

Department of Energy Policy and Planning
Ministry of Energy and Mines
Lao People's Democratic Republic

**Project for the Improvement of the
Governance Mechanism for Sustainable
Power Development Planning**

**The Guidance
On the Power Development Mechanism
In the Lao PDR**

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Japan International Cooperation Agency

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Table of Contents

Chapter 1	Preface.....	1
Chapter 2	Objective of the Guidance.....	3
Chapter 3	Legal and institutional background.....	5
3.1	Legal background (Electricity Law 2011).....	5
3.2	Related organizations for the IPP projects.....	6
3.3	Existing workflow.....	7
3.4	Proposed workflow.....	10
Chapter 4	Work description in each development stage.....	11
4.1	Roles of the relevant organizations for IPP development.....	11
4.2	Overview of IPP development activities.....	12
4.3	Planning stage for mid-long term period.....	14
4.4	Planning stage before MOU.....	17
4.5	Study stage from MOU to PDA.....	21
4.6	Study and negotiation stage from PDA to CA.....	23
4.7	Implementation stage from CA through COD to operation stage.....	26
Chapter 5	Newly proposed workflow.....	29
Chapter 6	Recommendations.....	30

Figures and Tables

(Figures)

Figure 3-1: IPP Project Implementation Procedures prepared by the DEB	8
Figure 3-2: IPP project examination and inspection procedure	9
Figure 3-3: IPP project work-flow proposed by the study team	10
Figure 4-1: Simplified workflow among the relevant departments	14
Figure 4-2: Outline of NPDP development procedure.....	15
Figure 4-3: Outline of hydropower data list preparation	16
Figure 4-4 : Development Flow before MOU	17
Figure 4-5 : Developer invitation mechanism (proposed)	18
Figure 4-6 : Development Flow before MOU (proposed)	19
Figure 4-7: Development Flow from MOU to PDA.....	21
Figure 4-8 : Developer invitation mechanism for expired project (proposed).....	22
Figure 4-9 : Development Flow from PDA to MOU	24
Figure 4-10 : New F/S examination (proposed).....	24
Figure 4-11 : New Development Flow between PDA to CA (proposed).....	25
Figure 4-12: Development Flow between CA to Operation	26
Figure 4-13 : Relationship between DEB and DEM.....	27
Figure 5-1: Newly proposed IPP project work-flow.....	29

(Tables)

Table 4-1 : Duties and mission of relevant organizations under the MEM.....	11
Table 4-2 :Major roles of agencies under the MEM	12
Table 4-3: Regular Reports Stipulated in the LEPTS Guidelines	13
Table 4-4 : Major activities by concerned agencies	14
Table 4-5 : Proposed necessary actions, organizations and assumed period.....	16
Table 4-6 : Major activities by concerned agencies	17
Table 4-7: Proposed necessary actions, organizations and assumed period.....	19
Table 4-8 : Major activities by concerned agencies	21
Table 4-9 : Proposed necessary actions, organizations and assumed period.....	23
Table 4-10 : Major activities by concerned agencies	23
Table 4-11 : Proposed necessary actions, organizations and assumed period.....	25
Table 4-12 : Major activities by concerned agencies	26
Table 4-13 : Proposed necessary actions, organizations and assumed period.....	28

Abbreviations and Acronyms

B/D	Basic Design
BOT	Build Own Transfer
CA	Concession Agreement
COD	Commercial Operation Date
DEB	Department of Energy Business
DEM	Department of Energy Management
DEPP	Department of Energy Policy and Planning
DESIA	Department of Environmental and Social Impact Assessment
EDL	Electricité du Laos
EIA	Environmental Impact Assessment
F/S	Feasibility Study
GOL	Government of Laos
GMS	Great Mekong Region
JICA	Japan International Cooperation Agency
IPP	Independent Power Producer
IREP	Institute for Renewable Energy Promotion
LEPTS	Lao Electric Power Technical Standards
MEM	Ministry of Energy and Mines
MNRE	Ministry of Natural Resources and Environment
MOU	Memorandum of Understanding
MPI	Ministry of Planning and Investment
MRC	Mekong River Commission
NPDP	National Power Development Plan
PDA	Project Development Agreement
PDEM	Provincial Department of Energy and Mines
PDP	Power Development Plan
PPA	Power Purchase Agreement
RET	Renewable energy technology
RE	Rural Electrification
SHA	Share Holder Agreement
SPC	special purpose company
TA	Technical Assistance

Chapter 1 Preface

This Guidance on the Power Development Mechanism in the Lao PDR was prepared as one of the most important outcomes of the Japan International Cooperation Agency (JICA) project entitled “Project for the Improvement of the Governance for Sustainable Power Development Planning (from June 2012 to June 2013).

The Guidance explains and outlines the details of issues for the power sector mechanism, specifically for the utilization and promotion of the independent power producers (IPPs) currently applied in Laos:

- a) Related organizations with their roles for IPP development;
- b) A more comprehensive workflow than existing one(s) with institutional framework newly prepared by the study team;
- c) Issues and activities in each development stage, such as mid-and-long term planning, short-term planning and implementation stages; and
- d) Proposals and recommendations for future improvement.

It is hoped that the information, workflow and necessary activities with various stakeholders of the Guidance will be shared and used by both private and public sectors such as the developers, governmental ministries and departments, and other concerned organizations.

Chapter 2 Objective of the Guidance

The Government of Laos (GOL) has been promoting the development of hydropower whose abundant potential is estimated to be 18,000MW. The country wishes to contribute as the battery in Asia through the exportation of the hydropower to the neighboring countries in the Great Mekong Region (GMS). The utilization of the private sector, which is the independent power producer (IPP) scheme, was introduced to accelerate hydropower development as one of the key issues.

To achieve that, the GOL has developed the institutional framework through three agreements with developers, such as the memorandum of understanding (MOU), project development agreement (PDA) and concession agreement (CA) considering the build own transfer (BOT) scheme. After the concession period in a period not exceeding thirty years from the commencement of operation date (COD), the GOL hand will take over the facilities from the developers.

However, the institutional and organizational frameworks with roles and activities are still complicated, and are needed to be clarified clearly. These issues may be also confusing for the developers when they would like to submit applications and/or reports, negotiate draft agreements and receive examination and inspection, etc. Therefore, transparency, accountability and efficiency should be required for the GOL to prepare better power development conditions to the developers.

Based on the background as mentioned above, the objective of the Guidance on the Power Development Mechanism in the Lao PDR, is to clarify the roles of the governmental organizations and developers, a clear workflow and necessary actions for the smooth implementation of the IPP promotion in each development stage, and also to clarify the issues and challenges with some recommendations for future better power development mechanism in Laos.

Chapter 3 Legal and institutional background

3.1 Legal background (Electricity Law 2011)

The Electricity Law amended in 2011 stipulates the IPP activities as follows:

a) Article 26: Investment in Electricity Business (BOT, etc.):

Individuals, legal entities or organizations wishing to invest in the electricity business shall be registered as a legal entity in the Lao PDR, in accordance with the laws and regulations.

b) Article 27: Conditions for Establishment of Electricity Enterprise:

The conditions for the establishment of an electricity enterprise are as follows:

1. Experiences in business operation;
2. Financial stability;
3. Sufficiency of electricity technicians and of other specification concerned; and
4. No subject to court sentences by any intentional offenses, especially by economic offenses.

c) Article 29: Concession Procedures (MOU, PDA and CA); and

The detailed procedures, contents of each task components and authorization granting shall be complied with the specific regulation issued by the energy and mine sector.

Eligibility of developers is not yet clarified clearly from both technical and financial aspects because the detailed regulations of the articles above have not been developed yet. As a result, technically and financially incapable developers may participate in the IPP business. Regarding the details of the 3 agreements (MOU, PDA ad CA) should be determined for the accountable and transparent contractual activities.

The Article 29 also stipulates the allowable extension period and times of MOU and PDA. The MOU may be extended in anyway such extension cannot be more than nine months, and the PDA agreements may be extended only that each extension cannot be more than six months. For the electricity export project, the extension cannot be made more than three times. The extension of the electricity projects for domestic use cannot be made more than two times. After the enforcement of the Electricity Law 2011, 16 projects with the MOU and PDA were expired as of March 2013.

The Electricity Law amended in 2011 also stipulates the technical matters as follows:

d) Article 30: Technical, Economical and Financial feasibility Study;

The social, environmental and natural assessment consists of the following main contents:

1. Technical, economical and financial results;

2. Estimated maximum electrical capacity;
3. Estimated project value;
4. Estimated project term and life of the dam or estimated term and life of some other electrical system;
5. Estimated electricity price; and
6. Plans and operation phases: construction, installation, and commencement date of electricity supply.

e) Article 31: Social, Environmental and Natural Assessment; and

The social, environmental and natural assessment consists of the following main contents:

(abbreviated)

f) Article 32: Conditions of Concessionaire

The concessionaire shall have the following conditions:

1. Have financial and technical capacity; and
2. Have a good and trustworthy business background.

3.2 Related organizations for the IPP projects

The construction of hydropower stations needs several years to be completed. Prior to the construction of power stations, IPP developers should conclude a series of contracts with GOL and power purchasers. Furthermore, developers should execute a set of surveys and conduct research on environment and social matters which will take some years to complete. Therefore, it can be said that it is required at least 6 to 7 years to start electricity supply from IPP power station after the developer concludes the MOU. Through the activities, the developers should contact many governmental organizations. Relevant players for the IPP development are as follows:

a) The Ministry of Planning and Investment (MPI)

The MPI is the one-stop-service office for investment prescribed in the Law on the Investment Promotion 2009, which is responsible for management of the investment in concession business including hydropower development.

b) The Department of Energy Business (DEB) under the MEM

The DEB is to coordinate the organizations on behalf of the line ministry in charge of power development and to negotiate MOU, PDA and CA with developers.

c) The Department of Energy Policy and Planning (DEPP)

d) The DEPP is responsible for the long-term development planning with consideration of efficient hydropower development, and is also in charge of the evaluation of the feasibility study (F/S) from economical and technical viewpoints.

e) The Department of Energy Management (DEM)

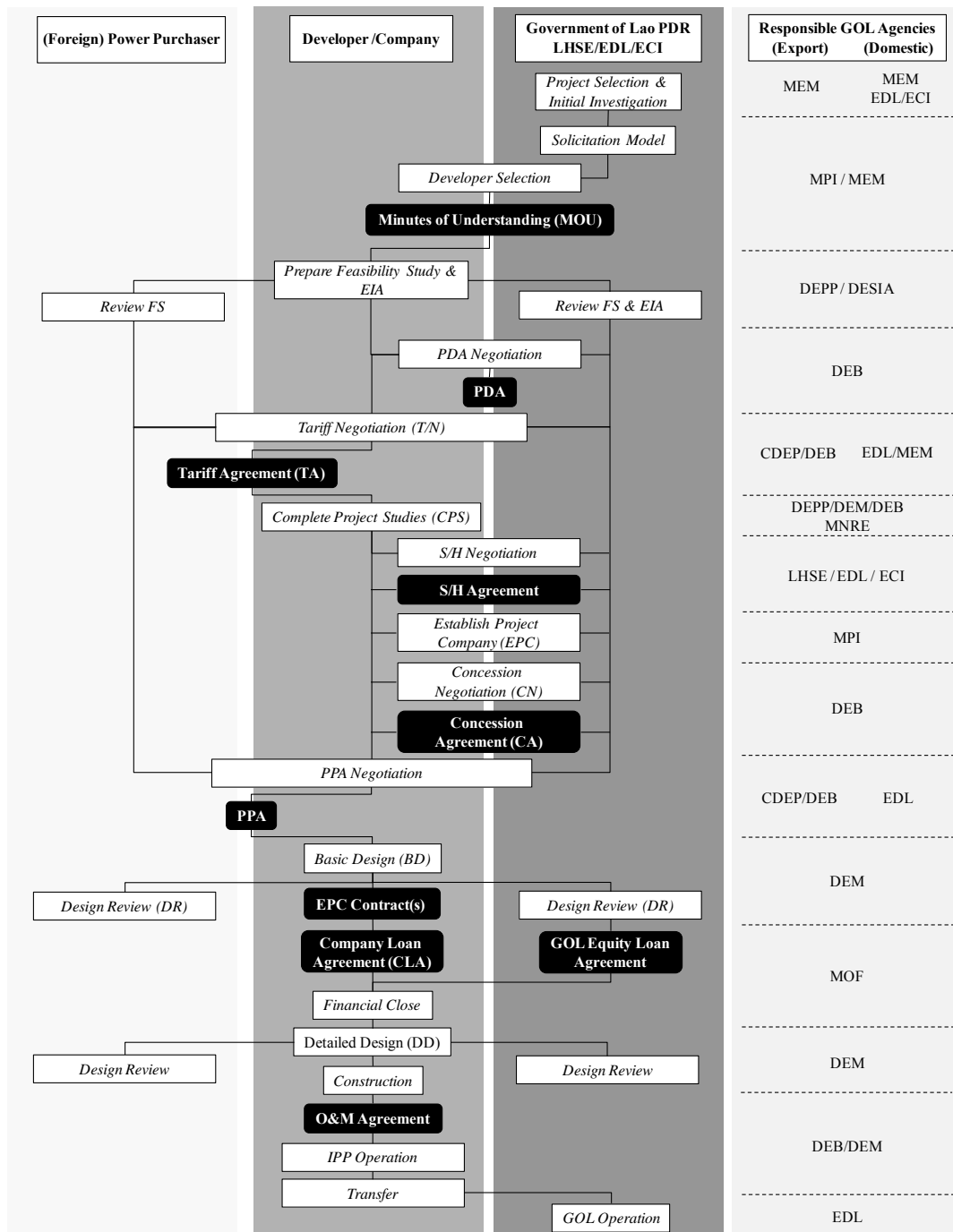
The DEM is in charge of examination of basic design and field inspection for construction work in compliance with the Lao Electric Power Technical Standards (LEPTS) and its Guidelines.

f) The Department of Environmental and Social Impact Assessment (DESIA) under the Ministry of Natural Resources and Environment (MNRE)

The DESIA is in charge of review and approval of the environmental impact assessment (EIA) and its related activities and procedure in collaboration with the technical departments of the MEM.

3.3 Existing workflow

The MEM (DEB) has developed the workflow for the development of the IPP projects as illustrated in the Figure 3-1. The Figure is concentrating on the business flow between the GOL and IPP developers. The workflow of the MEM departments and related ministries is not clearly indicated.

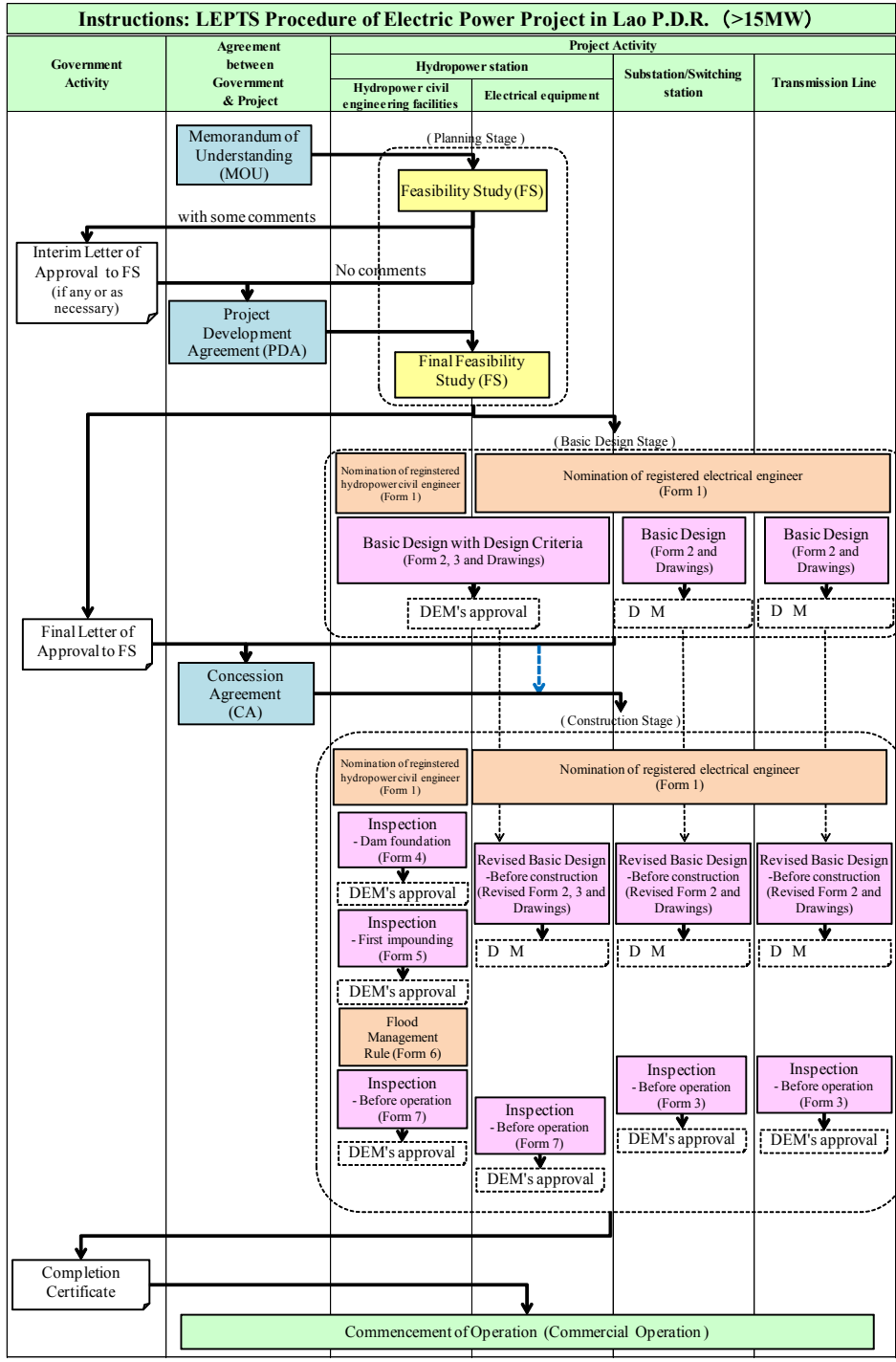


Remarks) GOL: Government of Lao PDR, MOF: Ministry of Finance, MPI: Ministry of Planning and Investment, MEM: Ministry of Energy and Mines, MNRE: Ministry of Natural Resources and Environment, DEPP: Department of Energy Policy and Planning, DEB: Department of Energy Business, DEM: Department of Energy Management, DESIA: Department of Environmental and Social Impact Assessment, EDL: Electricité du Laos, LHSE - (Small Power Producer), Representative for export IPP. ECI: Electric Construction and Installation- G
PDA: Project Development Agreement, S/H: Shareholder, PPA: Power Purchase Agreement, EPC: Engineering Procurement & Construction, O&M: Operation & Maintenance, CDEP: Coordinating Committee for the Development of Electric Power.

(Source) Study Team based on DEB document.

Figure 3-1: IPP Project Implementation Procedures prepared by the DEB

The MEM (DEM) has also developed workflows for both large-scale (more than 15 mega watt (MW)) IPP projects and small-scale projects (up to 15MW) concentrating on the examination and inspection purposes in compliance with the LEPTS and its Guidelines. The Figure 3-2 shows the workflow for the large-scale projects.

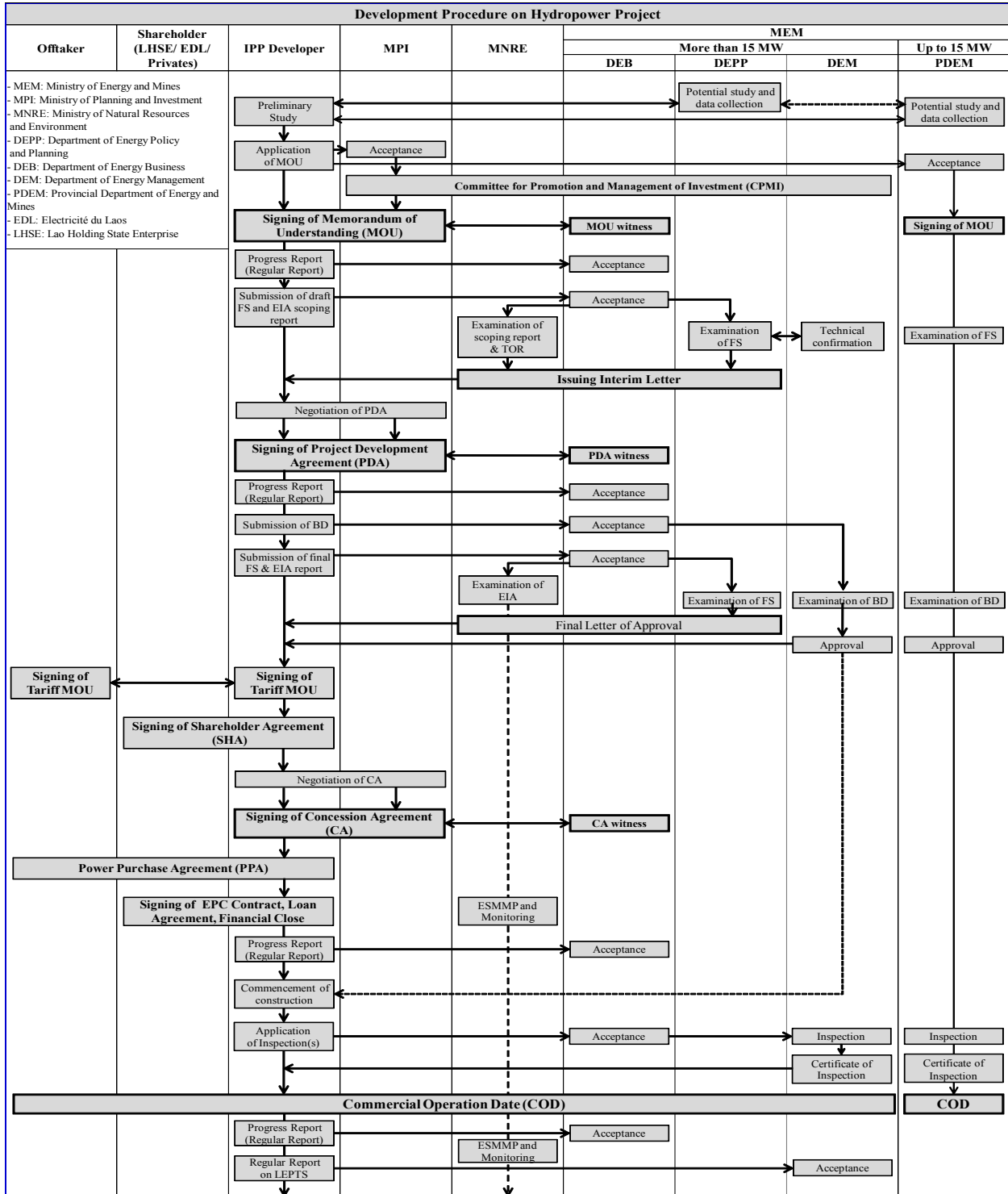


(Source) Study Team based on DEM document.

Figure 3-2: IPP project examination and inspection procedure

3.4 Proposed workflow

Based on the existing workflow, the Study Team developed a more comprehensive workflow as shown in the Figure 3-3.



(Source) Study Team.

Figure 3-3: IPP project work-flow proposed by the study team

Chapter 4 Work description in each development stage

This Chapter describes the current overview activities of the relevant agencies for the IPP development. Then more detailed activities, issues, challenges and proposals for better development mechanism will be explained in each development stage.

As mentioned in the Chapter 2, there are important keywords “transparent, accountable and efficient” environment for the GOL to improve the IPP participation in the power sector.

4.1 Roles of the relevant organizations for IPP development

The mandates of each Department and Institution are stipulated as the Ministerial decrees of the MEM, and EDL in its mission. EDL has the obligation to supply electricity throughout the country and develop the PDP (like facility plan) as the EDL-PDP. A national level comprehensive PDP (NPDP) including power importation and exportation will be developed by the Government (MEM) with the DEPP as the secretariat. Other organizations under the MEM have their own mandated shown in the Table 4-1 under each development stage.

Table 4-1 : Duties and mission of relevant organizations under the MEM

Org.	Duty (Departments) and Mission (EDL)	Major responsibility
DEPP	Study, research and draft policy and the energy development plan or amend h c y h h x y m uch ... m and long term period in order to propose to the Government for consideration.	Formulation of policy and plan
DEB	Support the various energy business investment projects that invested by state and private both the domestic and foreign as set forth in the role of Ministry of Energy and Mines	Monitor of project progress
DEM	Study, research and draft the energy law, improve or build the regulations, technical standard, safety regulations, efficiency standard and energy saving... Promote and supervise monitoring of supply, distribution, services and energy usages strictly corrected in according the technical standard, effective, saving and safety.	Management (regulation) of projects
IREP	Promote and develop of small electricity productions in order to connect with m w k c c u h h “h c c y from 15 MW below”. Build and improve database on the renewable energy technology (RET) and the rural electrification (RE).	Promotion of RET and RE
EDL	Ensure sufficient and consistently reliable power to consumers throughout Lao PDR at the most economical cost. Promote and develop sources of power supply giving utmost consideration to preservation of environment and welfare of society. Support the Party and Government policies on industrialization and modernization by becoming a model for a well-managed state enterprise capable of complementing with other national economic sectors.	Reliable power supply

It is clarified that there are five stages for the IPP development. In the planning stage (mid-long term), the NPDP will be prepared as a reference document to consider the future IPP development by the DEPP, as the secretariat using information of DEB, IREP and EDL. Before MOU to CA stage, the DEB is a gate for the developers to negotiate and monitor the projects implemented by IPP developers. The DEM conducts examination and inspection to check the conformity to the Lao Electric Power Technical Standards (LEPTS). Table 4-2 shows the major roles of each organization under the clarified stages.

Table 4-2 :Major roles of agencies under the MEM

No.	Development Stage	DEPP	DEB	DEM	IREP	EDL	PDEM
1	Planning (long-mid term: NPDP)	✓✓✓	✓	N/A	✓✓	✓✓✓	*
2	Planning (before MOU)	✓✓✓	✓✓	N/A	✓	*	*
3	Study (MOU – PDA)	✓✓	✓	✓	N/A	*	*
4	Implementation (PDA – CA – COD)	N/A	✓✓✓	✓✓✓	N/A	*	*
5	Operation	N/A	✓	✓✓✓	N/A	*	*

*Practically, EDL and PDEM do not act as a part of the development stage above apart from the preparation of (domestic) PDP by EDL

(Source) Study Team

4.2 Overview of IPP development activities

a) Planning stage for mid-long term period

In the planning stage, the developers would like to access the project database if available. The DEPP, DEB and EDL may share the hydropower project information including project progress for the EDL to consider their domestic power development in 20 years. As of March 2013, the DEB only shares the project progress table (operation, under construction, under CA, under PDA and under MOU) with less technical data and there is no official hydropower potential list for developers.

b) Planning stage before MOU stage

Before MOU application, the developers look for the potential sites through the DEPP or other relevant organizations and carry out preliminary studies. Then the MOU application is drafted and submitted to the MPI. The MPI carries out the evaluation with MEM considering mainly the capability of business entities rather than their technical capabilities. Finally the MPI approves the application and exchange the MOU agreement with the developers witnessed by the DEB as the coordination agency on the project progress.

c) Study stage from MOU to PDA

The developers carry out F/S in line with the MOU and submit the draft F/S report to DEB.

DEPP will conduct the examination, and issue the interim letter with some comments for the developers to finalize the F/S. Then PDA will be signed and the developers are allowed to start the negotiation of power purchase agreement (PPA) and project formulation as a special purpose company (SPC). (It is also possible that the F/S examination of small hydropower with equal or less than 15MW can be carried out by PDEM and it is not easy to grasp the progress of the project from the central government.)

d) Study and negotiation stage from PDA to CA

The developers continuously carry out more detailed F/S to receive final approval from DEPP and also prepare a basic design (B/D) to receive approval from DEM in compliance with the LEPTS. Also the developers start the consideration of the formulation of the SPC with negotiation of shareholder agreement (SHA) and PPA during this period for the CA negotiations.

e) Implementation period from CA through construction to operation stage

In this period, the work of MEM is shared by DEB and DEM for project monitoring and regulation purposes. The DEM carries out the examination and inspection up to the commercial operation date (COD) based on the LEPTS and the Guidelines. At the same time, DEB carries out the project progress monitoring stipulated in the CA. After the construction (during operations stage), The LEPTS Guidelines, managed by the DEM, stipulates the submission of regular reports listed in the Table 4-3.

Table 4-3: Regular Reports Stipulated in the LEPTS Guidelines

Name of Documents	Submission Date
1. Statistical List of Power Facilities in Electricity Enterprise	End of December
2. Monthly Report of Power Generation and Receiving	Every month
3. Financial Report of the Owner	End of December
4. Annual Report of Fixed Assets and Operating Income and Expenses of Power Facilities	End of December
5. Monitoring and Inspection Report of Dam	End of December
6. Monitoring Report of Sedimentation in Reservoir	End of December
7. Annual Summary of Accidents	End of December
8. Annual Reports of Accidents and Damages in Hydro power Station and Substation	End of December

(Source) Study Team

4.3 Planning stage for mid-long term period

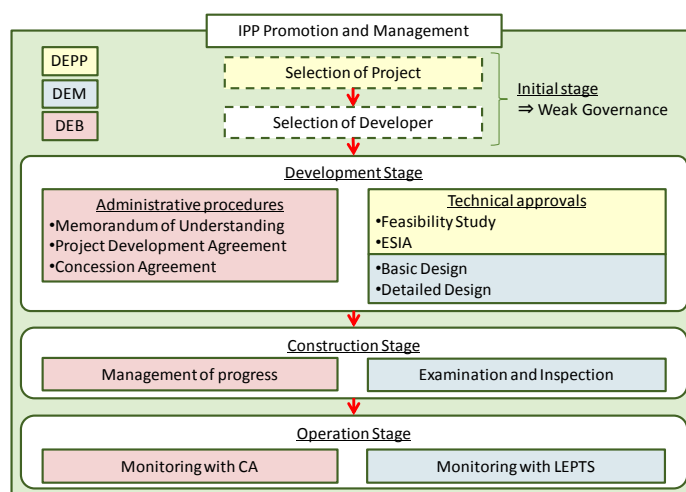
< Major activities by concerned agencies >

Table 4-4 : Major activities by concerned agencies

No.	Activities	DEPP	DEB	DEM	MPI	MNRE	Developer
1	NPDP development	XX	X				
2	Hydropower potential List	XX					

(Source) Study Team

As mentioned in the preface, this Guidance is based on focusing on the power sector governance. Therefore, the Guidance will, specifically, concentrate on the planning stage (before MOU) as one of the critical issues for the governance, because a well-planned project preparation can achieve the transparent, accountable and efficient IPP management. The DEPP should be a responsible organization to prepare and select ideal and realistic hydropower project lists in the initial stage of the IPP development to strengthen the governance as shown in the **Figure 4-1**.



(Source): Study Team

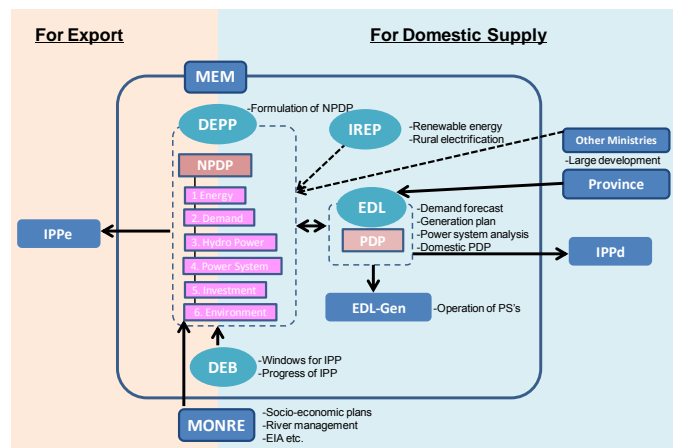
Figure 4-1: Simplified workflow among the relevant departments

< Hydropower database: accountability and efficiency >

From 1990, Laos started hydropower projects as its own natural resources to be one of the major income measures from the neighboring countries. At that moment, an inventory study was conducted “by the Department of Hydropower, 1998” and the possible hydropower was clarified. However, more than 10 years have passed since the said comprehensive study. Some of the potential sites were already developed, and some information was updated and some projects are under development stages. Therefore, it is necessary to prepare a comprehensive and uniform hydropower

database from relevant organizations such as DEPP, DEB, EDL and PDEM including the progress of on-going projects.

Then the potential data should be prioritized with consideration of the current socio-environmental situation, progress of the project with the reason of the barriers, etc. It may be possible to conduct a new inventory study using a donor fund. Then, through the policy discussion under the framework of the NPDP as shown in the Figure 4-2, the balance of export and import, reservoir or run of river, IPP for domestic (IPPd) or, IPP for export (IPPe) will be decided.



(Source) Study Team

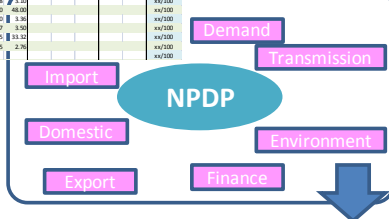
Figure 4-2: Outline of NPDP development procedure

Finally, a hydropower list will be prepared in the DEPP (MEM) as the preparatory database in the planning stage. The proposed outline of data preparation system is shown in the Figure 4-3.

1. Project list preparation and technical evaluation

Project No.	Project Name	Technical		Economic	Environmental	Construction	Evaluation
		Hydro potentiality	Feasibility				
0001	Mem	5.0	0.0	2	8.1	0.76	
2	00012 Mem-1	1.0	0.3	0	7.0	0.56	NA/200
3	00012 Mem-2	0.5	0.2	0	6.7	0.37	NA/200
4	00012 Mem-3	4.5	0.0	134	51	38.1	1.05
5	00012 Mem-4	2.5	0.5	0	7	83.8	6.79
6	00012 Mem-5	0.0	0.0	0	0	0	0
7	00012 Mem-6	2.0	0.0	0	366	2,075.0	166.09
8	00012 Mem-7	60.0	0.0	234	85	188	47.12
9	00012 Mem-8	1.2	0.4	2	9	600.0	48.00
10	00012 Mem-9	40.0	0.0	126	67	42.0	3.36
11	00012 Mem-10	76.0	0.0	308	135	43.7	3.50
12	00012 Mem-11	75.0	0.0	305	120	45.5	3.70
13	00012 Mem-12	300.0	70.0	436	150	34.5	2.76
14	00012 Mem-13	0.0	0.0	0	0	0	0

2. NPDP policy discussion



3. Project short and long list for export and domestic

Table 1: Project up to 2023 Export										Table 2: Project up to 2023 Domestic											
No.	Project No.	Project Name	Province	Capacity (MW)	Investment (USD Million)	Payback (Year)	IRR (%)	NPV (USD Million)	ROI (%)	Rank	No.	Project No.	Project Name	Province	Capacity (MW)	Investment (USD Million)	Payback (Year)	IRR (%)	NPV (USD Million)	ROI (%)	Rank
1	00012 Mem-1	Mem-1	Chiangmai	1	1	0.1	0.1	0.1	0.1	1	1	00012 Mem-1	Chiangmai	1	1	0.1	0.1	0.1	0.1	0.1	1
2	00012 Mem-2	Mem-2	Chiangmai	0.5	0.5	0.1	0.1	0.1	0.1	2	2	00012 Mem-2	Chiangmai	0.5	0.5	0.1	0.1	0.1	0.1	0.1	2
3	00012 Mem-3	Mem-3	Chiangmai	4.5	4.5	0.1	0.1	0.1	0.1	3	3	00012 Mem-3	Chiangmai	4.5	4.5	0.1	0.1	0.1	0.1	0.1	3
4	00012 Mem-4	Mem-4	Chiangmai	2.5	2.5	0.1	0.1	0.1	0.1	4	4	00012 Mem-4	Chiangmai	2.5	2.5	0.1	0.1	0.1	0.1	0.1	4
5	00012 Mem-5	Mem-5	Chiangmai	0.0	0.0	0.0	0.0	0.0	0.0	5	5	00012 Mem-5	Chiangmai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
6	00012 Mem-6	Mem-6	Chiangmai	2.0	2.0	0.1	0.1	0.1	0.1	6	6	00012 Mem-6	Chiangmai	2.0	2.0	0.1	0.1	0.1	0.1	0.1	6
7	00012 Mem-7	Mem-7	Chiangmai	60.0	60.0	0.1	0.1	0.1	0.1	7	7	00012 Mem-7	Chiangmai	60.0	60.0	0.1	0.1	0.1	0.1	0.1	7
8	00012 Mem-8	Mem-8	Chiangmai	1.2	1.2	0.1	0.1	0.1	0.1	8	8	00012 Mem-8	Chiangmai	1.2	1.2	0.1	0.1	0.1	0.1	0.1	8
9	00012 Mem-9	Mem-9	Chiangmai	40.0	40.0	0.1	0.1	0.1	0.1	9	9	00012 Mem-9	Chiangmai	40.0	40.0	0.1	0.1	0.1	0.1	0.1	9
10	00012 Mem-10	Mem-10	Chiangmai	76.0	76.0	0.1	0.1	0.1	0.1	10	10	00012 Mem-10	Chiangmai	76.0	76.0	0.1	0.1	0.1	0.1	0.1	10
11	00012 Mem-11	Mem-11	Chiangmai	75.0	75.0	0.1	0.1	0.1	0.1	11	11	00012 Mem-11	Chiangmai	75.0	75.0	0.1	0.1	0.1	0.1	0.1	11
12	00012 Mem-12	Mem-12	Chiangmai	300.0	300.0	0.1	0.1	0.1	0.1	12	12	00012 Mem-12	Chiangmai	300.0	300.0	0.1	0.1	0.1	0.1	0.1	12
13	00012 Mem-13	Mem-13	Chiangmai	0.0	0.0	0.0	0.0	0.0	0.0	13	13	00012 Mem-13	Chiangmai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13

(Source) Study Team

Figure 4-3: Outline of hydropower data list preparation

Proposed necessary actions, related organization in charge and assumed period are shown in the Table 4-5.

Table 4-5 : Proposed necessary actions, organizations and assumed period

No.	Activities	MPI	DEPP	DEB	DEM	Period (year)
1	Preparation of technical database		✓✓			1
2	(Inventory study)		✓✓			2-3

(Source) Study Team

4.4 Planning stage before MOU

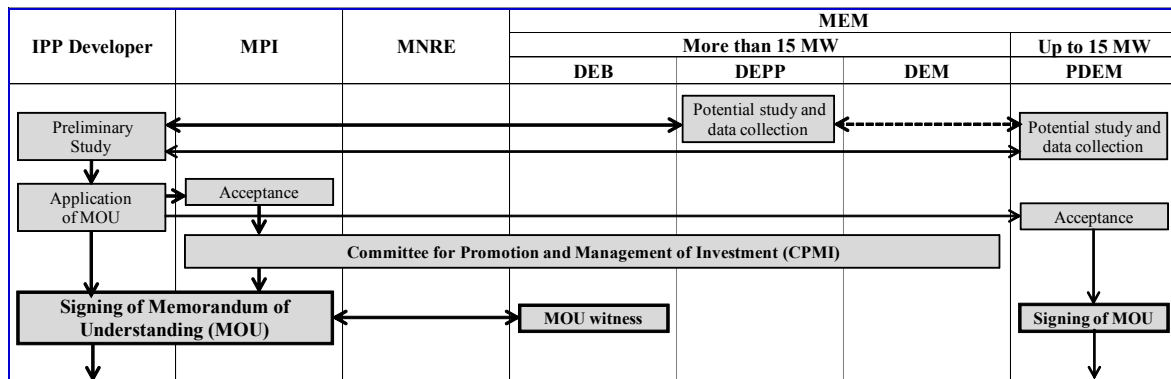
< Major activities by concerned agencies >

Table 4-6 : Major activities by concerned agencies

No.	Activities	DEPP	DEB	DEM	MPI	MNRE	Developer
1	Potential study	XX					
2	MOU negotiation		X		XX		XX
3	Application for MOU				XX		XX
4	Signing MOU		X		XX		XX

(Source) Study Team

Current workflow before the conclusion of MOU is shown in the Figure 4-4.



(Source) Study Team

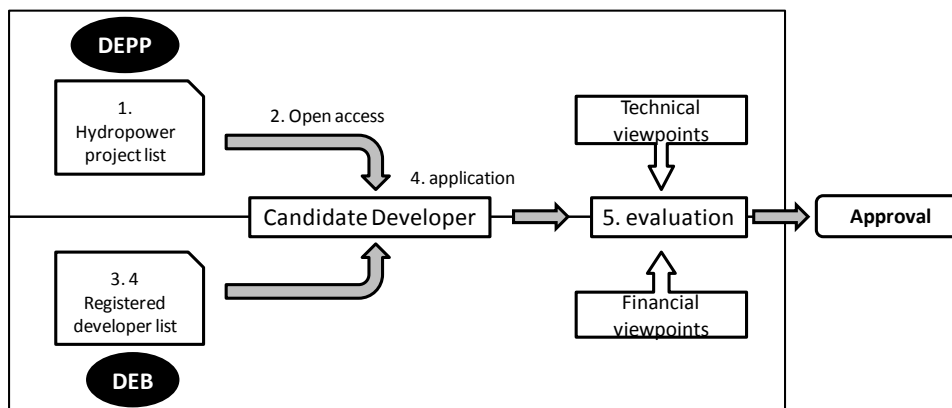
Figure 4-4 : Development Flow before MOU

< Developer invitation system: transparency >

Currently, the developers have to find out the potential hydropower sites by themselves, and the applications will be submitted to the MPI. The applications will be forwarded to the DEB for consideration with their criteria of financial performance. This system has to be taken because a clear hydropower database is not prepared as described before.

Therefore it is proposed to develop a better mechanism to invite potential investors for transparency and accountability, by both the technical and commercial points of view as follows (see the Figure 4-5):

1. DEPP should prepare a uniform project list;
2. The project list should be open (published) by e.g. the website of the DEB;
3. DEB should prepare a potential developer list;
4. Registered developers can access to the project list and apply for MOU;
5. If more than one developer submits the application for a project, the MEM should carry out the evaluation from both financial and technical aspects. The DEB may be in charge of the evaluation with technical inputs from the DEPP.



(Source) Study Team

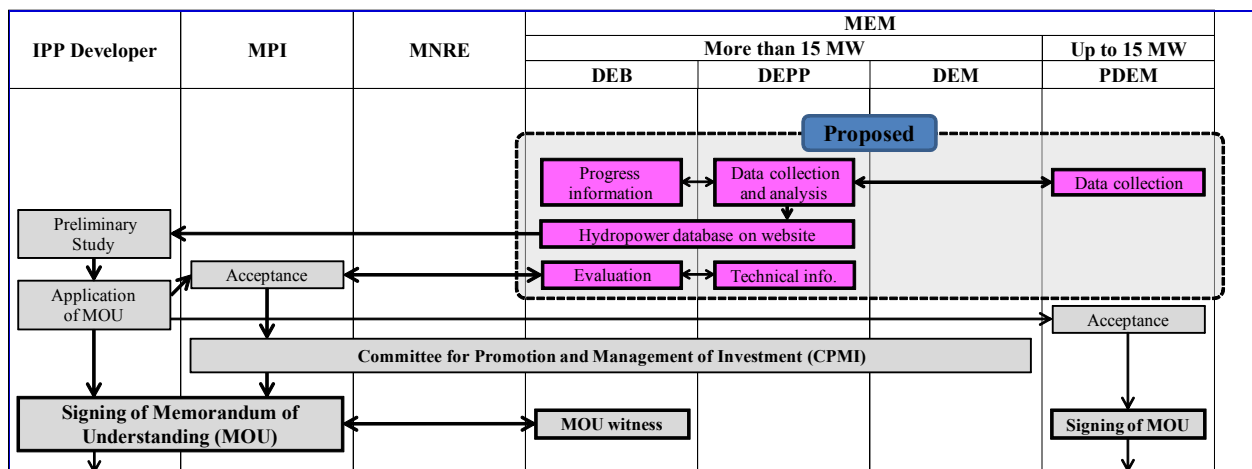
Figure 4-5 : Developer invitation mechanism (proposed)

The development process can be more transparent and accountable even if one of the 5 measures could be achieved. Proposed necessary actions, organization in charge and assumed period are shown in Table 4-7.

Table 4-7: Proposed necessary actions, organizations and assumed period

No.	Activities	MPI	DEPP	DEB	DEM	Period (year)
(1)	Preparation of technical database		✓✓			1
(2)	(Inventory study)		✓✓			2-3
3	Database publication			✓✓		3-5
4	Acceptance of MOU application	✓✓				
5	Long-list preparation			✓✓		
6	Technical evaluation		✓✓			
7	Financial evaluation			✓✓		
8	Issuing the approval to developers	✓✓				

The new proposed work-flow with relevant organization is shown in the Figure 4-6.



(Source) Study Team

Figure 4-6 : Development Flow before MOU (proposed)

< Reference >

In the case of India on the tender/bid system below, developers who intend to participate in hydropower projects have to have sufficient financial resources and experiences to be qualified from the beginning stage of the projects.

<Reference: IPP development procedure in India – Bidding scheme on the participation of developers for hydropower projects>

The Government of India has been accelerating the private participation in the power sector with formulation of the National Electricity Policy in 2005 for the full development of feasible hydropower potential. Regarding the development procedure, the way of project development rights authorization is similar even if details vary State by State:

- 1 Gazette by the State on the development of hydropower projects;
- 2 Pre-qualification and preparation of related documents such as pre-FS report by the State for tender;
- 3 Tender/bidding with minimum upfront premium from the developers;
- 4 Signing the PDA;
- 5 Preparation of Detailed Project Report (similar as FS report) by the developers with stipulated period;
- 6 Preparation of Detailed Project Report (similar as FS report) by the developers with stipulated period;
- 7 Signing the Implementation Agreement (IA);
- 8 Acquisition of official clearances; and
- 9 Construction works to operation.

The process includes the non-refundable upfront premium and processing fee to the State with free power. The amount of the premium is stipulated based on the size of the project. In the case of Arunachal Pradesh State, 1.00 Lakh (100,000 Rupee =1,750USD) per MW for the projects with 25 - 100 MW.

4.5 Study stage from MOU to PDA

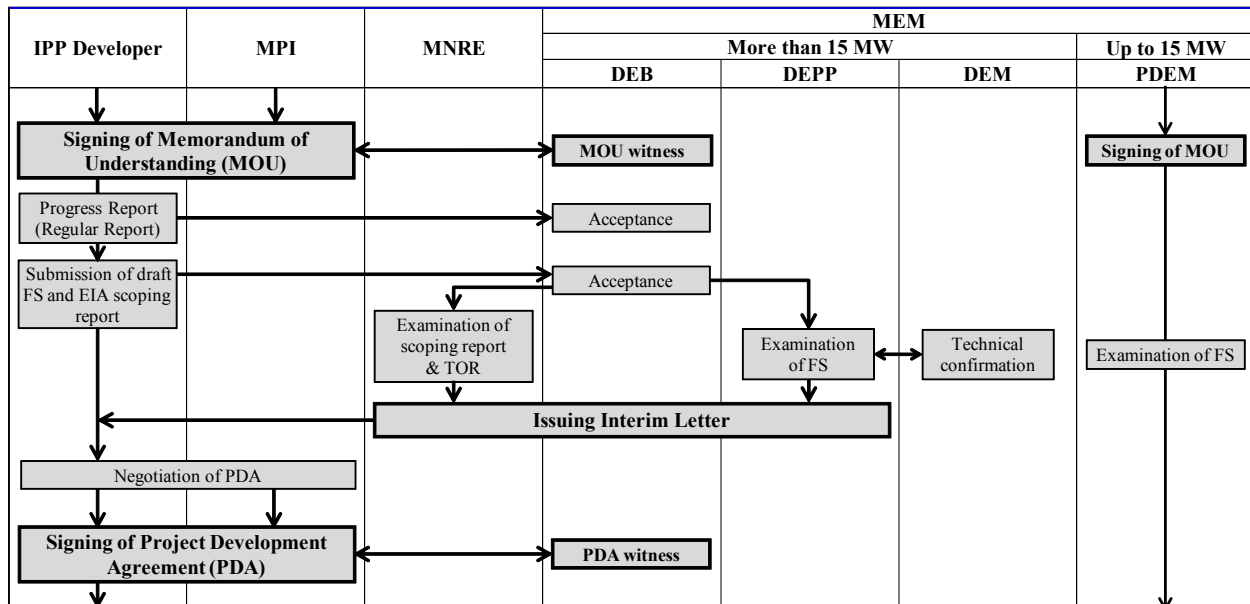
< Major activities by concerned agencies >

Table 4-8 : Major activities by concerned agencies

No.	Activities	DEPP	DEB	DEM	MPI	MNRE	Developer
1	Progress report submission		XX		X		XX
2	F/S report submission	X	XX				XX
3	F/S examination	XX	X	X			
4	EIA report submission	X	XX			XX	XX
5	EIA examination	X				XX	
6	Issuing the interim letter	XX					
7	PDA negotiation		XX				XX
8	Signing PDA		X		XX		XX

(Source) Study Team

Current workflow from MOU to PDA is shown in the Figure 4-7.

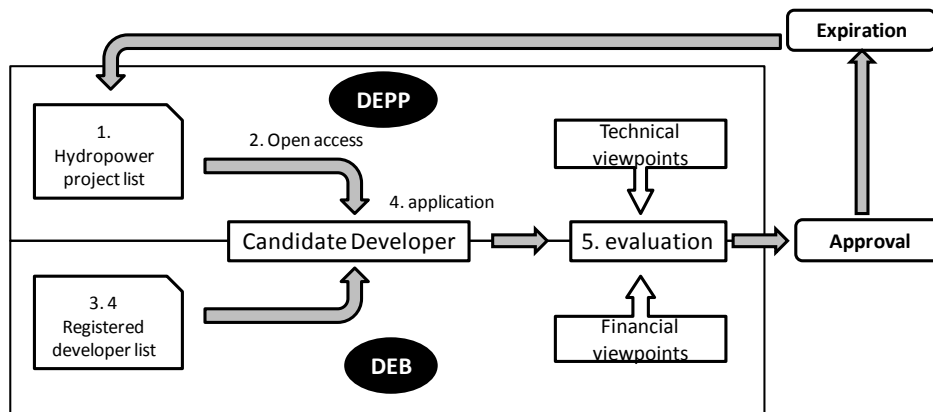


(Source) Study Team

Figure 4-7: Development Flow from MOU to PDA

< Developer invitation system: transparency and efficiency for expired projects>

MOUs and PDAs for 16 projects have been expired by March 2013 after the enforcement of new Electricity Law, of which the Article 29 stipulates the concession procedures including the number and the period of extension of MOU and PDA, and new alternative developers are waiting in line to conclude MOUs or PDAs for those projects. Once the developer invitation system is set up, such MOU or PDA expired project will be open to select a new developer with transparency and efficiency as shown in Figure 4-8.



(Source) Study Team

Figure 4-8 : Developer invitation mechanism for expired project (proposed)

< FS examination system: transparency and efficiency>

Currently, the DEB only receives and forwards the F/S report to the DEPP for their examination. The examination is conducted by the DEPP to check the table of contents of the F/S attached to the MOU. Sometimes the DEB, a negotiator with the developers, makes some comments with technical and socio-economic consideration. Once both developers and MEM confirm that the projects will be feasible, the projects are allowed to step into the PDA stage. However, from the developer side, the criteria for PDA are not clear.

Therefore, it is proposed to set up evaluation system (criteria) for F/S examination in DEPP focusing on the efficient power utilization such as:

- a) Hydrology and probable power output in comparison with the Government's plan;
- b) Minimum technical requirements e.g. dam safety with minimum geological survey; and
- c) Scoping and TOR for the EIA as stipulated in the EIA Guidelines.

Proposed actions, organization in charge and assumed period are shown in the Table 4-9.

Table 4-9 : Proposed necessary actions, organizations and assumed period

No.	Activities	MPI	DEPP	DEB	DEM	Period (year)
1	Criteria to evaluate F/S		✓✓	(✓)		1-2

4.6 Study and negotiation stage from PDA to CA

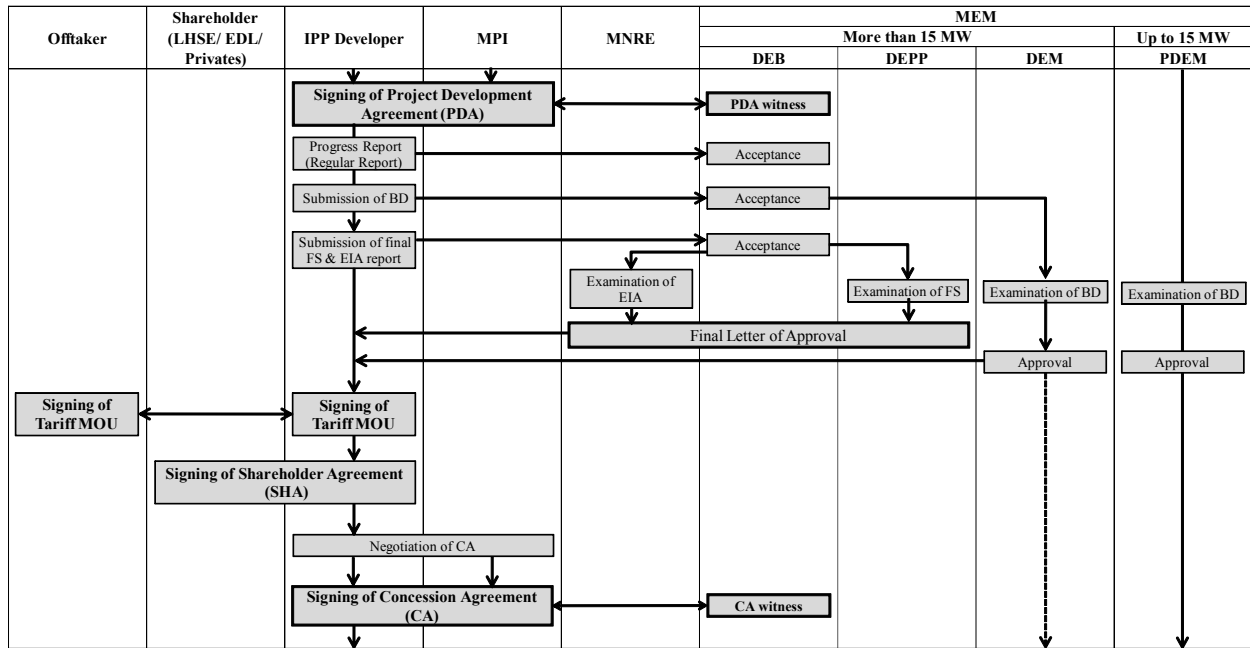
< Major activities by concerned agencies >

Table 4-10 : Major activities by concerned agencies

No.	Activities	DEPP	DEB	DEM	MPI	MNRE	Developer
1	Progress report submission		XX		X		XX
2	Final F/S report submission	X	XX				XX
3	F/S examination	XX	X	X			
4	EIA report submission	X	XX			XX	XX
5	EIA examination	X				XX	
6	Issuing final letter	XX					
7	B/D report submission		XX	XX			XX
8	B/D examination			XX			
9	Issuing certificate on B/D		XX				
10	CA negotiation		XX				XX
11	Signing CA		X		XX		XX

(Source) Study Team

Current workflow from PDA to CA is shown in the Figure 4-9.



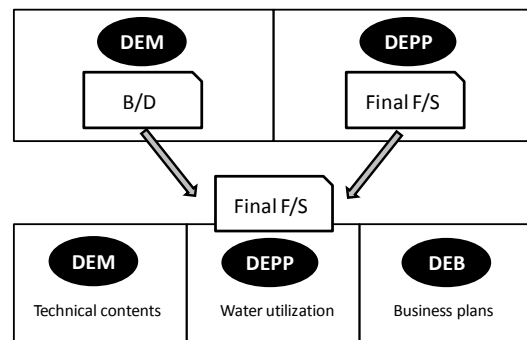
(Source) Study Team

Figure 4-9 : Development Flow from PDA to MOU

< Re-arrangement of actions before CA: transparency and efficiency >

Between PDA and CA, DEM carries out the examination on the basic design (B/D) documents, DEPP continues the examination of the final F/S and DEB starts negotiation of the CA. The process looks confusing for the developers.

The final F/S may include more detailed technical calculation and drawings. It may also include the more concrete business plans after completed the tariff MOU, shareholder agreement and formulation of the special purpose company (SPC). To make the F/S examination or evaluation process clearer, it is proposed that the final F/S and B/D will be combined as one document. Among the contents of the documents, the DEPP will check the utilization of water resources, DEM will check the technical matters and DEB will check the business plans as shown in the Figure 4-10. Proposed necessary actions, organization in charge and assumed period are shown in the Table 4-11.



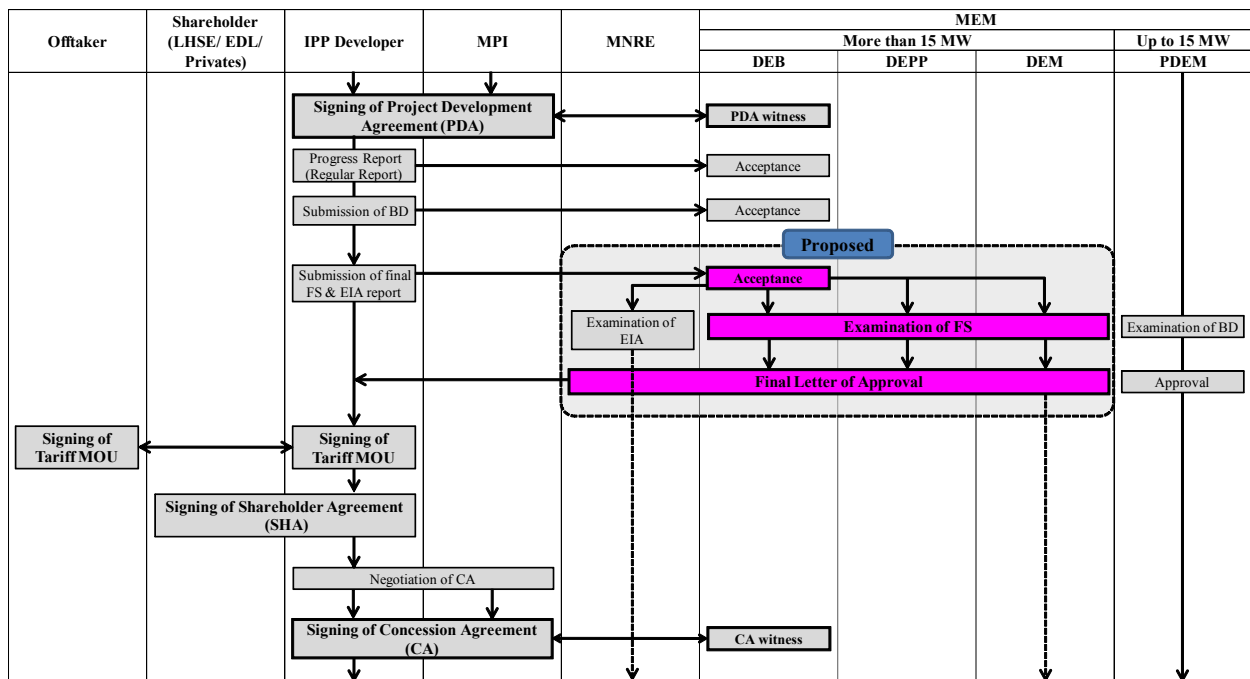
(Source) Study Team

Figure 4-10 : New F/S examination (proposed)

Table 4-11 : Proposed necessary actions, organizations and assumed period

No.	Activities	MPI	DEPP	DEB	DEM	Period (year)
1	Re-consideration of the examination and evaluation F/S		✓✓	(✓)		1-2

The new proposed work-flow with relevant organization is shown in the Figure 4-11



(Source) Study Team

Figure 4-11 : New Development Flow between PDA to CA (proposed)

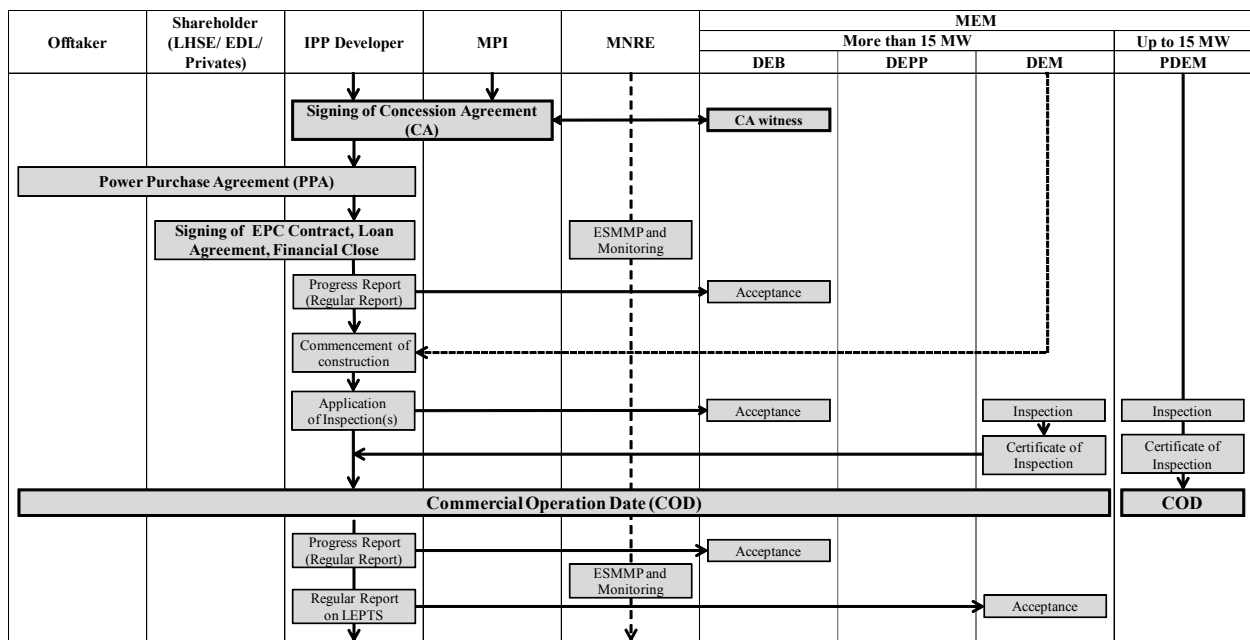
4.7 Implementation stage from CA through COD to operation stage

Table 4-12 : Major activities by concerned agencies

No.	Activities	DEPP	DEB	DEM	MPI	MNRE	Developer
1	Progress report submission		XX		X		XX
2	Environmental monitoring report submission		XX			XX	XX
3	Inspection application			XX			XX
4	Issuing certificate on inspection		XX				
5	Project monitoring on site		XX				
6	Regular report submission after COD			XX			

(Source) Study Team

Current workflow from CA through COD to operation is shown in the Figure 4-12.



(Source) Study Team

Figure 4-12: Development Flow between CA to Operation

< Clarification of technical performance during operation and after concession period: accountability >

Many technical conditions are stipulated in the CA documents during construction, operation and before handing-over to the GOL after the concession period. For example, in the operation stage, developers shall submit regular reports (operation, dam monitoring records, etc.) to the MEM. The GOL may need, at least, the production performance with facility conditions as minimum requirement before

undertaking the assets after the BOT period. Such minimum requirements should be clarified and stipulated in the CA (DEM, DEB and EDL). Proposed contents of the minimum requirements for hand-over are as follows:

- a) Conditions of dams and other civil facilities with expected life-time;
- b) Conditions of electrical and mechanical machines with expected period; and
- c) Conditions of reservoir with consideration of sedimentation.

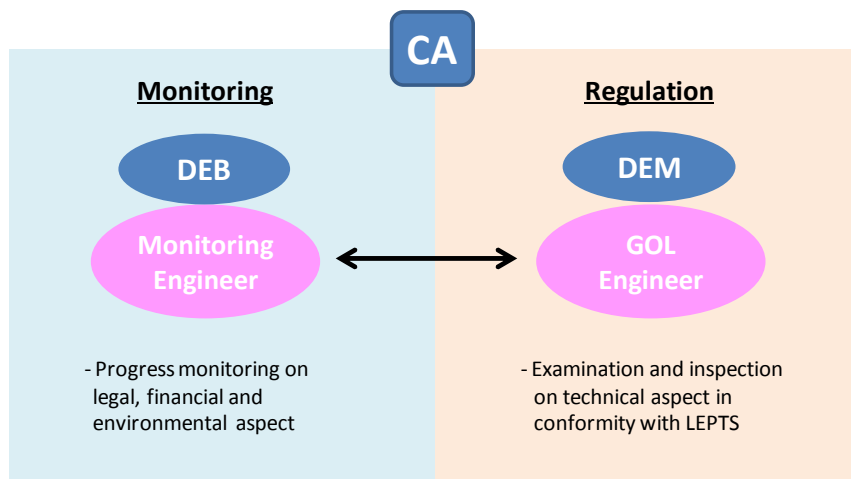
< Two engineers in CA for efficiency >

Currently, there are 2 types of Governmental engineers stipulated in CA as shown in the Figure 4-13:

- ✓ GOL engineer (for DEM):

To carry out examinations and inspections for the conformity to LEPTS.

- ✓ Contract, site or monitoring engineer (for DEB):



(Source) Study Team

Figure 4-13 : Relationship between DEB and DEM

To monitor the project for all technical matters including progress, environmental measures and special cases (e.g. the technical regulation of the Mekong River Commission (MRC)).

It is recommended to prepare one word or one definition of the 2 engineers to enable the clearer understanding and efficiency with the co-ordination between the DEM and DEB. At least, it is recommended for the DEM and DEB to prepare:

- a) One word (name) of the two engineers to enable the developers' clearer understanding and efficiency in the CA; and

- b) The DEM staff may be involved in the monitoring activities more than current opportunities (e.g., once a month) to check the conformity to the LEPTS after the DEM increased the number of experienced staff.

Proposed actions, organization in charge and assumed period are shown in the Table 4-13.

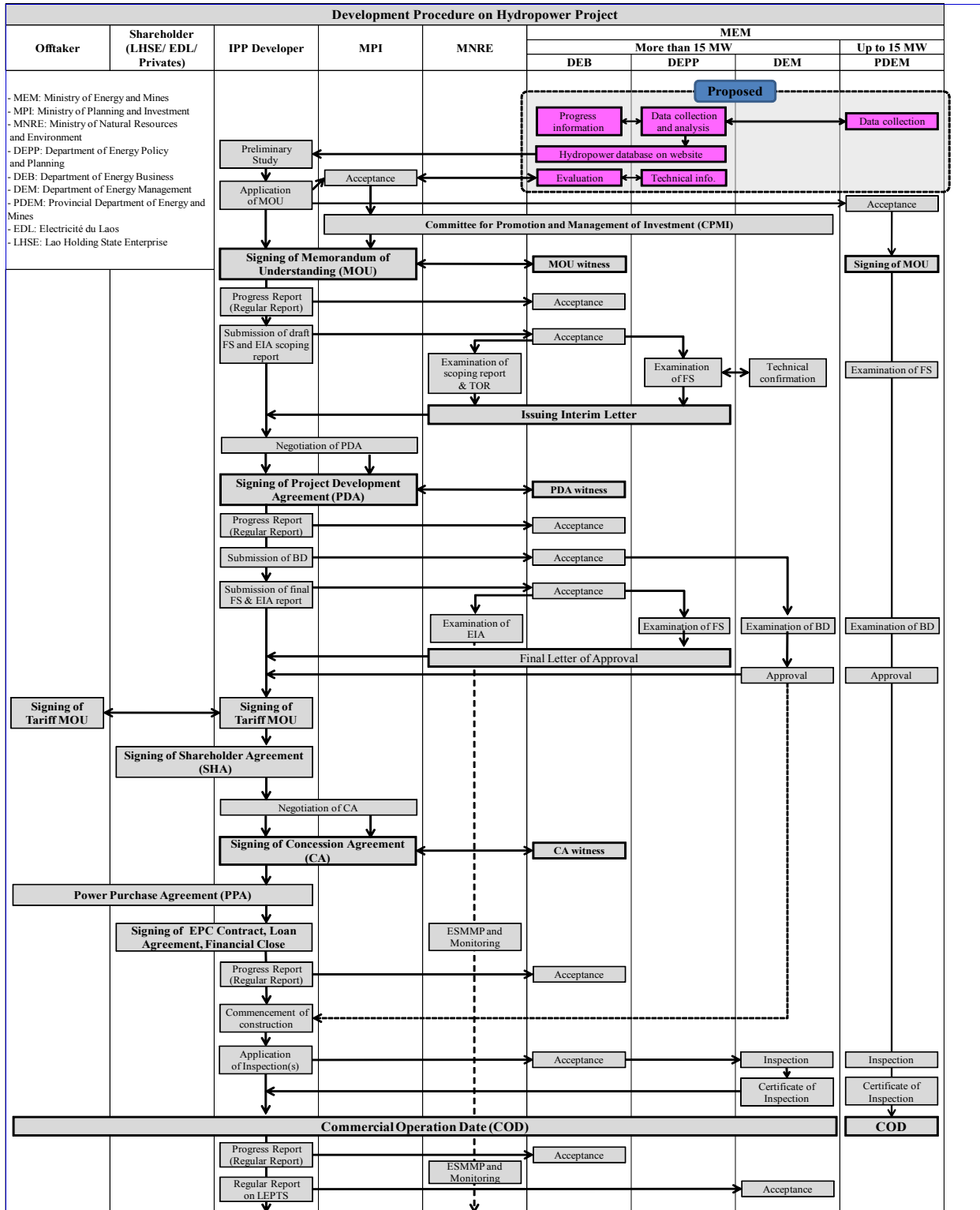
Table 4-13 : Proposed necessary actions, organizations and assumed period

No.	Activities	DEPP	DEB	DEM	EDL	Period (year)
1	Development of detailed conditions after the concession period in CA		✓✓	✓	✓	1-2
2	Coordination between GOL engineer and contract engineer		✓✓	✓		1-2

(Source) Study Team

Chapter 5 Newly proposed workflow

The newly proposed workflow is shown in the Figure 5-1.



(Source) Study Team

Figure 5-1: Newly proposed IPP project workflow

Chapter 6 Recommendations

Currently, workflows are independently managed by concerned department such as the DEB and DEM. For future monitoring and management of the whole IPP development workflow, there are two possibilities considered.

a) DEB for efficient management in near future

The DEB has been managing the progress of the IPP projects using the progress reports from them. It may also develop information sharing system using intranet devices. The progress database will be set up in the DEB and the information will be distributed on time to the concerned departments: the DEM for the examination and inspection purposes; and the DEPP for the planning purposes. EDL may be possible to access to the database.

b) DEPP for the future policy and planning

As already mentioned, the DEPP is in charge of developing a hydropower potential database with prioritization for EDL, IPPd and IPPe after the policy decision. The DEPP can control the most appropriate usage of the water resources for the most efficient river system development with economical and environmental consideration. The DEPP can monitor and manage the process of IPP development after the concrete set-up of the policy and planning activities even if the information sharing system will be left in the DEPP.

Practically, the DEB may start the information sharing system to monitor and control the IPP progress. However, it is recommended that the DEPP in charge of policy and planning on the power development should monitor the IPP development in future.