

# **Consulting Services for Environmental Impact Assessment (EIA) for Construction of Mandakalaru Barrage at Pallikuda GN Division in Poonakary DS Division, Kilinochchi. Sri Lanka**

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## **1. BACKGROUND**

The Climate Smart Irrigated Agriculture Project (CSIAP) funded by the World Bank aims to improve the productivity and climate resilience of small-holder agriculture in selected climate hot spot areas. Sri Lanka is one of the worst climate affected countries in the world, and being largely an agricultural country, climate change impacts have increased agricultural vulnerability threatening the productivity and well-being of farmers. The drivers of this vulnerability are predominantly manifested in restricted access to irrigation water, insufficient protection of farmlands from floods, limited adoption of climate smart technologies and low levels of diversification in agricultural production. The project aims to address these key causes of agricultural vulnerability in selected climatic hot spot areas. This will involve an approach that addresses response to long-term trends in climate change, adopting a catchment scale approach to water management, integrating agriculture and water management with farmers and Farmer Organizations (FOs) to improve water/soil management, adoption of suitable on-farm water management and crop production technologies.

The project has four components; (1) Agriculture Production and Marketing component will improve agriculture productivity and diversification through the adoption of Climate Smart Agriculture (CSA) practices, improved off farm and on-farm water management, establish common market infrastructure for Agric-commodity marketing and ensure market for agricultural production; (2) Water for Agriculture component will facilitate (a) Planning for water and other infrastructure necessary to support climate-resilient irrigated agriculture, (b) Construction of the planned infrastructure, and (c) co-management of this infrastructure by central/provincial governments and the local community. (3) Project Management component will ensure the quality of overall project management, while ensuring smooth coordination of activity implementation by various agencies and strategic partners at national and subnational levels. This component will finance: (a) the consultancy and operating costs of the Project Management Unit (PMU) and Deputy Project Director (DPD) Offices and of different project executing agencies, including for fiduciary and safeguard aspects; (b) the monitoring and evaluation (M&E) of project activities at baseline, midterm, and end of project, including geotagging of the assets created; and (c) information, education, and communication campaigns to make all stakeholders aware of the project. (4) Contingent Emergency Response component will allow for rapid reallocation of project proceeds in the event of a natural disaster or crisis that has caused or is likely to imminently cause a major adverse economic and/or social impact. Marketing subcomponent aims to strengthen the links between PGs and the agriculture commodity markets by: (a) upgrading and/or rehabilitating critical market infrastructure and (b) supporting

farmers to access markets and develop sustainable links to agribusinesses. The key activities would be (a) development of common infrastructure for Agri-commodity marketing (markets, storage, and access roads) and the construction and/or upgrading of Common Service Centers (CSCs); and

(b) Technical assistance to support PGs to commercialize and link with agribusinesses / value chains.

The Project is expected to Climate Smart Irrigated Agricultural Development Mandekal Aru Barrage located in Mandekal Aru cascade, KN69 GND, Poonakary DSD, Kilinochchi District, Northern Province by the Constructing of Mandekal Aru Barrage and expected to conduct the Environmental Impact Assessment (EIA) to disclosed significant environmental and social effects for decision makers, identify ways to avoid or reduce environmental and social damage and prevent adverse environmental and social impact by requiring implementation of feasible alternatives or mitigation measures for Construction of Mandekal Aru Barrage located in Mandekal Aru cascade, KN69 GND, Poonakary DSD, Kilinochchi District, Northern Province.

## **2. OBJECTIVES OF THE CONSULTING SERVICE**

The objective of consultancy service is to disclosed significant environmental and social effects and submit the EIA report for decision makers, identify ways to avoid or reduce environmental and social damage and prevent adverse environmental and social impact by requiring implementation of feasible alternatives or mitigation measures for Construction of Mandekal Aru Barrage located in Mandekal Aru cascade, KN69 GND, Poonakary DSD, Kilinochchi District, Northern Province. Sri Lanka.

## **3. SCOPE OF WORK:**

**The Specific areas of coverage of the EIA report include the following :**

### **Executive Summary**

#### **Chapters:**

1. Introduction
2. Description of the project and reasonable alternatives
3. Description of the existing environment and social conditions
4. Anticipated environmental and social risks and impacts of the proposed project
5. Proposed mitigatory measures
6. Extended cost-benefit analysis
7. Environmental and Social Management Plan
8. Proposed stakeholder engagement including project affected parties and other interested parties, information disclosure and grievance mechanism
9. Conclusions and Recommendations

### **Annexures**

- I Terms of Reference
- II References to documents reviewed
- III Sources of data & information

- IV List of preparers including their work allocation and time schedules (report should be authenticated by the preparers)
- V Comments made by the public, NGOs and other agencies during formal and informal scoping meetings held by the ESIA Team.
- VI Complete set of relevant maps, tables, charts, layout plans and other details
- VII Mitigation Measures – Format attached
- VIII Monitoring – Format attached

## **Executive Summary**

The summary should be a brief, non-technical summary of the justification of the proposed project, description of the salient features of the project, the existing environment and social conditions of the project sites and its environs, key environmental and social risks and impacts, the measures proposed to mitigate the environmental and social impacts, environment and social management plan and conclusions. A one-page summary table indicating the significant impacts and proposed mitigatory measures should be presented.

## **1.INTRODUCTION**

- Background of the project including a brief historical timeline of land salinization that has occurred in the area leading to the current problem.
- Objectives of the proposed project and justification  
(Summarize the need or problem been addressed by the project and how the proposed project is expected to resolve the problem or the issue)
- Objectives of the ESIA report  
(Specify the objectives of the assessment and the relationship of the results to project design and implementation)
- Methodologies and technologies adopted in ESIA report preparation
- Government policy regarding the project.
- Any conditions laid down by state agencies in granting preliminary clearance for the project
- Conformity with other development plans in the area (present and proposed)

## **2.DESCRPTION OF THE PROPOSED PROJECT AND REASONABLE ALTERNATIVES**

### **2.1 Description of the proposed project**

- 2.1.1. Location, indicating the Divisional Secretariat Division/s and the Pradeshiya Sabha area/s and the Grama Niladhari Division/s within which the project site falls. Clear coloured and readable maps together with diagrams and photographs to be provided for reviewer to get a clear understanding of the project area and the location of all the project components (The location map should include general location of the project site and exact location with clear GPS coordinates. Maps should also include main site access points, ancillary facilities, transportation routes used on the water, sensitive receptors, salinity affected areas, etc.).
- 2.1.2. State the present ownership of the project site/s and its immediate surroundings. If state owned, please submit a letter of consent for the project from the relevant state agency/agencies.
- 2.1.3. Description of all project components relevant to the proposed project

(a) Nature and design of the Barrage

- A layout drawing showing the orientation of the salinity barrier with a topo grid showing national coordinates
  - A cross section drawing of the barrage showing levels with respect to Mean Sea Level
  - A drawing showing longitudinal sections of the barrage
  - Maximum height of the barrage from the riverbed
  - Barrage top level in meters above MSL
  - Length and width of the barrage
  - Impounding area for normal flows (should be indicated in a drawing)
  - Longitudinal section of the river reach
  - Method of construction and erection of the barrage and its appurtenant structures.
  - Materials to be used
  - Special construction techniques and equipment to be used
- a. Modifications/Alterations to existing structures

- Improvements to canals, natural streams
- Improvements / alterations to existing roads
- Any other alterations

b. Associated facilities required for the project, such as quarries, borrow pits, access roads, temporary roads, labour camps and any spoil disposal sites. Ownership of these sites should also be determined. (preferably supported by a map showing locations of such sites)

c. Any other components/ facilities required for the project.

Size, capacities and dimensions of all structures should be described.

d. Operations and maintenance of the Barrage

(b) A layout plan of the project at appropriate scale.

This should indicate all the project components and reservation area/s to be maintained. This layout plan should indicate all new structures as well as all other relevant existing structures which are to be modified / improved under the project.

2.1.4. Give details on pre-construction and construction activities, phased implementation schedule, staffing and support facilities and services. Requirements of raw material should also be discussed (quantities & source location).

Pre-construction and Construction phase

- Give details on main pre-construction and construction activities
- Resources / facilities required/provided by the project.
- Requirement and availability of workforce

2.1.1 Methodology of operation of the project components;

- Infrastructure facilities required/provided by the project

2.1.2 Project cost, investment and funding sources.

## **2.2 Evaluation of Alternatives**

Describe reasonable alternatives considered to the proposed project which might be less harmful to the environment.

Following options can be considered for analysis of alternatives.

- Site alternatives
- Design and technology selection
- Construction techniques and phasing
- Operating and maintenance procedures etc.
- No action alternative (to demonstrate environmental and social conditions without project)

Compare alternatives in terms of potential environmental and social impacts, mitigatory measures, capital and operating costs, reliability etc.

Give reasons why such alternatives were rejected.

## **POLICY, LEGAL AND REGULATORY FRAMEWORK**

- Analyze the policy, legal and institutional framework for the project within which the environmental and social assessment is carried out. This includes international and national legal framework applicable to the Project. This section should take into all issues relevant to the project, including: the country's applicable policy framework, national laws and regulations, and institutional capabilities (including implementation) relating to environment and social issues; variations in country conditions and project context; and obligations of the country directly applicable to the project under relevant international treaties and agreements;
- Compare the Borrower's existing environmental and social framework and the World Bank's ESF and identifies the gaps between them.
- **3.DESCRPTION OF THE EXISTING ENVIRONMENT AND SOCIAL CONDITIONS**
- ***STUDY AREA***

The study area for the assessment shall include the following;

- Area of barrage site including impounding area
- 2km upstream and entire downstream of the Mandakalaru

- 500m on either side of the above river stretch
- Any area beyond the study area (e.g. upstream backwater propagation because of the weir), where there is potential for environmental and social impacts
- Material burrow sites (if contractor would typically operate them)

Assemble, evaluate and present baseline data on the relevant environmental and social characteristics of the study area.

This chapter should provide information on physical, biological, socio-economic, archaeological and cultural aspects of the environment likely to be affected by any activity of the project (permanent, temporary, direct, indirect, induced and cumulative) during and after the project. Information should be presented in a comprehensive format using tables, maps and diagrams where appropriate. The methods used to collect data should be clearly stated under each category. All technical terms should be clearly defined. The existing environment should be described under following;

### **3.1 Physical environment**

- Hydrology
  - Rain fall pattern of the area
  - General description of the catchment areas of water bodies
  - Flow characteristics including minimum, maximum flow rates and mean annual flow
  - Minimum dry season flow/base flow
  - Surface drainage pattern
  - Occurrence of flood and return period
  - Existing water use pattern of the area
  - Surface and groundwater quality including sources of water pollution
  - Present use of surface and ground water
  - Ground water level of the area
  - Presence of aquifers associated with the tunnel trace/s

- Effective catchment area
  - Rainfall pattern of the effective catchment area considering sub catchment areas.
  - Existing irrigation structures including water intakes, weirs and irrigation & drainage canals, flood protection schemes which are likely to be affected
  - Flow details including the mean annual flow, average flow, annual variation of the flow in the river
  - Water extraction possibilities during dry periods. Flow duration curves for the weir site should be provide with and without the proposed project
  - Existing water levels at the barrage location. Provide a water level graph for annual average condition.
  - Baseline high flood pattern of the project area including flood levels (10, 25, 50, 100 years return periods). Some data could be obtained from the Irrigation Department and published reports. When different studies are used data should be checked for compatibility and accuracy.
  - Indicate the highest flood experience at the site
  - Present flood detention capacity of the lowlands on both sides of the river. Provide a qualitative description showing contour maps of the area.
  - Extent and frequency of salinity intrusion including salinity profile along the longitudinal profile of the river and adjacent areas.
  - Details of the salinity wedge with respect to tidal cubature.
- Geology, water & soil
    - Regional and local geological structures
    - Soil characteristics relation to salinity, acidity, ground water recharge
    - Susceptibility to erosion
    - Changes in river morphology & water quality
  - Topography



- Provide concise information on topography of the study area with contour maps indicating drainage canals, water bodies, rivers and streams

### **3.2 Biological Environment:**

- Biodiversity profile of the study area should be described including the coastal habitat at the river outlet.
- Existing natural habitats (both terrestrial and aquatic) and their ecological significance including locations known for spawning, rearing and feeding of key aquatic species.
- A brief summary of existing flora and fauna (both aquatic and terrestrial) within these habitats
- Presence of rare, threaten, endangered and endemic species of the above habitats

#### **3.2.1 Social - Cultural Environment (include both present and projected where appropriate)**

**This section should address the following aspects. Data should be given separately for the directly affected area and the wider area.**

- Settlement patterns and population characteristics including poor and vulnerable populations
- Distribution of income and their sources, and people's access to goods and services
- Livelihood activities/ seasonal / cultural activities that are associated with the existing environment /water bodies.
- Present water supply and water uses including existing irrigation schemes and drinking water schemes/ sources (existing and planned water schemes)
- Cultural, historical, protected resources and archaeological aspects/considerations
- Existing environmental / social / health issues in the area including related to farming/livelihood activities.
- River uses for transportation, commercial and subsistence purposes with specific reference to river water dependent livelihood activities such as aquaculture and other uses
- Point sources of effluent discharges

- Existing environmental considerations, problems or issues prevailing in the area.
- Land acquisitions, restrictions to common property resources, populations displacements and relocation of current settlements, residents or community.
- Any coastal fisheries activities including aquaculture.

#### **4. EVALUATION OF THE ANTICIPATED ENVIRONMENTAL AND SOCIAL IMPACTS OF THE PROPOSED PROJECT**

This chapter should show the overall effects of the project on the individual environmental components. Impacts should include the direct and indirect, long and short-term, positive and negative effects.

When describing the impacts indicate which are irreversible or unavoidable and which can be mitigated to the extent possible. Impacts should be quantified wherever possible.

**Significance of impacts should be assessed using appropriate techniques.**

**Impacts should be discussed in the order of severity.**

Special attention should be given to;

##### **4.1 Effect on physical aspects**

- Soil erosion and siltation, riverbank erosion and land stability issues  
(Change of surface drainage pattern and related problems such as water logging, sedimentation etc.).
- Water quality and hydrological aspects
  - Changes to river morphology
  - Sedimentation of river during construction and operation
  - Impacts due to coffer damming during construction
  - Water pollution due to contaminant leakage from machinery and workers sites
  - Occurrence of water logging and flood aggravation
  - Obstruction of the natural drainage pattern
  - Increase in water level upstream of the barrage during normal discharge of the river. Indicate backwater profiles for average flow conditions.

- Increase in stream flood levels (for 5, 10, 25, 50 and 100 years return flood levels). [Contour maps of the inundation area indicating the land use and land ownership should be provided. - extra inundation area due to the presence of the weir should be clearly distinguished]. Results of recent model studies should be used for this purpose.
- Anticipated reduction of the downstream water flow of the river specially during low flow (describe with respect to the flow duration curves)
- Impact due to downstream sand bar formation at river mouth
- Impact on shoreline stability and morphology due to changes in sand movement if any
- Impact on water quality on the downstream due to barrage especially in terms of the future salinity intrusion up to the barrage.
- Impact due to increase of salinity levels
- Impact from sand mining
- Air, noise and vibrational issues

#### 4.2 Effect on social aspects

- Impacts to the downstream users due to hydrological changes
- (Limitations in sharing water and related issues including riparian rights of irrigation schemes which are now operating below the proposed diversions, impacts on proposed and existing water supply schemes, aquaculture farms, other livelihood activities etc.)
- Interactions / interdependency of project components itself and with other irrigation developments and water supply schemes of the area
    - Effects on existing and proposed settlements of the area
    - Impacts due to relocation of communities, facilities, infrastructure and loss of property including agricultural lands
  - Impacts on community due to water ingress/ disturbance to water sources
  - Impact on flood protection works, existing land use forms due to inundation
    - Impacts on roads and other existing infrastructure facilities and places of social and cultural importance
  - Impacts due to material transportation
  - Impact due to temporary land acquisition, interference with land rights
  - Impacts due to labor in-migration, and labour working conditions

- Impacts to community health & safety

#### **4.3 Waste Disposal**

- Disposal of debris during construction phase
- Wastewater and solid waste disposal from labour camps

#### **4.4 Ecological Impacts**

- Loss of terrestrial and aquatic fauna and flora due to construction
  - Impacts to ecosystems/habitats any particular fauna or flora directly affected within the project area due to anticipated salinity changes
- Changes to forest ecosystems due to flooding/impoundment
- Disruption of fish migration due to the barrage construction (if any)
- Impacts on wetlands and associated habitats due to changes in water balance
- Disruption of bird migration during the construction phase

#### **4.5 Noise / Vibration**

- Noise / vibration of machinery and equipment during construction, transportation of materials for construction.

### **5. PROPOSED MITIGATORY MEASURES**

This chapter should set out the proposed measures to minimize the impacts identified in Chapter 4 to acceptable levels including conformity to Sri Lankan standards. Alternative methods of mitigation should be discussed and the effectiveness of the proposed measures that are to be provided should be stated. Mitigation methods should be defined in specific practical terms. A rationale should also be presented for selection of chosen mitigatory measures.

Any conservation program / alternative measures proposed to be implemented to augment water supply to the people affected by this project shall also be discussed.

Special emphasis should be paid on the following;

- Flood control measures (Flood gates etc.)
- Riverbank protection measures
- Storm water drainage management and soil conservation
- Structural provisions for minimum flow release
- Biodiversity conservation measures and measures to salvage / rehabilitate habitats / Archaeological monuments etc.
- Restoration of disturbed lands / damaged infrastructure facilities
- Compensation for affected structures, livelihoods and incomes, common properties etc.
- Noise / vibration control measures (both during construction and operation)
- Fish ladders or such devices proposed if applicable
- Water extraction restriction measures during dry periods
- Construction and other waste disposal methods
- Grievance handling

## **6. EXTENDED COST BENEFIT ANALYSIS**

Total environment cost (the cost of direct and indirect impacts, proposed mitigation cost administration and monitoring costs etc.) and benefits arising out of the project due to project activities should be incorporated and discussed. Findings should reflect the benefit arising out of the proposed project measures.

## **7. ENVIRONMENTAL MANAGEMENT PROGRAMME**

A suitable management programme should be submitted to mitigate potential adverse impacts and monitor the changes of environment and implementation of mitigatory measures. This plan should include the following;

(i) Mitigation

- Identifies and summarizes anticipated significant adverse environmental and social impacts and risks
- Describes each mitigation measure with technical details, including the type of impact to which it relates and conditions under which it is required, together with designs, equipment descriptions, and operating procedures as appropriate
- Contingency plans for maintaining services in the event of accidents/floods that disrupt project operation.

The consultant shall develop a site-specific Environment and Social Management Plan (ESMP) which will clearly indicate an implementation mechanism, compensation / mitigation cost and implementation responsibilities in line with ESMP using the suggested format in Annexure 01.

(ii) Monitoring

A suitable monitoring programme should be submitted to monitor the changes of environment and social and implementation of mitigatory measures. This plan should include the following using the suggested format in Annexure 02.

- Parameters to be monitored
- Frequency of monitoring, detection limits and definition of thresholds that will signal the need for corrective action
- Location / timing of sampling
- Institutional framework for mitigation of impacts
- Responsible agency / agencies of monitoring

(iii) Implementation arrangements

- Specifies the implementation schedule showing phasing and coordination with overall project implementation

- Describes the institutional framework, namely who is responsible for carrying out the mitigation and monitoring, which may include, additional topics to strengthen environmental and social management capability, technical assistance programs, training programs, organizational changes etc,
- Identify the capital and recurrent costs to implement mitigation and monitoring measures described above. Identify the availability and source of funds to implement the measures.

## **8. PROPOSED STAKEHOLDER ENGAGEMENT INCLUDING PROJECT AFFECTED PARTIES AND OTHER INTERESTED PARTIES, INFORMATION DISCLOSURE AND GRIEVANCE MECHANISM**

### **(i) Public and Stakeholder Consultation related to proposed activities**

Present a summary of key consultation findings, list of persons, (gender and vulnerability status disaggregated) community organizations and institutions consulted during the preparation of the ESIA. The consultant shall indicate how those concerns are being addressed into the design or relevant project phase clearly.

### **(ii) Grievance Redress Mechanism**

Describe the arrangements for receiving, evaluating and facilitating the resolution of workers and affected people's concerns, complaints, and grievances about the borrower/client's social and environmental performance on a project. A GRM is important for development projects where adverse impacts or risks are ongoing or anticipated. The GRM should also include provisions for reporting issues related to gender based violence (GBV), sexual exploitation and harassment (SHE) and sexual abuse (SA).

## **9. CONCLUSION AND RECOMMENDATION**

The environmental and social acceptability of the proposed project and key findings and recommendations of the assessment should be clearly stated. The consultants should make a firm recommendation on one of the alternatives based on available information.

Any programme to improve general environmental and social conditions can also be stated here.

## **Annexures**

### **VII Mitigation Measures Format**

<b>Project Activity</b>	<b>Potential Environmental and social Impacts</b>	<b>Proposed Mitigation Measures</b>	<b>Institutional Responsibilities</b> (Implementation and Supervision)	<b>Estimated Quantities Required and Material Specifications Recommended</b>	<b>Cost Estimates</b>	<b>Comments</b> (e.g. secondary impacts)
<b>Detailed design and planning Phase</b>						
<b>Pre-Construction Phase -Site Preparation</b>						
<b>Construction Phase</b>						
<b>Operation and Maintenance Phase</b>						

## VIII Monitoring Format

<b>Proposed Mitigation Measure</b>	<b>Parameters to be monitored</b>	<b>Location</b>	<b>Measurements</b> (Incl. methods & equipment)	<b>Frequency of Measurement</b>	<b>Responsibilities</b> (Incl. review and reporting)	<b>Cost</b> (equipment & Individual s)
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<b>Detailed design and planning Phase</b>						
<b>Pre-Construction Phase</b>						
<b>Construction Phase</b>						
<b>Operation and Maintenance Phase</b>						

#### 4. REPORTS AND SCHEDULE OF DELIVERIES

1. The consultant shall deliver following deliverables as acceptable to the client.
2. The consultant will be expected to conduct workshops with relevant stakeholders as prior commence the works , during the service as necessary and a final workshop with all stakeholders for the dissemination of findings and recommendations.

No	Type of deliverables	Time frame
1	Inception report outlining the proposed work methodology, programme implementation timeline, team of consultants engaged and their program, organizational relationships and key contacts. In addition, it will indicate; <ul style="list-style-type: none"> <li>• Each consultant's work programs</li> <li>• Schedule of field survey</li> <li>• Plan for stakeholder engagement</li> </ul>	Within 2. weeks from the date of Contract signed.
2	Draft report on the Environmental Impact Assessment (EIA) as acceptable to the Client	Within 12 weeks from the date of contract signed
3	Final report on the Environmental Impact Assessment (EIA) as acceptable to the Client	within 2 weeks from the date of submission of Clients Comments for the draft report.

Each of the above deliverables should be provided as 05 printed copies and e-copies in Microsoft Word and PDF, in English. The executive summary of the (All raw data collected should be provided in MS Excel format).

## 5. PERIOD OF CONSULTANCY SERVICE

The total duration of this consultancy service is 4 Months /16 Weeks

## 6. DATA, LOCAL SERVICES, PERSONNEL, AND FACILITIES TO BE PROVIDED BY THE CLIENT

- ❖ Projects Information when necessary
- ❖ Necessary letters of introduction/travel permit to the consultancy team whenever necessary to collecting data and travelling.

## 7. INSTITUTIONAL ARRANGEMENTS

1.The Consultant will submit all deliverables directly to the Project Director, Climate Smart Irrigated Agriculture Project (CSIAP) as described in the table given below.

2.A review committee will be appointed by the Project Director - CSIAP to review each deliverable submitted by the consultant, and the committee would be constituted to monitor the progress, and interact with the consultant on key findings and results. The team may also seek comments and inputs on the consultant's work through Project Director.

## 8. TEAM COMPOSITION AND QUALIFICATION REQUIREMENTS FOR THE KEY EXPERTS

The Consulting Team will be required to have the following qualifications and experience:  
The following minimum Key Personnel will be required for the contract for the updating of the EIA:

Key Expert		Professional qualifications and experiences
KE-1	The Task Team Leader	The Task Team Leader will have at least 10 years of experience, hold post-graduate level qualifications of a Master's Degree at minimum in Environmental Management or Environmental Science or a related field. Have excellent English language capacity and broad knowledge in environmental impact assessment and mitigation, long term impact planning and carrying capacity and/or limits of acceptable change methodologies, and institutional strengthening. The Team Leader should have significant experience in undertaking environmental assessments, reporting, capacity building, and environmental advisory services. Experience working on social impact assessments,

Key Expert		Professional qualifications and experiences
		resettlement planning and implementation and on World Bank projects prior will be considered as an advantage.
KE-2	<p>The additional specialists and justify these requirements in the proposal, as so long as the required expertise capabilities can be demonstrated via the qualifications and experience of the Specialists which should span over 5 years and minimum with a bachelor’s degree at minimum where needed. The suggested areas of expertise required include a specialist as per the following.</p> <ul style="list-style-type: none"><li>• Biodiversity expert (terrestrial, freshwater and marine)</li><li>• Hydrologist/Hydro-geologist</li><li>• Coastal Engineer (preferable with experience working in weirs and other irrigation and water works related activities)</li><li>• Social and Gender Expert (with experience in community development, social and gender assessments, planning and implementation of resettlement plans and gender action plans)</li></ul>	
KE-3	<p>In addition, the Consultant may need to solicit additional, short-term inputs from senior, mid-level and junior technical professionals with at least Diploma level qualification at minimum</p>	
<p>The Consultant may wish to propose alternative staffing configurations to ensure achievement of all objectives. The availability of each proposed staff person must be identified as well as whether they are full-time staff persons of the Consultants firm or subcontractors or consultants.</p>		

## 9. OWNERSHIP

The consultant will have no right of claim to the assignment or its outputs once completed. Any reports/ research reports/ process documents produced as a part of this assignment shall be the property of Client (CSIAP), and the consultant will not have any claims and will not use or reproduce the contents of the deliverables/ documents without the specific written permission of the Client.