

Mechinagar Municipality,
Office of the Municipal Executive
Ittabhatta, Jhapa, Koshi
Province, Nepal

Terms of Reference (TOR)

for

Initial Environmental Examination (IEE)

for

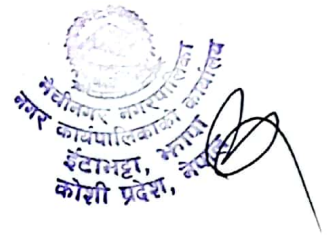
Sustainable extraction/collection of sand, stone & gravel

from

Mechi, Ninda, Timai and Hadiya River

2081

[Handwritten signature and scribbles]



ABBREVIATION AND ACRONYMS

CBS	Central Bureau of Statistics
CF	Community Forest
CFUG	Community Forest Users Group
CITES	Convention on International Trade of Endangered Species of Wild Flora and Fauna
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Act
EPR	Environmental Protection Regulation
GoN	Government of Nepal
HH	House Hold
HIA	High Impact Area
IEE	Initial Environmental Examination
km	Kilometer
LIA	Low Impact Area
m	Meter
m ²	Square meter
m ³ /s	Cubic meter per second
masl	Meter above sea level
NTFPs	Non-Timber Forest Products
RA	Rapid Appraisal
ToR	Terms of Reference

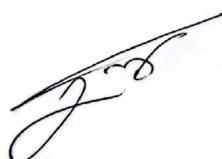
 I - F

TABLE OF CONTENTS



Abbreviations and Acronyms	
1 NAME AND ADDRESS OF THE INDIVIDUAL PREPARING THE REPORT	1
1.1 Proposal Proponent.....	1
1.2 Organization Responsible for Preparing the Report.....	1
2 GENERAL INTRODUCTION OF THE PROPOSAL	1
2.1 Introduction.....	1
2.2 Proposal description.....	1
2.3 Salient features of the Proposal.....	2
2.4 <u>Proposal Area Delineation</u>	<u>5</u>
2.5 <u>Collection/extraction of sand, gravel, boulder etc.</u>	<u>6</u>
2.6 <u>Operation planning</u>	<u>8</u>
2.6.1 Camp, Quarry and Muck Disposal area.....	8
2.6.2 Construction power.....	8
2.6.3 Manpower Requirement.....	8
2.7 <u>Objectives of ToR</u>	<u>8</u>
2.8 <u>Objectives of IEE Study</u>	<u>8</u>
3 RATIONALITY OF CONDUCTING IEE STUDY	9
4 PROCEDURES TO BE ADOPTED WHILE PREPARING THE REPORT	9
4.1 Desk study.....	9
4.2 Field Survey and Site Investigation.....	10
4.2.1 Physical Environment.....	10
4.2.2 Biological Environment.....	10
4.2.3 Socio-economic and cultural Environment.....	11
4.3 Public Notice.....	11
4.4 Public Consultation and Recommendation Letters.....	11
4.5 Data Analysis and Impact Prediction.....	11
5 EXISTING ENVIRONMENTAL CONDITION	12
5.1 <u>Physical Environment</u>	<u>12</u>
5.2 <u>Biological Environment</u>	<u>13</u>
5.3 <u>Socio-Economic and Cultural Environment</u>	<u>13</u>
6 POLICIES, LAW AND MANUAL TO BE UNDERTAKEN INTO ACCOUNT	15
7 PREPARATION OF THE REPORT	16
7.1 Time Schedule, Budget and Study Team.....	16
7.1.1 Time Schedule.....	16
7.1.2 Study Team.....	17
7.1.3 Budget.....	17
8 SPECIFIC IMPACTS ON THE IMPLEMENTATION OF PROPOSAL ON THE ENVIRONMENT	17
8.1 Physical Environment.....	17
8.2 Biological Environment.....	18
8.3 Socio-economic and Cultural Environment.....	38
8.4 Beneficial Impact.....	19
9 ALTERNATIVES FOR THE IMPLEMENTATION OF THE PROPOSAL	19
10 MITIGATION AND ENHANCEMENT MEASURES	19
11 MATTERS TO BE MONITORED WHILE IMPLEMENTING THE PROPOSAL	20
12 OTHER NECESSARY MATTERS	20
REPORT FORMAT AND DELIVERABLES	20

f - = P



TABLES

Table 2.1: Quantity of collected/extracted construction materials6
Table 2.2 Operation Planning Schedule.....
Table 7.1 Time Schedule for IEE Study..... 16

Table 11.1 Sample to show summary of cost for EMP implementation in IEE Report.....20

ANNEXES

Annex I Evaluation criteria, Location map of proposed are

[Handwritten signature] १ - १



1. **Name and Address of the individual preparing the report**

1. **Proposal Proponent**

Mechinagar Municipality is the proponent of proposal for sand/gravel collection from Mechi, Ninda, Timai and Hadiya River river/quarry site. The Name and Contact Address of the proponent is as follows.

Mechinagar Municipality
Office of the Municipal Executive
Tel. No.: tel:023562505/9840995657
E-mail: mechinagarmun@gmail.com

2. **Organization responsible for preparing the report**

The proponent is responsible to carry out Initial Environmental Examination (IEE) for the proposed proposal. Mechinagar Municipality will provide necessary technical support to the **Proponent of the Proposal**. The Address of the Consultant is as given below:

2. **General Introduction of the Proposal**

1. **Introduction**

Nepal is known as a mountainous country, more than 80% mountainous of which is covered by mountainous and hilly region. The region has huge potential for the non-forest products like boulder, gravel sand etc. Similarly, several rivers, streams and rivulets in the country are the tremendous sources of these materials. Utilization of these resources on sustainable manner undoubtedly helps to improve the livelihood of rural people and assists in the conservation of forest as this brings changes on forest based livelihood mechanism and thus assists on overall economic development of the country. These non-forest products (boulder, gravel, sand etc.) are basic construction materials which can be used within the country or be exported outside the country. Nepal has not been able to take advantage of these natural resources in a sustainable manner.

The proponent, Mechinagar Municipality, Office of Municipal Executive, Ittabhatta, Jhapa is planning to mobilize these resources on sustainable and environmentally sound way so that use and processing of these materials in crusher industries could be also more systematic and environmental friendly. At present, these crusher industries are not only quarrying the earth materials, but are also collecting boulders, gravels, pebbles and other construction materials from various area of Mechi, Ninda, Timai and Hadiya River river channels.

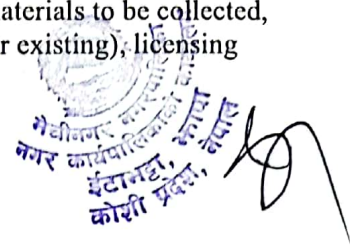
2. **Proposal description**

Location, accessibility of the project site, activities to be carried out (collection, extraction, excavation, river/stream diversion, site clearance, washing, processing, storage, transportation, use of machineries, no. of labourers, machines and its type) collection/extraction site/area, type of materials to be collected, quantity, collection/extraction period, operation of crusher industries (proposed or existing), licensing procedure for collection/extraction of construction materials,

2.3 **Sailent features of the Proposal**

Salient features of the proposal are presented below.

Proposal Name : Study & preparation of IEE report for the collection and extraction of sand, stone and gravel deposition from Mechi,Ninda,Timai and Hadiya River River.



1. **Proposal Location**

District: Jhapa District

Municipality: Mechinagar Municipality, Jhapa

2. **Geographical features**

Terrain:

Altitude:

Climate:

Soil:

Nearby water sources:

3. **Collection site, materials and methods**

Collection/Quarry Site

Geographical Coordinates

Latitude

Longitude

Access road

Type of materials to be collected

Quantity of collected/extracted materials per day

Annual quantity of collected/extracted materials

Operation month/period (year)

Collection/extraction method

Type of machineries used (including transportation vehicles)

No. Of machineries used

No of proposed/existing crushers

Affected MUNICIPALITY/Wards Affected

Settlements

No. of employment generation

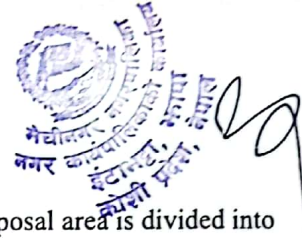
Skilled

Unskilled

Tentative Income generated

Tentative revenue generated

A large handwritten signature on the left and a set of initials 'F - P' on the right.



o **Proposal Area Delineation**

Based on expert judgement and consensus among specialists involved, the proposal area is divided into three categories:

High Impact Area (HIA): This is the area where the collection/extraction activities of sand/gravel/boulder occupy. Some 50 to 150m immediate vicinity around the proposal site and access way is also included, considering the place needed for extraction/collection of materials, construction material pile, camp facilities, muck disposal site, site clearance activities etc. Similarly, some 50 to 150m of direct adjoining area to the proposal site is also covered, envisioning the fact of mobility of people and vehicles/equipment etc.

Low Impact Area (LIA): Low Impact Area is generally considered from socio-economic point of view. Socio-economic information will be collected and analyzed for 5km or 1.5 hour walking distance (depending upon the settlement pattern) from the boundary of the Proposal area on all sides (immediate influence area as Low Impact Area). MUNICIPALITY fall under this category.

The IEE study shall make every effort to quantify and evaluate site-specific impacts to the extent applicable in all resources within the High Impact Area.

2.5 Collection/extraction of sand, gravel, boulder etc.

The total quantity of the sand gravel and boulder that can be exreaxted from the viable of study areas shall be presented in tabular from with the dimension of possible quarry site with coordinates of those points.

2.6 Operation Planning

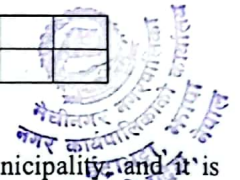
Proposal operation planning schedule is as given in table below.

Table 2.2 Operation Planning Schedule

S.N.	Details of activities	Time Period							
		2081/82				2081/82			
1.	Access road construction								
2.	Site clearance								
3.	Collection/extraction of materials								

Handwritten signature and scribbles at the bottom of the page.

4.	Processing/storage of materials									
5.	Transportation of materials									



2.6.1 Camp, Spoil Disposal area

Labour force will be supplied from the local market i.e. from..Mechinagar Municipality, and it is expected that they will come from their own houses; therefore construction of campsite is not necessary whereas workshop for construction material storage is necessary to be built at appropriate places of the proposal site.

2.6.2 Operation power

Proposal area is electrified with local electricity distribution line. Instead of this, as a back up electricity supply, the proponent will install diesel generator unit.

2.6.3 Manpower Requirement

A reasonable estimate for skilled and semi skilled manpower requirement during the proposed Proposal implementation is expected to be about 800 per day. Local people will be given employment opportunity on the basis of their skills.

2.7 Objective of ToR

The basic objective of the ToR is to set up a guideline for conducting IEE of the proposed Proposal to fulfil the requirements of EPR, 2076. The objectives of the ToR are as follows:

- To identify all the adverse and beneficial impacts likely to arise due to implementation of the Proposal.
- To reflect the main issues identified in the form of ToR
- To provide guidance for the study of IEE.
- To systematize the working procedure and listing of various activities to be performed.
- To delineate the working procedure and fitting the IEE report within the policy and legal context.

The ToR for **Study & preparation of IEE report for the collection and extraction of sand, stone and gravel deposition from right bank of Mechi,Ninda,Timai and Hadiya River River** .Proposal has been prepared explicitly for collection/extraction of sand/gravel/boulder from Mechi,Ninda,Timai and Hadiya River River/quarry site excluding the access road.

2.8 Objective of IEE Study

The objectives of the IEE study are as follows:

- To document the 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
- To advise the decision makers regarding further action on development of Proposal.

3. Rationality of conducting IEE STUDY

[Handwritten signature and scribbles]

Study & preparation of IEE report for the collection and extraction of sand, stone and gravel deposition from right bank of Mechi, Ninda, Timai and Hadiya River River. Proposal has some kind of adverse impact on environment. Mechi, Ninda, Timai and Hadiya River river carry massive amount of sediment load and deposition occurs along the river channels thus resulting riverbed mounting and flood plain area widening. Due to occurrence of these phenomena, water induced hazards are accelerating every year.

Realizing this fact, awareness for conservation of natural environment has become prominent. Environmental Assessment of the proposal is necessary to lesson the water induced disasters like flood, erosion, river cutting etc in the upstream and downstream region, boost up economic condition of local bodies and people through sustainable and environmental friendly collection, extraction, processing and transportation of river deposits like sand, gravel, stone etc. To carry out environmental study in order to quantify such impacts and formulate mitigation measures, guidelines were prepared. In this regard, GoN has promulgated Environment Protection Act 1996 (EPA) and subsequently, Environmental Protection Rules, 1997 (EPR) as guiding principle for conducting such mandatory studies.

Any development activities have some environmental implication, whether beneficial or adverse. Therefore, it is pertinent to identify the complications/changes apparent in the physical, biological, socio-economic and cultural environmental condition of the project area along with the favourable or adverse impacts resulting from the activities associated with the activity.

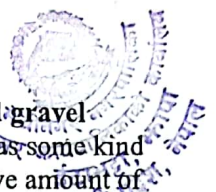
Mechinagar Municipality is looking forward to extract river bed materials in the quantity of 100 m³-300 m³ per day from different rivers and streams. According to the statutory requirement of the Government of Nepal, (GoN) defined by Article 3 of Environmental Protection Act (EPA), 2076, Article 3 of Province 1, Province Environmental Protection Act (EPA), 2076, and Schedule 2 (c) referred by the Rule 5 of Environmental Protection Rule (EPR), 2077 under Mining Sector, it is mandatory to conduct IEE for the extraction and collection of riverbed materials if the extraction of 100 m³-300 m³ per day has to be done. Abide by these provisions, Mechinagar Municipality is looking forward for proposals for conduction of IEE for extraction of river bed materials from different rivers and streams. The approval of IEE will be in accordance to the Article 3 (5) of the of Province 1, Province Environmental Protection Act (EPA), 2076.

4. data requirement and study methodology

The IEE study of proposed Proposal will be carried out according to the EPA 1996 and EPR 1997 and with its subsequent amendments. The following procedures will be considered to prepare IEE study report.

1. Desk study

Secondary information will be collected by reviewing relevant documents. Information related to physical environment such as geographical location and land use patterns will be obtained by using topographic maps, MUNICIPALITY and district profile. The biological information of flora and fauna will be obtained from reviewing relevant articles published from government and non-government agency. Information on local community forest will be collected from reviewing operational plan of Community Forests (CF). Additionally, protected species of the Proposal area will be tallied with the protected species' list of GoN and other international conventions to which Nepal is a signatory. The socio-economic information such as demographic pattern, social service centres, religion, occupation, etc will be obtained by reviewing documents published by Central Bureau of Statistics (CBS), district profile,





[Handwritten signature]

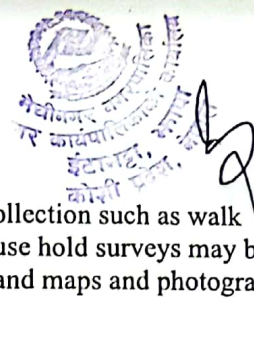
MUNICIPALITY profile and other Proposal related documents.

Furthermore, the collected data will be categorized in terms of physical, biological, socio-economic and cultural environment. Existing acts, rule, policies, legislation and guidelines related to sand/gravel/boulder collection/extraction will be reviewed and documented for the preparation of IEE study report.

शेचीनगर नगरपालिका
नगर कार्यपालिका, शेचीनगर
इटहरी, कोशी प्रदेश



१ - १



2. *Field Survey and Site Investigation*

In order to meet the above objectives, the different methods for information collection such as walk through survey, inventory survey, sampling, focused group discussion and house hold surveys may be used. The secondary information through published and unpublished reports, and maps and photographs interpretation may also be used.

The Proponent shall collect and analyze bio-physical environmental information in the Proposal area (High Impact Area within physical coverage of 50 to 150m and Medium Impact Area within the physical coverage of about 150 to 500m. Socio-economic information will be collected and analyzed for 5km or 1.5 hour walking distance (depending upon the settlement pattern) from the boundary of the Proposal area on all sides (immediate influence area as Low Impact Area) Mechinagar Municipality fall under this category. The IEE study shall make every effort to quantify and evaluate site-specific impacts to the extent applicable in all resources within the High Impact Area.

The census shall be carried out particularly to collect data regarding households whose land or houses will be located within the Proposal area and those that are to be acquired.

4.2.1 **Physical Environment**

Information on physical environment shall be collected through literatures, maps, and walk through survey. The use of appropriate and calibrated equipment is encouraged to quantify information.

4.2.2 **Biological Environment**

Information on biological environment such as vegetation shall be collected by standard ecological methodologies shall be adopted in order to quantify vegetation of the forest of all possible categories such as disturbed, medium disturbed and undisturbed. Number of trees to be cleared for implementation of the Proposal shall be recorded by counting method or sample plot method.

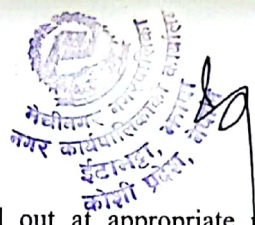
Wildlife distribution and occurrence in the Proposal area shall be collected through pug marks of the wild animals, jungle trek and observation method including discussion with the local people. Fishery information shall be generated by capture-recapture method, and by asking the local people and site observation. The Proponent may use data sheets to collect the field level information.

4.2.3 **Socio-Economic Environment**

Socio-economic information shall be collected by using questionnaire, checklists, observation, interviewing with the local people, focus group discussion, Participatory Rural Appraisal (PRA), discussion with district level offices, Municipality and community groups. The Proponent shall collect information on possible damage of infrastructures, and community services through checklists and focus group discussion. Information on land acquisition and compensation issues shall be collected through intensive household survey at least in the direct impact zone.

3. *Public Notice*

While preparing IEE report, a fifteen days public notice will be published in national daily newspaper to inform the stakeholders about the Proposal activities. Further, the notice will be affixed in the offices of concerned Municipality, DCC, schools, hospitals, health posts and other public offices located near to the Proposal area requesting them to provide their written opinions, suggestions and comments about the Proposal implementation activities.



4. *Public Consultation and Recommendation Letters*

During data collection for IEE study, public consultation will be carried out at appropriate places considering the views, suggestions and comments on the Proposal implementation. Public consultation will also be carried out through focus group discussions with targeted groups such as women, key informants and other groups.

Recommendation of affected Municipality as per EPR will be collected and attached in the IEE report. Also if the Proposal requires forest land of community forest to be cleared, the recommendations from these affected community forest shall be collected and attached in the IEE report.

If the Proposal requires land from government forest/community forest or trees are needed to be cut down from them, then comments and suggestions from District Forest Office and affected community forests should be attached in the IEE report along with their recommendation letters.

5. *Data Analysis and Impact Prediction*

After collecting baseline field data from the Proposal area on physical, biological, socio- economic and cultural environment, these will be analyzed and interpreted as per EPR 1997. The analysis shall be made on the nature, magnitude, duration and extent of the impacts due to construction and operation activities of the Proposal. Mitigation measures and monitoring plans will be described for each impact.

Data collection for IEE study as aforementioned methods will first be compiled and classified to relevant components (Physical, Cultural, Socio-Economic and Biological) for convenience and to avoid possible mismatches. Computer software with usage of expert's opinion will be primary tool to process data coming from physical, socio economic and cultural domain.

While categorizing the impacts into 'significant and insignificant depending on the nature of impact, the following aspects shall be made to each of the impact:

- Nature : Direct or Indirect
- Magnitude : High, Moderate, Low
- Extent: Site specific, Local and National
- Timing : Short term, Medium-term, Long-term
- Duration : Temporary, Permanent
- Impact quality : Beneficial, Negative

5. Existing environmental condition

ENVIRONMENTAL STUDY TEAM ALSO CARRIED OUT FIELD VISIT TO THE PROPOSED AREA IN MECHI,NINDA,TIMAI AND HADIYA RIVER RIVER BEFORE TOR PREPARATION OF IEE STUDY AND FOLLOWING OBSERVATIONS WERE MADE ON THE ENVIRONMENT OF THE PROPOSAL.

5.1 Physical Environment

Topography:

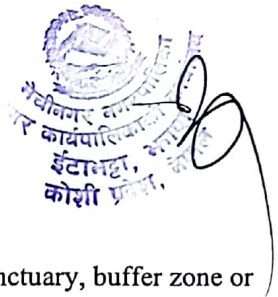
Climate and Hydrology:

Geology:

Soil Erosion and Landslide:

Land Use:

Air and Water quality:
Noise Quality:



5.2 *Biological Environment*

The Proposal area belongs to free zone. There is no national park, wildlife sanctuary, buffer zone or conservation area in or around the proposal area.

Forest and Flora

Forest type, community forest, plant/tree species
Plant Species of Medicinal and Ethno-Botanical Values
Fauna
Fishes
Rare, Endangered and Protected Species of Flora and Fauna

5.3 *Socio-economic and Cultural Environment*

Population:
Ethnicity and Settlements
Occupation
Local Economy
Literacy
Health and Sanitation
Public Facilities

6. **Policies, Law and manual to be Undertaken into account while preparing the report**

The policy documents, acts, regulations and guidelines as indicated below shall be reviewed and relevant provisions shall be referred in the IEE report. A concrete recommendation shall be made in the IEE report as to whether or not the Proposal could be implemented after reviewing acts and regulations. Any legal provision that surface against Proposal implementation will be investigated and put forth with recommendations, if felt necessary will be made in the IEE report. In particular the following documents will be considered during IEE report preparation.

Plans, Policies and Strategies

- Three Years Interim Plan, 2008
- Forestry Sector Master Plan, 1998
- Water Resource Strategy, 2002
- Nepal Biodiversity Strategy, 2002
- Nepal Environment Policy and Action Plan, 1993 and 1998
- Revised Forest Policy, 2000

Acts and Regulations

- Interim Constitution of Nepal, 2007
- Environment Protection Act, 2076
- Environment Protection Rules, 2077
- Plant Protection Act, 1972
- National Parks and Wildlife Conservation Act, 1973
- Soil and Watershed Conservation Act, 1982
- Forest Act, 1993



- Forest Regulation, 1995
- Labour Act, 1991
- Land Acquisition Act, 1977
- Local Self-Governance Act, 1998
- Local Self-Governance Regulation, 1999
- Industrial Enterprises Act, 1993
- Export, Import Act, 1956
- Mines and Minerals Act, 1993
- Aquatic Animals Protection Act, 1993
- Water Resources Act, 1993
- Water Resources Regulations, 1993
- Solid Waste Management and Resource Mobilization Act, 1987 and Regulations, 1989
- Wildlife Reserve Rule, 1977

Guidelines and Manuals

- National Environmental Impact Assessment Guideline, 1993
- EIA Guideline for Forestry Sector, 1995
- Environmental Management Guidelines (Road), 1997
- Community Forest Guidelines, 2001
- A hand book on Licensing and Environmental Assessment Process for Hydropower process in Nepal, 2006
- Working Procedures of Forest, 2007
- Guidelines on Land-use for Other Purposes, 2063

Conventions

- Convention on Biological Diversity, 1992
- CITES, 1973
- Convention No 169 concerning indigenous and tribal people in Independent Countries

Any significant conflicts and issues related to the environment and others will be identified and recommendations will be based on the above-mentioned policies, rules and regulations. The proponent will describe the pertinent regulations and standards governing environmental quality, health and safety, protection of the sensitive areas, protection of the endangered species, land use control etc. At district, MUNICIPALITY/Municipality and ward level. The proponent shall also review the responsibilities of the local, district, and central level institutions and recommended steps to ensure for necessary coordination during the Proposal implementation.

7. PREPARATION OF THE REPORT

The IEE report shall be prepared in consonance with the contents given on the Schedule-5 of the EPR 2077. The report shall document systematically the baseline data on physical, biological as well as socio-economic and cultural environment.

7.1 Time Schedule, Budget and Study Team

A large handwritten signature on the left and the initials 'F - S' in the center.

The estimated study time schedule, cost and team composition is as follows.

7.1.1 Time Schedule

The estimated time schedule for completion of the IEE study is 1 months as given in Table 7.1. Here, time schedule for approval of ToR and IEE report is not included.

Table 7.1: Time Schedule for IEE Study

Activities/Month	2081 Ashoj 10	2081 Kartik 10 th
Data collection, analysis, Literature review and preparation of ToR document		
Preparation of ToR document and approval	—	
Public notice publication, Field visit/study and public consultation meeting	—	
IEE Draft report writing		—
Final IEE report writing with incorporating comments		—
Submission of Final report and approval		—

7.1.2 Study Team

The following professionals will carry out the IEE study:

Environmental Specialist	- Team Leader
Geologist/Hydrologist	- Team Member
Sociologist/Social-economist	- Team Member
Civil Engineer	- Team Member
GIS Expert/Geotechnical	
/Geomatics Engineer	- Team Member
Biodiversity expert/ Natural Resource Expert/	
Forestry Expert	-Team Member
Other Support Staffs	- Team Member

7.1.3 Budget

The total amount allocated for IEE study is about Rs.

PAYMENT SCHEDULE

If not indicated otherwise in the contract document the consultant shall be paid as per the following schedule:
Payment of this task will be as following schedule:

- 30% of total payment after submission and acceptance of Inception Report
- 40% of total payment after submission and acceptance of Draft Report.
- 30% of total payment after submission and acceptance of Final Report.

Other Requirements

1. Final IEE report preparation and submission to Mechinagar Municipality after the approval from the Office of the Municipal Executive no later than mention in the 7.1.1 The approval process may require preparation and submission of reports and presentation of reports well as incorporating the amendments if anv, suggested by the IEE approving body setup by office of the Municipal Executive, Ittabhatta, Jhapa .

Handwritten signature or initials.



b. The responsibility of presentation to the approval agency and getting the approval of the IEE rests upon the successful bidder .

c. The conditions/requirements mentioned in the notice/Letter issued by Mechinagar Municipality regarding the invitation of the proposal shall be the integral part of this ToR as well and report submissions must be 2(two) Copy each for all the four rivers separately (i.e Mechi,Ninda,Timai and Hadiya River) along with e-copy ,also as per the requirements if necessary.

d. The terms and conditioned mentioned in ToR will apply for any related issue, whereas the rest will be addressed in accordance with relevant rules and regulations of Government of Nepal .

8. SPECIFIC IMPACTS ON THE IMPLEMENTATION OF PROPOSAL ON THE ENVIRONMENT

After the field visit, the study team will presume the environmental impacts to be affected by the implementation of the Proposal. These impacts will be categorized as site specific, local and regional in terms of extent. During the IEE study, these issues will be dealt thoroughly. The impacts will be characterized as low, medium, high in terms of magnitude and long term, medium term, and short term in terms of duration.

8.1 Physical Environment

- Impact due to site clearance
- Impact due to access road construction
- Impact due to crusher plant establishment
- Change in Topography, Geomorphology (river bank and embankment stability, disturbance to fragile slope)

[Handwritten signature]



- Collection/quarrying activities
- Change in land use (loss or degradation of productive land)
- Impact due to spoil handling and disposal;
- Impact on slope stability, sedimentation, soil erosion, bank cutting and flooding
- Change in River hydrology and morphology (meandering and alteration of river flow, change/deepening in river bed) other natural resources e.g. water spring, well etc.
- Impact on water quality in downstream and water use system;
- Impact due to noise and vibration
- Impact due to stockpiling of collected/extracted materials;
- Impact on air quality due to dust emission and vehicle movement
- Access road related issues including impact due to heavily loaded vehicles for transportation of construction materials
- Decline in aesthetic value and visual impact
- Any other issues likely to arise during IEE study

8.2 *Biological environment*

- Impacts on vegetation due to clearance for the Proposal activities;
- Impacts on protected species of flora and fauna;
- Any other issues likely to arise during IEE study including biodiversity aspects.
- Impacts on aquatic habitat;
- Impacts on forest, forest products and vegetation of surrounding area and dependent wildlife due to increased human activities
- Impacts on wildlife and bird due to destruction of its habitat;
- Impacts on wildlife, bird and its habitat due to illegal hunting, poaching
- Impacts on protected species of flora and fauna;
- Any other issues likely to rise during IEE study

8.3 *Socio-economic and Cultural Environment*

- Land acquisition, compensation issues and people's displacement
- Impact on gender and vulnerable groups (including extension/evacuation of squatter settlement)
- Impact on occupational health, safety and sanitation;
- Any other issues likely to arise during IEE study
- Impact on access road, people's movement and traffic management due to operation activities
- Loss or damage to private land and properties such as houses, farm sheds, and other structures, crops and fodder/fruit trees
- Impact on occupational health, safety and sanitation and solid waste management
- Loss or degradation of farm land and impact on agriculture productivity and livestock
- Pressure on existing infrastructure facilities like health post, education, communication, water supply and sanitation facilities, irrigation system, foot trail, trail bridges etc.
- Social conflict
- Change in social structure, traditional and cultural practices, rituals of the rural people due to exposition to outside workforce
- Impact on law and order in the Proposal area due to large work force;
- Impact due to proposal site infrastructure development
- Impact on religious, cultural and historical sites (including cremation site)
- Impact on gender and vulnerable groups (including extension/evacuation of squatter settlement)
- Migration of labourers
- Impact on livelihood of local people (fisherman etc)

[Handwritten signature]

- Impact on nearby human settlements
- Impact on use of other natural resources
- Conflict in revenue/income sharing mechanism
- Other public concern issues
- Any other issues likely to arise during IEE study.



8.4 Beneficial impacts

- Employment opportunity for skilled, semi-skilled and unskilled local people
- Increase in road network
- Employment opportunity for local people and human resource development
- Boost up of local economy
- Impact on gender and vulnerable groups;
- Business opportunity to local people;
- Revenue generation to local bodies;
- Community development and Potential improvement of public facilities
- Benefit to the local people due to the Proposal implementation.

9 ALTERNATIVES FOR THE IMPLEMENTATION OF THE PROPOSAL ON THE ENVIRONMENT

During IEE study of the Proposal, an alternative analysis of the Proposal implementation shall be performed considering various aspects like proposal site, operation procedure and technology and schedule. Alternative analysis shall be performed on the following aspects:

- No proposal options
- Proposal alternatives
- Alternative Proposal sites
- Alternative technology and operation
- Alternative resources, procedure and schedule

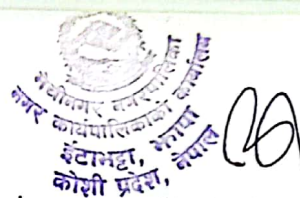
10 Mitigation and enhancement measures

Preventive, corrective and compensatory mitigation measures as identified and anticipated in the study will be included in the IEE report. Each of the identified adverse impacts will be evaluated in detail and cost-effective mitigation measures will be suggested to minimise the adverse impacts. Social enhancement measures shall be proposed to enhance beneficial impacts due to implementation of the Proposal. The mitigation measures will be categorized in terms of physical, biological, socio-economic and cultural environment during proposal construction and operation phase.. The detail IEE report shall include the following:

- Mitigation and enhancement measures during construction and operation phases for each environment; agencies responsible for implementation and construction
- Mitigation and enhancement cost
- Organizational set up to carry out the mitigation and enhancement measures, and
- Preparation of Environment Impact Mitigation Matrix

The following considerations shall be made while proposing the cost for environment protection measures.

[Handwritten signature and initials]



- Appropriate compensation for the loss of assets;
- Appropriate mitigation measures to minimize the adverse impacts on biophysical, socio-economic and cultural environment;
- Health and sanitation measures;

Summary of Cost Benefit assessment shall be given which shall include the followings:

- Cost for Environment Mitigation Measures
- Cost for Enhancement Measures,
- Cost for other Social Support Programs,
- Cost for Environmental Monitoring,
- Total Proposal Income and revenue generation, and
- Percentage of total Environmental Cost to the Total Proposal Income and revenue generation

11 OTHER NECESSARY MATTERS

Report format and deliverables

References, annexes, maps, photos, tables, charts and questionnaire as relevant and applicable shall be included in the report. Chapter plan for IEE report will be as given below.

Abbreviation and Acronyms

Table of Contents

1. NAME AND ADDRESS OF THE INDIVIDUAL/INSTITUTION PREPARING THE REPORT.

- 1.1 Proponent
- 1.2 Institution responsible for preparing the IEE Report

2. GENERAL INTRODUCTION OF THE PROPOSAL

- 2.1 Back ground

9 - 7



- 2.2 Objective of IEE
- 2.3 Proposal description
- 2.4 Proposal location
- 2.5 Proposal component accessibility
- 2.6 Proposal Salient features
- 2.7 Land requirement
- 2.8 Construction Schedule
- 2.9 Construction materials Stock and muck disposal
- 2.10 Camp site, warehouse, and Construction yard
- 2.11 Proposal area delineation

3.0 DATA REQUIREMENT AND STUDY METHODOLOGY

- 3.1 Physical Environment
- 3.2 Biological Environment
- 3.3 Socio-economic and Cultural Environment

4.0 IMPACT IDENTIFICATION AND PREDICTION

5.0 REVIEW OF PLANS, POLICIES, LEGISLATIONS, GUIDELINES, STANDARDS AND CONVENTIONS

6.0 DESCRIPTION OF EXISTING ENVIRONMENT

- 6.1 Physical
- 6.2 Biological
- 6.3 Socio-economic and Cultural

7.0 ENVIRONMENTAL IMPACT

- 7.1 Physical Environment
 - 7.1.1 Construction
 - 7.1.2 Operation
- 7.2 Biological Environment
 - 7.2.1 Construction
 - 7.2.2 Operation
- 7.3 Socio-economic and Cultural Environment
 - 7.3.1 Construction
 - 7.3.2 Operation

8.0 ALTERNATIVE ANALYSIS

9.0 MITIGATION AND ENHANCEMENT MEASURES

- 9.1 Physical
 - 9.1.1 Construction
 - 9.1.2 Operation
- 9.2 Biological
 - 9.2.1 Construction
 - 9.2.2 Operation
- 9.3 Socio-economic
 - 9.3.1 Construction
 - 9.3.2 Operation

[Handwritten signatures and marks]



10.0 MITIGATION AND ENHANCEMENT COST

11.0 MONITORING PLANNING

12. CONCLUSION

REFERENCE

APPENDICE

[Handwritten signature] *[Handwritten signature]*



Mechinagar Municipality
Office of the Municipal Executive
Ittabhatta, Jhapa
Evaluation Criteria

For the Evaluation of Technical Proposal for conducting the Study & Preparation of IEE for the Extraction of sand, stone and gravel deposition from Mechi, Ninda, Timai and Hadiya River River .

S.No	Selection Criteria	Max. Score
1	General works Experience of the Firm (DPR or Master plan or IEE or EIA of projects like rivers ,forest ,industries Engineering projects like road water supply ,buildings ,hall,complex ,Airport,Hydropower ,Bridges or Similar projects) ; one mark for each project	10
2	Specific Experience (Experience in of IEE/EIA of sand / Gravel extraction) of consulting Firm; five mark for each project	20
3	Qualification and competence of the consultant team proposed for the assignment (eligibility for a selection for the requires at least masters degree and engagement in at least 3 IEE/EIA , experience preference is given to IEE/EIA of sand /gravel extraction)	60
3.1	Team leader (Master's degree in Environment science/ Engineering)	15
a	3 marks for Academic qualification & 4 marks for experience; 1 mark for each year	7
b	Specific Experience of IEE/EIA of sand / Gravel extraction; 2 marks for each study projects	8
3.2	GIS Expert/Geotechnical/Geomatics Engineer (Bachelors' degree in GIS/Geomatics /Geotechnical Engineering)	6
a	2 marks for Academic qualification & 4 marks for experience; 1 mark for each year	6
3.3	Sociologist /Socio-economist (Master's degree in sociology/Anthropology)	10
a	2 marks for Academic qualification & 2 marks for experience; 1 mark for each year	4
b	Specific Experience of IEE/EIA of sand / Gravel extraction; 2 marks for each study projects	6
3.4	Hydrologist/Geologist (Master's degree in Hydrology/Geology)	9
a	2 marks for Academic qualification & 3 marks for experience; 1 mark for each year	5
b	Specific Experience of IEE/EIA of sand / Gravel extraction; 2 marks for each study projects	4
3.5	Civil Engineer (Bachelors degree in Civil Engineering)	10
a	2 marks for Academic qualification & 2 marks for experience; 1 mark for each year	4
b	Specific Experience of IEE/EIA of sand / Gravel extraction; 2 marks for each study projects	6
3.6	Biodiversity expert/ Natural Resource Expert/Forestry Expert/Botanist: Master's Degree in Natural Resource management, Forestry or Botanist.	10
a	2 marks for Academic qualification & 2 marks for experience; 1 mark for each year	4
b	Specific Experience of IEE/EIA of sand / Gravel extraction; 2 marks for each study projects	6
4	Understanding of ToR and Methodology (Understanding of objectives. Scope of work and ToR) Excellent=3, Good=02,Not Good=00	5
5	Technology transfer/Trainings(Ways /illustration showing the means of Technology Transfer) Excellermt=3Good=2,Not Good=0	5
Total Score		100

Minimum score to be qualified for Technical Proposal=60.



Note: Copy of specified qualification/experience documents should be submitted for verification to obtain the score in evaluation. No score only for academic qualification is given for less than specified years of experience. The Evaluation is Based on Quality and Cost Based Selection. The Technical Proposal has 80% weightage and Financial Proposal has 20% weightage. The Technical Score of 100 is weighted to 80% weightage of Technical Proposal.

[Handwritten signature] *[Handwritten initials]*

ANNEX - I
Proposed Location Map

[Handwritten signature]
I - 2

MECHINAGAR MUNICIPALITY

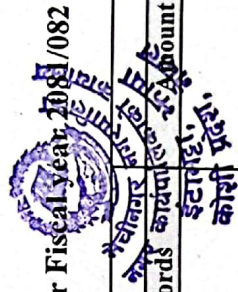
Office of Municipal Executive

Mechinagar-07, Jhapa

Koshi Province No, Nepal

IEE Preparation work of Mechi, Ninda, Timai and Hadiya River for Fiscal year 2081/082

Bill of Quantities(BOQ)



Location :- Mechinagar Municipality						
S.N.	Description	Unit	Quantity	Rate	Rate in words \$ Amount	Remarks
A.	Initial Environmental Examination of Mechi, Timai, Ninda and Hadiya River flowing within Mechinagar Municipality.	job	1			
				SUM (NPR) :-		
				V.A.T. 13% (NPR) :-		
				Grand Total (NPR) :-		
Grand Total (NPR) IN Words :-						