

ラオス国
電力技術基準促進プロジェクト
中間評価調査報告書

平成 18 年 11 月
(2006 年)

独立行政法人国際協力機構
ラオス事務所

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序 文

ラオス国の電力セクターは、電力の安定供給、電化率の向上、売電による外貨獲得等の至上命題に対して、これらを担う人材、知識、経験等が不足している状況にあります。また、同国の発電設備、送変電・配電設備は外国資本により建設されるものが多く、これらの設備がそれぞれの国の基準で建設されていることから効率的な運用・維持管理ができないなど様々な問題が生じています。

こうした状況を改善するにはラオス国の実情に即した電力技術基準の整備や、その運用を行うことのできる行政官の育成が必要であるとの認識のもと、ラオス国政府は我が国に対し、「電力技術基準整備プロジェクト」の実施を要請してきました。同プロジェクトは2000年5月から2003年4月にかけて実施され、その結果電力技術基準を整備できる人材の育成とともに、電力技術基準（Lao Electric Power Technical Standard : LETS）の整備がなされ、LETSは上記プロジェクト終了後の2004年2月に省令として発効、公布されました。しかしながら、LETSを効率的かつ円滑に運用するための電力関係者の行政能力及び実務能力はなおも不十分であったため、引き続きラオス国政府からの要請を受け、JICAは上記プロジェクトのフェーズ2として「電力技術基準促進プロジェクト」を開始し、電力技術6分野（水力土木、水力発電、変電、送電、配電、屋内配線）に関する技術指導に知見をもつ行政官及び現場技術者を持続的に養成可能とすることを目指しています。

本報告書は、協力期間（2005年1月～2008年1月）の中間時点を迎えた本プロジェクトの活動実績、カウンターパートへの技術移転の進捗状況や達成度に関して、PCM手法に基づいた評価5項目（妥当性、有効性、効率性、インパクト、自立発展性）の観点から日本・ラオス国双方で中間評価を行い、プロジェクト後半の活動について協議した結果を取りまとめたものです。

本報告書が今後のプロジェクトの展開や類似案件の実施に広く活用されることを願うとともに、本調査団の派遣に対してご協力いただいた外務省、経済産業省など内外関係機関の方々に深甚の謝意を表すとともに、あわせて引き続き一層のご支援をお願いする次第です。

平成18年11月

独立行政法人国際協力機構

ラオス事務所長 森 千也

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略 語 表

ADB	Asian Development Bank	アジア開発銀行
ARR	Assistance Resident Representative	
AWP	Annual Work Plan	年間活動計画
CD	Capacity Development	個人、組織、制度や社会が、個別にあるいは集合的にその役割を果たすことを通じて、問題を解決し、また目標を設定してそれを達成していく能力（問題対処能力）の発展プロセス
CE	Civil Engineering	土木工学
C/P	Counterpart(s)	ラオス国側カウンターパート
DAC	Development Assistance Committee	開発援助委員会
DIC	Department of International Cooperation	国際協力局
DL	Distribution Line	配電線
DOE	Department of Electricity	電力局
EDL	Electricité du Laos	ラオス電力公社
HEP	Hydro Electric Power	水力発電
HP	Hydropower Plant	水力発電所
HQ	Head Quarter	本部
IPP	Independent Power Producer	独立電力事業者
JBIC	Japanese Bank for International Cooperation	国際協力銀行
JCC	Joint Coordination Committee	合同調整委員会
JEM	Joint Evaluation Meeting	合同評価会議
JEPIC	Japan Electric Power Information Center	海外電力調査会
JER	Joint Evaluation Report	本件運営指導調査における日本側、ラオス国側による合同評価報告書（英文）
JFY	Japanese Fiscal Year	会計年度（日本）
JICA	Japan International Cooperation Agency	独立行政法人国際協力機構
Lao PDR	Lao People's Democratic Republic	ラオス国
LETS	Lao Electric Power Technical Standard	ラオス電力技術基準
L/T expert	Long-term expert	長期専門家
MEM	Ministry of Energy and Mines	エネルギー鉱業省
M/M	Minutes of Meeting	協議議事録
MOF	Ministry of Finance	財務省
MW	Mega Watt	メガワット
ODA	Official Development Assistance	政府開発援助

OJT	On the job training	オン・ザ・ジョブ・トレーニング
PCM	Project Cycle Management	プロジェクト・サイクル・マネジメント
PDM	Project Design Matrix	プロジェクト・デザイン・マトリクス
PM	Project Manager	プロジェクトマネージャ
PMU	Project Management Unit	プロジェクト実施部門
PO	Plan of Operation	実施計画
R/D	Record of Discussion	討議議事録
SS	Substation	変電所
STEA	Science, Technology and Environment Agency	科学技術環境庁
STEP II	Lao Electric Power Technical Standard Promotion Project	ラオス電力技術基準促進プロジェクト
S/T expert	Short-term expert	短期専門家
TIJ	Training in Japan	日本でのカウンターパートトレーニング
TL	Transmission Line	送電線
TOR	Terms of Reference	業務仕様書
US	User's Site	屋内配電設備
VTE	Vientiane	ビエンチャン

第1章 中間評価調査概要

1-1 調査団派遣の目的

2006年9月現在、プロジェクトは3年の協力期間の中間段階にあることから、これまでのプロジェクト活動の実績を整理・確認するとともに、ラオス人民民主共和国（以下、「ラオス国」と記す）関係機関と合同で、評価5項目（効率性、有効性、インパクト、妥当性、自立発展性）の観点からプロジェクトの評価を行い、プロジェクト目標の達成に向けた今後の対応方針をラオス国側と確認することを目的として中間評価調査を実施する。その際、評価結果を協議議事録（Minutes of Meeting：M/M）及び評価報告書として取りまとめ、ラオス国側カウンターパート（Counterpart：C/P）と共通理解を得ることとする。

1-2 調査期間と調査団の構成

1-2-1 調査期間

2006年9月13日～9月26日まで。

日順	月日	曜日	調査内容
1	9月13日	水	「評価分析」団員成田発→バンコク着
2	9月14日	木	「評価分析」団員バンコク発→ビエンチャン着 JICAラオス事務所訪問（打合せ）／長期専門家打合せ C/P機関（DOE、EDL、MEM）への評価方法の説明
3	9月15日	金	長期専門家及びC/Pへのインタビュー
4	9月16日	土	資料整理
5	9月17日	日	休日、官団員成田発→バンコク着
6	9月18日	月	官団員バンコク発→ビエンチャン着 C/P機関表敬、C/Pへのインタビュー並びに情報収集
7	9月19日	火	C/Pへのインタビュー及び情報収集／M/M案の作成開始
8	9月20日	水	長期専門家及びC/Pへのインタビュー及び追加情報収集 関連ドナー（世銀、ADB）からの情報収集
9	9月21日	木	JBIC送電線整備計画に係る調査団へのインタビュー セセット2プロジェクト関係者へのインタビュー及び追加情報収集
10	9月22日	金	MEM/DOEとのM/M案に関する最終打合せ
11	9月23日	土	ナンマン3水力発電所視察
12	9月24日	日	休日
13	9月25日	月	M/Mの署名交換、DIC報告、在ラオス日本大使館報告、ビエンチャン発
14	9月26日	火	成田着

1-2-2 調査団構成

担当分野	氏名	所属
団長	森 千也	JICAラオス事務所 所長
電力技術評価	鳴海 英樹	海外電力調査会
企画協力	小林 悟	JICA経済開発部
計画評価	関根 創太	JICAラオス事務所 所員
評価分析	小野澤雅人	(株) ピオニエ・リサーチ

1-3 対象プロジェクトの概要

ラオス国の電力セクターは、電力の安定供給、電化率の向上、売電による外貨獲得の至上命題に対して、これらを担う人材、知識、経験等が不足している状況にある。また、同国の発電設備、送変電・配電設備は外国資本により建設されるものが多く、これらの設備がそれぞれの国の基準で建設されていることから効率的な運用・維持管理ができないなど様々な問題が生じている。

こうした事情に基づくラオス国政府からの要請を受け、同国の実情に即した電力技術基準を整備し、その運用を行うことのできる行政官育成を目的として、2000年5月から2003年4月にかけて「ラオス国電力技術基準整備プロジェクト」を実施し、電力技術基準を整備できる人材の育成とともに、電力技術基準（Lao Electric Power Technical Standard : LETS）の作成を行った。LETSは上記プロジェクト終了後の2004年2月に省令として発効、公布された。

引き続きラオス国政府からその次の段階の要請を受け、同国の電力関係者が同基準を効率的かつ円滑に運用するための十分な行政能力及び実務能力を身につけることを目的として、2005年1月18日～2008年1月17日の3年間の予定で本プロジェクトを実施中である。なお、実施機関はエネルギー鉱業省（Ministry of Energy and Mines : MEM）の電力局（Department of Electricity : DOE）及び電力公社（Electricité du Laos : EDL）である。

本プロジェクトでは、電力技術6分野（水力土木、水力発電、変電、送電、配電、屋内配線）に関する技術指導に知見をもつ行政官及び現場技術者を持続的に養成可能とすることを目標に掲げ、2006年9月現在、電力事業監督機関（DOE）及び電力事業実施機関（EDL）にそれぞれ派遣されている長期専門家2名（電力技術、電力技術基準運用）と業務調整員に加え、上記6分野の短期専門家が活動している。

第2章 中間評価の方法

2-1 調査の目的

JICA企画・評価部 評価監理室編「改訂版JICA事業評価ガイドライン」(2004年2月)(以下、「事業評価ガイドライン」と記す)によると、評価の目的は以下のように定義されている(p.18)。

- (1) 事業運営管理の手段として活用すること。
 - ・プロジェクトの残りの期間の運営方針に関する検討材料
 - ・プロジェクトの終了、及びフォローアップの適否の検討材料
- (2) より効果的な事業実施のためにJICA及びEIEの学習効果を高めること。
 - ・課題別指針「省エネルギー」第2版へのフィードバック
 - ・キャパシティ・ディベロップメント(Capacity Development : CD)の検討
 - ・グッドプラクティスとしてのフィードバック
 - ・類似プロジェクトの立案・実施の際の参考材料
- (3) JICAにおける説明責任の確保のために広く情報を公開すること。
 - ・ホームページ、JICA図書館、国会図書館等による広報、情報公開

2-2 主要な調査項目と情報・データ収集方法

本調査は「事業評価ガイドライン」をベースに、以下の三段階により評価を実施した。

- (1) プロジェクトの現状把握と検証
実績の確認、実施プロセス及び因果関係を検証する。現状把握は、評価グリッドの作成～質問表の作成～関係者へのインタビューの実施～インタビュー結果の評価グリッドへの記入という流れで実施した。
- (2) 評価5項目による価値判断
開発援助委員会(Development Assistance Committee : DAC)の評価5項目(妥当性、有効性、効率性、インパクト、自立発展性)の観点から評価を行う。
- (3) 提言の策定、教訓の抽出とフィードバック
有用性のある提言を策定し、教訓の抽出を行い、関係者へフィードバックする。

合同評価報告書(Joint Evaluation Report : JER)は英語版をオリジナルとして作成し、ラオス国側及び日本側の双方で構成される合同評価チームにおいて内容を審議・承認後、両国政府を代表して署名交換を行った。(付属資料1のJERを添付した)

結論の取りまとめは、実績の確認、実施プロセスの検証、5項目による評価を行ったうえ、その結果を要約し、結論としてまとめた。

提言の取りまとめは、JICA、DOE、EDLなどプロジェクトの関係者に対し、プロジェクトの今後の

あり方について提言、助言を行うことを目的としている。評価項目別の評価結果及び結論に鑑み、今後の見通しや必要な措置について関係者や関係機関を特定して助言を行った。提言は評価結果に基づいたものであるとともに、具体的で実現可能な内容になるよう留意した。また、これまでの長短期専門家、C/P等プロジェクト実施者の問題意識の中から、特に重要と思われる提言がある場合は併せて記載した。

2-3 評価5項目について

本調査において用いられる「評価5項目」とは、①妥当性、②有効性、③効率性、④インパクト、⑤自立発展性の5項目で、各項目は次のように定義され、これらの項目とプロジェクト・デザイン・マトリクス（Project Design Matrix：PDM）に示された各要素との関係は、図2-1のようにあらわされる。

(1) 妥当性

評価時においてもプロジェクト目標、上位目標が有効であるかどうかを検討する。（ラオス国側の開発政策、受益者ニーズ・実施機関ニーズとの整合性、計画設定の妥当性、援助国の支援政策との整合性など）

(2) 有効性

プロジェクトの「成果」の達成度合い、及びそれが「プロジェクト目標」の達成度にどの程度結びついたかを検討する。

(3) 効率性

プロジェクトの「投入」から生み出される「成果」の程度を把握する。各投入の質、量、タイミング、の適切さを検討する。（派遣専門家、C/P配置、機材の供与、研修員受入れ、ローカルコスト、現地活動費）

(4) インパクト

プロジェクトが実施されたことにより直接的、間接的な正・負の影響を検討する。当初計画に予想されていない影響を含む。上位目標は「期待される正の効果」として、効果の一つと捉える。

(5) 自立発展性

自立発展に必要な、要素を見極めつつ、プロジェクト終了後の自立発展の見通しを検討する。（実施機関の運営管理、財務、技術、社会経済的側面など）

図 2-1 DAC 5項目を利用した評価

	妥当性 (Relevance)	有効性 (Effectiveness)	効率性 (Efficiency)	効果 (Impact)	自立発展性 (Sustainability)
上位目標 (Overall Goal)	プロジェクトの目標と上位目標は、評価時においても有効であるか	「プロジェクト目標」がどれだけ達成されたか	「投入」がどれだけ効果的に「成果」に転換されたか	プロジェクトを実施した結果、どのように正負の影響が直接的・間接的に現れたか	協力終了後もプロジェクト実施による便益が持続されるかどうか。プロジェクトはどの程度自立しているか
プロジェクト目標 (Purpose)					
成果 (Output)					
投入 (Input)					

2-4 技術移転モデル

本プロジェクトの技術移転について「技術の送り手」「受け手」を視点として簡略に示すと、図2-2に示すようになる。

プロジェクト目標「The (sic) LETS is enforced within public and private sectors (ラオス国において電力基準を運用するうえで電気事業者を管理する側であるDOE及び電気事業者であるEDLの双方により、LETSが主要電力設備に対して運用される)」は、DOE職員及びEDLのエンジニアの能力向上の結果としてラオス電力技術基準促進プロジェクト (Lao Electric Power Technical Standard Promotion Project : STEP) Iにおいて制定されたLETSが運用されることを指している。

プロジェクト目標に対する指標は、以下のとおりである。

The following facilities are inspected to apply the LETS and make action plans to be applied to the LETS.

- ①All newly planned development projects by DOE and EDL,
- ②On-going projects and existing facilities by DOE and EDL,
 - All more than 2MW power plant,
 - All 115kV transmission line in VTE,
 - All substations in VTE,
 - Distribution line all 5 zones in VTE,
 - Facility and accident database in Vientiane Capital and its analysis.

このことから、技術移転の道のりは、以下の図2-2のように示される。

技術基準運用支援

(運用に必要なガイド・ライン等の策定? ただし実態は?)

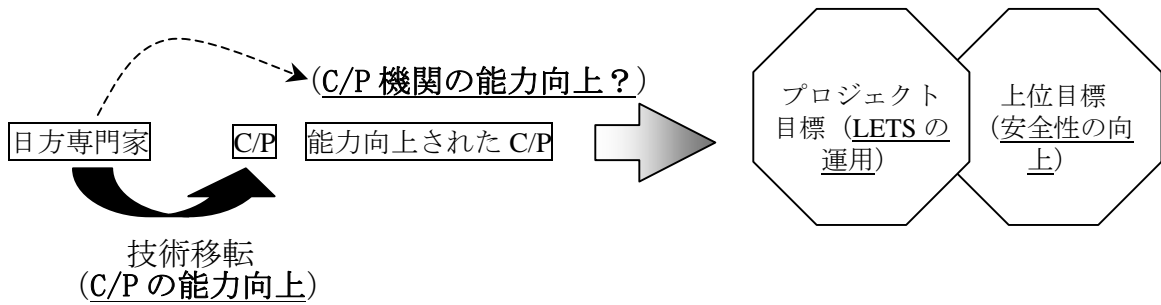


図 2-2 技術移転モデル

プロジェクト活動によって「C/Pの能力向上」が得られ、その結果として技術基準運用のためのガイド・ライン等が（一里塚として）充実する。完成した技術基準がすべての施設において適用され・運用されるためには、「C/Pの能力向上」、並びに規制を実施するだけの組織強化（人、もの、金、組織、手順）が必要である。本調査においては、図 2-2 に示す道のりにおいて、それぞれの参加者がどのような役割を果たしているのかについて評価する。

第3章 評価結果

3-1 プロジェクトの実績（投入、成果、目標達成度）

プロジェクトの実績（投入、成果、目標達成度）に対する評価は、PDMに記載されている指標をもとに実施した。その結果は、JERの3. Results of Evaluation, 3-1 Achievements of the Project並びに、3-2 Input Performanceで詳しく述べている（付属資料1のJER参照）。全体として、プロジェクトの投入は当初の計画のとおり実施されており、それに基づく成果と、目標達成度についてはほぼ当初の計画通りの実績があがっている。特に、成果1「LETSの関連ガイドライン等の整備」の達成度が高い。今後は、これらを用いて実際のプロジェクトの設計審査並びに現場での設備検査を通じて、LETSを運用・管理していくための技術の移転や、LETSを用いたEDLの技術者の養成が行われる予定である。

3-2 プロジェクトの実施プロセス（実施プロセスの把握結果）

プロジェクトの実施プロセスに対しては、JERの3-3 Implementation Process of the Projectにおいて詳しく評価されている。

プロジェクトは、それぞれ合同調整委員会（Joint Coordination Committee：JCC）で承認を受けた実施計画（Plan of Operation：PO）と年間活動計画（Annual Work Plan：AWP）に基づいて実施されている。

3-3 評価5項目の評価結果

3-3-1 妥当性

評価調査団は、PDMに定義されている上位目標及びプロジェクト目標のいずれもが、現在も以下の理由により妥当であると結論付けた。

STEP IIは、ラオス国の電力セクターポリシー（2001年3月制定）に準拠して実施されている。また、現在実施中あるいは計画中のプロジェクトに適用されている技術基準がプロジェクトの主体によって異なっていることが、プロジェクトの審査や運営管理における様々な問題を生じさせていることから、ラオス国における統一的な電力技術基準であるLETSの普及へのニーズは高い。LETSの普及は、ラオス国の電力セクターの安全性と質の向上を確実なものとする効果的な方法である。

本プロジェクトは、DOEとEDLの開発プロジェクトを実施していくための能力強化を支援するものであり、ひいてはラオス国自身による高品質の電力供給と社会経済開発の実現に資するものである。

3-3-2 有効性

プロジェクトは現在も実施中であるが、プロジェクト目標を達成する可能性は、以下の理由で高いと考えられる。

双方の当事者の共同作業による努力によって、LETS運用のガイドラインと、関連マニュアル類の製作・編纂が行われており、これらの作業は2006年9月までにほぼ終了した。引き続き、10月に組織される翻訳委員会による審査を経て、まもなく完成するとの説明を得た。

プロジェクト活動の一つとして、DOE内部に規制部門あるいは規制部署の設立について討議検討が行われている。規制部門は、電力施設の設置及び建設を実施するEDLあるいは民間会社からの申請図書の審査を行う際に、LETSを運用することとなる。LETSを司る規制部門は、将来DOEのなか

に設置される「電力管理及び規制部門」の設立準備を行う部署として2006年12月までに設立されるとの回答がラオス国側より得られている。このような組織の設立をもって、技術協力を通じて習得した知識と能力を用いた業務を実際実施することが可能になると考えられる。

3-3-3 効率性

双方からの投入実績に基づくと、全体として投入の質と数量は適切であると考えられ、現在まで本件の効率性は高いと評価できる。双方とも2004年12月7日付け討議議事録（Record of Discussion：R/D）で規定された活動を実施している。なかでも、成果1「LETSに関連する補足的なガイドラインとマニュアルが執筆される。」が最も進捗している。プロジェクトに対する全体的な満足度は高く、予定通りの進捗を示している。

実施したインタビューの結果分析から、以下の諸点について指摘することができる。①コミュニケーションと情報共有の改善の必要性、②長短期専門家の役割と責任分担の明確化、③プロジェクトの枠組みとワークプランの明確化、④モニタリング・メカニズムの設置。以上のような問題の解決には関係者間での話し合いが必要である。

3-3-4 インパクト

評価時点において、ほとんどの活動は現在も進行中であることから、目に見えるインパクトはまだ確認することができなかった。

3-3-5 自立発展性

自立発展性確保の観点から、評価結果より以下のような点を指摘することができる。

現状の技術移転活動はガイドラインとマニュアルの整備を中心に行われており、プロジェクトの戦略として本来狙ったとおりの道筋をたどっている。これらの活動を通じて、C/Pはそれぞれの日常業務においてLETSを適用し管理する知識と技術の習得が可能である。プロジェクトは、DOEに対して、LETSの規制関連のすべての業務に責任を負う規制部門（部署）の設置を求めている。このような組織改革は、C/Pがより高度な内容を学習することの動機付けともなりうる。

3-3-6 効果発現に貢献した要因

(1) LETS関連図書の整備と、短期専門家による技術的なトレーニングの実施による相乗効果

本プロジェクトは、前フェーズのプロジェクトにおいて策定されたLETSの運用に必要なガイドラインや説明書等の関連図書の作成や検査官・技術者を養成するためのトレーナートレーニングの実施を通じて、C/Pの能力開発を図るものである。これらは、長期・短期専門家の指導のもとで実施されており、図書の整備並びにそのラオス語化の過程において、LETSへの理解を深めることにより、電力行政に携わる行政官・EDLのトレーナーとしての技術を習得することになっている。関係者へのインタビューによると、これまでに実施された研修が、実際の業務に役に立っているということである。また、今後電力施設の設置・建設を希望する事業者や投資家からの申請書類の審査や現場における検査立会い、並びにエンジニア養成の研修を通じてLETSを実際の現場の業務に適用させていくなど、これまで獲得した技術・知識を有機的に結びつけていくことが可能である。

(2) LETSが法制化されていること

技術面では、まだC/Pに成長の余地があるとしても、前フェーズ終了後の早い段階でLETSが法制化され、国の制度として厳然として位置付けられたことは、プロジェクトの実施に大きな効果をもたらしている。また、プロジェクトの実施によって、実際に当制度が運用・適用されていくことが大いに期待される。

(3) 問題点及び問題を惹起した要因

これまでのところ、「計画内容に関すること」並びに「実施プロセスに関すること」の双方とも、問題点及び問題を惹起した要因は該当する事由はない。

3-4 結論

評価調査団は本プロジェクトが、PO（付属資料1のJER ANNEX 4-1-2）とAWP（同ANNEX 4-1-3）に従って実施され、計画通りの成果を出しているという結論を導いた。とりわけ、成果1「LETSに関連する補足的なガイドラインとマニュアルが執筆される。」はもっとも進捗している。

しかしながら評価団は、特にプロジェクト管理面における改善点を、調査期間中に実施した質問票とインタビューの結果に基づいて指摘した。

C/Psはこれまでに、ガイドラインとマニュアルの整備を通じて、LETSの運用と管理に必要な知識と技術を習得してきた。DOEの検査官とEDLの技術者を対象としたトレーナートレーニングは現在実施中である。DOEの中の規制部門は2006年12月までに設置されることから、プロジェクトは第4章にあげる提言をもとに、そのプロジェクト目標を達成することが可能であると考えられる。

第4章 提言と教訓

4-1 提言（本プロジェクトに関する具体的な提案、助言等）

評価調査団は、プロジェクトの実施を成功させるために以下のような提言を行う。

（1）DOEにおける規制部門の設置

両国の関係者は、LETSの適用を推進するために、規制部門の設置が非常に重要な役割を果たすことを確認した。評価調査団は、プロジェクト終了後も継続的な規制業務を行うための適切な権限をもつ規制部門の設置を求めた。DOEは、これまでも独立電力事業者（Independent Power Producer : IPP）、またはEDLから提出された設計図書の審査を試行的に実施してきたが、今後こうした審査を継続して実施していくことを表明するとともに、2006年12月までの規制部門の設置をコミットした。調査団はJICAラオス事務所がこのようなラオス国側の努力を継続して支援するよう勧めた。

（2）翻訳委員会の発足

LETS関連図書の英語版はプロジェクトの活動を通じてほぼ完成しており、これら図書のラオス語への翻訳もほぼ完了しているが、翻訳の適切さと正確さが不十分であることが指摘されている。そのため翻訳内容を検証するための翻訳委員会が設置される予定だが、評価調査団はその設置が本来のスケジュールより遅れていることから、できるだけ早期に設立する必要があると指摘した。

DOEはMEM、法務省、科学技術環境庁（Science, Technology and Environment Agency : STEA）、教育省等から推薦されるメンバーで構成される翻訳委員会の2006年10月までの設置、並びに約2か月程度の作業を経て翻訳内容の照査を完了することをコミットした。評価調査団は、LETS関連の研修に重要な役割を果たすことになるEDLの研修センターも翻訳委員会に加えるべきと指摘した。

（3）JBIC送電線プロジェクトとの関係

国際協力銀行（Japanese Bank for International Cooperation : JBIC）プロジェクトは、LETSがプロジェクト初期の段階から適用され、DOEがその設計図書の審査を行う最初のケースである。しかし、プロジェクトが2008年1月をもって終了する予定である一方で、当該審査は同年1月から2月に行われる予定である。

両国の関係者は、プロジェクトがそれぞれのC/Pが初めての本格的な審査業務を滞りなく実施するためにプロジェクト専門家によるサポートを推奨した。評価調査団は、こうしたサポートを実現するためにプロジェクトを2～3か月程度延長すべきと提言した。JICAは、この指摘を考慮するとともに、延長については終了時評価の際に決定する旨表明した。

（4）PDMの改定

評価調査団は、PDMの指標等をプロジェクトの実情に合うよう、改定することを提言した。例えば、指標2-1は、「20名のトレーナーが訓練を受ける。」であるが、C/Pのうちの何人かは既にIPP等の外部の組織に異動し、20名以下となっている。

また、PDMの改定作業は指標の改定にとどまらず、C/Pがプロジェクトの枠組みをより深く理解するために役立つことから、調査団はC/Pがプロジェクトの理解を深めるためにもプロジェクト・サイクル・マネジメント（Project Cycle Management : PCM）ワークショップを実施すべきと提案した。今後、PDMは必要に応じて改定され、その内容は日本の会計年度末に実施される予定のJCCにおいて承認を得ることとなる。

（5）DOE個別専門家によるプロジェクトへの支援

評価調査団は、より効率的・効果的なプロジェクト活動を実現するために、DOEに派遣されている長期専門家によるプロジェクトへの支援を提言した。

（6）コミュニケーションの向上と情報の共有

コミュニケーションの向上と情報の共有によってプロジェクトに対する理解度を高めるために、様々な地位と責任を負うメンバーによる定期的な会議の開催が必要である。

C/Pへの質問票とインタビューで明らかになったいくつかの指摘において、両国間並びにそれぞれのサイドにおいて、情報共有とコミュニケーションの改善の必要性が指摘されている。時には誤解によって不必要な摩擦が生じていたことが指摘されている。両者は、公式・非公式の情報共有の場を設けることによってプロジェクトの日常活動に対する共通理解を高めることの必要性を確認した。こうした共通認識に基づいて長期専門家（業務調整担当）は、様々な事柄について討議する定期的な会議・打合せの場をもつように提案した。（付属資料1のJER ANNEX 6）

（7）業務上の責任範囲の明確化

長期専門家の責任については、重複した責任と複雑な分担によって、不明確な部分があることが指摘されている。現在、3名の長期専門家は、チーム一体としての成果を出すことが求められている。しかしながら、このような一体的な意思決定の仕組みは、時として意思決定に時間を要する場合がある。また、現在の支援体制では、プロジェクトリーダーとして、プロジェクト全体の実施責任を負う者がいない。このことは、プロジェクトを担う長期専門家の役割の不明確さにつながっている。

調査団は、長期専門家の役割分担をより明確化することを提言した。これによると、それぞれの長期専門家は、PDMの成果項目に基づいて実施と監理の責任を負うこととなる。その詳細については、上の項目において設置が提案されている諸会議において決定されるべきとされた。

4-2 質問票の集計結果とデータの解釈について

4-2-1 分析の方法

現地調査期間中に短期専門家並びにC/Pに質問票を配布して回答を求めた。その結果を踏まえたうえで各人へのインタビューを実施して質問票を補足するための情報を収集した。これら調査結果を総合的に判断すると、プロジェクトの現状を以下のように解釈することができる。本調査結果をもとに現状・課題の分析並びに対応策の検討がなされることが望まれる。

4-2-2 プロジェクトの現状

(1) プロジェクト全体に関するラオス国側のニーズの充足・満足度の高さについて

設問1で「移転された技術・知識の内容は、ラオス国側の要求するニーズを満たしたものであったか」を短期専門家に問うたところ、平均で70ptとなる回答結果を得た。この結果から、短期専門家としては全体としてラオス国側の期待に応えたという感想をもっていることがわかる。

一方、C/Pに対して行った同様の質問(設問1)「Subject matter covered by STEP II is appropriate to promote and apply LETS.」に対しても、DOEからは77pt、EDL側からは83ptと、全体として高い満足度を示す回答を得ている。これらC/Pからの回答は、短期専門家の回答よりも高い数値であることから、相対的な満足度はラオス国側のほうが高いということがわかる(指導者のほうが、自分のパフォーマンスに対して厳しい評価をするのは普通のことである)。

次に、個人レベルの成長に本プロジェクトがどのように役に立ったかを問う質問である設問6「Overall benefit from the technical cooperation is significant for my career development/advancement etc.」に対しては、DOEは77pt、EDLからは80ptの評価となっており、プロジェクトから得られる利益は大きかったと評価していることがわかる。

(2) 日本側の指導方法に対する評価

次に、技術移転の指導方法に関する設問について分析する。短期専門家に対する設問3「日方の指導方法は、指導する技術・知識の内容・目的に照らし合わせて、常に最も適切な方法で行われていたか」に対して、60ptと比較的厳しい評価をしていることがわかる。一方、C/Pに対して行った同様な趣旨の質問である設問2「Methodology used by STEP II is helpful for my learning to gain knowledge, skills to promote and apply LETS.」及び、設問4「Methodology which Japanese Experts (both long-term and short-term) used is helpful for my learning.」に対してC/P側からの回答は、前者に対してはDOEが75pt、後者に対しては71pt、EDLからの回答では、前者が83pt、後者に対しては75ptという結果が得られた。いずれも質問票の定性的データの一般的な目標点である70pt以上を示している。日本側がこの分野で比較的辛口な評価をしていることの原因として、設問9「研修や講義は無理のない日程が組まれていたか」と、設問10「座学による講義と、機材を使った実習のバランスは適切であったか」に対する自己評価が低いことがある。これは短期専門家が、①より柔軟なかつ長期の日程を組むこと、②プロジェクトを通じた実践的な技術・知識が習得できるようオン・ザ・ジョブ・トレーニング(On the job training : OJT)を現状より強化すべきこと、③短期専門家ではなく全分野の専門家を長期専門家として技術移転を行うべきなど、現状のプロジェクトの枠組みを改善するための指摘をしていることの反映と思われる。

(3) 日本側の指導の内容・質について

日本側が提供した技術コンテンツの内容・質は、日本側、ラオス国側双方が高く評価していることがわかる。これは設問4「日方の行った技術指導の内容は、ラオス国の電力事情に配慮したものだったか」に対し、日方専門家は85ptをつけている。また、設問5「日方の提供した技術・知識は、実践的かつ有用で、ラオス国の電力において即時に応用あるいは適用可能なものであるか」という質問に対して75ptと、比較的高い評価をしていることから伺える。

一方で、設問6「日方専門家は、十分な業務知識・技能をもっていたか」に対して、短期専

門家は65ptと比較的辛口の評価をしている。その評価の理由については、長期専門家との連携が弱い、短期専門家不在の間の技術的課題をC/Pに与える際の長期専門家のフォローアップ不足など、両者の協力関係について改善の余地があることが指摘されている。

(4) 獲得した技術の有用性・有効性について

専門家は、設問12「C/Pは新たに習得した技術・知識を使って日常業務を行っていることを確認したか」について、65ptの評価としている。C/P側からは、様々な移転技術についてその有用性を評価する声が上がっている。専門家側からの評価が比較的低かった理由は、①C/Pの日常業務について短期専門家が実際に評価する時間がなかったこと、②C/Pの技術習得の水準を客観的に計測していないことなどが考えられる。

(5) 業務の改善などへの応用の度合い

専門家は、設問13「C/Pは、新たな技術・知識によって具体的な業務の改善を行うことができたか」に対して、60ptと比較的低い評価を付している。一方、C/P側からは、かかる知識・技能を実際の現場活動へ応用するためには、「現在行われている技術移転の技術的な水準をさらに高度な内容とすべき」という意見が表明されている。他方、長期専門家側は設定されている技術移転の水準はLETSの運用に必要かつ十分であり、技術水準には過不足がないとの認識をもっている。技術の習得には際限がないことや現在の技術習得状況が必ずしも十分ではないこと考慮すると、プロジェクト、国内支援委員会などで検討のうえ、両国関係者が習得目標について合意することが必要である。

4-2-3 質問票に対する今後の対応について

(1) 中間評価時点でのプロジェクト運営上の改善点について

前章で指摘した事項の多くは、中間評価の時点で検討・討議されたもので、それぞれの対策を残りのプロジェクト期間に実施することとなっている。例えば、プロジェクト関係者間のコミュニケーションの問題は、情報共有、プロジェクトの枠組みの理解などとともに、公式、非公式のチャンネルを介してプロジェクト関係者が情報共有を図る機会を増やすよう、定期的な会議を開催することが提案されている。

(2) 質問票の自由記述欄での専門家批判について

C/Pが記載した質問票の自由記述欄において、長期専門家に対する批判的なコメントが一部見られた。これらの多くは、該当する欄の設問の趣旨とは関連なくランダムに記入されていることが特長である。批判の多くは、具体的な事実を伴っていないもの、主観に基づくものなど、一方的な批判も多い。記述内容やその書き振りはともかく、これらの取り扱いについては、単純に批判の一つ一つへの対応策を考慮したり、過剰に反応するよりも、批判の真意や、この機会にコメントした理由についてより深い調査を行うことが必要と思われる。

一般に社会調査で定性的なデータを取得する場合（質を問う場合）は、本調査で採用したような自由記述欄へのランダムな記述よりも、個別のインタビューから得られたデータのほうが信頼性が高く、本中間評価調査においても個別インタビューで得られた情報を重視している（アンケートへの自由な書き込みよりも、調査者の面前で表明された意見のほうがその情報に

対する信頼性は高い)。

今次の評価調査において実施したC/Pへの面接調査では、専門家に向けた単純な批判は少なく、むしろラオス国側を含むすべてのプロジェクト関係者間の情報共有やコミュニケーション不足や、プロジェクトの枠組みに対する理解度の低さ、あるいは専門家の位置付け・役割に対する理解不足が明らかになった。特に、コミュニケーション不足やプロジェクトの枠組みへの理解不足を緊急に解決すべき課題として問題提起したC/Pもいた。本調査の評価結果にも、提言としてこの問題が指摘されていることを受けて、専門家からはコミュニケーション改善のための方策を話し合うべきという提案があった。この提案をもとに今後定期的な会合がもたれる予定であり、今後のプロジェクト活動においてはコミュニケーションや情報共有の不足が改善されることが期待される。

4-3 今後の進め方（提言を踏まえて）

4-3-1 PDMの改定の必要性について

提言に含められたPDMの改定は非常に重要と思われる。JICAのPCM作成ガイドラインに照らし合わせると、現行のPDMで成果としてあげられている「LETSの規制部門の設立」の解釈に誤解がある。そのためプロジェクトの管理面において様々な誤解や不必要な問題を生じさせている。

具体的には、成果4として「4. Management structure for the LETS is formulated.」、さらに「4-1 Responsible unit for the LETS is established.」があげられている。これは、「規制部門の設立」と解されており、この解釈をもとにプロジェクト並びに評価調査団がDOEに対して規制部門の設立を強く求めている。(今調査団において交渉の結果、2006年12月の設立という回答を得た。)

しかしながら、PCMの作成ガイドラインによると、上記「4-1」の内容は、相手国側の組織制度にかかわる成果である。この項目はプロジェクト実施上、非常に重要な項目でありながらその正式な設立が相手国政府の公式な決定にゆだねられており、その実現の可能性は高いとはいえ、100%確かかどうかはプロジェクトの計画時においては明らかではなかった。それゆえPCM本来の考え方に立脚するならば、「規制部門の設立」は外部条件*として取り扱うべきものであった。

一方で、本件では「規制部門の設立」を外部条件とした場合、仮に正式な規制部門の設立が見送られると、このプロジェクトが成り立たなくなってしまう弊害がある(=キラーアサンプション)。

そのため、万一規制部門の設立ができなかった際にプロジェクト目標を達成させるためには、プロジェクトにおいて以下のことを実施する必要がある。

- (1) 規制部門の実施する業務を試行的に実施する。
- (2) 規制部門が行うべき審査能力を持った職員を配置する。
- (3) 規制部門の職員として必要な能力をDOEの職員に習得させる。
- (4) (どのような組織形態にかかわらず) 将来規制部門が実施すべき業務がプロジェクト活動の一つとして実質的に行われる。

以上を勘案すると、成果4の解釈は、「正式な規制部門=Division」の設立と解してその部門の「設立の有無」を指標とするのではなく、「将来的に規制部門が設立されたときに業務が行うことができる人員、体制、LETSに係る技術・知識を含む審査能力の有無」を指標とすべきであろう。

* 外部条件は、①プロジェクト成立のために必要な条件で、②プロジェクト自身のコントロールでは成立しないもので、かつ③その条件を満足するかどうか明らかでないもの、とされている。これらは、プロジェクト実施上のリスクとして、モニターされるべき項目である。

本調査においては、前者の解釈に基づいて規制機関の設立をラオス国側に強く求めてきたが、本前は後者の解釈に基づいてプロジェクトの終了時まで、実質的な審査能力が獲得できるかどうかに関心をあてるべきである。

今後の対応としては、まず12月までに規制部門が設立されるかどうかを見届け、万一同部門が設立されない事態となった場合、PDMを改定するか否かについてJCCなどの場において結論を出すことが望ましい。

4-3-2 実的な場面での応用の必要性（今後の指導の方法）

C/Pに配布した質問票の記載結果を見ると、LETS関連図書の作成を通じて習得した知識・技術を実際の技術審査にどのように応用すればよいのかについて理解したいという声が上がっているように解釈された。

こうした意見を考慮すると、現場での検査を伴う書類審査など運用現場に実際に即した訓練が増えることが望まれる。（実際、今後の活動計画では実践面がより強調されるということである。）

なお、質問票には特定の技術分野の内容についての技術移転・指導について様々な要求が示されている。これらは、C/Pの本来業務に照らし合わせて、①何を、②どのくらい、③どのような方法で、④いつ実施するのかについて、純粋に技術的な評価が未完である。本調査の質問票で提示された（一見）技術的な要求が、本プロジェクトの目標に照らし合わせた「真のニーズ」なのか、それとも単なる技術的・知的欲求を満たすための「ショッピングリスト」なのかについては、長期専門家+国内支援委員会において検討することが望まれる。

4-3-3 長期専門家と短期専門家との連携について

短期専門家の帰国後、長期専門家がフォローアップすることになっているが、実際には、技術分野はかなり細分化されており、C/P個人個人の学習ニーズは多様ですべてを直接（長短期の）専門家が指導することはできない。長期専門家は、プロジェクトの管理・運営など技術移転以外の業務に従事していることもあり、こうした事情への理解に疎いC/Pには長期専門家の役割は必ずしも明確でないと考えられる。

短期専門家の技術移転活動のすべてを長期専門家がフォローすることは、現実的ではないことを勘案すると、短期専門家も一定程度日本国内での作業期間を確保することが望ましい。そこで短期専門家との連携を促進するための長期専門家の役割を明確化するとともに、必要に応じて短期専門家には一定程度（非常に少量）の国内作業のM/Mを付与することが望ましい（現状、C/Pからの質疑に、短期専門家が帰国後の日常業務の時間内に答えることは困難であることから）。

4-3-4 コミュニケーション

コミュニケーションの改善・強化については、現地事務所を含め専門家間での調整が望まれる。着実な成果が上がっているにもかかわらず、C/Pへの一言が伝わっていないだけで、つまらない誤解に基づく不満が表明されている。できるだけ、専門家側からラオス国側に情報を与えて、プロジェクトの枠組みを理解させる努力が必要である。

付 属 資 料

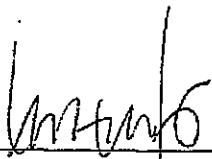
1. ミニッツ
(協議参加者リスト、合同評価報告書含む)
2. 関連機関
(世銀、ADB、JBIC プロジェクトオフィス) へのヒアリング結果
3. 評価調査結果要約表

Minutes of Meeting Between
The Joint Mid-term Evaluation Team
and
The Authorities Concerned of the Government of
Lao People's Democratic Republics
on
The Japanese Technical Cooperation for
LAO ELECTRIC POWER TECHNICAL
STANDARD PROMOTION
(STEP II)

The Joint Mid-term Evaluation Team (hereinafter referred to as "the Team") organized by the both the Ministry of Energy and Mines and the Japan International Cooperation Agency (hereinafter referred to as "JICA") had a series of discussions with the Lao authorities concerned for the purpose of reviewing the activities and conducting jointly the mid-term evaluation concerning the Project for Lao Electric Power Technical Standard Promotion (STEP II) (hereinafter referred to as "the Project"), and discuss the future directions of the Project.

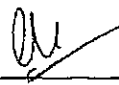
As a result of the discussions, the Team and the Lao authorities concerned agreed upon the matters referred to in the document attached hereto.

Vientiane, 25 September 2006



Mr. Senya MORI
Team Leader of Japanese Side,
Joint Mid-term Evaluation Team,

Resident Representative,
JICA Laos Office



Mr. Houmphone BULYAPHOL
Director General
Department of Electricity
Ministry of Energy and Mines



Mr. Khamphone SAIGNASANE
General Manager
Electricité du Laos
Ministry of Energy and Mines

THE ATTACHED DOCUMENT

1. Recognition of the Joint Evaluation Report

Lao side and Japanese side recognized the Joint Evaluation Report shown in Annex 2 as the result of the joint work by the Evaluation Team.

2. Establishment of regulatory division in DOE

Both sides have recognized that the regulatory division has a crucial role to play in enforcing the LETS.

DOE committed to establish the regulatory unit by December 2006 as preparatory organization for the regulatory division which would bear a decent status to conduct continuous enforcement of the LETS after the Project terminates

3. Transportation cost of inspection at local site

Both sides recognized that more inspection activities will be necessary after the regulatory unit mentioned above is established. DOE committed to allocate necessary budget for inspection and requested JICA to support for expected budgetary shortages. JICA will consider the support after DOE would make a detail budgetary plan for the unit or the division.

4. Establishment of translation committee

DOE committed to establish the translation committee in charge of checking the precision and adequacy of the translation of LETS documents by October 2006.

5. Coordination of the Project activities with JBIC project for the construction of the transmission line and substation.

The JBIC project will be the first case with which LETS will be applied. On the other hand the Project terminates in January 2008 although examination of the detail design will be conducted by DOE from January to February, 2008.

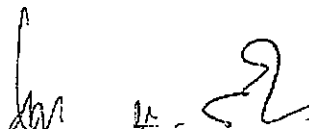
Both sides recognized that a few month extension of the Project would be necessary in order for C/Ps to conduct the examination successfully with supports by the experts. JICA will consider this issue continuously and final decision will be made after terminal evaluation for the project.

6. List of Attendance of the Discussions

The list of attendance of the discussions is shown in Appendix 1.

APPENDIX 1 : List of attendance of the discussions

APPENDIX 2 : Joint Mid-term Evaluation Report



List of attendance of the discussions

1. The Japanese side

1.1 The Japanese Evaluation Team

Mr. Senya MORI	Team Leader
Mr. Hideki NARUMI	Electric Power Technology
Mr. Satoshi KOBAYASHI	Cooperation Planning
Mr. Masato ONOZAWA	Evaluation Analysis
Mr. Sota SEKINE	Evaluation Planning 1
Mr. Kayasith SADETTIAN	Evaluation Planning 2

1.2 The Project

Mr. Shigenori KURODA	L/T Expert to DOE
Mr. Masahiro OGAWA	L/T Expert to EDL
Mr. Masatoshi KAIMASU	Coordinator

1.3 JICA Individual Expert

Mr. Keiichi SATO	Expert to DOE
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2. The Lao side

2.1 The Project

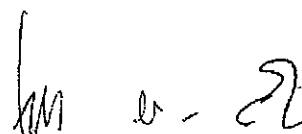
Mr. Houmphone BULYAPHOL	Project Director
Mr. Vanhdy VILAYSANE	Project Manager
Mr. Houmphon VONGPHACHAN	Lao National Coordinator
Mr. Phonesavanh PHIMMASONE	Counterpart in Civil Engineering
Mr. Nalavong VONGSINOUANE	Counterpart in Civil Engineering
Mr. Phimphone LATSAVONG	Counterpart in Hydro Power
Mr. Phoxay KEOKENCHANH	Counterpart in Hydro Power
Mr. Kampha SIRIVONG	Counterpart in Hydro Power
Mr. Vithounlabadith THOUMMABOUT	Counterpart in Transmission Line
Mr. Thavone KAENETHONH	Counterpart in Transmission Line
Mr. Viengsay CHANTHA	Counterpart in Substation
Mr. Xanaphone PHONEKEO	Counterpart in User's Site

2.2 Department of Electricity

Dr. Daovong PHONEKEO	Deputy Director General
----------------------	-------------------------

2.3 EDL Training Center

Mr. Komonchanh PHETASA	Director
------------------------	----------



**JOINT MID-TERM EVALUATION REPORT
ON
THE PROJECT
ON
THE LAO ELECTRIC POWER TECHNICAL STANDARD
PROMOTION
(STEP II)**

**JAPANESE-LAO
JOINT MID-TERM EVALUATION TEAM**

SEPTEMBER 25, 2006
VIENTIANE, LAO P.D.R

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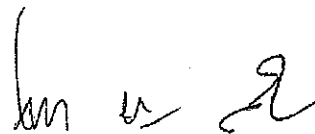
ABBREVIATIONS

ADB	Asian Development Bank
ARR	Assistance Resident Representative
C/P	Counterpart(s)
CE	Civil Engineering
DAC	Development Assistance Committee
DIC	Department of International Cooperation
DL	Distribution Line
DOE	Department of Electricity
EDL	Electricité du Laos
HEP	Hydro Electric Power
HP	Hydropower Plant
HQ	Head Quarter
IPP	Independent Power Producer
JBIC	Japanese Bank for International Cooperation
JCC	Joint Coordination Committee
JEPIC	Japan Electric Power Information Center
JFY	Japanese Fiscal Year
JICA	Japan International Cooperation Agency
L/T expert	Long-term expert
Lao PDR	Lao People's Democratic Republic
LETS	Lao Electric Power Technical Standard
M/M	Minutes of meeting
MEM	Ministry of Energy and Mines
MOF	Ministry of Finance
MW	Mega Watt
OJT	On the job training
PDM	Project Design Matrix
PM	Project Manager
PMU	Project Management Unit
R/D	Record of Discussion
RR	Resident Representative
PO	Plan of Operation
S/T expert	Short-term expert
SS	Substation
STEA	Science, Technology and Environment Agency
STEP II	Lao Electric Power Technical Standard Promotion Project
TII	Training in Japan
TL	Transmission Line
TOR	Terms of Reference
US	User's Site
VTE	Vientiane

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1. Introduction

1-1 Preface

JICA has collaborated with the government of the Lao People's Democratic Republic in implementing the Project on Lao Electric Power Technical Standard Promotion (STEP II) (herein after referred to as "the Project"). The Project started on 15 January 2005 with the cooperation period of three (3) years.

Since the first half of the cooperation period has passed, the Joint Mid-term Evaluation Team (hereinafter referred to as "the Team") was organized from 14 to 25 September 2006, for the purpose of evaluating the achievements of the Project. The mid-term evaluation has been jointly undertaken by the Team.

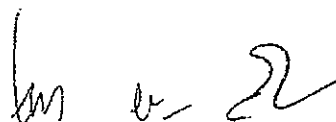
1-2 Objectives of the Evaluation

Objectives of the mid-term evaluation are as follows:

- (1) to review and evaluate the inputs, activities and achievements of the Project,
- (2) to clarify the problems and issues to be addressed for the successful implementation of the Project for the remaining period,
- (3) to assess the Project based on the comprehensive evaluation from the viewpoints of five criteria, and
- (4) to make recommendations for activities in the remaining period.

1-3 Schedule of the Team

Date	Activity
14 Sep (Thu)	Discussion with JICA Laos Office, STEP II L/T Experts and the expert to DOE Explanation of evaluation method at DOE and EDL
15 Sep (Fri)	Interview with C/Ps and the experts
16 Sep (Sat)	Summarization of interview
17 Sep (Sun)	Summarization of interview
18 Sep (Mon)	Interview with C/Ps and the experts
19 Sep (Tue)	Discussion with the experts and C/Ps based on interview results
20 Sep (Wed)	Discussion with the experts and C/Ps based on interview results Interview with World Bank and collection of related information Interview with ADB and collection of related information Drafting M/M
21 Sep (Thu)	Interview with JBIC Study Team for the Construction of Transmission Line Discussion on Draft M/M with the experts and C/Ps
22 Sep (Fri)	Final Discussion with DOE and EDL Finalizing M/M
23 Sep (Sat)	Visit to Nam Mang3 Hydropower Station/ Finalising M/M, Joint Evaluation Report
24 Sep (Sun)	Summarization of the result
25 Sep (Mon)	Signing of M/M, Report to DIC and Embassy of Japan



1-4 Joint Evaluation Team Members

<Lao Side>

Mr. Vanhdy VILAYSANE	Project Manager	Deputy Director, Technical Development Committee, EDL
Mr. Viengsay CHANTHA	C/P in SS	DOE
Mr. Vithounlabadith THOUMMABOUT	C/P in TL	DOE
Mr. Phonesavanh PHIMMASONE	C/P in CE	DOE
Mr. Noravong VONGSINOUE	C/P in CE	EDL
Mr. Phoxay KEOKENCHANH	C/P in HP	EDL
Mr. Kampha SIRIVONG	C/P in HP	EDL
Mr. Thavone KHAENETHONH	C/P in TL	EDL
Mr. Houmphan VONGPHACHANH	Lao National Coordinator	DOE
Mr. Phimphone LATSAVONG	C/P in HP	DOE

<Japanese Side>

Senya MORI	Team Leader	RR of JICA Laos Office
Hideki NARUMI	Electric Power Technology	Japan Electric Power Information Center (JEPIC)
Satoshi KOBAYASHI	Cooperation Planning	Department of Economic Development, JICA HQ
Masato ONOZAWA	Evaluation Analysis	Pionnier Research, Inc.
Sota SEKINE	Mission Management 1	ARR of JICA Laos Office
Kayasith SADETTAN	Evaluation Planning 2	Assistant Program Officer of JICA Laos Office

2. Methodology of Evaluation

2-1 Method of Evaluation

The Project evaluation was carried out in accordance with the JICA Guideline for Project Evaluation.

The following is the guiding principle of the evaluation:

- 1) PDM was agreed by both sides and utilized as the foundation of the evaluation;
- 2) Achievement of the Project was confirmed by collecting data defined in the Objectively Verifiable Indicators of the PDM; and
- 3) The Project was evaluated employing the five evaluation elements defined by Development Assistance Committee (DAC) of Organization for Economic Cooperation and Development. A brief explanation is shown in the following section.

2-2 Elements of Evaluation

The Project was evaluated on the following five Elements:

1) Relevance	The appropriateness of the Project objectives to the problems that it was supposed to address, and to the physical and policy environment within which it operated. It should include and including an assessment of the quality of the Project preparation and design – i.e. the logic and completeness of the Project planning process, and the internal logic and coherence of the Project design.
2) Effectiveness	An assessment of the contribution made by results to achievement of the Project Purpose, and how Assumptions have affected the Project achievements. This should include specific assessment of the benefits accruing to target groups, including women and men and identified vulnerable groups such as children, the elderly and disabled.
3) Efficiency	The fact that the Project results have been achieved at reasonable cost, i.e. how well inputs/means have been converted into Activities, in terms of quality, quantity and time, and the quality of the results achieved. This generally requires comparing alternative approaches to achieving the same results, to see whether the most efficient process has been adopted.
4) Impact	The effect of the Project on its wider environment, and its contribution to the wider policy or sector objectives (as summarized in the Project's Overall Goal).
5) Sustainability	An assessment of the likelihood of benefits produced by the Project to continue to flow after external funding has ended, and with particular reference to factors of ownership by beneficiaries, policy support, economic and financial factors, socio-cultural aspects, gender equality, appropriate technology, environmental aspects, and institutional and management capacity.

2-3 Sources of Information

Following sources of information were used in this study:

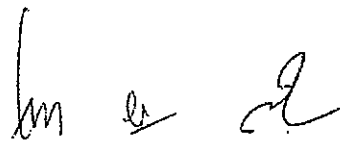
- 1) Documents agreed by both sides prior to and/or in the course of the implementation of the Project,
 - R/D,
 - Minutes of the Discussions,
 - The Project Design Matrix, and
 - Plan of Operation.
- 2) Record of inputs from both sides and activities of the Project,
- 3) Statistics and Materials,
- 4) Direct observation, and
- 5) Interview to the counterparts, experts and others concerned.

Im a 22

3. Results of Evaluation

3-1 Achievements of the Project

Narrative Summary	Verifiable Indicators	Result
<p>Overall Goal Power sector's activities and power facilities' safety are improved.</p>	<p>All of power facilities, which supply more than 1MW of electricity by DOE and EDL, are inspected and make action plans to comply the LETS. Facility and accident database in Luang Prabang, Pakse, Savannakhet, Takhek and Oudomxay are established and analysed.</p>	<p>In progress</p>
<p>Project Purpose The LETS is enforced within public and private sectors.</p>	<p>The following facilities are inspected to apply the LETS and make action plans to be applied to the LETS 1) All newly planned development projects by DOE and EDL 2) On-going projects and existing facilities by DOE and EDL All more than 2MW power plant All substations in VTE All 115kV transmission line in VTE Distribution line all 5 zones in VTE Facility and accident database in Vientiane Capital and its analysis</p>	<ul style="list-style-type: none"> STEP II the Project started preliminary review of the Project appraisals and/or feasibility studies submitted by owners and investors of construction and installment electric facility projects. These review processes are deemed case studies for counterparts applying LETS. List of such projects includes: <ol style="list-style-type: none"> (1) Xekaman 3 HEP, (IPP) (2) Xekatom HEP, (IPP) (3) Xeset 2 HEP, (EDL) and (4) Transmission line the Project (EDL funded by JBIC) <p>Other proposed projects (IPP and/or EDL) would be used as case study for C/P to apply LETS</p>



Narrative Summary	Verifiable Indicators	Result
<p>Outputs</p> <p>1. Complementary guideline and manuals relating to the LETS is drawn.</p>	<p>1. Guideline, safety rule, and examination & inspection manuals, explanations and glossary for terminology</p>	<ul style="list-style-type: none"> • Revision of guidelines in English for all 6 fields has completed. Preliminary translation is completed in September for review by translation committee. The revised guidelines are presented in the past three workshops as scheduled in Activity 1-1 (Review and revise the complementary Guideline on the LETS in 6 fields). • The examination and inspection manuals for all 6 fields have been completed. The manuals were presented in the past workshop. The manuals were translated into Lao language and completed in September for review by Translation Committee as scheduled in Activity 1-2. • Safety rules of all 6 fields were developed. They were presented at the past 3 workshops and translation works was completed in September 2006 as indicated in Activity 1-3. • All teams in 6 fields have identified the differences between the LETS and real situations as planned in Activity 1-4. Revision of explanation is in progress. • Activity 1-5, "Upgrade glossary for terminology" is not undertaken and expected to complete by December, 2006.

Narrative Summary	Verifiable Indicators	Result
		<ul style="list-style-type: none"> Activity 1-6, "Conduct seminars and workshops" is still in progress. The 1st workshop for all 6 fields was held on 11 and 12 June 2005. The 2nd workshop for civil engineering, hydropower plant, substation and transmission line fields was held on 20 and 21 February, 2006. The 3rd workshop for distribution line and user's site was held on 24 and 25 May, 2006.
<p>2. Through on the job training, knowledge and training skills of counterparts of DOE and EDL as trainers are upgraded.</p>	<p>2-1. 20 trainers will be trained.</p> <p>2-2. The structure of database for facilities and accidents.</p>	<ul style="list-style-type: none"> Activity 2-3, Conduct on the job training (OJT) related to 6 fields is implemented at EDL construction site. <p>The following activities for Output 2 are in progress.</p> <ul style="list-style-type: none"> Training courses at EDL Training Centre on civil engineering and transmission line were completed as planned in Activity 2-4. Training courses on the remaining 4 fields are in progress. Activity 2-5, "Carry out examinations to participants in 6 fields" is expected to carry out in Feb. 2007. Activity 2-1, Review existing data on electrical facilities and civil engineering facilities based on the guideline was completed in JFY 2005. Design structure of database in 6 fields is completed as indicated in Activity 2-2.
<p>3-1 DOE staff obtain necessary knowledge and skills as inspectors and transfer those knowledge and skills to PDIH staff.</p>	<p>3-1-1 Curriculum is designed</p>	<ul style="list-style-type: none"> Activity 3-1-1, "Design training materials and for provincial inspectors" is in progress.

Narrative Summary	Verifiable Indicators	Result
	<p>3-1-2 Training materials are produced.</p> <p>3-1-3 45 participants from DOE and PDIH are trained respectively.</p>	<ul style="list-style-type: none"> • Activity 3-1-2, "Conduct training at EDL training centre in 6 fields" is in progress. • Activity 3-1-3, "Evaluate the inspectors (participants from DOE and PDIH)" is in progress. • Activity 3-1-4, "LETS execution" is in progress. LETS is applied to review Xekaman 3, Xekatom, Xeset 2, and JBIC Transmission line the Project.
<p>3-2 EDL engineers obtain necessary knowledge and skills in order to apply the LETS to their works</p>	<p>3-2-1 Curriculum is designed.</p> <p>3-2-2 Training materials are produced.</p> <p>3-2-3 100 participants from EDL are trained.</p>	<ul style="list-style-type: none"> • Activity 3-2-1, "Design training for EDL provincial engineers" is in progress • Activity 3-2-2, "Conduct training at EDL training centre in 6 fields" is in progress. • Activity 3-2-3, "Evaluate the engineers (EDL staff)" is in progress. • Activity 3-2-4, "LETS application" is in progress. LETS is applied to review Xekaman 3, Xekatom, Xeset 2, and JBIC Transmission line the Project.
<p>4. Management structure for the LETS is formulated.</p> <p>4-1 Responsible division for the LETS is established.</p>	<p>4-1 New division is set up and inspectors are assigned.</p>	<ul style="list-style-type: none"> • Activity 4-1-1, "Draft responsibilities, duties and assignment" was proposed in May 2006. • Activity 4-1-2, "Organise stakeholder meetings" is in progress.

Narrative Summary	Verifiable Indicators	Result
		<ul style="list-style-type: none"> • The Project discussed the proposal of establishing regulatory division in DOE as indicated in Activity 4-1-3, "Establish a specific responsible division for the LETS in DOE". The Lao side agreed with the proposal. Regulatory unit will be established in December 2006. • Activity 4-1-4, "Issue annual report" is in progress. • Activity 4-1-5, "Review the Electricity Law" is in progress.
<p>4-2 Mechanism for monitoring and evaluating implementation of the LETS is formulated.</p>	<p>4-2 scope of works and the monitoring results to execute the LETS are produced.</p> <p>4-3 New monitoring and evaluation committee is set up, and members are assigned</p>	<ul style="list-style-type: none"> • Activity 4-2-1, "Draft responsibilities, duties and assignment" is in progress. • Activity 4-2-2, "Establish the committee" is in progress.
<p>5. Awareness on the LETS of public and private sectors is increased</p>	<p>5-1. Public relations materials</p>	<ul style="list-style-type: none"> • Activity 5-1, "Produce brochures and leaflets of the LETS for central, provincial and district levels" is in progress. • Activity 5-2, "Notify electrical safety and danger for users through media e.g. TV, radio and newspaper" is in progress.

Narrative Summary	Verifiable Indicators	Result
	5-2. Number of participants DOE: 30, PDIH: 30, EDL: 70, IPP: 20, University: 50 and Vocational school: 300	<ul style="list-style-type: none"> • Activity 5-3, "Conduct seminars to teachers at colleges and vocational schools" is in progress. • Activity 5-4, "Conduct the LETS introduction workshops at central, provincial and district levels" is in progress. • Activity 5-5, "Publish documents" is in progress.

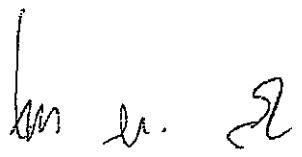
3-2 Input Performance

Activities	Inputs														
<p>Activities</p> <p>1-1 Review and revise the complementary Guideline on the LETS in 6 fields</p> <p>1-2 Make examination & inspection manuals for DOE and EDL</p> <p>1-3 Review and make safety rule of EDL for operation and maintenance of facilities</p> <p>1-4 Revise explanation of the LETS</p> <p>1-5 Upgrade glossary for terminology</p> <p>1-6 Conduct seminars and workshops</p>	<p>Japanese Side</p> <p>1. Dispatch of experts</p> <p>(1) L/T Experts</p> <table border="1" data-bbox="635 891 1297 1093"> <thead> <tr> <th data-bbox="635 891 871 920">Name</th> <th data-bbox="871 891 978 920">Title</th> <th data-bbox="978 891 1297 920">Assignment Term</th> </tr> </thead> <tbody> <tr> <td data-bbox="635 920 871 976">Mr. Shigenori KURODA</td> <td data-bbox="871 920 978 976">Expert to DOE</td> <td data-bbox="978 920 1297 976">18 Jan. 2005 - 17 Jan. 2008</td> </tr> <tr> <td data-bbox="635 976 871 1032">Mr. Masahiro OGAWA</td> <td data-bbox="871 976 978 1032">Expert to EDL</td> <td data-bbox="978 976 1297 1032">14 Feb. 2005 - 13 Feb. 2007</td> </tr> <tr> <td data-bbox="635 1032 871 1093">Mr. Masatoshi KAIMASU</td> <td data-bbox="871 1032 978 1093">Coordinator</td> <td data-bbox="978 1032 1297 1093">28 Apr. 2005 - 27 Apr. 2007</td> </tr> </tbody> </table> <p>CE: Civil Engineering, HP: Hydropower Plant, SS: Substation, TL: Transmission Line, DL: Distribution Line, US: User's Site</p>			Name	Title	Assignment Term	Mr. Shigenori KURODA	Expert to DOE	18 Jan. 2005 - 17 Jan. 2008	Mr. Masahiro OGAWA	Expert to EDL	14 Feb. 2005 - 13 Feb. 2007	Mr. Masatoshi KAIMASU	Coordinator	28 Apr. 2005 - 27 Apr. 2007
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Activities	Inputs																					
<p>2-1 Review existing data on electrical facilities based on the guideline in 6 fields</p> <p>2-2 Design structure of database in 6 fields</p> <p>2-3 Conduct on the job training related to 6 fields in the LETS</p> <p>2-4 Conduct training courses at EDL training centre in 6 fields</p> <p>2-5 Carry out examinations to participants in 6 fields</p> <p>3-1-1 Design training materials and for provincial inspectors</p> <p>3-1-2 Conduct training at EDL training centre in 6 fields</p> <p>3-1-3 Evaluate the inspectors</p> <p>3-1-4 LETS execution</p> <p>3-2-1 Design training for EDL provincial engineers</p> <p>3-2-2 Conduct training at EDL training centre in 6 fields</p> <p>3-2-3 Evaluate the engineers</p> <p>3-2-4 LETS application</p> <p>4-1-1 Draft responsibilities, duties and assignment</p> <p>4-1-2 Organise stakeholder meetings</p> <p>4-1-3 Establish a specific responsible division for the LETS in DOE</p> <p>4-1-4 Issue annual report</p> <p>4-1-5 Review the Electricity Law</p> <p>4-2-1 Draft responsibilities, duties and assignment</p> <p>4-2-2 Establish the committee</p>	<p>(2) S/T experts The First Batch (Mar-Apr 2005)</p>																					
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	<p>3. Provision of Machinery and Equipment List of Machinery and Equipment Provided by JICA is shown (ANNEX 2-1) JICA has disbursed total amount of \$85,556 for the STEP II the Project activities.</p> <table border="1"> <thead> <tr> <th>Japanese Fiscal Year</th> <th>Quarter</th> <th>Amount (US\$)</th> </tr> </thead> <tbody> <tr> <td>JFY 2004</td> <td>Q4</td> <td>8,600</td> </tr> <tr> <td rowspan="4">JFY 2005</td> <td>Q1</td> <td>22,603</td> </tr> <tr> <td>Q2</td> <td>3,986</td> </tr> <tr> <td>Q3</td> <td>7,443</td> </tr> <tr> <td>Q4</td> <td>19,900</td> </tr> <tr> <td rowspan="2">JFY 2006</td> <td>Q1</td> <td>10,659</td> </tr> <tr> <td>Q2</td> <td>12,365</td> </tr> <tr> <td colspan="2">Total</td> <td>85,556</td> </tr> </tbody> </table> <p>JICA also supported the Lao side to construct 115kV transmission towers for training, which cost US\$50,000, at the EDL training centre.</p>	Japanese Fiscal Year	Quarter	Amount (US\$)	JFY 2004	Q4	8,600	JFY 2005	Q1	22,603	Q2	3,986	Q3	7,443	Q4	19,900	JFY 2006	Q1	10,659	Q2	12,365	Total		85,556				
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	<p data-bbox="630 356 938 385">4. Counterpart training</p> <p data-bbox="630 385 1305 501">Five Lao the Project members participated in the counterpart training courses in Japan in JFY2005. The table below shows the list of trainees to participate in the training in Japan.</p> <table border="1" data-bbox="630 501 1294 857"> <thead> <tr> <th data-bbox="635 508 868 562">Name</th> <th data-bbox="868 508 954 562">Field</th> <th data-bbox="954 508 1142 562">Period</th> <th data-bbox="1142 508 1289 562">Executing organization</th> </tr> </thead> <tbody> <tr> <td data-bbox="635 562 868 622">Mr. Norlavong VONGSINOUEANE</td> <td data-bbox="868 562 954 622">CE</td> <td data-bbox="954 562 1142 622">20 November - 21 Dec 2005</td> <td data-bbox="1142 562 1289 622">KEPCO</td> </tr> <tr> <td data-bbox="635 622 868 683">Mr. Phimphone LATSAVONG</td> <td data-bbox="868 622 954 683">HP</td> <td data-bbox="954 622 1142 683">20 March - 14 April 2006</td> <td data-bbox="1142 622 1289 683">METI and KEPCO</td> </tr> <tr> <td data-bbox="635 683 868 743">Mr. Phoxay KEOKENCHANH</td> <td data-bbox="868 683 954 743">HP</td> <td data-bbox="954 683 1142 743">Ditto</td> <td data-bbox="1142 683 1289 743">Ditto</td> </tr> <tr> <td data-bbox="635 743 868 804">Mr. Viengsay CHANTHA</td> <td data-bbox="868 743 954 804">SS</td> <td data-bbox="954 743 1142 804">Ditto</td> <td data-bbox="1142 743 1289 804">Ditto</td> </tr> <tr> <td data-bbox="635 804 868 857">Mr. Khongsavanh NGONVORARATH</td> <td data-bbox="868 804 954 857">SS</td> <td data-bbox="954 804 1142 857">Ditto</td> <td data-bbox="1142 804 1289 857">Ditto</td> </tr> </tbody> </table> <p data-bbox="630 864 1302 916">KEPCO: Kansai Electric Power Company, METI: Ministry of Economics, Trade and Industry</p>	Name	Field	Period	Executing organization	Mr. Norlavong VONGSINOUEANE	CE	20 November - 21 Dec 2005	KEPCO	Mr. Phimphone LATSAVONG	HP	20 March - 14 April 2006	METI and KEPCO	Mr. Phoxay KEOKENCHANH	HP	Ditto	Ditto	Mr. Viengsay CHANTHA	SS	Ditto	Ditto	Mr. Khongsavanh NGONVORARATH	SS	Ditto	Ditto
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	<p data-bbox="630 949 751 972">Lao Side</p> <p data-bbox="630 972 1283 1032">The Lao side has appointed the following officials as STEP II the Project members.</p> <p data-bbox="630 1061 890 1090">1. Project executives</p> <table border="1" data-bbox="630 1090 1299 1384"> <thead> <tr> <th data-bbox="635 1097 778 1126">Title</th> <th data-bbox="778 1097 1075 1126">Name</th> <th data-bbox="1075 1097 1294 1126">Affiliate</th> </tr> </thead> <tbody> <tr> <td data-bbox="635 1126 778 1180">Project Director</td> <td data-bbox="778 1126 1075 1180">Mr. Houmphone BULYAPHOL</td> <td data-bbox="1075 1126 1294 1180">Director General of DOE</td> </tr> <tr> <td data-bbox="635 1180 778 1294">Project Manager</td> <td data-bbox="778 1180 1075 1294">Mr. Vanhdy VILAYSANE</td> <td data-bbox="1075 1180 1294 1294">Deputy Director, Technical Development Committee, EDL</td> </tr> <tr> <td data-bbox="635 1294 778 1384">National Project Coordinator</td> <td data-bbox="778 1294 1075 1384">Mr. Houmphan VONGPHACHANH</td> <td data-bbox="1075 1294 1294 1384">Electricity Management Division, DOE</td> </tr> </tbody> </table>	Title	Name	Affiliate	Project Director	Mr. Houmphone BULYAPHOL	Director General of DOE	Project Manager	Mr. Vanhdy VILAYSANE	Deputy Director, Technical Development Committee, EDL	National Project Coordinator	Mr. Houmphan VONGPHACHANH	Electricity Management Division, DOE												
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Activities	Inputs																																																	
	<p>2. Allocation of C/P and necessary personnel</p> <table border="1" data-bbox="632 405 1294 1205"> <thead> <tr> <th data-bbox="632 405 699 465">Fields</th> <th data-bbox="699 405 778 465">Status</th> <th data-bbox="778 405 1038 465">DOE</th> <th data-bbox="1038 405 1294 465">EDL</th> </tr> </thead> <tbody> <tr> <td data-bbox="632 465 699 555" rowspan="2">CE</td> <td data-bbox="699 465 778 526">F/T</td> <td data-bbox="778 465 1038 526">Mr. Phonesavanh PHIMMASSONE</td> <td data-bbox="1038 465 1294 526">Mr. Noravong VONGSINUANE</td> </tr> <tr> <td data-bbox="699 526 778 555">P/T</td> <td data-bbox="778 526 1038 555"></td> <td data-bbox="1038 526 1294 555"></td> </tr> <tr> <td data-bbox="632 555 699 701" rowspan="2">HP</td> <td data-bbox="699 555 778 616">F/T</td> <td data-bbox="778 555 1038 616">Mr. Phimphone LATSAVONG</td> <td data-bbox="1038 555 1294 616">Mr. Phoxay KEOKENCHANH</td> </tr> <tr> <td data-bbox="699 616 778 701">P/T</td> <td data-bbox="778 616 1038 701">Mr. Sanhya SOMVICHITH</td> <td data-bbox="1038 616 1294 701">Mr. Khampha SIRIVONG</td> </tr> <tr> <td data-bbox="632 701 699 880" rowspan="2">SS</td> <td data-bbox="699 701 778 761">F/T</td> <td data-bbox="778 701 1038 761">Mr. Viengsay CHANTHA</td> <td data-bbox="1038 701 1294 761">Mr. Khongsavanh NGONVORARATH</td> </tr> <tr> <td data-bbox="699 761 778 880">P/T</td> <td data-bbox="778 761 1038 880">Mr. Khamsing BOUNGONG</td> <td data-bbox="1038 761 1294 880">Mr. Douangpy SOUVANNACHIT</td> </tr> <tr> <td data-bbox="632 880 699 1025" rowspan="2">TL</td> <td data-bbox="699 880 778 940">F/T</td> <td data-bbox="778 880 1038 940">Mr. Vithounlabadith THOUMMABOUT</td> <td data-bbox="1038 880 1294 940">Mr. Thavone KHAENETHONH</td> </tr> <tr> <td data-bbox="699 940 778 1025">P/T</td> <td data-bbox="778 940 1038 1025">Mr. Litthanoulok LASPHO</td> <td data-bbox="1038 940 1294 1025">Mr. Vanhdy VILAYSANE Mr. Sengkham THANIVONG</td> </tr> <tr> <td data-bbox="632 1025 699 1126" rowspan="2">DL</td> <td data-bbox="699 1025 778 1086">F/T</td> <td data-bbox="778 1025 1038 1086">Mr. Houmphan VONGPHACHANH</td> <td data-bbox="1038 1025 1294 1086">Mr. Khamserm SOUVANNA</td> </tr> <tr> <td data-bbox="699 1086 778 1126">P/T</td> <td data-bbox="778 1086 1038 1126"></td> <td data-bbox="1038 1086 1294 1126"></td> </tr> <tr> <td data-bbox="632 1126 699 1205" rowspan="2">US</td> <td data-bbox="699 1126 778 1187">F/T</td> <td data-bbox="778 1126 1038 1187">Mr. Thammanoun NAKHAVITH</td> <td data-bbox="1038 1126 1294 1187">Mr. Xanaphone PHONEKEO</td> </tr> <tr> <td data-bbox="699 1187 778 1205">P/T</td> <td data-bbox="778 1187 1038 1205">Mr. Syvang XAYYAVONG</td> <td data-bbox="1038 1187 1294 1205"></td> </tr> </tbody> </table> <p data-bbox="632 1211 1294 1263">F/T: full-time, P/T: Part-time Note: Additional five C/Ps from EDL Training Centre will join the Project.</p>				Fields	Status	DOE	EDL	CE	F/T	Mr. Phonesavanh PHIMMASSONE	Mr. Noravong VONGSINUANE	P/T			HP	F/T	Mr. Phimphone LATSAVONG	Mr. Phoxay KEOKENCHANH	P/T	Mr. Sanhya SOMVICHITH	Mr. Khampha SIRIVONG	SS	F/T	Mr. Viengsay CHANTHA	Mr. Khongsavanh NGONVORARATH	P/T	Mr. Khamsing BOUNGONG	Mr. Douangpy SOUVANNACHIT	TL	F/T	Mr. Vithounlabadith THOUMMABOUT	Mr. Thavone KHAENETHONH	P/T	Mr. Litthanoulok LASPHO	Mr. Vanhdy VILAYSANE Mr. Sengkham THANIVONG	DL	F/T	Mr. Houmphan VONGPHACHANH	Mr. Khamserm SOUVANNA	P/T			US	F/T	Mr. Thammanoun NAKHAVITH	Mr. Xanaphone PHONEKEO	P/T	Mr. Syvang XAYYAVONG	
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	<p>3. Land, building, rooms and facilities for Japanese experts</p> <p>Land, building, rooms and other facilities for the Project were provided by DOE and EDL.</p> <p>The Lao side provided working spaces in DOE and EDL training centre. The Lao side also contributed to the Project financially. Main contribution to STEP II the Project is the renovation of training rooms at EDL training centre and burden of some expenditure, e.g. per-diem for the last two workshops:</p> <p>(1) Expenditure for the renovation of EDL training centre=US\$18,000 (2) Expenditure for workshops (per-diem EDL participants)=US\$3,700 (3) Expenditure for OJT (in-kind basis) =US\$400</p> <p>Total Expenditure=US\$22,100</p>																																																	

Activities	Inputs
	<p>4. Machinery and equipment Machinery and Equipment Provided by JICA during STEP I is utilized in STEP II.</p> <p>Equipment that the Japanese side has provided in JFY2005 is shown in ANNEX 2-1. Most procured equipment in the past 1 year is used for improvement of administration function at EDL training centre.</p> <p>Inspection tools are currently being procured, it is expected to install by early August 2006. A list of these tools is shown in table 1, ANNEX 2-2. It is necessary to complete procurement of all these tools by that time. This is because S/T experts, which are assigned, will use these tools for technology transfer to the Lao the Project members.</p> <p>For facilities, the construction of 3 transmission towers was completed. The STEP II will plan to make a panel for explanation of the construction. Figure1 and 2 in ANNEX 2-2 show the layout of newly constructed facilities at EDL Training Centre.</p>

3-3 Implementation Process of the Project

3-3-1 Plan of Operation and Annual Work Plan

The Project has implemented as shown in PO (ANNEX 4-1-2) and Annual Work Plan (AWP) (ANNEX 4-1-3).

3-3-2 Summary of major Project activities

Project activities from June 2005 to May 2006 are summarised below:

(1) Workshops and training

1st workshop	15-16 June 2005
2nd workshop	20-21 February 2006
English training	16 January -31 March 2006
PCM workshop	10 March 2006
3rd workshop	24-25 May 2006

Handwritten signature/initials

(2) Data Collection and On the Job Training

A. Vientiane Capital and Vientiane Province

a) Hydropower station facilities

CE	Nam Leuk	23 Mar 2005
	Nam Mang 3	25 Mar 2005
HP	Nam Leuk	23 Mar 2005
	Nam Mang 3	25 Mar 2005
	Nam Ngum	22 Aug 2006
SS	Nam Leuk	23 Mar 2005
	Nam Mang 3	25 Mar 2005

b) Substation facilities

HP	Phone Tong Substation	22 Mar 2005
	Thana Leng Substation	22 Mar 2005
	Khoksaad Substation	23 Mar 2005
	Naxay Thong	23 Aug 2006
SS	Phone Tong Substation	22 Mar 2005
	Thana Leng Substation	22 Mar 2005
	Khoksaad Substation	23 Mar 2005
	Phone Tong Substation	13 Oct 2005
	Thana Leng Substation	13 Oct 2005
	Naxay Thong	13 Oct 2005
TL	Naxay Thong	23 Aug 2006
	Phone Tong Substation	22 Mar 2005
	Phone Tong Substation	22 Feb 2006
	Naxay Thong	24-25 Aug 2006

c) Transmission line facilities

TL	Man Mang3- Tamaleng	5 Apr 2005
	Thalat – Ban Don	21 Jun 2005
	Nam Man 3 – Thana Leng	28 Feb 2006

d) Distribution facilities

DL	Vientiane Capital	13 Oct 2005
	Vientiane Capital	23-27 February 2006 (3 days)

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B. Outside Vientiane

a) Hydropower station facilities

CE	Xexet 2 and Houay Ho	18 – 20 Jun 2005
	Northern Lao PDR	28 Aug – 3 Sep 2005
	Xexet 1	22-25 Feb 2006
	Nam Theun 2	23-26 Aug 2006
HP	Theun Hinboun	19-20 Jun 2005
	Northern Lao PDR	25 Aug – 3 Sep 2005
	Xexet 1 (1st)	11-16 Nov 2005
	Xexet 1 (2nd)	22-25 Feb 2006
SS	Theun Hinboun	19-20 Jun 2005
	Champasak-Attapeu	5-9 Sep 2005
TL	Champasak-Attapeu	5-9 Sep 2005
DL	Southern Lao PDR	30 Oct – 5 Nov 2005
US	Southern Lao PDR	30 Oct – 5 Nov 2005

C. Trial Training

CE	4 Sep 2006
TL	28 -30 Aug 2006

3-4 Evaluation Using Five Elements

3-4-1 Relevance

The Team concluded that Overall Goal and Project Purpose defined in the PDM are still relevant because of the following reasons:

STEP II is compatible with Power Sector Policy Statement of Lao P.D.R. published in March 2001.

The need of LETS in the electric power sector is high. Currently, on-going and planned projects are implemented by different investors with different standards. This situation has been a problem for development of electric power sector in Lao P.D.R. Dissemination of LETS would be an effective strategy that can ensure safety and quality of the power sector in Lao P.D.R.

The Project would strengthen DOE and EDL's overall capacity of implementing developing projects. This may help the Lao Government ensure high-quality power supply and socio economic development.

3-4-2 Effectiveness

The Project is still in progress. The probability of achieving the purpose can be high in the following reasons:

Through the collaborative efforts of both sides, a complementary guideline and manuals related to LETS were developed and completed. Translation into the Lao language is completed and is ready for review by the Translation Committee to be organized by October, 2006.

The Project has discussed the establishment of a regulatory unit or division in DOE to enforce LETS. The division is to enforce LETS through dealing with the all applications from owners and investors interested in installment and construction of power facilities. LETS regulatory unit, which is a preparatory unit for "Electricity Management and LETS Regulatory Division" of DOE is expected to be established by December 2006. Through such institutional arrangement, they are expected to execute newly acquired skills and knowledge through the technical training.

3-4-3 Efficiency

Based on the input record of both sides, overall quality and quantity of inputs to the Project were appropriate. Both sides have carried out activities as scheduled by the agreement in R/D signed on December 7, 2004. For instance, Output 1, "Complementary guideline and manuals relating to the LETS is drawn" is making the most progress. Overall satisfaction with the Project was so high that it has progressed as early as expected.

Analysis based on the interview results raised the following issues: (1) Communication and information sharing need to be improved, (2) the role and responsibilities of L/T and S/T experts need to be clarified, (3) clarity of the Project framework and work plan should be enhanced, and (4) monitoring mechanism needs to be established. The Team expects further discussion among members concerned is necessary to avoid such problems.

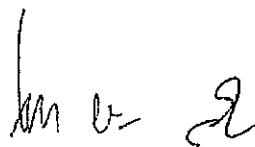
3-4-4 Impact

Tangible impact is not identified at the time of evaluation because most activities are still in progress.

3-4-5 Sustainability

The Evaluation result indicates that the following issues should be addressed in order to assure the sustainability of the Project:

The current focus of developing guidelines and manuals is strategically on the right track. Through such activities, C/Ps are able to acquire knowledge and skills necessary to administer and manage LETS in their respective work. The Project is requesting DOE to establish a regulatory division which becomes the authority to engage all regulatory works associated with LETS. Such institutional



arrangement and initiatives toward the establishment would motivate the C/Ps learn more through the Project.

4. Conclusion

The Team concludes that the Project has so far implemented, according to PO (ANNEX 4-1-2) and AWP (ANNEX 4-1-3), and achieved some outputs as planned. In particular, Output 1, "Complementary guideline and manuals relating to the LETS is drawn" is making the most progress. The Team, however, identified some areas to improve, particularly the Project management, communication and information sharing through the questionnaire and interview conducted during the evaluation activities.

C/Ps have been acquiring knowledge and skills necessary to manage and administer LETS through development of guidelines and manuals. Trainers training for DOE inspectors and EDL engineers are in progress. Regulatory unit within DOE is expected to be established by December 2006. The Project could achieve its purpose as planned following recommendations by the Team.

5. Recommendations

The evaluation Team recommends the following issues to ensure the successful implementation of the Project:

5-1 Establishment of regulatory division in DOE

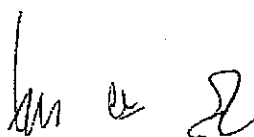
Both sides have recognized that the regulatory division has a crucial role to play in enforcing the LETS. The Team suggested DOE to make sure that the regulatory unit would be established as preparatory organization for the regulatory division which would bear decent status to conduct continuous enforcement of the LETS after the Project terminates.

DOE explained that the Project has conducted a few trial inspections of the detail design documents submitted by IPPs or EDL for the preparation of the unit and committed to continue this kind of trial inspections to establish the unit by December 2006.

The Team suggested JICA Laos Office to support their effort for the establishment of the unit continually.

5-2 Establishment of translation committee

LETS related documents of English version has been prepared so far through the Project activities and translation of these documents to Lao version has almost completed. Both sides recognized that translation committee in charge of checking the precision and adequacy of translation should be set up. The Team pointed out that establishment of the committee is behind the schedule and suggested DOE to make sure that the committee would be established soon.



DOE committed to establish the committee of which members will be assigned from MEM, Ministry of Justice, STEA, Ministry of Education, etc. by the end of October 2006 to check the translation in two months.

The Team suggested that EDL Training Centre should be included as a member of the committee since the center will take the key role for training of LETS.

5-3 Coordination of Project activities with JBIC Project for the construction of the transmission line

The JBIC Project is the first case with which LETS will be applied from the early stage and DOE will conduct examination of the detail design documents to be submitted by the JBIC Project. On the other hand the Project terminates in January 2008 although examination of the document will be conducted from January to February 2008.

Both sides recommend that the Project can support each C/P to conduct the inspection. The Team suggested that a few month extension of the Project would be necessary in order for C/Ps to conduct the examination successfully with supports by the experts. JICA will consider the issue continuously and final decision will be made after terminal evaluation for the Project.

5-4 Review of PDM

The Team mentioned that some indicators in the PDM should be reviewed so that actual situation of the Project would be reflected. For example indicator 2-1 is "20 trainers will be trained" despite there are now less than 20 C/Ps involved in the Project. This is because some C/Ps already moved to other organizations such as IPPs.

Both sides recognized the necessity of the review not only for revision of indicators but also for C/Ps to understand the framework of the Project well.

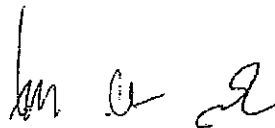
The Team suggested JICA to hold PCM workshop for review of PDM and for C/Ps to understand the Project better. The PDM would be revised at the workshop if necessary and the revision would be authorized by JCC meeting at the end of JFY.

5-5 Supports for STEP II by Expert to DOE

The Team suggested that the expert to DOE should be involved more in the Project to achieve its activities more efficiently and effectively.

5-6 Improvement of Communication and Information Sharing

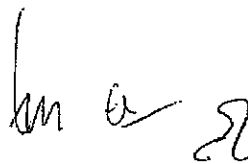
It is recommended that regular meetings consisting many different levels and responsibilities should be scheduled in order to improve communication and to strengthen common understanding about the Project.



Some comments made by C/Ps in the questionnaire and interview point out that information sharing and communication shall be improved between two sides as well as among all members of the Project. Some tasks have been carried out without shared recognition of their respective goal and purpose. Sometimes misunderstanding derived from the above situation leads to unwanted conflicts, according to interviewees. Both sides agree that there should be formal and informal routes to strengthen common understanding of the Project's day-to-day operations among parties concerned. L/T experts (coordinator) proposed a set of regular meetings to be arranged (ANNEX 6) to discuss various issues related to the Project.

5-7 Clarification of work responsibilities

The Team recommended that the work responsibility among the L/T experts should be defined more clearly. It is, therefore, recommended that each L/T expert bear the clarified responsibility of implementing and overseeing the Project based on the Output in the PDM. Detail of the clarification should be further discussed through the new regular meeting mentioned in 5-6.



STPE II Counterparts List (33 persons)

Project Director; Mr. Houmphone BULYAPHOL, Director General of DOE
 Project Manager; Mr. Vanhdy VILAYSANE, Deputy Manager of Technical Service Department, EDL
 National Project Coordinator; Mr. Houmphanh VONGPHACHANH, Electricity Management Division, DOE

Fields		DOE	EDL
Civil Engineering of Hydro Power (5 persons)	Full Time	Mr. Khonepheth SAMOUNTY	Mr. Vantheva BOUAKHASITH
	Part Time	Mr. Phonesavanh PHIMMASSONE	Mr. Norlavong VONGSINUANE
			Mr. Vilasanti PHOUTHAVONG
Hydropower plants, (5 persons)	Full Time	Mr. Phimphone RATSAVONG	Mr. Phoxay KEOKENCHANH
	Part Time	Mr. Sanhya SOMVICHITH	Mr. Khampha SIRIVONG
			Mr. Phonexay KHAGNONGEK
Transmission Lines (6 persons)	Full Time	Mr. Vithounlabadith THOMMABOUT	Mr. Sengklam THANIVONG
	Part Time	Mr. Litthanoulouk LASPHO	Mr. Vanhdy VILAYSANE
			Mr. Thavone KHAENETHONH
			Mr. Thongliane SOUVANNAMETHI
Substation (5 persons)	Full Time	Mr. Viengsay CHANTHA	Mr. Khongsavanh NGONVORARATH
	Part Time	Mr. Khamsing BOUNGONG Dr. Xayphone BOUNSOU	Mr. Douangpy SOUVANNACHIT
Distribution Lines (6 persons)	Full Time	Mr. Houmphanh VONGPHACHANH	Mr. Souk BOUALAPHETH
	Part Time	Mr. Boualom SAYSANAVONG	Mr. Mypheth PHONPHILA
			Mr. Khamserm SOUVANNA
			Mr. Phoxay PHOMMATHAM
User's Site (6 persons)	Full Time	Mr. Thammanoun NAKHAVITH	Mr. Xanaphone PHONEKEO
	Part Time	Mr. Syvang XAYYAVONG	Mr. Phatthana SIMMACHANTHAVONG
			Mr. Sengphet SOULIGNAVONG
			Mr. Anouphanh SIMMACHANTHAVONG

*M
A
B*

Equipment List for STEP2 Project

25/9/06

#	fiscal year	date	equipment #	Equipment Type	Product Name		Remark
1	FY2004	5/1/05	S2 0401-001	Digital Camera	X450		
2	FY2004	5/1/05	S2 0401-002	Digital Video Camera	GR-DZ7		
3	FY2004	5/1/05	S2 0401-003	Printer	HP DeskJst 6840	HP	
4	FY2004	5/1/05	S2 0401-004	Video	VHS		
5	FY2004	5/1/05	S2 0401-005	Resistance Tester	PDR-301		
6	FY2004	5/1/05	S2 0401-006	tool kit for electricians	A set		
7	FY2004	18/3/05	S2 0405-001	Desktop Computer	Compaq dx2000	HP	EDL Training Centre
8	FY2004	18/3/05	S2 0405-002	Desktop Computer	Compaq dx2000	HP	EDL Training Centre
9	FY2004	18/3/05	S2 0405-003	Desktop Computer	Compaq dx2000	HP	EDL Training Centre
10	FY2004	18/3/05	S2 0405-004	Desktop Computer	Compaq dx2000	HP	
11	FY2004	18/3/05	S2 0405-005	Desktop Computer	Compaq dx2000	HP	
12	FY2004	18/3/05	S2 0405-006	UPS	UPS 750VA	STANDON	EDL Training Centre
13	FY2004	18/3/05	S2 0405-007	UPS	UPS 750VA	STANDON	EDL Training Centre
14	FY2004	18/3/05	S2 0405-008	UPS	UPS 750VA	STANDON	EDL Training Centre
15	FY2004	18/3/05	S2 0405-009	UPS	UPS 750VA	STANDON	
16	FY2004	18/3/05	S2 0405-010	UPS	UPS 750VA	STANDON	
17	FY2004	18/3/05	S2 0405-011	Desktop Computer	Compaq dx2000	HP	
18	FY2004	18/3/05	S2 0405-012	UPS	UPS 750VA	STANDON	
19	FY2005	05/05/05	S2 0505-001	Desktop Computer	Compaq dx2000	HP	EDL Training Centre
20	FY2005	05/05/05	S2 0505-002	Desktop Computer	Compaq dx2000	HP	EDL Training Centre
21	FY2005	05/05/05	S2 0505-003	Desktop Computer	Compaq dx2000	HP	
22	FY2005	05/05/05	S2 0505-004	Desktop Computer	Compaq dx2000	HP	
23	FY2005	05/05/05	S2 0505-005	Desktop Computer	Compaq dx2000	HP	
24	FY2005	05/05/05	S2 0505-006	Tripod Projection Screen	180 X 240 cm	Vertex	
25	FY2005	05/05/05	S2 0505-007	Tripod Projection Screen	180 X 240 cm	Vertex	
26	FY2005	05/05/05	S2 0505-008	Note PC	Satellite A80-P435	Toshiba	
27	FY2005	05/05/05	S2 0505-009	Note PC	Satellite A80-P435	Toshiba	
28	FY2005	05/05/05	S2 0505-010	Note PC	Compaq Presario M2007AP	HP	
29	FY2005	05/05/05	S2 0505-011	UPS	UPS 800VA	Atlanta	EDL Training Centre
30	FY2005	05/05/05	S2 0505-012	UPS	UPS 800VA	Atlanta	EDL Training Centre
31	FY2005	05/05/05	S2 0505-013	UPS	UPS 800VA	Atlanta	
32	FY2005	05/05/05	S2 0505-014	UPS	UPS 800VA	Atlanta	
33	FY2005	05/05/05	S2 0505-015	UPS	UPS 800VA	Atlanta	
34	FY2005	05/05/05	S2 0505-016	Digital Camera	PowerShot A400	Canon	
35	FY2005	05/05/05	S2 0505-017	Digital Camera	PowerShot A400	Canon	
36	FY2005	05/05/05	S2 0505-018	Digital Camera	PowerShot A400	Canon	
37	FY2005	05/05/05	S2 0505-019	Digital Camera	PowerShot A400	Canon	
38	FY2005	05/05/05	S2 0505-020	Digital Camera	PowerShot A400	Canon	
39	FY2005	05/05/05	S2 0505-021	Digital Camera	PowerShot A400	Canon	
40	FY2005	05/05/05	S2 0505-022	Printer	LBP 3200	Canon	
41	FY2005	05/05/05	S2 0505-023	Printer	LBP 3200	Canon	
42	FY2005	05/05/05	S2 0505-024	Photocopy	imageRUNNER iR2000	Canon	
43	FY2005	05/05/05	S2 0505-025	LCD Projector	PT-LB10NTE	Panasonic	
44	FY2005	03/31/06	S2 0502-001	Note PC	Lenovo ThinkPad R50e	Toshiba	EDL Training Centre
45	FY2005	03/31/06	S2 0502-002	Note PC	Lenovo ThinkPad R50e	Toshiba	EDL Training Centre
46	FY2005	03/31/06	S2 0502-003	Bubble ink jet printer	Pixel i6500	Canon	EDL Training Centre
47	FY2005	03/31/06	S2 0502-004	Laser printer	LaserJet 2420	HP	EDL Training Centre
48	FY2005	03/31/06	S2 0502-005	LCD Projector	VPL CX-70	Sony	EDL Training Centre
49	FY2005	03/31/06	S2 0502-006	Printe Server			EDL Training Centre
50	FY2005	03/31/06	S2 0502-007	NAS			EDL Training Centre
51	FY2005	03/31/06	S2 0502-008	Switching Hub			EDL Training Centre
52	FY2006	08/11/06	S2 0602-001	Height measurement rod	SK-1210	SENSHIN	EDL Training Centre
53	FY2006	08/11/06	S2 0602-002	Measure	50-RN	SEKISUI	EDL Training Centre
54	FY2006	08/11/06	S2 0602-003	Binocular	8X21DH	Kenko	EDL Training Centre
55	FY2006	08/11/06	S2 0602-004	Binocular	8X21DH	Kenko	EDL Training Centre
56	FY2006	08/11/06	S2 0602-005	Binocular	8X21DH	Kenko	EDL Training Centre
57	FY2006	08/11/06	S2 0602-006	Hardhat(Helmet)	Safety No.360	Toyo	EDL Training Centre
58	FY2006	08/11/06	S2 0602-007	Hardhat(Helmet)	Safety No.360	Toyo	EDL Training Centre
59	FY2006	08/11/06	S2 0602-008	Hardhat(Helmet)	Safety No.360	Toyo	EDL Training Centre
60	FY2006	08/11/06	S2 0602-009	Hardhat(Helmet)	Safety No.360	Toyo	EDL Training Centre
61	FY2006	08/11/06	S2 0602-010	Hardhat(Helmet)	Safety No.360	Toyo	EDL Training Centre
62	FY2006	08/11/06	S2 0602-011	Hardhat(Helmet)	Safety No.360	Toyo	EDL Training Centre
63	FY2006	08/11/06	S2 0602-012	Hardhat(Helmet)	Safety No.360	Toyo	EDL Training Centre

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64	FY2006	08/11/06	S2 0602-013	Ruber glove	YS102	Yotsugi	EDL Training Centre
65	FY2006	08/11/06	S2 0602-014	Ruber glove	YS102	Yotsugi	EDL Training Centre
66	FY2006	08/11/06	S2 0602-015	Ruber glove	YS102	Yotsugi	EDL Training Centre
67	FY2006	08/11/06	S2 0602-016	Ruber glove	YS102	Yotsugi	EDL Training Centre
68	FY2006	08/11/06	S2 0602-017	Ruber glove	YS102	Yotsugi	EDL Training Centre
69	FY2006	08/11/06	S2 0602-018	Ruber glove	YS102	Yotsugi	EDL Training Centre
70	FY2006	08/11/06	S2 0602-019	Ruber glove	YS102	Yotsugi	EDL Training Centre
71	FY2006	08/11/06	S2 0602-020	Safety boots	SC206	Sanuki	EDL Training Centre
72	FY2006	08/11/06	S2 0602-021	Safety boots	SC206	Sanuki	EDL Training Centre
73	FY2006	08/11/06	S2 0602-022	Safety boots	SC206	Sanuki	EDL Training Centre
74	FY2006	08/11/06	S2 0602-023	Safety boots	SC206	Sanuki	EDL Training Centre
75	FY2006	08/11/06	S2 0602-024	Safety boots	SC206	Sanuki	EDL Training Centre
76	FY2006	08/11/06	S2 0602-025	Safety boots	SC206	Sanuki	EDL Training Centre
77	FY2006	08/11/06	S2 0602-026	Safety boots	SC206	Sanuki	EDL Training Centre
78	FY2006	08/11/06	S2 0602-027	Earth device for maintenance work		Hasegawa	EDL Training Centre
79	FY2006	08/11/06	S2 0602-028	Ruber glove	YS101	Yotsugi	EDL Training Centre
80	FY2006	08/11/06	S2 0602-029	Ruber glove	YS101	Yotsugi	EDL Training Centre
81	FY2006	08/11/06	S2 0602-030	Jacket (insulation Type)	YS121-4	Yotsugi	EDL Training Centre
82	FY2006	08/11/06	S2 0602-031	Jacket (insulation Type)	YS121-4	Yotsugi	EDL Training Centre
83	FY2006	08/11/06	S2 0602-032	Ruber boots (MV Insulated Protector)	YS111-4	Yotsugi	EDL Training Centre
84	FY2006	08/11/06	S2 0602-033	Ruber boots (MV Insulated Protector)	YS111-4	Yotsugi	EDL Training Centre
85	FY2006	08/11/06	S2 0602-034	LV Volt finger	HCL5000K	Musashi	EDL Training Centre
86	FY2006	08/11/06	S2 0602-035	Humidity & temperature meter		Multi	EDL Training Centre
87	FY2006	08/11/06	S2 0602-036	Safety belts for line-men	TE-27	Fujii	EDL Training Centre
88	FY2006	08/11/06	S2 0602-037	Safety belts for line-men	TE-27	Fujii	EDL Training Centre
89	FY2006	08/11/06	S2 0602-038	Ladder	MAW180S		EDL Training Centre
90	FY2006	08/11/06	S2 0602-039	Pocket campus	S-28	Ushikata	EDL Training Centre
91	FY2006	08/11/06	S2 0602-040	Magnet pocket compass adjustment	YMK-100	Yanagihara	EDL Training Centre
92	FY2006	08/11/06	S2 0602-041	Voltage checker		Sunazaki	EDL Training Centre
93	FY2006	08/11/06	S2 0602-042	Voltage detector (wind mill type)	S-275E	Sunazaki	EDL Training Centre
94	FY2006	08/11/06	S2 0602-043	Voltage detector	HXC-3K	Hasegawa	EDL Training Centre
95	FY2006	08/11/06	S2 0602-046	Voltage detector	HXC-3K	Hasegawa	EDL Training Centre
96	FY2006	08/11/06	S2 0602-047	Voltage detector	HXC-3K	Hasegawa	EDL Training Centre
97	FY2006	08/11/06	S2 0602-044	Multimeter	CDM-6000	Custom	EDL Training Centre
98	FY2006	08/11/06	S2 0602-045	Clampmeter	Model 310	Multi	EDL Training Centre
99	FY2006	08/11/06	S2 0602-048	Distance Measure	G-1108	Toei Light	EDL Training Centre
100	FY2006	08/25/06	S2 0602-049	Digital oscilloscope	Hioki 8860	Hioki	EDL Training Centre
101	FY2006	08/25/06	S2 0602-050	Digital oscilloscope (memory board)	Hioki 9715-01 Memory Board	Hioki	EDL Training Centre
102	FY2006	08/25/06	S2 0602-051	Digital oscilloscope (carrying case)	Hioki 9723 Carrying Case	Hioki	EDL Training Centre
103	FY2006	08/25/06	S2 0602-052	Interface converter of AC voltage/current signal	Hioki 8956 Analog unit	Hioki	EDL Training Centre
104	FY2006	08/25/06	S2 0602-053	Interface converter of AC voltage/current signal (Clamp)	Hioki 9694 Clamp	Hioki	EDL Training Centre
105	FY2006	08/25/06	S2 0602-054	Interface converter of AC voltage/current signal (Clamp)	Hioki 9694 Clamp	Hioki	EDL Training Centre
106	FY2006	08/25/06	S2 0602-055	Interface converter of AC voltage/current signal (Spare parts)	Hioki 9694 Spareparts	Hioki	EDL Training Centre
107	FY2006	08/25/06	S2 0602-056	Interface converter of AC voltage/current signal (Spare parts)	Hioki 9694 Spareparts	Hioki	EDL Training Centre
108	FY2006	08/25/06	S2 0602-057	Interface converter of frequency signal	Hioki 8940 F/V unit	Hioki	EDL Training Centre
109	FY2006	08/25/06	S2 0602-058	Interface converter of frequency signal	Hioki 9303 PT	Hioki	EDL Training Centre
110	FY2006	08/25/06	S2 0602-059	Interface converter of frequency signal (Conversion Adapter)	Hioki 9199 Conversion Adapter	Hioki	EDL Training Centre
111	FY2006	08/25/06	S2 0602-060	Resistance signal	Hioki 8939 Strain unit	Hioki	EDL Training Centre
112	FY2006	08/25/06	S2 0602-061	Resistance signal	Hioki 8939 Strain unit	Hioki	EDL Training Centre
113	FY2006	08/25/06	S2 0602-062	Displacement transducer (Build-in reel type)	DTP-D-1KS	Kyowa	EDL Training Centre
114	FY2006	08/25/06	S2 0602-063	Displacement transducer (Build-in reel type)	DTP-D-1KS	Kyowa	EDL Training Centre
115	FY2006	08/25/06	S2 0602-064	Displacement transducer (Build-in reel type)	DTP-D-1KS	Kyowa	EDL Training Centre
116	FY2006	08/25/06	S2 0602-065	Pressure-resistance transducer (Strain type)	Kyowa PG-20KU	Kyowa	EDL Training Centre
117	FY2006	08/25/06	S2 0602-066	Pressure-resistance transducer (Strain type)	Kyowa PG-50KU	Kyowa	EDL Training Centre
118	FY2006	08/25/06	S2 0602-067	Reactive power frequency and wattour meter	Kyoritsu 6300-01	Kyoritsu	EDL Training Centre
119	FY2006	08/25/06	S2 0602-068	Dead-weight type pressure gauge tester	NAGANO KEIKI PD23	NAGANO	EDL Training Centre
120	FY2006	08/25/06	S2 0602-069	Mercury Themometer		SANDA	EDL Training Centre
121	FY2006	08/25/06	S2 0602-070	Mercury Themometer		SANDA	EDL Training Centre
122	FY2006	08/25/06	S2 0602-071	Mercury Themometer		SANDA	EDL Training Centre
123	FY2006	08/25/06	S2 0602-072	Mercury Themometer		SANDA	EDL Training Centre
124	FY2006	08/25/06	S2 0602-073	Mercury Themometer		SANDA	EDL Training Centre
125	FY2006	08/25/06	S2 0602-074	Hygrometer	SK-1	SATO	EDL Training Centre
126	FY2006	08/25/06	S2 0602-075	Vibration meter	SHOWA 1022A	SHOWA	EDL Training Centre
127	FY2006	08/25/06	S2 0602-076	3 phrase earth rod set	Earth rod type 40	Sunazaki	EDL Training Centre
128	FY2006	08/25/06	S2 0602-077	3 phrase earth rod set	Earth rod type 40	Sunazaki	EDL Training Centre
129	FY2006	08/25/06	S2 0602-078	Voltage detector	HSF-7	Hasegawa	EDL Training Centre
130	FY2006	08/25/06	S2 0602-079	Voltage detector	HSF-7	Hasegawa	EDL Training Centre
131	FY2006	08/25/06	S2 0602-080	Voltage detector	HSF-7	Hasegawa	EDL Training Centre

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132	FY2006	08/25/06	S2 0602-081	AC/DC tester	YOKOGAWA 320110	Yokogawa	EDL Training Centre
133	FY2006	08/25/06	S2 0602-082	AC voltmeter	YOKOGAWA 201760-T05	Yokogawa	EDL Training Centre
134	FY2006	08/25/06	S2 0602-083	Ground resistance meter	YOKOGAWA 323501	Yokogawa	EDL Training Centre
135	FY2006	08/25/06	S2 0602-084	Ground resistance meter	YOKOGAWA 323501	Yokogawa	EDL Training Centre
136	FY2006	08/25/06	S2 0602-085	Sound meter	Rion Sound meter NL-21	Rion	EDL Training Centre
137	FY2006	08/25/06	S2 0602-086	Transit	TOPCON GTS-236N	Topcon	EDL Training Centre
138	FY2006	08/25/06	S2 0602-087	Vernier caliper	MITSUTOYO 530-109 N30	Mitsutoyo	EDL Training Centre
139	FY2006	08/25/06	S2 0602-088	Distance meter	TOPCON DM-500A	Topcon	EDL Training Centre
140	FY2006	08/25/06	S2 0602-089	Tripod			EDL Training Centre
141	FY2006	08/25/06	S2 0602-090	Insulation tester (Megger)	Yokogawa 321345	Yokogawa	EDL Training Centre
142	FY2006	08/25/06	S2 0602-091	High voltage test sets	Chubuseiki HLF-60	Chubu Seiki	EDL Training Centre
143	FY2006	08/25/06	S2 0602-092	Universal protective Relay test set	Musasi IP-R2000	Musasi	EDL Training Centre
144	FY2006	08/25/06	S2 0602-093	Universal protective Relay test set	Musasi DCU-25	Musasi	EDL Training Centre
145	FY2006	08/25/06	S2 0602-094	Universal protective Relay test set	Musasi RDF-5A	Musasi	EDL Training Centre
146	FY2006	08/25/06	S2 0602-095	Universal protective Relay test set	Musasi DT-2200	Musasi	EDL Training Centre
147	FY2006	08/25/06	S2 0602-096	Earth tester	Musasi ET-5A	Musasi	EDL Training Centre
148	FY2006	08/25/06	S2 0602-097	Multimeter	Custom CDM-6000	Custom	EDL Training Centre
149	FY2006	08/25/06	S2 0602-098	Thermometer by infrared rays	Custom CT-4100	Custom	EDL Training Centre
150	FY2006	08/25/06	S2 0602-099	Insulation tester 500-5000V	Musasi DI-26	Musasi	EDL Training Centre
151	FY2006	08/25/06	S2 0602-100	Insulation tester 500-5000V	Musasi DF-11N	Musasi	EDL Training Centre
152	FY2006	08/25/06	S2 0602-101	Clampmeter 2000A	Multi Model 270	Multi	EDL Training Centre
153	FY2006	08/25/06	S2 0602-102	Clampmeter 200A & Earth Lakage	Multi Model 310	Multi	EDL Training Centre
154	FY2006	08/25/06	S2 0602-103	Phase rotation tester for medium voltage	Chubuseiki DPL-02WB	Chubu Seiki	EDL Training Centre
155	FY2006	08/25/06	S2 0602-104	Phasing tester for medium voltage	Chubuseiki DPP^30	Chubu Seiki	EDL Training Centre
156	FY2006	08/25/06	S2 0602-105	Voltage detector for medium voltage	Chubuseiki CSDV2-1	Chubu Seiki	EDL Training Centre
157	FY2006	08/25/06	S2 0602-106	Voltage detector for low voltage	Chubuseiki DAJ-06P	Chubu Seiki	EDL Training Centre
158	FY2006	08/25/06	S2 0602-107	Tripod	Topcon DW-1	Topcon	EDL Training Centre
159	FY2006	08/25/06	S2 0602-108	Single Prism Set		Topcon	EDL Training Centre

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Program of C/P training for LETS trainer in 2006 JFY (draft)

June/2/2006

STEP2

1. Basic policy of C/P training

(1) Necessary knowledge and skill

LETS trainers are able to have enough knowledge and skill about the following subject:

- Contents of LETS (LETS articles and Explanation)
- Contents of Guideline
- Contents of Safety rule
- Examination skill (Examination manual)
- Inspection skill (Inspection manual)

(2) Training program

- Understanding training

C/Ps are able to understand contents of documents overall though their translation works.

(May – Jun: GL, SR, E&I manual, Sep – Mar: Explanation)

- Practical training

C/Ps are able to understand examination works for on going and new project, and a part of inspection works are trained at EDL T/C .

(Jul – Sep: design examination, Aug and Oct: inspection training)

- Teaching training

C/Ps are able to teach and explain LETS documents at seminar for PDIH and EdL staff members. (Dec)

- Evaluation

LETS trainer is certificated by STEP2 project.

(Feb: examination, Mar: certification)

(3) Training method for DOE and EdL C/Ps

- Understanding training

DOE and EdL C/Ps conduct the translation work together.

- Practical training

For design examination training, EdL C/Ps prepare application forms and DOE C/Ps examine them.

For inspection training before C/O, DOE and EdL C/Ps learn how to handle the instruments and tools together from short-term experts.

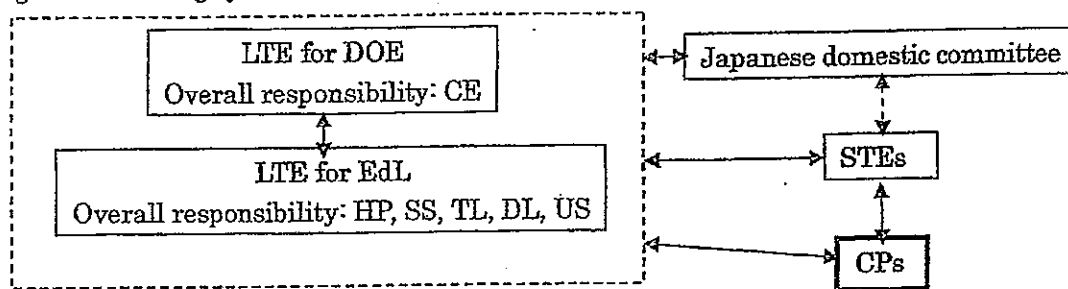
- Teaching training

DOE and EdL C/Ps prepare the materials for seminar and teach and explain them.

- Evaluation

C/Ps take the examination prepared by the project.

(4) Figure of training system



2. Program of C/P training in 2006 JFY

Classification	Items	Purpose	Period
Procedure of application and examination	Translation of 'Guideline'	Understanding for procedure of application and examination	May
Safety for power facilities after C/O	Translation of 'Safety rule'	Understanding of safety for power facilities (generally)	May
	Preparation of 'EdL safety rule'	Understanding of safety for power facilities (EdL side)	Jul - Oct
Design examination	Translation of examination manual	Understanding of design examination methods	Jun
	Design examination of on going and new project	Learning of design examination methods (Xeset2 project, JBIC project, etc)	Jul - Mar
	Following up for these results		Aug and Oct
Inspection before C/O	Translation of inspection manual	Understanding of inspection methods before C/O	Jun
	Practical training of inspection before C/O	Learning of inspection methods before C/O at EdL T/C and EdL sites	Aug and Oct
Teaching training	Exhibition of seminar for translated LETS documents	Teaching exercise to PDIH and EdL staff	Dec
Contents of LETS articles	Picking up problems from 'Explanation'	Understanding of LETS articles and the basis	Jul - Sep
	Following up the problems		Aug and Oct
	Modification and translation of 'Explanation'		Sep - Mar
Evaluation	Examination for LETS trainer	Evaluation of C/Ps as LETS trainer	Feb

☐ : Item that STEs are related

▨ : Item that STEs and Japanese domestic committee are related

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3. C/P training by short-term experts

(1) Period

- CE, HP, TL, SS teams
7th Aug – 1st Sep...4weeks
- DL, US teams
8th Oct – 3rd Nov...4 weeks

(2) Place

EdL T/C and EdL sites

(3) Available training facilities and inspection instruments/tools

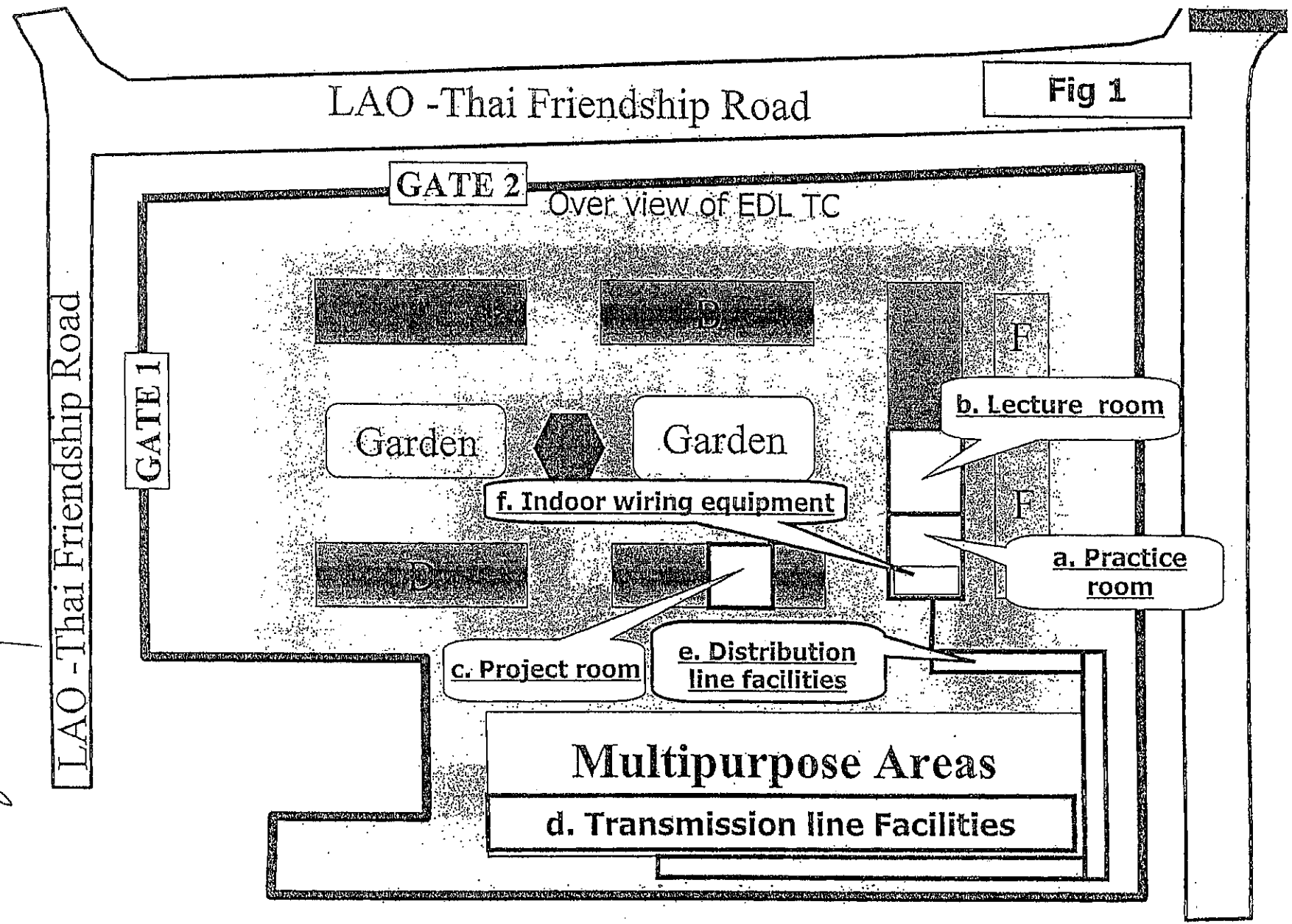
- Training facilities...Fig-1
 - a. 115 kV TL for training
Double circuits, 3 towers, height: 19m, span length: 50 m...Fig-2
 - b. 22kV/400V DL for training
6 poles (22kV DL: 5 spans, 400V DL: 1 span), 22kV/400V transformer: 1 unit
 - c. 22kV/400V indoor wiring facilities for training
Receiving panel for 22kV and 400V, 22kV/400V transformer: 1 unit
- Inspection instruments and tools
Refer to attachment...Table-1

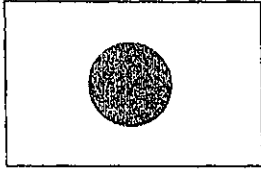
(4) Contents of training by short-term experts

Items	Contents of training	Participants
Following up the problems from 'Explanation'	Guidance to problems that picked up by C/P.	C/P
Training for inspection before C/O	Practical training for inspection before C/O by training facilities and tools ----- CE, HP, SS teams: EdL power station, substation TL, DL, US teams: EdL T/C facilities	C/P, PDIH staff, EdL staff, private company staff
Following up design examination	CE, HP teams: Xeset2 project TL, SS teams: JBIC project DL, US teams: Construction of training facilities at EdL T/C, etc	C/P
Others	Depend on C/P's request	C/P

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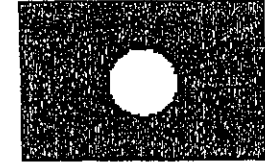




JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Transmission Line Model based on Lao Electric Power Technical Standard (LETS)

Fig. 2



[Project name]

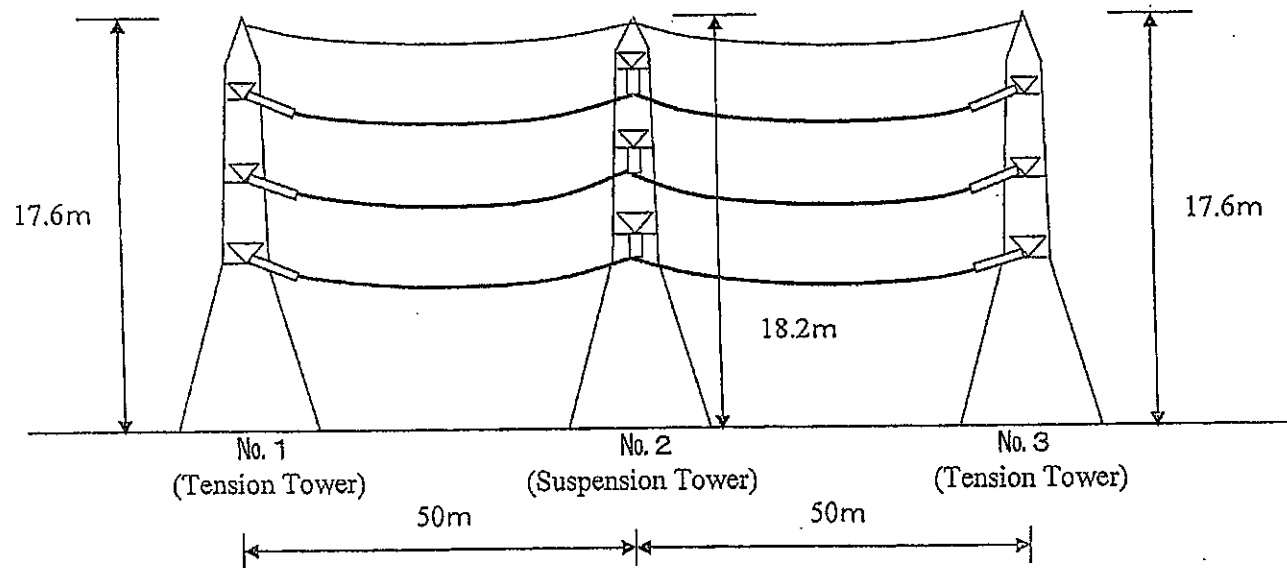
JICA Lao Electric Power Technical Standard Promotion Project (STEP2)

[Facility contents]

- Voltage: 115kV
- Tower: Self-supporting lattice type, Double circuits tower
- Foundation: Pad and chimney type foundation
- Conductor: ACSR240mm²
- Ground wire: GSW50mm²
- Insulator: Disc type porcelain insulator, 10units, Single string and double strings

[Period of Completion]

March 2006



km 20-22

Table 1

Instruments and Tools at EdL T/C

No.	Item	Specification	Reference	Quantity	Note
1	Digital oscilloscope with data logger and printer	Minimum measurement range: 5 mV to 20V/div Frequency band: DC to more than 10MHz Number of input channel: More than 7 channels Power supply: 100 to 240 V AC (50/60Hz)	HIOKI 8860 MEMORY RECORDER	1	
		Memory capacity: More than 32M	HIOKI 9715-01 Memory Board	1	
		Carrying case for digital oscilloscope	HIOKI 9723 Carrying case	1	
2	Interface converter of AC voltage/current signal	Number of Input channel: More than 2 channels Maximum measurement range: More than 400 V Frequency band: 50/60 Hz	HIOKI 8956 Analog unit (2ch/unit)	1	
		Frequency band: 50/60 Hz Maximum measurement range: More than 5 A	HIOKI 9694 Clamp on sensor	2	
		Connecting cable between digital oscilloscope and interface converter Length: 30 m	HIOKI 9694 Spare parts	2	
3	Interface converter of frequency signal	Number of Input channel: More than 2 channels Minimum measurement range: 0.05 Hz to 5kHz/div	HIOKI 8940 F/V unit (2ch/unit)	1	Hydropower Field
		Transformer: 400 V AC to 10V AC	HIOKI 9303 PT	1	
		Conversion adapter	HIOKI 9199 Conversion adapter	1	
4	Interface converter of resistance signal	Number of Input channel: More than 2 channels Minimum measurement range: 20 μ e to 1000 μ e/div	HIOKI 8939 Strain unit (2ch/unit)	2	
5	Built-in reel type displacement transducer (strain type)	Rated capacity: 1000mm Measuring force: More than 1.18N	KYOWA DTP-D-1KS Built-in reel type Displacement transducer	3	
6	Pressure-resistance transducer (strain type)	Rated capacity: 2MPa	KYOWA PG-20KU Pressure transducer	1	
		Rated capacity: 5MPa	KYOWA PG-50KU connecting adapters	1	
7	Reactive power, Frequency and Watthour meter	Maximum voltage: More than 600V Maximum current: More than 500A Frequency: 50-60Hz	KYORITSU 6300-01 Compact power meter with three 8125 Power clamp sensors, carrying case and attachment packaged	1	
8	Dead weight type pressure gauge	Type: Bench type Minimum Pressure range: 10 to 50 MPa	NAGANO KEIKI PD23 Bench type Dead-weight tester	1	
9	Mercury Thermometer	Scale range: 0 to 200°C Length: More than 30 cm	SANDA stick type mercury thermometer	5	
10	Hygrometer	Type: Portable type Scale range: 10 to 50°C	SANDA KEIKI Hygrometer SK-1	1	
11	Vibration meter	Frequency range: 10-1000Hz Power supply: Battery type	SHOWA 1022A Vibrometer with analyzer Mini Vibro with Magnet Holder (MG-2)	1	
12	3 phase Earth Rod set	Type: Including put on/off fitting Voltage: 115 kV	SUNAZAKI SEISAKUSHO Earth Rod Type 40	2	
13	Voltage Detector		Hasegawa Electric Voltage Detector	3	
14	AC/DC tester	AC voltage: 0 to 1200V AC current: 0 to 1200mA Resistance: 0 to 2000 kilo-ohm	YOKOGAWA 320110	1	
15	AC voltmeter	Maximum voltage: More than 424V(CREST)	YOKOGAWA 201760-T05 424V Crest	1	Substation Field
16	Ground resistance meter	Earth resistance: 0 to 1000 ohm Earth voltage: 0 to 30V Power supply: Battery type	YOKOGAWA Ground resistance meter 323501	2	
17	Sound meter	Frequency: 20Hz to 8kHz Power supply: Battery type	Rion sound meter NL-21	1	
18	Voltage Checker	Maximum 250V	SUNAZAKI SEISAKUSHO	1	
19	Windmill Type Voltage Detector	Maximum 230kV	SUNAZAKI SEISAKUSHO, S-275E, 3070026	1	

in a 22

No.	Item	Specification	Reference	Quantity	Note
20	Transit	Accuracy measurement angle: 7" Magnification: 30	TOPCON GTS-236N	1	Transmission Line Field
21	Vernier caliper	Maximum measurement length: 300 mm Minimum measurement length: 0.05mm	MITUTOYO 530-109 N30	1	
22	Distance meter	Maximum measurement length: 500m Minimum measurement length: 8m	TOPCON DM-500A	1	
23	Tripod	Height: 2000mm	K&K EP115	1	
24	Insulation tester (Megger)	Resistance: 2 to 2000 Mega ohm Voltage: 0 to 300V	YOKOGAWA 321345	1	
25	Pocket Compus		USHIKATA SHOUKAI S-28	1	
26	Fitting for Transit Compus		YANAGIHARA KOUKI	1	User's Site Field
27	High voltage test sets 0-70kVDC	Output voltage: DC 80kV Short circuit current: 4mA Power supply: Battery type	CHUBUSEKI HLF-60	1	
28	Universal Protective Relay Test Sets	Measurement: Over current relay test and ground fault direction relay test	MUSASHI IP-R2000	1	
		Current: 0 to 25A	MUSASHI DCU-25	1	
		Voltage: 0 to 1000V Current: 0 to 2.5A	MUSASHI RDF-5A	1	
		Voltage transformer: From 240V to 100V Capacity: 2kVA	MUSASHI DT-2000	1	
29	Earth tester	Resistance: 0 to 1000 ohm Voltage: 0 to 300V Current: 0 to 30mA	MUSASHI ET-5A	1	
30	Multimeter	Voltage: 0 to 600V Current: 0 to 6000A	CUSTOM GDM-6000	1	
31	Thermometer by infrared rays	Temperature: 0 to 550°C Measurement method: Infrared ray	CUSTOM CT-4100	1	
32	Insulation tester 500-5000V	Voltage: 0 to 600V Resistance: 0 to 2000 Mega-ohm Voltage: 0 to 11kV Resistance: 0 to 100,000 Mega-ohm	MUSASHI DI-26 MUSASHI DI-11N	1	
33	Clampmeter 2000A	Voltage: 600V Current: 2000A Resistance: 40 Mega-ohm Frequency: 50/60Hz	MULTI Model 270	1	
34	Clampmeter 200A & Earth Leakage	Voltage: 600V Leakage Current: 200A Resistance: 40 Mega-ohm Frequency: 50/60Hz	MULTI Model 310	1	
35	Phase rotation tester for low voltage	Voltage: 0 to 230V Frequency: 50/60Hz	CHUBUSEKI DPL-02WB	1	
36	Phasing tester for medium voltage	Voltage: 0 to 22kV Frequency: 50/60Hz Structure: Nylon type	CHUBUSEKI DPP-30	1	
37	Voltage detector for medium voltage	Voltage: 0 to 22kV Frequency: 50/60Hz	CHUBUSEKI CSDV2-f	1	
38	Voltage detector for low voltage	Voltage: 0 to 600V Frequency: 50/60Hz	MULTI DAJ-08P	1	
39	Height measurement rod	22kV insulation	SENSHIN SK-1210	1	Distribution Field
40	Measure		YAMAYO MTR50	1	
41	Binocular		Kenko 8X21DH camo	3	
42	Distance measurement(digital)		Toei Light G-1108	1	
43	Hardhat(Helmet)		TOYO SAFETY No.360F	7	
44	Rubber Glove (LV insulated Protector)	For 22kV	YOTSUGI YS102	7	
45	boots(Insulation)	For 22kV	SANUKI SC208	7	
46	Earthing device for maintenance work	For 22kV	MULTI MA115-AN	1	
47	Rubber Glove (MV Insulated Protector)	For 22kV	YOTSUGI YS101	2	
48	Jacket(Insulation Type)	For 22kV	YOTSUGI YS121-4	2	
49	Rubber Boots (MV Insulated Protector)	For 22kV	YOTSUGI YS111-4	2	
50	LV Volt finger	For 400V	MUSASHI 4102 HCL5000K	1	
51	Humidity & Temperature Meter		MULTI CN1114C	1	
52	Safety belts for line-men	For distribution pole	High Electric Technology J.L 27 (No. 1000)	2	
53	Ladder(Purpose for climb of a pole)		Watanabe MAW180S	1	

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Translation of project documents

25 April 2006
STEP2 Project

1. Required documents (4 documents)

- Guideline (5 volumes;)
- Safety Rule, including Safety guide for US (3+1 volumes)
- Examination & Inspection Manual (6 volumes)
- Explanation (translation work should be made later)

Remark; It should be revised first, because the contents of documents do not reflect the real situation in Lao PDR and each field review and modify explanation respectively. After revision, translation work will be commenced in due course.

2. Working period

CE/HP/ SS/ TL;	April to June 2006
DL/US;	June to August 2006

The draft documents should be distributed to participants in the second workshop for DL and US. In order to do this, the first draft need to be completed due on 24 and 25 May.

3. Translators

Project Manager and full-time project member(s) from the 6 fields (totally 13 members)

4. Criteria for honorarium

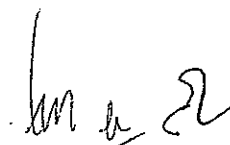
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Unit prices between for tables and for the article are different.

5. Process of translation work

(1) Establishment of Working Group

Working Group (WG) should be set up for translation work in the 3 documents. These documents are translated into Lao language in 6 fields respectively. WG aims to avoid duplicated work and to streamline translation work. This is because some common articles in Guideline and Safety Rules are commonly translated into Lao language among 6 fields.

Long-term experts should work together through participating in meetings of WG in order to monitor the progress and to supervise this translation work



a. Working day and subjects

Every Thursday and Friday the meetings should be held. Topics during the meetings are as follows,

Thursday morning:	Guideline
Thursday afternoon:	Safety Rules
Friday morning:	Weekly meeting
Friday morning:	E&I manual
Friday afternoon:	E&I manual (if necessary)

b. WG members

Mr. Vandy, Project Manager
Mr. Phonesavanh, Mr. Norlavong (CE)
Mr. Phimphone, Mr. Phoxay (HP)
Mr. Viengsay, Mr. Khongsavanh (SS)
Mr. Vithounlabadith, Mr. Thavone (TL)
Mr. Houmphanh, Mr. Khamserm (DL)
Mr. Thammanoun, Mr. Xanaphone (US)
Dr. Kuroda, Mr. Ogawa (JICA long-term expert)

(2) Establishment of 'Translation Committee'

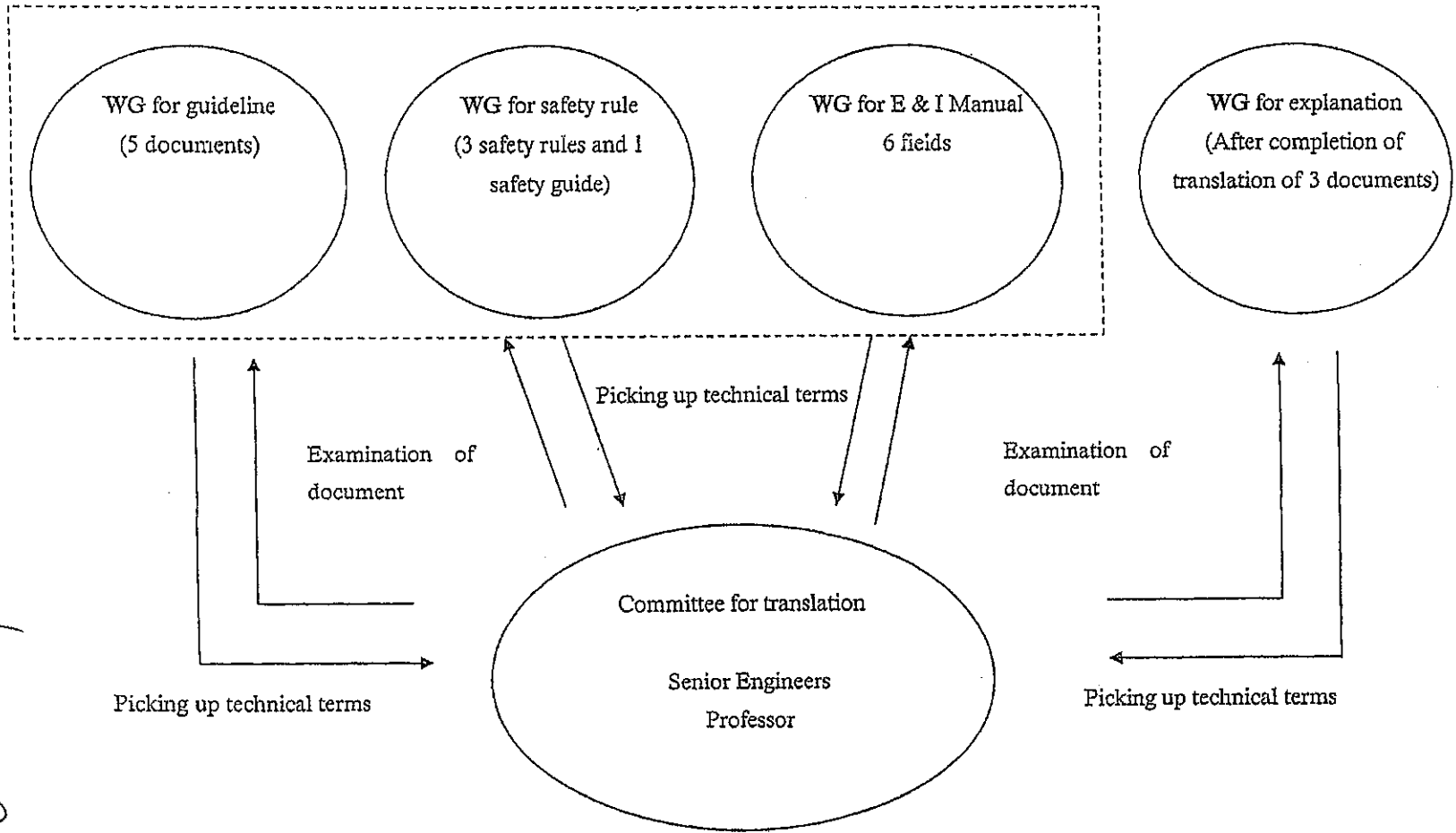
The translation committee should be established. The committee members are appointed from ministries concerned, state owned power companies and academic scholars. It functions the final authorisation of translated documents.

Through work, some new technical terminologies should be also extracted and these words are added in the glossary for terminology to upgrade.

(3) Overall Schedule

Tentative schedule for the above mentioned process is as follows,

May 2006	Preparation for establishment of the committee Clarification of parties concerned, issuing letters from the Project Director, selecting committee members from parties concerned
Jun 2006	Commencement of authorisation
Aug 2006	Termination of authorisation
Sep 2006	Upgrading the glossary for terminology



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JCC Meeting 2 June, 2006

Establishing LETS Regulatory Division in DOE (Consent Draft)

1. Organizational Structure

The skeleton of organizational structure "LETS Regulatory Division" involved to the Electricity Law and the managing and operating for the Lao Electric Power Technical Standards (LETS) was proposed and briefly explained at the project meeting on 15 February 2006.

It is under the control of a head (manager) and structured into two (2) fields inspectors such as Hydropower Civil Engineering Facilities and Electrical Facilities covering both power utilities and electricity consumers in Lao PDR.

Assignment of inspectors under the head are engaged in dealing with the application treatment of power facilities from the owners who are interested in the installments or the construction, examining, inspecting and then judging whether the application are satisfactory or not in the light of both LETS requirements and its Guidelines requirements.

A head could supports and directs provincial matters (2MW or less) and district matters (100kW or less) if there is request

In addition to LETS execution, it has activities toward LETS awareness and the public acceptance (PA) across the country, and also establishes a Monitoring Committee which consists of neutral members so as to surveillance the effectiveness, efficiency, transparency, fairness etc. in terms of LETS administering.

2. Principal Functions and Scope of Work of LETS Regulatory Division

Principal functions and activities of the division in my opinion are briefly as follows;

- 1) to legislate the Guideline on managing and operating LETS and the Safety Rules as the Ministerial Rules(the Decree), and to proceed it with the preparation
- 2) to disseminate LETS and improve LETS awareness
- 3) to enforce LETS application in Lao public and power sector
- 4) to arrange both legal implementation system and allocate the budget
- 5) to support and direct the provincial mandate of their electric power development project
- 6) to examine and inspect the power facility if it conforms to LETS requirement
- 7) to give approval if it is satisfactory to both LETS and its Guidelines
- 8) to promote safety and efficiency on the part of electricity undertakings
- 9) to collect electricity data, analyze and issue annual report
- 10) to educate inspectors for LETS execution and encourage chief engineers in electrical business enterprises
- 11) to deal with legal matters and/or revise them if necessary
- 12) to monitor LETS administering and ensure it with advice of a monitoring committee

3. Methodology for setting LETS Regulatory Division

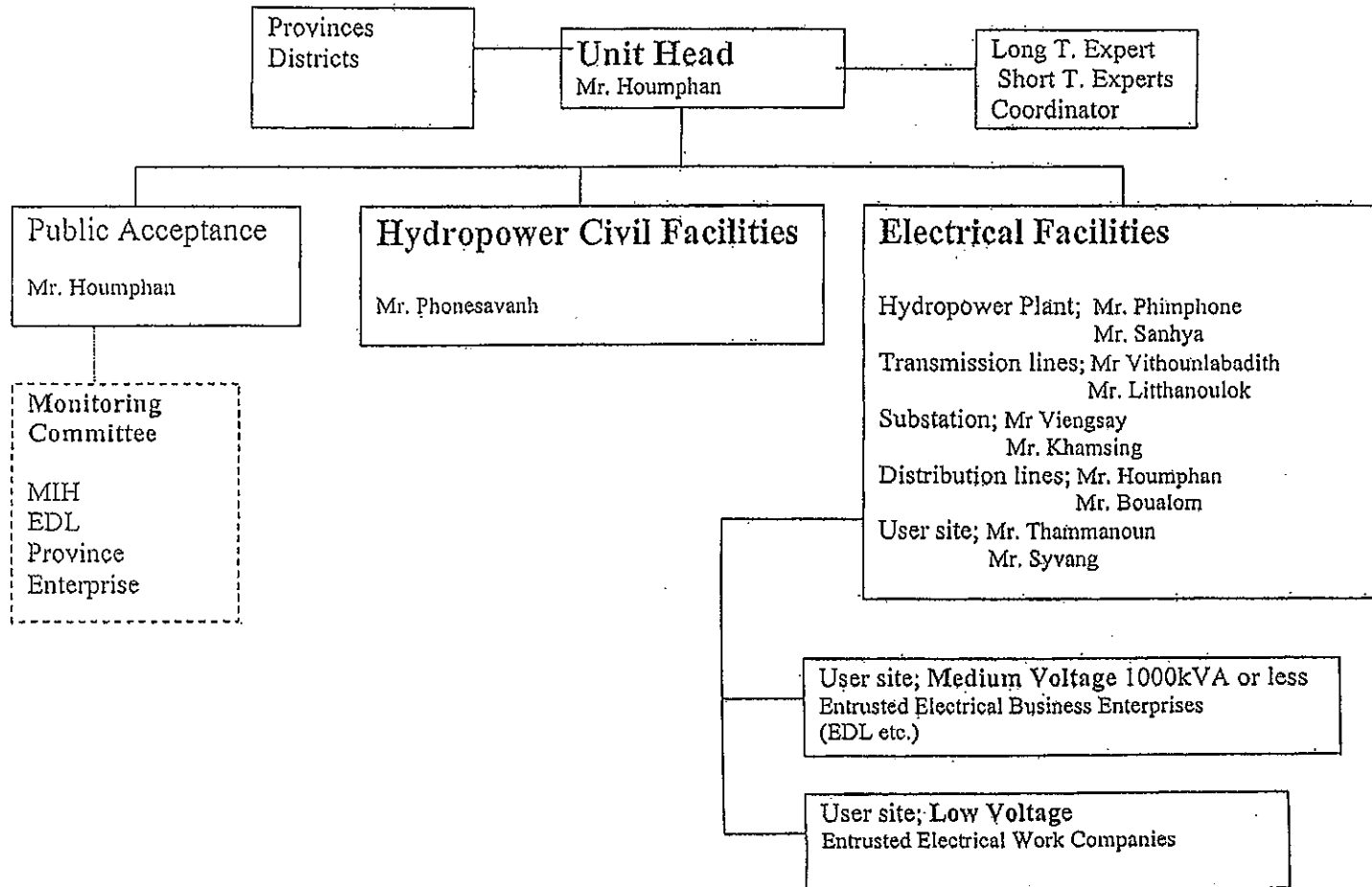
The following activity steps and schedules can be considered;

- 1) *LETS Regulatory Unit* attached the diagram (Fig.1) in STEP 2 project starts from in May, 2006 at the timing of kick-off to the translation work on LETS documents and the legislations.
- 2) Nominate a tentative head of the Unit in the project in May
- 3) Nomination of CP(Fig.1) in the two fields in May
- 4) *Unit* in the project is engaged in implementing the assignment above 2. for the time being.
- 5) CP will be certificated by STEP2 project as the LETS inspectors in March 2007
- 6) In May 2007, unify the existing Electricity Management Division which has similar scope and assignment and LETS Regulatory Unit in the project, and establish a new "Electricity Management and LETS Regulatory Division (tentative)" attached the diagram (Fig.2) as the enhanced existing division in DOE.
- 7) Deploy the certificated inspectors at the Division in May
- 8) Enhanced Electricity Management and LETS Regulatory Division (tentative) in DOE will be authorized by the Minister or GOL in 2007.
- 9) Electricity Management and LETS Regulatory Division (tentative) continually carry out the activities assigned above 2.

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Fig.1 *LETS Regulatory Unit in STEP2 Project*

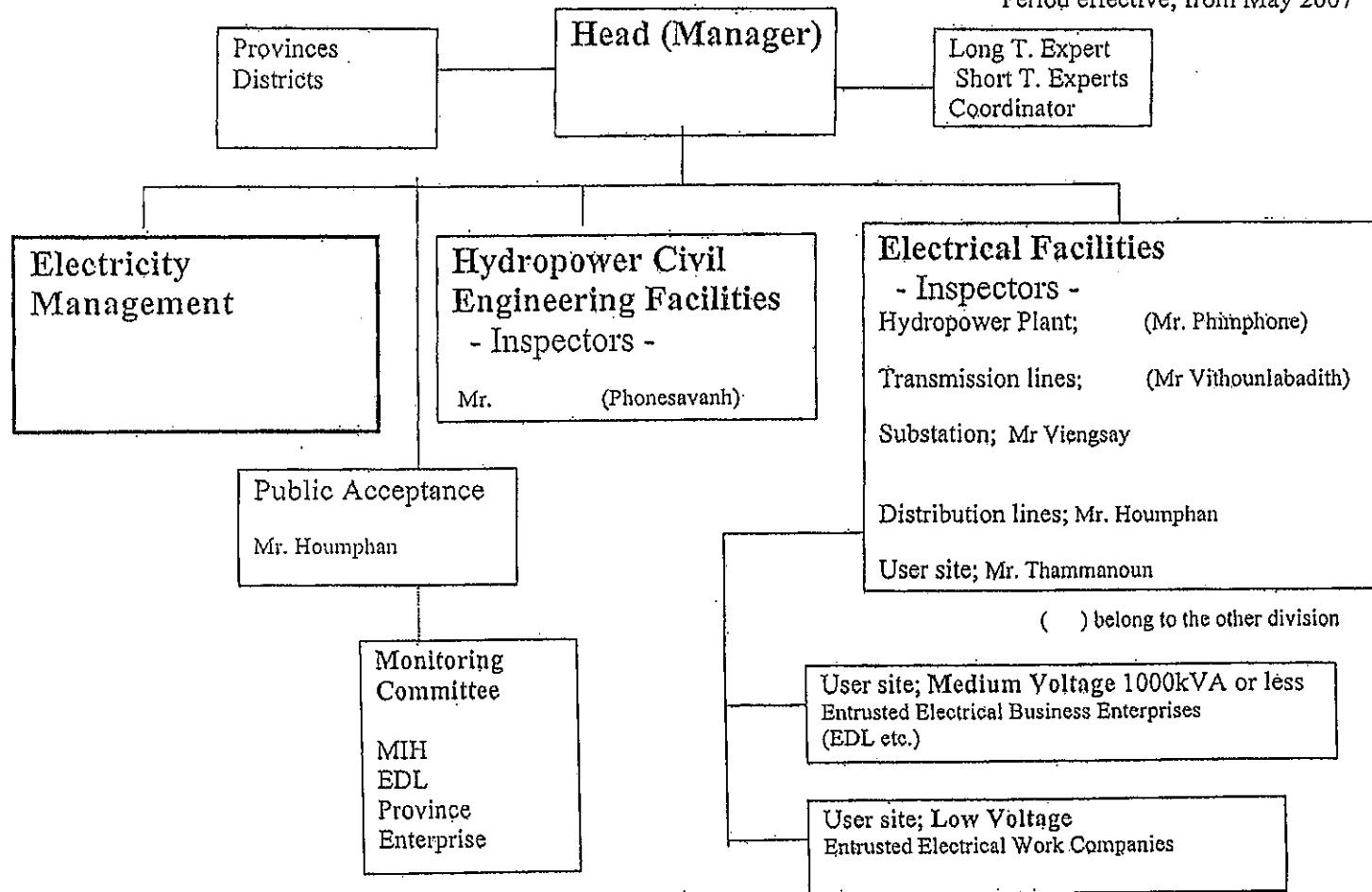
Period effective; May06-April 07



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Fig.2 Electricity Management and LETS Regulatory Division

Period effective; from May 2007



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Project Design Matrix (Ver. 0.15)

20 April 06

Project on the Lao Electric Power Technical Standards Promotion in the Lao PDR – PDM-

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<p>Overall Goal Power sector's activities and power facilities' safety are improved.</p>	<p>All of power facilities, which supply more than 1MW of electricity by DOE and EDL, are inspected and make action plans to comply the LETS.</p> <p>Facility and accident database in Luang Prabang, Pakse, Savannakhet, Takhek and Oudomxay are established and analysed.</p>	<p>List of inspected facilities Document for Action Plans</p> <p>Database</p>	<p>- Database is updated periodically. - Data collection becomes more systematic.</p>
<p>Project Purpose The LETS is enforced within public and private sectors.</p>	<p>The following facilities are inspected to apply the LETS and make action plans to be applied to the LETS</p> <p>1) All newly planned development projects by DOE and EDL</p> <p>2) On-going projects and existing facilities by DOE and EDL</p> <p>All more than 2MW power plant All substations in VTE All 115kV transmission line in VTE Distribution line all 5 zones in VTE</p> <p>Facility and accident database in Vientiane Capital and its analysis</p>	<p>List of documents submitted by EDL and PDIH List of inspection activities by DOE Inspection teams and JICA experts</p> <p>Database</p>	<p>- Guideline is approved by the Lao side and becomes effective.</p>
<p>Outputs</p> <p>1. Complementary guideline and manuals relating to the LETS is drawn.</p> <p>2. Through on the job training, knowledge and training skills of counterparts of DOE and EDL as trainers are upgraded.</p>	<p>1. Guideline, safety rule, and examination & inspection manuals, explanations and glossary for terminology</p> <p>2-1. 20 trainers will be trained.</p> <p>2-2. The structure of database for facilities and accidents.</p>	<p>1. List of documents</p> <p>2-1. List of participants and the result of examination 2-2. Database</p> <p>3-1-1 Curriculum</p>	<p>- System of implementation of the LETS is confirmed.</p>

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<p>3-1 DOE staff obtain necessary knowledge and skills as inspectors and transfer those knowledge and skills to PDIH staff. 3-2 EDL engineers obtain necessary knowledge and skills in order to apply the LETS to their works</p> <p>4. Management structure for the LETS is formulated. 4-1 Responsible division for the LETS is established. 4-2 Mechanism for monitoring and evaluating implementation of the LETS is formulated.</p> <p>5. Awareness on the LETS of public and private sectors is increased</p>	<p>3-1-1 Curriculum is designed. 3-1-2 Training materials are produced. 3-1-3 45 participants from DOE and PDIH are trained respectively. 3-2-1 Curriculum is designed. 3-2-2 Training materials are produced. 3-2-3 100 participants from EDL are trained.</p> <p>4-1 New division is set up and inspectors are assigned. 4-2 scope of works and the monitoring results to execute the LETS are produced. 4-3 New monitoring and evaluation committee is set up, and members are assigned</p> <p>5-1. Public relations materials 5-2. Number of participants DOE: 30, PDIH: 30, EDL: 70, IPP: 20, University: 50 and Vocational school: 300</p>	<p>3-1-2 List of training materials 3-1-3 List of participants</p> <p>3-2-1 Curriculum 3-2-2 List of training materials 3-2-3 List of participants</p> <p>4-1-1 Organisation chart 4-1-2 List of staff members 4-2 documents and the list</p> <p>4-3-1 Organisation chart 4-3-2 Staff member list and documents for its scope of works</p> <p>5-1 List of the materials 5-2-1. Record of workshops/ seminars and its participant lists 5-2-2. Statistics of collected questionnaires from participants</p>	<p>- Coordination with line ministries is well made.</p>
<p>Activities</p> <p>1-1 Review and revise the complementary Guideline on the LETS in 6 fields*</p> <p>1-2 Make examination & inspection manuals for DOE and EDL</p> <p>1-3 Review and make safety rule of EDL for operation and maintenance of facilities</p> <p>1-4 Revise explanation of the LETS</p> <p>1-5 Upgrade glossary for terminology</p> <p>1-6 Conduct seminars and workshops</p> <p>2-1 Review existing data on electrical</p>	<p>Input to the Project</p>		<p>Precondition</p>
	<p>Lao Side</p> <p>1-1. Necessary budget for the implementation of the project (1) Expenditure for administration (2) Expenditure for organising training (3) Expenditure for publishing the LETS</p>	<p>Japanese Side</p> <p>1. Dispatch of experts (1) Long-term experts Expert to DOE Expert of EDL Project Coordinator (2) Short-term experts Hydro civil engineering Hydropower plant/substation Transmission line Distribution line Users' site</p>	<p>EDL is not privatised.</p>

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<p>facilities based on the guideline in 6 fields 2-2 Design structure of database in 6 fields 2-3 Conduct on the job training related to 6 fields in the LETS 2-4 Conduct training courses at EDL training centre in 6 fields 2-5 Carry out examinations to participants in 6 fields</p> <p>3-1-1 Design training materials and for provincial inspectors 3-1-2 Conduct training at EDL training centre in 6 fields 3-1-3 Evaluate the inspectors 3-1-4 LETS execution 3-2-1 Design training for EDL provincial engineers 3-2-2 Conduct training at EDL training centre in 6 fields 3-2-3 Evaluate the engineers 3-2-4 LETS application</p> <p>4-1-1 Draft responsibilities, duties and assignment 4-1-2 Organise stakeholder meetings 4-1-3 Establish a specific responsible division for the LETS in DOE 4-1-4 Issue annual report 4-1-5 Review the Electricity Law 4-2-1 Draft responsibilities, duties and assignment 4-2-2 Establish the committee</p>	<p>2. Allocation of building and facilities at DOE and EDL</p> <p>3. Provision and maintenance of machinery, equipment and materials. (1) All available handed over equipment to the Lao side after termination of STEP 1 (2) Equipment of EDL training centre</p>	<p>General</p> <p>2. Lao counterpart personnel training in Japan and third countries (1) in Japan (2) in third countries</p> <p>3. Provision of machinery & equipment for assist in inspection activities</p> <p>4. Necessary budget for the implementation of the project.</p>	
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<p>5-1 Produce brochures and leaflets of the LETS for central, provincial and district levels</p> <p>5-2 Notify electrical safety and danger for users through media e.g. TV, radio and newspaper</p> <p>5-3 Conduct seminars to teachers at colleges and vocational schools</p> <p>5-4 Conduct the LETS introduction workshops at central, provincial and district levels</p> <p>5-5 Publish documents</p>			
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* 6 fields are (1) civil engineering, (2) hydropower plants, (3) substations and switching stations, (4) Transmission lines, (5) Distribution lines and (6) Users site.

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Output 1: Complementary guideline and manuals relating to the LETS is drawn.

		Activities	Targets/(Indicators)	###	JFY2005				JFY2006				JFY2007			Responsible persons in the project	Inputs	Remark
					4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q			
1-1	Review and revise on the sample forms in the guideline on the LETS	1-1-1	reviewing existing formats (6 fields)												CP, STE			
		1-1-2	conducting hearing from the Lao side (6 fields)													CP, STE		
		1-1-3	analyzing the current work flow (6 fields)													CP, STE		
		1-1-4	drafting the work flow (6 fields)													CP, STE		
		1-1-5	compiling all fields													CP, LTE-DOE		
		1-1-6	Draft final													CP, LTE-DOE		
		1-1-7	approval by DG of DOE													NC, DG		
		1-1-8	translating English into Lao	Training for trainer												CP, LTES		
		1-1-9	printing the guideline													NC, CO		
1-2	Make examination & inspection manuals for DOE	1-2-1	collecting existing data and manuals (6 fields)												CP, STE			
		1-2-2	evaluating manuals (6 fields)												CP, STE			
		1-2-3	Drafting manuals (6 fields)												CP, STE, LTE-DOE			
		1-2-4	exercising, applying manuals to on-going project (6 fields)												CP, STE			
		1-2-5	approval by DG of DOE												NC, DG			
		1-2-6	translating English into Lao	Training for trainer											CP, LTES			
		1-2-7	printing examination & inspection manuals												NC, CO			
1-3	Review and make safety rule of EDL for operation and maintenance of facilities	1-3-1	Collecting existing documents (6 fields)												CP, STE			
		1-3-2	Interviewing EDL (6 fields)												CP, STE			
		1-3-3	Drafting the safety rule												CP, LTES			
		1-3-4	Compiling all fields												CP, LTES			
		1-3-5	Draft final												CP, LTES			
		1-3-6	Approval by DOE												NC, DG			
		1-3-7	translating English into Lao	Training for trainer											CP, LTES			
		1-3-8	Printing the safety rule												NC, CO			
		1-3-9	Drafting the safety rule for EdL												CP, LTE-EDL			
		1-3-10	Approval by EDL												PM, EDL			
1-4	Revise explanation of the LETS	1-4-1	Picking up the differences between LETS article and Lao situation (6 fields)												CP, STE			
		1-4-2	Drafting Explanation												CP, LTES			
		1-4-3	translating English into Lao	Training for trainer											CP, LTES			
		1-4-4	Printing the Explanation												NC, CO			
1-5	Upgrade glossary for terminology	1-5-1	Picking up the necessity terms												CP, LTES			
		1-5-2	Translating English into Lao with expert in Lao (Ex. Laotian electrical professor)	Training for trainer											CP, LTES			
		1-5-3	Upgrading Glossary for Terminology												CP, LTES			
		1-5-4	Compiling all fields												CP, LTES			
		1-5-5	Printing the Glossary for Terminology												CP, LTES			
1-6	Conduct seminars and workshops to disseminate the guideline and inspection manuals	1-6-1	implementing the first workshop	Announcement of documents draft											All			
		1-6-2	evaluating the first workshop	JCC											JCC			
		1-6-3	implementing the second workshop	Announcement of documents finaldraft												All		
		1-6-4	evaluating the second workshop	JCC												JCC		
		1-6-5	implementing seminar	Announcement of Laotian documents												All		
		1-6-6	evaluating seminar													JCC		

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Output 2: Through on the job training, knowledge and training skills of counterparts of DOE and EDL as trainers are upgraded.

	Activities	Targets/Indicators	###	JFY2005				JFY2006				JFY2007			Responsible persons in the project	Inputs	Remark	
				4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q				3Q
2-1	Review existing data on electrical facilities based on the guideline in SIX fields	2-1-1	Collecting existing data (6 fields)													CP, STE		
		2-1-2	deciding necessary item for data collection (6 fields)													CP, STE		
		2-1-3	contacting responsible persons in respective facilities to collect (6 fields)													CP		
		2-1-4	conducting site survey, if necessary (6 fields)													CP, STE		
		2-1-5	analysing and reviewing data													CP, STE		
2-2	Design structure of database (6 fields)	2-2-1	improving database environment												CO, LTEs			
		2-2-2	installing hardware												CO, LTEs			
		2-2-3	improving network environment												CO, LTEs			
		2-2-4	Structure of facility database and Accident database (6 fields)												CP, STE, LTE			
		2-2-5	Facility database based on guideline application												CP			
		2-2-6	Accident database based on guideline application												CP			
		2-2-7	Analysing accident data and operation data												CP, LTEs			
2-3	Conduct on the job training related to SIX fields in the LETS	2-3-1	drafting a candidate project list (6 fields)											CP, STE, LTEs				
		2-3-2	collecting basic data (6 fields)											CP				
		2-3-3	Using guideline (6 fields)											CP, STE				
		2-3-4	conducting OJT training at site (6 fields)											CP, STE, LTEs				
		2-3-5	making training reports (6 fields)											CP				
		2-3-6	Modification of Guideline (6 fields)											CP, STE				
2-4	Conduct training courses at EDL training centre in SIX fields for trainers	2-4-1	draft training programme											LTEs				
		2-4-2	installing inspection tools and training facilities											STE, LTEs				
		2-4-3	drafting curriculum (6 fields)											STE				
		2-4-4	Preparation of textbooks (LETS documents)											STE, LTEs				
		2-4-5	conducting training courses (6 fields)											STE, LTEs				
2-5	Carry out examinations to trainers in SIX fields	2-5-1	making examination (6 fields)											STE, LTEs				
		2-5-2	conducting examination (6 fields)											STE, LTEs				
		2-5-3	Evaluation and certification											STE, LTEs				
		2-5-4	making extra training to follow up											STE, LTEs				
		2-5-5	conducting re-examination											STE, LTEs				

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Output 3-1: DOE staff obtain necessary knowledge and skills as inspectors and transfer those knowledge and skills to PDIH staff.

	Activities	Targets/(Indicators)	###	JFY2005				JFY2006				JFY2007			Responsible persons in the project	Inputs	Remark
				4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q			
3-1-1	Design training for provincial inspectors	3-1-1-1	drafting training programme												CP, LTE-DOE CP, LTE-DOE CP, LTE-DOE		
		3-1-1-2	drafting curriculum (6 fields)														
		3-1-1-3	Preparation textbooks (LETS documents)														
3-1-2	Conduct training at EDL training centre	3-1-2-1	implementing training courses												CP, LTE-DOE CP, LTE-DOE		
		3-1-2-2	inviting lecturers, if necessary														
3-1-3	Evaluation of inspectors	3-1-4-1	making examination												CP, LTE-DOE CP, LTE-DOE CP, LTE-DOE		
		3-1-4-2	conducting examination														
		3-1-4-3	Evaluation														
3-1-4	LETS execution	3-1-3-1	Executing LETS												CP, LTE-DOE CP, LTE-DOE		
		3-1-3-2	JBIC project (115 kV TL & SS)														

Output 3-2: EDL engineers obtain necessary knowledge and skills in order to apply the LETS to their works

	Activities	Targets/(Indicators)	###	JFY2005				JFY2006				JFY2007			Responsible persons in the project	Inputs	Remark
				4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q			
3-2-1	Design training for EDL provincial	3-2-1-1	drafting training programme												CP, LTE-EDL CP, LTE-EDL CP, LTE-EDL		
		3-2-1-2	drafting curriculum (6 fields)														
		3-2-1-3	Preparation textbooks (LETS documents)														
3-2-2	Conduct training at EDL training centre in six fields for suppliers	3-2-2-1	implementing training courses												CP, LTE-EDL CP, LTE-EDL		
		3-2-2-2	inviting lecturers, if necessary														
3-2-3	Evaluation of owner staff	3-2-3-1	making examination												CP, LTE-EDL CP, LTE-EDL CP, LTE-EDL		
		3-2-3-2	conducting examination														
		3-2-3-3	Evaluation														
3-2-4	LETS application	3-2-4-1	Applying LETS												CP, LTE-EDL CP, LTE-EDL		
		3-2-4-2	JBIC project (115 kV TL & SS)														

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Output 4-1: Responsible unit for the LETS is established.

	Activities	Targets/(Indicators)	2004	JFY2005				JFY2006				JFY2007			Responsible persons in the project	Inputs	Remark
			Jan	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q			
4-1-1	Draft responsibilities, duties and assignment	4-1-1-1	proposal of organization chart														
		4-1-1-2	appointing members to draft													DG, LTE-DOE	
		4-1-1-3	having periodical meetings													DG, CP, CO, LTE-DOE	
		4-1-1-4	making the final draft													CP, LTE-DOE	
		4-1-1-5	submitting the draft													DG, CP, LTE-DOE	
		4-1-1-6	submitting the mandate to the Minister													DG, NC	
4-1-2	Organise stakeholder meetings	4-1-2-1	arranging the meeting												NC, CO		
		4-1-2-2	implementing the meeting												DG, CP, LTE-DOE, CO		
		4-1-2-3	collecting comments from participants												NC, CO		
4-1-4	Establish a specific responsible unit for the LETS in DOE	4-1-3-1	Legislation												NC, DG		
		4-1-3-2	being approved by the Minister												NC, DG		
		4-1-3-3	appointing inspectors												NC, LTE-DOE		
		4-1-3-4	making activity plan												DG, CP, LTE-DOE, CO		
		4-1-3-5	allocating the budget												DG, NC, CO		
		4-1-3-6	LETS execution													Head, NC, Inspectors	
4-1-5	Issue annual report	4-1-4-1	collecting all necessary data from power utilities, accident and facilities												CP, LTE-DOE		
		4-1-4-2	making an annual report												DG, NC, LTE-DOE		
		4-1-4-3	publishing the report												NC, CO		
4-1-6	Review the Electricity Law	4-1-6-1	appointing members												DG, CP, LTE-DOE, CO		
		4-1-6-2	conducting interviews if necessary												CP, LTE-DOE, CO		
		4-1-6-3	making the recommendation report												CP, LTE-DOE		
		4-1-6-4	submitting the report to the Minister												CP, DG, NC		

Output 4-2: Mechanism for monitoring and evaluating implementation of the LETS is formulated.

	Activities	Targets/(Indicators)	2004	JFY2005				JFY2006				JFY2007			Responsible persons in the project	Inputs	Remark
			Jan	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q			
4-2-1	Draft responsibilities, duties and assignment	4-2-1-1	appointing members													DG, LTE-DOE	
		4-2-1-2	having periodical meetings for establishment													NC, CO, CP	
		4-2-1-3	submitting the draft													NC, DG, LTE-DOE	
		4-2-1-4	making the final draft													NC, DG, LTE-DOE	
		4-2-1-5	submitting the mandate to the Minister													DG, NC,	
		4-2-1-6	being approved by the Minister													DG, NC,	
4-2-2	Establish the committee	4-2-2-1	appointing committee members												DG, NC, LTE-DOE		
		4-2-2-2	making activity plan												DG, NC, LTE-DOE		
		4-2-2-3	issuing documents												DG, NC, CO		

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Output 5: Awareness on the LETS of public and private sectors is increased

		Activities	Targets/(Indicators)	###	JFY2005				JFY2006				JFY2007			Responsible persons in the project	Inputs	Remark				
					4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q				3Q			
5-1	Produce brochures and leaflets of the LETS for central, provincial and district levels	5-1-1	drafting leaflet of the project in English																			
		5-1-2	translating it into Lao language																			
		5-1-3	drafting leaflet of LETS in English																			
		5-1-4	translating it into Lao language																			
		5-1-5	making plan for publication																			
		5-1-6	drafting brochures and leaflets to investors both in English and in Lao language																			
		5-1-7	drafting brochures and leaflets to ordinary people in Lao																			
5-2	Notify electrical safety and danger for users through media e.g. TV, radio and	5-2-1	making plan for promotion of LETS																			
		5-2-2	designing 'LETS' logo																			
		5-2-3	appealing safeties and dangerousness of electricity through newspaper																			
		5-2-4	making promotion of electrical safety through TV and radio																			
		5-2-5	conducting campaign of safety use for electricity annually																			
5-3	Conduct seminars to teachers at colleges and vocational schools	5-3-1	planning their activities																			
		5-3-2	collecting textbooks, leaflets, brochures, etc.																			
		5-3-3	developing materials for seminar																			
		5-3-4	arranging seminars and lecturers at NUOL																			
		5-3-5	implementing seminars																			
		5-3-6	summarising questionnaire																			
		5-3-7	giving lectures																			
5-4	Conduct the LETS introduction workshops at central	5-4-1	planning their activities																			
		5-4-2	developing materials for seminar																			
		5-4-3	arranging seminars																			
		5-4-4	implementing seminars																			
		5-4-5	summarising questionnaire																			
5-5	Publish relevant documents	5-5-1	publishing LETS																			
		5-5-2	publishing guideline																			
		5-5-3	selling these books in public																			

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Annual Work Plan Feb.2006 to March 2007

Major Activities	Activities	2006FY												2007FY												Responsible persons in the project																		
		Feb			Mar			Apr			May			Jun			Jul			Aug			Sep				Oct			Nov			Dec			Jan			Feb			Mar		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
Short-term experts		Fifth			Sixth			Seventh			Eighth																																	
C/P training in Japan		All			HP, SS			DL, US			CE, HP, TL			DL, US			TL, DLUS			All																								
Project Evaluation								★ JCC						Mid-term evaluation						TL, DLUS									★ JCC															
1-1. Review and revise the complementary 'Guideline' on the LETS	1-1-1. Reviewing existing formats (6 fields)	Finish																																	CP, STE									
	1-1-2. Conducting hearing from the Lao side (6 fields)	Finish																																	CP, STE									
	1-1-3. Analyzing the current work flow (6 fields)	Finish																																	CP, STE									
	1-1-4. Drafting the work flow (6 fields)	Finish																																	CP, STE									
	1-1-5. Compiling all fields	Finish																																	CP, LTE-DOE									
	1-1-6. Draft final	Finish																																	CP, LTE-DOE									
	1-1-7. Approval by DG of DOE	Finish																																	NC, DG									
	1-1-8. Translating English into Lao	Finish												CE, HP, TL, SS			DL, US															CP, LTEs												
1-2. Make 'Examination & Inspection Manual'	1-1-9. Printing the guideline	Finish																																	NC, CO									
	1-2-1. Collecting existing data and manuals (6 fields)	Finish																																	CP, STE									
	1-2-2. Evaluating manuals (6 fields)	Finish																																	CP, STE									
	1-2-3. Exercising, applying manuals to on-going project (6 fields)	Finish																																	CP, STE									
	1-2-4. Drafting manual (6 fields)	Finish																																	CP, STE, LTE-DOE									
	1-2-5. Approval by DOE	Finish																																	NC, DG									
	1-2-6. Translating English into Lao	Finish												CE, HP, TL, SS			DL, US															CP, LTEs												
1-3 Review and make 'Safety Rule' of EDL for operation and maintenance of facilities	1-2-7. Printing manuals	Finish																																	NC, CO									
	1-3-1. Collecting existing documents (6 fields)	Finish																																	CP, STE									
	1-3-2. Interviewing DOE & EDL (6 fields)	Finish																																	CP, STE									
	1-3-3. Drafting the safety rule	Finish																																	CP, LTEs									
	1-3-4. Compiling all fields	Finish																																	CP, LTEs									
	1-3-5. Draft final	Finish																																	CP, LTEs									
	1-3-6. Approval by DOE and EDL	Finish																																	NC, DG									
	1-3-7. Translating English into Lao	Finish												CE, HP, TL, SS			DL, US															CP, LTEs												
	1-3-8. Printing the safety rule	Finish																																	NC, CO									
	1-3-9. Drafting the safety rule for EDL	Finish																																	CP, LTE-EDL									
1-4 Revise 'Explanation' of the LETS	1-3-10. Approval by EDL	Finish																																	PM, EDL									
	1-4-1. Picking up the differences between LETS article and Lao situation	Finish																																	CP, STE									
	1-4-2. Drafting Explanation Draft	Finish																																	CP, LTEs									
	1-4-3. Translating English into Lao	Finish																																	NC, CO									
1-5 Upgrade 'Glossary for Terminology'	1-4-4. Printing the Explanation	Finish																																	NC, CO									
	1-5-1. Picking up the necessary terms	Finish																																	CP, LTEs									
	1-5-2. Comparing technical terminology with Lao experts as Senior Consultant	Finish																																	CP, LTEs									
	1-5-3. Upgrading Glossary for Terminology	Finish																																	CP, LTEs									
	1-5-4. Compiling all fields	Finish																																	CP, LTEs									
1-6 Conduct seminars and workshops	1-5-5. Printing the Glossary for Terminology	Finish																																	CP, LTEs									
	1-6-1. Implementing the first workshop	Finish																																	All									
	1-6-2. Evaluating the first workshop	Finish																																	JCC									
	1-6-3. Implementing the second	Finish																																	All									
	1-6-4. Evaluating the second workshop	Finish																																	JCC									
	1-6-5. Implementing seminar	Finish																																	CP, LTEs									
1-6-6. Evaluating seminar, etc	Finish																																	JCC										

CP: Counter Part, LTE: Long Term Expert
 STE: Short Term Expert, CO: Coordinator
 DG: Director General, PM: Project Manager
 NC: National Coordinator

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Major Activities	Activities	2005FY									2006FY																		Responsible persons in the project															
		Feb			Mar			Apr			May			Jun			Jul			Aug			Sep			Oct				Nov			Dec			Jan			Feb			Mar		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		1	2	3	1	2	3	1	2	3	1	2	3			
	Short-term experts	Finish									Sixth									Seventh												Eighth												
2-1. Review existing data on electrical facilities based on the guideline in 6 fields	2-1-1. Collecting existing data (6 fields)	All						DL, US						DE, HP, TLSS						DL, US									All							CP, STE								
	2-1-2. Deciding necessary item for data collection (6 fields)	Finish																																					CP, STE					
	2-1-3. Contacting responsible persons in respective facilities to collect (6 fields)	Finish																																					CP					
	2-1-4. Conducting site survey, if necessary (6 fields)	Finish																																					CP, STE					
	2-1-5. Analysing and reviewing data	Finish																																					CP, STE					
2-2. Design structure of database (6 fields)	2-2-1. Improving database environment	Finish																																					CO, LTEs					
	2-2-2. Installing hardware	Finish																																					CO, LTEs					
	2-2-3. Improving network environment	Finish																																					CO, LTEs					
	2-2-4. Structure of facility database and Accident database (6 fields)																																						CP, STE, LTE					
	2-2-5. Facility database based on guideline application																																						CP					
	2-2-6. Accident database based on guideline application																																						CP					
2-3. Conduct on the job training related to 6 fields in the LETS	2-3-1. Drafting a candidate project list (6 fields)	Finish																																					CP, STE, LTEs					
	2-3-2. Collecting basic data (6 fields)	Finish																																					CP					
	2-3-3. Using guideline (6 fields)																																						CP, STE					
	2-3-4. Conducting on the job training related to 6 fields																																						CP, STE, LTEs					
	2-3-5. Making training reports (6 fields)																																						CP					
	2-3-6. Modification of Guideline (6 fields)																																						CP, STE, LTEs					
2-4. Conduct training courses at EDL training centre in 6 fields for trainers	2-4-1. Drafting training programme																																						STE, LTEs					
	2-4-2. Installing inspection tools and training facilities																																						STE, LTEs					
	2-4-3. Drafting curriculum (6 fields)																																						STE, LTEs					
	2-4-4. Preparation of textbooks (LETS documents)																																						STE, LTEs					
	2-4-5. Conducting training courses (6 fields)																																						STE, LTEs					
2-5. Carry out examinations to trainers in 6 fields	2-5-1. Making examination (6 fields)																																						STE, LTEs					
	2-5-2. Conducting examination (6 fields)																																						STE, LTEs					
	2-5-3. Evaluation and certification																																						STE, LTEs					
	2-5-4. Making extra training to follow up																																						STE, LTEs					
	2-5-5. Conducting re-examination																																						STE, LTEs					

CP: Counter Part, LTE: Long Term Expert
 STE: Short Term Expert, CO: Coordinator
 DG: Director General, PM: Project Manager
 NC: National Coordinator

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Annual Work Plan Feb.2006 to March 2007

Major Activities	Activities	2005FY									2006FY															Responsible persons in the project																		
		Feb			Mar			Apr			May			Jun			Jul			Aug			Sep				Oct			Nov			Dec			Jan			Feb			Mar		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
	Short-term experts	← Fifth →									← Sixth →									← Seventh →						← Eighth →																		
3-1-1 Design training for provincial inspectors	3-1-1-1 Drafting training programme	[All]									[DL, US]									[CE, HP, TL, SS]						[DL, US]															CP, LTE-DOE			
	3-1-1-2 Drafting curriculum (6 fields)																																								CP, LTE-DOE			
	3-1-1-3 Preparation textbooks (LETS documents)																																								CP, LTE-DOE			
3-1-2 Conduct training at EDL training center	3-1-2-1 Implementing training courses																																								CP, LTE-DOE			
	3-1-2-2 Inviting lecturers, if necessary																																								CP, LTE-DOE			
3-1-3 Evaluation of inspectors	3-1-3-1 making examination																																								CP, LTE-DOE			
	3-1-3-2 conducting examination																																								CP, LTE-DOE			
	3-1-3-3 Evaluation																																								CP, LTE-DOE			
3-1-4 LETS execution	3-1-4-1 Executing LETS																																								CP, LTE-DOE			
	3-1-4-2 JBIC project (115 kV TL & SS)																																								CP, LTE-DOE			
3-2-1 Design training for EDL provincial office	3-2-1-1 Drafting training programme																																								CP, LTE-EDL			
	3-2-1-2 Drafting curriculum (6 fields)																																								CP, LTE-EDL			
	3-2-1-3 Preparation textbooks (LETS documents)																																								CP, LTE-EDL			
3-2-2 Conduct training at EDL training center in six fields for supplier	3-2-2-1 Implementing training courses																																								CP, LTE-EDL			
	3-2-2-2 Inviting lecturers, if necessary																																								CP, LTE-EDL			
3-2-3 Evaluation of inspectors	3-2-3-1 Making examination																																								CP, LTE-EDL			
	3-2-3-2 Conducting examination																																								CP, LTE-EDL			
	3-2-3-3 Evaluation																																								CP, LTE-EDL			
3-2-4 LETS application	3-2-4-1 Applying LETS																																								CP, LTE-EDL			
	3-2-4-2 JBIC project (115 kV TL & SS)																																								CP, LTE-EDL			

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Major Activities	Activities	2005FY									2006FY									Responsible persons in the project																								
		Feb			Mar			Apr.			May			Jun			Jul				Aug			Sep			Oct			Nov			Dec			Jan			Feb			Mar		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
	Short-term experts	← Fifth →						← Sixth →						← Seventh →						← Eighth →																								
4-1-1. Draft responsibilities, duties and assignment	4-1-1-1. Proposal of organization chart	AM																																			DG, LTE-DOE							
	4-1-1-2. appointing members from CP																																			DG, LTE-DOE								
	4-1-1-3. having periodical meetings																																			Head, NC, LTE-DOE								
	4-1-1-4. making the final draft																																			Head, NC, LTE-DOE								
	4-1-1-5. submitting the draft																																			DG, Head, NC								
	4-1-1-6. submitting the mandate to the Minister																																				LTE-DOE							
4-1-2. Organise stakeholder meetings	4-1-2-1. arranging the meeting																																			DG, Head, NC								
	4-1-2-2. implementing the meeting																																			Head, NC, CO								
	4-1-2-3. collecting comments from participants																																			Head, NC, CO								
4-1-3. Establish a specific responsible unit for the LETS in DOE	4-1-3-1. Legislation of Guideline and Safety Rules																																			DG, Head, NC								
	4-1-3-2. being approved by the Minister																																			DG, Head, NC								
	4-1-3-3. appointing unit inspectors																																			DG, Head								
	4-1-3-4. making activity plan																																			DOE, NC								
	4-1-3-5. allocating the budget																																			DOE, NC								
	4-1-3-6. LETS execution																																			NC, Inspector								
4-1-4. Issue annual report	4-1-4-1. collecting data on power utilities, accident and facilities																																			Head, NC, LTE-DOE								
	4-1-4-2. making an annual report																																			Head, NC, LTE-DOE								
	4-1-4-3. publishing the report																																			NC, CO								
4-1-5 Review the Electricity Law	4-1-5-1. appointing members																																			DOE, NC								
	4-1-5-2. conducting interviews if necessary																																			DG, Head, NC, LTE-DOE								
	4-1-5-3. making the recommendation report																																			DG, Head, NC, LTE-DOE								
	4-1-5-4. submitting the report to the Minister																																			DG, Head, NC								
4-2-1 Draft responsibilities, duties and assignment	4-2-1-1. appointing members																																			DG, Head, NC, LTE-DOE								
	4-2-1-2. having periodical meetings																																			Head, NC, DG, LTE-DOE								
	4-2-1-3. submitting the draft																																			Head, NC, DG, LTE-DOE								
	4-2-1-4. making the final draft																																			Head, NC, DG, LTE-DOE								
	4-2-1-5. submitting the mandate to the Minister																																			DG, Head, NC								
	4-2-1-6. being approved by the Minister																																				DG, Head, NC							
4-2-2. Establish the committee	4-2-2-1. appointing committee members																																			DG, NC								
	4-2-2-2. making activity plan																																			DG, NC, Head								
	4-2-2-3. issuing documents																																			DG, NC, CO								

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Annual Work Plan Feb.2006 to March 2007

Major Activities	Activities	2005FY									2006FY									Responsible persons in the project																								
		Feb			Mar			Apr			May			Jun			Jul				Aug			Sep			Oct			Nov			Dec			Jan			Feb			Mar		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
	Short-term experts	← Fifth →									← Sixth →									← Seventh →									← Eighth →															
5-1. Produce brochures and leaflets of the LETS for central, provincial and district levels	5-1-1. drafting leaflet of the project in English	All						DL, US						OE, HP, TL, SS						DL, US						All																		
	5-1-2. translating it into Lao language																																											
	5-1-3. drafting leaflet of LETS in English																																											
	5-1-4. translating it into Lao language																																											
	5-1-5. making plan for publication																																											
	5-1-6. drafting brochures and leaflets to investors both in English and in Lao language																																											
	5-1-7. drafting brochures and leaflets to ordinary people in Lao language																																											
5-2. Notify electrical safety and danger for users through media e.g. TV, radio and newspaper	5-2-1. making plan for promotion of LETS																																											
	5-2-2. designing 'LETS' logo																																											
	5-2-3. appealing safeties and dangerousness of electricity through newspaper																																											
	5-2-4. making promotion of electrical safety through TV and radio																																											
	5-2-5. conducting campaign of safety use for electricity annually																																											
	5-3. Conduct seminars to teachers at colleges and vocational schools	5-3-1. planning their activities																																										
5-3-2. collecting textbooks, leaflets, brochures, etc.																																												
5-3-3. developing materials for seminar																																												
5-3-4. arranging seminars and lecturers at NUOL																																												
5-3-5. budgeting																																												
5-3-6. deciding venues, participants, etc.																																												
5-3-7. sending invitation letter																																												
5-4. Conduct the LETS introduction workshops at central, provincial and district levels	5-4-1. planning their activities																																											
	5-4-2. developing materials for seminar																																											
	5-4-3. arranging seminars																																											
	5-4-4. implementing seminars																																											
	5-4-5. summarising questionnaire																																											
5-5. Publish relevant documents	5-5-1. publishing LETS																																											
	5-5-2. publishing guideline																																											
	5-5-3. selling these books in public																																											

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Project Design Matrix (PDM); Comparison

Initial version		Revised Version		Reasons
Narrative Summary	Objectively Verifiable Indicators	Narrative Summary	Objectively Verifiable Indicators	
Overall Goal Power sector's activities and power facilities' safety are improved.	All of power facilities, which supply more than 1MW of electricity by DOE and EDL, are inspected and make action plans to comply the LETS. Accident database in Luang Prabang, Pakse, Savannakhet, Takhek and Oudomxay are established and analysed.	Overall Goal. Power sector's activities and power facilities' safety are improved.	All of power facilities, which supply more than 1MW of electricity by DOE and EDL, are inspected and make action plans to comply the LETS. Facility and accident database in Luang Prabang, Pakse, Savannakhet, Takhek and Oudomxay are established and analysed.	
Project Purpose The LETS is enforced within public and private sectors.	The following facilities are inspected to apply the LETS and make action plans to be applied to the LETS 1) All newly planned development projects by DOE and EDL 2) On-going projects and existing facilities by DOE and EDL All more than 2MW power plant All 115kV transmission line in VTE Distribution line all 5 zones in VTE All substations in VTE Accident database in Vientiane Capital and its analysis	Project Purpose The LETS is enforced within public and private sectors.	The following facilities are inspected to apply the LETS and make action plans to be applied to the LETS 1) All newly planned development projects by DOE and EDL 2) On-going projects and existing facilities by DOE and EDL All more than 2MW power plants All substations in VTE All 115kV transmission line in VTE Distribution line all 5 zones in VTE Facility and accident database in Vientiane Capital and its analysis	
Outputs 1. Complementary guideline and manuals relating to the LETS is drawn. 2. Through on the job training, knowledge and training skills of counterparts of DOE and EDL as trainers are upgraded. 3-1 DOE staff obtain necessary knowledge and skills as inspectors and transfer those knowledge and skills to PDIH staff. 3-2 EDL engineers obtain necessary knowledge and skills in order to apply the LETS to their works	1. Guideline, safety rule, and inspection manuals 2-1. 20 trainers will be trained. 2-2. The structure of database. 3-1-1 Curriculum is designed. 3-1-2 Training materials are produced. 3-1-3 45 participants from DOE and PDIH are trained respectively. 3-2-1 Curriculum is designed. 3-2-2 Training materials are produced. 3-2-3 100 participants from EDL are trained.	Outputs 1. Complementary guideline and manuals relating to the LETS is drawn. 2. Through on the job training, knowledge and training skills of counterparts of DOE and EDL as trainers are upgraded. 3-1 DOE staff obtain necessary knowledge and skills as inspectors and transfer those knowledge and skills to PDIH staff. 3-2 EDL engineers obtain necessary knowledge and skills in order to apply the LETS to their works	1. Guideline, safety rule, and examination & inspection manuals, explanations and glossary for terminology 2-1. 20 trainers will be trained. 2-2. The structure of database for facilities and accidents. 3-1-1 Curriculum is designed. 3-1-2 Training materials are produced. 3-1-3 45 participants from DOE and PDIH are trained respectively. 3-2-1 Curriculum is designed. 3-2-2 Training materials are produced. 3-2-3 100 participants from EDL are trained.	To clarify development of documents To distinguish accident data and facility data for database that STEP2 set up

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<p>4. Management structure for the LETS is formulated. 4-1 Responsible unit for the LETS is established. 4-2 Responsibilities and scope of works for each relevant organization and its staff are clarified. 4-3 Mechanism for monitoring and evaluating implementation of the LETS is formulated.</p> <p>5. Awareness on the LETS of public and private sectors is increased</p>	<p>4-1 New unit is set up and 24 staff members are assigned. 4-2 documents for scope of works and a list of inspection to execute the LETS are produced. 4-3 New monitoring and evaluation committee is set up, and 10 members are assigned</p> <p>5-1. Public relations materials 5-2. Number of participants DOE: 30, PDIH: 30, EDL: 70, IPP: 20, University: 50 and Vocational school: 300</p>	<p>4. Management structure for the LETS is formulated. 4-1 Responsible division for the LETS is established. 4-2 Responsibilities and scope of works for each relevant organization and its staff are clarified. 4-2 Mechanism for monitoring and evaluating implementation of the LETS is formulated.</p> <p>5. Awareness on the LETS of public and private sectors is increased</p>	<p>4-1 Responsible division and 24 staff Documents for scope of works and a list of inspection to execute the LETS are produced.</p> <p>4-2 New monitoring and evaluation committee is set up, and 40 members are assigned</p> <p>5-1. Public relations materials 5-2. Number of participants DOE: 30, PDIH: 30, EDL: 70, IPP: 20, University: 50 and Vocational school: 300</p>	<p>To integrate one output from 4-1 and 4-2.</p>
<p>Activities</p> <p>1-1 Review on the sample forms in the guideline on the LETS 1-2 Revise the complementary Guideline on the LETS in five major fields 1-3 Make inspection manuals for DOE and EDL 1-4 Conduct seminars and workshops to disseminate the guideline and inspection manuals 1-5 Review and make safety rule of EDL for operation and maintenance of facilities</p> <p>2-1 Conduct on the job training related to five major fields in the LETS 2-2 Collect, analyse, and review existing data on electrical facilities based on the guideline in five major fields except civil engineering 2-3 Review existing data for civil engineering of hydropower plants 2-4 Conduct training courses at EDL training centre in five major fields</p>	<p>Input to the Project</p> <p>Lao Side</p> <p>1-1. Necessary budget for the implementation of the project (1) Expenditure for administration (2) Expenditure for organising training (3) Expenditure for publishing the LETS</p> <p>2. Allocation of building and facilities at DOE and EDL</p>	<p>Activities</p> <p>1-1 Review and revise the complementary Guideline on the LETS in 6 fields 1-2 Make examination & inspection manuals for DOE and EDL 1-3 Review and make safety rule of EDL for operation and maintenance of facilities 1-4 Revise explanation of the LETS 1-5 Upgrade glossary for terminology 1-6 Conduct seminars and workshops to disseminate the guideline and examination & inspection manuals 2-3 Conduct on the job training related to 6 fields[†] in the LETS 2-1 Review existing data on electrical facilities based on the guideline in 6 fields except civil engineering 2-3 Review existing data for civil engineering of hydropower plants 2-4 Conduct training courses at EDL training centre in 6 fields for trainers</p>	<p>Input to the Project</p> <p>Lao Side</p> <p>1-1. Necessary budget for the implementation of the project (1) Expenditure for administration (2) Expenditure for organising training (3) Expenditure for publishing the LETS</p> <p>New</p> <p>2. Allocation of building and facilities at DOE and BDL</p> <p>Delete</p>	<p>To change 5 fields to 6 fields To integrate one activity from activity 1-1 and activity 1-2 Examination & inspection manual is indispensable</p> <p>To draft explanation by C/P To revise glossary that was produced in Phase 1</p> <p>Not to distinguish between civil and electrical files</p>

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 1-1
 2-1

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Dr -
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<p>2-5 Carry out examinations to participants in five major fields 2-6 Design structure of database</p> <p>3-1-1 Design training materials and revise existing materials for inspectors</p> <p>3-1-2 Conduct training at EDL training centre in five major fields for inspectors</p> <p>3-1-3 Conduct on the job training related to five major fields in the LETS for inspectors</p> <p>3-1-4 Input and update database on accidents caused by electricity</p> <p>3-1-5 Carry out examinations to participants in five major fields for inspectors</p> <p>3-2-1 Design training materials and revise existing materials for suppliers</p> <p>3-2-2 Conduct training at EDL training centre in five major fields for suppliers</p> <p>3-2-3 Conduct on the job training related to five major fields in the LETS</p> <p>3-2-4 Carry out examinations to participants in five major fields</p> <p>4-1 Establish a specific responsible unit for the LETS in DOE</p> <p>4-2 Define responsibilities, duties, and assignment of authorities concerned</p> <p>4-3-1 Formulate committee for monitoring and evaluating implementation of the LETS</p> <p>4-3-2 Review the Electricity Law</p>	<p>3. Provision and maintenance of machinery, equipment and materials. (1) All available handed over equipment to the Lao side after termination of STEP 1 (2) Equipment of EDL training centre</p>	<p>2-5 Carry out examinations to trainers in 6 fields 2-2 Design structure of database in 6 fields</p> <p>3-1-1 Design training materials and revise existing materials for provincial inspectors</p> <p>3-1-2 Conduct training at EDL training centre in 6 fields in five major fields for inspectors</p> <p>3-1-2 Conduct on the job training related to five major fields in the LETS for inspectors</p> <p>3-1-4 Input and update database on accidents caused by electricity</p> <p>3-1-3 Evaluation of inspectors</p> <p>3-1-4 LETS Execution</p> <p>3-2-1 Design training for EDL provincial office staff</p> <p>3-2-2 Conduct training at EDL training centre in 6 fields for suppliers</p> <p>3-2-3 Evaluation of owner staff</p> <p>3-2-4 LETS application</p> <p>4-1-3 Establish a specific responsible division for the LETS in DOE</p> <p>4-2 Define responsibilities, duties, and assignment of authorities concerned</p> <p>4-3-1 Formulate committee for monitoring and evaluating implementation of the LETS</p> <p>4-2-3 Review the Electricity Law</p> <p>4-1-1 Draft responsibilities, duties and assignment</p> <p>4-1-2 Organise stakeholder meetings</p> <p>4-1-4 Issue annual report</p> <p>4-2-1 Draft responsibilities, duties and assignment</p> <p>4-2-2 Establish the committee</p>	<p>3. Provision and maintenance of machinery, equipment and materials. (1) All available handed over equipment to the Lao side after termination of STEP 1 (2) Equipment of EDL training centre</p> <p>Delete</p> <p>New</p> <p>New</p> <p>New</p>	<p>To integrate this item from all activities related to database</p> <p>To train provincial office as inspectors</p> <p>To integrate database activity in OUTPUT2</p> <p>To apply LETS to JBIC project</p> <p>To clarify activities for OUTPUT4 in order to</p>
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<p>5-1 Produce brochures and leaflets of the LETS for central, provincial and district levels 5-2 Notify electrical safety and danger for users through media e.g. TV, radio and newspaper 5-3 Conduct seminars to teachers at colleges and vocational schools 5-4 Conduct the LETS introduction workshops at central, provincial and district levels 5-5 Publish the LETS and guideline</p>		<p>5-1 Produce brochures and leaflets of the LETS for central, provincial and district levels 5-2 Notify electrical safety and danger for users through media e.g. TV, radio and newspaper 5-3 Conduct seminars to teachers at colleges and vocational schools 5-4 Conduct the LETS introduction workshops at central, provincial and district levels 5-5 Publish relevant documents</p>		<p>Published documents are not only LETS and guideline but also other documents.</p>
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¹ Six major fields are (1) civil engineering, (2) hydropower plants, (3) substations and switching stations, (4) Transmission lines, (5) Distribution lines and (6) Users site.

for
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22

Result of English Training Course

02 June 2006

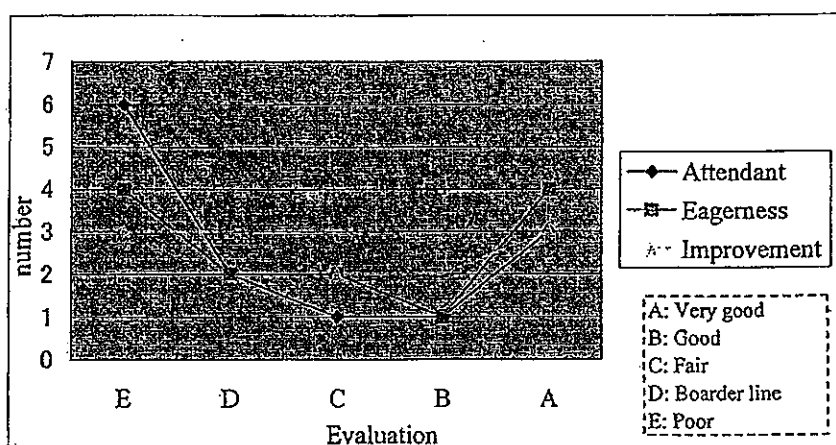
STEP2 Project

Background: In the 1st JCC meeting, the Lao side proposed English Training Course. The STEP2 project agreed with the proposal from the Lao side. The purpose of this training is to improve English proficiency for all Lao project members.

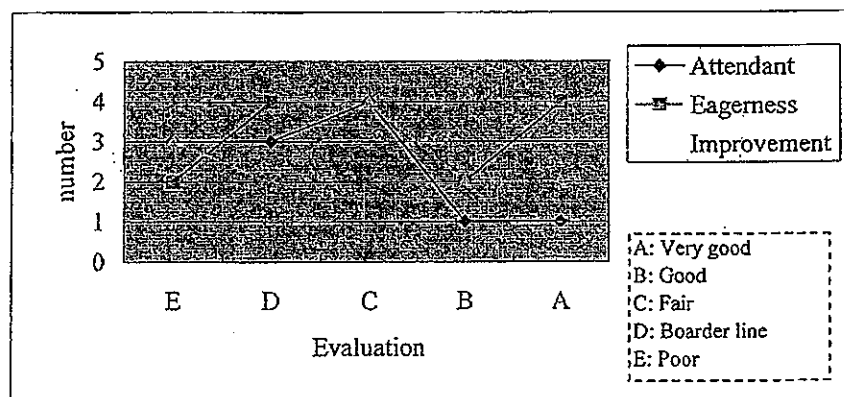
Duration: 13 January - 31 March (twice a week basis); 10 weeks)

Method: All participants were divided into 2 groups, i.e. pre-intermediate and elementary class.

(1) The Summary for the result of English training course (Elementary Class)



(2) The Summary for the result of English training course (Pre-intermediate Class)



Overall Assessment: Generally both elementary and pre-intermediate classes showed low attendant rate. More than half of the students seldom/sometimes come to class room. This low attendant rate also has correlation with degree of improving English proficiency.

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Khamphe Saisavanh
Deputy General Manager



ສັງຄົມສາທາລະນະໄຟຟ້າລາວ

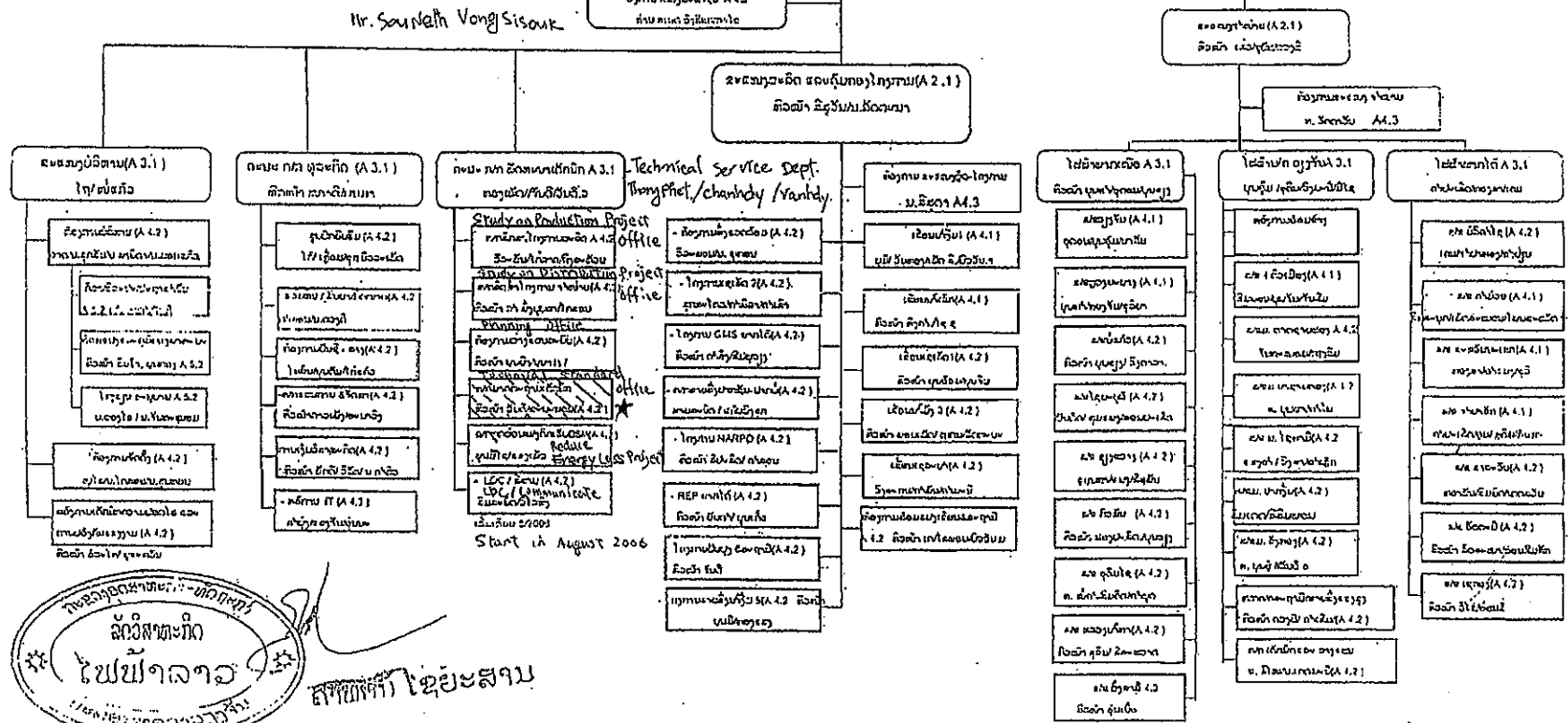
ສະພາບໍລິຫານ Board of directors

ຜູ້ອຳນວຍການໂດຍ(1) (A 1.1) General manager (1) (A 1.1)
ທ່ານ ກຳມະພອນ ສັງຄົມສາທາລະນະໄຟຟ້າລາວ
Mr. Khamphone SANGSANE
Deputy General Manager (2)
ທ່ານ ສາວທິສະນະ ສິມສິວ ທ່ານ ສິສະວາລາ ທ່ານ ສິສະວາລາ
Mr. Chammany, Mr. Savath, Mr. Sysavath.

9 MAY 05

- Internal Audit office → ດັງກອນກວດກາຄວາມປອດໄພ (A 4.2) ບິດທອງ, ນ. ສາວທິສະນະ
Douathong, Phonseavanh.
ນັກຄວາມປອດໄພທຳອິດໂດຍ (A 4.3) ນ. ສາວທິສະນະ A 4.3
General Manager of secretary.
Mrs. Saisavanh.

Personnel office → ດັງກອນກວດກາຄວາມປອດໄພ (A 4.2) ທ່ານ ສາວທິສະນະ
Mr. Savath Vongsisouk



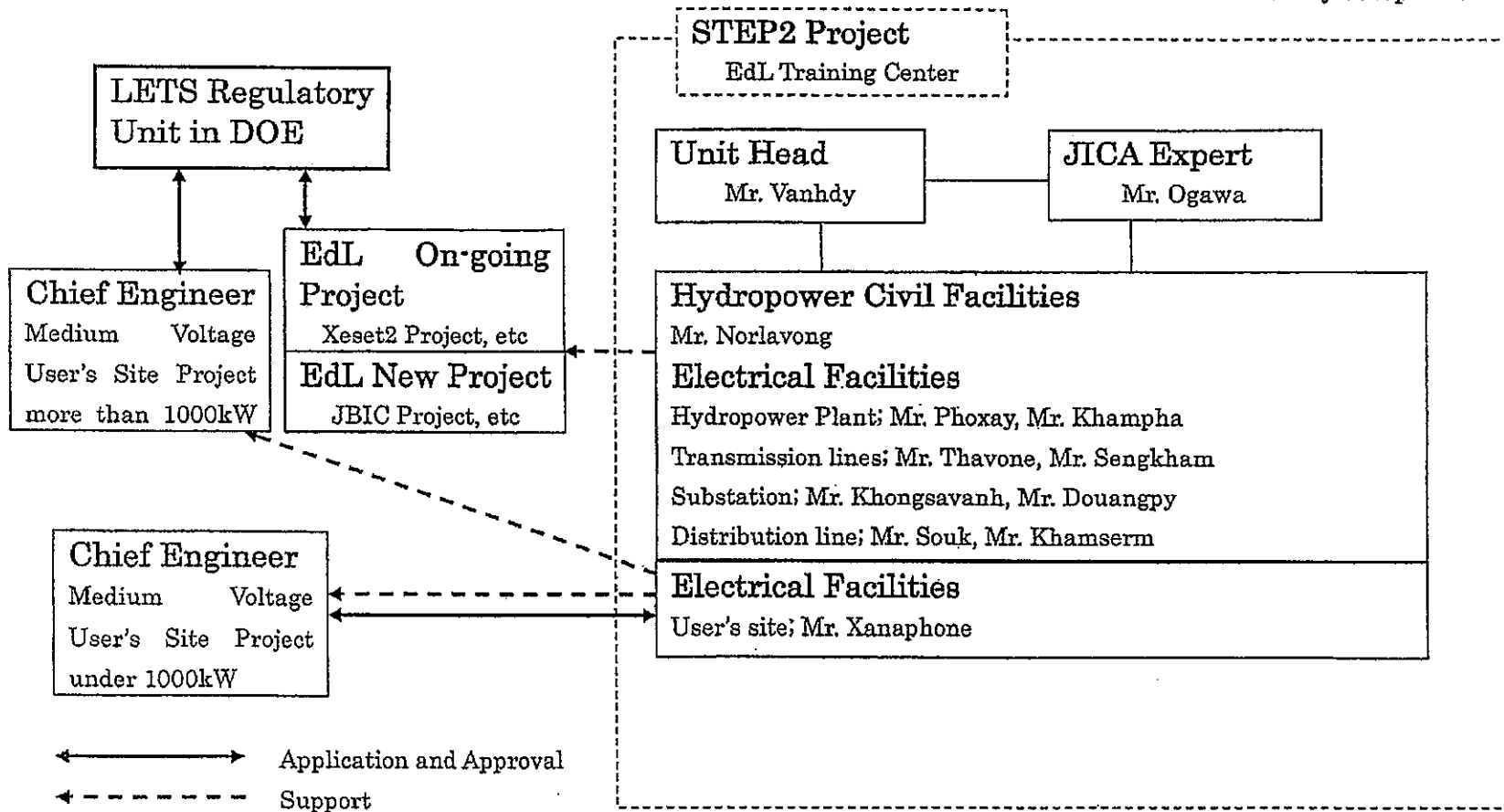
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Fig.1 LETS Execution Unit in EdL (Draft)

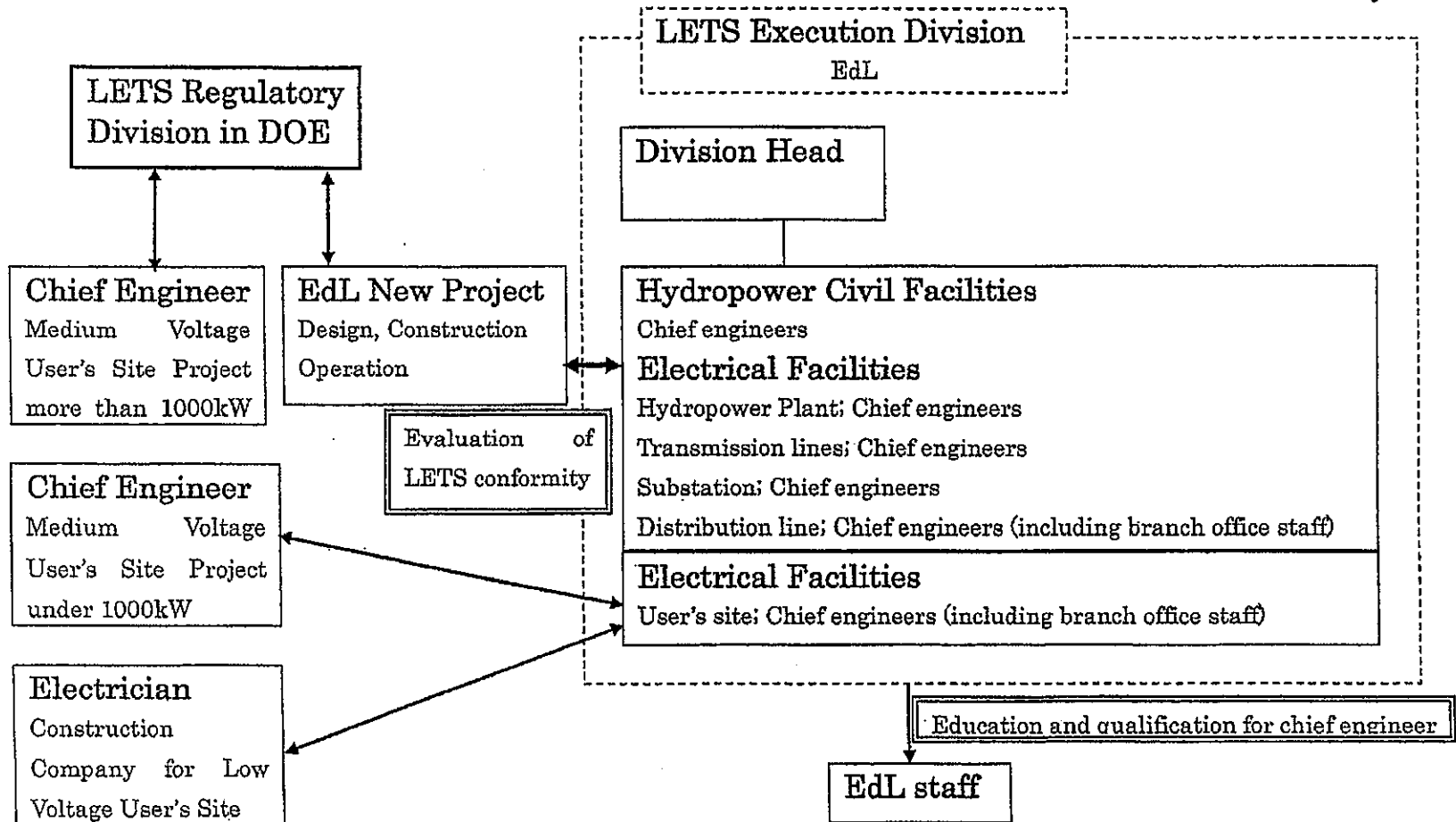
Period effective; July 06-April 07



for 0-2

Fig.2 LETS Execution Division in EdL (Draft)

Period effective; After May 07



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ANNEX 5

RESULT OF THE QUESTIONNAIRE FOR MID-TERM EVALUATION
(DOE)

Item	Scale					Disagree
	Agree	Neutral	Disagree	Strongly Disagree	Strongly Agree	
1. Subject matter covered by STEP II is appropriate to promote and apply LETS.	1	2	3	4	5	
	2	3	1	1	0	
	10	12	3	2	0	
	$((10+12+3+2) \div 7) \div 5 \times 100=77$					
	$100=77$					
(Comments, if any)						
<ul style="list-style-type: none"> The process of project implementation of STEP 2 is not clear because the name of project STEP 2 is for promoting but actual implementation is limited such as translation or explains LEPTS to another province in Lao. This project is important for Lao power sector, therefore, it should have counter-measures to promote and apply LETS for example public awareness, more training on theory and practical way to Lao engineers and managers levels. This project is very importance for the Lao power sector and Lao country Need more actual practice in site (hydropower stations both existing and under-construction project). 						
2. Methodology used by STEP II is helpful for my learning to gain knowledge, skills to promote and apply LETS.	1	2	3	4	5	
	1	3	3	0	0	
	5	12	9	0	0	
	$((5+12+9) \div 7) \div 5 \times 100=74$					
	$100=74$					
(Comments, if any)						
<ul style="list-style-type: none"> It should be concentrated on the Job-training as must as possible Full-time experts should pay more attention in helping in preparation of documents, training, particularly during training course held by S/T experts, etc. 						
3. Training materials used by STEP II enhance my learning.	1	2	3	4	5	
	1	2	3	1	0	
	5	8	9	2	0	
	$((5+8+9+2) \div 7) \div 5 \times 100=69$					
	$100=69$					
(Comments, if any)						
<ul style="list-style-type: none"> Training materials used by STEP II in previous is not appropriate, it depend on for each field to 						

Item	Scale					Disagree
	Agree	Neutral	Disagree	Strongly Disagree	Strongly Agree	
setup, therefore the project should create uniform curriculum/manual for trainer of training. <ul style="list-style-type: none"> The training curriculum is not appropriate. Trainer's manual should be developed STEP II shall provide more electrical measuring instruments that will be used during inspection works. 						
4. Methodology which Japanese Experts (both long-term and short-term) used is helpful for my learning.	1	2	3	4	5	
	0	4	3	0	0	
	0	16	9	0	0	
	$((16+9) \div 7) \div 5 \times 100 = 71$					
(Comments, if any) <ul style="list-style-type: none"> The short term experts are good for transfer knowledge and their productivities good out come when compare with the time schedule. The activities are have been done by long term experts (excluded project coordinator) is few activities with compare with short term experts and timing are being used. Mainly just only short-term transfer the knowledge. I did not get anything from long-term. The STEP 2 project's activities almost carried out by short-term experts, but long-term experts' activities only a few, please consider. Long-term experts shall pay more attention on their works, move active on works, creating works, training to counterparts in order to improve their skills, knowledge 						
5. Material and equipment used by STEP II enhanced my learning.	1	2	3	4	5	
	1	2	3	1	0	
	5	8	9	2	0	
	$((5+8+9+2) \div 7) \div 5 \times 100 = 69$					
(Comments, if any) <ul style="list-style-type: none"> Training material (documents) is not comprehensively 						
6. Overall benefit from the technical cooperation is significant for my career development/advancement etc.	1	2	3	4	5	
	2	4	0	0	1	
	10	16	0	0	1	
	$((10+16+1) \div 7) \div 5 \times 100 = 77$					
(Comments, if any) <ul style="list-style-type: none"> General information It should considering to continue and support in term of the technical aspect cooperation. JICA should continue to support for the technical cooperation, especially for the power sector 						

Item	Scale Agree Neutral Disagree
<p>7. What I learned the most in STEP II is:</p> <ul style="list-style-type: none"> • General information on Hydropower technologies. • Inspection and examination manual, guideline and safety rule. • Examination of hydropower under planning, construction of operation • Examination detail design for transmission line by used LEPTS, and can be inspection before commencement of transmission line. • My knowledge and know-how are improved especially technical aspects of electrical distribution facilities • I have been learning from documents are related the STEP such as guideline, inspection and examination manual in terms of inspecting and examining the project. • Method, criteria and theory of the electricity developing, but I do not know exactly how to do to examine and inspect in my field. • Substation technology • Examination and inspection methodology (design drawing, report check, commissioning test) • Inspection work • Examination work on design documents • I learned the most in STEP II is (1) how to collect data (existing data), (2) checking data and compare with the LEPTS, (3) where is the responsibility scope between EDE and consumer and DOE. (4) guideline and safety rule, (5) simulation training and including testing tools such as earth measurement diagram, insulation resistance test etc. 	
<p>8. What I still need to learn more is :</p> <ul style="list-style-type: none"> • Technical design more detail. • Examination design document of drawing on detail design • Site inspection under construction • I need to learn more about technical part of transmission line design. • Regarding to the LETS, I still need to learn more is practical way for examination and inspection of project. • I need to learn some software by using for inspection and examination of project • I would like to study about technical matter in deeply • I would like to practice how to examine and inspect • Substation design • Functional and relay protection test. • Site inspection in deeply (detail inspection). • Practice of inspection work in power station • On the Job Training regarding inspection and examination • I still need to learn more is (1) examination and inspection, (2) inspection and commissioning test, (3) inspection and measurement (practice at site), including relay testing method, dielectric strength test, earth fault relay testing. 	
<p>9. What I will have difficulty in applying is:</p> <ul style="list-style-type: none"> • Construction technology • Technical design on civil engineering • Some point difficulty for applying LEPTS in some article we do not know is correct or not correct 	

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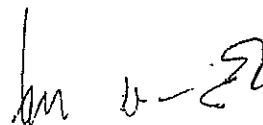
Item	A g r e e	Scale Neutral D i s a g r e e
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- because in Lao situation is different may be in the future we will revise again.
- The (sic) LETS is the new documents for Lao side and not yet familiar in practical way, therefore, it will need more time in applying on it.
- Capability need more improve (including quality and quantity).
- Institutional arrangements must be improved (establish a specific unit or division to respond the LETS)
- Financial condition (lack of financing for monitoring and managing)
- Sometime the communication between short-term and counterpart making problem. So I cannot get the knowledge to apply in useful.
- Detail design examination
- Site inspection for the civil work (structure)
- Site test
- Before applying LETS to projects, first of all, we have to setup regulatory unit and all its works have to be approved, and announced by National Assembly or Minister of Laos.

10. Additional Comments (If any).
- The managing and communication two sides;
 - It should be created the motivation methodology for working;
 - It should emphasize on the job training as much as possible;
 - Strongly recommend to establish a specific unit or division to respond the LETS;
 - JICA should consider further support this project.
 - Extend schedule of training in Japan.
 - Salary of counterpart, increasing daily allowance when visit to the site of counterpart.
 - If this project will like this of cause, it will be going down for implementation of project.
 - The project should give more budgets to support the counterparts for the OJT (On the Job Training) at site inspection for all the period of commissioning test.
 - The project should have a budget for the study tour in nearby countries (experience exchange with other countries)
 - The long-term study of substation technology should be have
 - In order to improve works in STEP II project, I think that Long-term Experts and counterparts have to work more closely, creating more works, activities to counterparts in order to be incentive and encourage counterparts in improving their experiences.

RESULT OF THE QUESTIONNAIRE FOR MID-TERM EVALUATION (EDL)

Item	Scale					D i s s a g r e
	A g r e	N e u t r a l				
1. Subject matter covered by STEP II is appropriate to promote and apply LETS.	1	2	3	4	5	
	3	4	0	1	0	
	15	16	0	2	0	
	$((15+16+2) \div 8) \div 5 \times 100 = 83$					
	(Comments, if any) <ul style="list-style-type: none"> • STEP II was to promote limited, peoples they don't know about STEP II, no activities. • Very important this project (for) Lao power sector. • This project is very importance for the Lao power sector and Lao PDR. 					
2. Methodology used by STEP II is helpful for my learning to gain knowledge, skills to promote and apply LETS.	1	2	3	4	5	
	3	3	2	0	0	
	15	12	6	0	0	
	$((15+12+6) \div 8) \div 5 \times 100 = 83$					
	(Comments, if any) <ul style="list-style-type: none"> • Group design standard of newly projects • Grasp operation of technical standard • It is important to grasp systematically the measures of examination and inspection through clarifying the criteria and ways of confirmation in each article so as to understand LETS. 					
3. Training materials used by STEP II enhance my learning.	1	2	3	4	5	
	1	4	0	3	0	
	5	16	0	6	0	
	$((5+16+6) \div 8) \div 5 \times 100 = 68$					
	(Comments, if any) <ul style="list-style-type: none"> • Training too short and not many time. 					
4. Methodology which Japanese Experts (both long-term and short-term) used is helpful for my learning.	1	2	3	4	5	
	1	5	1	1	0	
	5	20	3	2	0	



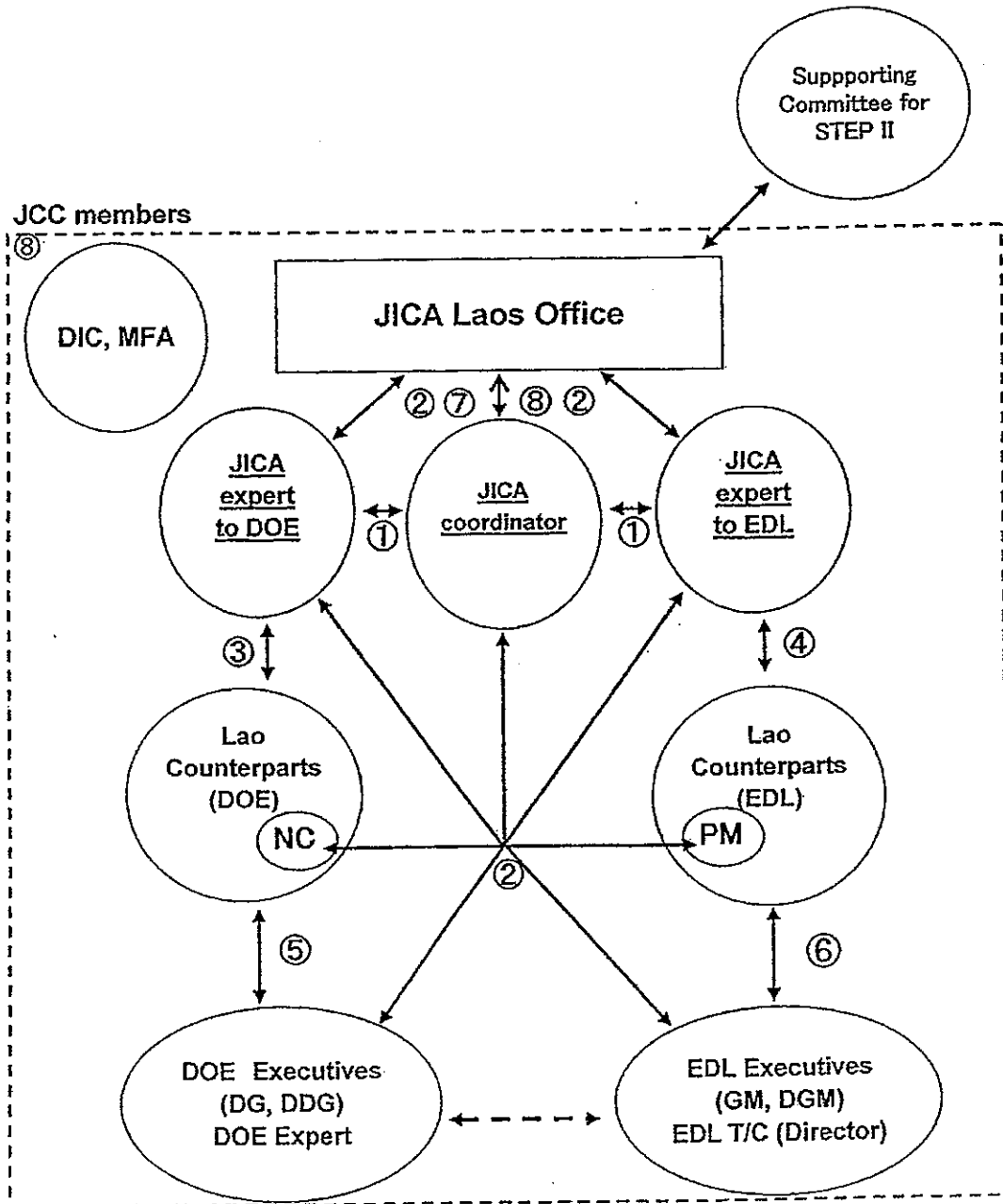
Item	Scale				
	A	g	r	e	D
				Neutral	
	$((5+20+3+2)\div 8) \div 5 \times 100 = 75$				
(Comments, if any)					
<ul style="list-style-type: none"> • Training too short and not many time. • This case for short-term expert used is helpful: number 1. For long-term expert number 3. • The activity almost carried out by short-term expert. • Thickness measurement equipment of penstock. 					
5. Material and equipment used by STEP II enhanced my learning.	1	2	3	4	5
	2	2	2	2	0
	10	8	6	4	0
	$((10+8+6+4)\div 8) \div 5 \times 100 = 70$				
(Comments, if any)					
<ul style="list-style-type: none"> • Not useful equipment yet. • Document is not comprehensively. 					
6. Overall benefit from the technical cooperation is significant for my career development/advancement etc.	1	2	3	4	5
	2	4	0	1	0
	10	16	0	2	0
	$((10+16+2)\div 7) \div 5 \times 100 = 80$				
(Comments, if any)					
<ul style="list-style-type: none"> • Activities for long-term not good. • JICA should continue support 					
7. What I learned the most in STEP II is:					
<ul style="list-style-type: none"> • Studied on documents (LETS) • In this project, mainly only document • Design stage, inspection and examination manual • Report check. Commissioning test • About testing power facility • I will be the good inspector • I learned about (1) rules and law to check document for the private company or user, such as design stage, construction stage, and operation stage, (2) method of inspection and maintenance. • Before I learned the necessity of respective articles that concerned hydro power plants and substation field and their others field. 					
8. What I still need to learn more is :					
<ul style="list-style-type: none"> • I need to learn from practice with instruments. • How to use how to teach to another person. I want to learn with short-term expert, because they have many experiences. • I need to learn more about training in site. 					

Item	Scale Agree Neutral Disagree
<ul style="list-style-type: none"> • And I need to learn about detail design calculation on transmission. • Test line, test cable underground using instrument • Design structure of hydropower plant • On the Job Training at site. • More training to practice for testing or inspection substation before operation • I still need to learn more about (1) simulation training especially for the big consumer (2) simulation calculation method such as Is and other related calculation that related user site field, (3) how to use the testing tool that special like relay testing etc. • As you know the capacity of power system in our country is small. EDL engineers do not have the skill to maintain mechanical-electrical in the field of the Hydro Power plants and substation therefore we need to learn procedure of testing. 	
<p>9. What I will have difficulty in applying is:</p> <ul style="list-style-type: none"> • Last STEP I, I did not join with them. So I have not enough experience. • Because LEPTS can't distribution all part in Lao and EDL. Can't understand well about technical standard (LEPTS). • I did not join STEP I • Detail design examination • Site test • How to check detail design for hydropower plant • The most difficult for us: (1) Prepare remaining explanation for each article of LETS etc., (2) prepare material for train the trainers. • Explanation of the book. 	
<p>10. Additional Comments (if any).</p> <ul style="list-style-type: none"> • I want long-term expert have to make activity a lot • If possible, should change long-term expert • Should give budget to full-time expert • Long-term expert should manage counterpart • Propose short-term expert can do long time about 2 month enough • The project should have a budget for study tour. • Short-term expert stay in Lao is very short time. • I propose all counterpart should have chance to go to visit Japan. 	

Jan 0 - 22

Communication Flow of STEP II Project

25 September 2006



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Communication is set up in informal and formal ways. Formal communications to share project information are through meetings and reporting. The following lists are periodical based meetings and reports. These lists become evidences to review and to monitor project progress. Sporadic meetings should be recorded.

1. List of (Periodical based) Meetings

#	Name	Participants	Frequency	Remark
①	experts meeting	3 experts, JICA	2nd and 4th Friday	
②-1	project head meeting	PM, NC, 3 experts, JICA	1st Friday	
②-2		DOE executive, ETC, DOE expert PM, NC, 3 experts, JICA	3rd Friday	DOE executive, ETC and DOE expert attend if necessary
③	C/P meeting (DOE side)	C/Ps, expert to DOE	to be confirmed later	
④	C/P meeting (EDL side)	C/Ps, expert to EDL	to be confirmed later	
⑤	DOE meeting	DOE staff	every Wed	
⑥	EdL monthly meeting	EDL staff	every final Thursday	
⑦	project progress meeting	All	every 6 months	According to JICA's regulation, report must be submitted.
⑧	JCC meeting	All	once a year	R/D defines implementation of JCC meetings

2. List of Report

#	Name	Participants	Frequency	Remark
①	project progress meeting	JICA, 3 experts	every 6 months	According to JICA's regulation, report must be submitted.
⑧	JCC meeting report	All	once a year	R/D defines implementation of JCC meetings

23-0 WJ

Objective: To get information related to STEP2 Project and discuss the perspective of the project

Organization	World Bank	ADB	JBIC Project Office in EdL
応対者	Mr. Molten Larsen (Consultant - Infrastructure)	Mr. Edvard M. Baardsen (Senior infrastructure Specialist)	Mr. Saysanith PHOUNSAVATH (Project Manager for Greater Mekong Power Network Development Project)
STEP2の認知度	<ul style="list-style-type: none"> プロジェクトの概要については既知であったが、活動の詳細についてはあまり知られていなかった。 	<ul style="list-style-type: none"> プロジェクトの概要については既知であったが、活動の詳細についてはあまり知られていなかった。 	<ul style="list-style-type: none"> (JBICプロジェクトは初期段階からLETSが適用されるので) よく認知されていた
STEP2との連携	<ul style="list-style-type: none"> 特になし 	<ul style="list-style-type: none"> 特になし 	<ul style="list-style-type: none"> STEP2とJBICそれぞれのプロジェクトメンバー間のミーティングが既に数回開催されている。
LETSに対する意見	<ul style="list-style-type: none"> STEP2の活動を通じて設立される予定の“Regulatory Division”は技術面だけでなく、財務面の審査も担うべき 新組織となるRegulatory DivisionとLNCE (Lao National Committee for Energy)との役割分担をはっきりさせるべき。例えば新組織はプロジェクト認証業務、LNCEは投資促進業務に特化するなど。 	<ul style="list-style-type: none"> インドシナ地域における電力関連の国際基準はタイのそれに倣う場合が多いことに留意する必要がある。 RPTC (Regional Power Trade Company) や IEC(International Electric Code) 	<ul style="list-style-type: none"> LETSをいかに現実的に適用するかは、どのようなマネジメントシステムを構築できるかにかかっている。ただし、電力会社によるISO取得は非常に困難である。
その他	<ul style="list-style-type: none"> EDLに世銀のコンサルタントが配置される予定で、電力需要管理や省エネルギーにかかる業務に従事する予定。その際、電力政策アドバイザーとして既に配置されているJICA専門家との連携を図り、相乗効果が発現するよう配慮したい。 EDLが推進している送電線延伸への支援を通じた地方電化促進について支援していきたい。その際、民間セクターを配電分野に参入させるための具体策を講じていきたい。 小規模IPP事業者を対象とするファンドの設立・運営に対する支援を検討したい。 	<ul style="list-style-type: none"> 北部地域の地方電化を目的に、ルアンパバンールアンナムタの送電線(115kv)建設を中心とする北部地域電力網整備事業をNDF(Nordic Development Fund)との協調融資により推進している。 ナムグム3ダムを新規融資案件として想定しており、同案件へは丸紅も出資する予定。 	<ul style="list-style-type: none"> 当プロジェクトに配置されているEDL職員は現在6名だが、設計段階から建設段階へ移る来年4月には30名に増強される予定。 EDLとしてはADB資金によるナムグムーバンビエンの送電線建設を予定している。

3. 評価調査結果要約表

1. 案件の概要	
国名：ラオス国	案件名：電力技術基準促進プロジェクト
分野：電力	援助形態：技術協力プロジェクト
所轄部署：アジア部	協力金額：
協力 期間	2005年1月18日～2008年1月17日 (3年間)
	先方関係機関：エネルギー鉱業省（MEM）の電力局（DOE）及び電力公社（EDL） 日本側協力機関：海外電力調査会
他の関連協力：	
<p>1-1 協力の背景</p> <p>ラオス国の電力セクターは、電力の安定供給、電化率の向上、売電による外貨獲得の至上命題に対して基礎的人材が不足している状況にある。また、同国の発電設備、送変電・配電設備は外国資本により建設されるものが多く、これらの設備がそれぞれの国の基準で建設されていることから効率的な運用ができないなど様々な問題が生じている。</p> <p>そこでラオス国の実情に即した電力技術基準を整備し、その運用を行うことのできる行政官育成を目的として、2000年5月から2003年4月にかけて「ラオス国電力技術基準整備プロジェクト」を実施し、電力技術基準を整備できる人材の育成とともに、電力技術基準（Lao Electric Power Technical Standard：LETS）の作成を行った。LETSは上記プロジェクト終了後の2004年2月に省令として承認された。</p> <p>その次の段階として、ラオス国の電力関係者が同基準を効率的かつ円滑に運用するための十分な行政能力及び実務能力を身につけることを目的として、2005年1月18日～2008年1月17日の3年間の予定で本プロジェクトを実施中である。なお、実施機関はMEMの電力局（DOE）及び電力公社（EDL）である。</p> <p>本プロジェクトでは、電力技術6分野（水力土木、水力発電、変電、送電、配電、屋内配線）に関する技術指導に知見をもつ行政官及び現場技術者を持続的に養成可能とすることを目標に掲げ、電力事業監督機関（DOE）及び電力事業実施機関（EDL）にそれぞれ派遣されている長期専門家2名（電力技術、電力技術基準運用）と業務調整員に加え、上記6分野の短期専門家が活動している。</p>	
<p>1-2 協力内容</p> <p>(1) 上位目標</p> <p>ラオス国の電力設備の安全性が高まり、電力セクターが健全に機能することで安定した電力が供給される。</p> <p>(2) プロジェクト目標</p> <p>ラオス国の行政組織および電力事業者内において電力技術基準が機能する。</p> <p>(3) 成果</p> <p>1) LETS運用に必要なガイドライン・検査マニュアルが整備される。</p> <p>2) OJTを通じて、DOEおよびEdLのカウンターパートが基準運用に関する研修を適切に実施できる知見及び技術を身につける。</p>	

- 3) LETS 運用の担当者（検査官、技術者）が育成される。
- 3-1) DOE スタッフは検査員としての技術・知見を身につけ、その内容を PDIH に対して教育する。
- 3-2) EdL の技術者は自身の業務で LETS を活用・遵守できる能力を身につける。
- 4) LETS 運用に必要な管理体制が構築される。
- 4-1) LETS 運用に管理組織（検査機関及び第三者監視機関）が確立する。
- 4-2) LETS 運用に関係する機関・組織・職員の責任と役割が明確になる。
- 4-3) LETS 運用について審査・協議・評価する仕組みが構築される。
- 5) 行政機関、電気事業者のみならず、電力セクターの関係者に対し、LETS の重要性を考え方が普及する。

(4) 投入（実績）

日本側：

長期専門家派遣 延べ3名 合計 108M/M

機材供与 160,270 米ドル

短期専門家派遣 延べ33名

ローカルコスト負担 85,556 米ドル

研修員受入れ 延べ5名

相手国側：

カウンターパート配置 延べ33名

機材購入

土地・施設提供（事務スペース、研修施設、同建屋、電気、水道、燃料等）

ローカルコスト負担 22,100 米ドル

2. 評価調査団の概要

調査者	担当分野	氏名	職位
	団長	森 千也	JICA ラオス事務所 所長
	電力技術評価	鳴海 英樹	海外電力調査会
	企画協力	小林 悟	JICA 経済開発部
	計画評価	関根 創太	JICA ラオス事務所 所員
	評価分析	小野澤 雅人	株式会社ピオニエ・リサーチ 取締役
調査期間	2006年9月13日～2006年9月26日		評価種類：中間評価

3. 評価結果の概要

3-1 評価結果の要約

(1) 妥当性

STEP II は、ラオス国の電力セクターポリシー（2001年3月制定）と、同国の電力セクターに照らし合わせて高いニーズがある。LETS の法制化は、同国の電力設備が様々な規格・基準に基づいて整備されている現状を改め、安全性と質の向上を確実なものとする効果が期待される。本プロジェクトを通じ、DOE と EDL のプロジェクト実施能力が強化され、同国高品質の電力供給と社会経

済開発の実現が期待されることから、妥当性が高い。

(2) 有効性

本プロジェクトは、LETS を運用・実施するためのガイドラインと、マニュアル類の製作・編纂が実施され、2006年10月に組織される翻訳委員会による審査を経て、まもなく完成する見通しである。また、DOE 内部に設置される予定の規制部門または規制部署についても年内に実現する見通しである。これにより、LETS の運用が行われる見通しであることから、プロジェクト目標の達成の可能性は高く、プロジェクトの有効性は高いと評価された。

(3) 効率性

全体として、プロジェクトへの投入資源の質と数量は適切であると考えられることから、現在までの本プロジェクトの効率性は高いと評価できる。プロジェクトの全体の進捗は、ほぼ予定通りの進捗を示している。しかし、運営面では、コミュニケーション向上や情報共有などにおお改善の余地があることが指摘されており、その解決について関係者間での話し合いが必要である。

(4) インパクト

評価時点において、ほとんどの活動は現在も進行中であることから、目に見えるインパクトはまだ確認することができなかった。

(5) 自立発展性

自立発展性確保の観点から、DOE 内部に、LETS の規制関連業務のすべてに責任を負う規制部門（部署）の設置が必要である。

3-2 効果発現に貢献した要因

(1) LETS 関連図書の整備と、短期専門家による技術的なトレーニングの実施による相乗効果

STEP I で策定された LETS の運用に必要なガイドラインや説明書等の関連図書の作成に、検査官・技術者を養成するためのトレーナートレーニングを組み合わせて実施することを通じ、C/P の能力開発を目指している。プロジェクトの実施主体はラオス国側で、長・短期専門家の指導により、業務が実施されている。また、ラオス語化の過程で C/P は STEP 条文の理解を深めることができる。今後は、電力施設の設置・建設に係る書類審査、検査立会い、エンジニア養成研修の実施を通じ LETS を実際の現場の業務に適用させていく経験を重ね、これまでに獲得した技術・知識を有機的に結びつけていくことが可能である。

(2) LETS が法制化されていること

フェーズ I 終了後の早い時点で LETS が法制化され、国の制度として厳然として位置づけられていることは、プロジェクトの実施に大きな効果をあげている。プロジェクトの実施によって、実際に制度が運用・適用されていくことが明らかである。

3-3 問題点及び問題を惹起した要因

(1) 計画内容に関すること

該当なし

(2) 実施プロセスに関すること

該当なし

3-4 結論

評価調査団は本プロジェクトが、PO (ANNEX 4-1-2) と AWP (ANNEX 4-1-3)に従って実施され、計画に従った成果を出しているという結論を導いた。しかしながら、プロジェクト管理面において若干の改善を、指摘した。プロジェクトは、ほぼ計画通り進捗していることから、以下の提言に基づいて活動することにより、プロジェクト目標を予定通り達成するが可能であるとする。

3-5 提言 (当該プロジェクトに関する具体的な措置、提案、助言)

3-5-1 DOE 内部に規制部門を設置することの重要性

関係者は、LETS の規制を推進するために、DOE 内に適切な地位をもつ規制部門が設置されることが重要であることを確認し、その設置を 2006 年 12 月を目途に推進することを約した。DOE はこれまでに、規制部門が行う業務 (例えば書類審査、検査業務など) を試行的に実施している。JICA ラオス事務所は、上のようなラオス国側の努力を継続して支援していくべきである。

3-5-2 JBIC 送電線プロジェクトとの調整

計画中の JBIC プロジェクトは、DOE が LETS をごく初期の段階から適用し、審査を行う最初のケースである。そのため、2008 年 1 月に予定されているプロジェクトの終了を、若干延長し、審査が滞りなく行われるよう支援することが必要と考えられる。評価調査団は、専門家の援助が継続できるよう、プロジェクトを 2~3 か月程度延長すべきと提言した。JICA は、この提言を継続的に考慮し、最終的な決定を終了時評価の時に行うこととした。

3-5-3 DOE に派遣されている専門家の STEP II への支援

評価調査団は、プロジェクトの活動がより効率的・効果的に行われるように、DOE に派遣されている長期専門家がプロジェクトに支援をすることを提言した。

3-5-4 コミュニケーションの向上と情報の共有

プロジェクト関係者間のコミュニケーションの向上と情報共有が必要であることが指摘されたことから、様々なレベルにおける定期的な会議の開催が必要である。両者は、公式・非公式の情報の流れを作ることによってプロジェクトの日常の活動に対する共通理解を高めることの必要性を確認した。長期専門家 (業務調整担当) は、様々な事柄について討議する定期的な会議・打ち合わせの場をもつように提案した。

1. Outline of the Project		
Country: Lao PDR		Project Title: Lao Electric Power Technical Standard Promotion Project
Issue/Sector: Electric Power		Cooperation scheme: Project-type Technical Cooperation
Division in charge: Laos Office		Total Cost:
Period of Cooperation:	18 January 2005 – 17 January 2008 (3years)	Partner Country's Implementing Organization: Department of Electricity and Electricity of Laos, Ministry of Energy and Mines
		Supporting Organization in Japan: Japan Electric Power Information Center (JEPIC)
<p>Related Cooperation:</p> <p>1-1 Background of the Project</p> <p>Electric power sector in Lao PDR faces a problem of lacking human resources to meeting challenges of provision of quality electric supply, improving electrification rate and earning foreign currency by sales of electric power to neighboring countries. Another problem is inefficient operation caused by electric facilities, such as generators, transmission lines and distribution lines, built by foreign investments complying on different technical standards which make it difficult to manage and operate.</p> <p>Government of Japan responded to the request made by the Government of Lao PDR to support a technical cooperation project, Lao Electric Power Standard Establishment Project, between May 2005 and April 2003 to train officers who would be able to furnish and administrate an electric power technical standard meeting actual situation of electric power sector in Lao PDR. The project assisted the Government of Lao PDR to establish the Lao Electric Power Technical Standard (LETS) in addition to human resources development of electric power sector in Lao PDR. LETS were recognized as an a ministerial ordinance of Ministry of Energy and Mines in February 2004 after the termination of the project.</p> <p>Currently a three year-long technical cooperation project by the Government of Japan which started January 18th 2005 is in progress as the second step of the previous technical cooperation project to strengthen overall capacity of electric power sector in Lao PDR to administer and enforce LETS. The project is implemented by Department of Electricity and Electricity of Laos, Ministry of Energy and Mines.</p> <p>The project aims at developing capacity to train officers and engineers who is competent in six technical areas of electric power (i.e. civil engineering, hydro-power, substation, transmission, distribution and user's site). In order to achieve such aim, three long-term term experts (expert to DOE, expert to EDL and coordinator) and short term experts in the six technical areas are dispatched.</p> <p>1-2 Project Overview</p> <p>1-2-1 Overall Goal</p> <p>Power sector's activities and power facilities' safety are improved.</p>		

1-2-2 Project Purpose

The LETS is enforced within public and private sectors.

1-2-3 Output

- (1) Complementary guideline and manuals relating to the LETS is drawn.
- (2) Through on the job training, knowledge and training skills of counterparts of DOE and EDL as trainers are upgraded.
- (3-1) DOE staff obtain necessary knowledge and skills as inspectors and transfer those knowledge and skills to PDIH staff.
- (3-2) EDL engineers obtain necessary knowledge and skills in order to apply the LETS to their works
- (4) Management structure for the LETS is formulated.
 - (4-1) Responsible division for the LETS is established.
 - (4-2) Mechanism for monitoring and evaluating implementation of the LETS is formulated.
- (5) Awareness on the LETS of public and private sectors is increased

1-2-4 Input

Japanese side:			
Long-term Experts	3 (Total of 108M/M)	Equipment	Total amount of US\$
Short-term Experts	Total of 33 experts dispatched	Local Cost	Disbursed US\$85,556 to cover the local cost
Trainees received	5 trainees received	Note:	Additional US\$50,000 to support EDL Training Center
Lao Side:			
Counterparts	F/T C/P:	P/T C/P:	
Land and Facilities	Land, building, rooms and other facilities for the Project were provided by DOE and EDL.		
Local Cost	(1) Expenditure for the renovation of EDL training centre=US\$18,000 (2) Expenditure for workshops (per-diem EDL participants)=US\$3,700 (3) Expenditure for OJT (in-kind basis) =US\$400 Total Expenditure=US\$22,100		

2. Evaluation Team

Members of Evaluation Team	Responsibility	Name	Affiliate/Title
	Team Leader	Senya MORI	RR of JICA Laos Office

	Electric Power Technology	Hideki NARUMI	Japan Electric Power Information Center (JEPIC)
	Cooperation Planning	Satoshi KOBAYASHI	Department of Economic Development, JICA HQ
	Evaluation Analysis	Masato ONOZAWA	Pionnier Research, Inc.
	Mission Management 1	Sota SEKINE	ARR of JICA Laos Office
	Evaluation Planning 2	Kaysith SADETTAN	Assistant Program Officer of JICA Laos Office
Period of Evaluation	September 13 – September 26, 2006		Type of Evaluation: Mid-term Evaluation
3. Result of Evaluation			
3-1 Summary of Evaluation Results			
(1) Relevance			
STEP II is compatible with Power Sector Policy Statement of Lao P.D.R. published in March 2001.			
The need of LETS in the electric power sector is high. Legislation of LETS and its enforcement expect to resolve current problems associated with lack of electric power standard for installation of power facilities, and assure improvement of safety and quality of electric power supply. The Project would strengthen DOE and EDL's overall capacity of implementing developing projects. This may help the Lao Government ensure high-quality power supply and socio economic development. Therefore relevancy of the project is considered high.			
(2) Effectiveness			
The effectiveness of the project is high because of the following reasons:			
A complementary guideline and manuals related to LETS were developed and completed and they are ready for review by the Translation Committee to be organized by October, 2006.			
LETS regulatory unit, which is a preparatory unit for "Electricity Management and LETS Regulatory Division" of DOE is expected to be established by December 2006.			
(3) Efficiency			
Based on the input record of both sides, overall quality and quantity of inputs to the Project were appropriate. Both sides have carried out activities as scheduled by the agreement in R/D signed on December 7, 2004. Analysis based on the interview results, however, raised some managerial issues to be improved. The Team expects further discussion among members concerned is necessary to avoid such problems.			
(4) Impact			
Tangible impact is not identified at the time of evaluation because most activities are still in progress.			
(5) Sustainability			
The Evaluation result indicates that establish a regulatory division which becomes the authority to engage al			

1 regulatory works associated with LETS is necessary in order to make the project sustainable.

3-2 Factors that promoted realization of effects

(1) The effects made by combining preparation of guidelines and manuals for LETS and technical training provided by long and short term experts

The basic design of the project aims at capacity development of C/P personnel through combining preparation of complementary guidelines and manuals for LETS and the technical trainer training for inspectors and engineers. The project has carried out by the initiatives of Lao side with supports from long and short-term experts. C/Ps have been able to deepen their comprehension of articles of LETS through localization process (e.g. translation and interpretation to local situations). The project is expected to integrate C/Ps' knowledge and skills though experiences of applying LETS in examination of project documents for installment and construction of power facilities development projects, inspection of the projects and technical training for engineers.

(2) Legislation of LETS

Legislation of LETS which carried out as soon as the termination of STEP I contribute implementation of the project. The project activities were fully supported by such legislative arrangement of Lao PDR. It is, therefore, LET would be effectively administered and managed when the project is completed.

3-3 Factors that impeded realization of effects

(1) Factors concerning planning

Not identified.

(2) Factors concerning the Implementation Process

Not identified.

4. Conclusion

The Team concludes that the Project has so far implemented, according to PO (ANNEX 4-1-2) and AWP (ANNEX 4-1-3), and achieved some outputs as planned. The Team, however, identified some areas to improve, particularly project management, communication and information sharing through the questionnaire and interview conducted during the evaluation activities. The Project could achieve its purpose as planned following recommendations by the Team.

4-1 Establishment of regulatory division in DOE

The Team suggested DOE to make sure that the regulatory unit would be established as preparatory organization for the regulatory division which would bear decent status to conduct continuous enforcement of the LETS after the Project terminates. DOE explained that the Project has conducted a few trial inspections of the detail design documents submitted by IPPs or EDL for the preparation of the unit and committed to continue this kind of trial inspections. The Team suggested JICA Laos Office to support their effort for the establishment of the unit continually.

4-2 Coordination of Project activities with JBIC Project for the construction of the transmission line

The planned transmission line project by JBIC will be the first case for conducting examination from very early stage of the detail design. documents to be submitted by the JBIC Project. The Team suggested that a few month extension of the Project would be necessary in order for C/Ps to conduct the examination which is expected to carry out from January to February 2008 with supports from the experts. Both sides recommend that the Project can support each C/P to conduct the inspection. JICA will consider the issue continuously and final decision will be made after terminal evaluation for the Project.

4-3 Supports for STEP II by Expert to DOE

The Team suggested that the expert to DOE should be involved more in the Project to achieve its activities more efficiently and effectively.

4-4 Improvement of Communication and Information Sharing

It is recommended that regular meetings consisting many different levels and responsibilities should be scheduled in order to improve communication and to strengthen common understanding about the Project. Both sides agree that there should be formal and informal routes to strengthen common understanding of the Project's day-to-day operations among parties concerned. L/T experts (coordinator) proposed a set of regular meetings to be arranged (ANNEX 6) to discuss various issues related to the Project.

