マレイシア
サラワク総合病院救急医療プロジェクト
終了時評価報告書

平成9年8月
(1997年8月)

国際協力事業団
医療協力部

マレイシア
サラワク総合病院救急医療プロジェクト
終了時評価報告書

平成９年８月
(1997年８月)

国際協力事業団
医療協力部

序　文

平成元年、マレイシア政府は日本政府に対し、サラワク州における救急医療体制の強化を目的とするサラワク総合病院救急部を拠点としたプロジェクト方式技術協力を要請してきました。日本政府は本要請を受けて平成４年１月にＲ／Ｄを署名交換し、同年８月より５年間の技術協力を開始しました。

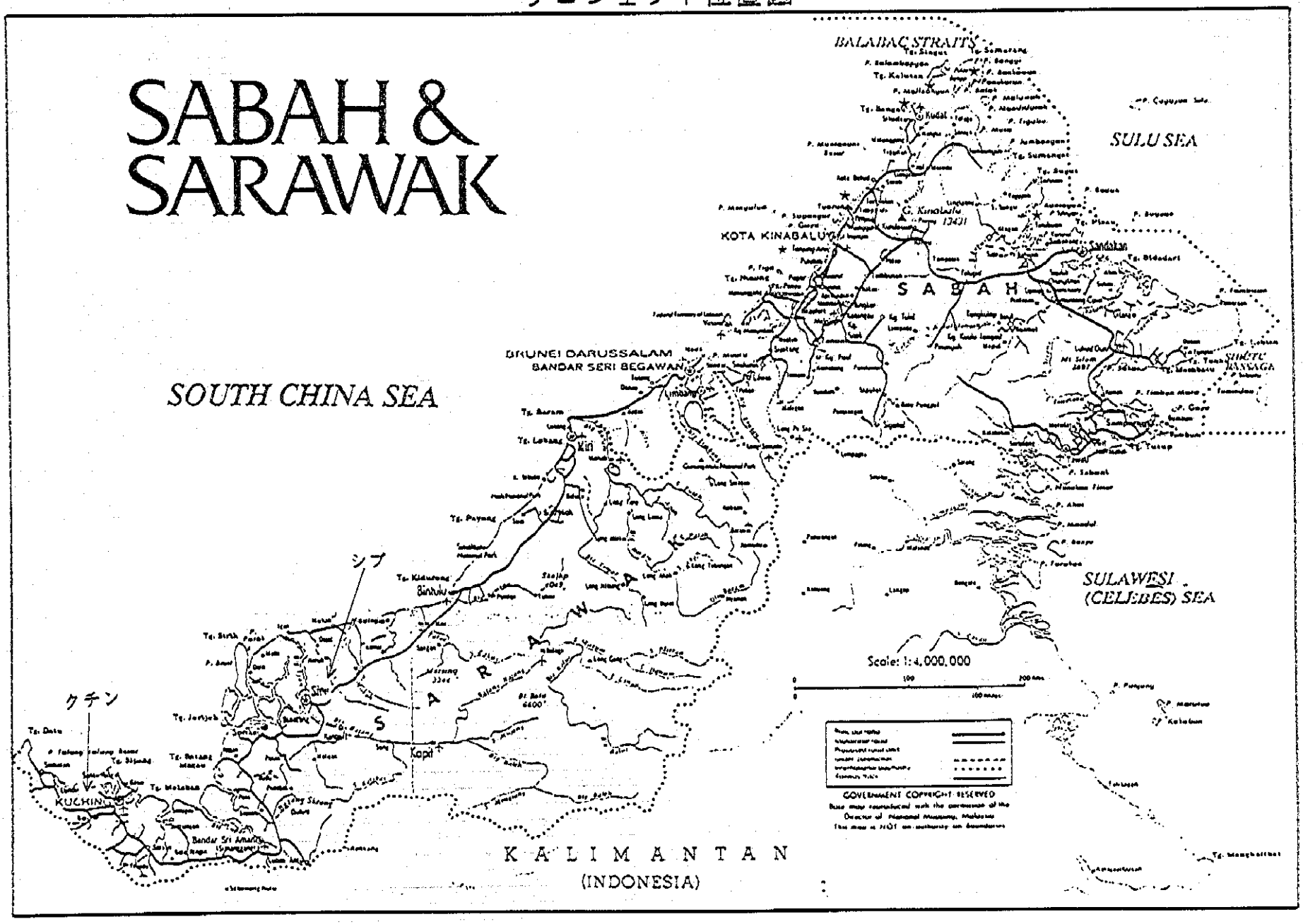
このたび、国際協力事業団は、本件実施にかかるＲ／Ｄに基づく協力期間が平成９年７月31日をもって終了するのに先立ち、これまでの協力内容などの評価をマレイシア側と共同で行うため、同年６月22日から６月30日まで、杏林大学学長 竹内一夫 氏を団長とする終了時評価調査団を派遣しました。

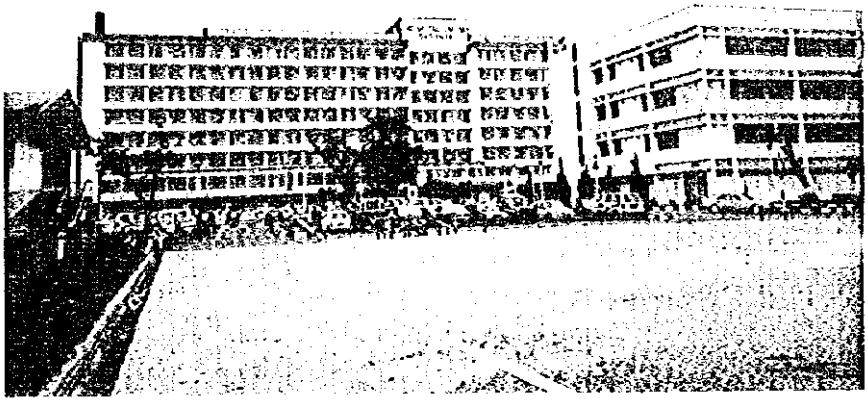
本報告書は、本調査団が実施した調査および協議の内容と結果などを取りまとめたものです。ここに、本件調査にあたり、ご協力いただきました関係各位に対し深甚なる謝意を表します。

平成９年８月

国際協力事業団
理事　小澤　大二

プロジェクト位置図


SABAH &
SARAWAK
BALABAC STRAITS
SULU SEA
KOTA KINABALU
G. Kinabalu
13431
SABAH
BRUNEI DARUSSALAM
BANDAR SERI BEGAWAN
SOUTH CHINA SEA
SULAWESI
(CELEBES) SEA
シブ
クチン
KUCHING
Bandar Sri Aman
Kapit
SARAWAK
KALIMANTAN
(INDONESIA)
Scale: 1:4,000,000
GOVERNMENT COPYRIGHT RESERVED

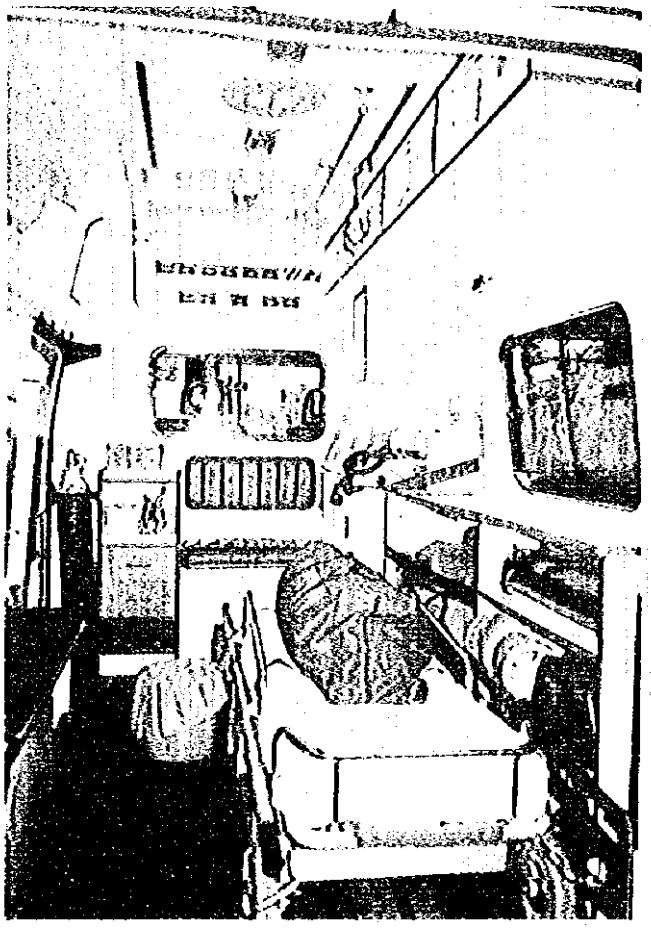


サラワク総合病院
(右の建物が救急棟)

受付およびtriage

Resuscitation Room

▲供与した救急車



▶
救急車内部。右側の上下2段の棚はスタッフの工夫によるもの

目　次

序文
プロジェクト位置図
写真
第１章　終了時評価調査の実施 …… 1
1-1　評価の経緯と目的 …… 1
1-2　調査団の構成 …… 3
1-3　調査日程 …… 4
1-4　主要面談者 …… 5

第２章　要約 …… 7

第３章　プロジェクトの成立と経緯 …… 9

第４章　プロジェクト目標・活動計画・投入計画 …… 10
4-1　プロジェクト目標、活動内容 …… 10
4-2　投入計画 …… 11

第５章　プロジェクトの計画達成度 …… 12
5-1　組織体制（ストラクチャ） …… 12
5-2　業務と技術の領域 …… 13
5-3　サラワク州の研修プログラム …… 15

第６章　評価５項目による評価 …… 17
6-1　効率 …… 17
6-2　目標達成度 …… 18
6-3　波及効果 …… 23
6-4　妥当性と意義 …… 23
6-5　自立発展性 …… 24

第７章　フォローアップの必要性 …… 27

第８章　交渉の経緯 …… 28

資料

1　合同評価報告書 …… 33
2　当初のＰＤＭ ……223
3　改訂後のＰＤＭ ……224
4　プロジェクトのパンフレット ……280

第１章　終了時評価調査の実施

1-1　評価の経緯と目的

（１）　評価の経緯

本プロジェクトは、1992年１月10日にＲ／Ｄが署名・交換され、同年８月１日から５年間の協力期間で開始された。

協力期間中、マレイシアのカウンターパート23名が日本において研修を受講した。日本からは長期専門家12名、短期専門家33名をマレイシアに派遣し技術指導を実施した。また、機材については約１億2700万円相当を供与した。

本調査は、上記のとおり進捗している本プロジェクトに関し５年間の協力実績を総括するとともに、ＪＩＣＡの定めるプロジェクト終了時評価のガイドラインに従ってプロジェクトを総合的に評価することを目的に実施したものである。

（２）　評価の方法

本評価調査は、以下の目的のために実施された。

① マレイシアが本プロジェクトの成果や教訓を今後の事業発展に活用できるように、成果および教訓を総括する。

② プロジェクト期間が終了した後に、なんらかの継続的な援助を実施することが必要かつ妥当かを判断するための資料とする。

③ 今後、同様の課題について事業を計画、実施する場合に参考となる教訓を抽出する。

なお、ＪＩＣＡの終了時評価のガイドラインで定めている評価調査項目は次のとおり。

① 計画達成度

以下の４項目について計画がどの程度実現されたかを把握する。

ⅰ）投入実績

本プロジェクトに関する受領資料・既存資料の内容を、各団員がそれぞれの担当分野ごとに、派遣専門家・カウンターパートらにインタビューすることにより確認する。

ⅱ）活動の実施状況

上記と同様に、受領資料・既存資料の内容を各団員が確認する。

ⅲ）成果の達成状況

事前に国内で設定した５段階の評価尺度および指標の妥当性をまず派遣専門家と確認したうえで、上記のⅰ）、ⅱ）で明らかになった投入実績・活動の実施状況を参考にしながら、各成果の達成度を定量評価する。

Ⅳ）プロジェクト目標の達成状況

成果の場合と同様、各団員が事前に国内で設定した５段階の評価尺度、および指標／目標値の妥当性を派遣専門家と確認したうえで、ⅲ）で明らかになった成果の達成状況を参考にしながら、プロジェクト目標の達成度を評価する。

② 評価

上記の計画達成度をもとにして、以下の５項目の評価を行う。５項目評価のために必要な情報で上記からでは不足している情報について、上原専門家がマレイシア側プロジェクト関係者、派遣専門家・カウンターパートらにインタビュー調査、質問表調査などを実施した。その結果については、上原専門家、国内評価準備チームが現在分析、取りまとめ中である。評価調査団では、必要に応じて視察調査、マレイシア側プロジェクト関係者、派遣専門家・カウンターパートらへのインタビュー調査をすることにより確認し、以下の５項目の評価を行う。

ⅰ）目標達成度

成果がどのようにプロジェクト目標に結びつき、活動がどのように成果に結びついたかを分析する。

ⅱ）効果

プロジェクト目標および上位目標のレベルでどのような当初予想されていなかった効果（正・負）が表れたかを明らかにする。

ⅲ）実施の効率性

投入成果に比べ、投入の量、質の適否を評価する。

Ⅳ）計画の妥当性

プロジェクトの全体計画が国の開発政策、受益者のニーズを反映しているか、計画自体が論理的に設定されているかを評価する。

Ⅴ）自立発展性の見通し

制度、財政、技術などの面から自立発展の見通しについて評価する。

（３） 評価のプロセス

終了時評価調査として、国内評価準備担当、予備評価調査担当、総括評価担当（終了時評価調査団）を設定し、次の手順により準備を進めた。

１月　現地で収集できる基礎情報の確認
Joint Coordinating CommitteeとＪＩＣＡの合同評価とすることの合意
ＪＩＣＡの評価方針（５項目評価）についてのマレイシア保健省との合意

2月　　国内委員会で国内評価準備担当、予備評価担当、終了時評価調査団の構成により評価を進めることを決定

4月　　予備評価担当が評価計画作成
国内評価準備担当、予備評価担当との打合せ

4月15日　予備評価調査担当現地入り
（国内評価準備担当への報告）

6月11日　予備評価調査終了
予備評価調査報告　……国内委員会
予備評価調査結果の分析および評価……国内委員会
〔特に結論、教訓、提言については国内委員会で取りまとめ、詳細については国内評価準備担当が検討、合同評価報告書案（英文、ミニッツに添付するエッセンス）の形式にまとまった段階で国内委員に検討を依頼する〕

19日　ミニッツ案（合同評価報告書案）のマレイシアへの送付

22日　終了時評価調査団、マレイシア訪問
予備調査結果内容の確認
ミニッツ案（合同評価報告書案）についての協議
ミニッツの署名、交換

29日　終了時評価調査団帰国

終了時評価調査団の業務内容は次のとおり。

① 予備評価調査内容の確認
② Joint Coordinating Committeeでのミニッツ（合同評価報告書）についての協議
③ ミニッツの署名、交換

1-2　調査団の構成

団長・総括	竹内　一夫	杏林大学学長
救急医療	前川　和彦	東京大学医学部附属病院救急部教授
救急搬送	高尾　昭夫	自治省消防庁救急救助課救急専門官兼理事官
救急医療	黒木　啓文	富士吉田市立病院整形外科医監
協力計画	牧本　小枝	国際協力事業団医療協力部医療協力第一課

なお、国内評価準備担当、予備評価調査担当は次のとおり。

（1） 国内評価準備担当

前川　和彦　東京大学医学部附属病院救急部教授（国内委員）

望月　一夫　　杏林大学医学部助教授（国内委員）

黒木　啓文　　富士吉田市立病院整形外科医監

高尾　昭夫　　自治省消防庁救急救助課救急専門官兼理事官

牧本　小枝　　国際協力事業団医療協力部医療協力第一課

（2）　予備評価調査担当

上原鳴夫専門家（国立国際医療センター国際医療協力局派遣協力課）

1-3　調査日程

日順	月　日（曜日）	行　　程
1	6月22日（日）	（竹内団長以外）東京→クチン（ＪＬ719、ＭＨ644）
2	23日（月）	午前　　医務局長、病院長表敬訪問 11：35　クチン→シブ（ＭＨ2348） シブ病院調査 17：05　シブ→クチン（ＭＨ2271）
3	24日（火）	サラワク総合病院との協議 聞き取り調査
4	25日（水）	Technical Committee （竹内団長）東京→クチン（ＳＱ997、ＭＨ644）
5	26日（木）	午前　　サラワク州政府表敬 プロジェクト引渡し式 サラワク州医務局長主催昼食会 16：45　クチン→クアラルンプール（ＭＭＨ2521）
6	27日（金）	8：00　ＥＰＵ、保健省表敬訪問 9：30　Joint Coordinaring Committee 12：00　（合同評価報告書の最終版完成）
7	28日（土）	9：30　プロジェクトについての発表 11：00　ミニッツ（合同評価報告書）署名交換 昼食会 午後　　資料整理 17：45　クアラルンプール→シンガポール（ＭＨ615）
8	29日（日）	8：15　シンガポール→東京（ＭＨ615、ＪＬ712／ＳＱ12）

1-4 主要面談者

＜マレイシア保健省＞

Dato' Dr. Megat Burhainuddin bin Megat Abd. Rahman	Deputy Director-General of Health(Medical)
Dr. Shahidah Abdul Manaff	Director, Planning & Development Division
Dr. Lee Cheow Pheng	Director, Medical Development Division
Dr. Abdul Gani Hj. Mohd Diir	Director, Medical Practices Division
Dr. Ang Kim Teng	Deputy Director, Medical Development Division
Dr. Peter Low	Proncipal Assistant Director, Planning & Development Division
Dr. Rohaizat Bin Yon	Proncipal Assistant Director, Planning & Development Division
Dr. Juhaida Daud	Assistant Director, Planning & Development Division
Dr. Fazilah Shaik Allaudin	Assistant Director, Planning & Development Division
Mr. Mohd Suib b. A. Rahman	Proncipal Assistant Secretary, International Section
En. Abd. Hamid Endin	Principal Assistant Secretary, Manpower planning and Training Division
Amtron Azmah Abu	Assistant Principal Matron, Nursing Board
Tuan Hj. Hassan Ithnin	Chief Medical Assistant, Medical Assistant Board

＜ＥＰＵ＞

Mr. K. Thillainaarajan	Principal Assistant Director, External Assistance Section
Mr. K. Kananatu	Principal Assistant Director, Social Section

＜サラワク州医務局(Sarawak Health Department)＞

Dr. Yao Sik King	Deputy Director
Dr. Lee LKhoon Siew	Senior Medical Officer
Dr. Lee Khoon Siew	Senior Medical Officer

＜サラワク総合病院（Sarawak General Hospital）＞

Dr. Liding Jonyian	Dirctor
Mr. Mohd. Hosni Abdullah	Senior Medical Assistant, Emergency Department

＜その他＞

Prof. Madya Dr. Ernest Yeoh	Consultant Surgeon, University of Malaya
Dr. Abu Hassan Asari	Head, Emergency Department, Kuala Lumpur Hospital
Dr. Ismail Ahmad	Consultant Surgeon, Tengku Ampuan Rahimah, Hospital Kelang

＜在マレイシア日本大使館＞

米田　正人	二等書記官

＜ＪＩＣＡマレイシア事務所＞

西牧　隆壮	所長
山田　好一	次長
稲垣　明子	所員

第2章　要約

マレイシア・サラワク総合病院救急医療プロジェクトの終了時評価調査を行うため、1997年4～6月に予備調査を行った。その結果を踏まえて本調査団は同年6月22日から同月29日まで、マレイシアのクアラルンプールおよびプロジェクト・サイトであるボルネオ島のサラワク州クチン市、シブ市を訪れ、マレイシア保健省、プロジェクト・サイトのカウンターパートおよびＪＩＣＡ長期・短期専門家とともにプロジェクトの進捗状況の確認調査と各事業の効果に関する評価を行った。これらの評価結果についてマレイシア保健省および合同評価調査会議において協議し、マレイシア保健省との間で合同評価報告書を議事録として署名・交換した。

プロジェクトの目的であった、サラワク総合病院救急部の組織体制、運営体制確立はおおむね成功しており、多くの人材を集中的に育成した。ことにプレホスピタルケアの部門については最もめざましい改善がみられた。しかし、当初からの課題であった責任医師（部長）の配置の安定化の問題はまだ解決されておらず、マレイシア側の努力が必要となっている。サラワク州の救急医療向上をめざす研修プログラムの形成については、9の教育コースができてすでに実績をあげており、そのうちの主要なコースについてはサラワク州の他地域への普及が図られている。ただし、講師育成（ＴＯＴ）コースを確立するには残念ながら至らなかった。地方病院や一次救急従事者のニーズを想定した教育コースは今後の課題に残されている。サラワク州に赴任する前の医師卒後研修コースへの組込みは、外科配属時に2週間実施されているだけで不十分であるが、そのかわりに義務期間終了後に救急部の研修例が増えている。診療面における救急部の役割の明確化、救急医療を技術領域として特定化することについては、試行錯誤を経ながら形が提示された。救急部の機能拡張として、災害医療管理と防災に関して救急部のイニシアティブが認知されたこと、および外傷管理に関するトレーニングの東部マレイシアの拠点としての位置づけが与えられた。

合同評価報告書に記載した結論は次のとおり。

（1）　本プロジェクトは、マレイシア政府の政策と計画に従い、サラワク総合病院救急部の基本的な体制と機能を確立した。

（2）　救急搬送チームによりプレホスピタルケアを行うという近代的な救急搬送サービスのモデルがプロジェクトで確立された。

（3）　サラワク州の病院の救急部の人材に必要な救急医療に関する基本的な知識と技術が、プロジェクトを通じて教育コースおよび教育教材として明示された。

（4）　救急医療およびプレホスピタル分野の人材が多く育成された。育成された人材は、

サラワク総合病院救急部で行う現場でのトレーニング、各種教育コースでの指導員としての活動、他の病院の救急部への技術研修指導を通じて、サラワク州全土にその知識と技術を普及していくことが期待される。

（5） 一部日本人専門家のリクルートに難しいものがあった。また語学上の問題でコミュニケーションが十分でない点もあった。新たな専門家リクルートのシステムを考慮する余地がある。シンガポールで実施した第三国研修と、サラワク州で実施した2回の全国会議は非常に有意義であった。

（6） 救急部の責任者がおかれたことは、サラワク総合病院救急部で行われる医療サービスの質を保つだけでなく、そこで働く人員のインセンティブとモラルを保つという点で、その機能強化のために重要な役割を果たした。

また、調査結果から、導いた提言は次のとおり。マレイシア側は、合同評価報告会において、調査で導かれた提言について、実現を努力する旨を表明した。

（1） マレイシア保健省の関連部局は、プロジェクトの成果であるⅰ）サラワク総合病院救急部で改編された組織体制と実施方針、ⅱ）救急医療に関する教育コースと教材、ⅲ）救急搬送チームによるプレホスピタルケアのモデル、ⅳ）プレホスピタルケア用のフォームおよびチェックリスト、について国家政策に照らし合わせて評価することが望ましい。

（2） サラワク州医務局は、プロジェクトで開発された教育教材や教育コースを州の人材育成プログラムとし、内容を改良しつつ今後の人材育成のために実施していくことが望ましい。

（3） サラワク総合病院救急部は、州内における救急医療ケアの基礎知識と技術の普及および改善にイニシアティブをとっていくことが望ましい。

（4） 保健省は、救急医療およびプレホスピタルケアの評価基準となるマレイシア国版インディケーターを作成すべきである。

（5） サラワク州医務局は、救急医療およびプレホスピタルケアの質の保証および質の改善のため、情報管理システムおよび病院での医療統計のメカニズムを制度化すべきである。

（6） 救急部にはスペシャリストが管理者として配置されるべきであり、できる限り選任の救急医療スペシャリストであることが望ましい。

なお、今後の対応としては、教育コースの改訂、あるいはコース指導者の育成コース策定などのため、マレイシア側が要請すれば日本人専門家の派遣をプロジェクトのフォローアップとして検討するよう、日本側に提言したい。

第３章　プロジェクトの成立と経緯

マレイシア・サラワク州では、近年、交通事故および木材伐採・搬出時の事故などによる救急患者が増加しているが、同州にある公立16病院のうち、救急部を設置している施設は７病院のみであり、これら公立病院に勤務している外科系の専門医の数はきわめて少なく、特に救急に携わる専門医、脳神経外科専門医は皆無の状況であること、さらに病院助手、看護婦やパラメディカルスタッフの救急医療に関する訓練も十分とはいいがたいこと、などの理由から、これまでの救急医療の質的向上を目的とし、脳神経外科、整形外科各１名の単発専門家をサラワク総合病院に派遣し、技術協力を行った。

上記単発専門家の協力実績ならびにサラワク総合病院救急部の改築・拡張がなされることが決定されたことに伴い、1989年、マレイシア政府はわが国に救急医療分野についての体系的なプロジェクト方式技術協力を要請してきた。

わが国は、この要請に基づき、1990年12月に事前調査団、1991年５月に長期調査員３名を派遣した。1992年１月に実施協議調査団を派遣し、討議議事録（Ｒ／Ｄ）にプロジェクト実施計画を取りまとめ、署名交換し、同年８月１日から５年間のプロジェクトを開始した。

プロジェクト開始以来、次の調査団を派遣してきた。

1993年６月　　計画打合せ調査
1995年１月　　巡回指導調査
1996年12月　　巡回指導調査

第４章　プロジェクト目標・活動計画・投入計画

プロジェクト開始当初に設定されたプロジェクト目標、活動内容、投入計画は次のとおりであった。

4-1　プロジェクト目標、活動内容

（1）　目的

技術移転の目的は、サラワク州における救急医療の充実を図ること。

（2）　内容

①　概略

サラワク州における救急医療を充実させるためには、救急医療制度を作りあげると同時に、コメディカルも含めた救急医療従事者の能力をさらに向上する必要がある。したがって、技術移転の内容は以下の２つに分けられる。

ⅰ）救急医療体制の整備

ⅱ）医療従事者の技術水準の向上

また、サラワク州医療におけるサラワク総合病院の役割と、マレイシアの医療行政の基本方針を考えれば、技術移転の主たる対象はサラワク総合病院となる。

②　具体的な内容

ⅰ）救急医療体制の整備

対象は州政府において救急医療体制のプランニングを行っている部局で、これらと協力し救急医療システムを作りあげる。具体的には以下にあげるようなガイドラインやレギュレーションをひとつひとつ作成していく過程が不可欠と考える。

- 病院のランクに応じた救急診療設備・機材リスト
- （ランク別）救急診療部門の運営マニュアル
- コメディカルの労務規定の再考
- 救急診療部門専属医制度の新設

ⅱ）医療従事者の技術水準の向上

- 対象はコメディカルと医師（サラワク総合病院以外の病院職員も対象とする）
- トレーニングコースの新設
- 救急診療マニュアルの作成

4-2　投入計画

（1）　専門家派遣

・リーダー兼救急医

・業務調整員

・脳神経外科医（当初２年間）

・短期専門家（整形外科医、看護婦、医療機器保守、放射線技師、検査技師、その他）

（2）　研修員受入

年間３～４名

分野：Medical Officer、看護婦、Medical Assistant、行政官、医療機器保守、
その他

第５章　プロジェクトの計画達成度

組織体制、運営体制の確立にはおおむね成功している。しかし、当初からの課題であった責任医師（部長）の安定化の問題はまだ解決されていない。サラワク州の救急医療向上をめざす研修プログラムの形成については、９近い教育コースができて、すでに実績をあげており、そのうちの主要なコースについてはサラワク州への普及が図られている。ただしＴＯＴ（講師育成）コースを確立するには至らなかった。地方病院や一次救急従事者のニーズを想定した教育コースは今後の課題に残されている。サラワク州に赴任する前の卒後研修コースへの組込みは、外科配属時に２週間実施されているだけで、不十分であるが、そのかわりに義務期間終了後に救急部を研修する例が増えた。診療面における救急部の役割の明確化、救急医療を技術領域として特定化すること、については、試行錯誤を経ながら、ある形が提示されたという段階であり、確立したとはまだいえない。救急部の機能拡張として、災害医療管理と防災に関して救急部のイニシアティブが認知されたこと、および外傷管理に関する東部マレイシアの研修センターとしての位置づけが与えられた。今はまだ正式に認知されていないが、今後研修業務が部の業務として正式に位置づけられることになると思われる。

5-1　組織体制（ストラクチャ）

＝組織体制の変化／運営方針・運営手順類ができた。

＝それが認知され、支持されている。

１－組織体制、運営方針に関する文書の種類と存在確認（Documentation）

＊救急部としての体制の形が整った。

資料１．新しい組織体制＝旧体制との比較：構造

資料２．運営方針＝役割規定

資料３．新しく作られた各種書式

２－役割の支持比率

＊調査上おおむね支持しているものの、瀕死患者の扱いや診療の範囲について他の診療科との間に意見の相違が残っている。

資料４．病院主要関係者の意識調査：Ａ＆Ｅの役割期待と新体制に対する適正度判定

：プロジェクト成果に関する関係者の認識

３－組織体制の支持比率（病院主要関係者）

＊調査上おおむね支持しているものの、専門医部長の体制の持続性には大いに疑

問が呈されており、実際にすでに辞表が提出されている。

4－運営手順、職務規定、業務手順の実施認識比率（A＆Eスタッフ）

＊意識調査上は順守度は約2／3

資料5．A＆E意識調査：順守度合い

5－スタッフの人数と勤務期間

＊（1） MOの数は1992年の7名から1997年には9名に増えた。

（2） 医務局の措置によりMOを1年間配属できるようになった。

（3） しかし、平均在勤期間は10カ月で、1993年以来延べ46名が出入りしている。うち、2年以上の在勤者は5名。これに対して看護婦は1993年以来転出したのは1名のみで、平均在勤期間は新人2名を加えても40カ月（3年4カ月）と長い。

MAのデータが得られなかったが、MAも同様に長い在勤期間を保っている。

（4） MA、看護婦、MOの増員により職員数は、実質13名増えて66名となっている。

資料6．1993年以降の職員勤務年数一覧

資料7．1992年と1997年の職員数の比較

＝新しい役割；災害と研修

6－研修実施機関

＊1995年に、外傷研修センターとして中央保健省から認定された。

＊1995年からMAに対する救急医療再研修コースの実習施設として機能している。

＊1993年から英国医学会による専門医資格取得のための実習認定対象施設とされた。

＊1995年にマラヤ大学サラワク分校ができて以来、臨床実習の場を提供している。

7－地域災害計画の担当機関

＊1996年にマルチセクトラルな地域災害対策小委員会が結成され、災害医療部門を担当することになった。

5-2 業務と技術の領域

＝時間外診療や各科の細切れ診療からの離脱、専門的技術としての認知

＝救急技術マニュアル、EMTマニュアルの確立

1－救急診療マニュアルとEMTマニュアルの存在確認

＊プロジェクト早期に、各科診療部長の協力で診療指針を作成した形跡があるが、

実際には参照されておらず、各医師の方針にまかされている。ただし、ＭＡについては、教育課程が同じでテキストも同じなため、事実上標準化されているとのこと。看護技術（処置等）については、医務局の作成したチェックリストがあるが、あまり実用化されておらず、現在救急部用のものを試作中である。ドライバーについては、プロジェクトで作成された点検チェックリストが実用化されている。

2－救急部で新しくやるようになったこと

＊（1） 広義の蘇生治療

（2） 緊急検査の実施

（3） レントゲン、ＣＴ撮影の救急部での実施

（4） 救急車チームによる広義の蘇生治療や一次処置の実施

（5） 調査音波検査

（6） 人工呼吸器の使用

（7） 救急看護

（8） トリアージュの導入

（9） 心電図検査

(10) 災害救援活動の準備体制

＊救急内視鏡検査は導入が図られたが、定着しなかった。

救急部での緊急手術も、人的配置などの困難のため定着しなかった。

心筋梗塞に対する線溶療法の開始が決定されたが、一般化しなかったようである。

3－救急部固有の技術領域の特定＝スタッフや実習

＊（1） ＩＣＵやＯＴへのローテーションをプログラム化した。

（2） 外傷管理技術

（3） 基本的な蘇生術の標準の確立

（4） 災害対応

＊重度熱傷、中毒、Epidemicなどの救急医療としての固有の領域は十分には形成できず。

4－ＨＯのローテーション年間人数＝病棟との連携（病棟医師のリスポンス）

＊外科配属時に２週間のローテーションが行われているのみで、必修化はできなかった。ただし、英国医学会による実技実習認定対象施設となったことで、初期研修のあとで短期間ローテーションで配属される例が増えたようである。

5－病棟医の参加（呼出し呼応）

＊調査上は、救急部と病棟側の認識の間に多少の相違が認められるものの、各科の対応がある程度よくなったとするものが大半を占める。短期間の実態調査では、16回の呼出しのうち、７名が10分以内に来室し、３名がとうとう来なかった。

資料８．救急部と病棟の意識比較：病棟医師の反応について

資料９．サンプル調査：病棟医師の反応時間

6－病院災害計画の存在確認

＊病院災害計画の改訂が一度なされている。

7－救急医学専門医の認定

＊救急医学専門医認定のためのガゼットか準備されているが、まだ認定されていない。

8－ＥＭＴの認知

＊1994年のマラッカ会議でＥＭＴの役割と呼称が認知されたが、まだ資格制度は導入されていない。

5-3　サラワク州の研修プログラム

＝サラワク州の救急医療ニーズに即した能力向上のための研修機会の形成

＝ハンドオーバーされたコースの数

1－ハンドオーバーされたコースと教材の数

＊（1）　ＥＭＳ／ＥＭＴコース

（2）　ファーストエイドコース

（3）　ＢＴＭコース

（4）　ＡＴＭコース

（5）　ＥＣＧ基本コース

（6）　ＥＣＧ中級コース

（7）　人工呼吸器コース

（8）　医療機器管理コース

（9）　手術室看護コース

資料10.　教育コースの種類とその教材

2－講師の数

＊講師育成コースや講師認定の体制はない。

3－講師用の教材の数

＊講師用教材は作成されていない。

第６章　評価５項目による評価

6-1　効率

〈要約〉

プロジェクト計画上は、第三国研修の実施、２回の全国カンファレンスの主宰、ＭＯが不安定なため主たる対象をＭＡとナースにしたこと、が効果的であった。実施上は、初期の積極的なオンザ・ジョブ・トレーニング（ＯＪＴ）、インテンシブなインプット、教育コースの形成過程でコース評価や前後試験によるモニタリングを実施したこと、４年次に目的意識的にコースのハンドオーバーを行ったこと、などが有効であった。日本研修は、効率上問題が多く、派遣の達成目標を明確にすること、ＯＪＴ目的の受入に困難があればむしろ短期でより多くのカウンターパートを派遣したほうが効率的であった。短期専門家派遣も十分効率的とはいえないが、これも派遣の具体的任務の明確化が不十分であったためと思われる。機材供与については、量と機材ニーズに関して、結果的にあまり適正といえないものがあるが、試行錯誤の一環と理解した。むしろ、供与対象部署、施設の点で（ＳＧＨの、それも救急部だけに集中した傾向が強い）効率性がやや乏しかったと思われる。

（１）　インプット

１－投入した金額（マレイシア側と日本側）

＊専門家派遣に関する費用が多く、効率に疑問がある。

＊マレイシア側は適切な投入を行った。

資料11．プロジェクト投入金額

（２）　ＪＩＣＡのインプット

１－専門家派遣

＊プロジェクトの効率がリーダーの資質に依存したとする意見がある。
専門家の任務、達成目標に関する派遣前の説明が十分でなかった。
講義もそれぞれ有用であったが、もっとＯＪＴがあってよかったのではないか。

＊アンケート調査では、目標達成度は64～67%、期間認識は、長すぎたとする人はおらず、長期では61%がちょうどよかった、短期では57%が短かった、と回答した。

資料12．派遣専門家の人・月数

資料13．専門家アンケート調査：達成度、期間認識

2－日本研修

＊言葉の問題が大きかったようであるが、それだけでなく、受入施設の準備不足が多く指摘されている。効率、有用性の評価は、ともに70%弱。

研修の達成目標が明確になっていなかったことも指摘か多い。

日本の実態を視察することで目標が得られた点に意義があるが、もっと技術的な研修機会を望む声が多く、研修期間に比べて効率は低かったとする声が多い。

特に医師の評価が低く、救急隊の見学や配属はおおむね好評である。

実態視察という目的が主であれば、長期に少人数を派遣するよりも短期で多人数を派遣したほうが効率的である。

資料14. 日本での研修経験のあるカウンターパートのアンケート調査３-第三国研修ほか

＊日本への派遣を行った医師で現在救急部に勤務している者はいない。

＊シンガポールでＡＴＬＳ受講はコースづくりに有用であった。またシンガポールでの第三国研修は、効率の点で日本研修よりも有効であったと思われる。

資料15. 第三国研修経験者のアンケート調査

3－機材の使用頻度と有用性の認識

＊試行錯誤を必要とした過程で導入された機材に未使用のものが多い。

救急部に機材を集中しすぎたことで、病院としての救急医療体制づくりが弱くなった。

救急車を含め、機材の投入量はやや過剰と思われる。

資料16. 供与機材の使用状況に関する調査

（1） マレイシア側、日本側で対応できなかったこと

＝Ｒ／Ｄとアサンプション

1－計画したことで、対応できなかったこと。

＊責任医師の確保が不安定なままである。

＊救急部ローテーションの必修化。

6-2 目標達成度

＜要約＞

パフォーマンス上は、Ａ＆Ｅ、救急車搬送、ＥＭＴ業務のいずれも、明らかに向上している。質については、ストラクチャの面でＱＡ／ＱＩプログラムができていないこと、技術標準（診療基準）ができていないこと、モニタリングのための統計管理体制（ＭＩＳ）

が（救急車関係以外は）まだできていないこと、を除けば、マレイシアでも屈指のストラクチャ形成ができているといえる。プロセスに関する同僚評価の結果は良好であった。アウトカムに関してはＭＩＳの不備のために指標化できる材料が得られなかった。しかし散発的なサンプルデータから類推する限り、一次処置（Stabilitation）のアウトカムは改善していると考えられた。サラワク州の救急医療向上のための人材育成に関しては、プロジェクトのなかで実施されたコースと、その効果のひとつと考えられるＭＡの救急医療再研修コースの受講者が増えており、これが発展的に継続されるならば、その効果が徐々に現れるものと期待される。特にシブ病院で同様のコースが実施できるようになったことの意義が大きい。

（1） 目標は一貫していたか

1－ＴＣにおける目標の理解度と認識不一致の有無

＊病院における活動、投入の範囲と、サラワク州に対する取組みの位置づけに関してはＪＩＣＡ本部とＴＣの間で見解と意思の相違があった。

＊救急部のイメージと運営形態について、関係者の間に相違が認められた。

2－目標に関する討議項目および変更

資料17. ＴＣ会議記録の要約

（2） ＳＧＨ救急部の診療レベルの向上

＝質

＝プロセスとアウトカム

＝ストラクチャ

1－組織体制に関するマレイシア評価基準との比較

＊カダール氏に依頼するも実現せず。

2－記録・統計の整備度

＊プロジェクトで新しい記録書式が作成された。

＊プレホスピタルケアの記録と統計管理は継続されているが、診療に関するデータ管理は定着しなかった。

＊統計管理体制づくりに対する取組みがなかった。

資料18. 新しい記録書式の一覧

資料19. 台帳記録制度の変化

＝パフォーマンス：利用度、受診患者構成など

3－カテゴリー別利用患者数の変化

＊受診患者数は1991年の４万4000人から1996年の５万9000人へと増えた（35%増）。ただし、記録が正しければ、1994年から喘息などの再受診患者が増え

ている(受診患者の５％)。また、受診患者に占める非救急患者の比率が増している。トリアージュカテゴリーを比較した正確なデータはないが、サンプル調査による試算では、真の救急患者が７～11%、中等度が60～43%、非救急患者が34～45%となっている。

＊ＤＯＡ（ここでＢＩＤ）と搬入後死亡（ＤＩＣ）をあわせた数は公式な記録は1994年までしかないが、１カ月データでの推計を利用すると1995年から増加しており、1996年は210人と推算される。

＊1996年のサンプルデータによれば、救急部を経由する入院患者の比率は35%で、これは救急部受診患者総数に対する30%に相当する。

資料20. 救急部受診患者数の推移

資料21. 受診患者調査（1995、1997年）

4 --受診疾患の分類の推移

＊統計記録がＩＣＤしかなく、具体的な疾患分類は得られなかった。

資料22. 受診患者調査（1994、1995、1997年）

5 －キャッチメント・エリアの推移

資料21. 受診患者調査（1994、1995、1997年）

6 －他の病院からの紹介受入数の推移

資料21. 受診患者調査（1994、1995、1997年）

7 －蘇生室、観察室、喘息治療室の取り扱い疾患

資料22. 蘇生室、観察室、喘息治療室のサンプル調査

＝クオリティ

8 －入院24（48）時間以内死亡患者数

＊データが得られなかった。

9 －蘇生室患者に対する処置

資料22. 蘇生室のサンプル調査

10--同僚評価

＊マラヤ大学ヨー医師の同僚評価。

＊チェックリストによる手技評価。

＊職員アンケート調査による同僚評価では、おおむね良好である。

資料23. Ａ＆Ｅ、病棟主要関係者意識調査

11－観察室から帰宅した患者の比率の推移

資料24. 蘇生室、観察室、喘息治療室の診療転帰

12－救急手術増加

＊増加が著しいが、信頼性に乏しいと考えられた。

13－トレーサー疾患の予後

＊診療記録が不備のため期間内では調査できなかった。

（3） プレホスピタル・ケア

＝機能と質

＝ストラクチャ

1－人員、機材の充足度

＊現在の出動回数に対しては十分と思われる。

2－記録・統計の整備度

＊記録状況は良好

＝パフォーマンス

3－出動活動の状況

時間帯別出動回数の推移、地域別出動回数の推移、下位施設、他の病院、その他からの搬送件数と内訳、ほか。

資料25. ＥＭＴ活動の比較（1994、1995、1996年）

＝クオリティ

4－リアクティブタイム、地域別現地到着時間、現地活動時間、全経過時間の推移

＊救急車出動要請回数は増加し（１日当たり2.2回から5.8回へ）、出動までの時間は確実に短縮している（約６分から約１分へ）。年間回数は、1995年が1753回、1996年が2130回である。

＊往復に要する時間も短縮傾向にあるが、全経過時間は、1992年よりも長い場合がある（特に第２地帯＝３～７kmの範囲）。現場活動時間は全般に長くなっており、これは現場で以前よりも多くの処置が行われるようになったからと考えられる。

資料26. サンプルデータによる経過時間比較

資料27. 処置件数

5－蘇生成功率、蘇生患者の１週間生存率

＊正確な率は不明であるが、ＣＰＲを行ったものの50例が死亡し、８例が現場蘇生に成功したとの数字が残されている。

＝下位からの紹介、ＫＤなどの救急トリアージュ

6－下位からの紹介件数

（4） サラワクの救急医療人材の育成

＝有用性

＝コースの対象となった病院と施設の数

1－コース受講者数

＊プロジェクトで実施されたコースに、1507名の医療関係者が参加した。

資料28. 教育コース一覧

＊コースを受講したＭＡのうち氏名がわかっている126名の追跡調査を試みたが、現在の勤務地の判明している人は61名で、うち29名（48%）がＳＧＨ以外のサラワク州内で勤務していた。

2－ＳＧＨの救急部で受講した人

＊救急部職員回答者32名中27名（84%）が、常時習ったことを活用している、と回答した。

資料29. 救急部職員アンケート調査

3－県・郡病院の救急部でコースを受けた人がいる施設と有用性

＊20施設中15施設の回答で、173名の職員中45名（26%）が、救急医療に関係するなんらかのコースを受講していたが、うち30名（17%）は、プロジェクトのコースと考えられた。有用性に対する受講者の評価は90%前後と高い。しかし、研修の主力は政府研修局が行っているＭＡ再研修コースである。シブ病院はＳＧＨと並んで高い研修受講率を示しており、シブ（およびミリ）を地域中核研修センターとする構想の実現に一歩近づいている。

資料30. 県・郡病院救急部アンケート調査

（5） 残された課題

① ＱＡ／ＱＩプログラムの確立とこれに連動した情報統計システムの確立

② 病棟との連携・フィードバックの緊密化

③ クチン市の通信搬送システムの統合化

④ サラワク州救急担当者の教育ニーズの把握とこれに合わせたコースの形成

資料31. 県・郡病院救急部アンケート調査

⑤ より末端の一次救急医療担当者に対する地域単位教育研修コースの形成と体制づくり

⑥ 研修コースの政府認定と講師の育成、および講師の認定

6-3　波及効果

＜要約＞

プロジェクトが開始された時期はちょうどマレイシアが救急医療に関する政策を検討しはじめた時期であったため、カンファレンスの開催や政策顧問のプロジェクトへの関与を通じて、無形の波及効果が相当あったものと考えられた。具体化された波及効果としては、サラワク州におけるＭＡの救急医療再研修コースの開始、クチン市の災害対策小委員会の確立、マラヤ大学サラワク分校医学部の救急臨床実習開始、などがあげられる。

地域住民の救急医療ニーズへの効果判断は事後評価調査を待たなければならないが、関連データから、救急医療へのアクセスが改善した類推できた。瀕死患者の入院が増えたことから、病棟診療に対する波及効果はアンビバレンツであった。

（1）　予期した、あるいは予期しないインパクト

1－病院、サラワク、マレイシア

①　マラッカ会議

②　ＭＴＬＳコースの形成

③　クチン市災害委員会の結成

④　ＭＡ再教育コースのクチンでの実施

2－病棟への波及効果

資料32. 病棟主要関係者のアンケート調査

（2）　プロジェクトの被益対象への効果

1－市民の認知度

＊新しい救急医療体制の認知度は12%と低いが、１割弱は家族のだれかが過去２年間に救急部を利用しており、41%が救急車の呼出し方を理解していた。

資料33. 電話インタビュー調査

2－病院外死亡数の変化

資料34. 死亡場所の統計およびインタビュー調査

3－患者の満足度

資料35. 患者満足度調査

6-4　妥当性と意義

＜要約＞

救急医療はマレイシアの医療者の間ではまだ高い優先度が与えられていないが、その必要性に対する意識はしだいに高まってきており、マラッカ会議や、カナダに依頼した政策立案のための基礎調査などの取組みを通じて政府の関心の高まりがみてとれる。サラワク

州においても交通外傷が増加しており、受診患者数からみても住民の需要は大きい。その意味で、プロジェクト課題は、きわめてタイムリーなものであったし、その必要性は開始時よりもより強く認識されるようになってきたと感じられる。

サラワク州は、2年前からサラワク州の救急医療改善のためのプロジェクトを組み、県・郡病院の救急体制の充実と研修コースの普及を促進するようになった。

（1） プロジェクト目標の重要性

1－地域ニーズにおける優先度

＊事故外傷、車両登録台数の増加

資料36. サラワク州の交通事故件数と登録車両台数

＊公共として唯一の時間外診療施設

2－マレイシアとサラワクの救急医療開発計画との整合性

3－受益者比率（受診患者の所得別、職業別構成）

（2） 日本の援助にとっての意義

1－国別援助方針との整合性

（3） 計画、戦略、指標、仮定の妥当性

1－MAの育成

資料37. サラワク州の医師数

2－アサンプションのうち、実現したものとしなかったもの。

指標のうち、モニタリングされていたものといなかったもの。

計画のうち、実現したものとしなかったもの。

6-5 自立発展性

＜要約＞

マレイシア側が現地事業費の多くを支出しており、医療機器以外については、財政面での援助に対する依存性はない。政策面では、サラワク医務局のコミットメントは十分あるが、プロジェクト成果の中央政策へのフィードバックがやや不十分だったようで、保健省関係部局での認知を追求する必要がある（政府による教育コースの認知やMA再研修コースへの取込みを通じての予算化措置、SGH方式EMTに対する公式評価、など）。

技術面では、医師の指導者の継続性が一番の課題である。MAとナースについては、現在のスタッフがいる間は現在のレベルが維持できると思われるが、みずから発展的に向上させていく（QI）ための手法やメカニズムは形成されていない。このため、人事異動でこれらの人材が出ていくと、成果の維持が困難となろう。医師の固定が困難である以上、病院としての救急医療運営体制（救急部運営委員会など）の確立、研修教材の管理やコー

ス見直し・改善を進めるメカニズムとしての病院研修委員会の設置、ＴＯＴコースの形成、などが必要と思われる。

（1） 成果のうち継続すべきもの、見直しが必要なもの

1－政策・計画に受け入れられるものと受け入れられないもの

＊ＥＭＴについて、民営化方針が示されており、ＳＧＨを基地にした活動から民間ベースでの活動に移行する可能性がある。

2－研修コース

＊研修コースの一部統合化や、現場からのフィードバックを受けての改善が求められることになる。

（2） 推測される影響因子と対策

1－病院民営化と病院財政

＊救急部診療の有料化は、金額が適切であれば、むしろ非救急患者の負担軽減に有効。

＊財政圧迫は吸収できると思われるが、研修コースの実施のための予算を確保する必要がある。

2－人材異動

＊プロジェクトでトレーニングされている人材が配置換えや退職するに従って、現在の機能を維持するのが困難となるだろう。

＊現在の救急部長は、3年の公共セクター義務期間を終えたので、辞表を提出している。これに代わる人材の確保は容易でない。

3－コース実施予算が付いているコースの数

4－ＭＳＩＳＯ

＊適切な指標が提示されれば、自立発展性の強化につながる。

（3） 中央政府とサラワク政府による政策支援

1－救急医療に関する予算

＊2年前からダサ・パルー予算をサラワク州の救急医療改善に配分するようになった。

＊英国の支援で県・郡病院の改築が進められており、救急部の強化が期待できる。

2－本プロジェクトへの言及

（4） 課題

1－ＱＡ／ＱＩプログラムの形成

2－継続的な指導・向上のできる体制（人、図書、情報）

3－モニタリングの指標と体制（指標と担当者）

4－講師の育成（ＴＯＴ）

5－病院の救急医療委員会の形成

6－研修委員会の形成

7－ＭＡ再教育コースへの統合

8－インセンティブの付与

第7章　フォローアップの必要性

評価結果にあるように、プロジェクト目標はほぼ達成されており、予定どおり協力期間を終了してよいものと思われる。フォローアップとしては、教育コースの改訂、あるいはコース指導者の育成コース策定などのための日本人専門家の派遣が望ましい。

第８章　交渉の経緯

［ジョイントコーディネーティングコミッティー（ＪＣＣ）］（６月27日午前）

リーディング・サラワサク総合病院長からプロジェクトの活動内容について、ジョイントコーディネーティングコミッティーのメンバーに対して報告を行った後、プロジェクトの評価について双方で協議した。

ＪＩＣＡが病院評価の指標を持っていたら利用させてほしいとの申入れがあったが、ないことを回答。

病院のコンピューター化について、プロジェクト期間中に完成できなかったのはなぜか。マレイシアでは病院をフルコンピューター化しようと動いているので聞いておきたい。

コンピューター化には入力のためのマンパワーが必要になる。病院全体のアグリーメントが不可欠だが救急部のみに行ったため必要性が十分に認識されなかった。

プロジェクトで開発した各種フォーマットは評価に値する。クオリティー・アシュアランス・ナショナルコミッティーで紹介することとしたい。

［署名式］（６月２８日午前）

＜Director General＞

サラワクでの救急医療プロジェクトの経験は、マレイシア全体にとって役立つものと考える。病院サービスについてのクオリティー・アシュアランス・プログラムはあるが、国として正式に承認されたインディケーターはまだない。いくつかの病院で独自に行っている状況である。クオリティー・アシュアランス・ナショナルコミッティーで取り上げたい。

＜研修課＞

救急に関するベーシックトレーニングは３種類、各６カ月間行っている。ＪＩＣＡに継続して協力を行ってほしい。

＜ＥＰＵ＞

保健省から正式に要請があれば、在マレイシア日本大使館およびＪＩＣＡマレイシア事務所と相談する。

＜Dr. Yoeh＞

プロジェクトで作成された教材は非常にいいものである。もう一度、内容を精査したうえで、制度化することが望ましい。

<Director General>

合同評価報告書の提言についてコメントしたい。

(1)について：関係各課でタスクフォースを組み、教育コースの制度化に取り組もう。

(2)について：研修課と連携しよう。

(3)について：トレーニングコースには追加的な予算が必要になる。

(4)(5)について：クオリティー・アシュアランス・ナショナルコミッティーで取り上げたい。

(6)について：難しい。

(7)について：トレーニングプログラム、情報システムは重要である。

資　　料

MINUTES OF MEETINGS BETWEEN THE JAPANESE EVALUATION TEAM AND THE PLANNING AND DEVELOPMENT DIVISION, MINISTRY OF HEALTH MALAYSIA, ON THE PROJECT FOR UPGRADING OF THE EMERGENCY CARE SERVICES IN SARAWAK

28TH. JUNE 1997

KUALA LUMPUR
MALAYSIA

MINUTES OF MEETINGS
BETWEEN THE JAPANESE EVALUATION TEAM AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF MALAYSIA ON JAPANESE TECHNICAL COOPERATION FOR THE PROJECT FOR UPGRADING ACCIDENT & EMERGENCY CARE SERVICE AT SARAWAK

The Japanese Evaluation Team organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Dr. Kazuo Takeuchi, President of Kyorin University, visited Malaysia from June 22 to June 28, 1997, for the purpose of evaluating the Project for Upgrading of Accident & Emergency Care in Sarawak (hereinafter referred to as "the Project").

After the evaluation of the Project, the Japanese team discussed with the related authorities of the Government of Malaysia over the matters concerning the achievement of the Project.

As a result of the discussions, both sides mutually agreed with the matters referred to in the documents attached hereto.

Kuala Lumpur, June 28, 1997

Kazuo Takeuchi

Prof. Dr. Kazuo Takeuchi,
K.M.N. (Hon.), P.B.S. (Hon.)
Leader
Japanese Evaluation Team
Japan International Cooperation Agency
Japan

Shahidah Abdul Manaff

Dr. Shahidah Abdul Manaff,
L.R.C.P. & S.I (Ireland),
M.Sc.(CommunityMedicine),(U.K.)
Director of Planning & Development Division,
Ministry of Health
Malaysia

THE ATTACHED DOCUMENTS

Both sides had a series of discussions and agreed with the attached Joint Evaluation Report.

JOINT EVALUATION REPORT
ON
THE PROJECT
FOR
UPGRADING ACCIDENT AND EMERGENCY CARE SERVICES
AT SARAWAK

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

JOINT COORDINATING COMMITTEE

June 28, 1997

Kuala Lumpur, Malaysia

Appendix

Appendix	1	PDM (Project Design Matrix)
Appendix	2	Cooperation plan
Appendix	3	Evaluation questions
Appendix	4	Surveys conducted for evaluation
Appendix	5	Matrix for activities and Achievement
Appendix	6	Chronology of the project
Appendix	7	A list of Japanese experts dispatched
Appendix	8	Oversea counterpart training
Appendix	9	A list of donated equipments
Appendix	10	Organization chart of ED/SGH
Appendix	11	Layout of ED/SGH and patient flow
Appendix	12	New forms and check list developed
Appendix	13	Training courses / teaching materials developed
Appendix	14	Monetary inputs of JICA and Malaysian side

Reference

1. Operational policies of ED/SGH
2. Personnel at ED/SGH
3. Questionnaire survey to ED staff and ward staff
4. Questionnaire survey to JICA experts
5. Questionnaire survey to oversea C/P training
6. Survey on utilization of provided equipment
7. Profile of pre-hospital care and ambulance services
8. Analysis of the results of the survey on patient satisfaction
9. Peer review report of Dr. Ernest Yeoh, University of Malaya.
10. Questionnaire survey on human resource development on A/E in Sarawak
11. BID / DIC, mortality in ICU, & emergency surgery
12. Sample survey for on trend of out-of-hospital death and in-hospital death

GLOSSARY

A&E	Accident and Emergency
AMI	Acute Myocardial Infarction
ATLS	Advanced Trauma Life Support
ATM	Advanced Trauma Management
BTM	Basic Trauma Management
CCU	Coronary Care Unit
C/P	Counterpart
CPR	Cardio-pulmonary Resuscitation
CT	Computed Tomography
ECG	Electrocardiogram
ED	Emergency Department
EMS	Emergency Medical Services
EMT	Emergency Medical Team
FBC	Full Blood Count
FRCS	Fellow of Royal College of Surgeons
G.P.	General Practice Clinic
ICU	Intensive Care Unit
IV	Intravenous
JICA	Japan International Cooperation Agency
KL	Kuala Lumpur
MA	Medical Assistant
MASTEM	Malaysian Society for Traumatology and Emergency Medicine
MO	Medical Officer
MOH	Ministry of Health
MRCP	Member of Royal College of Physicians
MSISO	Malaysian International Standard Organisation
ODA	Oversea Development Assistance
OJT	On the Job Training
OPD	Outpatient Department
OT	Operating Theatre
PDM	Project Design Matrix
QA	Quality Assurance
QI	Quality Indicator
R/D	Record of Discussions
RM	Ringgit
SGH	Sarawak General Hospital
TOT	Training Courses for Trainers/Instructors
UK	United Kingdom
WID	Women In Development

CONTENTS

I. INTRODUCTION

1. Objectives of evaluation
2. Profile of the Project
3. Design and methods of the evaluation

II. ACHIEVEMENTS

1. Inputs, activities and outputs
2. Specific objectives
3. Project purpose
4. Prospect of achievement of overall goal

III. RESULTS OF THE EVALUATION

1. Efficiency
2. Effectiveness
3. Impact
4. Relevance
5. Sustainability
6. Overall assessment

IV. CONCLUSIONS

1. General conclusions and lessons learned
2. Recommendations

I. INTRODUCTION

1. Objectives of evaluation

Project evaluation at its completion is aimed to analyze the situation of project implementation comprehensively from various aspects. Evaluation was conducted for the following purposes:

(1) To review the progress of the Project and to summarize lessons / recommendations for further development of emergency medical services in Sarawak

(2) To draw lessons which are helpful for planning and implementing of future projects on similar subjects

(3) To provide information and material for decision-making on whether any further cooperation activities should follow the Project.

2. Profile of the Project

(1) Brief background of the Project

With the increase in the population and the rapid development in the industrial sector, the number of the injured in logging and vehicle accidents increased in Sarawak in the face of the transportation and communication problems resulting mainly from reasons of geography. In addition, manpower and equipment for emergency medical care services were limited. In 1990, to improve the situation, the Malaysian Government submitted an official request for technical cooperation to upgrade the accident and emergency care service in Sarawak, to the Japanese Government on behalf of the Sarawak Health Department. The Japanese Government responded by dispatching the Preliminary Survey Team in 1990 and the specialists for supplementary study in 1991 to Sarawak. The Record of Discussions (hereinafter referred to as "the R/D") was signed on the January 10, 1992 between the Leader of the JICA Implementation Survey Team, Director, Planning and Development Division, the Ministry of Health, and Director of Health, Sarawak. The Project was initiated from August 1, 1992.

(2) Master plan of the Project

According to the R/D, the Master Plan of the Project was designed as follows:

1) Purpose of the Project

Improvement of pre-hospital care and development of human resources, as well as upgrading accident and emergency care (A/E Care) service at the Sarawak

General Hospital, especially at its Emergency Department in line with the national plan for improvement of accident and emergency care services.

2) Specific Objectives (Expected Output)

(i) Enhancement of the functions and the scheme of the Emergency Department

(ii) Development of A&E care as a specialty

(iii) Development of training programs for A&E care in Sarawak

NOTE: In April, 1995, the Malaysian Government decided to revise the name of Accident & Emergency Department to Emergency Department. For that reason, the department will be abbreviated as ED (Emergency Department) in the report.

The Project Design Matrix (**Appendix 1**) and the Cooperation Plan (**Appendix 2**) were identified in the Project. Indicators to evaluate the achievement of inputs, specific objectives and project purposes are shown in the Project Design Matrix. Strategies and necessary activities to realize specific objectives were identified as a set of plan in the Cooperation Plan.

3. Design and methods of the evaluation

(1) Evaluation body

Evaluation is made by the Joint Coordinating Committee of the Project and JICA.

(2) Scope of evaluation

The evaluation study is conducted in accordance with the evaluation guideline of JICA. The scope of evaluation refers to that as described in the Project Design Matrix (Logical Framework of the Project) as well as to the Project from 1992 till the date of its completion, July 31, 1997 (actually until the date of the evaluation study: May, 1997).

(3) Key issues of concern

The following aspects of the Project are the key issues to be evaluated; 1) Efficiency, 2) Effectiveness, 3) Impact, 4) Relevance, 5) Sustainability. Evaluation questions for the five key issues were set up as listed in **Appendix 3.**

(4) Evaluation methods

1) Analyses of secondary data/information such as reports/documents on activities and achievements of the Project, hospital documents, government reports on health statistics and health services in Sarawak and Malaysia, results of

questionnaire survey on pre-hospital care and patient satisfaction and others.

2) Analyses of primary data/information collected by interviews with key informants, focus group discussions, records, reviews, and by observation.

3) Questionnaire surveys
Surveys conducted for evaluation are listed in **Appendix 4.**

(5) Evaluation team

The evaluation team of JICA carried out three main tasks; (i) planning of the evaluation study, (ii) preliminary study for evaluation, (iii) final joint evaluation process, with conclusions and recommendations, in collaboration with the Joint Coordinating Committee.

Members of the evaluation team are the following:

Prof. Kazuo Takeuchi, President, Kyorin University
(Leader of the Evaluation Team)
Prof. Kazuhiko Maekawa, Professor, University of Tokyo
(in charge of management of evaluation study)
Dr. Naruo Uehara, International Medical Center of Japan
(in charge of design and conduct of preliminary study)
Dr. Kazuo Mochizuki, Associate Professor, Kyorin University
Dr. Hirofumi Kurogi, Fuji-Yoshida Municipal Hospital
Mr. Akio Takao, Ministry of Home Affairs
Ms. Saeda Makimoto, Department of Medical Cooperation, JICA

(6) Schedule of evaluation

A preliminary study for evaluation was conducted from April to June, 1997. The JICA final Evaluation Team visited Malaysia to finalize the evaluation in June, 1997.

II. ACHIEVEMENTS

1. Inputs, activities and outputs

The summary of the activities and achievements of the Project according to the specific objectives are shown in the appended matrix (**APPENDIX 5**). The process of planning and monitoring, activities for the strategies, inputs and related events are shown in the Chronology of the Project (**APPENDIX 6**).
Achievements of inputs by both sides are as follows:

(1) The Japanese side

1) Dispatch of Japanese experts
Twelve (12) long-term experts, team leaders, coordinators, nurses, a medical engineer, have been dispatched. Total of thirty-three (33) short-term experts have been dispatched. Details of Japanese experts are shown in **APPENDIX 7**.

2) Training of the Malaysian counterpart personnel in Japan and Singapore
The Japanese Government have hosted twenty-three counterpart personnel. One more counterpart personnel will be received during the Japanese fiscal year 1997. In additional, two counterpart personnel were trained in the Singapore General Hospital for the purpose of enhancing the knowledge of basic principles and techniques of A&E services. The lists of training of counterpart personnel in Japan and Singapore are shown in **APPENDIX 8**. All these staff gained valuable experience and technical expertise from this counterpart training program.

3) Provision of machinery and equipment
Equipment and ambulances were provided mainly for ED (142 items of 110 types), and also for OT, ICU and divisional hospitals in Sarawak. The total value is approximately one hundred twenty-seven million Japanese yen. The equipment provided is listed in **APPENDIX 9**.

4) Exchange programs
Malaysian counterpart personnel and Japanese experts visited Egypt and Indonesia under the exchange programs. Two exchange program teams from Thailand and Indonesia visited SGH (Sarawak General Hospital).

(2) The Malaysian side

1) Allocation of local costs

The Malaysian side has allocated the necessary funds to meet the costs of the Project. Local costs, such as a running cost of ED/SGH, expenses for course participants, local travel fees of JICA experts, repair cost for equipment, and administrative cost for project management including telephone charges and secretarial service were financed by the Malaysian side.

2) Assignment of personnel

The Malaysian side assigned counterpart and administrative personnel as agreed to in the R/D for the Project.

3) Land, buildings and facilities

To enhance the function of the ED/SGH, renovation and extension of A&E physical facilities were implemented using Malaysian funds. A total sum of RM140,000.00 was spent for this. Offices and necessary facilities for Japanese experts and sufficient space for implementation of the Project were allocated by the Malaysian side throughout the Project. Electricity, gas and water supply units, sewerage system, telephone and furniture as necessary for activities under the Project were also provided by the Malaysian side.

4) Joint Coordinating Committee and Technical Committee

Although the Joint Coordinating Committee was planned to meet at least once a year and whenever the necessity arises. It has been held four times. In contrast, the Technical Committee was held thirty-three times. The Technical Committee has been effectively organized for implementation of the Project.

2. Specific objectives

(1) Strengthening of the functions and scheme/ organizational structure of A&E in SGH

1) The reorganized structure of ED/SGH and operational policies developed were recognized as recorded in the documents (see **Appendix 10:** organization chart and see **ref.1:** operational policies of ED/SGH). The Emergency Department was reorganized to be an independent clinical department, separate from the outpatient department (OPD). A specialist was posted as head of department, and a MA was assigned to be in charge of the ambulance service. In 1997, two MAs were promoted to senior MAs. Although the post of nursing sister is not filled, a senior MA is in charge of management of medical care carried out by nurses and MAs under the supervision of medical officers.

The posts of radiographer, laboratory technologist and pharmacy assistant are not filled yet, although allocation of a laboratory technician to ED is already approved.

The functions of the department are defined as: (i) to provide 24-hours A&E services and (ii) to provide 3 phases of A&E care, i.e. pre-hospital care, hospital care and training of medical staff in A&E services.

The original statement "to provide general outpatient clinic services to non-A&E patients after 4:15 p.m. and late at night after closure of private G.P. clinics: was excluded. A triage guideline with the color coding system was introduced. The disaster response activity was added to one of their functions at ED/SGH.

2) The organizational structure of ED/SGH was strengthened also by the increase in the number of MOs (from 6 in 1992 to 9 in 1997), MAs (15 to 23) and nurses (9 to 13). (**ref. 2:** personnel at ED/SGH)

3) The ED/SGH extended its function in training of personnel for A&E service and in taking the initiatives for disaster preparedness of the state. ED/SGH was recognized as a training institution for the post-basic A&E course for MAs & nurses, and designated as a training center for first responders of life support by MASTEM (Malaysian Society for Traumatology and Emergency Medicine). ED/SGH is chairing a sub-committee on the cross-sectional disaster preparedness plan of the state.

4) Reorganized structure and revised operational policies are supported by both ED staff and ward staff. (**ref.3:** Questionnaire survey for ED staff and ward staff in SGH)

   (i) Ninety percent of respondents of ED staff consider that the functions of ED/SGH are enhanced, and a hundred percent of them that both organizational structure and operational management of ED/SGH are better established.

   (ii) Ninety three percent of respondents from ward staff consider that the present function of ED/SGH is appropriate, ninety percent of them that organizational structure of ED/SGH is appropriate, and ninety-three percent that current operational management is appropriate.

   (iii) In terms of coordination between ED and other departments/wards, about ninety percent of ED and ward staff answered that it was improved; however, some 21 percent responded that it has "definitely improved".

   (iv) According to the view of ED staff, standard operational procedures are appropriately followed by two thirds of ED staff. Seventy five percent of respondents consider the new triage system to be appropriately followed.

K.F.

5) In order to implement the above-mentioned reorganization of the ED functions, the ED was moved to the new site and physically renovated in 1993 and 1994. The ED structure was so laid out that the patient's flow might be much improved. The patient's waiting area is quite ample; the triage desks are placed in the front-line; the four examining rooms are color-zoned to deal with a flow of patients. The resuscitation room is fully equipped with the most modern equipment to allow immediate and effective resuscitation. The observation room has 5 beds for a short-stay patients. The emergency laboratory is arranged only a few yards from the resuscitation room to facilitate the real-time availability of needed laboratory data. In accordance to the operational policies of the ED/SGH, a specially designated A&E Operating Theater was provided for in-situ during the entire duration of the Project. The A&E Operating Theater was located immediately adjacent to the Resuscitation Room (Red Zone). However, because of skilled OT staff availability constraints, the A&E Operating Theater facilities were not fully utilized according to stated operational policies. **(Appendix 11:** Layout of ED/SGH and Patient Flow)

(2) Establishment of the discipline of "emergency care"

According to informants who know the activities of ED/SGH before the Project, the role of ED/SGH at that time was deemed as equivalent to "the mail post service", namely, to deliver patients to wards concerned as quickly as possible. The concept of emergency medical care is now better clarified, i.e., the initial definitive emergency treatment, emergency resuscitation and stabilization of patients. However, the scope of work remains to be shared by other clinical departments involved. Interviews with specialists and sisters in the wards suggest that consensus development remains to be done regarding the role-sharing for certain types of cases, such as post-resuscitation cases.

1) Views of ED staff and ward staff on achievement regarding the establishment of discipline of emergency care are as follows:

(ref.3: Questionnaire survey for ED staff and ward staff in SGH)

The majority of respondents (89 - 100 percent) from ED staff and ward staff consider that both the discipline and the scope of work of emergency care were better clarified. The proportion of respondents from ward staff who answered that the scope of work of ED was "definitely" made clear was smaller than that from ED staff; 29 percent and 38 percent respectively.

2) Documentation of standard clinical guidelines for emergency medical care at ED/SGH or Sarawak is being done; in particular, common emergencies such as bronchial asthma, head injury, etc.. A standardization of basic procedures for emergency medical services personnel is being made through development of a

checklist for self-assessment.

3) A number of technical/operational procedures were introduced to strengthen the discipline of emergency care, for example;
   (i) pre-hospital medical care by emergency medical technician team
   (ii) structured triage guidelines
   (iii) standardized measures for resuscitation
   (iv) stabilization of critically ill/injured patients
   (v) emergency nursing
   (vi) provision of laboratory service at Emergency Department
   (vii) X-ray and CT examination during stabilization process
   (viii) ultrasound examination
   (ix) proposed initiation of thrombolytic therapy for selected AMI (Acute Myocardial Infarction) cases
   (x) proposed trauma team approach for poly-trauma cases
   (xi) preparedness for disaster and mass casualties
   (xii) new recording forms such as "patient record form for ED", resuscitation flow chart", "pre-hospital care record", "ambulance call information", "MA ambulance check list", "driver ambulance check list", "(equipment) repair report" (See **Appendix 12**: new recording forms and check lists developed in the project)

(3) Development of training programs on accident and emergency care for the state of Sarawak

Many training courses were conducted and modules were created to meet the training needs of the staff. Nine types of courses had modules successfully designed together with relevant training material including videos and slides.

1) Thirteen types of courses/seminar were created in the project in relation to emergency service, and the following nine courses were established as educational courses for A & E personnel in Sarawak.
   (i) Combined EMS driver course and EMT course
   (ii) First aid course
   (iii) BTM course
   (iv) ATM course
   (v) Basic ECG course
   (vi) Intermediate ECG course
   (vii) Ventilator course
   (viii) Biomedical engineering course
   (ix) OT nursing course

2) Teaching materials developed for the above courses are recognized.
(see **Appendix 13**: list of training courses and teaching materials developed in the Project)

3) One thousand five hundred seven people participated in the above mentioned training courses.

4) Courses for training of trainers/instructors (TOT) and their materials are not yet established, although human resources capable to organize as well as to teach courses were identified through the above courses.

5) Attachment of house officers to ED/SGH in rotation was implemented by the issue of a hospital circular in 1995. However, at the moment, house officers are attached to ED/SGH only for two weeks during their attachment period to the Surgical Department. ED/SGH now offers training/educational opportunities for personnel at various levels; MAs and nurses in the post-basic course, first responders of life support such as rescue team, firemen, civil defense team, and medical students from various universities.

3. Project purpose

The project purpose is stated as: "Improvement of pre-hospital care and development of human resources, as well as to upgrade accident and emergency care service at SGH, especially at its Emergency Department in line with the national plan for improvement of accident and emergency care service." It is recognized by the Japanese Evaluation Team that accident and emergency care in Emergency Department of SGH was significantly enhanced, and human resources were intensively developed, and the pre-hospital care was most significantly improved.

4. Prospect of achievement of overall goal

The overall goal is the long-term objective to which the project purpose will have contributed within the time frame of 5 - 10 years after the end of a project period. The overall goal of the Project is stated in PDM as follows: "Contribution for improvement of accident and emergency care service in Sarawak".

As we have seen in the achievement of specific objectives above, there are a certain number of noteworthy achievements. Although activities of the Project were mainly focused on SGH, the accompanying effects were observed; 1) EMS driver course developed at SGH were introduced to the Sibu Hospital, 2) three other educational

courses / seven seminars by short and long-term Japanese experts were conducted at the Sibu and Miri Hospital, 3) some of the personnel were trained in Japan. In additional, it is one of the indirect achievements that some SGH staff trained in the Project has moved to other hospitals in the State of Sarawak and they are making good use of what they mastered in SGH. Accordingly, its contribution to the entire emergency medical services in Sarawak will be substantial in the long run.

K.T.

III. Results of the evaluation

1. Efficiency

* Efficiency measures the qualitative outputs of the Project in relation to the resource input (funds, time, personnel, etc.).

(1) Efficiency of the Project in terms of comparison of project activities/inputs with project outputs

Renovation of A&E facilities was implemented by the Malaysian fund. Local costs, such as running cost of ED/SGH, expenses for course participants, travel fees of JICA experts, repair cost for equipment, and administrative cost for project management including telephone fee and secretary service were financed mainly by the Malaysian side. Dispatch of experts, C/P training in Japan, and provision of teaching materials and new equipment were financed by JICA. Monetary inputs by both countries were done according to R/D and annual work plans(see **Appendix 14:** Monetary inputs of JICA and the Malaysian side).

(2) Efficiency of the inputs of JICA in terms of productivity and appropriateness

1) Dispatch of JICA experts

Assignment of long term experts were appropriate in terms of both number and type of expertise in the first half of the project period. However, it was not necessarily so for the later half of the project period, since JICA had some difficulties in recruiting qualified experts. As a result, the input by experts became resource-oriented than objective-oriented. The inputs of short term experts were extensive. It was helpful in introducing the recent advances in emergency medical care. However, in terms of productivity, the input by short term expert was efficient only when their assigned task was specified in advance and when the objectives fit to their expertise.

i) Twelve long-term experts and twenty-six short term experts were dispatched by JICA. Besides, seven JICA experts were dispatched to present papers in the two national conferences organized by the project.

ii) The level of achievement of task was rated as 64 percent on average by long-term JICA experts and 67 percent by short term experts. (ref.4: Questionnaire survey for JICA experts)

iii) Thirty five percent of short term experts and fifty seven percent of long term experts felt that the assigned period of work in the project was too short to complete their tasks.

2) Overseas counterpart training

In recognition of the rapid turnover of medical officers at ED/SGH and, in particular, those medical officers after completing their counterpart training in Japan, and difficulties were experienced in making them long attached to ED, MAs and nurses were selected as candidates for counterpart training.

Many of them experienced problems in language communication. To overcome this language problem, the JICA project team in Sarawak managed to organize the Japanese language course before their trip to Japan with aim to improve the efficiency of the training. The level of preparation and efficiency of the training program differed according to institutions in Japan which hosted Malaysian counterparts. More in opportunities for practice participation and necessity of customized program in linkage to the Project was strongly recommended by participants.

Regardless of this weakness in efficiency, the visit to Japan was considered helpful for development of their own image of emergency medical system to be developed in Kuching. Eleven counterparts were sent to Singapore either for participating ATLS course or short term attachment for on-the-job-training (OJT) in the Singapore General Hospital. The participation in ATLS course was especially helpful for developing the basic and advanced trauma management course in the Project.

(ref.5 : Questionnaire survey on overseas counterpart training)

(i) In total, twenty-three counterparts were sent to Japan for training. Most of MAs and nurses are still working in ED/SGH, but all SGH medical officers who attended counterpart training in Japan have either resigned or transferred.

(ii) The average of rated scores by participants of the training program in Japan was about 50 percent for language communication, 70 percent for usefulness, and 70 percent for efficiency, against their expectation.

(iii) Nine counterparts attended ATLS course and two counterparts were sent for OJT in the Singapore General Hospital. Five out of nine medical officers who attended ATLS course still remain at ED/SGH.

3) Provision of equipment

Equipment and ambulances were provided mainly for A&E department (142 items of 110 types), and also for OT, ICU of SGH, Kuching, and divisional hospitals in Sarawak. The provision of equipment was effective for

development of a new setting of ED/SGH, as well as for the extension of their activity to divisional hospitals. Some equipment in ED/SGH became underutilized after the initial period. As every equipment was procured locally, only a few went out of use because of supply or specification problems. Provision of equipment contributed to development of the emergency laboratory which allowed quick reference for critical patients. Since many of those were new to ED/SGH, a JICA expert of medical engineer was dispatched to help in the establishment of the equipment management system in the hospital. Also a training course for biomedical engineering was produced,

(i) According to utilization survey of 154 items in ED and OT/ICU in SGH, ninety percent of provided equipment were useful and 70 percent were actually used either often or regularly. Main reasons for under-utilization were "less demand", "less need", and "lack of operational skills". (ref.6 : Survey on utilization of provided equipment)

(3) Linkage with other projects

The counterpart of Surabaya/Indonesia contributed to the first national conference on emergency medicine organized by the Project. JICA experts and Malaysian C/P visited Surabaya to exchange experiences and views. The exchange program between this project and the JICA assisted projects in Egypt and Thailand was implemented.

(4) Satisfaction of the inputs from the Malaysian Government or JICA in response to the request by the Technical Committee of the project

Computerized system for information management and medical statistics has not materialized because JICA did not send experts and the Malaysian side did not assign dedicated medical records staff.

The delay in dispatch of JICA chief advisors in the middle of the project period brought about certain difficulties in continuity and consistency of the project implementation.

(5) External factors, which affected the efficiency of Project implementation

1) The renovation of ED/SGH was delayed, and carried out in two phases. The original plan was changed in scale against the expectation of the project plan, which necessitated revision of the working plan of the Project.
2) The rapid turnover of medical officers, especially the shortness of attachment of medical officers after their return from oversea training, reduced the efficiency of technology transfer.
3) SGH was designated as a teaching hospital for applicants of FRCS/MRCP of UK; the training attachment to ED/SGH is now recognized as part of training

K.G.

requirement for the Part-II Exams. It may serve as one of incentives for a longer attachment of medical officers to ED/SGH in the future.

2. Effectiveness

* Effectiveness is a measure of whether the purpose of the Project has been achieved, or how likely it is to be achieved. This is a question of the degree to which the outputs contribute to achieving the intended purpose.

(1) Consistency of the project purpose

The goals and purposes of the Project were consistent throughout the Project, although there was some inconsistency regarding the scope of the Project, the extension of the project input to divisional hospitals in Sarawak state.

(2) Improvement of pre-hospital care delivered by ED/SGH

Until 1994 only one MA was engaged in pre-hospital care with ambulance services, and active treatment was not provided. A new "emergency medical team" (composed of trained a MA, a nurse and a driver) provides with better pre-hospital emergency medical care.

New recording forms for ambulance calls and pre-hospital care as well as various check lists were introduced, and a buzzer was installed to facilitate the quick response to ambulance calls. The installing of two-way radio-communication system allows better pre-hospital medical control.

(ref.7 : Profile of pre-hospital care and ambulance service of ED/SGH)

1) The average number of daily runs of ambulance increased from 2.2 in 1992 to 5.8 in 1996.
2) In 1996, the total number of ambulance calls was 2130, and the number of emergency runs was 778. The percentage of emergency run increased from 31 percent in 1994 to 37 percent in 1996, and the absolute number of emergency cases served by an ambulance team doubled. The percentage of dry runs decreased from 18 percent in 1994 to 11 percent in 1996.
3) The average response time (from ambulance call to dispatch of ambulance) for emergency cases was shortened from 6.24 minutes in 1992 to 1.28 minutes in 1996, which is shorter than the state level standard (3 minutes). the average arrival time was also shortened for both Zone 1 (from 9 min. to 7 min.) and Zone 3 (from 17 min. to 12 min.) patients, although it was longer for Zone 2 patients (from 14 min. to 16 min.)

4) Before the beginning of the Project, CPR (Cardio-Pulmonary Resuscitation) was seldom done at ED/SGH. The number of CPR performed at ED/SGH was 4.5 per month in 1994 (two-month survey) and 4.8 in 1996 on average. More resuscitative measures were provided in 1996. Intubation was done in 38 cases, and IV-adrenaline was given to 180 cases. In 1996, eleven cases survived after active resuscitation by emergency medical teams, which included eight cases of successful CPR (the success rate of CPR was 14 percent).

(3) **Upgrading the emergency services at ED/SGH**

1) The number of attendance at ED/SGH increased by 43 percent since 1992 (from 41,386 to 59,363).
   * The population of Kuching division is 474,100 and that of the Kuching district is 406,629 in 1995.
2) The percentage of emergency patients increased by 31 percent since 1994 (from 4,612 to 6,051). The percentage of non-emergency cases also increased by 15 percent during this period. The percentage of non-emergency patients was 46 percent, which cleared the state-level indicator; "percentage of patients attending ED with non-acute conditions is less than 60 percent (for 1997)".
3) According to a sample survey, the average number of critical cases treated in the resuscitation room was six to seven per day. X-ray examination was done in 55 percent of them, FBC (Full Blood Counts) 52 percent, blood chemistry 47 percent, blood gas analysis 23 percent, CPR 10 percent, intubation 10 percent, ultrasound 5 percent, and artificial ventilation 4 percent.
4) Patient satisfaction on the quality of care at ED/SGH is high, especially among urgent cases. (ref.8 : Analysis of the results of the survey on patient satisfaction)
   (i) Ninety eight percent of patients (n=1000) were satisfied with treatment given by ED/SGH.
   (ii) The standards for state level quality indicators on patient satisfaction were met in 1995. In 1997, the standards were not met. The state standard is; "not less than 75 percent out-patients surveyed say that services provided are good".
      a) Friendliness of staff: June 95; 81 percent, March 97; 52 percent,
      b) Helpfulness of staff : June 95; 80 percent, March 97 ; 52 percent,
      c) Clear instruction and explanation : June 95; 77 percent, March 97; 51 percent,
      d) Examination by MA : June 95; 82 percent, March 97; 58

percent,

e) Examination by doctors: June 95; 85 percent, March 97; 61 percent.

(iii) However, patients with emergent problems showed high satisfaction rate ("attention is immediate"; 74 percent, "examination by MA is good"; 83 percent, "examination by MO is good"; 86 percent), and the clear correlation was seen between the degree of urgency and satisfaction with provided care.

(iv) There was no significant difference among subsets of different income classes regarding satisfaction with care.

(v) The standards for state-level quality indicators on waiting time ("95 percent of patients should not wait more than 45 minutes until they see a doctor") is met in emergency cases (95.3 percent), but not in all patients (82 percent).

5) The staff of ED/SGH see that the quality of care/service of ED/SGH was improved. (**ref.3**: Questionnaire survey for ED staff and ward staff in SGH)

(i) Ninety seven percent to one hundred percent of respondents consider that the quality of care by doctors, /MAs/ nurses, ambulance services, resuscitation measures, and care in observation were improved. Outcome of critical cases and responses of medical staff of the wards had also improved.

(ii) Many respondents considered that the quality of ambulance services and resuscitation measures were definitely improved (78 percent and 77 percent, respectively), and half of the staff considered that care/service of doctors / MAs / nurses / drivers had definitely improved. However, regarding speed of response by the ward staff, only 23 percent answered that the improvement was definite.

6) Ninety five percent of the staff in the wards (heads of department, sisters, MOs and staff nurses) acknowledged that the quality of care provided at ED/SGH was improved.

7) To assess the appropriateness of the achieved level of care from the viewpoint of the medical profession in Malaysia, peer review was implemented by Dr. Ernest Yeoh, (the former head of Emergency Department, University Hospital, University of Malaya). Results of self-audits of basic procedures by check list, video films of pre-hospital care and ambulance service, and several medical records of 1994 and 1996 of head trauma and upper gastro-intestinal hemorrhage cases were reviewed. His opinions are as follows;

(i) The pre-hospital care provided by ED/SGH is much better than what is

available in the Peninsular Malaysia,

(ii) policies of the Ministry of Health are being carried out,

(iii) as regards hospital care at ED/SGH, no real problems were evident by the retrospective review of the case notes of patients presenting with the acute head injury and upper gastro-intestinal hemorrhage. A few parameters were checked and the performance in the ED/SGH was of a high standard,

(iv) a very comprehensive upgrading of the A&E services in SGH, Kuching was noted, as well as in other hospitals in Sarawak, like Sibu and Miri. (ref.9 : Peer review report of Dr. Ernest Yeoh of University of Malaya)

(4) Development of human resources for emergency services in Sarawak

Since 1996, training courses have been implemented in the Sibu Hospital and the Miri Hospital, with participation from district hospitals in their sub-regions.

1) The number of participants in the educational courses implemented in the project was 1,507 in total.

2) Educational courses were implemented for the staff at ED/SGH ; each individual attended 6 courses on average. Eighty four percent of them put into practice what they learned in the courses very often.

3) ED/Sibu Hospital is second to ED/SGH in terms of the intensity of educational courses; twenty-two medical staff (MOs, MAs and nurses) attended eighty-eight courses (average 4 courses per person). Fifty out of eighty-eight courses are those developed in the Project.

4) In emergency units of divisional/district hospitals, 26 percent of MOs/MAs/Nurses have taken some courses regarding A&E care since 1993, among which 17 percent participated in the courses developed in the project such as BTM course and ECG course. The course are considered useful by 90 percent of participants from divisional/district hospitals. (ref.10 : Questionnaire survey on human resource on A&E in Sarawak)

(5) Actions remaining to be carried out to achieve the purpose of the Project

1) Further improvement of pre-hospital care and ambulance service

(i) Since a new concept of pre-hospital medical care delivered by ED/SGH is established and accepted, what remains to be done is the integration of the emergency communication system in Kuching. The access number for medical emergency is, at this time, divided into three channels and sometimes confusing with other emergency numbers for other agencies.

K.G.

(ii) To reduce the number of non-emergency cases and dry runs, the public education for the appropriate use of ambulance services should be promoted.

(iii) The hospital-based ambulance service is so far effective, especially, within the city area. For suburban residents, and in future, when more traffic is anticipated, the ambulance stations with emergency medical teams will have to be strategically located to secure a quick response.

(iv) A certain modification of the ambulance service system might be required to adapt to the presented demands and the location of emergency unit in other cities in Sarawak. Helicopter transportation needs to be further encouraged.

2) Upgrading emergency care at ED/SGH

(i) Programs for quality assurance and quality improvement remain to be developed and institutionalized. Specific clinical indicators should be developed in a way to allow comparison with the national or state level standards.

(ii) Development of personnel and introduction of computerization required to improve medical statistics for effective monitoring, supervision and QA/QI need to be addressed too.

(iii) Standardized practice guidelines remain to be developed, especially for the main target diseases/injuries for which emergency care is critically needed, such as burns, poisoning, poly-trauma, epidemic outbreak, and the like.

(iv) Certain mechanisms and consensus on the role-sharing remain to be strengthened to invite active commitment of other clinical disciplines, in order to facilitate better coordination and feedback between ED and the wards.

(v) In the original plan of the Ministry of Health, research on emergency medical services was referred to as one of the important functions. Capacity development for planning and practice of clinical research with linkage to the quality improvement program remains to be initiated.

3) Development of human resources for A&E care in Sarawak

(i) Training courses of trainers/instructors (TOT) remain to be developed.

(ii) Implementation of educational courses for divisional/district hospitals and health centers is to be promoted. For this purpose, development of sub-regional training centers is planned; the Sibu Hospital in the middle zone and the Miri Hospital in the northern zone. Courses and teaching materials have to be revised, adapted to the specific needs and feasibility

of district level hospitals and health centers.

(iii) Attachment of house officers or medical officers to ED/SGH before posting to divisional/district hospitals or health centers of rural Sarawak is not yet carried out as much as hoped for.

(iv) The official gazettement of specialists in emergency medicine (or traumatology) is under preparation.

3. Impact

* The impact of the Project is both the foreseen and the unforeseen consequences to society, whether positive or negative, at the hospital level, community level, state level or national level.

(1) Impact recognized at the state level and the national level

1) The Project contributed to the increase in awareness among medical professions and administrators in Malaysia about emergency medical care and emergency medical service system, through the first national conference organized in Kuching, and through a system model presented by the Project.

2) The Project also contributed to the increase in awareness among medical professions and administrations about disaster preparedness by organizing the first national conference on disaster medicine in Kuching.

3) The initiatives of both SGH and Hospital KL have contributed in a synergetic way to further development of policy and plans on emergency medical service system in Malaysia.

4) The Medical Assistant College of Kuching was designated as a post-basic training center on A&E care in the East Malaysia, using the ED/SGH as a clinical attachment center.

5) ED/SGH is designated by MASTEM as the training institution for first responders of life support.

6) After the first national conference on disaster medicine, a sub-committee on multi-sectoral coordination for disaster preparedness in Sarawak was formed.

(2) Impact seen on the wards (ref.3: Questionnaire survey for ED staff and ward staff in SGH)

The view of the ward staff is ambivalent although most of them admit that the role and activities of ED/SGH have been enhanced. As a result of active resuscitation efforts at ED, more resuscitated patients, who would have died previously, are now sent to the wards, and thereby using the scarce number of ventilators in ICU/CCU. According to

the head of the Surgical Department, patients are better investigated and stabilized at ED than before, so that the time between admission and emergency surgery was shortened. (ref.11 : Trend in ICU and OT)

1) Fifteen percent of respondents from wards said that efficiency of work of ward staff was definitely improved, and 61 percent, improved to some extent. Twenty four percent denied the impact of project.

2) Twenty eight percent of respondents from wards said that emergency patients through ED are well stabilized, 36 percent, to some extent, and 26 percent denied. Eighty three percent of respondents consider that ED contributed to the improvement of outcome of admitted patients, either "definitely" or "to some extent".

3) The proportion of patients who were admitted to ICU through ED did not changed; it was 15 percent in 1994 and in 1996. The mortality rate within 48 hours of admission of patients through ED was 82 percent in 1994 and 71 percent in 1996 (64 percent within 24 hours in 1994 and 44 percent in 1996).

(3) Impact recognized on the intended beneficiaries of the project

1) The proportion of medically uncertified deaths to the total number of deaths in Sarawak remained unchanged; 63 percent. However, according to the report from the National Registry, the number of out-of-hospital deaths in the Kuching division, which was 56 percent for the first 4 months in 1992, decreased to 42 percent in 1996. Upgrading of emergency system may have played a certain role in that change, although detailed data are missing. According to the interviews done by the health staff of the Kuching division, with 22 families of the patients who died out of hospitals, emergency medical services were not incriminated in preventable deaths. (ref.12)

2) According to the telephone survey with 100 respondents, one third of residents in Kuching city or their family has consulted ED/SGH during the past two years, and eleven percent of them used ambulance services. Forty percent know the correct telephone number for ambulance call. All of respondents understood that the ambulance service is exclusively for emergency cases or accidents.

4. Relevance

* Relevance means a general assessment for whether the Project is in accordance with both the ultimate goals the donor and recipient policy, as well as local needs and priorities.

(1) **Relevance of the Project purpose in terms of priority in health needs and health development policy of Malaysia and Sarawak**

1) The total attendance in emergency departments of government hospitals was increasing when the project began (reported as 1,665,186 in 1990 and 1,893,103 in 1992), and the Malaysian Government was preparing the national policy and plans for upgrading the emergency medical service system. The request for the project was considered quite timely in that sense.

2) The number of trauma cases has been increasing in Sarawak.

(i) According to the Road Transport Department the registered number of vehicles and motorcycles in Sarawak increased by 36 percent in the past 4 years (from 27, 159 in 1992 to 36,965 in 1995). The reported road accidents increased by 51 percent (the Royal Malaysian Police). The reported number of accident casualties also increased by 33 percent. In Kuching city, 4703 road traffic accidents were reported.

(ii) According to the 7th Malaysian Plan, the accident is the third most common cause of hospital admission in major divisional hospitals (8.48 percent) and the fourth among other smaller hospitals (8.35 percent).

3) In Sarawak, the medically certified and inspected deaths accounted for only 37 percent of all deaths, which may suggest that many patients are not served by the modern health services system even for life threatening episodes, because of various constraints including geographical inaccessibility. This fact may underscore the need of enhancing pre-hospital medical care as well as strengthening of capability of the front line health personnel to cope with emergency cases.

4) Upgrading of emergency department was given priority in the 7th Malaysia Plan, which states; "In view of the increasing number of industrial and road accidents, the emergency departments in hospitals will be upgraded. These facilities will be located in strategic areas within the hospital site and will be equipped with advanced treatment equipment and diagnostic facilities to provide a wider range of services. In this regard, ambulatory care will also be expanded to improve the quality of pre-hospital care. Burns treatment facilities will be established in hospitals in state capitals to support emergency services."

(2) **Relevance to the present**

1) In the national meeting held in Malacca in 1994, the basic policy and plans for upgrading the emergency medical service system were presented. The importance of pre-hospital medical care was stressed and enhancement of training of EMT (emergency medical technicians) was agreed. The name of

A&E department / unit was changed to "emergency department", and the national policy is to post a specialist to head the Department wherever possible. ED/SGH is deemed as equivalent to the regional center, i.e., level III Trauma Center. According to "the departmental operational policies for Nucleus Hospital Malaysia", the achievement of Project is exactly in line with the national policy. Most of the policies stated in the documents were realized in ED/SGH except that protocol development and establishment of standards and quality indicators are not yet materialized.

2) As a part of corporatization policy of the Government, all engineering services in SGH, as other government hospitals, were contracted out in January, 1997, so that the plan of establishing the equipment management unit may be less relevant.

(3) Relevance of the project purpose/goal in view of Japanese ODA policy

The Japanese ODA put priority on basic human needs as well as benefits of the public. The purpose of the project is to fulfill basic human needs of the public, and to benefit the public population in Kuching and the surrounding areas, and is expected to benefit the rest of the public in Sarawak through human resource development.

(4) Consistency of the target groups/population of the Project

1) The main target population was consistent: the public with emergency illness/injuries in Kuching area and Sarawak.

2) In the beginning, the project targeted mainly medical officers for technology transfer. However, because of the rapid turnover of doctors, the main target then shifted more towards MAs and nurses whose turnover is less rapid.

(5) Relevance of the planned strategy, estimated assumptions and set indicators

1) The strategy is considered to be appropriate in general, nevertheless some planned activities were not realized because of certain constraints.

Although there are many EMS models in the world, the Project intended not to introduce any prototype of any foreign countries, but to modify and arrange the present A/E system to suit the local needs.

In the first half of the project period, the Project focused on the structural development of ED/SGH. Technology transfer was done intensively through OJT and educational courses. In the latter half of the project, pre-hospital care, disaster preparedness and the equipment management became the main subjects and the educational courses were extended to other hospitals.

2) The shift of the technology transfer target from MOs to MAs and nurses was appropriate in view of the needs and constraints in Sarawak. Although the number of doctors in Sarawak increased from 221 in 1992 to 531 in 1997, the number per population is still less than half of that in West Malaysia (55.2 per 100,000 population in West Malaysia and 24.6 in Sarawak, 1996). Doctors are concentrated in Kuching, either at SGH or in private sectors. As a result, emergency departments/units of divisional/district hospitals are run mainly by MAs.

3) The Project was less successful in institutionalization of coordination mechanisms among related departments. Since this difficulty had already been experienced in Japan when the discipline of emergency medicine was being developed, the lesson should have been incorporated into strategies and the scope of the Project.

4) The idea of hospital-based ambulance services will not be successful where the telecommunication system is not well developed. In Sarawak, the marked economic development was accompanied by the rapid dissemination of telephones. The number of telephones in Sarawak increased by 67 percent between 1991 and 1995 (hand phones excluded), and 34 percent of households have house phones. In Kuching, most of the families are now able to have a ready access to ambulance calls.

5) Indicators were modified in the mid-term of the Project. New indicators focused on utilization review, patient profile and patient satisfaction, which resulted in measuring in only the performance of ED/SGH, missing opportunity to direct it toward outcome.

6) It seems that PDM was not well used as a flexible tool for directing and monitoring of the project, because it was new to JICA when the project began. The first year was originally deemed as a period to conduct surveys for redevelopment of PDM with detailed planning and to specify indicators for monitoring and evaluation. The Project faced difficulty in identifying appropriate indicators. Indicator development as well as development of quality standards should have been incorporated into strategy as one of immediate objectives.

5. Sustainability

* Sustainability is an assessment of the extent to which the positive changes achieved as a result of the Project can be expected to last also after the Project has been terminated. In

K.G.

many ways this is a question of the relation between the necessary local resources and how recipients view the Project.

(1) **Self-sustainability in terms of organizational structure as well as technical, financial and managerial capacity**

1) The organizational structure was strengthened, particularly by posting a specialist as the head of department. When the post of the departmental head becomes vacant, steps will need to be taken to ensure that it is filled.

2) The administration is managed mainly by MAs (chief MA and two senior MA). Pre-hospital care and equipment management are well managed by experienced personnel. The administrative framework of medical statistics and training programs is to be developed.

3) As most of local expenses were financed by the Malaysian side, there is no financial dependency in terms of sustainability of the hospital and pre-hospital emergency care. Although replacement of equipment will be required in a few years, it will be provided for the ED when the new building is completed in 1999. It is necessary to identify sources of funds for implementation and maintenance of educational courses.

4) As regard to technical aspects of sustainability, the major issue is the turnover of medical doctors. The present staff are capable enough to sustain the achieved level of care. Since MAs and nurses are stable in terms of turnover, the current level will be maintained as long as the critical mass developed in the project remains at ED/SGH. On the other hand, the average attachment period of MOs to ED is only 10 months. The technical skills of medical officers can be maintained under the continued guidance and supervision of a specialist who is the head of department.

5) Educational courses have been handed over to the identified organizers in and out of ED/SGH. The weakness is that TOT courses are not yet established and that improvement of course contents may be difficult without a physician commitment.

(2) **Factors which affect the sustainability and countermeasures**

1) The current level of activities and quality of ED/SGH was achieved by development of a critical mass through the intensive training. If the training program is not continued, the maintenance of the level will become difficult as the core staff leave ED/SGH.

2) Since TOT courses are not yet established, and improvement of course contents may be difficult without the initiative of experienced physicians. It is

recommended that a committee be organized to maintain and refine the courses and training modules.

3) To secure qualified and committed staff to ED, a certain mechanism for qualification will be required such as gazettement of specialist of emergency medicine, and recognition of a MA career in hospital and pre-hospital emergency care.

4) For both efficiency and sustainability, some of educational courses will need to be integrated and linked with the post basic course on A &E. To facilitate the implementation of courses and maintenance/improvement of training modules, formation of a hospital committee in charge of in-house training would be helpful.

5) The possible introduction of patient-fee charges under the corporatization policy may reduce overload of non-urgent patient out of office hours. Requirement of approval of MSISO 9000 will hopefully promote development of a mechanism for quality assurance and improvement of emergency hospital and pre-hospital care/service.

(3) Recognition and support by the federal and the Sarawak government

The achievement of the Project is supported by the Ministry of Health and the Sarawak Health Department. Dasar Baru (new policy) fund for upgrading emergency medical service in Sarawak has been forthcoming. The achievement of the Project should be presented and evaluated by the Divisions concerned in MOH, especially, training courses/materials, EMT model and recording/reporting forms.

6. Overall Assessment

(1) Factors influenced the project progress and sustainability

In view of the emphasis of women in development (WID) in Malaysia, 8 out of 26 technical committee members are women, and actually it was a woman who took the initiative as chairperson or acting chairperson of the committee in this Project. In this Project, such factors as political commitment, economic/financial factors, social/cultural factors, institutional/managerial capacity, or environmental protection did not influence the progress or sustainability of the Project. Appropriateness of technology and donated equipment affected efficiency of inputs to some extent.

IV. Conclusions

1. General conclusions and lessons learned

(1) The Project was successful in developing the basic structure and functions of ED/SGH in line with the policy and plans of the Malaysian Government.

(2) A model of urban EMS with pre-hospital medical care by emergency medical team was implemented during the Project.

(3) Some of basic knowledge and skills required for ED personnel at divisional/district levels were embodied in educational courses and teaching materials.

(4) A critical mass of medical/paramedical personnel was developed in the Project. They are expected to disseminate their knowledge and skills throughout the state of Sarawak by training at ED/SGH, by serving as instructor of training courses, or by transfer of technical skills to ED in other hospitals.

(5) There were certain difficulties in recruiting appropriate Japanese experts for the expected tasks. Difficulty in language communication reduced the efficiency of technology transfer. To make inputs in an objective-oriented way, the present mechanism for selection and recruitment of experts needs reconsideration. Customizing the counterpart training program adapting it to specific objectives was also critical. The third country training and hosting of the two national conferences were productive.

(6) The presence of the head of ED has unequivocally played an important role in strengthening the function of ED/SGH not only by maintaining the quality of medical care given at the ED, but also by keeping the incentives and morale of those working in ED at a high level. It is mandatory that the post of the head of ED be always filled by a specialist, one with emergency medicine training, so that the level of medical care and the morale of the personnel in ED are not lowered.

2. Recommendations

(1) It is recommended that the related Divisions within the Ministry of Health evaluate the achievement of the project in reference to the national policy.

1) reorganized structure and operational policies of ED/SGH
2) educational courses and modules/materials on emergency medical care
3) the present model of pre-hospital medical care by trained emergency medical team
4) new forms and checklists, especially for pre-hospital medical care

(2) It is recommended that the Sarawak Health Department incorporate the training modules and courses which have been developed by the Project into the State Continuing Medical Education Program, and that the educational courses be refined for further human resource development.

(3) It is recommended that ED/SGH take the initiative in the dissemination of, as well as in the improvement of, essential knowledge and skills for emergency medical care in Sarawak.

(4) It is recommended that the Ministry of Health develop national indicators for evaluation and standards for emergency hospital/pre-hospital care practices.

(5) It is recommended that the Sarawak Health Department institutionalize a mechanism for quality assurance and quality improvement of emergency care, in close linkage with management information system and medical statistics of the hospital.

(6) It is recommended that the post of the head of ED be always filled by a specialist, preferably one with emergency medicine training for reasons as stated in the conclusions.

(7) It is recommended that the Japanese Government see that the levels of emergency medical services in the Sarawak General Hospital be maintained until the discipline of emergency medicine is established, by sending relevant personnel, to help revise present training courses and modules, develop the training courses for trainers, disseminate the needed knowledge and skills to other hospital EDs, to update with new knowledge and skills in emergency medical care, and to oversee and advise on the course of action in the EMS administration.

K.G.

APPENDICES

PROJECT DESIGN MATRIX

January 1992

Summary of the Project	Evaluation Indicators	Means of Verification	Important Assumptions
1. Goal of Development: Contribution for improvement of accident and emergency care service in the State of Sarawak	- Mortality rate of preventable deaths in emergency cases. - Disability rate in emergency cases.	- Statistics in Sarawak, etc.	- Administrative organization and financial measures support the pursuit of the development goal
2. Goal of the project: Improvement of pre-hospital care and development of human resources, as well as to upgrade accident and emergency care service at the Sarawak General Hospital(SGH), especially at its Accident & Emergency Dept. in line with the national plan for improvement of accident and emergency care service.	- Reduction in number of preventable deaths in emergency cases in the Kuching area and in the selected district. - Disability rate in emergency cases in the Kuching area and in the selected district.	- SGH annual report -Investigation of the actual conditions of emergency medicine at Sarawak.	- Working in closer cooperation with the federal government
3. Outcome of the project: 1. Assist in the enhancement of the functions and organization of the Accident & Emergency Dept. of the SGH. 2. Assist in developing accident and emergency care as a specialty. 3. Develop training programs for accident and emergency care in the State of Sarawak.	- Operation manuals - Technical manuals - Training curriculums and teaching materials. - No of trainees - No of graduates of the courses Specific indicators should be developed and evaluated in the related area within the 1st year of the project.	- The reports of the short term Japanese experts - The quarterly reports of the long term Japanese experts - Publications - Dispatch of planning & consultation team advisory team and evaluation team - Reports on training - Inspections	- Assignment of trained counterparts and physician instructors for a fixed term - Malaysian government should provide the necessary materials and funds for the development of training programs. - Malaysian government should provide the funds for training of Malaysian medical personnel in Malaysia.
4. Input of the project 1) Dispatch of the Japanese experts 2) Training of counterparts in Japan 3) Supply of equipment 4) Others	- Expert long term 4~5 persons short term less than 6 persons / year - Counterpart training 3~4 persons per year - Equipment Y150,000,000 for 5 years - Others	- R/D, TSI - Confirmation of achievements for dispatch of experts, counterpart training in Japan and supply of equipment	- Start of operation of A & E Dept. : around August 1992 - Diagnosis and treatment by clinical depts. concerned and close cooperation among them. - Sufficient cooperation supported by clinical depts. concerned. - Assignment of trained counterparts - Assurance of necessary staff engaged in accident & emergency care - Assignment of long term responsible person in charge of management of the A & E Dept. and training in accident & emergency care.

PROJECT DESIGN MATRIX

August 1994

Summary of the Project	Evaluation Indicators	Means of Verification	Important Assumptions
1. Goal of Development: Contribution for improvement of accident and emergency care service in the State of Sarawak	- No of A/E patients - No of staff working in A/E - No of ambulances - Improvement of facilities in A/E	- Sarawak Medical Statistics	- Administrative organization and financial measures support the pursuit of the development goal
2. Goal of the project: Improvement of pre-hospital care and development of human resources, as well as to upgrade accident and emergency care service at the Sarawak General Hospital(SGH), especially at its Accident & Emergency Dept. in line with the national plan for improvement of accident and emergency care service.	Pre-Hospital Care - No of cases brought by ambulance - Percentage of emergency cases - Response time & scene time -No of treatment in ambulance -No of treatment on the scene. A/E Care Services at SGH - No of A/E patients - Patients by sex, age, and area - Severity classification - Classification of diagnosis - No of treatment in A/E - Diagnosis Vs treatment -Responce time of specialist - Sources of referral Vs-diagnosis - No of cases directly sand to OT - No of cases directly admitted to ICU/CCU - Explanation from MO or MA - Satisfaction of patients - Behavior of the staff - Satisfaction of staff	- Pre-Hospital Care report - Basic Register Book - Patient Record - Survey of patient records - KAP survey with questionnaires	- Working in closer cooperation with the federal government
3. Outcome of the project: 1. Assist in the enhancement of the functions and organization of the Accident & Emergency Dept. of the SGH. 2. Assist in developing accident and emergency care as a speciality. 3. Develop training programs for accident and emergency care in the State of Sarawak.	- Operation manuals - Technical manuals - Training curriculums - Teaching materials - No of trainees - No of trainers - No of graduates of the course	- The reports of the short term Japanese experts - The quarterly reports of the long term Japanese experts - Publications - Dispatch of planning & consultation team, advisory team and evaluation team - Reports on training - Inspections	- Assignment of trained counterparts and physician instructors for a fixed term - Malaysian government should provide the necessary materials and funds for the development of training programs. - Malaysian government should provide the funds for training of Malaysian medical personnel in Malaysia.
4. Input of the project 1) Dispatch of the Japanese experts 2) Training of counterparts in Japan 3) Supply of equipment 4) Others	- Expert long term 4~5 persons short term less than 6 persons / year - Counterpart training 3~4 persons per year - Equipment ¥150,000,000 for 5 years - Others	- R/D, TSI - Confirmation of achievements for dispatch of experts, counterpart training in Japan and supply of equipment	- Start of operation of A & E Dept. : around August 1992 - Diagnosis and treatment by clinical depts. concerned and close cooperation among them. - Sufficient cooperation supported by clinical depts. concerned. - Assignment of trained counterparts - Assurance of necessary staff engaged in accident & emergency care - Assignment of long term responsible person in charge of management of the A & E Dept. and training in accident & emergency care.

PROJECT DESIGN MATRIX

January 1995

Summary of the Project	Evaluation Indicators	Means of Verification	Important Assumptions
1. Goal of Development: Contribution for improvement of accident and emergency care service in the State of Sarawak	- No of A/E patients - No of staff working in A/E - No of ambulances - Improvement of facilities in A/E	- Sarawak Medical Statistics	- Administrative organization and financial measures support the pursuit of the development goal
2. Goal of the project: Improvement of pre-hospital care and development of human resources, as well as to upgrade accident and emergency care service at the Sarawak General Hospital(SGH), especially at its Accident & Emergency Dept. in line with the national plan for improvement of accident and emergency care service.	Pre-Hospital Care - No of cases brought by ambulance - Percentage of emergency cases - Response time & scene time -No of treatment given A/E Care Services at SGH - No of A/E patients - Patients by sex, age, and area - Severity classification - Classification of diagnosis - No of treatment in A/E - Diagnosis Vs treatment - Sources of referral Vs diagnosis - No of cases directly send to OT - No of cases directly admitted to ICU/CCU - Explanation from MO or MA - Satisfaction of patients - Behavior of the staff - Satisfaction of staff	- Pre-Hospital Care report - Basic Register Book - Patient Record - Survey of patient records - KAP survey with questionnaires	- Working in closer cooperation with the federal government
3. Outcome of the project: 1) Assist in the enhancement of the functions and organization of the Accident & Emergency Dept. of the SGH. 2) Assist in developing accident and emergency care as a specialty. 3) Develop training programs for accident and emergency care in the State of Sarawak.	- Operation manuals - Technical manuals - Technical materials - No of trainees - No of trainers - No of graduates of the course	- The reports of the short term Japanese experts - The quarterly reports of the long term Japanese experts - Publications - Dispatch of planning & consultation team, advisory team and evaluation team - Reports on training	- Assignment of trained counterparts and physician instructors for a fixed term - Malaysian government should provide the necessary materials and funds for the development of training programs. - Malaysian government should provide the funds for training of Malaysian medical personnel in Malaysia.
4. Input of the project 1) Dispatch of the Japanese experts 2) Training of counterparts in Japan 3) Supply of equipment 4) Others	- Expert long term 4~5 persons short term less than 6 persons / year - Counterpart training 3~4 persons per year - Equipment ¥150,000,000 for 5 years - Others	- R/D, TSI - Confirmation of achievements for dispatch of experts, counterpart training in Japan and supply of equipment	- Start of operation of A & E Dept. : around August 1992 - Diagnosis and treatment by clinical depts. concerned and close cooperation among them. - Sufficient cooperation supported by clinical depts. concerned. - Assignment of trained counterparts - Assurance of necessary staff engaged in accident & emergency care - Assignment of long term responsible person in charge of management of the A & E Dept. and training in accident & emergency care.

Cooperation Plan

12 Nov. 1992 A/E technical commitee SGH

Goal of the Project: Improvement of pre-hospital care and development of human resources, as well as to upgrade accident and emergency care service at the Sarawak General Hospital, especially at its Accident & Emergency Dept in line with the national plan for improvement of accident and emergency care service.

Objectives:
#1. Enhancement of the functions and scheme of the A/E dept at the SGH
#2. Development of A/E care as a speciality
#3. Development of training programs for A/E care in Sarawak

	Strategies	Activities	F YEAR 92	93	94	95	96
OBJECTIVE #1	1. Cooperation of all staff of the SGH	1. Encourage commitment from specialist, medical staff, nursing staff, and all support personnel who help care for the emergency patient. i) establishment of close inter-medical-paramedical relationship ii) firm transmission of information about emergency patient 2. For medical staff, care means a commitment to availability and education. i) prompt response to consultation (*) ii) participation in on-the-scene teaching/discussion with MO/MO of A/E dept	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
	2. Reorganization of existing A/E dept	1. Introducing new operational policies 2. Modification of lay-out 3. Permanent A/E manpower (**) 4. Formal and structured organization hierarchy; function/manpower	● ● ● ●	● ● ●			
	3. Refinement of patient transfer within A/E dept and in the hospital	1. Revision of standing order/existing procedures for X-ray examination of A/E patient2. Trasfer orders to the wards/development of admission policy for A/E dept	● ●	● ●			
	4. Upgrade level of pre-hospital care (ambulance service)	1. Establishment of medical emergency control center in A/E dept/ambulance service station 2. Training of A/E paramedic personnel(MA, Ns)/ambulance driver/porter i) locally ii) C/P training in Japan 3. Upgrade equipment in the existing ambulances of A/E dept 4. Public education for proper usage of A/E dept	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
	5. Upgrade level of care at A/E dept through improving levels and standards of emergencyy care in terms of diagnosis, therepeutic and operative service.	1. Proper usage of equipment i) JICA donated ii) locally purchased 2. Implement the new operational policies and standing orders 3. Maximum utilization of all facilities available/provided newly renovated A/E dept	● ● ● ●	● ● ●	● ● ●	● ● ●	● ● ●

* There is a possible limitation to this at present because the inpatient staffs may occationally be tied up with various procedures from which they may not be able to respond as desired. eg) Surgeon occupied in operation theater.

** A potential problem is noted as far as permanent A/E manpower is concerned.
Need to have a specialist post in A/E department to ensure a permanent head of the dept.

Objectives: #2. Development of A/E care as a speciality
#3. Development of training programs for A/E care in Sarawak

	Strategies	Activities	F YEAR 92	93	94	95	96
OBJECTIVE #2	1. Education of the public for proper usage of the A/E dept	1. Production/dissemination of education pamphlets 2. Education/information through mass media 3. In-house public education programms		● ● ●	● ● ●	● ● ●	● ● ●
	2. Development of training programs in the A/E dept at SGH	1. Rotation attachment for third posting MO at A/E dept. (*) 2. Education of MO & HO of the various disciplines in A/E dept. 3. Postgraduate training - training attachment of 6 months for MO with Part I (MRCP, FRCS) at A/E dept especially for those with interest/intention to pursue postgraduate qualification in A/E or emergency medicine . (*)	●	●	● ● ●	● ● ●	● ● ●
	3. Formal recognition of A/E dept as a full-fledged clinical department in hospitals providing tertiary level health care	Formal petition and submission of working paper to Ministry of Health, Malaysia through Diector of Medical Service, Sarawak	●	●	●	●	●
	4. Active involvement of all specialis ts in the various hospitals in the State in providing expertise and services whenever required in the care of emergency patient.	Provision of consultative/therapeutic/operative service by all hospital specialists to doctors at A/E dept in the clinical management of emergency patient when referred upon	●	●	●	●	●
OBJECTIVES #3	1. Upgrade level of pre-hospital care	Development of training programs to improve ambulance service in Sarawak (see ref. Outline of 5-year plan for the project; Training)	●	●	●	●	●
	2. Upgrade level of care at A/E dept	Development of training programs to improve A/E care in Sarawak (see ref. Outline of 5-year plan for the project; Training)	●	●	●	●	●

* To commence when the A/E department is fully functional.

Evaluation Questions

Purpose of the Project : Improvement of pre-hospital care and development of human resources, as well as to upgrade accident and emergency service at Sarawak General Hospital (SGH), especially at its Accident & Emergency Dept. in line with the national plan for improvement of accident and emergency service.

Specific objectives (expected outputs of the Project) :

(1) Enhancement of the functions and organization of the A & E Dept. of SGH.
(2) Development of accident and emergency care as a specialty (discipline).
(3) Development of training programs for accident and emergency care in the state of Sarawak

Achievement

Description of activities, inputs and outputs of the project

"Report of the Project"

Achievement of specific objectives

(1) Were the functions and organizational structure of A&E in SGH strengthened?
(2) Was the discipline of "emergency care" established?
(3) Were training programs developed on accident and emergency care for the state of Sarawak?

Effectiveness

Level of achievement of the purpose

(1) Was the purpose of the project consistent?
(2) How much were performance and quality of pre-hospital services improved?
(3) How much were the performance and quality of emergency services at A&E of SGH upgraded?
(4) How much were human resources developed for emergency services in Sarawak ?
(5) What factors of project management or external factors affected the effectiveness of the project?
(6) What efforts still remain to be made to achieve the purpose of the project?

Efficiency

Efficiency of project implementation

(1) How efficient were the project in terms of comparison of project activities/inputs with project outputs?
(2) Were the inputs of JICA* efficient in terms of productivity and appropriateness?
    * expert services, C/P training in Japan, equipment supply, etc.
(3) Were the inputs from Malaysian Gov./Sarawak General Hospital satisfactory against the request by JICA?
(4) Were there any particular factors in project management, or external factors, which affected the efficiency of project implementation?

Impacts

Expected and unexpected impacts of the project

(1) What kinds of expected and unexpected, whether positive or negative, impacts of the project were recognized ?
    * hospital level, Sarawak level, Malaysia level and others
(2) What impacts were recognized on the intended beneficiaries of the project?
(3) How much community needs are met or unmet?

Relevance

Relevance and rationale of the project

(1) How relevant was the project purpose in terms of priority in health needs and health development policy of Malaysia and Sarawak?
(2) Is it still relevant today?
(3) Is the project purpose/goal relevant in view of Japanese ODA policy?
(4) Are the target groups/population of the project consistent?
(5) Were the planned strategies, estimated assumptions and set indicator suitable for the project? What measures, if any, were taken to keep the project in due direction?

Sustainability

Sustainability of the project achievement after completion of the project

(1) What are the exact fruits of the project to be sustained?
(2) What factors would affect the sustainability? What countermeasures are to be taken?
(3) Are the project achievements recognized and supported by national and Sarawak government?
(4) Are the project outputs self-sustainable in terms of organizational structure as well as technical, financial and managerial capacity?

Overall Assessment

(1) Did any of such factors as followings influence the project progress and sustainability?

Political commitment, economic/financial factors, institutional/managerial capacity, appropriateness of technology transfer, appropriateness of donated equipment, social /cultural factors, environmental protection, WID, and others.

(2) What lessons are to be learned for improvement of project planning and project management?

Surveys conducted for collection of primary data

	Survey	Purpose	Survey Methods and target	Target	Response
1	Interview with key informants in SGH	General view on project management, achievement and sustainability	Interviews (free opinions)	9	9
2	Questionnaire to A&E staff	View of A&E staff on achievement & effectiveness of the project	Questionnaire and interview	44	32
3	Questionnaire to ward staff	View of ward staff on achievement & impact of the project	Questionnaire to Head of Departments, Sister of Dept., MO and Staff nurse	?	38
4	Questionnaire on project management	Opinions of key persons committed to project management	Questionnaire to key persons of Technical Committee	7	3
5	FGP on C/P Training i	Efficiency of C/P Training in Japan	Focus Group Discussions among selected no. of C/P who were sent to Japan	6	6
6	Questionnaire to C/P sent to Japan	Efficiency of C/P Training in Japan	Questionnaire to participants (some by Fax)	22	20
7	Questionnaire to C/P sent overseas other than Japan	Efficiency of third country training and exchange program	Questionnaire to participants (some by Fax)	16	14
8	Questionnaire toJapanese experts	Japanese Experts	Questionnaire to ex-JICA experts (by Fax)	?	27
9	Equipment survey	Appropriateness & efficiency of donated	Questionnaire to persons in charge of equipment management	2	2
10	Questionnaire on patient profile and patient satisfaction	Patient Satisfaction & Pre-Hospital care	already done by Technical Committee	1,000	1,000
11	Sample survey on case profile and outcome	understanding of case profile and outcome	survey forms for resuscitation room, observation room, asthma room, and consultation rooms (one week only)		
12	Peer review by Dr. Ernest Yeoh	Appropriateness of the achievement	quality assessment of medical records, self-assessment of basic procedures, review of course materials, observation & discussions	1	1
13	Questionnaire to staff engaged in emergency service in	Human Resource for emergency service in Sarawak	Questionnaires to head of emergency unit and course participants (by mail)	20	16
14	Observation and interview on emergency service in rural Sarawak	Needs of, and impacts on, Sarawak emergency care	2 days' visit to district/divisional hospitals and KK	5 institution	5
15	Telephone survey	Publicity and knowledge on emergency service of SGH	interview by telephone calls	100 (244)	100
16	Survey on community deaths	Unmet needs	Analysis of National Registry data and interview with family of the deceased (uncertified death)	53	22
17	Consultation meeting with representative of JCC	Discussion and consensus development on findings of the study	one day workshop	6	6

Matrix for Activities & Achievement

Technical committee SGH

Goal of the Project: Improvement of pre-hospital care and development of humen resources, as well as to upgrade accident and emergency care service at the Sarawak General Hospital, especially at its Emergency Department in line with the national plan for improvement of accident and emergency care service.

○ : Attained
△ : Unsatisfactorily done
× : Not done

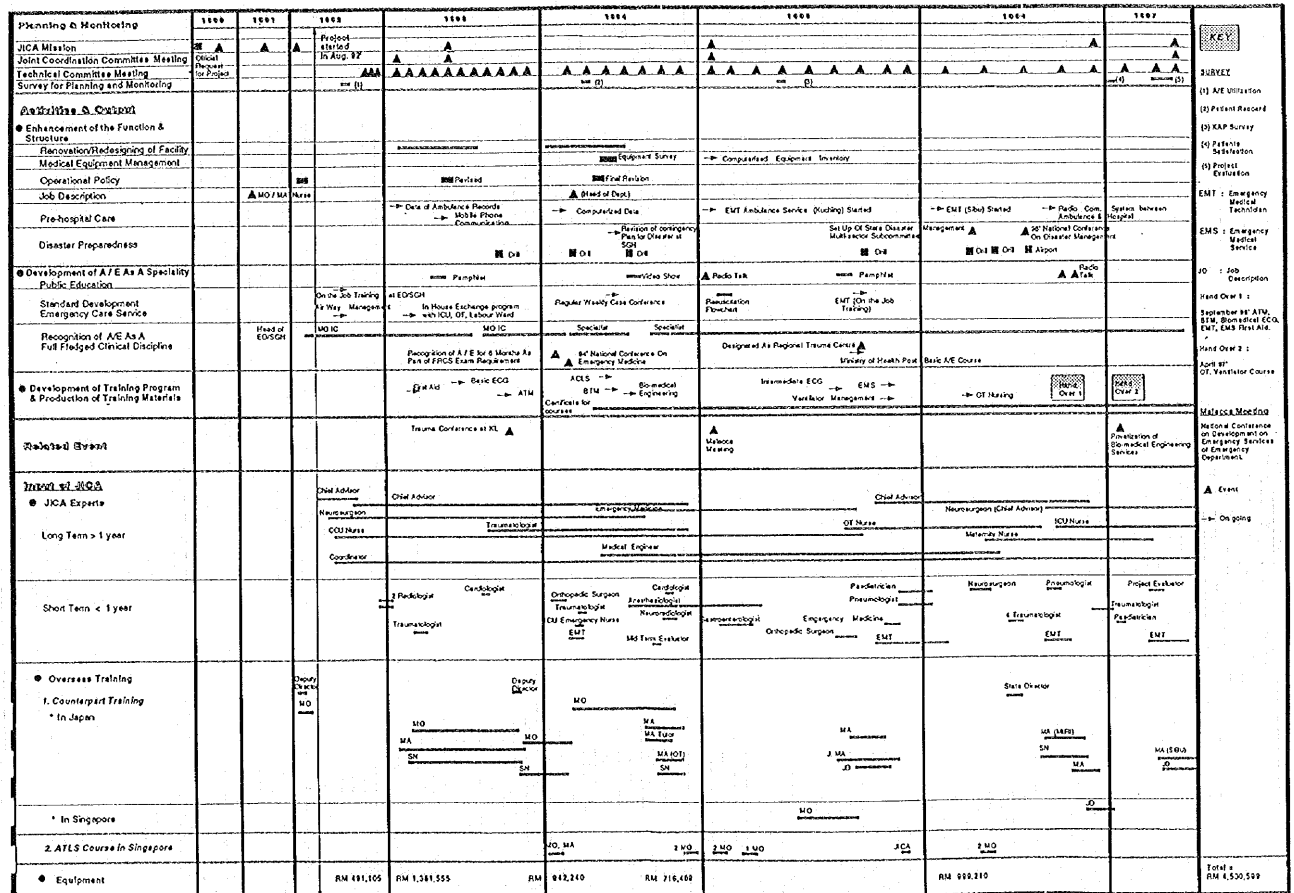
Objectives:
#1. Enhancement of the functions and scheme of the Emergency Department at the SGH
#2. Development of A/E care as a speciality
#3. Development of training programs for A/E care in Sarawak

	Strategies	Activities	Achievement	Remarks
OBJECTIVE #1	1. Upgrading physical structure of Emergency Department.	1. Renovation/extension of Emergency Department 2. Equipment at Emergency Dept. was upgraded 3. Radio communication system was installed in Ambulances to enhance the efficiency 4. All facilities provided at newly renovated E/Dpt. is fully utilized	○ ○ ○ △	·Malaysian Government spent RM140,000 · RM17,000 & RM19,000 provided by JICA and MOH respectively for the purchase · O/T(A&E) not well utilized, due to shortage of trained O/T staff
	2. Reorganization and restructuring at Emergency Dept.	1. Permanent posting of A&E manpower materialized 2. Formal/structured organization hierarchy 3. Job description for A&E staff and Head issued 4. Patient record system was computerized	○ ○ ○ △	· MO/IC, Specialist as Head, MA's, Nurses posted to dept. no longer [illegible] · Laid and in operational Policy · Difficulties faced in computerization due to lack of dedicated medical record staff
	3. Development of operational policies	1. Operational policies on Emergency Dept. have been discussed/revised and implemented 2. Standing orders/procedures for x-ray examinations were revised	○ ○	
	4. Enhancement of Ambulance services	1. Emergency Management Team (MA, Nurse, Driver) was established to cater for prehospital service. 2. Training of A&E paremedics/ambulance drivers, attendants was constently carried out. 3. Equipment in the ambulances have been upgraded 4. radio communication system was implemented 5. Pre-hospital care record system was developed and put in use.	○ ○ ○ ○ ○	· Kuching, Sibu · Started in 1995
	5. Enhancement of Disaster Preparedness & Management	1. Disaster Drills were carried out once/yearleast 2. Interagency cooperation in disaster management was improved 3. Contingency plan for Disaster, SGH was revised 4. Opportunities for job attachment from the various agencies were increased to learn hands-on	○ ○ ○ ○	· State Disaster Sub-Committee initiated by Emergency Dept. SGH in 1996

Objectives: #2. Development of A/E care as a speciality
#3. Development of training programs for A/E care in Sarawak

	Strategies	Activities	Achievment	Remarks
OBJECTIVE #2	1. Public education on function and proper utilization of Emergency department	1. Production/dissemination of education pamphlets, i.e. utilization of E/Dept, Pediatric Emergency, Prevention of Asthma	O	· Enphasis on publish education need to be stressed further
		2. Education/information through mass media, i.e. Radio talk show, newspapers	O	
		3. In-house public education programms	O	
	2. Standard development of emergency care service	1. On the job training (Airway Management, Intubation, Head Trauma) was carried out.	O	
		2. Case conference at emergency Dept. commenced	O	
		3. Protocols were developed for treatment of certain clinical conditions i.e. asthma, head injury	△	· Further development of more protocols is being carried out
	3. Recognition of Emergency dept as full- fledged clinical disciplines	1. Postgraduate training attachment of 6 months for MO with Part 1 (MRCP, FRCS training for Part 2.) at Emergency Dept., Surgery dept. was recognized.	○	
		2. Certificate presentation for training course was initiated	○	
		3. A specialist (Gazetted physician) was officially posted to Emergency Dept. as its Head sice 1994	O	
OBJECTIVES #3	1. Development of training programs	1. Rotation attachment for MO's to work at A/E started	O	
		2. Rotation of Surgical and Orthopedic H/O to Emergency Dept for 2 weeks was introduced	O	
		3. Designation as regional training centre for post-basic A&E training for MA/Nurse was approved in 1995	O	
		4. In house exchange training with ICU, O/T, Labour ward for MA, Nurse commenced	O	
	2. Development of educational courses	1. Various training courses were established and handed over.	O	
		2.. Teaching materials, slides were produced and handed over	O	
		3. Training courses for trainers were developed, like ATLM couse for BTM course instructors.	X	Problem in JICA expert recruitment, MO's transfer short of resources

CHRONOLOGY OF THE PROJECT



LIST OF JAPANESE EXPERTS DISPATCHED BY JICA

1.	Dr. Keiichi Ikegami	04.08.92 ~ 24.10.92	(Short Term)	Chief Adviser
2.	Dr. Jun-ichi Hachiya	19.02.93 ~ 28.02.93	(Short Term)	Radiologist
3.	Dr. Toshiaki Nitatori	19.02.93 ~ 28.02.93	(Short Term)	Radiologist
4.	Dr. Tadashi Yasuda	16.04.93 ~ 25.04.93	(Short Term)	Traumatologist
5.	Dr. Shingo Hori	05.09.93 ~ 11.09.93	(Short Term)	Cardiologist
6.	Dr. Tadashi Mitsuo	06.12.93 ~ 15.12.93	(Short Term)	E. Medicine Specialist
7.	Dr. Iku Koyama	17.01.94 ~ 13.02.94	(Short Term)	Orthopaedic Surgeon
8.	Mr. Setsuo Ishikawa	19.03.94 ~ 23.03.94	(Short Term)	E. Transport Expert
9.	Ms. Yoshiko Watanabe	19.03.94 ~ 23.03.94	(Short Term)	Nurse
10.	Dr. Tetsuo Yukioka	19.03.94 ~ 23.03.94	(Short Term)	E. Medicine Specialist
11.	Dr. Takehiko Iijima	13.06.94 ~ 06.09.94	(Short Term)	Anaesthesiologist
12.	Dr. Kazuhiro Tsuchiya	23.07.94 ~ 01.08.94	(Short Term)	Radiologist
13.	Dr. Yasuhide Nakamura	04.08.94 ~ 10.08.94	(Short Term)	Medical Statistician
14.	Dr. Tsutomo Ohhashi	05.12.94 ~ 04.03.95	(Short Term)	Anaesthesiologist
15.	Dr. Shingo Hori	19.12.94 ~ 24.12.94	(Short Term)	Cardiologist
16.	Dr. Satoru Tanabe	06.02.95 ~ 02.03.95	(Short Term)	Gastroenterologist
17.	Dr. Akiyoshi Egawa	07.06.95 ~ 02.09.95	(Short Term)	Orthopaedic Surgeon
18.	Mr. Hideaki Nagai	17.10.95 ~ 15.01.96	(Short Term)	EMT
19.	Dr. Hirofumi Kurogi	23.10.95 ~ 05.11.95	(Short Term)	Orthopaedic Surgeon
20.	Dr. Hidehiro Watanabe	06.11.95 ~ 17.12.95	(Short Term)	Physician
21.	Dr. Michio Akagi	17.11.95 ~ 07.12.95	(Short Term)	Paediatrician
22.	Dr. Saito Motoyoshi	01.04.96 ~ 30.06.96	(Short Term)	Neurosurgeon
23.	Mr Maeda Teiju	10.06.96 ~ 18.09.96	(Short Term)	EMT
24.	Prof. Kazuhiko Maekawa	22.07.96 ~ 04.08.97	(Short Term)	E. Medicine Specialist
25.	Dr. Takashi Ukai	22.07.96 ~ 04.08.97	(Short Term)	E. Medicine Specialist
26.	Dr. Tatsuro Kai	22.07.96 ~ 04.08.97	(Short Term)	E. Medicine Specialist
27.	Dr. Norifumi Ninomiya	22.07.96 ~ 04.08.97	(Short Term)	E. Medicine Specialist
28.	Dr. Shin Kawai	04.11.96 ~ 05.12.96	(Short Term)	Physician
29.	Dr. Mitsuo Tadashi	25.11.96 ~ 21.01.97	(Short Term)	E. Medicine Specialist
30.	Dr. Uehara Naruo	19.01.97 ~ 24.01.97	(Short Term)	Medical Statistic
31.	Dr. Watanabe Hiroshi	17.02.97 ~ 12.03.97	(Short Term)	Paediatrician
32.	Dr. Uehara Naruo	14.04.97 ~ 11.06.97	(Short Term)	Medical Statistic
33.	Mr. Takashi Watanabe	21.04.97 ~ 08.07.97	(Short Term)	EMT

LIST OF JAPANESE EXPERTS DISPATCHED BY JICA

1.	Dr. Yuji Asoh	17.08.92 ~ 16.08.94	(Long Term)	Neurosurgeon
2.	Mr. Mitsumasa Arima	02.09.92 ~ 31.07.97	(Long Term)	Coordinator
3.	Ms. Yoshiko Sugie	02.09.92 ~ 01.09.95	(Long Term)	Nurse
4.	Dr. Hirofumi Kurogi	14.10.92 ~ 14.11.94	(Long Term)	Chief Adviser
5.	Dr. Yasuda Tadashi	10.11.93 ~ 09.11.94	(Long Term)	Traumatologist
6.	Mr. Akira Kirisawa	13.04.94 ~ 23.03.95	(Long Term)	Medical Enginee
7.	Dr. Eiji Shimazaki	04.07.94 ~ 03.07.95	(Long Term)	E. Medicine Specialist
8.	Ms. Mari Takae	05.06.95 ~ 04.06.96	(Long Term)	Nurse
9.	Dr. Masateru Shindo	10.09.95 ~ 10.09.96	(Long Term)	Chief Adviser
10.	Ms. Kumiko Uchiyama	22.04.96 ~ 21.04.97	(Long Term)	Nurse
11.	Dr. Asoh Yuji	20.07.96 ~ 19.07.97	(Long Term)	Neurosurgeon
12.	Ms. Takahashi Teruyo	01.08.96 ~ 31.07.97	(Long Term)	Nurse

Counterpart Training in Japan

No.	Name	Period		Department
1.	Dr. Yao Sik King	31.03.92 ~	21.04.92	Depty Director of SGH
2.	Dr. Rahman Gul	31.03.92 ~	23.06.92	MO of A/E SGH
3.	Dr. Annuar Rapaee	30.03.93 ~	01.10.93	MO of A/E SGH
4.	Mr. Mohd bin Hosni	16.02.93 ~	15.12.93	MA A/E, SGH
5.	Mrs. Veronica Wong	16.02.93 ~	15.08.93	Staff Nurse A/E, SGH
6.	Dr. Lee Khoon Siew	08.11.93 ~	26.11.93	Depty Director of SGH
7.	Dr. Clement Lee Siek	08.11.93 ~	09.07.94	MO of A/E SGH
8.	Ms. Bida Ak Sanggau	08.11.93 ~	25.03.94	Staff Nurse A/E, SGH
9.	Dr. Khiew Siaw Kwong	04.07.94 ~	22.12.94	MO of A/E SGH
10.	Mr. Patrick Jee	13.06.94 ~	28.10.94	MO A/E, SGH
11.	Mr. Julius Ak Janting	13.06.94 ~	22.09.94	MA school Tutor
12.	Mr. Boon Bo Fah	29.08.94 ~	13.12.94	MA A/E, SGH
13.	Ms. Maimunah bt. Nawi	29.08.94 ~	27.12.94	Staff Nurse A/E, SGH
14.	Mr. Chin Bui Chin	25.06.95 ~	28.08.95	MA A/E, SGH
15.	Mr. Japning Ak Randayun	16.07.95 ~	06.11.95	MA A/E, SGH
16.	Mr. Chan Kuet Onn	16.07.95 ~	06.11.95	MA A/E, SGH
17.	Ms. Rosnah bt. Matsah	16.07.95 ~	23.10.95	Staff Nurse A/E, SGH
18.	Dr. Stalin Hardin	07.05.96 ~	24.05.96	Director of Sarawak Health Dept
19.	Ms. Yii Siew Hung	07.07.96 ~	07.10.96	Staff Nurse A/E, SGH
20.	Mr. Gnanapragasam s/o Anthony	27.07.96 ~	30.09.96	MA A/E, Miri
21.	Mr. Ali Omar bin Ellis	02.09.96 ~	09.12.96	MA A/E, SGH
22.	Mr. Jimmy Pek Yaw Huat	20.10.96 ~	16.11.96	MA A/E, SGH
23.	Ms. Thian Sai Bee	05.05.97 ~	03.08.97	JD A/E, SGH
24.	Mr. Nicholas Ak Samuel	05.05.97 ~	12.07.97	MA A/E, Sibu

Tripartite Training in Singapore

No.	Name	Period
1.	Dr. . Pravi	27.03.95 ~ 30.09.95
2.	Ms. Nelly Yong	30.10.96 ~ 29.01.97 A/E, SGH

Appendix 9

Donated Equipment

I) A/E Department

Fisical Year	Description	Model/Maker	Qty.	Price	Remarks
1992 / 93	Emergency Patient Trolley	Stryker, 102C	1	21,287.20	
	Infant Warmer + Oxygen cylinder	Atom V-3600 (500ml)		21,740.00 640.00	
	Infusion Pump	Terumo, STC-503	2	8,400.00	
	Syringe Pump	Terumo, STC-523		3,200.00	
	Ultrasound Machine	Tosbee, SSA-240A		95,000.00	
	CPR Training Equipment	Laerdal		17,670.00	
	TV monitor	28", Toshiba		2,100.00	
	Video Recorder	90-J11, Panasonic		900.00	
	Overhead Projector	Liesgang 640			
	Slide Projector	Kodak 5000		8,145.00	
	Laser Pointer				
	Infusion Pump	Terumo		3,800.00	
	Syringe Pump	Terumo		3,200.00	
	Electric BP Monitor	Paoe Tech, USA	2	14,650.00	
	ECG Monitor with defibrilator	Nihon Kohden TEC 7100K	3	34,320.00	
	Portable Ventilator	Drager-Oxylog	2	22,800.00	
	Emergency Patient Trolley	Stryker, USA	5	98,936.00	
	Portable X-ray machine	Shimazu, MC-125-30		62,250.00	
	Resuscitation Trolley	Harloff USA	3	8,368.50	
	Multi Gas Analyzer	Datex, MT-SU, Finland		50,116.00	
	Fibrscope-Bronchoscope Gastroscope	Olympus, BF-20 GIF-Q20		29,045.00 33,800.00	
	Ambu Resuscitation Bag	Laerdal	2	2,690.00	

I) A/E Department

Fisical Year	Description	Model/Maker	Qty.	Price	Remarks
1993 / 94	Blood Gas Machine	AVL 995 + 9835		70,680.00	
	Mobile C-Arm	Toshiba, SXT-600A		199,796.00	
	Cardiac Monitor	Datex, CH-2	8, 2	52,690.00	
	Transport Incubator	Atom, V-80TR		22,580.00	
	Nebulizer	Pari	6	3,660.00	
	Emergency Patient Trolley	Stryker	2	39,574.40	
	Exmtn Lamp Halogen	Welch-Allyn		2,395.00	
	N.B. BP Monitoring Set	Paoe Tech, USA	2	14,650.00	
	Resuscitation Training Set	Laedral		17,690.00	
	Portable Phone (in ambulance)	Motorolla, 8800X	2	6,200.00	
	HeartStart 3000 Auto Defibrilator	Laedral (with quick Reporter)	2	67,195.00	
	ICU Bed	Nesbit Evans 25500	6	30,420.00	
	Blood Warmer		2	7,670.00	
	HeartSim 2000	Laedral		9,270.00	
	ECG Machine	ECG-8420K	2	29,222.00	
	Slit Lamp	Nikon FS-3, Zoom photo with table		20,725.00	
	Tourniquet, Forceps, operating set	various		40,154.00	
	Ambulance, fully equip	Mercedez Bentz 310/3350		305,000.00	
	Ophthalmoscope (Indrct)	Neitz 10-alpha		3,200.00	
	Ophthalmascope	Neitz BX-alpha-13		500.00	

I) A/E Department

Fisical Year	Description	Model/Maker	Qty.	Price	Remarks
1993 / 94	Clement Clarke Three Mirror Contact Lens	 Haag Streit		3,020.00 1,366.00	
	Panendoscope	Rodenstock		2,960.00	
	Aspherical Lens			778.00	
	Head Mirror	Kings College		280.00	
	Specula, Meatel	Tumarkin		702.00	
	Tracheostomy			3,219.00	
	Centrifuge	Clay Adams		7,919.00	
	Foetal Dopler	Terumo		2,000.00	
	Head Light			1,457.00	
	Otoscope set	Welch-Allyn		1,210.00	
	Ear Speculum	Setafsix		1,050.00	
	Glucometer			250.00	
	Refregerator	Sanyo, SR-3087		1,700.00	
	Portable Suction Unit	Medi-Pump 1134		776.20	
	Lead Apron	Mavig	9	5,850.00	
	Probe (Ultrasound Machine)	PVF-375MT		8,500.00	
	Suction Unit	Atomolette B2	2	4,900.00	
	Plaster of Paris Trolley	De Soutter		4,000.00	
	Electrodes for Blood Gas Machine	For AVK 995, 988		27,423.40	
	Monopolar Diathermmy	Martin ME50		10,500.00	
	Lecture scope camera	Olympus LS-10, SC-35		13,460.00	
	Scope Washing Machine	Olympus TD-20		7,995.00	
	ECG Monitor with Pulseoximeter	NK BSM-2101	2	41,400.00	
	Tongs, crutchfield			1,270.00	

1)　　A/E Department

Fisical Year	Description	Model/Maker	Qty.	Price	Remarks
1993 / 94	Transducer for Pulseoximeter	Pace Tech Datex P23L x 1	4 1	18,740.00 3,625.00	
	Portable Surgical Operating Light	Skylux		10,100.00	
	Warmer Blanket	Aquatherm 650		6,105.00	
	LCD Projector + Video Recorder	PLC-200, Sanyo Panasonic		13,580.00	
	Lead/Rubber Abdominal Shield	Royal		608.40	
	X-ray Film Viewer	Royal LH620		8,280.00	
	Blood Refrigerator	MBR-106D, Sanyo		8,000.00	
	Emergency Resuscitation Trolley	Metro LEC-53	2	9,200.00	
	Emergency Ambulance Equipment	Ferno		5,705.00	
	Emergency Ambulance Equipment	Ferno		23,681.00	
	Haemoglobinometer			2,841.00	
	X-ray Cassette Screen	Regent	2	7,800.00	
	Ultrasound Blood Flow Meter	Konica		16,905.00	
	Portable Screen Shield	ES-100PZ 2.0mmPB		6,340.00	

I)	A/E Department				
Fisical Year	Description	Model/Maker	Qty.	Price	Remarks
1994 / 95	Computer Set	Compag 486DX/33-535 486SX2/50S	5	19,221.00	
	Training Materials, Resusci Anne,	Laerdal		32,675.00	
	Video Camera	Panasonic		3,800.00	
	CO_2 Monitor	Engstrom Eliza		15,000.00	
	Intubating Laryngoscope	Bullard, LAR-A		14,676.00	
	Portable Pulse Oximeter	Nellcor N20P		4,870.00	
	Automatic Blood cell counter	Serno System9000 Rx		47,250.00	
	Temperature probe	Datex		604.00	
	Hemoglobinometer	Mallinkrodt		2,218.00	
	Portable Ventilator	Oxylog		19,900.00	
	Slide atlas	Eye Injuries Pathology of Aids		3,199.33	
	Suction Pump	Ameda COM 80221 Stand, 4 jars		5,338.00	
	UPS System	Merlin Gerin, Comet 10 KVA		27,870.00	
	Defibrilator Analyser	QED 6, Bio-Tech, USA		7,500.00	
	Patient Record Management System	Computer Program		5,500.00	

I) A/E Department

Fisical Year	Description	Model/Maker	Qty.	Price	Remarks
1996/97	Emergency Cart	Austasia 690	2	5,200.00	
	X-ray viewer	Austasia 415		700.00	
	8" Portable Suction Pump	Ambu Twin Pump	5	4,615.00	
	Trunk Radio System	Motorola, 2 x 3	2 3	17,745.00	
	Cardiac Monitor	Nihnkhdn TEC-7100K		15,240.00	MTX888, Visar
	Resuscitation Kit	Laerdal 870003	3	1,605.00	
	Syringe Pump	Top 5100		2,725.00	
	Portable Suction Pump with Oxygen	L S P Portable Rescusitators	3	11,160.00	
	Nebulizer	Ventolin Neblizing unit, Mark VI	4	2,836.00	
	Infusion Pump	Terfusion STC-508		9,000.00	
	Suction Stand	Ameda COM80221	2	9,700.00	
	Long Spine Board	Ferno 743	4	2,200.00	
	Scoop Stretcher	Ferno 65	2	3,790.00	
	Fracture Immobilizer	Ferno 665	5	1,100.00	
	Neck Collar	Ferno 452	8	832.00	
	Head Immobilizer	Ferno 445	7	3,430.00	
	Short Spine Board	Jerome	5	1,560.00	
	Tracxtion Splint	Hare Traction Splint	2	1,872.00	
	Portable Ventilator	Oxylog Drager	2	21,600.00	
	Portable Volume Ventilator	Oxylog Drager	2	21,600.00	
	Ambulance	Renault, T42E	2	258,000.00	
	Defibrillator/Pacemaker	Physio Control		27,800.00	
	Adult Ventilator	Campanion 2801		35,500.00	

11)	Operation Theatre (OT)				
Fisical Year	Description	Model/Maker	Qty.	Price	Remarks
1992 / 93	Bipolar Electr. Coagltr	Mizuho		7,730.00	
	Multipurpose	Muranaka		71,852.00	
	Anaesthetic Machine	Blease Frontline 560		71,135.00	
	Orthopedic Operating Set			18,603.00	
	Locking Nail Instrument System	Grosse & KEMPF, TIBAL		16,022.00	
	Hall Trauma Drill Set			20,613.60	
	Wire Traction Set, Dibridement			15,403.32	
	Esophagscope (Pediatric) Handrill, Jacobschuck Electric Hand Motor	Hopkins, Karl Storz		27,030.00	
1993 / 94	Orthopedic Operating Instrument			10,689.00	
	Operating Microscope	OPMI CS-NC, + video camera, VCR		474,000.00	
	Pedicular Screw Set	Aesculap		69,628.40	
	Neurosurgical Operation Insturment	Various		12,181.25	
	Pneumatic Craniotome	Neuraitome Drill		20,580.00	
	Neurosurgical Operation Equipment	Mizuho		7,873.30	
1994 / 95	Pulse Oximeter	Datex OSP-200	4	28,000.00	
	Isoflurane Vaporizer	Blease Frontline 560		6,800.00	
1996 / 97	Surgical Aspirator	Satelec Dissectron		128,500.00	
	Laporatomy set	Medicon Germany	29	5,809.90	(29 items)

III)	Intensive Care Unit (ICU)				
Fisical Year	Description	Model/Maker	Qty.	Price	Remarks
1993 / 94	Paediatric Ventilator	Sechrist Fisher		33,930.00	
1994 / 95	Patient Monitor	Nihon Kohden Lihescope 9 BSM8310K		30,630.00	
	Bedside Monitor	Nihon Kohden Model OLV-1100	2	14,540.00	
	Adult Ventilator	Puritan Bennet Model 7200	2	148,000.00	
	Paediatric Ventilator	Newport E 150 Breeze		35,200.00	
	Air compressor	Timeter Arydyne AD3500		7,200.00	
	Infusion Pump	Terumo STC-503	4	17,000.00	
	Syringe Pump	Terumo STC-523	4	14,240.00	
	Portable Ventilator	Oxylog	2	19,900.00	
1996 / 97	Adult Ventilator	Puritan Bennet, Companion 2801	2	35,800.00	

IV) JICA Office Use					
Fisical Year	Description	Model/Maker	Qty.	Price	Remarks
1992/93	Personal Computer	Nikom AT80386		4,300.00	
	Laser Beam Printer	Canon LBP-4 Plus		3,950.00	
	4-Wheel Drive Vehicle	Toyata L/Cruiser		120,315.72	
1996/97	Multimedia Projector	Telex P170		12,999.00	
	Colour Printer	Apple Laser Writer 12/660PS		19,957.00	
	Digital Camera	Apple Quick Take 150		1,658.00	

V) Other Hospitals / Department					
Fisical Year	Description	Model/Maker	Qty.	Price	Remarks
1994/95	Emergency Care Equipment	Ferno, Scoop Stretcher Vacuum Splint, etc.	7	30,794.40	(For Sibu, Miri, Kapit, Sarikei, Bintulu, Serian, Limbang)
	Defibrillator	Nihon Kohden Model TEC-7100K	5	71,150.00	(For Sarikei, Bintulu, Limbang, Kapit, Serian)
	Hoffman External Fixator	Howmedica	4 sets	98,409.00	(For SGH, Sibu, Bintulu, Miri)
	Skillmeter Resusci Anne with Accessories			12,310.00	(For Sibu)
1996/97	Non-invsve BP Monitor	Vital-max 88 II		8,120.00	(For Paediatric Ward)
	Infusion Pump Analizer	Bio-tech, USA		17,760.00	(For Bio Eng. Work Shop)
	Emergency Care Equipment	Hare, Jerome		40,656.00	(For Lundu, Bau, Sri Aman, Mukah Saratok, Kanowit, Betong, Lawas, Simunjan, Daro)
	Ambulance	Renault, T42E	2 units	258,000.00	(For Sibu & Miri)

Emergency Department

Organisation Chart (Manpower)