

Economic Community
Of West African States



Communauté Economique
Des Etats de l'Afrique de l'Ouest

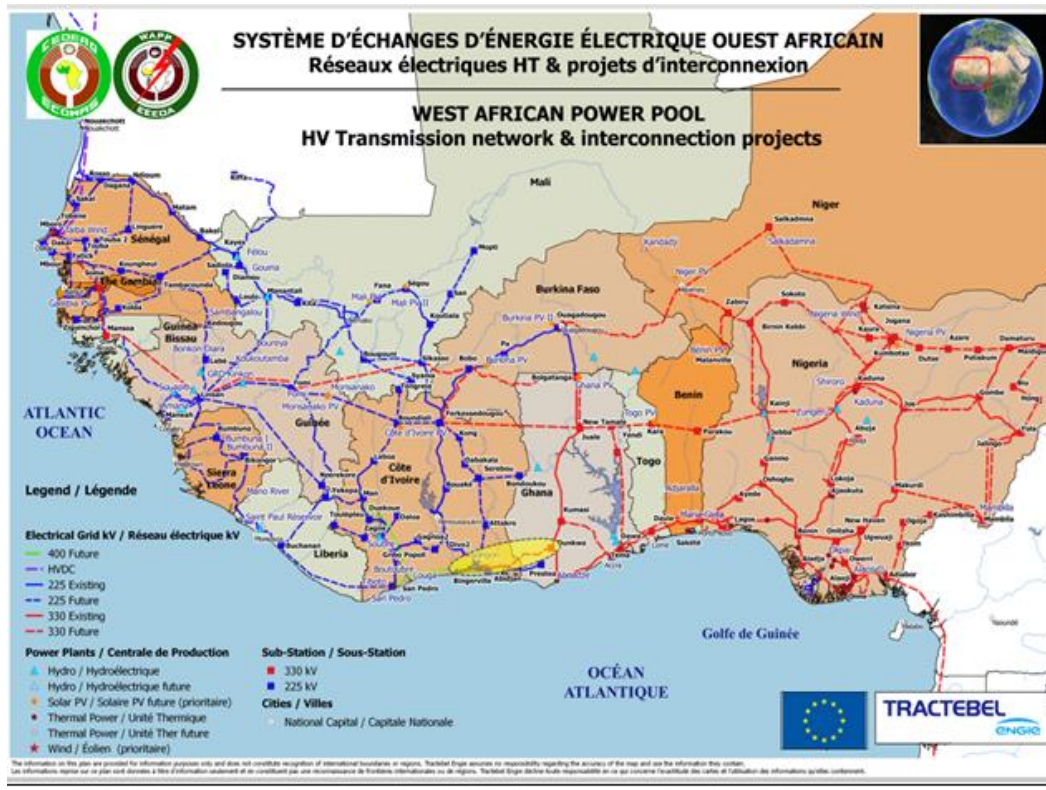
WEST AFRICAN POWER POOL
SYSTEME D'ECHANGES D'ENERGIE ELECTRIQUE OUEST AFRICAIN
General Secretariat / Secrétariat Général



WAPP CÔTE D'IVOIRE-GHANA INTERCONNECTION REINFORCEMENT PROJECT

TERMS OF REFERENCE FOR TECHNICAL STUDIES:

FEASIBILITY STUDY & LINE ROUTE AND ENVIRONMENTAL AND SOCIAL STUDIES



Mars 2023

List of Abbreviations

AFLS	Automatic Frequency Load Shedding
BMP	Biodiversity Management Plan
CC	Combined Cycle
COVID-19	Coronavirus Disease 2019
CI-ENERGIES	Côte d'Ivoire Énergies
ECOWAS	Economic Community of West African States
EHS	Environment, Health and Safety
EIS	Environmental Impact Statement
ERERA	ECOWAS Regional Electricity Regulatory Authority
ESIA	Environmental and Social Impact Assessment
ESF	Environmental and Social Framework (of the World Bank)
ESMP	Environmental and Social Management Plan
FCR	Frequency Control Reserve
FOTS	Fibre Optical Transmission System
FSD	Forest Services Division
GBV	Gender Based Violence
GRIDCo	Ghana Grid Company
GM	Grievance Mechanism
ICM	Integrated corridor Management
LMP	Labor Management Procedures
MALS	Manual Activated Load Shedding
MDR	Momentary Disturbance Reserve
OPGW	Optical Ground Wire
PAP	Project Affected People/Persons
RAP	Resettlement Action Plan
ROW	Right-Of-Way
SCADA	Supervisory Control and Data Acquisition Systems
SEAH	Sexual Exploitation, Abuse and Harassment
SEP	Stakeholder Engagement Plan
TOR	Terms of Reference
WAPP	West African Power Pool
WB	World Bank

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1. INTRODUCTION

1.1. Objectives of the WAPP

The West African Power Pool ("WAPP") was established in 1999 at the Conference of Heads of State and Government of the Economic Community of West African States ("ECOWAS"). Its creation was based on: (i) an awareness that the immense energy resources available in the region, even if unevenly distributed geographically, could be exploited for the mutual benefit of all Member States; and (ii) the need to increase access to quality and reliable electricity for the socio-economic development of ECOWAS countries. In 2006, the ECOWAS Conference of Heads of State and Government mandated the WAPP to promote and develop power generation and transmission infrastructure as well as to ensure the coordination of power exchanges between ECOWAS Member States.

The WAPP implementation strategy is based on the realisation of infrastructure programmes comprising various regional power generation and transmission projects, which complement and reinforce each other and altogether will enable the integration of all electricity networks in West Africa. The current WAPP Infrastructure Programme is based on the outcomes of the 2019-2033 ECOWAS Master Plan for Power Generation and Transmission which was approved by the ECOWAS Heads of State and Government in December 2018 through the Supplementary Act A/SA.4/12/18.

As part of its mission, the WAPP Secretariat and its Members have prepared the following interconnection projects which are currently at various stages of implementation:

- 330 kV Volta (Ghana) – Lome ‘C’ (Togo) - Sakété (Benin) Interconnection project;
- 330 kV Aboadze (Ghana) – Prestea (Ghana) – Kumasi (Ghana) – Han (Ghana) transmission project;
- 330 kV Nigeria – Niger – Togo/Benin – Burkina Interconnection Project (North Core);
- 225 kV Côte d’Ivoire – Liberia – Sierra Leone – Guinea Interconnection Project (CLSG);
- 225 kV Energy of Organisation pour la Mise en Valeur du fleuve Gambie (OMVG) Interconnection Project;
- 225 kV Guinea – Mali Interconnection Project;

Other projects in the pipeline include:

- 330 kV Nigeria–Togo/Benin Interconnection Reinforcement Project;
- 330 kV Nigeria–Benin–Togo–Ghana–Côte d’Ivoire Interconnection project (WAPP North Core Median);
- 330 kV Ghana – Burkina – Mali Interconnection Project.
- The Côte d’Ivoire -Liberia Interconnection Reinforcement Project and
- The 2nd Côte d’Ivoire - Burkina Interconnection Project

1.2. Context and objectives of the Project

The construction of a second interconnection between Côte d’Ivoire and Ghana has been identified as one of the priority projects in the framework of the implementation of the Coastal Transmission Corridor planned to interconnect the power grids of Côte d’Ivoire, Ghana, Togo, Benin and Nigeria. The regional Master Plan has established that with the implementation of the regional electricity market, which is expected to strengthen the exchange of electricity between the countries of the West African sub-region, the capacity of the existing interconnection between the Cote d’Ivoire and Ghana would constitute a bottleneck, hence the need to reinforce it with a 330 kV interconnection.

The WAPP Secretariat, CI-ENERGIES (Côte d’Ivoire) and GRIDCo (Ghana) started carrying out the pre-investment studies for this line in 2011, but the project was later put on hold since the Ghanaian government could not support its implementation due to an excess of domestic power production capacity. In 2022, given their respective energy needs and a revamped interest in power trade, as well

as considering the state of regional infrastructure in the sub-region, the parties deemed it appropriate to resume discussions. They confirmed their interest in the interconnection and approached the World Bank (WB) for financing support.

In response, the WB has agreed to support a new regional energy operation (WAPP Ghana-Cote d'Ivoire Power Interconnection Project), which is intended to serve two objectives that are instrumental to completing the integration of electricity systems in West Africa and helping develop the WAPP market at full potential. First, through the construction of a second cross-border power interconnection between Ghana and Cote d'Ivoire, as well as the associated infrastructure and reinforcement of power transmission capacity at the national level, the project is intended to enable expanded and secure power exchanges between the two countries and towards the WAPP market. The second objective is to address the most impending priorities to make the regional power market work. This entails completing the synchronization of regional power infrastructure to establish a regionally integrated power system and making it fully operational. It also entails focus on the WAPP's Information and Coordination Center (ICC), which will need to acquire adequate capacity to operate the regional power system and market.

In particular, Bank-financed activities will include the following:

- (1) Construction of the Ghana-Cote d'Ivoire second interconnection** consisting of: a high-voltage (HV) transmission line spanning approximately 246 km and associated substations and supervisory control and data acquisition (SCADA) and fiber equipment to connect the power systems of Ghana and Côte d'Ivoire. The line will start from the Dunkwa II substation at Dunkwa-on-Ofin in the Central Region of Ghana and terminate at the Bingerville substation in Cote d'Ivoire. Under this component, the Bank will also finance technical assistance for project management, institutional capacity and commercial agreements, which will include: (i) recruitment of a common Owners' Engineer (COE) to oversee construction of the interconnection; (ii) implementation of Environmental and Social Management Plans (ESMPs) and Resettlement Action Plans (RAPs); (iii) costs associated to the establishment and/or reinforcements of Project Implementation Units (PIUs) in each country; and (iv) training and consulting services to support the preparation and negotiation of contracts underpinning power trade along the line.
- (2) Strengthening transmission capacity in Côte d'Ivoire and Ghana.** The exact scope of investments in the rehabilitation of transmission infrastructure in Côte d'Ivoire will be identified during project preparation based on the country's power network masterplan and the updated studies that form part of the scope of these terms of reference. In Ghana, transmission reinforcements are expected to include the construction of a new substation in Dunkwa and a 75km Awodua-Dunkwa 330 kV transmission line.
- (3) Market readiness support to the WAPP and the ICC.** This will include:
 - Residual investments needed to complete the synchronization of the WAPP power system, including the installation and deployment of hardware and equipment needed to enable real time monitoring of the grid by national transmission system operators (TSOs) and their interaction with ICC. In addition, support will be provided to acquire and implement the best operational practices and tools that are needed to make ICC operational as System and Market Operator (SMO).
 - Support to ICC to expand its personnel, equip the agency with the needed skills to carry out its SMO functions and ensure coordination with national TSOs through technical working groups.
 - Technical Assistance to be provided to WAPP agencies and members to ensure that the key tools developed to regulate or operate the market, notably the Grid Code, the transmission tariff methodology and other standardized commercial agreements, are applied in practice.
 - Preparation of feasibility studies for critical regional infrastructure identified under the regional Master Plan, and notably the update/finalization of pre-investments studies referred in these terms of reference.

The WAPP and the WB are holding discussions with other financiers, and notably the European Investment Bank, who had expressed interest in financing the Ghana-Côte d'Ivoire interconnection when this was first considered. Any additional financiers may provide financing for the construction of the interconnection as well as for the reinforcement of transmission and distribution capacity at the national levels in Ghana and Cote d'Ivoire based on financing needs and their respective interests.

2. INSTITUTIONAL AND LEGAL CONTEXT

2.1. Côte d'Ivoire Energies (CI-ENERGIES)

The management of the electrical sector in Côte d'Ivoire began with the Société Énergie Électrique de la Côte d'Ivoire (EECI), a state-owned responsible for power generation, transmission and distribution and marketing of electricity.

In October 1990, the Government of Côte d'Ivoire carried out a first reform of the electricity sector, reducing the scope of the mandate of the EECI through the creation of the 'Compagnie Ivoirienne d'Electricité' (CIE), a private utility to which the State awarded the operation of the power system (this concession runs until today).

In December 1998, the Government carried out a second reform of the electricity sector which marked the end of the EECI and its replacement by three (3) State-owned utilities:

- The "Autorité Nationale de Régulation du secteur de l'Électricité" (ANARE), responsible for monitoring the Operators of the sector, arbitration of disputes and the protection of the interests of the electricity consumer (Decree No. 98-726 of 16 December 1998);
- The 'Société de Gestion du Patrimoine du secteur de l'Electricité (SOGPEPE), responsible for managing the sector's assets, managing financial flows and preparing the consolidated accounts of the sector (Decree No. 98-727 of 16 December 1998);
- The 'Société d'Opération Ivoirienne d'Electricité (SOPIE), responsible for monitoring power flows, studies and planning, and the project management of the investment projects returning to the State, in terms of renewal and extension of transmission and rural electrification networks (Decree No. 98-728 of 16 December 1998).

On 24 March 2014, the Electricity Code (Law N°2014-132) was adopted. This new text governs the electricity sector in Côte d'Ivoire and enshrines the liberalisation of the activities of production, transport, distribution, import, export and marketing of electrical energy. It thus broke a State monopoly. However, distribution activities remain a state monopoly and may be conceded to a single operator. The Electricity Code also allows for the inclusion of renewable energies as well as energy management, the strengthening of the fraud repression mechanism as well as the institution of an independent regulatory body, endowed with the powers necessary to accomplish its mission.

Two new public companies were created. These are:

- The Autorité Nationale de Régulation du Secteur de l'Électricité de Côte d'Ivoire (ANARE-CI) created by decree on 12 October 2016, vested with extensive powers to enable better regulation of the electricity sector;
- The Société des Énergies de Côte d'Ivoire (CI-ENERGIES), created by decree No. 2011-472 of 21 December 2011, whose purpose is to ensure: the planning of the supply and demand of electrical energy, the management of relevant public works as the conceding authority, and the monitoring of the management of electricity distribution within and outside Cote d'Ivoire.

In November 2017, the Council of Ministers adopted two decrees: one to amend the name of the Société Énergies de Côte d'Ivoire and Articles 1, 2 and 13 of Decree No. 2011-472 of 21 December

2011 on the creation of the State-owned company called Énergies de Côte d'Ivoire, and the second the transfer of assets to the State-owned company called Côte d'Ivoire Énergies. Thus, they extend CI-ENERGIES' field of activity to electricity production. In addition, they specify the legal regime of the transferred assets and the accounting treatment of the assets transferred to CI-ENERGIES, following the dissolution of SOGEPE and SOPIE in December 2011.

In 2021, Côte d'Ivoire's transmission network consisted of 4,022 km of 225 kV overhead lines, 3,453 km of 90 kV overhead lines and underground lines, 29 substations of 225 kV and 37 substations of 90 kV.

Côte d'Ivoire has been interconnected to neighbouring countries for nearly 30 years: to Ghana since 1983 through the 129 km 225 kV Bingerville-Prestea line; to Burkina Faso since 2001 through the 222 km 225 kV Ferké-Kodéni line, and to Mali since 2012 through the 237 km 225 kV Ferkessedougou-Sikasso.

In 2022, the Côte d'Ivoire network will be interconnected to Liberia through the 225 kV Côte d'Ivoire-Liberia-Sierra Leone-Guinea line, known as CLSG, of 1,303 km, , and to Guinea by the 225 kV 1,677 km long Guinea-Guinea Bissau-Gambia-Senegal line called Organisation pour la mise en valeur du fleuve Gambie (OMVG), and by the 225 kV Guinea - Mali - Senegal - Mauritania line, called Organisation pour la mise en valeur du fleuve Sénégal (OMVS).

2.2. Ghana Grid Company (GRIDCo)

The Ghana Grid Company (GRIDCo) was established in accordance with the Energy Commission Act, 1997 (Act 541) and the Volta River Development (Amendment) Act, 2005 Act 692, which provides for the establishment and exclusive operation of the National Interconnected Transmission System by an independent Utility and the separation of the transmission functions of the Volta River Authority (VRA) from its other activities within the framework of the Power Sector Reforms. The company became operational on August 1, 2008 following the transfer of the core staff and power transmission assets from VRA to GRIDCo.

The main functions of GRIDCo are to among others:

- undertake economic dispatch and transmission of electricity from wholesale suppliers (generating companies) to bulk customers, which include the Electricity Company of Ghana (ECG), Northern Electricity Distribution Company (NEDCo) and the Mines;
- provide fair and non-discriminatory transmission services to all power market participants;
- acquire and manage assets, facilities and systems required to transmit electrical energy
- provide metering and billing services to bulk customers.
- carry out transmission system planning and implement necessary investments to provide the capacity to reliably transmit electric energy; and manage the Wholesale Power Market.

As of October 2017, the grid of GRIDCo was characterized by 371km of 330 kV Transmission Lines, 75km of 225 kV Transmission Lines, 4,933km of 161 kV Transmission Lines, and 133 km of 69 kV lines. The total power transformer capacity of the entire transmission network as of October 2017 was 5, 798.5 MVA.

The network of GRIDCo is integrated into the 330 kV WAPP Coastal Transmission Backbone that also includes the systems of Nigeria, Benin, Togo and Cote d'Ivoire. It is envisaged that the national system of Burkina Faso shall be interconnected with Ghana in 2018.

3. OBJECTIVE OF THE TERMS OF REFERENCE (ToR)

The WAPP Secretariat, on behalf of CI-ENERGIES and GRIDCo, intends to procure the services of an International Consulting firm to undertake the update of the Pre-Investment Studies for the construction of the second Ghana-Cote d'Ivoire interconnection.

In 2017, the WAPP Secretariat recruited the Consortium of Antea/Enval Monbailliu & Associates/Moses Consulting/TTI, ENVAL, to conduct a study of the line route, and prepare an environmental and social impact assessment (ESIA), an ESMP and a RAP. This eventually led to the issuance of environmental permits in Ghana. On this basis, a feasibility study was prepared by the Lahmeyer International (LI) in 2018. These studies made it possible to define the route of the line, in consideration of environmental and social constraints, to establish the technical, economic, financial and environmental feasibility of the project and to prepare the tender documents. The project was identified as consisting of the:

- construction of a 246 km 330 kV double-circuit transmission line between Dunkwa 2 (Ghana) and Bingerville (Côte d'Ivoire);
- construction of a 50km 400 kV double-circuit transmission line between Bingerville and Akoupé-Zeudji, in Cote d'Ivoire;
- extension of the Bingerville Substation;
- extension of the "Akoupe-Zeudji" substation, north-east of Abidjan;
- construction of a new substation, "Dunkwa 2", in Dunkwa-on-Ofin (Central Region of Ghana). The new Dunkwa 2 substation should be integrated into Ghana's 161 kV national grid by inserting it into the existing lines passing close to the location of the substation.

The route defined for the line follows part of the existing 225 kV line between Côte d'Ivoire and Ghana. However, a completely new corridor has been chosen for most of the route and updates of environmental and social impact assessments will help decide whether to keep the identified right of ways (ROWs). While the project could not be implemented on the Ghanaian side, Côte d'Ivoire continued the implementation of the project on its territory between Akoupé-Zeudji and Bingerville. This consists primarily of the construction of 400 kV substations in Côte d'Ivoire with financing from KfW.

Given the time elapsed since the studies above have been completed, they need to be updated/completed in order to prepare the project. Hence, the objective of these terms of reference is to engage the services of a qualified and experienced international consulting firm to (i) prepare technical studies, including an update the pre-investment studies of the Côte d'Ivoire - Ghana interconnection; (ii) update the feasibility study & EPC Bidding documents (BD), route study, selection of substation sites; (iii) update the ESIA's, ESMP's RAP's; (iv) prepare other environmental and social (ES) instruments in accordance with the WB's ESF requirements. Studies shall include the cost/benefit analysis of the 330 kV or 400 kV voltage level of the line to recommend the optimal voltage level. They should also analyse potential reinforcement requirements with static and dynamic studies to ensure that the CI-ENERGIE and GRIDCo HV systems will have the wheeling capacity to handle the interconnection's transit in the short and long term.

The Consultant shall undertake the required studies and provide the required services in a professional manner and in accordance with internationally recognized practices for consulting services. The Consultant will also ensure compliance with international standards, applicable laws and regulations in the two countries concerned (Côte d'Ivoire and Ghana) and international environmental agreements ratified by the countries involved in the project, as well as with the guidelines of the WB in accordance with its environmental and social framework and its applicable environmental, health and safety guidelines.

For this purpose, the Consultant is expected to have thoroughly researched these requirements before submitting its Technical and Financial Proposals. In case of contradiction between applicable laws,

regulations and guidelines, the more stringent Guidelines of the above-mentioned institutions shall prevail.

As noted above, a single Consultant will be hired to update the technical studies (feasibility and line route and ESIA studies and RAPs). However, applicants are required to establish two teams for the two studies with a "Chinese wall" between the two firms to prevent any conflict of interest and to promote a balanced and fully independent analysis and review between the technical aspects, on the one hand, and the environmental and social aspects, on the other. These conditions include, among others, (i) full independence of both teams (technical and environmental and social); (ii) each team manages, prepares, and validates its specific findings independently; and (iii) the establishment of a neutral/balanced overall coordination." The two teams are nevertheless required to work closely together and share baseline data to ensure consistency in all deliverables.

4. SCOPE OF SERVICES

The Scope of Services shall consist of, but is not limited to:

- The Consultant shall conduct a Line Route Study, detailed network analyses (static and dynamic) and prepare Engineering Designs for Substations and Lines including drawings, update of the Feasibility Study including Technical, Financial and Economic Analyses and risk study, and line profile, preliminary cost estimates, bidding documents and implementation schedule. The Consultant shall provide the WAPP Secretariat and concerned countries with the requirements for the implementation of the project.
- In undertaking the assignment, the Consultant shall review the latest WAPP Master Plan as well, the National Master Plans of the countries concerned as all past systems studies conducted for the project with the view to firming them up. The Consultant shall investigate in detail among others, on dynamic stability (N-1 criteria, load shedding, etc.), line end voltage rise, power transfer capability, and lightning and switching over-voltages with recommendations for mitigation. The Consultant shall also conduct preliminary engineering investigations that shall allow the preparation of specifications and quantities for among others, towers, foundations, insulators, conductors, in addition to all substations' infrastructures and equipment and earthing arrangements suitable for inclusion in Bidding Documents.
- **Establishment of a stakeholder participation and consultation plan.** The Consultant, will have to develop a plan for participation and consultation of stakeholders for each of the two countries concerned by the project, which will have to be adopted by Ghana's and Cote d'Ivoire's project counterparts. This is to define a consultation process that is clear, transparent, adapted to the circumstances of each stakeholder and based on representativeness, including in evidence the methods that will be used by the consultants to contact the people and stakeholder groups affected or affected. interested in the operations and activities of the interconnection project. The ultimate goal of the consultation plan is to establish a relationship of trust with communities and other interested stakeholders, based on transparent and open dialogue.
- **Update or prepare environmental and social studies, taking into account the Bank's requirements on environmental and social (ESF), the Environmental, Health, and Safety (EHS) Guidelines of the World Bank Group, and SEA/SH (World Bank's Good Practice Note on Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) in Investment Project Financing involving Major Civil Works).**

- a. Update Environmental and Social Impact Assessments (ESIAs) prepared for the interconnection line and associated substations in [2018] (for Côte d'Ivoire) and in [May 2014] (for Ghana).
- b. Update Environmental and Social Management Plans (ESMPs) prepared for the interconnection line and associated substations in [2018] (for Côte d'Ivoire) and in [March 2017] (for Ghana).
- c. Update Resettlement Action Plans (RAP) prepared for the interconnection line and associated substations in [2018] (for Côte d'Ivoire) and in [March 2017] (for Ghana).
- d. Prepare Stakeholder Engagement Plans for Côte d'Ivoire and Ghana.
- e. Prepare Labour Management Procedures (LMP) for Côte d'Ivoire and Ghana.
- f. Prepare Cultural Heritage Management Plans (CHMP) for Côte d'Ivoire and Ghana.
- g. Prepare Resettlement Policy Framework (RPF) for the Electrification of Communities/Towns/Villages along line route and around substations for Côte d'Ivoire and Ghana.
- h. Prepare Environmental and Social Management Framework (ESMF) for the Electrification of Communities/Towns/Villages along line route and around substations for Côte d'Ivoire and Ghana. The ESMF will include a sexual exploitation, abuse and harassment (SEAH) action plan prepared in line with the World Bank's Good Practice Note on Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) in Investment Project Financing involving Major Civil Works.

4.1 Data Collection and Review

Following the kick-off meeting, the Consultant shall immediately proceed with the data collection exercise aimed at among others, collating all the necessary information for the conduct of the Studies in full compliance with countries national regulations and Funding Agencies Guidelines. The Consultant shall gather, review and compile all relevant environmental, social, technical, economic and cost data on the Côte d'Ivoire and Ghana networks necessary for the conduct the Update of the Study. As part of the data collection, the Consultant shall investigate whether some of the communities/towns/villages that are on the agreed list are subject of other ongoing electrification schemes being implemented by the involved countries.

The Consultant shall review all existing available reports that could contribute to preparing the updated Studies. The Consultant shall review all necessary data and reports on the proposed Côte d'Ivoire - Ghana Reinforcement Interconnection Project, the Ghana-Burkina-Mali Interconnection Projects, the 2nd 225 kV Côte d'Ivoire-Burkina Interconnection, the Nigeria-Benin/Togo-Ghana-Côte d'Ivoire 330 kV Median Dorsal Interconnection, the Côte d'Ivoire-Liberia Interconnection Project and any other additional information that could help in the conduct of the Studies.

The data collection shall cover the work done in the context of synchronization with the associated equipment installations (GoV, SPS, compensation equipment, PMU, etc.) which shall be considered for the static and dynamic studies.

The Consultant will approach WAPP for the organization of coordination meetings of the Consultants in charge of the WAPP ongoing study including the Median, the Ghana-Burkina-Mali interconnection and the reinforcement of the Burkina-Côte d'Ivoire interconnection, Côte d'Ivoire-Liberia interconnection and other future interconnection projects of the ECOWAS Master Plan for the Development of Regional Power Generation and Transmission Infrastructure 2019-2033.

In the case where the required data is not available, the Consultant shall use his or her best judgement based on acceptable international practice to provide substitute data using both qualitative and quantitative methods, primary and secondary sources, and stakeholder consultation. The Consultant shall however provide a justification for the choice of data in the Data Report and consider sensitivity analysis on the key data that could impact the results.

All the information collected by the Consultant shall be submitted as part of the Data Collection Report.

The Consultant shall review the national and international environmental and social and health and safety and labor policies, procedures and legislation and regulatory frameworks as they apply to the assignment. The Consultant shall consider the requirements of the various institutions in charge of environmental protection and social development in each country and also the requirements indicated in Annex 4 and comply accordingly. The Consultant shall also consider the requirements of the Financing Agencies.

The data shall include but not be limited to:

- a) Existing available reports (Feasibility, Line Route and ESIA)
- b) Existing examples of applicable resettlement action plans
- c) Loads, load factors and load forecasts
- d) Population and electricity access rates
- e) Generation and transmission facilities in the interconnected systems
- f) Generation and transmission system expansion plans (Benin, Burkina, Côte d'Ivoire, Ghana, Guinea, Liberia, Mali, Senegal, Sierra Leone, Togo, OMVG, OMVS and WAPP)
- g) Projected levels of power exchanges between the two (2#) utilities and the WAPP interconnected system in the short, medium and long terms
- h) Current System Operating conditions
- i) Single line diagrams, site plans, layout drawings, protection schemes, types of circuit breakers and their transfer ratings for the required high voltage substations in all the countries involved
- j) Conductor sizes and tower designs for high voltage transmission lines in the electricity networks of the three countries
- k) Countries rural electrification master plans.

For the design of transmission towers, the Consultant shall collect test reports on various types of transmission line towers and conductors. In order to minimize bird mortality, towers located at river crossings, near wetlands and sites important for bird conservation should be towers with proven lower bird mortality rates, such as normal suspension towers instead of guyed suspension towers, which have higher bird mortality rates. At these sites, the distance between conductors should also be at least 3 meters to minimize bird electrocution. In these areas the conductors and towers should also be equipped with bird deflectors.

The Consultant shall maintain contact with CI-ENERGIES, GRIDCo and the WAPP Secretariat to ensure that the most recent data are collected. The Consultant in conjunction with WAPP Secretariat, CI-ENERGIES and GRIDCo shall analyze the use of these towers for the construction of the Côte d'Ivoire – Ghana Reinforcement Interconnection Project, make a cost-benefit analyses, and elaborate on the risks involved.

4.2 Choice of line voltage

The ECOWAS Master Plan for the Development of Regional Power Generation and Transmission Infrastructure 2019-2033 has foreseen that this interconnection be realised at a voltage level of 330 kV. However, recent discussions between the stakeholders have concluded that further verification is required to confirm the choice of 330 kV voltage level or to adopt 400 kV voltage level as the current development of the network in Côte d'Ivoire has adopted 400 kV voltage level. As such, the Consultant shall carry out a comparative cost-benefit analysis of the 330 kV/400 kV voltage level of the line in order to determine the best voltage level for the line to ensure optimum power transfer.

For the purpose of evaluating the voltage of the line, the Consultant shall update the network information of the concerned utilities in the WAPP network model based on the information and data

collected during the data collection. The updated network model shall then be validated by the two (2#) concerned utilities before the Consultant proceeds with the analyses.

In particular, the assessment shall compare:

- I. capacity in MVA ;
- II. Electrical losses;
- III. Impact on voltage quality;
- IV. security of supply in case of N-1 emergency;
- V. Operating constraints related to the voltage level used in each country and in the WAPP network;
- VI. cost;
- VII. etc.

Also, to enable the stakeholders to make the decision on the voltage level, the Consultant will produce a report on the choice of the voltage level of the line including a cost-benefit analysis. This report will be presented to the stakeholders in a meeting, after which the Consultant will base the further study on the selected voltage level.

4.3 Update of the Line Route Study and Confirmation of Substation Sites

4.3.1 Update of the Line Route Study

The scope of services by the Consultant shall include, but not be limited to the following:

- Reconnaissance and updating of line route
- Detailed survey and profiling of the adopted line route
- Preparation of relevant maps and drawings including cadastral mapping of individual farm lands, areas of dwelling, communal land use and affected properties, as well as protected area, natural habitat areas, critical habitat areas and wildlife/bird migration corridors;

4.3.1.1 Study of Line Corridor / Preliminary Survey

The Consultant shall review previous Line Route Study and on the basis of recent high-definition satellite images (define resolution and ages) and field investigations, propose a provisional line route that takes into account any necessary changes from the previous Line Route. The outcome of this study will be submitted as a separate Report with the Data Report. During the Line Route Study review, the Consultant shall consider, among other things, the following features within the Line Corridor:

- Minimization of the impact on the biophysical environment spatial-area planning, trees, natural and critical habitats, protected and sacred forests (cultural heritage sites), RAMSAR sites, etc. – consideration of Technical, economic, environmental, cultural and social issues
- Avoidance or minimization of impacts on human settlements and livelihoods (houses, villages, towns, settlements, public/community infrastructure, productive land)
- Avoidance or minimization of exclusion of and impacts on vulnerable groups and individuals (such as women, elderly, pastoralists, persons with disabilities, informal dwellers and land users, and others) to avoid and mitigate against social conflict and tensions
- Avoidance of transhumant livestock grazing areas and zones
- Prevention of SEAH and violence against children during preparation and implementation of works
- Promote linear infrastructures regrouping to avoid land fragmentation
- Avoidance of inhabited areas but staying close enough to facilitate their electrification
- Foster proximity with roads to facilitate access for construction and operation
- Optimize the routing and the technology (underground cable, pole towers, etc.) in urban areas to minimize the impacts

- Avoidance of low bearing capacities soil and waterbodies: wetlands, inundated areas, rivers and lakes
- Avoidance of take-off/approach and transition surfaces of airports and airfields as well as telecommunications towers
- Avoidance of areas with large transversal slope risk of erosion, slope instability or other geotechnically hazardous areas
- Avoidance of inaccessible zones, mountainous areas, protected areas and ecologically sensitive zones
- Minimization of the cost of construction and maintenance of the line (optimization of the length, number of deviations and accessibility of the line, etc.)
- Compliance with the local, regional and national development master plans of the built-up areas - Areas marked for future development has to be obtained from the relevant Land use and Spatial Planning Authority Office responsible for the area.
- Guidance from CI-ENERGIES and GRIDCo as appropriate regarding routing and planning standards in Côte d'Ivoire and Ghana respectively.

Using a multiple-criteria decision analysis (MCDA) approach, the Consultant shall propose and examine alternatives for the updated Line Route and make a justified recommendation of an optimal line route that minimizes Environmental and Social Impacts, avoids or minimizes resettlement impacts, and conforms to National, International and Funding Agencies' Guidelines. The justification for the recommended line route should contain among others, an evaluation of the advantages and disadvantages of each alternative of line route examined.

In this regard, the Consultant shall work very closely with designated experts from each national utility, as well as consult with local stakeholders such as individuals with interest in lands, commune councils and NGOs that represent a cross-section of the population (including women's groups, pastoralist groups, farmers associations, representing different social groups, etc.).

A detailed description of the selected Line Corridor, **including photographs, satellite imagery, maps and GPS coordinates**, shall be provided by the Consultant depicting the location of all natural features such as relief features and artificial features as well as all other useful details. The description shall be provided in GIS format as well and shall include but not be limited to the location of the various features listed below which should be featured in the drawings/maps:

- a) Manufactured structures or obstacles (all types of residential and non-residential structures such as roads, streets, houses, community halls, markets, schools, dams, hospitals, offices, commercial buildings, government buildings, including information on construction materials for all these built environment elements.
- b) Infrastructure (existing power transmission and distribution lines, existing telephone lines, railroad, footpath and highway crossings, microwave towers, stream crossings etc.)
- c) Biophysical features, including natural and critical habitats (rivers, streams, mountains, valleys, swamps, farmlands, forest reserves etc.).
- d) Cultural features and worship sites such as sacred groves and burial sites.
- e) Storage sites for electrical materials and equipment and company base camps.

The description on the Line Corridor shall provide an exhaustive list of all the local administration areas, provinces, districts and villages traversed by the project. For each of these, the following shall be identified with the support of GPS coordinates:

- a) Boundaries of allocated zones;
- b) Demarcation of farmlands and potentially affected properties;
- c) Transhumant livestock grazing areas and zones
- d) Hunting Reserves, protected areas, national parks and Forest Reserves

- e) Cultural, Religious and Heritage Sites including but not limited to cemeteries, sacred forests, and culturally significant natural features
- f) Markets and areas with high population densities in potentially allocated or non-allocated areas.

The description of the corridor shall also include commentary on the type of vegetation, presence of endemic and threatened flora species mentioned in the IUCN Red List, topography within each community and their land use pattern for the entire line route. Presence of wildlife species, endemic and threatened species mentioned in the IUCN Red List for the entire line route.

The Consultant shall note that all the above shall be contained in the draft report on the provisional line route.

The Consultant shall evaluate “Right-of-Way” (ROW) requirements of each country. It should be noted that, subject to these regulations, the width of the ROW and minimum distance of the ROW from the center of any road are as follows, for 330/400 kV transmission lines:

<i>Country</i>	<i>Width of ROW</i>	<i>Min. distance of transmission line From road center</i>
• Côte d’Ivoire	40 meters	50 meters
• Ghana	40 meters	50 meters

The Consultant shall note that the Line route shall be considered as final only after the detailed ESIA has been conducted, adopted by the countries and Funding Agencies and approved by the national Agencies in charge of Environmental Protection through the issuance of Permits.

4.3.1.2 Corridor Mapping

During the study for the selection of the Line Corridor and as part of the Line Route Study Report, the Corridor shall be mapped with GPS and in XYZ coordinate system and the XYZ data of the Corridor submitted in an appropriate spreadsheet format and GIS format acceptable to the WAPP Secretariat, CI-ENERGIES and GRIDCo. Following the selection of a provisional line route, a list of station numbers, XYZ and GPS coordinates of all traverse points, line angles etc. along the proposed line route shall be submitted in a format acceptable to the WAPP Secretariat and the three concerned utilities. The Consultant shall bear in mind that the information to be submitted shall be used for further detailed survey, subsequent tower spotting on the line and the estimation of medium and low voltage networks. At the end of the study a report on the corridor and a line route map shall be submitted for provisional adoption. The Consultant shall note that the line route could be further modified depending on the outcome of the ESIA study. The Consultant shall also note that the Line route shall be considered as final only after the detailed ESIA has been conducted, adopted by the countries and Funding Agencies and approved by the national Agencies in charge of Environmental Protection through the issuance of Permits.

The Consultant shall note that in Ghana, the Lands (Statutory Wayleaves) Act, 1963 establishes a provision for a Wayleave Selection Committee to determine the optimal routing to ensure that the selected wayleaves are consistent with Land Use and Spatial Planning Authority regulations and planning standards, and Local Government Bylaws. The Consultant shall work very closely with, and get guidance from, GRIDCo to ensure full conformity with the requirements. The Consultant shall also note that the scope of work in Ghana includes the application and securing of the wayleave authorization. The Consultant shall consult with GRIDCo before initiating the wayleave application. The same level of attention to existing planning efforts in Côte d’Ivoire will be taken into consideration.

4.3.1.3 Detailed Survey and Profiling of Line Route

The detailed survey shall be conducted upon finalization of the line route and the approval of the ESIA by the national agencies in charge of environmental protection and Funding Agencies. The survey shall be conducted using appropriate survey methods and in accordance with standards in the various countries.

The Works shall involve, but not be limited, to the following:

- The conduct of lines surveys and site picketing with 0.15 m diameter cylindrical steel concrete pillars of a height of 1.5 m sited on concrete blocks of 40 × 40 × 25 cm at the deviation points and landmarks. These landmarks shall be positioned in a ratio of two (2) per kilometer in rural areas. The middle of the ROW will be marked as well as the left and right side of the ROW so that farmers know the exact position of the ROW. On the other hand, in urban agglomerations, they shall be positioned in a closer way, that is a distance of 50 meters between two consecutive pillars to allow for easier spotting of the line route. After communicating the width of the right-of-way with the local communities, the consultant will be required to mark the two ends of the right-of-way every 200 meters in areas of high human density. The tips of all the pillars shall be painted with red oil paint to allow easy spotting. The pillars shall be subject to crushing tests and shall be considered as acceptable only if they withstand 20 Mpa after 28 days. The aggregates used for the pillars shall contain 350 kg of Cement per m³ with good quality sand and quartz. These tests shall be performed in the presence of representatives from the concerned utilities.
- Leveling of the centerline at 30-m interval and at closer intervals on slopes to define mountain slopes and valleys
- Detailing of roads/lanes, buildings, water bodies and other visible landmarks.
- Drafting and preparation of layout maps as well as plans and profiles drawings.

In carrying out the detail survey, the Consultant shall take the following into account:

- The number of angle caps shall be minimized. Angles should be placed preferably on level ground at relatively high elevation: they should not be at mountains tops, steep places or areas that are at lower elevations in comparison with the profile on the two sides. The angle points must be selected appropriately and pegged. Boundary pillars shall be erected to enable effective checking and vetting of the surveys and drawings. They shall be in accordance with specifications provided by the utilities and shall clearly bear the mention “WAPP”.
- A uniform interval not exceeding 500 meters shall be maintained between adjoining pillars except in the case of a significant terrain slope, which may hinder visibility between pillars.
- In many mountainous places, the slope of terrain in direction perpendicular to line axis is important and may cause intolerable reductions of the clearance from conductors to ground, if not taken into account in the survey. It is therefore necessary to survey and profile a parallel route from the line center-line, under the external conductor, on the uphill side, whenever the terrain slope perpendicular to line axis exceeds 5%. In case the transversal slope exceeds 50% in particular points, some profile stretches in direction perpendicular to line axis should also be surveyed, with a length of about 40 m on uphill side.
- The description of the ground shall be done whether pasture, woodlands, arable, etc. with special reference to such items as marshy, soft ground or rock and other relevant information relating to soil instability.
- An altitude data shall be the basis for all levels and such levels shall be shown at 2-m vertical intervals and at the beginning and end of each section; levels shall be shown of each section and at every obstruction or geographical feature.

In carrying the detailed survey, the Consultant shall systematically mark all affected properties (trees including large trees outside of the ROW which might damage the line when they fall, buildings, compensable assets, including affected forests and natural habitat areas) within the adopted line route

corridor. This exercise shall be conducted in close collaboration with the national utilities and their requirements.

A detailed survey report shall be presented to the WAPP Secretariat, CI-ENERGIES and GRIDCo. The report should include, among others:

- Information to facilitate recovery or re-positioning of angle points in the event of the pillar being destroyed, either by witness pillars or something else.
- Detailed list of reference pillars established and their locations during the traverse and how they were established.
- The relative and cumulated distance from one point to the other
- Types of instruments used and their accuracies, standard deviations and variance,
- Accuracy of levels
- Field books, computations sheets and all related documentations in hard and soft copies.
- Information identifying the nearest access roads to each section of the line.
- Photographs showing the nature of the intervening terrain between pillars and confirming the absence of construction (buildings, etc.) along the route.
- A complete listing of all properties/assets (including trees, buildings) within the ROW that shall be compensated. The listing shall conform to the systematic marking made by the Consultant on the assets on site.

The Consultant shall note that the validation of the Detail Survey Report in each country shall include a site visit with the concerned utility to verify among others, the pillaring of the line route. The outcomes of the site visit shall be reflected in signed Minutes of Meeting.

4.3.1.4 Preparation of Maps and Drawings

The preparation of maps and drawings shall be in compliance with the requirements of CI-ENERGIES and GRIDCo and shall be GIS-compatible.

4.3.1.4.1 Updated Line Route and Corridor

The Consultant shall provide plan-profile of the final line route after approval of this route using the following format:

- Maximum of 4 km or line per drawing
- Plan View: 1:5000, 200 m wide
- Profile: horizontal: 1:5000, vertical: 1:500

The line route shall be drafted as follows:

- A general map showing the line route/right-of-way on topographical sheets on a scale of 1:50,000 and 1:2,500 at heavily inhabited areas
- A Key Map showing the line route, in 4-km sections, on topographical sheets on a 1:50,000 scale.
- A satellite imagery map depicting the line route/right-of-way
- A google Earth file (kmz) and AutoCAD drawings (dwg)
- For Ghana, a general map showing the Way Leave Selection Committee Members.

The Consultant shall confirm with GRIDCo, the Wayleave Committee Members. The Consultant shall note that the general map shall be validated and signed by a licensed Surveyor recognized in Ghana. Twenty (20#) copies of the general map with the wayleave committee members printed on it and duly signed shall be provided by the Consultant.

As part of all versions and quantities of the Line Route Study Report (Draft, Provisional, Final), a map of the entire line route fitted in one A0 size showing among others, relief features, the key

structures indicated above with their GPS coordinates and those of the route and substations, shall be submitted.

In addition, all maps shall be GIS-compatible and submitted in digital form with all required information necessary to incorporate into the WAPP Geographical Information System. These could include but not limited to Mxd files, Shape Files, Rasterdata or similar.

4.3.1.4.2. *Plan and Profile Drawings*

Drafting of the survey works should be in the latest stable version of Auto CAD and PLS-CADD. The plan shall be in the following scale:

- Plan = 1:5000
- Profile: Horizontal = 1:5000
Vertical = 1:500

Each sheet should contain not more than 4 km of line route and shall be drawn from left to right on the sheet in the scales indicated. Each sheet should show the plot (with dotted line) of the supplementary profile under external conductor where appreciable slopes are present.

Centesimal degrees should be preferred, to facilitate calculations. Degrees (°), minutes (′) and seconds (″) should be indicated. All angles between two adjacent straight-line sections should be indicated.

In general, all features such as hedges, fences, ditches, roads, railways, rivers, streams, canals, buildings, huts and all power and telecommunication lines shall be shown. Details of all crossings, e.g. power lines, major pipelines, phone lines, canals, roads, etc. any other pertinent comments, observations, landmarks, etc., that may be deemed necessary for the future intended use of the drawing are required.

The following details on power line crossings are specifically required:

- Rated voltage, configuration of conductors (triangular, flat, etc.);
- Level above ground at point of crossing;
- Height of top conductor/shield wire(s) at crossing point;
- Distances of crossing point to supporting towers/poles;
- Angle of crossing;
- Ambient temperature and the time intervals measurements were taken.

In particular, the plan and profile shall detail out/show:

4.3.1.4.2.1 *Plan*

- High and low voltage power lines crossings
- Telecommunication lines or mast
- All crossings including but not limited to road crossings, footpaths, tracks, canal roads, railways, etc.
- Relief features including but not limited to swamps, rivers, streams, hedges fences
- Angles between two adjacent straight-line sections
- Details of obstacles including but not limited to houses, roads, pipelines, bridges, surface nature and the like to a width of 30 m on both sides of the centreline.

4.3.1.4.2.2 *Profile*

- Details of all crossings, e.g. power lines, major pipelines, phone lines, canals, roads, etc.

- Where ground slope across the line route exceeds 5%, the level of the ground left and right of the center-line shall be recorded at offset distance of 6.0 m. The offset levels shall be indicated on the profile as broken and/or chained dotted lines.
- The profile shall indicate all changes in level and deviation of 300 mm or more along the center-line of the route.
- All features such as hedges, fences, ditches, roads, railways, rivers, streams, canals, buildings, huts and all power and telecommunication lines shall be shown.
- Ordnance datum shall be the basis for all levels and the level shall be shown at 2-m vertical intervals and at the beginning and end of each section; levels shall be shown of each section and at every obstruction or geographical feature.
- The visual nature of the ground shall be noted whether pasture, woodlands, arable, etc, with special reference to such items as marshy, soft ground or rock and other relevant information such as soil instability.
- In general, the transversal slopes are not provided in the profiles. However, a supplementary profile under the external conductor should be surveyed and plotted (with dotted line), where appreciable slopes are present.
- In many mountainous places, the slope of terrain in direction perpendicular to line axis is important and may cause intolerable reductions of the clearance from conductors to ground, if not taken into account in the survey. It is therefore necessary to survey an additional profile on a parallel route at a distance of 6m from the line center-line on the uphill side, whenever the terrain slope perpendicular to line axis exceeds 5%. In case the transversal slope exceeds 50% in particular points, some profile stretches in direction perpendicular to line axis should also be surveyed, with a length of about 40 m on uphill side.

4.3.1.4.2.3 Cadastral mapping of individual farmlands (encumbered/unencumbered) and affected properties

The Consultant shall undertake a cadastral mapping of individual farmlands and affected properties with the aid of the property owners who will advise the consultant on the extent of his/her properties. The Consultant shall generate a cadastral map of the entire line route indicating the properties affected with their ownership and also their land use pattern of the land to inform the team working on resettlement planning.

4.3.2 Substation Site Selection

The scope of services by the Consultant shall include, but not be limited to the following:

- Identification of substation sites (creation and/or extension)
- Detailed survey of substation sites and road access
- Preparation of topographical drawings (lay out)
- Preparation of cadastral map/plan.

4.3.2.1. Identification and Study of Substation Sites

The assignment to be carried out by the Consultant is to identify and study the substation sites in accordance with the requirements and regulations of the concerned utilities and various countries. The outcome of these activities shall be contained in the Line Route Study Report.

The Consultant shall work very closely with the WAPP Secretariat, CI-ENERGIES and GRIDCo to determine appropriate locations for the terminal substations. Ideally, new substation locations should not be less than 500 m by 500 m but this shall be subject to confirmation by each concerned utility. All work related to the selection of substations shall be deemed to have been included in the Technical and Financial Proposals of the Consultant.

In selecting the substation sites, the following, amongst others, should be considered:

- Minimization of the impact on the physical environment (special-area planning, trees, natural and critical habitats, protected and sacred forests, RAMSAR and other internationally significant sites, etc. – consideration of Technical, economic, environmental, cultural and social issues.)
- Avoidance or minimization of impacts of physical and/or economic displacements including others social risks from planned activities such as social exclusion mainly for vulnerable groups, complaints and conflicts both during preparation and implementation of works, prevent GBV mainly SEAH and violence against children, etc.
- Avoidance of areas with large transversal slope;
- Avoidance of areas with a high erosion risk;
- Avoidance of inaccessible zones, mountainous areas, protected areas and ecologically sensitive zones;
- Minimization of the cost of construction and maintenance of the substation (accessibility etc.)
- Compliance with the local, regional and national development master plans of the built-up areas - Areas marked for future development and white lands involved has to be obtained from the relevant Land use and Spatial Planning Authority Office responsible for the area;
- Guidance from CI-ENERGIES and GRIDCo as appropriate regarding routing and planning standards in Côte d’Ivoire and Ghana respectively.

Using a multiple-criteria decision analysis (MCDA) approach, the Consultant shall propose and examine alternatives for the Substations and make a justified recommendation on optimal sites that minimizes Environmental and Social Impacts and conform to National, International and Funding Agencies’ Guidelines. The justification for the recommended sites should contain among others, an evaluation of the advantages and disadvantages of each alternative of site examined. The proposed optimal site must avoid all environmental and social sensitive areas including protected forests, cultural heritage sites, and RAMSAR sites. In this regard, the Consultant shall produce environmental sensitivity and development suitability maps and work very closely with designated experts from each national utility. The Consultant shall also carry out public consultations in compliance with the SEP determining the line route and sub-stations sites and shall ensure that these consultations are documented in signed Minutes of Meeting with a verified list of participants.

A detailed description of the selected site, including photographs, environmental and social sensitivities and development suitability maps, and GPS coordinates, shall be provided by the Consultant depicting the location of all natural features such as relief features and artificial features as well as all other useful details. The description shall include but not be limited to the location of the various obstacles listed below which should be featured in the drawings/maps:

- a) Manufactured structures or features (all types of residential and non-residential structures such as roads, streets, schools, dams, hospitals, offices, commercial buildings, government buildings,
- b) Infrastructure (existing power transmission and distribution lines, existing telephone lines, railroad, footpath and highway crossings, microwave towers, stream crossings etc.)
- c) Physical features (rivers, streams, mountains, valleys, swamps, farmlands, forest reserves, etc.)

The description on the substation sites shall in particular provide an exhaustive list of all the local administration areas, provinces, districts and villages where the sites are located. For each of these, the following shall be identified with the support of GIS mapping based on GPS coordinates:

- Boundaries of allocated zones;
- Demarcation of farmlands and potentially affected properties
- Hunting Reserves, Forest Reserves, and/or protected areas

- Cultural, Religious and Heritage Sites including, but not limited to, cemeteries, sacred forests, and culturally significant natural features
- Markets and areas with high population densities in non-allocated areas

4.3.2.2. *Detailed Survey of substation Sites*

The detailed survey shall be conducted upon finalization selection of the line route and the approval of the ESIA by the national agencies in charge of environmental protection and Funding Agencies. The Survey shall be conducted using appropriate survey methods and in accordance with standards in the various countries. The outcome of these activities shall be contained in the Detail Survey Report.

The Works shall involve, but not be limited, to the following:

- Identification including clearing and pillaring with the use of concrete pillars.
- Detailing of roads/lanes, buildings, water bodies and other visible landmarks.
- Drafting and preparation of layout maps as well as plans and profiles drawings.

In carrying out the detail survey, the Consultant shall note the following:

- Reference pillars shall be erected to enable effective checking and vetting of the surveys and drawings. Reference pillars shall be in accordance with specifications provided by the utilities.
- Visibility of the pillars should be maintained at all times.
- The visual nature of the ground shall be noted whether pasture, woodlands, arable, etc., with special reference to such items as marshy, soft ground or rock and other relevant information such as soil instability.
- Ordnance datum shall be the basis for all levels and the level shall be shown at 2-m vertical intervals and at the beginning and end of each section; levels shall be shown of each section and at every obstruction or geographical feature.

A detailed survey report shall be presented to the WAPP Secretariat, CI-ENERGIES and GRIDCo. The report should include, among others:

- Information to facilitate recovery or re-establishing of boundary points in the event of the pillar being destroyed, either by witness pillars or otherwise.
- Detailed list of reference pillars established and how they were established.
- Types of instruments used and their accuracies, standard deviations and variances
- Accuracy of levels
- Field books, computations sheets and all related documentations in hard and soft copies.
- Information identifying the nearest access roads to each substation site.
- Photographs showing the nature of the terrain and confirming the absence of construction (buildings, etc.) on the sites.

4.3.2.3. *Preparation of Topographical Drawings*

The preparation of drawings shall be in compliance with the requirements of CI-ENERGIES and GRIDCo.

The substation site maps shall be drafted as follows:

- A general map showing the location of the substation sites on topographical sheets on a scale of 1:10,000.

The maps shall detail out:

- Relief features including but not limited to hedges, fences, swamps and streams

- Details of obstacles including but not limited to houses, roads, pipelines, bridges, surface nature and the like to a width of 30 m around the substation sites.

4.3.2.4. *Preparation and delivery of a Cadastral Map/Plan*

The Consultant shall, in close collaboration with each of the concerned utilities, prepare a cadastral plan/map of the proposed substation Site. The Consultant shall bear in mind that the cadastral map/plan shall be used by the concerned utilities for land title registration. The Consultant shall note that the cadastral map/plan should be duly signed by a licensed surveyor and approved by the Director of Surveys or his/her Representative. The boundaries of the substation site should be clearly defined by boundary pillars which are assigned with regional numbers from the lands commission.

The Consultant shall deliver seven (7#) Cadastral Map/Plan duly signed and approved.

4.4 *LIDAR Survey*

Based on the approved provisional line route and selected substation sites, the Consultant shall undertake LIDAR Survey on a 200 m Corridor (100 m each side of the provisional route). The LIDAR survey shall also cover the selected substation sites and its surrounding up to a 200 m. The LIDAR survey shall then be carried out according to the following specifications:

The laser data and the 3D DTM (Digital Terrain Model) shall be:

- Points per Square Meter: 4 to 6 (vegetation dependent)
- Classification: Ground, Non-Ground
- Swath Width: 100 m either side of provisional route center line
- Accuracies with Ground Control:
 - o X and Y between 15cm -20cm (relative and absolute).
 - o Z better than 8cms (relative and absolute).
- Accuracies without Ground Control:
 - o X and Y between 15cm and 25cm relative, better than 0.5m absolute.
 - o Z better than 8cm relative, better than 0.5m absolute

The Lidar System shall allow a good vegetation penetration in order to obtain the above-mentioned accuracies.

Ground control shall be used with ground control points of at least every 5 km well identifiable on imagery. The Imagery deliverables shall be:

- Pixel size: 10 to 15 cm depending on topography
- Imagery: Geo-referenced colored ortho-photos

In addition, the Lidar File shall be GIS-compatible and submitted in digital form with all required information necessary to incorporate later on maps/drawings and for the detailed studies on the substation and transmission line design.

The LiDAR survey will also be used to detect the presence of archaeological / cultural sites below dense forest overgrowth.

4.5 Updating and preparing environmental and social documents in accordance with the Bank's environmental and social framework

As listed above:

- *Update Environmental and Social Impact Assessments (ESIAs) prepared for the interconnection line in [2018] (for Côte d'Ivoire) and in [2014] (for Ghana);*
- *Update Environmental and Social Management Frameworks (ESMFs) prepared for the interconnection line in [2018] (for Côte d'Ivoire) and in [2017] (for Ghana);*
- *Update Environmental and Social Management Plans (ESMPs) prepared for the interconnection line in [2018] (for Côte d'Ivoire) and in [2017] (for Ghana);*
- *Update Resettlement Action Plans (RAP) prepared for the interconnection line in [2018] (for Côte d'Ivoire) and in [2017] (for Ghana);*
- *Prepare stakeholder participation and consultation plan Stakeholder Engagement Plan for Côte d'Ivoire and Ghana;*
- *Prepare Labour Management Procedures (LMP) for Côte d'Ivoire and Ghana;*
- *Prepare Cultural Heritage Management Plans (CHMP) for Côte d'Ivoire and Ghana;*
- *Prepare Biodiversity Management Plans (BMP) for Côte d'Ivoire and Ghana;*
- *Prepare Environmental and Social Commitment Plans (ESCP) for Côte d'Ivoire and Ghana;*
- *Prepare Environmental and Social Management Framework (ESMF) for the Electrification of Communities/Towns/Villages Along Line Route and Around Substations for Côte d'Ivoire and Ghana; and*
- *Prepare Resettlement Policy Framework (RPF) for the Electrification of Communities/Towns/Villages Along Line Route and Around Substations for Côte d'Ivoire and Ghana.*

4.5.1 ESIA Scoping

As part of the ESIA, the Consultant shall establish the scope of the assessment and prepare a Scoping Report (1 for each country), including a Project Summary and detailing the Terms of Reference for review, in the form and format required by the Environmental Protection Authorities in the countries concerned and in accordance with the environmental protection management laws and regulations in those countries. The Consultant shall conduct comprehensive public consultations, in accordance with the requirements of the World Bank's ESS10 on Stakeholder Engagement, or as detailed in the SEP, prior to preparing the Scoping Report and ensure that these consultations are adequately documented in the form of signed meeting minutes containing, inter alia, signed participant lists and photographs. The Consultant shall detail in the Scoping Report the approval processes leading to the issuance of the Environmental Permit and reporting requirements in each country. The Consultant shall, if required, make a presentation on the scoping study to each of the Environmental Protection Authorities in Ghana and Côte d'Ivoire prior to submission of the Scoping Report. Approval of the Scoping Report by the Environmental Protection Authorities in each country may be required prior to submission of the Environmental Impact Statement for Ghana. The consultant, in collaboration with each national power utility, is expected to follow up with the authorities to obtain approval of the Scoping Report.

4.5.2 Update Environmental and Social Impact Assessments (ESIAs) prepared for the interconnection line and associated substations for Côte d'Ivoire and for Ghana.

The Consultant will conduct a separate Environmental and Social Impact Assessment (ESIA) of the Côte d'Ivoire-Ghana Second Line and Interconnection Stations Project in each of the two countries to assess the environmental and social risks and impacts of the project throughout its life cycle. The assessment will be commensurate with the potential risks and impacts of the project and will assess,

in an integrated manner, all relevant direct, indirect, and cumulative environmental and social risks and impacts throughout the life cycle of the project, based on the relevant environmental and social standards (ESS), in particular ESS1, and including those specifically identified in the World Bank's Environmental and Social Framework (ESF) 2-10.

The ESIA's will be based on current information, including an accurate description and delineation of the project and any associated aspects, and environmental and social baseline data at an appropriate level of detail sufficient to inform characterization and identification of risks and impacts and mitigation measures. The ESIA's will evaluate the project's potential environmental and social risks and impacts; examine project alternatives; identify ways of improving project selection especially the selection of the ROW, siting, planning, design and implementation in order to apply the mitigation hierarchy for adverse environmental and social impacts and seek opportunities to enhance the positive impacts of the project. The ESIA's shall include stakeholder consultations as an integral part of the assessment, in accordance with ESS 10.

The ESIA's shall be an adequate, accurate, and objective evaluation and presentation of the known risks and impacts, prepared by qualified and experienced persons. The Consultant shall be required to prepare a non-technical summary report of the impact assessments in the local languages, as well as in English for Ghana and in French for Côte d'Ivoire in the areas involved as mandated by applicable guidelines, including the World Bank's ESS10.

Description of the methodological approach

The Consultant should specify the general methodological approach and the specific methodology used for each level of the study. It shall describe and justify the choice of methodological approaches in the description of the initial state, the identification and analysis of impacts, hazards and environmental and social risks. The reasons and limitations of the methodological choices made will be explained. For the collection of data on the initial state, the source and date of the data should be specified (bibliography, databases, field surveys, etc.) for each of the themes studied. The initial state to be established should also include the initial state of plant and animal biodiversity on the basis of biodiversity surveys of the different groups of plants and animals. If standardised methods are used, they should be described in detail, including the standards applied, sampling locations, etc. Socio-economic data collected should be disaggregated by gender as far as possible. For the identification and qualification of impacts, the choice of method (expert opinion, qualitative assessment, prediction by analogy, modelling, etc.) should be justified and explained, as well as the limitations and difficulties encountered.

Documentary analysis and data collection

The Consultant should carry out the Documentary review and organise the data collection in the field to achieve the objectives. The Consultant shall conduct the necessary surveys to achieve the results. The Consultant should visit all project sites to collect data and information from the field. He/she shall talk to Government, Agencies, NGOs and other organisations, and particularly communities in the areas within the footprint of project activities, to identify project stakeholders, obtain secondary data and discuss the modalities of further consultation with the stakeholders.

The Consultant shall collect biodiversity and other environmental data, as well as social data, and confirm the plan for ongoing communication and engagement with the community about the project. The Consultant shall collect the necessary baseline data to adequately describe the existing and relevant Environmental and Social context for each of the proposed transmission routes / corridors design options - topography, climate change and natural hazard profiles, erosion potential. It should identify the interrelationships and dependencies between people and the environment, vulnerable species or habitats, any potential cultural heritage, and other important features of each area. The potential impacts of climate change should also be assessed (excessive rainfall patterns, flooding,

extreme temperatures, etc.). The assessment should also include the socio-economic profile and capacity of the project communities to withstand the influx of workers and to provide unskilled labour and other services.

Data shall include pre-construction activities as well as establishing/defining the Right of Way (RoW) on the ground, land clearing, excavation, dredging, infrastructures construction or rehabilitation such as buildings, roads and bridges to be crossed by heavy equipment, , sources of construction materials, dumping areas, work camps, transport and transshipment operations for all imported equipment and materials and all waste (waste management and waste disposal areas), as well as decommissioning. Environmental and Social Management Plans for pre-construction, construction, decommissioning and operations.

Institutional, Legal and regulatory framework

The Consultant shall recall the institutional, legislative and regulatory context governing the ESIA based on the legal texts in force in Côte d'Ivoire and Ghana and all the institutions (public and/or private) directly or indirectly involved in the project that will be identified with their respective roles in the ESIA process.

It shall also describe their specific activities in a succinct manner, highlighting their different roles in the implementation of the project and the ESMP. Consultations with these structures will enrich this section.

The Consultant shall describe and highlight any specific and applicable local regulations and requirements relating to biodiversity impacts, water pollution, solid and liquid waste management, air pollution, labour, cultural heritage, gender, child protection and occupational/community health and safety. In addition, the consultant will include a description of the requirements, which are applicable for the project/investment activities, of other institutions such as the World Health Organisation.

At the legislative and regulatory level, the Consultant will describe the specific requirements for the implementation of the project and will also provide a description of the regulations and standards to be taken into account in order to guarantee the quality of the environment (environmental protection) during the construction works and the operation phase.

In addition, the Consultant will have to consider the requirements of the Financing Agencies, in particular, the Environmental and Social Framework (ESF) of the World Bank. Of the 10 Environmental and Social Standards (ESS) of the ESF, the Bank has determined the following ESSs as applicable to the project; these are: ESS 1 "Assessment and management of environmental and social risks and impacts"; ESS 2 "Employment and working conditions"; ESS 3 "Rational use of resources and prevention and management of pollution"; ESS 4 "Health and safety of populations"; ESS 5 "Land acquisition, restrictions on land use and involuntary resettlement"; ESS 6 "Biodiversity Conservation and Sustainable Management of Biological Natural Resources"; ESS 8 "Cultural Heritage"; and ESS 10 "Stakeholder Engagement and Information" that apply, as well as the General Guidelines for Environment, Health and Safety and the Environment, Health and Safety Guidelines for Electric Power Transmission and Distribution and others. The Consultant will also carry out a gap analysis, and propose gap filling measures, between Côte d'Ivoire, Ghana, World Bank ESF requirements and Environment, Health and Safety Guidelines.

Description of the initial environmental status of the project area:

The Consultant shall provide a detailed description of the project's direct and indirect area of influence and environment. This description should include, but not be limited to, the following elements:

- *The physical environment*: relief, distinguishing between steep slopes, geology, soils, climate (rainfall, evapotranspiration, temperature, relative humidity, wind, sunshine, etc.), surface and groundwater, including their quality. The Consultant shall carry out a hydrogeological study of the sites, specifying the depth levels of the groundwater with illustrative cartographic productions;
- *The biological environment, i.e. fauna (and avifauna) and flora*, including ecologically sensitive areas (e.g. wetlands, forest reserves and national parks – such as Ehotile in Cote d’Ivoire, Ankasa in Ghana, etc) , hunting areas, animal and plant biodiversity, protected animal and forest species, if necessary microfauna and microflora). This description should identify endemic, threatened and rare species listed in the IUCN red list as well as the different natural habitats and critical natural habitats in the project corridor and present its status (deforestation), risks of sedimentation and erosion;
- *The human, cultural and economic environment*: the Consultant shall highlight the characteristic elements of the administrative structure and territory, the political situation, the demographic profile, the socio-economic profile, the infrastructures and services, the use of the territory and urban development, the aspects related to "Gender", the vulnerable groups, the cultural heritage (including archaeological heritage), including the Grand Bassam World Heritage Site if the technical design proposes a route through this sector. In the development, the Consultant shall highlight: population (ethnic, religious, social structures and dynamics, decision-making and action groups, movements...) and demographics, income and poverty status, cultural heritage including places of worship, pilgrimage and cemeteries, historical resources, aesthetics and tourism, infrastructure, land tenure and ownership, land use, employment/industrialisation, agriculture, education, public health.

The Consultant shall identify how the project can improve the quality of life of the local population. Particular attention will be paid to gender issues and vulnerable groups. The Consultant should conduct a socioeconomic survey using the appropriate tool as required to establish the average spending and income level of the affected population. This survey will be organised and conducted in accordance with international best practice.

Each component of the baseline human environment should include gender analyses, risk assessment of gender-based violence in the project area and consider the impact of local customs and practices and social norms. Particular attention should be paid to cultural practices towards women, including the prevalence and effects of all forms of sexual exploitation and abuse/sexual harassment of SEA/SH, as well as the social infrastructure or services that are accessible to women.

Analysis of alternatives

The analysis of alternatives is therefore an essential step in the scoping and assessment of impacts. Important factors in the analysis of alternatives are

- Selection of the ROW;
- Location of sites and orientation of the project footprint;
- Alternative ancillary services;
- Construction methodology;
- Operations; and
- The analysis will include a "no project" option and explain why alternatives were or were not adopted.

The analysis of alternatives must include an assessment of the impacts (environmental, social, technical and economic) sufficient to choose the best alternative, through the application of the mitigation hierarchy. A summary of the analysis and conclusions will be provided in the ESIA

documents.

Identification and assessment of potential environmental and social impacts

The Consultant shall describe and justify the choice of impact identification method. Some environmental and social impacts and effects may occur during the pre-construction, construction, operation and decommissioning phases of the project. The Consultant shall identify the main causes of these effects and describe their possible impacts during each of the project phases. The identification of direct/indirect, positive/negative, trans-regional, economic, environmental and social impacts/and cumulative impacts shall be clearly established using a well-known methodology. The magnitude of the impact shall be determined by an overall assessment of how one or more sources of impact affect an environmental and social component. This assessment must take into account the measures already applied in the design phase of the project to optimize the route of the transport line and assesses the magnitude of the impacts according to three criteria (intensity, extent and duration) and the application of the proposed mitigation measures. The magnitude of the impact would be major, moderate or minor.

Different segments of society – men, women, vulnerable groups (age, ethnicity, poverty, disability, etc.) – will be affected differently by the project, negatively and positively. The consultant must identify the positive and negative impacts on different segments of society, paying particular attention to avoiding or minimising the negative impacts of the project on women, youth and groups that he/she identifies as being particularly at risk (vulnerable groups). Special measures, including those to prevent and manage gender-based violence/sexual exploitation and abuse/sexual harassment, shall also be taken to ensure that women, youth and vulnerable groups have the opportunity to actively participate in consultations and that their needs and concerns are documented and addressed separately. The Consultant will elaborate on the methodology to be used in the impact assessment study regarding gender and social inclusion.

The gender and social inclusion methodology mentioned above shall also be applied to the process of estimating impacts related to involuntary resettlement, land use and land acquisition. This shall build on the analysis carried out in the ESIA task to provide preliminary estimates of the assets and populations likely to be subject to involuntary resettlement, land use and/or land acquisition. The estimates presented in the ESIA will include the number of potentially affected entities, as well as preliminary budget estimates associated with potential resettlement activities.

The Consultant shall be required to assess the benefits of the project for the two (2) countries and their populations, the impact of the project on sustainable development, its contribution to poverty reduction and the achievement of the Sustainable Development Goals. Particular attention will be paid to identifying and enhancing the benefits of the project for women and vulnerable groups. The Consultant shall, in particular, assess the short and long term employment creation potential of the project especially for youth and women as well as identify gender issues, grievance management, gender based violence/sexual exploitation and abuse/harassment, child labour and forced labour, related to the construction in the short term and the economic growth/poverty reduction potential in the long term in accordance with regional and continental guidelines in addition to the requirements of the financing institutions involved.

Cumulative Impact Analysis

The Consultant shall undertake a robust cumulative impact assessment. This shall involve identifying and analyzing the cumulative impacts in each of the two countries and planning measures to mitigate them. Indeed, with the regular and continuous supply of electricity to industries, electrification of communities and towns in the rural areas along the power line and around the substations, there shall be potential for new development in the areas which shall put pressure on the availability of material resources for construction, water supply, sanitation, solid waste management, housing and

agricultural development, biodiversity, etc. In these countries, it is important to also consider housing and agricultural development, urbanization and road development.

There may also be other development activities, such as mineral resource extraction projects, municipal infrastructure development, etc. that are already underway and would contribute to cumulative impacts.

Mitigation and compensation measures

The Consultant shall propose mitigation measures for potential environmental and social impacts that would arise from pre-construction, construction, operation and decommissioning activities including those related to the health and safety of community and workers. It shall classify and assess the residual impacts and provide compensation measures for significant residual impacts where appropriate. The mitigation measures shall be proposed by project phase and shall comply with national and financing institutions' requirements and guidelines.

According to the World Bank Environmental and Social Standard (ESF ESS) No. 1, the Consultant shall gradually propose first anticipatory or avoidance measures, then minimisation measures, then mitigation measures, compensation measures and finally correction measures. The Consultant shall involve the local population and development specialists in the proposal of eradication, mitigation or enhancement measures, if necessary, in the identification of potential environmental and social impacts that may arise from the project activities. The aim is also to find, together with the local population and the local technical services concerned, the relevant ways and means (in project terms) that effectively contribute to the socio-economic and cultural development in the area and in harmony with the project. The identification of these measures should be based on the essential aspects of poverty analysis, wealth distribution, existing social inequalities especially those related to gender, vulnerable groups, in order to select reliable, quantifiable, inclusive and locally applicable measures.

The Consultant shall present each measure with an implementation protocol of the actions that contribute to its implementation. It will define the costs of implementation of each of the actions as well as the periods of execution. The Consultant shall devote a chapter to proposals for impact mitigation measures.

Risk and hazard management study

The Consultant shall identify all the hazards and risks associated with each component of the project. It will assess the levels of risk and will expose all the dangers that may be posed by the implementation and operation (including in the event of an accident) of the project, justifying the measures to reduce their probability. It will specify the public emergency resources of which it is aware and the organisation of private and public emergency resources available to the contractor and operator and whose assistance they have secured in order to prevent and mitigate the effects of a possible disaster (safety study, emergency plan and permanent intervention plan).

The Consultant shall develop a Risk and Hazard Management Plan with operational measures and analyse the institutional capacity of the concerned agencies/departments to monitor and follow up the implementation of environmental and social measures, in order to assess the capacity building actions to be planned. The Consultant will provide a budget for the contingency plan and the capacity building plan.

Analysis of the effect of climate change on the project

As part of the preparation of the ESIA, the consultant must be able to analyze the effect of climate change on the project. The climate change aspect must be seriously considered, not only in the environmental and social assessment, but also in the choice of the main line route, choice of materials,

which may be affected by forest fires in case of severe drought or by floods and washouts in case of heavy rainfall.

The analysis of the effects of climate change should also identify the risks from the project and risk to the project. On this basis, the consultant will be able to elaborate in a few lines how the project will cause/trigger climate change, in particular the social effects on minority groups along the corridor.

Development of the Environmental & Social Management Plan (ESMP)

The Consultant shall develop an Environmental and Social Management Plan (ESMP) for the Project for construction and operations in compliance with the requirements of the national agencies and funding bodies in the preparation of the ESMP and ensure full compliance. The ESMP should include: a distinct Biodiversity Management Plan (BMP), a liquid/solid waste management plan, an occupational/community/public health and safety management plan, labour management procedures, including a grievance management mechanism for all workers and contractors, a **SEA/SH Prevention and Response Action Plan**, a code of conduct, including measures to prevent and manage the risks of gender-based violence/sexual exploitation and abuse/harassment, prevent child labour and forced labour, a cultural heritage management plan, a grievance management mechanism for local communities and other stakeholders in line with the requirements of the ESS10 on Stakeholder Engagement. This document will be separate from the SEP.

Furthermore, the ESMP should also include, but not be limited to, the following:

- A precise definition of the measures in the form of operational sheets, including the timetable for their implementation, planned to eliminate, reduce and compensate for the consequences of the project on the environment;
- The cost of implementing the mitigation measures;
- Elaborate the matrix of the Environmental and Social Management Plan with all the constituent elements, namely the project implementation phase, the activity, the impact, the mitigation measure and the actions to be carried out, the measure indicators, the responsibilities for the implementation of the measures, the follow-up measures, the estimated costs for the implementation of the measures as well as the periods for the implementation of the measures;
- Job description and composition of the environmental and social management unit (ESMU) of the project implementation team, which should include an experienced environmental protection specialist, an experienced social specialist, an experienced and ISO 45001:2018 or equivalent Health and Safety Specialist and an environmental, social, health and safety manager. The ESIA should also describe the roles and responsibilities of the Contractors and the Supervising Engineers and the experience and certification of their Environmental, Social and Health and Safety Specialists and their full time presence at the construction sites during working hours. The requirement of the Contractors and Supervising Engineers to establish and an Integrated Environmental, Social and Health and Safety System in compliance with ISO 14001 and ISO 45001;
- The reporting structure for the ESMU, which should be linked to operational and administrative activities;
- Capacity building requirements for the environmental, social and occupational health and safety departments of CI-ENERGIES, GRIDCo, environmental protection institutions, and institutions that will be involved in the implementation of the ESMP and RAP. The Consultant shall produce a detailed inventory of capacity building needs and propose an appropriate program taking into account the Budget. For the elaboration of the capacity building programmes, the Consultant shall discuss with each of the departments and record the results of the discussions in the minutes of the meeting; and
- Institutional aspects on the responsibility and timetable for the implementation of key aspects of the ESMP.

The Consultant will include in the ESMP an Environmental Follow-up Program and a Monitoring Plan.

The monitoring plan shall help to avoid, mitigate or compensate for impacts on the physical, biological and human environments. This plan shall be used to verify that the predictions of environmental and social impacts, developed during the design phase, are accurate and that unforeseen impacts are detected at an early stage. This shall result in corrective measures being implemented before significant damage occurs. The monitoring plan should specify what shall be monitored (indicators), when, by whom and the cost implications (capital and recurrent costs). It should include :

- The parameters to be monitored, e.g. air pollution, such as dust, noise, electromagnetic field, etc.; and the definition of responsibilities;
- The sampling sites.
- Frequency of measurements.
- The sampling and analysis method.
- Monitoring program.
- Appropriate and adequate record keeping.
- Locations where unauthorised persons are not allowed.
- Combined independent and internal environmental, social and occupational health and safety audits and review of the overall programme of activities to assess its compliance with contractual requirements and to ensure compliance with the requirements of EPAs and other stakeholders, including the general public. The programme should include :
 - An internal review by CI-ENERGIES and GRIDCo implementing agency staff;
 - An external 6 monthly Integrated Environmental, Social and Health and Safety audit by independent consultants organized and financed by CI-ENERGIES and GRIDCo during construction.
 - A yearly Integrated Environmental, Social and Health and Safety audit by independent consultants organized and financed by CI-ENERGIES and GRIDCo during first 4 years of operations.

The Consultant shall be expected to draw lessons from similar ESIA's conducted in other similar projects (e.g. CLSG and North Dorsal) and apply them in this ESMP. It is hoped that the information obtained from a well-designed monitoring programme shall be useful in refining future designs so that they are more cost-effective, have fewer and less severe environmental, social and OHS impacts.

Environmental and social clauses to be included in the construction company tender file

The Consultant shall present the technical and operational prescriptions compatible with the procedures in Côte d'Ivoire and Ghana that shall enable the construction company to take into account in its activities the protection of the biophysical environment, the safety and health of its employees and of the local population as well as the hygiene conditions on the construction sites. The ESMP and the environmental and social clauses will be included in the Bidding documents.

They shall also guide the companies and the Consulting Engineer (Supervising Engineer) in organizing the implementation of environmental and social, quality, hygiene, safety and health measures attributable to their activities, in identifying the modalities, technical provisions and means of implementing the said measures (the Contractors prepare their own site specific Contractor ESMP, Gender, Crisis, Conflict and Emergency Management/Response Plan, Safety, Hygiene and Health Plan and other plans (waste management, water management, borrow pits management plan, transport management plan, compensation reforestation , communication, etc.) and recruit specialists with international experience for the preparation and implementation of these plans.)

Determination of Compensation from Acquisition of Right-of-Way

It is expected that the utilities or other appropriate agency in the various countries shall acquire the Right-of-Way (ROW) in the project area for the smooth implementation and operation of the line.

The selection of and the acquisition of all rights-of-way shall take into consideration environmental and social factors and should be described in the ESIA/ESMP and RAP. The land acquisition procedures shall be carried out in accordance with national regulations and international best practices, especially the World Bank's Environmental and Social Standard 5 (ESS5) relating to land acquisition, restrictions on land use and involuntary resettlement (a gap analysis shall be carried out to compare national E&S laws, standards and procedures with the World Bank ESF and policies of other donors. The environmental and social impact of the project shall also be minimized through measures such as the inclusion of environmental and social impact considerations in the adequate selection of the ROW and in siting of the substations and the design of the facilities (i.e. type of towers, etc.), restricting right-of-way use by un-authorized persons, erosion and sediment control during and after construction, and use of low impact maintenance procedures.

Following consultations, the ESIA shall provide information regarding the potential acquisition of the right-of-way, their lengths, general locations, cut-off date and the local and national / international policies and requirements regarding acquisition of these right-of-way.

The Consultant shall undertake a detailed survey of the entire ROW and provide information on affected individual and community properties, forest reserves and compensation packages that may be required for the acquisition of the right-of-way in RAPs. In this regard, a geo-referenced Property Impact Record (PIR) shall be prepared as part of the ESIA and RAP but as a stand-alone report with clear, justifiable cut-off dates for the compensation. The PIR shall include but not be limited to:

- An exhaustive list of all of the owners of private properties (including trees, farms and crops, houses and other infrastructure, plantations, traditional land, and similar) together with their addresses and identity cards (physical persons)
- A description of the location of all of these properties including GPS coordinates
- The quantity, quality and nature of properties of each of the owners
- The quantities of trees, broken down by type and age, for tree owners and in protected areas (Forest Reserves and National Parks in case of offset) within the ROW corridor.
- The approximate dimension, age, and health of the trees in addition to any other information that would facilitate their valuation for the purposes of compensation
- The unit price and total cost of public and private properties in line with national legislation and for validation by the concerned national utility.

In noting that the PIR shall also be an input for the preparation of the Resettlement Action Plan, the Consultant shall also include, but not limited to, for each Project Affected Person (PAP):

- number of wives
- number of children below 18 years
- number of children above 18 years
- number of children still in school and above 18 years
- number of other persons living with the PAP
- number of persons with physical and/or intellectual disabilities living with the PAP
- estimation of annual family income and expenditure, precising the source(s) of income(s)
- a list of all of those with differentiated interests in land in the area affected
- Livelihoods of all persons in the households (male and female).

Particular attention shall be paid to sensitive locations such as communities or private land/space use (sacred sites, sacred trees and woods, cultural and scientific sites, etc.), properties with title and without title deeds. In each village/community, the inventory shall be done in the presence of the national utility, local authorities and local chiefdoms if present. The Financial Proposal submitted by

the Consultant shall be deemed to have included the costs of participation of 1 Representative from the national utility, 1 Representative from the local administration and 1 Representative from the local chiefdom. The outcomes of all visits related to the preparation of the PIR shall be contained in Minutes of Meeting signed by each participant and the Consultant.

The Consultant shall submit for approval by the national utilities, a sample Inventory Form that shall be used to collect information for the preparation of the PIR. As part of submission of the PIR as well as the Final Report on the Resettlement Action Plan (RAP), the Consultant shall submit in form, format and content acceptable to the Client and the Funding Agency(ies), the complete database of the information collected within the framework of preparing the PIR and the RAP.

4.5.3 **Update Resettlement Action Plan (RAP) prepared for the interconnection line and associated substations for Côte d'Ivoire and for Ghana.**

The Consultant shall update Resettlement Plans (RAP) for the interconnection line and substation locations, as necessary, based on the most recent and accurate information on affected populations. The Consultant shall be assisted by a certified surveyor to locate the boundaries of the provisional route of the line using GPS coordinates already established for the corridor. The Consultant shall familiarize himself with the requirements of the national agencies and Funding Agencies in preparing RAPs and ensure full adherence. The RAP shall provide clear and verifiable information on the Project Affected Persons (PAPs) including vulnerable groups with clear, justifiable cut-off dates for the compensation. Specifically, the Consultant is expected to:

- Prepare the RAP based on a detailed census of directly affected persons who may be relocated, or whose incomes or livelihoods may be displaced, by the project, and conduct a valuation of the assets and incomes. Particular attention shall be paid to women and children as well as people with disabilities, ethnic minority PAPs, etc.;
- Describe the policy and regulatory context (e.g. laws, regulations, and procedures) of the Governments of both countries on resettlement, and demonstrate their compliance with the most recent appropriate African Development Bank policy and World Bank ESS5 on land acquisition, land use and involuntary resettlement covering physical and economical displacement.
- Identify and highlight the gaps in the analysis of legislation);
- Identify clearly negative impacts;
- Determine the amount of compensation and other resettlement assistance;
- Conduct consultations with identified project affected persons (PAPs) about the resettlement and other acceptable alternatives; Assist the implementing agency and local leaders in establishing the institutional set up for decision making and responsibilities for RAP implementation and procedure for grievance redress;
- Provide RAP implementation calendar; and
- Develop arrangements for RAP monitoring and evaluation, including completion of a baseline socio-economic survey of PAPs and host communities;
- Provide the grievance redress mechanism that will be set up during the resettlement operations, in alignment with the project-level GM;
- Provide provisions for monitoring and evaluation of resettlement process, including a RAP Audit after finalization of the RAP implementation, which is a World Bank requirement;
- Provide the budget and sources of funding of the RAP implementation;
- Provide provisions for adaptive management (RAP should include provisions to adapt the implementation in the face of unforeseen changes or unexpected difficulties to achieve satisfactory resettlement outcomes).

The following sections of the RAP correspond to the scope of work to be completed by the Consultant.

- *Description of the project:* General description of the affected areas.
- *Potential Impacts:* Identification of the: (i) components or activities that require resettlement or restriction of access, including restriction of certain crop use and crop height (i.e. trees) within the ROW, access roads and borrow pit areas, etc.; (ii) zone of impact of components or activities; (iii) alternatives considered to avoid or minimize resettlement or restricted access; and (iv) mechanisms established to minimize resettlement, displacement, and restricted access, to the extent possible, during project implementation.
- *Objectives:* The main objectives of the resettlement program as these apply to the [name of project] should be described in relation to the project.
- *Socio-economic studies:* The findings of socio-economic baseline studies to be conducted with the involvement of potentially affected people shall be needed. The socio-economic baseline also needs to include the socio-economic baseline of an ad-random chosen control group of non-project affected people in the same area. The socio-economic baseline also generally includes the results of the census of the PAPs covering:
 - a) Careful and accurate census/survey of current occupants of the affected area (ROW) and their assets as a basis for design of the RAP and to clearly set a cut-off date, the purpose of which is to exclude subsequent inflows of people from eligibility for compensation and resettlement assistance;
 - b) Standard characteristics of displaced households, including a description of production systems, labor, and household organization; and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the displaced population;
 - c) Magnitude of the expected loss, total or partial, of assets, and the extent of displacement, physical or economic;
 - d) Information on vulnerable groups or persons, for whom special provisions may have to be made; and
 - e) Provisions to update information on the displaced people's livelihoods and standards of living at regular intervals so that the latest information is available at the time of their displacement, and to measure impacts (or changes) in their livelihood and living conditions, as compared to non-project affected people in the same area. Include a Livelihood Restoration Program.

There may be other studies that the RAP can draw upon, such as those describing the following, as needed:

- Land tenure, property, and transfer systems, including an inventory of common property natural resources from which people derive their livelihoods and sustenance, non-title-based usufruct systems (including fishing, grazing, or use of forest areas and non-forest products, such as medicinal plants) governed by local recognized land allocation mechanisms, and any issues raised by different tenure systems in the sub project area;
- Patterns of social interaction in the affected communities, including social support systems, and how they shall be affected by the sub-project;
- Public infrastructure and social services that shall be affected; and
- Social and cultural characteristics of displaced communities, and their host communities, including a description of formal and informal institutions. These may cover, for example, community organizations; cultural, social or ritual groups; and non-governmental organizations (NGOs) that may be relevant to the consultation strategy and to designing and implementing the resettlement activities.

- *Legal Framework:* The analysis of the legal and institutional framework in Ghana and Côte d'Ivoire, should cover the following:
 - a) Scope of existing land and property laws governing resources, including state-owned lands under eminent domain and the nature of compensation associated with valuation methodologies; land market; mode and timing of payments, etc.;
 - b) Applicable legal and administrative procedures, including a description of the grievance procedures and remedies available to PAPs in the judicial process and the execution of these procedures, including any available alternative dispute resolution mechanisms that may be relevant to implementation of the RAP for the sub-project;
 - c) Relevant laws (including customary and traditional law) governing land tenure, valuation of assets and losses, compensation, and natural resource usage rights, customary personal law; communal laws, etc. related to displacement and resettlement, and environmental laws and social welfare legislation;
 - d) Laws and regulations relating to the agencies responsible for implementing resettlement activities in the sub-projects;
 - e) Gaps, if any, between local laws covering public expropriation and ESS 5 requirements regarding World Bank's ESF and other donor's resettlement policies, and the mechanisms for addressing such gaps; and
 - f) Legal steps necessary to ensure the effective implementation of RAP activities in the sub-projects, including, as appropriate, a process for recognizing claims to legal rights to land, including claims that derive from customary and traditional usage, etc. and which are specific to the sub-projects.

- The institutional framework governing RAP implementation generally covers:
 - a) Agencies and offices responsible for resettlement activities and civil society groups like NGOs that may have a role in RAP implementation;
 - b) Institutional capacities of these agencies, offices, and civil society groups in carrying out RAP implementation, monitoring, and evaluation; and
 - c) Activities for enhancing the institutional capacities of agencies, offices, and civil society groups, especially in the consultation and monitoring processes.

- *Eligibility and entitlements:* Definition of displaced persons or PAPs and criteria for determining their eligibility for compensation and other resettlement assistance, including relevant cut-off dates. This is based on the definition of the TL right-of-way (RoW), which is specified by utilities as 50 meters horizontal. The vertical clearance from the closest physical structure to the TL conductor shall be as per the standards and practices of the utilities. Agricultural activities below this vertical clearance, and those that do not hamper access to the TL (normally trees up to 5-meter height are allowed), may remain under the TL provided that agreed and appropriate conditions are met (e.g. no burning; no planting of crops or trees that would exceed the vertical clearance; access boundaries around the 5 meter perimeter of each tower). Buildings are prohibited under the line. Land needed for the sub-stations and access roads and borrow pit areas shall need to be cleared as part of the RoW.

- *Valuation of and compensation for losses:* The methodology to be used for valuing losses, or damages, for the purpose of determining their replacement costs; and a description of the proposed types and levels of compensation consistent with national and local laws and measures, as necessary, to ensure that these are based on acceptable values (e.g. market rates).

- *Resettlement Measures:* A description of the compensation and other resettlement measures that shall assist each category of eligible PAPs to achieve the resettlement objectives. Aside from compensation, these measures should include programs for livelihood restoration, grievance mechanisms, consultations, and disclosure of information.

- *Site selection, site preparation, and relocation:* If a resettlement site is an option, describe the alternative relocation sites as follows:
 - a) Institutional and technical arrangements for identifying and preparing relocation sites, whether rural or urban, for which a combination of productive potential, locational advantages, and other factors is at least comparable to the advantages of the old sites, with an estimate of the time needed to acquire and transfer land and ancillary resources;
 - b) Any measures necessary to prevent land speculation or influx of eligible persons at the selected sites;
 - c) Procedures for physical relocation under the project, including timetables for site preparation and transfer; and
 - d) Legal arrangements for recognizing (or regularizing) tenure and transferring titles to resettlers.

- *Housing, infrastructure, and social services:* Plans to provide (or to finance resettler's provision of) housing, infrastructure (e.g. water supply, feeder roads), and social services to host populations; and any other necessary site development, engineering, and architectural designs for these facilities should be described.

- *Environmental protection and management:* A description of the boundaries of the relocation area is needed. This description includes an assessment of the environmental and social impacts of the proposed resettlement and measures to mitigate and manage these impacts (coordinated as appropriate with the environmental and social impact assessment of the main investment requiring the resettlement).

- *Community Consultation and Participation:* Consistent with the Funding Agencies' policy on consultation and disclosure, a strategy for consultation with, and participation of, PAPs and host communities, as described in the SEP, should include:
 - a) Description of the strategy for consultation with and participation of PAPs and hosts in the design and implementation of resettlement activities;
 - b) Summary of the consultations and how PAPs' views were taken into account in preparing the resettlement plan; and
 - c) Review of resettlement alternatives presented and the choices made by PAPs regarding options available to them, including choices related to forms of compensation and resettlement assistance, to relocating as individual families or as parts of pre-existing communities or kinship groups, to sustaining existing patterns of group organization, and to retaining access to cultural property (e.g. places of worship, sacred forests, shrines, pilgrimage centers, cemeteries); and
 - d) Arrangements on how PAPs can communicate their concerns to project authorities throughout planning and implementation, and measures to ensure that vulnerable groups (including indigenous peoples, ethnic minorities, landless, children and youth, and women) are adequately represented.

- The Consultations should cover measures to mitigate the impact of resettlement on any host communities, including:
 - a) Consultations with host communities and local governments;
 - b) Arrangements for prompt tendering of any payment due to the hosts for land or other assets provided to PAPs;
 - c) Conflict resolution involving PAPs and host communities; and
 - d) Additional services (e.g. education, water, health, and production services) in host communities to make them at least comparable to services available to PAPs prior to resettlement.

- *Grievance procedures:* The RAP should provide mechanisms for ensuring that an affordable and accessible procedure is in place for third-party settlement of disputes arising from resettlement. These mechanisms should take into account the availability of judicial and legal services, as well as community and traditional dispute settlement mechanisms. The Consultant shall also review Best International Practices in this matter and integrate into his Proposal where possible.
- *RAP implementation responsibilities:* The RAP should be clear about the implementation responsibilities of various agencies, offices, local representatives and also take into consideration the adopted implementation strategy/institutional framework for the project. The RAP shall depict a step-by-step process of how the compensation shall be implemented in each concerned country. These responsibilities should cover (i) delivery of RAP compensation and rehabilitation measures and provision of services; (ii) appropriate coordination between agencies and jurisdictions involved in RAP implementation; and (iii) measures (including technical assistance) needed to strengthen the implementing agencies' capacities of responsibility for managing facilities and services provided under the project and for transferring to PAPs some responsibilities related to RAP components (e.g. community-based livelihood restoration; participatory monitoring; etc.).
- *Implementation Schedule:* An implementation schedule covering all RAP activities from preparation, implementation, and monitoring and evaluation should be included. These should identify the target dates for delivery of benefits to resettlers and hosts and a clearly defined closing date. The schedule should indicate how the RAP activities are linked to the implementation of the overall project.
- *Costs and budget:* The RAP for the specific sub-projects should provide detailed (itemized) cost estimates for all RAP activities, including allowances for inflation, population growth, and other contingencies; timetable for expenditures; sources of funds; and arrangements for timely flow of funds. These should include other fiduciary arrangements consistent with the rest of the project governing financial management and procurement.
- *Monitoring and evaluation:* Arrangements for monitoring and evaluation of RAP activities by the implementing agency, and the independent monitoring of these activities, should be included in the RAP section on monitoring and evaluation. The final evaluation should be done by an independent monitor or agency to measure RAP outcomes and impacts on PAPs' livelihood and living conditions. The Funding Agencies have examples of performance monitoring indicators to measure inputs, outputs, and outcomes for RAP activities; involvement of PAPs in the monitoring process; evaluation of the impact of RAP activities over a reasonable period after resettlement and compensation, and using the results of RAP impact monitoring to guide subsequent implementation.

In preparing the draft RAP, the Consultant shall hold consultation meetings with all stakeholders including the relevant Government Ministries, national Agencies, local authorities, NGOs, Governors, Mayors, Prefects, community/village leaders, other recognized authorities in each of the concerned countries, and PAPs to ensure that their views are adequately incorporated in the report. These consultation meetings shall be adequately documented as previously indicated. As part of the Scoping Report, the Consultant shall submit for the approval of the national utilities, the sample Questionnaires that shall be used to conduct the socio-economic studies.

4.5.4 *Preparation of Illustrative Materials*

The consultant shall include and compile maps, photos, plans, tables, graphs, charts, GIS analysis, and other illustrative material relevant to both the technical and environmental/social studies to

facilitate communication and understanding of the ESIA results and conclusions. These materials should show aspects related to environmental and social issues/risks in the potentially affected landscape, and possible restoration/mitigation measures proposed for the study area. Examples of features that could be represented on the maps and photos include:

- a. Communities, and associated land use patterns (agricultural, pastoral, etc.)
- b. Ecological zones (grassland, wetland, forest, protected areas, etc.),
- c. Natural resources
- d. Places of historic and cultural interest,
- e. Known hazard zones (floods, landslides, etc.).

4.6 Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) for the Electrification of Communities/Towns/Villages Along Line Route and Around Substations for Côte d'Ivoire and Ghana

As a social mitigation measure and to increase acceptability of the project by the populations in the vicinity of the project, it is envisaged that eligible communities/towns/villages in proximity of the line route will be considered for electrification. This electrification will be achieved through conventional means (medium voltage outlets from the Substations to be constructed under the project), extensions from nearby distribution systems, and/or shield-wire systems (SWS).

4.6.1 Identification of Communities/Towns/Villages along Line route and around substations

The Consultant shall identify all non-electrified villages/towns/communities that are 10-km on each side of the line corridor (for a total width of 20 km) the entire length of the line. It is envisaged that the same shall be done for villages/towns/communities around the identified substations. As such, upon adoption of the provisional Line route, the Consultant shall catalogue all eligible villages/town/communities in a separate volume of the Final Report on the Provisional Line Route, describing among others, their distance from the proposed line route/substation and population. The consultant shall also survey all the existing Medium Voltage network around the identified villages/town/communities. The outcomes of this work shall be submitted in a separate Report that shall be considered and validated by a meeting of the Stakeholders that the Consultant shall participate in. The report shall include a clear map with (i) the line routing of the GBM with the substations (ii) the identified villages/town/communities and (iii) the existing Medium Voltage network that will be used to identify and analyze the optimal technology mode for the electrification. This data shall be used to determine the appropriate technology for the electrification of these villages/towns/communities.

4.6.2 Identification and mapping of provisional line routes for the medium voltage networks and substation locations

Once the technology mode has been adopted by the stakeholders, the Consultants shall conduct field trips with the participation of the concerned utilities/institutions to identify the most optimal provisional line routes for the medium voltage networks as well as locations for the required medium voltage substations. In this respect, the Consultant shall note that the ROW for 33 kV lines shall be 3 meters, and where necessary, be at least 1.5 meters from the edge of a road. During the study to identify the most optimal provisional line routes for the medium voltage networks as well as locations for the required medium voltage substations, the corridor shall be mapped with GPS and in XYZ coordinate system. The Consultant shall prepare a Report that describes the provisional line routes as well as provide the XYZ data of these routes in an appropriate spreadsheet format acceptable to the WAPP Secretariat, CI-ENERGIES and GRIDCo. The Consultant shall bear in mind that the information to be submitted shall be used for further detailed survey, subsequent tower spotting on the line and the estimation of medium and voltage networks. In the description, the Consultant shall depict the location of all natural obstacles such as relief features and artificial obstacles as well as all

other useful details. The description shall include but not be limited to the location of the various obstacles listed below which should be featured in the drawings/maps:

- a. Man-made structures or obstacles (all types of residential and non-residential structures such as roads, streets, schools, dams, hospitals, offices, commercial buildings, government buildings,
- b. Infrastructure (existing power transmission and distribution lines, existing telephone lines, railroad, footpath and highway crossings, microwave towers, stream crossings, pipes of water mains, etc.)
- c. Physical features (rivers, streams, mountains, valleys, swamps, farmlands, forest reserves etc.)

The following shall be identified with the support of GPS coordinates:

- Boundaries of allocated zones;
- Demarcation of farmlands and potentially allocated properties
- Hunting Reserves, protected areas and Forest Reserves
- Cultural, Religious and Heritage Sites including Cemeteries
- Markets and areas with high population densities shall be included in the Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF). The ESMF and the RPF shall be prepared for the electrification of communities/towns/villages for Côte d'Ivoire and Ghana.

The outcomes of this work shall be contained in separate ESMF and RPF Reports.

The Environmental and Social Management Framework (ESMF) shall establish an environmental and social screening process that shall enable the structures in charge of implementing the electrification of Communities/Towns/Villages to identify, assess and mitigate the potential environmental and social impacts of the project activities at the planning stage.

The environmental and social review procedure of the ESMF shall be integrated into the general procedure for the approval and financing of activities. The preparation of the ESMF shall take into account donor safeguard policies, in particular the World Bank's Environmental and Social Framework, and shall be in compliance with the environmental laws of the countries concerned for each activity. The ESMF shall also determine the institutional arrangements to be made during the implementation of this electrification component, including those related to capacity building.

The ESMF shall provide procedures, methodologies and management criteria to adequately address the environmental and social aspects of electrification of communities/towns/villages.

4.6.3 *Prepare Environmental and Social Management Framework*

The Consultant shall produce an Environmental and Social Management Framework (ESMF) that shall provide an initial assessment of the positive and/or negative environmental and social risks, issues and impacts of community/local electrification and establish a dialogue between the environmental and social experts and the technical experts to optimize the project design. This includes avoiding negative impacts as much as possible, thus ensuring that the technical variants studied integrate environmental and social concerns.

Based on existing documentation, field visits and meetings with the main stakeholders concerned by the project, the summary impact study should provide an initial assessment of the environmental and social risks and the main mitigation or compensation measures.

To this end, the Consultant shall carry out the following actions:

- Describe the project and indicate the activities covered by the ESMF.

- Describe briefly the legal and regulatory framework: (i) explaining the content of applicable national laws and regulations and their consequences for the project, (ii) analyzing the gaps between national laws and regulations and donor requirements and (iii) proposing appropriate measures to reduce or eliminate these gaps.
- Justify the choice of project (alternative/variant selected).
- Provide background information on the biophysical and socio-economic framework in the project's likely areas of influence.
- Carry out GIS mapping showing the main environmental and social issues to be addressed by the project in the study area.
- Identify the main issues and potential E&S impacts with respect to the activities and works envisaged within the Environmental and Social management Framework of the project.
- Present the mitigation measures envisaged to avoid, reduce or even compensate for the potential negative E&S impacts of the project.
- Describe a general monitoring-evaluation mechanism to be put in place to assess the proper implementation of the mitigation measures.
- Describe the principles, rules, methodologies, tools and practical modalities for the preparation, approval and execution of the actions that will remain to prepare the Environmental and Social Assessment of these sub-projects when the exact ROWs have been selected.
- Describe the envisaged institutional framework detailing the roles and responsibilities of the actors involved in the finalization of the detailed impact assessment.
- Identify training and organizational and operational capacity building needs.
- Estimate the provisional budget for the implementation of E&S impact mitigation and monitoring measures.
- Carry out public consultations on the project and on the ESIA/ESMP, as described in a separate SEP.
- Develop an Environmental and Social Management Plan (ESMP)
 - ✓ Procedures for the preparation and implementation of community/local electrification activities
 - ✓ Implementation of the environmental and social site selection process for the electrification of communities/localities
 - ✓ Development/preparation, validation, and dissemination of ESIA's
 - ✓ Implementation monitoring and follow-up
 - ✓ Responsibilities of the actors
 - ✓ Develop the terms of reference for the Environmental and Social Impact Assessment (ESIA) of the electrification component in its Detailed Design Phase

4.6.4 *Prepare Resettlement Policy Framework (RPF)*

The Consultant will prepare a Resettlement Policy Framework, which will be organized according to the points defined above. As the electrification of communities/localities along the interconnection line is not precisely defined, the RPF will provide a first assessment of the risks related to involuntary resettlement, physical or economic displacement, caused by the project.

Based on existing documentation, field visits and meetings with the main stakeholders concerned by the project, the RPF should provide an initial assessment of the risks associated with involuntary resettlement, the main measures to be implemented and the procedures to be followed to carry out future due diligence on involuntary resettlement.

To this end, the Consultant shall carry out the following actions:

- Briefly describe the project and the components involving involuntary resettlement of populations.
- Describe the principles and objectives governing the preparation and approval of the RAP.
- Provide a preliminary estimate of the total number of potential people to be affected.
- Identify the eligibility categories to which they are likely to belong and the criteria for belonging to these categories.
- Present the legal framework (i) explaining the content of applicable national laws and regulations and their consequences for displacement, (ii) analyzing gaps between national laws and regulations and donor requirements, and (iii) proposing appropriate measures to reduce or eliminate these gaps.
- Present the methods that will be used to assess lost assets and impacts on the standard of living and livelihoods of affected populations (PAPs and host communities).
- Describe the organizational procedures envisaged for the allocation of rights, assistance and support (eligibility matrix).
- Present the measures envisaged to help the affected populations in their efforts to restore or even improve their livelihoods. The RPF should describe the methods and procedures by which the affected communities identify and choose the various possible compensation measures, as well as the methods and procedures by which the members of the affected communities themselves will be able to exercise a choice among the various possible options.
- Describe the conditions for implementing the relocations under the Resettlement Action Plan (RAP) and their coordination with the progress of the execution of the work planned under the project.
- Describe the mechanisms for recourse, complaint resolution and compensation for damages.
- Describe the mechanisms for resolving any conflicts that may arise within or between affected communities (between displaced populations and host communities in particular). This may include conflicts over restrictions on the use of resources or grievances that may arise from affected people who are dissatisfied with the eligibility criteria, collective planning measures and/or the implementation of the RAP.
- Describe the mechanisms of the arrangements to fund any eventual resettlement, including estimates of costs, contingency provisions, and flow of funds.
- Describe the mechanisms for consultation and participation of displaced populations and host communities in the planning, preparation, implementation and monitoring of the RPF and then the RAP.
- Present the monitoring-evaluation mechanism implemented by the agency in charge of implementing the RAP(s) and the independent audit mechanism.
- Develop the Terms of Reference of the RAP to be carried out at a later date (i.e. for each sub-project a RAP will need to be prepared and implemented as soon as the exact ROW will be known).

4.7 Prepare Stakeholder Engagement Plans (SEP) and Environment and Social Commitment Plan (ESCP) for Côte d'Ivoire and Ghana

The SEP shall be prepared according to requirements set out in World Bank ESF Environmental and Social Standard 10 Stakeholder Engagement and Information Disclosure (ESS10). The SEP will focus on identifying direct and indirect stakeholders of the project, and will include a strategy for information disclosure, strategy for consultation, strategy to incorporate the view of vulnerable groups, resources that will be devoted to managing and implementing the SEP, and a monitoring and reporting mechanism. The stakeholders will comprise individuals, groups, local communities, women, youth and any vulnerable groups that may be directly or indirectly affected by the project,

positively or negatively. It will identify specific vulnerable or disadvantaged individuals or groups, in the project intervention areas, and their limitations in participating and/or in understanding the project, and it will provide mechanisms to address these limitations. Such groups could include pastoralists, women, elderly, persons with disabilities, illiterate persons, informal land users and dwellers, children, and others. It will explain the opportunities for public consultation and provide a functioning grievance mechanism that includes provision to properly address complaints related to Sexual Exploitation, Abuse and Harassment (SEAH) and create a safe confidential and survivor-centered grievance mechanism, with multiple entry points, referral to medical-psychosocial services and safe and confidential handling and recordkeeping. It will also include a strategy for information disclosure.

The Consultant shall also conduct inclusive and accessible public consultations and develop and comply with a Stakeholder Engagement Plan (SEP) as per World Bank's Environmental and Social Standard 10. Determining the line route and shall ensure that these consultations are documented in signed Minutes of Meeting with verified lists of participants. All site visits by the Consultant shall have representations from the national utilities. However, it is the responsibility of the Consultant to ensure that all civil society, potential affected peoples and grassroots stakeholders are included in the process.

The Consultations undertaken with women shall be conducted in small focus groups/consultations animated by a women facilitator in a safe and ethical enabling environment, with care to not ask sensitive information which can cause adverse impacts on the safety and well-being of women in attendance. Risks of SEAH can be discussed focusing on trends and factors driving risks but shall never include questions about personal experience of violence or seek to interview survivors of GBV. Pictures shall not be taken of women focus groups. However, consultation notes for all consultations shall be included in summary form, succinctly summarizing issues and questions raised by community participants and answers provided by consultants. Names shall not be attributed to specific statements/comments in the consultation notes (this must also be communicated to the participants). Any photographs of community consultations can only be obtained with the expressed consent of the community, and they should be given the opportunity to decline or move to another area where pictures will not be taken.

These consultations shall include presentation and guidance for stakeholders on the use of an agreed grievance mechanism. These consultations should take place at various levels, national, regional, provincial, districts and communities crossed by the proposed line route and validated by stakeholders. All evidence of these consultations will be attached to the reports in a satisfactory manner. All the consultations shall be adequately documented in the form of signed Minutes of Meeting containing lists of participants, dates, pictures, discussion/minutes and other records of such consultations. All submitted reports shall contain scanned copies of the signed Minutes of Meeting.

The ESCP must be prepared using the template provided by the World Bank. The ESCP will describe the key measures and actions necessary for the project to comply with the requirements set out in the Environmental and Social Standards (ESS) of the World Bank's Environmental and Social Framework (ESF). It will provide a clear summary of the significant measures and actions to be implemented to manage the potential environmental and social risks and impacts of the project according to the principle of mitigation hierarchy. All obligations will be clearly stated so that there is no ambiguity about standards to be met, timelines, and follow-up actions.

It will outline the organizational structure that the Borrowers will establish and maintain for the implementation of the agreed actions. The ESCP will also summarize that the Borrowers will agree to follow up on the specific actions required under the plan by indicating the beneficiaries of such training.

4.8 Prepare Labour Management Procedures (LMP) for Côte d'Ivoire and Ghana

The LMP will develop and implement written labor management procedures applicable to the project. The procedures will set out the way in which project workers will be managed, in accordance with the requirements of the national law and ESS2. Additional provisions related to labor management could be found at ESS2 of the ESF. A LMP template is available at <http://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-framework-resources>

4.9 Prepare Cultural Heritage Management Plans (CHMP) for Côte d'Ivoire and Ghana.

The CHMP will develop and implement written Cultural Heritage management plans applicable to the project. The CHMP will identify all cultural heritage likely to be affected by the project, define procedures will set out how to avoid or mitigate likely impacts on such cultural heritage, in accordance with the requirements of national laws and ESS8. Additional provisions to protect cultural heritage from the adverse impacts of project activities and support its preservation. could be found at ESS8 of the ESF.

4.10 Prepare Biodiversity Management Plans (BMP) for Côte d'Ivoire and Ghana.

The Consultant will prepare Biodiversity management plans following the guidance provided in annex 8 for the project to meet the World Bank ESF ESS6 and international best practice for biodiversity conservation. Additional provisions to protect biodiversity from the adverse impacts of project activities and support its preservation could be found in the ESF.

4.11 Update of the Feasibility Study Including Technical, Financial and Economic Analyses

The Scope of Services shall consist of:

- A technical study on the interconnection.
- Preliminary Engineering and Preparation of Specifications for Equipment and Works
- Economic and financial analyses including sensitivity analyses and a tariff proposal.
- Project Packaging and Preparation of Pre-Qualification (if required) and Bidding Documents.

4.11.1 Technical study on the interconnection.

Following the adoption of the line voltage, the planning studies shall consider the relevant networks (existing and planned including generation) in Côte d'Ivoire and Ghana and the interconnected grid and recommend any additional facilities that would be necessary to promote exchanges of power among the two (2) countries and other WAPP networks. This shall include the necessary network reinforcements to be made in each of the countries to ensure unconstrained power exchanges among the countries and/or increase the capacities of the national networks to absorb the power coming from the Interconnection.

The Consultant shall perform planning studies, which shall seamlessly integrate the Côte d'Ivoire - Ghana Reinforcement Interconnection Project into the WAPP interconnected system to determine the impact of the line on system operation and power exchanges among the two (2) countries and the WAPP interconnected system over a planning horizon of 20 years and 5-yr intervals. The Consultant shall analyze the impact of the project on the existing networks in Côte d'Ivoire and Ghana. The Consultant shall also evaluate the impact of the Côte d'Ivoire - Ghana Reinforcement Interconnection Project on the WAPP Interconnected System (existing, under study and future interconnections). Furthermore, the Consultant shall analyze the adequacy of the existing transmission and generation capacities and the transmission and generation expansion plans of the two (2) countries over the planning horizon and make recommendation(s) on reinforcement projects required.

The Consultant shall provide at the very least, a cost estimate (line, substation, compensation equipment, etc and implementation schedule for each reinforcement identified with a prioritization order. The Consultant should also investigate the possibility of other alternatives that could result in the least cost interconnection among Côte d'Ivoire and Ghana.

The Consultant shall undertake, among other things, the following:

- Review of data on generation and transmission facilities including communications and SCADA systems in the interconnected networks of the two (2) countries.
- Perform load flow calculations to establish the maximum transfer capacity of the interconnection during steady state and transient conditions, and recommend methods of increasing the transfer limits and stability margins of the interconnected system. Voltage regulating equipment such as capacitor banks, SVCs, Power system stabilizers, or an increase in the voltage level of the line could be employed;
- Perform static, dynamic and transient stability studies at 5-yr intervals, to establish among others, the levels of inter-area oscillations in the interconnected system and propose possible remedies. The simulation software that would be used should be compatible with PSS/E;
- The scenarios for generation, transmission and financial analyses should be developed by the Consultants and approved before execution. Sensitives analysis should be considered to capture the impact of variation of key data (demand, generation, etc.);
- Calculate system losses for different transit alternatives;
- Analyze the effect that the different alternatives shall have on the steady state performance and transient and dynamic stability of the interconnected system;
- Calculate fault levels in the interconnected systems and recommend measures to ensure that fault levels do not exceed the breaking capacity of protection equipment already installed and do not propagate into individual or other systems;
- Perform system security analysis to establish strategies for maintaining acceptable operating conditions during normal operation and to secure the system during disturbances. Concepts such as Frequency Control Reserve (FCR), Momentary Disturbance Reserve (MDR), Automatic Frequency Load Shedding (AFLS) and Manual Activated Load Shedding (MALS), Special Protection Schemes (SPS), etc. could be employed;
- Perform switching studies to determine receiving-end voltages and propose the necessary compensation for maintaining the voltages within acceptable limits;
- Catalogue for each country and on an annual basis, how the energy and power requirements are being met over the planning horizon; and
- Identify the network reinforcements required at the national level (transmission and sub-transmission) to improve power exchanges/delivery through the project, including export from Ferkessédougou to Mali, Guinea or via the Côte d'Ivoire-Liberia-Sierra Leone-Guinea (CLSG) interconnection line and the Organisation pour la Mise en Valeur du fleuve Gambie (OMVG) as well as the other interconnections under study (Median, GBM, Burkina Faso-Cote d' Ivoire, etc).

In order to ensure consistency in the models to be developed by the Consultant in conducting the system analyses, the Consultant shall ensure that the network analyses are conducted in conjunction with experts from each of the utilities. In developing the network model within the framework of this project, the Consultant shall consult the latest model on the WAPP interconnected system. In this regard, the Consultant shall invite to his Home Office, one (1) expert knowledgeable in network analyses from each utility and WAPP Secretariat to review and discuss the developed model and the preliminary results of the network analyses. The proposal of the Consultant shall assume that this exercise shall not be less than one (1) week.

The network studies shall indicatively result also on the required reinforcements of the networks of CI-ENERGIES (Côte d'Ivoire) and GRIDCo (Ghana). This shall also include the necessary network reinforcements for frequency and voltage regulation to be made in each of the countries to ensure unconstrained power exchanges among the countries and/or increase the capacities of the national networks to absorb the power coming from the Interconnection.

The Consultant shall furthermore analyze the adequacy of the existing transmission and generation capacities and the transmission and generation expansion plans of the two (2) countries over the planning horizon and make recommendation on reinforcement projects required. The Consultant shall provide at the very least, a cost estimate and implementation schedule for each reinforcement identified. In preparing the Schedule, the Consultant shall highlight the impacts of any identified network reinforcements on the implementation of the project.

As part of the system analyses, the Consultant shall conduct detailed analyses on transmission losses to determine increases in losses in the three beneficiary countries solely attributable to the exports of power from Côte d'Ivoire to Ghana and Ghana to Côte d'Ivoire.

The Consultant shall in particular, assess the possibility of loop flows between Côte d'Ivoire and Ghana and propose possible solutions to address the situation if such is the case.

The Consultant is reminded that the Côte d'Ivoire – Ghana Reinforcement Interconnection Project is designed to interconnect the Dunkwa 2 Substation in Ghana to the Bingerville Substation in Côte d'Ivoire.

4.11.2 Preliminary Engineering and Preparation of Specifications for Equipment and Works

The services of the Consultant in this study shall include all preliminary engineering investigation which shall define the functional technical specifications of the envisaged equipment and works for the complete integration of the interconnection line into the existing systems, the required associated substations, and the SCADA and required communications systems suitable for preparing Design, Supply and Installation Bidding documents with Pre-qualification if necessary.

The Bidding Documents should cover the works for the Cote d'Ivoire-Ghana interconnection and the required reinforcements in the CI-Energies and GRIDCo HV networks. The final work breakdown will be developed with the stakeholders. The Bidding Documents for Cote d' Ivoire will be in French and those for Ghana in English. The consultant will approach WAPP to obtain the DAO models to be considered.

In proposing a preliminary design and associated functional specifications, the Consultant shall consider alternatives and provide justification for the design based on techno-economic and cost-benefit analyses, in particular:

- For the line: towers, conductors (section, type and bundle configurations), insulators (type) and earthwire.
- For the substations: configuration and arrangement (busbar, feeder, etc.), power transformer, MV switchgear, etc.

The preliminary design and the alternatives shall also take into account the preliminary results of the ESIA. The Consultant shall also integrate the requirements of the WAPP Information and Coordination Center. The Consultant shall furthermore consider the operation and maintenance requirements of CI-ENERGIES and GRIDCo in the development of the preliminary design and functional technical specifications and shall evaluate the consequences of the design on the systems of CI-ENERGIES and GRIDCo.

The preliminary engineering investigation shall also enable the selection of design criteria and result in a preliminary design for the Côte d'Ivoire - Ghana Reinforcement Interconnection Project that shall ensure the complete and seamless integration of the Project into the WAPP Interconnected System as well as the national power systems, including the Dispatch and/or Control Centers. In effect, the scope of work of the Consultant shall include all the necessary work (including the preparation of the Bidding Documents) that ensures that each concerned national dispatch/control center (as well as the WAPP Information and Coordination Center if required) can “see” and manage its component of the Côte d'Ivoire – Ghana Reinforcement Interconnection Project.

The Consultant shall identify the basic issues that shall be addressed in the study in order to ensure that the interconnection project is economically efficient (minimum total life cycle cost while meeting certain minimum standards) and that all individual sub-projects have consistent technical standards. The Consultant shall then analyze the issues related to the interconnection project and shall establish functional specifications and design criteria for the interconnection project. The basic design studies shall be related to conceptual (primary voltage level), electrical (equipment, substation sizing, conductors, protection system), civil (tower structures, hardware, insulators, type of foundation), quality of service (voltage, frequency, reliability, phase imbalance, harmonic distortion, stability) and SCADA (communications, tele-protection schemes).

Based on the data review exercise, the preliminary engineering investigations and concept drawings (line routing, single line diagrams, lay out, ancillary services, protection and relay configuration, etc.) and any other relevant basis, the Consultant shall then propose (i) a preliminary design for the Côte d'Ivoire - Ghana Reinforcement Interconnection Project and the required network reinforcement for the 2 countries (ii) the functional specifications and (iii) detailed cost estimation based on Bill of Quantities. The design shall ensure the effective integration of the project into the entire existing systems, including the national dispatch centers (as well as the WAPP Information and Coordination Center if required), and takes into consideration all relevant issues that include but not limited to:

4.11.2.1 *Interconnection Line*

a) Technical Conditions that include but not limited to:

- Engineering Conditions taking into consideration relevant international, national and the utility's own standards.
- Ambient Conditions taking into consideration maximum and minimum air temperatures, humidity, keraunic levels, thermal resistivity and quality of soil, pollution level, wind speed etc.
- System Conditions taking into consideration frequencies of systems and their compatibility, short circuit levels, grounding systems, communications systems including fiber optic (OPGW) and SCADA systems and their compatibility etc.

b) Technical Requirements that include but not limited to:

- Transmission capacity (optimization of the section, type of conductor and bundle) at given conditions taking into optimal capacity, losses, consideration voltage control, reactive power production;
- Design of double circuit transmission line
- Synchronizing capacity taking into consideration voltage control, reactive losses,
- System Reliability taking into consideration various fault scenarios, contingencies, lightning protection, insulation co-ordination, stability, load flow,
- Dependability taking into consideration availability, maintainability, adequacy of structures and conductors,
- Loss Optimization taking into consideration no-load, load, reactive,
- Environmental and social aspects taking into consideration aspects studied in the ESIA potentially including but not limited to electrical noise, visual impacts, acoustic noise,

electric and magnetic field influence, use of land / selection of the right-of-way (ROW), etc.;

- Electrification of communities/villages along the line route possibly through shield-wire or other technology;
- Public and Personnel safety issues taking into consideration protection, safety of construction and operation (i.e. Occupational Health and Safety during construction and operation);
- WAPP Grid Code (under development). The design and operation of the new interconnection will have to be done in coherence with the future WAPP Grid Code (Connection, Operation, etc)

In proposing a design, the Consultant shall also integrate, where appropriate and relevant, the guidance given in IEC's "Guide to Overall Line Design – Working Group B2.51, December 2015" annexed to this ToR and in CEI/IEC 60826-10 (December 2010) The Consultant shall also propose a detailed list of recommended spare parts that shall be included in the bidding documents.

4.11.2.2 Substations

For the required associated substations, the Consultant shall have to first of all determine, in consultation with the concerned utilities and in consideration of the update on the Line Route and ESIA Study, whether new substations shall have to be created or whether existing substations shall have to be extended. In case of the extension of substations, the Consultant shall have to study, estimate and examine the extensions to be done and the configuration of the existing substations to appropriately position the arrival of the transmission lines. The evaluation shall have to take into account among others:

- The available space for the protection and control equipment, energy meters, telecommunication panels and electrical auxiliary fittings, etc.;
- The available space in the cable trenches;
- The capacity of the existing equipment to support an increase of the load of the substation and higher fault current;
- The capacity of the ground Grid of the substation to support higher ground fault current.

The Consultant shall also take into consideration among others:

- a) Technical Conditions that include but not limited to:
 - Engineering Conditions taking into consideration relevant international, national and the utility's own standards.
 - Ambient Conditions taking into consideration maximum and minimum air temperatures, humidity, seismic levels, thermal resistivity and quality of soil, pollution level, wind speed, existing environmental and social liabilities in the existing substations, e.g. oil pollution, etc.
 - System Conditions taking into consideration frequencies of systems and their compatibility, short circuit levels, grounding systems, communications systems including fiber optic and SCADA systems and their compatibility etc.
- b) Technical Requirements that include but not limited to:
 - Transmission capacity at given conditions taking into consideration voltage control, reactive power production;
 - Synchronizing capacity taking into consideration voltage control, reactive losses,
 - System Reliability taking into consideration various fault scenarios, contingencies, lightning protection, insulation co-ordination, stability, load flow,

¹ Conseil international des grands réseaux électriques, International Council on Large Electric Systems

- Dependability taking into consideration availability, maintainability,
- Loss optimization taking into consideration no-load, load, reactive,
- Environmental and social aspects taking into consideration aspects studied in the ESIA potentially including but not limited to electrical noise, visual impact, acoustic noise, electric and magnetic field influence, use of land / selection of the rights-of-way (ROW); etc.
- Electrification of communities/villages along the line route possibly through shield-wire or other technology;
- Public safety and protection (mainly local communities)
- Occupational Health and Safety issues during construction and operation
- WAPP Grid Code (under development).

The Consultant shall also propose a detailed list of recommended spare parts that shall be included in the bidding documents.

4.11.2.3 *Communication and SCADA Systems*

Communication including tele-protection schemes and supervisory control and data acquisition systems (SCADA) exist in the networks. The Consultant shall review the existing systems and if found adequate, propose the extension of these systems to cover the new works. If found inadequate, the Consultant shall make an appropriate proposal that shall include the reinforcement/upgrade of the existing systems in consultation with the concerned utilities. In any case, the Consultant shall ensure full and seamless connectivity between the proposed infrastructure/project and the existing national Dispatch Centers. All proposed extensions shall be digital systems. The Consultant shall also take into consideration the ongoing development of the WAPP Information and Coordination Center, the stipulations in the WAPP Grid Code (under development) and ensure compatibility with the systems proposed.

The Consultant shall ensure that the project integrates seamlessly into the existing interconnected system and that the proposed communication and SCADA systems are compatible with the existing systems as well as guarantee effective communication between the two systems. The use of Fiber Optical Transmission System (FOTS) based on Optical Ground Wire (OPGW) on the high voltage line should be considered as the primary communication channel. PLC shall then be used as backup for the FOTS.

4.11.2.4 *Electrification of Communities/Towns/Villages along line route and around the update substations*

As a Social Mitigation Measure and to increase acceptability of the project by the populations in the vicinity of the project, it is envisaged that eligible communities/towns/villages in proximity of the line route will be considered for electrification. This electrification could be done through conventional means (medium voltage outlets from the Substations to be constructed under the project), extensions from nearby distribution systems, and/or shield-wire technology (SWS).

The Consultant shall gather, review and compile all relevant technical, institutional, economic and cost data on distribution and rural networks in the two (2) countries necessary for the conduct of the study. The Consultant shall review all existing available reports/studies that could contribute in preparing this part of the Assignment.

As part of the data collection, the Consultant shall investigate whether some of the communities/towns/villages that are on the agreed list are subject of other ongoing electrification schemes being implemented by the involved countries.

On the basis of a list of communities to be established by the Consultant in conjunction with the involved national power utilities, the Consultant shall, in close collaboration with the concerned utilities, make a detailed and justified proposal for achieving the electrification of the identified communities.

This study shall analyze the various technical options for increasing access to electricity services for the communities/towns/villages located around the substations and along overhead lines. A careful evaluation of the different solutions at technical, economic and financial level is essential to ensure that the best investment decisions are made with regard to costs, economic and social impacts. The expected results of this study will be:

- a) Review of the communities/localities to be electrified with a demand forecast for different horizon and with sensitive analysis;
- b) Confirmation of the communities/localities to be electrified. Elaboration of adapted map for localization.
- c) Description of technical solutions (pro and cons) and approval from the Client
- d) Technical analysis and cost estimate of the technical solutions with social and environmental considerations;
- e) Identification of provisional routes for medium and low voltage networks and MV/LV substation locations,
- f) Recommendation on technology mode for achieving rural electrification,
- g) Proposal on least cost solution to achieve rural electrification. Detailed description and cost estimate of the least cost investment solution.

In this respect, the scope of services to be provided by the Consultant shall include but not be limited to:

- Data collection and review and description of the methodology to prepare this part of the assignment;
- Justified recommendation on technology mode of electrification of each community/town/village;
- Proposal on least cost solution to achieve electrification including cost estimate and plan.

4.11.2.4.1 Justified Recommendation on technology mode of electrification of each community/town/village

On the basis of the list of communities/towns/villages, the Consultant shall:

- Determine the approximate energy demand, over the period of the study, of each community/town/village based on the population and public infrastructure that include but not be limited to Government/local administration offices, education and health facilities, as well as water supply installations.
- Determine the most optimal technology solution for providing electricity to each community/town/village through conventional means (medium voltage outlets from the Substations to be constructed under the project), extensions from nearby distribution systems, and/or shield-wire technology (SWS). The Consultant shall also investigate whether some of the communities/towns/villages that are on the agreed list are subject of other ongoing electrification schemes being implemented by the involved countries. In determining the optimal solution, the Consultant shall highlight the advantages and disadvantages of each of the afore-mentioned schemes. The Consultant shall also do a cost/benefit analysis of each of the afore-mentioned schemes and make a justified recommendation. The cost for each scheme should be life-cycle, and shall cover among others cost estimations for the infrastructure (medium voltage, low voltage, customer service connections, street lighting), environmental and social impact, as well as operation and maintenance.

- Make a recommendation, based on the outcomes of the above-indicated analyses, as to the least cost optimal solution for achieving the electrification of the communities/towns/villages.

The outcomes of this work, including the recommendation of the Consultant, shall be submitted as part of the Preliminary Feasibility Report but in a separate Volume.

4.11.2.4.2 *Proposal on least cost optimal solution for achieving electrification of each community/town/village*

Upon adoption of the Recommendation by the stakeholders, the Consultant shall prepare a Proposal for achieving the electrification of the communities/towns/villages. In this regard, the Consultant shall:

- Describe in detail the least cost optimal solution;
- Identify jointly with the preparation of the Line Route and ESIA Study for the Côte d'Ivoire – Ghana Reinforcement Interconnection Project, provisional line routes for the medium voltage networks as well as locations for the required medium voltage substations.
- Prepare preliminary designs for the medium and low voltage systems as well as customer service connections and street lighting that shall be needed for the complete electrification of the communities/towns/villages in line with the requirements of the concerned utilities. For SWS technology, the Consultant shall specify the requirements on the Transmission lines (tower outlines, earth-wire and OPGW, insulator) and the required equipment in the substations;
- Prepare all the necessary layout drawings and maps for each community, showing in sufficient detail, the proposed medium voltage and low voltage systems that shall be required to achieve the electrification from the Transmission Line and/or substation;
- Prepare cost estimates for the retained electrification scheme, broken down per country and including supervision cost for project procurement and implementation as well as the costs associated with the environmental and social impacts. The Consultant shall note that the cost of the electrification scheme shall be part of the global project cost but as a separate item. For each country the cost for electrification shall be broken down as follows:
 - *Communities/towns/villages of less than 500 inhabitants*
 - *Communities/towns/villages of 500 to 2,500 inhabitants*
 - *Communities/towns/villages of more than 2,500 inhabitants*
- Highlight the socio-economic benefits of implementing the electrification of the identified communities/towns/villages, including an indication of the economic viability and the social and poverty alleviation impact of the electrification scheme.

The outcomes of this work shall be submitted as part of the Revised Preliminary Feasibility Study Report but as a separate Volume.

4.11.2.5 *Geotechnical Studies*

Optimal sites and routes for substations and transmission line will be chosen according to the soil conditions. Number of boreholes and their depth shall be defined to ensure sufficient soil investigations. A drilling rig for substations, a drilling rig or a heavy shock penetrometer (with possibility of sampling for soil identification) for lines shall be used.

For Transmission Lines

After final route selection, the Consultant shall undertake geotechnical studies. Before starting investigations on site, he shall plan his works using the geomorphological photointerpretation he will have to do on a 200 m corridor (100 m each side of the final route). This photointerpretation shall show the limits of each type of soils, including rock as well as the geotechnical risk areas.

The main objective of these investigations is the assessment of the bearing capacity on the sites of the main towers: angle, large river-crossing or towers in geotechnical risk areas, such as wetlands or deep soft surficial deposits. These investigations shall also measure the average soils resistivity along the line route.

All these will require site visits to ensure there is enough data available to assess the feasibility of the works and to limit further modifications by EPC Contractors with regards to the soil conditions.

The borehole investigation shall be done at all heavy angle towers (more than 30°), at large river-crossings and at least every 10 km giving priority for risk areas and light angles towers.

The Consultant shall prioritize the use of a heavy dynamic penetrometer that can collect samples for soils identification. The Consultant may use instead a drilling rig in case of difficult soil conditions such as thick layers of soft and compressible soils.

The investigations depth shall be at least, if solid rock is not encountered, 8 m under tangent towers or 12 m under angles towers. Bearing capacity shall be determined at typical foundations depth.

For Substations

The Consultant shall undertake geotechnical studies on final substations locations (if information is not available).

One of the main goals of these investigations is to ensure that all the structures and apparatus for substations will have their foundations on stable soil non inundated with sufficient bearing capacity. These investigations shall also measure the soils resistivity above the substations. All this will require sites visits to ensure there is enough data available to assess the feasibility of the works and to limit further modifications by EPC Contractors with regards to the soil conditions.

For substations, a minimum of 2 borings holes with a drilling rig will be required together with a minimum of 2 geophysics profiles. For every site general geologic context and construction constraints shall be identified.

For the boring holes on substation sites, it is important:

- To distinguish consolidated soils from bed rock by penetrating at least 3m in bedrock
- To fully go through layers of soft and compressible soils
- To collect soil samples every 1,5 m and in all different layers
- To collect undisturbed samples in clay and to make SPT tests in granular soils

For Lines and Substations:

The geotechnical studies report shall contain the following information:

- Dynamic Penetrometer type
- Photos at each investigation site
- Geodesics coordinates of each investigation site
- Site exploration description: boring depths, soil types encountered

- Laboratory tests reports and soils classification according to ASTM standards
- Gross results profiles for each site
- Results interpretations and bearing capacity determination according to typical foundation data for each site
- Rock depth if reached
- Groundwater level if reached
- Geotechnical recommendations: foundations bearing capacities, design criteria for superficial and deep foundations, site preparation, excavation specifications
- Sites seismic parameters, soil movement and liquefaction

4.11.3 *Preparation of Drawings, Bill of Quantities and Technical Data Sheets*

The Consultant shall prepare all drawings related to the preliminary engineering of the project including network reinforcements as well as the component related to the electrification of communities along the line route. All costs associated with the procurement and preparation of the maps and drawings shall be deemed to be included in the Financial Proposal of the Consultant.

The Consultant shall also prepare all the Bill of Quantities for the different components and the Technical Data Sheets of the various equipment that will be integrated in the Bidding Documents.

The Consultant shall prepare detailed cost estimates of the Interconnection Project, broken down into country that include the costs associated with the outcomes of ESIA Study (ESMP, RAP, etc.) and if necessary, the required national reinforcements.

4.11.4 *Project Implementation Schedule*

The Consultant shall prepare an indicative Project Implementation Schedule highlighting all key milestones to be achieved and that clearly indicates the commissioning date of the project. In preparing the Schedule, the Consultant shall highlight the impacts of any identified network reinforcements on the implementation of the project.

4.12 *Economic and Financial Analyses*

The Objective of the present study is to determine the financial and economic viability of the Interconnection Project, its developmental impact, and provide relevant and sufficient justification for the realization of the project.

The Consultant shall prepare detailed cost estimates of the Interconnection Project, broken down into countries that include the costs associated with the outcomes of ESIA and RAP Study, project management monitoring and evaluation and if necessary, the required national reinforcements. The cost estimates must include any generation investment required by Ghana if any to ensure they are able to export electricity at expected marginal cost.

The Consultant shall evaluate and compare the costs and benefits² of the project against alternative scenarios Alternative line routings, and/or alternative scenarios for power supply so as to determine the economic and financial profitability of the project per country and the region, as well as the rationale for public financing of the project. The benefits resulting from the interconnection project shall be measured using the "with and without" concept with detailed explanation of the analyses and assumptions made especially with regards to "avoided costs". In particular, net benefits shall be

² The economic analysis shall be consistent with the following guidelines of the World Bank: i) Operational Policy and Bank Procedure 10.00, Investment Project Financing, ii) Power Sector Policy and Investment Projects: Guidelines for Economic Analysis, iii) Social Value of Carbon in Project Appraisal 2014 and (iv) Discounting Costs and Benefits in Economic Analysis of World Bank Projects 2016.

calculated by comparing total system costs and benefits of the “with project” scenario with those of the “without project” scenario, with the counterfactual assumptions clearly shown. Un-quantifiable benefits shall be discussed qualitatively. Costs associated with the least cost plan shall be adjusted as necessary with due regard to alterations necessary to the individual plans. Among other indices to be calculated, the Consultant shall compute the Economic Net Present Value (ENPV), Financial Net Present Value (FNPV), Financial Internal Rate of Return (FIRR) and Economic Internal Rate of Return (EIRR) of the project, conduct sensitivity analyses and explain in detail the results. For the project economic viability and in consideration of hurdle rates (and by determining switching values), sensitivity analyses shall be conducted on among others, transit on the interconnector, capital cost, fuel cost (Gas, Diesel), and Commercial Operation Date. Similarly, for the project financial viability and by determining switching values, sensitivity analyses shall be conducted on among others, Capex, O&M, Tariff, Load Factor, Losses and revenue collection rate.

The Consultant shall also highlight the developmental impact of the project for the countries concerned as well as the ECOWAS region. In this regard, the Consultant shall conduct distributional analyses in order to determine among others, the distribution of Cost and Benefits among Stakeholders.

The Consultant, in consultation with the WAPP Secretariat, concerned countries and Funding Agencies that shall be involved in the project, shall prepare an elaborate Financing Plan for the project. The Financial analysis should take into consideration the Financing Plan as well as the WAPP Transmission Tariff Methodology, and propose a Levelized Transmission Cost (LTC) that shall make the project financially viable and guarantee a return on investment that would be acceptable for the project to be completed. The proposal on the LTC shall take into consideration the relevant requirements of the ECOWAS Regional Electricity Regulatory Authority (ERERA), in particular, the WAPP Transmission Tariff Methodology. In addition, the Economic and Financial analyses including a LTC Proposal and sensitivity analyses shall be done taking into consideration among others, load forecasts, generation costs, generation and transmission expansion plans, capital costs, the envisaged mode of operation, project implementation delays, and economic parameters. The analyses, which shall include the development of appropriate models, shall affirm the economic and financial viability of the Interconnection Project.

The Consultant shall prepare a detailed manual of use for the financial model to be developed by the Consultant in establishing the financial viability of the project. The Consultant shall provide detailed explanations on the functioning of the model and the manual during the training in the Consultant’s Home Office and also effectively transfer these with full functionality and capable of being completely edited/modified. The Consultant shall note that the model shall only be considered as final upon examination and adoption by the national utilities and Funding Agencies that shall be involved in the project. As part of the approval process, the Consultant may be required to make amendments to the model to incorporate comments and reactions from the national utilities and the Funding Agencies.

The Consultant shall also assess the applicability of Carbon-financing and Clean Development Mechanisms to the project and shall make a detailed proposal in this respect with a view to expanding funding possibilities for the project. In this regard, the Consultant shall compute and value the Greenhouse Gas emissions of the project in conformity with the World Bank’s Guidance on the Social Value of Carbon as well as the Guidance on the Greenhouse Gas Accounting for Energy Investment Operations.

4.13 Updating the Risk Analyses

The Consultant, through Monte Carlo simulation or similar method, shall identify and evaluate threats to the project and shall recommend appropriate measures to forestall degradation or justify the primary objectives of the project with regard to deadlines, costs and technical specifications during the implementation stage and performance during the operational phase.

This analysis shall include the following:

- Identifying potential risks and categorizing such risks according to their:
 - relation to the project: internal or external;
 - nature: political, environmental, social, resettlement, economic, institutional, legal, technical, organizational, financial risks, etc.;
 - origin: Sub-Contractors, Public Authorities, Donors, Consumers, etc.;
 - impact: cost overruns, non-compliance with deadlines and technical specifications, delays in Commercial Operation Date, counter-productive operations, foreseen revenue collection.
- Quantitative risk analysis with a view to evaluating the direct and indirect impacts on the objectives of the project and the probabilities of their occurrences. This assessment may be completed with a qualitative analysis;
- Proposing measures for preventing risks and reducing their impacts, any eventual emergency plan scenarios, a definition of the duties and responsibilities for risk management.

The Consultant shall propose an appropriate implementation strategy for the project that mitigates against the risks identified and provides contingency scenarios that would allow for the complete execution of the project.

4.14 Training Program

4.14.1 Environmental, Social, Health and Safety aspects

Training of staff of CI-ENERGIES and GRIDCo as well as the institutions in charge of environmental and social protection in the concerned countries shall be required. The training, which shall be conducted in each country, shall cover the issues as outlined in the Provisional ESIA Report and RAP which could include but not limited to the following:

- Management and monitoring of community and occupational health and safety and environmental and social issues (including those related to SEAH)
- Selection and management of the right-of-way acquisition process
- Management of the right-of-way during the maintenance phase of the project
- Environmental and Social impact mitigations;
- Implementation of the ESMP and RAP, in particular the institutional framework.

The training shall also be opportunity for the Consultant to validate with each stakeholder, the capacity building requirements for implementing the outcomes of the ESIA and RAP Report in the respective countries in line with the adopted institutional framework for the project.

The Consultant shall design and propose the training program, which should be approximately costed. The proposal shall therefore also include costs associated with the full transfer of hardware and software to the WAPP Secretariat and each of the utilities, of the different software used within the framework of the Line Route and Environmental and Social Impact Assessment Study and Resettlement Action Plan (RAP). The training shall be done in a workshop to be organized by the Consultant in each of the countries after submission of the draft reports under the ESIA and RAP. The Consultant shall provide this training for 20 experts in each country for a period not less than 1 week including all stakeholders that shall be involved in the implementation of the outcomes of the ESIA and RAP Reports. The outcome of discussions at this training workshop would be an input to finalize the ESIA and RAP Reports. At the conclusion of the training, the Consultant shall submit a comprehensive Report on the training conducted, as part of the Monthly Report for the month in which the training was conducted. The consultant shall provide a comprehensive capacity build

program regarding other E&S risks management trainings or sensitizations such as provisions for taking into account the social inclusion, vulnerable groups, complaints management, SEAH, child and forced labor, etc.

The costs of the participation of the stakeholders shall be supported by the Client.

4.14.2 *Technical aspects*

Training is envisaged as part of the services to be provided by the Consultant in both English and French. To this end, each utility shall provide three (3) counterpart staff and the WAPP Secretariat shall provide three (3) staff.

The training shall be done through transfer of know-how on the ground and in the home office of the Consultant. In each of the two (2) countries, the Consultant shall integrate the three (3) counterpart staff provided by each utility into his team and shall work closely with them during the different phases of the Project.

The training in the offices of the Consultant shall also include one (1) participant from the Ministry in charge of Energy in each country in addition to the three (3) counterpart staff provided by each utility and three (3) participants from the WAPP Secretariat. The training in the offices of the Consultant shall be conducted after receipt of the preliminary Feasibility Study Report by the WAPP Secretariat and the concerned Utilities.

The costs of the participation of the stakeholders shall be supported by the Client.

The Consultant's proposals shall include the details of the Training Program. The training in the offices of the Consultant, shall not be less than two (2) weeks. The proposal of the Consultant shall also show the approach and methodology that shall be employed to achieve effective transfer of knowledge to the counterpart staff. The Training Program shall include, but not limited to:

- Model and methodology employed in the performance of the economic and financial analyses and software used. The analyses conducted on the Project shall be comprehensively demonstrated during the training program
- Model and methodology employed in the technical analysis of the interconnection and software used. The analyses conducted on the Project shall be comprehensively demonstrated during the training program
- Selection of the design criteria, design of the interconnection line and substations including equipment selection and specifications as well as software used
- Site Visits

The proposal shall therefore also include costs associated with the full transfer of hardware and software to the WAPP Secretariat and each of the utilities and Ministries in charge of energy of the different software including models used within the framework of the technical, economic and financial studies to ensure their maximum benefit. At the conclusion of the training the Consultant shall submit a comprehensive report on the training conducted as part of the Monthly Report for the month in which the training was conducted.

4.15 *Project packaging and preparation of Update Pre-qualification and functional Bidding Documents*

The Consultant shall prepare and present an indicative financing plan and a project packaging to meetings of Partners that shall be organized by the WAPP Secretariat to mobilize financing for the implementation of the project. Following the adoption of the financing plan and packaging, the Consultant shall prepare functional bidding documents in line with the procurement guidelines and

standard bidding documents of the Funding Agency(ies) that shall be involved in the project, including Pre-Qualification documents if necessary.

The updating of the Bidding Documents shall be done in line with the approved Financing Plan for the project. The draft and final Bidding Documents shall be delivered in a form and formatting acceptable to the Client and the Funding Agency(ies) involved in the project. The Bidding documents shall be adequate for “EPC” procurement and shall include among others well-defined functional specifications (General and Particular). The Bidding documents shall also be suitable for separate procurement of the project by each country involved if necessary. Subject to conformity with the requirements of the Funding Agencies that shall be involved in the project, the Bidding Documents shall contain, but not limited to the following:

- Invitation for Bids
- Instructions to Bidders
- General Conditions of Contract
- Special Conditions of Contract
- Indicative Bill of Quantities
- Technical Data Sheets
- Technical Functional Specifications (General and Particular)
- Drawings of format that conforms to the requirements of the Funding Agency(ies), utilities and permits performance-based procurement.
- Implementation Schedule
- General Organizational Specifications and Occupational Health and Safety and Social and Environmental requirements.

The Consultant shall propose an adequate packaging of the Project that shall be broken down per country if necessary and shall be in line with the requirements of the Funding Agencies involved in the project. Detailed designs and drawings shall be prepared by the Contractor under “EPC contract” procurement for the plant and equipment. The Consultant shall specify the detailed drawings to be submitted by prospective Contractors.

4.15.1 *Transmission Lines*

For Transmission Lines, the Design Specifications shall be, without being limited to:

- Overhead Lines Design criteria
- Tower design
- Foundation design
- Choice and design of conductors, earth-wires (with and without optical fibers)
- Choice and design of Insulators and Insulators strings
- Choice and design of span and assembly hardware
- Detailed Project Description

For Transmission Lines, the Manufacturing and Installation Specifications shall be, without being limited to:

- Detailed Scope of Works
- Packing, marking, transportation, handling and storage
- Manufacturing and Construction Quality Assurance and Quality Control
- Towers Manufacturing
- Conductors and cables manufacturing
- Insulators and Insulators strings manufacturing
- Span and assembly hardware manufacturing
- Right of way clearing, access roads and temporary facilities
- Foundations Construction

- Towers Assembly and Erection
- Conductors installation
- Earth wires installation
- OPGW (OPTical Ground Wire) installation
- Insulators strings, span and assembly accessories installation

4.15.2 *Substations*

For the Substations, the Design, Manufacturing and Installation Specifications shall be, without being limited to:

Substation Design

Substation design work shall include mainly the following activities:

- Establish the scope of work of modifications and addition of equipment for the extensions/expansions and/or new substations to be built;
- Establish the substation design criteria (supply and installation) for major equipment, protection, control, metering, communications (teleprotection and SCADA) and civil works in accordance with the current state-of-the-art technology and the latest international standards;
- Study and establish the optimal solution for the extension/expansion of substations taking into account cost and high degree of performance for equipment layout, protection, control and metering, both for the new line terminations and new substation;
- Review the suitability of existing equipment for the extension/expansion of the substations; and
- Revision of existing drawings due to modifications made under the present scope of works and production of new drawings.

As part of the substation design work, the Consultant shall prepare new drawings to a sufficient level of detail to allow a contractor to understand the scope of work and to determine the requirements for the new line termination equipment, substation equipment, protection, control and metering, and station auxiliary systems.

The affected drawings will include:

- Single line diagrams that will indicate the station arrangement, the characteristics of primary equipment including power transformers and switchgear, current and voltage transformers required for protection and metering, equipment for tele-protection, etc.;
- Layout drawings that will include sections and elevations showing, in general, the equipment layout and station arrangement according to the single line diagram. Layout drawings will also show the revision/addition of cable trenches in the substations;
- Conceptual design of the protection and communication system mainly for power transformer, busbar and transmission line;
- Protection and metering single line diagrams that will show the zones of protection and type of protection such as line protection, busbar protection, transformer protection and tele-protection;
- Protection, control and communication logic diagrams that will specify the protection and control philosophies and communications requirements.
- Panel layout in the control rooms that will show the panel arrangement and room extensions if required; and
- AC and DC auxiliary single line diagrams and panel schedules that will specify the DC and AC supply for the new equipment. Adequacy of existing DC system will be checked.

Substations Technical Specifications

The technical specifications for the substations shall be performance specifications and shall define the requirements for supply and construction of the extension/modifications of the existing and/or new substations. All required specification drawings for equipment, and system specification installation, testing and commissioning shall be prepared.

The specifications shall cover, but not be limited to the following items:

- Substations construction, expansion and/or modifications including the busbar arrangement and switching configurations, major equipment, basic control, protection and metering requirements and auxiliary supplies;
- Station general arrangements (layout, sections and details);
- Protection and control logic and interlocking requirements;
- Control and protection equipment, material and hardware specifications including permissible types of control hardware, cabling and termination indication and recording instruments;
- Telecommunications and SCADA;
- Electrical and mechanical auxiliary systems;
- Civil and architectural works (site surveys, switchyard and building foundation, bus and equipment support structures, cable trenches, ducts and other underground services, etc.);
- Technical data sheets: schedule of guaranteed characteristics and requested or required data and bidders' data;
- General manufacturing, inspection, packing and transportation specifications.
- Construction specifications of all electrical, electro-mechanical, civil, structural and architectural works.

The technical specifications shall fully define interfaces of the new installations with the existing installations.

The technical specifications shall permit to the extent possible, without jeopardizing the reliability of the system and its operation and maintenance, the widest international competition for the supply of new equipment and systems.

The specification drawings shall comprise the revision of existing drawings and the preparation of new drawings that shall be the result of the final design.

The following drawings shall be provided with the technical specifications:

- Single line diagram;
- Switchyard layout (plan view, sections and details);
- Control building layout (control room, etc.);
- Protection and metering single-line diagram;
- Protection, control and communication logic diagram;
- Communication block diagram;
- AC and DC single-line diagrams and panel schedules;
- Grounding layout; and
- Civil, structural and architectural drawings (equipment, foundations, etc.).

Price schedule for all materials and all major components shall be prepared, such as:

- Buswork;
- Transformers;
- Circuit breakers;
- Disconnect switches;

- Voltage transformers;
- Current transformers;
- Protection, control and metering equipment;
- Communication system;
- SCADA;
- Cabling; and
- Civil works.

4.16 Update of the Institutional Framework

The Consultant shall, on the basis of available information and knowledge, update the proposed institutional framework and organization which shall, inter alia, minimise the risks in case the project is not implemented in the most cost effective and timely manner, and facilitate the coordinated operation of the interconnection at commissioning. In proposing the appropriate institutional framework, the Consultant shall, inter alia

- Compare and contrast the suitability of traditional and single entity models (such as SOGEM, CEB, WAGP, Ghana - Burkina Faso, TRANSCO CLSG, Guinea - Mali, Northern Dorsal) for the implementation and operation of regional projects;
- Analyse the relevant institutional frameworks in force in each of the countries concerned;
- Review the Additional Act A / SA. 03/01/08 of the ECOWAS Heads of State and Government on the implementation strategy of the WAPP Transport Line;
- Examine in detail the institutional frameworks adopted for similar regional projects such as the WAPP Côte d'Ivoire - Liberia - Sierra Leone - Guinea 225 kV Interconnection Project, WAPP Guinea - Mali 225 kV Interconnection Project, WAPP 330 kV North Dorsal Project, etc., and make appropriate recommendations as to their applicability to the WAPP Côte d'Ivoire - Ghana Median Interconnection Enhancement Project at 330 kV or 400 kV.

The results of this activity are to be submitted in a separate report and will be considered for adoption during the review of the interim data collection report. The related separate report in the final data collection report will subsequently be presented to a meeting of, inter alia, the Chief Executive Officers of the relevant utilities for consideration.

Based on the institutional framework adopted by the two countries, the Consultant shall prepare, if necessary, all the necessary documents and legal agreements to effectively implement the adopted framework as well as the Organizational Requirements with the related costs for implementation and operation. The Consultant shall propose up to eight (8) consultation meetings of four (4) days duration in its bid, to be held in the countries concerned to review and finalise the legal documents and agreements.

4.17 Update of the Commercial Framework

The main objective of this part of the Feasibility Study is to update the proposed commercial framework including the tariff proposal that would govern the 330 kV or 400 kV Côte d'Ivoire-Ghana Interconnection Reinforcement Project.

The Consultant shall note that commercial agreements currently exist between some of the utilities involved. As part of the submission of the Data Collection Report, the Consultant shall include a thorough review of the commercial agreements and make recommendations on their applicability to the interconnection enhancement project taking into account the context in which the project is being developed and the advent of the regional electricity market.

The Consultant shall, inter alia:

- Determine, describe and quantify from network analyses, the power available for trading / available energy that each utility can contract through the interconnection and demand requirements;
- Carrying out due diligence missions in Côte d'Ivoire and Ghana to, amongst other things, list all concerns that need to be negotiated, the necessary documentation to be prepared and approved in order to establish an appropriate commercial framework for the interconnection project;
- Review existing commercial contracts (power purchase agreements, transmission service agreements) governing existing interconnection projects involving Cote d'Ivoire and Ghana;
- Hold consultation discussions with CI-ENERGIES, GRIDCo, the WAPP Secretariat, the ECOWAS Regional Electricity Regulatory Authority (ARREC), the Electricity Regulatory Authorities of each country involved and potential Financing Agencies involved in the financing of the project to define the appropriate commercial framework;
- Highlight the types of services that would be governed by the commercial framework (such as guaranteed energy and power, reserve capacity) and the requirements for sharing technical and commercial information, billing and settlement procedures;
- Propose a tariff review mechanism, including consideration of capital costs, operation and maintenance costs, replacement costs, the WAPP transmission tariff methodology and ARREC requirements;

4.18 Monitoring and Evaluation

The Consultant shall develop a logical framework for the proposed project that accurately reflects the information and lessons learned from the other relevant tasks in the feasibility study. The logical framework shall clearly define the outputs, outcomes and impacts of the proposed investments and avoid including outputs, outcomes or impacts that are subjective or difficult to quantify. The draft logframe should clearly identify the causal links between inputs, outputs, outcomes and impacts; and, appropriately document the evidence and information underlying the causal links. The draft project logical framework will need to identify any risks or assumptions that are critical to achieving the results targeted by the proposed investments. The Consultant shall work closely with the stakeholders to produce the project logframe.

Based on the project logframe, the Consultant shall recommend monitoring and evaluation indicators, with corresponding baseline values and annual targets, which can be used as a basis for monitoring the progress of activities (e.g. construction) and the achievement of results (e.g. reduction in outages or increase in electricity availability).

The Consultant shall compile and document available data related to baseline and target values of key outputs - what the investment builds/produces/purchases, such as the mileage and type of transmission lines or the number and capacity of substations - and expected outcomes - what is expected from the outputs, such as line transfer capability or outage duration - of the proposed investments. The baseline data should describe the existing characteristics or problems that the investments are expected to solve/improve (e.g. power evacuation problems or unmet demand). If data exists for a longer period, or if field conditions change frequently, time series data on the characteristics of the baseline situation should be provided. The Consultant shall document the baseline information that has been included in the feasibility study and design. Similarly, the Consultant shall document targets for the expected results of the investments (e.g. amount of power added to the grid or percentage reduction in load shedding) over the 5-year Compact period and in the post-Compact period, as appropriate. These key technical performance targets will be based on the specifications of the proposed investments and linked to the expected outcomes of the investments. They should be supported by an explanation of how they have been achieved. The identified targets will feed into the economic analysis and serve as the basis for the project appraisal work. Finally, the Consultant will recommend when stakeholders should expect to see measurable

results in terms of the impacts identified in the logical framework of the proposed investment (i.e. the required exposure period).

Prior to the collection and consolidation of data and information, as detailed above, the Consultant will interview stakeholders and may be required to present, discuss, justify and elaborate on all assumptions and data used, both in writing and in person. The Consultant shall also identify gaps in the quality and availability of key data, and provide actionable and cost-effective recommendations on how to collect new data that does not yet exist, or how to improve the quality of data already collected by the electricity providers or other actors (e.g. how could the electricity provider improve its processes for collecting outage data).

The objective is to put in place a system or process for collecting timely and reliable data before and during project implementation that will support (i) results-based management and monitoring of the project during its implementation, and (ii) post-compact evaluation of the economic profitability and social and economic impact of the project

5. DURATION OF STUDY & SCHEDULE

The duration for executing the Services shall not exceed 72 weeks. The Consultant shall propose in their offer, a detailed implementation schedule for the consultancy.

In this regard, the following indicative schedule is proposed:

N°	Key Deliverables	Date
1	Kick-off meeting	Wo
2	Submission of Inception Report	Wo + 2 weeks
3	Submission of Draft Data Report	Wo + 6 weeks
4	Submission of Comments on Draft Data Report (Seminar)	Wo + 8 weeks
5	Submission of draft Stakeholders Engagement Plan	Wo + 9 weeks
6	Submission of Final Data Report	Wo + 10 weeks
7	Submission of the Network model	Wo + 11 weeks
8	Submission of Comments on Draft Stakeholders Engagement Plan (bilateral meetings)	Wo + 11 weeks
9	Submission of Comments on Network model (Seminar)	Wo + 12 weeks
10	Submission of Final Stakeholders Engagement Plan	Wo + 13 weeks
11	Submission of Draft Line Voltage Assessment Report	Wo + 15 weeks
12	Submission of Comments on Draft Line Voltage Assessment Report (Seminar)	Wo + 17 weeks
13	Submission of Final Line Voltage Assessment Report	Wo + 19 weeks
14	Submission of Draft Scoping Report	Wo + 19 weeks
15	Submission of Comments on Draft Scoping Report (bilateral meetings)	Wo + 21 weeks
16	Submission of Final Scoping Report	Wo + 23 weeks
17	Approval of Final Scoping Report by Permitting Authorities in Ghana & Côte d'Ivoire	Wo + 25 weeks
18	Submission of Draft Report on the Provisional updated Line Route	Wo + 19 weeks
19	Field trip to assess proposed updated Line Route	Wo + 20 weeks
20	Submission of Comments on Draft Report on the Provisional updated Line Route (Seminar)	Wo + 22 weeks
21	Submission of Final Report on the Provisional updated Line Route + list of candidate communities to be electrified along the line route	Wo + 24 weeks
22	Transmission by WAPP to countries of the list of candidate communities to be electrified	Wo + 25 weeks
23	Confirmation by countries of the list of communities to be electrified (bilateral meetings)	Wo + 27 weeks
24	Submission of draft detailed design	Wo + 29 weeks
25	Submission of Draft Report ESIA for Ghana	Wo + 30 weeks
26	Submission of draft ESMF and RPF for Lines and Substations reinforcement in Côte d'Ivoire and Ghana	Wo + 30 weeks
27	Submission of comments on detailed design (Seminar)	Wo + 31 weeks
28	Submission of Draft Reports ESIA, ESMP (including ESCP, SEP, LMP, BMP, CHMP) and RAP for Côte d'Ivoire	Wo + 32 weeks

29	Submission of the Preliminary Feasibility Study Report (including the institutional and commercial framework) with the proposal on community electrification and the justified recommendation on the mode of electrification of each community/locality	Wo + 33 weeks
30	Training program on ESIA in Ghana	Wo + 33 weeks
31	Submission of comments on the draft ESMF and RPF for Lines and Substations reinforcement in Ghana (Bilateral meeting)	Wo + 33 weeks
32	Submission of comments on draft ESMF and RPF for Lines and Substations reinforcement in Côte d'Ivoire (Bilateral meeting)	Wo + 33 weeks
33	Training program on ESIA in Côte d'Ivoire	Wo + 34 weeks
34	Submission of final reports of ESMF and RPF for Lines and Substations reinforcement in Côte d'Ivoire and Ghana	Wo + 35 weeks
35	Training and Pre-validation Session at the Consultant's Headquarters on the feasibility study commences	Wo + 35 weeks
36	Training and Pre-validation Session at the Consultant's Headquarters on the feasibility study concludes	Wo + 36 weeks
37	Submission of Comments on Draft Report ESIA for Ghana (bilateral meetings)	Wo + 37 weeks
38	Submission of Comments on Draft Reports ESIA, ESMP (including ESCP, SEP, LMP, BMP, CHMP) and RAP for Côte d'Ivoire (bilateral meetings)	Wo + 38 weeks
39	Submission of comments on the recommended mode of electrification for each community/locality (bilateral meetings)	Wo + 39 weeks
40	Submission of the draft final ESIA report for Ghana (incorporating donor comments)	Wo + 40 weeks
41	Submission of the Draft final ESIA, ESMP reports (including ESCP, SEP, LMP, BMP, CHMP) and RAP for Côte d'Ivoire (bilateral meetings)	Wo + 41 weeks
42	Submission of the Draft Feasibility Study Report (including the institutional and commercial framework) including the proposed electrification of each community/locality	Wo + 41 weeks
43	Submission of comments on the Draft Feasibility Study Report (including the institutional and commercial framework) including the proposed electrification of each community/locality (seminar with donors)	Wo + 43 weeks
44	Submission of the draft final report of the feasibility study (including the institutional and commercial framework)	Wo + 45 weeks
45	Submission of draft ESMF and RPF for communities to be electrified in Côte d'Ivoire and Ghana	Wo + 46 weeks
46	Approval of Final Report ESIA by Permitting Authority in Ghana	Wo + 46 weeks
47	Approval of Final ESIA, ESMP (including ESCP, SEP, LMP, BMP, CHMP) and RAP Reports by Permitting Authorities in Côte d'Ivoire.	Wo + 46 weeks
48	Presentation of the results of the studies (Feasibility and ESIA) to the Director Generals of the utilities and Directors General of the Ministries (Seminar)	Wo + 47 weeks
49	Submission of comments on the draft ESMF and RPF of the communities to be electrified in Ghana (Bilateral meeting)	Wo + 48 weeks
50	Submission of comments on draft ESMF and RPF for communities to be electrified in Côte d'Ivoire (Bilateral meeting)	Wo + 48 weeks
51	Submission of final ESIA, ESMP (including ESCP, SEP, LMP, BMP, CHMP) and RAP Reports for Côte d'Ivoire	Wo + 48 weeks
52	Presentation of the results of the studies (Feasibility and ESIA) to the Ministers (Seminar)	Wo + 49 weeks
53	Submission of final reports of ESMF and RPF of communities to be electrified in Ghana	Wo + 50 weeks
54	Submission of final reports of ESMF and RPF for communities to be electrified in Côte d'Ivoire	Wo + 50 weeks
55	Submission of the draft ESMP (including ESCP, SEP, LMP, BMP, CHMP) and RAP Reports for Ghana	Wo + 50 weeks
56	Submission of comments on the draft ESMP (including ESCP, SEP, LMP, BMP, CHMP) and RAP Reports for Ghana (bilateral meetings)	Wo + 52 weeks
57	Submission of final ESIA, ESMP (including ESCP, SEP, LMP, BMP, CHMP) and RAP Reports for Ghana	Wo + 54 weeks
58	Submission of the final line route report (if required)	Wo + 54 weeks
59	Submission of the Non-Technical Summary Report of ESIA, ESMP (including ESCP, SEP, LMP, BMP, CHMP) and RAP for Côte d'Ivoire and Ghana	Wo + 54 weeks
60	Submission of the final feasibility study report (including the institutional and commercial framework) and the updated community electrification proposal	Wo + 55 weeks
61	Submission of the Non-Technical Summary Report of the ESIA, ESMP (including ESCP, SEP, LMP, BMP, CHMP) and RAP in local language for Côte d'Ivoire and Ghana	Wo + 56 weeks
62	Submission of the Draft Detailed Survey Report	Wo + 57 weeks
63	First round table of donors (Seminar)	Wo + 58 weeks

64	Site Visit with utilities to validate pillaring of Corridor	Wo + 59 weeks
65	Submission of the Draft Public Information and Sensitization Campaign Report	Wo + 59 weeks
66	Submission of the Final Detailed Survey Report	Wo + 61 weeks
67	Submission of Comments on the Draft Public Information and Sensitization Campaigns Report	Wo + 61 weeks
68	Submission of draft bidding documents	Wo + 61 weeks
69	Second Donor Roundtable (Seminar)	Wo + 62 weeks
70	Submission of the Final Report of the Public Information and Sensitization Campaigns	Wo + 63 weeks
71	Submission of comments on draft bidding documents (Seminar)	Wo + 64 weeks
72	Submission of Final Bidding Documents	Wo + 66 weeks
73	Submission of the Draft Project Completion Report	Wo + 68 weeks
74	Submission of Comments on the Draft Project Completion Report	Wo + 70 weeks
75	Submission of Final Project Completion Report	Wo + 72 weeks

The Consultant shall note that reports are considered “final” only when the Client, countries involved and Funding Agency (ies) have given their approval.

6. DELIVERABLES

The Consultant will produce the deliverables as shown in the following table:

	<u>Type of deliverable</u>	Number of reports (1 or 2)*
A	<u>Contract Management</u>	
	Inception report	1
	Monthly Report	1
	Quarterly Report	1
	Project completion Report	1
B	<u>Technical Reports</u>	
	Project Master Schedule	1
	Line Route study Report for Côte d’Ivoire and Ghana	1
	Feasibility Study Report for Côte d’Ivoire and Ghana	1
	Detail Survey Report for Côte d’Ivoire and Ghana	2
	Data Collection Report for Côte d’Ivoire and Ghana	1
	Report on the selection of the line voltage level for Côte d’Ivoire and Ghana	1
C	<u>Environmental and Social Documents</u>	
	Scoping Report	2
	Environment and Social Commitment Plan (ESCP) for Côte d’Ivoire and Ghana	2
	Stakeholder Engagement Plan (SEP) for Côte d’Ivoire and Ghana	2
	Labor Management Procedures (LMP) for Côte d’Ivoire and Ghana	2
	Biodiversity Management Plans (BMP) for Côte d’Ivoire and Ghana	2
	Environmental and Social Management Frameworks (ESMF) for Côte d’Ivoire and Ghana (for the interconnection lines and substations)	2

Environmental and Social Impact Assessment (ESIA) for Côte d'Ivoire and Ghana (for the interconnection lines and substations)	2
Environmental and Social Management Plan (ESMP) for Côte d'Ivoire and Ghana (for the interconnection lines and substations)	2
Resettlement Action plan (RAP) for Côte d'Ivoire and Ghana (for the interconnection lines and substations)	2
Cultural Heritage Management Plans (CHMP) for Côte d'Ivoire and Ghana	2
Environmental and Social Management Framework (ESMF) for the Electrification of Communities/Towns/Villages Along Line Route and Around Substations for Côte d'Ivoire and Ghana	2
Resettlement Policy Framework (RPF) for the Electrification of Communities/Towns/Villages Along Line Route and Around Substations for Côte d'Ivoire and Ghana	2
Non-Technical Summary Report for Côte d'Ivoire and Ghana	2
Non-Technical Summary Report in local language for Côte d'Ivoire and Ghana	2

* 1 means a report for all project, 2 means a report for each country.

All documents, maps, drawings and reports shall be prepared in English and French shall be in form and format acceptable to the WAPP Secretariat, CI-ENERGIES and GRIDCo and the Funding Agency. All documents shall be submitted by the Consultant simultaneously to the WAPP Secretariat and the utilities in each country. The reports shall be submitted under cover of official letter from the WAPP Secretariat. The Deliverables shall be consistent with the packaging of the assignments. As part of the Deliverables, the Consultant shall support the concerned utilities to follow up with the relevant national agencies/ Ministries to secure approval of reports.

All electronic versions of reports shall be submitted on USB keys and shall contain editable and non-editable versions of the reports. However, for the Scoping Report, ESIA, ESMP, RAP, Non-Technical Summary, ESMF and RPF for Electrification of Communities/Towns/Villages which are specific for each country only the final version for the report shall be translated in the other language.

Inception Report, Monthly Reports, Quarterly Reports, and Project Completion Report will be prepared for all countries. Other technical and ES documents (such as Scoping Report, Line Route Study Report, Environmental and Social Impact Assessment Report, Environmental and Social Management Plan, Resettlement Action Plan, ESMF and RPF, Detailed Survey Report, SEP, LMP, BMP, and Non-Technical Summary Report) will be prepared for each of the two (2#) countries.

All reports, documentation, deliverables, maps and presentations by the Consultant shall be prepared in English and French and shall be in form and format acceptable to the WAPP Secretariat and the Funding Agency. All electronic versions of reports shall be submitted on USB keys and shall contain editable and non-editable versions of the reports.

6.1. Contract Management Report (Inception, Monthly, Quarterly, and Completion Reports)

General requirements:

The number of copies of each report to be submitted shall be as follows:

- Two (2) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.
- Two (2) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.
- Two (2) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.
- Two (2) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana

- *Two (2) hard copies and one (1) electronic copy in English, and Two (2) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

Specific requirements:

Inception report. the consultant shall ensure that the Inception Report will also include the activities contributing to the implementation of the ESMF and the RPF for electrification.

Monthly reports: the Consultant shall plan to attend monthly meetings throughout the duration of this services to discuss the activities carried out during the previous month and the activity program for the month. Difficulties encountered and approaches to solutions will be discussed during the said meeting. The Consultant will prepare a report of these meetings in French and English in a format acceptable to the WAPP General Secretariat and circulate it by e-mail to all stakeholders. These meetings will be held on the 2nd working day of each month. The reports of these meetings shall be circulated no later than the end of the first business day following the day of the meeting.

Quarterly Report: The Consultant shall provide Quarterly Report. The reports shall describe the major tasks which have been undertaken in the performance of the studies, milestones towards the studies' completion, and percentage completion of the studies as at the end of the quarter. Financial data shall include photocopies of invoices from the Consultant as well as financial reports detailing expenditures of all funds and the daily rates of the Consultant, their hours worked and other direct costs. The reports shall be issued in English and French by the 10th calendar day after the end of the Quarter under review.

Project Completion Report. Before submitting the final version with number of copies described above, the Consultant shall submit a draft Project Completion Report that summaries among others, the activities undertaken by the Consultant within the framework of the Study, Deliverables submitted, disbursements received, issues encountered, and lessons learnt to be taken into consideration in future studies. The number of copies for draft version is similar to that of final version.

6.2. Data Collection Report

The Consultant shall prepare a data report after the completion of the data collection and review task. The report shall include all technical and economic data on CI-ENERGIES and GRIDCo networks, including single line diagrams of the HV transmission network and substations, and maps showing the HV transmission network and substations. The report shall also indicate the assumptions and input data for carrying out the Feasibility study. In addition, the report shall also specify the design criteria to be used for the engineering of the Interconnection Project. Furthermore, the report shall reflect a description of the operation and maintenance regimes of CI-ENERGIES and GRIDCo as related to HV networks. The number of copies of the reports to be submitted shall be as follows:

➤ *Draft Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to the Ministry in charge of energy in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to the Ministry in charge of energy in Ghana.*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

- *Final Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to the Ministry in charge of energy in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to the Ministry in charge of energy in Ghana.*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.3. Report on the selection of the line voltage level

The Consultant shall prepare a Line Voltage Level Assessment Report after the completion of the data collection and review task. The report on the selection of the voltage level of the line including a cost-benefit analysis. This report will be presented to the stakeholders at the adoption meeting, after which the Consultant will base the further study on the adopted voltage level.

The number of copies of the reports to be submitted is as follows:

- *Draft Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to the Ministry in charge of energy in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to the Ministry in charge of energy in Ghana.*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- *Final Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to the Ministry in charge of energy in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to the Ministry in charge of energy in Ghana.*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.4. Monthly meetings

The Consultant shall plan to attend monthly meetings throughout the duration of his services to discuss the activities carried out during the previous month and the activity program for the month. Difficulties encountered and approaches to solutions will be discussed during the said meeting. The Consultant will prepare a report of these meetings in French and English in a format acceptable to the WAPP General Secretariat and circulate it by e-mail to all stakeholders. These meetings will be held on the 2nd working day of each month. The reports of these meetings shall be circulated no later than the end of the first business day following the day of the meeting.

6.5. Project Master Schedule

Prepare and maintain a Schedule using software acceptable to the Client (such as MS Project) and effect monthly updating of the detail schedules demonstrating that the project is progressing in accordance with the contractual obligations. The updated schedule shall be submitted as part of the Monthly Report.

6.6. Scoping Report

The report shall be per country and shall be submitted as follows:

- *Draft Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- *Final Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.7. Update Line Route Study Report

- *Draft Report on updated Provisional Line Route:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- *Final Report on updated Provisional Line Route:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ *Report on updated Final Line Route:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.8. Feasibility Study Report

All versions of the report (Draft, Final) shall contain an Executive Summary of not more than 10 pages. The Reports shall be delivered in a form (with cover page(s) and formatting) acceptable to the WAPP Secretariat, concerned utilities and Funding Agencies.

The report shall cover all necessary technical aspects with a level of detail required for a Preliminary Design. The validation of the technical design studies will allow the finalization of the specifications for the preparation of the bidding documents.

The number of copies of the reports to be submitted shall be as follows:

➤ *Preliminary Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to the Ministry in charge of energy in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to the Ministry in charge of energy in Ghana.*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ *Draft Final Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to the Ministry in charge of energy in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to the Ministry in charge of energy in Ghana.*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

- *Final Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to the Ministry in charge of energy in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to the Ministry in charge of energy in Ghana.*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.9. Environmental and Social Documents (scoping report, ESIA, RAP, ESMP, ESMF, ESCP, SEP, RPF, and Non-Technical Summary Reports)

6.9.1. Update of the Scoping Report

The report shall be per country and shall be submitted as follows:

- *Draft Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
 - *Three (3) hard copies hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- *Final Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.9.2. Environmental and Social Commitment Plan (ESCP) and Stakeholders Engagement Plan Report (SEP)

Both reports shall be per country and shall be submitted as follows:

- *Draft Reports:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ *Final Reports:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d’Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.9.3. *Update of the Environmental and Social Impact Assessment Report (ESIA)*

All versions of the report (Draft, Final) shall contain an Executive Summary of not more than 10 pages immediately followed by the English version. The final document should be delivered in a form (with cover page(s) and formatting) acceptable to the WAPP Secretariat, concerned utilities and Funding Agencies. Action Plan to prevent and respond to risks of sexual exploitation, abuse and harassment (SEAH) should be part of the ESMP.

The Report shall also contain an appendix recording the sessions of consultation that have been held with affected people and other stakeholders during the preparation of the report. The final document should incorporate comments made during the training program.

The Report shall be submitted as follows:

➤ *Draft Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d’Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ *Final Report:*

- *Twenty (20) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d’Ivoire.*
- *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.9.4. *Environnemental & Social Management Plan (ESMP)*

All versions of the report (Draft, Final Draft) should contain a summary of no more than 10 pages. The final document should be delivered in a form (with cover sheet(s) and formatting) acceptable to the WAPP Secretariat, the companies involved and the funding institutions.

The Report should also contain an annex reporting on the consultation sessions conducted with affected people and other stakeholders during the preparation of the report.

The Final Report should incorporate comments made during the training program.

The Report shall be submitted as follows:

➤ *Draft Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ *Final Report:*

- *Twenty (20) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
- *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.9.5. *Update of the Resettlement Action Plan (RAP)*

All versions of the report (Draft, Final) shall contain an Executive Summary of not more than 10 pages. The final document should be delivered in a form (with cover page(s) and formatting) acceptable to the WAPP Secretariat, concerned utilities and Funding Agencies. The Report shall also contain an appendix recording the sessions of consultation that have been held with affected people and other stakeholders during the preparation of the report.

The final document should incorporate comments made during the training program.

The number of copies of the reports to be submitted shall be as follows:

➤ *Draft Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ *Final Report:*

- *Twenty (20) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
- *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.9.6. *Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) Report*

The report shall be submitted as follows:

➤ *Draft Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ *Final Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.9.7. *Non-technical Summary Report in Local Languages*

The Consultant shall be required to prepare a non-technical summary report of the impact assessments in the local languages in the areas involved as mandated by the Guidelines of Funding Agencies. The report shall contain a separate section on the on the Line Route, a separate section on the ESIA, a separate section on the ESMP, and a separate section on the RAP. The Consultant shall be advised by CI-ENERGIES in Côte d'Ivoire and GRIDCo in Ghana on the local languages to be used.

The Consultant shall also be required to perform informative meetings with the communities impacted by the project in all of the concerned countries after the Environmental and Social Impact Assessment and Resettlement Action Plan Study Final Reports have been approved. The informative meetings with the communities shall be held on dates to be defined by the WAPP Secretariat and national utilities.

The report shall be submitted as follows:

- *Draft Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

- *Final Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.9.8. *Non-technical Summary Report.*

The Consultant shall be required to prepare a non-technical summary report of the Environmental and Social Impact Assessments and Resettlement Action Plans in the areas involved that shall be suitable for presentation to the Boards of Directors of the concerned utilities and Funding Agencies. The report shall cover all the countries and contain a separate section on the Line Route, a separate section on ESIA, a separate section on the ESMP, and a separate section on the RAP.

The Report shall be delivered in a form (with cover page(s) and formatting) acceptable to the WAPP Secretariat, concerned utilities and Funding Agencies.

The number of copies of the reports to be submitted shall be as follows:

- *Draft Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ *Final Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.9.9. Translated Final Scoping, Final Draft ESIA, Final Draft ESMP, ESMF, RPF, RAP, and Non-Technical Summary Reports

➤ *Draft Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ *Final Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.9.10. Detail Survey Report:

The report shall be per line route segment within each country. The number of copies of the Detail Survey reports and the submission of all computation works, field books, drawings, maps etc. shall be as follows:

➤ *Draft Report:*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
- *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

- *Final Report:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d’Ivoire.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.10. Bidding Documents including Detailed design and Specifications

The Consultant shall submit a first draft report for the Client's comments and a final version incorporating all required comments.

The number of copies of the documents to be submitted shall be as follows:

- *Draft Final Bidding Documents:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- *Final Bidding Documents:*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

The draft and final Bidding Documents shall be delivered in a form and formatting acceptable to the Client and the Funding Agency (ies).

6.11. Project Completion Report

The Consultant shall submit a draft Project Completion Report that summaries among others, the activities undertaken by the Consultant within the framework of the Study, Deliverables submitted, disbursements received, issues encountered, and lessons learnt to be taken into consideration in future studies.

The number of copies of the documents to be submitted shall be as follows:

- *Draft Project Completion Report:*
 - *Two (2) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Two (2) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Two (2) hard copies and one (1) electronic copy in English, and Two (2) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- *Final Project Completion Report:*
 - *Two (2) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Two (2) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*

- *Two (2) hard copies and one (1) electronic copy in English, and Two (2) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

In addition to the above highlighted, the Consultant shall note that the draft and final Project Completion Reports shall be delivered in a form, formatting and content acceptable to the Client and the Funding Agency (ies).

6.11.1. Maps and Drawings

In addition to the above requirements, one (1) hard copy as well as three (3) USBs in the latest stable version of AUTOCAD of each map and drawing shall be submitted to each of the above-indicated Ministries in charge of energy, utilities and WAPP Secretariat. The hard copy should be on Unotrace drafting film - 75 micron - 0.003” paper (transler paper). All costs associated with the procurement and preparation of the maps and drawings shall be deemed to be included in the Financial Proposal of the Consultant.

7. KEY PERSONNEL

The level of effort for the assignment is estimated at 96 person-months for the key personnel. The key personnel are divided in two categories as follows:

- **Key Experts (KE):**

- Position KE – 1: Project Manager
- Position KE – 2: Geodetic Engineer / Surveyor
- Position KE – 3: Environmental Management Specialist
- Position KE – 4: Resettlement/Social Safeguards Specialist
- Position KE – 5: Transmission Planning Engineer
- Position KE – 6: Transmission Line Design Engineer
- Position KE – 7: Substation Design Engineer
- Position KE – 8: Economic and Financial Analyst

- **Other Key Experts (OKE):**

- Position OKE – 1: Social Development Specialist
- Position OKE – 2: Biologist (Specialist in fauna)
- Position OKE – 3: Biologist (Specialist in flora)
- Position OKE – 4: Protection and Control Engineer
- Position OKE – 5: Communication and SCADA Engineer
- Position OKE – 6: Procurement Specialist
- Position OKE – 7: Line/Substation Distribution Engineer
- Position OKE – 8: Gender Based Violence (Sexual Exploitation and Abuse, Sexual Harassment SEA/SH) Specialist
- Position OKE – 9: Health and Safety Specialist

The Consultant shall provide the CV of each of the Key Experts and Other Key Experts in its technical proposal. Particular attention shall be paid to the composition of the key personnel in evaluating the organization and staffing of the Consultant.

As indicated in Section 3.0 "Objectives of the Terms of Reference", **the consultant is reminded that the two teams in charge of the Feasibility Study and the ESIA Study** must work independently and show evidence how the Chinese wall is put into place.

The two teams should include:

- Position KE – 1: Project Manager.

- Feasibility Study team:
 - Position KE – 5: Transmission Planning Engineer
 - Position KE – 6: Transmission Line Design Engineer
 - Position KE – 7: Substation Design Engineer
 - Position KE – 8: Economic and Financial Analyst
 - Position OKE – 4: Protection and Control Engineer
 - Position OKE – 5: Communication and SCADA Engineer
 - Position OKE – 6: Procurement Specialist
 - Position OKE – 7: Line/Substation Distribution Engineer

- Line Route and ESIA Study team:
 - Position KE – 2: Geodetic Engineer/Surveyor
 - Position KE – 3: Environmental Management Specialist
 - Position KE – 4: Resettlement/Social Safeguards Specialist
 - Position KE – 6: Transmission Line Design Engineer
 - Position OKE – 1: Social Development Specialist
 - Position OKE – 2: Biologist (Fauna)
 - Position OKE – 3: Biologist (Flora)
 - Position OKE – 8: Gender Based Violence Specialist (Sexual Exploitation and Abuse, Sexual Harassment SEA/SH).
 - Position OKE – 9: Health and Safety Specialist

The Consultant shall designate a Team Leader for the Feasibility Study and a Team Leader for the Line Route, and ESIA Study.

The minimum required experience of the key personnel is:

(1)	Title	: KE – 1: Project Manager (At least an Engineering degree, Master's degree)
	Years of Professional Experience	: 15
	Participation in among others	The Project Director must be an expert with at least 5 years of education and proven experience in the role of coordinator and director of study missions. Kick off meeting, Scoping report validation meeting, Field trip to inspect Provisional Line Route, Provisional Line Route Report Validation Meeting, Meeting to examine Draft ESIA, ESMP & RAP, ESMF and RPF Reports, Meetings to examine Draft Final Feasibility Study Report and Draft Final Bidding documents, Donor Consultation Meetings, Training Workshops, Meetings at national level to adopt reports, Public Information and Sensitization in each country, Meeting of Ministers in charge of Energy. Day to day management of the technical and environmental and social studies.
	Specific Expertise	: Conducted ESIA studies and prepared Resettlement Action Plans in the same capacity on at least three (3) transmission line projects at 225 kV and above that included Line Route Studies. The length of the line should be at least 200 km and at least one of the projects should be in Africa. Working knowledge of English or French is required Experience in conducting HT Network feasibility studies is an advantage. The Consultant should have experience in participatory research approaches, applicable institutional and regulatory arrangements in the countries concerned, environmental analysis, environmental management and protection, involuntary resettlement issues (expropriation and relocation in the public interest) and the requirements of OP 4.01; 4.12 and environmental and social standards, including the World Bank's NES1 and NES10 standards relating to environmental and social impacts and risks and involuntary resettlement. Working knowledge of English and French is an asset.
(2)	Title	: KE – 2: Geodetic Engineer / Surveyor , (At least an Engineering degree, Master's degree)
	Years of Professional Experience	: 10
	Participation in among others	Kick off meeting, Scoping report validation meeting, Provisional Line Route Report Validation Meeting, One of the Donor Consultation Meetings, Training, Public Information and Sensitization in each country.
	Specific Expertise	: Surveyed or managed the survey of line routes of at least three (3) 161 kV and above transmission line projects. The length of the line should be at least 200 km, and at least one of the projects should be in Africa. Experience with

		LIDAR is required. Working knowledge of English and French is an advantage
(3)	Title	KE – 3: Environmental Management Specialist (At least an Engineering degree, Master's degree)
	Years of Professional Experience	12
	Participation in among others	Kick off meeting, Scoping report validation meeting, Field trip to inspect Provisional Line Route, Provisional Line Route Report Validation Meeting, Meeting to examine Draft ESIA, ESMP & RAP Reports, Donor Consultation Meetings, Training Workshops, Meetings at national level to adopt reports, Meeting of Ministers in charge of Energy.
	Specific Expertise	<p>Conducted ESIA studies in the same capacity on at least three (3) 161 kV and above transmission line projects one of which should be in Africa. Experience with International Financing Institutions Environmental and Social Safeguards (including World Bank and IFC) is required Working knowledge of English and French is required.</p> <p>Knowledge of participatory research approaches, the institutional and regulatory provisions applicable in the countries concerned by the mission in terms of the management of involuntary resettlement issues (public utility expropriation and relocation) and the requirements of World Bank Operational Policies and Environmental and Social Framework, relating to environmental and social impacts and risks and involuntary resettlement, is required.</p> <p>Having ISO 45001 certification or equivalent Health and Safety Specialist certificate is required.</p>
(4)	Title	KE 4: Resettlement/Social Specialist (At least an Engineering degree, Master's degree in Social sciences (Sociology, Geography, Economics, Local development, Law) or equivalent); knowledge and training in gender and SEA/SH issues
	Years of Professional Experience	12
	Participation in among others	<p>The mission for the elaboration of the RAP will be carried out by an expert with at least a BAC +5 degree in Social Sciences (Sociology, Geography, Economics, Local Development, Law), justifying at least ten years of experience in the realization of social studies and/or environmental and social assessments. He/she will participate in the following activities.</p> <p>Kick off meeting, Scoping report validation meeting, Field trip to inspect Provisional Line Route, Provisional Line Route Report Validation Meeting, Meeting to examine Draft ESIA, ESMP & RAP Reports, Donor Consultation</p>

		Meetings, Training Workshops, Meetings at national level to adopt reports, Meeting of Ministers in charge of Energy.
	Specific Expertise	<p>Experience in conducting social impact analysis, cultural/anthropological studies, experience in creating grievance mechanisms, understands good practices in inclusive and accessible stakeholder consultations. Involved in the development of Resettlement Action Plans in the same capacity for at least three (3) 161 kV and above transmission line projects, one of which should be in West Africa. Experience with International Financing Institutions Environmental and Social Safeguards (including World Bank and IFC) is required. Working knowledge of English and French is required.</p> <p>Experience in the implementation of grievance mechanisms, inclusive and accessible stakeholder consultation and participation is required. Knowledge of participatory research approaches, social inclusion and addressing risks and impacts of resettlement on vulnerable persons and groups, the institutional and regulatory provisions applicable in the countries concerned by the mission in terms of the management of involuntary resettlement issues (public utility expropriation and relocation), livelihoods/economic displacement, and the requirements of OP 4.01 and 4.12 and Environmental and Social Standards, including the World Bank's ESS1 and ESS10 standards relating to environmental and social impacts and risks and involuntary resettlement, is required.</p>
(5)	Title	OKE – 1: Social Development Specialist
	Years of Professional Experience	12
	Took part in the following:	<p>The mission for the elaboration of the RAP will be carried out by an expert with at least a BAC +5 degree in Social Sciences (Sociology, Psychology, Geography, Economics, Local Development, Law), justifying at least ten years of experience in the realization of social studies and or environmental and social assessments. He/she will participate in the following activities</p> <p>Kick-off meeting, Scoping report validation meeting, Field visit to inspect the provisional line layout. He will conduct surveys to characterize the beneficiary and affected communities, he will deal with issues related to social development, social inclusion approach including gender and vulnerable groups as well as prevention of gender-based violence including sexual exploitation and abuse/sexual harassment and violence against children.</p>

	Specific Expertise	<p>Having conducted sociological and anthropological surveys. Having been involved in the development of Resettlement Action Plans and Resettlement Action Plans for at least three (03) transmission line projects at 161 kV or higher, one of which should be in Africa. Experience with the policies of international financial institutions on social inclusion issues.</p> <p>To do so, he/she must demonstrate qualifications and skills in participatory approaches, social inclusion approach including gender and vulnerable groups as well as prevention of gender-based violence including sexual exploitation and abuse/sexual harassment and violence against children.</p> <p>The consultant must have experience in participatory research approaches, applicable institutional and regulatory arrangements in the countries concerned, environmental analysis, environmental management and protection, involuntary resettlement issues (expropriation and relocation in the public interest), and the requirements of OP 4.01; 4.12 and environmental and social standards, including the World Bank's NES1 and NES10 standards on environmental and social impacts and risks and involuntary resettlement</p> <p>Working knowledge of English and French is an asset</p>
(6)	Title	OKE – 2: Biologist (Wildlife specialist)
	<u>Years of Professional Experience</u>	8
	Took part in the following:	<p>This mission will be carried out by an expert with at least a BAC +5 degree in Botany, Biology, Ecology, Water and Forestry and Hunting, etc. with at least ten years of experience in the realization of social studies and or environmental and social assessments. He/she will participate in the following activities</p> <p>Kick-off meeting, scoping report validation meeting, field visit to inspect the provisional line layout, provisional line layout validation meeting, meeting to review the draft ESIA, ESMP & RAP reports, the draft ESMF and RF reports. One of the donor consultation meetings.</p>
	Specific Expertise	<p>Having conducted ecological studies and floral biodiversity surveys, including threatened and endemic species listed on the IUCN red list in projects requiring environmental permits. Having been involved in the development of ESIA studies, in the same capacity, for at least two (02) transmission line projects at 161 kV or higher, including Environmental and Social Management Plans, one of which should be in Africa. Experience with the policies of international financial institutions on social and environmental protection (including IFC) is required.</p>

		<p>The Consultant must have experience in participatory research approaches, applicable institutional and regulatory arrangements in the countries concerned, environmental analysis, environmental management and protection, involuntary resettlement issues (expropriation and relocation in the public interest), and the requirements of OP 4.01; 4.12 and environmental and social standards, including the World Bank's NES1 and NES10 standards relating to environmental and social impacts and risks, and involuntary resettlement</p> <p>Working knowledge of English and French is an asset.</p>
(7)	Title	OKE – 3: Biologist (Flora specialist)
	<u>Years of Professional Experience</u>	8
	Took part in the following:	<p>This mission will be carried out by an expert with at least a BAC +5 degree in Botany, Biology, Ecology, Water and Forestry and Hunting, etc. with at least ten years of experience in the realization of social studies and or environmental and social assessments. He/she will participate in the following activities</p> <p>Kick-off meeting, scoping report validation meeting, field visit to inspect the provisional line layout, provisional line layout validation meeting, meeting to review the draft ESIA, ESMP & RAP reports, the draft ESMF and RF reports. One of the donor consultation meetings.</p>
	Specific Expertise	<p>Having conducted ecological studies and floral biodiversity surveys, including threatened and endemic species listed on the IUCN red list in projects requiring environmental permits. Having been involved in the development of ESIA studies, in the same capacity, for at least two (02) transmission line projects at 161 kV or higher, including Environmental and Social Management Plans, one of which should be in Africa. Experience with the policies of international financial institutions on social and environmental protection (including IFC) is required. The consultant must have experience in participatory research approaches, applicable institutional and regulatory arrangements in the countries concerned, environmental analysis, environmental management and protection, involuntary resettlement issues (expropriation and relocation in the public interest), and the requirements of OP 4.01; 4.12 and environmental and social standards, including the World Bank's NES1 and NES10 standards relating to environmental and social impacts and risks and involuntary resettlement</p> <p>Working knowledge of English and French is an asset.</p>

(8)	Title	KE 5: Transmission Planning Engineer - At least an Engineering degree, Master's degree in Electricity/Electromechanics or equivalent
	Years of Professional Experience	10
	Participation in among others	Kick off meeting, Data collection exercise, data validation meeting, Network modelling validation, training at home office, Preliminary Report adoption, Provisional Report adoption.
	Specific Expertise	Involved in design and implementation of at least three (3) 225 kV and above transmission line projects including Feasibility Studies, Network simulations and analyses, Preliminary Designs and Tender documents preparation. The length of the line should be at least 200 km and at least one of the projects should be in Africa. Working knowledge of English and French is required.
(9)	Title	KE 6: Transmission Line Design Engineer (At least an Engineering degree, Master's degree in Electricity/Electromechanics or equivalent)
	Years of Professional Experience	10
	Participation in among others	Kick off meeting, Data collection exercise, Scoping report validation meeting, Field trip to inspect Provisional Line Route, Provisional Line Route Report Validation Meeting, Network modelling validation, training at home office, Preliminary Report adoption, Donors Consultation Meetings, draft Bidding Document adoption
	Specific Expertise	Involved in design and implementation of at least three (3) 225 kV and above transmission line projects including Feasibility Studies, Preliminary Designs and Tender documents preparation. Experience in rural electrification schemes involving shield-wire technology is also required. The length of the line should be at least 200 km and at least one of the projects should be in Africa. Working knowledge of English and French is required.
(10)	Title	KE 7: Substation Design Engineer At least an Engineering degree, Master's degree in Electricity/Electromechanics or equivalent)
	Years of Professional Experience	10
	Participation in among others	Kick off meeting, Data collection exercise, Network modelling validation, training at home office, Preliminary Report adoption, Donors Consultation Meetings, draft Bidding Document adoption

	Specific Expertise	Involved in design and implementation of at least three (3) 225 kV and above substation and switchgear projects including Feasibility Studies, Preliminary Designs and Tender documents preparation. Experience in rural electrification schemes involving shield-wire technology is also required. At least one of the projects should be in Africa. Working knowledge of English and French is required.
(11)	Title	OKE 4: Protection and Control Engineer (At least an Engineering degree, Master's degree in Electricity/Electromechanics or equivalent)
	Years of Professional Experience	10
	Participation in among others	Kick off meeting, Data collection exercise, Network modelling validation, training at home office, Preliminary Report adoption,
	Specific Expertise	Involved in design and implementation of at least three (3) 161 kV or more and above substation and/or switchgear projects including Feasibility Studies, Preliminary Designs and Tender documents preparation. At least one of the projects should be in Africa. Working knowledge of English and French is required.
(12)	Title	KE 8: Economic and Financial Analyst (At least Bachelor's in economics, Finance or equivalent)
	Years of Professional Experience	10
	Participation in among others	Kick off meeting, Data collection exercise, data validation meeting, training at home office, Preliminary Report adoption, Provisional Report adoption, Donors Consultation Meetings, Meeting of Ministers in charge of Energy
	Specific Expertise	Involved in the economic, financial, risk, and sensitivity analyses of at least three (3) 161 kV or more and above transmission line projects. At least one of the projects should be in Africa. Working knowledge of English and French is required.
(13)	Title	OKE 5: Communication and SCADA Engineer - At least an Engineering degree, Master's degree in Telecommunications, Electricity or equivalent
	Years of Professional Experience	10
	Participation in among others	Kick off meeting, Data collection exercise, Network modelling validation, training at home office, Preliminary Report adoption
	Specific Expertise	Involved in the design and implementation of SCADA and communication facilities in at least three (3) 161 kV or more. At least one of the projects should be in Africa. Working knowledge of English and French is required.

(14)	Title	OKE 6: Procurement Specialist - At least an Engineering degree, Master's degree
	Years of Professional Experience	10
	Participation in among others	Training at home office, Donors Consultation Meetings, Draft Bidding Document adoption
	Specific Expertise	Involved in the Tender document preparation of at least three (3) transmission line projects, one of which should be in Africa. Working knowledge of English and French is required.
(15)	Title	OKE 7: Line/Substation Distribution Engineer - At least an Engineering degree, Master's degree in Electricity/Electromechanics or equivalent
	Years of Professional Experience	10
	Participation in among others	Identification of provisional routes for medium voltage networks and substation locations, Recommendation on technology mode for achieving rural electrification, Proposal on least cost solution to achieve rural electrification.
	Specific Expertise	Involved in the design of at least three (3) 33 kV and above transmission line projects, one of which should be in Africa. Working knowledge of English and French is an advantage. Demonstrated expertise in shield-wire electrification schemes shall also be an advantage.
(16)	Title	OKE 8: Gender Based Violence (Sexual Exploitation and Abuse, Sexual Harassment SEA/SH) Specialist
	Years of Professional Experience	10
	Participation in among others	<ul style="list-style-type: none"> - Participation in social impact assessment, consultations with women and girls as well as stakeholders involved in social protection, prevention of GBV etc. -Mapping of GBV service providers offering medical and psychosocial assistance and/or legal aid and evaluation of the quality of their interventions following international guidelines on minimum quality requirements. -Preparation of SEAH Action plan with measures such as the code of conducts and internal policies for prevention and response to SEAH, capacity building plan for personnel, awareness raising campaigns for community members, GM with procedures for SEAH complaints, relevant indicators and budget for implementation of those measures.

	Specific Expertise	<p>The Consultant must have:</p> <ul style="list-style-type: none"> -At least 10 years of work experience in the arena of GBV prevention and response programming in project-affected communities, including proven track record related to GBV projects delivered and trust built with communities. - Experience in delivering gender and GBV-related sensitization trainings and awareness-raising activities to a wide range of audiences, including in challenging environments (e.g. law enforcement agencies). • strong interpersonal skills and the capacity to apply a survivor-centered approach to support, guide, listen, assess, plan, and follow up on services and survivor support, including an understanding of key survivor care principles. • Experience and knowledge regarding the ethical and confidential collection and management of GBV-related case data. <p>Speaking/writing of English and French is required, knowledge of local languages would be an advantage</p>
(17)	Title	OKE – 9: Health and Safety Specialist
	Years of Professional Experience	12
	Participation in among others	Kick off meeting, Scoping report validation meeting, Meeting to examine Draft ESIA, ESMP & RAP Reports, One of the Donor Consultation Meetings.
	Specific Expertise	<p>Carried out OHS plans and emergency response plans. Involved in the development ESIA/ESMP/RAP in the same capacity for at least three (3) 161 kV and above transmission line projects, one of which should be in Africa. Working knowledge of English and French is an advantage.</p> <p>Having ISO 45001:2018 certification or equivalent Health and Safety Specialist certificate is required.</p>

The Consultant is very strongly encouraged to have local teams in each of the concerned countries to facilitate the execution of the assignment.

8. INFORMATION TO BE PROVIDED BY THE WAPP SECRETARIAT, CI-ENERGIES AND GRIDCo

The WAPP Secretariat, CI-ENERGIES and GRIDCo:

- Information on the existing electricity networks in each country.
- ECOWAS Master Plan for the Development of Regional Power Generation and Transmission Infrastructure 2019 – 2033
- WAPP Grid Code (under development)
- WAPP Transmission Tariff Methodology

9. REPORTING REQUIREMENTS

The Consultant shall report to the WAPP Secretariat. However, each of the utilities involved, CI-ENERGIES and GRIDCo, shall appoint a Project Manager who shall co-ordinate the activities of the Consultant in Côte d'Ivoire and Ghana respectively.

All correspondences on the project from the Consultant addressed to any party should be copied to the other two (2) parties for their information.

10. CONDUCT OF WORK

The Consultant shall provide overall management of all aspects of the work / services.

The Consultant shall work closely with the designated staff of the WAPP Secretariat, CI-ENERGIES and GRIDCo.

The Consultant shall participate in meetings with the WAPP Secretariat, CI-ENERGIES and GRIDCo.

The Consultant shall implement its internal quality control and assurance procedures during the execution of the Contract, and shall demonstrate that they are being applied.

11. PARTICIPATION OF WAPP, CI-ENERGIES AND GRIDCO

The WAPP Secretariat, CI-ENERGIES and GRIDCo shall provide to the contracted Consultant if required;

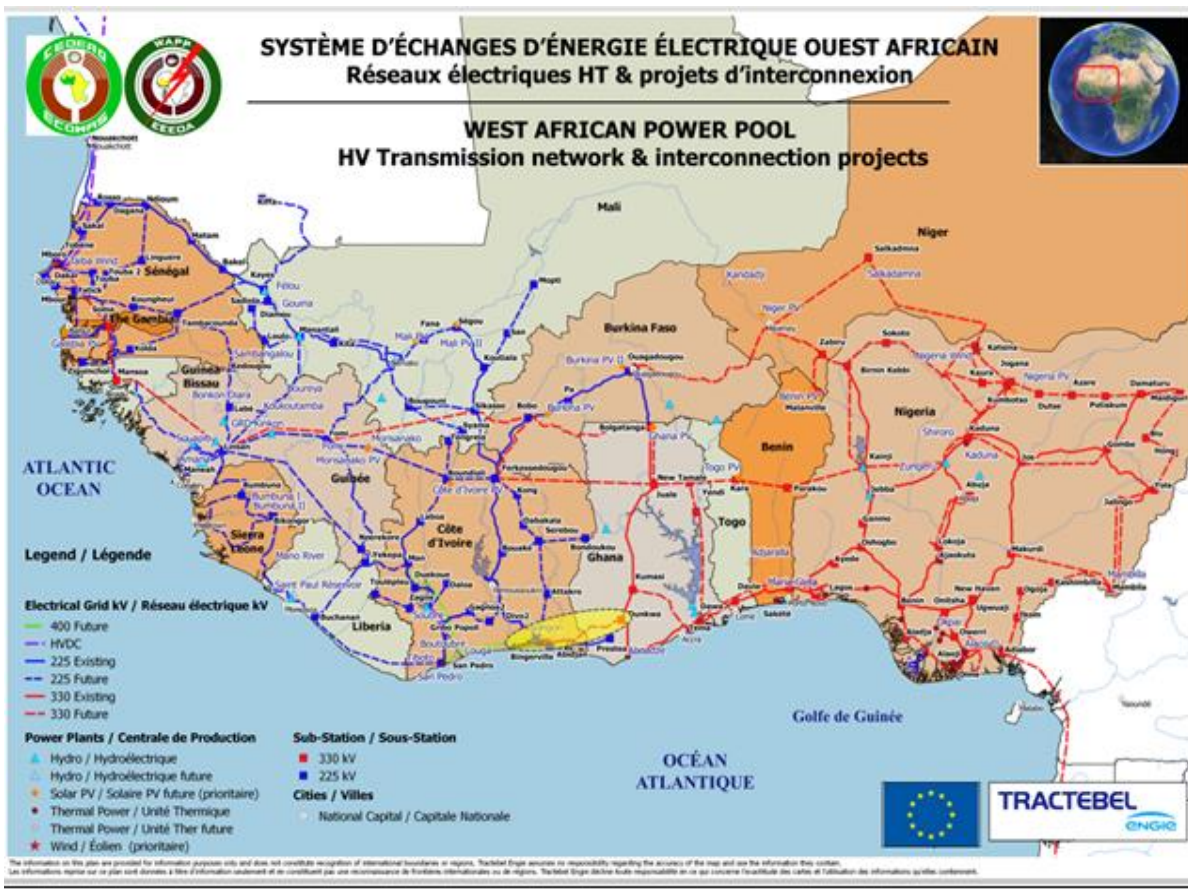
- One (1) Office suitably furnished and with air conditioning. All related utility consumption charges shall be the responsibility of the Consultant.
- Arrangements for meetings with representatives of WAPP, CI-ENERGIES and GRIDCo.

The Consultant shall make his own arrangements in coordination with the WAPP Secretariat for whatever services that the WAPP Secretariat cannot provide.

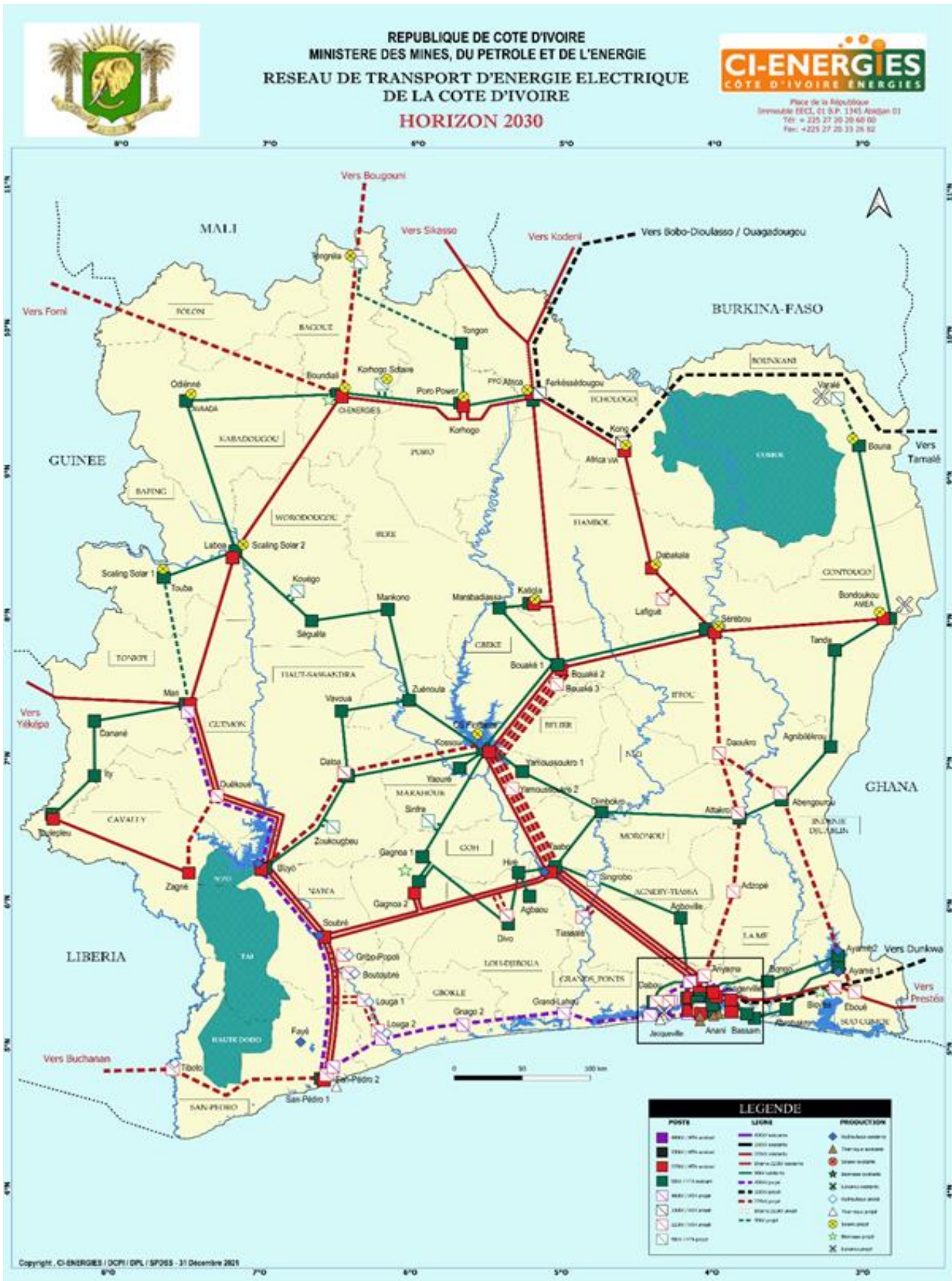
ANNEXES

ANNEX 1: MAP OF PROPOSED INTERCONNECTION (To be Validated by Line Route Study)

This map is only indicative. The actual route and distance of the line, together with the location of the substations, shall be based on the outcomes of the Line Route and ESIA Study



ANNEX 2: INDICATIVE GRID MAP OF CI-ENERGIES



ANNEX 4 : DISTANCES APPROXIMATIVES

<u>From</u>	<u>To</u>	<u>Estimated Distance</u>
Bingerville (Côte d'Ivoire)	Border Côte d'Ivoire – Ghana	<u>127</u>
Border Côte d'Ivoire – Ghana	Dunkwa 2 (Ghana)	<u>119</u>
<u>TOTAL</u>		<u>246</u>

ANNEX 5: SAFETY RULES FOR THE FELLING TREES

The following precautions shall be observed while felling trees:

- In locations where ordinary felling operations might cause damage to property including transmission lines, trees shall be suitably dismembered and felled using block and tackle when necessary.
- Whenever practicable, trees shall be felled directly away from a power or telephone line after having removed all limbs that might contact the line or cause damage to other trees or property. If the tree must be felled toward a line it shall be topped low enough to clear all conductors, etc.
- Pulling down trees or lowering limbs by means of attachment ropes connected to a moving motor vehicles is prohibited. The tackle must be anchored to a fixed object such as a suitable tree, a truck with its wheels blocked or a stake holdfast.
- Guy ropes shall be used on all trees that are sufficiently large to cause damage should they fall in any direction other than that intended. The guy ropes shall be able to stand well outside the striking distance of the tree.
- Anchors for guy ropes shall be installed in such a position that person handling the guy ropes shall be able to stand well outside the striking distance of the tree.
- Before a tree is felled, men other than those actually engaged in cutting the tree shall keep clear of any area within the possible striking distance of the tree. Men shall not be allowed to remain in nearby trees if there is any doubt as their safety.
- Ample warning shall always be given before a tree is expected to fall and the workmen must stand clear in case the tree springs from the stump while falling.
- Brush and other debris or equipment that would hamper free movement when using sharp tools or when getting clear in case of emergency shall always be cleared away.
- Ordinary, trees shall be notched in the direction towards which they are to fall and sufficient holding wood shall be left to provide control.
- Under no circumstances shall a partially cut tree be left standing during a lunch hour or overnight.
- Before commencing the backcut on a tree, one or more pieces of log chain or guy cable shall be placed tightly around the tree if the tree is split, leaning or has a twin trunk that is likely to split. One chain or cable shall be placed above and as close as practical to the backcut to prevent separation of the trunk.
- The Consultant shall satisfy himself that any employee permitted to operate a power chain saw is qualified to do so.
- Before the felling of any tree which may get into contact with the conductors on the existing lines, the nearest manned substation shall be advised. This substation should be contacted in the event of any mishap or problem during the felling.

ANNEX 6: OUTLINE OF ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

ESIA REQUIREMENTS

1. The Borrower will carry out an Environmental and Social Impact Assessment (ESIA) of the project to assess its environmental and social risks and impacts of the project throughout the project life cycle.³ The assessment will be proportionate to the potential risks and impacts of the project, and will assess, in an integrated way, all relevant direct,⁴ indirect⁵ and cumulative⁶ environmental and social risks and impacts throughout the project life cycle, including those specifically identified in the Environmental and Social Standards (ESSs) 2–10 of the World Bank’s Environmental and Social Framework (ESF).
2. The ESIA will be based on current information, including an accurate description and delineation of the project and any associated aspects, and environmental and social baseline data at an appropriate level of detail sufficient to inform characterization and identification of risks and impacts and mitigation measures. The ESIA will evaluate the project’s potential environmental and social risks and impacts; examine project alternatives; identify ways of improving project selection, siting, planning, design and implementation in order to apply the mitigation hierarchy⁷ for adverse environmental and social impacts and seek opportunities to enhance the positive impacts of the project. The ESIA will include stakeholder engagement as an integral part of the assessment, in accordance with ESS 10.
3. The ESIA will be an adequate, accurate, and objective evaluation and presentation of the known risks and impacts, prepared by qualified and experienced persons.
4. The Borrower will ensure that the ESIA takes into account in an appropriate manner 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; country environmental or social studies; national environmental or social action plans; and obligations of the country directly applicable to the project under relevant international treaties and agreements;
 - applicable requirements under the ESSs; and
 - the Environmental and Health Safety Guidelines (EHSs), and other relevant Good International Industry Practice (GIIP).⁸
5. The ESIA will set out and apply a mitigation hierarchy, which will:

³This may include preconstruction, construction, operation, decommissioning, closure and Reinstatement/restoration.

⁴ A direct impact is an impact which is caused by the project and occurs contemporaneously in the location of the project.

⁵ An indirect impact is an impact which is caused by the project and is later in time or farther removed in distance than a direct impact, but is still reasonably foreseeable, and will not include induced impacts.

⁶ The cumulative impact of the project is the incremental impact of the project when added to impacts from other relevant past, present and reasonably foreseeable developments as well as unplanned but predictable activities enabled by the project that may occur later or at a different location. Cumulative impacts can result from individually minor but collectively significant activities taking place over a period of time. The environmental and social assessment will consider cumulative impacts that are recognized as important on the basis of scientific concerns and/or reflect the concerns of project-affected parties. The potential cumulative impacts will be determined as early as possible, ideally as part of project scoping.

⁷ See paragraph 7, which explains the mitigation hierarchy.

⁸ Good International Industry Practice (GIIP) is defined as the exercise of professional skill, diligence, prudence, and foresight that would reasonably be expected from skilled and experienced professionals engaged in the same type of undertaking under the same or similar circumstances globally or regionally. The outcome of such exercise should be that the project employs the most appropriate technologies in the project-specific circumstances.

- i. Anticipate and avoid risks and impacts;
 - ii. Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels;
 - iii. Once risks and impacts have been minimized or reduced, mitigate;⁹ and
 - iv. Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible.¹⁰
6. The ESIA, informed by the scoping of the issues, will take into account all relevant environmental and social risks and impacts of the project:
 7. Environmental risks and impacts, including: (i) those defined by the EHSs; (ii) those related to community safety (including dam safety and safe use of pesticides); (iii) those related to climate change and other transboundary or global risks and impacts; (iv) any material threat to the protection, conservation, maintenance and restoration of natural habitats and biodiversity; and (v) those related to ecosystem services¹¹ and the use of living natural resources, such as fisheries and forests
 8. Social risks and impacts, including: (i) threats to human security through the escalation of personal, communal or inter-state conflict, crime or violence¹²; (ii) risks that project impacts fall disproportionately on individuals and groups who, because of their particular circumstances, may be disadvantaged or vulnerable;¹³ (iii) any prejudice or discrimination toward individuals or groups in providing access to development resources and project benefits, particularly in the case of those who may be disadvantaged or vulnerable; (iv) negative economic and social impacts relating to the involuntary taking of land or restrictions on land use; (v) risks or impacts associated with land and natural resource tenure and use,¹⁴

⁹ The requirement to mitigate impacts may include measures to assist project-affected parties to improve or at least restore their livelihoods as relevant in a particular project setting.

¹⁰ The Borrower will make reasonable efforts to incorporate the costs of compensating and/or offsetting for the significant residual impacts as part of project costs. The environmental and social assessment will consider the significance of such residual impacts, the long-term effect of these on the environment and project-affected people, and the extent to which they are considered reasonable in the context of the project. Where it is determined that it is not technically or financially feasible to compensate or offset for such residual impacts, the rationale for this determination (including the options that were considered) will be set out in the environmental and social assessment.

¹¹ Ecosystem services are the benefits that people derive from ecosystems. Ecosystem services are organized into four types: (i) provisioning services, which are the products people obtain from ecosystems and which may include food, freshwater, timbers, fibers, and medicinal plants; (ii) regulating services, which are the benefits people obtain from the regulation of ecosystem processes and which may include surface water purification, carbon storage and sequestration, climate regulation, protection from natural hazards; (iii) cultural services, which are the nonmaterial benefits people obtain from ecosystems and which may include natural areas that are sacred sites and areas of importance for recreations and aesthetic enjoyment; and (iv) supporting services, which are the natural processes that maintain the other services and which may include soil formation, nutrient cycling and primary production.

¹² This includes Sexual Exploitation, Abuse and Harassment (SEAH). Please note that separate consultations with women, facilitated by a woman in a safe place, are recommended to identify and analyze the SEAH risks. However, those consultations should focus on trends of violence and factors impacting the risks of violence and not on individual experience of violence. In no circumstances prevalence data should be collected during ESIA, nor survivors of GBV should be interviewed. Data on prevalence of GBV from existing studies (DHS, MICS, etc.) can be used and key informant interviews with GBV service providers can supplement it with information on reported cases. Locally available services (minimum medical, psychosocial and legal aid) for GBV survivors will be mapped out and evaluated for the quality of their assistance (methodology for the quality evaluation can be made available by the World Bank).

¹³ Disadvantaged or vulnerable refers to those who may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits. Such an individual/group is also more likely to be excluded from/unable to participate fully in the mainstream consultation process and as such may require specific measures and/or assistance to do so. This will take into account considerations relating to age, including the elderly and minors, and including in circumstances where they may be separated from their family, the community or other individuals upon which they depend.

¹⁴ Due to the complexity of tenure issues in many contexts, and the importance of secure tenure for livelihoods, careful assessment and design is needed to help ensure that projects do not inadvertently compromise existing legitimate rights (including collective rights, subsidiary rights and the rights of women) or have other unintended consequences, particularly where the project supports

including (as relevant) potential project impacts on local land use patterns and tenurial arrangements, land access and availability, food security and land values, and any corresponding risks related to conflict or contestation over land and natural resources; (vi) impacts on the health, safety and well-being of workers and project-affected communities; and (vii) risks to cultural heritage.

9. Where the ESIA identifies specific individuals or groups as disadvantaged or vulnerable, the Borrower will propose and implement differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing any development benefits and opportunities resulting from the project.
10. For projects involving multiple small subprojects,¹⁵ that are identified, prepared and implemented during the course of the project, the Borrower will carry out appropriate environmental and social assessment of subprojects, and prepare and implement such subprojects, as follows: (a) High Risk subprojects, in accordance with the ESSs; (b) Substantial Risk, Moderate Risk and Low Risk subprojects, in accordance with national law and any requirements of the ESSs that the Bank deems relevant to such subprojects.¹⁶
11. If the risk rating of a subproject increases to a higher risk rating, the Borrower will apply the relevant requirements of the ESSs and the project Environmental and Social Commitment Plan (ESCP) will be updated as appropriate.
12. The ESIA will also identify and assess, to the extent appropriate, the potential environmental and social risks and impacts of Associated Facilities. The Borrower will address the risks and impacts of Associated Facilities in a manner proportionate to its control or influence over the Associated Facilities. To the extent that the Borrower cannot control or influence the Associated Activities to meet the requirements of the ESSs, the environmental and social assessment will also identify the risks and impacts the Associated Facilities may present to the project.
13. For projects that are High Risk or contentious or that involve serious multidimensional environmental or social risks or impacts, the Borrower may be required to engage one or more internationally recognized independent experts. Such experts may, depending on the project, form part of an advisory panel or be otherwise employed by the Borrower, and will provide independent advice and oversight to the project.¹⁷
14. The ESIA will also consider risks and impacts associated with the primary suppliers¹⁸ as required by ESS 2 and ESS 6. The Borrower will address such risks and impacts in a manner proportionate to the Borrower's control or influence over its primary suppliers as set out in ESS2 and ESS6.

land titling and related issues. In such circumstances, the Borrower will at a minimum demonstrate to the Bank's satisfaction that applicable laws and procedures, along with project design features (a) provide clear and adequate rules for the recognition of relevant land tenure rights; (b) establish fair criteria and functioning, transparent and participatory processes for resolving competing tenure claims; and (c) include genuine efforts to inform affected people about their rights and provide access to impartial advice.

¹⁵ For example, a Bank-supported project with multiple small subprojects, as in the case of community-driven development projects, projects involving matching grant schemes, or similar projects designated by the Bank.

¹⁶ Where subprojects are likely to have minimal or no adverse environmental or social risks and impacts, such subprojects do not require further environmental and social assessment following the initial scoping.

¹⁷ This requirement relates to the independent advice and oversight of such projects and is not related to circumstances in which the Borrower will be required to retain independent specialists to carry out environmental and social assessment.

¹⁸ Primary suppliers are those suppliers who, on an ongoing basis, provide directly to the project goods or materials essential for the core functions of the project. Core functions of a project constitute those production and/or service processes essential for a specific project activity without which the project cannot continue.

15. The ESIA will consider potentially significant project-related transboundary and global risks and impacts, such as impacts from effluents and emissions, increased use or contamination of international waterways, emissions of short- and long-lived climate pollutants,¹⁹ climate change mitigation, adaptation and resilience issues, and impacts on threatened or depleted migratory species and their habitats.

B. STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE

18. As set out in ESS 10, the Borrower will continue to engage with, and provide sufficient information to stakeholders throughout the life cycle of the project, in a manner appropriate to the nature of their interests and the potential environmental and social risks and impacts of the project²⁰.

19. The ESIA must include a description of how the Borrower will propose and implement a grievance mechanism (GM) to address these concerns and receive complaints and facilitate their resolution. This description would be derived from the Stakeholder Engagement Plan (SEP). The ESIA will clearly define roles, responsibilities and accountabilities and designate the persons who will be responsible for implementing and monitoring stakeholder engagement activities and ensuring compliance with national laws and regulations, as well as the requirements of the World Bank ESF, including those related to confidential and survivor centered management of complaints related to SEAH.

20. For High Risk and Substantial Risk projects, the Borrower will provide to the Bank and disclose documentation, as agreed with the Bank, relating to the environmental and social risks and impacts of the project prior to project appraisal. The documentation will address, in an adequate manner, the key risks and impacts of the project, and will provide sufficient detail to inform stakeholder engagement and Bank decision making. The Borrower will provide to the Bank and disclose final or updated documentation as specified in the ESCP.

21. If there are significant changes to the project that result in additional risks and impacts, particularly where these will impact project-affected parties, the Borrower will provide information on such risks and impacts and consult with project-affected parties as to how these risks and impacts will be mitigated. The Borrower will disclose an updated ESCP, setting out the mitigation measures.

C. PROJECT MONITORING AND REPORTING

22. The Borrower will monitor the environmental and social performance of the project in accordance with the legal agreement (including the ESCP). The extent and mode of monitoring will be agreed upon with the Bank and will be proportionate to the nature of the project, the project's environmental and social risks and impacts, and compliance requirements. The Borrower will ensure that adequate institutional arrangements, systems, resources and personnel are in place to carry out monitoring. Where appropriate and as set out in the ESCP, the Borrower will engage stakeholders and third parties, such as independent experts, local communities or NGOs, to complement or verify its own monitoring activities. Where other agencies or third parties are responsible for managing specific risks and impacts and implementing mitigation measures, the Borrower will collaborate with such agencies and third parties to establish and monitor such mitigation measures.

¹⁹ This includes all greenhouse gases (GHGs) and black carbon (BC).

²⁰ Including recognition on how the social status and vulnerability of some groups can impact their participation leading to exclusion. Such groups will be consulted/engaged in small separate groups divided by gender and age and facilitated by a person of the same sex.

23. Monitoring will normally include recording information to track performance and establishing relevant operational controls to verify and compare compliance and progress. Monitoring will be adjusted according to performance experience, as well as actions requested by relevant regulatory authorities and feedback from stakeholders such as community members. The Borrower will document monitoring results.
24. The Borrower will provide regular reports as set out in the ESCP (in any event, no less than annually) to the Bank of the results of the monitoring. Such reports will provide an accurate and objective record of project implementation, including compliance with the ESCP and the requirements of the ESSs. Such reports will include information on stakeholder engagement conducted during project implementation in accordance with ESS10. The Borrower, and the agencies implementing the project, will designate senior officials to be responsible for reviewing the reports.
25. Based on the results of the monitoring, the Borrower will identify any necessary corrective and preventive actions and will incorporate these in an amended ESCP or the relevant management tool, in a manner acceptable to the Bank. The Borrower will implement the agreed corrective and preventive actions in accordance with the amended ESCP or relevant management tool and monitor and report on these actions.
26. The Borrower will facilitate site visits by Bank staff or consultants acting on the Bank's behalf. The Borrower will notify the Bank promptly of any incident or accident relating to the project which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public or workers. The notification will provide sufficient detail regarding such incident or accident, including any fatalities or serious injuries. The Borrower will take immediate measures to address the incident or accident and to prevent any recurrence, in accordance with national law and the ESSs.

D. KEY PRINCIPLES AND TASKS OF THE ESIA

27. The ESIA will provide more precisely the following:
 - explicit methodological procedures and approaches for consideration of environmental and social aspects, standard mitigation measures and tools needed to identify impacts and mitigation measures.
 - The roles and responsibilities of the different structures involved in the implementation and monitoring of the Project.
 - The training, capacity building and other technical assistance needs necessary for the implementation of the ESIA.
 - An estimate of the budget needed to carry out ESIA activities (which will subsequently be included in the project budget and related investments).
28. The Environmental and Social Management Framework (ESMF) of the project will also have to comply with the country's environmental and social legislation.
29. Because of the potential negative impacts of some project developments on the socio-economic and natural resource base of countries, these safeguards, in addition to understanding positive impacts, provide an operational framework for the identification, analysis of negative impacts and appropriate mitigation measures by avoiding or eliminating negative environmental and social impacts or reducing them to an acceptable level.
30. The main tasks and associated results or deliverables are described below:

- a) Describe the biophysical environment and the environmental and social situation in the Project intervention area, which represent the baseline of the Project;
- b) Describe and provide baseline data for the social environment;
- c) The political, legal and institutional framework for environmental management and assessment of impacts relevant to the nature of the project;
- d) The procedures of [COUNTRY] in the Environmental and Social Assessment process;
- e) Institutional modalities for consideration of environmental and social aspects in the implementation of sub-projects / activities at the community level;
- f) Identify, evaluate and measure the extent of positive and negative impacts and direct and indirect environmental risks in the Project's areas of intervention;
 - include the impact on people by the specific activities of the project, including public health (malaria, schistosomiasis, other forms of water-related diseases and pesticide misuse) and proposed appropriate mitigation measures
- g) Identify, evaluate and measure the extent of positive and negative impacts and direct and indirect social risks in the Project's areas of intervention;
 - include differentiated mitigation/social inclusion measures for vulnerable/disadvantaged groups and individuals (including women, ethnic groups including pastoralists, persons with disabilities, youth, illiterate persons, etc.) for project benefits, GRM, SEP (and ensure accessible disclosure)
 - include sexual exploitation, abuse and harassment (SEAH) risk assessment and risks to children, labor practices, especially those in vulnerable situations
 - ensure the stakeholder engagement plan includes disadvantaged/vulnerable groups and individuals and has differentiated measures to enhance participation/engagement and share in project benefits (strengthen opportunities for citizen engagement especially at local level to foster social cohesion, service delivery, and accessible GM, including an ethical, confidential and survivor-centered channel to address SEAH complaints)
 - conduct mapping of existing local GBV service providers offering, at the minimum medical, psychosocial and legal aid services, as well as evaluation of the quality of their interventions in all regions of project implementations
 - incorporate where appropriate, traditional forms of GMs but must also balance with ensuring accessibility/inclusion of disadvantaged and marginalized individuals and groups
 - consider access to land/natural resources especially for its potential to exacerbate tensions, deepen poverty and inequality (especially among women, certain forms of livelihoods such as pastoralism)
 - incorporate culturally appropriate measures when assessing risks and impacts and project benefits, especially as they relate to vulnerable livelihoods, persons and groups (include impacts on local cultures, languages and customs)
 - consider social fragility/conflict risks including poverty as a driver of fragility, inter-community dynamics between differences in access to services (i.e. water, food, land), differences in land and resource uses, livelihoods, unemployment, etc.
- h) Provide a checklist of types of impacts and corrective actions to avoid and/or mitigate them. The consultant will present, in annex, a table containing the types of impacts and the appropriate mitigation measures taking into account the typology of irrigated systems given above, and social issues/risks above. They must also propose, as far as possible,

actions for the improvement of the environmental and social conditions in the areas of intervention of the project;

- i) Develop a framework for participatory monitoring and evaluation of programs as set out above to ensure effective and efficient implementation of the environmental and social issues highlighted in the ESIA;
- j) Describe the mechanism and institutional arrangements for the implementation of the ESIA and preparation of the ESMPs, specifying the roles and responsibilities of the agencies and all actors (central, regional / local, municipal and village) involved in the implementation;
- k) Evaluate the capacities of the governmental and local implementing agencies involved in the implementation of the ESIA and sensitization on the environmental and social issues of the project and propose appropriate measures for sensitization, institutional strengthening and/or technical capacity building different actors;²¹
- l) Develop a public consultation and participation program involving all project stakeholders including key beneficiaries and those directly affected by the project, including women, youth and vulnerable groups. A separate Stakeholder Engagement Plan needs to be prepared and it should be summarized in the ESIA annex;
- m) Develop a monitoring and evaluation mechanism to ensure systematic and effective monitoring of the main ESIA recommendations;
- n) The preparation of standard detailed terms of reference for the strategic, regional or sectoral impact assessment to accompany the preparation of ideas for new investment projects and related technical analyses/studies.

(a) Executive Summary

- Concisely discusses significant findings and recommended actions (including budget – that includes budget for grievance mechanism, SEAH Prevention and Response Action Plan, consultation, monitoring, sensitization sessions, etc.)

(b) Legal and Institutional Framework

- Analyzes the legal and institutional framework for the project, within which the environmental and social assessment is carried out, including for considerations related to gender as well as protections for vulnerable groups, such as women and children.
- Compares the Borrower's existing environmental and social framework and the Bank's Ops and identifies the gaps between them and how they will be addressed.
- Identifies and assesses the environmental and social requirements of any co-financiers.

(c) Project Description

²¹ Environmental and social assessment can provide opportunities for coordinating environmental and social-related responsibilities and actions in the host country in a way that goes beyond project boundaries/responsibilities and, as a result, where feasible should be linked to other environmental and social strategies and action plans, and free-standing projects. The ESIA for a specific project can thereby help strengthen environmental and social management capability in the country and both Borrowers and the Bank are encouraged to take advantage of opportunities to use it for that purpose. The Borrower may include components in the project to strengthen its legal or technical capacity to carry out key environmental and social assessment functions. If the Bank concludes that the Borrower has inadequate legal or technical capacity to carry out such functions, the Bank may require strengthening programs to be included as part of the project. If the project includes one or more elements of capacity strengthening, these elements will be subject to periodic monitoring and evaluation as required by ESS 1.

- Concisely describes the proposed project and its geographic, environmental, social, and temporal context, including any offsite investments that may be required (e.g., dedicated pipelines, access roads, power supply, water supply, housing, and raw material and product storage facilities), as well as the project's primary suppliers.
- Through consideration of the details of the project, indicates the need for any plan to meet the requirements of national law and the Bank's OPs.
- Includes a map of **sufficient detail**, showing the project site and the area that may be affected by the project's direct, indirect, and cumulative impacts.

(d) Baseline Data

- Sets out in detail the environmental and social baseline data that is relevant to decisions about project location, design, operation, or mitigation measures. This should include a discussion of the accuracy, reliability, and sources of the data as well as information about dates surrounding project identification, planning and implementation.
- Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions.
- Provide baseline data on the following, including but not limited to: (i) threats to human security through the escalation of personal, communal or inter-state conflict, crime or violence; (ii) information around infrastructure and social services, including public health and access to the full range of sexual and reproductive health services, especially for women and girls; (iii) risks that project impacts fall disproportionately on individuals and groups who, because of their particular circumstances, may be disadvantaged or vulnerable; (iv) any prejudice or discrimination toward individuals or groups in providing access to development resources and project benefits, particularly in the case of those who may be disadvantaged or vulnerable; (v) negative economic and social impacts relating to the involuntary taking of land or restrictions on land use; (vi) risks or impacts associated with land and natural resource tenure and use, including (as relevant) potential project impacts on local land use patterns and tenurial arrangements, land access and availability, food security and land values, and any corresponding risks related to conflict or contestation over land and natural resources; (vii) cultural, gender, and social norms and practices, particularly those which are harmful to women and girls and would be exacerbated as a result of project implementation, including power dynamics, division of labor and participation in decision-making processes in both professional and private spheres; (viii) existing data regarding gender-based violence (GBV), including data on partner/non-partner sexual violence and physical violence, sexual exploitation, abuse and harassment (SEAH), intimate partner violence, family violence, early marriage, and harmful traditional practices, especially those particularly at risk of being exacerbated by project implementation,²² and data on availability and accessibility of safe and ethical GBV response services, including medical care, psychosocial services, legal aid, protection services and livelihood opportunities²³; (ix) data regarding access to employment, educational and economic opportunities for traditionally marginalized populations, especially women and girls; (x) impacts on the health, safety and well-being of workers and project-affected communities, including work site labor conditions and associated risks of SEAH and other forms of abuse; and (xi) risks to cultural heritage.
- Each dimension of the human or social environment baseline shall include gender analyses and take into account the impact of local customs and practices and social norms. Particular

²² Potential sources of this information include data from the Demographic and Health Surveys (DHS), from UNICEF's Multiple Indicator Cluster Surveys (MICS) and from the Gender Sustainable Development Goals.

²³ GBV services should be aligned with the standards outlined by national and international guidelines and good practices, including the WHO Guidelines for the Clinical Management of Rape and GBV Quality Assurance Tool, guidelines for the Clinical Care of Child Survivors of Sexual Assault (UNICEF and IRC), the Inter Agency Guidelines for GBV Case Management and UNFPA Minimum Standards for GBV Prevention and Response.

attention should be placed on cultural practices in relation to women, including prevalence and effects of SEAH as well as the infrastructure or social services that are accessible to women.

- Where the ESIA identifies specific individuals or groups as disadvantaged or vulnerable, the Borrower will propose and implement differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing any development benefits and opportunities resulting from the project.
- Based on current information, assesses the scope of the area to be studied and describes **relevant** physical, biological, and socioeconomic conditions²⁴, including any changes anticipated before the project commences.
- Takes into account current and proposed development activities within the project area but not directly connected to the project.

(e) Environmental and Social Risks and Impacts

- Takes into account all relevant environmental and social risks and impacts of the project. This will include the environmental and social risks and impacts specifically identified in the OP 4.01 and any other environmental and social risks and impacts arising as a consequence of the specific nature and context of the project.
- The social analysis shall include an evaluation of risks and the potential adverse impact of the project to exacerbate GBV, including SEA and SH, or promote harmful gender, social or cultural norms. All impact statements should apply a gender lens to show the differentiated scope of the impact on men, women, boys, and girls.

(f) Mitigation Measures

- Identifies mitigation measures and significant residual negative impacts that cannot be mitigated and, to the extent possible, assesses the acceptability of those residual negative impacts.
- Identifies differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, including specific mitigation measures to address SEAH risk, as to be outlined under the SEAH Prevention and Response Action Plan for the project and for the contractor.
- Assesses the feasibility of mitigating the environmental and social impacts; the capital and recurrent costs of proposed mitigation measures, and their suitability under local conditions; and the institutional, training, and monitoring requirements for the proposed mitigation measures.
- Specifies issues that do not require further attention, providing the basis for this determination.

(g) Analysis of Alternatives

²⁴ Socio-economic conditions can include relevant information about composition of communities (age, gender, disadvantaged groups); education attainment rates (especially relevant if project is close to schools where child labor and risks to children can be a risk; and to better understand literacy rates); ethno-linguistic groups; access to information technology (do women/men get their information from newspapers/TV/radio/internet/religious or other leaders, etc.); key religions; key livelihoods (including women's livelihoods and those of other vulnerable groups); use of nearby natural resources and who collects natural products for household or livelihood use; access to health services, ethically obtained information about health status of community (not to be obtained in surveys but consult local health centers), access to electricity/WASH, banking, land rights/tenure, etc. Gender disaggregate social baselines provide information about possible risks and impacts to women/girls as well as gathering information about other vulnerable groups. Consultations to discuss issues related to SEAH with women/girls should be conducted by a woman with expertise in SEAH and conducted in a safe environment (no pictures) and documentation should not identify individual persons.

- Systematically compares feasible alternatives to the proposed project site, technology, design, and operation—including the “without project” situation—in terms of their potential environmental and social impacts.
- Assesses the alternatives’ feasibility of mitigating the environmental and social impacts; the capital and recurrent costs of alternative mitigation measures, and their suitability under local conditions; and the institutional, training, and monitoring requirements for the alternative mitigation measures.
- For each of the alternatives, quantifies the environmental and social impacts to the extent possible, and attaches economic values where feasible.

(h) Design Measures

- Sets out the basis for selecting the particular project design proposed and specifies the applicable ESHGs or if the ESHGs are determined to be inapplicable, justifies recommended emission levels and approaches to pollution prevention and abatement that are consistent with GIIP.

(j) Appendices

- List of the individuals or organizations that prepared or contributed to the environmental and social assessment.
- References—setting out the written materials both published and unpublished, that have been used.
- Record of meetings, consultations, and surveys with stakeholders (excluding identifiable information about participants; summarizing key issues discussed, questions raised, and responses given by the consultants/project team), including those with affected people and other interested parties. The record specifies the means of such stakeholder engagement that were used to obtain the views of affected people and other interested parties. Any photos obtained of general consultations (i.e., not with women focus groups) must have prior consent of the community and record of such consent must be included in the consultation record.
- Tables presenting the relevant data referred to or summarized in the main text.
- List of associated reports or plans.

G. INDICATIVE OUTLINE OF AN ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

An ESMP consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation of a project to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to acceptable levels. The ESMP also includes the measures and actions needed to implement these measures. The Borrower will:

- (i) identify the set of responses to potentially adverse impacts;
- (ii) determine requirements for ensuring that those responses are made effectively and in a timely manner; and
- (iii) describe the means for meeting those requirements.

H. The content of the ESMP will include the following:

(a) Mitigation

The ESMP identifies measures and actions in accordance with the mitigation hierarchy that reduce potentially adverse environmental and social impacts to acceptable levels.

The plan will include compensatory measures, if applicable. Specifically, the ESMP:

- i. identifies and summarizes all anticipated adverse environmental and social impacts (including those involving Indigenous Peoples, involuntary resettlement, labor and working conditions, SEAH, stakeholder engagement and grievance mechanism, etc.);
- ii. describes—with technical details—each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; for SEAH, relevant mitigation measures will be outlined in a SEAH Prevention and Response Action Plan for the contractor;
- iii. estimates any potential environmental and social impacts of these measures; and
- iv. takes into account, and is consistent with, other mitigation plans required for the project (e.g., for involuntary resettlement, or cultural heritage).

(b) Monitoring

- The ESMP identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the environmental and social assessment and the mitigation measures described in the ESMP.²⁵
- Specifically, the monitoring section of the ESMP provides (a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and (b) monitoring and reporting procedures to: (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation. The monitoring should include indicators that ethically track service referrals for survivors of SEAH and responsiveness of the project grievance mechanism.

(c) Capacity Development and Training

- To support timely and effective implementation of environmental and social project components and mitigation measures, the ESMP draws on the environmental and social assessment of the existence, role, and capability of responsible parties on site or at the agency and ministry level.
- Specifically, the ESMP provides a specific description of institutional arrangements, identifying which party is responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training).

²⁵ Monitoring during project implementation provides information about key environmental and social aspects of the project, particularly the environmental and social impacts of the project and the effectiveness of mitigation measures. Such information enables the Borrower and the Bank to evaluate the success of mitigation as part of project supervision and allows corrective action to be taken when needed.

- To strengthen environmental and social management capability in the agencies responsible for implementation, the ESMP recommends the establishment or expansion of the parties responsible, the training of staff, including on SEAH-related issues, and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the environmental and social assessment.

(d) Implementation Schedule and Cost Estimates

- For all three aspects (mitigation, monitoring, and capacity development), the ESMP provides (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the ESMP. These figures are also integrated into the total project cost tables.

(e) Integration of ESMP with Project

The Borrower's decision to proceed with a project, and the Bank's decision to support it, are predicated in part on the expectation that the ESMP will be executed effectively. Consequently, each of the measures and actions to be implemented will be clearly specified, including the individual mitigation and monitoring measures and actions and the institutional responsibilities relating to each, and the costs of so doing will be integrated into the project's overall planning, design, budget and implementation.

ANNEX 7 : RESETTLEMENT ACTION PLAN OUTLINE

RESETTLEMENT ACTION PLAN REQUIREMENTS

1. The Resettlement Action Plan (RAP) will meet the requirements of Environmental and Social Standard (ESS) 5 (Land Acquisition, Restrictions on Land Use and Involuntary Resettlement) of the World Bank's Environmental and Social Framework. RAPs include measures to address physical and/or economic displacement, depending on the nature of the impacts expected from a project. Projects may use alternative nomenclature, depending on the scope of the resettlement plan—for example, where a project involves only economic displacement, the resettlement plan may be called a “livelihood plan” or where restrictions on access to legally designated parks and protected areas are involved, the plan may take the form of a “process framework.”
2. The scope of requirements and level of detail of the RAP vary with the magnitude and complexity of resettlement. The RAP is based on up-to-date and reliable information about (a) the proposed project and its potential impacts on the displaced persons and other adversely affected groups, (b) appropriate and feasible mitigation measures, and (c) the legal and institutional arrangements required for effective implementation of resettlement measures.
3. Project-affected persons (PAPs) may be classified as persons: (a) Who have formal legal rights to land or assets; (b) Who do not have formal legal rights to land or assets but have a claim to land or assets that is recognized or recognizable under national law;²⁶ or (c) Who have no recognizable legal right or claim to the land or assets they occupy or use.
4. The RAP should explain, where relevant, permanent or temporary physical and economic displacement resulting from the following types of land acquisition or restrictions on land use undertaken in connection with project implementation, including:
 - (a) Land rights or land use rights acquired or restricted through expropriation or other compulsory procedures in accordance with national law;
 - (b) Land rights or land use rights acquired or restricted through negotiated settlements with property owners or those with legal rights to the land, if failure to reach settlement would have resulted in expropriation or other compulsory procedures;
 - (c) Restrictions on land use and access to natural resources that cause a community or groups usage where they have traditional or customary tenure, or recognizable usage rights. This may include situations where legally designated protected areas, forests, biodiversity areas or buffer zones are established in connection with the project;
 - (d) Relocation of people without formal, traditional, or recognizable usage rights, who are occupying or utilizing land prior to a project-specific cut-off date;
 - (e) Displacement of people as a result of project impacts that render their land unusable or inaccessible;
 - (f) Restrictions on access to land or use of other resources including communal property and natural resources such as marine and aquatic resources, timber and non-timber forest products, fresh water, medicinal plants, hunting and gathering grounds and grazing and cropping areas within a community to lose access to resources;

²⁶ Such claims could be derived from adverse possession or from customary or traditional tenure arrangements.

- (g) Land rights or claims to land or resources relinquished by individuals or communities without full payment of compensation; and
- (h) Land acquisition or land use restrictions occurring prior to the project, but which were undertaken or initiated in anticipation of, or in preparation for, the project.

Principles in the RAP regarding compensation and benefits for project-affected persons

5. When land acquisition or restrictions on land use (whether permanent or temporary) cannot be avoided, the project will offer PAPs compensation at replacement cost, and other assistance as may be necessary to help them improve or at least restore their standards of living or livelihoods.²⁷
6. Compensation standards for categories of land and fixed assets will be disclosed and applied consistently. Compensation rates may be subject to upward adjustment where negotiation strategies are employed. The RAP should document a clear basis for calculation of compensation how the compensation is being distributed in accordance with transparent procedures.
7. Where livelihoods of displaced persons are land-based,²⁸ or where land is collectively owned, the project will offer the displaced persons an option for replacement land unless it can be demonstrated that equivalent replacement land is unavailable. As the nature and objectives of the project may allow, the project will also provide opportunities to displaced communities and persons to derive appropriate development benefits from the project. In the case of affected persons under paragraph 3 (c), resettlement assistance will be provided in lieu of compensation for land.
8. The Borrower will take possession of acquired land and related assets only after compensation and, where applicable, displaced people have been resettled and moving allowances have been provided to the displaced persons in addition to compensation.²⁹ In addition, livelihood restoration and improvement programs will commence in a timely fashion in order to ensure that PAPs are sufficiently prepared to take advantage of alternative livelihood opportunities as the need to do so arises.

Community engagement

9. The RAP will summarize how the project has engaged with affected communities, including host communities, through the process of stakeholder engagement, as set out in the project Stakeholder Engagement Plan (SEP)³⁰. It will also set out the decision-making processes related to resettlement and livelihood restoration, including options and alternatives from which PAPs may

²⁷ At the request of affected persons, it may be necessary to acquire entire land parcels if partial acquisition would render the remainder economically unviable, or make the remaining parcel unsafe or inaccessible for human use or occupancy.

²⁸ The term "land-based" includes livelihood activities such as rotational cropping and grazing of livestock as well as the harvesting of natural resources and, where applicable, displaced people have been resettled and moving allowances have been provided to the displaced persons in addition to compensation. In addition, livelihood restoration and improvement programs will commence in a timely fashion in order to ensure that affected persons are sufficiently prepared to take advantage of alternative livelihood opportunities as the need to do so arises.

²⁹ In certain cases there may be significant difficulties related to the payment of compensation to particular affected persons, for example, where repeated efforts to contact absentee owners have failed, where project-affected persons have rejected compensation that has been offered to them in accordance with the approved plan, or where competing claims to the ownership of lands or assets are subject to lengthy legal proceedings. On an exceptional basis, with prior agreement of the Bank, and where the Borrower demonstrates that all reasonable efforts to resolve such matters have been taken, the Borrower may deposit compensation funds as required by the plan (plus a reasonable additional amount for contingencies) into an interest-bearing escrow or other deposit account and proceed with the relevant project activities. Compensation placed in escrow will be made available to eligible persons in a timely manner as issues are resolved. The RAP should document this process.

³⁰ The requirements for the Stakeholder Engagement Plan are set out in ESS 10 (Stakeholder Engagement and Information Disclosure).

choose. Disclosure of relevant information and meaningful participation of affected communities and persons will take place during the consideration of alternative project designs and thereafter throughout the planning, implementation, monitoring, and evaluation of the compensation process, livelihood restoration activities, and relocation process. Risks of SEAH related to resettlement activities will be recognized and mitigation measures integrated into RAP (code of conduct for personnel, procedures within GM, awareness raising of PAPs). Additional provisions apply to consultations with displaced Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, in accordance with ESS7.

10. The consultation process should ensure that women's perspectives are obtained and their interests factored into all aspects of resettlement planning and implementation. Addressing livelihood impacts may require intra-household analysis in cases where women's and men's livelihoods are affected differently. Women's and men's preferences in terms of compensation mechanisms, such as replacement land or alternative access to natural resources rather than in cash, should be explored in the RAP.

Grievance mechanism

11. The RAP should summarize the grievance mechanism for the project, as set out in the SEP, including the GM adapted to address SEAH complaints. The grievance mechanism should address, inter alia, specific concerns about compensation, relocation or livelihood restoration measures raised by displaced persons (or others) in a timely fashion. Where possible, such grievance mechanisms will utilize existing formal or informal grievance mechanisms suitable for project purposes, supplemented as needed with project-specific arrangements designed to resolve disputes in an impartial manner.

Planning and implementation

12. Where land acquisition or restrictions on land use are unavoidable, the project will, as part of the environmental and social assessment, conduct a census to identify the persons who will be affected by the project, to establish an inventory of land and assets to be affected³¹, to determine who will be eligible for compensation and assistance,³² and to discourage ineligible persons, such as opportunistic settlers, from claiming benefits. The social assessment will also address the claims of communities or groups who, for valid reasons, may not be present in the project area during the time of the census, such as seasonal resource users. In conjunction with the census, the project will establish a cutoff date for eligibility. Information regarding the cut-off date will be well documented and will be disseminated throughout the project area at regular intervals in written and (as appropriate) nonwritten forms and in relevant local languages. This will include posted warnings that persons settling in the project area after the cutoff date may be subject to removal.
13. To address the issues identified in the environmental and social assessment, the RAP needs to be proportionate to the risks and impacts associated with the project:
 - (a) For projects with minor land acquisition or restrictions on land use, for which there will be no significant impact on incomes, the RAP will establish eligibility criteria for affected

³¹ Such inventory should include a detailed account, derived through a consultative, impartial and transparent process, of the full range of rights held or asserted by affected people, including those based on custom or practice, secondary rights such as rights of access or use for livelihoods purposes, rights held in common, etc.

³² Documentation of ownership or occupancy and compensation payments should be issued in the names of both spouses or single heads of households as relevant, and other resettlement assistance, such as skills training, access to credit, and job opportunities, should be equally available to women and adapted to their needs. Where national law and tenure systems do not recognize the rights of women to hold or contract in property, measures should be considered to provide women as much protection as possible with the objective to achieve equity with men.

- persons, set out procedures and standards for compensation, and incorporate arrangements for consultations, monitoring and addressing grievances;
- (b) For projects causing physical displacement, the RAP will set out the additional measures relevant to relocation of PAPs;
 - (c) For projects involving economic displacement with significant impacts on livelihoods or income generation, the RAP will set out the additional measures relating to livelihood improvement or restoration; and
 - (d) For projects that may impose changes in land use that restrict access to resources in legally designated parks or protected areas or other common property resources on which local people may depend for livelihood purposes, the RAP will establish a participatory process for determining appropriate restrictions on use and set out the mitigation measures to address adverse impacts on livelihoods that may result from such restrictions.
14. The RAP will establish the roles and responsibilities relating to financing and implementation, and include arrangements for contingency financing to meet unanticipated costs, as well as arrangements for timely and coordinated response to unforeseen circumstances impeding progress toward desired outcomes.³³ The full costs of resettlement activities necessary to achieve the objectives of the project must be included in the total costs of the project. The costs of resettlement, like the costs of other project activities, are treated as a charge against the economic benefits of the project; and any net benefits to resettlers (as compared to the “without-project” circumstances) are added to the benefits stream of the project.
15. The RAP will describe the procedures to monitor and evaluate its implementation and will take corrective action as necessary during implementation to achieve its objectives. The extent of monitoring activities will be proportionate to the project’s risks and impacts. For all projects with significant involuntary resettlement impacts, the project will retain competent resettlement professionals to monitor the implementation of resettlement plans, design corrective actions as necessary, provide advice and produce periodic monitoring reports. The RAP will also explain that PAPs will be consulted during the monitoring process. Periodic monitoring reports will be prepared and PAPs will be informed about monitoring results in a timely manner.
16. Implementation of the RAP will be considered completed when the adverse impacts of resettlement have been addressed in a manner that is consistent with the RAP’s requirements. For all projects with significant involuntary resettlement impacts, the project will commission an external completion audit of the plan when all mitigation measures have been substantially completed. The completion audit will be undertaken by competent resettlement professionals, will assess whether livelihoods and living standards have been improved or at least restored and, as necessary, will propose corrective actions to meet objectives not yet achieved.

C. DISPLACEMENT

Physical displacement

17. In the case of physical displacement, RAP will be designed to mitigate the negative impacts of displacement and, as warranted, to identify development opportunities. It will include a resettlement budget and implementation schedule, and establish the entitlements of all categories of affected persons (including host communities). Particular attention will be paid to gender aspects and the needs of the poor and the vulnerable. The Borrower will document all transactions to acquire land rights, provision of compensation and other assistance associated with relocation activities.

³³ For projects with significant resettlement impacts and complex mitigation measures, the Borrower may consider preparing a stand-alone resettlement project for Bank support.

18. If people living in the project area are required to move to another location, the RAP will document:
- (a) the choices to displaced persons among feasible resettlement options, including adequate replacement housing or cash compensation; and
 - (b) the provision of relocation assistance suited to the needs of each group of displaced persons. New resettlement sites will offer living conditions at least equivalent to those previously enjoyed, or consistent with prevailing minimum codes or standards, whichever set of standards is higher. If new resettlement sites are to be prepared, host communities will be consulted regarding planning options, and RAPs will ensure continued access, at least at existing levels or standards, for host communities to facilities and services. The displaced persons' preferences with respect to relocating in preexisting communities and groups will be respected wherever possible. Existing social and cultural institutions of the displaced persons and any host communities will be respected.
19. In the case of physically displaced persons under paragraph 3 (a) or (b), the project will offer the choice of replacement property of equal or higher value, with security of tenure, equivalent or better characteristics, and advantages of location, or cash compensation at replacement cost. Compensation in kind should be considered in lieu of cash.³⁴
20. In the case of physically displaced persons under paragraph 3 (c), the project will provide arrangements to allow them to obtain adequate housing with security of tenure. Where these displaced persons own structures, the project will compensate them for the loss of assets other than land, such as dwellings and other improvements to the land, at replacement cost.³⁵ Based on consultation with such displaced persons, the project will provide relocation assistance in lieu of compensation for land sufficient for them to restore their standards of living at an adequate alternative site.³⁶
21. The project is not required to compensate or assist those who encroach on the project area after the cutoff date for eligibility, provided the cut-off date has been clearly established and made public.
22. The RAP should explain that the project will not resort to forced evictions of affected persons. "Forced eviction" is defined as the permanent or temporary removal against the will of individuals, families, and/or communities from the homes and/or land which they occupy without the provision of, and access to, appropriate forms of legal and other protection, including all applicable procedures and principles in ESS 5. The exercise of eminent domain, compulsory acquisition or similar powers by a Borrower will not be considered to be forced eviction providing it complies with the requirements of national law and the provisions of this ESS, and is conducted in a manner consistent with basic principles of due process (including provision of adequate advance notice, meaningful opportunities to lodge grievances and appeals, and avoidance of the use of unnecessary, disproportionate or excessive force).

³⁴ Payment of cash compensation for lost land and other assets may be appropriate where: (a) livelihoods are not land-based; (b) livelihoods are land-based but the land taken for the project is a small fraction of the affected asset and the residual land is economically viable; or (c) active markets for land, housing, and labor exist, displaced persons use such markets, there is sufficient supply of land and housing, and the Borrower has demonstrated to the satisfaction of the World Bank that insufficient replacement land is available.

³⁵ Where the Borrower demonstrates that an affected person derives substantial income from multiple illegal rental units, the compensation and other assistance that would otherwise be available to such person for non-land assets and livelihood restoration may be reduced with the prior agreement of the World Bank.

³⁶ Relocation of informal settlers in urban areas may involve trade-offs. For example, the relocated families may gain security of tenure, but they may lose locational advantages that may be essential to livelihoods, especially among the poor or vulnerable. Changes in location that may affect livelihood opportunities should be addressed in the RAP.

23. As an alternative to displacement, the project may consider negotiating in situ land development arrangements by which those to be affected may elect to accept a partial loss of land or localized relocation in return for improvements that will increase the value of their property after development. Any person not wishing to participate will be allowed to opt instead for full compensation and other assistance.

Economic displacement

24. In the case of projects affecting livelihoods or income generation, the RAP will include measures to allow affected persons to improve, or at least restore, their incomes or livelihoods. The RAP will establish the entitlements of affected persons and/or communities, paying particular attention to gender aspects and the needs of vulnerable segments of communities, and will ensure that these are provided in a transparent, consistent, and equitable manner. The RAP will incorporate arrangements to monitor the effectiveness of livelihood measures during implementation, as well as evaluation once implementation is completed. The mitigation of economic displacement will be considered complete when the completion audit concludes that affected persons or communities have received all of the assistance for which they are eligible, and have been provided with adequate opportunity to reestablish their livelihoods.
25. Economically displaced persons who face loss of assets or access to assets will be compensated for such loss at replacement cost:
- (a) In cases where land acquisition or restrictions on land use affect commercial enterprises,³⁷ affected business owners will be compensated for the cost of identifying a viable alternative location; for lost net income during the period of transition; for the cost of the transfer and reinstallation of the plant, machinery, or other equipment; and for reestablishing commercial activities. Affected employees will receive assistance for temporary loss of wages and, if necessary, assistance in identifying alternative employment opportunities;
 - (b) In cases affecting persons with legal rights or claims to land that are recognized or recognizable under national law, replacement property (e.g., agricultural or commercial sites) of equal or greater value will be provided, or, where appropriate, cash compensation at replacement cost; and
 - (c) Economically displaced persons who are without legally recognizable claims to land will be compensated for lost assets other than land (such as crops, irrigation infrastructure and other improvements made to the land), at replacement cost. Additionally, the project will provide assistance in lieu of land compensation sufficient to provide such persons with an opportunity to reestablish livelihoods elsewhere. The project is not required to compensate or assist persons who encroach on the project area after the cutoff date for eligibility.
26. Economically displaced persons will be provided opportunities to improve, or at least restore, their means of income-earning capacity, production levels, and standards of living:
- (a) For persons whose livelihoods are land-based, replacement land that has a combination of productive potential, locational advantages, and other factors at least equivalent to that being lost will be offered where feasible;
 - (b) For persons whose livelihoods are natural resource-based and where project-related restrictions on access, measures will be implemented to either allow continued access to affected resources or to provide access to alternative resources with equivalent livelihood-earning potential and accessibility. Where common property resources are affected,

³⁷ This includes shops, restaurants, services, manufacturing facilities and other enterprises, regardless of size and whether licensed or unlicensed.

benefits and compensation associated with restrictions on natural resource usage may be collective in nature; and

- (c) If it is demonstrated that replacement land or resources are unavailable, the project will offer economically displaced persons options for alternative income earning opportunities, such as credit facilities, skills training, business start-up assistance, employment opportunities, or cash assistance additional to compensation for assets. Cash assistance alone, however, frequently fails to provide affected persons with the productive means or skills to restore livelihoods.

- 27. Transitional support will be provided as necessary to all economically displaced persons, based on a reasonable estimate of the time required to restore their income-earning capacity, production levels, and standards of living.

D. COLLABORATION WITH OTHER RESPONSIBLE AGENCIES OR SUBNATIONAL JURISDICTIONS

- 28. The RAP will set out the means of collaboration between the agency or entity responsible for project implementation and any other governmental agencies, subnational jurisdictions or entities that are responsible for any aspects of land acquisition, resettlement planning, or provision of necessary assistance. In addition, where the capacity of other responsible agencies is limited, the Borrower will actively support resettlement planning, implementation, and monitoring. If the procedures or standards of other responsible agencies do not meet the relevant requirements of ESS 5, the Borrower will prepare supplemental arrangements or provisions for inclusion in the RAP to address identified shortcomings. The plan will also specify financial responsibilities for each of the agencies involved, appropriate timing and sequencing for implementation steps, and coordination arrangements for addressing financial contingencies or responding to unforeseen circumstances.

E. OUTLINE OF THE RAP

- 29. The RAP should be structured as summarized below:

- (i) Description of the project. General description of the project and identification of the project area.

- (ii) Potential impacts. Identification of:

- (a) the project components or activities that give rise to displacement, explaining why the selected land must be acquired for use within the timeframe of the project;
- (b) the zone of impact of such components or activities;
- (c) the scope and scale of land acquisition and impacts on structures and other fixed assets;
- (d) any project-imposed restrictions on use of, or access to, land or natural resources;
- (e) alternatives considered to avoid or minimize displacement and why those were rejected; and
- (f) the mechanisms established to minimize displacement, to the extent possible, during project implementation.

- (iii) Objectives. The main objectives of the RAP.

- (iv) Census survey and baseline socioeconomic studies. The findings of a household-level census identifying and enumerating affected persons, and, with the involvement of affected persons, surveying land, structures and other fixed assets to be affected by the project. The census survey also serves other essential functions:

- (a) identifying characteristics of displaced households, including a description of production systems, labor, and household organization; and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the displaced population;
- (b) information on vulnerable groups or persons for whom special provisions may have to be made;
- (c) identifying public or community infrastructure, property or services that may be affected;
- (d) providing a basis for the design of, and budgeting for, the resettlement program;
- (e) in conjunction with establishment of a cutoff date, providing a basis for excluding ineligible people from compensation and resettlement assistance; and
- (f) establishing baseline conditions for monitoring and evaluation purposes.

30. As the Bank may deem relevant, additional studies on the following subjects may be required to supplement or inform the census survey:

- (g) land tenure and transfer systems, including an inventory of common property natural resources from which people derive their livelihoods and sustenance, non-title-based usufruct systems (including fishing, grazing, or use of forest areas) governed by local recognized land allocation mechanisms, and any issues raised by different tenure systems in the project area;
- (h) the patterns of social interaction in the affected communities, including social networks and social support systems, and how they will be affected by the project; and
- (i) social and cultural characteristics of displaced communities, including a description of formal and informal institutions (e.g., community organizations, ritual groups, nongovernmental organizations (NGOs)) that may be relevant to the consultation strategy and to designing and implementing the resettlement activities.

(v) Legal framework. The findings of an analysis of the legal framework, covering:

- (a) the scope of the power of compulsory acquisition and imposition of land use restriction and the nature of compensation associated with it, in terms of both the valuation methodology and the timing of payment;
- (b) the applicable legal and administrative procedures, including a description of the remedies available to displaced persons in the judicial process and the normal timeframe for such procedures, and any available grievance redress mechanisms that may be relevant to the project;
- (c) laws and regulations relating to the agencies responsible for implementing resettlement activities; and
- (d) gaps, if any, between local laws and practices covering compulsory acquisition, imposition of land use restrictions and provision of resettlement measures and ESS5, and the mechanisms to bridge such gaps.

(vi) Institutional framework. The findings of an analysis of the institutional framework covering:

- (a) the identification of agencies responsible for resettlement activities and NGOs/Civil Society Organization (CSOs) that may have a role in project implementation, including providing support for displaced persons;
- (b) an assessment of the institutional capacity of such agencies and NGOs/CSOs; and
- (c) any steps that are proposed to enhance the institutional capacity of agencies and NGOs/CSOs responsible for resettlement implementation.

- (vii) Eligibility. Definition of displaced persons and criteria for determining their eligibility for compensation and other resettlement assistance, including relevant cutoff dates.
- (viii) Valuation of and compensation for losses. The methodology to be used in valuing losses to determine their replacement cost; and a description of the proposed types and levels of compensation for land, natural resources and other assets under local law and such supplementary measures as are necessary to achieve replacement cost for them.
- (ix) Community participation. Involvement of displaced persons (including host communities, where relevant):
- (a) a description of the strategy for consultation with, and participation of, displaced persons in the design and implementation of the resettlement activities;
 - (b) a summary of the views expressed and how these views were taken into account in preparing the resettlement plan;
 - (c) a review of the resettlement alternatives presented and the choices made by displaced persons regarding options available to them; and
 - (d) institutionalized arrangements by which displaced people can communicate their concerns to project authorities throughout planning and implementation, and measures to ensure that such vulnerable groups as Indigenous Peoples, ethnic minorities, the landless, and women are adequately represented.
- (x) Implementation schedule. An implementation schedule providing anticipated dates for displacement, and estimated initiation and completion dates for all RAP activities. The schedule should indicate how the resettlement activities are linked to the implementation of the overall project.
- (xi) Costs and budget. Tables showing categorized cost estimates for all resettlement activities, including allowances for inflation, population growth, and other contingencies; timetables for expenditures; sources of funds; and arrangements for timely flow of funds, and funding for resettlement, if any, in areas outside the jurisdiction of the implementing agencies.
- (xii) Grievance redress mechanism. The RAP will summarize affordable and accessible procedures for third-party settlement of disputes arising from displacement or resettlement; such grievance mechanisms should take into account the availability of judicial recourse and community and traditional dispute settlement mechanisms.
- (xiii) Monitoring and evaluation. Arrangements for monitoring of displacement and resettlement activities by the implementing agency, supplemented by third-party monitors as considered appropriate by the World Bank, to ensure complete and objective information; performance monitoring indicators to measure inputs, outputs, and outcomes for resettlement activities; involvement of the displaced persons in the monitoring process; evaluation of results for a reasonable period after all resettlement activities have been completed; using the results of resettlement monitoring to guide subsequent implementation.
- (xiv) Arrangements for adaptive management. The RAP should include provisions for adapting resettlement implementation in response to unanticipated changes in project conditions, or unanticipated obstacles to achieving satisfactory resettlement outcomes.

Additional planning requirements where resettlement involves physical displacement

31. When project circumstances require the physical relocation of residents (or businesses), RAPs require additional information and planning elements. Additional requirements include:

(xv) Transitional assistance. The RAP will describe assistance to be provided for relocation of household members and their possessions (or business equipment and inventory). The RAP will also describe any additional assistance to be provided for households choosing cash compensation and securing their own replacement housing, including construction of new housing. If planned relocation sites (for residences or businesses) are not ready for occupancy at the time of physical displacement, the RAP will establish a transitional allowance sufficient to meet temporary rental expenses and other costs until occupancy is available.

(xvi) Site selection, site preparation, and relocation. When planned relocation sites are to be prepared, the RAP will describe the alternative relocation sites considered and explains sites selected, covering:

- (a) institutional and technical arrangements for identifying and preparing relocation sites, whether rural or urban, for which a combination of productive potential, locational advantages, and other factors is better or at least comparable to the advantages of the old sites, with an estimate of the time needed to acquire and transfer land and ancillary resources;
- (b) identification and consideration of opportunities to improve local living standards by supplemental investment (or through establishment of project benefit-sharing arrangements) in infrastructure, facilities or services;
- (c) any measures necessary to prevent land speculation or influx of ineligible persons at the selected sites;
- (d) procedures for physical relocation under the project, including timetables for site preparation and transfer; and
- (e) legal arrangements for regularizing tenure and transferring titles to those resettled, including provision of security of tenure for those previously lacking full legal rights to land or structures.

(xvii) Housing, infrastructure, and social services. Plans to provide (or to finance local community provision of) housing, infrastructure (e.g., water supply, feeder roads), and social services (e.g., schools, health services); plans to maintain or provide a comparable level of services to host populations; any necessary site development, engineering, and architectural designs for these facilities.

(xviii) Environmental protection and management. A description of the boundaries of the planned relocation sites; and an assessment of the environmental impacts of the proposed resettlement and measures to mitigate and manage these impacts (coordinated as appropriate with the environmental assessment of the main investment requiring the resettlement).

(xix) Consultation on relocation arrangements. The RAP will describe methods of consultation with physically displaced persons on their preferences regarding relocation alternatives available to them, including, as relevant, choices related to forms of compensation and transitional assistance, to relocating as individual households families or with preexisting communities or kinship groups, to sustaining existing patterns of group organization, and for relocation of, or retaining access to, cultural property (e.g., places of worship, pilgrimage centers, cemeteries).

(xx) Integration with host populations. Measures to mitigate the impact of planned relocation sites on any host communities, including:

- (a) consultations with host communities and local governments;
- (b) arrangements for prompt tendering of any payment due the hosts for land or other assets provided in support of planned relocation sites;
- (c) arrangements for identifying and addressing any conflict that may arise between those resettled and host communities; and

(d) any measures necessary to augment services (e.g., education, water, health, and production services) in host communities to meet increased demands upon them, or to make them at least comparable to services available within planned relocation sites.

Additional planning requirements where resettlement involves economic displacement

32. If land acquisition or restrictions on use of, or access to, land or natural resources may cause significant economic displacement, arrangements to provide displaced persons with sufficient opportunity to improve, or at least restore, their livelihoods are also incorporated into the RAP, or into a separate livelihoods' improvement plan. These include:

(xxi) Direct land replacement. For those with agricultural livelihoods, the RAP will provide for an option to receive replacement land of equivalent productive value, or demonstrates that sufficient land of equivalent value is unavailable. Where replacement land is available, the RAP will describe methods and timing for its allocation to displaced persons.

(xxii) Loss of access to land or resources. For those whose livelihood is affected by loss of land or resource use or access, including common property resources, the RAP will describe means to obtain substitutes or alternative resources, or otherwise provides support for alternative livelihoods.

(xxiii) Support for alternative livelihoods. For all other categories of economically displaced persons, the RAP will describe feasible arrangements for obtaining employment or for establishing a business, including provision of relevant supplemental assistance including skills training, credit, licenses or permits, or specialized equipment. As warranted, livelihood planning provides special assistance to women, minorities or vulnerable groups who may be disadvantaged in securing alternative livelihoods.

(xxiv) Consideration of economic development opportunities. The RAP will identify and assess any feasible opportunities to promote improved livelihoods as a result of resettlement processes. This may include, for example, preferential project employment arrangements, support for development of specialized products or markets, preferential commercial zoning and trading arrangements, or other measures. Where relevant, the RAP should also assess the feasibility of prospects for financial distributions to communities, or directly to displaced persons, through establishment of project-based benefit-sharing arrangements.

(xxv) Transitional support. The RAP will provide transitional support to those whose livelihoods will be disrupted. This may include payment for lost crops and lost natural resources, payment of lost profits for businesses, or payment of lost wages for employees affected by business relocation. The RAP will require that the transitional support continues for the duration of the transition period.

33. In conducting this task the consultant should take into consideration the following relevant documents:

- National laws and/or regulations on expropriation, land valuation and other relevant regulations
- World Bank Environmental and Social Standard 5 on “Land Acquisition, Restrictions on Land Use and Involuntary Resettlement”, which can be found at the World Bank’s external [web-site:https://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards](https://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards)

F. CONSULTANT OR CONSULTING TEAM

34. The Consultant shall have skills, relevant experience and qualifications required to carry out the described tasks. The selected consultant shall have knowledge of the relevant current legislation of Senegal and Mali and procedures for land acquisition and resettlement as well as the World Bank safeguards requirements, including experience on organizing public consultations.

[Additional specific qualification to be added]

G. REPORTING, DELIVERABLES AND TIME SCHEDULE

35. The consultant will prepare and submit to the [name of client Ministry] for review in [national language] (i) a draft RAP; (ii) and then will proceed in preparing the final RAP providing sufficient information on alternatives, measures, monitoring and potential drawbacks of the report to be presented to the public and publicly discussed.

36. The final report will be both in local languages and the national language. It is anticipated that the Consultant would complete the work over a maximum duration of [xx] working days.

ANNEX 8: Brief guidance for the preparation of Biodiversity Management Plan

Purpose:

The purpose of the BMP is:

- To provide a simple, well structured, adaptive management approach to terrestrial biodiversity conservation in the project area of influence;
- To provide detailed technical methods for land clearing, wildlife management, protection of biodiversity important areas to minimize the potential impacts on habitat and wildlife from project construction activities;
- To provide a long term vision and an integrated plan for the maintenance and enhancement of habitat for threatened terrestrial mammal species in the project area of influence, while also addressing the influences from, and on, resettlements and land uses in the ROW;
- To meet the World Bank ESF ESS6 and international best practice for biodiversity conservation.

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2.2 Threatened species, protected areas and Key Biodiversity Areas of each locality of the corridor

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 - 5.3.2 Forest Restoration and Ecological Connectivity
 - 5.3.3 Forest Management
 - 5.4 Wildlife Management
 - 5.4.1 Wildlife and Habitat Management
 - 5.4.2 Wildlife Encounters
 - 5.5 Stakeholder Participation
 - 5.5.1 Strengthening Capacities for Institutionalizing Integrated Catchment Management
 - 5.5.2 Gaining Political Support
 - 5.6 Community Engagement
 - 5.6.1 Biodiversity Awareness, Communication and Education
 - 5.6.2 Aligning Resettlement Programmes with the BMP
 - 5.6.3 Alternative Sustainable Livelihoods for Communities
- 6 Program
- 7 Institutional Framework, Roles and Responsibilities
 - 7.1 Stakeholder engagement
 - 7.2 Institutional Framework
 - 7.3 Roles and Responsibilities
 - 7.3.1 Project Environmental Manager

7.3.2 Project Construction Manager
7.3.3 Project Stakeholder Engagement Team
7.3.4 Contractors – all Packages (Including all Staff and Sub-contractors)
7.3.5 ICM Facilitation Team .
7.3.6 BMP Facilitation Team
7.3.7 Technical Assistants
7.3.8 Patrol teams
8 Capacity and Training
8.1 Capacity
8.2 Training
9 Monitoring and Evaluation
9.1 Management Purposes
9.2 Management Actions
10 Reporting
11 Detailed Annual Task Lists and Budget until the end of project
12 Plan Update and Review
13 Bibliography
Appendix 1. Detailed maps and instructions
Appendix 2. Suggested plant species for use in reforestation
Appendix 3. Wildlife culvert examples
Appendix 4. Structures facilitating wildlife dispersal on steep slopes
Appendix 5. Structures facilitating arboreal wildlife movement and avoidance of bird's collision
Appendix 6. Standard Operational Procedures (SOP) for Land Clearing and Rehabilitation
Roles and Responsibilities
Background
Phasing of land clearing SOP
Preparation Phase Management Actions
Pre – Clearing Phase Management Actions
Clearing Phase Management Actions (i.e., land clearing, clearing and grubbing, and excavation)
Post-clearing Phase Management Actions
Appendix 8. Maps.

ANNEX 9: - WORLD BANK GUIDANCE DOCUMENTS

- **Environmental and Social Framework (ESF)**
<http://pubdocs.worldbank.org/en/837721522762050108/Environmental-and-Social-Framework.pdf>
- **ESF Guidance Notes for Borrowers**
<https://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-framework-resources#guidancenotes>
- **World Bank's Good Practice Note- addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) in Investment Project Financing involving Major Civil Works:**
In English: <https://pubdocs.worldbank.org/en/741681582580194727/ESF-Good-Practice-Note-on-GBV-in-Major-Civil-Works-v2.pdf>
In French: <http://pubdocs.worldbank.org/en/215761593706525660/ESF-GPN-SEASH-in-major-civil-works-French.pdf>
- **World Bank Group EHS General Guidelines**
<http://documents1.worldbank.org/curated/en/157871484635724258/pdf/112110-WP-Final-General-EHS-Guidelines.pdf>
- **Violence against Women and Girls resource guide:**
<https://www.worldbank.org/en/programs/violence-against-women-and-girls/resources>
- **Good Practice Note on Gender**
<http://pubdocs.worldbank.org/en/158041571230608289/Good-Practice-Note-Gender.pdf>
- **Good Practice Note on Non-Discrimination and Disability**
<http://documents1.worldbank.org/curated/en/573841530208492785/Environment-and-Social-Framework-ESF-Good-Practice-Note-on-Disability-English.pdf>
- **Grievance Mechanism Checklist**
<http://pubdocs.worldbank.org/en/354161530209334228/ESF-Checklist-ESS10-GRM-June-2018.pdf>

WORLD BANK TEMPLATES

- **World Bank Stakeholder Engagement Template:**
<http://pubdocs.worldbank.org/en/909361530209278896/ESF-Template-ESS10-SEP-June-2018.pdf>
- **Labor Management Procedures Template:**
<http://pubdocs.worldbank.org/en/755121538513950752/Labor-Management-Procedures.docx>