



Shuklaphanta Municipality has allocated fund and intends to apply a portion of this eligible payments what for which this request for financial and technical proposal is invited for the Preparation of Detailed Project Report (DPR) of different road sections as mentioned in the

The Shuklaphanta Municipality now invites Request for Proposal from eligible consulting firms ("consultant") to provide the following consulting services: ij

S.N	Consulting Service Identification Number	Description of Work	Estimated Amount Rs. (Without VAT)	Remarks
ri .	RiverTraining/Consulting/2080-81/03	Detail Project Report on river protection 4,30,931.82 works of Chitaura Nala and Budhi Nala (Approximate total Length to be studied is 10.5 KM)	4,30,931.82	Only Hard Copy acceptable (BOQ,TOR & Financial Submission form should be filled compulsorily)

Interested eligible consultants may obtain Hard Copy/Soft Copy of procurement document from office of municipality or may download from the Website https://www.shuklaphantamun.gov.np

Proposal shall be delivered to Shuklaphanta Municipality Office on or before 2081/02/16 during the office hours and will be opened the next day 11:00 am. ë

In case the last date of obtaining, submission or opening of the documents happens to be a holiday, the next working day will be deemed as the due date but the time will be the same as stipulated. 4

Chief Administrative Officer

Chief Administrative Officer प्रमुख प्रशासकीय अधिकृत F:Y 2080/81

Shuklaphanta Municipility Office of Municipility

Jhalari,kanchanpur Sudurpaschim Province

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Bill of Quantity(BOQ) Name of project :Detail Project Report on river protection of Chitaura Nala and Budhi Nala (Approximate Total Length to be studied is 10 年底	Location : ward no 2 5,810

Location: ward no 2.5&10

Remarks					
Amount					
	In Words				
Rate	In Figure				
Quantity		1			
Unit		2.1			
Description of Work		Detail Project Report on river protection works of Chitaura Naia and Budhi Naia (Approximate total Length to be studied is 10.5 KM)	Total	13% VAT	Grand Total
S.N.		1		i i	

Name of consultancy:Name of Authorised Person, Signature with Seal :Address of firm with Tel. & mobile No. :-

Shuklaphanta Municipali Jhalari,Kanchnapur Sudurpaschim Pradesh

TERMS OF REFERENCE (TOR)

FOR

Preparation of Detailed Feasibility Study and Detailed Design of Chitaura nala ward no.2 and Budhi Nala ward no 10 & 5 Protection works.

Nepal's mountainous region that constitutes 70 % of the total area of the country comprises a geologically active zone where instability due to tectonic activity and steep slope erosion is predominant throughout the country. Approximately 80% of rainfall occurs during the monsoon period from June to September and during this period river systems become more hostile in cutting river banks and inundating nearby agricultural lands and settlements and thereby damaging numerous lives and properties each year. In addition to these natural processes, infrastructural development activities and increasing population have triggered further destabilization of the land surface. This continuous man-made destabilization stems from activities such as deforestation, road building and encroachment towards the flood plain.

Primary victims from these waters induced hazards are always the marginalized poor of the country living densely along the flood plains of the river bank in the Terai region and along the steep slopes of the rugged fragile terrain within the mountain area. More than 70% of the people in the country live in absolute poverty and out of this, more than 60% of the people are living in a vulnerable situation fighting continuously with these waters induced disasters.

The Department of Water Resources and Irrigation department (DWRI) under the Ministry of Irrigation of the Government of Nepal has presently the mandate of preventing, managing and mitigating the above said problems of water induced disasters and thereby helping in the poverty alleviation of the country.

The "Water Resources Strategy of Nepal" and "National Water Plan" have spelled out this Department as a lead agency in water induced disasters prevention and mitigation sector. However, as one of the vital projects of this Department, the DMSP is in the verge of completion and as the DWRI is in its infant stage, it now seeks to keep up projects in the pipeline and has already made some groundwork exercises for seeking national and international donor assistances to take up new future projects in this

Hence, Shuklaphanta Municipality, Jhalari, Kanchnapur anticipates preparing various bankable project proposals within the realm of water induced disaster, river training and management by involving competitive private Consultancy Firmswhich should comprise the contents akin to the prevailing standards and be acceptable to nationaland international donors when presented before them.

2. Rivers under study

Short description of rivers to be surveyed, locations, existing condition etc...



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The objective of the assignment is to prepare a technical study report for river training works, which could be implemented. Basically, survey has to be conducted along ward no 2 Chitana and Budhi Nala ward no 10 & 5 class three river category with the street of survey length is total 10. stretch of survey length is total 10.5 Km including both Nala.as per norms for research and studies through consulting services, WRRDC, the other objectives are:

- Identification of water induced problems, its causes and effects.
- Identify and assess existing/proposed mitigation measures
- Conduct detailed hydrological study of the river
- Determine the HFL of the river by considering the 50/100 years flood by modeling orother appropriate method.
- Plan, design and cost estimate of proposed river training works.
- To demonstrate the locations of existing structure and its conditions and cost of rehabilitations.
- To assess and obtain commitment/co-operation of affected people.
- · To assess social, physical and environmental damages and probable implications ofproposed interventions
- Assessment of socio-economic benefits from the proposed river training works such asreclamation of the fertile land, protection to agricultural land and others.
- Prepare Detailed Feasibility Study Report of River Training Work

3.SCOPE OF WORK

The main work includes desk study, analysis of data and maps, field survey, preparation of maps and drawings and detailed engineering design and estimate. The consultants shall prepare the detailed design, drawing and cost estimate based on the approved norms and prevailing district rates. The scope of works under the above objectives includes but is not limited to the following:

- · To conduct desk study, Collection and review of relevant information, available reports, otherpast studies.
- · To collect historical data of the basin and conduct hydrological and geomorphological analysis of the river
- · To carry out the longitudinal and cross section survey of river bank and preparation of river plan in suitable scale within provincial territory.
- · To provide benchmark at regular interval in the river or its vicinity for future reference
- · Note any existing river training, assess the suitability and performance of existing works andlocate the area where river training is required
- Prepare technical design of structural/ non- structural mitigation measures in study area
- · Incorporate other necessary Bio Engineering contexts/ thoughts as felt necessary by the
- To recommend the catchment protection/ watershed management methods of the entire basinin macro level.
- To propose appropriate plan/design/drawings for river control measures as per site condition.

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- Propose about optimal utilization of reclamation area (eg. agricultural use, fisheries, recreation and others)
- Prepare reports including all above mentioned things.



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In order to meet the objective of the study, the work will be conducted in following phases.

I. DESK STUDY PHASE

- Collection, review and compilation of secondary data and information
- Collection of relevant maps (Topographical maps of 1:25000 scale)

II. DATA COLLECTION AND INTERIM/FIELD REPORT PREPARATION PHASE

- Data collection (eg. Satellite images, meteorological and hydrological data of nearbymeteorological stations, DEM of river basin, Land use data etc)
- Reconnaissance of river length in project area and identify the vulnerable spots to performsurvey and design works for river training.
- · Recognition of damaged area and rivers
- Longitudinal and cross section survey of river (X-section Survey on every 100m of river stretches is required. Morecloser i.e 25 to 50 m of river sectional data may be necessary in case of sharp bendsand location requiring major structural interventions and not more than 200 m of x-section data in straight region)
- Discussion with local community
- · Hydrological study and flood investigation
- River training work phases and necessary management works
- Focus group discussion
- Preparation and submission of interim / field report

III. DESIGN AND ANALYSIS PHASE

- Plotting of field inspection data
- Plotting of new course of river (if applicable) and locate the area where river training isrequired on base Topo map of 1:25000 by using GPS, total Station etc.
- DEM preparation, river network determination, Catchment area delineation works
- Satellite Imagery Analysis (eg. Remove the cloud cover area from all images, Atmospheric correction, co-registration with DEM, Width and depth approximation, Temporal changes analysis etc.)
- Hydrological Analysis, Design and cost estimate including Data corrections, Statistical analysis, determination of the 50 and 100 years return period flood and Identify vulnerable area
- Survey Data analysis and design of river training structures like embankments, dykes andother necessary to protect identified spots.
- Preparation of Technical Plan including prioritization of vulnerable areas for phase wiseimplementation.

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Special provision for water intake and drainage as per site condition.

Detailed design, drawing, cost estimation, socio-environmental assessment

· Preparation and submission of draft report.

IV. REPORT FINALIZATION PHASE

- · Incorporation of comments and suggestion
- Preparation of final report

In addition, Field/Office work also constitute following activities

DISCHARGE DATA

The various discharge data such as high flow, low flow, mean monthly flow of the proposed river shall be collected from Department of Hydrology and Meteorology (DHM). Those collected data shall be adjusted to obtain the discharge on desired River section using Catchment Area Ratio (CAR) or other suitable method.

HYDROLOGICAL ANALYSIS

The criteria for the selection of maximum design discharge are based on technical and economic considerations. The major criteria for the selection of design flood are:

- · Importance of structure to be constructed,
- · Effect of overtopping of the structure,
- · Potential loss of life and downstream damage, and
- · Cost of the structure
- Climate Change effect on flood hydrograph hence design flood

FLOOD FREQUENCY ANALYSIS

The flood frequency analysis is a statistical method to show that flood events of certain magnitude may on average is expected once every n year. It is generally carried out to estimate the design flood from the recorded flow data of more than 10 years for gauged rivers (for applicable for large project) and for medium and small irrigation project within gauged river PDSP manual can be used.

REGIONAL ANALYSIS

When the recorded hydrological data of the river is absent or too short a regional analysis is adopted to estimate the flood flow, and low flow of required return periods. In this method a hydrological homogeneous region is considered from statistical point of view. There are various methods of estimating flood flow of given return period based on regional analysis. In Nepal following methods are used to estimate the flood flow:

WECS/DHM (1990) Method- based on regression analysis, Tahal et al (2002) Method – based on Index Flood Method, Sharma and Adhikari (2004) – based on regression analysis In addition, there are rational method and empirical methods such as Modified Dickens method, Ryve's method. The most commonly used methods in Nepal is Sharma and Adhikari Method based on regional analysis

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and Rational Method as empirical method; if available, analysis based on climate change risk will be given due consideration.

Besides above methods Design Flood can also be evaluated using appropriate method/software which includes climate change effects

In overall hydraulic and structural analysis is done for design and cost estimate is prepared accordingly.

SOCIO-ECONOMIC STUDY

The socio-economic survey will be carried out to determine the social structure of the community and its economic status. The survey includes the collection of quantitative and qualitative data and information on social structure, socio-cultural institutions, and economic activities of the inhabitant in project area. Some of social and economic indicators of the community are as follows:

Social indicators:

- Willingness/commitment- Need of project, willingness to participate;
- Social composition-homogeneity, diversity;
- Education- literacy, school and college, awareness about river training project, land reclamation, saving in life and property;
- Rural organization- Parma, Guthi, etc;
- Migration- temporary, permanent, foreign/urban areas especially due to flooding and catastrophes;
- · Main occupation- agriculture, service, labor, foreign service, business;
- · Source of income- agriculture, service, remittance etc;

ACCESSIBILITY

Find the distance of the project area from the nearest road head, cost of construction material at site, district rates for labor, materials & equipment

TECHNICAL SURVEY

Location and nature of river and assessment will be explained in detail with the description of the proposed structures, availability of construction materials and labors and rate of construction materials/equipment.

DETAIL COST - ESTIMATE

Approved District Rates for labor and materials at the project sites will be collected or analyzed. Detail rate analysis, detail quantity & cost estimates along with bill of quantity (BoQ) will be prepared.

MAP COMPILATION SCALE

The surveyor will produce maps and profiles at a scale of 1:1000 (or other legible scale) plotted on A3 – size sheets.

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ANNEXES

Annexes will include details of compiled data, designs and calculations, and sitt photographs etc.

2. Study Period, Deliverables and Mode of Payment

The duration of the study period would be about 1(one) month and the consultants shall submit following document. The schedule of submission for the proposed study shall be as below.

Deliverables	No. of copies	Schedule for submission
Draft final report	1 hard copy or e-copy	Within month
		ContractAgreement
Final report	2 hard copies & e-copy	Within one month of
		ContractAgreement

Mode of Payment

Mode of payment is as follows.

100% payment after submission of final report at once.

3. PERSONNEL REQUIREMENTS

The following personnel/ specialists will be required for satisfactory completion of the study:

*KEY EXPERTS:

1. Team Leader: 10.76 md

2. River Engineer: 14.44 md

3. Hydrologist:10.50 md

4. Geologist: 3.94 md

5. Socio-economist: 3.6 md

6. RS/GIS Expert::4.91 md

7. Surveyor:11.47 md

8. Sub-Engineer: 28.88 md

^{*} Please Include CV and academic transcript credential of highest degree achieved. Staff with Engineering background should submit Nepal Engineering Council Certificate.

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- * RS/GIS expert should also need to submit document related to either one acceptance course or 3 months training certificate on RS/GIS.
- * Key Experts should sign on their CV and it should be verified from the consulting firm as well.
- *Please include Power of Attorney (POA) and written declaration about eligibility to participate in procurement process.

(Please check RFP document/Evaluation criteria for other detailing)
Supporting Staffs:

- 1. Computer operator
- 2. Supporting staffs

It is expected that the Team Leader/River Engineer/Hydrologist and other Key staffs will observe and provide instruction to the sub-engineer/other staffs during study, fieldwork, office work and the <u>whole</u> team shall work in full time during the study period.

The Consultant shall be responsible for authenticity of the field data from Engineering survey, Geo-technical investigation and any other technical/social data collected from the field. The consultant shall be responsible for the correctness of the discrepancy is found in field data and design final report the Consultant work if necessary and complete the work. DWRI/PEP5 Butwal will not be responsible for the revised extra cost. Consultant should bear all ethical, moral and legal responsibility in case of any fraud or manipulation of data and findings.

ACCEPTANCE OF PROPOSAL

The client reserves the right to accept or reject the Final Study Report submitted by the Consultant.

PROPOSAL SELECTION PROCESS

The proposal will be selected on the Least Cost Based Selection (LCBS) method.



[Letterhead of Consultant in case of a Firm]

To: [Name and address of Client]

We, the undersigned, offer to provide the consulting services for [Title of consulting services] in accordance with your Request for Proposal dated [Date] and our Proposal. Our attached Financial Proposal is for the sum of [Amount in words and figures]. This amount is inclusive of all the applicable local taxes (excluding Value Added Tax).

Our Financial Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal, i.e., [Date].

We understand you are not bound to accept any Proposal you receive.

We remain,

Yours sincerely,

Authorized Signature:

Name and Title of Signatory:

Name of Consultant:

Address: