- Access to all other necessary documents and data available at Thakurbaba Municipality required for the performance of the Consultant's services.

It should be noted that the Consultant will need to provide all the technical and support staff needed to carry out their services. The Consultant will also be responsible for providing all other necessary facilities and logistical support for its staff, including accommodation, vehicle, transportation, office equipment, communications, utilities, office supplies and other miscellaneous requirements.

8. Reporting

The consultant shall keep complete records relating to all aspects of the work covered by his staff or service contract, if any. Such records shall be available for inspection by Thakurbaba Municipality. Reports are required to be submitted by the consultant during the course of his services.

8.1 Terms of Reference

The consultant shall prepare the ToR and shall be one side printed: The ToR should mention which of the relevant information should be included in the IEE report and ToR must be cited properly (references). Maps studied should be attached in the annex along with site photographs, questionnaires, checklists, and detailed designs. Information obtained should be well represented in tables, charts, and graphs. In addition, the ToR should review the legal requirements that should be complied with by the proponent. The final IEE report should include the public Notice and approved Terms of Reference in the annexes. The Consultant should submit at least 2 (Two) copies of the draft ToR to Thakurbaba Municipality and, after review, shall submit 1(one) copy of the final ToR.

8.2 IEE Reports:

Consultant shall prepare IEE Report: The IEE report should be typed in Nepali language in Unicode with font size 12. The top and bottom margins should be 1-1 inch, the left margin should be 1.2 inches, and the right margin should be 1 inch. The report should be printed on both sides with spiral binding. In order to avoid duplication of the information in the IEE report, it is desirable to provide a compatible report format. The Report Format should strictly follow Schedule 5 for Initial Environmental Examination Report Format. The Consultant should submit at least 2 (Two) copies of the draft Report to Thakurbaba Municipality and, after review, shall submit 2 (Two) copies of the Final IEE Report within 30 days of agreement.

8.3 Electronic Copies:

The Consultant should submit electronic copies of the TOR and IEE Reports, annexes, and photographs.

9. Presentation of the Prepared Documents:

The purpose behind this presentation is the active participation and feedback from the IEE review committee, Thakurbaba Municipality officials engaged in the project & Consultant involved in the study. Thakurbaba Municipality office shall organize a presentation for the ToR and IEE Report. The Consultant should incorporate comments and suggestions received during the presentation before the submission of the final ToR or IEE report.

10. Mode of Payment

Payments are made at percentages of the total contract value and shall be made after submission of the Consultant's Invoices according to the following schedule:

- 60% of the contract amount after submission of the Draft Report of IEE.
- 40% of the contract amount upon acceptance of the Final Report by Thakurbaba Municipality.

Thakur Baba Municipality
Office of the Municipal Executive
Sainawar Bardiya



मंगल बहादुर शाही
प्रमुख प्रशासकीय अधिकृत

Bill of Quantity

Project Name :- Hiring of Consulting Service for Initial Environmental Examination (IEE) of Sustainable Extraction of Riverbed Materials from Different Location of Babai River and Orai River (Khola).

Location:- Thakurbaba Municipality, Bardiya

Types Of Work:- Consulting Work

SN.	Description of Works	Unit	Quantity	Rate(Rs)		F/Y 2083/84	Remarks
				Rate in figure	Rate in Words	Bajet Sub-head	
1	Hiring of Consulting Service for Initial Environmental Examination (IEE) of Sustainable Extraction of Riverbed Materials from Different Location of Babai River and Orai River (Khola).	JOB	1				
					Total Without Vat		
					Vat 13%		
					Grand Total		