Terms of Reference for

Conducting Initial Environmental Examination for the Sustainable Extraction of Riverbed Materials from Different Rivers/ Streams of Dharan Sub- Metropolitan City

1. Background

Several perennial as well as ephemeral rivers originating from Mahabharat range and Churia range flow through Sunsari District carrying massive amount of sediment load. Each season, they deposit these loads along the river channels thus mounting river bed and widening flood plain area. Due to these, water induced hazards are accelerating every year. However, these riverbed materials are being looked as the primary sources for construction materials. On the other hand, growing urbanization also demands high consumption of construction materials of river beds. Thus, the proponent, office of municipal executive, Dharan, is planning to mobilize these resources on sustainable and eco-friendly manner.

The Local Government Operation Act, 2074 (LGOA) vests the ownership of the rivers within the territory of the municipality and the sediments thereof on the municipality. The LGOA and Constitution of Nepal empowers Local Governments in planning and implementation of the local infrastructures' development. These legal and Constitutional measures give the authority to the local Governments to levy/collect the tax and fees on the use of these riverbed materials. Besides, as per the Act, Dharan Sub Metropolitan City (DSMPC) has the responsibility to reduce and mitigate natural as well as human induced hazards. As such, these rivers present a huge opportunity to DSMPC for revenue generation to invest on overall development of the municipality at the same time safeguarding the people from water induced hazards.

In this regards, Dharan Submetropolitan City is planning to extract river bed materials in the quantity of 100 m^3 – 300 m^3 per day from different rivers and streams and looking for the proposals from interested VAT registered firms and companies to conduct Initial Environment Examination (IEE), prepare report and get approved from the concerned authority.

i) The proponent

The activity under the question is entitled" Sustainable extraction of riverbed materials from different rivers and streams of DSMPC." The DSMPC is the executing agency of the activity at municipal level and the proponent of Initial Environmental Examination (IEE) study for the activities. The name and address of the proponent is as follows,

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Dharan, Sunsari, Province no. 1
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Fax: +977-25-521991
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ii) Brief Description of the Proposal

DSMPC is seeking to sustainably extract the riverbed materials from 5 rivers/streams of DSMPC namely Seuti Khola, Sehera Khola, Andheri Khola, Patnali Khola and Sardu Khola in the quantity of 100 m^3 – 300 m^3 per day.

Table 1. Rivers and Impacted Area of the Municipality

SN	Rivers/Kholas	Wards
1	Seuti	Dharan 4, 5, 6,14 &15
2	Sehera	Dharan 5, & 6
3	Andheri	Dharan 5
4	Patnali	Dharan 17
5	Sardhu	Dharan 11,13,16,17, & 20

Note: The sustainable amount of riverbed materials that can be extracted should be clearly mentioned section wise (Naka) of each river/stream.

iii) Relevancy of the proposal

In DSMPC, there are many perennials as well as ephemeral rivers originating from Mahabharat range and Churia rang. These rivers carry massive amount of sediment load and deposition occurs along the river channels thus resulting riverbed mounting and flood plain area widening. Due to these, water induced hazards are accelerating every year. Thus, the activity has been purposed to:

- Reduce the risk of water induced disaster like flood, erosion, river cutting etc. in the upstream and downstream region.
- Boost up economic condition through the collection and exploration of river deposits like boulder, pebbles, gravel and sand.

iv) Rational of IEE

Any development activities have some environment 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 favorable or adverse impact resulting from the activities associated with the activity.

DSMPC is looking forward to extract river bed materials in the quantity of 100 m^3 – 300 m^3 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 Environment Protection Act, 2076, and Schedule 2 (c) referred by Rule 5 of the Environmental Protection Rule (EPR), 2077 under Mining Sector, it is mandatory to conduct IEE for extraction and collection of river bed materials if the extraction of 100 cubic meter per day to 300 cubic meter per day has to be done. Abide by these provisions; DSMPC 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 Province 1 Province Environment Protection Act, 2076.

v) Objective of IEE

DSMPC is planning to extract river bed materials in the quantity of 100 m^3 – 300 m^3 per day from different rivers and streams mentioned in Table 1. The main objective of the IEE study is to assess and inform decision makers by identifying the potentially significant environmental effects and risks of the proposed project and to suggest appropriate mitigation measures to mitigate and/or minimize

the adverse impacts so that the project is implemented in an environmentally sound manner. The objectives of the this IEE are:

- To document the physical, biological and socio-economic and cultural baseline condition of project area;
- To analyze the alternative project alignment;
- To identify, predict and assess the adverse and beneficial environmental impacts of the proposed project in project affected area in terms of magnitude, extent and duration during project construction and operation phases;
- To suggest appropriate and pragmatic mitigation and enhancement measures for potential adverse impacts
- To familiarize various stakeholders with the IEE outcomes through public consultation and participation programs and to incorporate their relevant concerns and issues in environmental management plan;
- To prepare an environmental action plan as well as effective monitoring and auditing programs; and
- To facilitate informed decision making including setting the environmental terms and conditions for implementing the proposed project

2. Methodology

The firms undertaking this assignment should strictly follow the procedures provisioned in the Environment Protection Act 2076 and Regulations 2077 to maintain the quality of the report. The methodologies could be but not limited to following:

i) Literature review/ desk study

The consultant team should undertake extensive review of published and unpublished readily available sources of relevant information. Such sources of information include publications of CBS, DCC, Municipality, DFO, Irrigation Office, NGOs and other relevant institutions. Similarly, necessary information are also available in topographical maps, DHM record, IUCN Red Data Book etc. The consultant should review all the Plans, Policies, Acts, Rules, Guidelines, Conventions, Strategies and Standards that are attracted during or will govern IEE and the project operation.

ii) Site visit and field works

The study team should visit the field and gather necessary field data and information to establish baseline on physical, biological and socio-economic and cultural environment. Data related to land use, stability, site specific measurements of air and noise quality, physiographic condition of the project area, data on biological environment, community infrastructures, sanitation and health status of the affected families, local price of land and other commodities, problems and major issues, expected impacts and possible mitigation measures, etc can be collected through field survey.

iii) Household survey

It should be conducted to gather pertinent information on demography, education and skill, land holding, income/expenditure, etc.

iv) Stakeholder consultations

Consultations at different levels to garner relevant information, issues and concerns.

v) Focus Group Discussions

It can be conducted at different location at the proposed sites with different types of local groups like concern committees, community forest user groups, etc whereby intensive discussions will be held about the environmental sensitivity and concerns in the area, importance of environmental features located in the area, present status, and present problems of difficulties, potential solutions and consequences that are related in minimizing the possible impacts.

vi) Key informant survey

Survey with the local leaders, teachers, health workers, government officials and other knowledgeable persons through field investigation and checklists tools.

vii) Questionnaires and Checklist

The team should use standard field data collection tools like structured and semi-structured questionnaires and checklists to guide collection of data and information pertinent to the study.

viii) Impact Identification, Prediction and Evaluation

The consultant should identify and evaluate both positive and adverse impacts of the project operation on physical, biological and socio-economic domains of environment. The impacts should be classified in terms of magnitude (High, Medium and Low) duration (Long-term, Medium Term and Short Term) and extent (Regional, Local and site specific) and presented in a matrix form.

ix) Public Hearing

The study team should, in coordination with the proponent, should organize and facilitate public hearing programs to disseminate IEE report.

x) Review and Incorporation of Comments

The study team should present the IEE report in review meeting at the concerned ministries/DCC and incorporate the comments to finalize the IEE report.

3. Issues to be considered in IEE

The proponent should consider following issues during the preparation of the IEE report: exercise:

i) Physical Environment

- Impact on infrastructures like road, bridges, culverts, etc.
- Impact due to noise and vibration due to vehicular movements;
- Impacts on air quality due to dust and vehicular emissions;
- Impact on water quality;
- Impact due to stockpiling of the materials;
- Impact due to change in river morphology and sediment flow pattern;
- Impact due to bank cutting;
- Changes in land use patterns including agricultural, forest, shrub, grazing, settlements, etc due to project components and facilities specially access roads;
- Impact on micro-climate.

ii) Biological Environment

- Impact on aquatic life and their habitat;

- Impact on forest resources due to construction of infrastructures and establishment of project facilities specially road;
- Pressure on forest resources due to increase in labour force, increase in illegal hunting and poaching activities;
- Disturbances to wildlife habitat and movement;
- Impacts on rare, endangered, protected and threatened species of flora and fauna and their habitats.

iii) Socio-economic and Cultural Environment

- Impact due to land and property acquisition specially belonging to indigenous people;
- Impact due to influx of workforce in search of economic opportunities;
- Impact due to occupational health and safety hazards;
- Issues related to change in social, structures, cultural and traditional practices of the rural people due to exposition to the outside workforce;
- Impact related to dispute between outside workforce and local labours;
- Issues related to pressure on existing infrastructure facilities such as health and safety, education, communication, water supply, etc due to the large number of outside workforce along with their families;
- Risk of diminished local traditional occupation and skills, such as handicraft, indigenous medicinal practices, agro-based and forest product-based cottage industries;
- Impact due to encroachment on cultural, historical and religious sites;
- Impact on aesthetic value;
- Impact on withdrawal in economic activities and employment opportunities;
- Impact due to reduced agricultural activities;
- Impact on existing water use;
- Impact on gender and vulnerable groups.

iv) Beneficial Issues

- Reduction of flood and other related hazards due to river channelization;
- Revenue generation for overall development of the district;
- Employment opportunity and human resource development activity;
- Increase in economic opportunities due to increase in trade and business and demand for goods and services; and
- Infrastructure (Road) development

v) Mitigation and Enhancement Measures

Practical measures to mitigate all the adverse and enhance the beneficial impacts should be suggested with appropriate cost. Mitigation measures can be categorized as preventive, corrective or compensatory measures.

vi) Environmental Monitoring Plan

The proponent should prepare a detailed monitoring plan in terms of baseline, compliance, and monitoring plan to assess the actual physic-chemical, biological, socio-economic and cultural effects of the project. The impact and baseline monitoring plans should indicate parameter, indicator, schedule and method for monitoring. The cost of comprehensive monitoring program and feedback should be included in the overall-monitoring program of environment management plan. The format

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for presentation and recording of data should be provided with whole monitoring activities or information and monitoring schedule in a chart.

vii) Environment Management Plan

EMP should include activities, impacts, mitigation and enhance measures, organizations responsible for the implementation of the mitigation measures and monitoring activities, schedules, cost and mode of co-ordination with the line agencies, RM, M, and local people. It should also identify the human resources requirement of the monitoring and mitigation works, quantify the man-month schedule and develop an action plan for all identified measures. The plan should also include monitoring procedure especially the mechanism for compliance monitoring by spelling out the responsibilities of each concerned stakeholders.

viii) Cost Benefit Analysis

It should be carried out total environmental cost to total project benefit.

ix) Alternative Analysis

All the possible alternatives should be examined in order achieve the identified objectives of the project and additionally to minimize the adverse impacts and maximize the benefits in the context of benefit foreseen and risks of environmental hazards. The following alternatives should be dealt in details:

- No Action Alternative/do nothing alternative
- Design alternative;
- Operation alternatives in terms of technology, procedures, and schedule
- Location alternative;
- Other alternatives

4. Timeline and other IEE Study Requirements

i) Time:

The study should be completed within 2 months after the date of contract signing. The firms should provide detail workplan of the study for the given time duration.

ii) Team Composition

The team composition for undertaking this assignment should be in accordance to the Schedule 13 relating to the Rule 7 (6) of the Environment Protection Rules, 2077. The team may include:-

- Team Leader
- Environmentalist
- Hydrologist/ Geologist
- Natural resources expert
- Sociologist
- Computer operator
- Field assistants

The team members should meet the minimum qualification and experience criteria mentioned in the Schedule 13 relating to the Rule 7 (6) of the Environment Protection Rules, 2077.

iii) Other requirements

a) Final IEE report preparation and submission to DSMPC after the approval from the concerned authority mentioned in Article 3(5) of the Province 1 Province Environment Protection Act, 2076 no later than two months from the date of contract. The approval process may require preparation and submission of report, and presentation of the report as well as incorporating the amendments if any, suggested by the IEE approving body.

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

c) The conditions/requirements mentioned in the notice published by DSMPC regarding the invitation of the proposal should be read as an integral part of this ToR as well.

d) The terms and conditions mentioned in this ToR will apply for any related issues, whereas the rest will be addressed in accordance to the prevalent rules and regulations of the Government of Nepal.

5. Budget

A total of NRs 7,**49**,**958.40** (In words, Seven Lakhs Forty Nine Thousand Nine Hundred Fifty Eight Rupees and Forty Paisa) including 13% VAT has been estimated to accomplish the assignment.

Prepared By:	Checked By:	Approved By:
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Environment Inspector	Environment Officer	Acting Chief Administrative Officer