ラオス人民民主共和国
ラオス国立大学
ITサービス産業人材育成プロジェクト
終了時評価調査報告書

平成25年10月
（2013年）

独立行政法人国際協力機構
ラオス事務所

ラオ事
ＪＲ
13-009

ラオス人民民主共和国
ラオス国立大学
ITサービス産業人材育成プロジェクト
終了時評価調査報告書

平成25年10月
（2013年）

独立行政法人国際協力機構
ラオス事務所

序　　文

近年、周辺国が情報技術（IT）の活用による経済発展の加速化を図っている一方、ラオス人民民主共和国ではIT分野の導入と開発が遅れており、同分野を活用した経済振興において、他国との格差が一層拡大することが懸念されております。

ラオス国立大学は、短期間で効果的なIT技術者の育成を図るため、高等ディプロマ資格取得者以上を対象とした教育課程として、国際協力機構（JICA）による技術協力プロジェクト「ラオス国立大学工学部情報化対応人材育成機能強化プロジェクト（2003年4月より5カ年：「ITブリッジ・プロジェクト」）」を実施しました。

一方、IT産業界から、データベース、ネットワーク、アプリケーション分野のITスペシャリスト養成機関開設への強い要望があるものの、実際に産業界で勤務している人材は外国人か海外留学からの帰国者がほとんどであり、既存の教育機関では産業界が要望する人材育成に十分応えられていないという課題が残っております。このような背景の下、ラオス人民民主共和国政府よりわが国に対し、持続的なIT人材育成の体制構築を目標とする技術協力プロジェクト「ラオス国立大学ITサービス産業人材育成プロジェクト」の要請がなされました。

上述の公式要請を受けて、2008年7月に事前評価調査を実施し、同年11月に討議議事録（R/D）を署名・交換し、5年間の予定でプロジェクトを開始しました。

本プロジェクトでは、1年間のIT研究生コースを開設し、ITサービス産業の需要に応じた、世界的に通用する技術力を有する人材を育成してきました。その成果を踏まえて、IT研究生コースは発展的に解消され、IT実践型修士コースに改編され、2013年1月からは、ネットワーク分野とソフトウェアエンジニアリング分野における人材育成に取り組んでおります。また、IT学科内において、学科内会社を設立し、民間や官庁の技術者を対象とした短期研修の実施や、2011年度に実施された中間レビュー調査の結果を踏まえ、IT分野における起業を促進するためのインキュベーターを設け、ITサービス産業の振興に向けた人材育成に取り組んできました。

今般、本プロジェクトの終了時評価を行うことを目的として、2013年5月から6月にわたり終了時評価調査団を派遣し、ラオス人民民主共和国政府や関係機関との間でプロジェクトに関する協議を実施しました。本報告書は、調査・協議結果を取りまとめたものであり、類似プロジェクトの形成や事業運営に活用されることを願うものであります。

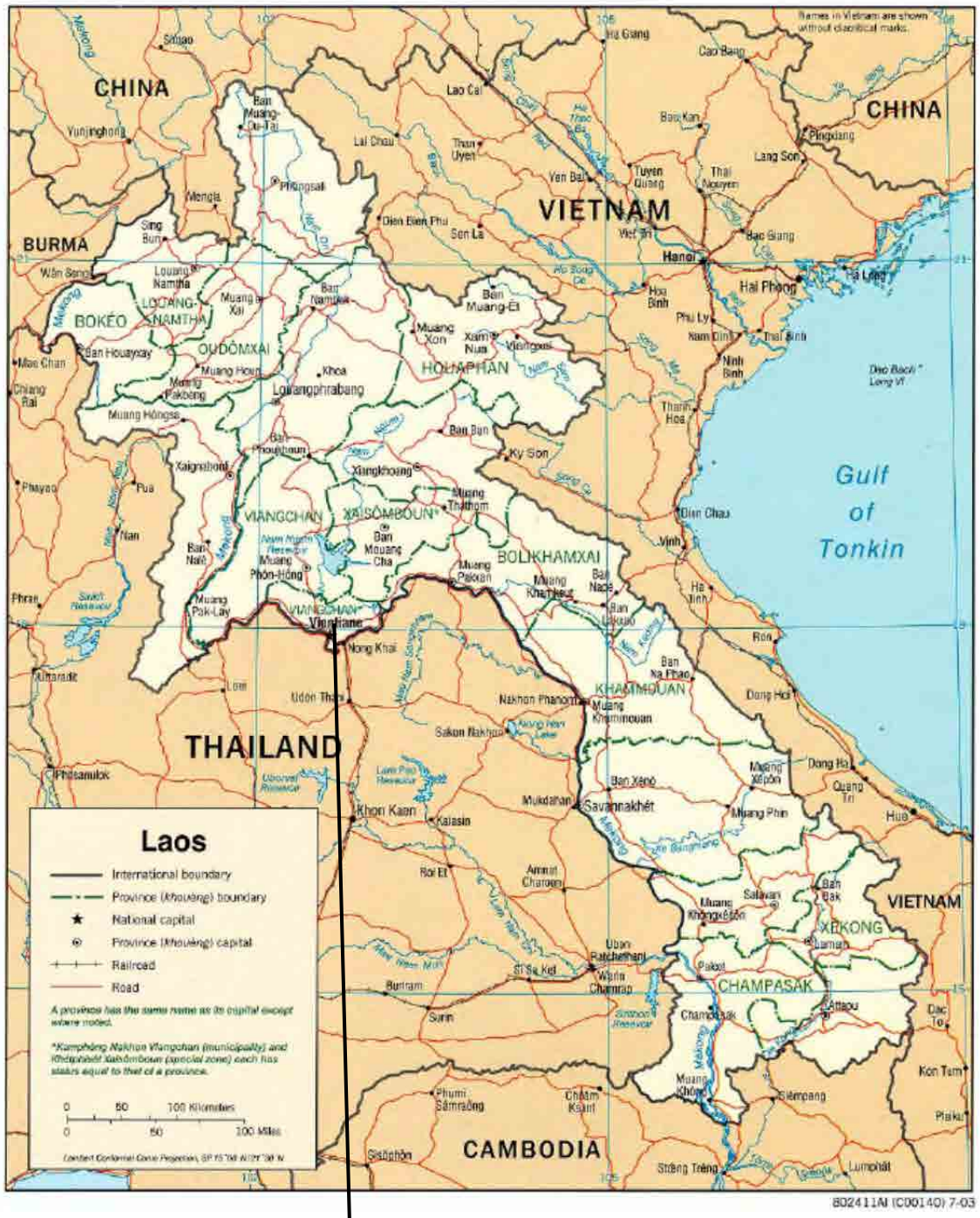
最後に、調査にご協力頂いた内外関係機関に、改めて深い感謝の意を表するとともに、引き続き一層のご支援をお願いする次第です。

平成25年10月

独立行政法人国際協力機構
ラオス事務所所長　武井　耕一

目　　次

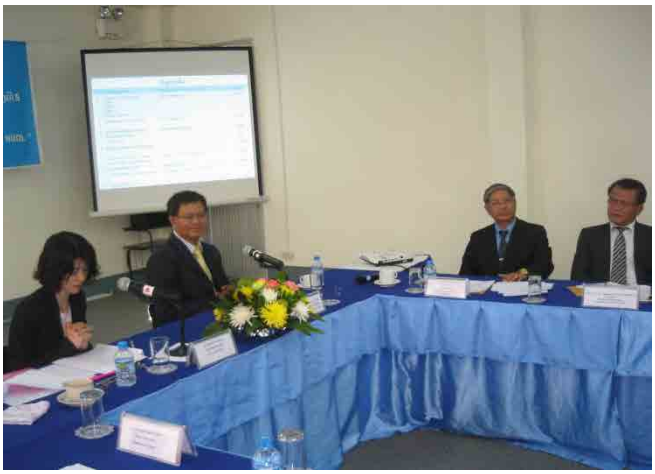
地　　図


CHINA
VIETNAM
BURMA
THAILAND
CAMBODIA
Gulf of Tonkin
Hanoi
Vientiane
Laos
International boundary
Province (Khouèng) boundary
National capital
Province (Khouèng) capital
Railroad
Road
A province has the same name as its capital except where noted.
*Kamphèng Nakhon Viangchan (municipality) and Khétsadét Xaisômboun (special zone) each has status equal to that of a province.
0 50 100 Kilometers
0 50 100 Miles
802411AI (C00140) 7-03

首都ビエンチャン

写　　真

	ラオス国立大学工学部 IT 実践型修士コース及び学科内会社による短期講習が実施されている IT 棟の外観。
	ラオス国立大学工学部以外で、高等教育機関として IT 教育を行っている Soutsaka College におけるヒアリングの様子。
	終了時評価調査団がラオス国立大学副学長とミニッツ（M/M）協議を行う様子。

	ラオス国立大学工学部長及び副工学部長と M/M 協議を行う様子。
	合同調整委員会における終了時評価団長からの評価結果に関する説明を行う様子。

略　語　表

略　語	正式名	日本語
BCEL	Banque Pour Le Commerce Exterieur Lao	ラオス外国貿易銀行
C/P	Counterpart Personnel	カウンターパート
CCNA	Cisco Certified Network Association	Cisco Systems 社 技術者認定資格
GOL	Government of Laos	ラオス政府
ICT	Information and Communication Technology	情報通信技術
IT	Information Technology	情報技術
ITBU	IT Dept. Business Unit	IT 学科内会社
ITPM	IT Practical Master Course	IT 実践型修士コース
ITSC	IT Specialist Course	IT 研究生コース
JCC	Joint Coordinating Committee	合同調整委員会
Lao PDR	Lao People’s Democratic Republic	ラオス人民民主共和国
LIBIC	Lao IT Business Incubator Center	ラオス IT ビジネスインキュベーターセンター
LICA	Lao ICT Commerce Association	ラオス情報通信技術商工会
M/M	Minutes of Meeting	ミニッツ/協議議事録
MOES	Ministry of Education and Sports	教育スポーツ省
MOIC	Ministry of Industry and Commerce	商工省
MPT	Ministry of Post and Telecommunication	郵政通信省
MST	Ministry of Science and Technology	科学技術省
NSEDP	National Socio-Economic Development Plan	国家社会経済開発計画
NUOL	National University of Laos	ラオス国立大学
PDM	Project Design Matrix	プロジェクト・デザイン・マトリックス
PO	Plan of Operations	活動計画
R/D	Record of Discussions	討議議事録
SMEPDO	Small Medium Enterprise Promotion Development Office	（ラオス商工省） 中小企業促進開発事務所

評価調査結果要約表

１．案件の概要		
国名：ラオス人民民主共和国		案件名：「ラオス国立大学 IT サービス産業人材育成プロジェクト」
分野：情報通信技術		援助形態：技術協力プロジェクト
所轄部署：ラオス事務所		協力金額（評価時点）：3 億 8,000 万円
協力期間	2008 年 12 月～2013 年 11 月	先方実施機関：ラオス国立大学
		日本側協力機関：なし

１－１　協力の背景と概要

近年、周辺国が情報技術（IT）の活用による経済発展の加速化を図っている一方、ラオス人民民主共和国（以下、「ラオス」と記す）では IT 分野の導入と開発が遅れており、同分野を活用した経済振興において、他国との格差が一層拡大することが懸念されている。

そのためラオス国立大学（NUOL）では高等ディプロマ資格取得者が短期間で学士号を取得することを目的として JICA 技術協力プロジェクト「ラオス国立大学工学部情報化対応人材育成機能強化プロジェクト（2003 年～2008 年）」が実施された。その結果、大学学部レベルの IT 教育体制は確立したものの、教育内容はコンピュータ・サイエンスを中心とした理論重視のものであり、現地 IT 市場が必要とする、実践的スキルを有するエンジニアの育成が今後の課題となった。

上記背景を受け、ラオス政府よりわが国に対し、より実践的スキルを有する IT 人材を育成し、ラオスの IT サービス産業振興に貢献するため、技術協力プロジェクト「ラオス国立大学 IT サービス産業人材育成プロジェクト」の要請がなされ、2008 年 12 月より 5 年間の予定でプロジェクトが実施されている。

１－２　協力内容

（1）上位目標：ラオス国において IT サービス産業が発展する。

（2）プロジェクト目標：

NUOL 工学部 IT 学科による IT 研究生コース（ITSC）を通じて、IT サービス市場に応じた人材が育成される。

（3）成　果

1）NUOL 工学部 IT 学科において ITSC が適切に運営される。
2）NUOL 工学部 IT 学科において IT 学科内会社が適切に運営される。
3）ITSC 担当教員及び将来に修士コースを担当する教員のソフトウェアエンジニアリングに関する実践的スキル及び指導力が強化される。
4）実践的なソフトウェアエンジニアリング・スキル及びビジネス・スキルを習得するための ITSC 及び修士コースが整備される。
5）産学官の連携が強化される。

（4）投　入

日本側：

・長期専門家派遣 ：3 名（117 人月）　短期専門家派遣：18 名（20 人月）

・機材供与：コンピュータ、プロジェクター、IT 関連機材、机、椅子、キャビネット、車両等
・ローカルコスト負担：2,509 万 195 円
・本邦研修員受入れ：なし

ラオス側：
・カウンターパート（C/P）配置：28 名
・ローカルコスト負担：9,911 万 9,000Kip[1]
・施設・機材提供：4,586 万 4,000Kip
（試験センター用コンピュータ 5 台、警備用ドアロール 4 セット、カーテン 5 セット）

２．評価調査団の概要

調 査 者	団　　長：神谷　まち子	JICA ラオス事務所　次長
	評価分析：濱田　真由美	㈶国際開発高等教育機構（FASID）
	協力企画 1：戸谷　幸一	JICA ラオス事務所　所員
	協力企画 2：Daovanh SENGHALATH	JICA ラオス事務所　ナショナルスタッフ
調査期間	2013 年 5 月 28 日～2013 年 6 月 13 日	評価種類：終了時評価

３．評価結果の概要

３－１　実績の確認

３－１－１　成果 1：プロジェクト終了までに達成見込み

成果１：NUOL 工学部 IT 学科において ITSC が適切に運営される。

指標
1-1. 短期コースガイドライン、教員評価ガイドライン、受託開発ガイドライン、図書利用ガイドライン及び ITSC、IT 学科内会社（ITBU）の運営に必要とされるガイドラインが作成され、IT 学科長によって承認される。
1-2. 受講者の募集、選抜、成績評価及び卒業認定が適切に行われる。

主な理由
－　長期コース（ITSC/ITPM）及び短期コースに関するほとんどのガイドラインが開発された。すなわち、マニュアル 6 種と図書館利用に関するフォーマット 1 種の作成が完了している。
－　学生・受講生の募集、成績評価、卒業認定が、大学が定めたガイドラインに沿って実施されている。

３－１－２　成果 2：ある程度達成されている

成果 2：NUOL 工学部 IT 学科において IT 学科内会社が適切に運営される。

指標
2-1. IT 学科内会社の事業計画に沿って、事業が適切に運営管理されていることが、学部長に報告、承認される。
2-2. IT 学科内会社は、産官からシステム開発に関する業務を有償で受注できるようになる。
2-3. インキュベーション・ブースのうち、3 カ所以上が使用されている。

主な理由
－　ITBU のマネジメント体制がまだ十分でない。

[1] 2011 年 1 月から 2013 年 3 月までの ITSC/IT 実践型修士コース（ITPM）の経費のみを示す。ラオス側は短期コースの経費も支出しているが、そのデータは得られなかった。

・過去に ITBU マネジャーが 2 度交替したうえ、2 カ月にわたり空席となった。
・短期研修の評価結果が、研修・教育の改善に活用されていない。

－ 指標 2-2 は代替活動（長期コースのフィールドワーク）で目的の意図は達成済み。
－ インキュベーション・ブースは 3 室入居済みである。他方、インキュベーションはまだ初期の段階にあり、教員による助言活動が開始されていない。

３－１－３　成果 3：おおむね達成されている

成果 3：ITSC 担当教員及び将来に修士コースを担当する教員のソフトウェアエンジニアリングに関する実践的スキル及び指導力が強化される。
指標 3-1. 受講生による教員への満足度（評価）が向上する。 3-2. IT 学科内会社で行うシステム開発の成功数が向上する。
主な理由 － 受講生による教員への満足度評価結果は、中間評価時に比べ大きな変化はみられないが、インタビューにおける ITSC 卒業生及び ITPM 在校生の教員に対する評価はおおむね良好。 － 世界標準となる資格を取得している教員数が増加した（延べ 26 名）。 － 指標 3-2 は指標 2-2 と連動し、代替活動（長期コースのフィールドワーク）で目的の意図は達成済み。

３－１－４　成果 4：おおむね達成されている

成果 4：実践的なソフトウェアエンジニアリング・スキル及びビジネス・スキルを習得するための ITSC 及び修士コースが整備される。
指標 4-1. ITSC 全般に対する受講生の満足度が高くなる。 4-2. カリキュラム、シラバス、教材が定期的に更新される。 4-3. 外部有識者（産官）が参加するカリキュラム・ボードが毎年開催される。
主な理由 － ITSC 卒業生及び ITPM 在校生へのインタビューでは、コースに対する評価はおおむね良好。 － 教材は 2012 年に改訂済み。一部アカデミック・プログラムを活用し自動更新を導入。 － カリキュラム・ボードは 2010 年から 2012 年まで、毎年 1 回開催。

３－１－５　成果 5：達成されている

成果 5：産学官の連携が強化される。
指標 5-1. 産学官との合同セミナーが毎年開催される。 5-2. 産官の客員講師による講義が一定の割合で実施される。
主な理由 － 産学官との合同セミナー（スタディ・セッション）が 2009 年より 2012 年までに計 4 回開催済み。 － 産官の有資格者（政府職員 2 名、産業界 2 名を含む）が短期コース及び ITSC/ITPM で一部コースの教鞭をとっている。

３－１－６　プロジェクト目標：おおむね達成されている

プロジェクト目標：ラオス国立大学（NUOL）工学部 IT 学科による ITSC を通じて、IT サービス市場に応じた人材が育成される。
指標 1. 国内 IT サービス企業、政府組織、IT ユーザー企業で従事する卒業生及び受講生の評価が高くなる。 2. ITSC（長期コース）の卒業生数の 80%以上が IT サービス市場において就職する。 3. ラオス国内において、ITSC（短期コース）の受講生数が増える。
主な理由 －　2013 年 5 月に ITSC 卒業生の主要就職先 11 社を対象に実施した電話インタビューによれば、卒業生の評価はおおむね良好。 －　ITSC 卒業生の 95%が、IT サービス市場において就職している。 －　2009 年以降、短期コースの受講者は堅調な伸びを示している（累計 774 名）。

３－１－７　上位目標：協力終了後 3 年程度での達成見通しは低いが、着実にその方向に向かって進捗している

上位目標： ラオス国において IT サービス産業が発展する。
指標 1. GDP に占める IT サービスの割合が増加する。 2. 就労人口に占める IT サービス従事者の割合が増加する。
主な理由 －　協力期間終了 3 年後までに輩出される ITPM 卒業生数の規模を踏まえれば、プロジェクト実施によってラオス GDP における IT サービスの割合や就労人口に占める IT サービス従事者の割合が変化する可能性は低い。 －　当初計画においてよりスーパーゴールに近い目標を上位目標に設定していたため、プロジェクト終了後 3 年程度での達成は困難。

３－２　実施プロセス

（1）活　動

計画された活動は、以下を除きほぼ実施された。①外部からの有償でのシステム開発事業受注、②産官学の連携強化を目的としたシンポジウムの開催。これらの目的は既に別の活動（①はフィールドワーク、②はスタディ・セッション）により達成されていることから、プロジェクト効果に対する負の影響はなかった。

（2）モニタリング

モニタリングは、マネジメントレベル及びセクションレベルにおける 2 段階のウイークリー・ミーティングをベースに行われた。各マネジャーが、セクションレベルのウイークリー・ミーティングの結果をマネジメントレベルのウイークリー・ミーティングで報告し、必要に応じ日本人専門家やプロジェクトマネジャーの助言を求めた。

（3）C/P のオーナーシップ

現在、ほとんどの活動は C/P によって行われている。日本人専門家は新たな事柄を開始する際の基本的な枠組みやフォーマットの策定、教材改訂時の業務分担の割り振り、

ITSC/ITPM や短期コース、インキュベーション等、すべての主要活動における技術的・運営管理的側面の助言を行っている。

３－３　評価結果の要約[2]

（1）妥当性（やや高い）

プロジェクトの方向性とラオス・日本両政府の政策は合致している。ラオスの第 7 次国家社会経済開発計画（2011～2015）は、電信及び高速インターネットの促進及び技術者を含む人材開発の重要性を強調している。また、情報通信技術（ICT）国家政策（科学技術省 2009 年）は、IT セクターにおける人材育成及び IT セクター自体の開発促進を重視している。日本側については、外務省の対ラオス国別援助方針（2012）において、高等教育、技術教育及び職業訓練が、四つの柱のうち第 3 の柱である「教育環境の整備と人材育成」の中に位置づけられており、JICA の対ラオス援助方針もこれに連動している。産業界のニーズとの整合性については、IT スペシャリストの育成が産業界のニーズに合致していることから、学生たちの評判は高い。他方、プロジェクト実施期間中に、修業年限 1 年であった ITSC が、修士課程 ITPM への格上げに伴い 2 年間の修業年限に変更されたことにより、最短期間で IT スペシャリストを確保したい一部民間企業のニーズとの整合性は若干低下する結果となった。したがって、プロジェクトの妥当性は、やや高い。

（2）有効性（やや高い）

プロジェクト目標の指標は良好な達成状況となっており、プロジェクト目標はおおむね達成されている。プロジェクト目標である IT 産業人材を育成させるために、成果 1 では長期コースの運営管理、成果 2 では短期コース及びインキュベーターを所掌する ITBU の運営管理、成果 3 では教員の質、成果 4 ではコース全体の質、成果 5 では IT 産業界のニーズ把握、とそれぞれの成果が一定の役割を担い、プロジェクト目標達成に貢献する形でプロジェクトがデザインされており、成果とプロジェクト目標の論理性はおおむね確保されている。以上から、有効性はやや高い。

（3）効率性（やや高い）

次のようなプロジェクトのデザインが効率性を高めた。①研修において、ラオス側教員にとって英語よりもコミュニケーションが容易なタイからの専門家を招へいしたこと、②マイクロソフト・アカデミー、オラクル・アカデミー等のアカデミック・プログラムを教材の約 3 分の 2 にわたり採用したこと（これらの教材は国際水準を満たす高品質であることに加え、学生にも配布でき、自動的に更新されることから、教員の教材改訂に係る時間が大幅に短縮された）、③教材の 3 分の 1 は、他国における JICA の IT プロジェクトで開発された教材を導入したこと（新規にプロジェクトで教材を開発するのに比べ、教員の時間を短縮し他の活動に集中する時間が増えた）。

他方、学部が多くの教員を C/P として配置したにもかかわらず、教員のなかには経験不足から技術移転中にテストに合格できず、C/P として残ることができないケースもみられた。さらに、短期研修の担当部署である ITBU のマネジャーの人材の確保に困難があり、過去に 2 カ月間空席が続いたほか、現在は 3 代目となっており、ITBU のマネジメント体制の強化に時間を要している。

以上から、効率性はやや高い。

[2] 評価レーティング 4 段階：高い、やや高い、やや低い、低い

（4）インパクト（一定の正のインパクトが発現している）

計画段階で上位目標の設定レベルが高すぎたことから、協力期間終了 3 年後に上位目標が達成される見通しは低い。一方、NUOL 工学部の学部レベルの教育において、次のような正のインパクトがみられる。①教育の質の向上（教員の能力向上とプロジェクトで導入した教材を学部でも使用したため)、②カリキュラム改訂（修士課程のレベルが向上したことから、修士課程のモジュールのうち、本来は学部で教えるべきであったものを 2013 年 9 月より学部に移す予定)、③学生による講師評価の導入。また、2013 年に実施されたタイへのインキュベーション・スタディツアーは、参加した産官学のメンバーのインキュベーションの概念と重要性に関し理解を深めた。この結果、ラオスにおけるセクターを超えたインキュベーション制度の導入に向けて、省庁間での議論とプロポーザル作成が始まっている。

以上から、上位目標の達成見込みは低いものの、一定の正のインパクトが発現している。なお、負のインパクトは発現していない。

（5）持続性（やや低い）

政策面の観点について、ラオス政府は e-government 及び e-commerce 等の実現に向けて国を挙げて動いており、時間はかかるとしても方向性として逆行することは考えにくい。したがって、IT の促進とその人材育成促進の方向性は今後も続くと思われる。

組織面の観点からは、NUOL は国内で最も長い歴史をもつ国立大学として堅固な基盤を有している。人員体制については、ほとんどの教員は大学での勤務を続けると考えられる。ただし、教員と卒業生の給与格差の存在や、多くのコース等を教えることにより教員の負担が過重となっているとの懸念もある。また、協力終了後の ITBU のマネジメント体制及びスタディ・セッションの継続見通しについては不確定要素も残っている。

財政面では、ITPM（修士課程）及び短期コースのランニングコストはすべて授業料収入から賄われるため、IT 学科の教育の質の維持と改善、及び安定した入学者数の確保が重要である。

技術面の観点からみると、教員の各コースを教える力はほぼ十分身に付いている。一方で、IT 分野の技術は日進月歩であり、産業界のニーズに応える人材を輩出し続けるため、教員たちは協力終了後に独力で技術の進歩についていくことが求められる。仮に産業界からの評判や満足度が低下すれば、ITPM 入学希望者や短期コース受講希望者の評判が低下し、入学者数及び短期コース受講者数にも影響すると考えられる。

以上から、持続性はやや低い。

３－４　効果発現に貢献した要因

（1）計画に関すること

JICA の他の IT プロジェクトで開発された教材の導入、国際的なアカデミック・プログラムの活用、及びタイやシンガポールの第三国専門家の活用が効率性を高める要因として機能した。

（2）実施プロセスに関すること

ラオス側教員が実際の授業で教鞭をとり、教材改訂も行うなど、C/P のオーナーシップを高める方法をとったことが教員の能力向上に結びついた。

３－５　問題点及び問題を惹起した要因

（1）計画に関すること

計画立案時に上位目標の設定レベルが高すぎたことが、上位目標達成見通しの低下を招いた。5 年間の人材育成プロジェクト 1 件により、GNP 比率や全国の就労人口における当該セクターの就労者割合に変化を及ぼすことは、多くの場合困難である。

（2）実施プロセスに関すること

実施中に 1 年間の ITSC コースが 2 年間の ITPM コース（修士課程）に格上げされたことにより修業年限が 2 倍となり、短期間で即戦力を求める一部民間企業のニーズとの整合性が低下した。

３－６　結　論

プロジェクトはラオス側及び日本側双方の努力により、プロジェクト目標の達成に向けて着実に取り組みが進められているということが確認された。ITSC の卒業生や、卒業生を雇用している企業、そして ITPM の学生からは、プロジェクトが支援してきた IT コース全体への評価は高い。また、ITSC 及び ITPM のコース運営の妥当性については、コース運営に必要なガイドラインが整備されており、当該コースの職員や講師による適切な運営が確保されている。さらに、教材については、JICA の他国における情報通信関係の技術協力プロジェクトで開発した教材を活用･整備し、また近隣国の第三国講師（特にタイ）による技術移転を進めたため、効率的かつ効果的に、教員のスキル向上に取り組むことができた。また、2013 年から開講した、ITPM の設立は、ITSC の成果を土台として、ITSC が発展的に解消し、プロジェクトで側面支援を行い設立されたため、NUOL が目標として掲げている、全学部学科における 2015 年までの修士課程設立といった目標の達成にも貢献した。他方、留意事項として、プロジェクト目標が、短期コースや ITPM の運営支援のみでは、上位目標達成に向けたインパクトを与えることは難しい。また、持続性の面で IT コースの質や入学者数の十分なモニタリングは財政面での安定性を確保する観点から重要である。さらに、インキュベーションはいまだ初期の段階にあり、本格的な活動はこれからとなっている。

以上を踏まえ、一部留意事項はあるが、プロジェクト目標はおおむね達成されていることから、協力期間終了をもって本プロジェクトは終了し、プロジェクト終了後は、先方政府実施機関の自助努力で取り組むことが妥当と判断される。事後評価の結果を踏まえ、必要に応じフォローアップ協力も検討されよう。

３－７　提　言

（1）IT コースの質を担保していくため、ITPM 及び IT 短期コースの講師やカリキュラム、教材や機材、そしてコース全体に対する評価の、体系的な実施。また、IT の変化に対応するための、教員による継続的な IT 知識のアップデート及び IT サービス産業のニーズを反映させたうえでのカリキュラムの改訂。

（2）ITPM の入学率のモニタリングと、（必要に応じた）応募要件の緩和。

（3）ラオス第 1 号となるインキュベーターの導入について、タイをモデルとしながら、ラオス独自のインキュベーターに発展させていくための、長期間にわたるラオス側のコミットメントの必要性。

（4）ITBU の組織能力強化のための継続的なモニタリングの必要性。

３－８　教　訓

（1）IT 分野の人材育成を効果的かつ効率的に実施するためには案件形成段階に C/P の能力や経験について正しく把握しておくことが重要である。また IT 分野の性格上、高度な知識を習得するだけなく、継続して最新の知識を習得し続ける必要があることから、IT 分野の人材育成は非常にチャレンジングである。このため、IT 分野の人材育成に取り組む場合は、相手国政府及び開発パートナー双方とも本腰を入れた取り組みが求められる。

（2）常に日本の実例（モデル）が相手国に最適なわけではなく、時には日本の事例は先進的すぎることもあり、この場合、他の第三国の事例の方が適していることもある。また全く新しい概念（インキュベーター）を外国から導入する場合には、その地に根付くまで時間を要することから、相手国のコミットメントが必要である。

Summary of Terminal Evaluation

I. Outline of the Project		
Country: Laos		**Project Title:** Human Resource Development in IT Service Industry at NUOL
Issue/Sector: ICT		**Cooperation Scheme:** Technical Cooperation Project
Division in Charge: JICA Laos Office		**Total Cost**: 3.8 million yen (as of Terminal Evaluation)
Period of Cooperation	Dec. 1, 2008 to Nov. 30, 2013 (60 months)	**Partner Country's Implementing Organization:** National University of Laos
		Cooperation Organization (Japanese side): N/A

(ア) Background of the Project

Compared to the neighboring ASEAN countries, which utilize information technology (IT) to accelerate economic development, the utilization of IT in Lao PDR has been delayed, and concerns were raised that the economic gap may widen due to the delayed utilization of IT in Lao PDR. For this reason, a technical cooperation project "the Project for the Upgrading IT Education (Information Technology Bridging Course)" was implemented in National University of Laos (NUOL) from 2003 to 2008 to develop human resources in IT field. While the said project successfully established computer science courses at the undergraduate level mainly focusing on theory matters, it was facing difficulties to meet the strong demand from the IT service industry for developing IT practitioners (IT specialists/ engineers).

In view of the above, the GOL requested a technical cooperation "Human Resource Development in IT Service Industry at NUOL" to the Japanese government to develop IT practitioners (IT specialists/engineers) to support the development of IT service industry in Lao PDR. The said project is being implemented from December 2008 for 5 years.

(イ) Project Overview

(1) Overall Goal

IT service industry is well-developed in the Lao PDR.

(2) Project Purpose

Human resources are developed according to the IT service market through the ITSC by the IT Department of the Faculty of Engineering at the NUOL.

(3) Output

1. ITSC is properly operated at the IT Department of the Faculty of Engineering, the NUOL.
2. The IT Department Business Unit (ITBU) is properly operated at the IT Department of the Faculty of Engineering, the NUOL.
3. Practical skills and teaching capabilities of lecturers in charge of the ITSC and master course that is planned to be established are enhanced in the field of the software engineering.
4. ITSC and master course, which is planned to be established, are for the practical software Engineering and business skills are developed.
5. Collaboration among the government, industry, and academia is reinforced.

(4) Inputs

Japanese side

a) Personnel: Long-term Experts: 3 (117M/M), Short-Term Experts: 18 (20M/M)
b) Equipment: PC, projectors, IT related equipment, desks, chairs, shelves, cabinets, car, etc.
c) Training in Japan: None
d) Local Cost:: 25, 090,195Yen

Laotian side
a) Personnel: 28 C/Ps b) Local Cost: 99,119,000Kip[3]
c) Facility and equipment:: 45,864,000Kip in total for PC for Testing Center (5 units), Door roll for security (4 units) and curtain (5 units)

II. Evaluation Team

Members	Leader: Ms. Machiko KAMIYA (Senior Representative, JICA Laos Office) Evaluation Analysis: Ms. Mayumi HAMADA (Chief Consultant, FASID) Cooperation Planning 1: Mr. Koichi TOYA (Representative, JICA Laos Office) Cooperation Planning 2: Mr. Daovanh SENGHALATH (Assistant Program Officer, JICA Laos Office)

Period of Evaluation	May 28, 2013- 13 June, 2013	**Type of Evaluation**	Terminal Evaluation

III. Results of Evaluation

3-1 Achievement of Objectives

3-1-1 Output 1: ITSC are properly operated at the IT Department of the Faculty of Engineering, the NUOL.

Output 1: Expected to be fully achieved by the end of the Project
Objectively Verifiable Indicator 1-1. Guidelines of short term courses, evaluation on lecturers, outsourcing, library use and others necessary for effective implementation of ITSC and ITBU are developed, and approved by the head of IT department. 1-2. The recruitment, selection, evaluation of learning results, and graduation approval of students are appropriately conducted.
Major Reasons − Most of the guidelines both for the long-term courses (ITSC/ITPM) and the short-term courses are already developed, i.e., development of 6 manuals and 1 format for library use have been completed. − Annual academic administration (such as recruitment of students, evaluation of students on their learning results, and graduation approval of students) has been done well following the University's guidelines.

3-1-2 Output 2: The IT Department Business Unit (ITBU) is properly operated at the IT Department of the Faculty of Engineering, the NUOL.

Output 2: Partially achieved
Objectively Verifiable Indicator 2-1. The operational projects are appropriately managed according to the plan of the ITBU, whose results are reported to and approved by the head of IT department. 2-2. The ITBU comes to be able to receive works on the system development from the government and industry for profits. 2-3. More than 3 incubation booths at ITBU are occupied during the Project period.
Major Reasons − Management system of ITBU is still under development • changes in ITBU managers twice, manager's position vacant for 2 month • Course evaluation is not utilized for course improvement − The intention of indicator 2-2 is achieved through alternative activities (fieldwork for long-term course) − 3 incubation booths are occupied. However, incubation is still at the initial stage, as giving advice to incubatees by lecturers has not begun yet

3-1-3 Output 3: Practical skills and teaching capabilities of lecturers in charge of the ITSC and master course that is planned to be established are enhanced in the field of the software engineering.

[3] The figure is the running cost borne by Lao side for ITSC/ITPM from January 2011 till March 2013 only. Other figures were not available, although the running cost for Short-term Courses were also basically borne by Lao side.

Output 3: Almost achieved
Objectively Verifiable Indicator 3-1. Satisfaction ratings (evaluation) of the lecturers are enhanced by students and trainees. 3-2. The number of the success of the system development in the ITBU is increased.
Major Reasons − Though there are no major changes on students' satisfaction rate over the years, evaluation of course lecturers is rather high (based on the Interview results of graduates and students at ITSC/ITPM) − The number of lecturers who have acquired international certificates increased (26 certificates in total) − The intention of indicator 3-2 is achieved through alternative activities (field work for long-term course)

3-1-4 Output 4: ITSC and master course, which is planned to be established, are for the practical software engineering and business skills are developed.

Output 4: Almost achieved
Objectively Verifiable Indicator 4-1. Satisfaction ratings (evaluation) of the overall ITSC are enhanced by students and trainees. 4-2. The curriculums, syllabi, and learning materials are regularly updated. 4-3. The curriculum board is annually held with the external knowledgeable persons (from the government and industry).
Major Reasons − Interview results with alumni and students at ITSC/ITPM show that their evaluation on the courses is rather high. − Teaching materials were updated in 2012. Introduced to use academic program for part of the curriculum for efficient updating. − Curriculum Board was convened once a year from 2010 till 2012

3-1-5 Output 5: Collaboration among the government, industry, and academia is reinforced

Output 5: Achieved
Objectively Verifiable Indicator 5-1. Joint seminars among the government, industry, and academia are annually held. 5-2. Lectures by the visiting lecturers from the government and industry are delivered at a constant rate.
Major Reasons − Study sessions were held 4 times from 2009 till 2012. − Qualified 5 visiting lecturers (2 from government, 2 from industry 1 from freelance) have been teaching part of the Short-term Courses and ITSC/ITPM.

3-1-6 Project Purpose: Human resources are developed according to the IT service market through the ITSC by the IT Department of the Faculty of Engineering at the NUOL.

Project Purpose: Almost achieved
Objectively Verifiable Indicator 1. Evaluation of graduates and trainees working for the domestic IT service companies, governmental organizations, and IT user corporations is enhanced. 2. More than 80% of the graduates from ITSC will (re)start to work as the IT service engineers 3. The number of trainees (attending the short-term course) of the postgraduate course is increased in the Lao PDR.

Major Reasons
- In the telephone interview conducted by the project in May 2013 with 11major companies that hire graduates of ITSC, the capacity of ITSC graduates was rated satisfactory.
- The ratio of the graduates of ITSC who are engaged with IT related work is 95%.
- The total number of the participants is making steady increase (accumulatively 774 persons as of May 2013)

3-1-7 Overall Goal: IT service industry is well-developed in the Lao PDR.

Overall Goal[4]: Unlikely to be achieved within 3 years after Project completion
Objectively Verifiable Indicator 1. The ratio of the IT services in the GDP is increased. 2. The ratio of the people working for the domestic IT service industry in the working population is increased.
Major Reasons - Considering the number of graduates to be fostered at ITPM within 3 years, influencing the ratio of IT in GDP or the IT specialists' ratio among all the workers in Laos is not probable. - The initial setting of the Overall Goal was too high to be realistic.

3-2 Implementation Process

(1) Activities

Activities were mostly conducted as scheduled, except for 1) the system development work from external organization to reflect the technical needs into curriculum, and to generate income as incentives for lecturers, and 2) symposium for strengthening collaboration among the government, industry and academia. As mentioned in Output 2 above, those aims were already achieved by other actions (fieldwork and Short-term Course), there was no negative effect to the project.

(2) Monitoring system

Monitoring was made based on 1) the weekly meeting among the managerial level, and 2) section-level. Each manager reports the results of the weekly meeting at the managerial level weekly meeting, to get advice from Japanese experts and Project Manager.

(3) Ownership of C/P

Most of the activities are now done by counterparts, with the support of Japanese experts such as establishing initial set-up in basic framework and format, allocation of work in updating teaching materials, giving advice on technical and managerial aspects including all the major activities such as ITSC/ITPM, Short-term Courses and Incubation activities.

3-3 Summary of Evaluation Results

(1) Relevance (Rather High)[5]

The project direction is consistent with the government policies of Lao PDR and Japan. The Seventh Five-year National Socio-Economic Development Plan (2011-2015) of Lao PDR emphasized the importance of promoting telecommunications and high-speed Internet as well as human resources development including engineers. The ICT National Policy (2009 by NAPT) places the importance on human resources development in IT sector as well as development of IT sector itself. Also on Japanese side, in MOFA's Country Assistance Policy to Laos (2012), the support in higher education and technical and vocational education is indicated in the third pillar, i.e., "establishment of educational environment and human resources development," with which JICA's assistance policy to Laos is in line with. With regard to the needs of industry, fostering IT specialists are consistent with the needs of major private companies, which led to good reputation

[4] Probability of achieving the Overall Goal within about 3 years after the project completion
[5] The rating was made in 4-scale rating（High as the best, Rather High, Rather Low, and Low as the worst.）

among the potential students. On the other hand, it is less consistent with some private companies' demands for securing IT specialists within minimum time range, because the project changed the duration of long-term courses from 1year to 2 years during implementation stage, as the TISC was upgraded into ITPM, i.e., master course

(2) **Effectiveness** (Rather High)

All the indicators of the Project Purpose showed either almost achieved or achieved, leading to the conclusion of having the Project Purpose almost achieved. In order to achieve the Project Purpose which is to develop human resources in the IT service industry, the project was designed to have each of the four Outputs play a certain role and to make contribution to achieve the Project Purpose, therefore having a logical linkage between the Outputs and the Project Purpose.

(3) **Efficiency** (Rather High)

The following project design enhanced Efficiency, securing high quality of output with less input; 1) training with experts from Thailand, whose language is easier to understand by Laotian lecturers than English, 2) Utilizing academic programs such as Microsoft Academy, Oracle Academy, etc., which share about two thirds of the total teaching materials. These materials are of high quality at international standard, can be distributed to students, and are automatically updated, so that the lecturers do not consume time for updating, and 3) the teaching materials developed by other JICA IT projects were utilized for one third of the total teaching materials, which resulted in saving time for developing new teaching material, and lecturers could concentrate on other activities.

On the other hand, although a number of lecturers were assigned by the faculty, some lectures could not pass the tests at the technical transfer and thus could not remain as the Project counterparts, due to lack of experience. Also, the assignment of Manager of ITBU which is responsible for Short-term Courses was very difficult, and the post had been vacant for 2 months, and the current manager is the third person in the position. It is taking time to strengthen the management capacity of ITBU.

(4) Impact (Certain Positive Impact are observed)

Probability of achieving Overall Goal within about 3 years after termination is very low, because the initial setting of the Overall Goal was too high.

However, the following positive influence was observed at the undergraduate education at Faculty of Engineering, NUOL; 1) Improvement of education (due to enhanced capacity of the lecturers and introduction of the same teaching materials at the undergraduate level), 2) revision of Curriculum (due to enhancement of master course education, some of the modules at the master level which should have been taught at the undergraduate, will be transferred to undergraduate curriculum from September 2013), 3) Satisfaction rating of lecturers by students has been introduced at Undergraduate Level, Faculty of Engineering.

Incubation study tour to Thailand in 2013 that consists of university, government and industry led to the understanding of the concept and importance of incubation to the participants. Discussions and proposal-making have begun among the ministries on promoting incubation system in Laos regardless of the sectors. No negative impact has been observed.

(5) Sustainability (Rather Low)

As for the policy aspect, the direction of promoting IT and its human resources will continue, as the government is going to step forward to realize e-government, e-commerce, etc., which may take time but will not be totally reverse.

From organizational aspect, NUOL has a solid foundation as a national university with longest history in the country. In terms of personnel concerned, it is likely that most of the lecturers will stay at the university. However, there are some concerns such as the salary gap between the lecturers and the graduates, and the burden of workload to teach various courses, etc. are becoming too heavy. Also, it is still to be seen whether or not the management system of ITBU would be stable, and the study session would be continued after completion of the Project.

In terms of financial aspect, maintaining and improving the quality of education at IT Department and securing the number of students to be enrolled in the future is essential, as all the

running cost for conducting ITPM (the masters course) and Short-term Courses are borne by the tuition fees.

From technological aspect, the teaching capacity of lecturers is regarded to be mostly sufficient for teaching the courses. However, as the speed of technology change in IT sector is very rapid, it is essential that the lecturers keep up their knowledge with the rapid change by themselves after termination of the project to keep responding to the industry's demand. If the reputation and satisfaction level from the industry are decreased, the reputation of the Department among the students and candidates of trainees in IT industry will also be deteriorated, resulting in a possible decrease of new students/trainees.

3-4 Factors contributing to project progress/effects

(1) Factors related to Planning

Utilization of teaching materials developed by other IT projects supported by JICA, international academic programs, and experts from Thailand and Singapore, etc. contributed to enhance efficiency.

(2) Factors related to Implementation Process

The way to enhance ownership of counterpart, such as lecturers conduct actual teaching as well as upgrading teaching materials by themselves, promoted capacity development of lecturers.

3-5 Factors inhibiting project progress/effects

(1) Factors related to Planning

The setting of the Overall Goal at the time of project planning was too high. Affecting GNP ratio and the ratio of workers in the industry by human resources development project within 3 years is not realistic.

(2) Factors related to Implementation Process

The change in duration of the long-term courses from 1-year ITSC to 2-year ITPM was less consistent with some private companies' demands.

3-6 Conclusion

Based on the results of the evaluation, overall, the Project has been steadily making progress towards achieving its Project Purpose. In terms of the evaluation of IT courses, it is confirmed that the IT courses has met the expectation of many stakeholders through the questionnaire and the interviews. Moreover, guidelines have been completed and those guidelines have contributed to the proper management at IT Department of the Faculty of Engineering. Concerning the technology transfer to the lecturers of IT courses, this project has effectively and efficiently conducted the technology-transfer through inviting the IT experts from neighboring countries and utilizing the existing materials developed by JICA IT projects in other countries. Furthermore, this project has supported the establishment of ITPM, which has started in January 2013 based on the successful achievement of ITSC. Establishing a Master Course is aligned to the policy of NUOL to set up Master Course on all departments until the end of academic year 2015.

Though the Project has made many achievements, there are a few points which need attention. First, direct impact to increasing the ratio of IT service industry in GDP cannot be achieved by simply producing certain number of graduates from IT courses and ITPM. Second, to further enhance the sustainability of the Project, the quality of the IT course and the enrollment rate of the course should be carefully monitored to ensure financial sustainability. Third, ITBU/LIBIC is at its very early stage and the real function as an Incubator is yet to be seen.

Based on the above, although there are a few points which need attention, the Project Purpose is almost achieved. Therefore, it concludes that the Project will be terminated at the end of the project cooperation period, and the Lao side implementing agency will take full ownership afterwards. Possible follow-up cooperation may be considered depending on the result of the ex-post evaluation.

3-7 Recommendation

(1) In order to maintain the quality of the IT courses, systematical evaluation of overall program, including the curriculum, teaching materials, equipment and lecturers of ITPM and Short-term courses should be conducted in a timely manner. To reflect the latest needs from the IT industry,

lecturers need to continuously up-date their knowledge, and revision of curriculum is recommended for every 3 years.
(2) Monitoring the change of enrollment rate of ITPM should be conducted. Based on the results, revision of pre-requisite may become necessary.
(3) Long-term commitment from Lao side is necessary to make incubator fully established in Lao through learning from the model in Thailand.
(4) Careful attention on the management capacity of ITBU is necessary.

3-8 Lessons Learned

(1) As developing the capacity of human resources in the IT industry requires acquiring advanced knowledge, in order to have an effective and efficient technical transfer, it is very important to find out the exact level of knowledge and experience the counterpart possess when designing the project. Moreover, considering the necessity to acquire advanced knowledge and also to continuously up-date the knowledge, capacity building in IT field is very challenging and thus requires full commitment from both the partner country side as well as the development partner side.
(2) Not always the Japanese model suites the best for the partner country. In some cases, Japanese model is too advanced and neighboring countries' model suites better. When introducing a new concept (incubator) to a partner country, it takes time to have it fully established locally and commitment from the partner country is necessary.

第１章　終了時評価調査団の概要

１－１　調査団派遣の経緯と目的

2000 年以降、周辺国が情報技術（Information Technology：IT）の活用による経済発展の加速化を図っている一方、ラオス人民民主共和国（以下、「ラオス」と記す）では IT の利活用が遅れており、他国との格差が一層拡大することが懸念されている。このような背景の下、高等ディプロマ以上の資格取得者が短期間で学士号を取得することを目的に、2003 年 4 月から 2008 年 3 月にかけて、「ラオス国立大学工学部情報化対応人材育成機能強化プロジェクト」が JICA によって実施された。その結果、大学学部レベルの IT 教育体制は確立したものの、教育内容はコンピュータ・サイエンスを中心とした理論重視のものであり、現地 IT 市場が必要とする、実践的スキルを有するエンジニアの育成が今後の課題として明確となった。そのため、より実践的スキルを有する IT 人材を育成し、ラオスの IT サービス産業振興に貢献するため、2008 年 12 月から 2013 年 11 月までの 5 年間の予定で「ラオス国立大学 IT サービス産業人材育成プロジェクト（以下、「本プロジェクト」と記す）」が開始された。2013 年 10 月現在、2 名の専門家（チーフアドバイサー、業務調整/組織強化）が現地活動に従事している。

本プロジェクトでは、IT 関連学部卒業生を対象として、演習中心の講義と、実際のシステム開発を行う 1 年間の IT 研究生コース（IT Specialist Course：ITSC）を設け、市場ニーズに見合う IT エンジニアの育成に取り組んできた。なお、1 年間の ITSC は、2013 年 1 月から、2 年間の IT 実践型修士コース（IT Practical Master Course：ITPM）に格上げされた。また、学生や教官が実践的な IT スキルの開発を経験することを目的とした、IT 学科内会社（IT Dept. Business Unit：ITBU）が設立され、本プロジェクトでは運営能力強化に取り組んでいる。さらに産学官連携強化に向けた取り組みや、若手エンジニアの起業・就業支援を目的とした、ラオスで初の「インキュベーター」が設置され、ITBU を中心に、IT サービス産業における起業・就業希望者への技術支援を行っている。

今回実施する終了時評価調査は、2013 年 11 月のプロジェクト活動終了を控え、プロジェクト活動の実績、成果を評価、確認するとともに、活動の持続性を念頭に置いた、今後のプロジェクト活動に対する提言及び類似事業の実施にあたっての教訓を導くことを目的として、実施された。

１－２　調査団の構成

担　当	氏　名	所　属
団　　長	神谷　まち子	JICA ラオス事務所　次長
評価分析	濱田　真由美	㈶国際開発高等教育機構（FASID）
協力企画 1	戸谷　幸一	JICA ラオス事務所　所員
協力企画 2	Daovanh　SENGHALATH	JICA ラオス事務所　ナショナルスタッフ

１－３　調査日程

現地調査期間　2013 年 5 月 28 日（火）～　6 月 13 日（木）　17 日間

日順	日　付		行　　程
1	5/28	火	成田→バンコク→ビエンチャン（濱田団員）
2	5/29	水	8:30　JICA ラオス事務所訪問 9:00　井出専門家、平藤専門家へのヒアリング 13:30-16:30　IT 学科長へのヒアリング（Mr. Somphone）
3	5/30	木	9:30-11:00　ITBU 責任者へのヒアリング（Ms. Sengmany） 14:00-15:00　ラオス電気通信公社（ETL）訪問 15:00-16:00　卒業生へのインタビュー（ETL）
4	5/31	金	10:00-10:30　ラオス国立大学（NUOL）表敬（副学長 Dr. Saykhong） 13:30-14:30　インキュベーター責任者へのヒアリング（Ms. May） 15:00-15:30　インキュベーター入居者へのヒアリング（LaoDigi）
5	6/1	土	資料整理
6	6/2	日	資料整理
7	6/3	月	AM ・郵政通信省（MPT）　ラオスインターネットセンター　表敬訪問 ・ITPM 講師へのヒアリング PM　MPT　IT 課への表敬訪問（Ms. Vimonta, Mr. Senglathamy）
8	6/4	火	9:00-10:00　NUOL　工学部長及び副工学部長へのヒアリング 10:30-12:00　商工省（MOIC）　中小企業振興局への表敬訪問 13:30　科学技術省（MST）　IT 局への表敬訪問 14:30　ラオス情報通信技術商工会（LICA）へのヒアリング（カリキュラム・ボードメンバー） 15:30　DATA COM へのヒアリング
9	6/5	水	10:00-11:30　ITPM 在学生へのヒアリング 11:30-12:00　インキュベーター入居者へのヒアリング（AMZCRESSERE） PM　ラオス日本センター（LJI）
10	6/6	木	9:00-10:30　教育スポーツ省（MOES）　高等教育局　表敬訪問 10:30　Soutsaka College　訪問 PM　団内協議
11	6/7	金	終日　団内協議
12	6/8	土	資料整理
13	6/9	日	資料整理
14	6/10	月	ミニッツ（M/M）作成
15	6/11	火	NUOL　工学部との M/M 協議、修正
16	6/12	水	AM　NUOL　工学部との M/M 協議、修正 PM　NUOL　副学長との M/M 協議、修正
17	6/13	木	AM　団内 M/M 協議、修正 PM ・合同調整委員会（JCC）、M/M 署名 ・21:50　ビエンチャン発（濱田団員）

１－４　主要面談者

面談者名	役　職	所属機関
1. ラオス国立大学（National University of Laos：NUOL）		
Dr. Saykhong SAYNASINE	Vice President	NUOL
Dr. Boualinh SOYSOUVANH	Dean	Faculty of Engineering
Dr. Khamphoui SOUTHISOMBATH	Vice Dean	Faculty of Engineering
Mr. Somphone KANTHAVONG	Head of Department	Department of CE/IT
Dr. Vimontha KHIEOVONGPHACHAN	Assistant Manager	Department of CE/IT
Ms. Sengmany XAYASENG	Manager of ITBU	Department of CE/IT
Mr. Senglathsamy CHANTHAMINAVONG	Network team's leader	Department of CE/IT
Ms. Thavisone MOUNLASANE	Acting manager of LIBIC	Department of CE/IT
Mr. Hiroyuki IDE	Chief Advisor	Project for Human Resource Development in IT Service Industry at NUOL
Mr. Tsuneo HEITO	Project Coordinator/ Institutional Capacity Development	Project for Human Resource Development in IT Service Industry at NUOL
2. 教育スポーツ省（Ministry of Education and Sports：MOES）		
Mr. Khamphao CHANPHENGXAY	Deputy Director General	Department of Higher Education, MOES
3. 郵政通信省（Ministry of Post and Telecommunication：MPT）		
Mr. Minaxay PHILAVONG	Director	Division of Voice and Internet Gateway
Mr. Oudasack LASOUKANH	Director	Division of Promotion and Development
4. 科学技術省（Ministry of Science and Technology：MST）		
Mr. Keonakhone SAYSULIANE	Director General	Information Technology Department
Mr. Souliya SENGDALAVING	Chief	Promotion Development Division
5. 商工省（Ministry of Industry and Commerce：MOIC）		
Mr. Somdy INMYXAY	Director General	Department of SME Promotion（DOSMEP）
Mr. Singeun SOUKHAPHONH	Director	International Cooperation Division
6. スクサ大学		
Mr. Vanhkham SOULIGNAO	Director	Soutsaka College

Dr. Soutsaka BOUNMANIT	Senior Advisor	Soutsaka College
7. ラオス情報通信技術商工会（Lao ICT Commerce Association：LICA）		
Mr. Thanousone PHONAMAT	Vice President	LICA
Mr. Keovisouk DALASANE	Consultant	
8. 民間企業		
Mr. Anouluck PHANNIVONG	Assistant Manager	AMZ Group
Mr. Dethaksone Bounsavath	Operation Manager	LaoDigi
Mr. Thanongsinh KANLAGNA	CEO	DATA COM
Mr. Thavisak MANODHAM	Director	ICT Division, ETL Public Company
9. ラオス日本センター（Laos-Japan Human Resource Development Institute：LJI）		
Assc. Prof. Aloun SILATTANAKOUN	Director	LJI
Mr. Toshio KINOSHITA	Chief Advisor	Project for the Capacity Development of Business Persons through LJI
Mr. Akira MIYOSHI	Project Coordinator	Project for the Capacity Development of Business Persons through LJI
10. IT 修士コース　学生		
Mr. Vithanya SOUTHAMMAVONG	Student	Software Engineering Course
Ms. Somsanouk XAYYAVONG	Student	Software Engineering Course
Mr. Soudta NEUMASA	Student	Network Engineering Course
Mr. Saleunsouk	Student	Network Engineering Course
Mr. Kita SITTHIHUKPANYA	Student	Network Engineering Course

１－５　終了時評価の方法

ラオス側及び日本側評価チーム双方は、評価 5 項目（妥当性、有効性、効率性、インパクト及び持続性）に沿ってプロジェクトの評価を行った。評価 5 項目については以下のとおりである。

（1）評価の枠組み

終了時評価調査はプロジェクトへの提言及び将来に向けた教訓抽出を目的とし、以下の検証に基づき行われた。

① プロジェクト・デザイン・マトリックス（PDM）に沿ったプロジェクトの実績
② 実施プロセス（どの程度、どのように活動が実施されたか）
③ 以下に示す評価 5 項目

（2）評価 5 項目

上記①及び②を通じて収集された情報に基づき、プロジェクトは JICA 評価ガイドラインに沿って以下の観点から分析された。

1）妥当性

妥当性は、プロジェクト目標及び上位目標とラオス政府の開発政策、わが国の援助政策及び受益者ニーズ等との整合性等を指す。

2）有効性

有効性は、計画に対するプロジェクト目標の達成度及びプロジェクトによりその効果がもたらされたか否かをみる概念である。

3）効率性

効率性は、実施プロセスの生産性であり、投入がいかに効率的にアウトプットに転換されたかを検証する。

4）インパクト

インパクトは、プロジェクト実施による直接・間接の正負の影響を指し、上位目標の達成度または達成見込みを含む。

5）持続性

持続性は、政策面、技術面、組織制度及び財政面から、協力終了後も当該国によってプロジェクトによる効果が継続して維持される見通しにつき判断する。

（3）情報源

本評価調査では、次の情報源が活用された。

① プロジェクト実施前及び実施中に両国が合意した以下を含む文書
- ・討議議事録（Record of Discussions：R/D）
- ・ミニッツ（M/M）
- ・プロジェクト・デザイン・マトリックス（PDM）
- ・活動計画（Plan of Operations：PO）
- ・その他

② 両国の投入及びプロジェクト活動に関する記録

③ プロジェクトによるアウトプット及びプロジェクト目標の達成状況を示すデータと統計資料

④ カウンターパート（C/P）、日本人専門家、ITSC 卒業生・ITPM 在校生、及び関係機関職員に対するインタビュー及び質問票調査結果

第２章　評　価

２－１　プロジェクトの実績

２－１－１　投　入

(1) 日本側投入

1) 日本人専門家派遣

長期専門家 3 名（指導科目：チーフアドバイザー、業務調整、業務調整/組織強化、合計 117 人月）及び短期専門家（指導科目：Database Administration×8 回、Programming and Database×3 回、Server Administration×5 回、Information Security×1 回、Teamwork/Leadership ×1 回、合計 20 人月）が派遣された。

2) 機　材

コンピュータ、プロジェクター、IT 関連機材、机、椅子、棚、キャビネット、車両等が付属資料 Annex 3-1 のとおり供与された。

3) ローカルコスト負担

ローカルコストとして 2,509 万 195 円が負担された。内訳は表２－１のとおりである。

表２－１　日本側ローカルコスト負担額

（単位：円）

年度	ローカルコスト
2008	1,369,335
2009	2,927,112
2010	4,418,585
2011	8,116,542
2012	8,258,621
合計	25,090,195

出所：JICA 提供情報に基づき調査団作成

4) 施設建設

講師執務室及び IT ラボラトリーが建設され、プロジェクト活動に活用された。

(2) ラオス側投入

1) C/P

客員講師 7 名及び事務スタッフを含む 28 名の C/P がプロジェクトに配置された。

2) ローカルコスト負担

C/P の給与、電気代、水道代、インターネット通信費用をラオス側が負担した。

ITSC/ITPM のランニングコストとして、9,911 万 9,000 Kip[1]が授業料から賄われた。

3) 施設及び機材

試験センター用コンピュータ 5 台、警備用ドアロール 4 セット、カーテン 5 セットの計 4,586 万 4,000Kip が投入された。

[1] データは 2011 年 1 月から 2013 年 3 月の長期コースに係る経費支出額のみを示す。他のデータは得られなかった。

２－１－２　成　果

成果 1：NUOL 工学部 IT 学科において ITSC が適切に運営される。
指標 1-1. 短期コースガイドライン、教員評価ガイドライン、受託開発ガイドライン、図書利用ガイドライン及び ITSC、ITBU の運営に必要とされるガイドラインが作成され、IT 学科長によって承認される。 1-2. 受講者の募集、選抜、成績評価及び卒業認定が適切に行われる。

成果 1 の達成状況：プロジェクト終了までに達成見込み

（1）指標 1-1（ガイドラインの作成、及び IT 学科長による承認）：プロジェクト終了までに達成見込み

短期コースや長期コース（ITSC/ITPM）に関連する各種ガイドライン（教員を含む職員評価ガイドライン、オペレーションガイドライン、会計ガイドライン）及び職務記述書と就業規則、施設賃貸規定等、表２－２に示すとおり、ほとんどは完成また IT 学科長の承認が得られている。

図書館利用ガイドラインの開発は終わっていないが、図書館メンバーカードのフォームは作成されている。ガイドラインは協力期間内に開発完了・承認される見通しである。

表２－２　プロジェクトで開発されたガイドライン

	ガイドライン名
1	ITBU サービスに関する会計ガイドライン
2	ITSC ユニットに係る職務記述書と就業規則（プロジェクトマネジャー及び正規講師陣）
3	一般コース及び委託コースに関するオペレーションガイドライン
4	ITSC ユニットに関する支払い及び職員評価ガイドライン
5	ITBU に係る施設賃貸規定
6	ITBU に関する研修コースガイドライン

出所：プロジェクト提供情報に基づき調査団作成

（2）指標 1-2（受講者の募集、選抜、成績評価及び卒業認定の適切な実施）：達成されている

工学部 IT 学科の長期コースの受講者募集、選抜、成績評価、卒業認定は、NUOL のルールに基づき、同大学内の Post Graduate Section の管理下で行われている。例えば、受講者の募集に関しては工学部から Post Graduate Section に関係書類を提出、大学本校（担当副学長）の承認後に試験を実施している。また試験実施後も、試験結果を Post Graduate Section に提出、大学本校の承認後、試験結果（合格者）が確定される。卒業認定も同様に大学が定めたカリキュラム標準に基づき必要単位数が定められており、生徒の成績も工学部から大学本校に提出、大学本校が承認、大学本校から卒業証書が発行される。過去の実績は以下のとおりである。

表２－３　過去の実績

	合格者数	入学者数	卒業生数
ITSC 第 1 期生	45	42	37
ITSC 第 2 期生	56	29	29
ITPM 第 1 期生	35	34	NA（在籍中）

出所：プロジェクト提供情報に基づき調査団作成

このように大学のルールにのっとり、プロセスの一つ一つにおいて、工学部は大学本校から承認を得ながら実施していることから、おおむね良好に運営管理されており、大きな問題はみられない。プロジェクト専門家からのヒアリングにおいても受講者の募集、選抜、成績評価、卒業認定等はルールに基づき厳格に実施されているとの説明であった。

成果 2：NUOL 工学部 IT 学科において IT 学科内会社が適切に運営される。
指標 2-1. IT 学科内会社の事業計画に沿って、事業が適切に運営管理されていることが、IT`学科長に報告、承認される。 2-2. IT 学科内会社は、産官からシステム開発に関する業務を、有償で受注できるようになる。 2-3. インキュベーション・ブースのうち、3 カ所以上が使用されている。

成果 2 の達成状況：ある程度達成されている

（1）指標 2-1（学科内会社 ITBU の適切な事業運営管理）：ある程度達成されている

短期コースは、ラオスの会計年度当初に策定される ITBU の年間計画に沿って運営管理されている。短期コースの実施結果は、各コースの終了時、及び会計年度終了時に IT 学科長に報告され、その承認を受けている。おおむね計画どおりに実施されているが、年間計画策定及び報告が若干遅延する場合もある。この背景として、ITBU のマネジャーがプロジェクト期間中に何度か交代となり、かつ一時期ポストが空席のときもあったなど、体制は少し不安定であり、中間レビュー後に配置された 3 人目のマネジャーの下で現在体制を再構築中であることがいえるかもしれない。

開講したコースについてのフィードバックを得るため、短期コース終了日に受講生に対し講師とコース全体に関するアンケートは実施されているが、傾向や改善点把握のためのアンケート結果の集計・分析は行われておらず、次コース改善のために活用されるところまでは至っていない。

長期コース（ITSC 及び ITPM）に含まれる実践的モジュールである短期コースは、基本的に夜間または週末に実施されている。短期コースの受講機会はだれにも開かれているものの、ほとんどの受講者は IT 実務者となっている。短期コースのランニングコストは受講費によって賄われており、プロジェクト開始当初の準備期間を除き（コース開始前の準備段階には、教員のカリキュラム開発に関し謝金が支払われた）、NUOL や政府予算からの支援は受けていない。短期コース実施により得られた収入は、実施にかかわった教員とス

タッフに対するインセンティブとして、当初計画に沿って、ガイドラインに記載された規定に基づき支払われている。

ITBU の体制、また短期コースの適切なフィードバック等、幾つか課題はみられるものの、おおむね年間計画に基づき短期コースを実施していることから、総合的に勘案して、本指標はある程度達成されていると判断される。

(2) 指標 2-2（有償のシステム開発受注）：代替活動で目的の意図は達成されている

ITBU による有償でのシステム開発の意図は、システム開発を通じ、教員の開発スキルを向上また測ることであるが、終了時評価時点で、ITBU ではこれまで、政府または民間企業からの有償システム開発を受注していない。その理由は、①開発依頼はあるものの、また技術的に対応可能な教員も存在するものの、教員が他のプロジェクト活動で多忙になり対応する時間がないこと、②長期コース（ITSC/ITPM）では政府もしくは民間企業において実際の作業を経験するフィールドワークが必須科目となっており、教員は学生の指導監督として学生とともに実際のフィールドワークに参画 することから実務経験を得る機会が既に確保されたこと、またこれまですべてのフィールドワークは完了していることから教員が一定能力を有していることも確認できること、③短期コースによる収入向上が顕著となったため、教員へのインセンティブが確保されたこと、の 3 点による。有償システム開発の計画当初の目的は主に前述の②の活動により達成されたことから、この受注を行わなかったことによるプロジェクトへの影響は生じておらず、よって本指標は代替活動により目的は達成されていると判断される。

なお、有償でのシステム開発についてはそのオプション自体を放棄したものではなく、プロジェクト協力期間中、有償でのシステム開発については引き続きその可能性を検討していることから当該指標の改訂は行われていない。

(3) 指標 2-3（インキュベーション・ブースの入居数）：達成されている

当該指標は、中間レビューの結果追加されたものであり、その意図はインキュベティーたる起業家を支援すること、また彼らとのやりとりや質問への回答等を通じて、教員のさらなる能力強化を図ることであった[2]。インキュベーションの主な柱として、①技術面の助言、②マーケティング支援、及び③登録支援が挙げられる。

終了時評価時点でインキュベーション・ブースは指標として設定されている 3 室は入居済みであり、さらに 1 社がブースへの入居はせずに技術面の助言のみを受ける契約を締結している。また、現在インキュベーション・サービスに関し、新たに 2 社から照会を受けている。インキュベーター契約 4 社のうち、最も早く ITBU と契約を締結したのは 2012 年 3 月、最も新しく契約を行ったのは 2013 年 3 月となっている。以上を踏まえ、本指標は達成されている。

[2] プロジェクト計画立案時においては、インキュベーション活動（この時点ではプロジェクトのコンポーネントとして組み入れるか否かは未確定であった）の目的は長期コース及び短期コース修了者で起業家をめざす者に対し、事業が軌道に乗るまでの間、さらなる支援を行うことが目的と考えられていた。しかしながら、実施期間中にプロジェクトチームの認識に変化が生じ、より幅広いタイプのインキュベティーを受け入れるようになった。この変化は、タイへのインキュベーション・スタディツアーの結果もたらされた。タイでは多くの起業家がまず企業に就職し、数年後に起業家として独立をめざすことが明らかになったためである。

他方、指標自体は達成しているものの、これらのインキュベーター入居者はたまたま既に一定レベルの技術力と新製品を有していたことから、教員による技術面の助言は必要とされておらず、教員による助言はまだほとんど開始されていない。インキュベーション活動はまだフル稼働ではなく、初期の段階での活動を開始した状況にあるといえる。

表２－４　インキュベティーと主要製品

No.	会社名	開始時期	主な製品・事業
1	Laosanghanh Co. Ltd. (LSF)	2012 年 3 月	ホテル・レストラン情報の提供
2	LaoDigi	2012 年 11 月	デジタルコンテンツ、e ブックス
3	AMZ Cressere	2013 年 2 月	ウェブサイト「ラオ・ココ」（ヤフーのようなポータルサイト）
4	Sue Khueng	2013 年 3 月	e コマース、オンラインショッピング

出所：インキュベーション活動責任者へのインタビューに基づき調査団作成

これまでのところ、インキュベティーのなかに ITSC 卒業生及び短期コース受講者は含まれていない。日本人専門家チームへのインタビューによれば、ITSC 卒業者のほとんどは大企業への就職を希望しているが、3 年程度経過すれば、その一部はタイのようにインキュベティーになる可能性がある。教員がインキュベーター入居者に対し実際に最新の IT 製品に関する助言を与える経験から気づきや学びを得ることが期待されており、それらが学生への指導やカリキュラム開発に反映されていくことが重要である。

インキュベティーは 3 カ月ごとに進捗報告書を提出する決まりとなっているが、2012 年 3 月開始の 1 社を含め、いずれもラオス IT ビジネスインキュベーターセンター（Lao IT Business Incubator Center：LIBIC）に対し報告書を提出していない。

成果 3： ITSC 担当教員及び将来に修士コースを担当する教員のソフトウェアエンジニアリングに関する実践的スキル及び指導力が強化される。
指標 3-1. 受講生による教員への満足度（評価）が向上する。 3-2. IT 学科内会社で行うシステム開発の成功数が向上する。

成果 3 の達成状況：おおむね達成されている

（1）指標 3-1（学生・受講生による教員に対する満足度評価）：おおむね達成されている

2013 年 5 月に行われた ITPM の学生による教員に対する満足度評価の結果を 2011 年実施の ITSC 学生による同評価の結果と比べると、表２－５[3]に示すとおり、大きな変化はみられない。しかしながら、2 回の評価とも回答者の 90%以上がポジティブな評価をしており、十分高い評価を得ていることから、総合的に勘案して、本指標はおおむね達成されていると判断される。

[3] 修業年限その他により、ITSC と ITPM の学生間には性質及び認識に差がある可能性もあるが、終了時評価時点で ITPM は在学中の一期生のみであり、ITPM のみを比較することはできない。

表２－５　長期コース学生による教員に対する評価の比

No.	質問	回答	ITSC　中　レビュー時（201 年6月）	ITPM　終了時評価時（2013年6月）	変化
			割　(%)	割合(%)	割合(%)
1	時間厳守	はい	98%	94%	-4%
		いいえ	2%	6%	4%
2	課題の取り扱い範囲(適切性)	はい	96%	98%	2%
		いいえ	4%	3%	-1%
3	説明(有無)	はい	98%	96%	-2%
		いいえ	2%	4%	2%
4	指導内容の適切度	はい	98%	97%	-1%
		いいえ	2%	3%	1%
5	質問に対する回答の正確度	はい	99%	98%	-1%
		いいえ	1%	3%	2%

出所：2013 年 6 月のプロジェクト提供データ及び 2011 年中間レビュー報告書に基づき調査団作成

また短期コースについては、平均点等、これまでの受講者アンケート結果の取りまとめは行われていないため、十分な検証を行うことはできないが、短期コースの責任者である ITBU マネジャーとのインタビューによれば、6 段階評価（0～5）で 3 または 4 をつける受講生が多い印象とのことである。ただし、同氏によると、一部若手教員のなかには経験不足から、現場での実務経験を有する IT 実務者を対象とする短期コースで教えるのは厳しい者もいるようである。短期コースについても一定の満足度を得られていることから、本指標はおおむね達成されていると判断される。

(2) 指標 3-2（システム開発の成功数）：代替活動で目的の意図は達成されている

ITBU ではこれまで有償システム開発を外部から受注していないため、その「成功案件」は存在しない。しかしながら、成果 2 の指標 2-2 の達成状況につき既に述べたとおり、当初目的の意図は代替活動で達成されていることから、指標 2-2 と連動する本指標についても代替活動で目的は達成されていると整理される。

(3) その他の重要な観点

1) 教員への集中的な技術移転により、世界標準の資格を取得した教員数が増加した。教員が取得した資格数は表２－６のとおりである。

表２－６　商用資格及びインストラクター資格保有者数

2013年5月24日付

	NUOL 教員	客員講師
1. 商用資格		
Oracle SQL 11g	4	3
Oracle OCA 10g	1	1
Oracle OCJP (Java)	2	1
Cisco CCNA 4.0	3	0
Vmware ICM	1	0
小　計	11	5
2. インストラクター資格		
Cisco CCNA Instructor	5	5
小　計	5	5
合　計	16	10

出所：プロジェクト提供

2）IT 関連業務に従事する ITSC 卒業生に対する小グループインタビューにおいて「ITSC 教員の知識・技術はどの程度良いか？」との質問に対し、5 段階で 4 名中 2 名が 5、残り 2 名が 4 と回答している。サンプル数が小さいため一般化はできないものの、卒業生の教員に対する評価は比較的高い可能性がある。

3）教員に対する技術移転状況については、中間レビュー調査団により、ネットワーク・チームに比べソフトウェアエンジニアリング・チームの技術移転が遅延していることが指摘された。遅延の主な原因は基礎数学力不足にあり、これを受けてプロジェクトでは、①教員がシンプルなプログラミング・ソフトウェアを用いて論理的思考力及び基礎力向上を図る、②学生はプロジェクトが開発したオンラインの数学演習プログラムを行う、等の取り組みを行った。

成果 4：実践的なソフトウェアエンジニアリング・スキル及びビジネス・スキルを習得するための ITSC 及び修士コースが整備される。
指標 4-1. ITSC 全般に対する受講生の満足度が高くなる。 4-2. カリキュラム、シラバス、教材が定期的に更新される。 4-3. 外部有識者（産官）が参加するカリキュラム・ボードが毎年開催される。

成果 4 の達成状況：おおむね達成されている

（1）指標 4-1（コース全体に対する ITSC の学生による満足度評価）：おおむね達成されている

長期コース、すなわち ITSC（1 年間コース）及び ITPM（2 年間コース）が実施され、その応募者数及び入学者数は表２－７のとおりであった。

表２－７　ITSC/ITPM の応募者数と入学者数

	コース/期	期間	応募者数	学生数
1	ITSC　第 1 期	2010 年 10 月～2011 年 8 月	88	42
2	ITSC　第 2 期	2011 年 10 月～2012 年 8 月	59	29
3	ITPM　第 1 期	2013 年 1 月～2014 年 8 月	99	34
4	ITPM　第 2 期	2013 年 10 月～2015 年 8 月	（予定）	（予定）
合　計			246	105

ITSC 第 1 期生及び第 2 期生からコース全体及び施設に関しフィードバックを得るため、プロジェクトのチーフアドバイザー及びその秘書により、卒業直前にインタビューが行われているが、コース終了時にアンケート調査を実施して体系的にコース全体を評価するまでには至っていない。

一方、ITSC 卒業生及び ITPM 在校生に対する小グループインタビューでは、長期コース全体に関する学生の評価はおおむね高い。卒業生は 5 段階評価で平均 4.5 と回答している（参加者 4 名中）。サンプル数が小さいことから一般化はできないものの、インタビューを受けた ITPM 1 年生のほとんども、コースについて良いと考えている。他方、なかには教員の経験が不足しているとのコメントもあった。

比較できるデータがないことから、満足度の向上について十分な検証はできないが、得られた回答から、これまでの卒業生及び在校生ともコースについて一定の満足度を示していることから、総合的に勘案して、本指標はおおむね達成されていると判断される。

(2) 指標 4-2（カリキュラム、シラバス、教材の定期的更新）：おおむね達成されている

2012 年に、日本人専門家の指導の下、シラバス及びカリキュラムの 3 分の 1 が更新された。実際の改訂にあたっては他国で実施された JICA の IT プロジェクトで作成された教材をベースに使いつつ、必要な加筆・修正を行い、教材開発を行った。教材の執筆作業はラオス側教員が行い、日本人専門家はサポート役に徹し、ラオス側のオーナーシップを高めた。またカリキュラムの残り 3 分の 2 は、マイクロソフト・アカデミー、オラクル・アカデミー、シスコ・アカデミー、VM ウエア・アカデミー等のアカデミック・プログラムを活用した。これらの教材は国際水準で品質が確保されているだけなく、インターネットからのダウンロードにより内容が自動更新されることから、効率よくカリキュラムが更新される仕組みが導入された。以上を踏まえ、本指標はおおむね達成されていると判断される。

(3) 指標 4-3（外部リソースパーソンを招いたカリキュラム・ボードの開催状況）：達成されている

カリキュラム・ボードは、2010 年より 2012 年まで年 1 回ずつ、省庁及び民間企業からの参加を得て開催された。カリキュラム・ボードは大学が考えているカリキュラムに対し、官民の有識者から意見を聞く場であり、科目の追加（Oracle Database Administrataion の科目をネットワーク専攻学生の科目からプログラミング専攻の学生も受講できるよう選択科目とした、また Virtual Machine を科目に追加等）に係る助言やコースで使用するソフトウェアの製品についての助言を得る等、大学が提供するカリキュラムの充実に寄与してい

る。よって本指標は達成されている。

成果 5：産学官の連携が強化される。
指標 5-1. 産学官との合同セミナーが毎年開催される。 5-2. 産官の客員講師による講義が一定の割合で実施される。

成果 5 の達成状況：達成されている

（1）指標 5-1（産学官との合同セミナーの開催状況）：達成されている

産学官各界の参加を得てラオス IT 産業の最新状況を把握する機会を設けることを目的としたスタディ・セッションが、2009 年から 2012 年まで年 1 回、計 4 回実施された。2010 年には参加者が急増して 47 名となったが、2011 年以降は減少がみられる。なお、2012 年には政府及び公共セクターの参加者がやや減少しているが、これは現地コンサルタントによるスタディ・レポート提出の遅れにより、スタディ・セッションが年度末に実施されたことが原因となっている。

表２－８　スタディ・セッション参加者

	2009	2010	2011	2012
政府/公共セクター	6	16	10	3
産業界	13	19	9	12
大学（C/Pを含む）	7	12	5	6
合　計	26	47	24	21

出所：プロジェクト提供データに基づき調査団作成

IT フェスタは当初計画におけるシンポジウム開催に代わるものとして、2011 年 3 月に開催され、25 件の講演、及び会計やホテル予約等に関するソフトウェアの紹介が行われた。IT フェスタは 2013 年にも開催される予定となっている。

以上を踏まえ、本指標は達成されている。

（2）指標 5-2（政府及び産業界からの客員講師による講義状況）：達成されている

日本人専門家による技術移転を受けて合格しプロジェクトから客員講師として認められた 8 名のうち、5 名が客員講師（政府職員 2 名、産業界 2 名、フリーランス 1 名）として、短期コース及び ITSC/ITPM で教えている。具体的にはカリキュラムの一部である Oracle Database Administrataion、Cisco CCNA、CCNA Security、Java Programing 等の科目を教えている。客員講師による授業は、これら外部人材に対し講師となるための訓練機会のみならず、情報や人的ネットワークを提供することにもなった。以上を踏まえ、本指標は達成されている。

２－１－３　プロジェクト目標

プロジェクト目標：NUOL 工学部 IT 学科による ITSC を通じて、IT サービス市場に応じた人材が育成される。
指標 1. 国内 IT サービス企業、政府組織、IT ユーザー企業で従事する卒業生及び受講生の評価が高くなる。 2. ITSC（長期コース）の卒業生数の 80%以上が IT サービス市場において就職する。 3. ラオス国内において、ITSC（短期コース）の受講生数が増える。

プロジェクト目標の達成状況：おおむね達成されている

（1）指標 1（就職先による卒業生への評価）：おおむね達成されている

ITSC 卒業生の主要就職先 11 社（第 1 期及び第 2 期卒業生で IT 関連業務に就職している 59 名中、48 名が就職する民間企業及び公共機関）に対しプロジェクトが実施した電話インタビューによれば、5 段階評価[4]で ITSC 卒業生に対する評価の平均値は 3.7 となっている（11 社中、5 段階評価の質問に無回答であった 1 社を除く）。特筆すべき点として、ITSC 卒業生の最大の就職先（過去 2 年間に 16 名の卒業生が就職）である公社の ETL は ITSC 卒業生の質について、海外留学経験者にはかなわないものの、他のラオス国内大学・教育訓練機関卒業者に比べて能力は高いとみており、ラオス国内での学位修得者のなかでは ITSC 卒業生は高く評価されているといえる。

なお、プロジェクト目標の指標 1 には、ITSC 第 1 期卒業生に対する就職先による評価をベンチマークとする計画となっていたものの、第 1 期生に対する調査が遅れ、2013 年 5 月末に第 2 期卒業生と同時に（両学年を区別せず）上記電話インタビューが行われた。このため、第 1 期生と第 2 期生との比較で評価が高くなるという点については十分な検証はできないが、企業側の回答の平均値が 5 段階中 3.7 であること、加えて他のラオス国内大学・教育訓練機関卒業者と比べ能力が高いとのコメントが企業から出されており、採用した企業側は ITSC 卒業生についておおむね満足を示しているといえることから、総合的に勘案して、本指標はおおむね達成されていると判断される。

（2）指標 2（ITSC 卒業生の 80%以上が IT サービス市場に就職）：達成されている

ITSC 卒業生で IT 関連の業務に従事している者の割合は、第 1 期・第 2 期卒業生合計 62 名中、59 名となっており、卒業生の 95%が IT サービス産業に従事している。このことから、本指標は達成されている。就職先の内訳は、表２－９に示すとおりである。

[4] 5：非常に良い、4：良い、3：普通、2：悪い、1：非常に悪い

表２－９　ITSC 卒業生就職先

第 1 期生（2010～2011）	卒業生数
銀行	12
通信系	10
水道公社	3
大学	1
運輸系	1
その他	5
就職者合計	32
学業継続（1）、無職（1）	2
卒業者合計	34
割合（%）	94.1

第 2 期生（2011～2012）	卒業生数
通信系	12
政府機関	5
銀行	4
公社	3
鉱工業	2
大学	1
就職者合計	27
学業継続（1）	1
卒業者合計	28
割合（%）	96.4

出所：プロジェクト提供資料に基づき調査団作成

（3）指標 3（短期コース受講生数の増加）：達成されている

短期コース受講者数は 2013 年 5 月現在で合計 774 名であり、うち 607 名が合格、167 名が不合格となっている。コース数及び受講者数は 2009 年以降増加を続けており、特に 2012 年には顕著な伸びを示している。よって、本指標は達成されている。

表２－10　短期コース実施件数と受講者数

年	コース数	受講者数と成績			
		計	合格	不合格	審査中
2009	1	12	10	2	0
2010	15	146	93	53	0
2011	18	210	152	58	0
2012	26	322	271	51	0
2013	9	84	81	3	0
合計	69	774	607	167	0

注：上記年は通常の大学の年度と異なり、1 月から 12 月で整理されている。
出所：プロジェクト提供資料に基づき調査団作成

２－１－４　上位目標

上位目標：ラオス国において IT サービス産業が発展する。
指標 1. GDP に占める IT サービスの割合が増加する。 2. 就労人口に占める IT サービス従事者の割合が増加する。

上位目標の達成見込み：協力終了以後 3 年程度での達成見通しは低いが、着実にその方向に向かって進捗している

協力終了後3年後程度で、ITSC/ITPM卒業生輩出がGDPに占めるITサービスの割合の増加、及び就労人口に占めるITサービス従事者の割合の増加をもたらすということは、卒業生数の規模（2013年6月現在、卒業生62名、2014年8月時点でITPM昼間コースで21名が卒業見込み）からみて考えにくい（短期コース受講生及びITPM夜間コース学生のほとんどは既にIT関連業務に就業している社会人であることから、IT サービス従事者数の増加にはつながらない）。仮に、ITPMの第2期生、第3期生が現在と同じ学生数であったとして、2016年までの卒業生累計は125名の見込みとなる。以上を踏まえると、協力終了後3年程度で上位目標を達成する見通しは低いが、その一方で、プロジェクトを通じ、上位目標の方向に向かい着実に基礎は築かれていると判断される。

なお、達成見込みが低い原因として、当初計画における上位目標の設定レベルが高かったと考えられるが、その背景として、本プロジェクトについては当初計画段階から、協力終了後 3年程度の達成レベルでなく、中期的な視野での達成レベルを設定しており、よりスーパーゴールに近い上位目標を設定していたことに起因すると考えられる。

２－２　実施プロセス

（1）活　動

以下を除き、ほとんどの活動が予定どおり実施された。①教員の能力向上及び能力測定のための外部組織からの有償システム開発受注、②産官学の連携強化を目的としたシンポジウムの開催。既に述べたとおり、これらの目的は既に別の活動（フィールドワーク、短期コース、スタディ・セッション）により達成されているため、プロジェクト効果に対しマイナスの影響はなかった。

（2）モニタリング体制

モニタリングは、①マネジメントレベルにおけるウイークリー・ミーティング、②セクションレベルのウイークリー・ミーティングに基づき行われた。各マネジャーがセクションレベルのウイークリー・ミーティングの結果をマネジメントレベルのウイークリー・ミーティングで報告し、必要に応じ日本人専門家及びプロジェクトマネジャーの助言を得た。

（3）C/Pのオーナーシップ

現在、活動のほとんどはC/Pが担っている。日本人専門家はC/Pの支援を行い、その主な役割は、新たな局面における最初の枠組み設定とフォーマット作成、教材改訂における分担設定、ITSC/ITPM、短期コース、インキュベーション等、主要活動全般の技術面・運営管理面の助言である。

２－３　5項目評価による分析結果

２－３－１　妥当性

妥当性：やや高い[5]

[5] 評価5項目に基づく評価結果を「高い、やや高い、やや低い、低い」の4段階で示すこととした。インパクトのみは、その性質上、段階分けになじまないため、別の表現とした。

(1) プロジェクトの目標と受益者のニーズとの整合性

1) ラオス産業界

実践的な知識と技術を有するITスペシャリストの育成は、ラオス産業界のニーズと合致している。民間企業は実践的な技術を重視しているが、ラオス国内の大卒者は一般に実践的な知識・技術が不足していることから即戦力とならず、さらなる訓練が必要とされている。

民間企業、IT 業界団体及び IT 分野の技術的機能を担う政府組織へのインタビューにおいて、産業界の視点からは2年間の修業年限は長いとのコメントが一部あった。この理由として、民間企業ではアカデミックな知識はさほど重視されないにもかかわらず、学生への奨学金及び職員のコースへの派遣に係るコストが倍増することが挙げられた。この点に関連して、上記3者のなかには、ITPM と同時並行で ITSC を継続することによって応募者が ITSC または ITPM のいずれかを選択できるようにした方が良かったのではないかとの意見もあった。

また、IT 産業関連団体とのインタビューでは、非ネットワーク関連のセキュリティー技術者らに対する需要や、セールス及びマーケティング等のソフト・スキルに対する需要が伸びているとのコメントも得られた。これらの技術については、セールス・スキルを除き、ITPM の現行カリキュラムでカバーされている。

2) ターゲットグループ（学生/受講生）

ITSC 卒業生及び ITPM 在校生に対するインタビュー[6]によると、長期コース（ITSC/ITPM）は次の理由により応募者の人気が高い。①実践的な教育を行うため就職に有利との評判があること、②他の国内大学・教育訓練機関と比べて学生が使用できる機材が充実していること、③経験ある教員がいること。サンプル数が少ないため一般化はできないが、上記の評判は既に学生によく知られている可能性がある。

修士号取得は昇給につながることから、産業界や政府等の社会人にとっては修士課程に対するニーズがあるとみられる。2013 年度 ITPM コース昼間コース在校生の約 80%は社会人実務経験者（20 名中、産業界 7 名、大学は NUOL を含め 8 名、カレッジ 1 名）であり、20%（4 名）が学部からストレートで入学している。

3) NUOL

NUOL 情報通信技術（Information and Communication Technology：ICT）マスタープランでは、2020 年までにナレッジ・ベースト・ソサエティーに向けて国家を牽引するため、NUOL は ICT 人材開発における国家のフォーカルポイントとなることがうたわれており、プロジェクトの方向性は NUOL の方向性と合致している。

(2) プロジェクトの目標とラオスの政策との整合性

1) IT サービス産業の振興

以下の政策に示されるように、IT サービス産業及び IT 自体の振興に関するラオス政

[6] ITSC 第 1 期及び第 2 期卒業生の計 4 名、及び ITPM 第 1 期在校生 6 名へのグループインタビュー。

府の優先度は高い。

a）第 7 次国家社会経済開発計画（National Socio-Economic Development Plan：NSEDP）（2011～2015）

①郵便・通信分野：社会経済開発促進のための郵便・通信インフラの発展と高速インターネット接続の実現、それによる地域・世界との接続地点となること、及び②教育分野：労働市場での競争性向上のため技能労働・機械・エンジニアなども含んだ教育の種類を多様化させること、等が示されている。

b）ICT 国家政策（2009 年に MST により正式発効、現在も有効）：本政策では、IT セクターの人材育成及び IT 産業振興の重要性がうたわれている。

c）2020 年までの教育分野における ICT 政策及び ICT マスタープラン:ICT 技術の活用、ICT ベースの教材の設計・生産・活用、教育訓練の手段としての適切かつ革新的な IT 技術の活用における能力開発を行うこと、及び国家経済開発のための IT 人材育成を行うことが盛り込まれている。

d）ASEAN ICT マスタープラン：ASEAN ICT マスタープラン 2015（AIM 2015）は、2011 年 1 月にマレーシアのクアラルンプールにおいて第 10 回 ASEAN 通信・IT 分野大臣会合で打ち出された。AIM 2015 は ASEAN における ICT セクター開発の 5 年間のロードマップを示すものであり、包摂的で活気に満ちた統合後の ASEAN コミュニティを創り出すために ICT を活用しようとするものである。

2）IT サービス産業における人材育成

以下のとおり、第 7 次 NSEDP において、IT セクターにおける人材開発の優先度は高い。

①郵便・通信分野：郵便・通信及びインターネット分野の対策として、同分野において世界水準を満たす人材を育成すること、及び②教育分野：エンジニアの育成を含む人材育成が第 7 次 NSEDP にうたわれている。

インタビューによれば、プロジェクトにかかわるすべての主要官庁が IT 分野における人材育成を重視している。

（3）プロジェクトの目標と日本の ODA 政策との整合性

1）IT サービス産業における人材育成支援

外務省の対ラオス国別援助方針（2012）では、ラオスに対する援助の主要四本柱のうち、第 3 の柱である「教育環境の整備と人材育成」において、民間セクターの強化促進のための高等教育・技術職業教育への支援が掲げられている。

また、JICA の対ラオス援助方針についても、四つの柱のうち、第 3 の柱である「教育環境の整備と人材育成」において、民間セクター強化に資する高等・技術教育の拡充が含まれている。

（4）手段としてのプロジェクトの適切性

1）高い実践的スキル（ネットワーク、データベース、アプリケーション開発、プロジェクトマネジメント等）を有する IT スペシャリストの育成

高度に実践的な技術を有するITスペシャリスト育成に焦点を当てたことは（1）及び（2）で述べたようにラオス政府及び産業界のニーズと合致しており、おおむね適切であった。ただしIT分野では常に新たな技術に対する新たな需要が生まれてくるため、これらに常に留意する必要がある。

2）C/P機関としてのNUOLの適切性

NUOLはラオスで最も長い歴史を有する国立大学であり、11学部6センターをビエンチャンの8カ所のキャンパスに有している。また、同学は大メコン圏学術研究ネットワーク（Greater Mekong Sub-region Academic and Research Network：GMSARN）及びアセアン工学系高等教育ネットワークプロジェクト（ASEAN University Network / Southeast Asia Engineering Education Development Network：AUN/SEED-Net）のメンバーでもある。したがって、NUOLを本プロジェクトのC/P機関としたことは関連省庁から適切とみなされている。IT教育の質と量の点からみて、ラオス国内の他の国立大学及び教育機関で、本件のようなプロジェクトのC/P機関として機能し得る公的組織はほかに存在しない。しかしながら、C/Pとして配置されたものの、経験不足から専門家からの技術移転において試験に合格できず、C/Pとしてとどまることのできなかった教員もみられた。

3）日本の技術の優位性

日本は次の点においてITにおける比較優位を有している。①世界一高品質なソフトウェア、②ITスペシャリストの資格認定制度（既にアジアにおける実質的なスタンダードとなっている）、③JICAのITプロジェクトに関する豊富な経験（インドネシア、ミャンマー、キルギスタン、ルワンダ等）。

２－３－２　有効性

有効性：やや高い

（1）プロジェクト目標の達成状況

「２－１－３　プロジェクト目標」で述べているとおり、プロジェクト目標はおおむね達成されている。具体的には、プロジェクト目標の指標1では卒業生は自身の就職先企業から良好な評価を得ていること、指標2では目標値の80%を大きく上回る95%の卒業生がITサービス市場に就職していること、また指標3では短期コースの受講者数について堅調な伸びを示していること等、すべての指標が良好な達成度となっている。

（2）成果とプロジェクト目標の論理性

プロジェクト目標であるIT産業人材を育成させるために、成果1では長期コースの運営管理、成果2では短期コース及びインキュベーターを所掌するITBUの運営管理、成果3では教員の質、成果4ではコース全体の質、成果5ではIT産業界のニーズ把握、とそれぞれの成果が一定の役割を担い、プロジェクト目標達成に貢献する形でプロジェクトがデザインされており、成果とプロジェクト目標の論理性はおおむね確保されている。

２－３－３　効率性

効率性：やや高い

(1) 日本側投入の適切性

不要、過剰、または使われなかった投入はみられない。次の 3 点は同じ成果の質・量を確保しつつ、より少ないコストでの成果達成に貢献した。①タイの第三国専門家活用により研修効果を最大化したこと。ラオス人教員にとってタイ語は英語より理解しやすいことから、C/P への技術移転において同じレベルの質を、より少ない日本人専門家派遣で確保した。②教材におけるアカデミック・プログラムの活用。マイクロソフト・アカデミー（年 700 米ドル）、オラクル・アカデミー（年 500 米ドル）、シスコ・アカデミー（無料）、VM ウェア・アカデミー（無料）等、教材全体の約 3 分の 2 にわたりアカデミック・プログラムを活用した。これらの教材は国際水準で品質が高く、学生に配布可能であり、自動的に更新される。このため教材の質を確保しつつ、教材改訂に係る C/P 教員の時間を節約することができた。③教材の残り 3 分の 1 について、ミャンマーやキルギスタン等、JICA の他の IT プロジェクトで開発された教材を導入したこと。このため、教材開発に係る時間を削減し、質の高い教材を活用することができた。なお、日本人専門家の知見は、C/P 教員への技術移転において十分活用されている。

(2) ラオス側投入の適切性

ラオス側プロジェクトマネジャーとのインタビューによれば、C/P 教員数は不十分であった。プロジェクトに協力的な工学部によって多くの教員が C/P として配置されたものの、経験不足から技術移転において試験に合格できず、C/P としてとどまれない教員もいたためである。このため、ITPM、短期コース、学部レベルの授業、フィールドワーク指導等の業務量の多さと相まって、教員 1 人当たりの業務量が過重になっている。また、同インタビューでは、短期コース責任者であるマネジャーの配置には困難があった。協力期間中、同ポストは 2 カ月間空席となり、現在のマネジャーは 3 人目となっている。ラオスでは有能な人材は給与の高い民間企業で働く傾向があり、能力あるマネジャーを国立大学の給与水準で確保することは困難との指摘があった。

２－３－４　インパクト

インパクト：一定の正のインパクトが発現している

(1) 上位目標の達成見込み

２－１－４で述べたとおり、ITSC/ITPM 及び短期コースにより教育・訓練される学生・受講生数を考慮すれば、協力終了後 3 年程度における上位目標の達成見通しは低い。これは、当初計画における上位目標の設定がよりスーパーゴール的な目標設定であったことによる。

(2) 他の正のインパクト

本プロジェクトの支援範囲外である、NUOL 工学部の学部レベルの教育において、次の

ような正の効果がみられる。①学部レベルの教育の向上（教員の知識、技術、教え方が向上したこと、プロジェクトと同じ教材を学部でも活用するようにしたことによる)、②学部レベルのカリキュラム改訂（修士課程の教育レベルの向上及び教員の能力向上に伴い、本来学部で教えるべきであるがこれまで能力不足により修士課程で教えていたモジュールが、2013 年 9 月より学部レベルに移行される見込みとなった)、③学生による教員評価の学部レベルでの導入。

2013 年 2 月から 3 月にかけて実施されたタイへのインキュベーション・スタディツアーは、インキュベーションの概念とその重要性に関する参加者の理解につながった。参加者は、NUOL の C/P、関連省庁における IT 及び中小企業振興の人材育成の責任者、及び産業界の代表者である。このツアーがきっかけとなり、省庁間でラオスにおけるセクターを超えたインキュベーション・システムの促進に向けた議論とプロポーザル作成が開始された。

(3) 負のインパクト

負のインパクトはみられない。

２－３－５　持続性

持続性：やや低い[7]

(1) 政策面

ラオス政府は e-government や e-commerce、e-education 等の実現に向けて動き出しており、時間はかかってもその方向性自体が逆行することは考えにくいことから、IT 及びその人材育成推進の方向性は今後も続くと考えられる。

(2) 組織・財政面

ほとんどの教員は大学に残るものと考えられる。しかしながら、日本人専門家チーム及び C/P チームへのインタビューにおいて、以下のようなコメントが得られた。①教員と卒業生の給与格差があること（ただし、ラオスの他の職業における給与と比較すれば低くはない)、及び②修士課程、短期コースでの授業、留学中の他の教員のフォロー、その他の運営管理業務等による業務量の多さによって教員の授業準備時間及び自らの学びの時間が短くなっており、授業の質の低下につながる可能性があること。いったん授業の質が低下すれば、評判が悪化して応募者の減少を招くおそれがあり、そうなれば予算不足を引き起こす可能性がある。

NUOL 工学部の IT 学科に対する予算は、教員及び職員の給与、電気代、水道代分である。プロジェクト活動の実施経費については、長期コース（ITSC/ITPM）及び短期コースの授業料により賄われてきた。政府予算による職員給与は、以下の理由により維持されると考えられる。①ラオス政府は現在、高等教育を重視し、高等教育改革を実施中であること、②NUOL はラオスで最も長い歴史をもつ国立大学の中核を成す存在であること、③MOES は IT スペシャリスト養成を重視していること。

[7] 終了時評価時における持続性は、プロジェクト完了後の将来に関する視点であり、評価結果は決定的なものではない。しかしながら、終了後にプロジェクト効果を維持するためのポイントを明確化することが分析において求められている。

したがって、財政面で最も重要な要素はIT学科の教育の質の維持・向上、及び今後の入学者数の確保である。ITSC/ITPMの授業料収入額及び授業料からのランニングコストに係る支出額[8]は表２－11に示すとおりであり、現状黒字基調である。

表２－11　ITSC/ITPMに関する授業料収入とラオス側投入額

（単位：キップ）

年（月）	授業料受取額	支出（ランニングコスト）	差額
2011（1～12）	120,792,346	22,650,000	98,142,346
2012（1～12）	30,672,662	7,154,000	23,518,662
2013（1～3）	392,274,471	69,315,000	322,959,471
合計	543,739,479	99,119,000	444,620,479

注：2011年1月より2013年3月までのITSC/ITPMに係る数値のみを示した。これ以外の数値は入手できていない。
出所：プロジェクト資料提供

今後の授業料収入に関しては、次の点に留意する必要がある。①IT学科はITPM第1期生の定員枠を満たしていないこと（定員42名に対し入学者数は33名）、②短期研修の増加率が2012年に比べ鈍化していること、及び③民間企業からの奨学金が減少していること。長期・短期両コースの学生・受講生数が維持されない限り、これらコースのランニングコストは確保されないが、これらの課題に対処するための具体的な対応策の検討はこれからとなっている。

ITBUの運営管理体制はまだ再構築途上にある。運営管理能力またはマネジャーの今後の継続について注意が必要である。能力あるマネジャーの配置及び有能な人材に対するインセンティブの検討が持続性の確保に重要である。

関連省庁、民間企業とのコミュニケーションの基盤は形成されたものの、2011年以降参加者数が減少していることから、スタディ・セッションがプロジェクト終了後も継続されるかは必ずしも見通せない。

（3）技術面

教員の能力については、各コースで授業を行うに十分な能力をおおむね習得しているとみられる。しかしながら、IT分野の技術は変化のスピードが極めて速いことから、プロジェクト終了後に教員が独力で技術の変化のスピードに合わせて知識・技術を更新していくことが不可欠である。教育の質は教員の質にかかるところが大きい。

また、終了後もラオス産業界の最新のニーズに応える人材の輩出を続けることが、今後のIT学科にとって極めて重要である。仮に産業界の評判と満足度が低下した場合、学生やIT実務者である受講者予備軍のIT学科に対する評判も低下し、入学者数の減少を招くおそれがある。日本人専門家チームへのインタビューによれば、カリキュラムの定期的改訂により産業界のニーズに応え続け、好評を維持することが必要である。

協力終了後の機材の維持管理については短期コースの減価償却費も蓄積されており、大きな問題はない見通しである。しかしながら、ITPMの機材に関する維持管理については、

[8] プロジェクトでは短期コースについても受講料からコストを負担しているが、その内訳に関するデータは入手できなかった。

学生数が減少し授業料収入が減少した場合、予算面の課題が発生する可能性もある。

（4）社会面

IT 学科が産業界及び政府からの好評価あるいは一定の評価を維持し続ける限り、学生からの需要は続くものと考えられる。ITPM 夜間コースについては、学生のほとんどが IT 関連分野の社会人または政府職員であり、自費または所属先が学費を負担するため、将来も学生数の確保は可能な見通しである。昼間コースについては、企業からの奨学金が減少した場合は学生数が減少する可能性がある。

第３章　結　論

プロジェクトはラオス側及び日本側双方の努力により、プロジェクト目標の達成に向け着実に取り組みが進められているということが確認された。ITSC の卒業生や、卒業生を雇用している企業、そして ITPM の学生からは、プロジェクトが支援してきた IT コース全体への評価は高い。また、ITSC 及び ITPM のコース運営の妥当性については、コース運営に必要なガイドラインが整備されており、当該コースの職員や講師による適切な運営が確保されている。さらに、教材については、JICA の他国における情報通信関係の技術協力プロジェクトで開発した教材をベースに整備し、また近隣国の第三国講師（特にタイ）による技術移転を進めたため、効率的かつ効果的に、教員のスキル向上に取り組むことができた。

また、2013 年から開講した、ITPM の設立は、ITSC の成果を土台として、ITSC が発展的に解消し、プロジェクトで側面支援を行い設立されたため、NUOL が目標として掲げている、全学部学科における 2015 年までの修士課程設立といった目標の達成にも貢献した。

このように本プロジェクトでは多くのことが達成されたが、以下の 3 点に留意する必要がある。

第一に、上位目標として設定している内容については、3 年以内の達成見通しは低い。ITSC は、これまで IT サービス産業に就職する卒業生を一定数育成してきたが、GDP における IT サービス産業の増加に対する直接的なインパクトについては、現時点において測定することができない。

第二に、本プロジェクト終了後の活動の持続性を高めるためには、ITPM 及び IT 短期コースの質の確保と、安定した入学者数の維持に取り組むことが重要である。今回の評価結果に基づいた場合、ITPM 及び IT 短期コースの質は、授業を実施する講師陣の質に基づいていると考えられる。他方、IT 産業界における急速な技術の進歩を考えた場合、新規科目の設立が想定されるため、講師陣は絶えず IT サービス産業界の最新のニーズに対応するための知識を更新していく必要性がある。しかしながら、限られた人数で、多くのコースや授業を受け持っている教員の負荷は大きく、講師陣が的確に知識をアップデートするための時間を確保できるかが鍵となる。IT サービス産業界が必要とする最新の知識がなければ、ITPM 及び IT 短期コースの教育内容は時代遅れとなってしまい、教育の質を担保できないおそれがある。それに加えて、安定した入学者数は、IT 学科の財政的な安定性にとって非常に重要である。なお、終了時評価の段階においては、ITSC の卒業生は、2 期のみ卒業生を送り出したまでであり、また ITPM は第 1 期が開始されたばかりであるため、結論を導き出すのには早すぎるが、安定した入学者数は、IT 学科の財政的な持続性を担保するために、入念にモニタリングされるべきである。

第三に、成果 2 の達成状況が他の成果と比較して少し低くなっている。この背景にある理由として、ITBU はマネジャーの交代等により体制が不安定であった時期があり、現在 3 人目のマネジャー下で再度体制を整えつつある状況にあること、また中間レビュー以降に活動として導入されたインキュベーターの設立に関して、活動段階がまだ初期の段階にあるという点がいえる。また現時点では、インキュベーターに入居している 3 社ともに、ITBU/LIBIC に対し技術的な相談を求めていないことから、ITBU/LIBIC がインキュベーター入居者に対しアドバイスを行う機会に恵まれていない、という点も理由の一つである。他方、将来的には、講師陣がインキュベーター入居者の開発する最新の IT 製品に対して、アドバイスを行うことを通じ、自らも学び、それを教育指導方法の改善やカリキュラム開発に反映させることが期待される。

以上を踏まえ、本プロジェクトは一部留意すべき事項はあるが、おおむねプロジェクト目標は達成されていることから、プロジェクト協力期間終了をもって本プロジェクトを終了し、プロジェクト終了後は先方政府実施機関が、上記 3 点の留意事項を踏まえつつ、まずは自助努力で取り組むことが妥当であると判断される。また数年後の事後評価において先方政府実施機関の取り組み状況を確認し、必要に応じフォローアップ協力の可能性を検討することも考えられよう。

第４章　提　言

本評価結果を踏まえて、先に述べた留意事項については以下のとおり対応するべきであると提言する。

４－１　IT 学科で実施される IT コースの質

プロジェクトの持続性を維持するために IT 学科は同学科が開講する IT コース（例：ITPM、短期コース）の質を維持させる必要がある。これを達成するために ITPM 及び短期コースについて、講師の評価だけでなく、コースのカリキュラム、教材、資機材等を含めたコース全体に関する評価をより体系的に実施する必要がある。また評価は今後の IT コースの改善に役立てるよう、コース終了後速やかに実施、かつ定期的に実施し、評価の分析結果が遅滞なく関係者にフィードバックされることが求められる。

さらに IT は技術が日進月歩するセクターであることをかんがみれば、最新の IT 技術を理解するためには講師は絶えず最新の知識を習得し続けなければならない。また IT 学科が開講する IT コースの内容が時代遅れとならないよう、最低 3 年に 1 度はコースのカリキュラムを見直し、IT 産業の最新ニーズを反映することが期待される。なお、カリキュラムの改訂にあたっては、民間セクター、関連省庁、関係者すべてが参加したカリキュラム・ボードが開催されることが望ましい。カリキュラムの改訂はプロジェクトの持続性を担保するうえで重要な事項であることから、この点は JICA が事後評価を行う際の評価の切り口の一つとなるであろう。

４－２　安定した入学者数

IT 学科の財政面での安定性を担保するためには、優秀な学生が毎年安定した数入学することが重要である。このため、入学者数の推移をフォローし、引き続き入学者数が募集人数を下回るようであれば、この問題を解決する必要がある。この際、必要に応じ、ITPM 応募に係る資格要件を見直すことも検討されよう。

４－３　インキュベーター

本プロジェクトを通じ、「インキュベーター」というコンセプトが初めてラオスにもたらされたが、 LIBIC はまだオペレーションの初期段階にある。ラオスにおいてインキュベーターの前例がないことから、隣国タイのインキュベーターをモデルとして活用することは有益であるが、タイの事例すべてがラオスに適用可能ではないことから、ラオスにおいてインキュベーターを根付かせるためには、ラオスの環境を踏まえたラオス型のインキュベーター・モデルを構築する必要がある。タイのインキュベーター・モデルを参考にしつつも、ラオスの現地事情に適したラオス独自のインキュベーター・モデルを構築するのは容易ではなく、試行錯誤を繰り返しながら、構築していくことになるだろう。このため、インキュベーターがラオスで完全に根付くまで時間はかかり、ラオス側の長期にわたるコミットメントが重要である。

４－４　ITBU

短期コースの円滑な実施にあたり、ITBU の果たす役割は大きい。一方、プロジェクト実施期間中、ITBU のマネジャーが数回入れ替わったとともに、一時期、ポストが空席であったときも

ある。このように体制が不安定であったこともあり、ITBU はまだ完全稼働していない状況にある。中間レビュー後、3 人目のマネジャーが ITBU のマネジャーとして就任し、ITBU は現在同マネジャーの下で新しいマネジメント体制を整備している途上にある。このような状態であることを踏まえ、ITBU のキャパシティについては今後も注視する必要がある。

第５章　教　訓

５―１　IT セクターにおける人材育成

セクターの性格上、IT セクターにおける人材育成にあたっては高度な知識が求められるが、C/P の能力が期待するほど高くないケースも多い。効果的で効率的な技術移転を実施するためには、案件形成段階に C/P の能力や経験について正しく把握しておくことが重要である。また IT セクターは技術が刻々と変化、発展するため、C/P は一度必要な知識を習得しても、引き続き新しい知識を習得し続ける必要がある。IT セクターの性格として、高度な知識の習得が求められることのみならず、絶えず最新の知識を習得し続けなければならない点を踏まえると、IT セクターにおける人材育成は非常にチャレンジングであり、ラオス側実施機関及び開発パートナー側双方ともに本腰を入れた取り組みが求められる。

５―２　インキュベーター

インキュベーターは本プロジェクトを通じ初めてラオスにもたらされたため、ラオスにおいて前例モデルがない。このため、他国のインキュベーターの事例が非常に重要なサンプルとなるが、日本のインキュベーターはあまりに先進すぎているため、ラオスにとってモデルとすることが困難であることから、隣国タイのインキュベーターがモデルとして選ばれた。日本の事例が必ずしも相手国にとってベストなモデルではなく、場合によっては最先端のモデルでないものが相手国に適していることもある。いずれにしても、全く新しい概念を外国から持ち込み、その地で根付かせることは容易ではなく、時間及びコミットメントが必要である。

付　属　資　料

M/M（写し）

MINUTES OF MEETING
BETWEEN
THE JAPANESE TERMINAL EVALUATION TEAM
AND
NATIONAL UNIVERSITY OF LAOS (NUOL)
THE GOVERNMENT OF LAO PEOPLE'S DEMOCRATIC REPUBLIC ON JAPANESE TECHNICAL COOPERATION FOR THE PROJECT ON HUMAN RESOURCE DEVELOPMENT
IN
IT SERVICE INDUSTRY AT NUOL

The Japanese Terminal Evaluation Team (hereinafter referred to as "the Team"), organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Ms. Machiko Kamiya, visited the Lao People's Democratic Republic (hereinafter referred to as "the Lao P.D.R.") from 28th May to 13th June in 2013 for the purpose of conducting the Joint Terminal Evaluation for the Technical Cooperation for Project on Human Resource Development in IT Service Industry at NUOL (hereinafter referred to as "the Project".).

During its stay in Lao PDR, the Team had a series of discussions with the Lao authorities concerned. The Team prepared the Joint Terminal Evaluation Report (hereinafter referred to as "the Report") as attached, and presented it to Joint Coordinating Committee, held on 13st June 2013.

As a result of the discussions, both parties reached common understanding and agreed to take necessary measures for the matters referred to in the Report.

Vientiane, June 13, 2013

Ms. Machiko KAMIYA	Prof. Dr. Boualinh SOYSOUVANH
Leader	Dean
Japanese Terminal Evaluation Team	Faculty of Engineering
Japan International Cooperation Agency	National University of Laos
Japan	the Lao People's Democratic Republic

JOINT TERMINAR EVALUATION REPORT FOR THE PROJECT ON HUMAN RESOURCE DEVELOPMENT IN IT SERVICE INDUSTRY AT NUOL

TABLE OF CONTENTS

List of Abbreviation and Acronyms

BCEL	Banque Pour Le Commerce Exterieur Lao
CCNA	Cisco Certified Network Association
CE/IT	Computer Engineering/Information Technology
C/P	Counterpart
FE	Faculty of Engineering
GOL	Government of Laos
ICT	Information and Communication Technology
IT	Information Technology
ITBU	IT Dept. Business Unit
ITPM	IT Practical Master Course
ITSC	IT Specialist Course
JCC	Joint Coordinating Committee
Lao PDR	Lao People's Democratic Republic
LIBIC	Lao IT Business Incubator Center
LICA	Lao ICT Commerce Association
MOES	Ministry of Education and Sports
M/M	Minutes of Meeting
MOIC	Ministry of Industry and Commerce
MPT	Ministry of Post and Telecommunication
MST	Ministry of Science and Technology
NSEDP	National Socio-Economic Development Plan
NUOL	National University of Laos
PDM	Project Design Matrix
PO	Plan of Operations
R/D	Record of Discussions

1 Introduction

1-1 Outline of the Project

Compared to the situation whereby developed countries and nearby ASEAN countries are utilizing IT to the acceleration of economic development, the advancement of information in Lao PDR has been delayed. Therefore, it is a concern that the economic gap has widened. Regarding IT development policy in Lao PDR, the importance of IT education was recognized at the 7th Lao People's Revolutionary Party Congress in 2001. The utilization of IT has been promoted as a means to promote economic and national development in Lao PDR. The government of Lao PDR recognized the necessity of the utilization of IT fields as major means to actively promote industrialization and modernization. In this regard, in January 2003, the policy for industrialization and modernization stated that it is necessary to 1) focus on IT education, 2) promote socio-economic growth through the use of IT not only in the field of communication but also in the fields of tourism, transportation, health and environment.

In order to develop human resources in IT field efficiently and effectively, the technical cooperation project namely "the Project for the Upgrading IT Education (Information Technology Bridging Course)" was implemented in NUOL for 5 years from April 2003. Then, to develop human resources in IT field has been considered as important role of NUOL.

On the other hand, the existing education institutes in Lao PDR have been facing difficulties to meet the strong demand from the IT service industry for developing practical IT specialists/ engineers especially in the field of database, network and application.

Against this background, the GOL requested the technical cooperation of the Japanese government on this matter in relation to the FE at NUOL.

This project is launched on 01 December 2008 and will be completed on 30 November 2013. Purpose of the project is that Human resources are developed according to the IT service market through the postgraduate courses by the Department of Computer Engineering and Information Technology of FE at the NUOL.

From 19 May to 4 June 2011, Joint Mid-Term Review has been conducted for the purpose of reviewing the achievements of the Project. Based on the findings of the review, it has been concluded by the Team that Project has steadily progressed towards achievement of the purpose, development of human resources in IT service industries, in accordance with the schedule. Only the output regarding ITBU's organizational capacity development has been delayed due to unstable personnel assignment.

From the viewpoint of five evaluation criteria, it is also confirmed that Project has kept its relevance as the Project's contents are in line with the governmental policy as well as the needs of Lao counterparts and local industries. As to the effectiveness and efficiency, owing to NUOL's prioritized assignment of lecturers on ITSC, the courses have been implemented with capable/qualified lecturers, which endorse the educational quality at the course. Also, the team confirmed that the Project has effectively utilized internal/external manpower inputs, which has led

to steady progress of the expected outputs until now. Impacts are expected to observe in local industries after the students (re)start to work at their workplaces.

In order to ensure further steps of the Project activities including Strengthening of capacity of ITBU, upgrading the quality of lectures at ITSC, encouraging the new business on ITBU and establishing of the master courses under Department of CE/IT in NUOL, the following issues recommended by the mid-term review team, and agreed between Japanese side and Lao side.

Additionally, Modification of the PDM has been proposed based on the recommendation from the team. PDM was modified and agreed by both parties (MOE and JICA) on 2 June, 2011.

As the Joint Mid-Term Review recommended, ITPM has been established in January 2013 and technically supported by the Project. The educational program is based on the same concept of ITSC on emphasizing the acquirement of practical skills.

With remaining project period of approximately five months, JICA dispatched the Team to Lao PDR from 28 May 2011 to 13 June 2013 for the purpose of reviewing the achievements of the Project and clarifying the lesson-learned for reflecting it to the other activities of JICA. The Joint Terminal Evaluation was undertaken jointly by the Team and the Lao authorities concerned.

1-2 Objectives of the Evaluations

Main Objectives of the Joint Terminal Evaluation team were as follows:

(1) to verify the current achievements of the project compared to the plan(achievements of inputs, outputs and the project purposes)

(2) to evaluate the Project according to the five evaluation criteria, i.e. relevance, effectiveness, efficiency, impact and sustainability,

(3) to make recommendations for the activities in the remaining period

(4) to clarify the lesson-learned of the project to feed back to the other activities of JICA in the future

1-3 Schedule of the Mission

Day	Date	Time	Contents
5/28/13	Tue		Arrival in Vientiane
5/29/13	Wed	8:30	MTg with Mission Member
		9:00	Interview with JICA Experts (Mr. Ide, Mr.Heito)
		13 : 30-16 : 30	Interview with head of CE/IT (Mr. Somphone)
5/30/13	Thu	9:30-11:00	Interview with Head of ITBU (Ms. Sengmany)
		14:00-15:00	Visit to ETL (Employer interview with C/P lecturers)
		15:00-16:00	Interview with ITSC graduates who are working for ETL (around 3

			graduates)
5/31/13	Fri	10:00-10:30	Courtesy call to Dr. Saykhong, Vice President of NUOL
		13:30-14:30	Interview with Incubator manager (Ms.May)
		15:00-15:30	Interview with Incubatee (LaoDigi)
6/1/13	Sat		Summarize Information
6/2/13	Sun		Summarize Information
6/3/13	Mon	AM	Visit to Lao National Internet Center, MPT Interview with Lecturers of ITPM (Ms.Vimonta, Mr.Senglathamy)
		PM	Visit to IT Division, MPT 10:30-12:00
6/4/13	Tue	9:00-10:00	Interview with Dean and Deputy Dean of FE
		10:30	Visit to Department of Small and Medium Enterprise Promotion, MOIC
		13:30	Visit to Department of IT, MST
		14:30	Visit to Lao ICT Commerce Association (LICA)/ LICA is the member of curriculum board.
6/5/13	Wed	10:00-11:30	Interview with ITPM students (Group interview. 5-8 people)
		11 : 30-12 : 00	Interview with Incubatee (AMZCRESSERE)
6/6/13	Thu	9:00-10:30	Visit to Department of Higher Education, MOES
		10:30	Soutsaka college
		PM	Meeting among Review Member
6/7/13	Fri		Meeting among Review Member
6/8/13	Sat		Summarize Information
6/9/13	Sun		Summarize Information
6/10/13	Mon		Making M/M
6/11/13	Tue		Discussion on M/M with FE
6/12/13	Wed	AM	Discussion on M/M with FE
		PM	Prepare Final M/M

6/13/13	Thu	PM	Signing M/M (Signing with Dr.Boualinh and CR) Joint Coordination Committee Meeting (JCC) 21:50 Leave for Bangkok from Vientiane (Consultant)

1-4 Members of the Joint Terminal Evaluation Team

Lao Side

Mr. Somphone KANTHAVONG	Head of Department of CE/IT, Faculty of Engineering, NUOL

Japan Side

Ms.Machiko KAMIYA	Team Leader	Senior Representative, JICA Laos Office
Mr. Koichi TOYA	Cooperation Planning 1	Representative, JICA Laos Office
Mr. Daovanh SENGHALATH	Cooperation Planning 2	Program Officer Assistant, JICA Laos Office
Ms. Mayumi HAMADA	Evaluation Analysis	Foundation for Advanced Studies on International Development (FASID)

1-5 Methodology of the Evaluation

Both Laotian and Japanese evaluation teams will evaluate the Project in accordance with the Five Evaluation Criteria, i.e., Relevance, Effectiveness, Efficiency, Impact and Sustainability, the meanings of which are narrated below:

(1) Evaluation Framework

The Terminal Evaluation is conducted with assessment of the following, in order to extract recommendation for the project and lessons learnt for the future.

1) Achievement of the Project, according to the Project Design Matrix (PDM)
2) Implementation Process, i.e., to what extent and how the activities were conducted
3) Five evaluation Criteria mentioned below

(2) Five Evaluation Criteria

Based on the information collected through 1) and 2) above, the project is analyzed according to the

following aspects in line with JICA evaluation guideline.

1) Relevance

Relevance refers to validity of the Project Purpose and the Overall Goal of the Project in connection with the development policy of the Laotian Government as well as the needs of beneficiaries.

2) Effectiveness

Effectiveness refers to the extent to which the expected Project Purpose has been achieved as planned, and examines if the benefit has been brought about as the result of the Project.

3) Efficiency

Efficiency refers to the productivity of the implementation process, examining if the input of the Project was efficiently converted into the output.

4) Impact

Impact refers to direct and indirect, positive and negative impact caused by implementing the Project, including the extent to which the Overall Goal has been attained, or is expected to be attained.

5) Sustainability

Sustainability refers to the extent to which the country can further develop the Project, and the benefits generated by the Project can be sustained under the country's policies, technologies, systems and financial state, etc. after termination of the project cooperation period.

(3) Sources of Information

The following sources of information were utilized in the evaluation study.

1) Documents agreed by both sides prior to and/or during the course of the Project implementation including;

- Record of Discussions (R/D)
- Minutes of Meeting (M/M)
- Project Design Matrix (PDM)
- Plan of Operations (PO)
- Others

2) Records of inputs from both sides and activities of the Project

3) Data and statistics which indicate the degree of achievement of the outputs, which are the results of the Project, and the project purpose

4) Interviews with and questionnaires to the Project's counterpart personnel (hereinafter referred to as "C/P"), the Japanese experts, graduates and students of ITSC/ITPM and personnel in related organizations.

2 Evaluation

2-1 Achievement of the Project

2-1-1 Inputs

(1) Inputs by the Japanese side

1) Dispatch of the Japanese experts

3 Long-term Experts (117M/M) and 18 Short-term Experts were dispatched.

2) Equipment

PC, projectors, IT related equipment, desks, chairs, shelves, cabinets, car, etc. were provided as shown in Annex 4-1.

3) Local operational cost

Yen25,090,195 was provided for the

local operational cost with the breakdown as shown in Table2.1.1.1. below.

4) Facility construction

Lecture rooms and IT laboratory were constructed and utilized for the project activities.

(2) Inputs by the Laotian side

1) Counterparts

28 counterparts including 7 visiting lecturers and administrative staff were assigned for the project.

2) Local cost

The salary of counterparts, cost for electricity, water, internet cost were borne by Laotian side. As for the running cost for ITSC/ITPM, 99,119,000 Kip was disbursed from the tuition fee of the students (the available data was only from JAN 2011 till MAR 2013 for the long term courses).

3) Facility and equipment

PC for Testing Center (5 units), Door roll for security, 4 units), curtain (5 units) (45,864,000 kip in total)

2-1-2 Outputs

Output 1: ITSC are properly operated at the IT Department of the Faculty of Engineering, the NUOL.

Table 2.1.1.1. Loal cost from Japan

FY	Local Cost (Yen)
2008	1,369,335
2009	2,927,112
2010	4,418,585
2011	8,116,542
2012	8,258,621
TOTAL	25,090,195

Source: Produced by Evaluation Team based on the data from JICA

Objectively Verifiable Indicator
1-1. Guidelines of short term courses, evaluation on lecturers, outsourcing, library use and others necessary for effective implementation of ITSC and ITBU are developed, and approved by the head of IT department.
1-2. The recruitment, selection, evaluation of learning results, and graduation approval of students are appropriately conducted.

Achievement of Output 1: High[1]

Most of the Guidelines have been already developed, including that of Short-term Courses, Evaluation of Lecturers for long-term courses (ITSC/ITPM), Operation, Finance, Job Description and Employment Regulation, Regulation of Renting Facilities, as shown in Table 2.1.2.1. Although there is no guideline for library use, format for Library Membership Card has been already developed. The rest of the guideline development is likely to be completed by the end of the project. As for the administration of ITSC, it is generally done well without serious problem so far.

Table 2.1.2.1. Guidelines developed by the project

	Name of Guideline
1	Financial Guideline for ITBU services
2	Job description and Employment regulation for IT specialist course Unit (Project Manager and Fulltime lecturer)
3	Operation guideline for Ready-made course and Custom-made course
4	Payment and Staff evaluation guideline for IT Specialist Course Unit
5	Regulation of Renting Facility for IT Business Unit (ITBU)
6	Training Course Guideline For IT Business Unit (ITBU)

Source: Produced by the Evaluation Team based on the information provided by the project

Output 2: The IT Department Business Unit (ITBU) is properly operated at the IT Department of the Faculty of Engineering, the NUOL.
Objectively Verifiable Indicator
2-1. The operational projects are appropriately managed according to the plan of the ITBU, whose results are reported to and approved by the head of IT department.
2-2. The ITBU comes to be able to receive works on the system development from the government and industry for profits.
2-3. More than 3 incubation booths at ITBU are occupied during the Project period.

[1] The achievement of objectives is evaluated in 4-scale rating as follows; "High" (the best), "Rather High", "Rather Low", "Low" (the worst).

Achievement of Output 2: Rather Low

(1) Indicator 2-1. (operational projects appropriately managed)

The Short-term Courses are managed according to the yearly-plan of ITBU, which is made at the beginning of the Laotian fiscal year. The results are reported to and approved by the Head of IT Department at the completion of each course and at the end of fiscal year, although making the yearly plan and the reporting the results sometimes delay.

Although evaluation by trainees on the lecturers and the course has been done with questionnaire at the final day of each Short-term Course, the information has not been systematically utilized for enhancement of the courses, because the data on the returned questionnaires is not accumulated and analyzed in a way to comprehend the whole tendency, characteristics and problems to be improved.

Basically, short-term courses are implemented at night or on weekends, which are practical modules included in the long-term course, i.e., ITSC and ITPM. The Short-term Courses are open to everyone, but most of the participants are practitioners in IT related works, and the courses are run with the participation fee from the participants, without any financial assistance from NUOL or the government, except for the initial preparation period before commencement of the course (extra salary/honorarium of lecturers for curriculum development, etc.). The income from the Short-term Courses is distributed among the lecturers and staff who are engaged with the courses as incentives according to the rules stipulated in the guideline, in accordance with the initial plan.

(2) Indicator 2-2 (System development work for profit)

ITBU has not received any system development work for profit from the government or private companies. The reasons are as follows; 1) Lecturers became too busy for other activities, although some of them are technically capable for the work, 2) the Field Work at the government and private company where students are accepted for experiencing actual work under supervision of lecturers as a compulsory subject at ITSC/ITPM, the opportunity of hands-on experience for the long-term course students are already secured, 3) Income generation by Short-term Courses has been significant, so sufficient income for incentives of lecturers is already secured. Since the aim of receiving system development work for profit intended at the initial project plan have been already attained, there is no problem for this change.

(3) Indicator 2-3(Occupied number of Incubation booths)

This indicator was added at the time of Mid-term Evaluation, with the intension to enhance practical capacity of lecturers by having interactions with and receiving questions from entrepreneurs[2].

[2] At the time of project planning, the aim of incubation activities, with which the planners were not yet certain to

Major pillars of the incubation are such as 1) technical advice, 2) marketing support and 3) assistance for registration.

As of early June, 2013, three incubation booths are occupied, and one entrepreneur has already concluded a contract for technical advice without occupying the booth. Currently, there are two inquiries from companies about the incubation service. Among the 4 incubatees, one concluded the contract with ITBU on March 2012 as the earliest, and March 2013 as the latest. Technical advices from lecturers to the incubatees have not started yet, because all the incubatees happen to have certain level of technical capacity and their new products already. Thus, the incubation activity has already started at its initial stage.

Table 2.1.2.2 The Incubatees and the main products

No.	Company Name	Start of Incubation	Main Products
1	Laosanghanh Co. Ltd. (LSF)	MAR 2012	Provision of hotel and restaurant information
2	LaoDigi	NOV 2012	Digital contents, eBooks
3	AMZ Cressere	FEB 2013	Web site "Lao Coco" (similar to Yahoo)
4	Sue Khueng	MAR 2013	E-commerce, on-line shopping

Source: produced by Evaluation Team based on the interview with the person responsible for Incubation activity

So far, there are no incubatees who graduated ITSC or received Short-term Courses. Most of the graduates seem to look for works at large companies, but it is expected that some of them will be incubatees within 3 years or so, just like the cases in Thailand, etc., according to the interview with the Japanese expert team. It is expected that the lecturers will learn from experiences in giving advices for the actual and latest IT products of incubatees, which is important for their improvement of their own teaching and curriculum development in IT field.

None of the incubatees have submitted the report to LIBIC (Incubation Center of the project) yet, including the one that started on March 2013, in spite of the rule of submitting progress report every three months.

Output 3: Practical skills and teaching capabilities of lecturers in charge of the ITSC and master course that is planned to be established are enhanced in the field of the software

include in the project component, was regarded to be harnessing the graduates of Long-term and Short-term Courses who want to be entrepreneurs until their business became on truck. However, during implementation period, the recognition of the project team changed from the above concept to accept broader types of incubatees, as the result of the study trip for incubation in Thailand . This is because many entrepreneurs in Thailand tend to work for companies first, and then, try to be indcpendent as entrepreneurs after a few years.

engineering.
Objectively Verifiable Indicator
3-1. Satisfaction ratings (evaluation) of the lecturers are enhanced by students and trainees.
3-2. The number of the success of the system development in the ITBU is increased.

Achievement of Output 3: Rather High

(1) Indicator 3-1. (Satisfaction rating of the lecturers by the students and trainees at ITSC/ITPM)

1) The result of ITPM students' satisfaction rating for the lecturers in May 2013 has not shown significant improvement compared with that of 2011 by ITSC students as shown in Table 2.1.2.3.[3] As for Short-term Courses, although compilation of data such as average rate, etc. of accumulated questionnaire has not been made yet, the person responsible for the Short-term Courses has impression that most of the trainees tend to rate something between 3 and 4 in 6-scale rating (from 0 to 5) according to the interview. Also, some junior lecturers seems to have difficulties in teaching Short-term Courses for practitioners with actual working experiences in IT related works, due to shortage of experience, according to the interview with the person responsible for the Short-term Courses.

Table 2.1.2.3 Comparison of students' rating on the lecturers at Long-term Courses

No.	Qustion	Answers	ITSC at Mid-term Review (JUN 2011)	ITPM at Terminal Evaluation (JUN	Chage
			Ratio (%)	Ratio (%)	Ratio (%)
1	Punctuality	Yes	98%	94%	-4%
		No	2%	6%	4%
2	Coverage of topics	Yes	96%	98%	1%
		No	4%	3%	-1%
3	Explanation	Yes	98%	96%	-3%
		No	2%	4%	3%
4	Appropriate advice	Yes	98%	97%	-1%
		No	2%	3%	1%
5	Correct answers to questions	Yes	99%	98%	-2%
		No	1%	3%	2%

(Source) Produced by Evaluation Team based on the data from the project in June 2013 and the Mid-term evaluation report in 2011

(3) Indicator 3-2 (Number of success of the system development)

There is no "successful project of system development in ITBU", because ITBU did not receive system development work from external organizations for profit. But there is no problem in terms of the achievement of the objectives, as already explained in Output 2 Indicator 2-2 above.

(4) Other important aspects

1) The intensive technical transfer to the lecturers led to the increase in the number of certificates

[3] Although there might be difference in characteristic and perception among the students at ITSC and ITPM due to the difference in duration, etc., it is not possible to copare two badges of ITPM, as only the 1st badge of ITPM students are enrolled at the time of Terminal Evaluation.

that the lecturers acquired. The number of certificates acquired by the lecturers is shown below.

Table 2.3.2.4 Number of commercial certificate holders & instructor certificate holders as of May 24 2013

	NUOL Lecturer	Visiting Lecturer
1. Commercial certificate		
Oracle SQL 11g	4	3
Oracle OCA 10g	1	1
Oracle OCJP (Java)	2	1
Cisco CCNA 4.0	3	0
Vmware ICM	1	0
Sub-Total	11	5
2. Instructor certificate		
	NUOL Lecturer	Visiting Lecturer
Cisco CCNA Instructor	5	5
Sub-Total	5	5
TOTAL	16	10

Source: ITSD Project

2) In a small group interview with four graduates of ITSC who are engaged with IT related works, responding to a question "To what extent the knowledge and skills acquired at ITSC was useful to the present job?," two graduates rated 5 and another two rated 4 out of 4 participants at the 5-scale rating. Although the sample size is too small to generalize, there is possibility that the graduates' evaluation on the lecturers is relatively high.

3) With regard to the progress of technical transfer to the lecturers, it was pointed out by the Mid-term Review Team that the progress of the lecturers of Software Engineering Team was delayed compared with that of Network Team. As the major reason of the delay is insufficiency in the ability of basic mathematics, the project followed it up with the actions such as; a) the lecturers utilize a simple programming software to enhance logical thinking and basic capacity, and b) students take an on-line mathematics exercise program developed by the project.

Output 4: ITSC and master course, which is planned to be established, are for the practical software engineering and business skills are developed.
Objectively Verifiable Indicator **4-1. Satisfaction ratings (evaluation) of the overall ITSC are enhanced by students and trainees.** *** Results of the 1st year graduates will be the benchmark. The contents exclude lecturers evaluation. Questionnaire is prepared by the Project.**

4-2. The curriculums, syllabi, and learning materials are regularly updated.

4-3. The curriculum board is annually held with the external knowledgeable persons (from the government and industry).

Achievement of Output 4: Rather High

(1) Indicator 4-1.(Satisfaction ratings of the overall ITSC by students and trainees)

The Long-term courses, i.e., ITSC (1 year) and ITPM (2 years) have been conducted with the following number of applicants and students enrolled shown in Table 2.3.2.5.

Table 2.3.2.5. Number of applicants and students enrolled in ITSC/ITPM

	Course/Badge	Duration	Applicants	Students
1	ITSC 1st Badge	OCT 2010 - AUG 2011	88	42
2	ITSC 2nd Badge	OCT 2011 - AUG 2012	59	29
3	ITPM 1st Badge	JAN 2013 - AUG 2014	99	34
4	ITPM 2nd Badge	OCT 2013 - AUG 2015	(scheduled)	(scheduled)
TOTAL			246	105

Although Chief Advisor and his secretary made interviews with all the students of the 1st and 2nd badges of ITSC on the students' evaluation on the overall course and the facility right before graduation, the satisfaction ratings on the overall ITSC program by the students at the end of the course through questionnaire has been delayed until now.

On the other hand, according to the small group interview with the graduates of ITSC and students at ITPM, their overall evaluation on the long-term course is generally high. The graduates rated 4.5 in average at 5-scale evaluation during the interview (4 participants).

The 1st year students of ITPM who were interviewed mostly regard the course as good, although some comments were made on the shortage of some lecturers' experience, although the sample size is too small to generalize. As for Short-term course, the person responsible for the Short-term Courses have impression that most of the trainees tend to rate something between 3 and 4 in 6 scale rating (from 0 to 5) on overall course rating, according to the interview.

(2) Indicator 4-2 (The curriculum, syllabi and learning materials regularly updated)

The syllabi and learning materials of one-third of the curriculum were updated in 2012 under supervision of Japanese experts. Actual revision work was done by the Laotian lectures, while the Japanese experts supported their work. As for the academic curriculum (two thirds), periodic download, checking the difference with the previous version and learn by themselves. However,

the lecturers are likely to cope with it, as textbooks and, in some cases, instruction attached with the downloaded file, are available.

(3) Indicator 4-3 (The curriculum board annually held with external resource person)
Curriculum Board was convened once a year since 2010 till 2012, with participation of ministries and private companies.

Output 5: Collaboration among the government, industry, and academia is reinforced.
Objectively Verifiable Indicator **5-1. Joint seminars among the government, industry, and academia are annually held.** **5-2. Lectures by the visiting lecturers from the government and industry are delivered at a constant rate.**

Achievement of Output 5: Rather High

(1) Indicator 5-1 (Joint seminars with the government, industry and academia annually held)
Study sessions, aiming at having opportunities to comprehend the current situation of IT industry in Laos with participation from government, industry and academia, were held 4 times, i.e., once a year starting from 2009 till 2012. The number of the participants drastically increased to 47 in 2010, showing decrease since 2011. The number of participants from the government/public sector in 2012 is rather small, but it was because the study session was conducted at the end of the fiscal year, due to delay of the study report submitted by the national consultant. IT Festa, an event in which 25 lectures were made, and introduction of software on accounting, hotel reservation etc., was conducted during the even in March, 2011, in place of symposium in the initial plan IT Festa is planned to be held this year also.

Table 4.2 Participants of Study Sessions

	2009	2010	2011	2012
Government/Public sector	6	16	10	3
Industry	13	19	9	12
University (incl. project members)	7	12	5	6
Total	**26**	**47**	**24**	**21**

[Source] Produced by the Evaluation Team based on the data provided by the project.

(2) Indicator 5-2.(Lectures by the visiting lectures from the government , industry delivered constantly)
5 visiting lecturers (2 from government, 2 from industry and 1 freelance), among 8 who passed the tests in the technical transfer from Japanese experts and accepted as visiting lecturers by the project,

have taught at Short-term courses and ITSC/ITPM. This also provided these external personnels with training opportunity, i.e., technical transfer to be lecturers, and gave information and human network for them also.

2-1-3 Achievement of Project Purposes

Project Purpose: Human resources are developed according to the IT service market through the ITSC by the IT Department of the Faculty of Engineering at the NUOL.
Objectively Verifiable Indicator **1. Evaluation of graduates and trainees working for the domestic IT service companies, governmeutal organizations, and IT user corporations is enhanced.** *** Results of the 1st year graduates will be the benchmark. Questionnaire is prepared by the Project.** **2. More than 80% of the graduates from ITSC will (re)start to work as the IT service engineers** **3. The number of trainees (attending the short-term course) of the postgraduate course is increased in the Lao PDR.**

Achievement of Project Purpose: Rather High

(1) Indicator 1(evaluation of the course by the graduates and trainees)

According to the telephone interview by the Project with 11major companies that hire graduates of ITSC, covering 48 graduates out of 59 working for companies or public sectors in total, the evaluation of the graduates was rated as 3.7 in average at 5-scale rating (5: very good, 4: good, 3: fair, 2: poor, 1: very poor) among 10 companies who gave reply in the rating (excluding 1 company which did not answer the rating question). Although it is mentioned in the Indicator-1 of Project Purpose that the evaluation result for the 1st badge of ITSC was planned to be utilized as the benchmark, the evaluation of the 1st badge students delayed and was conducted together with the 2nd Badge graduates at the end of May, 2013.

(2) Indicator 2 (More than 80% of the graduates from ITSC work as IT engineers)

The ratio of the graduates of ITSC who are engaged with IT related work is 95%, i.e., 59 persons out of total 62 graduates for the last two badges.

Table 2.3.2.7 The work of the ITSC graduates

2010-2011	Number of graduates	2011-2012	Number of graduates

Bank	12
Telecommunication	10
Water Supply	3
University	1
Transportation	1
Academic	1
Other	5
TOTAL (job after graduation)	**34**
Number of Graduates	**37**
Ratio (%)	**100**

Telecommunication	12
Government	5
Bank	4
Public Corporation	3
Mining	2
University	1
Continue to study	1
TOTAL (job after graduation)	28
Number of Graduates	29
Ratio (%)	96.5

(3) Indicator 3 (The number of trainees of the Short-term Courses increases)

The total number of the participants is 774 as of May, 2013, while 607 passed, 167 failed the exam of the courses. The number of the courses and participants has been increasing since 2009, showing remarkable increase in 2012.

Table 2.3.2.8 Number of Short-term Courses and the Participants

FY	Number of Courses	Number of Participants and the results			
		Total	Pass	Fail	Under proecessing
2009	1	12	10	2	0
2010	15	146	93	53	0
2011	18	210	152	58	0
2012	26	322	271	51	0
2013	9	84	79	3	2
合計	69	774	607	167	0

Source: Produced by Evaluation Team based on the data provided by the ITSD

Remarks: Above year is from January till December, which is different from ordinary school calendar year

(4) Other important aspects

1) ETL, a public corporation that hire the largest number of the ITSC graduate, i.e., 16 graduates for the last 2 years, observes the quality of ITSC graduates is higher than the graduates of other domestic universities and education/training institutions, but lower than the graduates from universities abroad. There is no difference in terms of quality of the graduates depending the year they graduated, according to the interview.

2-1-4 Overall Goals

Overall Goal: IT service industry is well-developed in the Lao PDR.
Objectively Verifiable Indicator **1. The ratio of the IT services in the GDP is increased.** **2. The ratio of the people working for the domestic IT service industry in the working population is increased.**

Overall Goal: Low (probability of achievemeut within 3 years)

It is not probable to increase the ratio of IT services in the GDP, and the ratio of the people working for the domestic IT service industry in the working population by producing graduates of ITSC/ITPM, thinking about the size of the graduates per year (62 graduates as of June 2013, 21 graduates of 1st ITPM Day-time course in Aug. 2014 (The trainees of Short-term Courses and the students of the night course of ITPM are practitioners already engaged with IT related work, which does not influence increase in the number of IT workers). Suppose the same number of students are enrolled at ITPM for its 2nd and 3rd Badges, the total number of graduates from the beginning till 2016 will be 125 graduates. The setting of the overall goal was too high.

2-2 Implementation Process

(1) Activities

Activities were mostly conducted as scheduled, except for 1) the system development work from external organization for the sake of reflecting the technical ueeds into curriculum, and to generate income as incentives for lecturers, and 2) symposium for strengthening collaboratiou among the government, industry and academia. As mentioned in Output 2 above, those aims were already achieved by other actions (fieldwork and short-term course), there is no negative effect to the project.

(2) Monitoring system

Monitoring was made based on 1) the weekly meeting among the managerial level, and 2) section-level. Each manager reports the results of the weekly meeting at the managerial level weekly meeting, to get advice from Japanese experts and Project Manager.

(3) Ownership of C/P

Most of the activities are now done by counterparts, with the support of Japanese experts such as establishing initial set-up in basic framework and format, allocation of work in updating teaching materials, giving advice on technical and managerial aspects including of all the major activities

such as ITSC/ITPM, Short-term Courses and Incubation activities.

2-3 Results of the Five Criteria Evaluation

2-3-1 Relevance

Relevance: Rather High[4].

(1) Conformity of the Project objectives to the Beneficiary's Needs

1) Laotian Industry

Fostering IT specialists with practical knowledge and skills matches the needs of the industry in Laos. Practical skill is regarded to be very important by the companies, while the university graduates in Laos generally do not have practical knowledge and skill so that they do not function as the immediate assets to firms in Laos, being in need of further training.

Some comments were heard in the interviews from a private company, an association of IT industry and a government organization with technical function that two years course seems to be rather long from industry's point of view, because the costs of scholarship for students as well as the cost for sending their staff to the program are doubled, while academic knowledge is not so highly prioritized by private companies. In connection with this point, one of the interviewees among the three organizations above mentioned that it would have been better to keep ITSC simultaneously so that the applicants can make their own choice.

Also, there was a comment in an interview with a related organization in IT industry that the demand for creative skills like non-network related security engineers are increasing, while soft skills like sales and marketing skills are increasingly required. These are still covered by the current curriculum of ITPM, except for sales skills.

2) Target group (students/trainees)

The long-term course (ITSC/ITPM) is popular among applicants, because 1) it has reputation of giving practical education that leads to advantage for getting work, 2) it has more equipment that the students can use compared with other domestic universities/institutions, 3) it has experienced lecturers, according to the interview with graduates and students[5]. Although the sample size is too small to generalize, it is possible that the reputations mentioned above are well known among students already

---

[4] The evaluation based on the Five Evaluation Criteria is made on 4-scale rating as follows; High (the best), Rather High, Rather Low, Low (the worst), except for Impact, which is not suitable for the evaluation by scales/levels due to its characteristics.

[5] According to a group interview conducted with 4 graduates of ITSC (of 1st and 2nd Badges) and 6 students of the 1st Badge of ITPM。

There seems to be needs of practitioners in industry and government for master course, as the salary is increased if master's degree is acquired. About 80% of the students of ITPM 2013 are those with practical experiences (7 from industry, 8 from universities including1 from NUOL, 1 from college out of 20 in total for Day-time course) and 20% (4 students) are those who are straightly enrolled from the undergraduate level.

3) NUOL

It matches the direction of NUOL, as is shown in NUOL ICT Master Plan, to become the national focal point for ICT Human Resource Development in order to drive the county towards the knowledge based society by year 2020.

(2) Conformity of the Project objectives with the Government Policy of Lao PDR

1) Enhancement of IT Service Industry

Enhancement of IT Service Industry as well as IT itself are highly prioritized by the government, which are shown in the following policies;

a) The Seventh Five-year National Socio-Economic Development Plan (2011-2015)

a-1) Post and telecommunication: Promote infrastructure development in postal services, telecommunications and high-speed Internet in order to modernize this sector for augmenting socio-economic development as well as be a link-point in the region and the world., a-2) Education: To develop human resources in a variety of fields, including skilled labor, mechanics, technicians, engineers, managers, executives and others. , in order for them to have a secure job and be able to compete in labor market

b) The ICT National Policy (officially issued in 2009 by NAPT and still valid) (This policy places the importance on human resources development in IT sector as well as development of IT sector industries

c) ICT Policy and ICT Master Plan for Education up to 2020 (stipulates "developing competence in the use of the technology and in the design, production, use of ICT-based instructional materials and use of appropriate and innovative information technologies as tools in education adn training," and "the HRD of IT manpower for the National Economic Development" is included.)

d) ASEAN ICT Master Plan (The ASEAN ICT Master plan 2015 (AIM2015) was launched on January 2011 at the 10th ASEAN Telecommunications and IT Ministers Meeting in Kuala Lumpur, Malaysia. AIM2015 is a roadmap that charts the development of the ICT sector in ASEAN over the next five years (2011- 2015) and will harness the transformational potential of ICTs in creating an inclusive, vibrant, and integrated ASEAN Community.

2) Human resources development of IT service Industry

Human resources development in IT sectors is highly prioritized in the Seventh Five-year National Socio-Economic Development Plan (2011-2015) as follows;

a) Post and telecommunication: Develop the capacity of personnel in the post, telecommunication and Internet sectors to meet international standards" as Measures in Post and telecommunications, and b) Education: human resources development of engineers are included in the Education sector of the 7th NSEDP as mentioned above.

All the major ministries including the project, including Ministry of Post and Telecommunications, Ministry of Science and Technology, Ministry of Education and Sports and Ministry of Industry and Commerce make much account of human resources development in IT field, according to the interviews.

(3) Conformity of the Project objectives with Japan's ODA Policy

1) Supporting human resources development in IT Service Industry

MOFA's Country Assistance Policy to Laos (2012) (In the four pillars of major assistance toward Lao PDR, support in higher education and technical and vocational education are included in the third pillar, i.e., "establishment of educational environment and human resources development."

Also, JICA's assistance policy to Laos (Among the four major pillars, the third pillar, i.e., establishment of educational environment and human resources development, includes higher education and technical education for the sake of strengthening private sector.

(4) Appropriateness of the project as a means

1) Fostering IT specialists with highly practical skills (Network, Database, Application Development, Project Management, etc.)

Focusing on HRD of IT specialists with highly practical skills is regarded to be mostly appropriate, since it is consistent with the governmental and industrial needs of Laos as explained (1) and (2) above, although there is always new demand for new technologies in IT, which always requires careful attention.

2) NUOL as the counterpart organization

NUOL has the longest history among all the national universities in Laos with 11 faculties and 6 centers at 8 campuses in Vientiane, which has partnership with the Grater Mekong Sub-region Academic and Research Network (GMSARN) and ASEAN University Network (AUN, or Seednet). Thus, it is regarded to be appropriate by the related ministries to choose NUOL as the counterpart organization of the project. There is no other national/public university or

training institution which can play the role of C/P organization for this kind of project in Laos, in terms of quality and quantity of IT education among governmental/public organizations. However, some lectures could not pass the tests at the technical transfer and remain as the counterparts after assignment, due to lack of experience.

3) Does Japanese technology have comparative advantages?
Japan has predominance in IT from the view points of the followings; 1) the highest quality of software in the world, 2) qualification system of IT specialists, that is virtually Asian standard already, 3) JICA has abundant experiences in IT projects in Indonesia, Myanmar, Kyrgyzstan, Rwanda, etc.

2-3-2 Effectiveness

Effectiveness: Rather High

The achievement of Project Purpose is rather high, and the achievement of most Outputs are rather high, except for Output 2.

The achievement of the project purpose is basically attributed to the outputs of the Project Purpose, since there was no other external support from other donors and new program by Laotian government to IT Department during the project period.

On the other hand, the feedback and reflection from each Output has not been intentionally and systematically made, and the mechanism of reflecting the experiences and findings through iteration with IT practitioners by teaching at Short-term and Long-term Courses, supervising the fieldwork at the government and private companies and giving technical advices to Incubatees, etc. The results of the questionnaire survey at Short-term Courses are not compiled for analysis of finding out the points to be improved. The lecturers have not experienced giving technical advices to the incubatees as they happen to have the sufficient technology and new products already.

On the other hand, no specific Output which especially contributed to the achievement of the Project Purpose, while the contribution of Incubation component in Output 2 is less than others.

2-3-3 Efficiency

Efficiency: Rather High

Achievement of most of the Outputs is rather high, except for Output 2.

(1) Appropriateness of Inputs from the Japanese side

No needless/excessive/unutilized input was observed. Moreover, the following points contributed to attain the same quality and quantity of Outputs with less cost.

1) maximizing effect of training with utilizing expert from Thailand, whose language is easier to understand by Laotian lecturers than English, which resulted in less dispatchment of Short-term Japanese Experts, while securing the same quality of technical transfer to the counterparts, 2) Utilizing academic programs such as Microsoft Academy (700USD/Y), Oracle Academy (500USD/y), CISCO Academic (free of charge), VMware Academy (free of charge), etc., which share about two thirds of the total teaching materials. These materials are of high quality at international standard, can be distributed to students, and are automatically updated, so that the lecturers do not consume time for updating, while the high quality is secured, and 3) as for the rest of the teaching materials (one third), those developed by another IT projects supported by JICA in Myanmar and Kyrgyzstan. Thus, time for updating teaching materials is reduced with high quality of experts and teaching materials. As for the expertise of Japanese experts, it was fully utilized for the technical transfer for the counterparts.

(2) Appropriateness of Inputs from the Laotian side

According to the interview with the person responsible for the project management, the number of the lecturers assigned was not sufficient. Although a number of lecturers was assigned by the Faculty which extended strong cooperation, whillesome lectures could not pass the tests at the technical transfer and remain as the counterparts, due to lack of experience. Hence, the work for each lecturer seems to become too heavy because of the volume of work such as ITPM, Short-term Courses, undergraduate classes and supervising students at the Fieldwork, etc. Also, according to the same interview, the assignment of the person responsible for Short-term Courses was very difficult. During the cooperation period, the post had been vacant for 2 months, and the current manager is the third person in the position. It was pointed out that securing capable administrative manager with the salary level of national universities is difficult in Laos, as capable persons tend to work for private companies that pay higher salary.

(3) Contributing /Hindering Factors to Outputs

The following factors affected negatively against achieving Outputs; 1) lack of experience of lectures (for most of the Outputs), 2) tendency in which reflection of evaluation on lecturers into bonus is not regarded as desirable (Output 3), and 3) lack of experience of administrative staff with the limited budget of university (Output 2).

2-3-4 Impact

Certain Positive Impact is observed.

(1) Probability of achieving Overall Goal

As explained in 2-1-5, probability of achieving Overall Goal within about 3 years after termination is very low, considering the total number of the students/trainees educated/trained by ITSC/ITPM and Short-term Courses. This is because the initial setting of the Overall Goal was too high.

(2) Other positive impact

The following positive influence are observed at the undergraduate education at Faculty of Engineering, NUOL, as the result of the project implementation; 1) Enhancement of Undergraduate level education (as the knowledge, skills and teaching capacity of the lecturers are enhanced, and the same teaching materials are utilized at the graduate level of IT Department), 2) revision of Curriculum of Undergraduate education (due to enhancement of master course education as well as capacity of teaching staff, some of the modules at the master level which should have been taught at the undergraduate but could not because of insufficient capacity in the past, will be transferred to undergraduate curriculum from September this year, 3) Satisfaction rating of lecturers by students has been introduced at Undergraduate Level, Faculty of Engineering.

Incubation study tour to Thailand in FEB/MAR 2013 led to the understanding of the concept and importance of incubation to the participants, which consists of C/P at NUOL, government officers responsible for human resources development of IT and SME promotion of the related ministries and representative from industry. Discussions and proposal-making have begun among the ministries on promoting incubation system in Laos regardless of the sectors.

(3) Negative impact

No negative impact has been observed.

2-3-5 Sustainability

Sustainability: Rather Low[6]

(1) Policy aspect

The direction of promoting IT and its human resources will continue, as the government is going to

[6] As sustainability at the time of Terminal Evaluation addresses future aspect after project completion, evaluation result is not decisive. However, clarification of some points to maintain the good effects of the project after termination is required in its analysis.

step forward to realize e-government, e-commerce, e-.education, etc., which might take time but may not be totally reverse.

(2) Organization, Finance

It is likely that the most lecturers will stay at the university. However, there are some comments expressed in the interview with Japanese expert team and counterpart team such as 1) the salary gap between the lecturers and the graduates, although it is not low compared with the salary of other occupations in Laos, and 2) the burden of work to teach at master course, Short-term Course, extra teaching work for following other lecturers who study abroad and other administrative works make the preparation and study time of the lecturers shorter, which might lead to the decrease in quality of the class. And once the quality of the classes is decreased, it will lead deteriorate the reputation, and possibly reduce the number of applicants, which will result in the shortage of budget.

The budget of NUOL for IT Department of Faculty of Engineering is for the salary of lecturers and staff, electricity, water, etc. The rest of the cost for conducting project activities has been paid from the income generated by tuition of the Long-term (ITSC/ITPM) and Short-term Courses. The salary of staff from the government budget seems to be maintained, because 1) the government is now putting emphasis on higher education and proceeding higher education reform, 2) NUOL is the core national university with the longest history in the country, and 3) Ministry of Education of Sports perceives that fostering IT specialist is essential.

Thus, the most important element is maintaining and improving the quality of education at IT Department and securing the number of students to be enrolled in the future as well The tuition fee for ITSC/ITPM and the cost paid from the pool of tuition fee is shown in Table 2.2.5.1.

Table 2.2.5.1 Payment by Laotian side (ITSC/ITPM since JAN 2011 till MAR 2013 only)

(Unit: Kip)

Year (Month)	Tuition received	Paiment for running cost	Balance
2011 (1 - 12)	120,792,346	22,650,000	98,142,346
2012 (1 - 12)	30,672,662	7,154,000	23,518,662
2013 (1 - 3)	392,274,471	69,315,000	322,959,471
TOTAL	543,739,479	99,119,000	444,620,479

Source: ITSD Project

There are some concerns on the future situation of the tuition fee such as 1) IT Department did not

meet the number of student quota in the 1st Badge of ITPM (33 students against 42 quota), 2) the ratio of increase in Short-term term Courses is decreasing compared with the last year, 3) the number of scholarship from private companies is decreasing. Unless the number of students and trainees of both courses are maintained, the running cost of the courses will not be secured, but no specific action has been taken so far to overcome the difficulties above.

The management system of ITBU cannot be deemed to be fully established. There are concerns in terms of either management capacity or continuity of managerial personnel in the future. Assignment of capable manager and finding out some incentive for capable personnel would be essential for securing sustainability.

It is still to be seen whether or not the study session would be continued after termination of the project, although the basis for communication with related ministries, private companies are already founded, as the number of participants who attend the committee is decrease since 2011.

(3) Technological aspect

The teaching capacity of lecturers is regarded to be mostly sufficient for teaching the courses. However, as the speed of technology change in IT sector is very rapid, it is essential whether lecturers can keep up with the rapid change by themselves after termination of the project. Since the quality of education highly depends on the quality of lecturers, and meeting the needs of Laotian industry which is also quickly changing, keeping up with the latest change in IT industry's needs is essential for the IT Department of NUOL. If the reputation and satisfaction level from the industry is decreased, the reputation of the Department among the students and candidates of trainees in IT industry will also be deteriorated, resulting in the decrease of new students. It would be necessary to revise the curriculum regularly to keep responding the latest needs of the industry and keeping good reputasion, according to the interview with the Japanese expert team.

There should be no serious problem for the maintenance of equipment after termination, as the depreciation cost for short-term course is accumulated. However, the maintenance of the equipment for ITPM might have a problem in terms of budget, if the total amount of tuition fee will decrease due to the students' number.

(4) Social aspect

The demand from the students will continue as far as it Department keep receiving good/certain reputation from the industry as well as the government. The students for night time course will be secured in the future, as they are mostly IT related workers or government officers who can pay by themselves or whose organization pay. Those for day time course might decrease if the scholarship from companies is decreased.

3. Conclusions and Recommendations

3-1 Conclusions

Based on the results of the evaluation as explained in the previous chapter, the Team comes to the conclusion that overall, the Project has been steadily making progress towards achieving its Project Purpose.

In terms of the evaluation of IT courses by the students currently enrolled in the course, alumni and companies which has recruited the graduates, it is confirmed that the IT courses has met their expectation of them through the questionnaire and the interviews.

As for the appropriate management of ITSC and ITBU, which is related to the output 1, it is worth praising that 6 kinds of the guidelines have been completed. It is safely said that those guidelines have contributed to the proper management by the staff and lecturers at IT Department of the Faculty of Engineering.

With regards to the update of curriculum, syllabi and learning materials, one third of the teaching materials have been developed by using the existing materials developed by IT project supported by JICA in other countries as a basis. Therefore, JICA experts did not need to seek for the model of the materials which are to be applied into the technical transfer for their counterparts. They can concentrate on their work to accommodate those to the IT courses instead.

Concerning the technology transfer to the lecturers of IT courses, this project has effectively utilized the IT experts from neighboring countries like Thailand, Singapore and Philippines to provide their counterparts with IT skills which meets international standard. Utilizing the third-country resources is beneficial not only on the cost efficiency but also on the similarities of language. Particularly, experts from Thailand can directly communicate with Laotian counterparts and easily catch up the issues which they faced during the training. Additionally, those technology transfers are to qualify the lectures to conduct lectures on subjects which are met with international standard and closely related to the practical skills. As the previous part has already mentioned, those aspects will contribute to the reputation of ITPM among applicants.

Furthermore, this project has supported the establishment of ITPM, which has started in January 2013. As Mid-term review team recommended taking necessary measure for foundation of Master Course, the Project has technically supported the establishment of the course to have the same concept of ITSC on emphasizing the acquirement of practical skills. Establishing the Master Course is aligned to the policy of NUOL to set up on all departments until the end of academic year 2015.

While the Project has achieved many points mentioned above, there are a few points which the evaluation score was not so high and need special attention.
Firstly, the overall goal is set to be too high to be achieved within 3 years. Although IT courses have produced a certain number of the graduates who have worked for IT service industry, direct impact to the increasing ration of IT service industry in GDP cannot be measured at this moment

Secondly, even though the Project has met the project objectives, the sustainability of the project is regarded rather low. In order to enhance the sustainability of the Project, two points become crucial: (i) the quality of the IT course is sustained, and (ii) enrollment rate is sustained. At this moment, based on the result of the evaluation, the ITPM and IT Short-term Course's quality is met by having the lecturers able to teach the course well. However, considering the rapid changing world of IT industry, new subjects could emerge and therefore the lecturers need to constantly update their knowledge to meet the latest needs of the IT industry. Considering the limited number of lecturers currently assigned at the ITPM and IT Short-term Course with already having rather heavy workload, it is not sure whether the lecturers have enough time to update their knowledge. Without the latest knowledge, there are concerns that the Course will be out-of-dated and not sustain the same quality.
In addition, stable enrollment is very important for financial stability to the Department. At the time of the Terminal Evaluation, there were only 2 batches of ITSC courses and the 1st batch for the ITPM is offered and thus may be too early to come to a conclusion; however, the enrollment rate should be carefully monitored to ensure the sustainability of the management of the IT Department.

Thirdly, the achievement of Output 2 is less higher compared to other outputs. The reason behind this is that the incubator which was introduced after the Mid-term Review is still at its initial stage. As mentioned in the earlier chapter, 3 incubator rooms are occupied at this moment. At this moment, ITBU/LIBIC have mainly supported the formulation of business plan and monitored the implementation. At this moment, none of the incubatees have submitted the report to LIBIC (Incubation Center of the project) yet, including the one that started on March 2013, in spite of the rule of submitting progress report every three months. Additionally, there are not many opportunities for ITBU/LIBIC to provide the technical advice because 3 incubatees have not required the technical consultation at this moment. But in the future, it is expected that the lecturers will learn from experiences in giving advices for the actual and latest IT products of incubatees, which are important for their improvement of their own teaching and curriculum development in IT field.

Based on the findings of the evaluation, the Team recommends that the following issues should be addressed in the remaining cooperation period and thereafter.

3-2 Recommendations

3.2.1. Quality of the IT Courses:

In order to enhance the Project sustainability, IT Department needs to sustain the quality of the Courses (e.g. ITPM, Short-term Course) it offer. To meet this end, evaluation of ITPM and Short-term Courses on the lecturers as well as the overall course, including curriculum, teaching materials, equipment and others, needs to be conducted more systematically. The evaluation should be conducted in a timely manner on a regular basis with the analysis of the result given back to be shared among the lectueres without delay for future improvement.

Moreover, as the technology in the IT sector changes rapidly, it is important that the lecturers keep up-dating their knowledge in order to catch up with the latest development in IT. In addition, to ensure that the IT Courses offered by IT Department do not lose relevance, it is recommended that the curriculum be revised, at least every three years, reflecting the latest needs from the IT industry. It is also advised that when revising the curriculum, the Curriculum Board should be organized inviting all relevant personnel, including personnel from the private sector and government officials. As revision of curriculum is an important factor for Project sustainability, this point will be one of the focus areas when JICA conducts the ex-post evaluation in the future.

3.2.2. Stable Enrollment Rate with competent students:

It is important that the enrollment rate is stable with competent students enrolled each year to ensure financial stability of the IT Department. Therefore, close attention on the enrollment rate should be made, and should the enrollment rate constantly be below the quota, this problem should be solved. If needed, revision of pre-requisite for ITPM application may become necessary.

3.2.3. Incubator:

The Project introduced the concept of "incubator" for the first time in Laos, and the Lao IT Business Incubation Center (LIBIC) is still at its very initial stage at this moment. As there are no existing incubator models in Laos, using the incubator system in Thailand as a model is very useful. However, not everything from the Thailand model can be applied to Laos. Therefore, adjustment of the Thailand model into Laotian local context is essential in making the Incubator system work in Laos. How to adjust to the Laotion context is not done easily and is only done by trial and error. Therefore, there is still a long way to go and long-term commitment from the Laotian side is necessary to make the Incubator system become fully established in Laos.

3.2.4. ITBU:

ITBU is the key unit to ensure smooth operation of the Short-term Courses. During the course of the Project implementation, the Manager of the ITBU changed several times and the Manager post was even vacant for some time, thus ITBU has not reached full operation. After the Mid-term Review, the third person took the office as the ITBU Manager, and ITBU is currently re-establishing itself under the new management. Careful attention should be made on the capacity of ITBU.

3-3 Lessons learnt:

3.3.1. Human resource development in IT sector – challenging sector:

Due to the nature of the sector, developing the capacity of human resources in the IT industry requires acquiring advanced knowledge. However, in many cases, the level of knowledge and experience of the counterparts are not as high as expected. To have an effective and efficient technical transfer, it is very important to find out the exact level of knowledge and experience the counterpart possesses when designing the project. In addition, as the technology changes rapidly in the IT sector, the counterpart has to keep up-dating the knowledge even after the initial advanced knowledge is acquired. Considering these 2 points, human resources development in IT sector is rather challenging and therefore full commitment from both the counterpart agency and the development partner sides is necessary.

3.3.2. Incubator - introducing something entirely new to Laos

Since the "Incubator" system was introduced to Laos for the first time, examples from other countries' incubator system serve as a useful model. However, as the Japanese incubator system was too advanced for the Laotian side to apply into Laos, the incubator system of neighboring countries (i.e. Thailand) was chosen as a model. Not always the Japanese model is the best to be applied in the partner country. In some cases, not the most advanced model serve as a better model to the partner country. In any case, introducing something totally new to a partner country is not easy, and it takes time and requires commitment.

End

ANNEX 1-1: PDM Version 0

Project Name : The Project on Human Resource Development in IT Service Industry at the National University of Laos (NUOL) Project Period: December 1, 2007 – November 30, 2013 (Five years)

Target Group : Persons related to the postgraduate courses of IT Department of the Faculty of Engineering at the NUOL, people working for the IT service industry Date : July 24, 2008 Version : No. 0

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal IT service industry is well-developed in the Lao PDR.	1. The ratio of the IT services in the GDP is increased. 2. The ratio of the people working for the domestic IT service industry in the working population is increased.	1. Economic statistics report 2. Economic statistics report	
Project Purpose Human resources are developed according to the IT service market through the postgraduate courses by the IT Department of the Faculty of Engineering at the NUOL.	1. Evaluation of graduates and trainees working for the domestic IT service companies, governmental organizations, and IT user corporations is enhanced. 2. Evaluation of the postgraduate courses by the IT Department is enhanced from the perspectives of the human resource development. 3. The number of graduates (attending the long-term course) of the postgraduate course attains to more than XX people in the Lao PDR. 4. The number of trainees (attending the short-term course) of the postgraduate course is increased in the Lao PDR.	1. Questionnaire survey to the employers hiring the graduates and trainees 2. Questionnaire survey to the industry groups being involved in the Project 3. Achievement records of the long-term courses at NUOL 4. Achievement records of the short-term courses at NUOL	1. The governmental organizations and the IT user corporations come to order the system development, etc. to the IT service companies. 2. The improvement of communication infrastructures and the spread of IT devices are promoted. 3. Policies and related mechanisms and regulations necessary for the IT service industrial development are established and implemented.
Outputs 1. Postgraduate courses are properly operated at the IT Department of the Faculty of Engineering, the NUOL.	1-1. The recruitment, selection, evaluation of learning results, and graduation approval of students are appropriately conducted. 1-2. The lecturers' achievements in the IT Department Business Unit (ITBU) come to be highly appreciated.	1-1. Implementation records along the various types of guidelines 1-2. Lecturers' evaluation records in the ITBU	
2. The IT Department Business Unit (ITBU) is properly operated at the IT Department of the Faculty of Engineering, the NUOL.	2-1. The operational projects are appropriately managed according to the plan of the ITBU. 2-2. The ITBU comes to be able to receive works on the system development from the government and industry for profits.	2-1. Achievement records 2-2. Records of accepting order	
3. Practical skills and teaching capabilities of lecturers in charge of the postgraduate courses are enhanced in the field of the software engineering.	3-1. Satisfaction ratings (evaluation) of the lecturers are enhanced by students and trainees. 3-2. The number of the success of the system development in the ITBU is increased.	3-1. Questionnaire survey to the students and trainees 3-2. Evaluation sheets of the system development and records of accepting order	
4. Postgraduate courses for the practical software engineering and business skills are developed and implemented.	4-1. Satisfaction ratings (evaluation) of the overall postgraduate courses are enhanced by students and trainees. 4-2. The curriculums, syllabi, and learning materials are regularly updated. 4-3. The curriculum board is annually held with the external knowledgeable persons (from the government and industry).	4-1. Questionnaire survey to the students and trainees 4-2. Curriculums, syllabi, and learning materials 4-3. Records of the curriculum board meetings	
5. Collaboration among the government, industry, and academia is reinforced.	5-1. Joint seminars among the government, industry, and academia are annually held. 5-2. Lectures by the visiting lecturers from the government and industry are delivered at a constant rate.	5-1. Records of the joint seminars 5-2. Records of lectures by the visiting lecturers	

Activities	Inputs	Pre-conditions
1-1 Prepare various types of necessary guidelines and the format of the implementation records. 1-2 Prepare the TOR of the counterparts. 1-3 Establish the mechanism of the job matching between the graduates and employers. 1-4 Operate IT-related equipment. 1-5 Conduct the inventory of the equipment regularly. 1-6 Monitor the actual activities along the guidelines. 1-7 Reflect the lecturers' activities in the ITBU into the lecturers' evaluation. 1-8 Monitor the career options of the graduates. 2-1 Prepare the plans of the ITBU and the format of the achievement records. 2-2 Conduct the activities, such as sales promotion, PR activities, etc., along the plans of the ITBU. 2-3 Monitor the progress of the plans of the ITBU. 2-4 Encourage the graduates to promote new businesses (judged by the time of the mid-term evaluation). 3-1 Prepare the plan for the technical transfer to the lecturers. 3-2 Prepare the curriculum and learning materials for the lecturers' trainings. 3-3 Prepare the evaluation sheet of the system development for assessing the practical skills of lecturers. 3-4 Conduct the lecturers' trainings. 3-5 Monitor the practical skills and teaching capabilities of lecturers on regular basis. 4-1 Study the market needs in the IT service industry. 4-2 Set up the curriculum board. 4-3 Develop the curriculums, syllabi, learning materials for the postgraduate courses according to the market needs. 4-4 Evaluate the curriculums of the postgraduate courses through the curriculum board. 4-5 Conduct the postgraduate courses. 4-6 Revise the curriculums, syllabi, and learning materials on regular basis. 4-7 Study the satisfaction ratings of the postgraduate courses. 5-1 Set up the study sessions, such as the IT industrial development, cyber laws, new market exploration, etc., by the government, industry, and academia (including students & alumni association). 5-2 Conduct the symposiums, etc. by the study sessions. 5-3 Hold the joint annual seminars. 5-4 Deliver lectures by the visiting lecturers.	Japanese side 1. Personnel Experts from Japan Chief advisor Coordinator Network construction Database and programming Business unit operation Industry-academia-government collaboration Lectures for seminars Experts from the third countries 2. Training of counterpart personnel in Japan and the third countries 3. Facility construction Lecture rooms and IT laboratory 4. Provision of equipment IT-related equipment 5. Operational expenses Lao side 1. Personnel Project Director Project Manager Manager of the ITBU Full-time lecturers Part-time lecturers System administrator Administrative staff of the ITBU 2. Expense necessary for the employment of visiting lecturers 3. Provision of the project office and facilities necessary for the project implementation 4. Others Administrative and operational costs Connection charge of high-speed Internet Running costs for electricity, water, etc.	1. The circumstances in which the lecturers are able to concentrate on their duties are improved. 2. Lecturers are appropriately treated. **Pre-conditions** 1. The IT Department is properly established. 2. The definite framework of the ITBU is prepared.

Annex1-2: PDM Version 1

Project Name : The Project on Human Resource Development in IT Service Industry at the National University of Laos (NUOL) Project Period: December 1, 2007 – November 30, 2013 (Five years)
Target Group : Persons related to the ITSC of IT Department of the Faculty of Engineering at the NUOL, people working for the IT service industry Date : 2nd June, 2011 Version : No. 1
* ITSC: Information and Technology Specialist Course

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal IT service industry is well-developed in the Lao PDR.	1. The ratio of the IT services in the GDP is increased. 2. The ratio of the people working for the domestic IT service industry in the working population is increased.	1. Economic statistics report 2. Economic statistics report	
Project Purpose Human resources are developed according to the IT service market through the ITSC by the IT Department of the Faculty of Engineering at the NUOL.	1. Evaluation of graduates and trainees working for the domestic IT service companies, governmental organizations, and IT user corporations is enhanced. * Results of the 1st year graduates will be the benchmark. Questionnaire is prepared by the Project. 2. More than 80% of the graduates from ITSC will (re)start to work as the IT service engineers 3. The number of trainees (attending the short-term course) of the postgraduate course is increased in the Lao PDR.	1. Questionnaire survey to the employers hiring the graduates and trainees 2. Project record 3. Achievement records of the short-term courses at NUOL	1. The governmental organizations and the IT user corporations come to order the system development, etc. to the IT service companies. 2. The improvement of communication infrastructures and the spread of IT devices are promoted. 3. Policies and related mechanisms and regulations necessary for the IT service industrial development are established and implemented.
Outputs 1. ITSC are properly operated at the IT Department of the Faculty of Engineering, the NUOL.	1-1. Guidelines of short term courses, evaluation on lecturers, outsourcing, library use and others necessary for effective implementation of ITSC and ITBU are developed, and approved by the head of IT department. 1-2. The recruitment, selection, evaluation of learning results, and graduation approval of students are appropriately conducted.	1-1. Project record 1-2. Implementation records along the various types of guidelines	
2. The IT Department Business Unit (ITBU) is properly operated at the IT Department of the Faculty of Engineering, the NUOL.	2-1. The operational projects are appropriately managed according to the plan of the ITBU, whose results are reported to and approved by the head of IT department. 2-2. The ITBU comes to be able to receive works on the system development from the government and industry for profits. 2-3. More than 3 incubation booths at ITBU are occupied during the Project period.	2-1. Achievement records 2-2. Records of accepting order 2-3. Project record	
3. Practical skills and teaching capabilities of lecturers in charge of the ITSC and master course that is planned to be established are enhanced in the field of the software engineering.	3-1. Satisfaction ratings (evaluation) of the lecturers are enhanced by students and trainees. 3-2. The number of the success of the system development in the ITBU is increased.	3-1. Questionnaire survey to the students and trainees 3-2. Evaluation sheets of the system development and records of accepting order	

4. ITSC and master course, which is planned to be established, are for the practical software engineering and business skills are developed.	4-1. Satisfaction ratings (evaluation) of the overall ITSC are enhanced by students and trainees. * Results of the 1st year graduates will be the benchmark. The contents exclude lecturers evaluation. Questionnaire is prepared by the Project. 4-2. The curriculums, syllabi, and learning materials are regularly updated. 4-3. The curriculum board is annually held with the external knowledgeable persons (from the government and industry).	4-1. Questionnaire survey to the students and trainees 4-2. Curriculums, syllabi, and learning materials 4-3. Records of the curriculum board meetings	
5. Collaboration among the government, industry, and academia is reinforced.	5-1. Joint seminars among the government, industry, and academia are annually held. 5-2. Lectures by the visiting lecturers from the government and industry are delivered at a constant rate.	5-1. Records of the joint seminars 5-2. Records of lectures by the visiting lecturers	
Activities 1-1 Prepare various types of necessary guidelines and the format of the implementation records. 1-2 Prepare the TOR of the counterparts. 1-3 Establish the mechanism of the job matching between the graduates and employers. 1-4 Operate IT-related equipment. 1-5 Conduct the inventory of the equipment regularly. 1-6 Monitor the actual activities along the guidelines.	**Inputs** Japanese side 1. Personnel Experts from Japan Chief advisor Coordinator Network construction Database and programming Business unit operation	Lao side 1. Personnel Project Director Project Manager Manager of the ITBU Full-time lecturers Part-time lecturers System administrator	1. The circumstances in which the lecturers are able to concentrate on their duties are improved. 2. Lecturers are appropriately treated.

1-7 Reflect the lecturers' activities in the ITBU into the lecturers' evaluation. 1-8 Monitor the career options of the graduates. 2-1 Prepare the plans of the ITBU and the format of the achievement records. 2-2 Conduct the activities, such as sales promotion, PR activities, etc., along the plans of the ITBU. 2-3 Monitor the progress of the plans of the ITBU. 2-4 Encourage to promote new businesses at ITBU 3-1 Prepare the plan for the technical transfer to the lecturers. 3-2 Prepare the curriculum and learning materials for the lecturers' trainings. 3-3 Prepare the evaluation sheet of the system development for assessing the practical skills of lecturers. 3-4 Conduct the lecturers' trainings. 3-5 Monitor the practical skills and teaching capabilities of lecturers on regular basis. 4-1 Study the market needs in the IT service industry. 4-2 Set up the curriculum board. 4-3 Develop the curriculums, syllabi, learning materials for the ITSC and master course, which is planned to be established, according to the market needs. 4-4 Evaluate the curriculums of the ITSC and master course, which is planned to be established, through the curriculum board. 4-5 Conduct the ITSC. 4-6 Revise the curriculums, syllabi, and learning materials on regular basis. 4-7 Study the satisfaction ratings of the ITSC. 5-1 Set up the study sessions, such as the IT industrial development, cyber laws, new market exploration, etc., by the government, industry, and academia (including students & alumni association). 5-2 Conduct the symposiums, etc. by the study sessions. 5-3 Hold the joint annual seminars. 5-4 Deliver lectures by the visiting lecturers.	Industry-academia-government collaboration Lectures for seminars Experts from the third countries 2. Training of counterpart personnel in Japan and the third countries 3. Facility construction Lecture rooms and IT laboratory 4. Provision of equipment IT-related equipment 5. Operational expenses	Administrative staff of the ITBU 2. Expense necessary for the employment of visiting lecturers 3. Provision of the project office and facilities necessary for the project implementation 4. Others Administrative and operational costs Connection charge of high-speed Internet Running costs for electricity, water, etc.	**Pre-conditions** 1. The IT Department is properly established. 2. The definite framework of the ITBU is prepared.

ANNEX2 Evaluation Grid (Survey Result)

Terminal Evaluation of The Project on Human Resource Development in IT Service Industry at NUOL

Evaluation Criteria	Evaluation Questions		Result
	Main Questions	Sub Questions	
Achievement of the Project	Input	What was the quality, quantity and timing of Japanese Input?	<Quantity> (As for the quality and timing, see Evaluation Questions for Efficiency) 1. Japanese Experts: 3 Long-term Experts (117M/M), 18 Short-term Experts 2. Equipment: PC, projectors, IT related equipments, desks, chairs, shelves, cabinets, car, etc. 3. Local operational cost: Total JYE25,090,195 (FY2008-FY2012) (2008:JYE1,369,335, 2009: JYE2,927,112, 2010:JYE4,418,585, FY2011:JYE8,116,54, FY2012:JYE8,258,621) 4. Facility construction: Lecture rooms and IT laboratory
	Input	What was the quality, quantity and timing of Laotian Input?	<Quantity> (As for the quality and timing, see Evaluation Questions for Efficiency) 1. Laotian Counterparts: 28 counterparts (including 7 visiting lecturers) 2. Local cost (including expenses for visiting lectureres, administration and operational cost, internet, etc.) Total cost 99,119,000 Kip for ITSC, ITPM since JAN 2011 till MAR 2013 only) in adddition to the salary, electricity, water, internet cost, etc. (No other record on the local cost borne by Lao side, while acculumated balance of Short-term Course is 88,891,340Kip and accumultaed depreciation cost is 98,749,534 since 2008 til May 2013.) 3. Facility and equipment: project office, PC for Testing Center (5 units), Door roll for security, 4 units), curtain (5 units) (45,864,000 kip except for project office)
	Output	1. Is ITSC properly operated at the IT Dept. of the Faculty of Engineering, the NUOL?	Indicator 1-1. (Development of Guidelines) : Most of the Guidelines have been already developed, including that of Short-term Courses, Evaluation of Lecturers for long-term courses (ITSC/ITPM), Operation, Finance, Job Description and Employment Regulation, Regulation of Renting Facilities. Although there is no guideline for library use, format for Library Membership Card has been already developed. The rest of the guidelene development is likely to be completed by the end of the project. Indicator 1-2. (Appropriate management of Recruitment, Selection, Evaluation of learning results, Graduation approval): generally done well without serious problem.
	Output	2. Is the IT Dept. Business Unit (ITBU) properly operated at the IT Dept. of Faculty of Eng., NUOL?	Indicator 2-1. (operational projects appropriately managed): 69 Short-term Courses were conducted from November 2009 till May 2013. Evaluation by trainees on the lecturers and the course has been done with questionnaire at the final day of each course, but the information has been summarized on each course basis, and photo copies are distributed to Corse Leader (of Network or Software, depending on the module), Lecturer who taught the course and ITBU manager. However, no data is available for seeing the yearly basis average or overall trend, etc. Thus, the analysis and the feedback from the questionnaire have not been systematically made in ITBU and Lecturers teaching Short-term Courses. Basically, short-term courses are implemented at night or on weekends, which are practical modules included in the long-term course, i.e., ITSC and ITPMs. The short-term courses are open to everyone, but the most of the participants are practitioners in IT related works, and the courses are run with the participation fee from the participants, without any financial assistance from NUOL or the government, except for the initial preparation period before commencement of the course (extra salary/honorarium of lectureres for curriculum developmet, etc.). The income from the short-term courses are distrubuted among the lecturers and staff who are engaged with the courses as incentives according to the rules stipulated in the guideline, in accordance with the initial plan.

Evaluation Criteria	Evaluation Questions		Result
	Main Questions	Sub Questions	
			Indicator 2-2. (System development work for profit): ITBU has not received any system development work for profit from the government or private companies. The reasons are as follows; 1) Lecturers became too busy for other activities, although some of them are technically capable for the work, 2) the Field Work at the government and private company where students are accepted for experiencing actual work under supervision of lecturers as a compulsory subjet at ITSC/ITTPC, the opportunity of hands-on experience for the long-term course stutents are already secured, 3) Income generation by Short-term courses has been significant, so sufficient income for incentives of lecturers is already secured. Indicator 2-3.(Occupied number of Incubation booths): This indicator was added at the time of Mid-term Evaluation, with the intension to support graduates of ITSC and ex-trainees of Short-term courses who hopes to be entrepreneurs at the initial stage of their establishment of business. So far, there are no incubatees who graduated ITSC or received Short-term courses. Most of the graduates seem to look for works at large companies, but it is expected that some of them will be incubaters within 3 years or so, just like the cases in Thailand, etc., according to the interview with the project. It is expected that the lecturers will learn from experiences in giving advice for the actual and latest IT products of incubatees is important for their improvement of their own teaching and curriculum development, etc. As of early June, 2013, three incubation booths are occupied, and one entrepreneur has already concluded a contract for tehcnical advice without occupying the booth. Among the 4 incubatees, one concluded the contract with ITBU on March 2012 as the earliest, and March 2013 as the latest. Technical advices from lecturers to the incubatees have not started yet, because all the incubatees happen to have certain level of tehnical capacity and their new products already. None of the incubatees have submitted the report to LIBIC (Incubation Center of the project) yet, including the one that started on Marth 2013, inspite of the rule of submitting progress report every three months. Some of the incubatees are preson who are responsible for technical aspect of the development and sales of the new products, and the business management is regarded by their bosses, who are working at their headquarters and has no opportunity to visit LIBIC at NUOL. Thus, in this type of incubatees, consultation by LIBIC to support business skills such as business plan and management, etc. is hard to conduct.
	Output	3. Are practical skills and teaching capabilities of lecturers in charge of ITSC and master course to be established are enhanced in the field of the software engineering?	Indicator 3-1. (Satisfaction rating of the lecturers by the students and trainees at ITSC/ITPM): 1.The result of ITPM students' satisfaction rating for the lecturers in May 2013 has not shown significant improvement compared with that of 2011by ITSC students. 2. As for short-term courses, the average rating of the course by the trainees is generally something between 3 and 4 in 6 scale rating (from 0 to 5) according to the intervew with the project, while compilation of data for the average and its transition has not been conducted so far. #The number of certificates that the lecturers acquired has increased as the result of intensive trainings (Oracle SQL 11g 4, .Oracle OCA 10g 1, Oracle OCJP (Java) 2, Cisco CCNA 4.0 3, Vmware ICM 1 for commercial cirtificates, and Cisco CCNA Instructor 5, for instructor certificate, concerning with the NUOL lecturers). Indicator 3-2. (Number of success of the system development): There is none, because ITBU did not receive system developpment work from external organizations for profit, as already mentioned in Output 2 above. ## Some junior lecturers seems to have difficulties in teaching Short Courses for practitionors with actual working experiences in IT related works, due to shortage of experience, according to the interview with the project. ### In a small group interview with four graduates of ITSC who are engaged with IT related works, responding to a quesion "To what extent the knowledge and skills acquired at ITSC was useful to the present job?,"two rated 5 and another two rated 4 out of 4

Evaluation Criteria	Evaluation Questions		Result
	Main Questions	Sub Questions	
	Output	4. Are ITSC and master course, which is planned to be established, for the practical software engineering and business skills are developed and implemented.	Indicator 4-1.(Satisfaction ratings of the overall ITSC by students and trainees) : Satisfaction ratings of the overall ITSC students at the end of the course has not been conducted. According to the small group interview with the graduates of ITSC and students at ITPM, their evaluation is generally high. The graduates rated 4.5 in average at 5-scale (4 participants). The 1st year student of ITPM mostly percieve the course good, although some comments were made on the shortege of some lecturers' experience. However, the sample size is too small to generalize. As for Short-term course, the rating in the questionnaire is generally between 3 and 4 at 6 scale rating according to the interview with the project. Indicator 4-2.(The curriculum, syllabi and learning materials regularly updated): updated with supervision of Japanese experts. Indicator 4-3.(The curriculum board annually held with external resource person): Curriculum Board was convened annually; once a year in 2011 and 2012, with participatoin of ministries and private companies. However, participation from the ministries concerned is rathre limited.
	Output	5. Is the collaboration among the government, industry and academia reinforced?	Indicator 5-1.(Joint seminars with the government, industry and academia annually held): Study sessions, aiming at having opportunity to know the current situation of IT industry in Laos with participation from government, industry and academia were held 4 times, i.e., once a year starting from 2009 till 2012. The number of the participants drastically increased to 47 in 2010, but cntinuously decreasing since 2011, with significant decrease of participation of government sector in 2012. Indicator 5-2.(Lectures by the visiting lectures from the govemment , industry delivered constantly): 4 visiting lecturers (2 from government and 2 from industry), among 8 who passed the tests in the technical transfer from Japanese experts and accepted as visiting lecturers by the project, have taught at Short-term courses and ITSC/ITPM. However, the modules that the visiting lecturers taught are not special/expra modules/seminars, but the same activities already included in Output 2 and Output 4. Symposium that is shown in PDM was not conducted.
	Project Purpose	Are human resources developed in accordance with the IT service market needs through ITSC by the IT Dept. of the Faculty of Eng. At the NUOL?	Indicator 1(evaluation of the course by the graduates and trainees): According to the telephone interview by the project with 11major companies that hire graduates of ITSC, covering 48 graduates out of 59 in total, the evaluation of the graduates was rated as 3.7 in average at 5 level rating (5: very good, 4: good, 3: fair, 2: poor, 1: very poor) among 10 companies who gave reply in the rating (excluding 1 company which did not answer the rating question) . Although it is mentioned in the Indicator-1 of Project Purpose that the evaluation result for the 1st badge of ITSC will be the benchmark, the evaluation was not conducted for the 1st Badge graduates. Hence, the project conducted monitoring for this indicator in June 2013 for both of the 1st and 2nd badge students together. # ETL, a public corporation that hire the largest number of the ITSC graduate, i.e., 16 graduates fro the last 2 years, observes the quality of ITSC graduates is higher than the graduates of other domestic universities and education/training institutions, but lower than the graduates of universities abroad. There is no difference in quality of the graduates depending the year they graduates, according to the interview. Indicator 2(More than 80% of the graduates from ITSC work as IT engineers): The ratio of the graduates of ITSC who are engaged with ITrelated work is 95%, i.e., 59 persons out of total 62 graduates for the last two badges. Indicator 3(The number of trainees of the Short-term Courses increases): The total number of the participants is 774 as of May, 2013, while 605 passed, 167 failed the exam of the courses (2 are now waiting for the result). The number of the courses and participants has been increasing since 2009, showing remarkable increase in 20012, while the ratio of increase seems to be decreasing in 2013.

Evaluation Criteria	Evaluation Questions		Result
	Main Questions	Sub Questions	
Implementation Process	Activities	Progress of activities	Activities were mostly conducted as scheduled, except for 1) the system development work from external organization for the sake of reflecting the technical needs into curriculumn, and to generate income as incentives for lecturers, and 2) simposium for strengthening collaboration among the government, industry and academia. As mentioned in Output 2 above, those aims were already achieved by other actions (fieldwork and short-term course), there is no negative effect to the project.
	Monitoring system	Monitoring system	Monitoring was made based on 1) the weekly meeting among the managerial level, and 2) sectoin-level. Each manager reports the results of the weekly meeting at the manegerial level weeky meeting, to get advice from Japanese experts and Project Manager.
	Ownership of C/P	Participation and ownership of the counterpart team	Most of the activities are now done by counterparts, with the support of Japanese experts such as establishing initial set-up in basic framework and fomat, allocation of work in updating teadhing materials, giving advice on technical and manegerial aspects including of all the major activities such as ITSC/ITPM, Short-term courses and Incubation actiities..
Relevance	Conformity of the Project objectives to the Beneficiary's Needs	Is fostering IT specialists with high level skills (Network, Database, Application Development, Project Management, etc.) to be an immediate assets to firms in line with the need of Laotian Industry?	1. Basically, it matches the needs of the industry in Laos. Practical skill is regareded to be very important by the companies, as the university graduates do not have practical knowledge and skill so that they do not function as the immediate assets to firms in Laos, being in need of further training. 2. There seems to be needs of practitionors in industy and government for master course, as the salary is increased if master's degree is acquired. About 80% of the students of ITPM 2013 are the practitionors (7 from industry, 8 from univesitites incl.1 from NUOL, 1 from college out of 20 in total for Day-time course) and 20% (4 students) are those who are straightly enrolled from the undergraduate level. ITSC was in line with the new graduates from universities, while ITPM, the master course, in lince with the practitionors working for companies of certain size and government or public sector, who can expect salary increase with the higher degree. 3. There are some concern that the demand for master level graduates is not so significant in number from the side of industry. The Laotian industry needs those with practical skills, and not make much of theory-oriented newcomers.. 4. Two years course is regareded to be too long by the industry. The change in duration of the long-term course from 1 year to 2 years are not welcome by the industry, because 1) scholarship costs double, 2) the cost for sending the staff doubles, and 3) most of the works does not require academic knowkedge. 5. There is information that the demand for creative skills like graphic design, non-network related security engineers are increaseing, while soft skills like sales and markating skills are incresingly required
		Do the ITSC match the needs of the target group? (Participants and ex-participants of Long-term and Short-term Courses)	The long-term course (ITSC/ITPM) is popular among applicants, because 1) it has reputation of giving practical education that leads to advantage for getting work, 2) it has more equipment that the students can use compared with other domestic universities/institutions, 3) it has experienced lecturers, etc, according to the interview with graduates and students.
		Is the project direction in line with the NUOL's policy?	It matches the direction of NUOL, as is shown in NUOL ICT Master Plan, to become the national focal point for ICT Human Resource Development in order to drive the county towards the knowledge based society aby year 2020.

Evaluation Criteria	Evaluation Questions		Result
	Main Questions	Sub Questions	
	Conformity of the Project objectives with the Laotian Government Policy	Is enhancement of IT Service Industry highly prioritized by the Laotian government?	Enhancement of IT Service Industry as well as IT itself are highly prioritized by the government, which are shown in the followings; 1. The Seventh Five-year National Socio-Economic Development Plan (2011-2015) (1) Post and telecommunication: Promote infrastructure development in postal services, telecommunications and high-speed Internet in order to modernise this sector for augmenting socio-economic development as well as be a link-point in the region and the world., 2)Education: To develop human resources in a variety of fields, including skilled labour, mechanics, technicians, engineers, managers, executives and others. , in order for them to have a secure job and be able to compete in labour market) 2. The ICT National Policy (officially issued in 2009 by NAPT and still valid) (This policy places the importance on human resources development in IT sector as well as development of IT sector industries 3. ICT Poicy and ICT Master Plan for Education up to 2020 (stipulates "developing competence in the use of the technology and in the seign, production, use of ICT-based instructional materials and use of appropriate and innovative information technologies as tools in education adn training," and "the HRD of IT manpower for the National Economic Development" is included.) 4. ASEAN ICT Master Plan (The ASEAN ICT Masterplan 2015 (AIM2015) was launched on January 2011 at the 10th ASEAN Telecommunications and IT Ministers Meeting in Kuala Lumpur, Malaysia. AIM2015 is a roadmap that charts the development of the ICT sector in ASEAN over the next five years (2011- 2015) and will harness the transformational potential of ICTs in creating an inclusive, vibrant, and integrated ASEAN Community.)
		Is human resources development of IT service Industry highly prioritized by the Laotian government?	1. Human resources development in IT sectors is highly prioritized 1) The Seventh Five-year National Socio-Economic Development Plan (2011-2015) (1) Post and telecommunication: Develop the capacity of personnel in the post, telecommunication and Internet sectors to meet international standards" as Measures in Post and telecommunications, 2) Education: human resources development of engineers are included in the Education sector of the 7th NSEDP as mentioned above. 2. All the major ministries including the project, including Ministry of Post and Telecommunications, Ministry of Science and Technology, Ministry of Education and Sports and Ministry of Industry and Commerce make much account of human resources development in IT field, according to the interviews.
	Conformity of the Project objectives with Japan's ODA Policy	Is supporting enhancement of IT Service Industry in Laos highly prioritized by the Japanese government/JICA?	1. MOFA's Country Assistance Policy to Laos (2012) (In the six pillars of major assistance toward Lao PDR, support in higher education and technical and vocational education are included in the third pillar, i.e., "establishment of educational environment and human resources development." 2. JICA's assistance policy to Laos (Among the four major pillars, the third pillar, i.e., establishment of educational environment and human resources development, includes higher education and technical edukation for the sake of strengthening private sector.

Evaluation Criteria	Evaluation Questions		Result
	Main Questions	Sub Questions	
		Is the support to human resources development of IT service Industry highly prioritized by the Japanese government/JICA?	1. MOFA's Country Assistance Policy to Laos (2012) (In the six pillars of major assistance toward Lao PDR, support in higher education and technical and vocational education are included in the third pillar, i.e., "establishment of educational environment and human resources development." 2. JICA's assistance policy to Laos (Among the four major pillars, the third pillar, i.e., establishment of educational environment and human resources development, includes higher education and technical edukation for the sake of strengthening private
	Appropriateness of the project as a means	Was it appropriate to focus on fostering IT specialists with highy practical skills (Network, Database, Application Development, Project Management, etc.) to be immediate assests to improve IT industry in Laos?	1.There is need for all the level of IT related workers. However, HRD of IT specialiss with practical skills were and are not be able to cover by existing Laotioan educational/training institutions in spite of the needs from industries. Therefore, it is regarded to be right selection to focus on IT specialists (Network, Database, Application Development, Project Management, etc.) 2. There is information, however, that for the last two years, the demand in IT sectors is slightly changing, and the demand for creative skills like graphic design, non-network related security engineers are increaseing, while soft skills like sales and marketing skills are incresingly required.
		Was it appropriate to choose NUOL as the counterpart organization for fostering IT specialist with highly practical skills (Network, Database, Application Development, Project Management, etc.) to be immediate assests to IT industry?	1. NUOL has the longest history among all the national universiteis in Laos with 11 faculties and 6 centers at 8 campuses in Vientiane, which has pamerdhip with the Grater Mekong Sub-region Academic and Research Network (GMSARN) and ASEAN University Network (AUN, or Seednet). Thus, it is regarded to be appropriate by the related ministries to choose NUOL as the counterpart organizaion of the project. 2. There is no other national/public university or training institution which can play the role of c/p organization for this kind of project in Laos, in terms of quality and quantity of IT education among governmental/public organizations. 3. The 3.Because IT Department of FE, NUOL was chosen as the c/p organization, ITSC was upgraded into master course from Jan. 2013, according to the policy of NUOL to establish masters course for every department of the faculties. Because of this change, the education provided by the long-term course by the project/IT Department matches the demand of the prctitioners already engaged in the IT industry (possibly lmedium to larager sized companies) or the government, who seek for promotion in thier orgainization. On the other hand, it might be less matching with the demand of thethe companies which hope to hire IT specialists who can be an immediate assets with practical skills with minimum cost of scholarship and minimu length of study
		Does Japanese technology have comparative advantages?	Japan has predominance in IT from the view points of the followings; 1) the highest quality of software in the world, 2) qualification system of IT specialists, that is virtually Asian standard already, 3) JICA has abundant experiences in IT projects in Indonesia, Myammar, Kyrgyzstan, Ruwanda, etc.
Effectiveness	Achievement of the Project Purpose	See "Achievement of the project (Project Purpose).	
	Achievement of the Outputs	See "Achievement of the project (Outputs).	

Evaluation Criteria	Evaluation Questions		Result
	Main Questions	Sub Questions	
	cause-effect relationship	Is the achievement of Project Purpose attributed by achievement of Outputs?	1. The achievement of the project purpose is basically attributed to the outputs of the Project Purpose, since there was no other external support from other donors and new program by Laotian government to IT Dept. during the project period. 2. On the other hand, the feedback and reflection from each Output has not been intensionally and systematically made, and the mechanism of reflecting the experiences and findings through interation with IT practitioners by teaching at Short-term and Long-term courses, supervising the fieldwork at the government and private companies and giving technical advices to Incubatees, etc. The result of the questionnaire survey at Short-term courses are not compiled for analysis of finding out the points to be improved. The lecturers have not experienced giving technical advices to the incubatees as they happen to have the sufficient technology and new products already
	Contributing /Hindering Factors to Project	Contribution of Outputs' achievement (including ITBU, Output 2) to Project Purpose	No specific Output which especially contributed to or hinderd the achievement of the project purpose, except for Incubation component in Output 2, which have not yet cotributed to Project.Purpose, i.e., IT specialists who meet the needs of industry are fostered.
		Influence of Important Assumptions/external conditions	Nill.
Efficiency	Achievement of the Outputs	See "Achievement of the project (Outputs).	
	Actual Input from Japan and Laotian sides	See "Achievement of the project (Inputs).	
	Appropriateness of inputs from Japanese side	Were there no needless/execcive/unutilized inputs?	No needless/excessive/unutlilized input was observed.. Moreover, the following points contributed to minimizethe the cost to attain the same quality and quantity of Outputs; 1) minimizing dispatchment of Short-term Japanese Experts by utilizing the third coutry experts such as Singapore, with securing the same quality of required technical transfer to the counterparts, 2) Ulilizing academic programs such as Microsoft Academy (700USD/Y), Oracle Academy (500USD/y), CISCO Academi (free of charge), VMWare Academy (free of charge), etc., which share about two thirds of the total meaching materials. These materials are of high quality at international standard, can be distibuted to students, and are automatically updated, so that the lecturers do not consume time for updating, while the high quality is secured, and 3) as for the rest of the teaching materials (one third), those developed by another IT projects supported by JICA in Myammer and Kyrgyzstan. Thus, time for updating teaching materials are reduced with high quality of experts and teaching materials.
		Was the expertise of Japanese experts fully utilized for the technical transfer to the teaching staff at NUOL?	The expertise of Japanese experts was fully utilized for the technical transfer for the counterparts.
		Did the counterpart training in Japan contribute to achievement of the Outputs?	No counterpart training in Japan was conducted in this project, in an effort to minimize the cost while securing the same level of Output, as mentioned avove.

Evaluation Criteria	Evaluation Questions		Result
	Main Questions	Sub Questions	
	Appropriateness of inputs from Laotian side	Were the assignment of counterpart lecturers appropriate in terms of quality, quantity and timeliness?	The number of the lecturers is insufficient.
		Was the assignment of managerial personnel (including those related with ITBU) appropriate?	The assignment of the ITBU Manager was not appropriate. During the cooperation period, the post had been vacant for 2 months, and the current manager is the third person in the position. It is pointed out that securing capable administrative manager with the salary level of national uniersities, as capable persons tend to work for private companies that pay higher salary. .
		Was the quantity, quality and the timeliness of the provision of building, facilities, equipment and supplies appropriate?	Securing equipment and supplies with timeliness was not so sufficient, due to lack of budget.
		Were the quantity of budget and timeliness of disbursement appropriate?	The disbursement of the budget was not appropriate, because sometimes it was not made in spite of its previous acceptance due to lack of budget. Even purchasing five PC was not possible.
		How did utilization of ex-participants of short courses as lecturers work?	N/A
	Contributing /Hindering Factors to Outputs	Were there any factors which contributed or hindered achievement of Outpus?	The following factors affected negatively against achieving Outputs; 1) insufficient basic capacity of lectures, 2) cultural background in which reflection of evaluation on lecturers does not function as incentives, insufficient capacity of administrative staff with the limited budget of university.
Impact	Probability of achieving Overall Goal	What is the probability of achieving the Overall Goal within 3 years after project termination?	It is not probable to increase the ratio of IT servises in the GDP, and the ratio of the people working for the domestic IT service industry in the working population by producing graduates of ITSC/ITPM, thinking about the size of the graduates per year (62 graduates as of June 2013, 21 graduates of 1st ITPM Day-time course in Aug. 2014 (The trainees of Short-term courses and the students of the night course of ITPM are practitioners already engaged with IT related work, which does not influence increase in the number of IT workers). Suppose the same number of students are enrolled at ITPM for its 2nd and 3rd Badges, the total number of graduats from the beginning till 2016 will be 125 graduates. The setting of the overall goal was too high.
	Ripple effect on Social/ Technical	Has the project given influence on the IT industry?	No significant impact has been observed yet.
		Has the project given influence on other departments/faculties, etc. of the NUOL?	The following positive influence are observed at the undergraduate education at FE, NUOL, as the result of the project implementation; 1) Enhancement of Undergraduate level education (as the knowledge, skiills and teaching capacity of the lecturers are enhanced, and the same teaching materials are utilized at the graduate level of IT Department), 2) revision of Curriculum of Undergraduate education (due to enhancement of master course education as well as capacity of teaching staff, some of the modules at the master level which should have been taught at the undergraduate but could not because of insufficient capacity in the past, will be transferred to undergraduate curriculumn from September this year . 3. Satisfaction rating of lecturers by students has been introduced at Undergraduate Level, FE
	Negative Effects	Has there been no negative effects by the project?	No negative impact was observed.

Evaluation Criteria	Evaluation Questions		Result
	Main Questions	Sub Questions	
	Ripple effect on Policy aspects	Has the project given influence on the government poicy of Laos?	Incubation study tour to Thailand in FEB/MAR 2013 led to the understanding of the concept and importance of incubation to the participants, that consists of C/P at NUOL, government officers responsible for human resources development of IT and SME promotion of the related ministries and representative from industry. Discussions and proposal-making have begun among the ministries on promoting incubation system in Laos regardless of the sectors.
	Other ripple effects/ negative	Are there any unexpected positive/negative impacts?	N/A
Sustainability	Policy/System	Will the Laotian government continue to highly prioritize IT service industry and its human resources development?	The direction of promoting IT and its human resources will continue, as the government is going to step forward to realize e-government, e-commerce, e-.education, etc, which might take time but may not be totally reverse.
	Organization, Finance	Is it possible for ITDept. Of NUOL to secure the lecturers required to continue activities after the project termination?	It is likely that the most lecturers will stay at the university. The concerns mentioned However, there are some concerns such as 1) the salary gap between the lecturers and the graduates, and 2) the burden of work to teach at master course, short-term course, extra teaching work for following other lecturers who study abroad and other administrative works make the preparation and study time of the lecturers shorter, which might lead to the decrease in quality of the class. And once the quality of the classes is decreased, it will lead deteriorate the reputation, and possibly reduce the number of applicants, which will result in the shortage of budget.
		Will IT Dept. of NUOL be able to secure the necessary budget for continuing its activities after the project?	1. The budget of NUOL for IT Dept. of FE is for the salary of lecturers and staff, electricity, water, etc. The rest of the cost for conducting project activities have been paid from the income generated by tuition of the Long-term (ITSC/ITPM) and Short-term courses. The salary of staff from the government budget seems to be maintained,because 1) the government is now putting emphasis on higher education and proceeding higher education reform, 2) NUOL is the core national university with the longest history in the country, and 3) Ministry of Education of Sports perceives thta fostering IT specialist is essential. Thus, most importantn element is the probability of securing and/or increasing the tuition fee of the ITPM and Short-term courses. 2. There are some concerns on the future situation of the tuition fee such as 1) IT Department did not meet the quota in the 1st Badge of ITPM (33 students against 42 quota), 2) the rato of increase in Short-term term courses is decreasing compared with the last year, 3) the number of scholarship from private companies is decreasing. Unless the number of students and trainees of both courses are maintained, the running cost of the courses will not be secured, but no specific action has been taten so far to overcome the difficulties above.
		Has the management system of ITSC and ITBU for continuing the activities after the project sufficiently	The management system cannot be deemed to be fully established. There are concerns in terms of either managemetn capacity or continuabiity of managerial personnel in the future. Assignment of capable manager and finding out some incentive for capable personnel would be essential for securing sustainability.
		Will IT Dept. of NUOL be able to continue curriculum committee with the support from the industry and the government?	It would be able to continue curriculumn committee, as the basis for communication with related ministries, private companies are already founded. However, the number of participants who attend the committee is decreasing since 2012, especially those from the government.

Evaluation Criteria	Evaluation Questions		Result
	Main Questions	Sub Questions	
		Will the network continue to be strengthened among the industry, government and academia in Laos?	In terms of the financial feasibility, the volume of the activities such as study sessions on the latest situation of IT industry, etc. might be reduced in the future.
	Technologies	Has the lecturers at IT Dept. of NUOL already acquired sufficient technical and teaching capacity to continue ITSC and ITBU (including updating learning materials, etc.)	The teaching capacity of lecturers is regarded to be mostly sufficient for teaching the courses. However, as the speed of technology chanege in IT sector is very rapid, there are concerns whether lecturers can keep up with the rapid change by themselves after termination of the project. Since the quolity of education highly depends on the quality of lecturers, and meeting the needs of Laotian industry which is also quicky changing, keeping up with the latest change in IT industry's needs is essential for the IT Department of NUOL. If the reputation and satisfaction level from the industry is decreased, the reputation of the Department among the students and candidates of trainees in IT industry will also be detereorated, resulting iin the decrease of new students. In case of IT Department, NUOL, the decrease of tuition will directly lead to the shortage of budget for running ITPM and Short-term courses.
		Will the IT Dept. of NUOL be able to maintain and its equipments after the project termination?	There shoud be no serious problem for the maintenance of equipment after termination, as the depreciation cost for short-term course is acculumated. However, the maintenance of the equipment for ITPM might have a problem in terms of budget, if the total amount of tuition fee will decrease due to the students number.
	Society	Will the IT Dept. of NUOL be able to continuously secure sufficient number of new students with required level of quality?	The demand from the students will continue as far as it Dept. keep receiving good/certain reputatoin from the industry as wel as the government. The students for night time course will be secured in the future,as they are mostly IT related workers or government officers who can pay by themselves or whose organization pay. Those for day time course might decrease if the scholarship from companies is decreased.
	Others	Other than above, are there any contributing and/or hindering factors for IT Dept. of NUOL to continuously fostering IT specialists who matches the	Nill.

ANNEX 3-1 List of Equipment Provided by JICA
(As of 23, May 2013)

No.	Mode of Procurement	Starting Month & Year of Use	Name of Equipment	Number of Equipment	Remarks
1	Local Procuremnt	2009-03	LCD Projector (Epson EMP-1714)	1	
2	Local Procuremnt	2009-03	Still Digital camera (Panasonic DMC-FX37)	1	
3	Local Procuremnt	2009-03	4GB SD card (Lexear SDHC)	2	One of them has been out of order and discarded.
4	Local Procuremnt	2009-03	Digital Video camera (Canon FS9)	1	
5	Local Procuremnt	2009-03	Copier (Ricoh Aficio 1999Le)	1	
6	Local Procuremnt	2009-03	PC server (Dell PowerEdge TM T100)	1	
7	Local Procuremnt	2009-03	Lap Top Computer (Dell Vostro 1510)	14	
8	Local Procuremnt	2009-03	DeskTop computer (Dell Vostro 220 mini tower)	1	
9	Local Procuremnt	2009-03	Security Wire (Tergus Defcon CL)	15	
10	Local Procuremnt	2009-03	24 port Hub (ZyXEL GS-1124)	2	One of them has been out of order.
11	Local Procuremnt	2009-03	APC Back up UPS (800VA)	8	
12	Local Procuremnt	2009-03	Color Laser printer (Canon LBP5960)	1	
13	Local Procuremnt	(n.a)	Books	11	
14	Local Procuremnt	2009-05	Lap Top Computer (with bag) (HP IDS 15.6GM47 UMA 4510s NB PC)	13	These Equipements have been stallen on July 2010.
15	Local Procuremnt	2009-05	Security Wire Lock (Targus Defcon Cable LockPA410B)	13	These Equipements have been stallen on July 2010.
16	Local Procuremnt	2009-05	Scanner (A4 with Sheet feeder) (Epson GT 2500)	1	
17	Local Procuremnt	2009-05	Portable LCD projector (Epson EMP 1715)	1	
18	Local Procuremnt	2009-06	Router (with security function) (CISCO 1841)	4	
19	Local Procuremnt	2009-06	Serial I/F card for Router (WIC-2A/S)	4	
20	Local Procuremnt	2009-06	Serial cable for Router (male) (CAB-SS-V35MT)	4	
21	Local Procuremnt	2009-06	Serial cable for Router (female) (CAB-SS-V35FC)	4	
22	Local Procuremnt	2009-06	1 port Ethernet card (WIC-1ENET)	2	
23	Local Procuremnt	2009-06	Network Switch (WS-C2950-24TT-L)	6	
24	Local Procuremnt	2009-06	Wireless N-Broadband Router (WRTS4GL Linksys)	7	
25	Local Procuremnt	2009-06	Lap Top Computer (Toshiba Satelite Pro LS10-B450)	26	
26	Local Procuremnt	2009-06	mouse (Toshiba Optical Tiltwheel)	26	
27	Local Procuremnt	2009-06	LCD projector (Aser)	3	
28	Local Procuremnt	2009-06	Monocrome Laser network printer (A4) (Epson AcuLaser M2010DN)	4	
29	Local Procuremnt	2010-12	IT center (RC,40mx16m)	1	
30	Local Procuremnt	2010-11	Desktop PC (Acer Veriton M490G)	27	
31	Local Procuremnt	2010-11	Photo Copier (A3) (Canon 2318L)	1	
32	Local Procuremnt	2010-11	Monochrome Laser network printer (A4) (Canon Laser Shot LBP 6300)	1	
33	Local Procuremnt	2010-11	Steel Desk (Leeco BD-147 CH)	4	
34	Local Procuremnt	2010-11	Office Chair (Leeco LSC-411)	7	
35	Local Procuremnt	2010-11	Drawer Cabinet (Leeco BD-045 B)	2	
36	Local Procuremnt	2010-11	Steel Locker (Leeco LK-106)	8	
37	Local Procuremnt	2010-11	Lecture Chair (Siam Steel MGN)	54	
38	Local Procuremnt	2010-11	Stacking Chair (Siam Steel LTS-80 A)	77	
39	Local Procuremnt	2010-11	Stacking Chair (Siam Steel CM-128)	12	
40	Local Procuremnt	2010-11	Polypropylene Stacking Chair (Nat CP-02C)	10	
41	Local Procuremnt	2010-11	Folding Table (Nat TF-2460)	79	
42	Local Procuremnt	2010-11	Steel Desk (Siam Steel TEC 70100)	12	
43	Local Procuremnt	2010-11	Meeting Table (Mono PTO-310)	1	
44	Local Procuremnt	2010-11	Cupboard set (Leeco SLG+SLS+SLB-0303)	1	

45	Local Procuremnt	2010-11	Book Shelf (Siam Steel SB-3072)	6	
46	Local Procuremnt	2010-11	Book Shelf (Nat S-205)	5	
47	Local Procuremnt	2010-11	Magazine Shelf (Nat S-001)	1	
48	Local Procuremnt	2010-11	Storage Shelf (Nat S-103)	13	
49	Local Procuremnt	2010-11	Cabinet (Leeco CB-02)	3	
50	Local Procuremnt	2010-11	Shoe Shelf (order-made)	13	
51	Local Procuremnt	2010-12	air condition (n.a)	29	
52	Local Procuremnt	2011-04	Desktop PC (Acer Veriton M490G)	15	
53	Local Procuremnt	2011-04	Desktop PC (Acer Veriton M490G)	10	
54	Local Procuremnt	2011-04	LCD Multimedia Projector (Epson Powerlite 1735W)	1	
55	Local Procuremnt	2012-02	Note Computer Satellite (ToshibaP745-1001X)	14	
56	Local Procuremnt	2012-02	Rack mount server (DELL Power edge R710)	1	
57	Local Procuremnt	2012-02	UPS (CS Liebert PSI 2200VA)	1	
58	Local Procuremnt	2012-01	Printer (Canon Laser MF-4570dn)	5	
59	Local Procuremnt	2012-02	Base Router (Cisco 1941)	5	
60	Local Procuremnt	2012-02	Security Router (Cisco 1941-SEC/K9)	10	
61	Local Procuremnt	2012-02	Serial WAN card (Cisco HWIC-2T)	15	
62	Local Procuremnt	2012-02	Serial WAN cable (DTE side) (Cisco CAB-SS-V35MT)	15	
63	Local Procuremnt	2012-02	Serial WAN cable (DCE side) (Cisco CAB-SS-V35FC)	15	
64	Local Procuremnt	2012-02	Network switch (Cisco WS-C2960-24TT-L)	15	
65	Local Procuremnt	2012-03	Notebook PC (Dell Inspiron N5110i7-2670QM)	5	
66	Local Procuremnt	2012-03	CAR (Mitsubishi Triton Pick up)	1	
67	Local Procuremnt	2004-01	Open rack	1	
68	Local Procuremnt	2004-03	Open rack	1	
69	Local Procuremnt	2008-12	Safety Box	1	
70	Local Procuremnt	2011-02	LANcable testor	1	
71	Local Procuremnt	2011-03	Desk	1	
72	Local Procuremnt	2011-03	Surge protector	1	
73	Local Procuremnt	2011-10	Metal Triple drawer (Leeco)	1	
74	Local Procuremnt	2011-10	Metal Triple drawer (Leeco)	3	
75	Local Procuremnt	2011-11	Metal Book Storage(Leeco)	1	
76	Local Procuremnt	2011-12	APC SMART UPS RACKMOUNT 2200VA 2U with APC UPS Network Management Card	2	
77	Local Procuremnt	2011-12	Surge protector	1	
78	Local Procuremnt	2011-12	Educational Material of MS IT Academy	1	
79	Local Procuremnt	2012-01	Computer (Notebook)	21	
80	Local Procuremnt	2012-01	Metal Cabinet(Leeco)	2	
81	Local Procuremnt	2012-02	Metal Desk(Leeco)	3	
82	Local Procuremnt	2012-02	Metal drawer (Leeco)	3	
83	Local Procuremnt	2012-02	Metal Cabinet(Leeco)	6	
84	Local Procuremnt	2012-02	TV Monitor on Reception	1	
85	Local Procuremnt	2012-02	Server of Monitoring Camera	1	
86	Local Procuremnt	2012-02	LCD Projector	1	
87	Local Procuremnt	2012-02	Microphone	1	
88	Local Procuremnt	2012-03	Switch	1	
89	Local Procuremnt	2012-03	Base router	1	
90	Local Procuremnt	2012-03	Switch	2	
91	Local Procuremnt	2012-03	LCD Projector	1	
92	Local Procuremnt	2012-08	Surge protector	1	
93	Local Procuremnt	2012-08	Cover for roof rack of cars	1	

94	Local Procuremnt	2012-08	Metal Cabinet(Leeco)	4	
95	Local Procuremnt	2012-11	Metal Cabinet(Leeco)	1	
96	Local Procuremnt	2012-11	Educational Material of MS IT Academy	1	
97	Procuremnt in a Third Country	2009-09	Cisco Networkrouter	18	
98	Procuremnt in a Third Country	2009-09	Serial WAN Card for Cisco Networkrouter	18	
99	Procuremnt in a Third Country	2009-09	Serial WAN Cable for CiscoNetworkrouter(DTE)	18	
100	Procuremnt in a Third Country	2009-09	Serial WAN Cable for CiscoNetworkrouter(DCE)	18	
101	Procuremnt in a Third Country	2009-09	Cisco Networkswitch	15	
102	Procuremnt in a Third Country	2009-09	Cisco wireless LANrouter	10	
103	Procuremnt in Japan	(n.a)	King Office	1	
104	Local Procuremnt	2013-02	PC for LIBIC	1	
105	Local Procuremnt	2013-02	PC for LIBIC	1	
106	Local Procuremnt	2013-02	Drawer for Office Space(Leeco)	1	
107	Local Procuremnt	2013-02	Drawer for Office Space(Leeco)	1	
108	Local Procuremnt	2013-02	Drawer for Office Space(Leeco)	1	
109	Local Procuremnt	2013-02	Desk for Office Space(Leeco)	1	
110	Local Procuremnt	2013-03	Board for IP Phone System	1	
111	Local Procuremnt	2013-03	Projector	1	
112	Local Procuremnt	2013-03	Projector	1	

ANNEX 3-2 List of Lao Counterparts

No	Organization	Position	Title	Name
1	ITSD	Manager	Mr	Somphone KANTHAVONG
2	ITSD	Secretary	Ms	Nichitta BOUNTHONG
3	ITBU	Manager	Ms	Sengmany XAYASENG
4	ITBU	Staff	Ms	Manithda THAVONGCHIT
5	ITBU	Staff	Ms	Theva SIVONGKHAM
6	LIBIC	Manager	Ms	Thavisone MOUNLASANE
7	LIBIC	Staff	Ms	Viengratsamee PHOUMILAY
8	ITPM	Software Lecturer	Mr	Khamphet BOUNNADY
9	ITPM	Software Lecturer	Ms	Vimontha KHIEOVONGPHACHANH
10	ITPM	Software Lecturer	Mr	Sithiphone PHANDALA
11	ITPM	Software Lecturer	Ms	Thipkesone BOUNNAKHOM
12	ITPM	Software Lecturer	Mr	Sanouphab PHOMKEONA
13	ITPM	Software Lecturer	Mr	Phonexay VILAKONE
14	ITPM	Network Lecturer	Mr	Senglathsamy CHANTHAMINAVONG
15	ITPM	Network Lecturer	Mr	Khamxay LEEVANGTOU
16	ITPM	Network Lecturer	Mr	Chaxiong YUKONHIATOU
17	ITPM	Network Lecturer	Mr	Malarn PHETSAVONG
18	ITPM	Network Lecturer	Mr	Sackda SACKBOUAVONG
19	ITPM	Network Lecturer	Mr	Sittiphong OUNSAVANH
20	ITSD	Librarian	Ms	Chanthasone PHONNASANE
21	CE&IT	Network Visiting Lecturer	Mr	Seumsak DOUANGSILA
22	CE&IT	Network Visiting Lecturer	Mr	Khamphao SISAAT
23	Ministry of Science	Network Visiting Lecturer	Mr	Sirithip SOUKSAVAT
24	Planet Online	Network Visiting Lecturer	Mr	Souphonh PHOUNSAVATH
25	ADB	Network Visiting Lecturer	Mr	Khamla KITTIPHANH
26	BCEL	Software Visiting Lecturer	Mr	Mr. Anouphab PHOUNSAVATH
27		Software Visiting Lecturer	Mr	Mr. Nanthchak KHAMHUNG

ANNEX 3-3 List of Training for Counterpart

Number	Name	Period of Dispatch		Contents of Training	Belonging Organization in Japan/Third Country
		Start	End		
1. Training conducted by Short-Term Experts from Japan					
1	Mr. Yasumitsu ISHIKAWA	19/02/2009	24/03/2009	Database Administration,LAMP	JDS
		24/05/2009	02/07/2009	Database Administration,LAMP	
		30/08/2009	16/10/2009	Database Administration,LAMP	
		27/01/2010	18/03/2010	Database Administration,JAVA	
		13/06/2010	01/08/2010	Database Administration,JAVA	
		15/02/2011	18/03/2011	Database Administration,JAVA	
		19/06/2011	12/08/2011	Database Administration,JAVA	
		19/02/2012	17/03/2012	Database Administration,JAVA On Android	
		24/06/2012	12/08/2012	Programing and Database	
		17/02/2013	17/03/2013	Programing and Database	
2	Mr. Yoichi KOGURE	09/08/2009	26/08/2009	Server Administration	JDS
		31/01/2010	04/03/2010	Server Administration	
		09/05/2010	09/06/2010	Server Administration,LAMP	
		29/08/2010	29/09/2010	Server Administration,LAMP	
		14/02/2011	18/03/2011	Server Administration,LAMP	
		22/01/2012	11/02/2012	Information Security,Cloud Computer	
		04/11/2012	25/11/2012	Network and Server Administration	
3	Ms. Kiyomi Eguma	13/02/2011	24/02/2011	Teamwork/Leadership	JDS
2. Training conducted by Lecturer from Third Country					
1	Mr.Samsul KASAN	20/09/2009	27/09/2009	CCNA D1	ITE College West, Singapore
2	Mr.Vincent Poh	27/09/2009	04/10/2009	CCNA D2	ITE College West, Singapore
3	Mr.Darren Lip	08/03/2010	20/03/2010	CCNA D3	ITE College West, Singapore
4	Mr. Christopher	08/08/2010	15/08/2010	IT Essentials	ITE College West, Singapore
5	Mr. Tan Kok Chye	15/08/2010	28/08/2010	CCNA D4	ITE College West, Singapore
6	Mr.Rodolfo Yumang	13/02/2012	24/02/2012	CCNA Security	Mapua Institute of Technology,Philippines
7	Mr. Lim Kim Pang	12/03/2012	23/03/2012	VMWare	ITE College West, Singapore
8	Mr.Krit Kamtuo	14/10/2012	27/10/2012	Microsoft Technology Association (MTA) Instructor training	Microsoft Innovation Center (Khon Kaen) E-Saan Software Park

ANNEX3-4 List of IT Short-Term Training

Year	Course Number	Name Of Course	Course period	Number Of student			Remark
				Total	Passed	Falled	
2009	1	LAMP 1	Nov 03 - Dec 04, 2009	12	10	2	
2010	2	LAMP 1 (Af)	Jan 07 - Jan 29, 2010	10	8	2	
	3	LAMP 1 (Ev)	Jan 07 - Jan 29, 2010	10	7	3	
	4	CCNA D1	Jan 16 - Mar 02, 2010	11	10	1	
	5	CCNA D1	Feb 01 - Mar 02, 2010	11	10	1	
	6	LAMP 3	Apr 03 - Apr 24, 2010	12	6	6	
	7	CCNA D2	Apr 26 - May 26, 2010	8	5	3	
	8	CCNA D1	May 8 - Jun 20, 2010	12	5	7	
	9	LAMP 1	Jun 5 - Jun 27, 2010	11	9	2	
	10	CCNA D1	Jun 3 - Aug 19, 2010	12	6	6	
	11	CCNA D1	Jul 8 - Aug 5, 2010	11	6	5	
	12	CCNA D2	Sep 1 - Sep 22, 2010	12	5	7	
	13	LAMP 2	Sep 1 - Sep 23, 2010	8	5	3	
	14	Linux Server Admin	Aug 16 - Sep 24, 2010	6	2	4	
	15	CCNA D2	Dec 12, 2010 - Jan 23, 2011	6	3	3	
	16	LAMP 1	Dec 13, 2010 - Jan 13, 2011	6	6	0	
2011	17	LAMP 2	Jan 31 - Feb 22, 2011	9	9	0	
	18	CCNA D1	Jan 29 - Feb 27, 2011	11	11	0	
	19	CCNA D1	Jan 5 - Mar 13, 2011	13	10	3	
	20	LAMP 1	Apr 2 - May 8, 2011	9	5	4	
	21	LAMP 3	Apr 4 - May 10, 2011	6	4	2	
	22	CCNA D1	Apr 2 - May 15, 2011	12	8	4	
	23	CCNA D2	Apr 2 - May 21, 2011	12	9	3	
	24	LAMP 2	Jun 18 to July 9, 2011	8	5	3	
	25	SQL	Jun 6 to July 11, 2011	13	9	4	
	26	CCNA D1	Jun 6 to July 4, 2011	14	13	1	
	27	CCNA D3	Jun 4 to July 21, 2011	13	5	8	
	28	SQL	July 18 to Aug 10, 2011	10	8	2	
	29	CCNA D1	Aug 27 to Oct 20, 2011	9	7	2	
	30	CCNA D2	Sep 3 to Oct 20, 2011	11	5	6	
	31	SQL	Aug 27 to Sep 25, 2011	13	10	3	
	32	CCNA D2	Sep 5 to Oct 10, 2011	10	6	4	
	33	LAMP TPPD	June 20 to Aug 19, 2011	6	3	3	
	34	L-JATS	Dec 12 to 22, 2011	31	25	6	
	35	CCNA D1	Nov 26 to Jan 8, 2012	9	6	3	
	36	CCNA D3	Nov 26 to Jan 20, 2012	11	7	4	
	37	SQL	Nov 28 to Jan 6, 2012	9	5	4	
	38	UXO VTE	Jan 9 to 20, 2012	15	13	2	
	39	UXO LPB	Feb 19 to Mar 2, 2012	30	30	0	
	40	Linux Server Admin	Feb 18 to Mar 25, 2012	11	5	6	
	41	CCNA D1	May 2 - 25, 2012	10	7	3	
	42	CCNA D1	May 5 to June 2, 2012	14	11	3	
	43	JAVA 1A	May 2 to 30, 2012	8	5	3	
	44	SQL	May 3 to 30, 2012	9	8	1	

2012	45	CCNA D4	May 5 to June 10, 2012	10	8	2	
	46	CCNA D1	May 22 - Jun 19, 2012	12	12	0	
	47	CCNA D2	Jun 21 - July 24, 2012	11	6	5	
	48	Security	July 26 - Sep 13, 2012	6	4	2	
	49	SQL (Weekend)	Oct 3 - Oct 27	7	6	1	
	50	DBA	Oct 4 - Nov 16, 2012	12	10	1	
	51	SQL (Weekend)	Oct 8 - Nov 14, 2012	11	5	7	
	52	UXO Champasak	Sep 10 - 14, 2012	15	15	0	
	53	UXO Attapue	Sep 24 - 28, 2012	15	15	0	
	54	UXO Sekong	Oct 1 - 5, 2012	15	15	0	
	55	UXO Savannakhet	Nov 5 - 9, 2012	15	15	0	
	56	UXO Saravan	Nov 19 - 23, 2012	15	14	1	
	57	UXO Khammuan	Dec 4 - 8, 2012	15	14	1	
	58	UXO Huaphan	Dec 17 - 21, 2012	15	15	0	
	59	UXO Xiengkhaung	Dec 24 - 28, 2012	15	15	0	
	60	CCNA D1	Dec 22, 2012 - Feb 3, 2013	7	5	2	
2013	61	My SQL	Jan 14 - 25, 2013	2	2	0	
	62	IT Essential (SVK)	Feb 4 - 16, 2013	15	15	0	
	63	Linux Server Admin	Feb 9 - Mar 3, 2013	15	15	0	
	64	CCNA D1	March 23 - May 11, 2013	11	9	2	
	65	CCNA D2	March 23 - May 11, 2013	13	13	0	
	66	Oracle 10g (SQL)	March 25 - April 25, 2013	8	7	1	
	67	NRA	March 28 - April 2, 2013	16	16	0	
	68	JAVA	April 22 - May 6, 2013	2	2	0	
	69	Web Application	May 14 - 24, 2013	2	2	0	
Total				774	607	167	


ジャイカ
JICA