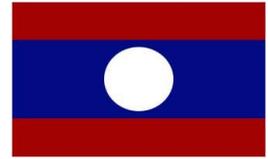




The EU Technical Assistance Facility (TAF) for  
Sustainable Energy

Contract EuropeAid DCI/352-852– EU Technical  
Assistance Facility (TAF) for Neighbourhood, Asia  
(including Central Asia), Latin America, Caribbean  
and Pacific



## **SPECIFIC TERMS OF REFERENCE**

**for the**

**Mobilization of the EU Technical Assistance Facility (TAF) for  
Sustainable Energy for**

**The Provision of International Advisors to**

**Review the Nationwide Emergency Dams Safety Inspection**

**Assignment EU TAF-GT#63/ReNEDSI-LAO (Lao PDR – South East Asia)**

**12 December 2018**

**SPECIFIC TERMS OF REFERENCE**  
**MOBILIZATION OF THE TECHNICAL ASSISTANCE FACILITY FOR SE**  
**FOR**  
**THE PROVISION OF INTERNATIONAL ADVISORS TO**  
**REVIEW THE NATIONWIDE EMERGENCY DAMS SAFETY INSPECTION**

---

**1. BACKGROUND**

**1.1 EU TECHNICAL ASSISTANCE FACILITY (TAF) FOR SUSTAINABLE ENERGY**

The EU has created the Technical Assistance Facility (TAF) for Sustainable Energy to support developing countries, in their efforts to meet the objectives of the Sustainable Energy for All initiative, in fine tuning their policies and regulatory framework and providing attractive and enabling environment for increased public and private investment in energy access, energy supplies, renewable energy as well as energy efficiency.

Following the collapse of the saddle dam at the Xe Pian Xe Namnoy Hydroelectric Dam site, in Laos on 23 July 2018 that killed dozens people and left thousands homeless, Lao Prime Minister ordered a “national review” of all new hydropower projects, declaring all future dam projects suspended. In this context, it was decided to carry out a nation-wise safety assessment of the hydropower plants.

The Ministry of Energy and Mines of Laos requested EU (and other donors) support to put in place a pool of International Advisors by the end of January 2019 to carry out this inspection. Being part of this exercise through mobilizing expertise under the EU TAF, could allow EU to become more active in supporting the renewable energy sector in Laos.

**1.2 LAO PDR HYDROPOWER BACKGROUND**<sup>1 2 3 4 5 6</sup>

Lao PDR is a landlocked, mostly rural and agrarian country with a population of 6.8 million inhabitants in 2017 over an area of 236,800 sq. km, rich in natural resources, and a country that is becoming more urbanized and better integrated within the Greater Mekong Subregion (GMS). After an economic shift to an ‘open door’ policy in 1986, economic development has become rapid, with a change from mainly agriculture-oriented activities to development in other sectors including services and industry. The proportion of the population living below the national poverty line declined from about 46% in 1992 to around 23% in 2012 (latest figure available). From 2011 to 2015, gross domestic product growth averaged 7.6% a year, putting the country on track to graduate from least developed country status by 2020. Over this period, per capita income more than doubled, reaching a GNI per capita of USD 5,860 PPP in 2015.

The rising energy consumption in Lao PDR is attributable to its growing population as well as booming economic development. Traditional predominant energy sources (fuelwood and charcoal) are giving way to electricity, petroleum and coal. Lao PDR stands out in the GMS for its share of modern renewables (that exclude traditional biomass) in the total final energy consumption with hydro accounting for 16.7 %, against 9.0 % in the sub-region in 2014. While the Lao PDR imports all of its petroleum products, a major portion of its existing hydropower capacity of 4,984 MW in 2018 is for power exports.

**1.2.1 Electricity Sector**

Lao PDR’s hydro resources had been the only sources of power generation until several biomass and solar power plants started operating in 2013 and 2014, and the Hongsa coal power plant started operating in 2015. While the total electricity consumption was 640 GWh in 2000, it increased to 4,239 GWh by 2015 at an average rate of 13.4% per year. Efficient electrical supply and access are fundamental to meeting the rising energy demand Lao PDR faces and the development goals it has set.

---

<sup>1</sup> World Bank, World Development Indicators database, <http://databank.worldbank.org/data/home> consulted 02Dec18

<sup>2</sup> UNESCAP, Asia-Pacific Progress in Sustainable Energy - Regional Assessment Report, Mar18

<sup>3</sup> IRENA, Renewable Energy Market Analysis - Southeast Asia, Jan18

<sup>4</sup> ERIA, Lao PDR Energy Statistics 2018, Jul18

<sup>5</sup> International Hydropower association, Hydropower Status 2018 Report, Jul18

<sup>6</sup> Open Development Laos website, <https://laos.opendevlopmentmekong.net/topics/energy> consulted 01Dec18

Currently, 80.3 percent of the rural population and 97.4 percent of the urban population have access to electricity. However, the government has a goal to provide access to electricity for at least 98 percent of the population by the end of 2030.

The unexploited potential for hydropower in Laos is substantial, with a potential of 26 GW (OECD, 2017). The key energy sector objectives of the government include bringing electricity to all by expanding and improving the main grid or, where cost effective, by off-grid electrification; and earning foreign exchange by setting up export-oriented hydropower projects and exporting electricity. Lao PDR already more than quadrupled electricity exports from 2.8 terawatt-hours (TWh) in 2000 to 11.5 TWh in 2015, with Thailand as the main destination.

Several hydropower projects totalling 166 MW were commissioned in 2017, and Laos continues to expand its generating capacity with over 50 hydropower projects under development across the country, representing 8,000 MW of added capacity. The government is looking to further invest in transmission lines to support its goal of becoming the major electricity exporter in Southeast Asia. Laos already exports electricity to China, Vietnam and Thailand and is in negotiations with Cambodia and Myanmar.

### **1.2.2 Energy and SE Policies and Regulations**

The main laws and policies that govern the electricity supply and renewable energy development in Lao PDR are:

- The Electricity Law 1997, amended in 2012. This governs electricity generation and distribution in Lao PDR. It sets standards for the administration, production, distribution, transmission and imports/exports of electricity.
- The Power Sector Policy Statement 2001 aims to provide affordable electricity to all. This goal includes objectives to increase the electrification rate to 90 percent by 2020, promote public-private partnerships in hydropower development and implement a 500-kilovolt grid development.
- The 8th National Socio-Economic Development Plan (NSED) 2016–20 identifies the direction required for the energy sector: “Focus on hydropower development, thermal electric power, solar energy and industrial plants energy in order to turn the power sector into a sustainable income-generating sector to support various productions and to solve the people’s poverty.”
- The Renewable Energy Development Strategy acknowledges the importance of renewable energy sources and their development. It sets a goal of increasing the share of renewable energy to 30 percent and replacing 10 percent of transport fuels with biofuels by 2025.
- The Policy on Sustainable Hydropower development in Lao PDR targets hydropower projects that are larger than 15 MW generation capacity. It provides policy guidance to agencies that manage hydropower investment projects and raises awareness.
- The Power Development Plan is prepared by Electricite du Laos every three to five years. The plan reviews the most recent electricity demand forecast and prospective project developments.

### **1.2.3 Main Actors**

The roles of the main actors in the power sector are:

- The Ministry of Energy and Mines (MEM), which oversees the management of all energy-related activities in Lao PDR. The MEM is responsible for developing policies and strategies, supervising electricity company businesses and implementing laws and regulations. It works closely with Electricite du Laos, Lao Holding State Enterprise, the Ministry of Finance and the Ministry of Natural Resources and the Environment.
- The Department of Energy Business (DEB) is responsible for private sector investments in the power sector. Additionally, it is involved in negotiating project development agreements, concession agreements and power purchase agreements.
- The Department of Energy Policy and Planning (DEPP) is responsible for energy policy-making and planning.

- The Department of Energy Management (DEM) is responsible for drafting energy laws, guidelines, safety standards and regulations. DEM also acts as a monitoring body over government agencies, private entities, and state-owned enterprises to ensure they are following all rules and regulations.
- The Institute of Renewable Energy Promotion (IREP) promotes renewable energy and conservation. It does this through developing projects focused on renewable energy sources and creating a manual on renewable energy production and use.
- Electricite du Laos (EdL) is a state-owned electric power utility that manages the country’s electricity generation, transmission and distribution. The corporation also manages imports and exports of electricity. In 2010, the Lao government transferred the responsibility for electricity generation to EdL-Gen Company.
- The EdL-Gen Public Company (EdL-Gen) was established in 2010 to generate energy for EdL, set up joint ventures with other electricity generation projects and provide management for other projects.
- The Lao Holding State Enterprise (LHSE) is a state corporation that holds and manages shares of IPP projects.

#### **1.2.4 Important Milestones on Hydro Power and Dam Safety in Lao PDR**

Some important milestones concerning the recent developments in the field of Hydro Power and Dams Safety in Lao PDR have been the following:

- An initial scoping mission was conducted between the World Bank (WB) and the Ministry of Mines and Energy (MEM) in September 2018, followed in October by a MoU signed between the Government of the Lao PDR (GoL) and Power China on providing assistance for nationwide dam safety inspections;
- On November 15, the GoL instructed all Hydro Power Plants (HPP) owners to undertake in-house dam safety inspections and produce an Emergency dam safety inspections reports by February 20, 2019. To that end, MEM developed a framework which requires that developers and owners of hydropower projects above 15 MW (52 dams) report back on the safety conditions of their projects;
- The way forward is the set up a Project Secretariat embedded in MEM with a view to assist MEM in quality control of reports and facilitate the selection, recruitment of International Advisors and provide support for coordination of activities between MEM, Owners/operators/ their inspectors, and International Advisors;
- MEM has now made a request for assistance (experts or in-kind) to achieve maximum benefit from support made available from Development Partners and other contributors to have a pool of International Advisors (IA) by the end of January 2019 that can be drawn upon for the implementation of the nationwide dam safety inspection. It is anticipated that the pool of IA will be divided in small teams of three, with one of them hailing from Power China. Any potential conflicts of interest will be closely monitored.

#### **1.2.5 EU Regulation / Expertise on Hydropower Safety Inspection (including existing standards) <sup>7 8</sup>**

In Europe hydropower plays a key role in the implementation of the Renewable Energy Directive and in contributing to the EU energy targets for 2020-2030. There is a number of different ways used to classify the scale of a hydropower project depending upon the particular context or purpose of the classification. One simple and commonly used approach is to classify a scheme based upon its installed capacity (in megawatts). However, in some circumstances more specific definitions have been adopted as follows.

- In the context of dam safety planning, the International Commission on Large Dams (ICOLD) definition of a large dam is used, as greater than 15 metres in height, or between 5 and 15 metres with a reservoir greater than 3 million cubic metres in volume;
- In the context of storage schemes, a large reservoir is taken to be one with a capacity in excess of 10 million cubic metres (the threshold used for Annex I dam storage projects under the EU EIA Directive).

---

<sup>7</sup> EC Guidance on the requirements for hydropower in relation to EU Nature legislation, June 2018

<sup>8</sup> European Investment Bank, Guideline on Hydroelectric Power Development draft April 2018

As with all other water-based activities, hydropower must conform to the requirements of EU environmental law, which has been introduced to protect and restore Europe’s rivers and lakes. These legal requirements are laid down in the Water Framework Directive 2000/60/EC, the Floods Directive 2007/60/EC, the Birds Directive 2009/147/EC and Habitats Directive 92/43/EC, and the Environmental Assessments Directives (Environmental Impact Assessment - EIA Directive 2011/92/EU as amended by 2014/52/EU and Strategic Environmental Assessment - SEA Directive 2001/42/EC).

As there are clearly very significant risks to downstream health and property arising from the potential flooding that would occur following structural failure and/or overtopping at a dam, or at an associated structure such as a spillway, powerhouse or tailrace, each EU member state sets and enforces its own Dam Legislation and Dam Safety Regulations and Guidelines. But according to the guidelines by the European Investment Bank, requirements for risks associated with infrastructure failure would include the following:

- At the project design process, *a technically robust assessment of the natural hazards and technological risks to the safety of a hydropower project*. For large dams, this will require expertise across an array of disciplines, including hydrology (e.g. for spillway design flood calculation and breach analysis) and engineering safety competencies such as geotechnical, structural, electrical and mechanical design;
- For large dams, the risk assessment must include *the computational modelling of the downstream effects of potential dam breach scenarios* and the resulting flood extent maps should be shared with the relevant authority in charge of civil protection and emergencies, as well as local authorities;
- For all large dams, *the involvement of an independent Dam Safety Review Panel (DSRP)* (or its equivalent in an EU member state) is compulsory. The panel has the responsibility to review the design, construction and commissioning and operation of the dam and reservoir;
- *The mitigation of dam safety risks must include effective emergency planning and response measures*. Safety procedures will be project specific and would need to be approved by the above panel, but would normally include measures such as the installation of signage, exclusion zones, public communication protocols/early warning systems, emergency preparedness and response training, and periodic dam safety inspections (to include infrastructure condition);
- Whilst it would normally be the responsibility of the relevant civil protection authorities to plan and implement most of these measures, in countries where these authorities either do not exist, or have limited capacity or resources, the dam operator is required *to identify and support as appropriate suitable and sustainable implementation arrangements*. This may include long-term training and capacity building for local authorities.

## **2. OBJECTIVES AND DESCRIPTION OF THE ASSIGNMENT**

### **2.1 OBJECTIVES**

#### **2.1.1 General Objectives**

The main objective of this assignment is to assist MEM in reviewing the Emergency Dam Safety Inspection Reports and for some cases, the Detailed Dam Safety Evaluation Reports and conducting site visits with MEM, as required, to confirm the safety conditions stated in the Emergency Inspection Reports and Detailed Dam Safety Evaluation Reports.

#### **2.1.2 Specific Objectives**

The objectives of this International Advisors assignment will address but not be limited to:

- a. Reviewing the Emergency Dam Safety Inspection Reports, and for some cases, also Detailed Dam Safety Evaluation Reports (collectively “Dam Safety Reports”) prepared by the Owners using their external or internal experts teams;
- b. Assessing the condition of the hydropower dams and appurtenant structures in accordance with LEPTS and its guidelines, International Commission on Large Dams (ICOLD), and other equivalently reputable

international standards for dam safety (a list of the applicable standards shall be elaborated and provided together with the workplan);

- c. Identifying potential dam safety issues and hazards due to insufficient quality in detailed design and construction supervision/quality control as well as inadequate dam safety management mechanism/capacity and operation & maintenance procedure, etc.;
- d. Providing general review of proposed remedial measures in each of Emergency Dam Safety Inspection Reports and Detailed Dam Safety Evaluation Reports;
- e. Conducting discussions with the Owners and their Consultants, as required and undertaking site visits with MEM, as required;
- f. Providing a report summarizing its review comments and recommendation, including overall scope of additional studies, analyses, investigation, and remedial works requirements to be undertaken under Detailed Dam Safety Evaluation if required, with respect to each of the Emergency Dam Safety Inspection Reports and Detailed Dam Safety Evaluation Reports, it was assigned to review;
- g. Providing capacity building activities for the MEM counterpart staff through the review of the Emergency Dam Safety Inspection Reports, Detailed Dam Safety Evaluation Reports and site visits as well as training workshops as suitable during visits to Laos;
- h. Participating in workshops from time to time and in at least two Roundtables discussions organized by MEM with the *Ad-hoc Technical Committee to Review All Hydropower Development Projects on the Country* and/or other stakeholders.

## **2.2 SCOPE OF WORK**

The International Advisors are expected to undertake the following tasks:

### **2.2.1 Dams under Construction**

- a. Review the Emergency Dam Safety Inspection Reports submitted by the Owners and provide comments and questions if any;
- b. Visit the dam site, as required, and undertake site inspection based on the overall work program immediately after the initial review of the Emergency Dam Safety Inspection Reports;
- c. Review the dam’s overall layout, design criteria and parameters, detailed design, geotechnical investigation results, technical specifications, etc;
- d. Review and assess key construction supervision reports and quality control data (in-situ and laboratory tests) of the dams and associated structures;
- e. Review the dam safety instrumentation plan (piezometer, seepage volume, settlement, etc.) and monitoring records if available;
- f. Review the overall sufficiency of quality control and reporting mechanism between various entities;
- g. Provide general review of the remedial works proposed by Owners/ Consultants, if any;
- h. Provide recommendation on the scope of the additional studies, analyses, investigation, and remedial works requirements to be undertaken under Detailed Dam Safety Evaluation, if required;
- i. Review the Detailed Dam Safety Evaluation Report and other relevant documents/reports in a similar manner as stated above and provide comments and recommendations.

### **2.2.2 Dams under Operation**

- a. Review the Emergency Dam Safety Inspection Reports submitted by the Owners and provide comments and questions, if any;
- b. Visit the dam site, as required, and undertake rapid site inspection immediately after the initial review of the Emergency Dam Safety Inspection Reports;

- c. Assess the overall safety condition of the dam and associated structures along with previous inspection reports if any;
- d. Review the dam’s as-built drawings, detailed design, geotechnical investigation results, technical specifications, etc. as needed;
- e. Review the overall O&M condition of the dam and associated structures as well as the safety rules for O&M (or O&M Plan/Manual) and EAP if available;
- f. Review the dam safety instrumentation (water level, piezometer, seepage volume, settlement, etc.) and assess the operational and monitoring records for any anomalies;
- g. Review the overall sufficiency of dam safety assurance program and mechanism between various entities;
- h. Provide general review of the required remedial works proposed by Owners/Consultants, if any.
- i. Provide recommendation on the scope of the additional studies, analyses, investigation, and remedial work requirements to be undertaken under Detailed Dam Safety Evaluation, if required;
- j. Review the Detailed Dam Safety Evaluation Report and other relevant documents/reports in a similar manner as stated above and provide comments and recommendations;

### 2.2.3 Strategic Advice

- a. Provide strategic advice to guidance for European engagement in EU to become more active in supporting the renewable energy sector in Laos.
- b. Provide recommendations for a sound policy dialogue by European partners with the Government of Lao PDR and relevant stakeholders, on sustainable hydropower development and renewable energy in Lao PDR. This should bear in mind Lao PDR's role in the Lower Mekong and South East Asia region, and the potentials for EU's strategic role, as well as that EU of Member States, on connectivity priorities for Lao PDR.
- c. Produce an options paper for strategic European involvement on sustainable hydropower, with a view to promote European interests in the renewable energy sector in Lao PDR, in line with the Agenda 2030 on Sustainable Development Goals and the European Consensus on Development.

## 2.3 NEEDED HUMAN RESOURCES

The assignment will be undertaken by a Team of Expert from the EU Technical Assistance Facility (TAF) of a maximum 2 NKEs, consisting of a:

- **Senior International Technical Dam Safety Specialist and Assignment Leader (NKE1/AL, Cat. 1 or 2)\***
- **Senior International Geologist/Geotechnical Specialist (NKE2 - Cat. 1 or 2) \***

\***Note:** The International Advisors will be required to enter into a Confidentiality/Non-Disclosures/Conflict of Interest Agreement with MEM.

### 3. DELIVERABLES AND REPORTING

The EU TAF Expert Team shall produce the following main deliverables and reporting:

LIST OF DELIVERABLES	
<b>Inception Phase</b>	
<b>D1</b>	<b>Workplan</b> for the assignment and short <b>Desk study with an overview on Dams status in Lao PDR.</b>
<b>On-Demand Support to the Project Secretariat and MEM of Lao PDR</b>	
<b>D2</b>	<b>Missions to Lao PDR to respond to on-demand requests for support from the Project Secretariat.</b>
	<b>Prepare Technical Reports</b> on each of on-demand activity from the Project Secretariat, the MEM of Lao PDR and/or the EU Delegation ( <b>D2a, D2b, etc.</b> ).
<b>Monthly Reports</b>	
<b>D3</b>	<b>Prepare Monthly Informative Reports</b> describing the main activities implemented (maximum 5-6 pages) ( <b>D3a, D3b... D3i</b> ).
<b>Assignment Close-up</b>	
<b>D4</b>	<b>Prepare Final Report (D4a)</b> of the activities and results achieved under this assignment.
	<b>Review and/or update Technical Reports (under D2)</b> , as required, at the end of the mission,
	<b>Prepare a Debriefing PPT (D4b).</b>

### 4. INDICATIVE WORK SCHEDULE AND RESOURCES

The assignment shall be organised in four (4) Phases (see **Sections 2.3** and **3.1** above). The work programme, including task details for each phase and timelines is indicative and as following:

Tasks	Deliverables	Timeframe (Working Days, including Travel*)		Tentative Time Schedule
		NKE1	NKE2	(Starting in early January 2019)
<b>Inception Phase</b>				
<b>Inception</b>	▪ Workplan and Draft Desk Study ( <b>D1a</b> )	5 (Home-based)	3 (Home-based)	Weeks 1 to 2
<b>Sub-total 1</b>	<b>8 Working days</b>	<b>5</b>	<b>3</b>	<b>2 Weeks</b>
<b>On-Demand Support to the Project Secretariat and MEM of Lao PDR</b>				
<b>Mission to Lao PDR to Respond to On-demand Request by the Project Secretariat</b>	▪ Missions to Lao PDR ▪ Prepare Technical Reports on each of on-demand activity ( <b>D2a, D2b, etc.</b> ).	75 (Home-based & Field)	50 (Home-based & Field)	Weeks 3 to 48
<b>Sub-total 2</b>	<b>125 Working days</b>	<b>75</b>	<b>50</b>	
<b>Monthly Reports</b>	▪ Monthly Informative Reports ( <b>D3a, D3b...D3i</b> ).	5 (Home-based)	5 (Home-based)	
<b>Sub-total 3</b>	<b>10 Working days</b>	<b>5</b>	<b>5</b>	<b>45 weeks</b>

The EU Technical Assistance Facility (TAF) for “Sustainable Energy”  
Contract EuropeAid DCI/352-852– EU Technical Assistance Facility (TAF) for Neighbourhood,  
Asia (including Central Asia), Latin America, Caribbean and Pacific

Tasks	Deliverables	Timeframe (Working Days, including Travel*)		Tentative Time Schedule
		NKE1	NKE2	(Starting in early January 2019)
<b>Assignment Close-up</b>				
<b>Final Reporting and Debriefing</b>	<ul style="list-style-type: none"> <li>▪ Final Report (D4a)</li> <li>▪ Debriefing Ppt (D4b)</li> </ul>	5 (Home-based)	3 (Home-based)	Weeks 49 to 50
<b>Sub-total 4</b>	<b>8 Working days</b>	<b>5</b>	<b>3</b>	<b>2 weeks</b>
<b>GRAND TOTAL</b>	<b>151 Working-days</b>	<b>90</b>	<b>61</b>	<b>50 Weeks</b>

\* Including international travel

## 5. REQUIRED PROFILE OF THE EXPERTS

### 5.1 EXPERT PROFILES

The assignment will be undertaken by an Expert Team from the EU Technical Assistance Facility (TAF) of 2 NKEs, consisting of a:

#### A SENIOR INTERNATIONAL TECHNICAL DAM SAFETY SPECIALIST (NKE1/AL-Cat. 1 or Cat 2)\*

<b>Assignment Leader’s Specific Role</b>	<p>The main tasks of Dam Safety Specialist would be as follows, but not limited to:</p> <ul style="list-style-type: none"> <li>• Review the design of dams including design criteria and stability/seepage analyses with due consideration to geology, construction materials and method of construction;</li> <li>• Review available construction supervision reports and quality control data and assess its overall sufficiency;</li> <li>• Review the overall sufficiency of the quality control and reporting mechanism between different entities;</li> <li>• Review the O&amp;M condition and records of existing dams as well as its mechanism, capacity, and plan/procedure;</li> <li>• Review the adequacy of dam safety instrumentation and monitoring data;</li> <li>• Review the EAP and readiness for its operationalization;</li> <li>• Facilitate discussions among the International Advisors team members; summarize key findings and recommendations including additional investigations if required;</li> <li>• Lead in preparing the queries and comments on the Owners Consultant’s report(s), in coordination with all participating specialists International Advisors group members;</li> <li>• Finalizing the International Advisors Report for each of the Emergency Dam Safety Inspection Reports and/or Detailed Dam Safety Evaluation Report he/she was assigned as Dam Safety specialist by reviewing each group member’s inputs and preparing a consolidated report in coordination with the other specialists.</li> <li>• Provide sector wide recommendations to the EU on dam safety in the context of Lao PDR,</li> <li>• Provide advice to the EU</li> </ul>
<b>Qualification and Skills</b>	<ul style="list-style-type: none"> <li>• Master’s Degree or higher in civil engineering;</li> <li>• Additional degree in any other relevant subjects will be an added advantage.</li> </ul>
<b>General Professional Experience</b>	<ul style="list-style-type: none"> <li>• At least 10 years of relevant professional experience in the field of the assignment (as a practitioner);</li> <li>• Proven excellent report writing and communication skills (oral and written).</li> </ul>

The EU Technical Assistance Facility (TAF) for “Sustainable Energy”  
 Contract EuropeAid DCI/352-852– EU Technical Assistance Facility (TAF) for Neighbourhood,  
 Asia (including Central Asia), Latin America, Caribbean and Pacific

---

<b>Specific Professional Experience</b>	<ul style="list-style-type: none"> <li>• 10/20 years’ professional experience of design, construction supervision, and safety review of major concrete and embankment dams; and</li> <li>• Be familiar with the international standards and practices such as probable failure mode analysis; and</li> <li>• Be recognized as a reputable dam safety specialist; and</li> <li>• Should have prior experience serving in expert panels;</li> <li>• Experience in South East Asia, and /in Lao PDR would be an advantage.</li> </ul>
-----------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**B SENIOR INTERNATIONAL GEOLOGIST/GEOTECHNICAL SPECIALIST (NKE2-Cat. 1 or Cat 2)\***

<b>Assignment Leader’s Specific Role</b>	<p>The main tasks of Geologist/Geotechnical Specialist would be as follows, but not limited to:</p> <ul style="list-style-type: none"> <li>• Review the regional/local geological characteristics and seismic conditions of the dams and associated structures;</li> <li>• Review the analytical results of foundation conditions and material sources including results of borehole excavation, laboratory testing, in-situ tests, etc.;</li> <li>• Review the designs of foundation treatment, excavation, foundation strength parameters and seepage control and slope protection measures, etc.;</li> <li>• Review the identified and tested results of construction materials of the dams and associated structures;</li> <li>• Review testing results, design recommendations and documents detailing the studies conducted;</li> <li>• Review available construction supervision reports and quality control data regarding construction materials properties, compaction criteria, foundation excavation / treatment, etc.;</li> <li>• Review the reservoir rim condition and potential landslides and water seepage if required</li> <li>• Review and assess monitoring records of instruments, such as piezometer, seepage, settlement, etc.;</li> <li>• Provide inputs to the International Advisors reports in coordination with the Dam Safety Specialist/Chair.</li> </ul>
<b>Qualification and Skills</b>	<ul style="list-style-type: none"> <li>• Master’s Degree or higher geology and/or in civil engineering;</li> <li>• Additional degree in any other relevant subjects will be an added advantage.</li> </ul>
<b>General Professional Experience</b>	<ul style="list-style-type: none"> <li>• At least 20 years of relevant professional experience in the field of the assignment (as a practitioner);</li> <li>• Proven excellent report writing and communication skills (oral and written).</li> </ul>
<b>Specific Professional Experience</b>	<ul style="list-style-type: none"> <li>• 20 years’ professional experience, particularly in geotechnical investigation, tests, design; and</li> <li>• Experience in construction supervision of large hydropower projects with dams and tunnels among its main components; and</li> <li>• Should have prior experience serving in expert panels;</li> <li>• Experience in South East Asia, and /in Lao PDR would be an advantage.</li> </ul>

## **6. LOCATION, SUPPORT SERVICES AND DURATION**

### **6.1 LOCATION OF THE ASSIGNMENT**

The preparatory desk work and reporting will be done from the Home Office of the Team of Experts or Non-Key Experts (NKEs). The location of the mission is in Lao PDR, where the Assignment will be implemented.

### **6.2 SUPPORT SERVICES**

MEM shall make available the support services of the Project Secretariat and of its authorized personnel and other key stakeholders where possible. MEM shall cause the Project Secretariat to provide to the International Advisors through an FTP site the necessary documentation. MEM, through the Project Secretariat will facilitate the interaction of the International Advisors, with the Owners and their Consultants and other key stakeholders which they identify as necessary to consult directly in order to fulfil the objectives of the assignment.

During the International Advisors members’ visit(s) to Vientiane, MEM shall be responsible to arrange for working space with utility services, WiFi, printer, air condition, etc. MEM will also arrange meetings with the Owners and their Consultants either in Vientiane or during site visits.

MEM will provide logistical support for the International Advisors members, including local ground transportation and accommodation during visits to the project sites. MEM shall take necessary actions to allow prompt travel clearances (if necessary) of the members of the International Advisors or additional specialists requested by the International Advisors and shall provide full safe physical access to the project sites.

### **6.3 START AND DURATION**

The assignment will have to start 15 days after the receipt of the current ToR and approval of the TAF Expert) by DEVCO or as otherwise agreed in discussion with DEVCO.

It is expected that the assignment will start by **mid-January 2019**, and the services will be provided over a period of **up to 9 months**. The overall goal is to close the consultancy by **end of September 2019**.

The total man-days allocation for the Team of Experts of this assignment is of **180 working days** (including travel days). This includes some working days for each Expert prior to the mission(s) for the desk review and to familiarize themselves with information provided and make all necessary contacts for the success of the mission, including organizing the logistics locally, so as to be immediately operational upon arrival.

### **6.4 LANGUAGE**

The working language for this assignment will be in English. All reports and other communication will be in English.

All documents will be prepared in English and will be submitted in electronic version (Word and PDF).

## **7. REPORTING**

The Technical Reports (**D2**) shall be based on a coherent methodology and comprehensive data and information gathering (including qualitative interviews and a broad and precise consultation process

with the relevant national stakeholders and international donors and IFIs active in Lao PDR, if and when necessary.

Monthly Descriptive Report (D3) will be prepared by the TAF Team, indicating the activities implemented in the corresponding period.

A Final Report and a Power Point Presentation (D4) to be presented at the Debriefing Meeting will be made by the Experts to present the results, conclusions and recommendations of the Draft Final Report. The experts will keep detailed records of meetings, contacts made, and documents collated and will render all information available in digital format when requested.

All reports shall clearly contain the following disclaimer: “*This report was prepared with the financial support of the European Commission. The opinions expressed are those of the authors and not necessarily those of the European Commission*”. The study is intended for internal use by DEVCO and not to be used by the Experts for further publication/dissemination.

The Experts should carefully revise their deliverables and provide clarification to any demand for improvement, corrections and response to comments for the period up to 2 months after the end of the Assignment without additional remuneration.

All the Reports will be provided in electronic version, two (2) hard copies for the EC Headquarters, or as agreed otherwise between the parties.

#### **7.1 CONTACT POINTS AT:**

- EU Delegation to Lao PDR: OLIVER-CRUZ Ignacio [Ignacio.OLIVER-CRUZ@eeas.europa.eu](mailto:Ignacio.OLIVER-CRUZ@eeas.europa.eu)
- DG DEVCO F1: ASHWANDEN Tom (DEVCO)
- DG DEVCO C6: Ms. Anca Maria Simion, EU TAF Task Manager
- EU TAF: Dr. Thierry Lefevre, TAF Team Leader and KE Asia

<b>8 OTHER INFORMATION – MISSION IMPLEMENTATION MODALITIES, AND RESPONSIBILITIES</b>
--------------------------------------------------------------------------------------

#### **8.1 SELECTION OF NON-KEY EXPERTS**

After the launching of the ToRs by DG DEVCO C6, the search of suitable experts will be carried out by the TAF contractor. The TAF will submit the evaluation grid, the proposed ranking of experts and the experts CVs to DG DEVCO C6 for comments and approval within 3 working days of the launch of the ToR so that the deadline of 15 days is respected. The EUD in coordination with the MEM of Lao PDR and DG DEVCO will in turn send to DG DEVCO its appraisal and agreement or will request clarifications and possible alternative CVs within 3 working days of these being submitted by the TAF. Non-objection of the beneficiary normally has to be included in the Delegation appraisal and should not receive a separate time interval or procedure. The NKE/AL may be subject to an interview (skype/conference call) prior to contracting. When agreement is reached, the EUD will submit the “final NKE selection evaluation sheet” or its confirmation of the original evaluation grid with any comments (this is to be sent only to DEVCO C6, no copy to the TAF). Expert selection will be announced by DG DEVCO C6 to the TAF and final dates will be confirmed.

Each Expert shall be strictly and fully independent from any financing institution or company (e.g. manufacturers and engineering) and without direct or indirect economic, financial or other interests with the related sectors of this assignment.

As indicated above, the International Advisors will be required to enter into a Confidentiality/ Non-Disclosures/Conflict of Interest Agreement with MEM.

## **8.2 MANAGEMENT OF THE MISSION IN COUNTRY AND TIMESHEETS**

The management, organization of the mission in the country will be the responsibility of the TAF Consortium, the EU Delegation and DG DEVCO.

The Experts shall prepare a monthly timesheet (giving a detailed account of daily tasks implemented together with related deliverables) after having been verified by the Assignment Leader to be submitted for signature to the Responsible in charge from the corresponding EUD, then the TAF Team Leader (KE1/TL), who will forward it to DG DEVCO for final approval. Timesheets should ideally be signed before departure from the country, including preparatory work days. Timesheets and presence will be controlled and counter-signed by the EU Delegation on the basis of similar assurance from the beneficiary. The final signature of the timesheets will be from DEVCO and the project responsible.

## **8.3 ACCEPTANCE OF DELIVERABLES, COMMENTS AND CLOSURE OF THE ASSIGNMENT**

The Technical Reports (**D2**) will be sent to the EU Delegation and to DEVCO.

The EUD will approve or send comments to DG DEVCO (copy also to the TAF) within 15 days after the submission of final versions to EUD, of all the produced deliverables. The TAF Non-key Experts, with the support of the Key Expert supervisor of the assignment, the coordinator, and/or the TAF Team Leader, will be responsible for resolving the comments and submitting the final report. If the report has serious comments or is non-compliant with the requirements of the ToR it will have to be resubmitted and re-evaluated. After approval of the deliverables by the EUD, the assignment will be closed by the TAF once all administrative (e.g. all NKE timesheets are signed and approved) and financial (e.g. all NKE’s invoices are accordingly paid) are duly finalized and DG DEVCO subsequently informed.

## **8.4 CONFIDENTIALITY**

The International Advisors shall keep confidential all information received, directly or indirectly, from Owners and their Consultants, MEM or any other GOL entity or other provider of information under this assignment (the “Disclosing Party”), as well as all copies, recommendations, reports or analyses that the International Advisors make, or have been made by third parties, based on such information (collectively, the Confidential Information). The International Advisors shall use the Confidential Information solely in connection with the discharge of its duties to provide the services described in these Terms of Reference. The confidentiality obligations shall not apply to information in the public domain.

# **9 RESPONSIBLE PARTIES AND COMMUNICATION**

DEVCO C6 is the contracting authority responsible for the contractual and administrative management of this contract. The DEVCO C6 unit and the appointed project manager will be responsible for approving all documents and reports on behalf of the EU.

The mission is carried out on behalf of the EU.

As part of the working arrangements, the experts will report regularly to DEVCO C6 and through it, to the DEVCO geographical units, which will collectively follow the progress of the assignment and

give feedback and guidance to the experts. Concrete ways of work of this group will be discussed and established during the kick-off meeting for this assignment.

The TAF Key Expert (KE1) is responsible for the supervision of the work carried out (in line with the work program agreed on at the beginning of the assignment), quality of documentation and approval of the mission. Experts must therefore be in permanent contact with this team. The TAF expert support team must be in permanent contact with the non-key experts and take part in the drafting and quality control of documents. For contractual issues, DEVCO C6 as the contracting authority must be involved. The TAF senior expert responsible for the assignment should always be consulted in order to safeguard the assurance of the quality of the TAF deliverables and compliance with the terms of reference.

Continuous and fair reporting on the development of the assignment by the Experts is of the utmost importance. During the assignment, the TAF Team will keep the European Commission Headquarters in Brussels, and the TAF duly informed on its activities. Contact points at EC (DG DEVCO; EUD in case of missions) and TAF are provided in Section 9.1.

## **10 INFORMATION**

### **10.1 ADMINISTRATIVE INFORMATION**

The EU Delegations have no consular powers. The experts will have to liaise with their respective Embassies and Consulates for any issues related to visas.

The EU Delegation has to be contacted immediately when the date of arrival and departure is known. The EU Delegation could assist (if possible) in establishing a meeting agenda for the experts, but the team is encouraged to prepare a draft to be approved by EUD.

The Team of Experts will have to liaise with their respective embassies and consulates for any consular or related issues.

During all contacts with interlocutors, the Experts will clearly identify him/herself as independent consultant contracted by the TAF and not as official representative of the European Union. All documents, reports or other material acquired and prepared during the Assignment and relevant to it, will be submitted to the TAF during and at the end of the Assignment.

All document or reports prepared are intended for internal use by DG DEVCO and not to be used by the Experts for further publication/dissemination.

For any contractual issues arising, DG DEVCO C6 has to be contacted for assistance and information.

For contractual issues, DG DEVCO C6 as Contracting Authority should be involved.

### **10.2 PREPARATORY INFORMATION**

Before the launch of the mission, the experts will specify in a clear list to the EU Delegation the data and information to be sought (if existing) from the national authorities.

## 11 ANNEXES: LINKS & DOCUMENTS

### 11.1 LINKS

- EU Delegation website: [https://eeas.europa.eu/delegations/lao-pdr\\_en](https://eeas.europa.eu/delegations/lao-pdr_en)
- Joint-Indicative Programming: [https://eeas.europa.eu/delegations/lao-pdr/8781/2016-2020-european-joint-indicative-programming-document-laos\\_en](https://eeas.europa.eu/delegations/lao-pdr/8781/2016-2020-european-joint-indicative-programming-document-laos_en)
- World Bank, World Development Indicators database, <http://databank.worldbank.org/data/home> consulted 02Dec18
- Open Development Laos website, <https://laos.opendevelopmentmekong.net/topics/energy> consulted 01Dec18

### 11.2 DOCUMENTS

#### **LAO PDR: OFFICIAL TOR**

1. MINISTRY OF ENERGY AND MINES, Government of Lao PDR, Terms of Reference for the International Advisors To Review the Nationwide Emergency Dams Safety Inspection, December 4, 2018
2. MINISTRY OF ENERGY AND MINES, Government of Lao PDR, Terms of Reference for the Emergency Dams Safety Inspection, November 9, 2018 (Annex I)
3. MINISTRY OF ENERGY AND MINES, Government of Lao PDR, Terms of Reference for the Project Secretariat to Support the Management of the Nationwide Emergency Dams Safety Inspection, December 4, 2018 (Annex II)

#### **EU: HYDROPOWER & DAMS REFERENCES**

1. EC Guidance on the requirements for hydropower in relation to EU Nature legislation Jun18.pdf
2. EIB Guideline on Hydroelectric Power Development draft Apr18.pdf
3. EUI Study Regimes for granting rights to use hydropower in Europe Nov14.pdf

#### **LAO PDR: HYDROPOWER & DAMS REFERENCES**

1. ESMAP Lao PDR Small Hydropower Mapping Inception Report Jul17.pdf
2. IHA Hydropower Status 2018 Report Jul18.pdf
3. International Rivers Laos page.pdf
4. International Rivers Power Surge - The Impacts of Rapid Dam development in Laos Sep08.pdf
5. MRC ready to support review and update of Lao hydropower strategy and plan.15Aug18.pdf

#### **LAO PDR: INTERNATIONAL ENERGY REFERENCES**

1. USAID Workshop Assessing Vulnerabilities in the Lao PDR Power Sector 21-23Aug18\
2. ADB Country Operations Business Plan Lao PDR 2019-2021 Sep18.pdf
3. ADB Fact Sheet Lao PDR 2017 Apr18.pdf
4. ADB Lao PDR Development Effectiveness Brief Oct17.pdf
5. ERIA Lao PDR Energy Statistics 2018 Jul18.pdf
6. IRENA Renewable Energy Market Analysis - Southeast Asia Jan18.pdf
7. Lao PDR 8th 5-year National Socio-Economic Development Plan 2016-2020.pdf
8. UNESCAP Asia-Pacific Progress in Sustainable Energy - Regional Assessment Report Mar18.pdf
9. USAID Renewable Energy Zones in Lao PDR - 1-Process and Possibilities 23Jul18.pdf
10. USAID Renewable Energy Zones in Lao PDR - 2-Results of Study Area Analysis 23Jul18.pdf
11. USAID-NREL Energy Alternatives Study for Lao PDR Report1 Assessment of Data Availability Jan18.pdf

**INTERNATIONAL: HYDROPOWER & DAMS REFERENCES**

1. DUT Dam Safety Concepts Thesis Dec14.pdf
2. ICOLD Dam Safety Page.pdf
3. ICOLD EurClub - Dam Legislation Report Dec14.pdf
4. IFC Hydropower Power - A Guide for Developers and Investors Feb15.pdf
5. IHA Hydropower Sustainability Environmental, Social and Governance Gap Analysis Tool Jul18.pdf
6. IHA Hydropower Sustainability Assessment Protocol Jul18.pdf
7. WWF International Dams Initiative - Dams in Europe Jan04.pdf