TERMS OF REFERENCE

COORDINATION AND MONITORING CENTER IN LAOS

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| Project Reference | “CMC Laos” |
| Key experts mobilised | One technical consultant hired by Expertise FranceOne coordinator of the Energy division, Expertise France and/orOne project officer of the Energy division, Expertise France  |
| Purpose of the mission | Exploratory mission supporting project design of Coordination and Monitoring Center in Laos - “CMC Laos” |
| Beneficiairies | Expertise France |
| Main deliverables expected | D1: A comprehensive Stakeholder Engagement PlanD2: A mission report including a decision making tool providing insights into key challenges and opportunities, and implementation issues of the future projectD3: Drafting of the Description of Action  |

# **CONTEXT**

* 1. **INTRODUCTION**

Over 100 dams have been built on Laotian rivers since the 1970s. More than 30 others are under construction or planned in the short term. Most of these structures are designed to harness part of the country's considerable hydroelectric potential (26 GW, compared with 17 GW in Switzerland, for example). On the Mekong alone, 11 sites have been identified as suitable for run-of-river dams, 2 of which are now in operation (each with a capacity of around 1 GW) and 3 are under construction.

Almost all of these facilities are built and operated by private investors under concession agreements, with a view to exporting the electricity generated.

According to the Asian Development Bank, there are more than 80 independent power producers in Laos (some of them operating several dams).

The Laotian Ministry of Energy and Mines (MEM) has requested AFD's support in managing this inflation in both the number of hydropower schemes and the number of operators.

* 1. **BACKGROUND OF THE ASSIGNMENT**
		1. **AFD’S FEASIBILITY STUDY AND COMPLEMENTARY STUDY**

A feasibility study for the creation of a Coordination and Monitoring Center (CMC) was carried out between 2018 and 2020. In 2025, AFD has mandated a consortium of consulting firms to conduct a complementary study in order to update the previous study.

The main objective of this complementary study is to complement and deepen the initial feasibility study to establish a detailed and operational roadmap for the implementation of a viable CMC. Specific objectives include:

1. Updating the feasibility study: Update the data and analysis of the initial study to reflect recent developments and new guidelines.

2. Deepening the study: Provide a more detailed and comprehensive analysis of the technical, institutional and financial aspects required to set up the CMC.

3. Elaboration of a roadmap: Develop a justified and detailed action plan for the implementation of the CMC, including milestones, activities, prerequisites, actors involved, and associated costs.

4. Demonstration of viability: Prove the viability of the CMC through comparative analyses, case studies and recommendations based on precise criteria.

Beyond that, the major and global challenge of this complementary study is to ensure the operational feasibility of the Coordination and Monitoring Center, and therefore to ensure favorable conditions (institutional, legal, technical, human) to guarantee:

* The cooperation (by legal obligation or by interest) of operators and the sharing of information in their possession (hydrometeorological, forecasts, instructions and regulations) and which are necessary for coordinated management of structures and uses;
* The legitimacy and authority of the CMC steering committee in the scope of the missions entrusted to it;
* The sustainability of the CMC structure in terms of technical and human resources, and through recruitment, training and external support;
* Financing of annual operating costs through optimization profits and/or contributions to be defined.

At this stage, Expertise France as an entity of the AFD Group, is pre-identified to implement the future project to establish a potential Coordination and Monitoring Center if the conclusions of the complementary study prove to be conclusive. To this end, Expertise France plan to conduct an exploratory mission and is looking for an individual consultant to provide its expertise during the exploratory mission and to support Expertise France for the drafting of the technical offer (Description of Action - DoA).

* + 1. **THE EXPLORATORY MISSION**

This assignment for an exploratory mission to support the project design on Coordination and Monitoring Center (CMC) in Laos is in continuity with the initial feasibility study and the complementary study in progress, and aims at having a deep understanding of the interests of the different stakeholders and eventually having a global picture of the pro and cons to implement the project.

The exploratory mission will take place during a mission of the consortium conducting the complementary study. The latter will organize workshops with stakeholders to deliver the first conclusions of the complementary study.

The assignment further comprises of the drafting of a comprehensive stakeholder engagement strategy, a report mission and the drafting of a Description of Action (DoA) which will detail a programme supporting the further development and implementation of the Coordination and Monitoring Center (the assignment is detailed in part “2. Description of the assignment”).

The establishment of a Coordination and Monitoring Center (CMC) for Lao dams would offer several significant advantages:

1. Optimization of Water Resource Management

* Power generation: Maximization of hydropower production through effective coordination between the various dams.
* Irrigation: Improved management of water resources for irrigation, thus increasing the area of arable land and/or the number of annual cycles of irrigated crops.

2. Risk Reduction

* Dam Safety: Increased monitoring and proactive management of dam safety risks, reducing the risk of dam failure and flooding, including of irrigated areas.
* Crisis Management: Improved preparedness and response to extreme situations such as floods, prolonged droughts and seismic risks.

3. Improved Institutional Coordination

* Harmonization of Efforts: Coordination between different institutional players, avoiding redundancies and filling gaps in dam management.
* Data Sharing: Real-time data exchange and implementation of shared operational models for more efficient management.

4. Economic benefits

* Increased revenues: Optimization of electricity sales through better coordination, thus increasing revenues for operators and the government.
* Cost reduction: Lower operating costs thanks to centralized and coordinated management.
* Increased agricultural production thanks to better coordination between the timing of hydroelectric and irrigation operations.

5. Environmental protection

* Ecological flows: Respect of ecological flows to preserve aquatic ecosystems.
* Sediment transport: Management of sediment transport to avoid harmful hydromorphological modifications.

6. Capacity building

* Training and Expertise: Development of local skills and expertise through training programs and the use of advanced technologies.
* International collaboration: Strengthening partnerships with international organizations and partner countries.

7. Transparency and Accountability

* Access to Information: Supervised access to critical information in concession contracts, increasing the transparency and accountability of operators.
* Monitoring and Evaluation: Establishment of monitoring and evaluation mechanisms to ensure compliance and efficiency of operations.

# **DESCRIPTION OF THE ASSIGMENT**

* 1. **OVERALL OBJECTIVE**

The main objective of this mission is to support Expertise France Energy Unit in the exploratory and preparation phase of the “CMC Laos” project. This involves providing expertise for both the exploratory mission and the project design phase:

* **Critical analysis of the complementary study: A complementary study is currently under way, the first results of the study should be communicated to Expertise France in April 2025. Initial results will also be communicated to Laotian stakeholders during workshops in Laos. The expert accompanied by Expertise France will take part in these workshops, which will be held as part of the exploratory mission. The expert will be asked to provide a critical analysis of the conclusions of the complementary study, and to identify the challenges to be met in implementing the project.**
* **Assistance in drafting the technical offer (DoA): Should Expertise France wish to implement the project, the expert will provide his expertise in drafting, with the Expertise France Project manager, the detailed Description of Action, including: the technical requirements for setting up and running the Coordination and Monitoring Center, particularly in terms of equipment, software and human resources. Analysis of risk management tool requirements, and innovative solutions to ensure effective dam management. He will also propose a plan of activities to build the capacity of the project's beneficiary institutions and other local institutions in water resource management, coordination of hydropower operators, and crisis management.**
	1. **SPECIFIC OBJECTIVES**
		1. **PHASE 1 - PREPARATORY PHASE**

The assignment will start with a preparatory phase that includes the following tasks:

1. Reading of all relevant documents by the expert, including the 2020 feasibility study results and complementary study terms of reference and reports.
2. Contacts with Expertise France and AFD representatives for introductory and preparatory purpose.
3. Sharing with Expertise France project manager of relevant examples of hydropower production coordination in other countries, including associated challenges
4. Online meetings with Expertise France, AFD and the consortium in charge of the complementary study to discuss mission organization, mission logistics and meetings to be held with Laotian counterparts.
5. Drafting of an initial mapping and engagement strategy of which the findings will be incorporated directly into the project Description of Action (DoA). Further identify any additional stakeholders not mentioned or that require further engagement to utilize the insights of the report.
6. Preparation of meetings to be held with, but not limited to, the institutions listed: international Financial Institutions (KOICA, JICA), Ministries, private operators, regional organizations, national agencies.
7. Collection and archiving of all available relevant documents.
	* 1. **PHASE 2 - EXPLORATORY MISSION**

The Expert is expected to attend a 10-day mission (the exact number of days can be subject to modification) in Laos with Expertise France project manager, with specific logistical details to be determined when the time arises (taking into account that Expertise France will cover: flight tickets, accommodation and will deliver perdiems). The purpose of the mission will be to collect all data and information relevant to understanding and elaborating a Coordination and Monitoring Center in Laos.

The expert will be proactive during meetings, bringing his expertise and his critical analysis in order to identify operational risks and issues related to the future project and the intervention context. The mission will allow Expertise France to encounter several partners who will potentially further be part of the project. The mission will also be a way to catch the different needs and expectations of each institution involved in the project.

The expert will draft a mission report presenting the key findings including a decision making tool providing insights into key challenges and opportunities, and implementation issues of the future project.

* + 1. **PHASE 3 - DRAFTING OF DoA**

If the complementary study confirms the relevance of the future Coordination and Monitoring Center and if Expertise France is considered as the implementation agency, this task will consist of the preparation of a Description of Action document (DoA) detailing the potential interventions, in close coordination with Expertise France project manager and AFD.

Draft the DoA to include possible activities for technical assistance to be discussed with AFD and beneficiaries, including but not limited to:

* An indicative theory of change and logical framework describing the objectives and results to be achieved (dependent on further exchanges with AFD and the MEM).
* The strategic approach to the project implementation
* The activities to be led, with detailed justification for each proposed activity,
* The different expertise required during the implementation period of the project
* This will also include a description of the following:
	+ Description of operational risks and possible solutions to solve them
	+ Technical and logistical resources to be mobilized
	+ Advice on budget
	+ Institutional and contractual set-up
	+ Sizing of the teams

The expert will also ensure cross-cutting attention to the integration and risks related to the institutional context (current political, economic and social situation) in the development of the technical proposal.

# **ANTICIPATED CHALLENGES AND RISK MANAGEMENT**

Despite the many steps forwards made by the Lao Government as regards to a better control of the dams operations and their impacts, some issues are pending:

**CMC mandate, functions, and ensuing status**

Different scenarios are currently under review about the mandate to be given to the CMC. Considering the two extremes following options may help in this regard:

* The CMC is simply a data collector, validator, processor, and provider. It has only a consultative function. The CMC would actually look like an enlargement of the recently set up Lao Association on Dams (LAD). Under this scenario, the CMC can be implemented in more or less any ministry involved in the “dams” area. It is however to note that the LAD is presently reporting to the Ministry of Energy and Mines;
* The CMC is full-fledged inter-ministerial Authority, with a specific mandate in terms of water flows coordination, possibly flood forecasting, and the associated power to make decisions within this mandate. As an example, the CMC may order an operator to release water in dry season to support irrigation or ensure a minimum ecological flow, or in rainy season to increase buffer capacity before a storm. Another example is whether the CMC should take over the management of the “dams safety” topic, the latter being presently simultaneously addressed by the MEM and the MoNRE;
* One of the key technical issue to clarify is whether the CMC should have an “operational modelling” capacity, in other words a real time or very-short term forecasting capacity, and the ensuing responsibility for crisis management.

The comparison of the “plus” and “cons” of each scenario will be carried out by the consortium conducting the complementary study. The consultant will carry out a critical analysis on the comparison of each scenarios and will integrate it to the decision-making tool.

### **MISSION CALENDAR AND ASSOCIATED WORKING DAYS**

The exploratory mission, alongside the drafting of stakeholder engagement plan, mission report and DoA will be implemented by one expert and supporting by Expertise France. The mission will follow this indicative calendar, with dates subject to modification based on the specific requirements and preferences of the project team:

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| **Tasks and deliverables** | **Indicative Timeline** | **Number of working days** |
| Project initiation, take stock of previous work done by feasibility study and complementary study. Drafting of a comprehensive stakeholder engagement strategy | End of March / Beginning of April 2025 | 1.5 days |
| Mission to Laos (10 days) | April / May 2025 | 10 days |
| Mission report including a decision making tool providing insights into key challenges and opportunities and implementation issues | May 2025 | 1.5 days |
| Drafting of the Description of Action (DoA) | June 2025 | 4 days |

### **Expert profile**

The expert must have a solid knowledge of the Southeast Asia region and ideally the specific context of Laos. The expert should have a profile that combines high-level technical expertise in the management of hydroelectric dams and monitoring systems, while also possessing the ability to navigate within a complex institutional framework.

The expert should have a:

* Ph.D. or master’s degree in Hydroelectricity and Civil Engineering, Water Resources Management, Hydraulic Engineering, or a related field;
* Additional training in hydroelectric energy production, monitoring systems (SCADA, IoT), and energy infrastructure management;
* Minimum of 10 years of experience in managing hydroelectric projects, including planning, operational management of dams, and infrastructure monitoring, with at least 5 years in a regional Asian context, ideally in Southeast Asia;
* Experience in managing hydroelectric systems, including the management of energy production facilities, monitoring energy performance, and integrating monitoring systems to optimize production;
* Experience in managing relationships between public and private stakeholders and energy regulators, particularly in the context of water management for energy production;
* Expertise in managing risks specific to hydroelectricity, such as managing production capacity, water management, and fluctuations in energy demand;
* Knowledge of the environmental impacts of dams on ecosystems and biodiversity;
* Strong organizational, leadership, and communication skills;
* Proficiency in English.