COMMISSION DU BASSIN DU LAC TCHAD **LAKE CHAD BASIN COMMISSION**

TECHNICAL SUPPORT PROJECT FOR THE RESTORATION OF THE ECOLOGICAL AND ECONOMIC FUNCTIONS OF THE LAKE CHAD BASIN (PARFEBALT)

P.O: BOX 727 N' Djamena - Chad
Tel.: 00235 22 52 41 45/22 52 40 29; Fax: 00235 22 52 41 37
E-mail: cblt.lcbc@gmail.com / parfebalt@cblt.org

TERMS OF REFERENCE

RECRUITMENT OF A CONSULTING FIRM TO CARRY OUT TECHNICAL STUDIES (PPD AND DPD ON LAKE CHAD), THE ECONOMIC AND FINANCIAL ANALYSIS, A DETAILED STUDY OF VULNERABILITY TO CLIMATE RISKS AND IMPROVING THE HYDRAULIC FUNCTIONING OF THE CHARI-LOGONE SYSTEM, THE KOMADOUGOU-YOBE BASIN AND THE DEVELOPMENT OF C), **ANALYSIS OF THE BASIN'S CLIMATE CHANGE MITIGATION CAPACITIES, THE DETAILED ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT, A RESETTLEMENT ACTION PLAN FOR AFFECTED POPULATIONS, AND THE PREPARATION OF PROCUREMENT DOCUMENTS.**

Approved by AfDB via email of Task Manager on Friday 6th March 2026. (see folio 1).
DT 9/4/26

APRIL 2026

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1. BACKGROUND AND RATIONALE

The Lake Chad Basin Commission was created by the Fort Lamy Convention (now N'Djamena) signed on 22 May 1964 by the Heads of State of the four countries bordering Lake Chad: Cameroon, Chad, Niger and Nigeria. However, the number of Member States increased from four to six since the admission of the Central African Republic (CAR) in 1994 and Libya in 2008. Sudan was admitted as a Member State in 2000. However, because it has not ratified the Convention, it was accepted as an observer country in 2010, together with Congo and the Democratic Republic of Congo (DRC).

The hydrological basin of Lake Chad covers 2,355,000 km^2, but the area under the authority of LCBC, known as the conventional basin, covers only 967,000 km^2 and corresponds to the hydrologically active portion of the basin. It includes the Chari-Logone, Komadougou-Yobe, Lake Chad, Ngadda, Yedseram, and the El Beid sub-basins.

The Chari-Logone sub-basin covers an area of about 610,000 km^2, with its upper course located in the Central African Republic and Cameroon. Its boundaries are marked by mountain ranges: the Guerra, Ouaddaï and Dar Four ranges; the Kagas chain; and the Oubangui and Adamaoua plateaux. Lake Chad receives 85% of its water from the River Chari - Logone (SOB, 2012), supplied by the Logone at N'Djamena.

The Chari is made up, on the one hand, of the Ouham in the Central African Republic or Bahr Sara, and, on the other hand, of the Gribingui-Bamingui-Bangoran group. The Bahr Sara, the most important drainage axis, runs from the Yadé Mountains at an altitude of about 1,100 meters.

The Logone was mainly formed in Cameroon, in the Adamaoua massif at an altitude of 1,200 m, by the Vina, Lim and Mbéré rivers, and then in the Central African Republic by the Pendé River from the Karré Mountains.

The Chari-Logone sub-basin, like the rest of the Lake Chad basin, was severely affected by the droughts of 1972-73 and especially 1984-85, which caused Lake Chad to shrink by 90% of its surface area. The sudden drop in rainfall, on which the Chari and Logone regimes depend, led to a halving of the flow in the Chari and Logone rivers. This reduction and the drying up of Lake Chad have affected the livelihoods of local communities. However, an analysis of the hydrological situation in the Sahel generally, and in the Lake Chad Basin specifically, over the decade 2012–2024 shows an increase in the discharge of the Chari and Logone rivers, and consequently in the water level of Lake Chad, due to the significant rainfall recorded in the region, sometimes reaching extreme levels as observed in 2012, 2020, 2023, and 2024. Thus, on 5 November 2024, the Chari River's level reached 850 cm, the second-highest value recorded since 1961 (after 910 cm on 8 November of the same year). This situation is caused by the favourable rainfall conditions recorded, which led to flooding in some parts of the basin, resulting in significant damage and population displacement. Regarding the Lake's filling level, in 2024 the surface area of Lake Chad increased substantially, comparable to that of a medium-sized lake, reaching approximately 18,000 km², up from 15,000 km² in 2023 and 16,000 km² in 2022. These

variations show how sensitive the Lake is to the hydraulic conditions of its tributaries, which are affected by rainfall changes across their entire catchment areas.

The Komadougou–Yobe Basin (KYB) spans 148,000 km² across Niger and Nigeria, accounting for nearly 35% of the conventional Lake Chad Basin's land area. This river system accounts for about 2% of the surface water inflow into Lake Chad. Meanwhile, river flows have decreased by about 35% due to the combined effects of the construction of two reservoirs in the 1970s, water abstraction for irrigation projects, and climate variability. Along with increasing water demand, the river system has also faced issues related to sedimentation and the spread of invasive aquatic vegetation.

In response to this situation, and at the initiative of its Member States, the Lake Chad Basin Commission (LCBC) commissioned a feasibility study on transferring water from the Ubangi River to Lake Chad, the results of which were published in 2012.

Other studies conducted within the Lake Chad Basin by consultants and various experts have demonstrated that the basin includes numerous floodplain areas that are affected year after year. These areas are concentrated along the Chari and its tributaries at Guelendeng, Bousso and Am-Timan to the east of Sahr. Based on preliminary analyses, if some of the floodplain waters were diverted into Lake Chad, the lake levels would improve, similar to what is expected from an inter-basin transfer, but at a much lower economic cost. It could improve the Lake's drying-up situation and allow an average rise in levels of 0.4-1 m.

In fact, during periods of heavy flooding, discharges on both banks of the Logone are noticeable from Laï, where the river's gradient becomes gentle, and the floodplain gradually widens over the alluvial cover. Similarly, the floodwaters of the Chari extend over a front more than 8 km wide on the right bank from Miltou, where the discharges begin. In the downstream basin, the Chari and Logone rivers are also experiencing bank erosion and continuous silting over much of their beds. The banks are subject to lateral undermining by floods, a phenomenon that is accompanied by the gradual retreat of the banks and the deposition of clay and sandy sediments on the bottoms of the two rivers, in the floodplains and Lake Chad.

Therefore, in the Consultant's findings on the feasibility study for the inter-basin water transfer project, he recommended that LCBC should first conduct in-depth studies on two already examined options: improving the hydraulic capacity of the Lake Chad tributaries and restoring Lake Chad.

2. STUDY AREA

The in-depth study to improve the hydraulic capacity of the Chari–Logone and Komadougou–Yobe systems, as well as the development of Lake Chad, covers all the hydrographic sub-basins of the Chari–Logone and the Komadougou–Yobe, along with Lake Chad itself, which will be affected by the rise in its water level. These areas are characterised by floodplains that are periodically inundated by the Chari (Massénya), the

Logone (Yaéré), the Komadougou–Yobe (Hadejia–Nguru complex), and both rivers (Naga). They are areas of very high fisheries productivity, among the most important in the entire Sahelian region. For the Chari–Logone system, the study area stretches from the outlets (Laï, Manda, and Sarh) to the mouth of Lake Chad, while for the Komadougou–Yobe, it extends from the Kano and Jos plateaus to the mouth of Lake Chad.

2.1. Lake Chad

Cameroon, Niger, Nigeria and Chad share the bed of Lake Chad. It covers an area of about 25,000km². The Lake is bordered by dunes, especially along its eastern shore, making it vulnerable to erosion. Its landscape consists of many islands, with floating and rooted vegetation.

2.2. Chari Sub-Basin

The Chari sub-basin is shared between Chad, Sudan and CAR and covers an area of about 532,000 km². Rivers that supply this sub-basin begin in the West with the Karré Mountains (1,100m) and the foothills of the Yadé Massif (CAR), from which the Nana Barya and Ouham rivers descend. This sub-basin is bounded by the Kagas chain (500 to 600m), the Dar El Kouti with the Bongos chain (700m), the Ouanda-Djallé mountain and the Dar Challa, culminating at 1,330m at Mount Toussoro, where the Gribingui, Bamingui and Bangora rivers originate, and then the tributaries of the left bank of the Aouk with the Ouandjila and Yata rivers.

2.3. Logone Sub-Basin

The Logone sub-basin covers about 78,000 km² between Cameroon, the Central African Republic and Chad. This sub-basin is characterised by vast floodplains fed by spills during the Logone flood period. During years of heavy rainfall, the Logone flows into the Mayo Kebbi (Niger basin) around Bongor and the village of Eré in Chad.

2.4. Komadougou - Yobe Sub-Basin

The Komadougou–Yobe sub-basin spans about 148,000 km². It is shared by Niger and Nigeria, making up nearly 35% of the land area of the conventional Lake Chad Basin.

Poor management of the hydrographic network and the dam's daily operations has disrupted the river system. Downstream of Gashua, the river discharge decreases by an average of 32%. There has also been a significant decrease in the duration of runoff, from an average of 10 months per year before the dams were commissioned to a maximum of 6 months in recent years. Furthermore, the flow patterns in the river channels crossing the Hadejia–Nguru wetlands have been disrupted by blockages caused by the spread of Typha vegetation and sediment buildup, leading to channels that are either dry or overly flooded.

3. PART I: TECHNICAL, ECONOMIC AND FINANCIAL STUDIES

The technical study is a crucial phase in the Project's design and feasibility assessment. It serves as a prerequisite by establishing the initial foundations of the Project. Considering the challenges outlined in the background, conducting a comprehensive technical study is crucial to assess the current state of the hydraulic system, identify constraints and opportunities, and suggest effective development and management strategies.

These Terms of Reference thus define the framework, aims, scope, and implementation methods of this technical study, designed to equip decision-makers and stakeholders with the necessary elements for informed planning and the successful realisation of the investment project.

3.1 OBJECTIVES OF THE TECHNICAL, ECONOMIC AND FINANCIAL STUDY

The purpose of this study is, firstly, to propose technical solutions to address the issues of overflow water evaporation in floodplains, riverbank degradation caused by hydraulic erosion, and sedimentation in collectors (floodplains, riverbeds, and Lake Chad). Secondly, it aims to evaluate the economic and financial viability of these proposed technical solutions.

The primary aim of the study is to identify and evaluate the most realistic and feasible technical options from financial, economic, social, and environmental viewpoints to improve the hydraulic regime of the Chari–Logon Komadougou-Yobe and to develop Lake Chad, enabling it to receive additional flows that could lead to an average rise in the lake level of between 0.4 and 1 metre.

More specifically, the study will focus on the following objectives:

- Determine the hydrological and morphological characteristics (including quantity and quality: morphology, depths, flows, etc.) of watercourses and the Lake itself based on bathymetry results.
- Study the hydrological and morphological features, along with their interaction with rivers and aquifers, of the main floodplains in the Lake Chad Basin. It includes the Logone, Salamat, Messenya, and Vakaga floodplains, as well as the Komadougou–Yobe complex. Also, emphasise the effects of improving the hydraulic capacity of the Chari–Logone and Komadougou–Yobe systems on aquifer recharge.
- Examine the causes and rates of silting and mudding in the Chari-Logone, Komadougou Yobe, and Lake Chad through detailed analysis of sediment sources and sedimentation levels.
- Conduct a past and future hydro-climatic analysis of the study area to produce resilience actions for the populations.

- Provide a detailed analysis of the state of fisheries resources and the communities that depend on them, and examine the variability in fish production levels across different basins in relation to the magnitude of floods (**extent and duration**).
- Conduct a baseline assessment of invasive plants, with a focus on inventory, origins and impacts, eradication techniques, and costs.
- Characterise the vegetation in the study area and the state of the vegetation cover,
- Analyse the impacts of the proposed developments on the floodplains, the Chari, the Logone, the Komadougou–Yobe, and Lake Chad;
- Analyse the constraints of various scenarios on the fisheries sector regarding productivity, employment, and income for fishing-dependent communities.
- Make proposals to improve the hydraulic capacity of the Chari sub-basin, Komadougou Yobe and Lake Chad, such that they can accommodate additional flows,
- Develop proposals to improve water depths in the Chari, Logone, and Komadougou–Yobe, especially during low-flow periods;
- Identify strategic options to fight against riverbank degradation, silting of riverbeds in the Chari-Logone, Komadougou Yobe and Lake Chad sub-basins, mudding of tributaries and proliferation of invasive plants in the study area.
- Identify development options to improve the hydraulic capacity of the Chari–Logone, Komadougou–Yobe, and Lake Chad systems.
- Conduct an economic and financial analysis of the various proposed development options;
- Highlight the long-term economic and financial advantages of conducting these works for the population and the States bordering Lake Chad;
- Analyse and evaluate the economic, environmental, and social impacts of the works to improve the hydraulic capacity of the Chari–Logone and Komadougou–Yobe systems during construction and after completion, focusing on effects on ecosystems and populations, including those living in and around Lake Chad.
- Assess climate vulnerability and suggest mitigation strategies;
- Describe the justification for selecting the techniques and the location of the intervention or developments to be undertaken, as well as the reasons why, from an environmental protection perspective, the proposed option was chosen;
- Draft an international tender document for the works to improve the hydraulic capacity of the Chari–Logone and Komadougou–Yobe systems, as well as for the development

of Lake Chad.

3.2 EXPECTED OUTCOMES OF THE TECHNICAL, ECONOMIC AND FINANCIAL STUDY

The following outcomes are expected at the end of the studies:

- The hydromorphological characteristics of the watercourses and Lake Chad based on the bathymetry results are defined,
- The hydrological characteristics of the basin's floodplains, as well as their interactions with rivers and aquifers, are established;
- Proposals are made to improve the hydraulic capacity of the Chari - Logone, Komadougou Yobe sub-basins, and Lake Chad to manage the additional flows.
- Fisheries resources are characterised, and their variability in relation to environmental conditions is described;
- Fishing communities are characterised, in particular, by the different livelihood systems on which they depend;
- The vegetation in the study area and the state of the plant cover are known,
- An inventory of invasive plants, with a focus on the inventory, their origins and impacts, eradication techniques and the costs involved,
- The causes and rates of silting and mudding of the Chari-Logone, Komadougou Yobe and Lake Chad through specific analyses of the sources and level of sedimentation are understood,
- Priority technical options for remedying the silting up of the bed of Lake Chad are proposed, and suggestions for improving the draughts of the Chari, Logone, and Komadougou Yobe, particularly during low-water periods, are put forward,
- Rationale for choosing the techniques and intervention sites, as well as the reasons why, from an environmental protection perspective, the proposed option was selected, is provided.
- The long-term economic and financial benefits of conducting these works for the populations and the States bordering Lake Chad are identified;
- Past and future hydro-climatic analysis of the study area is conducted, and a detailed document is available,
- A comprehensive analysis of climate risks and vulnerabilities affecting the hydraulic capacity of the Chari–Logone and Komadougou–Yobe systems is presented, along

with recommended adaptation measures and an evaluation of the climate mitigation capacities and potential of the Lake Chad Basin.

- The procurement documents for the works relating to the hydraulic capacity of the Chari–Logone and Komadougou-Yobe sub-basins and the development of Lake Chad are prepared.

3.3 MISSION OF THE CONSULTING FIRM

The Consultant's mission will include conducting preliminary studies, the Preliminary Project Design (PPD), the Detailed Project Design (DPD), an economic and financial analysis, a climate vulnerability study, and environmental and social assessments.

3.3.1 PRELIMINARY STUDY

This stage will determine the scope of the in-depth studies (preliminary and detailed designs) and fine-tune precise objectives and challenges.

Diagnosis

Diagnose problems related to water resources and the environment (status of overflows, spread, erosion, etc.). This stage concerns the water balance, suspended solids balance, sedimentation, socio-economic activities, erosion, and the problem of invasive plants. During this phase, the following tasks will be conducted by the Consultant:

- Determine overflow areas,
- Investigate the current proportion of floodplain inflow and outflow, as well as infiltration, abstraction and evaporation losses in the floodplains,
- Determine the interaction mechanisms, e.g., single point discharge, overflow over a large area (spreading), groundwater flows, rainwater retention, flooding dynamics, etc.
- Determine the frequency of these interactions, e.g., every year, during exceptional floods, etc.
- Characterise the flows during high and low water periods,
- Highlight the dynamics of floodplains, including Lake Chad,
- Assess water loss in floodplains,

STUDY OF ECOLOGICAL FUNCTIONS

Ecological functions and ecosystem services play an important role in maintaining the ecological balance of floodplain areas. In this regard, it is important to characterise these environments. The following elements must therefore be characterised:

- Hydrogeology;
- Hydrology
- Climatology;

- Fauna
- Flora
- Agriculture and livestock;
- Fisheries resources / fishing;
- Human settlements;
- Flooding;

VALIDATION OF THE PRELIMINARY STUDY

Before undertaking the PPD, followed by the DPD, and preparing procurement documents, the preliminary studies must be validated by the LCBC.

- Presentation of the preliminary study during a workshop.

3.3.2 PRELIMINARY PROJECT DESIGN STUDIES (PPD)

During this phase, the Consultant will evaluate the feasibility of the Project aimed at enhancing the hydraulic capacity of Lake Chad and developing the Lake, as well as the potential environmental and social impacts. The following activities will be conducted:

- Climate Variability Study:

The Consultant shall conduct a thorough analysis of the changes in climatic conditions within the Lake Chad Basin, specifically focusing on the Chari–Logone and Komadougou–Yobe systems. It will help inform technical options and evaluate the climate vulnerability of physical infrastructure, ecosystems, and communities within or near the Lake Chad Basin. The Consultant shall:

+ Develop scenarios and projections at the scale of the Lake Chad Basin;

+ Analyse current climate variability and future climate projections;

+ Analyse, based on climate scenarios, the effects of climate variability on the hydrological and hydraulic conditions of the Lake Chad Basin and the Chari–Logone and Komadougou–Yobe systems, including normal flows, low-flow periods (detailing severity), and floods (frequency), and determine the implications for technical decisions and study options.

+ According to climate scenarios, the impacts of climate variability on the hydraulic conditions of the hydrographic network are analysed, deriving implications for technical choices and alternatives.

Hydrogeology

- Review of existing studies,
- Groundwater - surface water relationship,
- Recharge of aquifers.

- Hydrological and Hydraulic Studies – Functional Analysis and Project Configuration

The Consultant shall perform a functional analysis of the issue of improving the hydraulic capacity of the Chari–Logone and Komadougou–Yobe systems to define the relevant project configurations clearly. This includes:

Hydrological conditions of the Chari–Logone and Komadougou–Yobe systems based on climate scenarios and projections, including normal flows, low flows by severity, and floods by frequency;

Hydraulic conditions of the systems based on climate scenarios and projections, including tidal influences and concurrent floods at confluences downstream or at tributary junctions;

Sensitivity analysis of technical options and alternatives under various climate scenarios and projections;

Projected situation scenarios.

The Consultant shall also conduct the following steps:

At the analysis stage: identifying the main and secondary watercourses of the Chari–Logone and Komadougou–Yobe systems, including tributaries, confluences, and distributaries, and assessing their relative importance;

Characterisation of the catchment areas of each system;

Establishment of the water balance of the Lake Chad Basin and its sub-basins, considering the specified climate scenarios and projections;

Calculation of maximum flows to be evacuated and establishment of corresponding basin volumes and surface areas covered, considering the climate scenarios and projections

Modelling and simulation of each system, considering the defined climate scenarios and projections, for return periods of 10, 20, and 50 years (study horizon);

Dimensioning, where necessary, of hydraulic structures for effective drainage

- Financial Estimates of Alternatives

- Proposals and Selection of Alternatives

The above services shall present robust technical, financial, economic, climatic, and socio-environmental arguments based on a multi-criteria analysis covering all aspects of the study. This analysis must consider the combined effects of technical, financial, climatic, environmental, and social constraints.

If multiple options are available, the Consultant shall perform a comparative multi-criteria analysis and supply the LCBC with the necessary information for decision-making.

- Preparation of the Environmental and Social Impact Assessment report for the chosen option covering the entire study area (Chari–Logone sub-basin and Lake Chad). The report must encompass environmental mitigation and management measures during the construction phase.
- Development of a communication strategy to foster community acceptance among affected populations.
- Presentation and validation workshop of the study by LCBC,
- Presentation and validation of the study by LCBC Member States at a regional workshop.

3.3.3 DETAILED PROJECT DESIGN STUDIES (DPD)

The DPD shall be developed based on the option chosen after the multi-criteria analysis, which will identify the most optimal and sustainable technical, social, and environmental solution.

During this phase, the following activities must be undertaken:

Topography:

- Bathymetric surveys of the Chari, Logone, Komadougou–Yobe, and Lake Chad
- Specific studies (section surveys) on the most eroded areas,
- Topography of riverbanks and floodplains,
- Location of important elements (e.g., Chari-Logone-Floodplain interface areas).

Detailed Hydrological and Hydraulic Studies

- Evolution of flows at the Chari, Logone, and Komadougou–Yobe stations within the study area (including verification of rating curves)
- Assess the filling rate of the Lake,
- Sizes of floodplains,
- History and frequency of flooding,
- Evaporation and evapotranspiration,
- Estimation of losses in the Chari–Logone and Komadougou–Yobe systems (evaporation, soils, floodplains)

Sedimentology:

- Identification of areas vulnerable to erosion,
- Characterisation of the nature and quality of sediments,
- Research into sediment reclamation options.

Environment and Climate Change:

- Study of the ecological roles of the Chari–Logone and Komadougou–Yobe systems;

- Study of the ecological functions of the floodplains;
- Study of the ecological functions of Lake Chad.
- Validation or revision of the climate scenario data used during the PPD based on refined climate projections produced by the Consultant;
- Analysis of current climate variability and medium- and long-term climate projections and their implications for sensitive climatic parameters such as rainfall, temperature, potential ETP, AET, and runoff;
- Analysis of the impacts of climate variability on basin hydrological conditions (normal flow, low flows, floods) and their implications for the selected technical option;
- Analysis of the impacts of climate variability on the hydraulic conditions of the studied systems and their implications for the selected technical option;

Socio-Economic:

- Detailed assessment of ecosystem services provided by the Chari, Logone, and Komadougou–Yobe;
- Detailed assessment of ecosystem services provided by floodplains and other wetlands;
- Detailed assessment of ecosystem services provided by Lake Chad;
- Flood impact assessment.

Detailed analysis of the impacts of hydraulic variabilities

The detailed analysis phase will document the impacts of variability and hydraulic changes in much greater detail. During this study phase, the following elements should be documented:

- Impacts on the water levels of the Chari and the Komadougou–Yobe
- Impacts on the Lake Chad basin,
- Impacts on the floodplains,
- Impacts on aquifer recharge.
- Propose the most viable option for improving the hydraulic capacity of the Chari - Logone, Komadougou Yobe sub-basins and restoration of Lake Chad,

Solutions for improving the hydraulic capacity and restoration of Lake Chad
Solutions aimed at improving the Chari-Logone and Komadougou Yobe draughts, and the amount of additional water that Lake Chad will receive from the proposed developments,

must incorporate the environmental and social concerns raised during the previous phase of the study.

Procurement File

Following these studies, a tender file will be prepared, including the layout plans and a detailed description of the Project, the phases of the works, the construction challenges, and a detailed estimate of the total costs to conduct the Project.

3.3.4 ECONOMIC AND FINANCIAL ANALYSIS

The Consultant shall conduct an economic and financial analysis to verify the viability of the proposed developments, taking into account socio-economic benefits. The services shall include:

Cost and Investment Analysis

The Consultant shall provide a comprehensive estimate of investment costs (CAPEX) and operating and maintenance costs (OPEX), and shall identify indirect expenses, such as expropriations, social compensation, and environmental mitigation measures.

Cost–Benefit Analysis

The Consultant shall evaluate direct benefits such as increased water availability, irrigation, fisheries, and navigation; evaluate indirect benefits such as employment, food security, and reduced water-related conflicts; and compute financial indicators including Net Present Value (NPV), Internal Rate of Return (IRR), and the benefit–cost ratio.

Financial Feasibility Study

The Consultant shall analyse funding sources (States, donors, public–private partnerships), explore financing scenarios, prepare a cash flow plan, and assess financial risks, including inflation, exchange rates, and implementation delays.

Socio-Economic Analysis

It will include assessing impacts on local communities in terms of income, employment and food security, as well as evaluating redistributive effects and positive or negative externalities.

Financial Sustainability Plan

A strategy for the maintenance and long-term sustainability of the infrastructure will be proposed.

3.4 DELIVERABLES

The following deliverables, prepared in French (10 copies) and in English (5 copies), are expected from the consulting firm:

- Inception report,
- Report on field missions and data collected,

- Preliminary study report,
- Preliminary Project Design study report,
- Detailed Project Design study report,
- Economic and financial analysis report.
- Draft Procurement Documents for the implementation of the works,
- Reports on the validation workshops of the deliverables with the LCBC.

3.5 PROFILES OF REQUIRED EXPERTS

Expert 1: Team Leader (Civil Engineer / Hydraulic Engineer / Hydrologist):

This expert must be a senior engineer with demonstrated expertise in developing complex river systems. The expert should demonstrate the following:

- Master's Degree in Civil Engineering: specialising in river hydraulics,
- At least 20 years of proven experience in river development,
- Good knowledge of the problem of silting of watercourses,
- Conducted at least 3 similar assignments as Team Leader;
- At least 5 years of experience in sub-Saharan Africa.
- Demonstrated expertise in sedimentation and riverbank erosion issues;
- Strong experience in managing a multidisciplinary team.

The expert will be responsible for managing the studies and producing the various reports.

Expert 2: Hydrologist:

This expert must also have strong expertise in hydrological and hydraulic modelling of transboundary basins. The expert should demonstrate the following:

- Holder of a master's degree in engineering, hydrology or water resources management/hydraulics;
- Conducted at least 2 similar assignments in hydrological modelling.
- Demonstrated proficiency in modelling software (HEC-RAS, SWAT, MIKE, WEAP);
- Demonstrate at least 15 years of experience, of which at least 5 years are at the international level;
- Excellent knowledge of the Lake Chad Basin.

Expert 3: Surveyor–Topographer

This expert must demonstrate extensive expertise in bathymetric and topographic surveys of riverine regions. The expert should demonstrate the following:

- Master's degree in Surveying Engineering (Geomatics/Geodetic Surveying)
- Conducted at least 2 similar bathymetric survey assignments;
- Demonstrate at least 15 years of experience, of which at least 5 years are at the international level;
- Demonstrated proficiency in measurement tools (GPS, echo sounders, LiDAR);
- Demonstrate a good knowledge of hydrography,

Expert 4: Hydrogeologist

This expert must demonstrate proven expertise in the hydrogeology of sedimentary basins in arid environments. The expert should demonstrate the following:

- A Master's Degree in Engineering (Hydrogeology),
- Demonstrate at least 15 years of experience, of which at least 5 years are at the international level;
- Conducted at least 2 similar hydrogeological study assignments;
- Demonstrated strong knowledge of groundwater–river interactions in arid environments;
- Demonstrated proficiency in modelling tools such as MODFLOW or Groundwater Vistas;

Expert 5: Pedologist / Sedimentologist

This expert must demonstrate a high level of expertise in sediment dynamics within river systems. The expert should demonstrate the following:

- Holder of a Master's Degree in pedology, geology or sedimentology;
- At least 15 years of experience, including 5 years of international experience;
- Conducted at least 2 similar sediment analysis assignments;
- Demonstrated strong knowledge of erosion and sedimentation processes.

Expert 6: Geomatics Expert

This expert must have demonstrated expertise in the spatial analysis of river basins. The expert should demonstrate the following:

- Master's Degree in Geomatics with experience in GIS,
- At least 10 years of experience, of which at least 5 years are in Africa.
- Conducted at least 2 similar spatial analysis assignments;
- Demonstrated proficiency in GIS software and remote sensing;

Expert No. 7: Economist / Financial Analyst

This expert must demonstrate expertise in the economic assessment of hydraulic projects. The expert should demonstrate the following:

- Holder of a Master's Degree in economics or finance;
- More than 15 years of experience in the economic and financial evaluation of projects, as well as in the planning, programming and evaluation of infrastructure and developments related to rivers and wetland areas
- In particular, the candidate should have experience in project cost-benefit analysis.
- Conducted at least 3 similar cost–benefit analysis assignments;
- Demonstrated proficiency in financial evaluation methodologies.

Expert No. 8: Aquatic Ecosystem Ecology and Ecosystem Services Expert

This expert must demonstrate established expertise in evaluating ecosystem services in aquatic environments and in managing natural resources.

- Holder of a Master's Degree in aquatic ecosystem ecology
- Possess over 15 years of experience in ecosystem service valuation, especially in Sahelian environments and aquatic ecosystems in Sub-Saharan Africa;
- Demonstrated proficiency in ecosystem service valuation methods.
- Conducted at least 3 similar assignments,

Expert 9: Climate Change Expert

This expert must demonstrate proven expertise in climate risk assessment and in the potential for climate mitigation. The expert should demonstrate the following:

- Holder of a Master's Degree in environment, geography or climate change
- Possess over 7 years of experience in climate risk assessment and climate mitigation potential;
- Conducted at least 2 similar assignments in climate studies;
- Demonstrated proficiency in methods for assessing climate risks, vulnerability, and climate mitigation potential.

4. PART II: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

In accordance with various national regulatory and legal frameworks related to environmental protection and natural resource management, including international conventions on environmental protection ratified by the Member States of the Lake Chad Basin Commission (LCBC), the Lake Chad Basin Water Charter—particularly the provisions of Annexe 6 concerning environmental protection in the Lake Chad Basin and the provisions of the African Development Bank's Integrated Safeguards System (ISS), the

preparation of Environmental and Social Impact Assessments (ESIA) is required before the implementation of any planned activities in the Lake Chad Basin under the PARFEBALT project. These studies will enable the identification, assessment, and prevention of potential environmental and social impacts, both positive and negative, associated with the technical options selected during the technical feasibility studies.

To this end, the current Terms of Reference outline the key guidelines for conducting environmental and social impact assessments as part of feasibility studies to enhance the hydraulic capacity of the Lake Chad Basin, in accordance with relevant national, regional, and international standards.

4.1 OBJECTIVES OF THE ESIA

This part of the assignment aims to conduct a comprehensive Environmental and Social Impact Assessment for the option proposed by the technical feasibility studies. This impact assessment for the chosen option will be conducted by sub-basin, namely:

- The Chari sub-basin;
- The Logone sub-basin;
- The Komadougou–Yobe sub-basin;
- The Lake sub-basin.

More specifically, the consulting firm will be mandated to:

a) Provide a succinct description of the proposed option, including details of the developments, structures, or works to be undertaken, the objectives and anticipated results, as well as an overview of the ESIA content and the methods used for conducting the assessment, including the identification of the geographical boundaries of the Project's area of influence.
b) Analyse the baseline conditions of the Project's area of influence and its environment, particularly regarding natural resources and physico-chemical, biological, socio-economic, and cultural conditions. This should include geological, topographical, hydrological, and climatic factors that shape the ecosystem, as well as the main species within it, with their life cycles (migration, feeding, reproduction, and protection) and responses to environmental variability.
c) Conduct a detailed analysis of how dependent communities use renewable natural resources, with a focus on adaptation and the seasonal cycles affecting their livelihoods and evaluate their reliance on these resources.
d) Review the legislative, regulatory, and institutional frameworks of the countries regarding environmental and social protection, including international conventions on environmental, climate, and social issues ratified by LCBC Member States. Identify any gaps or limitations that could impact the implementation of activities and offer recommendations to address them within the context of the proposed activities.

e)Present the environmental and social safeguard operational policies of the financing partner that apply to the proposed project activities, and justify the activation of each applicable policy;

f) Assess the environmental potential and constraints within the Project's area of influence concerning the planned interventions.

g)Assess the requirements for solid and liquid waste collection during the construction phase, including their disposal, and provide recommendations.

h)Identify and evaluate both negative and positive environmental and social impacts and risks, whether direct or indirect, cumulative, and occurring in the short, medium, or long term, resulting from the works at the selected construction sites.

i) Identify social impacts at each project site, including potential changes in demographic and cultural profiles, economic conditions, and social cohesion of affected populations. Develop Environmental and Social Management Plans (ESMPs) for each ESIA and estimate their detailed costs. These plans will include institutional responsibilities for implementing and monitoring mitigation measures, capacity-building needs, and the implementation schedule.

j) Conduct participatory public consultations with stakeholders to gather their opinions and concerns regarding the Project for improving the hydraulic capacity of the Chari–Logone and Komadougou–Yobe systems. The minutes of these consultations must form an integral part of the report.

k) Prepare a Resettlement Action Plan for populations and cultural and ecological heritage, where applicable, in accordance with the attached guidance note.

4.2 EXPECTED OUTCOMES OF THE ESIA

Based on the consulting firm's work, the following outcomes are anticipated for each sub-basin:

- The environmental and social impacts of the proposed developments to improve the hydraulic capacity of the Chari–Logone and Komadougou–Yobe sub-basins and to develop Lake Chad on ecosystems and populations are identified.
- Public participation through appropriate mechanisms, such as public hearings, inquiries, or consultations, is ensured within the study's framework.
- An analysis of negative and positive impacts, whether direct or indirect, cumulative, and occurring across the basin in the short, medium, and long term, is conducted.
- Monitoring and control mechanisms for environmental indicators are established for baseline conditions, during the construction phase, during the operation of the developments, and, where applicable, in the short-, medium-, and long-term.
- An Environmental and Social Management Plan is prepared, including measures planned by the project promoter to eliminate, reduce, or compensate for the Project's harmful effects on the environment and human health, as well as measures to strengthen positive impacts. The plan also outlines institutional responsibilities for executing and overseeing mitigation measures, including

estimated costs, capacity-building requirements, and the implementation timetable.

- A Resettlement Action Plan is prepared for populations, as well as for cultural and ecological heritage, where applicable.
- A P3P is developed for each sub-basin.

4.3 MISSION OF THE CONSULTING FIRM FOR THE ESIA

The consulting firm will conduct the following tasks concerning the ESIA:

➢ Presentation of the Institutional, Legal and Regulatory Framework

This section of the study aims to present the legal, regulatory, and institutional framework relevant to this type of Project. The following aspects will be presented:

Institutional Framework

The institutional framework comprises national public institutions, private entities, and other stakeholders engaged at various stages of the Project's implementation. The consulting firm will outline the institutional framework by identifying ministerial, private-sector, and local administrative actors in each national section of the Project. Specific activities must also be briefly described, with emphasis on their relevance to the Project's implementation.

Legal and Regulatory Framework

The consulting firm will produce a summary of the different regulations of Member States concerning environmental quality, health and safety, protection of sensitive environments, and land-use control measures. The company must also acquire legislative and regulatory documents concerning environmental protection and industrial operations. In addition to these regulatory texts, conventions, protocols, and international and sub-regional agreements signed and ratified by the Member States of the LCBC regarding environmental and social issues, as well as the environmental and social requirements of international donors, must also be taken into account.

➢ Project Description

The project description will include the geographical area (national sections within each LCBC Member State) and the justification for selecting the project area. Furthermore, all relevant details needed to identify sources of impact and understand their effects on environmental and social components that may be affected will be included.

➢ Description of the Baseline Conditions of the Area

The description of the receiving environment is essential, as a project is assessed not only against existing regulatory standards but also in relation to the characteristics of the receiving environment, including water, air and soil, as well as living species and their habitats and the human communities concerned. This section of the Environmental and

Social Impact Assessment will include the selection of a site, the delineation of a study area and the description of relevant natural and human environmental components associated with the Project. The analysis of the baseline conditions of the site will focus on two main axes:

- Analysis of the potential impacts of the Project
- Description of the socio-economic and human environment

➢ **Analysis of Potential Impacts**

The description of the natural environment will focus on the following parameters:

- Climatology, including wind, rainfall, temperature and humidity
- Atmospheric emissions
- Pedology through the analysis of soil texture and specific soil characteristics
- Hydrology through the description of water bodies and their characteristics. Existing data on water bodies will be compiled, particularly regarding water quality, including qualitative parameters such as physico-chemical and biological characteristics.
- Hydrogeology (groundwater). This will involve describing groundwater conditions within the impact area, including water quality, recharge capacity, depth, and related characteristics.
- Fishery resources and their exploitation across various habitats and hydrological seasons will also be analysed, including species, fishing practices, and preservation methods.
- Flora will be evaluated through an inventory of plant species at the site, with special focus on those particularly important to local communities.
- Fauna will be described based on species identified during sampling or reported during interviews as present within the project area. This analysis will identify endangered, threatened, and protected species, as well as key habitats within the project area.

➢ **Description of the Socio-Economic and Human Environment**

The consulting firm will describe land use from both human and economic perspectives. The following aspects will be analysed:

- The socio-economic and cultural profile of the population in each national section concerned, including demographic characteristics, social structure, lifestyles and local culture
- The livelihoods of local communities, their contribution to household income and their seasonal complementarities
- Baseline health conditions within the project area are being identified to identify existing diseases and health challenges.

➢ Identification and Analysis of Potential Project Impacts

This section will cover:

- Identification and analysis of impacts
- Assessment of the significance of impacts

➢ Identification and Analysis of Impacts

The consulting firm shall identify and describe significant impacts based on their nature and characteristics, including whether they are: Direct or indirect, Negative or positive, Temporary or permanent, Continuous or intermittent, Reversible or irreversible, Short, medium or long term, Capable of being mitigated or compensated, and whether they interact with other impacts.

The significance of impacts shall be assessed, taking into account the local context and the opinions and values of potentially affected groups, particularly the populations of villages surrounding the project area. Assessment of the significance of the Project's impact during various project phases

➢ Assessment of Impact Significance

The consulting firm shall assess the importance of impacts using the matrix below to categorise them by level of significance and by each phase of the Project. The criteria to be considered include:

- Intensity or magnitude of the impact
- Extent or spatial scope of the impact
- Duration of the impact

Based on these criteria, the Consultant will assess each impact using clearly defined and explained assumptions. Based on these criteria and assessment assumptions, each impact will be categorised as minor, moderate, or major.

Area Concerned	Impact-generating activity	Areas affected	Nature of impact	**Assessment of the importance of the impact**											
				Intensity			**Scope**			**Duration**			**Importance**		
				Fai	Mo	Fo	Po	Lo	Ré	Co	Mo	Lon	Mi	Mo	Ma
		Air													
		Sol													
		Etc.													

Fai: Weak — Po: Short-term — Co: Short — Mi: Minor

Mo: Medium — Lo: Local — Mo: Medium — Mo: Average

Fo: Strong — Re: Regional — Lon: Long — Ma: Major

➢ Environmental Protection Measures

This section pursues three main objectives:

- Identify the best alternatives for the implementation of the Project;
- Define a coherent action programme aimed at mitigating and reducing the most significant impacts or compensating for damages suffered by persons affected by the Project;
- Ensure the Project's environmental sustainability to guarantee the sustainable management of the infrastructure and equipment to be implemented.

In other words, environmental protection measures must be technically feasible, economically viable and socially acceptable.

To this end, the consulting firm shall aim to optimise these measures so that the effectiveness of one does not hinder another and that no measure itself causes additional negative impacts. These measures will be classified into two general categories:

- General measures aimed at mitigating the negative effects of the Project as a whole;
- Specific measures aimed at mitigating impacts affecting particular environmental components.

➢ *Risk and Accident Management*

The consulting firm shall analyse the hazards associated with the Project, review past accidents in similar projects, and develop potential major accident scenarios. It shall assess their consequences, frequencies and associated risks. This analysis shall take into account the laws, regulations and codes of practice applicable to this solar power facility.

An emergency response plan must be developed to identify potential emergencies and the corresponding response measures. This plan should include, among others:

- Safety measures applicable on the site;
- Emergency response structures and decision-making mechanisms within the organisation;
- Internal and external communication procedures.

➢ Environmental and Social Management Plan (ESMP)

The main objective is to improve the environmental conditions of the Project. It is therefore essential that this document translates the ESIA recommendations into an ESMP, which will convert them into an operational plan. The consulting firm shall therefore outline the mechanisms to be implemented (required actions) to ensure compliance with environmental requirements and the proper functioning of works, equipment, and installations, as well as to monitor changes in certain components of the natural and human environment affected by the Project.

It will identify relevant environmental indicators to be used during project implementation and to be considered in the project design. In addition, the institutions involved in this

phase will be identified, along with the costs associated with the Project's environmental monitoring.

A summary matrix shall be prepared clearly presenting the following elements (impact–measure–cost–timing–responsibility): Impacts; management measures proposed for each identified impact; cost of each measure; indicator for the implementation of the measure; implementation timeline; entity responsible for implementing the measure; entity responsible for supervising the implementation of the measure; environmental monitoring including parameters to be monitored, monitoring frequency, standards or benchmarks, and related costs where applicable; targeted capacity-building for actors responsible for implementing the ESMP; grievance management mechanism; communication and dissemination of environmental monitoring and supervision reports, including minimum content, responsibilities, frequency, and recipients.

- **Public Participation**

A project developed within a sustainable development framework must integrate the principle of social equity alongside environmental integrity and enhanced economic efficiency. On this basis, citizen participation in planning and decision-making processes is required for the implementation of development projects. Consultations should therefore begin as early as possible in the planning process. The greater the citizens' influence on the overall Project, the more socially acceptable it will become.

To this end, the Consultant shall conduct public consultations (focus groups with farmers' organisations, operators, youth groups, and women's groups, among others) to gather stakeholders' opinions and concerns regarding the Project. Validation sessions involving all stakeholders shall also be organised. These consultations must take place during the preparation phase to identify the main environmental and social issues and impacts, and to collect stakeholder feedback on the proposed mitigation and enhancement measures. The minutes of these consultations will be included in a specific report titled the Stakeholder Engagement Plan (SEP). This P3P shall constitute a separate document, the indicative outline of which is provided in Annex 1 attached to these Terms of Reference.

- **Resettlement Action Plan**

Where necessary, the consulting firm shall develop a Resettlement Action Plan for affected communities and cultural and ecological heritage. This plan should include, among other elements: Description of the Project, the project area and the Project's area of influence; potential impacts; organisational responsibilities; community participation and public consultations; integration with host communities where applicable; socio-economic studies of affected persons; institutional framework including grievance redress mechanisms; eligibility criteria, valuation and compensation for losses; housing, infrastructure and social services; environmental protection measures; implementation schedule; costs and budget; monitoring and evaluation.

4.4 DELIVERABLES OF THE ESIA

The following deliverables, prepared in French (10 copies) and in English (5 copies), are expected from the consulting firm:

- Inception report,
- ESIA report for each sub-basin;
- Environmental and Social Management Plan (ESMP) report for each sub-basin;
- Public consultation report, including a brief description of the consultation methods employed and the associated outcomes;
- Report on awareness-raising and information activities, including minutes of meetings held with communities or non-governmental organisations;
- Validation workshop reports for the various deliverables;
- Final ESIA and ESMP reports;
- Non-technical executive summary of the ESIA report intended for public information and decision-makers;
- Resettlement Action Plan (RAP), where applicable.

4.5 PROFILES OF EXPERTS REQUIRED FOR THE ESIA

Expert 1: Team Leader (Environmental Expert)
Senior engineer with demonstrated expertise in conducting Environmental and Social Impact Assessments for intricate river systems. The expert should demonstrate the following:

- A Master's Degree or equivalent in environmental science, environmental law, ecology or a related field;
- At least 20 years of proven experience in conducting environmental and social impact assessments, including at least one assignment conducted in recent years;
- Proven knowledge in the design and preparation of baseline studies, ESIA and ESMP;
- Strong ability to prepare clear and well-structured environmental and social impact assessment reports for diverse audiences such as regulatory bodies, stakeholders, financiers, development partners, and policymakers;
- Strong understanding of the dynamics and variability of aquatic environments in floodplains;

- At least three similar ESIA assignments conducted as Team Leader;
    - At least 5 years of experience in sub-Saharan Africa.
    - Strong understanding of hydrological and climate change issues, natural habitat degradation, and biodiversity conservation.
    - Strong experience in managing a multidisciplinary team.

The expert will be responsible for managing the studies and producing the various reports.

Expert No...: Hydrologist with Climate Change Expertise

- Holder of a Master's Degree in engineering, hydrology or water resources management/hydraulics;
- At least two similar assignments in conducting Environmental and Social Impact Assessments;
- Proven expertise in environmental modelling tools, including climate scenario modelling;
- Demonstrate at least 15 years of experience, of which at least 5 years are at the international level;
- Excellent knowledge of the Lake Chad Basin.

Expert 5: Ecologist and Natural Resource Management Expert

This expert should have proven expertise in environmental assessment of hydraulic projects; The expert should demonstrate the following:

- A Master's degree in environmental sciences or a related field;
- At least 15 years of professional experience, including 5 years of international experience;
- At least two similar assignments in environmental assessment;
- Strong expertise in ecological assessment methodologies and biodiversity evaluation of aquatic environments in Sahelian regions;
- Proven knowledge of ESIA standards and mitigation measures;

Expert 7: Socio-Economist

Extensive experience in assessing socio-economic impacts of development projects. The expert should demonstrate the following:

- Master's Degree in Socio-Economics,
- At least 15 years of experience, including a minimum of two similar assignments in preparing Resettlement Action Plans;
- At least 5 years of experience in sub-Saharan Africa.

- At least two similar assignments in socio-economic impact assessment of development projects;
- Extensive experience analysing rural livelihoods in Sahelian settings, especially those related to natural resources such as agriculture, livestock, fisheries, and non-timber forest product collection; Proven expertise in stakeholder consultation methods.
- Solid understanding of conflict-sensitive communication, participatory consultation techniques, and culturally suitable engagement strategies.

Expert 9: Environmental Law Expert

Proven expertise in environmental law.

- A master's degree in environmental law with strong knowledge of international environmental and social safeguard standards and guidelines;
- At least 15 years of experience, of which at least 5 are in Africa.
- At least two similar assignments providing legal support;
- Proven knowledge of the regulatory frameworks of the Lake Chad Basin countries.

5. PART III: OTHER CONSIDERATIONS FOR THE STUDIES

5.1 PROFILE OF CONSULTING FIRMS

The consulting firm must be a highly qualified entity capable of managing a complex, multidisciplinary, and transboundary assignment.

- The firm must demonstrate at least 10 years of experience, including at least 2 years of managing similar studies in Sub-Saharan Africa.
- Possess a thorough understanding of the Lake Chad Basin context and its particular hydrological and environmental challenges.
- Possess expertise in natural resource economics and financial analysis.
- Possess skills in climate modelling and risk management.
- Completed at least 2 similar projects in Africa or in Sahelian regions
- Possess proven expertise in performing technical studies from Preliminary Project Design (PPD) to Detailed Project Design (DPD) for hydraulic infrastructures and major river development works.
- Be able to perform comprehensive diagnostics and baseline assessments of riverbank erosion and ongoing sedimentation in riverbeds similar to those in the study area.
- Master bathymetric techniques to define the hydrological, hydrogeological, and morphological characteristics of Lake Chad and the relevant rivers.

- Be capable of mobilising a high-level multidisciplinary team covering civil engineering, hydraulics, hydrology, hydrogeology, environmental management and sustainable natural resource management, socio-economics, sedimentology, geomatics, and legal expertise;
- Be capable of performing an economic and financial analysis of the proposed development options, including a comprehensive assessment of their long-term economic and financial benefits;

- Be able to conduct a comprehensive Environmental and Social Impact Assessment (ESIA) following the regulations in force in Member States and to prepare an Environmental and Social Management Plan (ESMP).
- Possess expertise in environmental, social, economic, and cultural heritage impact assessments, including preparing population and/or economic activity resettlement plans.
- Demonstrate strong competencies in regional and international legal and regulatory frameworks concerning environmental safeguards.
- Know international standards and guidelines for environmental and social impact assessments;
- Be familiar with the African Development Bank's Integrated Safeguards System.
- Completed at least 2 similar projects in Africa or in Sahelian regions
- Possess proven expertise in conducting extensive environmental and social impact assessments within a comparable transboundary river basin context.
- Able to mobilise a highly qualified multidisciplinary team covering hydrology, hydrogeology, environment and/or ecology, socio-economics, climate change and environmental law.
- Be able to identify and analyse transboundary and cumulative impacts of proposed development options, including a detailed assessment of impacts in the short, medium, and long term.
- Be able to conduct a comprehensive Environmental and Social Impact Assessment according to the regulations in force in Member States and develop an Environmental and Social Management Plan.

5.2 DURATION

The total duration of the study, including the validation workshops, is twenty-four (24) months.

LAKE CHAD BASIN COMMISSION
EXECUTIVE SECRETARY
COMMISSION DU BASSIN DU LAC TCHAD
SECRETARIAT EXECUTIF

Amb. IBRAHIM BABANI
Executive Secretary

Annexe 1: Minimum content of a P3P

1. Non-technical summary
2. Project overview
3. Identification and mapping of stakeholders
   - 3.1. Affected parties
   - 3.2. Other interested parties
   - 3.3. Vulnerable individuals or groups
4. Participation planning
   - 4.1. Identification of issues and activities requiring stakeholder participation
   - 4.2. Strategy, methods, approaches and tools for stakeholder engagement (as per section 4.1)
   - 4.3. Information disclosure strategy
   - 4.4. Timeline and schedule
5. Resources and responsibilities for implementing engagement activities
   - 5.1. Resources
   - 5.2. Responsibilities
6. Grievance management mechanism

Annexe 2: Resettlement Action Plan

1. Description of the Project, project area and area of influence
2. Potential impacts
3. Organisational responsibilities
4. Community participation and public consultations
5. Integration with host communities, where applicable
6. Socio-economic studies of affected persons
7. Institutional framework, including dispute resolution mechanisms
8. Eligibility

10. Assessment and compensation of losses
11. Housing, infrastructure and social services
12. Environmental protection measures
13. Implementation schedule
14. Costs and budget
15. Monitoring and evaluation