No.

タイ国
国立衛生研究所機能向上プロジェクト
終了時評価報告書

平成15年8月
（2003年）

国際協力事業部
医療協力部

医 協 一
JR
03-14

序　　文

タイ王国では、新憲法制定後初の５か年計画である第９次国家経済社会開発計画（2002～2006年）において、地域住民のボトムアップ型の計画策定手法により、国王の提唱する「ポーピアン（足るを知る）経済」を基本哲学とし、これまでの急速な経済発展を自省して、社会の安定を保ちながら中庸を心得た持続的な発展をめざしています。これに対し我が国は、「社会開発セクター」に対する協力を協力重点５分野のなかの１つとして位置づけ、AIDS対策を中心とした保健・医療協力を実施しています。

タイ王国国立衛生研究所（National Institute of Health：NIH）は、日本の無償資金協力により1986年に設立されたタイ王国保健省に属する研究所です。我が国は、これまでNIHを拠点として、感染症分野の研究能力の向上を目的とした「国立衛生研究所プロジェクト」（1985～1994年）、及びAIDSに関する研究機能及び公衆衛生活動の強化支援を目的とした「AIDS予防対策プロジェクト」（1993～1996年）を実施しました。さらに、1999年３月からは、新興・再興感染症における調査研究体制と地方研究室間の連携体制の強化を目的とした「国立衛生研究所機能向上プロジェクト」を５年間の予定で実施しています。

「国立衛生研究所機能向上プロジェクト」の協力期間が2004年２月末に終了することから、今般関係各位のご協力の下、活動の進捗状況を評価し、プロジェクトの自立発展性等について助言を行うことを目的として、終了時評価調査が実施されました。

今回の調査にあたり、ご協力を賜りましたタイ王国側、日本側の関係各位に対し、甚大なる謝意を表す次第です。

2003年８月

国際協力事業団

理事　松岡和久

目　　次

付属資料

カウンターパートによるプレゼンテーション
中央はDr. Sawanpanyalert（NIH所長）

カウンターパートによるプレゼンテーション

ランパン病院

ランパン病院内の販売店：
エイズ患者により製作された作品も並ぶ

Joint Coordinating Committee（合同委員会）

ミニッツ署名式
（左：水田団長、右：Dr. Rugpoa保健省局長）

評 価 調 査 結 果 要 約 表

１．案件の概要		
国名：タイ王国		案件名： 国立衛生研究所（NIH）機能向上プロジェクト
分野：保健医療		
所轄部署：医療協力部医療協力第一課		援助形態：プロジェクト方式技術協力
協力期間	（R／D）： 1998年12月24日 1999年３月１日～2004年２月28日 （延長）： （F／U）： 2004年から２年間の予定 長期専門家１名＋短期専門家 （E／N）：（無償）	協力金額（評価時点）：９億800万円 先方関係機関：保健省国立衛生研究所 日本側協力機関：国立感染症研究所、東京大学、大阪大学他 他の関連協力：無償資金協力（1984年度24億5,000万円、1985年度14億5,600万円）、 フォローアップ協力（2001年度１億3,100万円）

１－１　協力の背景と概要

タイ王国国立衛生研究所（National Institute of Health：NIH）は、1984年から日本政府が無償資金協力によって建物建設、機材供与を実施し（1984年度24億5,000万円、1985年14億5,600万円）、1986年に完工された研究所である。タイ王国保健省医科学局に所属し、保健省内における総合的研究施設を備えた唯一の研究機関として、タイ王国（以下、「タイ」と記す）におけるAIDS・感染症対策の中心的研究機関としての機能を担っている。

同研究所に対し、我が国は、NIHの感染症分野の研究能力の向上を目的とした「国立衛生研究所プロジェクト」（1985～1994年）を実施した。また、1990年代初頭からのAIDSの爆発的な流行を受け（AIDSの感染者は約100万人：総人口の1.7%、死者は22万人以上と推定）、NIHを拠点とした「AIDS予防対策プロジェクト」（1993～1996年）を実施し、AIDSに関する研究機能及び公衆衛生活動の強化のための支援を実施した。同プロジェクトの終了に際し、タイ政府はAIDSに関する試験分析研究体制の更なる強化に加え、新興・再興感染症の調査研究体制と地方研究所間の連携体制の強化が必要と判断し、NIHの機能向上を目的としたプロジェクト方式技術協力を引き続き我が国に要請した。

１－２協力内容

上記、タイからの要請に基づき、我が国は、国立感染症研究所、東京大学、大阪大学などの協力を得て、NIHにおけるAIDS及び新興・再興感染症についての研究能力を向上させることを目的として、感染症の診断・検査技術の強化、病原体情報の解析、及びAIDSコホートの設定などの支援を行った。

⑴ 上位目標

NIHにおける医生物学的研究が、タイの感染症対策に一層貢献するようになる。

⑵ プロジェクト目標

NIHにおけるAIDSと新興・再興感染症の研究機能が向上する。

⑶ 成　果

1）HIV感染とAIDSに関する研究環境が整備される。
2）高度安全実験室での動物を用いたワクチン評価システムが整う。
3）HIVワクチン治験及び血清銀行のための国内検体保管システムの施設が整う。
4）病原体同定のための機能が向上する。
5）新興・再興感染症動向調査のための研究所間の連携が強化される。

⑷ 投入（評価時点）

日本側：

長期専門家派遣	７名	機材供与	１億5,800万円
短期専門家派遣	43名	ローカルコスト負担	１億2,300万円
研修員受入れ	15名		

タイ側：

カウンターパート配置	22名
ローカルコスト負担	現地通貨558万9,000バーツ（約１億6,000万円）
土地・施設提供	

２．評価調査団の概要

調査者	担当分野	氏　名	所　属
	団長／総括	水田　加代子	国際協力事業団専門技術嘱託
	感染症対策総括	山崎　修道	前国立感染症研究所所長
	AIDS対策	岩本　愛吉	東京大学医科学研究所教授
	新興／再興感染症対策	倉田　毅	国立感染症研究所副所長
	協力計画	田中　裕子	国際協力事業団医療協力部第一課職員
	評価分析	薄田　栄光	アイ・シー・ネット（株）シニアコンサルタント
調査期間	2003年７月29日～2003年８月９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

プロジェクトの目標は、「研究機能の向上」であるが、プロジェクト開始時に、既にこれまでの我が国の協力によって、NIHの研究能力は一定のレベルを有していたこと、また、日本の協力機関との関係もできていたことから、本プロジェクトにおいて技術移転は円滑に行われ、すべての成果が満足のいくレベルで達成された。よって、目標は達成されたといえる。

３－２　評価結果の要約

⑴ 妥当性

1）HIV／AIDSほか、感染症はいまだにタイの主な死因にとどまっており、HIV／AIDSに対する効果的な予防と治療はタイ国民のみならず、近隣諸国全体がその開発を期待している。

2）タイ政府は、死亡率や感染率の高い新興・再興感染症の対策についても、効果的な診断・治療技術の開発を国家開発計画の戦略として採択した。

3）日本政府は、2000年の九州・沖縄サミットの際の沖縄感染症対策イニシアティブ以来、感染症の研究とワクチン開発の推進を具体的な取り組みとして支援してきた。

以上のことから、本プロジェクトはタイ政府の開発計画や日本の政府開発援助の方針、タイ国民のニーズと整合性があり、妥当性は高いと判断された。

⑵ 有効性

1）NIHはHIV／AIDS研究に関する質の高い研究開発の能力を備えた。また、ラボラトリー機能とランパン病院のフィールドステーションとの連携を確立したことによって、臨床分野の研究能力をも獲得した。これらの成果及びアニマルセンターが整備されたこと、HIVワクチン治験のための国内検体保管システムが確立されたことによって、NIHの研究環境は向上した。結果、カウンターパートが、幅広い研究課題へ取り組み、また、外部研究者との共同研究を行うことを誘発することとなった。

2）NIHは、新興・再興感染症に関する研究能力が向上した。NIHとタイ国境に位置する４つの指定病院間の検査・診断体制を強化する新興・再興感染症動向調査システムは、本プロジェクトが開始する以前にタイ側が開始したものである。しかし、同システムは上手く機能していた

とは言えず、本プロジェクトでNIHの病原体検査能力を強化し、かつNIHと各病院間との感染症データについて技術指導した結果、同システムは強化された。結果、NIHは研究能力の他、感染症動向調査においても国家研究所としての役割を果たすに至った。

以上のことからプロジェクトはPDMに則り順調に活動を進め、おおむね目標は達成されたと判断される。

⑶ 効率性

1) プロジェクトに投入された資源は、質と量において適切であった。また、日本からの派遣専門家の時期は適切で効率的であったといえる。

2) 機材等の配置に関して幾分の遅れがあり、いくつかの活動に影響した。しかし、成果に影響を及ぼすような問題には至らなかった。

3) 本プロジェクト投入外の共同研究者（日本の大学等）から提供された機材や技術が、プロジェクト成果の実現にも貢献している。

⑷ インパクト

1) プロジェクトで対象としたAIDS及びその他13の感染症に関する研究能力は向上した。

2) 本プロジェクトにおいてランパン病院のHIV感染者・AIDS患者から採取した細胞、血清を用いた研究がNIHで開始されることになったが、病院とNIHが協力して研究を行う意義は高い。

3) ランパン病院では、新生児のHIV感染を診断することが可能となった。。

4) NIHとタイ隣接国との境界近くに位置する指定４病院間の感染症動向調査機能が強化された。結果、NIHは研究機能、及び感染症動向調査機能を兼ね添えた国家研究所としての役割を果たすに至ったといえる。

5) プロジェクトの成果により、NIHの研究内容及びカウンターパートの研究能力が向上したことは、国立感染症研究所、東京大学、大阪大学及び北海道大学などとの間で共同研究が開始されることにつながった。

⑸ 自立発展性

1) 供与した機材の維持管理は、日常業務のなかで行われており、プロジェクト終了後も、それにかかる技術・予算ともに支障はない。

2) ランパン病院でのコホート（患者集団）研究（HIV感染者、AIDS患者及びその配偶者を定期的に採血し、血清・細胞を採取している）には、データ入力者の雇用、患者への協力謝金支払いをプロジェクトで賄っているため、プロジェクト終了後、これらの予算をタイ側が独自で確保することは難しいと思われる。ただし、今後、日本側がコホート研究を２年間引き続き支援することにより、研究の成果がタイ国内、及び国際的にも評価されるレベルとなることが十分期待できる。結果、２年後にタイ側によるコホート研究の予算措置が可能となるであろうと判断された。

3) AIDS以外の13対象疾患のうち、いくつかの疾患については、今後、日本が若干のフォローアップすることにより（数名の短期専門家派遣）共同研究に発展させることができると評価された。共同研究を行うことにより、NIHの研究レベルが更に発展することが期待される。

4) 感染症動向調査システムについては、タイ側の努力により、継続的に機能していくことが可能であると評価された。

３－３　効果発現に貢献した要因

⑴ 計画内容に関すること

該当なし

⑵ 実施プロセスに関すること

日本の大学や研究機関との共同研究、及び日本への留学は、カウンターパートの研究に対するモチベーションを高め、研究の質を維持・発展することにつながった。

NIHの施設がフォローアップ協力により改善され、実験環境はより整備された。

3－4　問題点及び問題を引き起した要因

⑴ 計画内容に関すること

該当なし

⑵ 実施プロセスに関すること

1）ランパン病院における活動として、当初プロジェクトが予定していなかった患者への支援活動が大幅に広がることになった。患者をサポートするランパン病院スタッフによるラジオ番組への協力、AIDS患者及びその未亡人の創出活動支援、患者サポートグループの活動への支援等が病院側からの自発的アイデアによって、開始されたが、途中でプロジェクト活動として取り込むなど、本活動のプロジェクトの位置づけを整理するべきであった。

2）NIHへのJICAの協力が20年にものぼること、また、プロジェクト活動とは別に日本の各大学・研究所とNIHが行っている共同研究と、プロジェクト活動が重複するところが多いことから、本プロジェクト活動だけを切り離して、その投入・成果を捉えることはしばしば困難であった。

3－5　結　論

本プロジェクト目標は、おおむね達成された。感染症には「国境がない」といわれるが、プロジェクトの成果によって、タイの感染症に対する診断・研究能力が向上したことは、日本にとっても公衆衛生上、非常に有益であるといえる。

3－6　提言（当該プロジェクトに関する具体的な措置、提案、助言）

⑴ 2000年7月以降、750名のHIV感染者がコホートに登録され、患者から採取された血清・細胞を用い、免疫学的、分子レベルの研究が開始された。プロジェクトのカウンターパートは研究者として成長し、日本の大学との共同研究を行うに足る資質を得るに至った。コホートが、今後とも維持され、共同研究が更に促進されることが望まれる。

⑵ 本プロジェクトによってNIHの研究機能が向上したことは、日本とタイが共同研究を始めることに大きく貢献した。プロジェクト終了後も、日本の研究所及び大学とNIHとの両者の努力により、共同研究を継続することが望まれる。

⑶ NIHは、検査・診断技術のアップデートと標準化、及び感染症動向調査にかかわる指定病院への診断技術の移転に努力するべきである。それには、疫学課と、保健省傘下の他課との課横断的協力が重要である。

⑷ NIHは、HIV／AIDS及び他の感染症対策を地域規模で行うことの必要性を重要視しており、タイ国内だけではなく、地域規模、あるいは国際規模での感染症対策への取り組みが促進されるべきである。

3－7　教訓（当該プロジェクトから導き出された他の類似プロジェクトの発掘・形成、実施、運営管理に参考となる事柄）

⑴ これまでの20年間にわたる長い協力関係のなかで築いた日本・タイ側双方との良好な人間関係が技術移転の円滑な実施につながった。

⑵ 「AIDS研究支援費」というAIDS研究に関し柔軟に使用できる予算ができたことにより、AIDS研究コホートの設立と維持が可能であった。

⑶ プロジェクトで移転した技術により、日本の研究所及び大学との共同研究が可能となった。また、プロジェクトの成果は、タイ・日本側双方の感染症対策に利益をもたらした。

３－８　フォローアップ状況

プロジェクトでは、AIDS研究コホートを設立し、３年間コホート研究を実施した。今後、コホートを維持するとともに、コホートから得られたサンプルを用いた研究をNIHで行う予定である。現時点ではタイ側独自でコホートを維持するための予算措置が難しいが、コホート研究の成果が、国際的にも評価されるものになれば維持にかかる予算を捻出することも可能となる。よって、コホート研究を発展させることを目的としたフォローアップを行う（長期専門家１名を２年間派遣）。

また、いくつかの研究分野においては、今後若干のフォローアップをすることによって、新たに共同研究が開始され、国際レベルの論文となることが期待される。国内支援委員会からフォローアップ実施の要請を受け「本部協力機関活動支援」としてのフォローアップを２年間実施する。内容としては、国内支援機関から短期専門家を年間５名程度派遣し、共同研究に発展するよう支援する。

第１章　終了時評価調査の概要

１－１　調査団派遣の経緯と目的

タイ王国国立衛生研究所（National Institute of Health：NIH）は、1984/1985年の両年にわたり（1984年度24億5,000万円、1985年14億5,600万円）日本政府が無償資金協力によって建物建設、機材供与を実施し、1986年に建設されたタイ王国保健省医科学局に所属する研究所である。保健省内で唯一総合的研究施設を備えた研究機関として、タイ王国（以下、「タイ」と記す）におけるAIDS・感染症対策の中心的研究機関としての機能を担っている。

NIH設立直後、我が国は、NIHの感染症分野の研究能力の向上を目的とした「国立衛生研究所プロジェクト」（1985～1994年）を実施した。また、1990年代初頭からのAIDSの爆発的な流行を受けて（AIDSの感染者は約100万人：総人口の1.7％、死者は22万人以上と推定）、NIHを拠点とした「AIDS予防対策プロジェクト」（1993～1996年）を実施し、AIDSに関する研究機能及び公衆衛生活動の強化支援のための支援を実施した。同プロジェクトの終了に際し、タイ政府はAIDSに関する研究機能の更なる強化に加え、新興・再興感染症の調査研究体制と、地方研究室間の連携体制の強化が必要と判断し、NIHの機能向上を目的としたプロジェクト方式技術協力を引き続き我が国に要請した。

これを受けて、我が国は、NIHにおけるAIDS及び新興・再興感染症についての研究機能を整備・強化することを目標とした「国立衛生研究所機能向上プロジェクト」を1999年３月から５年間の予定で実施している。また、本プロジェクト実施中、バイオハザード実験室及び感染動物実験室の機器の修理・更新に係る要請がタイ側からあった。これらの機材がプロジェクト活動上、不可欠な施設・設備であるため、2001年には無償資金協力のフォローアップ協力（１億3,000万円）を実施した。

「国立衛生研究所機能向上プロジェクト」の協力期間が2004年２月末に終了することから、これまでの活動実績を取りまとめ、目標達成に向けた活動の進捗状況を評価し、プロジェクトの自立発展性等などにつき、助言を行うことを目的とし、JICA専門技術嘱託 水田 加代子を団長とする終了時評価調査団が派遣された。

１－２　調査団の構成と調査期間

担当分野	氏　名	所属・職位	派遣期間
団長／総括	水田　加代子	国際協力事業団 専門技術嘱託	2003年８月３日～８月９日
感染症対策総括	山崎　修道	前国立感染症研究所 所長	2003年８月３日～８月９日
AIDS対策	岩本　愛吉	東京大学医科学研究所 教授	2003年８月３日～８月９日
新興／再興感染症対策	倉田　　毅	国立感染症研究所 副所長	2003年８月３日～８月８日
協力計画	田中　裕子	国際協力事業団 医療協力部 医療協力第一課　職員	2003年７月31日～８月９日
評価分析	薄田　栄光	アイ・シー・ネット（株） シニアコンサルタント	2003年７月29日～８月９日

１－３　対象プロジェクトの概要

NIHに対する我が国の協力は1980年代半ば、無償資金協力による建物、研究施設の供与に始まり、２回にわたるプロジェクト方式による技術協力が実施されてきた。今回の終了時評価の対象プロジェクトは、NIHに対する３回目のプロジェクト方式による技術協力であり、継続的協力の一環をなすものと考えられる。プロジェクト目標は、HIV／AIDS及び新興・再新興感染症分野を対象として同研究所の研究機能を向上することにおかれている。

評価はJICAの評価方式に従い、プロジェクト・デザイン・マトリックス（PDM）及びDAC評価５項目（妥当性、有効性、効率性、インパクト、自立発展性）を用いて実施した。プロジェクトの活動及び投入については、プロジェクト活動報告書、及びプロジェクトからの資料、聴取によって、現地調査に先立って入手した。PDMに設定されている成果については、研究の質的向上を評価するものであり、数値を用いて評価指標を表示することは非常に困難であった。したがって、現地におけるインタビュー調査、クエスチョネア、視察を通じて達成度を把握するとともに、当該分野の専門家でありプロジェクト開始時点からカウンターパートの指導にあたってきた調査団員が、カウンターパートによって発表された研究成果と過去の論文などを勘案のうえ、評価した結果を文章で表し結論を導く方法を取った。

本調査団が作成した評価結果（案）を基に、タイ側評価メンバーと合同評価会議における協議の結果、「本プロジェクト目標は成功裏に達成されており、プロジェクト終了時には完全に達成することが見込まれる」との結論を得て、付属資料３．ミニッツAppendix12のに取りまとめられた。

本プロジェクト目標の達成に関しては以上のとおりであるが、今後の自立発展性を見通した場合、コホート（患者集団）研究については、タイ側はその重要性を十分に認識しているものの、現況の財政事情悪化の折りから研究の質を維持できるか懸念される。この研究の定着を図るため協

力を２年程度継続することが必要と考える。また、「国境をもたない感染症」に対する有効な対策として、いくつかの分野については協力関係を保ちつつ、NIHの更なる機能向上に貢献することは、タイ及び近隣諸国への貢献のみならず、ひいては在外邦人を含む日本国民の感染症予防にも役立つものとなろう。

タイ側は、NIHに対する日本側の20年近くに及ぶ協力に感謝の意を述べ、その間に育成された数多くの人材、構築された日本・タイ側双方の研究機関、研究者間のネットワークを更に強化して、協力効果をあげていくことを願っていることを表明した。また、協力分野としては、一方的にタイが利するものではなく、日本・タイ側双方に関心のある分野が望ましいとの考えも表された。

タイ政府は、今後被援助国を脱し、援助において対等なパートナーとしての立場をとることを政策として打ち出している。NIHにおいても、今後のプロジェクト成果を基に日本と協力して、近隣諸国の感染症対策を支援することを要望している。この動向をフォローし、必要あれば適切な協力計画策定に協力することは有意義と思料する。

第２章　終了時評価の方法

２－１　PDMe（評価用プロジェクト・デザイン・マトリックス）

プロジェクトの終了時評価は、プロジェクト・デザイン・マトリックス（PDM）とプロジェクト・サイクル・マネージメント（PCM）の考えを取り込んだJICA事業評価ガイドラインに沿って実施された。PDMはプロジェクトに必要不可欠な要因と実施期間中に起こり得るリスク[注1]を実施前に簡潔にまとめ、作成された実施計画表である（付属資料３．ミニッツAppendix２を参照）。このPDMに基づいて、終了時評価のための評価用プロジェクト・デザイン・マトリックス（PDMe）が、評価関係者と協議しながら作成された（付属資料３．ミニッツAppendix３参照）。このPDMeは評価の枠組みであり、２－２の項で述べる主な評価設問と情報・データ収集方法で示されている「評価調査表」[注2]を策定する際の基礎となる。

評価調査表は、プロジェクトの終了時評価に対する具体的な評価方法を要約したものともいえるが、このプロジェクトの性格上、手法に関して以下の事項について考慮しておきたい。

（1）研究プロジェクトの成果は、質的に表現される性質のもので、専門用語のみならず、高い専門性を伴う表現によって提示され、理解される内容である。PDMに記載されている指標から、研究内容を質的に測ることは難しいことから、それぞれの成果の達成度は高い専門性と経験を備えた専門家によって審査・評価されるべきである。

（2）NIHでは、日本の大学と既に共同研究がいくつか開始されていることから、JICAのプロジェクトの部分を切り離して成果の達成度を評価することは難しい。これは投入についても同じことがいえる。

２－２　主な評価設問[注3]と情報・データの収集方法

プロジェクトの実施プロセスや管理も含めたプロジェクトの実績と達成度を把握するための基本的な評価設問や情報・データの収集方法は、付属資料３．ミニッツAppendix４「実績と達成度の評価調査表」を参照されたい。

評価５項目（妥当性、有効性、効率性、インパクト、自立発展性）の視点に基づいた評価を行うための基本的設問や情報・データの収集方法は、付属資料３．ミニッツAppendix５「評価５項目の

注1　プロジェクトの目標や達成すべき成果、達成度を示す指標、両国の人員や資機材の負担の内容、活動のあらまし、プロジェクトの期間などが、簡潔に表形式で記載されている。この表にはプロジェクトの内容のほか、プロジェクトが関与できない（しない）重要な外的条件が記載されている。リスクとはこの外的条件のなかで、プロジェクトに対してネガティブにはたらくかもしれない事象をいう。

注2　評価グリッドとも呼ばれ、これに基づいて更に詳細な現地調査スケジュールや対象者別の質問票を用意する。

注3　評価設問とは、評価５項目の視点に沿った結論を導くために用意する質問。

ための評価調査表」を参照のこと。

以下に評価５項目の視点を示した。

(1) 主な調査項目

1) 妥当性

妥当性は、プロジェクトの上位目標やプロジェクト目標が、タイの保健政策や日本の政府開発援助の方針、プロジェクトが関係する保健医療提供者や受益者のニーズに合致しているかどうかを判断する評価の視点である。

2) 有効性

有効性は、プロジェクトによって産出された成果によって、どの程度プロジェクト目標が達成されたのか、あるいは達成が見込まれるのかという視点に立脚する。

3) 効率性

効率性は、実施過程のなかで、様々な投入がいかに効率的に成果に結びつけられたかを判断する評価の視点である。

4) インパクト

インパクトとは、プロジェクト実施の結果、起こる影響や変化である。インパクトは直接的・間接的な望ましい、あるいは望ましくない影響・変化を把握して、評価する視点である。

5) 自立発展性

自立発展性は、外部からの支援がなくなった場合においてもプロジェクトの便益が持続するかどうかという視点に立脚する。

(2) 情報・データ収集方法

情報の信頼性を高めるために、同じ評価設問について複数の情報収集方法(又は、異なる情報源のクロスチェック)が適用された。情報・データ収集の方法は次のとおりである。

1) 資料のレビュー

プロジェクトの資料、進捗報告書、関連印刷物、統計等をレビューする。

2) 直接観察

施設や機材、技術、記録等の適性について現地で直接的に観察する。

3) 質問票・インタビュー調査

プロジェクトの情報をもつ主たる関係者にあらかじめ質問票を配布し、必要に応じてインタビュー調査時に質問を追加して情報を得る(半構造化インタビュー)。

4) プレゼンテーション

プロジェクトの成果に関係する研究者16名に研究内容を発表してもらい、質疑応答を通じて実績と達成度を把握する。

第３章　調査結果

３－１　プロジェクトの投入

(1) 日本側からの投入

プロジェクト開始以来日本側からは様々の専門分野から７名の長期専門家と43名の短期専門家が派遣された。なお、今後、８名の短期専門家がプロジェクトの残りの期間内での派遣が予定されている。名前と専門分野のリストは、付属資料３．ミニッツAppendix６に記載されている。

15名のタイ側カウンターパートが日本の様々な機関で研修を受けた。今後、引き続き３名のタイ側カウンターパートが日本での研修を予定している。名前と専門分野のリストは、付属資料３．ミニッツAppendix８に記載されている。

日本から供与された主な機材リストは、付属資料３．ミニッツAppendix９に記載されている。総額で約１億5,771万2,000円の機材が供与された(付属資料３．ミニッツAppendix10を参照)。また、日本側は部分的な運営費用として１億2,320万8,000円を支援した。年度ごとの経費については付属資料３．ミニッツAppendix11を参照のこと。

(2) タイ側からの投入

全体で22名がプロジェクトのカウンターパートとして任命され、活動に従事した。カウンターパートのリストは、付属資料３．ミニッツAppendix７に示されている。

プロジェクト期間中は、国立衛生研究所(NIH)内とランパン病院内にプロジェクト事務所が提供され、プロジェクト活動に従事したカウンターパートに加えて、相当の運営費用と人的資源が投入された。タイ側は部分的な運営費用として約1,605万円(タイバーツ換算558万9,000)を支出した。年度ごとの経費については日本側の運営費負担とともに付属資料３．ミニッツAppendix11に示されている。

３－２　プロジェクトの実績と達成度

プロジェクトに関連する研究活動の主な成果は、付属資料３．ミニッツAppendix14に概略がまとめられている。また、実績と達成度を示す補完的な根拠は、付属資料３．ミニッツAppendix12に示されている。

３－３　成果ごとの技術評価

（1）成果Ｉ：HIV感染とHIV／AIDSに関する研究環境が強化される

ランパン・コホート研究[注4]は、順調にスタートし、2000年７月から2002年10月まで、756名のHIV感染者とHIV感染者の配偶者でHIV陰性（非感染者）の人が106名、コホート（患者集団）研究に参加した。このなかには血清検査で一致する（感染者と感染者）118組と血清検査で不一致の（感染者と非感染者）74組の夫婦が含まれている。コホート研究チームの精力的な努力により、2001/2002年には新しい患者の登録数が増えた。これによりコホート研究チームと病院との協力関係は良好であり、2001年には、コホート研究から得られた血液材料を使った下記のいくつかの研究プロジェクトがNIHで開始された。カウンターパートは研究者として成長し、日本の研究者のすぐれた共同研究のパートナーとして活動している。今後も、ランパン・コホート研究は維持され、拡大されることが望まれる。

1）　組織適合抗原（HLA）の遺伝的解析

短期専門家の技術指導により、144名の患者のHLAの遺伝解析が終了した。本データは、HIVの特異免疫研究に重要なデータとなると思われる。

2）　ヒト遺伝子研究

短期専門家の指導によって、カウンターパートが遺伝マーカーのパイロットスタディーを実施した。本結果は、患者の診断データと合わせ、更に解析されることが期待される。タイにおける遺伝マーカーと診断パラメーターの相関関係を把握するのに、非常に有効な研究であるといえる。

3）　ウイルス研究

薬剤耐性試験が短期専門家試験の指導の下、行われた。ウイルスの遺伝多形成のシークエンス、薬剤耐性とかかわる遺伝子の変異を解析することは重要であり、今後、データを解析することによって、HIVサブタイプEのアッセイキット開発につながる可能性がある。

4）　HIV１感染者の日和見感染の遺伝子診断

病原体診断のために、簡素な分子診断を使用することが望ましい。長期専門家は、カウンターパートとともに、AIDS患者の脳脊髄液を調べた。短期専門家がクリプトコッカス、サイトメガロウイルス、トキソプラズマなどの中枢神経系中の病原体をポリメラーゼチェーンリアクション（PCR）[注5]によって検出する技術を指導した。

プロジェクト実施のなかで、以下のような活動が期待された質を維持しながら実施された。

注4　一般にコホート研究は、関心ある事項に曝露した集団と曝露していない集団の２つの患者集団（コホート）を設定し、それぞれの集団を追跡調査する研究方法である。ランパン・カップル・コホート研究では、集団の社会的な事項のみならず、血液などから得られる様々な生体情報が関心事項となり得るので、それらの関連性や比較を検討する様々な研究を成立させることが可能である。

注5　病原体の遺伝子を構成するヌクレオチドの一部を増幅する方法。

評価時点における主な活動の進捗状況は、カッコ内に示されている。

① HIV感染とAIDSについての免疫学的、ウイルス学的、分子レベルの研究に適切な技術を導入する(ほぼ実施完了)。

② 放射性同位元素を用いた実験が可能なP2／P3レベルの実験室を確立する(完了)。

③ HIV感染及びAIDS病原性研究のためのコホートを設定する(完了)。

④ コホート研究のためのフィールド・ステーション[注6]を設立する(完了)。

以上の理由から、成果Ⅰ「HIV感染とAIDSに関する研究環境が強化される」に関連する活動は計画どおり進捗し、プロジェクト終了時にはすべての活動が完了すると予想される。

(2) 成果Ⅱ：高度安全動物実験室(BSL3)[注7]での動物を用いたHIVワクチン評価システムが整う

1) 実験ラボラトリーに必要な機材、モルモット・ネズミを含む繁殖用の小動物の供与、及び感染動物の扱いや実験のための技術移転は終了した。機材は有効に活用されており、移転された技術のレベルは維持されている。その結果、研究用アニマルセンターをもつNIHとしての機能が向上した。

2) これらの施設と実験動物はHIVワクチン開発のための免疫学的研究や、その他いくつかの研究活動に使用されている。

3) さらに、NIHの実験室で扱う病原体の生物学的研究における安全性(以下、「バイオセフティー」と略す)レベルを見直した結果、実験動物ラボラトリーを含む高度安全動物実験室レベル３分の２を管理するシステムが2000年に導入された。また、動物部門の安全性を維持するために、HEPAフィルターや気圧計、提供された機材の管理記録を定期的にチェックし、バイオセフティー管理体制を維持していることが報告されている。

4) NIHの高度安全動物実験室レベル３分の２の状況を検査し、管理するために生物学的研究における安全委員会が組織化された。

5) 医薬品の安全性に関する非臨床試験の実施の基準(GLP)[注8]が将来的に整備されれば、アニマルセンターは臨床実験のためのHIVワクチン評価に活用されることが可能である。

評価時点における主な活動の進捗状況は、カッコ内のとおり。

① 実験室に必要な機材を整備する(完了)。

② BSL3での感染動物の管理と実験に必要な技術を導入する(完了)。

注6 患者集団に近い臨床の現場(フィールド)に置かれたコホート研究の拠点。実際はランパン病院のHIV／AIDSデイケア・センター内に、患者たちへの説明・相談、登録、フォローアップ、記録とデータ管理を行う人員の配置と患者血液の処理と検査・保存機材等が設置された。

注7 Bio safety laboratory Level 3　生物学的安全性レベル３に属する病原体を取り扱う実験室。

注8 人に対する投与試験の前段階での安全基準。

③　BSL3でのバイオセフティー管理システムを確立する(完了)。

以上の理由から、成果 IIBSL3での動物を用いたワクチン評価システムが整う」は達成された。

(3) 成果Ⅲ：HIVワクチン治験及び血清バンクのための国内検体保管システムの施設が整う

JICAは検体保存のために３つの冷凍庫(マイナス80℃)と２つの液体窒素冷凍庫、液体窒素の生産装置を提供した。レポートによると、バンコクでワクチン試験を実施しているバンコクワクチン評価グループの２万8,175の試料が保存されている。また、全国保健サーベイ調査(2000～2002年)の700試料も保存され、これらの検体を管理するコンピューターシステムは問題なく稼働している。

評価時点における主な活動の進捗状況は、カッコ内のとおり。

①　保存システムのための必要機材を整備する(完了)。

②　インベントリーシステム[注9]を確立する(完了)。

以上の理由から、成果Ⅲ HIVワクチン治験及び血清バンクのための国内検体保管システムの施設が整う」は達成された。

(4) 成果Ⅳ：病原体同定のための機能が向上する

プロジェクトが開始された1999年から14名が、１か月から６か月の間で、新興・再興感染症の基本的な研究や診断技術を向上させるために、日本の国立感染症研究所ほか、関連の研究機関で研修を受けた。また、４名の長期専門家に加えて28名の短期専門家が共同研究や診断技術の向上のための知識・技術の移転のためにタイに派遣された。この４年間の間、優先的な技術は、PCRや配列解明技術など、病原体を探し出す遺伝子技術であった。微生物を研究・実験するために必要な機材がNIHに供与されたが、これらの機器は効果的に活用されている。微生物を同定する技術移転は予定どおり行われ、タイ側カウンターパートの意欲や日本人専門家の熱意は、賞賛されるべきものである。中間評価時と比較して、センチネルサイト[注10]の病院からは信頼性ある診断結果とともに必要な試料が送られており、移転技術による進歩がみられた。このプロジェクトの移転技術は極めて重要であり、利用価値が高い。これらの活動からいくつかの研究成果が国際的に認められている専門誌に投稿された。

評価時点における主な活動の進捗状況は、カッコ内のとおり。

①　NIHが国内のレファレンスラボラトリー[注11]として、新興・再興感染症の病原体を診断

注9　患者の病歴や臨床所見、試料の内容などが記載された目録のデータベース。
注10　感染症の発生や流行を監視するために設けられた指定医療機関。
注11　精度や信頼性、方法において最高技術水準にあり、最終判断や標準試料を提供するラボラトリー。

するための技術を導入する(完了)。

② 新興・再興感染症の病原体を診断するための適性技術をネットワークラボラトリーに導入する(完了)。

以上の理由から、成果Ⅳ「病原体同定のための機能が向上する」は達成された。

(5) 成果Ⅴ：サーベイランスのためのラボラトリー間の連携が強化される

タイ保健省は1999年に新興・再興感染症サーベイランスプロジェクトという国家プロジェクトに着手した。このプロジェクトの対象となった疾患は９つのグループに分けられ、11の感染症と30以上の病原体からなる。新興・再興感染症サーベイランスプロジェクトは、患者情報とともに検査データを提供するために、４つの州病院をセンチネルサイトとして指定した。これらの４つの病院とは、国境に隣接する州にある、ノンカイ州病院(ラオス国境近く)、タク州のメソド病院(ミャンマー国境近く)、チャンタブリ州のプロパッカウ病院(カンボジア国境近く)、ソンクラ州のハジャイ病院(マレーシア国境近く)である。

NIHによって、検体の採集方法や取り扱い、NIHへの搬送方法が、「検体搬送シート」や「報告シート」ともに適切なマニュアルとして英語とタイ語で取りまとめられた。

センチネルサイトとなっている協力病院からの患者情報と検査データは、NIHの13の研究実験ラボラトリーからのデータとともに、所内の新興・再興感染症室に集められ、新興・再興感染症サーベイランスに関する病原体の疫学情報とてコンピューターで分析処理されている。

派遣専門家とタイ側カウンターパートとの協力により、新興・再興感染症サーベイランスプロジェクトに必要なナショナル・レファレンスラボラトリーとしてのシステムと技術がNIHに定着した。

評価時点における主な活動の進捗状況は、カッコ内に示されている。

① NIHとセンチネルサイトとなった州病院のラボラトリー間で病原体情報を収集、解析、還元するシステムを確立する(ほぼ完了)。

州病院とラボラトリー間のネットワークは確立され、いくつかの病原体についてはNIHでの診断結果がラボラトリーにフィードバックされるようになった。

今後サーベイランスプロジェクトの下、より多くの病原体がNIHにて診断され、かつその診断技術が州病院のラボラトリーに普及することが期待される。

以上の理由から、成果Ⅴ「サーベイランスのためのラボラトリー間の連携が強化される」は、おおむね達成したと評価された。

第４章　評価結果

４－１　評価５項目の評価結果

評価５項目による分析の結果は次のとおりである。評価分析の根拠は、付属資料３.ミニッツに示されている。

４－１－１　妥当性

HIV／AIDSほか、感染症はいまだにタイの主な死因にとどまっている。日和見感染症を含めHIV／AIDSに対する革新的な予防とケアは、タイ国民のみならず近隣諸国全体がその発展を望んでいる。

タイ政府は、死亡や感染の機会の高い新興・再興感染症の対策についても、効果的な技術の開発を国家開発計画の戦略として採択した。国立衛生研究所（NIH）は、HIVワクチンの評価や新興・再興感染症に対する正確で適切な診断能力に裏打ちされたサーベイランスなど、質の高い研究機能とナショナルレファレンスラボラトリー機能という２つの重要な役割を担っている。また、日本政府は、2000年の九州・沖縄サミットの際の沖縄感染症対策イニシアティブ以来、感染症の研究とワクチン開発の推進を具体的な取り組みとして支援してきた。

以上のことから、本プロジェクトはタイ政府の開発計画や日本の政府開発援助の方針、タイ国民のニーズと整合性があり、妥当性が確保されていると判断する。

４－１－２　有効性

プロジェクト目標「NIHのHIV／AIDSと新興・再興感染症についての研究機能が向上する」は、終了時評価時まで予定どおり進捗しており、プロジェクト終了時までに完全に達成されるであろうと評価された。

NIHに、HIV／AIDS研究に関する質の高い研究開発の能力が整ったとみることができる。また、ラボラトリー機能とランパン病院のフィールド・ステーションとの連携を確立したことによって、臨床分野の研究能力をも獲得した。これらの成果に加えて、アニマルセンターが整備されたこと、及びHIVワクチン治験のための国内検体保管システムが確立されたことによって、NIHの研究環境は向上した。その結果、カウンターパートは、幅広い研究課題へ取り組むことが可能になり、さらに、外部研究者との共同研究を誘発することとなった。

NIHは、新興・再興感染症に関する研究能力が向上した。また、本プロジェクトは、周辺国との国境に近い４つのセンチネル病院とのネットワークを活用して、検査・診断体制を強化する新興・再興感染症サーベイランス・プロジェクトを支援することによって、レファラルラボラトリーとしての機能も向上した。

このように、プロジェクトの有効性に貢献したいくつかの要因が認められた。日本の大学や研究機関との共同研究は研究の質を維持することにつながった。また、NIHの施設がフォローアップ協力により改善され、実験環境はより整備されたものと思われる。

４－１－３　効率性

JICAとNIHからプロジェクトに投入された資源は質と量において適切であった。日本からの派遣専門家の時期は適切で効率的であったといえる。機材等の配置に関しては幾分の遅れがあり、いくつかの活動に影響したが、成果に影響を及ぼすような問題には至っていない。JICA以外にも外部の共同研究者から提供された機材や費用の一部は、成果の実現に貢献している。

４－１－４　インパクト

NIHの役割・機能は、研究の質とナショナルレファレンスラボラトリーとしての機能を高めて、感染症対策という公共の利益を追求することにある。AIDS及びその他のプロジェクトで対象とした13の新興・再興感染症に関する研究能力は向上した。また、コホート研究とNIHのラボラトリー機能を連携させたことで、研究のレベルは大きく向上したといえる。これらの成果は、今後、NIHが、質の高い研究テーマに取り組み、論文発表を行うことにつながるであろう。

病原体の同定とラボラトリーネットワークに関するNIHの能力の強化は、タイ保健省が、今後センチネルサイトを増やし、新興・再興感染症に関する必要な情報を収集、分析、フィードバックするサーベイランスシステムを拡大することにつながるだろう。

研究はもちろん、NIHにおける日常的な仕事も、既に論文、あるいは報告書やガイドラインとなっており、分子レベルの研究から、AIDS患者に直接裨益する治療方法まで幅広い内容を網羅している。例えば、コホート研究の結果、それまでランパン病院で実施されていなかった新生児のHIV感染の診断やHIV／AIDS患者のウイルス量の計測が可能になった。

さらに、NIHの施設やスタッフ、仕事の内容が向上したことによって、外部の研究者たちにとってもNIHとの共同研究は魅力的な対象となるであろう。したがって、上位目標「NIHの医生物学的研究がタイの感染症対策に一層貢献するようになる」は、本プロジェクトによってもたらされる部分も少くないと思われる。

以上のように評価時点ではネガティブな影響は確認されなかった。

４－１－５　自立発展性

NIHの研究活動とレファレル機能に関する能力はプロジェクトの実施によって培われ、機材は日常業務のなかで適切に維持管理されている。NIHの予算はやや減少傾向にあるものの、研究レベル、機材の維持管理は、これまでと同じレベルで維持されるであろう。

また、NIHの研究環境が向上したことによって、外部の研究者にとってもNIHとの共同研究が魅力的なものとなった。このことは、外部からもたらされる研究費によってNIHの財務的な自立発展性が、ある程度補完されることを意味する。

コホート研究に関するNIHとランパン病院の連携に関しては、両者とも研究の重要性を認識し、コホートを維持することに意欲をもっているものの、このコホート研究の運営費用をタイ側で完全に負担するにはいたっていない。また、コホートで得られたサンプルを使用した研究も、今後、さらに発展し、国際的な学術誌に掲載されるレベルの研究となることが期待される。したがって、コホート研究を維持するためには、運営、財務、技術的な支援がまだ必要である。

センチネルサイトでのラボラトリーによる新興・再興感染症サーベイランスに関しては、保健省の新興・再興感染症サーベイランス・プロジェクトでセンチネル病院を含む財務的な面を維持することが可能である。NIHの役割である、診断技術の向上とデータ管理は、今後、NIHの日常業務として維持されるだろう。

４－２　結　論

感染症には国境がないといわれるが、プロジェクトの成果によって、タイの感染症に対する診断・研究能力が向上したことは、日本にとっても公衆衛生上、非常に有益であるといえる。

全般的にプロジェクト活動は順調に進められており、目標はおおむね達成されたと評価された。しかし、一部緒活動の自立発展性については、経費、技術の両方につき課題が残った。経費面については、特にランパンのAIDSデイケア・センターで設立されたコホートの維持にかかる経費を、タイ側が負担することが困難であると思われる点である。また、技術面では、今後、若干の継続的な支援によって、いくつかの研究において日本の大学、及び研究機関との共同研究に発展させることが可能であろうと思われる。これら経費及び技術の課題を解決するため、２年間のフォローアップが必要と判断された。

コホート研究は10年、又はそれ以上の期間を継続的にある集団を追跡調査をすることが通常である。２年間のフォロー期間に、コホートから得られるサンプルを用いたNIHでの研究が本格化され、研究結果が論文として発表されることが期待される。その結果、NIH、あるいは他国研究機関等がコホートの価値をより高くとらえ、２年間のフォロー終了後、タイ側でコホートの維持管理が可能となるようタイ・日本側双方が努力していくことが重要であると思われる。

よって、コホート研究を発展させることを目的としたフォローアップを行うため、長期専門家１名を２年間派遣することとする。

また、いくつかの研究を共同研究に発展させるための支援は、国内支援委員会からフォローアップ実施の要請があったものであり、「本部協力機関活動支援」と位置づけ、感染症５疾患（B型肝炎、デング（出血）熱、レプトスピラ症、エンテロウイルス感染症、肝炎）を国内支援機関からの短期専

門家派遣(年間５名程度、各２～３週間派遣)により支援することとする。

タイは、その政策として、支援を受ける国という立場から支援国とともに協力しながらタイ周辺国への協力を行うかたち(パートナーシップ)へと方向転換を図っている。タイからは本プロジェクト終了にあたり、「NIHを拠点とした周辺国のラボラトリーネットワーク化構想」に対する支援要請が我が国にあったものの、周辺国の重点保健課題と照らし合わせた際に、実験室への協力に対する優先度が必ずしも高くなかったことから同要請書は採択を見送られた。

NIHへの日本の協力は20年にものぼる。この間、日本からの支援によりNIHの研究能力は目覚しくレベルアップされた。また、本プロジェクトの枠組みを超え、日本の大学、研究所との研究関係も築かれた。長い協力で構築された、人間関係、信頼関係、技術的蓄積、整備された実験室環境は、非常に貴重なものであり、これらの資源を生かすためにも、今後、NIHへの協力の方向性を我が国として考えていく必要がある。

第５章　提言と教訓

５－１　提　言

(1) 2000年７月以降、750名のHIV感染者がコホート(患者集団)に登録された。患者から採取された血清・細胞を用い、免疫学的、分子レベルの研究が開始された。プロジェクトのカウンターパートは研究者として成長し、日本の大学との共同研究を行うに足る資質を得るに至った。コホートが、今後とも維持され、共同研究が更に促進されることが望まれる。

(2) プロジェクトにより国立衛生研究所(NIH)の研究機能が向上したことは、日本とタイが共同研究を始めることに大きく貢献した。プロジェクト終了後も、日本の研究所及び大学とNIHとの両者の努力によって、共同研究を継続することが望まれる。

(3) NIHは、検査・診断技術のアップデートと標準化、及び感染症サーベイランスにかかわる指定病院への診断技術の移転に努力するべきである。それには、疫学ユニット、及び他の保健省傘下のユニットとの協力が重要である。

(4) NIHは、HIV／AIDS及び他の感染症対策を地域規模で行うことの必要性を重要視しており、タイ国内だけではなく、地域規模、あるいは国際規模における感染症対策への取り組みが促進されるべきである。

５－２　教　訓

(1) これまでの20年間にわたる長い協力関係のなかで築いた日本・タイ側双方との良好な人間関係が技術移転の円滑な実施につながった。

(2)「AIDS研究支援費」というAIDS研究に関して、柔軟に使用できる予算ができたことにより、AIDS研究コホートの設立と維持が可能になった。

(3) プロジェクトで移転した技術によって、日本の研究所及び大学との共同研究が可能となった。また、プロジェクトの成果は、タイ・日本側双方、更にその他の近隣諸国の感染症対策に利益をもたらした。

５－３　他ドナー(米国疾病対策予防センター)の協力

本調査団は、NIHに事務所を置いている米国疾病対策予防センター(CDC)－保健省の共同プロ

グラムも訪れ、CDCのタイへの協力についても意見交換をした。CDCは、1990年よりHIVワクチンのフィールド・トライアルを行い、現在もその予算・規模は増加している。2001年より、主に予防とケアに対する対策活動(US CDC's Global AIDS Program：GAP)と新興感染症に関する情報ネットワーク(International Emerging Infections Program：IEIP)活動が加わり、「タイ保健省－CDC共同プログラム」と名称が変わり、活動・予算規模及び活動分野は飛躍的に拡大した。現地スタッフが63名から200名へ、米国から派遣されたCDCスタッフは13名となった(以前は３～４名であった)。さらに、タイが中心となって、近隣諸国とのネットワーク構築(ベトナム、カンボジア、インドなど)を通じての広域支援が開始され、①HIV／性感染症／結核、②新興感染症を対象として活動が行われており、９割がHIV／性感染症／結核関連の活動である。HIV／性感染症／結核関連の活動に費やされる予算規模は、約1,000万USドルで、うち４割が研究、６割がGAPにあてられている。GAPについては、現在63のプロジェクトがタイ国内で実施されており、１つのプロジェクト当たり平均で年間10万USドルの規模である。JICA NIH機能強化プロジェクトと、CDCの協力が重複されていないことが確認された。CDCのフィールド経験と我々が協力しているラボラトリー技術とを連携させることによって、新たな共同研究活動を発展させることは、十分可能性があるとの意見で一致した。

付　属　資　料

１．調査日程

２．主要面談者

３．ミニッツ

１．調査日程

日順	月　日	曜日	移動及び業務
1	７月29日	火	薄田団員移動　11:05成田発→15:30バンコク着（JL717）
2	７月30日	水	薄田団員NIHにてJICA専門家とのミーティング
3	７月31日	木	薄田団員NIHにてカウンターパートへ聞き取り調査 田中団員移動　11:05成田発→15:30バンコク着（JL717）
4	８月１日	金	薄田団員・田中団員移動　バンコク⇔ランパン ランパン病院調査（AIDSコホート）
5	８月２日	土	資料作成
6	８月３日	日	水田団長、山崎団員、倉田団員、岩本団員 移動　11:05成田発→15:30バンコク着（JL717） 夜　団内打合せ
7	８月４日	月	午前：在タイ日本国大使館・JICAタイ事務所打合せ、DTEC表敬 午後：カウンターパートのプレゼンテーション及びディスカッション （AIDSワクチン、コホート研究、実験動物）
8	８月５日	火	カウンターパートのプレゼンテーション及びディスカッション （感染症ネットワーク） 水田団長、田中団員は米国CDCとAIDS協力に関する意見交換、及び 国際寄生虫対策アジアセンター（ACIPAC）プロジェクトとの打合せ
9	８月６日	水	評価レポート取りまとめ
10	８月７日	木	午前：評価レポート取りまとめ 午後：Joint Coordinating Committee タイ側主催ディナー 倉田団員移動　22:15バンコク発→6:15成田着（JL718）
11	８月８日	金	ミニッツ署名 水田団長主催ランチ 在タイ日本国大使館及びJICAタイ事務所報告 移動　22:15バンコク発→（JL718）
12	８月９日	土	→6:15成田着

２．主要面談者

（1）タイ側関係者

1） 保健省医科学局（Department of Medical Sciences (DMSc), Ministry of Public Health）

Dr. Somsong Rugpoa	Director General of DMSc
Dr. Pathom Sawanpanyalert	Director of National Institute of Health (NIH)

2） その他保健省関係者

Dr. Panita Pathivanich	Deputy Director, Lampang Hospital

3） 外務省海外経済技術協力局（DTEC）

Mr. Banchong Amornchewin	Chief of Japan Sub-division
Mr. Wattanawit Gajaseni	Programme Officer, Japan Sub-division

（2）日本側関係者

1） 在タイ日本国大使館

生田　直樹	二等書記官

2） JICAタイ事務所

中井　信也	所　長
奥邨　彰一	次　長
大橋　勇一	担当所員

3） 国立衛生研究所機能向上プロジェクト専門家

加文字　信子	業務調整員
萩原　敏且	感染症研究長期専門家
有吉　紅也	AIDS研究長期専門家
吉池　邦人	HIV／AIDS研究総括調整短期専門家

（1999年４月１日から2003年３月31日まで　チーフアドバイザー）

4） 国際寄生虫対策アジアセンタープロジェクト専門家

小島　荘明	チーフアドバイザー
碓井　哲郎	業務調整員

（3）その他

1） 米国疾病対策予防センター（CDC）

Dr. Jordan W. Tappero	Director, Thailand MOPH-U. S. CDC Collaboration

3．ミニッツ

MINUTES OF MEETINGS
BETWEEN THE JAPANESE FINAL EVALUATION TEAM AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE KINGDOM OF THAILAND ON JAPANESE TECHNICAL COOPERATION FOR THE PROJECT FOR STRENGTHENING OF NATIONAL INSTITUTE OF HEALTH CAPABILITIES FOR RESEARCH AND DEVELOPMENT ON AIDS AND EMERGING INFECTIOUS DISEASES

The Japanese Final Evaluation Team (hereinafter referred to as "the Japanese Team"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Ms. Kayoko Mizuta, visited the Kingdom of Thailand from July 29 to August 9, 2003. The purpose of the Japanese Team was to evaluate the implementation and achievements of the Project for Strengthening of National Institute of Health Capabilities for Research and Development on AIDS and Emerging Infectious Diseases (hereinafter referred to as "the Project") based on the Record of the Discussions signed on November 24, 1997.

During its stay, both the Japanese Team and the Thai Final Evaluation Team (hereinafter referred to as "the Thai Team"), organized by Dr. Somsong Rugpoa, Director-General, the Department of Medical Sciences, Ministry of Public Health formed the Joint Final Evaluation Team, which executed of the final evaluation of the Project during the stay of the Japanese Team in the Kingdom of Thailand.

As a result of discussions, the Joint Final Evaluation Team agreed upon the matters referred to in the documents attached hereto.

Nonthaburi, August 8, 2003

Ms. Kayoko MIZUTA
Leader
Japanese Final Evaluation Team
Japan International Cooperation Agency
Japan

Dr. Somsong RUGPOA
Director-General
Department of Medical Sciences
Ministry of Public Health
The Kingdom of Thailand

ATTACHED DOCUMENT

1. Introduction

1-1. Brief Background of the Project

The Project was started in March 1999 based on the request from the Kingdom of Thailand for strengthening the capabilities for research on HIV/AIDS and emerging and re-emerging infectious diseases. During the Project period, managing consultation teams were dispatched from Japan for monitoring the progress of the Project in 2000 and 2001 respectively. Also the mid-term evaluation team was dispatched in 2002, reviewed achievements and made recommendation for the remaining period of the Project. Before the termination of the Project period, JICA dispatched the final evaluation team headed by Ms. Kayoko Mizuta, Special Technical Advisor, JICA to the Kingdom of Thailand from July 29 to August 8, 2003 in order to evaluate the implementation and achievements of the Project.

1-2. Duration of Technical Cooperation

Five years from March 1, 1999 to February 29, 2004

1-3. Objectives of the Project

(1) Overall Goal:

National Institute of Health conducts biomedical studies contributing further to the control of infectious diseases in Thailand.

(2) Project Purpose:

National Institute of Health improves its capabilities for research on HIV/AIDS and emerging and re-emerging infectious diseases.

1-4. Implementing Agency

National Institute of Health, Department of Medical Sciences,
Ministry of Public Health

1-5. The Joint Final Evaluation Team

The name of the member is listed in Appendix 1.

2. METHOD OF EVALUATION

2-1. Evaluation Framework - Project Design Matrix for Evaluation (PDM-E)

JICA's Project Evaluation Guideline, which adopted a concept of Project Design Matrix (PDM) and Project Cycle Management (PCM), was applied to the evaluation of the Project. The PDM, which was formulated before the Project implementation, outlines the essential project elements including risks[1] in the course of project implementation (Appendix 2: PDM). Based on this PDM, the PDM-E (Appendix 3: PDM for Evaluation) was created in consulting with relevant personnel. This PDM-E serves as the framework and the basis to design evaluation grids shown in 2-2 Principal Study Items and Collection Methods of Information and Data.

While these evaluation grids present the summary of evaluation methodology for the final evaluation of the Project, the followings should be also taken into account due to the nature of the Project.

(1) The major outputs of the Project related to research are qualitative in nature and can be understood as qualitative statements with highly specialized terms. Since it is difficult to measure such qualitative achievement with the indicators described in PDM, the degree of accomplishment of each output needs to be assessed and complied with the qualitative statement by highly experienced and qualified specialists.

(2) Since the Project has been implemented in the form of several collaborative studies, it is difficult to identify separately the outputs produced by JICA-funded project. This also applies to inputs.

2-2. Principal Study Items and Collection Methods of Information and Data

The Grid for Performance and Achievement is shown in a table (Appendix 4: Grid for Performance and Achievement) that indicates principal study items and collection methods of information and data to assess the performance of the Project including its management and implementation process.

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[1] Negative aspects of external conditions in the PDM

The Grid for Five Evaluation Criteria is shown in a table (Appendix 5: Grid for Five Evaluation Criteria) that indicates principal study items and collection methods of information to evaluate the Project based on following five evaluation criteria.

(1) Relevance:
The relevance is the measure for determining whether overall goal and project purpose are in accordance with the Thai health policy and aid policy of Japanese Government as well as the needs of health providers and the beneficiaries.

(2) Effectiveness:
The effectiveness is concerned with the extent to which the project purpose has been achieved, or is expected to be achieved, in relation to the outputs produced by a project.

(3) Efficiency:
The efficiency is the measure for the productivity of the implementation process: how efficiently the various inputs are converted into outputs.

(4) Impact:
The impact is intended or unintended, direct or indirect, positive or negative changes that occur as a result of a project.

(5) Sustainability:
The sustainability is the measure for determining whether or not the project benefits are likely to continue after the external aid comes to an end.

In order to increase the creditability of information, different collection methods of information (or cross check on different sources of information) were applied to the same study item. Methods used for collecting information and data are as follows.

(1) Documents review: to review the Project documents, monitoring records, relevant literatures and statistics.
(2) Direct observation: to observe appropriateness of facilities, equipment, techniques, service provided and recordings.
(3) Questionnaire / Interview: to conduct interviews to key informants with the general questions which are informed in advance but necessary questions are added while conducting the interview (semi-structured interview).
(4) Presentation: to assess the performance and achievements of the Project through 16 presentations related to the Project outputs, including questions and answers.

3 RESULTS OF EVALUATION

3-1. Project Inputs

(1) Inputs from the Japanese side

The Japanese side dispatched 7 long-term experts and 43 short-term experts in various fields since the commencement of the Project. 8 short-term experts are scheduled to dispatch to the Project. Their names and specialties are listed in Appendix 6.

15 Thai counterparts were trained at various institutes in Japan. Also 3 more Thai counterparts are scheduled to be trained in Japan. Their names and specialties are listed in Appendix 8.

Major equipment provided by the Japanese side is listed in Appendix 9.

The Japanese side partially supported the operational expenses of JP¥ 123,208,000 (Thai Baht 43,115,006). The amount for each fiscal year is listed in Appendix 11.

(2) Inputs from the Thai side

A total of 22 counterparts have been assigned, and engaged in the Project activities. List of designated counterpart personnel is shown in Appendix 7.

During the Project period, the Kingdom of Thailand provided project offices and facilities at both Thai National Institute of Health (NIH) and Lampang Hospital, substantial amount of operational cost and human resources other than the counterparts. The Thailand side partially supported the operational expenses of JP¥ 16,049,850 (Thai Baht 5,589,000). The amount of operational expenses of the Project for fiscal year is listed in Appendix 11.

3-2. Project Performance and Achievements

Major accomplishments of the Project research activities (Appendix 14: Review Reports on the Project Research Activities) were summarized below, and the

complementary grounds for the degree of accomplishments are shown in Appendix 12: Results for Performance and Achievement.

(1) Output I : Conditions facilitating studies of HIV infection and AIDS are strengthened.

Summary of the performance for the output is as follows.

> The Lampang cohort study was smoothly launched. Between July 2000 and October 2002, 756 HIV-infected individuals and 106 HIV sero-negative spouses of HIV-infected spouses were recruited for the cohort. Both spouses of 118 concordant and 74 discordant couples were enrolled. Owing to the dedicated work by the cohort team new patient registration increased in 2001 and 2002. The collaboration between the cohort team and hospital personnel is very good. Several research projects using the samples from the Lampang cohort are actively conducted in NIH. Counterparts have grown up and are now working as the excellent collaborators of several Japanese researchers. The Lampang cohort should be maintained and expanded.

In the course of the Project implementation, the following activities were executed with expected quality performance. The progress of major activities as expected at the time of evaluation is indicated in parenthesis.

> 1-1. Introduce relevant techniques for immunological, virological, molecular studies of HIV-1 infection and AIDS. (Almost completed)
> 1-2. Establish P2/3 laboratories for radioisotope experiments. (Completed)
> 1-3. Develop cohorts to study HIV-1 infection and AIDS pathogenesis. (Completed)
> 1-4. Establish field stations for cohorts. (Completed)

According to the basis above, the output - Conditions facilitating studies of HIV infection and AIDS are strengthened – has been achieved as planned and will have been completed by the end of the Project.

(2) Output II: HIV-1 vaccines evaluation system using animals in the containment laboratory is established.

Summary of the performance for the output is as follows.

1. Supply of essential equipment for the laboratories, bleeding and providing small animals including Guinea pigs, BALB/C mice and NOD SCID mice etc., and training Thai staff for handling and testing infected animals – all these have been implemented and well maintained. Consequently, NIH capability to function as Animal Center for research use has been much improved.
2. These facilities and animals are currently used for some research activities including immunological study relevant to HIV vaccine development.
3. Moreover, biosafety management system for BSL-2 and –3 laboratories including animal labs was newly established in 2000 as a result of reviewing baiosafety level of pathogen handling laboratories in NIH. It was reported that biosafety management necessary for the maintenance of an appropriate biosafety level in Animal Unit is regularly conducted by checking with HEPA filters, air pressure gauge and records of maintenance of the supplied equipments.
4. The Biosafety Committee was organized for biosafety management to inspect biosafety conditions of BSL-2 and –3 laboratories at NIH.
5. As a result, the Animal Center is now considered to be ready for the use of evaluation of HIV vaccine candidates for clinical tests, provided if the Good Laboratory Practice (GLP) standard is established there in future.

In the course of the Project implementation, the following activities were executed with expected quality performance. The progress of major activities as expected at the time of evaluation is indicated in parenthesis.

Conditions facilitating studies of HIV infection and AIDS are strengthened. (Completed)
HIV-1 vaccines evaluation system using animals in the containment laboratory is established. (Completed)
2-1. Supply essential equipment for the laboratories. (Completed)
2-2. Introduce skills for handling and testing infected animals in the containment animal laboratory (BSL3 laboratory). (Completed)
2-3. Establish a biosafety management system for the containment animal laboratory. (Completed)

According to the basis above, the output - HIV-1 vaccines evaluation system using animals in the containment laboratory is established – has been achieved as planned.

(3) Output III: Facilities for the national repository system for HIV vaccine trials and the serum bank are established.

Summary of the performance for the output is as follows.

> JICA provided three deep freezers (-80 ℃) and two liquid nitrogen freezers as well as liquid nitrogen generator for specimen storage. It was reported that 28,175 samples from Bangkok Vaccine Evaluation Group (BVEG) vaccine trials in Bangkok and about seven hundred samples from the National Health Survey in the Kingdom of Thailand (2000 & 2002) are stored, and that the system is smoothly operated by computer and software for specimen inventory system.

In the course of the Project implementation, the following activities were executed with expected quality performance. The progress of major activities as expected at the time of evaluation is indicated in parenthesis.

> 3-1. Supply essential equipment for the storage system. (Completed)
> 3-2. Establish an inventory system. (Completed)

According to the basis above, the output - Facilities for the national repository system for HIV vaccine trials and the serum bank are established – has been achieved as planned.

(4) Output IV: Capabilities of identifying etiologic agents are improved.

Summary of the performance for the output is as follows.

> Since 1999 when the Project started, 14 fellows have been invited for 1 to 6 months to the National Institute of Infectious Disease and other institutions in Japan and trained to improve their technologies for diagnosis and basic research on emerging infectious diseases. On the other hand total 28 short-term experts were dispatched to Thai NIH in addition to 4 long-term experts

for technology and information transfer and collaborative research and improvement of diagnostic activities. During past four years, the method in priority was gene technology, such as PCR, sequencing etc for detection of pathogens. The equipment, 22 items, necessary for handling and testing microbiological agents were donated to Thai NIH, and have been used effectively as far as reviewers inspected. "Technology transfer" itself for identification of microbiological agents has been done well, and the ambition of Thai colleagues and the efforts of both side were highly appreciated. The progress since mid-term evaluation is seen in application of transferred methods to the field materials from sentinel hospitals with successful reliable results. The methods transferred are highly useful and essential in this project. Through this project, several research results have been published in the internationally qualified journals.

In the course of the Project implementation, the following activities were executed with expected quality performance. The progress of major activities as expected at the time of evaluation is indicated in parenthesis.

4-1. Introduce laboratory techniques for diagnosing emerging and re-emerging pathogens to NIH as the national reference laboratory. (Completed)
4-2. Introduce appropriate techniques for the diagnosis of emerging and re-emerging pathogens to the network laboratories. (Completed)

According to the basis above, the output - Capabilities of identifying etiologic agents are improved – has been achieved as planned.

(5) Output V: Laboratory network for surveillance is strengthened.

Summary of the performance for the output is as follows.

Thai Ministry of Public Health (MOPH) initiated a national project for surveillance of emerging and re-emerging infectious diseases (EID) surveillance project in 1999. Target diseases under the EID surveillance were categorized into 9 groups, which are comprised of 11 diseases and more than 30 pathogens in total. The EID project designated 4 provincial hospitals as the sentinel sites to provide laboratory findings together with patient information.

These 4 hospitals are located near the borders of 4 adjacent countries; Nong-Khai Provincial Hospital (near Laos), Mae Sod Hospital, Tak Province (near Myanmar) Prapokklau Hospital, Chantaburi Province (near Cambodia) and Had Yai Hospital, Songkhla Province (near Malaysia).

Appropriate manuals for collecting and handling specimens and transporting them to NIH were prepared by NIH as well as specimen delivery sheets and reporting sheets in both Thai and English.

Laboratory data with some patient information are collected at the EID Office, NIH from the collaborating hospitals as well as from 13 laboratories at NIH and Processed on computer to analyze epidemiological features of pathogens under the EID surveillance.

The system and technologies necessary to function as national reference laboratory for the EID surveillance program have been established at NIH in collaboration with Japanese experts through the Project.

The progress of major activities as expected at the time of evaluation is indicated in parenthesis.

5-1. Establish a laboratory network system between NIH and sentinel provincial hospitals. (Completed)
5-2. Introduce data-processing techniques. (Almost completed)

According to the basis above, the output - Laboratory network for surveillance is strengthened – has been achieved as planned.

3-3. Analysis Based on Five Evaluation Criteria

The results of the analysis based on five evaluation criteria are summarized below, and the grounds for the evaluation analysis are shown in Appendix 13: Results for Five Evaluation Criteria.

(1) Relevance

HIV/AIDS and other infectious diseases still remain as leading cause of mortality in the Kingdom of Thailand. Innovative prevention and care for HIV/AIDS including control of opportunistic infections meet not only the demand of Thai citizens but also the demand of people in the region.

The Thai National Development Plan has adopted strategies for developing effective technologies and innovations for the control of EID with those high morbidity and mortality rates. Thus, NIH has played an important role in quality research and national referral laboratory including evaluation of HIV vaccine and laboratory based surveillance of EID with accurate and proper laboratory test capacity.

Since Japan's Initiative in the Fight against Infectious and Parasitic Diseases on occasion of the Kyushu-Okinawa Summit in 2000, the Government of Japan has substantially supported the area of research on infectious diseases and promoted international cooperation in vaccine research and development.

In this context, the Project is in line with both the Thailand policy and Japanese ODA (Official Development Assistance) policy as well as the needs of Thai People. Therefore, the Project is considered as relevant.

(2) Effectiveness

The Project purpose – NIH improves its capabilities for research on HIV/AIDS and emerging and re-emerging infectious diseases – has achieved as planned at the time of evaluation and will have been completely achieved by the end of the Project.

NIH acquired not only high quality research and development capacity for HIV studies but also capacity of clinical research field through the established combination of NIH laboratory and the Lampang Hospital field station. These achievements, together with establishment of quality animal laboratory and the national repository system for HIV vaccine trials and the serum bank, improve research environment and even stimulate research activities in terms of inducing wider and quality research topics and collaboration with external researchers.

NIH improved both research and referral functions on EID. Introduced various techniques, knowledge and study methodologies enabled NIH not only improve its research capability but also strengthen its laboratory based surveillance function as the national referral laboratory. The Project supported the MOPH's EID project that aims to develop and test laboratory based surveillance, and to strengthen the laboratory network of the surveillance using 4 sentinel hospitals close to neighboring countries.

It is recognized that there are some contributing factors that affected the effectiveness of the Project. Research collaborations with Japanese universities and institutions contributed to maintaining research quality and renovating NIH brought about productive laboratory environment.

(3) Efficiency

The resources from JICA as well as Thai NIH were appropriate in terms of quality and quantity. The timing of dispatching Japanese experts was appropriate, and therefore efficient, for the Project. Cooperation performed by the long-term and short-term experts was appropiate in quality, with flexible support based on good communication with the Thailand side.

Regarding the delivery of equipment, there were slight delays in arrival, which affected certain activities. However, it did not create a major problem for the outputs.

Other than JICA inputs, equipment and small grants provided by collaborative research to some extent contributed to the achievement of outputs.

(4) Impact

NIH's role for pursuing the public interest in the control of infectious diseases will be enhanced in terms of maintaining high quality of research work and national referral laboratory. The Project has largely improved NIH's capability on HIV/AIDS studies and succeeded in expanding the capacity and scope of research subject by means of combined NIH laboratory and the Lampang couple cohort. Such effort will potentially enable NIH to produce a substantial number of publication and seeds of quality research subject.

Enhanced capability of NIH on research of EID, which increases the capacity of identifying pathogenic agent and laboratory network, will lead to creating laboratory-based surveillance system to collect, analyze and feedback the necessary information for EID in border area of the King of Thailand.

Some of those works including research have been already recognized as published papers, compiled reports or guidelines although they vary from molecular level to field level and from basic theme to topics on clinical treatment which is directly associated to benefit of the people living with HIV/AIDS or the people at risk with emerging and re-emerging infectious diseases. For instance, the activities under the cohort study enabled them to make easy diagnosis of HIV infection and to measure viral load for infants in Lampang Hospital where such diagnosis has not been feasible before.

Furthermore, improved capacity of NIH in terms of facilities, staff and quality of work will attract other collaborators to participate in research. Thus it may positively affect the realization of the overall goal – NIH conducts biomedical studies contributing to the further control of infectious diseases in the king of Thailand.

No negative influence was identified at the time of evaluation.

(5) Sustainability

The research activities and referral function of NIH will be maintained since the improved capability through the Project was build in required NIH's routine activities including maintenance of equipment. While the budget for NIH has declined slightly, it is perceived that NIH will absolve such external condition as it has been.

In addition, the improved NIH's capability of research environment will potentially attract external collaborators with additional resources for research and routines.

For the collaborative work between NIH and Lampang Hospital, both are willing to continue the cohort study until they obtain expected outcomes. However, both are not able to fully bear the cost. Assigned JICA experts and full time staff for the cohort have played a critical role to strengthen the bond among concerned parties. In order to sustain the cohort, managerial, financial and technical support is still needed.

For the EID laboratory based surveillance at sentinel sites, the financial aspect including sentinel hospitals will be maintained under MOPH's EID surveillance project. It is considered that the role of NIH, which is to improve diagnosis and data management, will be sustained as the routine work of NIH.

4. Conclusion

The project purpose – Thai NIH improves its capabilities for research on HIV/AIDS and emerging and re-emerging infectious diseases- has been successfully achieved and will be fully achieved at the end of the Project term.

There is no national border for pathogens. Thus it is important to consider the regional control of infectious diseases. From the public health point of view, the outcomes of the Project are highly beneficial to both the Kingdom of Thailand and Japan and other countries in this region.

5. Recommendations

Based on the results of the final evaluation, the Joint Final Evaluation Team recommends the followings to both governments.

(1) More than 750 HIV infected persons have been recruited in Lampang HIV/AIDS cohort since July 2000. Detection of drug resistant viruses, HIV-specific immunity, and host genetic factors are main research targets at Thai NIH. Transfer of molecular and immunological techniques was conducted smoothly. Counterparts who have grown up during this period are now considered to be highly qualified collaborators of many Japanese researchers. Therefore, the Lampang cohort site should be maintained and scientific collaborations be promoted.

(2) The Project has contributed to facilitating the application of transferred technologies necessary for the laboratory diagnosis of EID to development of new collaborative research activities between the kingdom of Thailand and Japan. These activities should be maintained and further expanded by mutual efforts after termination of this Project.

(3) Thai NIH needs to make continuous efforts to update and standardize diagnostic

methods, and then, transfer them to collaborating hospitals for respective diseases under the EID surveillance, which requires closer collaboration with the Bureau of Epidemiology and other MOPH agencies.

(4) As Thai NIH has identified needs to address problems on HIV/AIDS and other emerging infections with regional or multi-national approach beyond domestic scope, regional and international collaboration should be promoted.

6. Lessons Learned

(1) Previous and continuous communication on technology transfer and research between counterparts and experts has contributed to the production of good results in the collaboration.

(2) The flexible use of a JICA fund for research on HIV/AIDS was effective to establish and maintain the HIV/AIDS cohort.

(3) Technology transfer through the Project facilitated research collaboration between Thai NIH and research institutes in Japan and has benefited the control of infectious diseases in both countries and beyond.

APPENDIX

Appendix 1: Member List of the Final Evaluation Team
Appendix 2: PDM
Appendix 3: PDM for Evaluation
Appendix 4: Grid for Performance and Achievement
Appendix 5: Grid for Five Evaluation Criteria
Appendix 6: List of Japanese Experts Dispatched
Appendix 7: List of Designated Counterparts for the Project
Appendix 8: List of Thai Counterparts Trained in Japan
Appendix 9: List of Major Equipment Provided
Appendix 10: Amount of Equipment Provided
Appendix 11: Amount of Operational Expenses of the Project
Appendix 12: Results for Performance and Achievement
Appendix 13: Results for Five Evaluation Criteria
Appendix 14: Review Reports on the Project Research Activities

Member List of the Final Evaluation Team

Japanese Side

	Name	Mission	Job Title	Period (Arr.-Dep.)
1	Ms. Kayoko MIZUTA	Team Leader	Special Technical Advisor, JICA	3-8 Aug., 2003
2	Dr. Shudo YAMAZAKI	Over All of Infectious Diseases Control	Former Director-General, National Institute of Infectious Diseases	3-8 Aug., 2003
3	Dr. Takeshi KURATA	Emerging/Reemerging Infectious Diseases Control	Deputy Director-General, National Institute of Infectious Diseases	3-7 Aug., 2003
4	Dr. Aikichi IWAMOTO	HIV/AIDS Control	Professor, Tokyo University	3-8 Aug., 2003
5	Ms. Hiroko TANAKA	Cooperation Planning	Program Officer, Medical Cooperation Department, JICA	31 July -8 Aug., 2003
6	Mr. Eimitsu USUDA	PCM Evaluation	Senior Consultant, IC-Net, Ltd.	29 July -8 Aug., 2003

Thai Side

	Name	Mission	Job Title
1	Dr. Somsong Rugpoa, MD, MPH	Project Director	Director-General, Department of Medical Sciences, Ministry of Public Health
2	Dr. Pathom Sawanpanyalert, MD, DrPH,	Project Manager	Director of NIH, Department of Medical Sciences, Ministry of Public Health

Project Name: Strengthening of National Institute of Health Capabilities for Research and Development on AIDS and Emerging Infectious Diseases

Duration: March 1999 - February 2004

Date: 24 December 1998 **Version:** PDM_0

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal: NIH conducts biomedical studies contributing further to the control of infectious diseases in Thailand.			
Project Purpose: NIH improves its capabilities for research on HIV/AIDS and emerging and re-emerging infectious diseases.	NIH enhances its research activities on AIDS and emerging and re-emerging diseases.	Published and unpublished records of NIH research activities Records of scientific meetings and workshops organized by NIH	MOPH does not change substantially its policies for research on AIDS and emerging and re-emerging diseases with NIH.
Output:			
I Conditions facilitating studies of HIV infection and AIDS are strengthened.	1. Relevant immunological, virological, molecular studies of HIV-1 infection and AIDS are conducted 2. P2/3 laboratories of radioisotope experiments are established 3. Cohorts for studying HIV-infection and AIDS pathogenesis are developed 4. Field station	1. Experiment records in laboratory notebooks 2. Records of building the P2/3 laboratories 3-1. Data files of cohort subjects 3-2. Records of cohort samples 4. Records of building field stations	
II HIV-1 vaccines evaluation system using animals in the containment laboratories(BSL3 laboratory) is established	1. Essential equipment for the laboratories is supplied 2. Thai staff are trained for handling and testing infected animals 3. Biosafety management system for the laboratories is established	1. Records of the supplied equipment 2. Records of training Thai staff 3. Biosafety manuals for animal equipment	
III Facilities for the national repository system for HIV vaccine trials and the serum bank are established.	1. Essential equipment for the storage system is supplied 2. Samples are adequately stored	1. Records of the supplied equipment 2. Records of sample location	III Assistance from the National AIDS Vaccine Committee and the research groups are provided to the national repository system.
IV Capabilities of identifying etiologic agents are improved.	1. Laboratory diagnostic test for emerging and re-emerging pathogens are conducted at NIH 2. Appropriate diagnostic tests for certain emerging and re-emerging pathogens are conducted at provincial hospitals	1. Records in laboratory notebooks 2. Records in laboratory notebooks	
V Laboratory network for surveillance is strengthened.			

Activities:	Inputs:		
I-1 Introduce relevant techniques for immunological, virological, molecular studies on HIV-1 infection and AIDS.	**Thailand**	**Japan**	I Additional space for P2/P3 laboratories is allotted to NIH.
I-2 Establish P2/P3 laboratories for radioisotope experiments.	1) Project office and facilities 2) Full-time counterpart personnel for the project 3) Budget for Thai personnel and operation of the project 4) Preparation for Project Coordinating Committee	1) Dispatch of Japanese Experts (Long and Short) 2) Provision of equipment 3) Training of Thai counterparts in Japan	I Collaboration with OPS and CDC is obtained.
I-3 Develop cohorts for studying HIV-1 infection and AIDS pathogenesis.			
I-4 Establish field stations for cohorts.			
II-1 Supply essential equipment for the laboratories.			
II-2 Introduce skills for handling and testing infected animals in the containment animal laboratory(BSL3 laboratory).			
II-3 Establish biosafety management system for the containment animal laboratory(BSL laboratory).			
III-1 Supply essential equipment for the storage system.			
III-2 Establish inventory system.			
IV-1 Introduce laboratory techniques for diagnosing emerging and re-emerging pathogens to NIH as the national reference laboratory.			IV Capabilities of regional medical science centers and regional hospitals are strengthened.
IV-2 Introduce appropriate techniques for the diagnosis of emerging and re-emerging pathogens to the network laboratories.			
V-1 Establish a laboratory information processing system			V Collaboration with OPS and CDC is obtained
			Precondition: Budget allocation for NIH does not decrease substantially.

Project Name: Strengthening of National Institute of Health Capabilities for Research and Development on AIDS and Emerging Infectious Diseases

Duration: March 1999 - February 2004

Project Area: Project Area: NIH in Bangkok, Lampang Hospital for the cohort study, 4 sentinel sites for emerging and EID (Non-kai, Pra-pok-kloa, Mae-sod, and Hat-yai hospitals) .

Date: July 2003

Version: PDM_E_3

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal: NIH conducts biomedical studies contributing further to the control of infectious diseases in Thailand.	NIH' s role for pursuing the public interest on the control of infectious diseases is enhanced with the following functions. 1. Maintain high quality of research performance 2. National reference laboratory to response the control of infectious diseases	1. Records of NIH research activities 2. Records of laboratory based sentinel surveillance on emerging and re-emerging diseases	
Project Purpose: NIH improves its capabilities for research on HIV/AIDS and emerging and re-emerging infectious diseases.	1. NIH' s research activities on AIDS is enhanced 2. NIH' s function of referral laboratory on emerging and re-emerging diseases is enhanced	1. Published and unpublished records of NIH research activities 2. Records of scientific meetings and workshops organized by NIH 3. Technical assessment at presentations on achievment	MOPH does not change substantially its policies for research on AIDS and emerging and re-emerging diseases with NIH.
Output: I Conditions facilitating studies of HIV infection and AIDS are strengthened.	1. Relevant immunological, virological, molecular studies of HIV-1 infection and AIDS are conducted 2. P2/3 laboratories of radioisotope experiments are established 3. Cohorts for studying HIV-infection and AIDS pathogenesis are developed 4. Field stations for cohorts are established	1. Experiment records in laboratory notebooks 2. Records of building the P2/3 laboratories 3-1. Data files of cohort subjects 3-2. Records of cohort samples 4. Records of building field stations 5. Technical assessment at presentations on achievment	
II HIV-1 vaccines evaluation system using animals in the containment laboratories(BSL3 laboratory) is established	1. Essential equipment for the laboratories is supplied 2. Thai staff are trained for handling and testing infected animals 3. Biosafety management system for the laboratories is established	1. Records of the supplied equipment 2. Records of training Thai staff 3. Biosafety manuals for animal equipment 4. Technical assessment at presentations on achievment	
III Facilities for the national repository system for HIV vaccine trials and the serum bank are established.	1. Essential equipment for the storage system is supplied 2. Samples are adequately stored (change of sample number before and after)	1. Records of the supplied equipment 2. Records of sample location 3. Technical assessment at presentations on achievment	III Assistance from the National AIDS Vaccine Committee and the research groups are provided to the national repository system.

Ⅳ Capabilities of identifying etiologic agents are improved.	1. Laboratory diagnostic test for emerging and re-emerging pathogens are conducted at NIH 2. Appropriate diagnostic tests for certain emerging and re-emerging pathogens are conducted at provincial hospitals	1. Records in laboratory notebooks 2. Records in laboratory notebooks 3. Technical assessment at presentations on achievment	
Ⅴ Laboratory network for surveillance is strengthened.	1. Established laboratory diagnosis method on emerging and re-emerging infectious diseases are increased 2. Number of tests referred to the network laboratory is increased 3. Number of tests referred from the network laboratories is increased	1. Records in network laboratories 2. Records of laboratory books in NIH 3. Technical assessment at presentations on achievment	Relevant local authorities accept the need of network laboratory surveillance system and deliver appropriate budget
Activities:	**Inputs:**		
Ⅰ-1 Introduce relevant techniques for immunological, virological, molecular studies on HIV-1 infection and AIDS.	**Thailand**	**Japan**	Ⅰ Additional space for P2/P3 laboratories is allotted to NIH.
Ⅰ-2 Establish P2/P3 laboratories for radioisotope experiments.	1) Project office and facilities 2) Full-time counterpart personnel for the project	1) Dispatch of Japanese Experts (Long and Short) 2) Provision of equipment	Ⅰ Collaboration with OPS and CDC is obtained
Ⅰ-3 Develop cohorts for studying HIV-1 infection and AIDS pathogenesis.	3) Budget for Thai personnel and operation of the project 4) Preparation for Project Coordinating Committee	3) Training of Thai counterparts in Japan	
Ⅰ-4 Establish field stations for cohorts.			
Ⅱ-1 Supply essential equipment for the laboratories.			
Ⅱ-2 Introduce skills for handling and testing infected animals in the containment animal laboratory(BSL3 laboratory).			
Ⅱ-3 Establish biosafety management system for the containment animal laboratory(BSL laboratory).			
Ⅲ-1 Supply essential equipment for the storage system.			
Ⅲ-2 Establish inventory system.			
Ⅳ-1 Introduce laboratory techniques for diagnosing emerging and re-emerging pathogens to NIH as the national reference laboratory.			Ⅳ Capabilities of regional medical science centers and regional hospitals are strengthened.
Ⅳ-2 Introduce appropriate techniques for the diagnosis of emerging and re-emerging pathogens to the network laboratories.			
Ⅴ-1 Establish a laboratory information processing system			Ⅴ Collaboration with OPS and CDC is obtained
			Precondition:
			Budget allocation for NIH does not decrease substantially.

Appendix 4

Grid for Performance and Achievements

Evaluation criteria	Study item	Required Information or data	Source of information	Method for collecting information and data
Performance	Degree of achievement of the Overall Goal (projected)	NIH's role for pursuing the public interest on the control of infectious diseases is enhanced with the following functions. 1. Maintain high quality of research performance 2. National reference laboratory to response the control of infectious diseases	1. Published records of NIH research activities 2. Records of sentinel surveillance on emerging and re-emerging diseases 3. Recognition by DMS and other relevant international institutes	1. Performance and achievement workshop (A) 2. Review of project documents (B) 3. Interview to relevant authority (F)
Performance	Degree of achievement of the Project Purpose	1. NIH's research activities on AIDS is enhanced 2. NIH's function of referral laboratory on emerging and re-emerging diseases is enhanced	1. Project stakeholders 2. Records and reports of NIH's research council and seminars as well as published papers	1. Presentations on achievement (A) 2. Review of project documents (B) 3. Direct observation at NIH 4. Interview to relevant authority (F)
	Degree of achievement of the Output I	1. Relevant immunological, virological, molecular studies of HIV-1 infection and AIDS are conducted 2. P2/3 laboratories of radioisotope experiments are established 3. Cohorts for studying HIV-infection and AIDS pathogenesis are developed 4. Field stations for cohorts are established	1. Project stakeholders 2. Experiment records in laboratory notebooks 3. Records of building the P2/3 laboratories 4. Data files of cohort subjects / Records of cohort samples 5. Records of building field stations	1. Presentations on achievement (A) 2. Review of project documents (B) 3. Direct observation at NIH

Appendix 4

Grid for Performance and Achievements

Evaluation criteria	Study item	Required Information or data	Source of information	Method for collecting information and data
	Degree of achievement of the Output Ⅱ	1. Essential equipment for the laboratories is supplied 2. Thai staff are trained for handling and testing infected animals 3. Biosafety management system for the laboratories is established	1. Project stakeholders 2. Records of the supplied equipment 3. Records of training Thai staff 4. Biosafety manuals for animal equipment	1. Presentations on achievement (A) 2. Review of project documents (B) 3. Direct observation at NIH
	Degree of achievement of the Output Ⅲ	1. Essential equipment for the storage system is supplied 2. Samples are adequately stored	1. Project stakeholders 2. Records of the supplied equipment 3. Records of sample location	1. Presentations on achievement (A) 2. Review of project documents (B) 3. Direct observation at NIH
	Degree of achievement of the Output Ⅳ	1. Laboratory diagnostic test for emerging and re-emerging pathogens are conducted at NIH 2. Appropriate diagnostic tests for certain emerging and re-emerging pathogens are conducted at provincial hospitals	1. Project stakeholders 2. Records in laboratory notebooks at NIH 3. Records in laboratory notebooks at the network laboratories	1. Presentations on achievement (A) 2. Review of project documents (B) 3. Direct observation at NIH 4. Questionnaire to network laboratories (C)

Appendix 4

Grid for Performance and Achievements

Evaluation criteria	Study item	Required Information or data	Source of information	Method for collecting information and data
	Degree of achievement of the Output V	1. List of laboratory diagnosis established against expected list of diagnosis with emerging and re-emerging infectious diseases in the Project 2. Number of tests referred to the network laboratory 3. Number of test referred from the network laboratories	1. Project stakeholders 2. Records in network laboratories 3. Records of laboratory books in NIH	1. Presentations on achievement (A) 2. Review of project documents (B) 3. Direct observation at NIH 4. Questionnaire to network laboratories (C)
	Actual Inputs (Japan)	1. Number of long-term experts and specialized field 2. Number of short-term experts and specialized field 3. Facilities, equipment and supplies provided 4. Number and specialized field of trainee received	1. Project documents 2. Person in responsible for the project	1. Review of project documents (B) 2. Interview (D)
	Actual Output (Thailand)	1. Facilities provided for the Project 2. Number of counterpart with their specialization 3. Operation cost for the Project	1. Project documents 2. Person in charge for the project with counterpart	1. Review of project documents (B) 2. Questionnaire to counterpart or interview (E)

Grid for Performance and Achievements

Evaluation criteria	Study item	Required Information or data	Source of information	Method for collecting information and data
Change of external condition	External condition that indicated on the PDM	1. MOPH does not change substantially its policies for research on AIDS and emerging and re-emerging diseases with NIH. 2. Assistance from the National AIDS Vaccine Committee and the research groups are provided to the national repository system. 3. Additional space for P2/P3 laboratories is allotted to NIH. 4. Collaboration with OPS and CDC is obtained. 5. Capabilities of regional medical science centers and regional hospitals are strengthened. 6. Budget allocation for NIH does not decrease substantially.	1. Project documents 2. MOPH 3. AIDS vaccine committee of Thailand and AIDS research group 4. NIH 5. OPS and CDC 6. Regional hospitals that collaborate with the network laboratories 7. NIH financial department / counterparts	1. Presentations on achievement (A) 2. Review of project documents (B) 3. Questionnaire or Interview (F)
Implementation Process	Progress of activities	Were the Activities implemented as planned?	1. Project and monitoring documents 2. The project leader and staff	1. Review of project and monitoring documents 2. Interview
	Conduct of monitoring activities	1. Did the Project Coordinating Committee function as expected? 2. Mechanism of monitoring 3. Revisions of PDM 4. Responses to the changes in the Important Assumptions and inclusion of the Important Assumptions into the project scope	1. Monitoring report and relevant documents 2. Past PDMs 3. Project stakeholders (the project leader and staff)	1. Review of project and monitoring documents (B) 2. Interview (D)

Appendix 4

Grid for Performance and Achievements

Evaluation criteria	Study item	Required Information or data	Source of information	Method for collecting information and data
	Relationship between the experts and counterparts	1. About the condition of communication between the experts and counterparts 2. About the reviewing process of problem solving method through joint work 3. Changes in the counterparts (ownership and activeness)	4. Project stakeholders (experts and counterparts) 5. Project documents and monitoring reports	1. Review of project and monitoring documents (B) 2. Interview (D & E)
	Involvement of beneficiaries in the Project (refer to the Cohort study and laboratory network)	Change on the residents' awareness at the project field	1. Project stakeholders at the network laboratory 2. Project stakeholders at the Cohorts stations	1. Review of project and monitoring documents (B) 2. Questionnaire and interview (C)
	Ownership by the executing institution of the recipient country	1. Degree of participation by the executing institution 2. Allocation of budget 3. Appropriate dispatch of counterparts	1. Project stakeholders who are related to the executing institution 2. The experts 3. Monitoring report	1. Review of project and monitoring documents (B) 2. Questionnaire and interview (D &E)

Appendix 5:

Grid for Five Evaluation Criteria

Evaluation criteria	Investigation item	Required information or data		Source of information	Method of collecting information
		Study item	Question guide		
Relevance	Are outputs, project purpose, and overall goal still meaningful as objectives at the time of evaluation?	Are the Overall Goal and the Project Purpose consistent with the needs of target group?	1. Target population who will potentially get benefits directly and indirectly from the research activities of NIH (or population at risk associated with HIV/AIDS, emerging and re-emerging infectious disease) 2. Urgent necessity and importance on HIV/AIDS emerging and re-emerging infectious disease in research field	1. Project documents 2. Department of Medical Science	1. Review of project documents (B) 2. Questionnaire / interview (F)
		Are the Overall Goal and the Project Purpose consistent with Japan's official development aid policy and JICA's country program for Thailand?	1. Is the overall goal and Project relevant to the Japan's official development aid policy for Thailand? 2. Is the Project Purpose consistent with JICA's country program for Thailand?	1. ODA country program 2. JICA's country program	Review of the documents (B)

Appendix 5:

Grid for Five Evaluation Criteria

Evaluation	Investigation	Required information or data		Source of information	Method of collecting
		Are the Project Purpose and Outputs consistent with Thailand's Health Program and Infections Disease Control program?	1. Are the Overall Goal and Project Purpose consistent with Thailand's Health Program 2. Is the Project Purpose consistent with Infections Disease Control program? 3. Are the Outputs (Network laboratory/Cohort station) appropriate as appropriate under the local policy?	1. Current Health Policy and program 2. Current policy and program on Infectious disease 3. Current framework for accepting the activities at each local setting	1. Review of project documents (B) 2. Questionnaire / Interview (C,D, E, and F)
Effectiveness	Was the effect produced by the project?	To what extent the project purpose - NIH improves is capabilities for research on AIDS and emerging and re-emerging infectious diseases – has achieved?	To what extent the project purpose - NIH improves is capabilities for research on AIDS and emerging and re-emerging infectious diseases – has achieved?	1. Project documents 2. Performance and Achievement workshop	1. Review of project documents (B) 2. Refer to Grid for Presentations on achievement (G)
		Was an effect produced by the achievement of each output?	1. To what extent each Output has achieved? 2. To what extent each Output has contributed to realize the Project Purpose?	1. Project documents 2. Presentations on achievement	1. Review of project documents (B) 2. Refer to Grid for Presentations on achievement (G)
		Were there any influences of external conditions that affected the achievement of the project purpose?	Were there any influences of external conditions that affected the achievement of the project purpose?	1. Project documents 2. Presentations on achievement	1. Review of project documents (B) 2. Refer to Grid for Presentations on achievement (G)
	What were the contributing / inhibiting factors which affected the effectiveness of the project?			1. Project documents 2. Presentations on achievement	1. Review of project documents (B) 2. Refer to Grid for Presentations on achievement (G)

Appendix 5:

Grid for Five Evaluation Criteria

Evaluation	Investigation	Required information or data		Source of information	Method of collecting
Efficiency	Is the Output corresponding to the supplied amount of resource, or cant it be said that the project was efficient?	Were the Inputs appropriate in terms of quality and quantity?	1. Were the capacity, the technical specialty, the number of the assigned counterparts and period of activities of the counterparts appropriate? 2. Were the supplied equipment and materials for each Output appropriate? 3. Were the capacity and technical specialty of the experts appropriate?	1. Project documents 2. Japanese experts and counterparts	1. Review of project documents (B) 2. Questionnaire and Interview (D &E)
		Were the Inputs delivered in timely manner?	1. Were the relevant materials and equipment delivered to the counterparts in timely manner? 2. Were the staff and counterparts assigned in timely manner? 3. Were the experts dispatched in timely manner?	1. Project documents 2. Japanese experts and counterparts	1. Review of project documents (B) 2. Questionnaire and Interview (D&E)
		Was there alternative means for achieving each Output efficiently?	1. Were there any activities overlapped with other institution? 2. Were there any other alternative means and methods for the efficient implementation of the Output?	1. Project documents 2. Japanese experts and counterparts	1. Review of project documents (B) 2. Questionnaire and Interview (D&E)
		Was there any influence of external conditions that affected the achievement of the Outputs?	1. Were there any damages caused by the natural disaster etc. during the project period? 2. Were there any influences of economic instability such as a rapid change of currency and	1. Project documents 2. Japanese experts and counterparts 3. Presentations on achievement	1. Review of project documents (B) 2. Questionnaire and Interview (D&E) 3. Refer to Grid for Performance and

Appendix 5:

Grid for Five Evaluation Criteria

Evaluation	Investigation	Required information or data		Source of information	Method of collecting
	What was contributing / inhibiting factor which affected the efficiency of the project?			1. Project documents 2. Japanese experts and counterparts 3. Presentations on achievement	1. Review of project documents (B) 2. Questionnaire and Interview (D&E) 3. Refer to Grid for Performance and achievement (G)
Impact (projected)	Are there any prospects of the indirect and ripple effects produced by the implementation of the project?	Prospect of the achievement of the Overall Goal – NIH conducts biomedical studies contributing further to the control of infections disease in Thailand	1. Quality control on autogenous vaccine and imported vaccine will become available 2. Epidemiological, biological and clinical characteristics on AIDS development will become apparent and clear 3. Cohort study will be continuously carried out 4. Reference laboratory network will be extended to proper scale of the size 5. NIH will functions as an internationally recognized reference laboratory	1. Grid for Performance and Achievement – Degree of achievement of the Overall Goal (projected) 2. Stakeholders in the project 3. Project documents	1. Refer to Grid for Performance and achievement (G) 2. Questionnaire and Interview (F) 3. Review of project documents (B)
		Possible influence of external conditions to the Overall Goal	1. Are there any prospects of external conditions that may affect the achievement of the Overall Goal? 2. What types of external conditions can be recognized?	1. Grid for Performance and Achievement – Degree of achievement of the Overall Goal (projected) 2. Stakeholders in the project 3. Project documents	1. Refer to Grid for Performance and achievement (G) 2. Questionnaire and Interview (F) 3. Review of project documents

Appendix 5:

Grid for Five Evaluation Criteria

Evaluation	Investigation	Required information or data		Source of information	Method of collecting
		Unexpected Positive/ Negative impact	1. Is there any positive impact other than the Overall Goal? 2. Is there any negative impact? 3. Is there any unexpected negative influence produced by the project?	1. Grid for Performance and Achievement —Degree of achievement of the Overall Goal (projected) 2. Stakeholders in the project 3. Project documents	1. Refer to Grid for Performance and achievement (G) 2. Questionnaire and Interview (C, D, E) 3. Review of project documents (B)
	What were contributing / inhibiting factors which affected the achievement of the Overall Goal or what will be expected contributing / inhibiting factors which may affect the achievement of the Overall Goal?			1. Grid for Performance and Achievement—Degree of achievement of the Overall Goal (projected) 2. Stakeholders in the project 3. Project documents	1. Refer to Grid for Performance and achievement (G) 2. Questionnaire and Interview (F) 3. Review of project documents (B)
	What were contributing and inhibiting factors, which brought unexpected positive or negative impacts?			1. Grid for Performance and Achievement—Degree of achievement of the Overall Goal (projected) 2. Stakeholders in the project 3. Project documents	1. Refer to Grid for Performance and achievement (G) 2. Questionnaire and Interview (C, D, E) 3. Review of project documents (B)
Sustainability	Will the effect of the project maintained after the completion of the project	Sustainability of the activities implemented under the project	Current and future prospects of Problem, detail plan, operational and maintenance, and institutionalized framework regarding the followings. 1. Conditions facilitating studies of HIV infection and AIDS are strengthened. 2. HIV-1 vaccines evaluation system using animals in the	1. NIH 2. Ramban Hospital 3. Network laboratories 4. Project Documents	1. Direct observation at NIH 2. Direct observation at the Cohort field 3. Questionnaire and interview (C) 4. Review of project documents (B)

Appendix 5:

Grid for Five Evaluation Criteria

Evaluation	Investigation	Required information or data		Source of information	Method of collecting
		Prospects of appropriate utilization of equipment, facilities and staffs	1. Will the equipment, facilities and human resources be appropriately and continuously utilized? 2. Number and proportion of counterparts gained technology	1. NIH 2. Ramban Hospital 3. Network laboratories 4. Project Documents 5. Project stakeholders	1. Direct observation at NIH 2. Direct observation at Cohort field 3. Questionnaire and interview (C) 4. Review of project documents (B) 5. Questionnaire (F)
		Are there any possibilities that the local government can apply the outcome of the project	1. Technology, operation and maintenance 2. Securing the budget and financial support 3. Monitoring mechanism Opportunity and mechanism of technician transfer to others 4. Maintenance of supplied equipment and materials	1. NIH 2. Ramban Hospital 3. Network laboratories 4. Project Documents	1. Direct observation at NIH 2. Direct observation at Cohort field 3. Questionnaire and interview (C) 4. Review of project documents (B)

Appendix 5:

Grid for Five Evaluation Criteria

Evaluation	Investigation	Required information or data		Source of information	Method of collecting
		Are there any possibilities that the counterparts can apply the outcome of the project into their program?	Is there any possibility that the following Outputs will be continuously practiced in NIH or expanded outside the NIH? 1. Conditions facilitating studies of HIV infection and AIDS are strengthened. 2. HIV-1 vaccines evaluation system using animals in the containment laboratories (BSL3 laboratory) is established 3. Facilities for the national repository system for HIV vaccine trials and the serum bank are established. 4. Capabilities of identifying etiologic agents are improved. 5. Laboratory network for surveillance is strengthened.	1. NIH 2. Ramban Hospital 3. Network laboratories 4. Project Documents 5. Project stakeholders	1. Direct observation at NIH 2. Direct observation at Cohort field 3. Questionnaire and interview (C) 4. Review of project documents (B) 5. Questionnaire (D &E)
	What were contributing / inhibiting factors affected the sustainability of the project' outcome. Or what will the contributing / prevention factors which will affected the sustainability after the project?			1. NIH 2. Ramban Hospital 3. Network laboratories 4. Project Documents 5. Project stakeholders	1. Direct observation at NIH 2. Direct observation at Cohort field 3. Questionnaire and interview (C) 4. Review of project documents (B) 5. Questionnaire (D &E)

List of Japanese Experts Dispatched

Long Term Experts

No.	Name	Designation	Term
1	Dr. Kunito Yoshiike	Chief Advisor	01 April 1999-31 March 2003
2	Dr. Kikuko Miyamura	Emerging and Re-Emerging Infectious Diseases Studies	01 April 1999-31 March 2000
3	Mr.Shinichiro Kojima	Project Coordiantion	01 March 1999-28 February 2001
4	Dr. Toshikatsu Hagiwara	Emerging and Re-Emerging Infectious Diseases Studies	21 August 2000-29 Feburary 2004
5	Dr. Koya Ariyoshi	HIV Studies	12 January 2001-11 Feburary 2002
6	Ms.Nobuko Kamonji	Project Coordinator	15 February 2001-29 Feburary 2004
7	Dr. Koya Ariyoshi	HIV Studies	27 September 2002-29 Feburary 2004

Short Term Experts

No.	Name	Designation	Term
1	Dr. Koya Ariyoshi	HIV/AIDS Research(Field Studies)	04-17 July 1999
2	Dr. Koya Ariyoshi	HIV/AIDS Research(Field Studies)	27 September 1999-28 January 2000
3	Dr. Naokazu Takeda	Emerging and Re-Emerging Infectious Diseases Studies	22 November-08 December 1999
4	Mr. Tatsuya Matsumi	HIV Studies	10 -22 January 2000
5	Dr. Kazuyoshi Sugiyama	Emerging and Re-Emerging Infectious Diseases Studies	19-30 January 2000
6	Dr. Koya Ariyoshi	HIV/AIDS Research(Field Studies)	25 May-25 August 2000
7	Dr. Aikichi Iwamoto	HIV/AIDS Research(Virology)	14-25 January 2001
8	Dr. Masafumi Takiguchi	HIV/AIDS Research(Immunology)	12-17 March 2001
9	Dr. Emi Nakayama	HIV/AIDS Research(Genetics)	05-24 March, 2001
10	Dr. Hiroki Kawabata	Leptospira Research	15-29 August 2000
11	Dr. Ichiro Kurane	Arboviruses Research	17-23 September 2000
12	Dr. Haruo Watanabe	Bacteriology	11-15 December 2000
13	Dr. Hiroshi Kida	Influenza Virus Research	03-16 January 2001
14	Dr. Yuzuru Mikami	Actinomycetale Research	07 March-05 April 2001
15	Dr. Yoshiyuki Yokomaku	Update of HIV-1 CTL Assay	14-17 March 2001
16	Dr. Shudo Yamazaki	Infectious Disease Information Network	21 August-12 September 2001
17	Dr. Kazuyo Yamashita	Infectious Disease Information Processing	02 -08 September 2001
18	Dr. Wataru Sugiura	HIV/AIDS Research (Immunological Studies)	03-14 September 2001
19	Dr. Hironori Sato	HIV/AIDS Research (Virological Studies)	03-14 September 2001
20	Dr. Tomohiko Koibuchi	HIV/AIDS Research(Diagnostic Studies on Opportunistic Infections)	18 November-08 December 2001
21	Dr. Naokazu Takeda	Laboratory Diagnosis of Hepatitis Viruses	26 November-08 December 2001
22	Dr. Yuzuru Mikami	Pathogenic Aerobic Actinomycetes and Control	11 -22 December 2001
23	Dr. Ichiro Kurane	Dengue Subtyping and Encephalitis Laboratory Diagnosis	16-22 December 2001
24	Dr. Hiroshi Kida	Studies of Leptospira and Influenza Virus	22-31 December 2001
25	Dr. Yuki Eshita	Studies of Vectors	11 January-07 Feburary 2002
26	Dr.Naoki Yamamoto	HIV/AIDS Research(Immunological Studies)	30 January-07 Feburary 2002
27	Dr. Koya Ariyoshi	HIV/AIDS Research(Immunological Studies)	13-24 May 2002
28	Dr. Jiro Arikawa	Studies of Hantavirus	20-26 October 2002
29	Dr.Toshihiko Asano	Biosafety	18 November-12 December 2002
30	Dr. Mikiyoshi Mogi	Studies of Disease Vectors	28 November-26 December 2002
31	Dr. Ichiro Kurane	Studies of Arbovirus	15-26 December 2002
32	Dr. Masaaki Miyazawa	HIV/AIDS Research	06-16 November 2002
33	Dr. Wataru Sugiura	HIV/AIDS Research(Virological Studies)	13-18 January 2003
34	Dr. Haruo Watanabe	Studies of Drug Resistant Bacteria	27 January-02 February 2003
35	Dr. Naokazu Takeda	Studies of Hepatitis Viruses	27 January-06 February 2003

36	Dr. Tatsuo Miyamura	Studies of Non-polio Enterovirus Infection	17-21 February 2003
37	Dr. Kazuyo Yamashita	EID Information Network	10-21 March 2003
38	Dr. Zenei Matsuda	HIV/AIDS Research(Retrovirology)	17-21 March 2003
39	Dr. Takayuki Miura	HIV/AIDS Research(Clinical Medine Studies)	27 March-27 June 2003
40	Ms. Mari Tanaka	HIV/AIDS Research(Immunological Studies)	20 April 2003-29 February 2004
41	Dr. Naokazu Takeda	Studies of Hepatitis/ Enterovirus	09-21 June 2003
42	Dr. Kunito Yoshiike	HIV/AIDS Research(Coordination)	01 July-30 September 2003
43	Dr. Hironori Sato	HIV/AIDS Research(Studies of Mollecular Biology)	09-21 June 2003
*44	Dr. Yoshihiro Sakota	Studies of Leptospira	12-20 August 2003
*45	Dr. Fumiaki Kura	Studies of Legionella	17-26 August 2003
*46	Dr. Kazuyoshi Sugiyama	Laboratory Biosafety	17-30 August 2003
*47	Dr. Ichiro Kurane	Studies of Arbovirus	25-30 August 2003
*48	Dr.Takayuki Miura	HIV/AIDS Research(Clinical Medicine Studies)	25 September-25 December 2003
*49	Dr. Kunito Yoshiike	Project Advisor	17 November 2003-14 February 2004
*50	Dr.Wataru Sugiura	HIV/AIDS Research(Virological Studies)	10-15 November 2003
*51	Dr.Kazuhiko Katayama	Studies of Enteroviruses	2weeks/December

*They are scheduled to dispatch to the Project at the final evaluation period.

List of Designated Counterparts for the Project

Project Director

Dr. Somsong Rugpoa, MD, MPH

Director-General, Depertment of Medical Sciences, Ministry of Public Health

Project Manager

Dr. Pathom Sawanpanyalert, MD, DrPH,

Director of NIH, Dept. of Medical Sciences, Ministry of Public Health

1. Studies of HIV-1 infectious and AIDS.

1.1 Cohort studies

Epidemiology study and Cohort management also Director

Dr. Pathom Sawanpanyalert, MD, DrPH,

NIH, Dept. of Medical Sciences

Pathology and Immunological Study

Mr. Wattana Auwanit, MT, Ph.D.

Ms. Busarawan Sriwanthana, Ph.D.

Mr. Suthon Vongsheree, MT, MS

Mrs. Nuanjun Ruchusatsawat, MT, MS

NIH, Dept. of Medical Sciences

1.2 Evaluation system for vaccines with animals in P2/P3 laboratories.

Dr. Raywadee Butraporn, D.V.M.

Dr. Virat Sumatewattanakul, D.V.M.

Dr. Navakanit Sajanont, D.V.M., MS

NIH, Dept. of Medical Sciences

1.3 National Repository System for HIV-1 vaccines and Serum Bank.

Mrs. Pimjai Naigowit, MT, MS

NIH, Dept. of Medical Sciences

2. Studies of emerging and re-emerging diseases.

2.1 Identification of emerging and re-emerging diseases.

Dr. Natteewan Poonwan, Micro., MS

Ms. Piyada Wangroongsarb, MT, MS

Dr. Vimol Petkajanapong, MT, Ph.D.

Ms. Wantana Paweenkittiporn, Micro., MS

Ms. Aree Thattiyaphong, MT, MS

Dr. Yaowapa Pongsuwanna, D.V.M., Ph.D.

Mr. Kriangsak Ruchusatsawat, MT, MS

Mrs. Areerat Sa-ngarsang, MT, MS
MS. Malinee Chittaganpitch, MT, MS
NIH, Dept. of Medical Sciences

2.2 Laboratory network for surveillance.

Ms. Krongkaew Supawat, Micro., MS
Mr. Wattanapong Wotta, Micro., MS
NIH, Dept. of Medical Sciences

List of Thai Counterparts Trained in Japan

No.	Name	Subject	Term
1	Ms. Aree Thattiyaphong	Cholera	29 June -23 December 1999
2	Ms. Areerat Sa-ngasang	Dengue Virus	05 October -23 December 1999
3	Mr. Virat Sumateewatanakul	Laboratory Animals	05 October 1999-28 January 2000
4	Ms. Piyada Wangroongsarb	Leptospira Studies	31 October 2000-31 January 2001
5	Mr. Kringsak Ruchusatsawat	Hepatitis Viruses Studies	06 March -06 Jane 2001
6	Ms. Malinee Chittaganpitch	Influenza Virus Studies	05 March -05 June 2001
7	Ms. Wantana Paveenkittiporn	Laboratory Investigation for Clinical Diagnosis of Legionella	21 August-15 December 2001
8	Ms. Navaknit Sachanonta	Animal Model for Toxicological Study	09 September-15 December 2001
9	Ms. Atchareeya A-nuegoonpipat	Dengue Virus Subtyping	03 Feburary-01June 2002
10	Ms. Watcharee Saisongkorh	Leptospirosis Vaccine	24 January -27 Feburary 2002
11	Ms. Wimol Petkanchanapong	Leptospirosis Vaccine	24 January -12 March 2002
12	Ms. Napa Onvimala	Enterovirus Studies	24 September-22 December 2002
13	Ms. Siriphan Saeng-aroon	Drug Resistance of HIV-1	16 February-12 April 2003
14	Ms. Sanit Kumperasart	Hantavirus Studies	3 February-2 May 2003
15	Ms. Somjai Phaisomboon	Studies of Drug Resistancy of Staphylococcus	2 March-30 August 2003
*16	Mr. Ratigon Guntapong	Techniques for Detection of Calicivirus, Norwalk Virus and other Small Round Virus Particles	26 August-30 November 2003
*17	Ms. Benjama Saelim	Vaccine Quality Control in Vivo Study and Laboratory Animal Husbandary	26 August-30 November 2003
*18	Ms. Nanthawan Mekha	Analysis of Drug Resistance Mechanism of Candida Albicans against Aozle Type Antifungals	27 October-27 December 2003

* They are scheduled to go to Japan to take training at the final evaluation period.

List of Major Equipment Provided

Equipment for JFY1999

No.	Item	Q'ty	Place of Installation
1	Shaking Incubator	1	HIV studies
2	Autoclave	1	P2/3 Laboratory
3	High Speed Refrigerated Microcentrifuge	1	P2/3 Laboratory
4	Low Speed Refrigerated Centrifuge	1	P2/3 Laboratory
5	CO_2 Incubator	2	P2/3Laboratory
6	Inverted Microscope	1	P2/3Laboratory
7	Freezer(-80℃)	1	P2/3 Laboratory
8	Freezer(-30℃)	1	P2/3 Laboratory
9	Refrigerator	1	P2/3 Laboratory
10	Safety Cabinet	1	Field Station
11	Bench-Top Centrifuge	1	Field Station
12	Microscope	1	Field Station
13	Freezer(-80℃)	1	Field Station
14	Freezer(-30℃)	1	Field Station
15	Refrigerator	1	Field Station
16	Dry-Shipper	2	Field Station
17	Vehicle	1	Field Station
18	Computer	2	Field Station
19	Printer	1	Field Station
20	Liquid Nitrogen Freezer	1	Field Station
21	Gas Killer (CO_2 Chamber)	1	Animal Laboratory
22	Breeding Guinea Pig Set(Drawer Type)	12	Animal Laboratory
23	Guinea Pig Rack Set	1	Animal Laboratory
24	Stainless Steel Shelf for Mouse Cages	30	Animal Laboratory
25	Stainless Steel Shelf for Rat Cages	18	Animal Laboratory
26	Autoclave	1	Animal Laboratory
27	Hot Air Oven	1	Animal Laboratory
28	Ice Maker	1	Animal Laboratory
29	Refrigerated Compact Centrifuge	1	Animal Laboratory
30	High-Speed Microcentrifuge	1	Animal Laboratory
31	Laboratory Refrigerator	1	Animal Laboratory
32	Safety Cabinet	2	Emerging and Re-emerging Diseases Studies
33	CO_2 Incubator	2	Emerging and Re-emerging Diseases Studies

Equipment for JFY2000

No.	Item	Q'ty	Place of Installation
34	Blood Cell Counter	1	HIV Lab
35	Liquid Nitrogen Tank	3	Arboviruses Lab
36	Heat Block	2	Arboviruses Lab
37	Therma Cycler 2400	1	Hepatitis Viruses Lab
38	Electrophoresis Set	1	Hepatitis Viruses Lab
39	UV Transiluminator and Camera	1	Hepatitis Viruses Lab
40	Dark Field Microscope with Camera	1	Leptospira Lab
41	Autoclave	1	Leptospira Lab
42	Vehicle	1	NIH Project Office
43	Liquid Nitrogen Freezer Set(10K-Kryos-Controlers)	1	HIV Lab
44	ELISA Reader	1	Arboviruses Lab
45	Cool Incubator	1	Diarrhea Viruses Lab
46	Ductless Fumehood(Bench Top)	1	Animal Lab
47	Automated Immunoassay System	1	P3 Lab
48	Water Purification System	1	P3 Lab
49	Autocalve	1	HIV Lab

Equipment for JFY2001

No.	Item	Q'ty	Place of Installation
50	FACS Caliber Analyzer 3 color/automatic FACS Loader/Sample Processor	1	HIV Lab
51	JVC Visualizer	1	NIH
52	LVP	1	NIH
53	Copy Machine	1	NIH
54	Automatic Tissue Processor with Vacuum Function and Fume Control	1	Animal Lab
55	Programmable Multiple Routine Strainer	1	Animal Lab
56	Programmable Tissue Embedding Station	1	Animal Lab
57	Rotary Microtome Manual Feed	1	Animal Lab
58	Compound Microscope with Teaching Head for Three Persons	1	Animal Lab
59	UV Spectrophotometer	1	Enteric Bacteria Lab
60	Gene Amp PCR System	1	Enteric Bacteria Lab
61	Fixed Angle Rotor for High Speed Centrifuge	1	HIV Lab
62	Portable Refrigerated High Speed Centrifuge	1	HIV Lab
63	Air Gard Small Animal Changing	1	Animal Lab
64	Lyophilizer	1	Central Facility
65	Cytospin	1	Central Facility

66	Deep Freezer	1	Anarobe Lab
67	Incubator	1	Anarobe Lab
68	Electronic Precision Balance	1	Respiratory Lab
69	EliSpot	1	P3 Lab

Equipment for JFY2002

No.	Item	Q'ty	Place of Installation
70	Liquid Nitrogen Storage	1	Arbovirus Lab
71	Flake Ice Maker	1	Immunology Lab
72	Liquid Nitrogen Storage 10L	2	Nervos System Lab
73	ABI PRISM-3100 Automatic Genetic Analyzer	1	HIV/AIDS Lab
74	Ultralow Temperature Upright Freezer	1	Enterovirus Lab
75	Refrigerated Microcentrifuge/rotor	1	Respiratory Virus Lab
76	Mini Protein 3 Electrophoreisis Cell	1	Rikettsia Lab
77	Mini Trans Blot Cell	1	Rikettsia Lab
78	Power Supply	1	Rikettsia Lab
79	Low Temperature Oven	2	Hepatitis Lab
80	Mini Vaccume Centrifuge Evaporator	1	Enterovirus Lab
81	Deep Freezer-80℃	1	HIV Lab
82	Liquid Nitrogen Freezer Set	1	NIH
83	Liquid Nitrogen Freezer Set	1	NIH
84	Elisa Microplate Reader	1	NIH

Equipment for JFY2003

No.	Item	Q'ty	Place of Installation
85	Cage and Rack Washer	1	Animal Lab
86	Analytical Balance	1	HIV Lab
87	Elisa Reader	1	Animal Lab
88	Washer Extractor	1	Animal Lab
89	Tumble Dryer	1	Animal Lab

Equipment for Cohort Activities

	Equipment	**Place of Installation**
1999	Computer	NIH
1999	Computer	NIH
1999	Computer	NIH
1999	Printer	NIH
1999	Printer	NIH
1999	Scanner	NIH
1999	Computer	NIH
1999	Computer	Lampang Hospital

1999	Computer	Lampang Hospital
1999	Printer	Lampang Hospital
1999	Printer	Lampang Hospital
1999	Copy machine	Lampang Hospital
1999	Air conditioner	Lampang Hospital
1999	GPS III	Maetha Hospital
1999	GPS III	Maetha Hospital
1999	Computer	NIH
1999	COMATEC	Lampang Hospital
1999	Computer	Maetha Hospital
1999	Printer	Maetha Hospital
1999	LEGS KIT	Maetha Hospital
1999	MEMORY	Maetha Hospital
1999	CANON	Maetha Hospital
1999	Overhead projector	Lampang Hospital
1999	Fax machine	Lampang Hospital
1999	Geneamp PCR system 9700	Lampang Hospital
1999	Deep freezer -80 C	Lampang Hospital
1999	Automatic voltage	Research Lab. Lampang Hospital
1999	Computer	Lampang Hospital
1999	Speaker Amplifier	Lampang Hospital
2000	STATA	Lampang Hospital
2000	Shredding machine	Lampang Hospital
2000	Scanner Microrek	Maetha Hospital
2000	Card for Scanner	Maetha Hospital
2000	Safety box	Lampang Hospital
2000	Cryo-gloves (1set)	Lampang Hospital
2000	Air condition for PCR	Lampang Hospital
2000	Freezer for PCR	Lampang Hospital
2000	Refrigerator for PCR	Lampang Hospital
2000	Table for PCR	Lampang Hospital
2000	Cryo-Apron	Lampang
2000	Cryo-Apron	Lampang
2000	Preciterm Water Bath	NIH
2000	Shaker	NIH
2000	GeneAmp PCR 9700	NIH
2000	Dry Thermo Bath	Lampang
2000	Aluminum Block	Lampang
2000	Aluminum Block	Lampang
2000	High-Speed Microcentrifuge	Lampang
2000	Mini-Gel Electrophoreses	Lampang

2000	Mini-Gel Electrophoreses	NIH
2000	Mini-Gel Electrophoreses	NIH
2000	Serofuge	Lampang
2000	Electronic Pipettor	NIH
2000	Microcomputer	Srirat Hospital
2000	Microcomputer	Srirat Hospital
2000	Printer	Srirat Hospital
2000	Laser Scan	Srirat Hospital
2000	GENEAMP PCR 2400	Lampang
2000	Computer	Lampang
2000	Printer	Lampang
2001	Refrigerator	Lampang
2001	Photocopier	Lampang
2001	Votex Mixer	Lampang
2001	Centrifuge	Lampang
2001	Zip Drive	Lampang
2001	Zip Drive	Lampang
2001	Pipetman	Lampang
2001	Pipetman	Lampang
2001	Micro Centrifuge	Lampang
2001	CD Writer	Lampang
2001	CD Writer	Lampang
2001	CD Writer	Lampang
2001	Microwave	Lampang
2001	Computer Set	Lampang
2001	Automatic Microplate Washer	Lampang
2002	UPS for EliSpot	NIH
2002	Deep Freezer -80℃	NIH
2002	Deep Freezer -80℃	NIH
2002	Legend Tabel Top Centrifuge	NIH
2002	Infusion Pump	Lampang
2002	Digital Finger Pulse Oximeter	Lampang
2002	Digital Finger Pulse Oximeter	Lampang
2002	Blood Warmer	Lampang
2002	Digital Thermoneter	Lampang
2002	Gene Scan Module/Genotyper Version 3.7	NIH
2002	Amplicore	NIH

Accessories for Equipment and materials were also provided.

Amount of Equipment Provided

JAPANESE FISCAL YEAR	PRINCIPAL EQUIPMENT	TOTAL (JPY)	EQUIVALENT IN THB
JFY 1999	Safety Cabinet, CO_2 Incubator, Vehicle, Freezer, Computer, Safety Cabinet etc	51,889,000	18,656,108 (1B=2.78Y)
JFY 2000	CO_2 Incubator, Freezer, Thermal Cycler, Vehicle, Blood Cell Counter etc	28,077,000	10,099,640 (1B=2.78Y)
JFY 2001	Automated Genetic Analyzer, Freezer, Micro Centrifuge, PCR System etc	74,841,000	27,214,909 (1B=2.75Y)
JFY 2002	Cage & Rack Washer, Micro Scope, Tissue Processor etc	2,905,418	9,035,850 (1B=3.11Y)
Total		157,712,418	65,006,507

Amount of Operational Expenses of the Project

Japanese Side

JAPANESE FISCAL YEAR	JAPANESE YEN	EQUIVALENT IN THB
JFY 1999	24,123,000	8,677,338 (1B=2.78Y)
JFY 2000	25,101,000	8,964,643 (1B=2.78Y)
JFY 2001	28,800,000	10,472,727 (1B=2.75Y)
JFY 2002	27,642,000	8,888,103(1B=3.11Y)
JFY 2003	*17,542,000	*6,112,195 (1B=2.87Y)
Total	123,208,000	43,115,006

* The budget would be used by 29 February 2004 (by the end of the Project period)

Thai Side

JAPANESE FISCAL YEAR	AMOUNT (THB)	EQUIVALENT IN JY
JFY 1999	600,000	1,668,000(1B=2.78Y)
JFY 2000	1,110,000	3,085,800 (1B=2.78Y)
JFY 2001	1,119,000	3,077,250 (1B=2.75Y)
JFY 2002	1,240,000	3,856,400(1B=3.11Y)
JFY 2003	*1,520,000	*4,362,400(1B=2.87Y)
Total	5,589,000	16,049,850

The budget was spent for regents and consumarable things.

* The budget would be used by 29 February 2004 (by the end of the Project period)

Appendix 12

Results for Performance and Achievements

Evaluation criteria	Study item	Findings and results
Performance	Degree of achievement of the Overall Goal (projected)	NIH will strengthen its role of pursuing the public interest on the control of infectious diseases. The grounds are as follows. • Established linkage between NIH's capabilities for biomedical research and Lampang cohort field station, which was the challenge for NIH in terms of creating collaboration with clinical sides, has already brought substantial published and un-published research works on HIV/AIDS. * Eighteen (18) presentation made in International and National conferences by the time of final evaluation (July 2003) * Six Publication and Thesis have already come out by July 2003. • The internationally recognized cohort will potentially produce a substantial number of publications if the cohort maintains the required quality of level of study activities.. • The laboratory based surveillance on four sentinel sites on emerging and re-emerging disease will produce substantial information in timely manner to response to the control of the diseases. • According to the questionnaires / interview, the counterparts in general perceive at least partcially contributed the biomedical research for control of infectious diseases in Thailand.
	Degree of achievement of the Project Purpose	NIH has enhanced its research capacity on HIV/AIDS by linking its laboratory with clinical study. Theses activities will be a basis for future HIV-1 vaccine evaluation. The grounds are as follows.. * Twenty-six research topics are derived from NIH-Lampang HIV couple cohort study by the time of final evaluation (July 2003) • A number of collaborations between NIH and various international experts on HIV/AIDS research have been started using materials derived from the Lampang HIV-couple cohort. Eight (8) international research institutes and over twenty (20) investigators have been involved in the studies. In principle, the experiments are conducted by NIH Thai researchers. • Eight (8) research publications were deprived from emerging and re-emerging diseases activities. • Twenty three (23) etiologic agents are correctly and properly diagnosed at NIH and sentinel sites. • All data from sentinel sites are compiled as data sets periodically. • It is confirmed that the outputs for HIV/AIDS have been achieved at the technical review through researchers' presentation and research document review

Results for Performance and Achievements

	Degree of achievement of the Project Purpose	NIH has enhanced its referral role and research capacity in terms of studies on pathogenic agents and laboratory network with emerging and re-emerging infectious disease. The grounds are as follows. • In the course of the project implementation, the output - Capabilities of identifying etiologic agents are improved – has been achieved as planned with quality performance. • In the course of the project implementation, the output - Laboratory network for surveillance is strengthened – has been achieved as planned with quality performance. • It is confirmed that the outputs for EID have been achieved at the technical review through researchers' presentation and research document review According to the questionnaires / interview, the counterparts in general perceive that the project has successfully achieved the project purpose.
	Degree of achievement of the Output I - Conditions facilitating studies of HIV infection and AIDS are strengthened.	**Provision of essential facilities, equipments, supplies and training** • Necessary equipment for CTL laboratory and HIV immunology studies was supplied in 1999, 2001 and 2002. • Necessary equipment for field station (Lampang Hospital) of the Lamgpang cohort was supplied in 1999, 2001 and 2002. • Necessary equipment for virus characterization and drug resistance was supplied to NIH in 2002.

Results for Performance and Achievements

	Degree of achievement of the Output I - Conditions facilitating studies of HIV infection and AIDS are strengthened.	**Improvement of research and experiment environment through development of cohort and international collaboration with technical transfer.** • A study proposal for the Lampang HIV-couple cohort was designed and was approved by the Thai MOPH's Ethical Review Committee of Research Committee on 2 December 1999 – "HIV infection among couples" • A field station office for the Lampang cohort was established in September in 1999. • Data of HIV patients at the Day Care Center of the Lampang Hospital was retrospectively collected and analyzed. • Study protocol for the Lampang HIV-couple cohort was produced and authorized by Dr. Paijit, the director of NIH and Dr. Suchint, the director of Lampang Hospital - "Studies of virological, immunological, genetic and behavioural mechanisms of HIV-1 transmission and AIDS pathogenesis in HIV-1 affected couples in northern Thailand (Lampang Couple Study)" • Lampang Hospital field laboratory was established and four technicians of Lampang Hospital Laboratory became capable of processing blood sample (plasma and lymphoid cell) in May-June 2000. • Research clinic was started and the Lampang Day Care Center became capable of commencing a cohort study in Jan-June 2000. • Cooperative relationship with 17 patients' self groups for the Lampang cohort was established through several PWA (People living with HIV/ AIDS) supporting activities (radio program, school visits, and PWA meetings etc.) in June 2000 – up to present. • The following protocols were designed and applied to the Lampang cohort: * Participants' data management method * Participants' sample processing and storage method * Participants' treatment protocol

Results for Performance and Achievements

Performance	Degree of achievement of the Output I - Conditions facilitating studies of HIV infection and AIDS are strengthened.	• Lampang cohort commenced in July 2000. • 756 HIV-1 infected patients and 107 HIV-sero-negative spouses have been recruited up to October 2002. There were 118 concordant and 74 discordant couples are enrolled. The cohort indicated a high follow-up rate (94%) with selected volunteers who had been followed up every three months. • The laboratory for CTL studies in NIH was established in March 2001. • Field laboratory established PCR facility and techniques in September 2001. The following aspects became available in the Lampang Hospital. * HIV virus quantity measurement * HIV diagnosis for infants with the age of less than 18 months • Date set for cross-sectional analysis became available by completion of double data entry and cross check method in April 2003.. • Data set for short-term longitudinal analysis will be available in December 2003. **Influence or outcomes based on the Outputs, such as published paper, public dissemination, and formal seminar among research group** • CTL workshop – "Update of HIV-1 CTL assay" was held in March 2001. The content of discussion of this workshop was summarized in internationally recognized journal. • Four papers were presented at the 6th International Conference on AIDS in Asia and the Pacific on October 2001. Two of them including – *The influence of Anti-retroviral Therapy on the Mortality of HIV-1 Infected Patients Attending Single Clinic in Northern Thailand* - were oral presentation from Lampang cohort study. • Consultative meeting on Laboratory Preparation for Evaluation of HIV Vaccines was held to discuss the feasibility about collaborative research with neighboring courtiers in February 2002. • "Survival Benefit from non-HAART (Highly Active Anti-Retroviral Therapy) in a Resource Constrained Setting", *Journal of Acquired Immunodeficiency Syndromes (Feb.2003)*- internationally recognized journal • A total number of sub-studies approved by the principle investigators committee reached nearly 20. The area of sub-studies are the followings: * Human genetic polymorphisms (genetics) * Anti-retroviral drug resistant genotyping (virology) * Risk-factor analysis (epidemiology) * Opportunistic infection (clinical medicine) * Humoral factors and cytotoxic T-lymphocytes (immunology) • The project received a mission from Kenya Medical Research Institute (KEMRI) as the JICA technology Exchange Program in October /November 2002 • CTL workshop – "Evaluation of Anti-1 Immunity: from Basic Science Toward HIV-1 Vaccine Clinical Trial in Thailand" was held in January 2003.

Results for Performance and Achievements

Performance	Degree of achievement of the Output Ⅲ - Facilities for the national repository system for HIV vaccine trials and the serum bank are established.	**Provision of essential facilities, equipments, supplies and training** • Equipment necessary for storage was provided before the project started in 1999. **Establishment of research and experiment environment through technical transfer and collaborative development** • Two Committees were established and Operational Guide Line for the National Repository of HIV/AIDS Vaccine Trial and Evaluation was delivered to relevant people in 1999. • One Committee was established and Operational Guide Line for the National Serum Reference Bank (Stores serums from Health Survey Program) was established before the project started. • Storage specimens included 28,175 samples from vaccine trials of Bankok Vaccine Evaluation Group and about 700 samples from the National Health Survey in Thailand. **It is confirmed that the output has been achieved at the technical review through researchers' presentation and research document review**
	Degree of achievement of the Output Ⅳ - Capabilities of identifying etiologic agents are improved.	**Provision of essential facilities, equipments, supplies and training** • Equipment and technologies including training in Japan were provided in 1999, 2000, 2001, 2002 and 2003.

Results for Performance and Achievements

Performance	Degree of achievement of the Output Ⅰ - Conditions facilitating studies of HIV infection and AIDS are strengthened.	• NIH laboratory was selected as a center laboratory for conducting a proficiency assessment of CTL immunology laboratories in Thailand. • Two research papers derived from the Lampang cohort study were presented NIH's researcher at the 16th Congress of the Japanese Society of AIDS Research, held in Japan on December 2002. • Counterpart doctors from Lampang cohort provided lectures at a number of regional conferences. **It is confirmed that the output has been achieved at the technical review through researchers' presentation and research document review**
	Degree of achievement of the Output Ⅱ - HIV-1 vaccines evaluation system using animals in the containment laboratories(BSL3 laboratory) is established	**Provision of essential facilities, equipments, supplies and training** • Equipment, laboratory animals, and technologies including training in Japan necessary for containment animal laboratories (BSL3) were provided in 1999 • Equipment and technologies necessary for containment animal laboratories (BSL3) were provided in 2000 • Equipment and technologies including specific training necessary for containment animal laboratories (BSL3) were provided in 2001 **Establishment of research and experiment environment through technical transfer and collaborative development** • Essential biosafety practice and management were transferred to NIH in 1999. • The concept of GLP(Good Laboratory Practice) was introduced in 2000 and biosafety management system for BSL-2 and BSL-3 labs including animal labs was newly established in 2000. • More than 40 experiments for several testing were conducted in 2000. • The laboratories' function as Animal Center for research on HIV vaccine development and other immunological studies had improved in 2001. • The laboratories enable the research activities on HIV vaccine development and will strengthen pathological studies. • Biosafety management will be strengthened. **It is confirmed that the output has been achieved at the technical review through researchers' presentation and research document review**

Results for Performance and Achievements

Performance	Degree of achievement of the Output Ⅳ - Capabilities of identifying etiologic agents are improved.	**Establishment of research and experiment environment through technical and methodological transfer and collaborative development** • Technology and knowledge were transferred the counterparts for identifying and characterizing the following etiologic agents during 1999 - 2001 * Leptospira, Vibrio cholerae, Hepatitis viruses, Legionella, Actinomycetales, Dengue and JE viruses, Influenza virus, Enteroviruses • Following diagnostic techniques and relevant topics were introduced and discussed during EID seminar (1999-2000). * EHEC vaccine, Varicella vaccine, Antibiotic resistance, genetic classification of pathogens, Rickettsia, Murburg virus, V parahemoliticus, Phylogenic tree, HIV drug resistance, Group B Streptococcus, HIV opportunistic infection, Q fever, Salmonella in raw eggs., EB virus inhibitation, Meningococcal diseases, Diphtheria, E-coli O157, Malaria, Parvo virus, Recent information about bovine spongiform encephalopathy, Molecular biology of pathogenic bacteria, EID surveillance , Hantavirus infection, Gene diagnosis method, New technique on creation of monoclonal antibody, Chlamydia. • Following diagnostic methods were examined and established at NIH up to 2001. * Diagnostic technique of Rotavirus * Hepatitis A antigen for ELISA * Identification of Leptospira strains for vaccine development * Micro-IF test of Chlamydia * Molecular method for fungus * Hepatitis – E anti-body creation technique by genetic recombination • Manual for diagnostic test at provincial hospitals were prepared and distributed in 2001.This manual is revised in 2003. • Technology and knowledge were transferred the counterparts about the following etiologic agents during 2002-2004: * Leptospira vaccine, Actinomycetales, enterovirus, Hanta virus and drug resistance.

Results for Performance and Achievements

Performance	Degree of achievement of the Output IV - Capabilities of identifying etiologic agents are improved.(continued)	• Technology and knowledge were transferred the counterparts about the following etiologic agents and vectors: * Enteroviruses (especially Ev71) during 2002-2004 * Hanta virus * Enteric bacteria (especially Salmonella spp.) * Mosquitoes (Aedes spp.) – vector of dengue virus **Influence or outcomes based on the Outputs, such as published paper, public dissemination, and formal seminar among research group** • Collaborate programs with Japanese scientists were initiated with the followings pathogenic agents: * Leptospira * Actinomycetales * degue and JE viruses * influenza virus * hepatitis virus E • A collaborate program with Japanese scientists was initiated regarding Hanta virus • Thirteen (13) research publications were deprived from emerging and re-emerging diseases activities **It is confirmed that the output has been achieved at the technical review through researchers' presentation and research document review**
	Degree of achievement of the Output V - Laboratory network for surveillance is strengthened.	**Provision of essential facilities, equipments, supplies and training** • The project is not involved in the supply and provision of equipment including training of laboratory technician at the sentinel sites as Emerging Infectious Disease (EID) surveillance project of Ministry of Public Health (MOPH) is responsible for them. • Most of bacteria are diagnosed at the sentinel sites and NIH examines virus, parasites and those bacteria which is not diagnosed at the sites. Identifications of enteric bacteria are performed at NIH.

Results for Performance and Achievements

Performance	Degree of achievement of the Output V - Laboratory network for surveillance is strengthened.	**Establishment of research and experiment environment through technical and methodological transfer and collaborative development** • MOPH completed the plan for Emerging Infectious Diseases Project and four agencies of MOPH- Hospitals and Provincial Health Offices, Division of Epidemilogoy, Division of General Communicable Diseases, amnd NIH. NIH was expected to be central reference laboratory to develop and test lab based surveillance and and strengthen the laboratory network of the surveillance. The project partially support the EID project through NIH capacity building. • Booklet and posters were made to disseminate general knowledge about infectious diseases including EID. • A pilot study was initiated to form a network laboratory between NIH and four sentinel hospitals (Nong-khai, Prapok-koa, Mae-sod and Hat-yai) in the border area in 2001. • Four hospitals (Nong-khai, Prapok-koa, Mae-sod and Hat-yai) at the border areas near Laos, Myanmar, Cambodia, and Malaysia were designated as sentinel sites within the scope of study protocol made by MOPH's EID Surveillance Project and the quality of data and data management were evaluated. • Twenty – three pathogens were identified as surveillance targets under the EID Surveillance Project. The JICA project brought new or renovated technique about fourteen out of twenty three pathogens. Group of agents / diseases are : Acute diarrhea, Viral hepatitis, Influenza, Fever of Unknown Origin, Bacteria Meningitis, Viral Encephalitis, Atypical pneumonia, Hand-Food-Mouth Diseases and Herpangina and Severe hemorrhagic fever. • EID had started and 10 samples per month were referred from four sentinel hospitals during the 1st quarter of 2001 • 600 samples were referred to NIH from four sentinel hospitals by August 2001. • 1,220 samples were referred to NIH from four sentinel hospitals by October 2001. • 1,637 samples were referred to NIH from four sentinel hospitals by December 2001. • Related laboratory data from the four sentinel hospitals and HIH were gathered. • Laboratory data analysis will be carried out by the end of the project **It is confirmed that the output has been achieved at the technical review through researchers' presentation and research document review**

Results for Performance and Achievements

	Actual Inputs (Japan)	• The Japanese side dispatched six (6) long-term experts traveled seven (7) times and thirty-three (33) short-term experts who traveled fifty-one (51) times with various fields since the commencement of the Project. Their names and specialties are listed in Appendix 6. • Eleven (11) Thai counterpart personnel were trained at various institutes in Japan. Their names and specialties are listed in Appendix 8. • Major equipment provided by the Japanese side is listed in Appendix 9. • The Japanese side partially supported the operational expenses of JP¥ 123,208,000. The amount for each fiscal year is listed in Appendix 11.
	Actual Input (Thailand)	• A total of twenty (20) counterpart personnel have been assigned, and engaged in the project activities. List of designated counterpart personnel is shown in Appendix 7. • During the project period, Kingdom of Thailand provided project office and facilities and equipments at both NIH and Lampang Hospital, substantial amount of operational cost and human resources other than the counterparts. • Thai fiscal year budget of HIV-JICA research activities are as follows (Thai Baht). But this is operational cost and doesn't include the cohort. * 1999 : 550,000 * 2000: 980,000 * 2001: 950,000 * 2002:1,200,000 * 2003 : 1,300,000

Results for Performance and Achievements

Change of external condition	External condition that indicated on the PDM	The followings are confirmed through questionnaires / interviews. 1. The Government policy on universal coverage that was introduced last year may indirectly affect the budget allocation to the research in the future. The budget allocation for research has decreased 20% in this fiscal year though the project is not directly affected by this change. 2. The assistance from the National AIDS Vaccine Committee and the research group supported the national repository system during the project implementation. There, the condition is satisfied. 3. Additional space for P2/P3 laboratories is satisfied in August 2003. No negative influence was reported. 4. OPS and CDC provided both financial and non-financial supports to the laboratory based surveillance. 5. Capability of regional medical science centers and regional hospital are strengthened in the way that laboratory-based surveillance. While the activities related to the Lampang cohort were taken into project activities, four sentinel sites of four border hospitals can be responsible of the Department of Disease Control. The conditions of these parts are unknown.
Implementation Process	Progress of activities	• Method of measuring CTL activity was decided to change from a method using radioactive materials to the new method without radioactive materials at 1st quarter in 1999. • MOPH requested NIH to support Leptospira Vaccine development within the project and JICA had approved the direction of the involvement in the 2nd quarter in 2001. • Problematic LAN system of MOPH made frequently difficult to access the network during the 4th quarter in 2001 • The followings were recommended by the Mid-term Evaluation Study at the middle of the project: * The Lampang Cohort for HIV study is to be expanded and maintained by the mutual efforts of JICA, NIH and other Thai Governmental agencies concerned in the remaining term. * For HIV vaccine evaluation system, it is advisable to organize a committee in charge of biosafety management to inspect biosafety of each laboratory at NIH. * For EID, gene technology, which is commonly required in any field of microbiology, be shared by scientists in NIH to facilitate rapid application to the studies * NIH needs to make further effort to improve and standardize diagnostic method and then, transfer them to collaborating hospitals for respective disease under the EID surveillance, which required stronger collaboration between IT specialist within MOPH and NIH laboratory staff. * As the NIH has identified needs to address problems in communicable disease including HIV/AIDS with regional or multi-national approach beyond domestic scope, the Team recommends JICA to encourage and support this Thai initiative to promote regional and international collaboration.

Results for Performance and Achievements

Implementation Process	Conduct of monitoring activities	• Periodical reporting about the progress of the project to DTEC was set up after the mid-term evaluation study reflecting to DTEC request. • Due to the uniqueness of the research subject and work process, the submitted reports from the counterparts and Japanese experts are monitored. • The PDM was not revised. But it is recognized that some key persons were not invited or involved in formulating PDM. Therefore, the PDM did not cover all aspects that would happen in the project implementation period. In other words, Leptspira vaccine development was underestimated while this aspect has developed further.
	Relationship between the experts and counterparts	• Management Consultation Study that was conducted on January 2000 indicated the following findings regarding the implementation process: * Communication (e.g. through emails) is improved between Japanese scientist and Thai counterparts, so that specific issues can be discussed in advance. • Initially communication problem was raises as indicated above, soon the problem was solved and now the problem is not recognized. • In case of the cohort, NIH, the Lampang Hospital and the JICA experts work as a team and always discussion and coordination took place among the key players. • In case of identifying etiologic agents in NIH, technical transfer and collaborative research occurred through individual relationship.
	Involvement of beneficiaries in the Project	• In case of the cohort study, the HIV patients in the Day Care Center of the Lampang Hospital have been directory involved in the cohort study. Intention of participating in the cohort is confirmed with a written form (informed consent) and this process is applied to the all patients who visit the Day Care Center of the Lampang Hospital. • The project gained the willingness of the participating in the cohort through strengthening the social activities of the HIV patients.
	Ownership by the executing institution of the recipient country	• As NIH has been fully involved in the project, NIH is aware of the importance and responsibility. • As expected study progress was seen, the researchers in NIH had shown more commitment to the Lampang cohort. The cohort study was not realized without trust among stakeholders - NIH, the patients, the Lampang hospital, and the project team. As a result, ownership among the relevant people in the Lampang cohort is very high.

Results for Performance and Achievements

Evaluation criteria	Study item	Findings and results
Performance	Degree of achievement of the Overall Goal (projected)	NIH will strengthen its role of pursuing the public interest on the control of infectious diseases. The grounds are as follows. • Established linkage between NIH's capabilities for biomedical research and Lampang cohort field station, which was the challenge for NIH in terms of creating collaboration with clinical sides, has already brought substantial published and un-published research works on HIV/AIDS. * Eighteen (18) presentation made in International and National conferences by the time of final evaluation (July 2003) * Six Publication and Thesis have already come out by July 2003. • The internationally recognized cohort will potentially produce a substantial number of publications if the cohort maintains the required quality of level of study activities.. • The laboratory based surveillance on four sentinel sites on emerging and re-emerging disease will produce substantial information in timely manner to response to the control of the diseases. • According to the questionnaires / interview, the counterparts in general perceive at least partcially contributed the biomedical research for control of infectious diseases in Thailand.
	Degree of achievement of the Project Purpose	NIH has enhanced its research capacity on HIV/AIDS by linking its laboratory with clinical study. Theses activities will be a basis for future HIV-1 vaccine evaluation. The grounds are as follows.. * Twenty-six research topics are derived from NIH-Lampang HIV couple cohort study by the time of final evaluation (July 2003) • A number of collaborations between NIH and various international experts on HIV/AIDS research have been started using materials derived from the Lampang HIV-couple cohort. Eight (8) international research institutes and over twenty (20) investigators have been involved in the studies. In principle, the experiments are conducted by NIH Thai researchers. • Eight (8) research publications were deprived from emerging and re-emerging diseases activities. • Twenty three (23) etiologic agents are correctly and properly diagnosed at NIH and sentinel sites. • All data from sentinel sites are compiled as data sets periodically. • It is confirmed that the outputs for HIV/AIDS have been achieved at the technical review through researchers' presentation and research document review

Results for Five Evaluation Criteria

Evaluation criteria	Investigation item	Study item	Findings and results
Relevance	Are outputs, project purpose, and overall goal still meaningful as objectives at the time of evaluation?	Are the Overall Goal and the Project Purpose consistent with the needs of target group?	1. The first four leading causes of death of all ages were: infectious diseases, in which HIV infection was the greatest component in particular in working age group. 2. According to a study of Thailand's disease burden in 1998, the findings, calculated from applying the Years of Life Lost (YLL) measure, reflected the overall fatal burden disease with male accounted for 28.3 percent (AIDS was equal to 21.5 of the total loss) with infectious diseases. Also, the study indicated 12.5 percent in cancer and 11.1 percent in circulatory system diseases were the next leading contributors to fatal burden for males. The leading main disease groups contributing to fatal burden for females were: infectious diseases (22.1 percent); followed by circulatory system diseases (18.0 percent); cancer (17.7 percent); unintentional injuries (13.6 percent); and diabetes (7.0 percent). 3. Innovate prevention and care for HIV/AIDS including control of opportunistic infections are not only for the demand of Thai citizens but also the demand of people in the region and the world.
		Are the Overall Goal and the Project Purpose consistent with Japan's official development aid policy and JICA's country program for Thailand?	1. **"Relevance" in the mid-term evaluation report:** "The project is consistent with policy and regulation of JICA and Japanese Government". 2. Since "Japan's Initiative in the Fight against Infectious and Parasitic Diseases on the occasion of the Kyushu-Okinawa G8 Summit ("Okinawa ID (Infectious diseases) Initiative" was held in July 2000, the Government of Japan has put substantial fund on Infectious and Parasitic Diseases as a Central Issue in Development. Promotion of research activities such as – "Support for the development of global network of research institutions on infectious and parasitic diseases", "Promotion of research on infectious and parasitic diseases in impoverished countries with a focus on benefiting the poor", and "Promotion of international cooperation in vaccine research and development" are cited as the area of relevant cooperation. In addition, Japan Country Assistance Program for Thailand put priority on development of social sector emphasizing HIV/AIDS. Thus, the Project Objectives are still consistent with Japanese ODA policy and program.

Results for Five Evaluation Criteria

Evaluation criteria	Investigation item	Study item	Findings and results
		Are the Project Purpose and Outputs consistent with Thailand's Health Program and Infections Disease Control program?	1. **"Relevance" in the mid-term evaluation report:** "The objective of the project is relevant to Thai National Plan for Prevention and Alleviation of HIV/AIDS" 2. Development Objectives of the Heath Development Plan under the 9th National Economic and Social Development Plan (2002-2006) adopted strategies and tactics for Health Development by developing effective technologies and innovations for disease prevention and control of both emerging and re-emerging communicable and non-communicable diseases, particularly those with high morbidity and mortality rates, including AIDS, accident, cardiovascular disease, cancer, and mental health problems. In this regard, accurate and proper laboratory capacity is essential for surveillance of the both emerging and re-emerging communicable diseases. In addition, AIDS vaccine development is one of expected area to be developed. In this context, the Project Objectives are consistent with the health policy and program.
		To what extent the project purpose - NIH improves is capabilities for research on AIDS and emerging and re-emerging infectious diseases – has achieved?	1. **"Effectiveness" in the mid-term evaluation report:** "The project is on the right way to contribute to improve research conditions surrounding AIDS, emerging and re-emerging infectious disease in Thailand" 2. **Presentation on achievements / direct observation** See Appendix 14: Review Reports on the Project Research Activities

Results for Five Evaluation Criteria

Evaluation criteria	Investigation item	Study item	Findings and results
Effectiveness	Was the effect produced by the project?	Was an effect produced by the achievement of each output?	1. **Technical assessment at presentations on achievement / direct observation** According to the questionnaires / interviews to the Lampang field station, the following methodology and protocols become available through technical transfer and collaborative development. * Data management * Blood sample processing and storage of materials * Clinical guideline for HIV/AIDS case management * Virus load measurement * PCR diagnosis for infants 2. **Document Review:** The Output Ⅱ – HIV-1 vaccines evaluation system using animals in the containment animal laboratory (BSL3laboratory) has not progressed as planned at the time of evaluation despite it was recommended to organize a committee in charge of biosafety management to inspect biosafety of each laboratory at NIH with the mid-tame evaluation. This is due to the delay of the activity - establishing biosafety management system under the Output Ⅱ. 3. **Presentation on achievements / direct observation** See Appendix 14: Review Reports on the Project Research Activities
		Were there any influences of external conditions that affected the achievement of the project purpose?	1. The NIH Biosafety Committee had yet decided the policy on the biosafety management system for the laboratory, which made the Output Ⅱ delay.
	What were the contributing / inhibiting factors which affected the effectiveness of the project?		1. In September 2001, Japanese Government supported overhauling the facilities including air-conditioning since NIH had been established (JICA Follow up program). 2. "Project for Model Development of Comprehensive HIV/AIDS Prevention and Care" made Upgrading of Facilities and Equipment in Selected Field Health Units (1998.2-2003.1) in Northern Thailand (Phao District and surrounding 9 districts). This upgrading facilities can contribute the use of the Clinical Guideline prepared by the Lampang cohort.

Results for Five Evaluation Criteria

Evaluation criteria	Investigation item	Study item	Findings and results
Efficiency	Is the Output corresponding to the supplied amount of resource, or cant it be said that the project was efficient?	Were the Inputs appropriate in terms of quality and quantity?	1. **"Efficiency" in the mid-term evaluation report** –" The Inputs and activities so far made were appropriate in amount and quality in general". 2. According to the questionnaires / interviews and direct observation of the laboratories including the Lampang field station, any inappropriate case of resource use was recognized at the time of evaluation. 3. According to the questionnaires / interviews to responsible person of the Lampang field station and the counterparts in NIH, method and techniques brought to are appropriate.
		Were the Inputs delivered in timely manner?	1. A CTL laboratory (initially planned to set up in the fiscal year 1999) was behind the schedule due to unavailability of person in charge (The Management Consultation Study also identify the issue in January 2000). 2. According to the questionnaires / interviews, the resources in general were a timely delivered. But certain equipments and supplies were not provided in a timely manner and caused delay of activities.
		Was there alternative means for achieving each Output efficiently?	1. According to the questionnaires / interviews, it was not recognized such a means. CTL laboratories are available at some Thai Universities but NIH role for CTL is to evaluate and control the quality of CTL studies done at other institutes.
		Was there any influence of external conditions that affected the achievement of the Outputs?	1. According to the questionnaires / interviews, external conditions didn't affect any of those outputs. It is recognized that any external condition to be added for the rest of the project implementation period.

Results for Five Evaluation Criteria

Evaluation criteria	Investigation item	Study item	Findings and results
	What was contributing / inhibiting factor which affected the efficiency of the project?		1. Japan-United States collaborative support activities on HLA typing contributed towards the availability of HLA typing under the CTL laboratory establishment. 2. According to the questionnaires / interviews, most of individuals are engaged in so many works including meetings in NIH, some of activities are obliged to interrupt.
Impact (projected)	Are there any prospects of the indirect and ripple effects produced by the implementation of the project?	Prospect of the achievement of the Overall Goal – NIH conducts biomedical studies contributing further to the control of infections disease in Thailand	1. **"Impact" in the mid-term evaluation report** – "No major impacts of the project found. As the Cohort study made well known to researchers and scientists in the world, research collaboration with Aaron Diamond AIDS research center of USA and Japan Heath Scientists Foundation in EID gradually established".
		Possible influence of external conditions to the Overall Goal	1. **Presentation on achievements / direct observation** See Appendix 14: Review Reports on the Project Research Activities
		Unexpected Positive/ Negative impact	**Positive Impact** 1. Not recognized through document review. 2. HIV virus measurement for HIV/AIDS patients and HIV diagnosis for infants with the age of less than 12 months has become available at the Lampang Hospital through PCR –MPH (Polymelase chain reaction – microtiter plate hybridization) method introduce by the cohort. 3. Supports for HIV/AIDS patients activities within the cohort in some extent contribute work for the patients who have been out of work. 4. Presentation on achievements / direct observation See Appendix 14: Review Reports on the Project Research Activities **Negative Impact** 1. No negative impact was recognized through documents review 2. No negative impact was seen and recognized through questionnaires / direct observation

Results for Five Evaluation Criteria

Evaluation criteria	Investigation item	Study item	Findings and results
	What were contributing / inhibiting factors which affected the achievement of the Overall Goal or what will be expected contributing / inhibiting factors which may affect the achievement of the Overall Goal?		1. Introduction of 30 Baht insurance (universal coverage) policy including sector reform may affect long run research activities if the universal coverage become a burden of the government health expenditure and the research is regarded as lower priority. If such the budget for NIH will further decreases.
	What were contributing and inhibiting factors, which brought unexpected positive or negative impacts?		1. Not recognized.
Sustainability	Will the effect of the project maintained after the completion of the project	Sustainability of the activities implemented under the project	1. According to the questionnaires / interviews, the followings were identified in NIH-the Lampang couple cohort in the context of the sustainability. * The cohort was established in terms of study protocol and research environment but it still needs personnel capacity to maintain study quality and strengthen research capability. * Since the Day Care Center of the Lampang Hospital provides the treatment, counseling and social support to the HIV patients, most of support such as provision of staff works, space and coordination from the Lampang Hospital can be maintained even though there will be no support from JICA. * Salaries of local staffs (three skilled persons) for the cohort, tests compensation to the Hospital and participants support are the major expenditure of the cohort, which JICA bears the cost. Some of operational cost can be deprived from collaborative research with small grants for the future but need buffer and preparation time. * One of qualified doctor – who has got Infectious Disease Specialty given by USA will be employed by NIH. * Director of NIH perceives that NIH will not abolish NIH-Lampang cohort even though JICA terminate the project support. But the activities will be reduced, he thinks. 2. According to the questionnaires / interviews, the followings were identified in emerging and re-emerging infectious disease control. * Most counterparts perceive that technical capacity has gained through project.
		Prospects of appropriate utilization of equipment, facilities and staffs	1. The given equipment will be fully utilized since the maintenance mechanism is in place.

Results for Five Evaluation Criteria

Evaluation criteria	Investigation item	Study item	Findings and results
		Are there any possibilities that the local government can apply the outcome of the project	1. **"Sustainability" in the mid-term evaluation report** – "The Lampang Cohort study is questionable about sustainability to some degree". 2.
		Are there any possibilities that the counterparts can apply the outcome of the project into their program?	1. According to the questionnaires / interview, since the Lampang cohort study has been collaborative work, it is possible for the counterparts to apply the same kind of study with different study subject and targets.
	What were contributing / inhibiting factors affected the sustainability of the project' outcome. Or what will the contributing / prevention factors which will affected the sustainability after the project?		1. There are many players who are interested in the Lampang cohort study as its combination of quality laboratory (NIH) and clinical study (Lamgpang hospital). But it should be noted that the study was not realized without the trust among the project team, participated patients, the Lampang hospital and NIH. This asset – trust will not be easy to maintain if any of current players are displaced.

REVIEW REPORT ON PROJECT RESEARCH ACTIVITIES

Presentation Schedule

Date / Place	Activities	Researchers	Chief Reviewer
4 August 2003 Thai NIH 13:00 – 16:00	Output (1) HIV Field Studies (Lampang and NIH)	Field Studies - Dr. Wattana Auwanit - Dr. Panita Pathivanich - Dr. Archawin Rojanawiwat - Ms.Siriphan Saeng Aroon - Ms. Nuanjun Wichuchchinda	Dr. Iwamoto
	Output (2) and (3) HIV Vaccine (Animal Studies)	- Dr. Busarawan Sriwathana Animal Studies - Dr. Raywadee Butraporn	Dr. Yamazaki
5 August 2003 Thai NIH 9:00 – 16:00	Output (5) Laboratory network	- Mr. Wattanapong Wotta	Dr. Yamazaki
	Output (4) Identification of pathogens		Dr. Kurata
	JICA trainee report • Arbovirus • Enterovirus • Hanta virus • Leptospira vaccine	Trainees - Ms. Archareeya A-nuegoonpipat - Ms. Napa Onvimala - Ms. Watcharee Saisongkorh or Dr. Wimol Petkanchanapong	
	Progress report • Degue virus • Chalamydia • Mycology • Entomology	Progress report - Ms. Areerat Sa-ngarsang - Ms. Kanokporn Geekajon - Dr. Natteewan Poonwan - Mr. Apiwat Tawatsin / Dr. Usavadee Thavara	

Expected Output I:
Conditions facilitating studies of HIV infection and AIDS are strengthened

Chief Reviewer: Dr. Aikichi Iwamoto
University of Tokyo

Summary of Evaluation:

The Lampang cohort study is smoothly started. Between July 2000, and November 2001, 425 individuals were recruited for the cohort. Both spouses of 86 concordant and 52 discordant couples were enrolled. Owing to the dedicated work by the cohort team new patient registration was increased in 2001. The collaboration between the cohort team and hospital personnel is very good. Several research projects using the samples of the Lampang cohort have started in NIH. This reviewer believes that the Lampang cohort is promising to facilitate virological, immunological and molecular studies on HIV-1 in NIH and this cohort should be expanded and maintained by the mutual effort of JICA and Thai government.

The Lampang HIV-Couple Cohort study

The first and second phases of the Project enriched the facilities, equipments, scientific techniques of the personnel and so on for the research on HIV-1/AIDS in NIH. However, the absence of its own clinical field was considered to be a drawback. It was agreed between JICA and NIH in 1998 that the presence of intimately connected clinical studies would facilitate the research on HIV/AIDS in NIH. Lampang Hospital was suggested as a candidate of such a clinical study site by Dr. Paijit Warachit. A study proposal, "the Lampang HIV-Couple Cohort" was prepared and submitted to the Thai government by Drs. Pathom and Ariyoshi.

Dr. Panita, the deputy-director of the Lampang Hospital, has been directing the day care center (DCC) for HIV-1-infected patients in Lampang Hospital. 1,110 HIV-1-infected patients were registered in DCC between October 1995 and October 1999. Over 50% of the patients (52%) had less than 100 CD4-positive T cells and 70% of the patients were symptomatic. 415 (38.4%) had extremely low income (less than 1,000 baht/months). 143 patients (38.3%) of 373 married women were widowed and 269 HIV-1-infected mothers had 385 children. Based on these backgrounds of Lampang Hospital, it was proposed to establish a cohort of patients with a special emphasis on the couple studies.

Before starting the cohort study, laboratory technicians of Lampang Hospital

were trained in NIH by Dr. Wattana for processing HIV-1-infected blood samples. A research clinician, study coordinator/data manager, assistant manager were employed on a part-time basis. Patient enrollment was started in July 2000. By November 14th, 2001, 640 patients were enrolled of whom 425 individuals were recruited for the cohort. Remaining 215 patients were recruited to the cross-sectional study but not selected for the cohort. Both spouses of 86 concordant couples were enrolled. 84 HIV-1-negative wives were enrolled, although 32 of them had been widowed. Only 15 patients (2.3% of the total patients in DCC) refused to join the study.

The cohort cases are interviewed individually and characterized according to the questionnaire written in forms. These data are typed into a PC twice and matched to validate the accuracy of typing. Patients' materials are separated into plasma, PBMC and buffy coat using a safety cabinet and centrifuges, and stored in the freezers or liquid nitrogen tank which JICA provided. A new laboratory technician was hired in 2001 and is starting the measurement of plasma viral loads, which are indispensable to follow up the clinical course of the patients. The field laboratory in Lampang Hospital is thus improving steadily in its function. JICA contributed by providing the PCR machine and mechanical washer etc. CD4-positive T cell counts, another important clinical marker for HIV-1 infection are performed in the central laboratory of Lampang Hospital using their flow-cytometer, FACSCan. Thus, the collaboration between the cohort study group supported by JICA and the facilities and personnel of Lampang Hospital are very well organized and concerted to each other.

The study in NIH

Several studies using the patients' materials have started in 2001.

1. HLA genotyping

   The first attempt did not wok out very well probably due to the bad sample condition. However, owing to the technology transfer by Dr. T. Matsumi, Ms. Nuanjun succeeded to type HLA in 144 Lampang patients with 90% success. JICA also contributed to improve the facility by providing, a PC for data storage, a microplate shaker, etc. These data would be very important for the HIV-1-specific immunological study of the patients.

2. Human genome study

   According to the technology transfer by Drs. Shioda and Nakayama, Ms. Nuanjun did a pilot study about single nucleotide polymorphisms (SNPs) on 6 genetic markers. Since the frequency of certain SNPs such as CCR5 893(-) and CCR5 668A was very low, she increased the sample numbers and analyzed SNPs such as

IL4-589T, CCR2-64I, RANTES-403G. She also is going to study the uninfected counterpart among Thai population. These results would be analyzed further according to the clinical data provided by the Lampang cohort team. The study has been done very efficiently and is very promising to get the initial correlation between genetic markers and clinical parameters among Thai patients.

3. Virological study: resistance assay

   The technology transfer of the genetic study on drug resistance was done by Dr. W. Sugiura. Dr. Wattana has tried to amplify the responsible viral genes and to sequence them. Since genetic information on subtype E is very limited, gene segments of HIV-1 could be amplified and sequenced only in 50% of the blood samples. Dr. Wattana is going to design the more appropriate primers for subtype E HIV-1. He used MS-PCR method to analyze resistant mutations in specific sites in the reverse transcriptase gene. Although the method is more sensitive than PCR-sequencing to determine the drug resistance mutation at certain sites, this reviewer believes that sequencing and determination of the genetic polymorphisms and the drug resistance mutation in subtype E HIV-1 are very important. By characterizing and accumulating these basic data, it may be possible to develop a versatile resistant assay kit for subtype E HIV-1 using microarrays with mutant oligonucleotides on them.

4. Genetic method to diagnose opportunistic infections (OIs) among patients with HIV-1.

   Dr A. Iwamoto saw the situation of Lampang Hospital and advised to use a simple molecular method for various pathogens. Drs. Archawin and Ariyoshi decided to work on the cerebrospinal fluids of the patients with the diseases in the central nervous system. Dr. T. Koibuchi transferred a PCR technique for common pathogens of OIs in the central nervous system such as Cryptococcus, Cytomegalovirus, EB virus, Toxoplasma. Samples have been examined by Dr. Archawin in NIH.

Originally, the proposal for the cohort study aimed to enroll at least 100 discordant and concordant couples, respectively, where both spouses are included, by the end of 2001. Although 54 such discordant and 86 concordant couples have been collected by November 2001, it would not be possible to attain the goal of the proposal. However, it should be emphasized that the newly registered patients in DCC were increased in 2001. The new patient registration was decreasing between 1996 and 2000 in DCC, probably reflecting the decrease of new HIV-1 infections in northern Thailand owing to 100%

condom campaign. This reviewer believes that the dedicated effort of the cohort study team increased the new patients' registration in 2001 and that the goal of the enrollment of the couples would be attained shortly.

Owing to the devoted personnel in DCC the follow-up rate of enrolled patients is over 90%. The establishment of the cohort can be validated by the good follow-up. In this sense this cohort has shown its value already by the very good follow-up rate. This cohort would facilitate studies of HIV-1 infection and AIDS in NIH if it is maintained. Collaborative research projects between the field (Lampang cohort) and NIH have started. I am sure that virological studies such as drug resistance mutation, immunological studies such as HIV-1-specific CTL responses on couples, genomic studies relating HIV-1pathogenesis and molecular studies on OIs would be stimulated in NIH using this cohort.

In conclusion, the Lampang cohort study is smoothly started by now. It should be expanded and maintained to facilitate research on HIV-1/AIDS in NIH.

Expected Output II:

HIV-1 vaccines evaluation system using animals in the containment laboratory (BSL3 laboratory) is established.

Chief Reviewer: Dr. Shudo Yamazaki
Former Director General, NIID

Summary of Evaluation:

1. Supply of essential equipment for the laboratories, breeding and providing small animals including Guinea pigs, BALB/C mice and NOD SCID mice etc., and training Thai staff for handling and testing infected animals – all these have been implemented and well maintained. Consequently, NIH capability to function as Animal Center for research use has been much improved since animal BSL-2 laboratory in the NIH building and animal BSL-2 and –3 laboratories in SRB were renovated in 1998.
2. These facilities and animals are currently used for some research activities including immunological study relevant to HIV vaccine development.
3. Moreover, biosafety management system for BSL-2 and –3 labs including animal labs was newly established in 2000 as a result of reviewing baiosafety level of pathogen handling laboratories in NIH. It was reported that biosafety management necessary for the maintenance of an appropriate biosafety level in Animal Unit is regularly conducted by checking with HEPA filters, air pressure gauge and records of maintenance of the supplied equipments.
4. The Biosafety Committee was organized for biosafety management to inspect biosafety conditions of BSL-2 and laboratories at NIH.
5. As a result, the Animal Center is now considered to be ready for the use of evaluation of HIV vaccine candidates for clinical tests, provided if the Good Laboratory Practice (GLP) standard is established there in future.

Output III: Facilities for the national repository system for HIV vaccine trials and the serum bank are established.

Chief Reviewer: Dr. Shudo Yamazaki
Former Director General, NIID

JICA provided three deep freezers (-80 ℃) and two liquid nitrogen freezers as well as liquid nitrogen generator for specimen storage. It was reported that 28,175 samples from BVEG vaccine trials in Bangkok and about seven hundred samples from the National Health Survey in Thailand (2000 & 2002) are stored, and that the system is smoothly operated by computer and software for specimen inventory system.

Output IV: Capabilities of identifying etiologic agents are improved.

Chief Reviewer: Dr. Takeshi KURATA
Deputy Director-General, NIID

Summary of Evaluation:

Since 1999 when the Project started, 14 fellows have been invited for 1 to 6 months to the National Institute of Infectious Disease and other institutions in Japan and trained to improve their technologies for diagnosis and basic research on emerging infectious diseases. On the other hand total 28 short-term experts were dispatched to Thai NIH in addition to 4 long-term experts for technology and information transfer and collaborative research and improvement of diagnostic activities. During past four years, the method in priority was gene technology, such as PCR, sequencing etc for detection of pathogens. The equipment, 22 items, necessary for handling and testing microbiological agents were donated to Thai NIH, and have been used effectively as far as reviewers inspected. "Technology transfer" itself for identification of microbiological agents has been done well, and the ambition of Thai colleagues and the efforts of both side were highly appreciated. The progress since mid-term evaluation is seen in application of transferred methods to the field materials from sentinel hospitals with successful reliable results. The methods transferred are highly useful and essential in this project. Through this project, several research results have been published in the internationally qualified journals.

Comparing to the starting stage of the "NIH Project, Thailand" (1986 ~), activities of Thai side have been improved better than expected. The Project also stimulated young Thai colleagues to get doctorship (PhD), so-called Ronpaku or graduate course, at the Universities in Japan such as Osaka University, Hokkaido University and so on. This is the really unexpected and highly valuable success through the Project.

Summaries of Evaluation of Individual Research Areas

I. Lesson learnt: (Trainee/Trainer) JICA Trainee Report (after mid-term evaluation)

(1.) Arbovirus (Ms. Atchareeya A. / Dr. Kurane I., Takasaki T., Yamada K. and Ito M. NIID)

The trainee learned modern technology for diagnosis of dengue virus infection:1.Genotyping of dengue virus 2.Primer design 3.Dengue serotyping by RT-PCR 4.Dengue virus isolation in C6/36 cell line using micro-plate 5.Plaque reduction neutralization by Peroxidase antiperoxidase (PAP) method

6.Dengue virus plaques assay in Vero cell 7.Dengue Ig M/ IgG antibody detection using PanBio ELISA test kit.

The trainee is now applying these methods to diagnosis and for research activity to investigate Dengue virus genotype 3 and type 1.

(See Progress Report)

Dengue outbreaks in Southeast Asian countries are giving big threats to the people visiting and living there, because there is no successful vaccine to protect them from infection.

The trainee's experience will contribute to the daily diagnosis and epidemiological works in NIH, Thailand. This technical transfer will make it possible to improve the former diagnostic guideline by WHO and Armed Forces Research Institute of Medical Sciences (AFRIMS).

(2.) Enterovirus (Ms. Napa O./ Dr. H. Shimizu)

Ms. Napa visited NIID for 4 months to study diagnosis of enterovirus 71(EV71) and other enteroviruses. Since 1998, EV71 has been payed attention in Southeastern Asian countries because the virus causes menigoencephalitis additionally to the regular hand-foot and mouth disease.

She learned: 1. Susceptibility of various cell lines to EV71 and other related virus strains 2. Identification of EV 71 and other enteroviruses by using antiserum for serodiagnosis 3. ELISA 4. Molecular study: PCR, DNA sequencing.

Through technology transfer, results with field materials were published in the international medical journal. This technical transfer will make it possible to contribute much to public health through diagnosis and research.

(3.) Hantavirus. (Mrs Sanit/ Dr. Arikema J.)
Hantaviruses are carried by wild rodents all over the world. Existence of the virus has been reported several years ago in NIH, Thailand. Establishment of diagnostic methods is needed for differential diagnosis of the disease from leptospirosis which has been currently epidemic in Thailand. Mrs. Sanit learned current diagnostic methods in Hokkaido University: 1. Preparation of materials for IFA and ELISA antigen for serological examination
2. Western blotting 3. Serotyping by ELISA using recombinant nucleocapsid proteins, NT, and rapid NT
4. IgM detection by mu-capture ELISA 5. Genetic examination by RT-RCR
She has future plan to introduce these technologies into the screening and confirmation of hantavirus infection.

(4.) Leptospirosis (Dr. Vimol P., Ms. Watcharee S. / Dr. Satoh S.)
In recent several years, Leptospirosis is one of the big public health problem in Thailand. Total number of patients has been 7000-8000 each year. They learned: 1. Process of vaccine production including culture of Leptospira interogans 2. Process of quality control 3. Laboratory testing: antibody detection (MAT: microscope agglutination test, identification, protective efficacy in guinea pigs and mice.

II. Progress Report (After mid-term evaluations)
(1.) Dengue virus (Ms. Areerat /Drs. Kurane I., Takasaki T., Yamada K.)
Before mid-term evaluation (Jan 2002), Dengue virus serotyping by RT-PCR, virus isolation using C6/36 cell line, plaque assay, detection of IgM/ IgG, genotyping JE virus and other research technology necessary for practical diagnosis and research had been transferred. Recent technology transfer has been done successfully (See lesson learnt (1)). Dengue Fever/ Dengue Hemorrhagic Fever(DF/DHF) and Japanese encephalitis are common and very important arbovial diseases in Thailand. Ms. Areerat applied transferred technology for laboratory surveillance at sentinel hospital and disclosed highly evaluated data and these results will be published soon in the international journal. Both groups have been collaborating very well, a wonderful example of"international collaboration". Transfer and establishment of new methods for practice with modern technology would strengthen and make it possible to carry out excellent epidemiological studies and analysis in future.

(2.) Chlamydia (Ms. Piyada W., Kanonkporn G, Dr. Vimol P. /Dr. Hagiwara T.)

The pathogens (C. pneumoniae, C. psittaci, C. trachomatis) cause sever diseases in humans. In this project C. pneumoniae has been chosen as a target of diagnosis and research. C. pneumoniae is now suspected as one of the important causative agents of atypical pneumonia in addition to Mycoplasma, and myocadial infarctions. Serological and genetic methods have been applied to clarify the role of the agent of respiratory infections. According to a report the agent is responsible for 5 to 15% of community-acquired respiratory diseases throughout the world. The studies by the Thai group in some hospitals made it clear that: 1. Prevalence of antibody to C. pneumoniae at the coronary care unit was high (52%) for unknown reason. 2. The children have antibody; 43% of bronchitis, 70% of pharyngitis etc. 3. Also atypical pneumoniae, C. psittaci was detected in 9 out of 31 cases.

Future studies will be necessary on the laboratory surveillance of Chlamydia infection in Thailand to make clear the relationship of the agent to cardiovasucular and respiratory diseases.

(3.) Mycology (Dr. Natteewan, Ms. Nanthawan/ Dr. Mikami)

The trainee isolated more than 90 Nocardia spp and Candida spp, and by using these strains she studied :1. Phenotypic characters in relation to genes 2. PCR-RFLP analysis 3. Phylogenetic analysis

4. Genotypic determination of Candida spp.

She disclosed a very important point that PCR-PFLP of an amplified portion of 16 S rRNA gene is the most reliable method, because phenotyping and genotyping results were not identical. The paper has been accepted by the European J Epidemiology under the title "Characterization of clinical isolates of pathogenic actinomycetes in Thailand and the first case report of nocardiosis due to Nocardia pseudo brasiliensis". Dr. Nateewan established the system to help laboratory diagnosis in local hospitals by applying the techniques learnt to analyze the local isolates shipped to NIH. She received PhD with this theme from Chiba University.

In future she is going to apply the methods to characterization of non-tuberculous mycobacteria and other pathogenic aerobic actinomycetes by using PCR-RFLP analysis of an amplified portion of 16 S rRNA gene, and phylogeneic analysis of non-tuberculous Mycobacteria and other pathogenic actinomycetes with 16 S rRNA gene sequence.

(4.) Hepatitis (Ms. Naiyana W. Mr. Krigngsak P/ Drs. Miyamura T., Takeda N., Li T. C.)

The fellow established diagnostic system through training in Japan, using ELISA and PCR (HEV and TTV). At this moment, molecular diagnosis of hepatitis is possible only at Thai NIH. At regional medical centers, ELISA kit has been used and for final confirmation, samples are sent to the NIH. The fellow is very challengeable person and trying to express proteins using baculo virus system for the development of ELISA. Scientific minds learned from Japanese experts are very important and should be encouraged.

In 2003, Japanese counterpart visited Thai NIH to prepare manuscripts-based routine diagnosis and research of hepatitis A and G viruses and construct baculo virus recombinants expressing hepatitis C virus NS5a gene, and also technical transfer for diagnosis of hepatitis E virus infection. Also experiments to express the antigen needed for detection of antibody to hepatitis C virus is ongoing.

In general Thai NIH has enough activity for the diagnosis of hepatitis A, B, C virus infection. Recordings of the epidemiological background or setting are usually poor. This could be improved by more close collaboration between the laboratories where the testing is performed with material collection from hospitals. Thai has obtained many data from the project that should be published. Efforts to strengthen the ability to write scientific papers are highly required.

(5.) Viral diarrhea and Enterovirus (Dr. Yaowapa P., Ms. Naiyama W. /Drs. Miyamura T., Takeda, N.Shimizu,H.)

Technology transfer was done in NIH by Japanese experts:

1. Direct detection of the causative agent by electron microscope,

2. PCR, 3. ELISA, 4. Latex agglutionation method etc.

The laboratory functions as WHO Regional Reference Laboratory for polio and enteric viruses(SEARO) and also reference laboratory for diarrhea viruses like rota, astro, calici, adeno, corona and SRSV. Recently (June 2003) Japanese counterpart visited Thai NIH for technology transfer for Norwalk virus detection by PCR through 1. RNA extraction technique to get good yield of RNA and 2. PCR technique for Norwalk virus detection. In future, collaboration in the research on Norwalk-like virus and follow up the transferred technology are necessary.

(Enterovis :see " lessons learned")

(6.) Molecular diagnosis of V. cholerae (Ms. Aree / Dr. Watanabe)

The fellow tried detection of V.cholerae from aquatic environment using several molecular techniques like PFGE (O-antigen, CT, hemolysin genes) and HMA assay.

The fellow was sent to Japan (NIID) in 1999 for 6 months. As for main detection method immune fluorescent assay has been used, however, transferred technology for gene detection has never been applied. However Ms. Aree has applied this method with colleagues of Mahidol University after full sequence published 2001 to testing water in environment successfully and at present she has research work at Doctor course at university to get PhD additionally to her work.

(7.) Leptospirosis (Ms. Piyada, Dr. Vimol P. / Drs. Kawabata H., Watanabe H., Masuzawa T., Kida,H.)
The outbreak of the disease with 7000-8000 patients per year has drawn attention. The fellows learned MAT, PCR, and Southern blot analysis, and PFGE for characterization of genotype.
(See lessons learned(4))

For bacteriological diagnosis, Dr. Kida trained well:1. Isolation and identification from the patient 2. Selection of the strain as vaccine candidate 3. Counting method of the bacteria under dark-field microscope using Thoma disk 4. Anti-leptospira sera (hyperimmune) were donated to the laboratory
Currently they have daily diagnostic works and other group started trial to choose appropriate candidate strains for vaccine development. (see progress report 6)

(8.) Influenza (Ms. Malinee / Dr. Kida H.)
The fellow learned: 1. Virus isolation, 2. Purification of the virus
3. Plaque titration, 4. RT-PCR , 5. Gene sequencing
The disease may not be so important, but nature of influenza virus circulation in animals is quite important considering migration birds. Laboratory activity using transferred technology will support international influenza virus surveillance activities.

(9.)Legionella(Ms.Wantana/Dr.Watanabe)
The fellow visited three laboratories in Japan, and leaened :1.Identification of the strains by PCR, 2.Serotyping, 3.Detection of antigen by ELISA. In Thailand, no clinical case has been known. The transferred level of methods are very sophisticated and they are in very excellent situation as preparedness for future outbreak. Dr. F.Kura, NIID, Japan will visit NIH for the technology transfer in August 2003.

(10.) Entomology (Dr. Usawadee T., Ms. Apiwat T. Mr. Jakkrawan C / Drs. Eshita Y., Mogi M.)

Thai counterparts were trained for:

1. Molecular biology technigues(PCR), 2. Field experiments to study on biology and ecology of Aedes aegypti, vector of DH and DHF, 3. Establishment of lethal ovitraps: the system was evaluated on efficacy and longevity with successful results.

The standardized methods for DHF vector surveillance and control would be proposed and established for DHF prevention and control in Thailand. Research on lethal ovitraps and lavicidal application would be highly potential strategies to deal with DHF vector surveillance and control and also other mosquito-borne diseases. The research results have been published in two international journals.

-Recommendations-

I. Short-term Recommendation: Transferred and established technology should be practically applied with high standard level to diagnostic works and research.

II. Recommendation for future: The NIH (Thailand) functions well as National Reference Laboratory. The Project surely contributed to strengthen the activities of the reference and research in the NIH laboratories and laboratory network of Thailand through modern gene technology in addition to the conventional ones for microbiological pathogens. In Thailand, transfer of the basic technology to local health station and continuous update the quality of techniques for diagnosis and research are required. Finally in future continuous close collaboration between Thailand and Japan through both governments is strongly recommended to improve situation of public health of both countries from the point of Emerging and Re-emerging Infectious Disease.

Output V:

Establish laboratory network and laboratory information processing system for surveillance of emerging and re-emerging infectious diseases.

Chief Reviewer: Dr. Yamazaki
Former Director General of NIID

Summary of Evaluation:

Thai Ministry of Public Health (MOPH) initiated a national project for surveillance of emerging and re-emerging infectious diseases (EID project) in 1999. Target diseases under the EID surveillance were categorized into 9 groups, which are comprised of 11 diseases and more than 30 pathogens in total. The EID project designated 4 provincial hospitals as the sentinel sites to provide laboratory findings together with patient information. These 4 hospitals are located near the borders of 4 adjacent countries; Nong-Khai Provincial Hospital (near Laos), Mae Sod Hospital, Tak Province (near Myanmar) Prapokklau Hospital, Chantaburi Province (near Cambodia) and Had Yai Hospital, Songkhla Province (near Malaysia). In order to strengthen NIH capabilities to serve as a national reference laboratory for the EID project, establishment of laboratory network and laboratory data processing system for surveillance of EID was adopted as one of the important outputs described in R&D for implementation of this JICA-NIH project. In 2001, two Japanese experts visited two of the 4 sentinel hospitals; Nong Khai Hospital and Mae Sod Hospital to investigate the capabilities of their laboratories to participate in this project. Those hospitals were found to be provided with good facilities to serve as a sentinel hospital to collect specimens and carry out some bacteriological diagnosis at their clinical laboratories. The other two sentinel hospitals have also been facilitated to contribute to this project. Some specific bacteriological tests and all virological tests are conducted at NIH. Therefore, all these specimens are sent to the EID Office, NIH, together with specimen delivery/reporting sheets every week then specimens are checked and delivered to 13 respective laboratories in NIH where isolation and identification of etiological agents are conducted.

Appropriate manuals for collecting and handling specimens and transporting them to NIH were prepared by NIH as well as specimen delivery sheets and reporting sheets in both Thai and English.

Laboratory data with some patient information are collected at the EID Office, NIH from the collaborating hospitals as well as from 13 laboratories at NIH and Processed on computer to analyzw epidemiological features of pathogens under the EID surveillance. Data processing technology was transferred to NIH and the database was made using EXCEL in this research project. Laboratory findings from February 2001 to June 2003 were tabulated in tables and figures, which were distributed to relevant institutions.

The reviewer confirmed that the system and technologies necessary to function as national reference laboratory for the EID surveillance program have been established at NIH in collaboration with Japanese experts through this JICA project.

Recommendations:

1. In this project, establishment of the national reference function for accurate diagnosis of the EID pathogens is considered to be an indispensable requisite to conduct high quality EID surveillance in this country. This has been mostly achieved, and reference activities of NIH have been much improved by this JICA project. However, NIH needs to make continuous efforts to improve diagnostic methods and transfer them to collaborating hospitals for each respective disease under the EID surveillance.

2. A key element for successful implementation of the EID surveillance is to build up a good collaboration system with the Bureau of Epidemiology and other MOPH agencies.

3. The objective of laboratory data analysis and its most effective practical use should be discussed and clearly defined by the EID Surveillance Committee.