Shailung Rural Municipality

Office of the Rural Municipal Executive

Katakuti, Dolakha

Bagmati Province, Nepal

TOR

For

Preparation of Detailed Project Report (DPR)

Of

Adheri Khola Lamagaun Irrigation Project

Shailung-7

Contract NO: SRM/SQ/CS/06-2081/082

FY: 2081/082

Terms of Reference
For
Preparation of Detailed Project Report (DPR) of Adheri Khola Lamagaun Irrigation Project

1 Background

Nepal has a great task ahead to enhance the agricultural production by improving and increasing reliable and adequate irrigation facilities to meet the food requirement of ever-increasing population. So, building-up a reliable and year-round-irrigation system especially in the rural area is the pressing need of the country to ensure food security and to lower down the level of poverty, through increased agricultural productivity.

Water resources that are primarily needed for irrigation development are abundantly available in the country if considered on annual basis. Most of the irrigation systems in Nepal draw water from small and medium sized rivers which have sufficient flows during wet months of June to September and dry up or have little discharges during the remaining months. To meet poverty alleviation, the Shailung Rural Municipality wants to develop irrigation infrastructure where it is techno-economically viable.

Irrigation has been practiced for at least 6,000 years as a way of increasing the growth of food and forage plants used by the cultivators and their livestock. Defined as the artificial application of water to the root zone of desirable plants, irrigation substitutes for natural rainfall that is deficient in quantity or irregular or untimely in occurrence. As such, it can allow particular crops to be grown where they would not otherwise grow, to survive droughts that would otherwise kill them or stifle their growth, and to take maximum advantage of other agronomic inputs, such as fertilizer, in producing the desired output – typically the leaf, the seed, or the root of the plant.

Thus, through the utilization of available best technologies it is pertinent to provide irrigation facilities to the arable land which were thought un-irrigable earlier. The availability of not only the abundance of water resources but also the longer Sunshine hour in our country can be considered as a boon towards the production of energy and their subsequent utilization for the overall development of the nation. Developing and providing year -round irrigation facilities to the arable land depending upon the availability of resources and by the adoption of feasible technologies including the consumptive use principle with the holistic approach we can realize and or actualize the slogan put forward by the Government of Nepal "बारीका पाटा र खेतका गरा, हुन्छन सबै हराभरा".

The main purpose of this study is to assess available water resources in the study area, to assess the water required for crops in the area and to select suitable water sources from nearest river to fulfill the insufficient irrigation water. The study on the demand for crop water requirement and the supply of water from available water sources shall be done. And finally, more suitable nearby water sources and suitable diversion methods shall be select to meet the insufficient water demand for crops.

The ultimate outcome of this study is to prepare a Detail Report for Feasibility Study, Detail Engineering Design and Cost Estimate of Adheri Khola Lamagaun Irrigation Project.

2 Objective

The main objective of the study is to prepare detail design report for optimum use of available water resources for constructing most efficient and economical irrigation system in Shailung Rural Municipality

The consultant shall carry out field survey and investigations, engineering design, economic analysis and preparation of cost estimate of construction irrigation networks and command area development work from Intake, main, distribution system to farm level structures.

3 Specific Objectives

The specific objectives of the services are as follows:

- To carry out detailed planning, field survey and investigations, engineering design, economic analysis, layout, drawings, maps, and preparation of cost estimate of irrigation System.
- Hydrological Assessment of River (Supply Source).
- Assessment of crop water demand according to the future cropping pattern in consultation with farmers and their recommendations;
- Carryout detail of water balance to find out the gap of amount of irrigation water from crop water Demand;
- Prepare plans and engineering design to meet water need for irrigation from nearby rivers using appropriate technologies and methods. The consultant can propose the intake locations at one or multiple locations in the nearby rivers considering economy and sustainability of project.
- Carryout preliminary environmental & social Impact assessment;
- Carry out detail design, cost estimate, drawings of the all the components of the irrigation structures.
- Carry out economic analysis of the project;
- Prepare detail plan for implementation with timeline.
- Adhering to the Terms of Reference (TOR), the Consultant's team will develop a comprehensive, time-bound work plan that outlines anticipated activities and deliverables for 1.5-month period, starting from the commencement of consulting services. The Consultants must consider this aspect while formulating the detailed time-bound integrated work plan.

2 Objective

The main objective of the study is to prepare detail design report for optimum use of available water resources for constructing most efficient and economical irrigation system in Shailung Rural Municipality

The consultant shall carry out field survey and investigations, engineering design, economic analysis and preparation of cost estimate of construction irrigation networks and command area development work from Intake, main, distribution system to farm level structures.

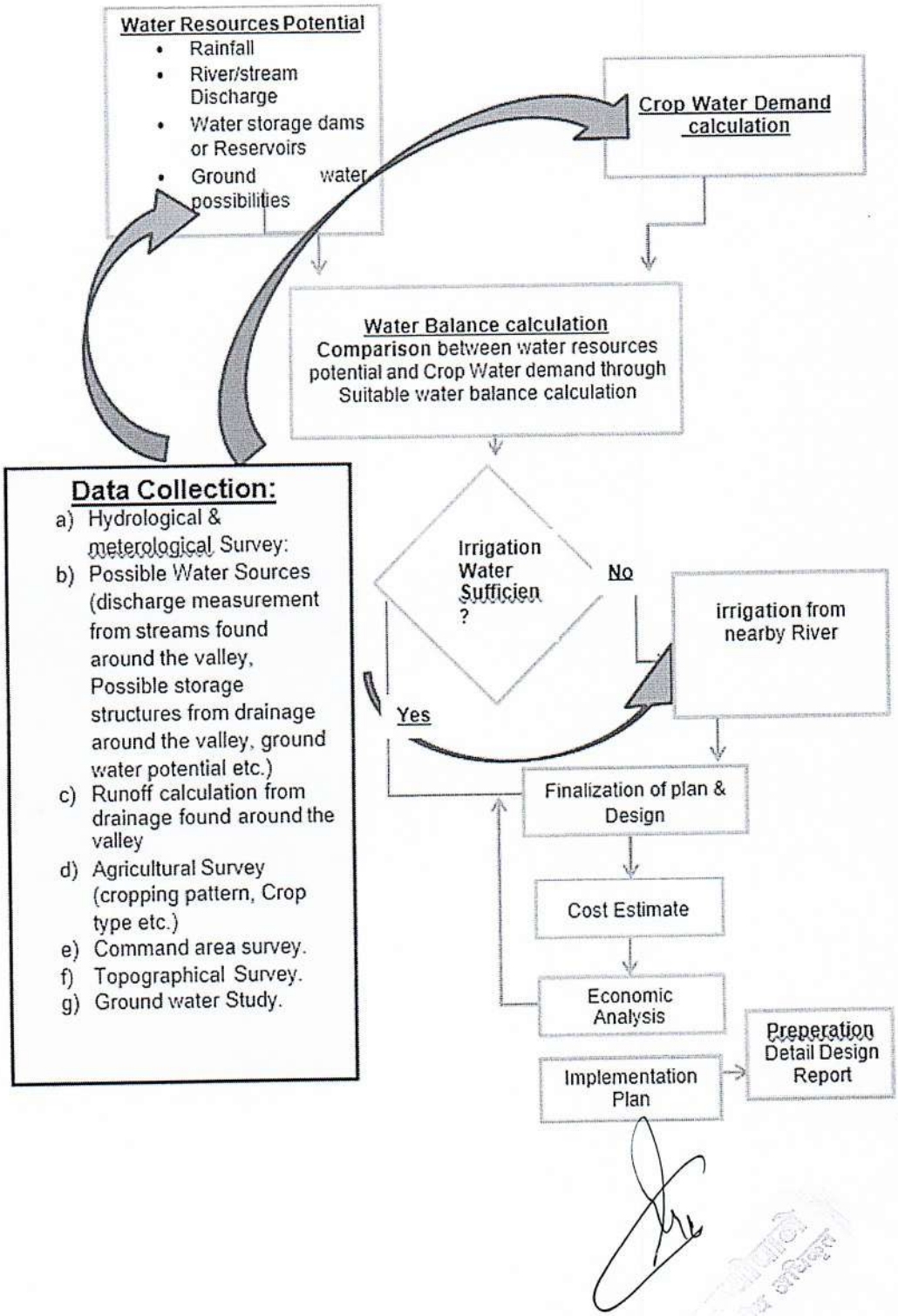
3 Specific Objectives

The specific objectives of the services are as follows:

- To carry out detailed planning, field survey and investigations, engineering design, economic analysis, layout, drawings, maps, and preparation of cost estimate of irrigation System.
- Hydrological Assessment of River (Supply Source).
- Assessment of crop water demand according to the future cropping pattern in consultation with farmers and their recommendations;
- Carryout detail of water balance to find out the gap of amount of irrigation water from crop water Demand;
- Prepare plans and engineering design to meet water need for irrigation from nearby rivers using appropriate technologies and methods. The consultant can propose the intake locations at one or multiple locations in the nearby rivers considering economy and sustainability of project.
- Carryout preliminary environmental & social Impact assessment;
- Carry out detail design, cost estimate, drawings of the all the components of the irrigation structures.
- Carry out economic analysis of the project;
- Prepare detail plan for implementation with timeline.
- Adhering to the Terms of Reference (TOR), the Consultant's team will develop a comprehensive, time-bound work plan that outlines anticipated activities and deliverables for 1.5-month period, starting from the commencement of consulting services. The Consultants must consider this aspect while formulating the detailed time-bound integrated work plan.

4 Framework of Study

The study process should be carried out according to the flowchart below.



5 Scope of the Services

The Consultant shall be overall responsible to carry out desk study, field works and office works to prepare a comprehensive detail design report incorporating detailed system planning, field survey and investigations, engineering design, economic analysis, layout, drawings, maps, and cost estimate of irrigation System.

For this purpose, the scope of the Consultant's services shall consist but not limited to the following tasks in general:

Task 1: Inception of the Assignment

Task 2:Field Investigation and Data Collection

Task 3:Assessment of amount of water for irrigation from various potential sources

Task 4:Assessment of crop water demand according to the future cropping pattern

Task 5:Assessment of water balance to find out gap between available water & crop water demand

Task 6:Assessment of Diversion Requirement i.e. lifts system

Task 7:Finalization of Plan, Design Concept, Engineering Studies

Task 8:Social & Environmental Impact and Safeguard Studies T

ask 9: Quantity Estimate, Cost Estimate

Task 10: Economic Analysis of the Project

Task 11: Implementation Plan

Task 12: Preparation of Master plan Report

Task 13: Reports and Deliverables

5.1 Task 1: Inception of the Assignment

- Main activities under this task include review of existing reports, applicable guidelines/rules, project review, planning and initiation of the field work and updating of the work plan submitted with the proposal on the basis of the findings of the review.
- The consultant shall identify project location on the 1: 50,000 scale topographic map and aerial photograph. The consultant shall collect and review all the related data to the existing status of the study area.
- The consultant shall prepare list of outstanding matters to be studied.
- The Consultant shall inform the Client prior to field visit for inventory work and the client will coordinate and make sure that the concerned Water Users or local farmer's representative are included in the field visit team during inventory works.
- In the project review, all information/data of the project should be subjected to critical scrutiny in order to establish a realistic understanding of the type and scope of additional information/data required for subsequent analysis/design. As part of the project review, the Consultant shall:

- Identify key areas, which will require field work or demand major efforts in data collection/ investigation;

- Establish methods and procedures for further studies
  - The Consultant shall undertake a field reconnaissance to familiarize themselves with the project area, and the topographical and geographical features of the project area. In parallel with data collection and field reconnaissance, the Consultant shall prepare a time schedule with milestones and specific key dates. This schedule shall be based on that submitted by the Consultant as part of the proposal, suitably updated to reflect the additional information/ data needs.
  - The Inception Report shall summarize the results of the review of existing data/ reports summarize the results of the field reconnaissance, discuss the key data/information gaps in proposed field work/investigation, if any data collection and verification approach the Consultant intends to follow in carrying out various activities to complete the assignment & updated time schedule within the contractual time frame.

5.2 Task 2: Survey, Field Investigation and data collection

The following field investigations shall be performed by the Consultant:

Sub-task (a): Hydrological/Meteorological Investigation

Hydro-meteorological survey is one of the important tasks for assessing crop water requirements of various crops to be proposed in the project area and the design flood discharge of the rivers and drain crossings. Under this task, the Consultant shall collect relevant hydro-meteorological data of the rivers/drains, if they are gauged, from secondary sources (published and unpublished data of DHM). The long-term data of these rivers shall be collected and the low flow as well as flood discharge will be analysed. The hydrological analysis of these river systems shall be carried out with the help of frequency analysis in case the long-term data are available. In case of absence of long-term data, other methods such as regional, rational, or empirical methods shall be adopted to analyse the hydrological information. Correlation of future water availability with hydrological data shall be done for future measures.

The activities to be carried out under this task include but not limited to the followings:

I. Assessment and estimation of high flood discharge, low flow discharge of River using appropriate methods and consultant shall propose suitable value based on structures for design purpose.

II. Acquire all the data related to stream flow and other hydro -meteorological data from the gauging and climatic stations within or around catchment area;

III. Conduct supplementary hydro-meteorological monitoring if necessary (e.g., precipitation, discharge, humidity, evaporation etc.);

Sub-task (b): Topographical Survey

The survey works shall be connected with the national survey systems. In order to prepare the topographic maps, following survey shall have to be carried out:

- System Planning
- Topographical survey.
- Profile Survey of River & Canal Alignment.
- X-section Survey of River & Canal Alignment.

i) *System Planning*

The Consultant shall acquire digital topographical maps (1:25,000 scales) of the area from Survey Department and prepare layout plan of existing irrigation and drainage networks. An interactive procedure shall be followed in the irrigation system planning and command area development planning for study area. The planning shall be overlaid on recent

Google Earth maps or other satellite images and refined considering recently added infrastructure and development in the area. Once the tentative plans are verified in the field during field visit, more detailed planning for the of irrigation system and planning.

- Delineation of net command area in the study area;
- Identification and marking of the natural features including existing drainage, high ground, roads, villages, forests and public places etc.
- Marking the locations of existing canal structures if any;
- Delineation of the proposed command area up to the Field Level for Command Area Development
- Identification and locating the appropriate locations of field outlets, Sprinklers, Valves, Reservoirs and all necessary irrigation structures.

ii) *Topographical Survey*

- The Headwork site of proposed irrigation system shall be surveyed in a proper manner and the consultant shall record it and include it in the topographic map in scale of 1:2500 and 0.25 m contour interval or in the scale which the Consultant determines appropriate.
  - The kind and name of natural or man-made features shall be recorded and included in the topographic maps.
  - Proposed canal/ pipe alignment, proposed structures shall be show in the topographic map in the scale which the Consultant determines appropriate.

The consultant shall carryout the topographic survey of Command area to produce topographic map in a scale of 1:5000 with a contour interval of 0.25 m. The work shall start after BMs are established. Spot levels including the positions (coordinates) of points preferably in grids shall be taken with additional points, where the change in relief is more than 0.25 m, to ensure changes in slopes are accurately picked up.

All existing features, either natural or man-made, such as high lands low lands, natural and artificial channels, roads, structures, etc. shall be surveyed as points of detail and the density of detailed points shall be such that topographical and other features can be accurately drawn. The detailing shall be accompanied with the sketches which shall be neat, clear and complete in order to facilitate data processing and preparing maps.

Topographic surveys in structure locations should be detailed and complete, to accurately reflect conditions and elevations related to design requirements.

iii) *Profile Survey*

The consultant shall propose a suitable pipe/canal alignment route and establish a permanent benchmark on the proposed canal route. Longitudinal profile of River and proposed Pipe/Canal alignment shall be prepared by levelling at intervals of 50 m or less.

River profiling shall extend from the intake to the following:

- In the upstream side: the profiling shall extend all the way up to the 0.3 Km of upstream side of river/streams.
- In the downstream side: the profiling shall extend all the way up to the 0.3 Km of downstream side of river/streams

Longitudinal profile of the **Pipe/Canal alignment** shall extend from the Intake to tail of the Pipes/canals shall be subject to the following:

- Longitudinal survey of canal alignment shall be taken at least 50 m interval with additional sections where required.
- Profile survey must start and end with on an established benchmark.

iv) *Command Area Mapping*

Command area survey planned to be irrigated shall be carried out to prepare planning and design of infrastructure. This work shall mainly cover the following activities:

- Survey shall also be done to measure the actual area of the command area and the type of command area (irrigation blocks) and shall be shown in GIS map.
- The command area shall be classified and show in GIS map according to the source of water which will get water for irrigation from different sources.

v) *Agriculture and socio-Economic Survey*

The Consultant shall conduct socio-economic and agricultural survey in Command area with the help of appropriate survey tools such as PRA, key informant survey and agricultural and socio-economic household survey, to establish Bench Mark of the current status of social and economic parameters of the societies residing in the Project Area. This survey will comprise, but not be limited to, the collection of the following information:

- Pertinent information relating to the households, population, education and health of the people residing in the command area should be based survey from **at least 10%** of the household in the area;

- Some meeting shall be held in Study area to discuss the status, outcome and impact of this project in the presence of the existing Water Users Association and its representatives, local level authority and its representatives, District Coordinating Committee and its representatives;
- Assessment of Areas of Submergence Land due to the Proposed Reservoirs around the Valleys and it's possible Impacts on the Society;
- The cost of land and resettlement for land acquisition if it requires;
- Information on cropping patterns being practiced under irrigation and rain - fed conditions within the command area;
- Relevant information necessary to devise proposed cropping patterns for different parts of the project area;
- Prices of agricultural commodities in the project area;
- Agricultural services available in the project area;
- Market opportunities of various agricultural commodities in the project area;
- Non-farm income of the representative households;
- Location of the stretches of the canal alignment in the forest land and identify the type of the forest, private, community or national and the quality of the forest cover;

5.3 Task 3: Assessment of amount of water extraction

The activities to be carried out under this task include but not limited to the followings:

• Assessment and estimation of long term mean flow of source rivers using appropriate methods and locations where appropriate;

• Assessment and estimation of long-term safe extraction amount of water from river sources using appropriate methods and locations where appropriate;

• The total amount of water that can be distributed in at least half monthly wise in the proposed command area from the above-mentioned sources for irrigation shall be shown in table as well as graphically.

5.4 Task 4: Assessment of crop water demand

The Consultant shall collect information on existing cropping pattern, soil type, market situation, etc. and propose for future cropping pattern with the project condition. Besides, the Consultant shall collect agro-climatological data of the command area and derive irrigation water requirement.

The activities to be carried out under this task include but not limited to the followings:

- The consultant shall propose a future cropping pattern to achieve higher crop intensity.

- Irrigation methods such as flooding, sprinkler system or drip system or any other methods shall be chosen by discussion with water users & employer keeping in view to get the high-water application efficiency and economic condition before entering the estimation of crop water demand.
- Estimation of crop water demand according to the proposed future cropping pattern shall be done according to the method prescribed in PDSP manual.

5.5 Task 5: Assessment of water balance

The consultant shall link the potential of cumulative water supply from the various sources mentioned above and compare it with the total crop water demand throughout the year.

The activities to be carried out under this task include but not limited to the followings:

- The consultants shall determine deficit of irrigation water (at least half monthly wise) by comparing supply of irrigation water from different sources available in the project area & crop water demand on that time period.

5.6 Task 6: Assessment of diversion/Lift requirement from nearby river

- The consultant shall plan to supply insufficient water to the crop using lift system or any other appropriate diversion technique from a nearby river.
- The consultant shall formulate alternative plans and take a best economical, technical & viable plan for the project.

5.7 Task 7: Finalization of Plan, Design Concept, Engineering Studies

Following are the major activities to be performed by the Consultant:

a. Finalize the conceptual design by identifying alternative layouts and selecting the best layout of the project. The consultant shall investigate the appropriateness of the alternative with regard to project optimality, functionality and other aspects.

b. Finalize the conceptual design of intake, distribution systems and irrigation structures. The consultant shall investigate the appropriateness of the alternative with regard to project optimality, functionality and other aspects. Perform engineering design of each component of the project.

c. The engineering design shall be based on the information collected during the investigation.

d. Carryout Inventory of Existing Irrigation system around the valley & design for rehabilitation of existing system and/or design of new system from the information collection during the investigation.

e. Prepare engineering drawings and maps of all the components of the project according to the scale given below.

5.8 Task 8: Social & Environmental Impact and Safeguard Studies

a. Carry out the preliminary base line survey in the project area. This shall include, among others, collecting and updating information on flora, fauna, residents, houses, infrastructures, culture and tradition, ethnic communities, water quality, pattern of agriculture, economic activities, pattern of settlements, etc.

b. Conduct a baseline survey to determine the direct, indirect, induced and cumulative impacts of the project in construction, operation and maintenance.

c. Prepare the following Environmental and Social Management Plans:

   i. Prepare preliminary Environmental examination covering, erosion and sedimentation control, spoil disposal and management, quarry management, water quality, reservoir clearance, hazardous materials, emission and dust control, noise control, physical cultural resources, vegetation clearing, landscaping and re - vegetation, solid waste management, and any other construction related issue;

   ii. Recommend further environment examination i.e. IEE, EIA etc. if needed and the consultant shall provide TOR of that work.

5.9 Task 9: Prepare Quantity and Cost Estimate

The cost estimate of the Project shall be developed component wise. The estimate shall be done on the optimized layout, structure sizes and the construction methodology conceived for the project. It should cover the costs of the all civil works according to the components of the project. The cost of construction management and engineering shall be included in the estimate as separate items. Appropriate contingencies will be applied to take account of factors that cannot be adequately defined even at the implementation stage.

The cost estimates shall be accompanied with the Consultant's assumptions on the availability of material, equipment and labour, their unit rates and rate analysis. Quotations from vendors shall be attached for those whose rate is not available in approve district rate and in departmental norms.

5.10 Task 10: Economic Analysis of the project

The Consultant shall prepare the necessary inputs for the economical evaluation and shall analyse the economic viability of the project taking into account the requirements of development cost for irrigation infrastructure. The economic analysis shall be presented in sufficient detail to satisfy the requirements of the major lending agencies.

5.11 Task 11: Preparation Implementation plan

The consultant shall plan and submit the time schedule of all future activities under this project. The implementation plan for future work shall be presented in sufficient detail.

5.12 Task 12: Preparation of Detail Design Report

The Consultant shall prepare Detail Design Report based on the preliminary analysis of field data. After completion of required field surveys and data collection, data shall be processed, analyzed and evaluated for different alternatives and designed for the best one. Innovative

idea shall be employed to address the present problems making allowances for the future prospect while carrying out design of canal and structures. PDSP manuals, hand books/text books and relevant literature, shall be referred while designing and drawing canals and structures. The study would include sound engineering designs, quantity of work and cost estimate as well as proposals and analysis related to the following matters: institutional management; implementation and beneficiary participation, arrangements in detailed design, construction, and operation activities; agriculture development and benefits; environmental impact assessments and mitigation measures; economic and financial aspects and investment program. The detailed design report shall include all the design calculations that would be acceptable and the development partners. The proposed development plan and corresponding investment cost against the projected benefit in the Study shall be accurate enough, for taking decision on project financing and implementation. The remaining works of optimization and detailed design shall be started after based on decision of employer and the outcome in Detail Design Report.

5.12.1 Preparation of Drawings / Maps

The design works shall result in the preparation of drawing -of the project layout. Drawings shall be produced by the Consultant in CAD in the type and numbers that reflect the scope of the master plan. The drawing detail submitted with the draft and final reports shall be such that all information is clearly indicated, and they lead to the cost estimation of the project. Typical drawing details will include:

- Structural dimension and layout information;
- Interfaces with other structures;
- Layouts.

The drawings will be in A-3 size. However, the size of the drawing could be increased, if required. The major drawings are listed below:

1. *General Drawings*

Site Location = 1:2,500

Project layout map = 1:2,500

2. *Intakes*

General Arrangement 1:1,000

Structures Sections and Details 1:1,000

3. *(Major Structures include Intake and associated structures)* ***1:1,000***

4. **Command Area**

In the command Area map and other important physical features should be shown 1:2,500

5. *Canal profile*

L-section 1:1,000 H

At least 50m interval

5.13 Task 13: Reports and Deliverables

Various reports related to the detailed design shall be prepared by the Consultant and submitted to Employer for review and approval. The schedule and contents of these reports are described in the following sections.

The various reports shall be submitted to the Client according to the following schedule:

Inception Report Three copies, no later **10 days** after signing the agreement.

Draft Report Three copies, no later than **20 months** after signing the agreement

Final Report Five hard copies and one electronic copy, **no later than 1 months** after signing the agreement

Contents

The contents of the various reports shall be as described below:

i) Inception Report

As a minimum, the Inception Report shall cover the following topics:

- Project-related data collected and reviewed;
- Consultant's evaluation of the site and different alternatives for site development;
- Proposed field investigation program;
- Consultant's methodology for further analysis, including design analysis, economic analysis/financial analysis

ii) Draft Report

- A summary of the works performed, problems faced and their solutions as well as significant findings, if any;
- Field investigation progress regarding topographical, geological/ geotechnical, hydrological and meteorological data collection etc.;
- Contour maps of the general layout plan at a scale of 1: 2500 with tentative layouts of the major components of the proposed scheme, cross-sections of the river at the intake indicating the present water level and the historical levels of previous floods, alternative sites or alignments, if any;
- tentative canal lengths, measurement sheet of the river discharge during the field survey;
- Photographs of the sites of various structures;
- List of local level offices and institutions visited; and,

The Draft Report shall fully document all aspects of the study. It shall also present necessary documentation concerning the following:

- Definition of the optimum development including background information, the development concept, structure descriptions, construction planning, investigation information, cost estimates etc.,
- Technical viability of the project,
- Preliminary Initial environmental Examination of the project,
- Economical and financial justification for the project,

iii) Final Report

On acceptance of the Draft Report, the Final Report shall be prepared to include preliminary design, calculations, drawings, quantity and cost estimates, and other details as formulated in the scope of work. The Final Report shall be prepared incorporating all necessary modifications and comments from the Client. The Consultant shall also prepare an Executive Summary of the report.

Each page of all hard copies of the report shall be signed by the consultant and stamped to take responsibility of the work. Hard copies and electronic copies of all reports, appendices, maps, records etc. are to be provided by the Consultant to the Client.

7. Time Schedule

The consultant shall commence the work from the date of signing of the agreement and should complete within the period mentioned in the agreement. The duration of the assignment shall be of *1 month* from work order date.

6 Mode of Payment

The Rural Municipality shall pay the amounts claimed upon submission of the reports mentioned above based on the prevailing laws and rules/regulation of the Government of Nepal. As per agreement between Shailung Rural Municipality and consultant assigned for the study, the consultant can claim the payment either in a single installment after submission and acceptance of the Final report or in installment as follows:

- First installment, 0% of the total amount upon submission and acceptance of Inception report.
- Second installment, 0% of the total amount upon submission and acceptance of draft report of DPR;
- Final or remaining 100% of the total amount upon submission and acceptance of final DPR report.

7 ORGANIZATION AND HUMAN RESOURCES

Organization

To provide the consulting services, the Consultant shall ensure a team of professional staffs. The staff shall be assigned to and perform clearly defined tasks, commensurate with their background, qualification and experience based on shared responsibility. Emphasis is placed on the need for relevant design engineers to have knowledge and previous experience of similar works. In particular, the Engineers concerned with the design of the civil works shall have previous experience in design of such components. The Bio-Data of the professionals which will be submitted should be originally signed with recent date mentioning their commitment for the respective work.

Key Staffs

S.N	Designation	Nos.	Input-Days	Qualification	Experience
1.	Team Leader/ Irrigation Management Expert	1	30	Minimum of master's degree in Water Resource / Irrigation/ Hydraulic Engineering or equivalent.	Should have minimum 5 years' experience and preferably 5 years of specific experience in the field of design or construction supervision of water resources projects involving lift irrigation, major diversion headwork, intakes, and related structures.
2.	Agriculture Expert	1	30	minimum Master's degree in Agriculture science or equivalent	minimum 3-5 years of Experience and Preferably 5 years of professional experience in the related field
3.	Socio-Economist	1	20	minimum Master's degree in Sociology/Anthropology/ Economics	minimum 3-5 years of Experience and Preferably 5 years of professional experience in the related field
4.	Civil Engineer/Structural Engineer	1	8	Minimum qualification of under-graduate degree in the field of civil Engineering.	minimum 3-5 years' experience and preferably 3 years of specific experience in the field of design
5.	Senior Surveyor	1	10	Minimum of Bachelor's degree or equivalent in surveying /civil engineering/ Geomatics or Equivalent subject	minimum Five (5) years of professional experience and preferably Three (3) years of specific experience

Shailung Rural Municipality

Office of Rural Muncipal Executive

Dolakha, Bagmati Province

BILL OF QUANTITIES

Name of the Consulting Service: Preparation of Detailed Project Report (DPR) Of Adheri Khola Lamagaun Irrigation Project Shailung-7

Date of Submission of DPR:

S.N	Description of Works	Unit	Quantity	Rate in Figures (NRs)	Rate in Words (NRs)	Amount (NRs)	Remarks
A	Preparation of Detail Project Report (DPR) of Adherikhola Lamagaun Irrigation Project,Shailung,7	job	1				
					Gross Total		
					Vat (13%)		
					Grand Total		

Authorized Representa

Signature :

Date

Official Seal: