6. プロジェクト関連の主な出来事

1996年

9月	5日	野崎チームリーダー、野原長期専門家PHC業務、只野長期専門家ウイルス学業務、島田長期専門家PHC（調整）業務着任、新城短期専門家PHC業務（－12月26日）
	9日	高畑所長タケク視察
	13日	日タイパートナーシッププロ形調査団来訪PHC合同委員会メンバーと会談
	18日	Vientine health City Workshop （－20日）
	20日	合同会議
	21日	小川短期専門家叙勲のため来寮（－10月6日）
	23日	EPI National Workshop、定例チーム会議
	24日	小川短期専門家叙勲式（3等功労勲章受章）
	25日	島中外務省経済協力局長来寮（－26日）
	29日	天野チームリーダー任期満了帰国
10月	1日	宮城長期専門家PHC業務着任
	2日	山城長期専門家細菌学業務着任、黒岩長期専門家EPI業務任期満了帰国
	6日	中村長期専門家細菌学業務任期満了帰国、小川短期専門家PHC業務帰国
	11日	米満機能病院長（熊本市）一行来寮
	13日	岩永、仲宗根、比嘉短期専門家細菌学業務（－1月6日）来寮
	17日	カムワン県副知事主催水害チャリティ会（於：タケク）
	24日	日タイパートナーシップにてタイ・コンケン視察（－26日）
	28日	定例機材会議
	30日	定例スタッフ会議
	31日	MOH & WHO主催DRF meeting （於：MOH）
	31日	ボンメック保健大臣、ケンペット官房長カムワン県本PHCプロジェクト視察（－2日） 同行専門家乗車車両が交通事故（ラオ少年負傷－11月18日退院）
11月	7日	日タイパートナーシップ・タイ視察の報告会（於：C.I.C.）
	11日	帖佐短期専門家EPI業務（－23日）来寮
	12日	National workshop of surveillance （於：women's Union）
	18日	ボンメック保健大臣と懇談（次期プロジェクト）
	19日	EPI計画会議（於：NIHE）
	20日	ボンメック保健大臣と懇談（沖縄訪問、次期プロジェクト）
	21日	定例機材会議
	22日	定例スタッフ会議
	26日	フィリピンJICA家族計画母子保健プロジェクトチーム（花田リーダーら4名）技術交換のため来寮（－12月2日）
12月	4日	外務省経済協力評価団（斎藤団長）PHCビエンチャン事務所訪問 ボンメック保健大臣沖縄訪問（－6日）
	13日	斎藤PHC業務（－22日）、山下寄生虫学業務（－26日）両短期専門家来寮
	14日	ラオス在留邦人クリスマス・パーティー
	17日	NID用ポリオワクチン贈呈式（於：NIHE）
	19日	沖縄タイムス・船越社会部記者PHCプロジェクト取材（－26日）
	21日	定例スタッフ会議
	27日	ボンメック保健大臣と懇談（次期プロジェクト）
	29日	保健副大臣Vannareth RAJPHO氏死去 （30日弔問、1月5日葬儀）

1997年

1月	4日	第1回NID（於：タット・ルアン広場）

5日　保健副大臣Vannareth RAJPHO氏の葬儀
6日　岩永、仲宗根、比嘉短期専門家細菌学業務帰国
12日　新年会（於：大使公邸）
13日　定例スタッフ会議、黒岩短期専門家EPI業務来寮（－2月8日）
22日　外務省年次協議団（団長：水上開発協力課長）来寮（－25日）
23日　黒岩専門家にラオス保健省より感謝状授与（於：NIHE）
外務省年次協議団NIHE訪問：専門家とカウンターパートより聞き取り調査
28日　リーダー会議（東京－2月8日）、Dr.Choum（日本研修－2月16日）

2月　3日　国内委員会に出席・説明（リーダー）
7日　田中短期専門家EPI業務来寮（－27日）
16日　小川短期専門家PHC業務来寮（－4月10日）
24日　評価準備スタッフ会議
25日　定例スタッフ会議
28日　ラオス円借款現地セミナー

3月　4日　大使館橋本医務官ワシントンへ転勤（奥村医務官着任）
10日　評価団受入準備（タケク－12日）（リーダー、調整員、Dr.プーコン）
13日　ラオス国別経済協力評価セミナー（於：ランサーンホテル）
17日　シンガポール商工会議所メンバー来寮（於：大使公邸）
24日　人口基礎調査団来寮（－30日）
28日　本PHCプロジェクト最終評価調査団（茨木団長,古田,横永,山根,黒岩,八重樫,小森団員）来寮(－4月5日)、評価調査団員兼任佐藤短期専門家寄生虫学業務、有泉短期専門家PHC業務来寮（－4月10日）
29日　評価団保健省（Dr. ボンメック保健大臣）表敬訪問、CIC（Mr. トンパチャンDirector）表敬訪問保健省にて協議
30日　評価団タケクに移動：ラオス側も参加（Dr. ケンペット長官、Dr. ソンタナ、Dr. プーコン、Dr. シモン）
31日　午前：評価団マハサイ郡のヘルスポスト（ナドゥー村）とVHW・保健センター（ナカム村）視察
午後：PHCトレーニングセンター、マラリアセンター、EPIオフィス視察、専門家およびCPより聞き取り。

4月　1日　午前：終了時評価調査団カムワン県副知事表敬訪問、カムワン県保健局主催パーシー
午後：ヒンブン郡病院視察、夕：坂井日本大使主催歓迎会（大使公邸）
2日　午前：NIHE視察　午後：IMPE視察、WHOとの協議
3日　午前：プロジェクト合同会議
午後：ミニッツ準備委員会、セタチラート病院視察　夕：評価団長主催晩餐会
4日　午前：ミニッツ署名、マホソット病院およびフレンドシップ病院視察
午後：JICA事務所、大使館報告　夕：ラオス保健省主催晩餐会
5日　セタチラート病院新築用敷地視察、評価団帰国
6日　感染症対策特別機材供与・計画策定調査団来寮（地神一美団長、－4月10日）
7日　定例スタッフ会議
10日　佐藤短期専門家寄生虫学業務、有泉・小川短期専門家PHC業務帰国
13日　ラオス正月（－16日）
23日　マラリアトレーニングコース開始（於：カムワンPHCトレーニングセンター）
Mobile Clinicトレーニングコース開始（於：カムワンPHCトレーニングセンター）

5月　27日　遠田短期専門家EPI業務来寮（－6月6日）
28日　定例スタッフ会議

6月　1日　植樹祭（於：バン　ポン　ムアシ）
4日　ボンメック保健大臣と協議（JICA事務所長、PHCリーダー）
9日　小澤短期専門家機材保守来寮（－14日）
11日　交通安全講習会（於：ラオ・プラザホテル）
20日　メコン河流域開発・環境調査研究委員会調査団（堀博団長）との懇談会

２５日　定例スタッフ会議
２６日　PHCプロジェクト供与機材の引き渡し式（於：保健省）
7月　６日　PHC部門、ラオ側：Drアノン以下９名、専門家：新城、野崎２名、計１１名にてタイ国ナコンサワンにて技術交換・研修(-１３日)。
１７日　岩永短期専門家細菌学業務来寮(-８月７日)。
２１日　PHC/drug section、ラオ側：Drソムチット以下５名、日本側：谷口、島田２名、計７名タイ国コンケンにて技術交換・研修(-２５日)。
２４日　福永短期専門家ウイルス学業務来寮(-８月１９日)。
３１日　仲宗根短期専門家PHC業務来寮(-８月２７日)。
8月　１日　７月分定例スタッフ会議。Dr.ケンペットが官房長から日本援助責任者(General Director of Health Care Sector Cooperation with JAPAN, MOH)に職責が変更。
２日　田辺短期専門家細菌学業務来寮(-２４日)。
４日　新城短期専門家PHC業務来寮(-９月１日)。
１５日　高村外務政務次官一行来寮(-１７日)。セタチラート病院を表敬訪問しボンメック保健大臣らと会談。
２５日　定例スタッフ会議。
２５日　セタチラート病院プロジェクト事前調査団来寮(団長：平山学部長以下７名、-３０日)。
２６日　PHCプロジェクトFinal Seminar開催（各県代表を対象にLane Xang Hotelにて開催、ボンメック大臣、高畑所長、セタチラート病院調査団出席)。
9月　８日　宇高長期専門家PHC業務来寮。
１０日　Mobile Clinicトレーニングコース(-１１日)。
１９日　ケン・カムワン県知事よりタケク勤務・帰国長期専門家(新城、新里、野原、島田、宮城)５名に感謝状授与、引き続きパーシーセレモニー。
２０日　PHCプロジェクト主催タケク歓送迎会（ケン知事出席)。
２４日　午前：PHCプロジェクト合同委員会、夕：帰国７名、来寮１名の長期専門家のPHCプロジェクト主催歓送迎会（ブンコワン副保健大臣、平田公使、高畑所長出席)。
２５日　JICA主催帰国７名の報告会（於：ノボテル）、引き続き歓送迎会。
２６日　ラオス保健省よりPHCプロジェクト１２名全員に感謝状授与、引き続き歓送迎会(ブンコワン副保健大臣、チャンタノム官房長、高畑所長出席)。
２９日　長期専門家７名(新城,新里,野原,島田,宮城PHC業務,只野ウイルス業務,山城細菌業務)帰国。
１０月　３日　カムワンにてTV12ch"地球交響曲"の小林専門家取材
１６日　JICAラオス事務所移転、邦人会ボート祭り参加（於：ビエンチャン）
２０日　調整員会議（於：シンガポール、－２４日）
２８日　定例スタッフ会議
３０日　保健省にて大臣座長のDiscussion on the Strengthening District Health Systemが開催される。（Mr.ソンペット発表、野崎、宇高、ブンニャン出席）
１１月　８日　カムワン県副知事スータン・ラタチャック氏死去（１３日葬儀出席）
１２日　ボンメック大臣と面談：８月に開催された保健省の全国大会で決まった方針について説明を受け、さらにラオス国の保健医療事情一般について話し合う。
１９日　PHCオフィス移転
２１日　定例スタッフ会議
２２日　JICAラオス事務所披露会
２６日　JICA Follow up Mission for Training Course on PHC来寮(表団長以下３名-１２月１日)
全国EPIワークショップ
１２月　３日　JICA医療協力部PHC Project 視察団来寮（福原部長団長以下２名－５日）
６日　平成９年度海外監事監査来寮（山田監事,中川調査役-１１日),１０日当プロジェクト
８日　JICAラオス国子供の健康無償/簡易機材案件/調査団来寮（武徹団長以下４名-１３日）
全国サーベイランスワークショップ

1998年

1月　8日　新年会（於：大使公邸）
　　9日　定例スタッフ会議
　　9日　佐藤（－３０日）、宮城（－１９日）寄生虫マラリア担当短期専門家来寮
　１３日　日タイ・ラオス三国間協力協議にて在タイ日本公使来寮
　１３日　小児感染症予防プロジェクト事前調査団来寮（団長橋爪課長以下４名,－２２日）
　１６日　専門家安全対策連絡協議会（於：ランサーンホテル）
　３０日　保健省にてWHO、ドナーとともに保健省の役割についての討議会
2月　４日　東京にてリーダー会議（－１３日）
　　６日　Dr. Pradya Somboon（チェンマイ大学）第三国短期専門家マラリア媒介蚊担当来寮（－２６日）
　１３日　国内委員会
　２４日　定例スタッフ会議
3月　３日　ボンメック大臣と面談：プロジェクトからの要望およびラオス側から経済危機下の保健医療事情についての説明。
　１０日　プロジェクト担当石崎書記官離任・長野城司書記官就任式
　１０日　JICA真鍋副総裁来寮（－１３日）
　１３日　真鍋副総裁MOHにボンメック大臣を表敬訪問
　１６日　小笹短期専門家PHC担当来寮（－４月９日）
　１９日　小児感染症予防プロジェクト長期調査団来寮（黒岩団長以下３名,－４月１６日）
　２０日　ラオス経済協力総合調査団と懇談（於：大使公邸）
4月　７日　定例スタッフ会議、ポリオ根絶対策にかかる調査団（医療協力部計画課課長小野田、林）来寮（－９日）。
　　８日　天野専門家来寮（保健省担当JICA個別専門家）
　１４日　ラオス国ピーマイ（－１６日）
　２０日　セタチラート病院改善プロジェクト短期調査団来寮（山根団長、草野、伊籐、小森団員）（－５月６日）
　２９日　本プロジェクト合同運営委員会
5月　１日　メーディ
　１４日　保健省PHC会議（ADB後援）（－１５日）。本JICAプロジェクトよりも報告。
　１８日　専門家交流会
　２６日　EPI：１９９８年NID評価、１９９９年sNID計画　national workshop開催。
　２９日　邦人会総会
6月　１日　定例スタッフ会議
　　７日　ラオス植樹会
　２２日　カムワンPHC・MHCチーム（ラオ側７名、日本側宇高、野崎）タイ国チェンマイにて技術交換（－２６日）。
　２２日　ラオス国小児感染症予防プロジェクト実施協議団来寮(有川団長以下３名,－３０日)
　２９日　上記プロジェクトのR/D署名。
7月　３日　定例スタッフ会議。
　　６日　巡回医師団(大友弘士教授以下３名来寮－９日),８日：大友教授講演会(マラリア,デング熱)
　１０日　安全対策委員会、専門家交流会
　１４日　チェンマイ研修旅行・報告会（於：タケクPHC訓練センター、野崎、ケンペット局長、チュム局長出席）
　２２日　JICA/Laos office project担当-井本氏離寮
　２９日　セタチラート病院建設計画基本設計調査団来寮(藤崎団長以下11名,-８月６日及び８月１５日)。
　３１日　定例スタッフ会議
8月　６日　本プロジェクト最終評価団来寮(福永団長以下４名、－１１日)。
午後NIHE,IMPE訪問調査、JICA事務所訪問。

7日　最終評価団タケク移動、午後PHCトレーニングセンター訪問調査。
8日　評価団ヒンブン・ナムディックのヘルスポストおよびVHWを訪問調査。琉球アジア太平洋医学交流協会(RAPMEA)来寮(稲嶺会長以下16名、－9日)、セタナラート病院訪問。
8日　評価団、PHC専門家、JICA職員、JOCV、RAPMEAと懇談。
9日　評価団：午前、合同委員会開催、大臣表敬訪問。午後：MOHにて評価文案協議。
11日　評価団JICA事務所報告。ミニッツ署名、交換（坂井大使、副大臣出席)。
午後：斎藤教授、小森氏離寮。
13日　マラリアコントロールに関しビエンチャン県保健局、郡病院視察(福永,佐藤)。
15日　福永教授(NIHE担当)離寮。
18日　佐藤教授(IMPE担当)離寮。第1回保健省主催"National Level Implementation and coordination expert group for PHC会議"開催。
28日　定例スタッフ会議。
9月　2日　帰国研修員フォローアップ調査団・エイズのウイルス感染診断検査技術)来寮(横田、梅田、福地団員)。4日：エイズ調査団・エイズ公開セミナー開催(於：NIHE)。
9日　ラオス国サバナケット,パークセーの保健医療状況視察(野崎,天野,ケンペット,－12日)
21日　PHC終了式（於：タケク、大臣、大使、知事、JICA所長出席)。
25日　定例スタッフ会議、PHC報告会(JICA主催)。
28日　JICA、大使館、保健省へ報告。
29日　野崎、小林、村上、宇高、高岡専門家離寮。
30日　PHCプロジェクト終了。

7. カムワン県のPHC活動の概要

5-1. PHC活動

PHC部門はカムワン県の公衆衛生を基礎とした包括的な健康・保健サービスの普及と利用の促進、PHC活動の推進を目的に、カムワン県保健局の機能強化と、トレーニングによる人材育成を担当している。具体的にはカムワン県9郡のなか3郡をモデル地区と定め、1992年よりPHC活動が行われてきた。その特徴は住民参加型としてプロジェクト開始時に住民の要望調査を行い、要望の多い安全な水の確保、必須医薬品、ヘルスポストの強化を行った点にある。インフラの整備として無線電話システム、深井戸掘削機の供与、ヘルスポストの改築、PHC訓練センターの建設がある。

本プロジェクトの人材育成の特徴は、ほとんど同じ言葉を話すタイ国の過去日本が無償および技術援助したコンケンなどの施設を利用している点である。またPHC活動にはWHOより8要素が提言されており、それにそった活動を行っている。

[具体的活動内容]:

A、県内3郡をモデル地区として1992年より行われたPHC活動。

1. サーベイランスシステムの強化:
   - ①PHCに関する住民の要望調査(1992):安全な水の確保、必須薬品、ヘルスポストの強化の要望が強かった。
   - ②毎年のPHCに関する家庭調査の実施(1993-)。
   - ③必須医薬品選定のための健康チェックカレンダー(1993)。
   - ④22指標による健康調査の実施(1996-)。
2. インフラの整備:
   - ①無線電話の整備(1993-)。
   - ②深井戸掘削機の購入(草の根無償、1994)。
   - ③6ヘルスポストの改築(1995-)。
   - ④PHC訓練センターの建設(草の根無償、1996-)。
3. 人材育成:各種トレーニングコースの開催、タイ国でのPHC研修。
   - 対象:①県保健局、②郡保健局、③ヘルスポストスタッフ、④VHW
4. PHC活動:
   - PHC8要素の確立
   - ①健康教育:VHWの指導、
   - ②風土病の予防:VHWの指導、
   - ③生活環境改善と安全な飲料水:回転資金活用によるトイレの建設、深井戸の掘削。
   - ④母子保健と家族計画:ヘルスポストへの機材の配布とナース教育。
   - ⑤予防注射の普及:EPIチームへの協力。
   - ⑥栄養改善:ヘルスポストへの身長計、体重計の配布と指導。
   - ⑦簡単な病気の手当:
   - ⑧必須医薬品の配備:回転資金方式(DRF)を村落、ヘルスポストにて実施。

5-2. 巡回診療

上記活動に追加して専門家が1年間のみ3人増員され1996年より1997年まで巡回診療チームが編成された。巡回診療チーム設立の目的は、

1) JICA予算で建設された8ヘルスポストのスタッフの初期治療の向上と周辺の村落のVHWの教育、
2) これまで行われてきたPHCシステムの医療スタッフからみた点検、
3) PHC活動に対する県病院医療スタッフの活用、

であり、日本側は医師2名、看護婦1名、ラオス側は県病院医師、ナース、郡病院医師、検査技師が参加し、1台の車に乗り一部の医薬品、診察器具、顕微鏡などを持参致した。巡回診療チームは原則として週2回県病院から出動し、各ヘルスポストにて1-2か月に1回の割合で巡回診療を行った。

巡回診療活動の成果として、

1) ヘルスポストおよびVHWのスタッフ教育：最初の数か月はシステムが定着せず、巡回診療チームは患者をみるだけに追われたが、後半は県病院、郡病院のラオス人スタッフによりヘルスポストナース、VHWの指導を行う体制を確立することができた。その他、PHCトレーニングセンターにて初期治療に関するトレーニングコースを開催し、ヘルスポストナース、VHWの医療知識の向上を図った。

2) PHCシステムの点検：ヘルスポストでの処方は導入されたDRF(必須医薬品回転資金システム)の薬品使用を原則としたが、DRFシステムの滞り、すなわち必要な医薬品が欠乏していることが多く、システムの改善を勧告した。それにより県保健局では不足医薬品を早く補充できるように購入権限をこれまでの県から郡に下ろし、必要医薬品が不足時、直ちに購入できるシステムに変更され不足の一部は解消した。現在通貨危機等で価格設定が難しくDRFシステムはまた困難に直面してる。しかしLLDCの国ではDRFによる医薬品の供給は価値のあるシステムと考えられる。

3) PHC活動に対する県病院医療スタッフの活用：人的資源は県病院、郡病院に豊富で、PHC活動の初期治療の向上およびレフェラル・システムの構築に県病院医療スタッフの活用を図った。PHCに対してある程度の理解を示しヘルスポストおよび村落スタッフの教育を行えるようになったが、なお積極的でない点が問題として残っている。

5-3. 課題

5-3-1. 現地側の課題

①. 現地側の財源不足：巡回診療実施にはコスト、すなわち車の維持費、ガソリン代、人件費などが必要である。ラオス国はLLDCの国であるうえ今回の通貨危機がラオスに波及し自前で行うにはコストの大幅な削減が必要となる。スタッフ数や巡回回数を減らすとか、郡に実地指導はまかすとか、県保健局全体の巡回指導チームがありそれに組み込むとか工夫が必要となる。

②. 国レベルにおける明確なPHC指針の欠落：各ドナー機関はそれぞれ個別に地方のPHC活動を援助しており、国レベルの指導力が弱い。

③. 少ない人的資源：PHC関連の教育を受けたスタッフは少なく、巡回診療・指導には県病院スタッフの活用を図ったが、県病院にはそれ自体の仕事もあり困難を伴った。

5-3-2. 実施側の課題

①. 財政面：現地側の財政面の自立をいかに促していくか、実施側も考えていかなければならない課題であった。ただLLDCの国でかつ通貨危機に直面し困難を伴う。

②. PHC活動における国レベルへのサポートの不足。

③. 実施側にも発展途上国のPHCを援助できる人材が不足している。

④. 実施側の支援機関に、派遣に積極的でない部門があり協力に困難が生じる。

5-4. 技術移転、現地側がプロジェクトを通じて発展させた活動

プロジェクト全体でみれば、ラオス国のEPI活動は非常に成果をあげ、2,000年までのポリオ撲滅宣言は可能な段階になり、国立衛生疫学研究所と国立マラリア・昆虫・寄生虫研究所の検査部門の強化も順調に進み、研究レベルも向上し、自ら向上を求めてタイ国との交流も活発になっている。PHC部門全体ではPHCトレーニングセンターを自ら積極的に運営し、DRF、トイレ、井戸の普及など現地側が主として発展させている。巡回診療活動に限っていえば、プロジェクトの後半における1年間のみの活動であり、目に見えて発展させた活動はまだみられないが、PHCでの医療の頂点にいる県病院スタッフが村落の医療現場をみて、県保健局とともに、今後のリフェレル・システムの構築を発展させる期待がもたれている。

8. 日本・タイ・ラオス３国間協力事業

本ラオス国公衆衛生プロジェクトは、1992年10月よりラオス国のPHC・保健医療水準の向上を目指して技術移転を行っている。本プロジェクトは開始当初よりPHC・保健医療技術が進んでいる隣国・タイ国と技術交換を進めてきた。平成9年度はこれまでにタイ国と4案件の技術交換事業を施行したが、私自身はその中のNo.1のタイ国ナコンサワンPHCトレーニングセンター(RTC)におけるPHC技術交換に参加する機会を得た。また平成10年度mobile health center(旧mobile clinic)のチェンマイでのPHC技術交換に参加する機会を得た。その経験をもとに、現場から見たタイ国との技術交換(日・タイ・ラオス３国間協力事業)に関して若干の考察を述べたい。

まず日・タイ・ラオス３国間協力事業の本PHCプロジェクトにおける利点を挙げてみる。タイ国との技術交換事業がラオス国の本プロジェクトにとって有用かつ現実的である一般的理由は以下の通りである。

(1) タイ国とラオス国の間に共通・類似した言語・文化が存在し、特に言葉に関してのハンディがほとんどない。

(2) タイ国とラオス国はメコン川を隔てただけの隣国であり、交通・移動の費用が安価である。

(3) タイ国のPHC・医学はラオス国より進んでおり、かつ類似したPHC・医学上の課題が存在しているため、ラオス国カウンターパートがタイ国のPHC・医学を研修することにより得た知識・技術はすぐ現場に応用できる。

(4) これまでタイ国には日本の無償援助でPHC地域トレーニングセンター(PHC/RTC)が４カ所建設されている。またそこにプロジェクト方式技術協力も入った事があり（コンケン）、タイ国PHC/RTCスタッフは日本の関与する本プロジェクトに対して非常に理解を示し利用しやすい。

(5) 上記PHC/RTCだけでなく、日本とタイ国とは援助、学術交換等を通じて、これまでに非常に強い絆・人脈を持っており、関係するタイ国リソースを利用しやすい。

本プロジェクトは、この1997年度の4案件の技術交換の中2案件がそうであるが、主としてタイ国PHC/RTCにおいて技術交換を行ってきた。以下に、具体的なタイ国との技術交換現場の状況、課題および展望を述べる。

(1) ラオス側からの研修員は、タイ語をほぼ完全に理解し、特に中堅幹部・研究者はすぐに利用できる進んだ技術・システムを習得しようとする意欲を持っていた。今後の展開として、現在まではプロジェクトのあるラオス国カムワン県の保健局スタッフを中心に技術交換・研修を行ってきたが、保健省のPHC担当幹部やカムワン以外の県の保健局幹部の研修が考えられる。その場合もカムワン県PHC/TC(所長 Dr.Anonh)にて一度PHCの研修を受けてから技術交換・研修に出かけるのが効果的であろう。

(2) タイ国側スタッフは、日本も関与していることもあるのか、ラオス側研修員に驚くほど熱心に技術交換・移転を行っていた。これは特筆すべき点である。

(3) 課題としてタイ国の受入機関（PHCの場合はPHC/RTCであり、研究の場合は大学医学部など）に対してこうした事業の財政的な裏付けが必要である。そこにタイ国の予算を活用する日・タイ・ラオス3国間協力事業（日タイパートナーシップ）の有用性が存在する。

(4) タイ側がラオスにて技術交換・移転を行うことも重要なプログラムである。過去本プロジェクトのカウンターパートに対して健康教育方法の講習がタイ国スタッフによって行われたことがある。

(5) ラオス国中央はタイ国とのこれまでの歴史・政治的経緯、ラオス国の現在の政治的状況等が原因していると思われるが、本事業に慎重な姿勢が見られていた。しかしながら、これまでのところ本プロジェクトからタイ国への技術交換派遣に関して、ラオス国の中央が特に障害となったことはない。

(6) 現在タイ国にて実施している技術交換を、日・タイ・ラオス3国間協力事業（日タイパートナーシップ）として正式な位置づけを行うために、また今後の事業の発展のためにも、関係国の調整を図り、事業の目的、実施方法、手続き等を記載した協力事業マニュアルの作成・配布が必要である。これにより利用組織は本事業を実施しやすくなり、事業は促進される。

最後に、日本における厳しいODA予算の状況を考える時、現在進められているタイ国リソースを利用する日・タイ・ラオス3国間協力事業（日タイパートナーシップ）は、ラオス国に対する非常に優れた技術援助方法のひとつと考えられる。協力事業マニュアルが整備された段階になれば利用はさらに促進され、本3国間協力事業（日タイパートナーシップ）の新たなる展開・発展がもたらされるであろう。

5-1. 平成9年度の日・タイ・ラオス3国間協力事業関連として以下の4案件の技術交換を行った。

1. タイ国ナコンサワンPHC Training CenterにおけるPHC技術交換
（期間：平成9年7月6日－7月13日）
2. タイ国コンケンPHC Training CenterにおけるPHC技術交換
（期間：平成9年7月21日－7月25日）
3. タイ国チェンマイ大学におけるウイルス学技術交換（期間：平成9年4月20日－7月16日）
4. タイ国チェンマイ大学におけるマラリアコントロール技術交換報告書
（期間：平成10年2月1日－2月5日）

5-2. 平成9年度タイ国ナコンサワンPHC Training CenterにおけるPHC技術交換

1、はじめに：本案件に対する日程、参加者、内容等に関する詳細な報告は新城専門家、Dr. Anonhの報告書に詳しい。ここではラオス国公衆衛生プロジェクトリーダーとして本企画に参加して、日タイパートナーシップあるいは日・タイ・ラオス3国間協力事業に関する観点より本技術交換の所感を述べ報告書とする。

2、タイ国に対する日本の無償資金援助、技術協力の状況：日本の無償資金援助にてタイ国内に建設された4カ所のPHC訓練センターのひとつであるNakhorn Sawan市のNorthern Regional Training Center for Primary Health Care Developmentは12年前に建てられ、今回そこを利用した。センター内の宿泊施設に5泊し、食堂も使用したが、それら附属施設を含めセンターの管理運営はきちんと行われていた。管轄の北部17県のPHCスタッフの教育・訓練も夜まで実施されており、10年前の供与機材（ミニバス、TVなど）の管理も良好であった。

ソフト面に関して、組織は添付資料のごとくであるが、Directorの Mr. Panyawat Santiwes、Training SectionのChiefのMrs. Kommalaporn Kongsukwiwat、StaffのMrs. Janya Rattanavipa、Information and Public Relation SectionのChiefのMr. Pisan Jeansirijinda、Research SectionのChiefのMr. Tongchai Sarakulは、日本の無償の入ったMahidol UniversityにてMaster Courseを修了（もしくは大学卒業）しており、育成された人材が有効に活用され、指導的立場に就いて活躍していた。

結論としてPHCに関して、タイ国に日本が実施してきた無償資金援助、技術協力は非常に有効に活用され、維持・発展していた。

3、タイ国スタッフの反応：タイ国スタッフの教育の熱心さには驚くべきものがあった。すなわちDirectorの Mr. Panyawat Santiwes自身による半日に渡る講義、視察時の2-3人のスタッフのアテンド、終了時のResearch SectionのChiefのMr. Tongchai Sarakulの司会によるタイ側スタッフ、タイ側研修員も参加した評価会開催など熱心にかつ積極的に行われた。

Director（訓練センター）との懇談において、こうした日本とタイが協力してラオス国など近隣諸国へ国際協力・援助することについての感想を求めたところ、”100%-200%賛成である。”との非常に積極的回答が得られた。さらに”特にタイには日本の多くのプロジェクトがこれまで入っているはずであるから、それを積極的にこのように利用したらどうか”との提言もあった。またこうした国際協力（3国間協力）にはタイ側施設（訓練センター）に特別な予算が必要であると述べており、そこにタイ国予算を活用する3国間協力事業（日タイパートナーシップ）の必要性の存在が確認された。

4、ラオス側メンバーの反応：ラオス側メンバーの反応に関しては、各ラオス側メンバーからの報告に詳しいが、タイ語はすべて理解している。ラオス語の理解が少しタイ側に困難な所も見受けられたが、とく

に問題はなかった。ラオス・カムワン県とタイ国との格差はかなり存在するけれども、DirectorクラスにはPHCのシステム造りに関して非常に学習・参考になったものと思われる。

3国間協力事業(日タイパートナーシップ)に関して、ラオス側リーダーであるDr. Anonhの見解をただしたところ、ラオス政府の現在の方針に忠実で2国間協力を望んでいた。しかし、ラオス政府の政策が変われば、3国間での協力も問題ないという。要は政府の方針次第である。

5、3国間協力に対する考察および今後の展望：今後は、ラオス国唯一のPHC Trainng Center（カムワン県）のスタッフの引き続く研修とともに、保健省のPHC担当幹部や、カムワン県以外の県保健局幹部に対しての研修コースが考えられる。その場合もPHC Training Center（所長Dr. Anonh）の関与は必要であり、ラオスのセンターで一度訓練を受けてからタイに行くと効果的であろう。

保健分野では、PHC部門はタイで成功しており、ラオスからもその分野での研修需要がある。なかでも、かつて日本が援助したPHC Training Centerを利用した研修制度の活用・研修コースの拡大が、trilateralとして最初は現実的と思われる。特にそうした施設のdirectorクラスは日本で研修を受けたことがあり、彼らの在職中に、3国間協力事業を立ち上げ・確立することが早道かと思われる。(今回を例にとると、タイ保健省のHealth EducationのDirector、Mr. Chairat Pathanacharoenはプロ技・無償の入ったコンケンのPHC Training Centerの前Directorであり、またナコンサワンの現所長もJICA関連事業にて日本で研修を受けている。)

6、結び：今回の技術交換に参加して、日・タイ・ラオス3国間協力事業（日・タイパートナーシップ）はラオス側の技術習得に非常に有効な協力方法のひとつであることが実感された。さらにタイ側の技術交換に対する熱心さにも心を打たれるものがあった。さらなる事業の発展のためには、1)現場の要望に沿うプロジェクトの開発、2)タイに援助した施設・人脈の有効なる活用、3)協力施設への財政援助等タイ側の負担方法の確立、4)効果的な日本側の関与方法（立案、専門家の同行等)の確立、5)事業実施マニュアルの作成などが必要とされるであろう。

5-3. 平成10年度 日・タイ・ラオス3国間協力事業関連：タイ国チェンマイにおけるPHC技術交換（期間：平成10年6月22日－6月26日）

1. はじめに：ラオス国カムワン県病院のスタッフは、ラオス国JICA/PHCプロジェクトにmobile clinic (Mobile health center)としてヘルスポストスタッフの技術向上に関わってきた。この度病院スタッフと副保健局長のラオス側7名と日本側2名の計9名が、PHC活動の盛んなタイ国におけるmobile team、DRFの状況、病院と地域保健の関わりなどの技術交換のため1998年6月22日より26日までチェンマイの保健施設、病院を訪問した。本案件に対する日程、参加者、内容等に関する詳細な報告は宇高専門家、ラオス国カウンターパートの報告書に詳しい。ここでは要約を述べる。

2. 要約：研修実施場所と内容：1997年度のナコンサワンでの本事業に関してタイ側は非常に協力的であったが、本年度も下記のように、タイ側の協力は十分満足できるものであった。

1)県保健局：局長はバンコク出張中で、副局長であるDr. Nisit WATANTSHARIAが本研修の責任にあたった。彼は県保健システム全体の説明および終了時のdiscussionの司会を務めた。保健局外の研修にも県保健局のスタッフがattendした。終了時にはタイ側保健局員を含めたdiscussionの場の提供があった。多忙な保健行政実務の中で本事業によく協力してもらった。

2)県病院(Nakom Ping Provincial Hospital)：Dr. Vichien PHOKAEW(Head of Department of Academic Service)が本訪問の責任者となり、彼より病院全体の機能の説明があった。その他薬局、Mobile teamよりそれぞれ必須医薬品と医薬品管理、巡回診療の説明を受けたのち病院の一部を見学した。病院は1980年に開院し421床であるが、近い将来700床のregional hospitalとしてupgradeされる。救急部は新しく、病院自体のハード面は先進国レベルである。mobile teamは地域保健システムの確立とともに特殊な医療技術面に活動が限られるようになっている。病院全体をみるとラオスのレベルとは大きな格差があり、近い将来ラオスにこのレベルの病院システムを地域に適用できるものではないが、理想としてラオス

側に強いインパクトを与えた。

3)郡病院(Doi Saket District Hospital)：郡病院がラオスの県病院のモデルとなるものであった。病院長のDr. Phaisane PHANYAVIRIKANEより地域保健・医療の説明を受け、病院案内があった。mobile systemを有し、ヘルスセンターの医療技術面の指導を行っている。カムワン県病院にとって現実的な目標と思われる。

4)ヘルスセンター(San Poo Loei Health Center)：Nurse 3人で13村、2154家族、7,552人の公衆衛生を担当している。医師はいないが、清潔で、十分広く、DRFによる治療、外科、産科、歯科（巡回診療）など簡単な治療ができる。タイ国では全国的にこのような施設を有しており、PHC活動の拠点となっておりラオス国の将来の目標とはなり得るが、現状ではまだ高嶺の花と感じたであろう。

5)サブヘルスセンター(Mae Lao, Mae Taeng District)：山間部における小規模なヘルスセンターで、カムワン県のヘルスポストの模範となり得るセンターであった。7村1,500人の公衆衛生を担当している。建物は住居と一体で、6か月の教育を受けたヘルスワーカーが働いている。この職種はラオスの公衆衛生担当者育成の参考になるものと思われた。

6)コミュニティーPHCセンター(Pa Muad Village)：ヘルスボランティアの活動拠点として村民が建設した施設である。カムワン県の新しいヘルスポストレベルに達しており、簡単な治療が受けられる。

3. まとめ：保健行政システムはラオスも同様なものを有するが、実際の担当者の技術、意欲、ハードとしての施設などさらなる向上の必要性をラオス側は実感したと思われる。国の基本政策に関わることではあるが、今後は国レベルの保健担当官および県保健局のDirectorクラスに対するこうした研修訪問が、ラオス国のPHC政策におおいに役立つものと思われる。

30 September 1998

The Summary of the Joint Japan/WHO Technical Cooperation for the Primary Health Care (PHC) in the Lao People's Democratic Republic from October 1992 to September 1998

Japanese Expert (Chief Advisor) in the PHC Project
dispatched from 4 September 1996 to 30 September 1998 by JICA

Dr. Hiroyuki NOZAKI

The Summary of the Joint Japan/WHO Technical Cooperation for the Primary Health Care (PHC) in the Lao People's Democratic Republic from October 1992 to September 1998

I. Objectives and Activities of technical cooperation for the Project

1. Objectives

According to the Record of Discussion (R/D) signed on 1 April 1992, the general objectives of the Project to be achieved through close collaboration among Japan, the World Health Organization (hereinafter referred to as "WHO") and the Lao PDR are the following:

(1) to improve delivery of comprehensive health services and utilization thereof at all levels based on primary health care;

(2) to reduce morbidity and mortality from priority infectious diseases including poliomyelitis;

(3) to develop and promote activities to support other PHC elements; and

(4) to strengthen health planning, management, and information systems.

2. Activities of Technical Cooperation

In order to accomplish the above-mentioned objectives, both sides agreed that the Project supports improvement of the delivery of comprehensive primary health care (PHC) services in Khammouane province, and the following activities were proposed:

A) Strengthening of the capabilities of the provincial and district health authorities to develop primary health care services;

B) Training of health personnel through various training course on primary health care;

C) For the development of comprehensive primary health care services, the Expanded Program on Immunization (EPI) could be used as an entry point and through existing health services to increase utilization of such services, and to improve health status;

D) Development of a model integrated infectious disease control and prevention system, including a health information and surveillance system;

E) Enhancing community participation through appropriate means including Information, Education and Communication (I.E.C.) activities; and

F) Strengthening of the laboratory capabilities and roles of NIHE and IMPE at both the national and provincial level.

II. Performance of the Project

1. Facilities

The space for the Project office and laboratories was provided by the Lao side. Other facilities necessary for implementation of the Project (including electricity, gas, water supply, telephone and furniture) were also provided by the Lao side.

2. Staff

Ninety-one (91) Lao counterparts have been assigned to the Project for the effective implemen- tation of the Project and the successful transfer of technology. Their names are listed in ANNEX I.

3. Management and Administration

Administrative and managerial services have been provided mostly by the Lao counter- parts. Joint Coordinating Committee Meeting was held twice a year to ensure smooth implementation of the Project.

Lao side

a. Chairman: General Director of Health Care Sector Cooperation with JICA, Ministry of Health

b. Deputy Director of NIHE, National EPI Manager
c. Director of Khammouane Provincial Health Office
d. Chief of Foreign Relation Division in Cabinet, Ministry of Public Health
e. Chief of Health Promotion Division, Department of Hygiene and Prevention, Ministry of Health
f. Chief of Entomology Section in IMPE
g. Chief of Serology and Virology Section in NIHE
h. Staff of Bacteriology Section in NIHE
i. Chief of PHC Section in Khammouane Provincial Health Office

Japanese side
a. Chief Advisor
b. Coordinator
c. Japanese Experts dispatched by JICA
d. Staff members in JICA Laos Office

WHO side Medical Officer

4. Japanese Experts

JICA has dispatched twenty two (22) long-term experts and forty nine (49) short-term experts from the beginning of the Project. Their names are listed in ANNEX II.

5. Lao Counterpart Training in Japan

Twenty-two (22) Lao counterparts have been sent to Japan for either technical studies or observation. Their names are listed in ANNEX III. JICA accepted the Lao counterparts in the fields agreed in the Record of Discussions. Their technical training in Japan was effective for acquiring the new information and technology.

6. Equipment

In the period from October 1992 to the end of September 1998, the equipment at a total amount of 354 million yens for the budget of Japanese Fiscal Year (JFY) 1992 to 1997 was donated by the Government of Japan. Another batch of equipment at an amount of 11 million yens for the budget of JFY 1998 is now being purchased for respective sections. The above-mentioned equipment for the Project has been used efficiently for the activities of the Project. The main items of equipment and supplies are listed in ANNEX IV.

7. Budget for Local Cost

Both sides made the best effort to secure the budget necessary for implementation of the Project. The amount born by each side fractionated by the Japanese Fiscal Year (JFY) is shown below.

Fractionated by JFY		Lao PDR		Japan
Oct. 1992 -	Mar. 1993	Kip 4,570,000	Yen	5,444,000
Apr. 1993 -	Mar. 1994	17,090,000		19,776,000
Apr. 1994 -	Mar. 1995	18,130,000		20,148,000
Apr. 1995 -	Mar. 1996	19,910,000		19,520,000
Apr. 1996 -	Mar. 1997	29,550,000		26,766,000
Apr. 1997 -	Mar. 1998	22,210,000		15,124,000
Apr. 1998 -	Sept. 1998	11,560,000		7,223,000

III. Achievement of the Project (Summary)

Achievements in the respective parts of the Project are as follows.

a. Part of Primary Health Care (PHC)

(1992- 1997)

Provincial PHC section is well functioning as a center of primary health care services in Khammouane Province in remarkable response to the Project. Provincial Health Management Team (PHMT) meeting, reorganized by the Project, is effectively working as a supervisory system in PHC activities. Staff of Provincial PHC section have been excellently trained in the Project by using health educational resources in Thailand as well. Subjects (A) and (B) have been successfully accomplished in the provincial level. Staff of Health Post under District Health Management Team (DHMT), however, remain to be educated still more for strengthening the skills of preventive, medical and nutritional services.

Household surveys, drug and latrine revolving fund system, supply of safety water by digging boreholes, and Mobile Clinic have been conducted with satisfaction for achieving the subjects (D) and (E). The technical transfer in the Mobile Clinic activity has been in the process in the provincial level. The continuation of the activity will surely promote the health services in the pilot area.

More supports for the PHC activities to extend the model system to other provinces, and financial sustained efforts of government are necessary.

(1997-1998)

During the extended period of the Project, the system of Drug Revolving Fund (DRF) and Mobile Clinic was revised in Khammouane Province. In good response to the revision, the services have been greatly improved in the Project. Recent socioeconomic situation in Lao PDR, however, has caused some problems to DRF and also other PHC services in Khammouane Province.

Various training courses were effectively operated in the Khammouane PHC training center to the provincial and district health staff for getting the knowledge on DRF, Mobile Health Center (revised from Mobile Clinic), statistics, mother and child health care, and video tape recording. Study visits to health educational resources or health authorities in Thailand were useful for the PHC staff in Khammouane Province to learn the developed system on PHC services. Health education to the villagers was successfully conducted on "food & nutrition," and "fever & thermometer" by the PHC staff in the Project.

b. Part of Infectious Disease Control

b-1. Virology Field

(1992-1997)

The technology transfer was gradually performed through the Project. The good cooperation between the counterparts and Japanese experts has greatly contributed to their activities. The attendance of the counterparts to University of the Ryukyus in Japan also effected to the improvement. In addition, the environment of research in the laboratory was improved by providing equipment from Japan. However, it is difficult to maintain the activities and equipment without support from the Government of Lao PDR after termination of the Project.

The fundamental knowledge and techniques which were introduced by the Project were applied in laboratory diagnosis of dengue hemorrhagic fever (DHF) and Japanese encephalitis (JE). The routine laboratory diagnosis system of the two arboviral diseases has been settled for request from the two hospitals in Vientiane. The number of specimen from the outside has been increased since the routine diagnosis system started. The virology section held some training courses on external relationship, and also provided various textbooks at the courses.

In total, seven sero-epidemiological studies were performed in Vientiane and Khammouane provinces. In addition, the laboratory has investigated three outbreaks of DF/DHF in Vientiane, Borikhamxay and Champassak

provinces. These activities could provide important information to the infectious disease control in this country.

The improvement of the laboratory by means of technology transfer has been implemented, and as a result, the interest and willing of counterparts to the activities are rising. However, the ability of the counterparts seems to be improved further more before reaching to a satisfactory stage, as the virologist belonging to a national reference laboratory.

(1997-1998)

The activities carried out during the extended period of the Project by the Laboratory of Serology and Virology (LSV) of NIHE were aimed to strengthen and expand the capability of the central and provincial laboratories in diagnosis of arboviral infections, investigating the outbreak of Dengue Fever/ Dengue Hemorrhagic Fever (DF/DHF) and conducting a community survey of infectious diseases.

The production of antigens and reagents for Haemagglutination-Inhibition test was met and distributed to six (6) main provinces of Lao PDR, namely Oudomxay, Luangprabang, Bolikhamxay, Khammouane, Savannakhet and Champassack where the serological diagnosis of DF/DHF can now be routinely and adequately performed.

A refreshment training course on Serological and Virological Techniques was also conducted for the above-mentioned provincial laboratory technicians in order to improve their skill and exchange practical experience.

Six sero-epidemiological studies were conducted in villages of above-mentioned six provinces where DF/DHF epidemics used to occur or are likely to occur. When testing of the collected serum samples is finished, we will have more extensive or national/semi-national baseline data of Dengue and Japanese Encephalitis (JE) infection in Lao PDR.

The technology transfer obtained during the previous phase of the Project has shown positive impact for the improvement of the central and peripheral laboratories. Technical skills and knowledge learned by the Lao counterparts have been useful for their practice.

b-2. Bacteriology Field

(1992-1997)

The expected goal of the Project activities in the Bacte- riology Laboratory Service (BLS) in NIHE was to reinforce the BLS to function as being national reference laboratory which can collect rapid and accurate information concerning communicable disease and provide them to the Ministry of Public Health for better implementation of PHC activities. For these objectives, eight Japanese experts have been dispatched to the BLS since 1993.

Laboratory arrangements including setting up environment and installation of necessary equipment were executed in the first year, and basic knowledge and techniques necessary for standard bacte - riological examination were first introduced. Through the four year collaboration with Japanese experts, the BLS is presently working well and has an excellent capability to isolate and to identify the common causative agents of diarrheal diseases, including *Shigella*, *Salmonella*, enteropathogenic *Escherichia coli*, *Vibrio*, *Aeromonas*, and *Campylobacter*.

Then, the BLS has started to deliver their obtained technique and knowledge to support Khammouane provincial hospital laboratory, expecting them to carry out essential examination for enteropathogenic bacteria and to provide information to the Department of PHC. Since there had been a series of cholera outbreak in recent years, the BLS has conducted surveys on cholera and the related diarrhea in Vientiane municipality and outlying provinces and sent advice and suggestion to the Ministry of Public Health and local governments. Also, the BLS expanded their activities to organize the National Laboratory Training Course for provincial laboratory staff to give basic techniques for isolation and identification of *V. cholerae*.

The BLS is now performing investigation on cholera and the related diarrheal diseases to estimate the occurrence on the basis of definitive bacteriological diagnosis. It is worth to mention that this kind of field study is the first one in Lao PDR and will be applicable to other commu- nicable diseases such as respiratory tract infection, sexually transmitted disease (STD), etc.

An approach to prevent communicable diseases greatly depends on how to get accurate and rapid information from epidemic areas and how to feed them back to the public. However, at present in Lao PDR, any routes to collect and to send information and specimens are not systematically established. Such a system, so-called health information and surveillance system, will be expected to be installed by the end of the Project.

(1997-1998)

The Bacteriology Section in NIHE has acquired the technique of isolating and identifying *Chlamydia trachomatis* and causative agents of Acute Respiratory Infection (ARI) including *Corynebacterium diphtheriae*, *Haemophilus influenzae*, *Streptococcus pneumoniae*, *Streptococcus pyogenes* by applying the knowledge and technology introduced in the Project. The capability of the Bacteriology Section was improved to be a National reference laboratory. Laboratory technicians in Khammouane provincial hospital have acquired the technique of isolating and identifying *Vibrio cholerae* and causative agents of ARI through the training course in the Project, and also the technique of bacteriological susceptibility testing in both NIHE and Khammouane provincial hospital has been successfully transferred.

b-3. Parasitology Field

(1992-1997)

Through the cooperative activities between Japanese experts and Laotian counterparts, the introduction of fundamental parasitological techniques was rapidly and successfully implemented. The acquired methodology and equipment provided are actively applied to diagnostic services in IMPE and Khammouane Malaria Station (KMS). The fellows from IMPE sent to Japan for study and those who worked with Japanese experts could acquire laboratory techniques extremely well, and the experience gained by them was invaluable for research capability strengthening of the Institute. The expertise is already well established and Laotian counterparts can sustain the necessary technology to continue and develop the skills of diagnosis and research activities in their institutions. Strengthening of the capability of KMS and District Malaria Center staff to implement anti-parasite control program, including reinforce of anti-malaria net work, was also established well through technical training course supported by IMPE and Japanese experts, and actual implementation of anti-parasite control activities in pilot villages collaborated with IMPE and KMS staff.

On the other hand, final evaluation on the effect of these anti-parasite control program in model areas is still on the way. Still more supports for evaluation of the activities and establishment of effective control system after the evaluation are necessary for getting impact outcomes from the parasitological section in the Project.

(1997-1998)

The activities carried out in the parasitology field during the extended period of the Project are as follows:

1) The function of IMPE has been further upgraded in the extended period through technical transfer and special lectures for essential and advanced skill and knowledge on entomology and immunodiagnosis of parasitic disease, and also through actual implementation of anti-parasite control programs in the model province, Khammouane.

2) To strengthen malaria net work in Khammouane Province, the information system was established by setting wireless telephones in district level. The serious problem on the information system especially in the rainy season was markedly improved to keep correct malaria information in the model province.

3) According to the results of the previous active surveys on malaria, mass control program by delivery of impregnated bed nets and net revolving fund system have been further carried-out in two model villages in the extended period. The control program was well evaluated by the following results.

1. More than 95% villagers set impregnated bed nets
2. The net revolving funds were recovered from more than 90% of villagers
3. Malaria prevalence markedly decreased from about 8% to less than 2% in the rainy season after setting the impregnated bed nets.

The vector mosquito surveys were also conducted around the pilot villages through year in the extended

period for evaluation of the above control program. Similar control program has been expanded to ten (10) villages, however, establishment of net revolving system is not sufficient yet.

Following the results, Japanese Government has decided to promote similar control program, in which mosquito nets and other equipment to deliver the net will be donated to IMPE as a Child Health Grant Aid to reduce mortality of Children by malaria.

4) As to opisthorchiasis which is known to highly affect inhabitants, the effectiveness of the mass control program implemented in two villages was evaluated in the extended period. It was found that about 50% villagers successfully treated with praziquantel produced re-infection with this parasite within only six (6) months after the treatment. Thus, mass diagnosis and mass treatment were not sufficient for effective control of the parasitic infection and it seemed to be necessary to educate villagers how to avoid re-infection after treatment.

c. Part of EPI

(1992-1997)

In Khammouane province, immunization coverage increased substantially from 9% in 1992 to 78% in 1996, and local staff have grown to make a plan and carry out implementation of EPI activities by themselves. Regarding national EPI, routine immunization coverage increased up to 60% in 1996 from 20% in 1992 during the Project, and national EPI staff have obtained skills for logistics and cold chain as well as planning and implementation of EPI.

Concerning polio eradication program, National Immunization Days (NIDs) was first achieved in 1994, and remarkable reduction of polio cases has been seen since then, and the fourth NIDs will be conducted in 1998. Thanks to strengthening of acute flaccid paralysis (AFP) surveillance system by means of active case search, surveillance supervisory visit, training and workshop, and AFP surveillance educational session, the number of AFP reports has increased, so that Lao PDR will be able to switch to laboratory case criteria of poliomyelitis from clinical case criteria in the near future. This upgraded AFP surveillance system is quite necessary to declare polio eradication by the year 2000.

(1997-1998)

During the extended period, the most significant progress in the EPI and polio eradication program was observed in sensitivity of acute flaccid paralysis (AFP) surveillance. Total number of cases reported increased from 41 in 1996 to 77 in 1997. Accordingly, non-polio AFP rate among 100,000 children under 15 years old, which is the international indicator of AFP surveillance, sharply increased from 0.95 in 1996 to 2.04 in 1997. At least 1/100,000 is mandated to prove polio-free. Proportion of reported AFP cases with adequate stool specimens collection increased from 59% in 1996 to 71% in 1997. Given these surveillance indicators, WHO Western Pacific Regional Office approved the transition of Lao PDR from clinical classification to virological classification of AFP cases in February 1998. The Office also requested the re-classification of 1997 cases by new classification to MOH in Lao PDR. As there was no AFP case with isolation of wild polio virus in 1997, Lao PDR marked the first polio-free year. So far, no wild virus has been isolated from 1998 cases also. If no polio case associated with the isolation of wild polio virus was detected in 1998, 1999 and the year 2000 with present surveillance sensitivity, the country will be certified the eradication of polio at the end of the year 2000.

Other achievements in the past one year include: 1) finalizing border area strategy in polio eradication focusing on possible importation of wild virus from neighboring countries, and reflecting this to planning of 1999 sub-national Immunization Days (SNIDs); 2) assisting in establishing standard of measles outbreak response; 3) establishment of motorcycle spare-parts ordering and shipment system at NIHE and warehouse; and 4) assisting in vaccine ordering for 1999 requirement.

d. Part of Equipment maintenance (EM)

(1994-1998)

Main activities in the EM part are not only installation and maintenance of the equipment in the respective

parts of the Project but also technological transfer to Lao counterparts. During the extended period of the Project, installation and maintenance of equipment have been smoothly operated in each part. EM technology has been successfully transferred to EM staff in NIHE and Khammouane Province through various training courses and daily activities in the Project. The newly established central EM department in MOH, however, has not been functioning as a reference center for lack of a workshop and a shortage of manpower.

IV. Evaluation

(1992-1997) : Evaluation on 4 April 1997

Resulting from the joint evaluation and discussion, both sides reached the following conclusions;

The objectives of most activities in the Project as stipulated in the Record of Discussion, the Tentative Schedule of Implementation and the Minutes of Meeting with Implementation Survey Team signed on 1 April 1992 have been realized. It was also concluded that strong linkages between Laotian counterparts and Japanese experts were established in transferring technology through the Project.

The period of cooperation for 4 and a half years up to now is well evaluated. Both sides agreed to the following recommendations;

The current excellent efforts put into the Project by both sides be continued and enhanced to complete the remaining portion of the collaborative subjects in Khammouane Provincial Health Office, NIHE and IMPE.

Continuous efforts should be made by Lao side in partnership with Japan to expand the PHC activities established in the Project to all the areas of Lao PDR. The PHC training center in Khammouane province is expected to play a role as basic training and management center of PHC activity for this purpose.

It is recommended that the technical expertise established in Khammouane Provincial Health Office, NIHE and IMPE through the Project is sustained and extended to other Laotian personnels and institutions.

There still exist two recommendations to improve the bacteriological and virological laboratory service activities; 1) application of technique and knowledge provided for the accurate epidemiological analysis, and 2) organization of the network to/from NIHE for the rapid and precise communication to prevent communicable diseases.

As to the parasitological section, implementation and evaluation of anti-parasite control programs are still on the way. Thus, both sides recommend that the Project should be prolonged to complete the activity for getting good outcomes from the section.

Although significant progress in EPI has been made, ongoing support for EPI, especially for AFP surveillance system is required. Increase of AFP reports is essential to initiate laboratory case criteria for achieving polio eradication in Lao PDR by the year 2000. Besides, surveillance should be strengthened in high risk areas of EPI diseases like cross-border, low-coverage, under-report- ing areas as well as where outbreak occurred.

Equipment maintenance (EM) becomes important, so central-workshop under Ministry of Public Health is to be established and some EM staff are needed in each section of central-workshop, PHC project site, NIHE and IMPE.

However, the sustainability issue should be seriously considered for further expansion of the Project in particular to strengthen the dispensary activities and the capacity building at district health services. To successful development of the Project adequate financial support should be mobilized and allocated not only from the Government resources of Lao PDR but most probably from eventual loan from World Bank or Asian Development Bank.

Special remark: The evaluation team takes note that Lao side has strongly requested that the Project be continued for one or two years, so as to reinforce the primary health care services, EPI activities, and infectious disease control securely. The Team will convey this request to Tokyo.

(1997-1998): Evaluation on 11 August 1998

As the result of the joint evaluation and discussion, both sides reached the following conclusions. The objectives of the Project in R/D signed on 1 April 1992, and recommendations in the Evaluation Report signed on 4 April 1997 have been mostly achieved through the technical cooperation during the extended period.

Continuous efforts should be made by Lao side to expand the activities achieved in the Project to the whole country. National policy concerning the PHC service system should be formulated. The nationwide PHC training course in the Khammouane PHC training center would be helpful for this purpose.

The technical and financial support from the Project to the Virology and Bacteriology parts has successfully increased the capability of the central and peripheral laboratories.

Through the Project period, the main activities in the parasitological field have been implemented with sufficient success under mutual understanding of Lao staff and Japanese experts. Especially in the expanded period, the anti- parasitic control programs on malaria and opisthorchiasis were well evaluated on its effectiveness to get final goal in the field.

Coverage of routine immunization is not showing a drastic increase since 1995. Geographical expansion is nearly finished, and improvement of micro-planning is needed to break through this status quo. Logistics system of vaccines and equipment (including spare-parts) within the country needs to be streamlined. Established high-quality AFP surveillance needs to be maintained until 2000 and well beyond for certification of eradication of poliomyelitis. All these tasks need to be effectively addressed in upcoming "Project for Pediatric Infectious Diseases Prevention in Lao PDR" which will commence on 1 October 1998.

The technology of Equipment Maintenance (EM) has been successfully transferred to the counterparts in NIHE and Khammouane Province. The capability of the new EM department in MOH should be strengthened to be a national reference center.

LIST OF ANNEXES

ANNEX I LIST OF MAIN LAO COUNTERPARTS IN THE PROJECT

Ministry of Health (MOH)		
Cabinet		
General Director of Health Care Sector Cooperation with JICA		Dr. Khemphet Vanthanouvong
Chief of Foreign Relation Division	Dr.	Phoukhong Chommala
Department of Hygiene and Prevention		
Chief of Health Promotion Division	Dr.	Somsy Pasithiphone
Department of Maintenance	Mr.	Sengdao Inthaphatha
Khammouane Provincial Health Office		
Director	Dr.	Choum Chomjalern
Deputy Director	Dr.	Phongphet Souvannalasy
Deputy Director	Mr.	Bounhong Sisoukalath
Chief of Cabinet	Dr.	Khamphonh Vilaychith
Chief of Medical Technical	Dr.	Maity Senchanthizaxai
Director of Matemal and Child Health	Dr.	Latsamy Souvannalasy
Director of Hygiene Department	Dr.	Khonma Chounany
Director of Nursing School	Mr.	Kong Ngodsombath
Director of Manpower Board	Mr.	Khamkeo Langsavath
Director of Food and Drug Section	Dr.	Somchit Amphilaving
PHC Section Director	Dr.	Anonh Xeuatvongsa
Deputy Director	Mr.	Somphet Souvannalasy
Staff	Mr.	Khamphai Phommavongxai
Staff	Mr.	Bounpone Kthanthavong
Staff	Ms.	Nilanda Sengdala
Staff	Mr.	Tounta Thongsalath
Health Education Section Staff	Mr.	Sonexay Phaphanthoulath
Provincial Hospital Director	Dr.	Somsanouk Arounleuth
Deputy Director	Dr.	Thonelakhanh Xaypangna
Deputy Director	Dr.	Sodalay Onavong
Surgery	Dr.	Bounthavy Sermsanouk
Surgery	Dr.	Thavone Kaiyalath
Pediatrics	Dr.	Sy-amphone Keomanivong
Nurse	Ms.	Pavy Fupremisiy
Nurse	Ms.	Sawady Saysana
Laboratory Chief	Mr.	Somphao Bounsana
Deputy Chief	Mr.	Somphith Hormsombath
Staff	Dr.	Malayvone Linthasone
Mahaxai District Hospital Director	Dr.	Keota Kittilath
Medical Doctor	Dr.	Kenchanh Thongsavath
Laboratory	Mr.	Khamsouk Sangthongphet
Sebanfai District Hospital Director	Mr.	Chantavong Souvannalath
Medical Doctor	Dr.	Saysomvang Bouthavong
Laboratory	Ms.	Sounthorn Baithavong
Hinboune District Hospital Director	Mr.	Sithan Sisoukalath

Medical Doctor	Dr.	Latsamy Somboonkhan
Laboratory	Mr.	Phetsala Simoukda
Malaria Station Director	Dr.	Khemphavan Manivong
Deputy Director	Dr.	Somchith Inthavongsack
Epidemiology & Entomology Chief	Mr.	Tadam Keobouachanh
Staff	Mr.	BounNheun Singdavongsack
Laboratory Chief	Mr.	Souvankham Khomsacksith
Staff	Mr.	Phengkhan Bounvasana
Staff	Ms.	Sisavanh Khamsoukthavong
EPI Section Director	Dr.	Salemsack Keochanthala
Deputy Director	Ms.	Phetsomphone Thoumbaisy
Epidemiology Section Director	Mr.	Dunkham Philavong
Staff	Mr.	Khamphane Xaisonphou
Water Supply, Sanitation Section Director	Dr.	Southsakhone Vongxai
Deputy Director	Dr.	Odai Soprasetth
Institute of Malariology, Parasitology and Entomology (IMPE)		
Director	Dr.	Souliya Inthakone
Deputy Director	Dr.	Philaysack Naphayvong
Deputy Director	Dr.	Bouasy Hongvanthong
Entomology Section Chief	Dr.	Simone Nambanya
Deputy Chief	Dr.	Bounpone Sidavong
Laboratory Chief	Dr.	Viengxay Vanissavet
Staff	Dr.	Bouakham Vannachone
Education Section Chief	Dr.	Ratanaxay Phetsouvang
National Institute of Hygiene and Epidemiology (NIHE)		
Director	Dr.	Sithat Insisiengmay
Deputy Director, National EPI Manager	Dr.	Somthana Douangmala
Bacteriology Section Chief	Mr.	Khamphey Meunalath
Staff	Dr.	Noikaseumsy Sithivong
Staff	Dr.	Bounnanh Phatouamath
Staff	Dr.	Khampheng Chomlasak
Staff	Mr.	Lay Sisavath
Staff	Mr.	Praseuthong Vongsanith
Staff	Ms.	Phonesamay Sisoupath
Serology & Virology Section Chief	Dr.	Khanthong Bounlu
Staff	Dr.	Darouny Phonekeo
Staff	Dr.	Phonesavanh Vongxay
Staff	Mr.	Thongchanh Sisouk
Staff	Mr.	Souriyasack Thongpaseuth
Staff	Mr.	Virasack Somoulay
Staff	Mr.	Vimattha Panxayavong
EPI Section		
Deputy National EPI Manager	Dr.	Phouthone Southalack
Staff	Dr.	Sisavanh Sundara
Staff	Dr.	Chanthavong Savatchitang

Staff	Dr.	Boonsavai Meksavarn
Staff	Dr.	Saphanthong Lunnavong
Staff	Dr.	Khamfong Vongxay
Staff (Maintenance)	Mr.	Somphanh Soudavane
Epidemiology Section Chief	Dr.	Phengta Vongphrachanh
Staff	Dr.	Vanhsay Souvannamethy
Staff	Dr.	Nyphone Chantakoumman
Staff	Dr.	Kongmany Southlack
Staff	Ms.	Bouaphan Khamphapongphane
Staff	Dr.	Kongkeo Daratsavong
Staff	Dr.	Kenchanh Chanthapadith

ANNEX II LIST OF JAPANESE EXPERTS DISPATCHED BY JICA

(Long term)

Chief advisor						
01.	Dr.	Kiyoshi Suzuki	05 Apr.	1994 -	04 Apr.	1995
02.	Dr.	Hiroyuki Amano	01 Oct.	1995 -	30 Sept.	1996
03.	Dr.	Hiroyuki Nozaki	04 Sep.	1996 -	30 Sept.	1998
Coordinator						
04.	Mr.	Yasushi Odani	03 Dec.	1992 -	02 Dec.	1994
05.	Ms.	Yoshiko Taniguchi	05 June	1995 -	30 Sept.	1997
PHC						
06.	Ms.	Sumiko Ogawa	04 Nov.	1992 -	03 May	1996
07.	Ms.	Miyako Shinjo	01 Oct.	1995 -	30 Sept.	1997
08.	Dr.	Takashi Shinzato	24 July	1996 -	30 Sept.	1997
09.	Ms.	Yumiko Nohara	04 Sept.	1996 -	30 Sept.	1997
10.	Ms.	Yoko Shimada	04 Sept.	1996 -	30 Sept.	1997
11.	Dr.	Kei Miyagi	30 Sept.	1996 -	30 Sept.	1997
12.	Dr.	Machiko Udaka	07 Sept.	1997 -	30 Sept.	1998
Parasitology						
13.	Dr.	Jun Kobayashi	01 Oct.	1995 -	30 Sept.	1997
Bacteriology						
14.	Dr.	Satoshi Nakamura	09 Oct.	1993 -	08 Oct.	1996
15.	Dr.	Tetsu Yamashiro	01 Oct.	1996 -	30 Sept.	1997
Virology						
16.	Ms.	Mika Saito	04 Nov.	1992 -	03 Nov.	1994
17.	Dr.	Nobuya Fujita	12 Oct.	1994 -	24 Mar.	1995
18.	Dr.	Masayuki Tadano	04 Sept.	1996 -	30 Sept.	1997
EPI						
19.	Dr.	Toru Chosa	07 Oct.	1992 -	28 Feb.	1995
20.	Dr.	Chushi Kuroiwa	05 July	1994 -	04 Oct.	1996
21.	Dr.	Hitoshi Murakami	24 June	1996 -	30 Sept.	1997
Maintenance						
22.	Mr.	Mitsunobu Takaoka	29Aug.	1994 -	30 Sept.	1997

(Short term)

Chief advisor						
01.	Dr.	Yoshihiro Makino	17 Dec.	1992 -	13 June	1993
02.	Dr.	Akira Osawa	13 July	1993 -	24 Aug.	1993
PHC						
03.	Dr.	Hiroyuki Nozaki	02 Feb.	1994 -	09 Mar.	1994
04.	Dr.	Hiroyuki Nozaki	28 Feb.	1996 -	17 Mar.	1996
05.	Dr.	Masaki Shinjo	19 June	1996 -	06 July	1996
06.	Dr.	Masaki Shinjo	04 Sept.	1996 -	27 Dec.	1996
07.	Ms.	Sumiko Ogawa	02 Sept.	1996 -	07 Oct.	1996
08.	Dr.	Atsushi Saito	12 Dec.	1996 -	23 Dec.	1996
09.	Ms.	Sumiko Ogawa	15 Feb.	1997 -	11 Apr.	1997
10.	Dr.	Makoto Ariizumi	27 Mar.	1997 -	11 Apr.	1997

11.	Dr.	Hiroki Nakasone	30 July	1997 -	28 Aug.	1997
12.	Dr.	Masaki Shinjo	03 Aug.	1997 -	02 Sept.	1997
13.	Ms.	Yoshiko Ozasa	15 Mar.	1998 -	10 Apr.	1998
Parasitology						
14.	Dr.	Hideo Hasegawa	15 Apr.	1993 -	29 May	1993
15.	Dr.	Kiyoshi Makiya	13 May	1993 -	12 Aug.	1993
16.	Dr.	Jun Kobayashi	18 Jan.	1995 -	15 Mar.	1995
17.	Dr.	Kiyoshi Makiya	15 Feb.	1995 -	22 Mar.	1995
18.	Dr.	Hideo Hasegawa	12 Mar.	1996 -	29 Apr.	1996
19.	Dr.	Ichiro Miyagi	08 May	1996 -	30 May	1996
20.	Dr.	Takao Yamashita	12 Dec.	1996 -	27 Dec.	1996
21.	Dr.	Yoshiya Sato	27 Mar.	1997 -	11 Apr.	1997
22.	Dr.	Ichiro Miyagi	08 Jan.	1998 -	20 Jan	1998
23.	Dr.	Yoshiya Sato	08 Jan.	1998 -	31 Jan	1998
Bacteriology						
24.	Dr.	Masaaki Iwanaga	21 Jan.	1993 -	11 Feb.	1993
25.	Dr.	Hiroshi Midorikawa	22 July	1994 -	20 Sept.	1994
26.	Dr.	Masaaki Iwanaga	13 Dec.	1994 -	31 Dec.	1994
27.	Dr.	Masaaki Iwanaga	12 Oct.	1996 -	07 Jan.	1997
28.	Dr.	Noboru Nakasone	12 Oct.	1996 -	07 Jan.	1997
29.	Ms.	Naomi Higa	12 Oct.	1996 -	07 Jan.	1997
30.	Dr.	Masaaki Iwanaga	16 July	1997 -	08 Aug.	1997
31.	Dr.	Masao Tanabe	01 Aug.	1997 -	25 Aug.	1997
Virology						
32.	Dr.	Masayuki Tadano	13 May	1993 -	03 June	1993
33.	Dr.	Toshihiko Fukunaga	30 June	1994 -	26 July	1994
34.	Dr.	Yoshihiro Makino	28 Feb.	1996 -	27 Apr.	1996
35.	Mr.	Takaaki Ito	03 May	1996 -	22 May	1996
36.	Dr.	Toshihiko Fukunaga	19 June	1996 -	06 July	1996
37	Dr.	Toshihiko Fukunaga	23 July	1997 -	20 Aug.	1997
EPI						
38.	Dr.	Chushi Kuroiwa	12 Sept.	1993 -	07 Oct.	1993
39.	Dr.	Yasuo Chiba	09 Aug.	1994 -	26 Aug.	1994
40.	Dr.	Norio Sakurai	16 Oct.	1995 -	13 Nov.	1995
41.	Dr.	Toru Chosa	30 Oct.	1995 -	12 Nov.	1995
42.	Dr.	Hitoshi Murakami	30 Oct.	1995 -	12 Nov.	1995
43.	Dr.	Toru Chosa	10 Nov.	1996 -	24 Nov.	1996
44.	Dr.	Chushi Kuroiwa	12 Jan.	1997 -	09 Feb.	1997
45.	Dr.	Masahiro Tanaka	06 Feb.	1997 -	27 Feb.	1997
46.	Dr.	Kouhei Touda	26 May	1997 -	07 June	1997
Maintenance						
47.	Mr.	Takeo Ozawa	23 Dec.	1995 -	31 Dec.	1995
48.	Mr.	Teruji Yamada	23 Dec.	1995 -	31 Dec.	1995
49.	Mr.	Takeo Ozawa	08 June	1997 -	15 June.	1997

ANNEX III LIST OF LAO COUNTERPARTS TRAINED IN JAPAN

MOH						
01.	Dr.	Khemphet Vanthanouvong	12 Feb.	1993 -	28 Feb.	1993
PHC						
02.	Dr.	Somsanouk Arounleuth	12 Jan.	1995 -	31 Mar.	1995
03.	Mr.	Somphet Souvannalasy	27 Oct.	1995 -	22 June	1996
04.	Dr.	Choum Chomjalern	29 Jan.	1997 -	14 Feb.	1997
05.	Dr.	Anonh Xeuatvongsa	11 Sept.	1997 -	14 Feb.	1998
06	Dr.	Thonelakhanh Xaypangna	28 Aug.	1998-	00 Oct.	1998
Parasitology						
07.	Dr.	Simone Nambanya	04 Oct.	1993 -	24 June	1994
08.	Dr.	Bouasy Hontovongsa	01 Aug.	1994 -	30 Oct.	1994
09.	Dr.	Bouakham Vannachone	22 Jan.	1998 -	00 Jan.	1999
Bacteriology						
10.	Dr.	Noikaseumsy Sithivong	04 Jan.	1994 -	03 Nov.	1994
11.	Mr.	Lay Sisavath	09 Jan.	1997 -	02 July	1997
12.	Dr.	Bounnanh Phatouamath	20 Apr.	1998 -	00 Feb.	1999
Virology						
13.	Dr.	Phonsavanh Vongxay	04 Oct.	1993 -	24 June	1994
14.	Mr.	Thongchanh Sisouk	23 June	1994 -	01 Feb.	1995
15.	Dr.	Darouny Phonekeo	03 Oct.	1996 -	26 Apr.	1997
EPI						
16.	Dr.	Chanthavong Savatchitang	17 Jan.	1994 -	06 Feb.	1994
17.	Dr.	Boonsavai Meksavarn	16 Jan.	1995 -	15 Jun.	1995
18.	Dr.	Saphanthong Lunavong	15 Jan.	1996 -	03 Mar.	1996
19.	Ms.	Bouaphan Khamphapongphan	26 Aug.	1996 -	30 Sept.	1996
20.	Dr.	Kenchanh Chanthapadith	25 Aug.	1997 -	29 Sept.	1997
Maintenance						
21.	Mr.	Sengdao Intaphitha	03 Aug.	1996 -	09 Dec.	1996
22	Mr.	Somphanh Soudavane	00	1998-	00	1998

ANNEX IV LIST OF MAIN MACHINERY AND EQUIPMENT PROVIDED

Budget for Japanese Fiscal Year | Item of Main Equipment | Amount in Japanese Yen (JY)

1992 JY 182,958,000

PHC: Wireless Telephone, Handy Printing Machine, Copy Machine PC-11, Polaroid Camera, Camera E OS-100, Slide Projector, 6 Motor Cycles c50z2, 12 Bicycles, 7 Black Boards, Facsimile FAX-150, Television PAL System 2565MT, Photo Video Camera (NTSC) PHV-A7, Removing Agent Water Filter, Hematocrit Centrifuge, Freezer 222L, 2 Freezers 55L, Uninterruptable Power Supply, Typewriter for English, 7 Typewriters Brother, Duplicating Machine Superfax RH-300, Overhead Projector, Portable OHP, Slide Projector, TV Color 25 CTM-2518, Video Color VT-M768EM, Handy Video Camera VM-2480E, 2 Auto Voltage Regulators 1KW, Land Cruiser Station Wagon HZJ80L

Parasitology

Binocular Microscope BHS-MDO, Photomicrographic System PM-10ADS-2, System Microscope CHT-213E, Table Top Centrifuge KN-70, Refrigerator SR-30NC, Medical Freezer MDF-U536, Analytical Balance AC-210S, Water Purifying Apparatus Milli-RX12, Water Softener, Stereo Microscope SZH10-131, Ultra Low Temp.Freezer MDF-192AT, Electric Incubator IC-83, Microscope Illuminator FT-150T, Low Temperature Incubator IN-61, Hot Air Sterilizer SG-62, Autoclave SS-320, pH Meter, Instrument Rack, Fax Machine FAX-240, Projector AFH-2500, Camera with Zoom Lens F-801S

Virology

Deep Freezer MDF-192, Multi Channel Pipetter, Water Softener, Refrigerator 30L, Water Purifier Apparatus STILL-105A, Instrument Cabinet, Inverted Microscope IMT-2-21, Zoom Stereo Microscope SZ6045-TR2T, Autoclave SS-320, Water Distilling Apparatus GS-60, Water Bath, ELISA Plate Reader MPR-A4i, Low Speed Centrifuge, Vacuum Pump, Homogenizer 40-1065, Ultra Freeze cell Reservoir, Co2 Incubator, Refrigerated Centrifuge 6800

EPI

3 Land Cruiser Station Wagons HZJ80L, Hilux 4x4 Pickup LN106L, 4 Motor Cycles CT110, 4 Motor Cycles XL125S, 20 Motor Cycles TF125X, Printing Machine, Fax Machine, 8 Typewriters BROTHER, 80 Vaccine Transport Boxes ELECTROLUX, 40 Vaccine Transport Boxes SAVOPAK, 240 Portable Steam Sterilizers, Prefab Freezer Room (-20℃), 6 Refrigerator & Freezers V240GE, Overhead Projector 6 Voltage Regulators for V240GE, 3 Icepack Freezers (Gas) RC-65, 20 Long Range Vaccine Cold Boxes, 6 Sterilizer Kits A, 6 Sterilizer Kits B, 6 Thermometers -40℃/50℃, Copy Machine FT-4430, Uninterruptable Power Supply, Typewriter for English, Duplicating Machine Superfax RH-300, Duplicating Machine RH-450

1993 JY 34,762,000

PHC: 30 Infant Scales, 20 Measuring Weighing Scales, Personal Computer 9577DNA, 2 Stencil Duplicators RH-300, 5 Motor Cycles XL125S, Land Cruiser 4x4 4 Speed LJ79LV-KR, 2 Hilux 4x4, Pickups LN106L

Parasitology

Personal Computer PC-386NAR2, Mixer, Bacteriology, 5 Binocular Microscopes CHD-213(E)

Virology

Analytical Balance, Spectrophotometer U-1100, pH Meter, 4 Quartz Micro Cells for U-1100, Digital Tester, Conductivity Meter

EPI: Refrigerator for 4WD Vehicle

1994 JY 35,092,000

PHC: Visual Presenter, 4 Full Automatic Autoclaves, Autoclave SS-325, Hematocrit Centrifuge

Parasitology

Table Top Centrifuge, Drying Sterilizer SG-600, Refrigerator SR-L33-VH, Biological Microscope Halogen Illuminator, 2 Automatic Voltage Regulators, Land Cruiser 4x4 5 Speed LJ79LV-MN, Personal Computer APTIVA 520, Laser Printer MICROLINE, Copy Machine NP-1010

Bacteriology

Autoclave SS-325, 3 Electronic Balances AC211S, 3 Magnetic Stirrers, 2 Compact pH Meters, 2 Phase Contract Attachments, Filter Holder Kit, Gas-Pac Anaerobic JAR

Virology

Freeze Dryer VD-16, Drying Chamber for VD-16, Vacuum Gauge for VD-16, Plate Washer, 2 Pump, Vacuum and Pressure

EPI: Personal Computer PS/V, OHP, 2 Otoscopes G161B

1995 JY 43,111,000

PHC: 5 Delivery Beds, 5 Nursing Carts, 8 Computers PC-486DX-100, 6 Printers LQ-2170, 3 Note Book Computers 486DX-100, 2 Laser Printers EPL-5500, 5 Motor Cycles KR150, PHI-D Microphone, 25 PHI-2 Microphones, PHI-S Power Control Set, 10 Cabinets, 3 Air Conditioners 38000BTU, 2 Air Conditioners 25000BTU, 2 Air Conditioners 18300BTU, 3 Air Conditioners 12500BTU, 4 Slide Screens, Slide Film Maker (digital palette) POLAROID, Slide Film Video Converter ELMO, 2 Video Cassette Recorders VC-NX1, Cassette Tape Player, 3 Color Video Monitors AV-G29MX, Video Projector VX-D1050S, 2 Power Amplifiers PS-A152, System Amplifier PA-616(D), 4 Speakers, Cleaner- Electric,, 7 Refrigerators SR-M27VJ

Parasitology

6 Biological Microscopes CHD-212E, Refrigerator, Refrigerator for Vehicle (29L), 2 Magnetic Stirrers, Drying Shelf, Zoom Stereo Microscope SZ6045, Electric Balance BA210

Bacteriology

Deep Freezer MDF-192AT, 2 High Pressure Steam Sterilizers, Micro Planter, Water Bath SN 100SD, Fluorescent Microscope BX50-32E01, Reflected Light Fluorescent Attachment, Photographic Attachment

Virology

Refrigerator, Water Bath SN 100SD, Autoclave SS-245, Freeze Drying Apparatus VD-500F, Chamber for VD-500F, Vacuum Pump for VD-500F, 2 Ice Cube Machines, Hematocrit Centrifuge, 2 Mixers, Safety Cabinet

EPI

2 Computers 486Dx4, Laser Printer EPL-3000, Printer LQ-2170, 6 Boat Engines 11HP, 2 Boat Engines 13HP

1996 JY 45,240,000

PHC: Software SPSS, Copy Machine FT-4215, 20 Bicycles, Computer PC-Pentium-133, Laser Printer EPL-5500, 16 Delivery Bed, 16 Dressing Trolley, 5 Screen for OHP HW-3, Minibus (LOSA) BE435-FLMSH Mitsubishi, 2 Solar Module GL-136N 53W, Motorcycle TS-125ER Suzuki, 5 Overhead Projectors HP-2850P

Parasitology

3 Zoom Stereo Microscope SZ-3060 Olympus, 6 Binocular Microscope CHD-F Olympus Motorcycle TS-125ER Suzuki, Low Humidity Dry Cabinet TDC-1301

Bacteriology

Centrifuge 5100, Swing Backet Rotor for 5100, Centrifuge M15-IV, Rotor for M15-IV, Gas Pack System 60626, Spectrophotometer 301, Micro Plate Reader MPR-A41-II, pH Meter M-12, Laboratory Shaker INX-22D, Universal Shaking Plate for Shaker D, Shaking Water Bath Personal 11EX, Micro Plate Mixer MICRO-P, Magnetic Stirrer with hot plate MGH-320

Virology

Pipet-AID PA-400, Polaroid Camera DS300(ML), Fluorescent Tables for MUPID, Medical Freezer MDF-235, Pipette Aid battery charging PA-400, Vortex Mixer, Electrophoresis Kit MUPID-2, Incubator MIR-153, ELISA Plate Washer MESCAP AUTO, Vacuum Pump XX5522050

EPI

7 FM Transceiver 144MHZ IC-2000H, 7 FM Transceiver 144MHZ IC-281D, 4 Motorcycle FD110J(LOVE) Suzuki, Notebook Computer ARMADA P75/8/810, Portable Inkjet Printer BJ-30, 2 Motorcycle C100 (DREAM) Honda, Mic-Amplifier System Sony, Mic-Amplifier System (Handy Type) WA-620C, Equipment Maintenance, Soft Ware NET HAWK, Copy Machine FT-4215, Computer PC-Pentium- 150, Scanner GT-8500, Laser Printer ELP-5500, Land Cruiser HZJ-80 Toyota

MOH

2 Copy Machine FT-4215, 2 Computer PC-Pentium-133, 2 Laser Printer EPL-5500, Conference Mic System TS-702/700/701

1997 JY 12,720,000

PHC: 2 Solar Module GL-234 24W, Mic-Amplifier HL-200V50, Subcutaneous Fat Meter

Parasitology

TOYOTA Hilux LN85L-TRMRST, 2 Motorcycle TS125ERW Suzuki

Bacteriology

Semidry Transfer System BE-310, CO2 Small type Incubator 159542, Gas Supplier System

Virology

Refrigerator for Vehicle (29L) MRFT-530D-D1, Programmable Thermal Controller PTC-150-16, Mini Gel Electrophoresis MUPID-2

EPI

Slide Projector 253AF, 2 Copy Machine FT-4422, Notebook Computer, Tool Kit S-51, 3 Motorcycle (DREAM) Honda, Maintenance, Parts Cabinet B-125, Control Panel for Cold Room, Tool Set 68-082-01, Inverter PROWATT 1500i/12V, DC Power Supply PR30-6P

MOH

White Board with Screen

1998

Another batch of equipment at an amount of 8.7 million yens for the budget of JFY 1998 is now being purchased for respective Sections.

ANNEX V ACHIEVEMENT OF PRIMARY HEALTH CARE (PHC) IN KHAMMOUANE

(1992-1997)

1. Surveillance on PHC

At the beginning of the PHC project in late 1992, the basic health surveillance was conducted in whole Khammouane Province regarding demographic data and the PHC priority setting. Their health-related problems were respectively as follows; (1)shortage of water, (2)inaccessible to essential drugs, and (3)insufficient facility and skill for first aid in health post. Seventy four villages in three districts were selected as the pilot area.

In 1993, the demographic and health related data were summarized and distributed to the provincial staffs and Ministry of Health (total 50 books). Annual Primary Health Care household survey has been conducted since this year as one of the indicators for the PHC evaluation. As the preparation of proper essential drug selection for DRF program, the survey on common episodes for the villagers were done randomly by using health check calendar in 1993.

In late 1996, the detailed health survey with 22 indicators was newly conducted in 10 villages selected from 74 villages in the pilot area for establishing the model community with comprehensive PHC services.

2. Infrastructure building

Since 1993, the wireless telephones have been installed into 1 province, 6 districts and 2 healthposts in total, with aim at good communication for strengthening district health care system especially regarding PHC activities.

In 1994, borehole drilling machine and the related apparatus were prepared for the purpose of 'safety water supply to the villagers' financially supported by 'Grass-roots grant aid' of Embassy of Japan (total $63,000).

In 1995, 6 healthposts in the PHC project area were reconstructed by the JICA urgent-support fund (total $21,000) and PHC training center was newly established by the warm and successive support of 'Grass-roots grant aid' of Embassy of Japan (total $50,000).

3. Manpower strengthening

3-1. Provincial Health Management Team (PHMT)

PHMT were trained on DRF, such as first aid with community-based essential drugs, the prescription and replenishment, and its management supervised by National PHC committee in 1992. In 1993, 4 Thai lecturers were invited to train PHMT on health education towards villagers and the 2 staffs were dispatched to Khon Kaen to be trained 'Leadership in PHC activities' for a month. English conversation course has been conducted since 1993 for the purpose of good communication between the focal staffs and the Japanese experts. Statistics training course was financially supported by the project in 1993.

In 1994, the training on drilling boreholes and managing the machine of measuring grand resistance to find water resource were done. In 1995, the follow-up seminar and the workshop on using health education kits organized by CHAMPA (NGO) were supported by the project.

3-2. District Health Management Team (DHMT)

TOT (Training of Trainers) was done by PHMT on DRF program, such as first aid with community based essential drugs, the prescription and replenishment, its management in 1993, 1994 and 1995. They were also trained by Thai lecturers on effective health education towards the villagers in 1993. Health management seminar was financially supported by the project in the same year. In 1994, as provincial staffs were trained, they had an opportunity to learn how to manage borehole drilling machine on the job training, then the skill of latrine construction besides this.

In 1995, they attended the refresh seminar on healthpost staffs as facilitators. CHAMPA workshop on health education were planned as well for the DHMT participation. In 1996, training courses were operated to DHMT staffs for learning of 'quality of lives'. In November 1996, training course and a study tours in Nakhonphanom was provided to 3 DHMT members for learning of village development.

3-3. Healthpost staff

They attended the DRF training course as facilitators in 1993, 1994 and 1995. They were also trained by Thai

lectures on effective health education towards the villagers in 1993. In 1995, the seminar on healthpost staffs were conducted for the staffs. CHAMPA workshop on health education were planned as well for the health post staffs participation.

In 1996, training courses were operated to healthpost staffs for learning of 'quality of lives'. In the same year, after renovation of 6 healthposts, training courses were held to healthpost staffs for understanding the following revised routine activities; (1) to conduct Maternal and Child Health (MCH) services in healthpost and community; (2) to conduct health education; (3) to supervise VHWs on health services; (4) to identify the health problems in the community; (5) to utilize the new medical record and information system; (6) to exhibit health data in healthpost; and (7) to keep the building, facilities and equipments clean.

3-4. Village Health Workers (VHW)

DRF-related workshop was annually operated to the VHW. Through the workshop, they could get the knowledge on (1) first aid, (2) essential drug use, (3) its procurement, accountings and management, (4) health education for 3 main diseases using flip-charts, (5) EPI's significance, and so on. Total seventy-four villages were covered in the project and 94 VHWs were trained in the period.

In 1996, a training course on nutrition was held for VHWs. In November 1996, training course and a study tour in Nakhonphanom was provided to 25 VHWs and 10 village leaders for learning of village development.

4. PHC activities

4-1. Structure building

In 1992, PHMT was reorganized towards the real functioning. The PHC coordinator was newly assigned. In 1993, DHMT and the coordinators were newly organized in the first pilot district of Hinboun. VHWs were selected for the project by the villagers and their voluntary spirits. The same formations were done in the other 2 pilot districts in 1994.

In April 1996 when PHC training center opened, PHC section in PHMT was reorganized with 3 main sub-sections; (1)service section for administration of PHC training center, (2)medical technique section for supervising PHC in the community, and (3)health education and information section. Since June 1996, PHMT meeting has been held in the new training center once a month with participation of directors from 3 pilot districts. In November 1996, a health research team was organized in PHMT for conducting the detailed household surveillance.

4-2. Drug Revolving Fund (DRF)

4-2-1. Community-based (village level) DRF

As responding to the second priority health-related request from the villagers, the DRF were operated since May 1993. This program has covered 60 villages in the project area up to the end of 1996. The coverage is 81 %. And UNICEF adapted the same system to cover their village totally 71 in Khammouane Province and 256 villages in 5 provinces of Lao PDR in total. They had revolved the fund 13,457,935Kip ($14,953) since the beginning up to December 1996 in total.

4-2-2. Health post DRF

DRF in healthpost has started since 1994 with the same condition as VHWs. Lately WHO supported financially for the installation of proper essential drugs with the amount of $3,000, the DRF was revised at the beginning of 1995 and covered 8 pilot healthposts. The covered population is 23,111.

4-3. First Aid

As the first contact level of aiding, VHWs learned how to cure 3 main diseases in Laos and the other 15 common episodes in the area using VHW textbooks which provided in the workshop with prescribing essential drugs. VHWs have received the patients for the first aid with the number of 38,252 since the beginning up to the end of 1996 in the villages as mentioned above.

4-4. Health Education

VHWs were trained to educate the villagers who accessed to them for the prescriptions using flip-charts, posters and leaflets. These materials were distributed by the project (See 5. in detail.)

4-5. Communicable Diseases Control

These activities were closely related to 4-4. VHW contributed to conduct the communicable diseases control from the viewpoint of preventive activities, such as promotion of boiling water, making latrine, using mosquito net, attending EPI, etc.

4-6. Environmental Sanitation

Latrine revolving fund were constructed by the villagers' labors and their financial participation as much as 984 bowls up to the end of 1996. The project supported technical and management skill and revolving materials, such as iron-frame for making earthen pipes, seeding bowls, etc.

4-7. Safety Water Supply

By May 1996, boreholes have been digged 16 in the pilot villages, 94 in the whole province. In January 1997, the number increased up to 57 in the pilot villages.

4-8. Maternal and Child Health (MCH)

MCH services had been implemented in district hospitals, but not in healthposts in the pilot area. In March 1996, MCH services newly started in 8 healthposts. Training courses has been operated for staffs to learn basic knowledge of MCH services. Small equipments for MCH such as stethoscopes, scales, etc. have been also provided in healthposts. However, participants in MCH activities is limited in the community.

4-9. Nutrition

In October 1996, NGO in Khammouane for working on nutrition was financially supported by JICA with the purpose of expanding the Project activities to surrounding areas. The activities are firmly related to MCH services in both community and district hospital, then this program is also supported by the MCH section. The provision of equipments and TOT have been completed.

5. Mobile Clinic activity

The activity of Mobile Clinic is characterized not only by providing the medical care for patients in the communities, but also by the aims described as follows; 1) to provide instruction in medical and health care on community diseases to the staffs of healthposts and VHWs, and to evaluate and develop their skill; 2) to evaluate the PHC activities, above all Drug Revolving Fund (DRF); 3) to carry out clinical and epidemiological analysis on various indicators.

Two teams were made up, and each team consists of a doctor, a nurse and a laboratory technician from provincial hospital. Mobile Clinic Team visits eight health posts in three districts (Hinboun, Mahaxay, and Sebangfai) as model areas of the Project with a doctor and a technician of each hospital once a month. The team also calls at model villages located nearby the healthposts.

Mobile Clinic was operated thirty seven (37) times in healthposts and two (2) times in VHW's houses from August 1996 to February 1997. Through the Mobile Clinic activity, sixteen (16) healthpost nurses and twenty (20) VHWs in total were trained on first aid, management of DRF and so on. The total number of patients was 1,519 including 379 children under 5 years of age, and upper respiratory infection was the most prevalent disease.

(1997-1998)

1. Drug Revolving Fund (DRF)

In October 1997, Drug and Food section of Khammouane provincial health office revised DRF system. Main points of the revision are as follows:

1) District health office instead of provincial health office regulates the buying and selling, and also storage of essential drugs;
2) Raising the profit rate on essential drugs from 20 percent to 36 percent; and
3) Issuing Health Card (medical care pass) for village health workers (VHWs), and increasing their share of the profits gained by selling essential drugs.

Through the revision of the system, DRF services have improved as follows:

1) The supply of essential drugs to the community has improved under the control of district health office;

2) The new profit rate would produce smooth operation of DRF services in the community; and

3) Incentives would make VHWs promote DRF and other PHC services in the community positively.

However, the recent financial crisis in Lao PDR has caused not a little damage to DRF and also other PHC services in Khammouane province.

2. Mobile health center (former Mobile clinic)

The activity of Mobile clinic started in August 1996 with the aim of improving the medical skills of nurses in health posts and VHWs in the community. In February 1998, the system of Mobile clinic was revised to expand the activity into other PHC field. Main points of the revision are as follows:

1) The name of "Mobile clinic" changed to "Mobile health center";

2) PHC section (PHC training center) instead of provincial hospital controls the activity of Mobile health center; and

3) Every section concerned in PHC services participates in the activity of Mobile health center.

The new Mobile health center is expected to carry out health education programs to villagers and health staff in the community, and also expected to gather information on public health in the community.

3. Training course

3-1.Training course on new DRF system

District staff, health post staff and VHWs were trained for getting the knowledge on new DRF system.

3-2.Training course on statistics

Provincial health office staff was trained on statistics by an MOH lecturer for three weeks. Capabilities for analysis of data in PHC section were strengthened.

3-3.Training course on MCH

Twenty-one (21) midwives in three districts have been trained on mother and child health care (MCH).

3-4.Training course on video tape recording

Two health education staffs in PHC section were trained on video tape recording. They got the ability to make original video tapes for health education to villagers and health staff in the community.

4. Health education

4-1. Food and Nutrition

Health education and survey on food and nutrition in the community were conducted at a total of 146 villages in five districts (38 villages in Hinboun, 28 in Mahaxay, 28 in Gnomalath, 19 in Nongbok and 33 in Sebangfai). Thirty-seven (37)% of the children under five years of age were suffering from malnutrition. Nutrition programs would be useful in improving the nutritive conditions of children.

4-2. Fever and Thermometer

Eight hundred six (806) villagers at 13 villages in three districts (266 villagers in Hinboun, 280 in Mahaxay and 260 in Sebangfai) received the health education on "What is fever?". Six hundred seventeen (617) pieces of thermometers were sold to the villagers after the education. The education program of "Fever and Thermometer" was helpful for the villagers to find febrile disorders early.

5. House hold survey

House hold survey of 73 questionnaires on eight PHC elements was made for 400 families. The analysis of the data by PHC section is now under way.

6. Study visit to Thailand

Study visit to Chiang Mai provincial health authorities was carried out by Mobile health center team for learning the role of hospital in various levels and also developed PHC system in Thailand.

ANNEX VI ACHIEVEMENT OF VIROLOGY SECTION

(1992-1997)

The laboratory of Serology and Virology(LSV), The National Institute of Hygiene and Epidemiology(NIHE) has received technical, material and financial supports from the Laos-Japan Primary Health Care Project. The activities completed under the project are summarized as below. Three virologists were dispatched as long term expert of the project to improve the laboratory. A total of five scientists was actively engaged in the activities as short term expert. To improve ability of staffs in the LSV, fundamental knowledge and techniques of virology have been transferred to the staffs by the experts. These included the aseptic procedure, cell culture, manipulation of infectious materials, preparation of reagents/diagnostic antigens/anti-serum, and detection of viral genome by reverse transcriptase-polymerase chain reaction(RT-PCR). The techniques and knowledge have been applied in the laboratory diagnosis of dengue hemorrhagic fever (DHF) and Japanese encephalitis (JE). These included the determination of antibody titers to dengue and JE viruses by neutralization, HI and ELISA tests, and the isolation and identification of the causing virus of the diseases by peroxidase anti-peroxidase staining method with monoclonal antibodies. In addition, three of the staffs have attended individual training course in 1993, 1994 and 1996, at the department of virology, school of medicine, University of the Ryukyus in Okinawa, Japan.

To put environment of research in good condition in the LSV, numerous equipment has been provided and installed in the laboratory. These included CO_2 incubator, deep freezer, automatic steam sterilizer, water purification system, safety cabinet, inverted microscope, photometer etc..To strengthen the capability of external relationships, six training courses were held on physicians, medical technologists and executives. Especially, two of the training courses on the laboratory diagnosis of DHF and JE were carried out at NIHE in 1994 and 1995. The objective of the training was to strengthen the capacity of the provincial laboratory technicians, including those from Luang Phabang, Khammouane, Savannakhet and Champassak provinces, in diagnosing these two arboviral infections. In addition, instruments, diagnostic antigens and reagents for the laboratory diagnosis of DF/DHF and JE have been prepared and provided to the four provincial laboratories by LSV. The laboratory diagnosis has been settled as routine service system for requests from Mahosot and Sethathilath hospital since 1994. In 1994, the number of specimens (924) from those hospitals increased in comparison with 1992(62) and 1993(81).

A total of 1,000 copies of the handbook for case management of dengue and Japanese encephalitis, 30 copies of the manual for laboratory diagnosis of dengue and Japanese encephalitis, 30 copies of the manual for bio-safety in laboratory and 300 copies of Virology text book were printed and distributed to medical interests through the training courses. Five hundred copies of poster, and 5,000 pamphlets for education of DF/DHF and JE were prepared and distributed to inhabitants in Vientiane and Khammouane provinces.

In order to know the prevalence of dengue and JE infections in Vientiane and Khammouane province, a total of seven serological investigations was enforced by the LSV. In 1996, the cooperative study was performed among NIHE(LSV and Laboratory of Bacteriology), IMPE and PHC team in Khammouane province.

The above mentioned activities were made possible due to the support from the Project as well as financial and technical assistance. The good cooperation between the counterparts and Japanese experts has greatly contributed the successful activities. In the "METHOD OF EVALUATION"(III.2.F), improvement of capability and role of NIHE at both the national and provincial level was required. However, the proposal was not yet completely achieved at the national level. Therefore, the support is still required at least one or two years.

(1997-1998)

1. Production of diagnostic reagents for Dengue and Japanese Encephalitis

The homogenate mouse brain of Dengue and JE virus antigens and other reagents were produced locally for use in the haemagglutination-inhibition test for the diagnosis of Dengue and JE infections in six provincial laboratories. Two provincial laboratories (Oudomxay and Borikhamxay) can now perform this basic serological test

of arboviral infections.

The lyophilized form of these virus antigens is now under production and investigation of their practical use.

The following table shows the amount of the produced diagnostic virus antigens obtained from October 1997.

Type of virus antigen	Amount produced
Dengue virus serotype 1	12.00 ml
Dengue virus serotype 2	12.00 ml
Dengue virus serotype 3	08.00 ml
Dengue virus serotype 4	08.00ml
JE virus	04.00 ml

2. Training course

A Refreshment Training Course on Serological Diagnostic Techniques of Arboviral Infections was organized from 20 to 24 February 1997, at NIHE for the provincial laboratory technicians. The participants attending this training were two persons from each of Champassack, Savannakhet, Khammouane, Luangprabang provinces. The training objectives were to review, identify and solve technical and practical problems of the provincial laboratories in conducting the serological diagnosis of arboviral infections.

3. Sero-Epidemiological Surveys of Dengue and JE infections.

In June and July, six main provinces (Champassack, Savannakhet, Khammouane, Borikhamxay, Luangprabang and Oudomxay), where Dengue epidemics used to occur were selected. In each of the studied village, children of 15 years old and less were involved and their serum samples were collected.

The number of serum samples collected from each of the selected provinces was shown in the following tables. These samples are currently on the way of testing for the detection of anti-dengue and anti-JE antibodies.

Name of Province	Number of studied subjects
Champassack	209
Savannakhet	216
Khammouane	232
Borikhamxay	236
Luangprabang	Not yet known
Oudomxay	Not yet known
Total	893

4. Routine activities of the Laboratory of Virology

The following table summarizes the routine analysis of specimens referred to us from various hospitals in Vientiane.

Number of suspected DF/DHF cases	Results of HI test . No. Tested / No. of Positive Result of Virus Isolation	
117 (48 with paired sera)	33/12 (15 are being tested)	ND

ANNEX VII ACHIEVEMENT OF BACTERIOLOGY SECTION

(1992-1997)

1. To reinforce the Department of Bacteriology Laboratory Service (BLS) in National Institute of Hygiene and Epidemiology (NIHE)

The main purpose of which was to reinforce the BLS to be a nationwide referral center in achieving following goals:

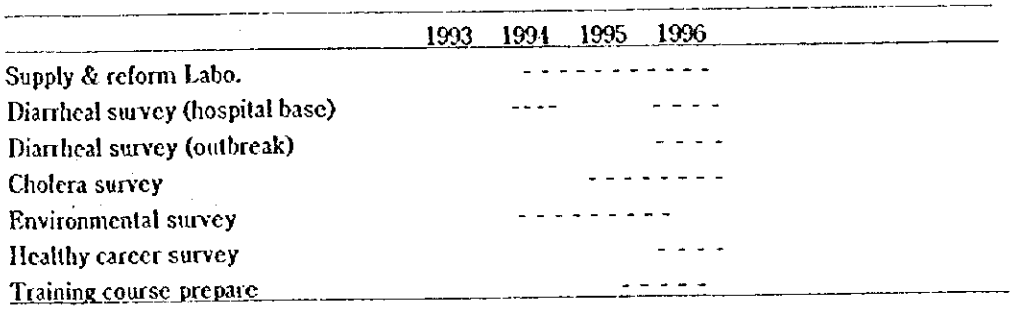
i) To acquire advanced skills in treating microorganisms:
   a) MIC test
   b) Immunochemical analysis and bioassay of bacterial pathogenesis

ii) To grasp circumstances of communicable diseases occurring in Lao PDR
   a) Collect specimens or information from outlying laboratories
   b) Examine and analyze the collected materials
   c) Restore analyzed information to outlying laboratories

iii) To establish periodic technical training courses for outlying laboratory staff

Activities so far are summarized in a table.

Activities in NIHE



2. To support the Khanmouane provincial hospital laboratory

The Department of Bacteriology Laboratory Service (BLS) in NIHE has started technical and equipment support to Khammouane provincial hospital laboratory since 1993. Main purpose of which is to empower the laboratory to be a facility which can provide appropriate information for better implementation of PHC activities. Activities of NIHE staff and Japanese experts are summarized in a Table.

Activities in Khammouane province

Activities	1993	1994	1995	1996
Equipment supply	1	2	4	2
Seminar		1	1	
Training course		2	1	
Survey		3		1
Times of mission	1	5	4	4

fiscal year

3. Investigative activities on cholera and related diarrhea

Since 1993 there had been a series of cholerae outbreak in Lao P.D.R. Complying with requests of the Ministry of Health (MOH), BLS in NIHE has been conducting surveys on cholera and related diarrhea in Vientiane municipality and outlying provinces. Activities of NIHE staff and Japanese experts are summarized in a Table. In a series of survey, strains of *V. cholerae* were isolated from 40 specimens among collected 91 specimens. Based on these results, BLS has been giving advice and suggestion to authorities of the local governments.

Surveys on cholera and related diarrhea in other provinces.

Province	Activities	Date	Outcome
Vientiane	Survey of diarrhea	Jan. 1994	Presented at 1st National Congress
Luang Namtha	Cholera survey	May 1994	Confirmation and Recommendation
Oudomsay	Cholera survey	Jun. 1994	Confirmation and Recommendation
Savannakhet	Cholera survey	July 1994	Confirmation and Recommendation
Saravan	Cholera survey	Feb. 1995	NAG Vibrio Confirmation
Vientiane	Well water analysis	Oct. 1995	Recommendation
	Cholera survey	Dec. 1995	Confirmation and Recommendation
	Cholera carrier survey	Feb.1996	NAG Vibrio
Xieng Khouang	Cholera survey	July 1996	Recommendation
Houaphan	Cholera survey	July 1996	Confirmation andRecommendation

4. National Laboratory Training Course on Cholera

The BLS staff have been carrying out lectures and practices, listed below, for provincial laboratory staff to provide basic technique for isolation and identification of *V. cholerae* expecting them to take proper measures for possible cholera outbreak.

National Laboratory Training Course on Cholera

Place	Objective provinces	date
Vientiane	Houaphan, Xieng Khouang Vientiane, Borikhamsay Savannakhet	5-11 Jun. 1996
Luang Phabang	Phongsali, Bokeo Sayabouri, Oudomsay LuangNamtha Luang Phabang	15-19 July 1996
Pakse	Champassak, Sekong Attapeu, Saravan	25 July- 2 Aug. 1996

5. Counterparts training in Japan

The counterpart training course was commenced in Jan. 1994. Two trainee have been dispatched so far, to department of Bacteriology University of the Ryukyus. The trainee learned Japanese language and new technology on bacterial diagnosis such as; Minimum inhibitory concentrations, Enterotoxin detection of *E. coli*,

identification of *Campylobacter*, Phage propagation method, production of kappa phage, phage typing of *V. cholerae*, isolation and identification of *V. cholerae*, *V. cholerae* hemolysin production, preparation of anti *V. cholerae* 01 serum. Not only acquiring new technologies related to bacteriology, they seemed to touch well Japanese community and culture.

6. Supports for nationwide workshop and congress

Department of Bacteriology Laboratory Service (BLS) and a Japanese expert supported two nationwide workshop and congress listed in a Table. In National Workshop on Cholera, we made 1 presentation titled Epidemiology: Presentation on different practices of communities concerning cholera cases, and in National Congress on Diarrhea, 2 presentations titled Characterization of *Vibrio cholerae* 01 in Lao PDR, AIDS and Diarrhea, respectively.

Supports for nationwide workshop and congress

Conferences	Date
The 1st National Workshop on Cholera	11-13 Oct. 1994
The 1st National Congress on Diarrhea	14-15 Dec. 1994

7. Monitoring on drug resistant bacteria

Monitoring on Methicillin Resistant *Staphylococcus aureus* (MRSA) has been carried out since 1993. No MRSA strains have been isolated from any clinical specimens provided by Mahosot hospital in the year 1993 and 1995, though, one strain was determined as a MRSA by antimicrobial susceptibility test and proved to possess *mecA* gene among *S.aureus* strains isolated from nasal vestibular of 43 in-patients and nurses in the hospital in December 1996. Recently, various kinds of antimicrobial agents have increasingly been used in Lao PDR, hence, we propose that appropriate and prompt measures should be taken to inhibit the emergence and prevalence of multi-drug resistant bacteria such as MRSA.

(1997-1998)

During the extended period of the Project, bacteriology section reinforced the capability of the laboratory in NIHE as the national reference laboratory, and supported the activities of the laboratory in Khammouane provincial hospital.

1. Activities of the laboratory in bacteriology section in NIHE were as follows:

1) Identification of Chlamydia trachomatis by immunofluorescence method,

2) Study on Diphtheria cases and carriers,

3) Study on Acute Respiratory Infections (ARI) in Vientiane Municipality, and

4) Study on Acute Respiratory Infections (ARI) in Khammouane province (Thakhek, Sebangfai and Hinboun district).

2. Activities of the laboratory in Khammouane provincial hospital were as follows:

1) Training course on Acute Respiratory Infections at the laboratory in Khammouane provincial hospital (five staffs in the bacteriology section in the hospital attended the training course), and

2) Confirmation of cholera in Hinboun district (stool identification from patients with diarrhea in Hinboun district hospital).

One staff of bacteriology section in NIHE is being trained on bacteriological investigation of ARI in Japan.

ANNEX VIII ACHIEVEMENT OF PARASITOLOGY SECTION

(1992-1997)

The role of parasitologists in the Project is to strengthen the function of IMPE as a national reference laboratory for parasitic diseases in this country, and to contribute to the PHC activities through implementation of anti-parasite control programs in the model area. The main activities in the section are as follows;

1) To strengthen diagnostic and research activities of IMPE through technical and equipment supports.
2) To strengthen anti-malaria net work in the model province.
3) To establish functional malaria control model program in pilot village.
4) To contribute PHC activities through common parasitic disease control program in model province.

To support the above activities, seven Japanese experts were dispatched shortly to IMPE until now. In late 1995, along term expert was dispatched in Khammouane Province to contribute to PHC activities in the Province. The status of the project activity and main outcomes from the activities are as follows;

1.Strengthening the function of IMPE as a national referral center for parasitic diseases.

The activity contains the following main activities;

1) Transfer of advanced skill for examination of parasitic diseases to IMPE to improve diagnostic service in the Institute.
2) Strengthening the capability to plan anti-parasite control program in provincial level and to supervise the local staffs to implement it.

Essential equipments have been installed in the Institute. Transfer of advanced skill for examination of parasitic diseases was performed by five short-term Japanese experts. The two IMPE staffs received technical training course in Japan (Department of Parasitology, School of Medicine, Ryukyu University). By these activities, technical skill and knowledge for diagnosis of parasitic diseases in the Institute were markedly upgraded. However, IMPE is still lacking in adequate financial support, as well as human resource, necessary for implementation of activities.

2. Strengthening of anti-malaria net work in Khammouane Province.

In 1993, preliminary surveys on malaria were conducted by local staffs of Khammouane Malaria Station (KMS), IMPE staffs and Japanese short term experts.

From late 1995, KMS was reinforced as a referral center of anti-malaria net work in the Province. Then, technical training course (Training of trainee:TOT) for examination of malaria and other intestinal parasitic infection was held against staffs from 6 District Malaria Center (DMC) in the Province. The training course was implemented by IMPE and KMS staffs under the supervision of Japanese expert. For the training course, technical manual (textbook in Lao) was prepared by IMPE. The textbook were delivered to Malaria Station of all provinces. The training course was well evaluated by Ministry of Health (MOH) and similar training course has ben planned in other provinces.

Following the training course, each DMC renovated by equipments (microscope and Giemsa staining kit, etc), and passive detection system for malaria cases in DMC level was started. Especially, in the detection system, re-check system of blood preparations by referral center (KMS and IMPE) was established to obtain correct prevalence data on malaria infection in the Province.

For functional establishment of anti-malaria net work, existing problem on transportation (especially vehicle) should be resolved in future because many DMC are difficult to access to KMS.

3. Establishment of anti-malaria control program in pilot areas.

Scientific data on malaria prevalence, vector mosquito and evaluation of effect of preventive action from malaria

infection are necessary to establish effective anti-malaria control program. With request from Khammouane Provincial Health Office, active malaria detection surveys on the villagers were conducted every 3 months in pilot area. The knowledge and skill for collection of mosquito species and its identification were transferred to Laotian counterparts by Japanese short-term expert in this year.

The result obtained in the surveys are as follows;

1) Malaria cases were prevalently detected through the year in villages located in mountainous forest. On the other hand, the prevalence was consistently low in villages in an open field along the Mekong River.
2) The prevalence of malaria cases was not different in rainy season from that in dry season. The intensity of infection (i.e. parasitemia), however, was significantly high in rainy season, meaning that severe cases emerged in rainy season.
3) *Plasmodium falciparum* was common species in areas, showing that the species were detected in more than 90% of positive cases.
4) Children under 15 years of age occupied majority of the positive cases.
5) *Anopheles minimus, An. maculatus and An. dirus* were considered to be possible vector for malaria transmission in the areas.

Because scientific information on malaria situation in Lao PDR is quite insufficient, these results have been reported in the international Congress of Malaria and Tropical Medicine, held in Nagasaki, Japan, by Laotian counterpart and Japanese expert, respectively. Two scientific reports on the results are now preparing to publish in appropriate journal.

According to the above results, two villages in forest were selected as pilot area. The control program was planned to target mainly children and to implicate in rainy season. After education on villagers for the effectiveness of impregnated bed nets to avoid mosquito bite, bed nets were supplied to the pilot areas. The net revolving system was operated for further delivering the impregnated bed nets. The control program has started in October 1996 and should be evaluated by active case detection surveys in the remaining project period.

4. Opisthorchiasis control and other helminthiasis survey for evaluation of PHC activities.

Beside malaria, liver fluk (*Opisthorchis viverrini*) infection is a serious public health problem in this country because of its extremely high prevalence and also because of its serious pathogenicity. In a preliminary survey on the *Opisthorchis* infection, it has already occurred in about 25% of the children under 5 years old, then increased to 40% in the following 5 years and reached nearly 100% in the adults. The parasitic infection is known to produce hepatocirrhosis. Furthermore, relevance between *Opisthorchis* infection and liver cancer is speculating. The mode of the infection is known to be eating raw fishes, thus it is necessary to educate villagers not to eat raw fishes to avoid the infection. However, it seems difficult to forbid eating raw fishes. Therefore, it is important to elucidate fish species which harboring infectious metacercariae. The technology to recover metacercariae and to identify it from other trematoda metacercariae has been transferred by Japanese short-term expert, and three species of fishes, from which high number of *Opisthorchis* metacercariae were recovered, were found to be main infection source in this country. The control model for Opisthorchiasis was started in three villages. The activity was financially supported by MOH and technically supported by KMS in collaboration with IMPE.

As another activity, the parasitological surveys on common soil-transmitted helminth infections are also implementing with a close relation to evaluation of PHC activity on latrine revolving services.

(1997-1998)

On the basis of the general objectives of the Project, the activities in the parasitological field in the Project were to upgrade the function of IMPE (Institute of Malariology, Parasitology and Entomology) as a national referral center for parasitic diseases, and also to contribute to the PHC program in the model province (Khammouane Province) through anti-parasite control programs. The actual activities implemented in the

parasitology section are as follows:

1) To strengthen diagnostic and research activities in IMPE through technical and equipment supports.

2) To strengthen anti-malaria net work in the model province.

3) To establish functional malaria control model program in the pilot areas.

4) To contribute PHC activities through common parasitic disease control program in the model province.

To evaluate the above activities, an evaluation survey team has dispatched to Laos in 1997, and both (Laotian and Japanese) sides have essentially agreed that the activities have mostly accomplished but final evaluation on the effect of anti-parasite control programs in model areas are still on the way, and have also decided that the activities should be continued for one year to get a final goal in the parasitological section.

In the followings, the outcomes mainly in the extended period are summarized.

1. Strengthening the function of IMPE as a national referral center for parasitic diseases.

The function of IMPE has markedly upgraded in the extended period through technical transfer and special lectures for essential and advanced skill and knowledge for parasitic disease diagnosis, and also through actual implementation of anti-parasite control programs in the model province, Khammouane. In the extended period, the following activities were further carried out in IMPE by long term and short-term experts.

1) To transfer basic entomological techniques.

2) To transfer basic knowledge for immunological diagnosis of parasitic diseases.

3) To transfer the basic methods for parasitological evaluation of anti-malaria control programs by delivery of impregnated bed nets.

2. Strengthening anti-malaria net work in Khammouane Province

Before the extended period, Khammouane Malaria Station (KMS) has been re-informed as a referral center of anti-malaria net work in the model province. Nine district malaria centers (DMC) were also renovated. Through several technical training courses, the diagnostic skill and knowledge of local staff in KMS and DMCs were upgraded and the passive case detection system was markedly improved; i.e., the re-check system of blood smears established by IMPE and KMS demonstrated that the misdiagnosis rate (both false-positive and false-negative diagnosis) was reduced from 30% to 10% until now. The project achievements mentioned above have led to understand correct malaria prevalence among all districts through the year in the model province.

In the subsequent extended period, the data information system from DMCs to KMS, and further to IMPE, was established by setting wireless telephones by cooperation with the maintenance section of the Project. The serious problem on the data information especially in a rainy season was markedly improved in the model province. IMPE and WHO have started to set new data information form from district level to the provincial level to keep correct malaria information, as well as exact diagnostic level.

3. Evaluation of anti-malaria control programs in pilot areas

The active surveys on malaria have been conducted in several pilot villages throughout the year to get actual and seasonal incidence of malaria parasite among the inhabitants. The following activities were further carried out and evaluated in the extended period.

1) To educate villagers for basic knowledge on malaria.

2) To educate villagers for preventive effect of impregnated bed net.

3) To deliver impregnated bed nets, operating net revolving system to sustain the delivering and retreatment system of the nets.

The following results on the above activities were obtained and reported in the coordinated meeting in MOH and the scientific committee in IMPE.

1) More than 95% villagers set impregnated bed nets.

2) The net revolving funds were recovered from more than 90% of the villagers.

3) Malaria prevalence markedly decreased from about 8% to less than 2% in a rainy season after setting the impregnated bed nets.

KMS has expanded this control program to about 10 villages, however, establishment of net revolving system and evaluation of effectiveness on the control program in these wide areas are not yet sufficient without support of IMPE staff and Japanese expert.

The vector mosquito surveys were also conducted around the pilot villages throughout the year in the extended period for evaluation of the above control program.

4. Evaluation of opisthorchiasis control program

In the previous surveys, it has been demonstrated that more than 55% of villagers were infected with *Opisthorchis viverrini* (liver fluke) in three pilot villagers in Khammouane Province. The mass control program has been expanded to villages with financial support of MOH by provincial local staff themselves.

In the extended period, the effectiveness of the control program was subsequently evaluated as that about 50% villagers successfully treated with praziquantel produced re-infection with this parasite within only six months after the treatment. Thus, mass diagnosis and mass treatment were not sufficient for effective control of the parasitic infection in this country, and to avoid re-infection after treatment, it seemed to be necessary to educate villagers how to acquire the parasitic infection and what is the pathogenicity of the parasitic disease.

In the aspect of the pathogenicity, relationship between this parasitic infection and liver cancer, which is suspected to be correlated in Northeast-Thailand, was investigated. Ultrasonographic examination was performed in cooperation with a short term expert to observe liver function among villagers and patients in Provincial Hospital. Abnormal finding in livers among villagers infected with *O. viverrini* was significantly higher than that of the group without infection. Thus, it was suggested that early diagnosis and treatment in hospital should be important for prevention of such serious disease by this infection.

ANNEX IX ACHIEVEMENT OF EPI SECTION

(1992-1997)

EPI activities in general comprehend immunization service delivery and surveillance of vaccine preventable diseases. In both of them, Polio Eradication Program, which aims at polio eradication from Lao PDR by the year 2000, has the first priority. Immunization service consists of routine immunization and national immunization days (NIDs) for polio eradication.

1. Field activities

Immunization services; EPI instruction had been given for 5 times in different provinces in 1993. Cooperation to EPI coverage survey was done in 1995. Regarding NIDs, see item 3) support for NIDs.

Surveillance; Active case search had been systematically conducted from 1994 to 1996. This is a community-based search for acute flaccid paralysis (AFP) cases which are clinically indistinguishable from poliomyelitis. Totally, in all 18 provinces, 91 districts and 503 villages had been visited and searched. The data gave retrospective incidence trend which was significantly reduced after the introduction of NIDs. Analysis of the collected data gave retrospective view of polio epidemiology which was useful for future planning for strengthening of AFP surveillance system. Surveillance supervisory visits were conducted in combination with active case search from 1995 to 1996. Standard checklist was developed and utilized. Accumulation of data on surveillance implementation was facilitated. Totally, it was conducted for 10 times. AFP surveillance educational session was conducted to upgrade the surveillance sensitivity to international standard, in order to prove polio eradication by the year 2000 from November 1996. So far, 44 sessions had been conducted in 11 provinces. Reported AFP cases increased in number rapidly since November 1996 after all the above activities as shown in the following table:

Yearly Trend of the Number of Reported AFP Cases in Lao P.D.R.

Year	1993	1994	1995	1996
	7	10	19	36

Polio cases with wild virus have been reported in China, myanmar, VietNam and Cambodia. These border areas in Lao PDR were tentatively investigated 6 times by the project. The permanent surveillance system in the border area will be planned.

2. Training and workshop

Immunization services; Immunization practice training course had been conducted in Khammouane province in 1993. Also, EPI/MCH training course for Lao health staff in Khon Kaen, Thailand had been conducted from 1993 to 1995. Participants learned EPI planning and implementation and maternal and child health in a more advanced primary health care system, with only a slight language barrier. Management and planning training course for EPI managers was conducted in 1994 and 1996. National EPI workshop is an important annual event which outlines EPI operations in the next year. The project supported this workshop from 1993 to 1997.

Surveillance; Surveillance training was conducted in Khammouane province in 1993. Also, surveillance training for EPI managers was conducted in 1994. AFP surveillance training was conducted for district level health staff in 1995 and 1996. National Surveillance Workshop was installed in 1995, and the project supported it from 1995 to 1997.

3. Support for NIDs

NIDs are conducted in January (first round) and February (second round) in Lao PDR. These are mass

vaccination campaign of all children under 5 years of age in the country by oral polio vaccine (OPV). Before NIDs, JICA expert cooperated in training of health staff and volunteers who work as vaccinators in the campaign. During the campaign, expert conducted NIDs supervisory visits yearly. This was useful for facilitating the procedure of planning and implementation of NIDs. Also, after NIDs, JICA experts jointed the NIDs evaluation to see the actual coverage of the previous NIDs.

4. Materials development

Several materials were developed for the promotion of AFP reporting: Polio case poster, polio case silk-banner, polio case pamphlet, AFP surveillance posters (one for epidemiology staff and the other for hospital staff), flip-chart and video for AFP surveillance educational sessions.

5. International conference

JICA long-term experts participated in Technical Advisory Meeting for Polio Eradication Program in Western Pacific Region of World Health Organization once a year.

6. Others

Following activities were also conducted.

i) Coordination of multi-by equipment provision through Unicef (vaccines, cold room, freezer and vehicles), JICA equipment provision for infectious diseases control (OPV for NIDs), and grant aid from Japanese government (1 million U$ equivalent of cold chain equipment).

ii) Cooperation to diphtheria outbreak response in 1996 (epi- demiological investigation, education and logistics).

(1997-1998)

EPI activities in general comprehend immunization services and surveillance of vaccine preventable diseases. In both of them, Polio Eradication Program, which aims at polio eradication from Lao PDR by the year 2000, has the first priority. Immunization services consist of routine immunization and national immunization days (NIDs) for polio eradication.

1. Field activities

Strengthening AFP (acute flaccid paralysis) surveillance for polio eradication was continued. The quality of the system markedly increased from 1996 to 1997.

Trend of major indicators of AFP surveillance, Lao PDR, 1994-1997.

	1994	1995	1996	1997
Total number of AFP cases reported	10	19	41	77
Non-polio AFP rate (per 100,000 under 15 y.o.)	0.25	0.34	0.95	2.04[a]
Adequate stool specimens collection (%)	20	37	59	71
True AFP among reported cases (%)	63	63	93	97

[a]The figure is based on clinical classification. By virological classification, it is 2.78.

Given these surveillance indicators, WHO Western Pacific Regional Office approved the transition of Lao PGDR from clinical classification to virological classification of AFP cases in February 1998. As there was no AFP case with isolation of wild polio virus in 1997, Lao PDR marked the first polio-free year. Field activities to

strengthen AFP surveillance was intensely done in Savannakhet province in November 1997. As a result, in 1998 up to now three cases were already reported from the province where the surveillance system had been weaker than other provinces.

From December 1997, a pilot activity to make a model of neonatal tetanus surveillance was commenced in Vientiane and Borikhamxay provinces. The activities include the development of training manual and visual materials, village search for cases and introduction of new immunization indicator, "children protected at birth."

2. Training and workshops

In November 1997, National EPI Workshop was conducted with partial financial support of the Project. Also, in December 1997, National Surveillance Workshop was conducted in the same fashion. AFP surveillance educational sessions were continued by the provincial trainers who were trained in training of the trainer (TOT) workshops in May to July 1997. By the end of the year, estimated 120 sessions were conducted for over 1,300 health staff all over the country.

3. Support for NIDs

"Proposal of Border Area Strategy for Polio Eradication in Lao PDR" was finalized and submitted to National EPI Manager and supporting agencies. The proposal is based on border area investigations conducted by the Project from September 1996 to February 1997, as well as the recent epidemiological status of polio in the region. Measures to be taken for strengthening both immunization and surveillance were advocated in high risk and moderate risk cross-border districts and cumulative districts of immigrants. In planning of 1999 SNIDs (Sub-national Immunization Days), all high risk and moderate risk districts were included as target.

4. Materials development

National Surveillance Calendar was developed and printed (3,000 sets) jointly NIHE and the Project. The calendar holds the explanations on National Surveillance System for Selected Notifiable Disease, putting emphasis on AFP surveillance for polio eradication. The contents include how to instruct parents of AFP cases to exercise home-based rehabilitation to prevent deformities of joints.

5. Others

Following activities were also conducted:

1) Coordination of multi-bi (Unicef-JICA) provision of vaccines, injection equipment and vehicles, and JICA equipment provision for infectious disease control (OPV for NIDs and sNIDs). Streamlining estimation of annual requirement of vaccines by validating and adjusting formula.

2) Streamlining ordering and shipment system of motorcycle spare-parts.

3) Cooperation to measles outbreak response in late 1997 and early 1998 in making national protocol of outbreak response.

ANNEX X ACHIEVEMENT OF EQUIPMENT MAINTENANCE (EM) SECTION

Main activities in EM department are installation and maintenance of equipment in respective departments of the Project, and also technological transfer to Laotian counterparts.

1. Installation and maintenance of equipment

The items of main equipment are listed in ANNEX IV. Equipment has been installed in MOH, NIHE and IMPE in Vientiane, as well as in PHC section, Provincial hospital laboratory and Malaria station in Khammouane. Other equipment installed and maintained are as follows.

1) Audiovisual equipment

Audiovisual equipment was installed in the PHC training center in Khammouane.

2)Wireless radio

Fourteen (14) sets of wireless radio have been installed in Khammouane, seven (7) sets in Savannakhet and six sets in Salavan for supporting the PHC and EPI activities.

3) Prefabricated Freezer Room (-20℃) in NIHE

The emergency alarm system was installed outside the building for keeping the room temperature constant. A regular examination list and a maintenance manual were made for Laotian counterparts. The condition of the Freezer Room has improved.

4) Prefabricated Cold Room (5℃) in NIHE

The control panel of the Cold Room was replaced by the short-term expert. The emergency alarm system was also installed outside the building. A maintenance manual was made for Laotian counterparts. The condition of the Cold Room has remarkably improved.

2. Training course

Two counterparts in EPI section received training on the maintenance of Freezer Room and Cold Room. Other three counterparts (one technician in Thakhek, two at Mahosot hospital and Friendship hospital in Vientiane) received training on basic electrical engineering and electronics.

3. Establishment of EM department in MOH

The Project has cooperated on the establishment of EM department in MOH. The capability of new EM department in MOH should be strengthened to be a central reference center.