



ISLAMIC REPUBLIC OF AFGHANISTAN

MINISTRY OF ENERGY AND WATER



TERMS OF REFERENCE

FOR

Social, Environmental and Economical Assessment of

Kelagai Storage Dam

January 2020



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1 Introduction

The Kelagai Storage Dam Project (KSDP) is located in the south-west of the country, Baghlan Province, the project spreads over four districts of Baghlan Province namely, Pul-i-Kumri, Baghlan-e Jadid, Doshi and Dhan-i-Ghori. The proposed Kelagai Storage Dam Project across Kunduz River (Pul-e-Khumri river) aims make available domestic water supply to the communities along the Kunduz River in both Baghlan and Kunduz Provinces, irrigation water for existing and new agricultural command area, and generate hydropower. The implementation of the project will definitely have socio-economic impacts on the people as well as on the project environment. Therefore, Ministry of Energy and Water aspire to hire a consulting firm to identify, assess and measure various likely impacts and suggest approaches for mitigation of negative impacts and enhancement of positive impacts.

This Term of References (ToR) is describing the major duties and responsibilities of the consultant for providing their services in close coordination with Ministry of Energy and Water of Afghanistan

2 Project Background

Kelagai dam axis is chosen in a place where the Kunduz valley is narrowest and is located about 11 Km upstream of Pul-e-Khumri township, the headquarter of Baghlan Province. At the dam site, the river flows. At Pul-i-Khumri, two hydropower stations have been built, one power house PH-I (Pul-i-Khumri-I) was commissioned in the 1950s and built with German and Swiss equipment, the other being PH-II (Pul-i-Khumri-II) which was commissioned in 1962 and built with Russian technology. Prefeasibility study of KSDP configuration and command area potential was undertaken by Sogreah Consulting Engineers in 1960s and detailed study, design & geological investigation of dam site by Russians in 1970s. In the previous decade a comprehensive feasibility study is conducted by "Consulting Engineering Services (INDIA) PVT. LTD" between years 2006-2009, which also include Social Impact Assessment, Environmental Impact Assessment and Economical Analysis. However, based on letter No.3744/1643, dated:30/09/1398 of Directorate of Water Programs and proposal of assigned committee clearly stated that due to changes occurred at dam site, an updated assessment of EIA, SIA and Economic and financial analysis is required.

3 Kelagai Storage Dam's Components

Based on Feasibility Report (2006-2009), the layout finally developed after detail studies comprise the following components (as shown in Figure-1);



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- 1) A concrete dam of 79 m height and 344.82m long at crest level, across Kunduz River, to create a storage of 416 Mm³ at FRL 707 m. The dam will have Gated spillway with 5 bays (including one additional), each of 12m width, with intermediate piers, each of 3m width, totaling a length of 72 m.
- 2) A dam toe power house 54 MW installed capacity.
- 3) Two canal-based power houses to generate together 9 Megawatt powers, which will be used as captive power for the two pumping stations to lift and supply water to the canals in the higher altitude.

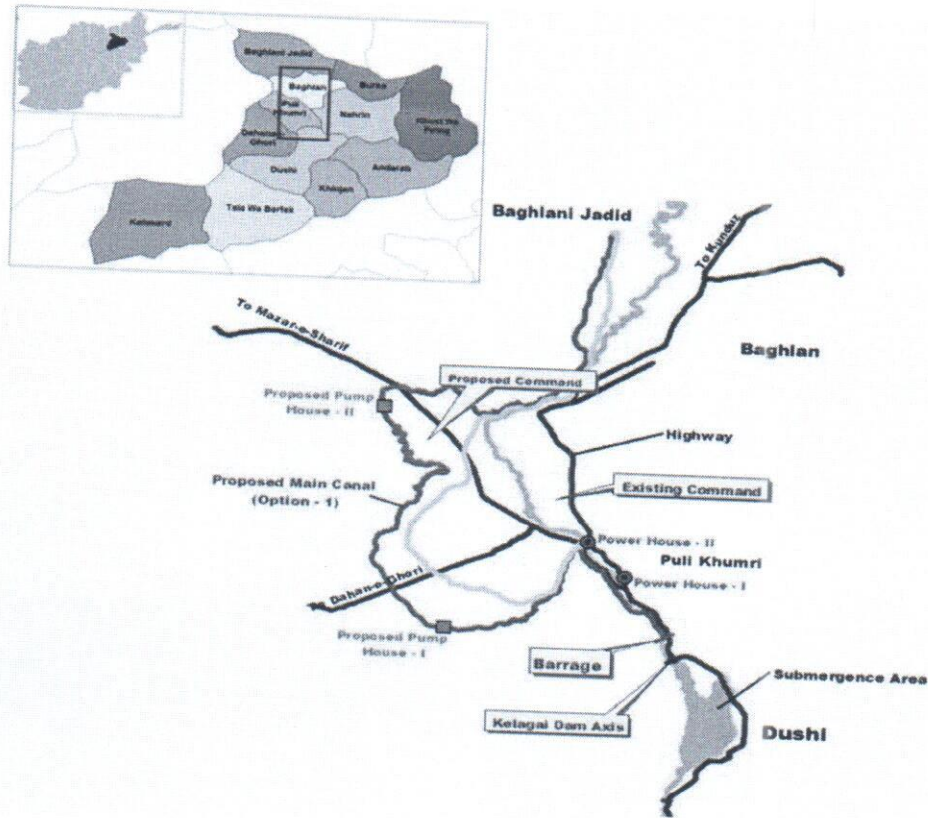


Figure-I: Location Map of Project showing upstream and downstream components of project

- 4) Remodeling, Modernization and Upgrading of the two existing power houses PK I & PK II. Moreover, renovation of the existing barrage to safely pass the design flood;
- 5) The left and right main canals (RMC & LMC) will takeoff from existing barrage to provide irrigation to a net command area of 45,277 ha.
- 6) An irrigation system with an optimized cropping pattern, to cater to an irrigated cropped area of 81,759 ha at an irrigation intensity of 180%.
- 7) Ancillary structures like, irrigation sluice, construction sluice, galleries, lift well, power block, etc., for dam operation; construction of head regulators, pump

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stations, cross regulators, drops, drainage crossings, etc., for distribution and supply of irrigation water;

8) Installation of a switchyard adjacent to the dam toe power house to feed the generated electricity to the local grid, and two switch yards for the two canal-based power houses;

9) 2 Electrical Sub-stations for the two Pumping Stations.

4 Assessment Objectives

The objective of the consultancy services is to undertake a new assessment of Kelagia Dam project within the scheduled assessment period to ensure that the design and construction of dam is feasible and economical in conformity with the National and International Standards and in accordance with the Client's requirements. Therefore, the consultant will be responsible for, but not limited to the following:

- ❖ Preparation of Social Impact Assessment (SIA) for overall project and Prepare a social mitigation plan along with its cost;
- ❖ Preparation of Environmental Impact Assessment (EIA) for overall project;
- ❖ Detailed economic and financial analysis of the proposed project,
- ❖ Identify and assess potential socio-economic impacts on the Project Affected People (PAPs),
- ❖ Suggest and develop mitigation measures for negative impacts and develop a strategy for enhancement of positive impacts;

5 The Consultant Scope of Work

The scope of the services of the Consultancy includes review of all pervious project documents and studies which have been already conducted, preparation of SIA, EIA, and Economic Analysis, however, the consultant should achieve the main objective of assignment which is performing an update and new assessment considering present and subsequent situation in project site. The services are described in details in the next sections.

All the services of the Consultant described in the following shall be performed in close co- operation with the MEW. It has been attempted to outline the Consultant's tasks during execution of his services in suitable detail. However, the Consultant shall bear in mind that the list of tasks and activities by no means are considered as the complete and comprehensive description of the Consultant's duties. It is rather the Consultant's responsibility to critically verify the scope of services indicated and to extend or amend it wherever it deems necessary according to their own professional judgment and the



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knowledge acquired during preparation of proposals. It is understood that the Consultant performs all works and services as necessary to fulfil the objectives of the project.

The Scope of the Consulting services includes but is not limited to the following activities:

5.1 Social Impact Assessment

The consultant will evaluate the social impact of the project to ensure that: the following social aspects have been covered: (1) the social impacts due to construction of the proposed project and (2) the mitigation measures required due to the social impacts including land acquisition.

The consultant will compile a social assessment report including the following items as a guidance requirement during construction. The guidance requirement will be placed in the bidding documents.

- Description of their Methodology of Social Impacts and Impact Assessment and Analysis
- Assessment of social risks and impacts, both direct and indirect, due to project activities;
- Suggesting of appropriate changes in design to avoid / minimize adverse impacts, and propose suitable mitigation measures;
- Socio-economic surveys to collect relevant information on current socio-economic status of the people of the project area and analyze the expected change including both the project beneficiaries and the affected households; specific on the following Items:

1. Land Acquisition,
2. Involuntary Resettlement,
3. Proposed Location for Resettlement,
4. Cost estimation of reservoir damage,
5. Resettlement cost calculation,
6. Damage cost of agricultural lands,
7. Compensation cost in lands under irrigation network,
8. Employment,
9. Tourism (if applicable),
10. Crop and Livestock Farming,
11. Communication (Roads),
12. Land Values,
13. Social Acceptance,
14. Recreation,
15. Local Landmarks and Character (Archeological and historical sites, monuments...),
16. Domestic Water Supply,



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- Protection against Natural Dangers (flooding, drought, famine ...), with Health and diseases
- Preparation of a Resettlement Action Plan (if required) based on SIA findings and covering all the project components;
- Holding of community/ stakeholder consultations to gather inputs/ feedback on the project in general and social safeguard issues in particular
- Creating a detailed computerized database for future reference / use.
- Assessment of land to be acquired on the canal routes and where a temporary easement will be required during construction. Assess the degree of inconvenience that construction will cause the affected persons.
- Prepare a description plan to avoid the disturbing of Monument or historical site.

Under socio- Economic section, specifically the consultant will assess as below,

Expected Results	Indicators	Means of Verification
Local Businesses Expansion	% of population/smallholders selling some produce to market	Enquiries with business association. M&E framework of support programs of the government of Islamic Republic of Afghanistan. Annual agricultural survey.
Economic diversification increased	Number of domestic products available in the domestic market in geographically targeted area	National sources
Access to electricity increased	% of people with access to electricity in geographically targeted area.	National sources
Employment Opportunity increased	% of Employment in geographically targeted area.	Enquiries from the local people of the target area. National sources.
Economic Viability	BC, ENPV, EIRR	Updated Data collected during the detailed design and feasibility study.

5.2 Environmental Impact Assessment

The objective of the Environmental Impact Assessment is to evaluate the feasibility study of Kila Gai Dam Project works and to ensure the sustainability of project through appropriate preventive, mitigation and monitoring interventions.

The Consultant will consider the environmental impacts and to ensure that environmental aspects and impacts are controlled, prevented, mitigated. The Consultant will compile an environmental report including the following items as a guidance requirement during design, construction and operation stages, which they will be placed in the bidding documents.

The TOR should require the consultants to cover the following points:

5.2.1 Project Overview

These terms of reference (TOR) describe the minimum requirements for the development of the Environmental Impact Assessment (EIA) for proposed hydropower generation projects, designed to generate electrical power and Irrigation.

5.2.2 Project and Alternatives Description

The project proponent shall submit a full description and location of the proposed project and reasonable alternatives including ancillary facilities.

- The general location of the project and associated activities
- Summary of Proposed Project and Alternatives
- Project and Alternatives Details

5.2.3 Environmental Setting

Based on information available from the literature, government and special studies or other sources, the EIA shall provide information on environmental setting for the different types of physical, biological and social-economic-cultural environments for the current situation.

5.2.4 Assessment of Impacts

The EIA shall provide information on potential impacts (direct, indirect and cumulative) and the magnitude and frequency of potential impacts on physical, biological, social-economic-cultural resources resulting from construction, operation and closure of the proposed project and alternatives.

5.2.5 Mitigation, Monitoring Measures & Anticipated Environment Impacts

This section of the EIA must include measures designed to mitigate potential adverse impacts to physical, biological and social-economic-cultural resources from construction, operation and closure of the proposed project and alternatives.



These shall include measures to avoid and prevent, and if needed, to reduce or minimize adverse impacts. The project proponent must include measures considered to be "best practices" in the design of all alternatives.

the below topic must be considered in this section.

- Methodology for Environmental Impact Assessment
- Impacts During Detailed Design
- Impacts During Construction Phase
- Impacts During Operation Phase
- Summary of Impacts
- Cumulative Impacts

5.2.6 Environmental Management Plan

The EIA shall include an Environmental Management Plan to prevent, mitigate and monitor each impact identified in the EIA. Plans will describe actions to be taken in sufficient detail to provide a basis for subsequent auditing of compliance with commitments made in the EIA process

5.2.7 Stakeholder Identification and consultation

The EIA practices should involve and engages the public at numerous points throughout the process. Public participation may consist of informational meetings, public hearings, and opportunities to provide written comments about a proposed project.

- Inform and involve interested and affected actors like citizens, public authorities and interest groups.
- Explicitly address their comments, concerns and inputs, both, in documentation and decision making.
- Ensure that all relevant actors and parties are involved or at least represented.

5.2.8 List of references:

List of the standards for EIA and SIA of Dams and its appurtenant structures are as follows:

- National Environmental Protection Agency (NEPA)
- Afghanistan Environmental Law (2007)
- Afghanistan EIA Regulations (2008)
- Afghanistan EIA policy (2009)



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5.3 Economic Analysis

The economic analysis will consider the following:

- a. Economic cost of the project including capital costs, capital equipment with economic life shorter than adopted discount period, incremental annual operation and maintenance (O & M) costs, costs for environmental mitigation measures;
- b. Value for Money (VfM)
- c. Economic benefits quantifiable (e.g., savings from use of additional water available, public health benefits, fire damage savings, etc.) and non-quantifiable (environment and development impacts).

The quantified benefits will be evaluated "with" and "without" the project. Costs and benefits will be valued at constant prices and no price contingencies will be included in the economic cost of project. The analysis will determine the average incremental cost of water, and the economic indicators of economic internal rate of return (EIRR) and net present value (NPV) and other necessary indicators.

In addition, sensitivity and risk analysis will be performed to assess the effects on the project by changing the value of some variables and calculating the changes in the EIRR and NPV. The results will be presented together with recommended actions or variables to monitor during implementation and operations.

The financial analysis will focus on the financial IRR (FIRR) and financial NPV calculation, as well as sensitivity analysis that will include: review of the financial facts for the last 3-5 years including an assessment of the adequacy and level of the water and electricity tariff (if related); costs - capital and recurrent; financing plan and financial projection and ability-to-pay; and risks and uncertainties. The costs (capital and annual O & M) will be detailed.

The capital cost will be grouped under the project components and phased annually over the appropriate construction period. The costs will be prepared at constant prices (2016) and split between foreign and local costs. Inflation-adjusted costs shall also be prepared to take into account inflation effects over each sub-project's implementation period.

It will be assured that the financial forecasts cover the completion of construction. The financial calculations will be prepared at current prices (i.e., including an allowance for projected inflation) and detailed with all the relevant assumptions. The Consulting Firm will determine the future tariff implication of the financial projection by including the level and structure, plus the impact of affordability and ability-to-pay, if necessary.

In reviewing the ability-to-pay, special attention will be given to the urban poor. Finally, the financial analysis will include the evaluation of relevant risks and uncertainties involved in the implementation and successful operation of the proposed project.

The Consulting Firm may also have the option to propose additional works to enhance the study, provided it shall bear no additional cost to Government.



6 Team Composition & Qualification Requirements for the Key Staff

The Consultant will maintain two offices and two teams i.e. one Head Office at Kabul and another Field office (Assessment Team) based at project site. The head office at Kabul will serve as the principal Project Office during the Assessment.

The cost of renting, furnishing, equipping, food, transportation, maintaining the offices and all other required costs will be included in the Consultants' financial proposal. The Consultants should review the security situation there and identify any specific security measures as deemed necessary.

Following matrix represents the Client's reflection on the Consultant's team composition and minimum estimation of person-months for project management, assessment and other field staffing for performance of the assignment. However, the prospective consultants should propose their own breakdown of staffing and level of effort / staff work based on their own experience and evaluation of the proposed services. The consultants should propose a realistic deployment schedule for all positions depending on the work requirements as all positions listed below would have inputs for different durations.

key Experts				
Sr.#	Position	Qualification	Job specific experience (Years)	Man-Months
1	Team Leader/ Project Manager	Minimum M.Sc. in Civil Engineering/ Structures Hydraulic	Minimum 15 years of total professional experience in planning, feasibility study, design and construction supervision and management of large dams and major water sector projects.	4
2	Economic Analyst	Master degree in Economics/ administration Business	A minimum of 10 years of experience in economic analysis of large dams with includes hydropower and irrigation.	4
3	Environment Specialist	Minimum B.Sc. degree in Environmental Engineering and M.Sc. degree is preferable	Minimum 10 years of relevant experience in provision of Environmental Impact Assessment of large dams which has hydropower and irrigation	4
4	Social Specialist	Minimum B.Sc. degree in Social Studies, Engineering or related field	Minimum 10 years of relevant experience in Social Impact Assessment of large dams which includes hydropower and irrigation	4
5	Surveyor	B.Sc. degree in Survey/ Geodesy or Civil Engineering.	Minimum 5 years of relevant experience in topography survey and assessment of large dams which includes hydropower and irrigation.	4
Total Key Staff (person-months)				20

Note: The above-mentioned number of person-months include Consultant's minimum professional input only, however, above positions do not include supporting staff.



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The Client estimates about 20 person-months for key staff to be provided by the Consultants. The planned completion period for this project is four (4) months.

In the evaluation of technical proposals, all Key staff will be evaluated individually. The Consultants should submit CVs for all positions of Key staff, (not more than five A4 pages). As the CVs of Key Staff will form the basis of technical evaluation, the Consultants should note that under normal circumstances no substitution of key staff will be allowed during the first year of the assignment, except of serious health problem/ death of any of the nominated staff, in that case the substitute shall be equivalent or better.

7 Reporting Requirements and Time Schedule for Deliverables

7.1 Reporting Requirements:

The Consultant will be working in close coordination with the MEW and continuously inform on the progress of the Project. Moreover, the Consultant shall provide the regular reporting duties as stipulated later on during kick off meeting or indicated in this TOR. In addition, the Consultant shall report on all circumstances that might jeopardize the achievement of the Project purpose. The reports shall be in an agreed format on project progress. Each report will contain an Executive Summary. They shall summarize the main project activities, the progress achieved, project quality, the status of invoicing and payment, budget and Cash flow forecasts. The consultants will prepare the following reports in English with the following description of some important reports is given below:

1. Inception Report: This report shall contain the consultant mobilization plan, work plan for execution of the assessment, shortages in the exiting feasibility study if any along with the recommended solutions.
2. Monthly Progress Report: Monthly Progress Reports shall be prepared on regular basis. The report shall indicate progress of execution of works as quantity based under the consulting assignment. The issues that may hinder the planned execution shall be flagged in these reports along with suggested remedial measures.
3. Project Completion Report: Both draft and final versions of the Project Completion Report (PCR) shall be prepared for Kelagai Storage Dam and its allied components separately.

7.2 Deliverable:

The schedule for various reports and documents that are likely to be generated has been prepared. Additional reports shall be developed as required. The consultants will supply the deliverables as per schedule given below along with the respective soft copy



thereof:

Reports	No. of Copies	Submission Deadline
Draft Inception Report	Soft + 3 Hard	20 days after the NTP
Final Inception Report	Soft + 3 Hard	One week after the review of Draft Inception Report by the Client
Monthly Progress Report	Soft + 3 Hard	10th. of the following month
Draft Completion Report	Soft + 3 Hard	One months before the anticipated completion date of the project
Final Completion Report	Soft + 3 Hard	At the end of the project immediately after review of Draft Completion Report

Note: - Contractor's performance and final reports must be prepared in English, whereof one soft copy and three hard copies have to be submitted to MEW, moreover, for the final versions of reports spiral binding is not allowed and it should be properly prepared in most suitable way. The title of the reports and identification of the specific volume has to be indicated on the spine of every final version.

8 Project Time and Schedule

The estimated time for completing the comprehensive assessment of Kelagai Project is considered to be four (4) months. The implementation schedule has to be shared with MEW and client's agreement is necessary; however, the consultant is responsible to inform MEW in case of any changes and seek its approval.

9 MEW Responsibilities

Ministry of Energy and Water (MEW) of Afghanistan is client of project and shall make available to the Consultants at no charge the following: Access to all reports, studies, data, photographs, maps, and institutions relating to the works, access to all sites for surveys and investigations. However, MEW is not responsible for dwelling facilities, security and transportation of consultant. The Consultants will provide all necessary facilities both at main office and onsite during assessment for their team and its cost would be included under the consulting services contract.

10 Annexes

These shall be numbered and duly referenced in the text

1. Public Consultation (Public consultation plan, A summary of public outreach activities including: audience, number of persons, organizations



- involved, concerns raised, responses to comments, Summary of response to comments, Actual copies of written comments)
2. Technical Supporting Documents (include maps, plans, charts and figures in the sequence mentioned in the EIA document)

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