

TRI AN HYDROPOWER PLANT EXTENSION PROJECT

TERMS OF REFERENCE

SUPERVISION AND SUPPORT CONSULTANT (SSC)

(Draft)

August 2025

REVISION

Index	Date	Revisions
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B	18.06.2025	Revision by Thilo Heiberger (KfW), integrating the items agreed during the meeting with PMB3 on 18. June 2025
C	29.08.2025	Finalized by Thilo Heiberger (KfW) after received the final adjustment by EVN

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PART I. INTRODUCTION OF THE PROJECT

1. General Information of the Project

The Tri An Hydropower Plant (HPP) Extension project is located on the right (Northern) side, adjacent to the existing Tri An Hydropower Plant on Dong Nai River in Tri An commune, Dong Nai province. The project is located about 65km northeast of Ho Chi Minh City. In there:

- The North borders Binh Phuoc province;
- The South borders Tri An commune - Vinh Cuu district, Dong Nai province;
- The West borders Binh Duong province;
- The East borders Ma Da commune - Vinh Cuu district, Dong Nai province.

Project area is located at coordinates of:

- Northern latitude from 11°06'27" to 11°06'49";
- East longitude from 106°58'16" to 106°59'20".

This project has the following main purposes:

- Power generation by adding 200 MW capacity to the national grid at an annual average energy level of 115.0 million kWh/year;
- Stability and improving the safety and reliability generating of with high quality electrical energy to meet system requirements with flexible operating conditions.

1.1. Project Components

HPP Tri An project includes the following components that has been developed in various phases:

- Usage of existing Main/ saddle dam and Spillway;
- Construction of a new Intake;
- Construction of a new penstock;
- Construction of an extension powerhouse equipped with 02 units (Francis turbines) with a installed capacity of 2x100MW;
- Construction of a new double-circuit connection line of about 1.09km in length connecting to the 220kV busbar at the 220/110kV Switchyard of the existing Tri An Hydropower Plant.
- Construction, supply and installation of the 220kV switchgear equipment for expansion bays at the existing switchyard.

1.2. Project's Main Parameters

The main parameters of the project are summarized in Annex 1.

1.3. Related bidding packages

The whole project comprises various packages to be implemented by different contractors. With the purpose to provide a well-performed supply of Goods and Technical Services for this Package, the SSC shall make a good association with other relevant Consultants and Contractors to enhance the project implementation. The packages may be closely related to the SSC's scope of work are listed below:

Consulting Services

1. Package TV06-TAMR: Consulting service for investigation, Technical Design, Construction Drawings Design (2 steps), Cost Estimates, and Bidding Documents;
2. Package TV07-TAMR: Consulting service for review of Technical Design - Construction Cost Estimate, and Construction Drawing Design (2 step design);
3. Package TV13-TAMR: Environmental monitoring in construction phase;
4. Package TV14-TAMR: Equipment quality inspection;
5. Package TV16-TAMR: Consulting on the application of Building Information Modeling (BIM) for Project Implementation and Completion Phase.
6. Package TV17-TAMR: Monitoring impacts of construction on existing works;
7. Package TV18-TAMR: Supervision of Civil Construction and Equipment Installation.
8. Package TV19-TAMR: Reviewing of Construction Drawings (3-step Design);
9. Package TV20-TAMR: Geological Description Consulting for the Foundation Excavation Pit.
10. Package TV21-TAMR: Consultancy for preparation of environmental permit application dossier.

Non-Consulting Services

11. Package PTV02-TAMR: Equipment calibration testing
12. Package PTV05-TAMR: Cross-check of welding seam

Construction Packages

13. Package XL03 -TAMR: Construction of Hieu Liem Bridge
14. Package XL04-TAMR: Civil Construction and Equipment Installation.

Goods Supply Packages

15. Package TB01-TAMR: Supply of Electromechanical Equipment;
16. Package TB02-TAMR: Supply of Hydromechanical Equipment;
17. Package TB03-TAMR: Supply and Installation of Overhead travel Crane.

Details of the bidding packages are provided in Annex 2 – Procurement Plan.

1.4. Type and grade of work design

1.4.1. Type of work

The project belongs to the category of Industrial Power Works, Group A (according to the Law on Public Investment No. 39/2019/QH14 dated June 13, 2019).

1.4.2. Level of work design

The design level of the works is determined according to QCVN 03:2022/BXD and based on Decision No. 94/EVN-HĐTV dated August 28, 2020, of the EVN Board of Members approving the Tri An Hydropower Plant Extension Project, with the design levels of the works as follows:

- The design level of the works and the work items along the pressure line, including: Intake channel; Intake, backfill block after the Intake; The section of the penstock located under the backfill block after the intake of the Project, has a design level of Special Grade.
- The work items outside the pressure line, including: The section of the penstock outside the backfill block after the Intake; Hydropower plant; Tailrace channel; Transmission lines and connections, ... of the Project, have a design level of Grade I.
- The temporary work items for construction purposes: The first phase intake dyke has a design level of Special Grade, while the remaining dykes have a design level of Grade II.

1.4.3. Design flood flow and test flood flow

- Designed flood peak flow (ptk=0.10 %, T=1000 years): 19,057 m³/s;
- Tested flood peak flow (ptk=0.02%, T=5000 years): 23,342 m³/s;
- Normal water level: 62 m.
- Full Supply Water Level (FSL): 63.96 m.

1.5. Project implementation schedule

The construction period of the project is determined to be 3 years (excluding preparation work). The main construction progress milestones are as follows:

- Start of construction of Hieu Liem Bridge: December 2024;
- Start of construction of main Works: June 2025;
- Start of power generation of Unit 1: September 2027;
- Start of power generation of Unit 2: December 2027;
- Project construction completion: December 2027.

1.6. Project institutional counterparts

The **Employer** of the **Tri An Hydropower Plant Extension Project** is **Vietnam Electricity (EVN)**, represented by the **Power Project Management Board No. 3 (EVNPMB3/ PMB3)**.

Vietnam Electricity (EVN) was established by the Government of Vietnam as a State-owned company in 1994, and officially operated as a one-member limited liability company with 100% charter capital owned by the State in 2010.

Entrusted with the mission of ensuring sufficient power supply for national socio-economic growth and meeting customers' demands with continuously improved quality and services, EVN secures power investment and development while serving the Government of Vietnam as a macro regulatory tool.

EVN wholly owns the national power transmission and distribution system through the National Power Transmission Corporation and five power corporations for power distribution. EVN also holds strategic and multipurpose hydropower plants, and the majority of the three power generation corporations (GENCOs 1, 2, 3) and sells electricity to nearly 30 million customers.

Power Project Management Board 3 (EVNPMB3) acts as the project implementation unit on behalf of Vietnam Electricity (EVN) – the Project Owner, to manage projects invested by EVN and carries out study and investment preparation for projects, as assigned by EVN. PMB3 shall be responsible for the supervision of the civil works with complete waterway from intake via penstock to the powerhouse and tailrace. Further supervision works comprise – among others – the following components: Operation center, operating road system, dikes, discharge canal with dykes, 22kV construction power supply system, water supply system for construction and daily operation, temporary road system, auxiliary works, camps for construction, housing and working of PMUs and other synchronous works.

In this project EVNPMB3 will act as both PIU/ PIC unit. It shall be supported externally by the Support and Supervision Consultant (SSC), a Dam Expert as well as Domestic Consultants .

Power Project Management Board 3 was established in Decision No. 307/QD-EVN dated November 22, 2018 of the Board of Members of Vietnam Electricity Group on the basis of human resources, assets and facilities of Hydropower Project Management Board 5, Hydropower Project Management Board 6 and Ninh Thuan Nuclear Power Project Management Board.

- Name:

- + Full name: Power Projects Management Board 3 – Branch of Vietnam Electricity.
- + International transaction name: Vietnam Electricity Power Projects Management Board No.3.
- + Abbreviated name: EVNPMB3

- Type of enterprise: Dependent accounting unit (branch) of Vietnam Electricity.

- Head office: No. 25 Thach Thi Thanh, Tan Dinh ward, Ho Chi Minh City.

Projects completed by PMB3 under the role of project management:

- Tri An hydropower plant (400MW);
- Thac Mo1 hydropower plant (150MW);

- Ham Thuan hydropower plant (300MW);
- Da Mi hydropower plant (175MW);
- Dai Ninh hydropower plant (300MW);
- Dong Nai 3 hydropower plant (180MW);
- Dong Nai 4 hydropower plant (340MW);
- Buon Kuop hydropower plant (280MW);
- Buon Tua Srah hydropower plant (86MW);
- Srepok 3 hydropower plant (220MW);
- Thac Mo hydropower extension plant (75MW);
- 110kV lines and stations supply power for construction of Ninh Thuan nuclear power project;
- Phuoc Thai 1 solar power plant (50MWp);
- Increasing capacity of 220/110kV Tri An substation.

Projects under implementation by PMB3:

- Bac Ai Pumped Storage Hydropower Project (1200 MW);
- Tri An Hydropower Plan Extension Project (200 MW);
- Power transmission project for Cong Dao island district;
- O Mon III, IV thermal power project (1050 MW/Plant) (The projects were transferred to PVN);

1.7. Financier/Lender:

The Kreditanstalt für Wiederaufbau (KfW) is a German public financial institution that implements the German's development policy, acts to fight poverty, and promote sustainable development.

The HPP Tri An project will be financed by loans from KfW and Employer's counterpart funds.

KfW's requirements are defined as stipulated in the Loan and Separate Agreements to be signed between KfW and EVN. The terms "requirement of the Lender" or 'Financier requirements" systematically refer to this Loan and Separate Agreement clauses. These requirements will be discussed in advance between KfW and EVN/PMB3.

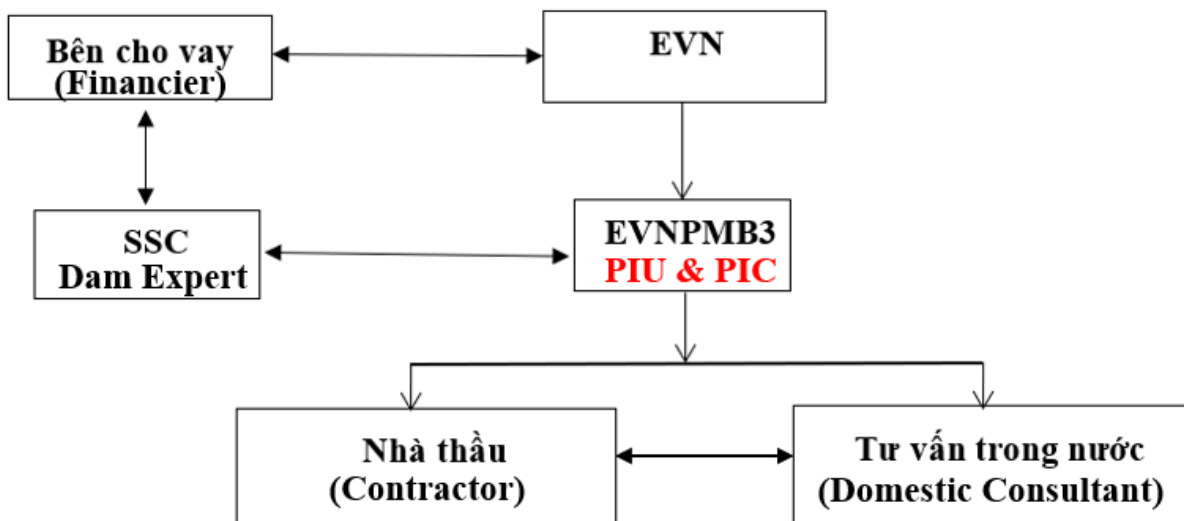
PART II. SCOPE OF WORK OF THE CONSULTANT SUPPORTING PROJECT SUPERVISION

2. Scope of Work of Project Parties

2.1. Project Organisation Frame

The Supervision and Supporting Consultant (SSC) selected in this tender package will assist in supervising the implementation of the Project during the following phases: Monitoring the construction and trial operation to ensure the project is effectively implemented and the schedule complies with the laws, regulations, and requirements of the Employer and Financier, KfW.

The SSC is part of the entities being involved in the project as outlined in below sketch



The scope of works of the above named project parties will be described in more detail for the Bidder for this SSC assignment to understand the own work tasks.

2.2. Overall Scope of Work of EVN/EVNPMB3

EVNPMB3 has been assigned by EVN as the Employer's Representative for the Tri An Hydropower Plant Extension Project in accordance with the legal regulations on investment and construction. Depending on the delegation of authority, EVN will directly perform or authorize EVNPMB3 to perform the following tasks:

- Selecting organizations and individuals with the required qualifications to perform construction, construction supervision (if any), testing, quality inspection of the works (if any), and other construction consulting tasks.
- Handing over the site to the construction contractor in accordance with the construction schedule and the provisions of the construction contract.
- Checking the conditions for starting construction as stipulated in Article 107 of Law No. 50/2014/QH13, amended and supplemented by Clause 39, Article 1 of Law No. 62/2020/QH14. Notifying the commencement of construction according to legal regulations on construction.
- Organizing construction supervision as stipulated in Article 19 of Decree No. 06/2021.
- Establishing a construction management system and informing the tasks and authority of individuals within the construction management system of the Employer or construction

supervision contractor (if any) to relevant contractors. Allocating sufficient personnel to manage safety during construction; checking the mobilization and allocation of personnel by the construction supervision contractor against the requirements of the construction contract (if any). The person responsible for labor safety management of the Employer must be trained in labor safety or construction engineering and meet other legal requirements on labor safety and hygiene.

- Checking and approving the overall and detailed construction progress of project items prepared by the contractor to ensure compliance with the approved construction schedule. Adjusting construction progress as necessary according to the construction contract.
- Checking and confirming the accepted volume according to regulations and any additional volume as stipulated in the construction contract (if any).
- Reporting safety assurance measures to the specialized construction agency as stipulated in Clause 4, Article 52 of Decree 06/2021 in cases where construction poses significant safety risks to the community.
- Organizing counter-testing and quality inspection of construction parts, project items, and construction works as stipulated in Article 5 of Decree 06/2021.
- Organizing the acceptance of construction works.
- Organizing the completion documentation of construction works.
- Temporarily halting or suspending construction for contractors when construction quality does not meet technical requirements, construction methods do not ensure safety, or violations of labor safety management regulations occur or pose a risk of labor accidents, incidents causing labor safety loss.
- Leading and coordinating with relevant parties to resolve issues and arising problems during construction; reporting, handling, and mitigating consequences when construction incidents occur, causing labor safety loss; coordinating with competent authorities to resolve construction incidents and investigate equipment failures according to Decree 06/2021.
- Implementing environmental protection regulations during construction according to legal regulations on environmental protection.
- Preparing reports for the specialized construction agency to conduct acceptance inspections as stipulated in Decree 06/2021.
- The Employer has the right to self-perform if qualified or hire a consulting organization with the required qualifications to supervise one, several, or all contents stipulated from Clause 3 to Clause 7, Article 14 of Decree 06/2021; responsible for checking the contractor's performance according to the construction contract and relevant legal regulations.
- The person responsible for labor safety management of the Employer has the responsibility to:
 - Organize supervision of the implementation of safety regulations during construction by contractors;
 - Organize coordination among contractors to manage safety and resolve arising labor safety issues during construction;
 - Temporarily halt or suspend construction upon detecting signs of violations of safety regulations during construction.
- + Organize supervision of the implementation of safety regulations during construction by contractors;
- + Organize coordination among contractors to manage safety and resolve arising labor safety issues during construction;
- + Temporarily halt or suspend construction upon detecting signs of violations of safety regulations during construction

According to the task assignment decision, instead of a Domestic Consultant, **EVNPMB3** will represent the Employer in performing project management functions, including but not limited to the following tasks:

- Managing contracts and contractor claims, closely coordinating with SSC and EVNPMB3.
- Controlling the validity of contractor documents such as insurance contracts, bank guarantees, transport documents, etc.
- Controlling quality and quantity for all work and materials through daily inspections of the contractor's work.
- Guiding the contractor to comply with specifications.
- Ensuring that the contractor uses only permanent and temporary construction materials that comply with the specifications and project requirements.
- Controlling progress and disbursement of funds.
- Reviewing, considering, and approving contractor invoices and issuing corresponding "Payment Certificates" to the Employer.
- Assisting the Employer in resolving any change requests to the construction contract.
- Identifying standards, measures, and methods to ensure quality and safety during the design, construction, installation, and operation phases to achieve reliability and sustainability for the Project. Developing a Safety and Quality Management Strategy with the support of SSC, which defines the technical and quality standards applied and various responsibilities to achieve the required level throughout the Project implementation.
- Establishing a Monitoring and Evaluation System.
- Ensuring brand recognition as required by the sponsor, closely coordinating with SSC and EVNPMB3.
- Reviewing contractor reports, fabrication drawings, as-built drawings, operation manuals, maintenance procedures for construction works and equipment...
- Supervising the contractor in testing and trial operation of constructed works and the contractor's supply of goods.
- Preparing a list of issues to be rectified and assisting the Employer in preparing for provisional acceptance.
- Organizing/ Participating in the acceptance of works for use based on EVN's delegated authority

2.3. Overall Scope of Work for Domestic Consultants

To better understand the scope of works of International Supporting Consultants (including SSC and Dam Expert) and the clear assignment of roles and responsibilities between SSC, Domestic Consultant/ Local Consultant (LC), and EVNPMB3, the roles and responsibilities of the main Domestic Consultants are defined as follows:

2.3.1. Design Consultants:

Responsible for the role of Design Consultant (Including consultant for Technical Design and Construction Drawings Design), including but not limited to the following tasks:

- Surveying and preparing technical designs and construction drawing designs, and preparing bidding documents.
- Preparing the total construction cost estimate;
- Designing and preparing specialized agreement documents related to legal regulations on construction investment (Fire Protection System, SCADA, Communication, Connection, Energy Measurement, etc.). Acting on behalf of the Employer to carry out procedures for approval/agreement of documents by competent authorities;
- Preparing specialized technical documents including: surveying and assessing earthquake hazards; conducting hydraulic model testing; establishing water level measurement wells and monitoring groundwater levels; controlling hydraulic networks and transferring design alignment to the field;
- Reviewing and updating the Environmental and Social Management Plan (ESMP), preparing

ESMP during the construction phase, and tasks related to HSES during the preparation of technical designs;

- Performing author supervision tasks and coordinating with EVNPMB3 throughout the contract implementation process.
- Developing Building Information Modeling (BIM) in technical design suitable for the stage of basic design preparation.

The Design Consultant for the Tri An Hydropower Plant Extension Project (Package TV06-TAMR) is The Joint Venture of Power Engineering Consulting Joint Stock Company 2 (EVNPECC2) and Institute of Energy (IE).

2.3.2. Design Review Consultants:

- Main scopes of the Design Review Consultant (Including Technical Design and Construction Drawings Design) comply with: Construction Law No. 50/2014/QH13, Amended Construction Law No. 62/2020/QH-14, Decree No. 175/2024/ND-CP dated December 30th, 2024; Decree No. 06/2021/ND-CP dated January 21st, 2021, Decree No. 10/2021/ND-CP and circulars guiding relevant ministries, as well as complying with International Engineering Practice and in compliance with the applicable environmental and social standards (KfW Sustainability Guideline) including but not limited to the following contents:
- Compatibility of the construction design of the previous step with that of the preceding step.
- Reasonability of work construction design solutions.
- Compliance with applied standards, technical regulations and legal provisions on the use of building materials for works.
- Assessment of the compatibility of design solutions with utilities of works, their safety and assurance of safety for adjacent works (application of Vietnamese and internationally applied OHS standards). With its review, the Consultant must ensure that National and International standards and norms and the requirements of KfW guidelines are complied with throughout the distinct Consultant's Works of Detailed Design, Cost Estimate and Working Drawings. Aside from technical topics, environmental and social topics as well as OHS related aspects must be considered in these works.
- Reasonableness of the selection of technological lines and equipment for designs of works with technological requirements.
- Compliance with national regulations as well as international standards on environmental protection and social aspects and fire and explosion prevention and fighting.
- Compatibility of major volumes in cost estimates with designed volumes; correctness and reasonableness of the application of construction norms and unit prices; determination of estimated values of works.
- Capability conditions of organizations and individuals conducting construction survey and design.

The design review consultants for the Tri An Hydropower Plant Extension Project are as follow:

- Review of the Technical and 2-step Construction Drawing Design (TV07-TAMR Package) is conducted by the Joint Venture of Power Engineering Consulting Joint Stock Company 3 (EVNPECC3) and Power Engineering Consulting Joint Stock Company 4 (EVNPECC4).
- Review of Construction Drawings Design for the 3-step design work items (TV19-TAMR Package) is conducted by Power Engineering Consulting Joint Stock Company 3 (EVNPECC3).

2.3.3. Construction Supervision Consultant:

a) Scope of Works of the Supervision Consultant:

- Supervision of construction quality
 - + The content of construction supervision shall comply with the provisions of Clause

- 1, Article 120 of the Construction Law No. 50/2014/QH13 and Article 19 of Decree No. 06/2021/ND-CP dated January 26, 2021, including the following main contents:
- + Notify the duties and authority of individuals within the quality management system of the construction supervision contractor to relevant contractors for coordination and implementation;
 - + Inspect the conditions for commencing construction works as stipulated in Article 107 of the Construction Law;
 - + Verify the suitability of the construction contractor's capacity compared to the bidding documents and construction contract, including: workforce, construction equipment, specialized construction laboratories, and the quality management system of the construction contractor;
 - + Check the construction methods of the contractor against the approved construction method designs;
 - + Review and approve the contents submitted by the contractor as stipulated in Clause 3, Article 13 of Decree No. 06/2021/ND-CP, and require the construction contractor to revise these contents during the construction process to align with actual conditions and contract provisions. If necessary, the Employer may agree in the construction contract with contractors to assign the construction supervision contractor to prepare and require the construction contractor to implement the aforementioned contents;
 - + Inspect and approve materials, structural components, construction products, and equipment installed in the works;
 - + Monitor and urge the construction contractor and other contractors to carry out work at the site according to the construction progress requirements of the works;
 - + Supervise the implementation of environmental protection regulations for construction works in accordance with environmental protection laws; supervise measures to ensure safety for nearby works, construction monitoring activities;
 - + Supervise the enforcement of occupational safety regulations in accordance with standards, contract provisions, and labor safety laws;
 - + Recommend that the Employer organize design adjustments when errors or impracticalities in the design are identified;
 - + Suspend construction of the construction contractor if the construction quality does not meet technical requirements or if construction methods are deemed unsafe; lead and coordinate with relevant parties to resolve obstacles and issues arising during the construction process and collaborate on handling and remedying incidents as stipulated in Decree No. 06/2021/ND-CP;
 - + Check documents for acceptance; inspect and confirm as-built drawings;
 - + Conduct comparative testing and quality inspection of work components, work items, or construction works as stipulated in Article 5 of Decree No. 06/2021/ND-CP (if applicable);
 - + Carry out acceptance of construction work for transitioning to the next construction phase, acceptance of construction stages or work components, acceptance of completed work items or construction works as stipulated in Articles 21, 22, and 23 of Decree No. 06/2021/ND-CP; inspect and confirm the completed construction volume;
 - + Organize the preparation of completion dossiers for the construction works;
 - + Perform other contents as stipulated in the construction contract.
- Supervision of construction progress
- + Check and confirm the overall and detailed progress schedules for work items prepared by the contractor to ensure compliance with the approved construction schedule;
 - + Monitor and urge the construction progress of contractors at the site. When necessary, recommend to the Employer to request the construction contractor to take measures to ensure the construction progress of the works;
 - + Assess and identify the causes, report in writing to the Employer for submission to the competent authority to consider and decide on adjusting the project schedule in

- cases where the overall project schedule is delayed;
- + Inspect the actual construction capacity of the construction contractor in terms of workforce and equipment compared to the construction contract; report and propose to the Employer necessary solutions to ensure progress.
- Supervision of construction volume
 - + Check and confirm the volume that has been accepted as per regulations;
 - + Report to the Employer on any additional volume compared to the construction contract.
- Supervision of ESHS compliance with Vietnamese regulations and Lender requirements:
 - + Supervise compliance with regulations on occupational safety management and environmental protection during construction as stipulated in Decree No. 06/2021/ND-CP and relevant labor safety and environmental protection laws.
 - + Checking the adequate implementation of ESMPs and the ESHS performance of the contractors
 - + Stakeholders' coordination and public relation activities
 - + Supporting Employer's Representative in implementing the ESCP (Environmental & Social Commitment Plan)
 - + E&S progress review and E&S conformance monitoring

b) Organization and Implementation of Supervision Consultancy Work:

According to the Procurement Plan, *Package TV18-TAMR: Supervision Consulting on civil construction and equipment installation* is not expected to conduct a contractor selection process; instead, EVNPMB3 will take the lead in conducting Self-Supervision with the support of Ialy Hydropower Company, as detailed below:

- **Scope of EVNPMB3 (Supervision of Civil works):**

Construction supervision of the following project components:

 - + Intake channel; Surge chamber and Intake gate; Backfill block after the Intake gate; Penstock; Powerhouse; Tailrace channel; 220kV connection bay; 220kV connection line;
 - + Operation center;
 - + Hiếu Liêm Bridge;
 - + Operating road system: TCVH1; TCVH2; TCVH3; TCVH4;
 - + Intake dyke; Tailrace channel dyke 1; Tailrace channel dyke 2;
 - + 22kV construction power supply system;
 - + Water supply system for construction and daily use;
 - + Temporary road system for construction: TC1; TC2; TC3; TC4;
 - + Auxiliary works, construction camps;
 - + Housing and working facilities for the Project Management Board (PMB) and other synchronous works;
- **Scope of Ialy Hydropower Company (Supervision of equipment installation works):**

Supervision of equipment installation works, including:

 - + Hydraulic turbines; Generators; Excitation system; Governor system; Auxiliary mechanical equipment (technical water supply system; drainage and seepage system; compressed air system; unit oil cable system; technical pipelines, etc.);
 - + Electrical equipment in the plant's technological process, including (13.8kV output voltage equipment from the generator; AC and DC+UPS self-use electrical system; control, monitoring, and protection system; electricity metering system; telecommunication system; power cables, control cables (including optical cables), and cable trays; water level measurement system, etc.);
 - + Auxiliary equipment in the plant's technological process: Ventilation and air conditioning system; Lighting system; Grounding and lightning protection system; Fire protection system (PCCC); Surveillance camera system, etc.;
 - + 220kV main transformer;

- + Hydraulic mechanical equipment for the intake gate; Downstream of the powerhouse, Intake gate gantry crane, and downstream powerhouse gantry crane; Machine hall crane; Hydraulic cylinders for the intake gate and penstock lining steel;
- + 220kV connection bay equipment, including (primary equipment; secondary equipment; power cables & various control cables; cable trays and accessories; control system; relay protection & SCADA system; FRs/PMU/PQ system; electricity metering system; connection bay accessories, etc.);
- + Monitoring system;
- + 220kV connection line from the powerhouse to the distribution station.

2.3.4. Other Consultants

Several other consulting units are involved in the construction process of the Tri An Hydropower Plant Extension Project, such as verification, inspection, testing... They perform tasks according to the provisions of the respective consulting contracts and legal regulations on construction.

2.4. International Supporting Consultants

All the services of the Consultants described below shall be implemented as the technical assistances, in close coordination and cooperation with KfW and the Employer. The technical assistances are co-financed by a non-refundable grant from the European Union (EU), provided through the EVN - Team Europe Energy Transition Facility.

The European Union is an economic and political union of 27 European countries. It is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities. It acts globally to promote sustainable development of societies, environment and economies, so that everyone can benefit.

2.4.1. SSC

The Supervision and Supporting Consultant (SSC) will assist in supervising the implementation of the Project during the following phases: Monitoring the construction and trial operation to ensure the project is effectively implemented and the schedule complies with the laws, regulations, and requirements of the Employer and Financier, KfW.

2.4.2. Dam Expert

The Dam Expert shall support EVN/ PMB3 for the intake works at the existing dam. Among others, these tasks shall include the review and check of the existing latest dam safety report, review the information about dam body and intake foundation, check the intake design and approach of upstream coffer dam and assess the risks of these works for the condition and stability of the dam.

3. Overall Scope of Work of SSC

3.1. Objectives of Assignment of SSC

Objectives of the Assignment of the SSC is as follows:

To support and cooperate with EVN/ PMB3, Domestic Consultants and where necessary the Financier during the period of project implementation (construction and commissioning) ensuring that:

- (a) the HPP is implemented according to Vietnamese regulations and International Engineering Practice to assure a sustainable operation;
- (b) construction works are done while respecting the timeline and the planned budget and application of corresponding applicable national and international standards and norms; and
- (c) the requirements of Financier's guidelines are complied with throughout construction stage of the project, namely among others:
 - i. ESHS management and monitoring are performed properly in conformance with KfW's guidelines, including HSE supervision and control at site; if adaptations of established ESMPs and monitoring plans become necessary, the SSC will support in updating and further improving the plans.
 - ii. SSC shall monitor the disbursement progress and provide timely support to EVN/PMB3 to ensure that the disbursement is executed smoothly, in compliance with the Financier's (KfW's) requirements;
 - iii. The Stakeholder Coordination and Public Relation Activities will comply with the applicable national laws and regulations as well as international standards (as defined by KfW).
 - iv. Support PMB3 in including adequate ESHS requirements and respective qualification criteria in the bidding documents (if applicable); or in evaluating ESHS aspects in the bids in accordance with Vietnamese regulations and KfW requirements.
 - v. The SSC shall further more monitor the project progress according to the requirements of the EVN/PMB3 and KfW and shall be in the lead to elaborate monthly and comprehensive quarterly monitoring reports in coordination with the PIU and the Domestic Consultants and shall provide such final report to the PIU and for review to KfW; the progress reports shall include all relevant (a) technical, among others, the Quality Assurance System established by the Domestic Consultants and the Contractors in accordance with the requirements stipulated in the Contracts and by KfW; (b) OHS (Occupation, Health and Safety) as well as (c) environmental and social aspects. It is important that the financing institutions is well aware about any critical project challenge or risk and it shall be assured that the project is in line with the Applicable E&S Standards (3.4).

At the physical completion and commissioning of the Project, the SSC shall also prepare a final report summarizing the implementation of key activities, project outcomes, and outstanding issues. The final report shall be submitted before the end of the warranty period.

3.2. Civil Construction and Supply, Installation of Equipment

Overall Scope of Work for SSC

- The SSC shall be available for and may support the PIU and the Domestic Consultants in preparation of monthly project progress meetings among all stakeholders, including the financing institution KfW;
- Assist EVNPMB3 in managing progress, inspecting and supervising the quality and construction methods of contractors;
- Support and propose appropriate design solutions to ensure stability and safety under all construction and operational conditions, as well as other complex technical issues that may arise during construction, as requested by EVNPMB3;
- Prepare reports as required;

3.3. Environment, Social, Health, and Safety (ESHS)

The applicable environmental and social standards include: (i) Legal documents and current standards and regulations on ESHS in Vietnam; (ii) ESHS standards agreed upon by EVN and the Lender.

In this section, SSC is responsible for:

- Assist in reviewing ESHS-related documents submitted by the contractor to EVN/EVNPMB3 to ensure compliance with ESHS specifications, namely the Site Environmental and Social Management Plan (PA-ESMP), including Occupational Health and Safety (OHS) aspects and other specific plans.
- Assist in monitoring and supervising throughout the construction phase to ensure compliance with the PA-ESMP, including the generally approved specific plans and the OHS Plan in particular.
- Assist in controlling technical and ESHS requirements to ensure they meet the Lender's requirements and international technical practices, as well as compliance with the signed Environmental and Social Commitment Plan (ESCP).
- Assist in checking and evaluating compliance with the Resettlement Action Plan (RAP), conducting audits on the completion of resettlement.
- Provide recommendations and support as needed to EVNPMB3 and/or Domestic Consultant to ensure the Project complies with applicable standards and the ESCP.
- Assist in reviewing the progress of commitments and related E&S documents prepared, applied, or implemented by EVN/EVNPMB3 and incorporate the results into periodic reports.

3.4. Applicable Environmental and Social Standards

SSC supports the implementation of Environmental and Social (E&S) tasks according to relevant environmental and social standards ("Applicable Standards") for the E&S requirements of the Sponsors, including:

- Current national laws and local regulations, management requirements, and policies of Vietnam, including regulations related to compensation, land acquisition, resettlement, ethnic minorities/indigenous peoples, social and environmental protection, social and environmental impact assessment, and transmission line operation;
- International laws, including conventions and treaties that Vietnam has adopted and applied to the Project;
- World Bank Environmental and Social Standards dated 2017, including applicable World Bank Group guidelines (including General EHS Guidelines, EHS Guidelines for Electric Power

Transmission and Distribution¹; Good Practice Handbook on Environmental Flows for Hydropower Projects, Good Practice Handbook on Cumulative Impact Assessment and Management and any other relevant EHS Guidelines, as Good Practice Note on Dam Safety, 2020);

- Guidelines on Incorporating Human Rights Standards and Principles, Including Gender, in Programme Proposals for Bilateral German Technical and Financial Cooperation²;
- The ILO Fundamental Instruments that have been ratified by Vietnam³.
- For the resettlement aspects, in addition to WB ESS 5 on Resettlement the UN Basic Principles and Guidelines on Development-based Evictions and Displacement, (namely §§ 42, 49, 52, 54 and 60)⁴;
- For land tenure issues the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT)⁵.
- In case there are camps for construction workforce: IFC Guidance “Workers’ accommodation: processes and standards”⁶
- KfW’s Sustainability Guideline.

3.5. Support in Meeting Lender's Requirements

SSC supports EVNPB3 and EVN through recommendations/proposals to implement appropriate changes and additions to activities related to the Project in order to:

- Ensure compliance with the Lender's requirements and EVN's commitments;
- Report project progress and risks according to the Lender's reporting requirements in line with the Lender's requirements;

3.6. Coordination Regulations

Coordination regulations: between EVN/EVNPMB3, SSC, the Lender, and included in this Terms of Reference are the following contents:

- EVN/EVNPMB3 has the right to review, reassign, and recommend KfW to replace SSC experts if they do not meet the criteria for professional qualifications and ethics in their profession.
- EVN/EVNPMB3 has the right to request the mobilization of experts to the construction site at any time to support EVNPMB3 in handling situations immediately to ensure the quality and safety of the project.
- EVNPMB3 participates in the acceptance of expert quality through SSC reports and signs off

¹ https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

² [Guidelines on Incorporating Human Rights Standards and Principles, Including Gender, in Programme Proposals for Bilateral German Technical and Financial Cooperation, 2013.](#)

³ [Ratifications of fundamental conventions \(ilo.org\)](https://www.ilo.org/publications/016/i2801e/i2801e.pdf)

⁴ http://www.ohchr.org/Documents/Issues/Housing/Guidelines_en.pdf

⁵ <http://www.fao.org/docrep/016/i2801e/i2801e.pdf>

⁶ https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_gpn_workersaccommodation

on the monthly expert workload sheets.

- EVNPMB3 has the right to request SSC to prepare documents and participate in supporting EVN/EVNPMB3 in explaining to competent authorities about the tasks performed by SSC or other professional tasks as required by EVN/EVNPMB3.

4. Specific Tasks of SSC:

4.1. Review of Project Documents

As stated above, SSC will access documents provided by EVNPMB3 and/or the Lender, including but not limited to the following files: technical designs, construction drawing designs, specialized reports, supplementary studies, E&S studies, as well as other E&S tools developed for the Project.

SSC will review and assess the existing ESHS documents and address in the inception report their compliance with the OHS, environmental, and social standards of Vietnam and International standards agreed upon by EVN and the Lender. SSC will evaluate whether the progress of E&S implementation aligns with the overall project timeline or if there are any risks that E&S tasks have not been fully considered. SSC will propose how to incorporate the ESMP requirements and other E&S tools into the Construction drawing design and timeline milestones if necessary.

4.2. Construction Supervision & Goods Supply

SSC supports EVNPMB3 in supervising the project construction, including general supervision and site supervision, continuous project management and supervision, periodic reporting, and participation in construction meetings at the site. General supervision and site supervision of the Works must be carried out continuously by SSC personnel present at the site, in close coordination with EVNPMB3 and the Construction Supervision Consultant.

SSC support to supervising the quality of the works and report on technical aspects to EVNPMB3 to ensure that the works comply with national standards, international technical practices, and specified technical specifications.

Specifically, SSC supports EVNPMB3 in performing the following tasks:

- Support EVN/PMB3 and coordinate with the Domestic/ Local consultant (LC) to review and provide recommendation on the design of **construction drawings provided by the distinct Contractors** of the Project's work items, such as Inlet channel, Inlet, Penstock, powerhouse, Tailrace channel, etc.
- Review and recommend on the design of **equipment manufacturing drawings (workshop drawings)** provided by the equipment contractors, such as E&M equipment, hydro-mechanical equipment, BOP and auxiliaries, transformer, power cable, switchyard equipment, etc.
- Support the supervision of compliance with quality management processes at the construction site.
- During periodic inspections/supervision, if it is found that the contractor is not following the design documents, construction quality does not meet technical requirements, construction methods do not ensure safety, or violations of labor safety management regulations occur or pose a risk of labor accidents, incidents causing labor safety loss... promptly report to EVNPMB3 for review and coordination with relevant parties for resolution.
- Support and review the synchronization of equipment to ensure the quality of the works; require the contractor to supply equipment that meets the construction schedule requirements.
- Provide opinions on reassessing the geological description of the foundation pit by the contractor, advising on the geological description of the foundation pit when actual geological conditions change compared to the design, affecting the structural stability of the works, as a basis for the consultant to calculate the structure and propose design

solutions to ensure safety and economy.

- Coordinate and support the supervision of equipment synchronization testing and trial operation of the works.
- Other necessary tasks as required by EVNPMB3 and/or the Lender.
 - o Support to organize monthly site meetings with Contractors, representatives of the Lenders in accordance with the Financier's requirements and other relevant stakeholders;
 - o Ensure that the requirements of the Lender in accordance with the Financier's requirements and international practices are met;
 - o Report on the progress and risks of the project according to the reporting requirements of the Lender in accordance with the Financier's requirements;
 - o Check and support so that the agreements applicable to disbursement procedures agreed between EVN/EVNPMB3 and the Lender in accordance with the Financier's requirements stipulated in the Loan Agreements are fully implemented. Check and confirm the Recurring Payment Records are correct and the payment amount corresponds to the work progress. (The responsibility for detailed control of invoices belongs to EVNPMB3 and the Construction Supervision Consultant, SSC only verifies the correctness of invoices at the request of the Lender in accordance with the Financier's requirements). See Annex 4 for further details of ToR for checking disbursement and redisbursement.
 - o Assist in controlling technical and ESHS requirements to ensure that the Financier's requirements and international engineering practices are met, and compliance with the signed Environmental and Social Commitment Plan.

4.3. Supervision of ESHS Work and Compliance with ESCP

Tasks related to ESHS:

- SSC supports the review of ESHS plan-related documents prepared by contractors, ensuring compliance with ESHS technical requirements, including PA-ESMP, OHS, and other subsidiary plans.
- Based on fundamental studies and project risk analysis, SSC assists in establishing a Monitoring and Evaluation System; then discusses with EVN/EVNPMB3 and the Lender for approval.
- SSC will support supervision throughout the construction phase to ensure compliance with the approved PA-ESMP in general and the OHS Plan in particular.
- SSC supports monitoring and reporting on environmental, social, and OHS aspects to EVNPMB3 and the Lender, ensuring compliance with national ESHS regulations and ESHS technical requirements.

SSC will support the Domestic Consultant and EVNPMB3 to:

- Inform the Contractor that related tasks must not commence without SSC approval and without implementing appropriate measures to address ESHS risks and impacts;
- Review and provide recommendations for EVNPMB3 to approve the PA-ESMP after necessary modifications and during project implementation, guide the Contractor to update the PA-ESMP if necessary. The revised version must highlight new elements in the document.
- Monitor the Contractor's implementation of the PA-ESMP and report to EVNPMB3 on the

Contractor's compliance with the requirements in the ESMP and ESHS. This includes implementing health and safety requirements and complying with labor and working condition standards. In cases of serious ESHS violations (especially OHS risks to life), SSC will inform EVNPMB3 and Supervision Consultant to request the Contractor to halt work until the situation is rectified.

- Document the Contractor's non-compliance issues, review and propose EVNPMB3 to approve the Contractor's corrective measures and implementation timeline. Monitor and verify the Contractor's remediation efforts.
- Track the results of any inspections or audits by labor, health and safety, or environmental regulatory agencies.
- Verify that the Contractor provides guidance and training to workers, subcontractors, and suppliers (especially key suppliers) to ensure contractor personnel understand relevant ESHS requirements and comply with the Code of Conduct.
- Advise the Contractor on ESHS risks and impacts of any proposed design changes and their implications for compliance with EIA, ESMP, approvals/permits, and other project-related requirements.
- Review the Contractor's progress reports and check the documentation, analysis, and corrective actions for identified ESHS non-compliance issues. Documentation should include annotated photographs (digital) to illustrate, specifying the location, inspection date, and the non-compliance issue being addressed.
- Monitor the resolution of any ESHS-related complaints;
- Inform EVNPMB3 of any ESHS-related situations that may arise and potentially affect the timely completion of the Project. Reflect these situations in periodic reports.
- Support the supervision of the resolution of non-compliance cases through measures appropriate to the severity of the situation, including but not limited to halting work and/or payments under the Contract as required by EVN/PMB3..
- Check for any deficiencies related to ESHS standards.

In addition to the specific ESHS content in the Project phases mentioned above, SSC is responsible for regularly supporting the review of ESCP implementation progress and the project's compliance with current E&S standards.

- SSC reviews the progress of commitments and documents related to E&S developed, applied, or implemented by EVN/EVNPMB3 and incorporates the results into periodic reports.
- SSC is responsible for preparing reports related to ESHS work (including monthly and ad-hoc reports) with content that must comply with the Lender's requirements:
 - (a) Provide a summary of ESCP compliance (including timeliness of implementation) in periodic monitoring/evaluation reports.
 - (b) Issue quarterly environmental and social compliance monitoring reports (E&S Compliance Reports) as required. E&S Compliance Reports must include corrective actions, if necessary, to ensure the project complies with the Lender's Applicable Standards and ESCP.
 - (c) Evaluate and monitor RAP compliance. During RAP implementation, compliance will be assessed through site visits by: randomly checking relevant agreements and other documents for a small sample of PAP individuals; and interviewing Project-affected persons (PAP) who have filed complaints under the grievance mechanism, as well as relevant local authorities, councils, community representatives, non-governmental organizations (NGOs), and any independent third parties involved in monitoring RAP and LRP implementation. Information will be gathered from PAP, complainants, and authorities/councils/community representatives regarding community perceptions of

RAP implementation and feedback on any issues that may indicate non-compliance with RAP. Conduct audits on the completion of resettlement.

- (d) Provide recommendations and support as needed to EVNPMB3 and/or Domestic Consultant to achieve or maintain the Project's compliance with current standards and ESCP.
- Based on fundamental studies and project risk analysis, SSC will develop a Monitoring and Evaluation System; then discuss with EVN/EVNPMB3 and the Sponsor for agreement and approval.
 - SSC will support the Lender in managing stakeholder coordination and public relations activities.
- (e) Support PMB3/EVN in finalizing the Biodiversity management Plan for the Operation phase based on respective studies conducted during appraisal phase and the objectives set at end of appraisal phase. The Consultant is not required to establish such a plan from scratch but shall support in finalizing the biodiversity strategy and identifying the most suitable and feasible management action items based on set objectives.

4.4. Reporting Requirements (quantity, type, frequency of reports prepared by the consultant)

SSC will prepare and submit reports and documents to EVNPMB3 and the Lender as outlined in the table below. All reports will be prepared in English and Vietnamese and submitted in both hard copy and editable electronic format.

Document Title	Type of Report	Execution Time	Quantity
Construction Supervision	Quality Control Report	Submit the report by the 28th of each month.	
	Completion Report for Project Item/Construction Work	Within 20 days after the completion of the project item/construction work	
ESHS Supervision	PA-ESMP Monitoring Report	Quarterly. Submit the report by the 26th of the last month of the quarter.	
	OHS Monitoring Report	Monthly. Submit the report by the 28th of each month.	
	E&S Compliance Report (including progress reports on all E&S documents identified in the ESCP)	Quarterly. Submit the report by the 26th of the last month of the quarter.	
	Ad-hoc ESHS Report: When serious ESHS violations are detected or as requested by EVNPMB3.	As Required	
Other Reports	Technical Report: During supervision, if SSC detects discrepancies in geological, structural, or other issues compared to the design that affect the	As Required	

Document Title	Type of Report	Execution Time	Quantity
	quality and safety of the project, a timely report should be sent to EVNPMB3 for review and coordination with relevant parties for resolution.		

The format and main content of each type of report, for each project item, will be proposed by SSC and agreed upon by SSC and EVNPMB3.

PART III. REQUIREMENTS ON CONSULTANT'S EXPERIENCE AND PERSONNEL

5. Consultant's Experience and Personnel

5.1. Required Project Experience of SSC

The selected consultant must be a consulting organization/firm with extensive experience in the field of consulting at all the above mentioned stages for similar hydropower projects.

References corresponding to similar contracts executed over the last fifteen years, with mention of the amount excluding tax of the contract, the precise period of execution and the public or private recipient, and meeting at least one of the three criteria below:

- two hydroelectric installations with a minimum total capacity of 100MW,
- a hydroelectric installation with a drop height greater than or equal to 50m,
- a hydroelectric installation with a minimum total capacity of 50MW, and Francis turbine.

Candidates with international experience, particularly in Vietnam, will be valued.

References in hydroelectric expansion including in particular a new water intake will be appreciated.

5.2. Requirements for Competence and Experience of Personnel

No.	Title	Main tasks and responsibilities	Capacity and experience
I	International experts		
1	Expert Team Leader	<ul style="list-style-type: none"> - Main contact expert between SSC and EVN/PMB3 (Focal Person) - Lead, manage, and coordinate the overall tasks of the expert team to review the design and construction and workshop drawings and perform construction supervision and specific ESHS management tasks; - Lead, manage and coordinate the team to perform design and construction drawing and workshop drawing review, support in construction supervision work; - Support EVN/EVNPMB3 in fulfilling technical, environmental and social as well as invoice management commitments with the Lender. - Act as the focal point for coordination and resolution of tasks between EVN/EVNPMB3 and SSC; - Support EVNPMB3 and the Financier in all phases, as described in the Specific Tasks of SSC. - Acting as focal point for coordination and problem solving between home office and site office; - 	<p><u>Educational Background:</u> University graduate in construction engineering.</p> <p><u>Experience:</u></p> <ul style="list-style-type: none"> - Experience in hydropower construction: 15 years; - Experience in HPP construction: 1 project within last 15 years; - Experience as the team leader: 1 project.
2	Structural Expert (Deputy Team Leader)	<ul style="list-style-type: none"> - Act on behalf of the Team Leader to lead, manage, and coordinate the team when the Team Leader is absent. - Support EVNPMB3 in managing progress, quality, and construction safety; - Upon request from EVNPMB3, provide support to EVNPMB3 to develop appropriate design solutions to ensure stability and safety under all construction and operational conditions; - Support EVNPMB3 in all phases as described in the Specific Tasks of SSC.; 	<p><u>Educational Background:</u> University graduate in Construction Engineering.</p> <p><u>Experience:</u></p> <ul style="list-style-type: none"> - Minimum experience in hydropower design/construction: 15 years; - Experience as a team leader or project director: 1 project.
3	Electromechanical Equipment Expert (Deputy Team Leader)	<ul style="list-style-type: none"> - Act on behalf of the Team Leader to lead, manage, and coordinate the team when the Team Leader is absent. + Support EVNPMB3 in specific construction supervision tasks: + Assist EVNPMB3 in managing the progress of supply and installation, equipment quality, and installation safety; 	<p><u>Educational Background:</u> University graduate in Electromechanical Engineering, Machinery.</p> <p><u>Experience:</u></p>

No.	Title	Main tasks and responsibilities	Capacity and experience
		<ul style="list-style-type: none"> + Support the review and inspection of construction progress and installation methods of contractors upon request; + Assist in supervising the installation, testing, and trial operation of electromechanical equipment to ensure compliance with design standards; + Address technical issues during construction; + Prepare reports as required; - Support EVNPMB3 in all phases as described in the Specific Tasks of SSC. 	<ul style="list-style-type: none"> - Experience in hydropower construction: 15 years; - Experience in the electromechanical field with at least one similar project in the last 10 years.
4	Environmental and Biodiversity Expert	<ul style="list-style-type: none"> - Support EVN/EVNPMB3 in fulfilling environmental commitments with the Lender. - Evaluate the Environmental and Social Management Plan (ESMP) submitted by the Contractor during construction. - Monitor the Contractor's implementation of the ESMP and report on compliance with environmental and social requirements. - Advise the Contractor on situations that may impact the environment and local communities during construction to ensure regulatory compliance. - Review environmental and social protection requirements in the Project completion report; 	<u>Educational Background:</u> University graduate in the field of Environment <u>Experience:</u> Experience in implementing power plant projects applying international environmental standards such as those of the World Bank, IFC, ADB; minimum 10 years.
5	Social Expert	<ul style="list-style-type: none"> - Examine and analyse the results of social research conducted by the Consultant during the FS and Technical Design stages in accordance with international standards and requirements of the Financier. - Evaluation of the Contractor's PA-ESMP submitted for construction. - Monitor the Contractor's implementation of the Environmental and Social Management Plan and report on the Contractor's compliance with the relevant social requirements. - Recommend to the Contractor the cases that may affect the residential community during the construction process. - Review the social requirements in the project completion report. - Support PMB3 and Financier in all phases, as described in Specific Tasks of SSC; - 	<u>Educational Background:</u> University graduate in Social Field <u>Experience:</u> Experience in power plant projects applying international standards in the field of social such as World Bank, IFC, ADB: 10 years.
6	Geotechnical Engineering Expert	<ul style="list-style-type: none"> - Research and analyze the results of geological surveys conducted by the Domestic Consultant. Request additional survey requirements if necessary. 	<u>Educational Background:</u> University graduate in Geotechnical Engineering

No.	Title	Main tasks and responsibilities	Capacity and experience
		<ul style="list-style-type: none"> - Evaluate and review the geological description documents prepared by the contractor and the Domestic Consultant, specifically the geological conditions of the intake channel foundation, intake structure, pressure pipeline, hydropower plant, and discharge channel. - When actual geological conditions differ from the design, affecting the structural stability of the works, provide opinions on reassessing the geological description of the foundation pit by the contractor and the Domestic Consultant as a basis for the consultant to calculate the structure and propose design solutions. - Use groundwater monitoring data provided by the Domestic Consultant to develop a model for tracking the stability of construction foundation pits during construction and operation. Prepare an assessment report on the impact of lowering groundwater levels (due to foundation excavation) on the lives of households living near the project area. - Support EVNPMB3 in tasks as described in the Specific Tasks of SSC; - 	<u>Experience:</u> <ul style="list-style-type: none"> - Experience in the field of geotechnical engineering: 15 years; - Experience leading geotechnical calculations: at least one similar project in the last 15 years.
II	Domestic Experts		
7	Domestic Site Resident Engineer	<ul style="list-style-type: none"> - Main Site Contact person for PMB3 (Focal Site Person) being permanently stationed at HPP site for quick exchange of PMB3 experts with SSC international colleagues who may not be at site. - SSC Site Engineer shall be supporting at HPP site in times when the Team leader is not at HPP site - In cooperation with ESHS Expert ,support PMB3 and Contractor in Occupation, Health and Safety (OHS) topics - Acting as Site Focal Person in checking and supporting for smoothly implementation of disbursement procedures. 	<u>Educational Background:</u> University graduate in construction engineering <u>Experience:</u> <ul style="list-style-type: none"> - 10 Years experience in hydropower construction at HPP site; - Experience in OHS topics.
8	Domestic Expert in ESHS	<ul style="list-style-type: none"> - Evaluate the site-specific PA-ESMP prepared by the Contractor and submit it to the Employer during construction; - Monitor and supervise the Contractor's implementation of PA-ESMP and OHS, and report on the Contractor's compliance with related requirements. - Support the supervision of ESMP implementation and report to EVNPMB3 on the Contractor's compliance with social and environmental requirements. - Advise the Contractor on situations that may impact the environment and local communities during construction. 	<u>Educational Background:</u> University graduate in the field of Environment, Social, Health, and/or Safety <u>Experience:</u> Experience in implementing power plant projects applying international ESHS standards such

No.	Title	Main tasks and responsibilities	Capacity and experience
		<ul style="list-style-type: none"> - Warn the Contractor about situations that may affect safety during construction and request corrective measures. - Recommend EVNPMB3 or TVGS to request the Contractor to temporarily halt construction if necessary and await corrective measures; - Review ESHS requirements in the Project completion report. - Support EVNPMB3 and the Lender in all phases, as described in the Specific Tasks of SSC. 	as those of the World Bank, IFC, ADB, etc.: minimum 10 years.

5.3. Estimated Number of Person-Months and Execution Time

In general it is expected that

- (a) International experts shall be a minimum of 50 % of their work time at the construction site to support EVNPMB3 in the project execution
- (b) National experts will be 100% of corresponding expert-months at construction site.

The estimated time requirement for each of the International and National expert as presented in the table below may be considered as a preliminary approach and depending on the actual project / construction requirements some shifting of expert-months from one to another expert may be required during the project execution and if need be such expert-months shift(s) shall be agreed by the project parties and with no objection by KfW. A shift of expert-months and actual expert presence at construction site shall be discussed and agreed sufficiently in advance of such expert-months shift and proposed site visits. The time frame for expert site visit order may be discussed during Pre-Award-Negotiations.

Estimated Time for Consultancy Service Execution:

No.	Experts	Internat. [months]	National [months]
I	SSC - International		
1	Team Leader - Internationally experienced Civil Engineer International Expert with at least 15 years of experience for similar tasks	10	
2	Deputy Team Leader and International Structural Expert International Expert with at least 15 years of experience for similar tasks	6	
3	Deputy Team Leader and International E&M Equipment Expert International Expert with at least 10 years of experience for similar tasks	6	
4	International Environmental and Biodiversity Expert International Expert with at least 10 years of experience for similar tasks	6	
5	International Social Expert International Expert with at least 10 years of experience for similar tasks	6	
6	Geotechnical Engineer International Expert with at least 15 years of experience for similar tasks	5	
II	SSC - National		
7	National Site Resident Engineer on SSC side who will be stationed permanently being able to quickly exchange with PMB3 experts and international colleagues who may not be at site. This person shall support in the process of invoice validation for Financier KfW. National expert with 10 years of experience in hydropower construction and construction site management		28
8	National ESHS Expert National Expert with at least 10 years of experience for similar tasks		15
III	Sum	39	43
IV	Contingencies to have a portion of about 10 % of contingencies for non-expected tasks for which other experts may be requested.	4	0
V	Sum with Contingencies	43	43

The expert mobilization plan according to the attached schedule is tentative; based on the progress and actual construction situation, EVNPMB3 will have a specific plan to mobilize experts to meet the quality, safety, and construction schedule requirements of the project (Details according to Annex 3: Tentative expert mobilization schedule - Expanded Tri An hydropower project).

PART IV: LOGISTICS

International experts shall spend at least 50% of their working time at the construction site, while national experts shall spend 100% of their person-months on site.

All related costs such as airport–hotel transfers, local transportation between accommodation and the site, and accommodation expenses shall be included in the experts’ remuneration.

PART V: CONFIDENTIALITY CLAUSE

The experts of SSC shall treat all information received or accessed during the course of the assignment as strictly confidential. “Confidential Information” shall include all information, whether in written, oral, or electronic form, disclosed by the Project’s Employer/ PMB3, KfW or any related party, including but not limited to reports, technical data, contractual documents, or any other proprietary materials.

The SSC’s experts shall not disclose any Confidential Information to any person or third party without the prior written consent of the Disclosing Party. Furthermore, the Dam Expert shall not use such information for any purpose other than the execution of the assignment as defined in this TOR.

These confidentiality obligations shall remain in effect even after the termination or completion of the assignment, regardless of whether the SSC’s experts or any of the parties decides not to proceed with any further engagement or investigation.

The SSC may be requested to sign a Non-Disclosure Agreement (NDA) as a condition for participation in the assignment.

ANNEXES

1. Main parameters of the Project

The main current parameters of the Tri An Hydropower Plant Extension Project are as follows:

No.	Features	Unit	Existing Tri An	Extension Tri An
I	Hydrology			
1	Catchment area incl./ excl. Da Nhim & Dai Ninh	km ²	15,400/13,467 km ²	
2	Mean discharge (update)	m ³ /s	492	
3	Probability discharge in dry season (90%)	m ³ /s	284	
4	Peak flood, P=0,1% (design flood)	m ³ /s	19.057	
5	Peak flood, P=0,02% (check flood)	m ³ /s	23.342	
II	Reservoir			
1	Full supply level (FSL)	m	62	
2	Minimum operating level (MOL)	m	50	
3	Recommended Minimum operating water level for maximum energy efficiency	m	51.3 (according to inter-reservoir operating procedures)	52 (highest energy efficiency)
4	Designed Flood Level (DFL)	m	62.48	
5	Check Flood Level (CFL)	m	63.96	
6	Gross storage (at FSL) (update)	10 ⁶ m ³	2625.13	
7	Dead storage (update)	10 ⁶ m ³	177.53	
8	Active storage (update)	10 ⁶ m ³	2447.6	
9	Reservoir area at FSL	km ²	319.9	
10	Reservoir area at MOL	km ²	71.8	
11	Reservoir area at CFL	km ²	351.0	
III	Spillway			
1	Type		Gravity concrete	
2	Number of chambers	room	8	
3	Width of chamber	m	15	
4	Weir crest level	m	46	
5	Maximum discharge at CFL (63,96m)	m ³ /s	19647	
6	Valve opening and closing device	type	Hydraulic Cylinders	
IV	Main dam			
1	Type		Rock & earth fill dam	
2	Crest elevation	m	65	
3	Crest length	m	420	
4	Maximum height	m	40	
5	Height of wave breaker wall	m	1	

No.	Features	Unit	Existing Tri An	Extension Tri An
V	Left bank of spillway dam			
1	Type		Rock & earth fill dam	
2	Crest elevation	m	65	
3	Crest length	m	540	
4	Maximum height	m	28	
5	Height of wave breaker wall	m	1	
VI	Left bank saddle dam (main reservoir)			
1	Type		Earth fill dam	
2	Crest elevation	m	66	
3	Crest length	m	874	
4	Maximum height	m	4	
VII	Cay Gao saddle dam			
1	Type		Earth fill dam	
2	Crest elevation	m	66	
3	Crest length	m	550	
4	Maximum height	m	6	
VIII	Suoi Rop dam			
1	Type		Earth fill dam	
2	Crest elevation	m	64,5	
3	Crest length	m	2.750	
4	Maximum height	m	45	
5	Height of wave breaker wall	m	1	
IX	Intake saddle dam			
1	Type		Rock & earth fill dam	
2	Crest elevation	m	64.5	
3	Maximum height	m	45	
4	Crest length :			
	- Left side	m	409	
	- Right side	m	630	
X	Right bank saddle dam (auxiliary reservoir)			
1	Type		Earth fill dam	
2	Crest elevation	m	65.6	
3	Crest length	m	6236	
4	Maximum height	m	25	
XI	Left bank saddle dam (auxiliary reservoir)			
1	Type		Earth fill dam	
2	Crest elevation	m	66	
3	Crest length	m	300	

No.	Features	Unit	Existing Tri An	Extension Tri An
4	Maximum height	m	8	
XII	Connecting cannal			
1	Type		Open cannal	
2	Length of cannal	m	2570	
3	Invert width	m	100	
4	Invert elevation	m	45	
XIII	Inlet cannal			
1	Type		Open cannal	Open cannal
2	Length of cannal	m	528.7	339.0 (168.4/60.0/110.6)
3	Invert width	m	215.0	92.0/ 58.0
4	Invert elevation	m	45.0	47.0/ 45.5
XIV	Inlet pool			
1	Length	m	-	87.50 (77.5/ 10.0)
2	Invert width	m	-	58.0/ 22.0
3	Invert elevation	m	-	45.5/ 30.0
XV	Intake			
1	Type		BTCT	BTCT
2	Number of chamber		4	2
3	Threshold elevation	m	37.00	37.00
4	Entrain dimensions (n x B x H)	m	4 x 9 x 32	2 x 9 x 30
5	Orifice dimensions of the bulkhead gate (n x B x H)	m	4 x 7 x 10.5	2 x 7.5 x 10.7
6	Orifice dimensions of the service gate (n x B x H)	m	4 x 7 x 7	2 x 7.5 x 7.5
XVI	Backfill Block behind the Intake			
1	Type			Earthfill
2	Crest elevation	m	-	65.0
3	Crest width	m	-	10.0
4	Crest length	m	-	239.0
5	Maximum height	m	-	28.5
XVII	Penstock			
1	Type		Reinforced concrete	Reinforced concrete + Steel pipe
2	Length	m	95	371.59/ 376.89 (Ave: 374.24)
3	Number of pipe, Diameter (n x ϕ)	m	4 x (6.5 x 7)	2 x 7.5
XVIII	Powerhouse			
1	Type		Open	Open

No.	Features	Unit	Existing Tri An	Extension Tri An
2	Type of structure		Reinforced concete	Reinforced concete
3	Turbine instaled elevation	m	-1,0	-1,0
4	Dimensions of main structure BxLxH	m	60x120x41.4	52.6x88.5x43.0
5	Number of unit	unit	4	2
6	Installed capacity	MW	400	200
7	Designed head (H _{tt})	m	52.0	52.0
8	Maximum head (H _{max})	m	61.5	60.5
9	Minimum head (H _{min})	m	44.0	45.5
10	Designed discharge			
	- Total	m ³ /s	880	440
	- One unit	m ³ /s	220	220
XIX	Tailrace			
1	Type		Open, trapezoidal section	Open, trapezoidal section
2	Length	m	811	1462.1 (500/570.0/ 150.0/ 100.0/ 142.1)
3	Invert width	m	74.00	14.5/ 85.0
4	Invert elevation	m	-2.0	-5.0/ 0.0
XX	Transmission line			
1	Lenth	km	0.3	1.09
2	Voltage rating	kV	220	220
3	Number of circuit		4	2
XXI	Switchyard			
1	Bays		4	2
2	Voltage rating	kV	220	220

2. Procurement Plan

No.	Name of packages	Amount (10 ⁶ VND)	Equiv. amount in EURO (*****) (10 ⁶ EURO)	Source of funds	Type of contractor selection	Mode of contractor selection	Start of contractor selection	Type of contract	Contract duration	Scope of works
I	Consulting services (12 packages)									
1	TV06-TAMR: Consulting service for investigation, Detailed Design, Cost Estimates, Working Drawing and Bidding Documents (*)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	Oct. 2023	Combined price (fixed unit price + lump sum)	49 months	1. Investigation and survey for Detailed design, Working Drawings (excluding works of Hieu Liem Bridge and Operation Center) 2. Detailed Design 3. Working Drawings (3step design and 2 step design) (excluding works of Hieu Liem Bridge and Operation Center) 4. Application of Building Information Modelling (BIM) 5. Specialized reports - Hydraulic Model Test; - Earthquake hazard assessment; - Application of BIM in Detailed design and Working Drawing; - Evaluation of the quality of reinforced concrete structures of the foundations of 220/110kv switchyard; -Building a standard triangle grid and landmark; - Translating documents - Boundary landmarks system
2	TV07-TAMR: Consulting service for reviews of Detailed Design-Cost estimates and Working Drawings (2 step design) (*)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	Feb. 2024	lump-sum	04 months	1. Reviews of Detailed Design, Cost Estimates and specialized reports 2. Reviews of Working Drawings and Working Drawings (excluding works of Hieu Liem Bridge and Operation Center) 3. Reviews of Building Information Modelling (BIM)

3	TV08-TAMR: Consulting service for Investigation, Working Drawing Cost, Estimates and Bidding Documents of Hieu Liem Bridge			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	Oct.. 2023	Combined price (fixed unit price + lump sum)	21 months	1. Investigation for design; 2. Working Drawings and Cost Estimates; 3. Bidding Documents for procurement of works
4	TV09-TAMR: Consulting service for reviews of Working Drawings-Cost estimates of Hieu Liem Bridge (*)			Employer's counterpart funds and Commercial Loans	Shortened contractor appointment		Feb. 2024	lump-sum	2 months	1. Reviews of Working Drawings; 2. Reviews of Cost Estimate.
5	TV10-TAMR: Consulting service for Investigation, plan and construction supervision of mine and explosive detection (*)			Employer's counterpart funds and Commercial Loans	shortened contractor appointment		Oct. 2023	lump-sum	07 months	- Investigation and Surveys, technical construction plans and cost estimates for detection of mines and explosives; - Submit to competent authorities for appraisal, for approval (Ministry of National Defense) construction plan for mine detection; - Monitoring the quality of bomb and mine detection and clearance"
6	TV11-TAMR: Consulting service for investigation, Working Drawing, Cost Estimates and Bidding Documents of Operation Center (****)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	-	lump-sum	03 months	1. Investigation for Working Drawings; 2. Working Drawings and Cost Estimates
7	TV12-TAMR: Consulting service for reviews of Working Drawings-Cost estimates of Operation Center (****)			Employer's counterpart funds and Commercial Loans	shortened contractor appointment		-	lump-sum	20 months	1. Reviews of Working Drawings; 2. Reviews of Cost Estimate.
8	TV13-TAMR: Environmental monitoring in construction phase (**)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	Nov. 2024	lump-sum	36 month	-Environmental monitoring during construction, including: Collecting, sampling, inspecting and monitoring solid waste, liquid waste (domestic water, construction wastewater), air environment , water environment, ecological environment, ...
9	Package TV14-TAMR: Equipment quality inspection (***)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	Nov. 2025	lump-sum	24 months	Quality inspection of project equipment (electromechanical equipment, main transformer, 220kV connection bay equipment). Inspection scope including origin of goods; Quantity of goods in accordance with the Contract; Opening, checking, and evaluating the condition of equipment upon arrival at the construction site.

10	TV15-TAMR: Auditing of construction investment capital settlement report (***)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	Nov. 2027	lump-sum	09 months	Audit of the final settlement report for construction investment capital of the Tri An Hydropower Plant Extension Project
11	Package TV16-TAMR: Consulting on the application of building systems (BIM) during project implementation and project completion phases (**)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	Dec. 2024	lump-sum	42 months	+ Collect and compile data on the BIM model during the technical design and working drawing design stages to support the development of the BIM system for the entire project; + Provide, set up, manage, and maintain the project's Common Data Environment (CDE) throughout the project implementation process until final acceptance and commissioning.; + coordinate with relevant units throughout the implementation phase until project completion to fully develop the BIM model of the facility and hand it over to the operation management unit, ensuring compliance with the project's technical requirements and applicable standards
12	Package TV17-TAMR: Monitoring the impact of construction on existing works (**)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	Nov. 2024	lump-sum	36 months	Construct monitoring stations, supply and install equipment to measure vibrations, air waves, and sound waves at locations requiring monitoring. Carry out monitoring tasks on vibrations, air waves, and sound waves caused by blasting during the construction of the Tri An Hydropower Plant Extension Project.
13	TV18-TAMR: Supervision of civil construction and installation of equipment (**)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	Nov. 2024	lump-sum	46 months (Including the project financial settlement period)	Supervision for civil construction and equipment installation, including the following main items: + Inlet channel; Pressure tank and Intake; Filling block behind the Intake; penstock pipe; Powerhouse; Tailrace; 220kV connection bay; 220kV connecting line; + Operation center; + Service Road system: Hieu Liem Bridge; TCVH1; TCVH2; TCVH3; TCVH4. + Phase 1 intake cofferdam; Phase 2 intake cofferdam; Phase 1 tailrace cofferdam; Phase 2 tailrace cofferdam; + 22kV construction power supply system; + Construction and domestic water supply system. + Temporary Road system serving the construction of TC1; TC2; TC3; TC4. + Auxiliary works, construction camps; + Housing and working place of the Project Management Board and other synchronous works;
14	Package TV19-TAMR: Review of Working Drawings (**)			Employer's counterpart funds and Commercial Loans	shortened contractor appointment		Nov. 2024	lump-sum	36 months	Review of working drawings for 3- steps design: + Inlet channel; Pressure tank and Intake; Filling block behind the Intake; penstock pipe; Powerhouse; Tailrace; 220kV connection bay; 220kV connecting line; + Phase 1 intake cofferdam; Phase 2 intake cofferdam; Phase 1 tailrace cofferdam; Phase 2 tailrace cofferdam;

15	Package TV20-TAMR: Geological description of the foundation pit (***)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	June 2025	lump-sum	27 months	<ul style="list-style-type: none"> + Monitor changes in hydrogeological conditions during construction and forecast their impact on the stability of the foundation pit rock and soil during construction and operation; + Check the conformity of the hydrogeological conditions and the physical-mechanical and permeability indicators of the rock and soil used in the design with the actual conditions encountered during construction; + Verify and confirm the foundation bottom depths of the structures; + Survey and map the geological conditions of the foundation pit; + Monitor and forecast geophysical phenomena occurring during construction and assess their impact on hydrogeological conditions; + Study and evaluate the impact of rock and soil fracture characteristics, degree of weathering, and unloading on the stability of foundation pit slopes during construction and operation; + Study the effects of construction methods and schedules on the condition and properties of the rock and soil used as the foundation and slopes of the structures
16	Package TV21-TAMR: Preparing the application dossier for the environmental permit (***)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	July 2026	lump-sum	12 months	<ul style="list-style-type: none"> - Field investigations and surveys: + Survey the current status of the receiving environment: water, air, soil, and land in the project area; + Survey the current status of facilities and environmental protection measures at the project. - Data collection: + Collect local environmental protection plans and other relevant planning documents; + Records of completed environmental protection works and measures. - Prepare and submit the environmental permit application dossier to the Ministry of Natural Resources and Environment (MONRE) for appraisal; + Coordinate with the appraisal council for field surveys and inspections of the environmental status at the project site; + Participate in the appraisal meeting for the environmental permit proposal report and pay the appraisal fee. + Monitor environmental parameters during the trial operation phase.
17	Package TV22-TAMR: Consultancy for Price adjustment (***)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelop bidding	June 2025	lump-sum	29 months	Determine construction prices, construction price indices, and contract price adjustment coefficients for calculating price adjustments applicable to adjustable unit price contracts, in accordance with the contract provisions and the regulations of the Ministry of Construction

II	Non-consulting services (4 packages)									
18	PTV02-TAMR: Equipment calibration testing (***)			Employer's counterpart funds and Commercial Loans	NCB (e- procurement)	One-stage one envelope bidding	Nov. 2026	Fixed price	12 months	<ul style="list-style-type: none"> - Testing and calibration of electromechanical equipment, electrical equipment, hydraulic mechanical equipment; transformers, auxiliary plant equipment, communication equipment; control systems; relay protection systems; information systems; lighting systems; fire protection systems; 220kV connection bay equipment; 220kV transmission lines; and gate hoisting equipment; - Acceptance tests for energizing the generating units; - Technical safety inspections and certifications of equipment (circuit breakers, current transformers, voltage transformers, disconnect switches, surge arresters, etc.).
19	PTV05-TAMR: Verification of Welding Seams (**)			Employer's counterpart funds and Commercial Loans	NCB (e- procurement)	One-stage one envelope bidding	May. 2025	Fixed price	30 months	<ul style="list-style-type: none"> - For hydraulic mechanical equipment, tunnel lining steel: Ultrasonic testing (UT) and radiography (RT) to detect internal defects; Magnetic powder testing (MT) and liquid penetrant testing (PT) to check external defects. - For hydraulic mechanical equipment: <ul style="list-style-type: none"> + Pneumatic system: Radiographic testing (RT) of all type A welds and other welds at the construction site; + Turbine: Radiographic testing (RT) and spiral chamber X-ray
III	Procurement of works (4 packages)									
20	XL01-TAMR: Detection and clearing bombs, mines and explosives (*)			Employer's counterpart funds and Commercial Loans	NCB (e- procurement)	One-stage one envelope bidding	Jan. 2024	lump-sum	03 months	
21	XL02-TAMR: Operation Center Construction (****)			Employer's counterpart funds and Commercial Loans	NCB (e- procurement)	One-stage one envelope bidding	-	lump-sum	09 months	Construction and installation of the Operation Center (with a scale of 3 floors, reinforced concrete frame structure, area of about 1,600m2) Construction insurance;
22	XL03-TAMR: Construction of Hieu Liem Bridge (**)			Employer's counterpart funds and Commercial Loans	NCB (e- procurement)	One-stage two envelope bidding	Nov. 2024	Fixed price	12 months	Construction of Hieu Liem Bridge; Construction insurance;

23	Package XL04-TAMR: Civil construction and equipment installation of Tri An Hydropower Plant Extension Project (**)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage two envelope bidding	Mar. 2025	Combined (Lump sum, fixed price and adjustable price)	36 months	<p>1. Civil construction and equipment installation:</p> <p>1.1. Construction:</p> <ul style="list-style-type: none"> - Main construction items: Inlet channel; Pressure tank and Intake; Filling block after the Intake; penstock pipe; Powerhouse; Tailrace; 220kV connection compartment; 220kV connecting line; - Construction items serving construction: <ul style="list-style-type: none"> + Phase 1 intake cofferdam; Phase 2 intake cofferdam; Phase 1 tailrace cofferdam; Phase 2 tailrace cofferdam; + Temporary road system serving construction TC1; TC2; TC3; TC4 . + Service road system: TCVH1; TCVH2; TCVH3; TCVH4. + 22kV construction power supply system; + Communication system (including Surveillance Camera system). + Construction and domestic water supply system. - Auxiliary items and auxiliary facilities <p>1.2 Installation:</p> <ul style="list-style-type: none"> - Installation of hydromechanical equipment (Intake, penstock pipe, Downstream of the powerhouse); - Installation of powerhouse equipment (Hydraulic mechanical equipment; Electromechanical equipment, Auxiliary electrical equipment system); - Installation of monitoring equipment (including monitoring during construction and operation phases). <p>2. Supply:</p> <ul style="list-style-type: none"> - 220kV power line; - Monitoring equipment during construction phases. <p>3. Contractor's All Risks Insurance (CAR Insurance) during the construction period</p>
24	Package XL05-TAMR: Construction and renovation of office and residential buildings of the Project Management Board (**)			Employer's counterpart funds and Commercial Loans	shortened contractor appointment	One-stage one envelope bidding	Dec. 2024	lump-sum	3 months	Construction and renovation of office and housing of the Project Management Board
II	Procurement of goods (3 packages)									

25	TB01-TAMR: Supply of electromechanical equipment (**)			Employer's counterpart funds and Commercial Loans	International Competitive Bidding (ICB)	One-stage one envelope bidding	May 2025	lump-sum	33 months	<p>Supply (Including design, manufacturing, fabrication), inspection and testing at the factory, transportation and handover of equipment at the construction site for the following main synchronous equipment/systems:</p> <p>+ Hydraulic turbine; Generator; Excitation system; Speed control system; Auxiliary mechanical equipment (technical water supply system; drainage and seepage system; compressed air supply system; generator oil cable system; technical pipes...);</p> <p>+ Powerhouse electrical equipment including 13.8kV generator voltage output equipment; AC and DC+UPS self-contained electrical system; Control, monitoring and protection system; Electricity metering system; Telecommunication information system; Power cable system, control cable (including fiber optic cable) and cable ladder and tray systems; Water level measurement system).</p> <p>+ Auxiliary electrical equipment includes (Ventilation and air conditioning system; Lighting system; Fire protection system; Grounding and lightning protection system; Surveillance camera system; ...)</p> <p>- Main transformer (including accessories).</p> <p>- 220kV connection bay equipment includes (primary equipment; Secondary equipment; Power cable & control cable systems of all kinds; Cable ladders and accessories; Control system; Relay protection system & SCADA; FRs/PMU/PQ system; power metering system; connection bay accessories; ...)</p> <p>- Performing technical services: Instructions for installation, testing and calibration, trial run of equipment within the scope of the bidding package and other related equipment (if any);</p>
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26	TB02-TAMR: Supply of hydromechanical equipment (**)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage one envelope bidding	June 2025	Combined price (fixed unit price + lump sum)	31 months	Design, manufacture, and manufacture, factory test, finishing, painting, packing, delivery to the construction site (including loading and unloading and insurance of goods, transportation)); supervision of installation, instructions for testing and calibration of hydro-mechanical equipment at the site for employer's personnel - Tri An Hydropower Project Plant Extension Project. The scope of supply includes: + Hydro-mechanical equipment of intake and related lifting equipment; + Penstock; + Downstream hydro-mechanical equipment of the plant and related lifting equipment.
27	TB03-TAMR: Supply and installation of overhead travel crane (**)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage one envelope bidding	Mar. 2025	lump-sum	31 months	- Supply of (including design, manufacturing, fabrication), transportation to the construction site and installation for 02 sets of cranes with lifting capacity Sn=200/32/5T -Lk=22m and accessories (including: crane beam + crane rail + load test anchoring + lifting beam +) - Test before export from the factory, finishing, painting, packaging, storage, - Inspection and supply of technical safety inspection certificates for cranes according to regulations after installation for operation;
28	Package TB04-TAMR: Supply of monitoring equipment for operational phase (***)			Employer's counterpart funds and Commercial Loans	NCB (e-procurement)	One-stage one envelope bidding	July 2025	lump-sum	28 months	Supply, transportation to the project site, and transport insurance of monitoring equipment for structure monitoring during the operational phase
Total										

3. Experts Mobilization Plan

Annex 3. EXPERTS MOBILIZATION PLAN																																							
No.	Position Thành phần	INT / NAT																																			Total M/M		
			2025												2026												2027												
			Mon.	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9		10	11
I	SSC - International																																					39,0	
1	Team Leader - Internationally experienced Civil Engineer International Expert with at least 15 years of experience for similar tasks	INT									1			1				1				1						1				1			1			10,0	
2	Deputy Team Leader and International Structural Expert International Expert with at least 15 years of experience for similar tasks	INT											1				1				1					1			1									6,0	
3	Deputy Team Leader and International E&M Equipment Expert International Expert with at least 10 years of experience for similar tasks	INT																			1					1			1				1				1	6,0	
4	International Environmental and Biodiversity Expert International Expert with at least 10 years of experience for similar tasks	INT									1				1				1							1					1				1			6,0	
5	International Social Expert International Expert with at least 10 years of experience for similar tasks	INT										1				1				1							1					1				1		6,0	
6	Geotechnical Engineer International Expert with at least 15 years of experience for similar tasks	INT									1		1		1			1			1																	5,0	
II	SSC - National																																					43,0	
7	National Site Resident Engineer & OHS Expert National expert with 10 years of experience in hydropower construction and construction site management	NAT									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	28,0		
8	National ESHS Expert National Expert with at least 10 years of experience for similar tasks	NAT									1	1		1	1		1	1		1			1			1					1			1	1		15,0		
	Contingencies																																					10,0%	

4. ToR of Disbursement and Reimbursement Checking

Terms of Reference for Consultants

in Connection with KfW's Simplified Direct Disbursement Procedure and Simplified Reimbursement Procedure

The Consultant will

1. examine whether the invoice(s) and additional documents for the disbursement request are complete and whether contractual requirements to receive payments have been fulfilled.

In particular, the Consultant will:

- a) determine whether the supplies and services invoiced have been performed according to the respective contract.
- b) (in case of supply contracts) examine, based on random sampling, whether amounts and budget lines as stated in the invoice correspond to those as stipulated in the contract;

In case the contractor has submitted a Statement of Expenditure (SoE) or bill of quantities, the Consultant will examine whether cumulative expenditures do not exceed budget lines and whether cumulative expenditures are in coherence with the SoE or bill of quantities previously submitted.
- c) (in case of construction contracts) examine, whether main budget lines as presented in the invoice correspond to those as stipulated in the contract, whether cumulative expenditures do not exceed budget lines and whether cumulative expenditures are in coherence with previously submitted SoEs based on the bill of quantities.
- d) If the SoE or bill of quantities submitted by the contractor does not fulfil the requirements as mentioned in 1.b) and 1.c), the Consultant will request a non-objection to the disbursement of the responsible project manager at KfW, and will attach related documentation to the invoice.
- e) check whether advances have been cleared / worked off and retention money has been deducted according to contract.
- f) examine whether price adjustments are applicable and are calculated in line with the contract.
- g) examine whether further documentation, such as transport and/or delivery certificates, is required, whether such documentation meets the formal requirements as stipulated in the contract(s) and whether the items and amounts presented on the respective documents are correct.

2. examine whether guarantees have been presented by the contractor in accordance with contractual requirements.

If applicable, the Consultant will:

- a) ensure that the form and amount of all guarantees meet the requirements of the construction or supply contract(s).
- b) monitor the validity of all guarantees and ensure, if required, that the guarantee period is being extended in due time.

3. examine whether the disbursement request meets the requirements as stated in the underlying agreement between KfW and the Employer, (such as the Separate Agreement, and particularly in the Annex "Disbursement Procedure", hereafter defined as the "Underlying Agreement").

In particular, the Consultant will ensure that:

- a) each disbursement request corresponds to the form provided in the Underlying Agreement.
- b) the amount of the disbursement request only includes expenditures/costs to be financed by KfW, e.g. with regard to eligibility of financing taxes.
- c) in case of joint financing of the respective programme, the financing share to be delivered by the Borrower/Recipient/Project Executing Agency has been considered.
- d) bank details provided on the disbursement request and on the invoice are the same, and if applicable, correspond to those as stated in the contract.

4. in case the simplified reimbursement procedure is being applied, examine in addition to items 1. to 3. whether

- a) evidence on the use of funds has been presented in the form of an SoE as stipulated in the Underlying Agreement;
- b) cumulative expenditures do not exceed budget lines as stipulated in the contract and that cumulative expenditures are in coherence with previously submitted SoEs;
- c) expenditures as presented in the SoE correspond to services due/invoices submitted by the contractors.
- d) expenditures as presented in the SoE have already been disbursed to contractors / service providers.

If the SoE submitted by the contractor does not fulfil the requirements mentioned above, the Consultant will request a non-objection to the disbursement of the responsible project manager at KfW, and will attach related documentation to the SoE.

In so far as the above mentioned conditions are met, the Consultant will

- provide a confirmation for the benefit of, and addressed to, KfW that the contractual obligations have been met and payment has fallen due; such confirmation to be provided on or prior to the submission of each disbursement request and in such form as the Employer may request in accordance with the Underlying Agreement.
- hand over all relevant documentation to the Employer/Authorised Party. However, as long as documents remain with the Consultant, KfW reserves the right to obtain originals and copies of such documents.

The Consultant may also refer to the Checklist attached to the ToR (cf. Annex “Consultant Checklist”), which can also be submitted with the request for disbursement in order to facilitate KfW's verification.

Annex: Consultant Checklist

	Checked / Comment (if necessary)
Goods/Services as presented in the invoice have been performed	
The payment is in line with the payment conditions and the payment schedule	
If applicable: Financing Shares as stipulated in the Separate Agreement are correct	
Goods/Services invoiced are in line with contractual bills of quantities/unit costs; cumulative expenditures are in line with contractual amounts - if not: Project manager approved the respective overrun(s)	
If applicable: price adjustment complies with the contract	
Amounts and calculations are correct	
Documents as required in the contractual payment conditions have been submitted	
Performance and Advance Payment Guarantees (if foreseen) are correct in form and amount as well as valid for at least 6 weeks.	