

Project Information, Scope of Consulting Services and Evaluation Criteria for Fisheries and Aquatic Wildlife Baseline Study of the Upper Arun hydro-electric Project (UAHEP) and Ikhuwa Khola Hydropower Project (IKHP)

1. Background

Nepal Electricity Authority (NEA), intend to construct Upper Arun Hydro-electric Project (UAHEP) and IkhuwaKhola Hydropower Project (IKHP) located in Sankhuwasabha district of eastern development region. The Environment and Social Studies Department (ESSD) of the Engineering Service Directorate of NEA is conducting Fisheries baseline study of Upper Arun Hydroelectric project as a part of Environment and Social Impact Assessment (ESIA) of the proposed Project. The ESSD is seeking qualified national consulting firm for the collection of site specific baseline data for the fisheries and aquatic wildlife study in and around Upper Arun and Ikhuwa Khola. The task to be completed under this assignment will be site specific and conducted at local level.

2. Project Description

The proposed UAHP is a 335 MW hydroelectric facility located on the Arun River in Sankhuwasabha District of eastern Nepal. The project area is situated within Longitude 87°20'00" to 87°30'00" East and Latitude 27°38'24" to 27°48'09" North, about 15km south of the international border with Tibet and 220 km east of Kathmandu. The proposed dam site is located in the Chepuwa Village, in a narrow gorge about 350m upstream of the Arun River's confluence with the Chepuwa River. The proposed power plant site is located in the Hatiya Village 16km downstream of the dam site, near the Arun River's confluence with the Leksuwa River. The right bank of the Arun River at the proposed UAHEP site falls within the Makalu Barun Buffer Zone, which is adjacent to the Makalu Barun National Park.

As per initial feasibility study completed in 1991, the proposed project is designed to be a Peaking Run of the River (PRoR) scheme with gated weir across the Arun River. Intakes on the left bank of the river are proposed to divert the design discharge of 78.8 m³/s through an intake tunnel to three underground desanding basins, a headrace tunnel of 7.8 km, surge tank, drop shaft, pressure tunnel, and ultimately to the underground powerhouse for power generation. The river discharge would be retained for a period of a few hours in a peaking pond and then released through the tunnel during peak hours to generate power to cater the peak demand. The water will be released back to the Arun River after the power generation.

The proposed IKHP is a 30 medium sized hydropower project, located on a tributary to the Arun River approximately 8 km downstream of the proposed UAHP powerhouse site, and 5 km upstream of the proposed Arun III Hydropower Project head works. IKHP is proposed by NEA to be developed in public private participation mode by establishing a special purpose vehicle, where local communities would be shareholders of this project. NEA plans to combine this



project with UAHP into a package so as to deliver other benefits as needed to the local communities in addition to the shareholding. The Department of Electricity Development (DoED) of the Government of Nepal is currently undertaking a feasibility study and an initial environmental examination (IEE) for IKHP.

3. Scope of Services

The scope of the consulting firm is to provide the services of Aquatic wildlife expert, fisheries expert, GIS expert and junior fisheries biologist for the collection of site specific baseline data for the fisheries and aquatic wildlife study in and around Upper Arun and Ikhuwa Khola. The study shall be coordinated by team coordinator.

i) Team Coordinator

Qualification

The Team Coordinator shall have a Masters' Degree in any discipline with at least 15 years' experience in coordination, management of the team in design works, environmental studies and other studies in development project.

Scope of Work

The Team Coordinator will be responsible for the coordination of the study between the team members and ESSD. He will participate in progress meetings organized by the ESSD and project along with other team member to discuss the status of work including progress made, problems, and plan of activities.

ii) Fish Expert

Qualification

The Fisheries Expert shall have a Masters' Degree in Fish and Fisheries/ Aquaculture/ Zoology (specialized in Fish and Fisheries)/ Ichthyology with at least 15 years' experience in study of fish and aquatic life in fresh water preferably in Himalayan River System.

Scope of Work

The scope of Fisheries Expert is to design fish sampling protocol, select the sampling sites, sampling frequency, provide guidance to Jr. Fisheries Biologist and fishermen (as required) for fish sampling, analyze the data and prepare Fisheries and Aquatic Wildlife Baseline Report covering both UAHEP and IKHP projects. The Fisheries Expert will also lead the team for the aforementioned study and prepare the report as specified in section 6. The detail scope of work is as follows:

- Review the EIA report of other projects in the Arun river basin to get an understanding of the project type and the task.
- Collect and review existing primary and secondary source information on fish and aquatic biodiversity pertinent to the project area. This may include data from EIAs of other proposed projects in the Arun River watershed, academic studies, monitoring data from any conservation organizations including others active in the area, etc.



- Select the sampling spots with due consideration of project structures. The sampling sites shall cover but not limited to the upstream of dam, dam site, reduced flow zone (including main stem of Arun River, Ikhuwa Khola as well as major tributaries), powerhouse area and below powerhouse site.
- The sampling sites shall be fixed with due consideration to river morphology, gradient of the river, typical geographical and physical features of the river and stretches which are perfect representatives and of the anthropological disturbances too (agriculture, --- settlements) and considering the tributaries joining the Arun river in project area. Sampling locations shall include also a suitable “control” point, which should be representative of pre-project river conditions but will not be directly impacted by the future project.
- Design the fish and other aquatic biodiversity sampling protocol, including detailed sampling methodology and parameters, required gear / equipment, sampling frequency, required level of effort at each sampling site, and system for record keeping and analysis. Parameters of measurement shall include aspects such as: species present and their population densities (including for fish, macro invertebrates, periphyton, and/or other species categories relevant to understanding fish behavior and habitat requirements); population characteristics at time of sampling (e.g., size, maturity, etc.); habitat quality and characteristics at time of sampling (such as water depth, flow rate, temperature, turbidity / suspended sediment, other water quality parameters, etc.); and any other appropriate parameters to be proposed by the consultant. Water quality parameters requiring in situ measurements/analysis will also be mentioned and the sampling for water quality will be done accordingly.
- Develop a questionnaire and work plan for interviewing Key Informant Interviews (KIIs) like local fishermen communities and villagers etc. for gleaning information on fish populations, habitat, breeding/spawning and migration patterns, fish catch volumes by month etc, as well as observed changes over time to all of the above.
- Propose a detailed work plan for sampling to represent the four season - spring, summer/pre monsoon, autumn/post monsoon and winter (March/April, June/July, September/October and December/January)to get substantial site specific information on the fisheries resources of Arun River and Ikhuwa Khola stream with due emphasis on species, habitat, migratory species and migration pattern.
- The work plan should also include a detailed methodology to include the sampling methods, no of local assistant/fisherman to be hired, no of catch per sampling spot, sampling gears, the type of net including mesh size, the sampling distance from the bank etc.



- Verify the specimens collected at site and identified by Junior Fisheries Biologist.
- Supervise the Junior Fisheries Biologist and local research assistant(s) in carrying out KIIs with local fishermen and villagers.
- Calculate catch per unit effort, fish density, and composition of different species in Arun River and Ikhuwa Khola stream, and other relevant tributaries in both projects' areas of influence focusing in project affected section and control point(s).
- Analyze the fish data provided by Jr. Fisheries Biologist.
- Identify and characterize the fish habitat such as runs, riffles and pools in different stretches of River in each project area, and provide conclusions on habitat requirements for key fish species during each season/month.
- Provide analysis and data on:
 - Fish migration patterns and behaviors;
 - Aquatic habitat including habitat use by different species, spawning and rearing areas;
 - Local fish market survey, including characterization of local fishing activity, gears and fish catch data;
 - Food feeding and spawning ecology of major long distance, midrange and resident species found in the Arun River; and
 - Existing natural barriers, if any, in the River.
- Provide a complete list of the fish species recorded in project area including species collected during the sampling, species collected by local fishermen/people and species reported by the local people, their migratory behavior and protected status, degree of endemism, global conservation status (IUCN Red List), local conservation or protection status (if applicable), and economic and cultural importance.
- Prepare the quarterly interim reports and baseline report covering the details.
- Revise and finalize the baseline report based on feedback received from ESSD and the World Bank.

iii) Aquatic Wildlife Expert

Qualification

The Aquatic Wildlife Expert shall have a Masters' Degree in Aquatic Ecology/ Zoology (specialized in Ecology) with at least 15 years' experience in study of aquatic wildlife in and around the rivers and stream of the hilly region.

Scope of Work



The Aquatic Wildlife Expert will be responsible for the design of study methodology, collection of site specific data from the riverine stretch of the Arun and Ikhuwa Khola HEP area and prepare baseline report covering the adequate details. The detail scope of work is as follows:

- Review the EIA report of other projects in the Arun river basin to get an understanding of the project type and the task.
- Collect and review existing primary and secondary source information on aquatic wildlife pertinent to the project area. This may include data from EIAs of other proposed projects in the Arun River watershed, academic studies, monitoring data from any conservation organizations including others active in the area, etc.
- Identify the aquatic life other than fish (phytoplankton, Zooplankton and aquatic insect) and aquatic mammals found in and around the riverine stretch of project area of Arun and Ikhwa Khola HEP.
- Provide input for the preparation of inception report and baseline report of the concerned section

iv) GIS Expert

Qualification

The GIS expert shall have a Masters' /Bachelor in Geography/GIS/ or Civil Engineering with training in GIS having at least 10 years' experience in the concerned area.

Scope of Work

The main scope of work of the GIS expert is to prepare the map of the river alignments and major tributaries in the area of influence of each HPP, showing the spawning areas, habitat (including seasonal variations), riffles, pools and critical habitat and fishing stretch including sampling sites etc. The GIS map shall also include the major habitat area of fish and aquatic wildlife in riverine stretch and nearby areas.

v) Junior Fisheries Biologist

Qualification

The Junior Fisheries Biologist shall have a Masters' Degree in Fish and Fisheries/ Aquaculture/ Zoology (specialized in Fish and Fisheries)/ Ichthyology with at least 5 years' experience in study of fish and aquatic life in fresh water preferably in Himalayan River System.

Scope of Work

Junior Fisheries Biologist will be responsible for field level data collection, training to fishermen for sampling, weight and length measurement of collected fish species, identification of the collected fish species during sampling and species available in nearby market areas collected by local fishermen. The biologist will also guide and



provide training to local fishermen and enumerators regarding fish sampling, catch per unit effort and for survey of the fishermen using structured questionnaire respectively. He/she will also responsible for analysis of the collected data and assist Fisheries Expert for the preparation of report and data collection work during the field visit.

4. Time Schedule

The total work period of the consulting firm will be 14 months. The Consultant will complete the assignment including 4 season data of fisheries resources of the riverine stretch affected by Upper Arun and Ikhuwa Khola hydroelectric project use in above mentioned period. This time frame also includes the submission of draft and final baseline report incorporating the comments provided by the ESSD and World Bank if any.

5. Manpower Requirements and Qualifications

The consultant shall provide the services of the following experts for the completion of the assignment to be conducted at local level.

Table-5.1: Required Manpower

S.N	Required Manpower	No. of Persons	Full time Input(Man-Month)	Required Qualifications
1	Team Coordinator	1	1	PhD/Masters in any discipline
2	Aquatic Wildlife Expert	1	1	PhD/Masters in Aquatic Ecology / Zoology (specialized in Ecology)
3	Fisheries Expert	1	4	PhD/ Masters' Degree in Fish and Fisheries/ Aquaculture/ Zoology (specialized in Fish and Fisheries)/ Ichthyology
4	GIS Expert	1	0.75	PhD/Masters/Bachelor in Geography/GIS/ Civil Engineering.
5	Jr. Fisheries Biologist	1	6	Masters' Degree in Fish and Fisheries/ Aquaculture/ Zoology (specialized in Fish and Fisheries)/ Ichthyology
	Total Man -Month	5	12.75	

6. Reports and Deliverables

The consultant shall submit the following reports including the electronic copy of the final report to ESSD within the contract period.

- Inception Report -3 copies
- First quarterly interim report – 3 copies
- Second quarterly interim report – 3 copies
- Third quarterly interim report – 3 copies



- Fourth quarterly interim report – 3 copies
- Draft baseline report -3 copies
- Final baseline report-3 copies

The report shall cover the following information but not limited to it.

Inception Report

The consultant shall submit the inception report summarizing the findings of existing primary and secondary source information applicable to the project area for both UAHEP and IKHP. The inception report shall also include the sampling spots and sampling methodology with due consideration of project structures. The sampling sites shall cover but not limited to the upstream of dam, dam site, reduced flow zone (including main stem of Arun River, Ikhuwa Khola as well as major tributaries), powerhouse area, and below powerhouse site.

Quarterly Interim Report

The consultant shall oversee the work plan execution, analyze data and prepare a quarterly interim report following each field work campaign. The quarterly report shall cover the species collected during the sampling, catch per unit effort, species composition and size and weight of the collected fish species along with other details. The information of the water quality, aquatic wildlife and macro invertebrates shall also be provided.

Draft Baseline Report

The consultant shall submit draft baseline report encompassing:

- Detailed write-up of methodology undertaken;
- Summary of data and findings from all sampling campaigns, KIIs, and background literature (present detailed data, photos, and other supplementary documentation in annexes);
- Analysis and conclusions related to: (a) species present in the project area and the size and health of their populations – including variations by season, (b) identification of key species for further focused analysis under the project EIA, including: indicator species, species of conservation concern, and species of local socioeconomic or cultural value; (c) habitat requirements and behavioral patterns across all seasons of identified key species; (d) any trends or changes in fish populations and health in recent years or decades, as per the literature or reported by key informants, and hypotheses on potential drivers of change; (e) initial analysis of the potential implications of the proposed project on their survival and health.

Final Baseline Report

The consultant shall revise the baseline report as per the comments of ESSD and World Bank and submit the final baseline report incorporating the comments.



7. Taxes and field related expenses

The consulting firm shall cover all cost for the completion of the assignment as per ToR. The Consultant shall bear all costs for taxes as per the prevailing rules and regulations of Government of Nepal. The employer will deduct the amount for taxes from the payments accordingly.

8. Employer's role

The Employer will assist the Consulting firm in providing support for getting necessary clearances if required and other relevant information/documents on the project site, project layout and maps.

9. Short Listing Procedures

The long list will be prepared only of those consulting firms, which have submitted Expressions of Interest within the scheduled time in response to the notice of Invitation for Consulting Services published by NEA-ESSD. The evaluation for short listing from the long list will be carried out in three steps.

STEP I: Preliminary Screening of Consulting Firms

In this step, a preliminary screening of the received EOI applications will be carried out. Consulting firms will be evaluated on 'Pass' or 'Fail' basis. Each consulting firm must 'pass' each and every threshold criterion mentioned below. Any consulting firm not complying with any of the specified threshold criteria will be disqualified and will not be considered for further evaluation.

A. General Threshold Criteria

- (i) EOI application shall be duly submitted by the last date and time of submission as mentioned in the notice of EOI.
- (ii) Following documents (Notarized or certified) shall be submitted along with the EOI proposal.
 - Registration certificate of the consulting firm.
 - Audited Financial Statements of the preceding five consecutive fiscal years but not earlier than the fiscal year 2068/2069.
 - Company Profile
 - VAT/PAN Certificate
 - Tax clearance certificate/Documentary Evidence of Tax Submission for fiscal year 2072/073
- (iii) At the time of submission of EOI application, consulting firms must not be black listed by Public Procurement Monitoring Office (PPMO) or NEA or funding agencies of the project nor debarred by the World Bank. The consultant must submit Self Declaration showing the subsequent details.



- (iv) Consulting firms must have been legally registered for **at least five (5) years** from the last date of submission of EOI;
- (v) Minimum average annual turnover of best three years over the last five years shall be NRs. 3 Million. In case of JV, cumulative strength of JV partners will be evaluated for annual turnover. Consulting firm or JV firms not meeting this criterion will not be considered for evaluation.

B. Technical Threshold Criteria

The consulting firms must have completed at least one EIA/ESIA of hydropower project with 50MW and above capacity following the procedures of Environment Protection Rules 1997 in last 15 years. For experience in EIA the study project which was approved as per the prevailing Environmental Protection Act, 1997 and the Environmental Protection Rule 1997 or in line with World Bank Group/multilateral Banks safeguard policies will only be considered for evaluation.

C. Threshold Criteria for Joint Venture Firms

- (i) JV of more than 3 firms is not allowed.
- (ii) Each partner of the JV firm shall meet the criteria mentioned in A (ii), A (iii) and A(iv) above.
- (iii) Lead partner of the JV firm shall meet the criteria mentioned in B.
- (iv) JV firms shall submit the certified copy of JV Agreement or memorandum of understanding (MOU) of JV Agreement or intended JV Agreement, along with their EOI application. Also the lead firm should hold the power of attorney.
- (v) An applicant must not submit more than one (1) EOI application either as a single entity or as a partner in the JV.

Notes:

- i. The Consulting firms not complying with the threshold criteria mentioned above in A, B and C will not be considered for further evaluation.
- ii. Qualification and experience of the consulting firm associated as sub-consultancy will not be considered for evaluation for short listing.

STEP II: Detailed Evaluation of Consulting Firms

The Consulting firms fulfilling all requirements in the Step-I, will be further evaluated in the Step II. A scoring system is adopted to rank these firms in order of merit based on the criteria mentioned below. The maximum overall score that any Consulting firms can obtain is set at 1,000 points, which are distributed as follows:

Criteria 1: Capability of the firm: 200 points

Under this criterion average annual turnover in best three years of last five fiscal years, human resources/experts available with this firm and years of experience will be evaluated.



Criteria 2: Relevant Experience of the Firm in last fifteen years: 800 points
Under this criteria the experience of the firm in following areas in last fifteen years will be evaluated

- a) Experience of the Firm in EIA/ESIA of the hydropower projects with installed capacity of 50 MW and above.
- b) Experience of the Firm in Fisheries and Aquatic wildlife Baseline Study of Water Resource Projects (Hydro power/Irrigation/Drinking Water Supply).
- c) Experience of the Firm in carrying out Fisheries baseline Studies in fresh water preferably in Himalayan River Basin.
- d) Experience of the Firm in carrying out Fisheries monitoring studies (construction/operation phase) in Water resource Projects (Hydro power/Irrigation/Drinking Water Supply).

Ongoing projects/studies will not be evaluated. Only the completed projects/studies will be considered for evaluation.

Details of evaluation criteria in each category are as follows. Figures given in weightage indicate the maximum score that can be obtained in each sub category. The points will be allocated as shown below:

The Evaluation Criteria for EOI Document

S.N	Description	Marking	Weightage
A	Capability of Firm	200 points	
I	Average Annual Turn Over in best three years of last five fiscal years from 2068/069 to 2072/073	50 Points	
(i)	>7 million		100%
(ii)	> 5 to 7 million		75%
(iii)	3 to 5 million		50%
II	Human Resources	100 Points	
(i)	One fulltime staff in each area (Team Coordinator, Aquatic Wildlife Expert, Fisheries Expert, GIS Expert and Jr. Fisheries Biologist) as per ToR		100%
(ii)	One fulltime staff in any four area (Team Coordinator, Aquatic Wildlife Expert, Fisheries Expert, GIS Expert and Jr. Fisheries Biologist) as per ToR		75%
(iii)	One fulltime staff in any three area (Team Coordinator, Aquatic Wildlife Expert, Fisheries Expert, GIS Expert and Jr. Fisheries Biologist) as per ToR		50%
III	Years of Experience of the firm (From the date of legally registered to the last date of submission of Eoi)	50 Points	
(i)	>7 years		100%
(ii)	>5-7 years		75%
(iii)	5 years		50%



B	Relevant Experience of the firms in last fifteen years	800 Points	
I	Relevant Work Experience in EIA/ESIA of Hydropower Projects having capacity of 50MW and above	250 Points	
(i)	Three or more projects		100%
(ii)	Two projects		75%
(iii)	One project		50%
II	Relevant Work Experience of the Firm in Fisheries and Aquatic wildlife Baseline Study in water resources projects (Hydro power/Irrigation/Drinking Water Supply)	200 Points	
(i)	Three or more projects		100%
(ii)	Two projects		75%
(iii)	One project		50%
III	Relevant Experience of the Firm in Fisheries baseline Studies in fresh water preferably in Himalayan River Basin.	200 Points	
(i)	Three or more River Basin		100%
(ii)	Two River Basin		75%
(iii)	One River Basin		50%
Iv	Relevant Experience of the Firm in Fisheries monitoring studies (construction/operation phase) in water resource project(Hydropower/Irrigation/Drinking Water)	150 Points	
(i)	Three or more projects		100%
(ii)	Two projects		75%
(iii)	One project		50%

Step-III: SHORT-LISTING OF CONSULTING FIRMS

The first stage involves short listing of consulting firms from a long list comprising those firms which have expressed their interest for the services as described in the notice of Invitation for Consulting Services. The top ranked six firms obtaining at least 600 and above points out of total 1000 points in the EOI evaluation process will be listed for the said consultancy services as qualified firm.

In the second stage, request for proposals received from those short listed consulting firms are evaluated to select the best consulting firm suitable for the proposed services. The consultant will be selected on the basis of Quality and Cost Based Selection procedure (QCBS).

For short-listing of the qualified consulting firms, the “World Bank’s Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers - January 2011, Revised July 2014 (‘Consultant Guidelines’)” will be followed.

Note

- Evidence in form of firm's registration certificates, income tax clearance certificate, experience certificate or work completion certificate, audit report and other relevant information shall be furnished. The experience of the firm without the experience certificate or work completion certificate will not be considered for evaluation.
- For the evaluation of the firm's financial capability, audit report of the best three fiscal years in the last five years will be examined.



- *The relevant figures/numbers of the each members of joint venture shall be added together to arrive at the joint venture's figures/numbers for the purpose of evaluation.*
- *The experience of the firm shall be supported with evidence/proof of experience/completion certificates showing the project size and date of completion of the assignment. The experience of the firm without evidence/proof or experience certificate will not be considered for evaluation.*
- *For experience in EIA/ESIA study projects, which were approved as per the prevailing Environmental Protection Act, 1997 and the Environmental Protection Rule 1997 or cleared from the World Bank and ADB will only be considered for evaluation. For this letter of concerned ministry or letter of client showing date of approval from the concerned ministry/Bank, project capacity and contract amount must be submitted.*
- *For other relevant studies mentioned above the letter of client (Work completion Certificate) showing major task performed, contract amount and satisfactory completion of work is acceptable.*
- *The consultant shall provide the list of the manpower showing their status in the firm (fulltime or part time) along with their completed Bio-data. The consultant must provide documentary evidences showing the status of the staff. Only 75% marks will be evaluated for part time experts.*

