

*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*

**Client: West African Power Pool (WAPP)**  
**Country: Liberia**

**WAPP/CLSG TA**  
**ENERGY SUPPLY ALTERNATIVES STUDIES**  
**& PROJECT PREPARATION IN LIBERIA**

**Terms of Reference**  
**for a Technical Assistance to support Liberia**  
**in the Development of St. Paul River / Via**  
**Reservoir Project**

**DRAFT**

**Version: 12 October 2018**

## **LIST OF ACRONYMS AND ABBREVIATIONS**

CLSG	Côte d’Ivoire-Liberia-Sierra Leone-Guinea Link
EPA	Environment Protection Agency - Liberia
ESIA	Environmental and Socio-Economic Impact Assessment
ESMP	Environmental and Socio-Economic Mitigation Plan
FDA	Forestry Development Authority
FS	Feasibility Study
GBR	Geological Baseline Report
GoL	Government of Liberia
GWh	Gigawatt-hour (measure of energy)
HPP	Hydro Power Plant
IDA	International Development Agency
IFI	International Financing Institutions
IR	Inception Report
IWRM	Integrated Water Resource Management
kW	kilowatt (measure of instantaneous capacity or demand equal to 1000 Watt)
LEC	Liberia Electricity Corporation
LFT	Liberia (Local) Focal Team
LHS	Liberia Hydrological Services
LISGIS	Liberia Institute of Statistics and Geo-Information Services
LTDP	Long Term Development Plan
MME	Ministry of Mines and Energy (Liberia)
MW	Megawatt (measure of instantaneous capacity or demand equal to 1 million Watt)
NEP	National Electricity Plan
OS	Optimization Study
PIP	Priority Investment Project
PIPES	Planning, Investment Programming and Environmental Safeguard Department (of the WAPP)
PDU	President’s Delivery Unit
PPA	Power Purchase Agreement

**LIST OF ACRONYMS AND ABBREVIATIONS (cont'd)**

RAP	Resettlement Action Plan
SC	Steering Committee
STA	Strategic Transaction Advisor
TA	Technical Assistance
ToR	Terms of Reference
TSA	Transmission Service Agreement
WAPP	West African Power Pool
WB	World Bank

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## 1. **BACKGROUND**

### 1.1 Context

In support to the WAPP Secretariat's program to establish an interconnected and coordinated network for fourteen countries in West Africa, the World Bank provided a grant for Phase 1 of the Cote d'Ivoire–Liberia–Sierra Leone–Guinea (CLSG) Interconnection Project in order to mobilize Technical Assistance aiming at:

- (i) enhancing WAPP integration,
- (ii) synchronizing WAPP transmission networks and
- (iii) capacity building of the WAPP.

Component 2A of this Technical Assistance (*Supply Alternatives Studies & Project Preparation Support*) aims at ensuring that generation capacity will be developed along the CLSG line in a timely and least cost manner. Key supply alternatives have been identified through the WAPP masterplan in 2011, including the rehabilitation of the Mount Coffee Hydropower Plant (HPP) on the Saint Paul River in Liberia. As the rehabilitation of Mount Coffee HPP is now completed with all four 22MW units commissioned, the WAPP is exploring ways to secure Mount Coffee production and further support future regional & national development through securing production of sustainable electricity generation over time.

Activities to be carried out under Subcomponent 2A.3 (*Supply Alternatives Studies & Project Preparation for Hydropower Development on St. Paul River*) of the Technical Assistance (TA) aims at addressing this issue through the assessment of the potential contribution of the St. Paul River's hydropower resources to electricity supply at Liberian and regional levels in the medium to long term. Planned activities under Subcomponent 2A.3 include:

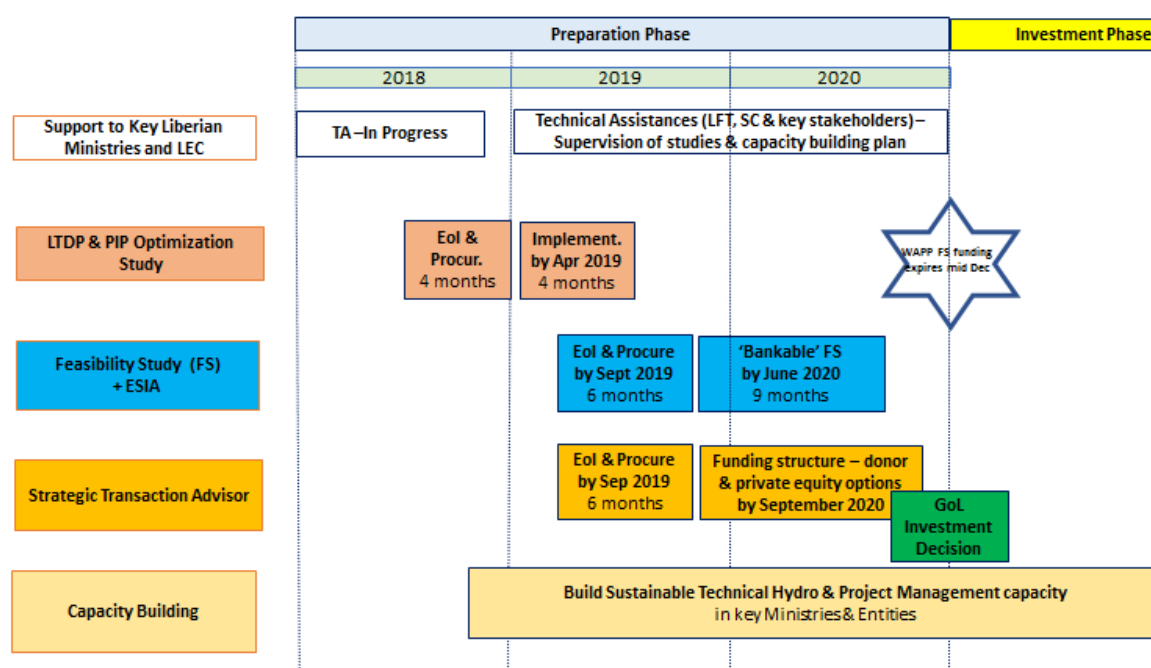
- an **Optimization Study** to prepare a Long-Term Development Plan (LTDP) for new generation & storage projects in Liberia, from which a Priority Investment Project (PIP) will be recommended together with transmission;
- a **Feasibility Study** of the PIP selected by the Liberian authorities, including complementary geotechnical investigations;
- a detailed **Environmental & Social Impact Assessment (ESIA)** of the PIP, including an Environmental & Social Management Plan (ESMP) and a Resettlement Action Plan (RAP). The ESIA will also include a comprehensive analysis of alternatives and a cumulative impact assessment, which will take into account the part of the St. Paul River Basin in Guinea;

- the support from a **Strategic Transaction Adviser (STA)** to identify adequate options for structuring and financing the PIP and to support Liberian government in updating and preparing new PPAs linked to the development of the CLSG interconnection.

The above activities are to be carried out by International Consultants who will be procured by the WAPP as required to perform these pre-investment studies.

In order to ensure compliance with the World Bank safeguards policies, the WAPP will also rely on **two Panels of International Experts** (under recruitment), a Dam Safety Technical Panel and a Socio-Environmental Panel, to review all aspects of dams and hydropower projects. These two Panels will provide high-level technical and socio-environmental expertise and guidance throughout the pre-investment studies with a view to strengthen technical robustness and sustainability of the PIP (Subcomponent 2A.4i).

The schedule towards which the WAPP is working for the implementation of the TA program in Liberia is shown on Figure 1.1 below.



**Figure 1.1 Program Implementation Schedule**

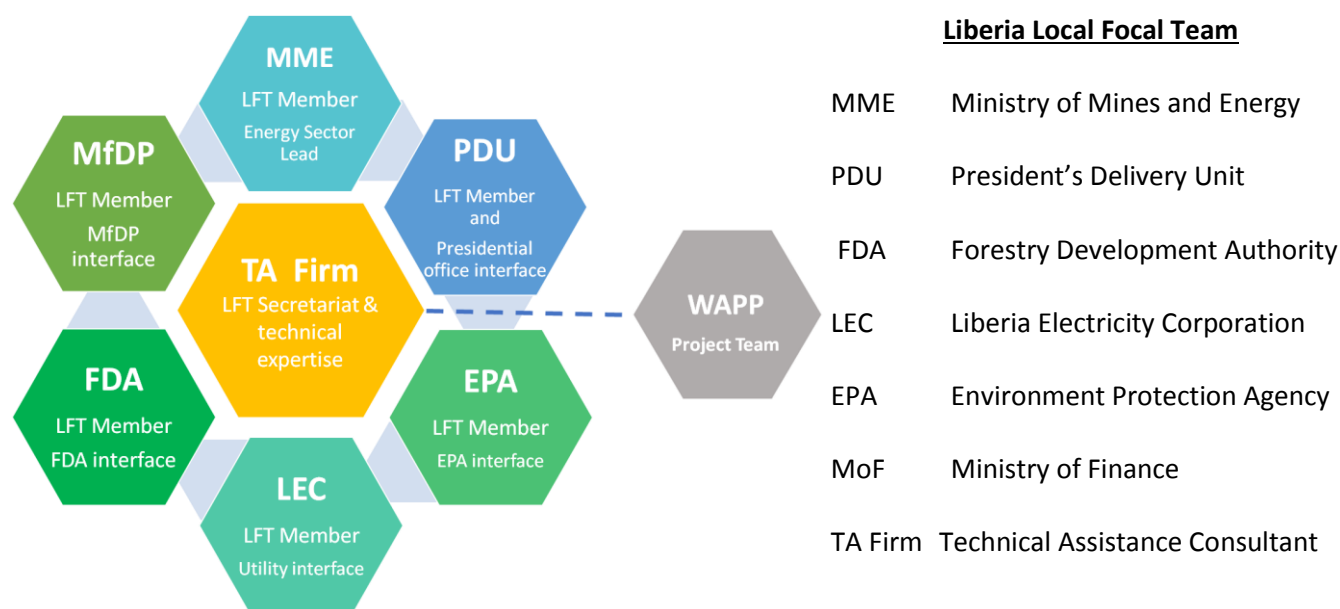
As shown on the above Figure, the successful implementation of this fast-track program requires the assistance of an International Consultant who will act as an “Owner’s Representative” to support Liberian stakeholders in every steps of the preparation, procurement, and supervision of the pre-investment studies, including the development and implementation of a capacity building plan for key identified people.

These Terms of Reference aims at defining the role, scope of services and expected outputs for this International Consultant who will be required to work in close collaboration with all stakeholders (at high-level but also at technical & operational levels) to ensure that the program is well aligned with Liberian interests.

The Technical Assistance (TA) Consultant will be procured under **Subcomponent Activity 2A.4.ii Institutional Strengthening and Support to Regional and Local Authorities** and is expected to start work in January 2019.

## 1.2 Institutional Framework

Institutional strengthening and capacity building target key stakeholders in Liberia, including staff from Liberia Electricity Corporation (LEC), the Ministry of Mines and Energy (MME) (formerly the Ministry of Lands, Mines and Energy (MLME)), the Ministry of Finance, EPA, FDA and the President Delivery Unit (PDU). To this end, a Local Focal Team (LFT) has been established within this project as shown below.



**Figure 1.2 Liberia Focal Team**

Acting in collaboration with the WAPP, the LFT's main goal is to follow up on project preparation and to provide technical support to the Steering Committee (SC), with members reporting on progress and results of the on-going studies to their respective institution. The Ministry of Mines and Energy (MME) is the Sector Lead for this project and its Senior Representative leads the LFT and chairs the meetings.

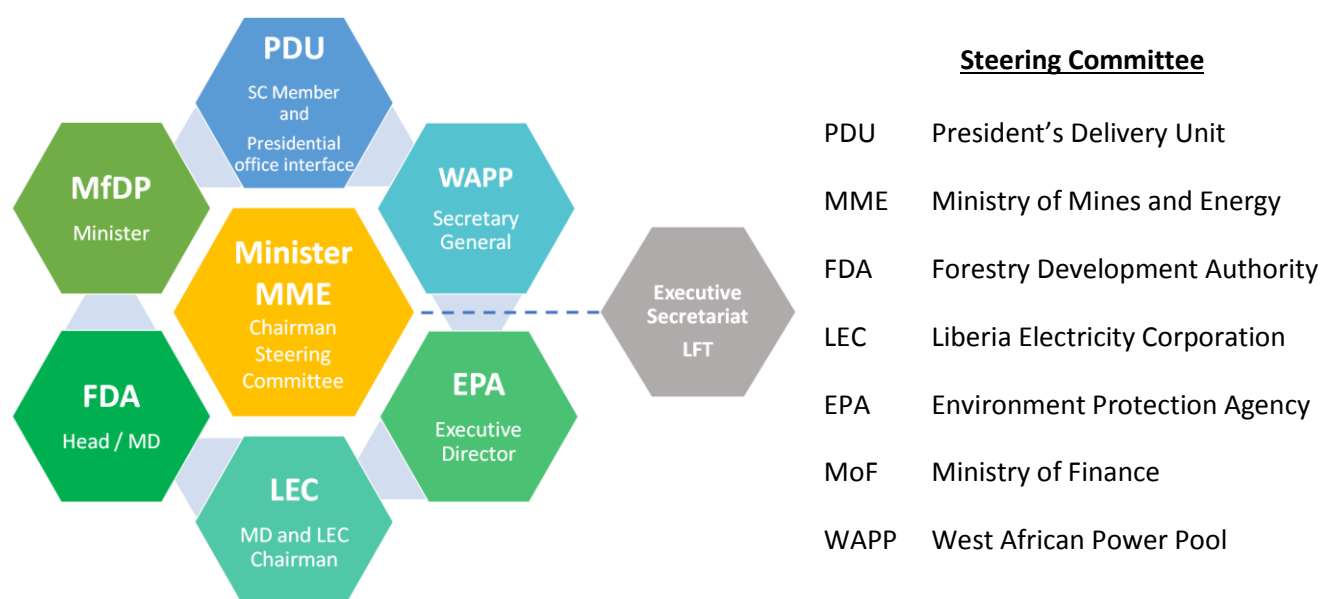
Among others, the Focal Team is responsible for:

- Liaising between the WAPP and the Liberian Authorities. To this end, it acts as Operational Secretariat of the Steering Committee (SC) – cf. Figure 1.3 hereunder;

- Supporting the WAPP in the procurement process to select the Consultants who will undertake the pre-investment studies.

The LFT was already mobilized four times, and while some of their representatives have yet to be officially designated by their parent institution, there has been increasing awareness as to the role of the LFT in serving Liberian interests, and its importance in making the development of the PIP a reality.

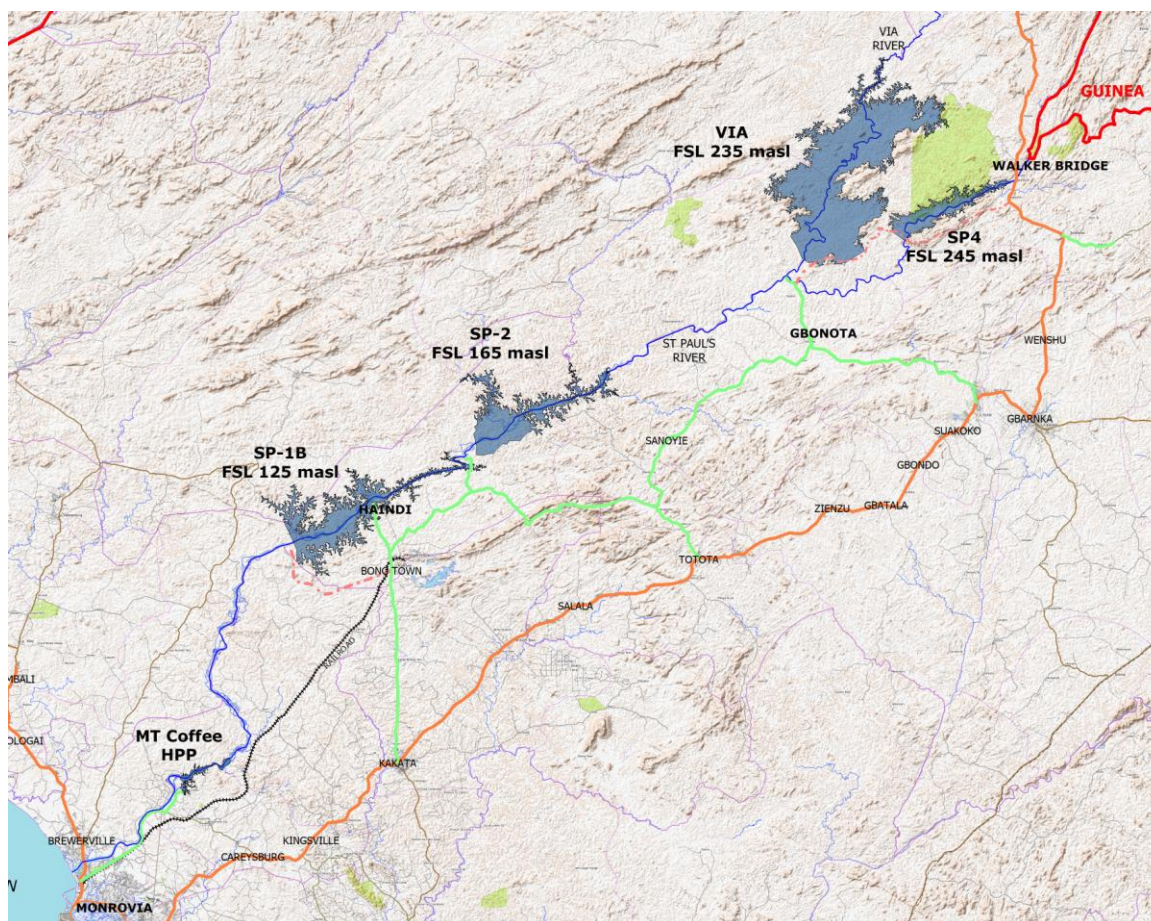
As for the Steering Committee (SC), it is composed of Senior Government Officials in Liberia as shown below, whose purpose is to ensure that the whole project is well aligned with Liberians interests. In specific terms, the objectives of the SC are to provide strategic direction to the studies, ensure their relevance and supervise the work of the Focal Team.



**Figure 1.3 Steering Committee**

### 1.3 Previous Studies and Available Information

The St. Paul River has a technical hydropower potential of over 600 MW. As shown on Figure 1.4 below, this potential could be exploited by means of one or two upstream regulating reservoirs (Via Reservoir and the Diversion Reservoir, also called SP4) and a downstream cascade of three to four main HPPs as follows: one plant at the foot of Via Reservoir (around 130 MW), one at St. Paul 2 Dam (200 MW), one at St. Paul 1B Dam (120 MW) and the existing Mount Coffee HPP.



**Figure 1.4 St. Paul River Hydropower Cascade as Studied by Chas. T. Main Int'l in 1982 (Figure updated by Hydrotec in 2018 using LiDAR)**

Today only the Mount Coffee rehabilitated HPP exists, with an installed capacity of 88 MW. Two additional units of similar size (22 MW) could also be added to Mount Coffee HPP as two additional intake bays (from which two new penstocks could be installed downstream), were originally built into the intake structure to accommodate such an expansion.

As a run-of-river scheme, Mount Coffee HPP has, up to the end of June 2018, generated over 200 GWh since unit one came on line mid-December 2016. Previous studies have demonstrated that the scheme would benefit significantly from upstream storage development (& potentially additional installed hydropower capacity) that would reduce its exposure to low river flows in the dry seasons and therefore increase its firm annual energy output.

Several reports have been written that have identified how the St Paul River catchment's hydropower potential could be developed in order to sustain Liberia's increasing need for additional generation to meet on-grid and off-grid demand.

These reports were reviewed and synthesized by Hydrotec Pty Ltd between December 2017 and August 2018, with a view to supporting Liberia in a timely manner for the collection of technical data and the preparation & supervision of studies for the development of the St Paul River (Project P113266: “Technical Assistance for Optimizing Mt Coffee and Hydropower in Liberia”). In summary, the objectives of this TA assignment (Phase 1) were to provide:

- (i) technical and socio-environmental inputs towards identification and preparation of key studies aiming at improving the sustainability of Mt Coffee and increasing hydropower production; and
- (ii) support to the WAPP and to the Government of Liberia (GoL) in coordinating activities with local authorities and stakeholders through mobilization of a Liberia Focal Team (LFT).

Key deliverables of the Technical Assistance (TA) study were:

1. Consolidated database of available studies
2. Synthetic comparison of hydropower candidates in Liberia
3. Update Demand forecast report
4. Hydrological review of the St Paul River report.
5. Simplified Review of socio-environmental stakes of projects report and estimate of population potentially affected
6. Simplified St. Paul river hydropower simulation model & strategic outline for development of renewable energy projects (incl. potential solar), and identification of key features of complementary studies
7. Preliminary Geological Baseline Report.

As part of this TA, two key outcomes are of particular importance for the next phase of the studies:

1. A database of background documents was compiled and added to a “cloud” based document storage and sharing platform called ShareFile. The Sharefile platform set up (on an annual subscription model) currently has over 70 documents stored on it (some of which date back to the mid 1970’s) for reference purposes. To assist in future studies, all data reviewed, model inputs and outputs, work files and Hydrotec’s reports available will also be provided on the Sharefile, and a summary excel file has been created to catalogue the database and summarize key content in the documents (e.g. year published, author, relevant topics etc).

LiDAR survey was also carried out for the whole stretch of the St Paul River upstream of Mount Coffee, where new hydro developments are considered. This new data together with Digital Terrain Model (DTM), geo-referenced orthophotography and LiDAR information already available downstream of Mount Coffee will be made available to Consultants involved in the development of the Priority Investment Project (PIP).

2. Second, the LFT has been set up and is now operational. Although still at an embryonic stage from a technical perspective, the LFT has already held four meetings between December 2017 and August 2018 with representatives from each member entities.

### **1.4 WAPP Project Implementation Team**

The WB relies on WAPP's Project Implementation Team for the diligent delivery of the TA program. Key resources which take an active part in the implementation of the local TA program include:

- The WAPP Project Coordinator who makes sure that proper resources are timely allocated so that deadlines and budgets are respected;
- An Institutional Coordinator who works in the Liberian President's Delivery Unit (PDU) to increase the effectiveness of the delivery of the CLSG link (now under construction), and the project preparation (pre-investment studies) for *Hydropower Development on St. Paul River*. One of the instigator of the TA for the St Paul River Hydro Optimization project, the Institutional Coordinator was key to the formation of the Steering Committee (SC) and the Liberian Focal Team (LFT) in the first phase of the TA. As a counterpart for WAPP project's team in Liberia, he holds key relationships with MME, donors and embassies and will support the project through each phase of the TA;
- A WAPP Hydropower Expert who brings technical expertise to the team to ensure that technical aspects are all adequately covered and treated with due consideration.

In addition to assuming its supervisory role of the contracted Consultants, WAPP's team is expected to maintain close links with the LFT and the SC for the duration of the project to ensure that their interests, needs, and priorities are clearly defined and taken into account in each phase of the pre-investment studies. It will also support Liberians Authorities in achieving higher level of autonomy through capacity building and institutional strengthening.

## **2. SCOPE OF SERVICES**

### **2.1 Overall Objective**

The overall objective of Subcomponent 2A.4ii is to provide Institutional Strengthening and support to regional and local authorities so that the Technical Assistance Program is timely implemented with highest level of sustainability.

To this end, it is expected that the TA International Consultant to be contracted under the second phase of this TA program will work in close collaboration with WAPP's project team to leverage the available resources within the LFT and their parents entities to

strengthen the technical and managerial capabilities in the electricity sector, and to provide a sound foundation for the empowerment of Liberians Institutions.

The International Consultant retained for the next phase of the Technical Assistance (TA) shall build on the information provided and take full advantage of the work already carried out in Phase 1 of the TA to bring pre-investment studies to the next implementation stage in a timely and cost-effective manner.

In specific terms, the TA Consultant will be requested to mobilize skilled expertise and resources in order to implement, among others, the following three types of activities:

- A) Organizational Activities
- B) Project Preparation & Supervision of Studies
- C) Capacity Building and Institutional Strengthening.

## **2.2 Tasks to be performed**

The following main tasks are envisaged to be undertaken during this assignment. The list of tasks and descriptions thereof are not considered exhaustive and additional tasks may be required in order to meet the overall objective of the TA.

### **A) Organizational Activities**

Organizational activities aim at i) implementing efficient mechanisms at every stakeholder levels to favor synergic delivery of the WAPP TA program in Liberia; ii) consolidating all knowledge and information gathered in the course of the pre-investment studies; and iii) ensuring that key data is available in a timely fashion to stakeholders and/or Consultants in ready-to-use format whenever required.

The tasks considered under this heading include:

- Organizing, complementing, consolidating, improving and maintaining the database that was initially developed (by Hydrotec) as part of the first phase of the TA. This includes all LiDAR data from previous projects. This also involves defining and controlling accesses to Consultants and other stakeholders in charge of realizing the various studies, as well as implementing mechanism to preserve and protect data integrity.
- Supplementing the database with all new relevant data and information related to the energy and hydropower sectors in Liberia and in the CLSG region as it becomes available.
- Liaising with local institutions in charge of data collection such as EPA, FDA, the Liberia Hydrological Services (LHS) or the Liberia Institute of Statistics and Geo-Information Services (LISGIS) to review the status of on-going data collection

projects for possible inclusion in the database and to identify areas where support could be provided to improve data quality.

- Implementing efficient mechanisms to exchange information with all stakeholders, including Liberians institutions and international donors involved in the energy sector.
- Establishing a web site for the LFT to share publicly information on on-going activities and related documents and data available.
- Coordinating, arranging and delivering three (3) LFT meetings a year and providing full update briefings;
- Supporting the MME as chairman of the SC in the organization and delivery of up to two (2) SC meetings a year
- Participating, in collaboration with the WAPP, in the organization and maintenance of a Project Office in Monrovia.

With respect to this last item, it is anticipated that the office space will already be procured by the WAPP at the time the Technical Assistance Consultant will start working. The involvement of the TA Consultant will consist of running and maintaining the office facilities, as well as supporting the in-country and visiting WAPP team members and making office space and support available as needed. This will include a permanent office space for the Institutional Coordinator and temporary space and a vehicle with driver for the visiting WAPP team as required.

## **B) Project Preparation & Supervision of Studies**

The contribution of the TA Consultant to Project Preparation is two-fold:

- i. To support the LFT and the WAPP team in all steps leading to contracting Consultants for pre-investment studies in accordance with World Bank procedures and in line with Liberia interests put forward by the Steering Committee.
- ii. To supervise and review pre-investment studies carried out by Consultants contracted to ensure that:
  - a. Results are complete and aligned with the objectives put forward in the ToR
  - b. Products are delivered and disseminated to all stakeholders on time (this may include separate small briefing events to LFT members)
  - c. Studies are carried out with highest state-of-the-art standards, and accepted by the Panel of Experts;
  - d. Proposed solutions comply with all established Liberian guidelines and policies as well as World Bank safeguard policies.

More generally, the Consultant will be requested to support Liberian authorities in developing the project, which assumes in-country access to Consultant's resources on a regular basis. To this effect, it is expected that the Consultant shall be in Liberia for, on average, 2 weeks per month, being understood that the in-country level of effort will be substantially more intensive in the early stages of the contract. The exact timing and length of these visits shall be confirmed in the Inception Report.

To this end, the TA Specialist shall perform the following tasks:

- Prepare and/or Review the Terms of Reference (ToR) for all pre-investment studies envisaged as part of Subcomponent 2A.3, including the Feasibility Study (for the PIP), the ESIA & related Management Plan (ESMP) and Resettlement Action Plan (RAP), and the contribution of the Strategic Transaction Advisor;<sup>1</sup>
- Identify activities that shall be performed by local institutions and establish a work plan and schedule accordingly in collaboration with the LFT and any other local staff involved;
- Estimate the work load and budget required to complete each study to be carried out by International Consultants as well as indicative project development schedules;
- In collaboration with the WAPP team and the LFT, participate in the selection process to recruit Consultants in charge of conducting the pre-investment studies;
- Provide support to the WAPP team in preparing non-objection requests for World Bank's approval;
- Actively engage LFT members to organize and participate in projects monitoring and coordination meetings during the project preparation phase;
- Support activities of all consultants to be recruited under the Project (for pre-investment studies + STA) including support to smoothen their logistics and the scheduling of meetings.
- Follow-up on work progress and timely delivery of pre-investment study reports; coordinate their dissemination within the LFT, organize and coordinate feedback meetings, and collect comments from all Liberian stakeholders involved in the projects; provide comments on reports and consolidate all comments received in collaboration with the Panels of Experts and the LFT;
- Support LFT members in all aspects of their role as operational secretariat to the SC;
- Identify key risks and constraints (including technical, economic and socio-environmental aspects) that may hamper the implementation of the TA program and suggest risk management & mitigation measures.

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<sup>1</sup> The ToR for the Optimization Study have already been prepared as part of Phase 1 of the TA. The task for the Optimization Study is thus limited to reviewing these ToR and supervising the Consultant work accordingly.

### **C) Capacity Building and Institutional Strengthening**

Institutional strengthening and capacity building of Liberian key stakeholders is considered of utmost importance for the success of the TA program and for the Via/St Paul Project. The TA Consultant will be responsible for coordinating these activities and providing technical support to, and building capacity of, key Liberians stakeholders.

In order to achieve this objective, the International Consultant shall develop a capacity building program and coordinate all required activities to bring identified stakeholders to a level where decisions can be taken by local authorities as to the projects that would best serve the interests of Liberia.

Involvement of key local staff in all steps of project preparation, from procurement to study realization (including field activities) and presentation of results, is thus mandatory for the TA to be successful.

Improvement of the institutional framework and capacity building for the stakeholders in Liberia will involve:

- Realizing a skills gap analysis in collaboration with key stakeholders, donors, and other Consultants involved in the Sector<sup>2</sup>;
- Ensuring that capacity building is duly integrated in each step of the pre-investment studies and that Liberian counterparts take an active part in Consultant's work;
- Delivering where appropriate technical training, mainly in hydropower, in water management and possibly in solar power (Note: In their proposal, bidders will, at this stage, include XX days of seasoned experts (TBD), and add a lump sum of XX (TBD) to account for logistics expenses) ;
- Mentoring of key staff on organizational & managerial aspects as well as leadership to foster institutional empowerment;
- Organization and delivery of workshops on specific subjects for target stakeholders;
- On-the-job training;
- Promotion and coordination of activities that favor team building;
- Making recommendations as to the organizational structure that would best favor the synergic delivery of projects.

In practical terms, the Consultant is expected to coordinate the technical activities for the Focal Team through the life of the TA consultancy. As the project evolved however, its role shall gradually move towards mentoring and the provision of expertise to foster technical discussions with members of the Focal Team. Towards the end of the contract

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<sup>2</sup> It is noted that LEC is presently undergoing a skill analysis, as part of their Management Program.

key leadership responsibilities should be gradually taken over by Liberian counterparts with the TA Consultant still fully engaged.

### **3. OUTPUTS AND DELIVERABLES**

Deliverables to be produced as part of this TA mandate are described below.

All reports and communications shall be in English.

#### **3.1 Inception Report**

The TA Consultant shall submit to the WAPP and the LFT members an Inception Report in electronic form one month from commencement, to propose an approach and work plan to realize the mandate. The Inception Report shall rely on a thorough review of available information and preliminary contacts with key stakeholders to present:

- The TA Consultant's understanding of the objectives of the mandate
- The proposed approach to develop the scope of work described above;
- A detailed work plan and schedule to implement the proposed program with specific dates for all deliverables, points of interaction with the stakeholders including meetings with the WAPP and the LFT;
- Detailed activities envisaged for the Organizational Activities and the management of the database.
- A summary of the capacity building plan (to be presented as a separate document as described in Section 3.2 below).
- The proposed organizational structure of the delivery team.

The draft Inception Report shall be presented to the WAPP and the LFT members and validated in a 2-day workshop to be held 2 weeks after issuing the draft version. All comments received shall be taken into account in subsequent activities and integrated in the final version and that will be issued two (2) weeks after the validation workshop.

#### **3.2 Capacity Building Plan**

A detailed work plan and proposed schedule for all activities envisaged as part of the capacity building program must be prepared in parallel with the Inception Report and submitted to the WAPP and the LFT members as per schedule in Section 4.4. This Capacity Building Plan is to be presented as a separate document and shall include:

- a description of the skill gap analysis that will be undertaken;
- the identification of proposed stakeholders to be engaged in the process;
- the list of all formal local and international workshops, seminars, study tours, specialized training, etc. planned within the program;

- the proposed approach for the integration of Liberian counterparts in technical activities carried out by other Consultants;
- the proposed methodology for the monitoring of the program and the evaluation of outcomes; and
- any other aspect relevant to the capacity building plan (cost estimate, management of the program etc.).

The schedule for the submission and validation of the Capacity Building Plan shall follow one month after the Inception Report and might be updated as needed during the assignment.

### **3.3 Capacity Building Report**

The implementation and results of the approved Capacity Building Plan shall be summarized in a Capacity Building Report to be submitted to the WAPP and the LFT members at the end of the TA Consultant mandate.

The Capacity Building Report shall look at outcomes of the Capacity Building Plan and include an assessment of its performance based on the evaluations of the various activities from all stakeholders. Key issues and successes encountered in the process shall be highlighted, together with opportunities and risks perceived with respect to capacity building. The TA Consultant shall also propose an action plan to pursue future activities in institutional strengthening in line with these findings.

### **3.4 Terms of Reference for the Feasibility Study and the ESIA (incl. ESMP and RAP)**

The TA Consultant shall complete the ToR for the FS and the ESIA using the draft version previously prepared by the WAPP as a starting point. These ToR shall be prepared jointly for the FS and ESIA<sup>3</sup> and include:

- Background information on the project;
- A summary of previous studies and highlights of key issues and results from the Optimization Study (OS)
- A complete description of the Scope of Services including detailed field investigation program (available from the OS);
- The expected outputs and deliverables from the study together with a proposed schedule;
- A description of the Team structure and the identification of key staff including their required qualifications.

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<sup>3</sup> To be noted that WB agreement for joined technical and ESIA ToRs is still under process. If not received by the time of contracting, the Consultant will be requested to unfold them in two separate ToRs.

The TA Consultant shall also estimate the level of effort required for the execution of the mandate described in the ToR and work out a budget estimate for its realization in collaboration with the LFT and the WAPP who will provide specific inputs for local content.

These ToRs should be compliant with the new WB Environmental and Social Framework and are to be submitted to the WAPP and the LFT as soon as preliminary results from the OS are available and can be integrated into the ToRs. They shall be presented in a validation workshop that will be held 2 weeks after their issue, with comments integrated 2 weeks after the workshop.

### **3.5 Terms of Reference for the Strategic Transaction Advisor (STA)**

The TA Consultant shall prepare the ToR for the Strategic Transaction Advisor in parallel with those for the FS & ESIA, with the same level of details as per the above description (in Section 3.4). STA Advisor will embody both financial and legal skills in order to support (i) the development and structuring of the Via-St Paul project, (ii) the update of the PPAs and TSAs that were previously prepared during preparation of CLSG interconnector and (iii) the preparation of potential new PPAs and TSAs based on national and regional opportunities created by CLSG.

Complementary activities also include estimating the level of effort and budget for this mandate. The TA Consultant will also be required to plan the procurement process in collaboration with the WAPP and the LFT, and suggest a schedule for its implementation accordingly.

These ToRs are to be submitted so that the procurement process and contracting of the STA can be completed by September 2019.

### **3.6 Quarterly Reports**

In the course of its assignment, the TA Specialist shall prepare concise quarterly reports, which summarize activities undertaken during the period and progress against the program, issues and constraints that could affect the delivery of services and outputs and a program of work to be undertaken during the next quarter, to be approved by the GoL and the WAPP. The quarterly reports shall also include a financial outlook with a comparison of expenses to date to budgeted disbursements as well as a forecast to complete.

The Quarterly Progress Reports shall be kept as brief as possible and shall be limited to highlighting progress, key issues and constraints encountered during the reporting period. The first quarterly report will be issued 3 months after submission of the Draft Inception Report.

The last quarterly report will take the form of a Completion Report that summarizes all activities that took place during the assignment of the TA Specialist.

### **3.7 Other Deliverables**

The content and timing of other deliverables will be established at the time of issuing the Inception Report, and will be agreed to with the WAPP and the GoL.

## **4. CONTRACT EXECUTION**

### **4.1 Liaison with Stakeholders**

During the execution of its assignment, the TA Consultant shall cooperate and liaise fully with the stakeholders and in particular (but not limited to):

- The WAPP Secretariat and its designated representatives as well as CLSG stakeholders;
- The Institutional Coordinator, who is to be accommodated and facilitated in the project office where a desk and support (including full access and use of meeting facilities) will be made available to him by the TA.
- The Government of Liberia and in particular the Liberia Focal Team (LFT) that have been set up, together with the Ministry of Mines and Energy (MME) and the Ministry of Finance and Development Planning and the Presidents Delivery Unit energy team; Members of the LFT will stand as entry points for the Consultant in these institutions.
- The President's Delivery Unit (PDU)
- The Liberia Electricity Corporation (LEC) and, the newly established Liberia Energy Regulatory Commission (LERC);
- The Panels of Experts;
- Various agencies like the Liberia Hydrological Services (LHS), the Environmental Protection Agency (EPA), the Liberian Forestry Development Agency (FDA) the Liberia Institute of Statistics and Geo-Information Services (LISGIS), the Rural renewable Energy Agency (RREA) etc.;
- Consulting firms and/or Consultants contracted under the TA program as well as all parties working in the sector, including funding agencies.

### **4.2 Reporting**

The TA Consultant will be accountable to the WAPP Secretary General, and will work closely with the Hydropower Expert from the WAPP Secretariat's Planning, Investment Programming and Environmental Safeguard (PIPES) Department and the WAPP Institutional Coordinator for the World Bank TA Program.

The WAPP considers communication of utmost importance. Liaison and coordination of all stakeholders must be duly taken into account for the successful completion of the mandate. To this effect, the TA Consultant shall hold regular updates/briefings/video

conferences with the WAPP and other stakeholders on works in progress, problems encountered, and achievements. The reports and briefing shall be in English.

### **4.3 WAPP Contribution and Consultant Expenses**

The WAPP will continue to provide a focal point for the projects at the strategic level in the PDU and relevant Ministries, and work in close collaboration with the TA Consultant to coordinate inputs from Liberians Authorities.

To this effect, the WAPP intends to setup a project office in Monrovia where the Institutional Coordinator and the TA Consultants will be based when in Liberia. In addition to providing work space, internet access, and dial in conference facilities for the International Experts, the project office will serve as a meeting place (with meeting room and dial-in facilities) to exchange information with local stakeholders, and house available documentation and reference material required for the performance of the services including the Sharefile database developed as part of the first phase of the studies, which access will be granted at the beginning of the TA Consultant's mandate.

The Consultant shall provide his own computer and printing/copying facilities for the execution of the services, as well as all vehicles (with drivers), equipment and tools needed to undertake the study. If needed, the Liberian Authorities (and the LFT) shall provide assistance in obtaining work permits, and visas for the TA Consultant's staff. They shall also provide assistance in facilitating access to the sites, being understood that all insurances are to be borne by the TA Consultant.

The cost for operating and maintaining the project office including the maintenance of the Sharefile is to be borne by the TA Consultant who should include a lump sum of XXX USD per year (TBD) in his proposal to this effect. All other expenses including transportation and/or vehicles facilities shall be accounted for as an expense in the Consultant budget. The assignment being financed by the World Bank, the relevant World Bank requirements shall be applicable in this regard.

### **4.4 Schedule**

The services will last for the duration of the pre-investment studies (Subcomponent 2A.3 of the TA), which are expected to extend over a 2-year period starting in January 2019.

The contract will be time-based, as per the work plans to be established by the TA Consultant in the Inception Report (and revised on a quarterly basis), and approved by the GoL and the WAPP. The contract will nevertheless have to remain in the overall financial envelope of the contract (and as submitted in the financial proposal).

It should be noted that the TA Consultant is not expected to assure a constant presence in Liberia, nor to work full-time on the mandate. Where appropriate, work can be done from the home office, providing that this does not impact on capacity building of Liberians stakeholders. It must be understood though that a regular presence in country is required

as a means of developing confidence and credibility, and this will need to be articulated in the proposal. The timely contribution of ad hoc resources shall also be adequately scheduled in the work plan, and delivered as planned.

The following timeline is proposed for the submission of the deliverables:

Deliverables	Timeline
Kick-Off Meeting	S + 0
Inception Report (Draft)	S + 1 month
Meeting to validate Inception Report	S + 1.5 month
Inception Report (Final)	S + 2 months
Capacity Building Plan (Draft)	S + 2 months
Meeting to validate Capacity Building Plan	S + 2.5 month
Capacity Building Plan (Final)	S + 3 months
ToR for STA – DRAFT	S + 2 months
Meeting to validate TOR for STA	S + 2.5 month
ToR for STA – FINAL	S + 3 months
ToR for FS & ESIA (incl. ESMP and RAP) – DRAFT	S + 3 months
Meeting to validate TOR for FS & ESIA	S + 3.5 month
ToR for FS & ESIA (incl. ESMP and RAP) – FINAL	S + 4 months
1 <sup>st</sup> Quarterly Report	S + 4 months
2 <sup>nd</sup> Quarterly Report	S + 7 months
3 <sup>rd</sup> Quarterly Report	S + 10 months
4 <sup>th</sup> Quarterly Report	S + 13 months
5 <sup>th</sup> Quarterly Report	S + 16 months
6 <sup>th</sup> Quarterly Report	S + 19 months
7 <sup>th</sup> Quarterly Report	S + 21 months
8 <sup>th</sup> Quarterly Report (Closure Report)	S+24 months
Capacity Building Report (Draft)	S + 22 months
Capacity Building Report (Final)	S + 23 months
Closure Report (8 <sup>th</sup> Quarterly Report)	S + 24 months

WAPP and Liberian representatives are aware that first deadlines are ambitious but this is rationalized by the facts that:

- The TA Consultant will be supported by WAPP's project team and in particular with the Institutional Coordinator who will facilitate interactions with Liberians Authorities;
- The TA Consultant is expected to benefit from previous TA with all knowledge, information, and data collected already structured in a consolidated database.
- The WAPP will provide draft ToRs for the FS and ESIA;
- Work is expected to be implemented by a compact highly skilled and experienced team.

## **5. QUALIFICATION REQUIREMENTS**

### **5.1 Criteria**

The shortlisted Consultants will be selected based on their technical capacity, experience and qualifications in the fields related to this assignment. The shortlisting criteria are:

1. Knowledge of the Electricity Sector in West Africa as well as hydropower developments and transmission in the region. Familiarity with the electricity sector of Liberia, WAPP organization and the objectives of the CLSG project will be an advantage.
2. Strong expertise and experience in the preparation of hydropower generation projects with particular emphasis on pre-investment studies at preliminary (reconnaissance) and pre-feasibility levels, geotechnical field investigations, and feasibility studies for hydropower plants and large reservoirs. Previous experience in Sub-Saharan Africa and in the optimization of cascade developments will be considered favorably.
3. Relevant experience and competences in institutional strengthening, capacity building, mentoring and staff training, as well as data management. Proven experience of delivering of these skills in challenging environment will be an added advantage.
4. Availability of managerial and training staff with relevant technical expertise and demonstrated interpersonal and communication skills. Fluency in English is required while working knowledge of French would be desirable. The ability to work effectively in challenging environment where the various interests of several stakeholders need to be reconciled will also be an asset.
5. Capacity to mobilize relevant experts to work locally in Liberia as needed over an estimated period of 2 years starting in January 2019.

Interested Consultants should provide all documents, statements and references related to these criteria.

### **5.2 Team Structure**

The TA Consultant shall build up a team of international experts with previous experience in pre-investment studies for hydropower developments.

Key positions which will form the core team, and for which a curriculum vitae must be submitted, include:

- i. A Capacity Building Specialist
- ii. A Hydropower Expert
- iii. An Environmental and Social Impact Assessment Expert
- iv. An Energy System Planner

The TA Consultant shall also demonstrate its capacity to complement the core team with the following type of experts whose inputs shall be required on an ad hoc basis at various stages of the TA:

- v. Data Management / Information Technology Specialist
- vi. Power Economist
- vii. Financial Analyst
- viii. Contract Specialist
- ix. Transmission Engineer
- x. Expert in Renewable Energy
- xi. Generation Planner
- xii. Cost Estimator
- xiii. Hydrologist
- xiv. Dam Engineer
- xv. Geotechnical Engineer
- xvi. Electro-mechanical Engineer.

### **5.3 Staff Qualifications**

The proposed candidates shall meet the qualifications and requirements described below and be prepared to work in Liberia. All staff shall be fluent in English, have excellent interpersonal, oral, and written communication skills and proven competences in technical training and capacity building. The proposed staff must be well versed in the use of standard computer tools such as the Microsoft Office Suite.

The person who will be designated as Team Leader must also have excellent skills in Project Management as well as a high level of organizational & managerial abilities.

Knowledge of French is not compulsory but would be an asset.

#### **i. Capacity Building Specialist**

A professional with a University Degree in Human Resource, Education, or equivalent qualifications, and at least ten (10) years' experience in the development of Human Resources. The proposed candidate must be familiar with the requirements in the Energy Sector, and preferably the Electricity Sector with hydropower content. He/she must have previous experience in at least four (4) similar projects where skills gap analysis were carried out and shall demonstrate the successful implementation of the recommended program. Proven track record of working with local staff in developing countries is essential. Knowledge of West Africa conditions is considered an asset.

## **ii. Hydropower Expert**

Civil Engineer with at least fifteen (15) years' experience in pre-investment studies for major hydropower projects and cascade developments with reservoirs, including preliminary, prefeasibility and feasibility studies. The candidate must have extensive experience in field works for the development of new projects, and in the preparation of general layouts and conceptual designs. He/she must have worked in at least four (4) projects of a similar nature where such skills were utilized, of which at least one (1) is in Sub-Saharan Africa.

## **iii. Environmental and Social Impact Assessment Expert:**

A professional with a University Degree in Environmental Management or equivalent qualifications and at least fifteen (15) years' experience in the assessment of socio-environmental issues related to river basin developments with hydropower projects and reservoirs. The E&S Expert shall have working knowledge of World Bank Safeguard Policies as well as local and international regulatory standards on environmental and resettlement issues, as well as proven international experience in at least three (3) projects of a similar nature, preferably in Sub-Saharan Africa. Previous work experience in Integrated Water Resource Management (IWRM) desirable.

## **iv. Energy System Planner**

An Engineer or professional with equivalent qualifications, and at least ten (10) years' experience in the planning of energy systems with mix hydro thermal generation and the integration of renewable sources. The proposed candidate shall be familiar with the Electricity Sector in Sub-Saharan Africa and show track record of at least four (4) similar projects where his/her planning skills contributed to developing a long term strategic vision for the sector and to successfully identifying key projects that form the least cost master plan. Familiarity with key stakeholders in West Africa and Liberia (state entities, IFIs...) and the CLSG project is considered an advantage.

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