

スリランカ民主社会主義共和国  
非感染性疾患対策強化プロジェクト  
終了時評価調査報告書

平成29年9月  
(2017年)

独立行政法人国際協力機構  
人間開発部

人間
JR
17-091



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# 目 次

目 次

地 図

写 真

略語表

調査結果要約表（和文）

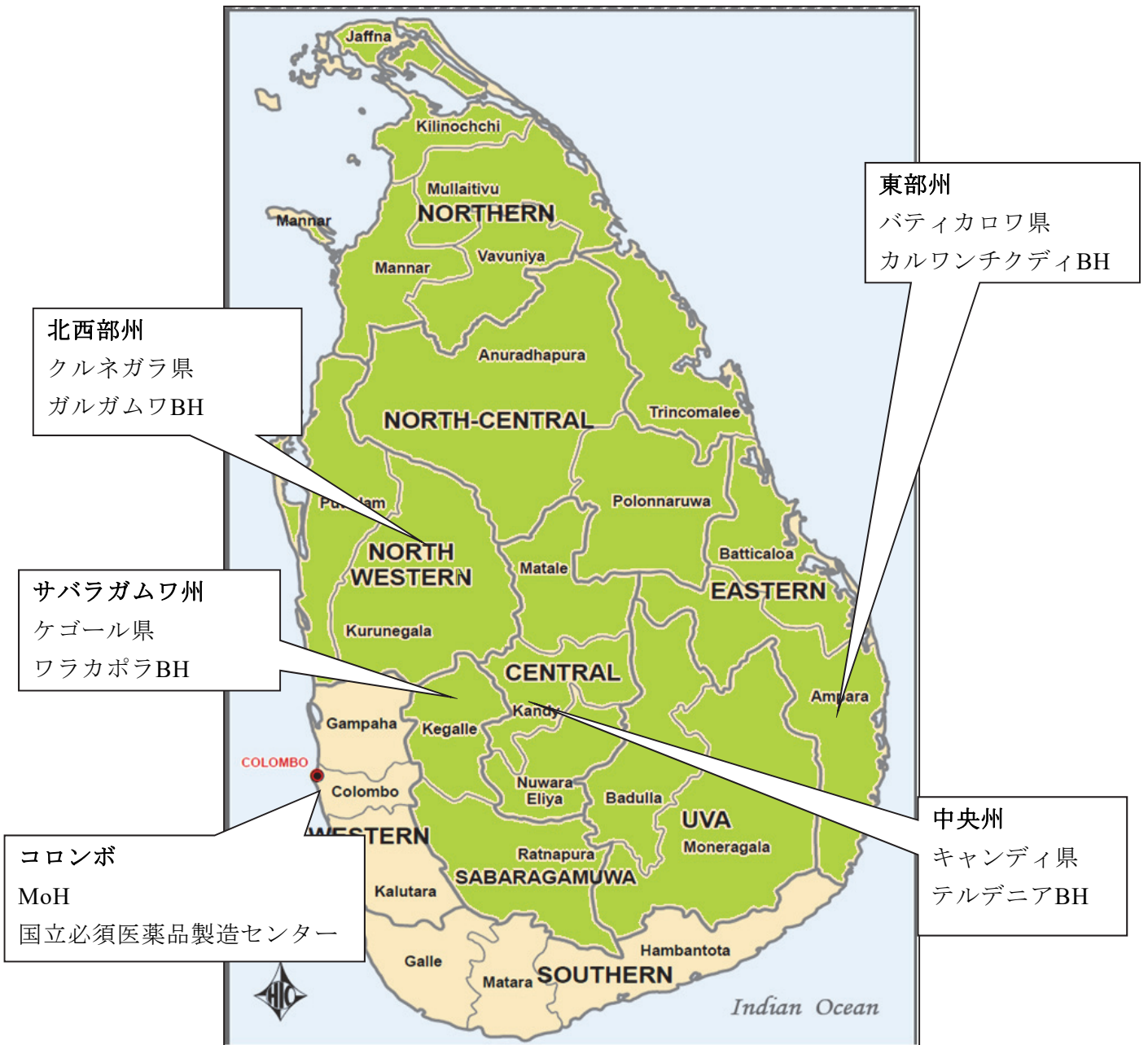
Summary of Terminal Evaluation

第1章 評価調査の概要 .....	1
1-1 調査団派遣の経緯と目的 .....	1
1-2 調査日程 .....	2
1-3 調査団の構成 .....	2
1-4 プロジェクトの概要 .....	2
1-5 プロジェクトの要約 .....	3
第2章 評価の方法 .....	4
2-1 評価の枠組み .....	4
2-2 終了時評価の手順 .....	4
第3章 評価結果 .....	6
3-1 プロジェクトの実績 .....	6
3-1-1 投入実績 .....	6
3-1-2 成果の実績 .....	7
3-2 成果の達成状況 .....	7
3-3 実施プロセス .....	15
3-3-1 PDMに関する問題 .....	15
3-3-2 実施プロセスに関する問題 .....	15
3-3-3 外部要因に関する問題 .....	16
3-4 評価5項目の評価結果 .....	16
3-4-1 妥当性 .....	16
3-4-2 有効性 .....	17
3-4-3 効率性 .....	19
3-4-4 インパクト .....	19
3-4-5 持続性 .....	20
3-5 結 論 .....	22
3-6 提 言 .....	22
3-7 教 訓 .....	23

付属資料

1 ミニッツ (M/M) (英文合同評価報告書含む) .....	27
Annex 1. PDM VER. 3 (英語)	
Annex 2. 評価グリッド	
Annex 3. カウンターパートリスト	
Annex 4. 日本人専門家リスト	
Annex 5. 資機材リスト	
Annex 6. 本邦研修リスト	
Annex 7. プロジェクト 活動実績	
Annex 8. インタビューリスト	

地 図







# 写真

**Part A: To be filled by Referral Origin** No. 554

Name of Institution: \_\_\_\_\_

To: The Consultant Physician/ Medical Officer of \_\_\_\_\_

Dear Sir/Madam,  
Please be kind enough to see this patient and do the needful.

Patient's Name: \_\_\_\_\_ Age: \_\_\_\_\_ Sex:  M  F

Clinic Number: \_\_\_\_\_

Appointment/Next Clinic Date: \_\_\_\_\_

Patient's Telephone No.: \_\_\_\_\_

Indication for referral: \_\_\_\_\_

Investigations done: \_\_\_\_\_

Treatment given: \_\_\_\_\_

Thank you \_\_\_\_\_ (MCO) \_\_\_\_\_ Date of Referral: \_\_\_\_\_

**Part D: To be filled by Referral Origin**

Date	Patient seen at BH	Patient not seen at BH	Other	Remarks

患者紹介時のリファラルフォーム

**REFERRAL FORM** No. 554

**Part B: To be filled by Base Hospital Only**

Diagnosis: \_\_\_\_\_

Investigation results: \_\_\_\_\_

Plan of Management (if appropriate): \_\_\_\_\_

Admitted to the ward:  Referred back to Local Hospital/Clinic:  Others:

Continued at the BH's Clinic:

Signature: \_\_\_\_\_

Dr.: \_\_\_\_\_ (Consultant Physician/MCO)

Date: \_\_\_\_\_ (Write the date Client/Patient consulted at MC/DC/SMG)

患者紹介元でフォローアップすることを依頼するバックレポート



ワラカポラ基幹病院 (BH) の検査室



検体搬送用のスクーター



フル稼働を待つ医薬品供給管理情報システム (カルワンチクデイBH)



健康生活センター (HLC) 健診の様子 (ワラカポラBH)



## 略 語 表

略 語	正式名称	和 訳
BH	Base Hospital	基幹病院
C/P	Counterpart Personnel	カウンターパート
CVD	Cardiovascular Disease	心血管疾患
DC	Diabetes Clinic	糖尿病専門外来
GOSL	Government of Sri Lanka	スリランカ政府
HLC	Healthy Lifestyle Centre	健康生活センター
JCC	Joint Coordinating Committee	合同調整委員会
JICA	Japan International Cooperation Agency	独立行政法人国際協力機構
L/A	Loan Agreement	借款契約
MC	Medical Clinic	内科専門外来
M&E	Monitoring & Evaluation	モニタリング・評価
MLT	Medical Laboratory Technician	臨床検査技師
M/M	Minutes of Meetings	議事録
MO	Medical Officer	医務官
MoH	Ministry of Health	保健省
MOH	Medical Officer for Health	保健所
MSMIS	Medical Supplies Management Information System	医薬品供給管理情報システム
NCDs	Non-communicable Diseases	非感染性疾患
PCI	Primary Care Institution	一次医療機関（病院・診療所）
PDHS	Provincial Directorate of Health Services / Provincial Director of Health Services	州保健局 または 州保健局長
PDM	Project Design Matrix	プロジェクト・デザイン・マトリックス
PO	Plan of Operations	活動計画表
POCT	Point-of-Care Test	臨床現場即時検査
R/D	Record of Discussions	討議議事録
RDHS	Regional Directorate of Health Services / Regional Director of Health Services	県保健局 または 県保健局長
SDGs	Sustainable Development Goals	持続可能な開発目標
SPMC	State Pharmaceutical Manufacturing Corporation	国立必須医薬品製造センター
TC	Total Cholesterol	総コレステロール
VP	Visiting Physician	内科専門医
WG	Working Group	ワーキング・グループ
WHO	World Health Organization	世界保健機関



## 調査結果要約表

<b>1 案件の概要</b>	
国名：スリランカ民主社会主義共和国	案件名：非感染性疾患対策強化プロジェクト
分野：保健・医療	援助形態：技術協力プロジェクト
所轄部署：人間開発部保健第二グループ 保健第四チーム	協力金額（評価時点）：約3億6,147万3,000円
協力期間：2014年2月～2018年1月	先方関係機関：保健省（MoH）
	日本側協力機関：グローバルリンクマネージメント株式会社
<b>1-1 協力の背景と経緯</b>	
<p>スリランカ民主社会主義共和国（以下、「スリランカ」と記す）は、人口の高齢化と食生活、生活習慣の変化に伴い、2007年保健医療統計（Annual Health Statistics）では、病院における五大死因（虚血性心疾患、悪性新生物、肺性心疾患、脳血管疾患、消化器疾患）すべてが非感染性疾患（Non-communicable Diseases：NCDs）に起因している。スリランカ政府（Government of SriLanka：GOSL）は、「健康な社会の形成」を重点政策とし、予防及び健康増進活動並びに早期治療を中心としたNCDs対策強化による効率的で持続可能な保健医療システムの確立を国家の保健政策としている。</p> <p>GOSLは、独立行政法人国際協力機構（Japan International Cooperation Agency：JICA）技術協力プロジェクト「健康増進予防医療サービス向上プロジェクト」での経験をもとに、血圧、血糖値などの測定による心疾患、糖尿病などの高リスクグループを特定する健診活動及びNCDsに関する健康教育を行う「健康生活センター（Healthy Lifestyle Centre：HLC）」を全国の医療機関に設置する事業により予防対策・健診の展開を進めている。あわせて、JICA円借款事業「地方基礎社会サービス改善事業（SL-P105）」（39億3,500万円）では、「対象州でのNCDsの早期発見及び早期治療（二次予防）の強化を通じて、NCDs対策能力を強化する」ことを事業の目的に、①国立必須医薬品製造センター（State Pharmaceutical Manufacturing Corporation：SPMC）改善、②二次医療施設改善、③リファラル体制強化（救急車整備）に取り組んでいる。</p> <p>一方で、健診によりNCDs疑い患者（高リスク者）の発見が多くなることが見込まれているものの、NCDsの診断や治療に関しては、検査機材や専門医が存在する三次医療施設へNCDs疑い患者を移送する現状があり、診断検査機材と専門医の配置による二次医療施設の強化が重要となっている。また、健診を行うHLCや健診以外でNCDs疑い患者が見つかる一次医療施設と、診断・治療を行う二次医療施設との患者紹介や逆紹介のための連携の強化が課題となっている。さらに、医療施設における基礎検査試薬・医薬品の在庫がないために自費による購入が散見され、特にNCDsにおいてその傾向が顕著であり、公立病院におけるNCDsに対する継続的な服薬治療の管理という点で脆弱性が指摘されている。このため、必要な医薬品が必要な病院に適正量保管されることがNCDs管理に求められている。これらのことから、健診の現場からNCDs疑い患者を診断・治療へ円滑に引き継ぐことにより、一次・二次医療施設のNCDs管理の</p>	

質を向上させ、持続可能な保健システムを確立することが喫緊の課題になっている。

このような状況の下、GOSLによるNCDs予防モデルの拡大への取り組みと足並みを揃え、NCDs対策（本プロジェクトにおけるNCDsは、糖尿病、高血圧症、高脂質血症を対象とする）に必要な早期治療体制の確立を図ることによる円借款事業の効果増大を目的とした円借款附帯プロジェクトを実施するものである。

本プロジェクトは2018年1月のプロジェクト終了を半年後に控え、終了時評価を実施するものである。

## 1-2 協力内容

### (1) 上位目標

国家 NCDs対策プログラムが強化される。

### (2) プロジェクト目標

対象 4 基幹病院（Base Hospital：BH）及びその管轄地域内の一次医療機関（Primary Care Institution：PCI）における NCDs管理がクラスター単位で強化される。

### (3) 期待される成果

成果1：対象 4 BHの管轄地域において NCDs患者のモニタリングが向上する。

成果2：対象 4 BHの管轄地域内にあるPCIの NCDs 患者のための検査サービスの  
利便性が向上する。

成果3：対象 4 BHにおける医薬品供給管理が強化される。

### (4) 投入（評価時点）

日本側

総投入額：約3億6,147万3,000円

専門家派遣：専門家8名

研修：本邦研修受け入れ6名

機材供与：約466万円

現地業務費：1年次919万7,000円、2年次940万7,000円、

3年次1,033万3,000円、4年次1～6月暫定額527万1,000円

## 2 評価調査団の概要

担当分野	氏名	所属・役職
団長/総括	金井 要	JICA人間開発部技術審議役
評価企画	井上 由美子	JICA人間開発部保健第二グループ保健第四チーム
評価分析	菌田 元	株式会社グローバル・グループ21ジャパン

調査期間：2017年8月9日から8月27日

評価種類：終了時評価

### 3 評価結果の概要

#### 3-1 実績の確認

##### 3-1-1 成果の達成状況

- (1) **成果1：対象4BHの管轄地域においてNCDs患者のモニタリングが向上する。：部分的に達成されている。**

指標1-1 「内科専門外来（Medical Clinic：MC）及び糖尿病専門外来（Diabetes Clinic：DC）の患者調査のための各種ツールの有無」：達成

本プロジェクトによりMC・DCを対象とした患者調査のツールが既に作成され、繰り返し行われた試行調査を通じて改善されている。患者調査は予定の4地区で既に調査が終わり、全国調査を念頭に、保健省（Ministry of Health：MoH）主導で4県全域調査を実施中であり（クルネガラ県は完了）、プロジェクト終了までにデータ集計・基礎分析完了を終える予定である。

指標1-2 「各対象地域において、対象4BH周辺のPCIのうち、MCまたはDCにリファールした患者を追跡している施設の数・割合」：部分的に達成

4地区中、病院建設と専門医配置が遅れたためリファラル・モニタリングが遅れて導入されたカルワンチクディ地区を除く3地区で達成されている（2017年6月現在）。他地区でのモニタリングが軌道に乗るまでに1年以上かかった経緯から、プロジェクト終了までの全地区での達成の見込みは低い。

導入が進んだ3地区においては、リファラル完了報告フォームの返送でリファールされた患者の8割の受診を確認できた。リファラル・フォーム、リファラル完了報告フォームを導入した結果、MCの受診を勧められたNCDs疑い患者の受診率は、フォームを導入していない地区の約70%に比べて、95～100%にまで向上した。

指標1-3 「本プロジェクトで開発されたものと類似のシステムを他地域に導入する際に有用な、手順書や必要な資源等が記された文書の有無」：達成見込み

2017年12月までに文書が完成予定である。

- (2) **成果2：対象4BHの管轄地域内にあるPCIのNCDs患者のための検査サービスの利便性が向上する。：部分的に達成されている。**

指標2-1 「各対象地域におけるPCI付属HLCでの新規受診者のうち、プロジェクトによって構築・強化された検査ネットワークシステムを利用して、対象BHの検査室にて総コレステロール（Total Cholesterol：TC）値または脂質プロファイル検査を受けた割合」：達成見込み

HLCで無料検査ができるため、健診受診者の利便性が向上し、受診者数の増加につながった。その状況のなか、対象BHの検査は、4地区中、円借款事業による病院建設・検査室整備の遅れにより検査ネットワークが遅れて導入されたカルワンチクディ地区を除く3地区で達成されている（2017年6月現在）。他地区の経験から、プロジェクト終了までに全地区で達成見込みである。

指標2-2 「各対象地域内におけるPCIのうち、プロジェクトで構築・強化した検査ネットワークシステムを使い、MCから毎月1検体以上を対象BHの検査室に送っている施設の数・割合」：未達成

全地区で達成度は低く、今後の向上は見込まれるものの、達成の見込みは高くはない。未達成の主要因は、検査室における臨床検査技師（Medical Laboratory Technician：MLT）の配置、試薬の供給の制約等により検査能力が限られ、HLCからの検体を優先したこと、及び、混雑するMCで医師が採血する時間がないことであった。前者の制約は緩和しつつある。後者は、MCと別にHLC開催日などに採血日を設けて解決した医療機関がある。

指標2-3 「本プロジェクトで開発されたものと類似のシステムを他地域に導入する際に有用な、手順書や必要な資源等が記された文書の有無」：達成見込み

他の州・県保健局が同様の検査ネットワークを導入することを想定し、運営マニュアルを再構成中であり、2017年12月までに完成予定である。

### (3) 成果3：対象4BHにおける医薬品供給管理が強化される。：達成見込み

指標3-1 「医薬品供給管理情報システム（Medical Supplies Management Information System：MSMIS）を利用している対象BHの数」：達成見込み

終了時評価時点ではMSMISが稼働しているBHはなく、未達成であった。しかしながら、進捗度に差はあるが全BHでMSMIS稼働に向けた準備が進行中であり、大きな遅れがなければプロジェクト終了までに全BHで稼働し、達成は可能と考えられる。

円借款事業による新病棟の完成、新病棟への機能移転、薬剤庫の旧病棟内での移転・拡張などが終了したところからシステムの設置が開始されたが、その遅れにより本成果が大きな影響を受けた。

指標3-2 「本プロジェクトで開発されたものと類似のシステムを他地域に導入する際に有用な、手順書や必要な資源等が記された文書の有無」：達成見込み

2017年11月までに完成予定で作成中である。

指標は達成するが、システム稼働がプロジェクト終了直前になるため、各病院でのシステム運用経験を踏まえた上記文書の改訂までは実施できない見込みである。

#### 3-1-2 プロジェクト目標の達成状況

##### (1) プロジェクト目標：対象4BH及びその管轄地域内のPCIにおけるNCDs管理がクラスター単位で強化される。：おおむね達成

指標1 「PCIからリファーされた患者のうち、紹介先の病院のMC、DCを受診した患者の割合」：指標（リファラル完了率：目標80%）は4地区中、リファラル・モニタリングの導入が遅れ指標実績の計測ができないカルワンクディ地区を除く3地区で達成（2017年6月現在：ガルガムワ地区91%、ワラカポラ地区89%、テルデニヤ地区96%）。他地区の経緯から、プロジェクト終了までに全地区で達成見



込み。

⇒ 2017年4～6月の調査によると、リファラル・モニタリングを導入していない地域のリファラル完了率70%に対し、本事業対象地域は100%を達成し、大きな差があった。患者をリファーする際にリファラル・フォームを手渡ししたことが患者の認識を強化した可能性が考えられる。

指標2 「プロジェクト対象地域（4BH受診圏）内の公立病院における、MC及びDCの患者に関するデータの有無」：2016年の患者調査によりデータが得られ、指標は達成済み。

指標3 「対象4県においてクラスター単位でNCDs管理を行うためのツールパッケージの有無」：文書は作成中。2017年10月までに完成予定。

### 3-2 評価結果の要約

#### (1) 妥当性：高い

「国家保健マスタープラン（2016～2025）」ではスリランカで増加傾向にあるNCDsに対応するため、予防・治療の改善によるNCDs管理の必要性が明記されている。NCDs管理はGOSLがめざす複数の持続可能な開発目標（Sustainable Development Goals：SDGs）に関連づけられる。分野間の協力の必要性からGOSLは「NCDs管理のための国家マルチセクター行動計画（2016～2020）」を作成している。さらに、NCDsの予防と管理のために政府が2011年に作成した「慢性NCDsの予防とコントロールのための国家政策・戦略枠組み」において、本事業は「効率的なNCDs健診（戦略2）」「NCDsの最適な治療（戦略3）」「国家情報システム構築（戦略6）」と合致する。

他方、日本のスリランカに対する援助は、対スリランカ国別援助方針（2012）において開発課題「脆弱性軽減のための社会基盤整備」の中で「保健医療プログラム」を設定し、①保健行政能力向上、②NCDs予防と管理の強化、③保健医療基盤の改善を三つの協力の柱としており、本事業は日本の援助方針に合致している。

#### (2) 有効性：おおむね高い

上述3-1 実績の確認に記載のとおり、終了時評価時において、プロジェクトの成果1及び成果2は一部の指標を除き、おおむね達成し、成果3についてはプロジェクト終了までに達成される見込みが高い。プロジェクト目標もプロジェクト終了までに達成が見込まれるため、本事業の有効性はおおむね高いと判断される。「対象地域のNCDs管理がクラスター単位で強化される」というプロジェクト目標への本事業の具体的な貢献及び課題は以下のとおり。

- ・ HLCの健診では検査ネットワークの導入により受診者の利便性が向上し、受診者増加をもたらした。しかしながら、TC値を参照したトータル・リスク・アセスメントは実施されておらず、TC検査結果を適切に参照する手順を徹底する必要がある。
- ・ HLCの健診を通じて高リスクと判断された者はMC（院内あるいは院外）にリファーされる。リファラル・モニタリングの導入により受診率が向上し、NCDs疑い患者のより迅速な治療が行われるようになった。プロジェクトは、持続性の向上を念頭

に、残り期間で、その仕組みの簡素化を検討する予定である。

- ・ 患者調査データは医療機関別、患者の居住地別に集計可能であり、NCDs管理の政策決定や州・県等での計画立案に活用できる。MSMISの導入は、BHにおける薬品、試薬その他の消耗品の適切な在庫管理を通じ、NCDs健診への検査サービス、治療のより確実な提供に貢献する。

スリランカ側の全般的な人材不足、地方医療機関への一部の重要な消耗品の不安定な供給が有効性の制約要因となった。また、本事業と円借款事業は相乗効果を期待されていたものの、円借款事業の遅れが本事業に大きな影響を与えた。そのリスクについて計画時に十分な注意が払われていなかった。

(3) 効率性：中程度

投入要素はおおむね計画どおりで、合同調整委員会（Joint Coordinating Committee：JCC）と四つのワーキング・グループ（Working Group：WG）によるプロジェクト運営も適切だったが、スリランカ側の医療機関・医療行政官の人材不足・忙しさが活動の主な制約となった。プロジェクト開始直後のプロジェクト・デザイン・マトリックス（Project Design Matrix：PDM）の全面的な見直しに3～4カ月を要して活動の立ち上がりが遅れた。また、円借款事業による病院建設の遅れ、カルワンチクディにおける内科専門医（Visiting Physician：VP）とMLTの配置の遅れが各成果に影響を与えた。投入はおおむね活用されたが、検査ネットワークの検体運搬用に供与されたオートバイ、オート三輪の一部は、運転手がない、迅速に修理できないなどの理由で、終了時評価時には活用されていなかった。成果の達成状況が十分高くないことも考慮し、効率性は中程度である。

(4) インパクト：上位目標達成への貢献が期待される

本事業は、各成果が他地域あるいは全国に普及されることで上位目標「国家NCDs対策プログラムが強化される」の達成に貢献することが期待されている。「本事業で開発された各種ツールの他県への普及（指標1）」について、終了時評価時点では、HLC監督チェックリストが全国で試行されているだけで、そのほかには実現していない。本事業のツールは他地域への普及を念頭に作成されており、リファラル・モニタリングや検査ネットワークの仕組みもいずれは他地域に普及していくことが期待されるが、具体的な見通しは不明である。MoHはMSMISを全国の州立病院に導入する予定であるが、具体的スケジュールは未定である。「NCDs患者の全国データの存在（指標2）」については、本プロジェクト終了後、MoHは早ければ2018年中にも全国調査を実施することを計画しており、早期の実現が期待される。その他のインパクトとして、本事業が導入した検査ネットワークはNCDs以外の患者についても利用可能であり、PCIの診療能力全般の強化に貢献することを指摘できる。

(5) 持続性：中程度

以下を総合し、本事業の持続性は中程度と判断される。

- ・ 政策制度面の持続性は非常に高い。MoHはNCDs管理を重要視し、NCDs管理戦略を見直す予定であるが、本事業が取り組んだNCDs疑い患者の早期発見・早期治療、患者データの重要性は変わらないと考えられる。
- ・ 財務面の持続性はおおむね高い。本事業の活動を継続するための費用は人件費・一般管理費のみと大きくない。他地域への普及においては検査室整備、運搬手段（車両）の確保、MSMISライセンス料購入などの費用がかかるが、MoHには予算の大きな制約はない。州保健局でも、NCDs対策の重要性から、必要な予算が確保されると期待される。
- ・ 技術面の持続性はおおむね高い。リファラル・モニタリングの簡素化は持続性の向上につながり、本事業の経験から得られた各種知見は他地域への普及に有用であると期待される。MSMISの技術サポートはMoHが契約する民間企業が提供するが、その契約範囲に州管轄の病院を入れることで、本事業の持続性が確保される。
- ・ 組織面・管理面については、医療機関及び医療行政部門の全般的な人材不足が本事業の持続性を脅かす懸念がある。また、重要な消耗品の調達のための各部門における手続きの停滞を改善する必要がある。MLTの不足については、データ入力等を行う補助要員を追加することでその影響を緩和できる。他方、MoHが今後予定している健康推進員（Health Promotion Officer）及びコミュニティ保健看護師（Community Health Nurse）の全国配置が実現すれば、リファラル・モニタリングの人材不足は緩和される。

3-3 効果発現に貢献した要因

(1) 計画内容に関すること

特になし。

(2) 実施プロセスに関すること

- ・ JCC、WG、JICAチームによる定期的な現場のモニタリング、日本側とスリランカ側の日常のコミュニケーション等を通して、プロジェクトの活動の定期的なモニタリングや問題解決を含むプロジェクト・マネジメントが効率的に実施された。

3-4 問題点及び問題を惹起した要因

(1) 計画内容に関すること

- ・ 本プロジェクトの重要な外部条件であった円借款事業によるBHの機能強化はPDMには明示されず、計画時には、円借款事業の遅れがプロジェクトに与えるインパクトについても十分な注意が払われていなかった。その結果、円借款による対象4BHの検査室、新病棟建設の完成が遅れたことにより、プロジェクト活動の進捗に大きな遅れを生じさせることとなった。
- ・ プロジェクト開始時にあったPDMバージョン1は、プロジェクト計画策定時から状況

が大きく変わっているため、大幅に変更された。その後、中間レビューの提言を受けて、PDMバージョン2の指標の明確化、目標値の設定が行われ、第7回JCCでPDMバージョン3が承認された。その結果、全面的なプロジェクト活動の開始は3~4カ月程度遅れた。

- ・ PDMにある以下の外部条件は常に満たされていたとはいえ、プロジェクトの活動と成果に影響を及ぼした。
  - 「GOSLは、必要な試薬及び資材を継続的に供給できる」一部の検査室及び医療機関における試薬及び検査試験管不足が検査ネットワークの運用に影響を与えた。
  - 「対象BHに必要な機材及びMLTが配置される」新たな検査室設置の遅れが検査ネットワークの運用開始に影響を与えた。
  - 「PCIにおいて検体採取（採血）を行うのに必要な人材が配置されている」そのような人材はほとんどのPCIに配置されているが、MCで採血を行うには多忙すぎた。

## (2) 実施プロセスに関すること

- ・ PDMの大幅な改訂は、プロジェクト活動開始の遅れにはつながったが、日本側とスリランカ側が一緒に、対象地域の最新の情報を確認できたほか、共同でプロジェクトに取り組もうというコミットメントを高めることに寄与した。
- ・ 円借款事業におけるBH建設の遅れが、成果1、2の一部の活動並びに成果3のほとんどの活動の進捗に影響を与えた。
- ・ カルワンチクディでは、BHへのVP及び追加的なMLTの配置の遅れにより、終了時評価時にはリファラル・モニタリングと検査ネットワークに関連する指標が十分達成できていない。
- ・ 全般に、医療機関及び医療行政における人材不足が深刻であり、特に、プロジェクトが導入した活動が本来の職責に含まれていないような場合、十分な活動が行われなかった。また、人材交代時の引き継ぎが不十分なことが障害となった。

## 3-5 結論

本事業の妥当性は非常に高い。本事業はNCDs疑い患者の早期発見・早期治療に貢献し、有効性はおおむね高く、上位目標への貢献が期待できる。成果の一部指標が計画どおり達成できないと見込まれること、活用できていない投入が一部みられることから、効率性は中程度である。政策面・財務面・技術面の持続性は高いが、組織・管理面に懸念があることから、本事業の持続性は中程度である。以上を総合し、本事業は「おおむね良好 (satisfactory)」に完了すると期待される。

## 3-6 提言

### (1) プロジェクトへの提言

- ・ プロジェクト終了までに4BHのMSMISを稼働させる。また、プロジェクト終了後に

MSMISの実際の運用経験を反映してマニュアルを改訂する作業を実施機関ができるように支援する。

- ・ プロジェクト終了までにケゴール、キャンディ、バティカロワの全県患者調査を完了させるために、県保健局は必要な資源を配分し、専任調整官を置く。
- ・ 持続性を高めるために、高いリファラル受診率を損なわない範囲でリファラル・モニタリングの仕組みを簡素化する。
- ・ 検査ネットワークで得られたTC値を適切に活用できるように、受診者がTC検査の結果を取りにHLCに戻った際にリスク・アセスメントを行うべきことをHLC担当医に周知し、マニュアルに明記する。
- ・ 各対象地域で繰り返されてきた試行的活動の経験を体系化して関係者と共有するため、各種オプション、計画・モニタリング・監督の各段階で有用な実務上の留意点、グッドプラクティス等の有用な情報をツールパッケージに含める。
- ・ 本事業で投入されたオートバイとオート三輪を活用するために、州保健局・県保健局は修理と適切な保守、運転手の公式な任命を速やかに行う。配置先医療機関の変更が必要な場合は、JICAの同意の下で行う。

## (2) MoHへの提言

- ・ 県保健局のNCDs担当官が単独で多数の業務に忙殺されているため、MoH及び州・県保健局は、追加人材の配置と協業体制の構築を図る。
- ・ MoHは、全国患者調査のため、本事業で得られたノウハウと能力を可能な限り維持しつつ、適切な実施体制、人材その他の資源配分を行い、効率的で質の高い情報を得るように努める。さらに、調査結果の分析・活用について、既存情報と併せた分析の可能性も含め、さまざまな方法を検討することが望まれる。
- ・ 州・県保健局は、HLCの医務官に対して、心血管系疾患のリスク・アセスメントでは検査ネットワークあるいは（MoHが導入準備中の）簡易検査キットで得られたTC値を参照するように改めて指導する。
- ・ MoHは、HLC健診登録フォーマット（HLC Registers）の修正を検討する際には、本事業が導入したリファラル・モニタリング及び血液検査結果で関連性の高い項目を統合することを考慮する。
- ・ 検査ネットワークに関して：
  - 州・県保健局は、検査室が十分な能力を発揮できるように、自動検査機の保守と活用、MLTと補助員の配置、試薬や採血用チューブなど消耗品の安定供給、公式に任命された運転手の確保に努める。
  - PCIへの検査サービスの提供について、MoHは、本事業における検査ネットワークの経験と検討しているその他の方法（TC簡易検査キット、民間クーリエ・サービスの利用）を比較し、それぞれの比較優位や必要条件を十分考慮したうえで、何を採用するかを判断する。
  - 検査室及び検査ネットワークの円滑な運営のために、MoHは、各県で検査室に関する部門間及び中央レベルとの調整を行う担当官を設置することが望まし

い。

- ・ 州管轄病院においてもMSMISの技術サポートが得られるように、MoHは、現在の技術サポート契約を再考する必要がある。また、MSMISの利用者数を広げるためにライセンスの追加購入を検討する。
- ・ NCDsに関する課題に効率的に対応するために、MoHは、医師、看護師及びその他の医療従事者の基礎研修において、NCDsの予防と治療に関する内容を盛り込むための措置を取る。

### 3-7 教訓

円借款附帯技術協力プロジェクトでは、円借款事業の進捗が重要な外部条件となるため、計画時には、円借款事業の遅れがプロジェクトに与えるインパクトについて十分考慮したうえで、計画策定を行うことが望ましい。

## Summary of Terminal Evaluation

1. Outline of the Project	
Country: Democratic Socialist Republic of Sri Lanka	
Project: Project for Enhancement of Non-communicable Diseases Management	
Issue/Sector: Health	Cooperation scheme: Technical Cooperation Project
Division in charge: Health Team 4, Health Group 2, Human Development Department	Total cost: 361,473 thousand yen
Project Period: February 2014 – January 2018 (Four years)	Partner Country’s Implementing Organization: Ministry of Health, Nutrition & Indigenous Medicine
<p>1.1 Background of the Project</p> <p>In Democratic Socialist Republic of Sri Lanka, due to the aging population and changes of dietary habits and lifestyle, according to the health statistics of 2006/2007, all of the top five causes of deaths are attributed to Non-communicable Diseases (NCDs). While the NCDs management is prioritized as the key policy in Sri Lanka, Japan International Cooperation Agency (JICA) implemented the technical cooperation project of “Project on Health Promotion and Preventive Care Measures of Chronic NCDs” from 2008 to 2013. Based on the experience of this project, Government of Sri Lanka (GOSL) developed the national policy and guidelines on NCDs in 2009 to improve secondary prevention by early detection and treatment in addition to primary prevention.</p> <p>Concerning the medical facilities implementing the NCDs measures, maintenance and refurbishment of the primary and secondary-level hospitals are insufficient due to limited provincial budgets. The insufficiency of facilities, equipment and medical specialists at secondary-level hospitals are serious issues especially in rural and poor areas, which makes it impossible to support the primary hospitals sufficiently. For the appropriate prevention and treatment of NCDs, it is urgently required to improve the secondary-level hospitals and to strengthen their referral systems. As the increase of NCDs patients is boosting the demand for pharmaceutical supplies, strengthening the production of medicines for treating NCDs is also a national priority issue.</p> <p>In these circumstances, “the Project for Improvement of Basic Social Services Targeting Emerging Regions” (hereafter referred to as “the yen loan project”) based on the Loan Agreements (L/A) between the GOSL and JICA signed in March 28, 2012 was launched to improve medical services in the selected regions and safe and quality essential drug production. To maximize the effectiveness of the yen loan project, by developing NCDs management models, including strengthening linkages among secondary hospitals and Healthy Lifestyle Centre (HLC), a technical cooperation project was requested by GOSL.</p>	

## 1.2 Project Overview

Overall Goal	Enhancement of the national NCDs programme
Project Purpose	Strengthening of NCDs management at the 4 target BHs and primary care institutions in their catchment areas as clusters
Outputs	<p>Output 1: Improved monitoring of NCDs patients in the catchment areas of the 4 target BHs</p> <p>Output 2: Improved availability of laboratory services for NCDs clients of primary care institutions in the catchment areas of the 4 Base Hospitals (BHs)</p> <p>Output 3: Enhanced pharmaceutical supply management at the 4 target BHs</p>

## 1.3 Inputs

<Japanese Side>

Total amount of cooperation: 361,473 thousand yen

Dispatch of experts: 8 personnel

Training in Japan: 6 personnel

Equipment: 4,660 thousand yen

Local operation cost: 1<sup>st</sup> year 9,197 thousand yen, 2<sup>nd</sup> year 9,407 thousand yen, 3<sup>rd</sup> year 10,333 thousand yen, 4<sup>th</sup> year Jan – Jun 5,271 thousand yen (estimate)

## 2. Members of the Mid-Term Evaluation Team

Name	Assignment	Occupation
Dr. Kaname Kanai	Leader	Executive Technical Advisor to the Director General, Human Development Department, JICA
Ms. Yumiko Inoue	Evaluation Planning	Associate Expert, Health Team 4, Health Group 2, Human Development Department, JICA
Mr. Hajime Sonoda	Evaluation Analysis	Senior Consultant, Global Group 21 Japan, Ltd.

Period of Evaluation	Aug 9, 2017 – Aug 27, 2017	Type of Evaluation	Terminal Evaluation
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## 3. Results of Evaluation

### 3.1 Achievements

#### 3.1.1 Achievement of Outputs

(1) Output 1: Improved monitoring of NCDs patients in the catchment areas of the 4 target BHs: Partially achieved.

Indicator 1-1: Availability of a set of tools for a patient survey of Medical and Diabetes clinics.

- Indicator 1-1 is achieved.



- A set of drafted tools for the patient survey has been modified with the several trial surveys and the patient survey for the 4 original target areas has been completed. Region-wide surveys for the 4 regions are being implemented in view of future island-wide survey (the survey for Kurunegala region was completed). Data compilation and analysis is planned to be finished by the end of the Project.

Indicator 1-2: Number and percentage of Primary Care Institutions (PCIs) in the catchment areas of the 4 target BHs tracking their clients referred to Medical/Diabetes Clinics (MCs/DCs) in each Project site.

- Indicator 1-2 is partially achieved.
- Among the 4 target areas, the indicator has been achieved as of June 2017 for the 3 areas except for the Kaluwanchikudy area where referral monitoring started late due to the delays in new hospital building construction and assignment of a Visiting Physician (VP). Full achievement is not certain based on the slow progress of operationalization of the referral monitoring in other three areas which took more than a year.
- Through receiving the back reporting form, it was confirmed that some 80% of the referred clients has visited the referral destination in the 3 areas where referral monitoring was installed. Referral completion ratio has been improved to 95-100% in the target areas though non-target areas without the forms have only 70 % as a result of introduction of referral form and back reporting form.

Indicator 1-3: Availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country.

- Indicator 1-3 is likely to be achieved by the end of the Project.
- The documents will be completed by December 2017.

(2) Output 2: Improved availability of laboratory services for NCDs clients of primary care institutions in the catchment areas of the 4 BHs: Partially achieved.

Indicator 2-1: Percentage of new HLC clients at PCIs who had blood tests for Total Cholesterol (TC) or lipid profile at the target BH's laboratory through the laboratory network system established/ strengthened by the Project in each Project site

- Number of clients for HLC has been increased due to an increased convenience with availability of free TC tests. Among the 4 target areas, the indicator has been achieved for the 3 areas as of June 2017 except for the Kaluwanchikudy area where lab-network was introduced late. Based on the experiences in the 3 areas, it is likely to be fully achieved by the end of the Project.

Indicator 2-2: Number and percentage of PCIs' Medical Clinics that send to the target BH's laboratory at least 1 specimen in a month for any kind of laboratory tests through the laboratory network system established/strengthened by the Project in each Project site.

- Level of achievement is low in all the target areas. Although improvement is expected for the remaining period of the Project, full achievement of the indicator is difficult. Main reasons for the non-achievement of the indicator include that the laboratories prioritized the blood samples from HLCs because their capacity had been limited due to non-assignment of Medical Laboratory Technologists (MLTs) and restricted availability of reagents, and that the doctors of MC are too busy to draw blood due to congestion. The former restrictions are being improved. As for the later, some institutions could solve the problem by setting other occasion, for example the HLC days, to draw blood from MC patients.

Indicator 2-3: Availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country.

- Indicator 2-3 is likely to be achieved by the end of the Project.
- The documents are being revised in order to institute similar system in other provinces and prefectures and will be completed by December 2017.

(3) Output 3: Enhanced pharmaceutical supply management at the 4 target BHs: Likely to be achieved.

Indicator 3-1: Number of the target Base Hospitals using Medical Supply Management Information System (MSMIS) for their pharmaceutical supply management.

- Indicator 3-1 is likely to be achieved by the end of the Project.
- The indicator is not achieved at the time of terminal evaluation, as MSMIS is not operational at any target BHs. While progress of preparation differs, preparation for installation of MSMIS at each BH. Were there no major delays, it is expected that MSMIS becomes operational in all the BHs and the indicator could be achieved.
- Installation of MSMIS started after completion of the new hospital building construction, transfer of hospital functions to the new building, transfer and/or expansion of medicine storehouses, etc. However, delays in such works affected the performance of this output.

Indicator 3-2: Availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country.

- Indicator 3-2 is likely to be achieved by November 2017.
- The indicator will be achieved. However, revision of the documents based on practical experiences on operation of MSMIS at each BH would not be carried out, as the system could be put into operation just before the end of the Project.

### 3.1.2 Achievement of Project Purpose

(1) Project Purpose: Strengthening of NCDs management at the 4 target BHs and primary care institutions in their catchment areas as clusters: Almost achieved.

Indicator P-1: Percentage of patients referred from PCIs i.e. (i) from HLC@PCI to MC/DC@PCI, (ii) from HLC@PCI to MC/DC@BH and (iii) from MC/DC@PCI to MC/DC@BH, who completed the referral at the institutions specified.

- The indicator (referral completion ratio  $\geq 80\%$ ) was achieved in the 3 among the 4 target areas, except for the Kaluwanchikudy area (Galgamuwa = 91%, Warakapola = 89%, Teldeniya = 96%). Based on the experiences in the three areas, the indicator is likely to be fully achieved by the end of the Project.
- According to a survey during April – June 2017, referral completion ratio of the target areas was almost 100%, making large difference compared to the same for non-target areas which was 70%. It is possible that handing out a new referral format to the clients has enhanced their awareness to an importance of visiting the referral destination.

Indicator P-2: Availability of data on patients of Medical and Diabetes clinics at the MoH hospitals in the 4 project sites.

- The indicator was achieved through the clinical survey conducted in 2016.

Indicator P-3: Availability of a package of tools for NCDs management at primary and secondary institutions as a cluster in the 4 target districts.

- The documents are under development and will be completed by October 2017.

### 3.2 Analysis based on the Evaluation Criteria

#### (1) Relevance: high

Needs for the NCDs management are clearly illustrated in the National Health Master Plan 2016 - 2025 which envisages reorientation of curative and preventive services to deal with an increasing burden of NCDs. NCDs management is related to several Sustainable Development Goals (SDGs) which GOSL is focusing its development efforts. In view of an importance of concerted efforts of relevant sectors, GOSL also prepared a “National Multi-sectoral Action Plan for the Prevention and Control of Non communicable Diseases 2016-2020”. Moreover, “The National Policy & Strategic Framework for Prevention and Control of Chronic Non-Communicable Diseases” developed in 2011 particularly for the prevention and the management of NCDs includes which correspond to the objectives of the Project; cost-effective screening of NCDs (key strategy No.2), optimal NCDs care (key strategy No.3), and national health information system including disease and risk factor surveillance (key strategy No.6).

On the other hand, Japan’s Country Assistance Policy to Sri Lanka in 2015 aims at reducing vulnerability of the population and assisting the maintenance of facilities and capacity building in the health and medical sector to support the social services infrastructure. Thus, the Project corresponds to the cooperation policy of Japan.

## (2) Effectiveness: fairly effective

Almost all indicators for Output 1 and 2 have been achieved at the time of terminal evaluation and Output 3 will be achieved by the end of the Project. Since the indicators of the project purpose are likely to be achieved by the end of the Project, it is judged that the Project is fairly effective. Concrete contribution of the Project to an achievement of the project purpose “Strengthening of NCDs management at the 4 target BHs and primary care institutions in their catchment areas as clusters” as well as some issues related to this are explained below.

- Introduction of the lab-network for HLC screening increased convenience for the clients and resulted in an increase of clients. While TC level became available, it is not utilized for the total risk assessment. Therefore, the results of TC test should be thoroughly referred according to the established risk assessment procedures.
- High risk clients identified through HLC screening are referred to MC of the same or higher institutions. After the introduction of referral monitoring, referral completion ratio has been increased enabling more prompt treatment for the high risk clients. In view of enhanced sustainability, the Project is planning to simplify the referral monitoring system during the remaining period
- The clinical data obtained through the Project can be compiled by institutions as well as by the residence of patients, and could be utilized for such purposes as policy making for NCDs management, planning at region or district levels, etc. Introduction of MSMIS would contribute to reliable provision of laboratory services and medical treatment for NCDs by means of appropriate stock management of medicines, reagents and other medical supplies.
- General scarcity of human resources in Sri Lanka and unstable supply of some important consumables hampered the effectiveness of the Project.
- While synergistic effects with the yen-loan project have been expected, delays in execution of the yen-loan project brought about an important influence to the Project, for which risks had not been carefully examined at the time of planning.

## (3) Efficiency: moderate

Inputs for the Project have been mostly as planned and project management through Joint Coordinating Committee (JCC) and the four working groups (WG) has been adequate. However, shortage of human resources as well as limited availability of personnel at medical institutions and medical administrations in Sri Lanka were the major constraints for the Project activities. Through revision of the Project Design Matrix (PDM) at the beginning of the Project generated 3 - 4 months delay in starting full-fledged activities. Delays in new hospital building construction by the yen-loan project, delays in assignment of Medical

Laboratory Technologists (MLTs) and a Visiting Physician (VP) in Kaluwanchikudy BH affected the production of outputs. While most of the inputs were properly utilized, some of the vehicles procured for transporting blood specimens are not fully utilized at the time of Terminal Evaluation due to delayed delivery to the BH, non-assignment of a driver, and long delays in repairing defects developed. In view of the above, efficiency of the Project is judged to be moderate.

(4) Impact: contribution to achievement of the overall goal is expected

The Project is expected to contribute to achievement of its overall goal “an enhancement of the national NCDs programme” through diffusing its outputs to other area or to the entire nation. As for “number and percentage of health regions using the tools developed under the Project” (indicator 1 for the overall goal), at the time of terminal evaluation, only the HLC supervision checklist has been used nationwide on trial basis, and no other diffusion has been made. The referral monitoring system and the lab-network system of the Project are expected to be introduced in other areas and the tools are being prepared such diffusion in mind. However, its specific outlook is not clear. As for MSMIS, Ministry of Health, Nutrition & Indigenous Medicine (MoH) is planning to introduce it to all the regional hospitals, but its specific schedule is not fixed. As for the “availability of national data on patients attending medical and diabetes clinics of MoH hospitals” (indicator 2 for the overall goal), MoH is planning to carry out an island-wide clinical survey as early as 2018, and its prompt achievement is expected. As an impact other than the overall goal, it can be pointed out that the lab-network introduced by the Project are useful for non-NCDs patients and can contribute to strengthening of medical care capacity of PCIs in general.

(5) Sustainability: moderate

Based on the following analysis, sustainability of the Project is judged to be moderate.

- Sustainability in political aspect is very high. MoH puts an importance on NCDs management. While MoH plans to review the current NCDs management strategy, the importance of early detection and treatment of NCDs high-risk individuals and NCDs clinical information, which the Project has been working on, will remain unchanged.
- Sustainability in financial aspect is fairly high. Financial resources required in order to continue the activities initiated by the Project are not huge; mainly personnel and administrative expenses. In order to diffuse to other areas, investment may be required in laboratory, vehicles, MSMIS license fee, etc., and MoH does not have restrictions in its budget to fund them. Regional Directorate of Health Services (RDHS) as well, reflecting the importance of NCDs management, is expected to secure necessary funds.
- Sustainability in technical aspect is fairly high. Simplification of referral monitoring is expected to lead to an enhanced sustainability. Knowledge and know-how gained through

the Project would be useful in diffusing the Project to other areas. Technical support for MSMIS is provided by a private firm contracted by MoH, and sustainability would be assured when the regional medical institutions are covered by the contract.

- As for organizational/administrative aspects, there is a concern that general shortage of human resources in medical institutions and medical administration would affect the sustainability of the Project. In addition, improvement is needed for time consuming procedures at various levels for procurement of important supplies. Influence of the shortage of MLTs can be alleviated by placing additional supporting staff who handle data entry and other clerical works. On the other hand, nation-wide deployment of Health Promotion Officers and Community Health Nurses planned by MoH would ease the human resource restriction for referral monitoring.

### 3.3 Contributing factors

#### (1) Planning

- None

#### (2) Implementation Process

- Project management including periodical monitoring and troubleshooting have been carried out efficiently through such mechanisms as JCC, Working Group (WG), periodical monitoring visits by the JICA team, and daily communication and close coordination between Japanese and Sri Lankan sides.

### 3.4 Constraining Factors

#### (1) Planning

- The strengthening of hospital functions through the yen loan project was important external conditions of the Project. However, this was not explicitly stated in the Project Design Matrix (PDM), and when the Project was designed, less attention was paid to the impact of any possible delays in the implementation of the yen loan project on the Project. As a result, laboratories and new wards at the target BHs constructed through yen loan project delayed the progress of the Project activities.
- The original version of the PDM (ver. 1) was greatly modified due to the many developments from the project planning and the Project was fully started 3 to 4 months later than planned at first. Thereafter, in response to the recommendations made by the Mid-Term Review, clarification of the indicators of PDM Ver. 2 and setting of target values were done and formalized at the 7th JCC which adopted the PDM Ver. 3 with the above incorporated.
- The following important assumptions shown in the PDM did not always prevail, and had certain adverse influences on project activities and outputs;

- GOSL is able to continuously supply necessary reagents / test kits: non-availability of reagents and test tubes in some laboratories / institutions affected the operation of lab-network.
- The target BHs are equipped with fully automated and well-maintained biochemical analysers and sufficient number of MLTs: delays in completing the new laboratories in the BHs affected the start of fully operational lab-network.
- PCIs have skilled personnel to draw blood for testing: there is such personnel in almost all the institutions but they are too busy to perform this at MC.

## (2) Implementation Process

- Though major modifications of PDM delayed the start of full-scale activity, it enabled both Japanese and Sri Lankan sides to better understand the specific situations with recent developments in the target areas and strengthen their commitment to working together on the Project.
- The completion of BHs under the yen loan project has been delayed. As a result, some activities under Output 1, 2 and most of the activities under Output 3, which require certain components under the yen loan project to be in place, have experienced major delays.
- Since assignment of a Visiting Physician (VP) and additional MLTs of Kaluwanchikudy BH was delayed, the applicable indicators were not fully achieved at the time of the terminal evaluation.
- Overall, shortage of human resources is serious not only in medical institutions but also in health administration. For this reason, there were cases in which the tasks related to the Project were not sufficiently handled especially if they were not included in the original job description of the Counterpart (C/P).
- Difficulties in handing over process cause disruption of system when staff changes occur.

## 3.5 Conclusions

Relevance of the Project is very high. Effectiveness is fairly high as the Project enhanced identification of high-risk clients and prompt provision of necessary treatment for them, making contribution to the overall goal. Efficiency is moderate as part of output indicators will not be achieved as planned and some inputs have not been well utilized. Sustainability is high in policy, financial and technical aspects, while concerns remain in organizational / administrative aspects. Therefore overall sustainability is moderate. In view of the above, it is expected that the Project would be completed satisfactory.

### 3.6 Recommendations

#### Recommendations to the Project

- The Project should put MSMIS into fully operational before the conclusion of the Project and support that the MoH modifies the manual reflecting the operational experiences after the Project.
- In order to complete the on-going 5th pilot survey of the medical clinics in Kegalle, Kandy and Batticaloa districts, the RDHSs should mobilize all the resources necessary to complete the local operation and assign dedicated personnel for coordination.
- The Project should carefully simplify the referral follow-up system for the sake of sustainability, with due attention not to jeopardize the high referral completion rate achieved.
- So that the TC values obtained through the laboratory network are properly utilized, Medical Officers of HLCs should be specifically instructed to do the risk assessment when a client comes back for the TC result. It is also recommended to have this instruction explicitly stated in appropriate tools being produced by the Project.
- In order to systematize the experiences and knowledge gained through experimental operations in each area and share them with the stakeholders, the Project integrates in the final tool package to be produced useful information such as practical tips, possible options for different circumstances and good practices related to various phase of implementation including planning, monitoring and supervision.
- In order to fully utilize the scooters and the three-wheeler provided for the laboratory network Provincial Directorate of Health Services (PDHS) /RDHS need to carry out prompt repairs and regular maintenance, deployment of designated and authorized personnel to ride them. If necessary, reassignment of a vehicle to another institution where it is best utilized for the purpose with consent of JICA.

#### Recommendations to MoH

- In view of multiple tasks to be performed by Medical Officer (MO) /NCDs, MoH/PDHS/RDHS should consider strengthening regional NCDs interventions by placing additional personnel and necessary mechanism to function as a team.
- In preparation for the planned island-wide clinical data collection exercise, MoH needs to consider a functional organizational set up by reviewing all the related tasks and human and other resources necessary to carry them out efficiently for the sake of quality data. In this regard, it is important to assure the know-how and capacity obtained through the Project are maintained and utilized to the extent possible. In addition, the MoH is encouraged to



explore various ways to analyze and utilize the data obtained, also in combination with other available data from routine reporting and other surveys.

- Medical Officers of HLCs need to be re-oriented and supervised to use TC test results for the Cardiovascular Disease (CVD) risk assessment when they become available either through setting up laboratory networks or provision of Point-of-Care Test (POCT) facilities as planned by MoH.
- When revising the HLC registers, consider integrating relevant aspects of the referral tracking and laboratory test registers introduced by the Project.
- As for the lab-network;
  - In order to keep the lab-network fully functional, MoH should further strengthen its capacity to ensure proper maintenance and effective utilization of automatic analyzers, appropriate assignment of MLTs and laboratory assistants, sufficient and continuous supply of consumables including reagents and test tubes, and assignment of authorized transporters.
  - As MoH considers different options to avail laboratory investigations to clients of peripheral institutions, including POCT, use of private courier services and laboratory network similar to those set up by this Project, comparative advantages and applicability of each option should be clarified in view of different local conditions before making decision.
  - In order to ensure smooth, continuous and quality operation of laboratories including the laboratory networks established, a designated position may be required to properly oversee laboratory-related operations in each region, coordinating necessary resources with relevant sections of regional and central health administrations.
- MoH may need to revisit the scope of the current service agreement for MSMIS with the contractor, to ensure that necessary support is also provided to the institutions under provincial management. Also, consider purchasing additional user licenses to ensure the institutions' access to the system.
- In order to efficiently address the challenges of NCDs, MoH should take active steps to integrate relevant aspects of their prevention and treatment in basic training of doctors, nurses and other relevant paramedics.

### 3.7 Lesson Learnt

Progress of yen loan project is an important external condition of technical cooperation project which is implemented together with yen loan project. Therefore, impact of any possible delays in the implementation of the yen loan project should be paid more attention when the technical cooperation project is designed.

## 第1章 評価調査の概要

### 1-1 調査団派遣の経緯と目的

スリランカ民主社会主義共和国（以下、「スリランカ」と記す）は、人口の高齢化と食生活、生活習慣の変化に伴い、1980年代から心臓疾患や脳血管系疾患等の非感染性疾患（Non-communicable Diseases：NCDs）が死亡原因として感染症を上回っており、2006/07年の統計によると五大死因はすべてNCDsによるものである。スリランカ政府（Government of Sri Lanka：GOSL）は、「健康な社会の形成」を重点政策とし、予防及び健康増進活動、早期治療を中心としたNCDs対策強化を通じ、効率的で持続可能な保健医療システムを確立することを国家の保健政策としている。

GOSLは、JICA技術協力プロジェクト「健康増進予防医療サービス向上プロジェクト（2008年5月～2013年3月）」での経験をもとに、血圧、血糖値などの測定を通じた心疾患、糖尿病などのNCDsの疑い患者（高リスクグループ）を特定する健診活動及びNCDsに関する健康教育を行う「健康生活センター（Healthy Lifestyle Centre：HLC）」を全国の医療機関に設置する事業により予防対策・健診の展開を進めている。あわせて、JICA円借款事業「地方基礎社会サービス改善事業」〔借款契約（Loan Agreement：L/A）2012年3月/39億3,500万円〕では、「疾病構造の変化に対応すべく、対象州でのNCDsの早期発見及び早期治療（二次予防）の強化を通じて、NCDs対策能力を強化する」ことを事業の目的に、①国立必須医薬品製造センター（State Pharmaceutical Manufacturing Corporation：SPMC）改善、②二次医療施設（初期的な医療を行う一次医療施設と高度な医療を行う三次医療施設との中間を担う施設）改善、③リファラル体制強化（救急車整備）に取り組んでいる。

一方で、健診によりNCDsに罹患するリスクが高い人々が発見されることが多くなると見込まれるものの、二次医療施設において十分な設備と人材が整備されていないため、さらなる診断や治療に対応することができず、検査機材や専門医が存在する三次医療施設へNCDs疑い患者を紹介し、対応している現状があり、NCDs管理を効率的に進めるためには、二次医療施設を強化し、適切な診断と最低限の治療を行う体制を整備することが課題となっている。また、健診を行うHLC及びNCDsに罹患している疑いがある患者が発見される一次医療施設と、二次医療施設との患者紹介や逆紹介のための連携強化も大きな課題となっている。

さらに、スリランカでは公的医療サービスは無料で提供されているものの、医療施設における基礎検査試薬・医薬品の在庫が十分でないため、患者もしくは家族が自費で薬剤等の購入を行うことが散見され、特にNCDsの検査や治療においてその傾向が顕著であり、公立病院でのNCDsに対する継続的な服薬や治療を続ける体制が脆弱である点も指摘されている。このため、必要な医薬品が必要な病院に適正量保管されることが重要である。

これらのことから、NCDsに罹患している疑いのある患者を健診の現場を起点に円滑に診断・治療に引き継ぐことで、一次・二次医療施設のNCDs管理の質を向上させ、持続可能な保健システムを確立することが喫緊の課題となっている。

このような状況の下、GOSLによるNCDs管理のモデルの拡大を支援し、対策に必要な早期治療体制を確立することを通じて、円借款事業の効果増大を図ることを目的とし、2014年2月から2018年1月まで4年間、円借款附帯技術協力プロジェクト「非感染性疾患対策強化プ

プロジェクト」(以下、「本プロジェクト」と記す)が実施されている。

本プロジェクトは、糖尿病、高血圧症、脂質異常症を対象として、コロンボ及び4州4県(北西部州クルネガラ県、中央州キャンディ県、サバラガムワ州ケゴール県、東部州バティカロア県)の基幹病院(Base Hospital: BH)の診療圏において、一次医療機関(Primary Care Institution: PCI)及び四つのBHにおける患者モニタリングの強化、NCDs検査受診者、患者の検査サービスアクセスの向上、医薬品供給管理の強化の三つの成果を通じ、対象県のNCDs管理を強化することに取り組んでいる。

本プロジェクトは2018年1月に終了予定であるため、終了時評価調査を実施するものである。具体的には、スリランカ側と合同でプロジェクトの活動進捗状況を確認し、達成度の検証を行い、さらに評価5項目(妥当性・有効性・効率性・インパクト・持続性)の観点から評価を行い、評価結果に基づき、残りの協力期間における対応方針について検討したうえで、プロジェクト及び関係当局に提言することを目的とする。

### 1-2 調査日程

現地調査は2017年8月9日(水)から8月27日(日)までの期間で実施された。

調査日程の詳細は、付属資料1. ミニッツ添付合同評価報告書1.2項を参照。

### 1-3 調査団の構成

調査団の構成は以下のとおり。

担当分野	氏名	所属・役職
団長/総括	金井 要	JICA人間開発部技術審議役
評価企画	井上 由美子	JICA人間開発部保健第二グループ保健第四チーム
評価分析	藺田 元	株式会社グローバル・グループ21ジャパン

### 1-4 プロジェクトの概要

#### (1) 案件名

(和) 非感染性疾患対策強化プロジェクト

(英) Project for Enhancement of Non-communicable Diseases Management

#### (2) 対象地域

コロンボ<sup>1</sup>、北西部州クルネガラ県ガルガムワBHとその周辺地域、中央州キャンディ県テルデニアBHとその周辺地域、東部州バティカロア県カルワンチクディBHとその周辺地域、サバラガムワ州ケゴール県ワラカポラBHとその周辺地域

#### (3) 協力期間

2014年2月～2018年1月

#### (4) 協力相手先機関

<sup>1</sup> コロンボにはMoH、4州には円借款「地方基礎社会サービス改善事業」の対象BHがあり、これらを活動拠点とする。

① 保健省（Ministry of Health : MoH）計画局

MoH内関係部局は多岐にわたるため、計画局が本プロジェクトの主要カウンターパート（Counterpart Personnel : C/P）であり調整窓口となるが、他の関係部局とも密に連絡・協議する。

プロジェクトディレクター：MoH次官

プロジェクトマネジャー：MoH計画局保健情報課課長

その他：MoH医療局長補、公衆衛生サービス局長補、教育・訓練・研究局長補、非感染性疾患対策課長ほか

② 対象各州・各県の保健局

③ 対象BHとその受診圏にある一次診療施設

### 1-5 プロジェクトの要約

下記プロジェクトの概要は、2013年10月22日に締結された討議議事録（Record of Discussions : R/D）並びに、2017年1月27日に開催された第7回合同調整委員会（Joint Coordinating Committee : JCC）において合意されたプロジェクト・デザイン・マトリックス（Project Design Matrix : PDM）（Ver.3）（付属資料1.ミニッツ添付合同評価報告書Annex 1）に基づく。

(1) 上位目標

国家 NCDs 対策プログラムが強化される。

(2) プロジェクト目標

対象 4 BH及びその管轄地域内のPCIにおける NCDs管理がクラスター単位で強化される。

(3) 期待される成果

成果1：対象 4 BHの管轄地域において NCDs患者のモニタリングが向上する。

成果2：対象 4 BHの管轄地域内にあるPCIの NCDs患者のための検査サービスの利便性が向上する。

成果3：対象 4 BHにおける医薬品供給管理が強化される。

## 第2章 評価の方法

### 2-1 評価の枠組み

本調査は、『JICA事業評価ガイドライン（2014年5月：第2版）』に基づいた評価手法に沿って、文献調査〔R/D、PDMの最新版であるバージョン3、活動計画表（Plan of Operations：PO）、プロジェクト報告書、議事録など〕、関係者に対する質問表調査及びインタビュー、プロジェクトサイトの訪問調査によってデータ、情報を収集した。プロジェクトの実績、実施プロセス及び5項目評価に沿って暫定的な評価結果をスリランカ側の合同評価委員会メンバーや、その他プロジェクト関係者と議論し、必要な修正を加えたうえで最終的な評価結果をまとめた。

#### (1) プロジェクトの実績と実施プロセス

検証項目	検証の視点
実績	プロジェクト実施の結果何が達成されたのか、それらは期待どおりであるか
実施プロセス	プロジェクトを実施する過程（プロセス）で何が起きているのか、それらはプロジェクトのアウトカム目標の達成にどのような影響を与えているか。

#### (2) 評価5項目

評価5項目の各項目の定義は以下のとおりである。

評価5項目	JICA事業評価ハンドブック（Ver. 1.1）による定義
1. 妥当性	開発インターベンションの目標が、受益者の要望、対象国のニーズ、地球規模の優先課題及びパートナーやドナーの政策と合致している程度
2. 有効性	開発インターベンションの目標が実際に達成された、あるいはこれから達成されると見込まれる度合いのことであり、目標の相対的な重要度も勘案しながら判断する。
3. 効率性	資源及び（または）インプット（投入）〔資金、専門技術（知識）、時間など〕がいかに経済的に結果を生み出したかを示す尺度
4. インパクト	開発インターベンションによる貢献が期待されている、より高次の目標
5. 持続性	開発インターベンションの終了時における、開発インターベンションによる便益の持続性 長期的便益が継続する見込み。時間の経過に伴う純益の流出というリスクに対する回復力

出所：JICA事業評価ハンドブック（Ver. 1.1）、2016年5月

### 2-2 終了時評価の手順

- ① 投入の適切性、プロジェクト目標と成果の達成度を含むプロジェクトの進捗状況を分析した。
- ② 評価設問と評価グリッドを作成し、「妥当性」「有効性」「効率性」「インパクト」「持続性」の五つの観点（評価5項目）からプロジェクトを評価した。

- ③ 質問票、現場視察、関係者とのインタビュー結果からプロジェクトを評価し、終了時評価として報告書にまとめた。
- ④ スリランカ及び日本側に評価結果を伝え、両者が評価結果に同意したのち、議事録の署名を行った。

## 第3章 評価結果

### 3-1 プロジェクトの実績

#### 3-1-1 投入実績

##### (1) 日本側投入

##### 1) 専門家派遣

以下のとおり、2017年6月までに6分野の専門家が派遣された（表-1）。

表-1 派遣専門家リスト

専門家名	担当業務	派遣期間 (最終見込み)
督永 紋子	総括/NCDs対策/NCDs管理1	20.7 M/M
今仁 直美	副総括/保健行政/NCDs管理2	19.4 M/M
佐多 玲子	NCDs管理/医薬品ロジスティクス1	4.0 M/M
前平 由紀	医薬品ロジスティクス2	0.9 M/M
山崎 裕章	検査ネットワーク	4.1 M/M
小川 陽子	検査ネットワーク/ICE	1.6 M/M
金子 聡	疫学/保健情報システム1	3.8 M/M
小川 一弥	保健情報システム2	11.7 M/M

##### 2) 供与機材

終了時評価の時点で約350万円相当の機材供与を実施している<sup>2</sup>。機材の内容については、付属資料1.ミニッツ添付合同評価報告書Annex 5を参照。

##### 3) ローカルコストの投入

プロジェクト開始から2017年6月までの間、1年次は919万7,000円、2年次は940万7,000円、3年次は1,033万3,000円、4年次（第1, 2四半期）は527万1,000円のローカルコストが投入された。

##### 4) 本邦研修

- ・ 生活習慣病予防対策：計4名
- ・ 保健医療行政・病院管理研修：計2名<sup>3</sup>

##### (2) スリランカ側投入

##### 1) C/Pの配置

プロジェクトに対して、MoHからプロジェクトダイレクター、プロジェクトマネジャーの2名のほか、C/Pとして付属資料1.ミニッツ添付合同評価報告書Annex 3 のとおり、57名が配置された。

<sup>2</sup> プロジェクトによる機材156万7,680円及びスリランカ事務所調達のオートバイ、オート三輪262万5,500Rsの合計

<sup>3</sup> スリランカからの参加者のうち、本プロジェクトに直接関与する参加者のみを数えた。参加者の詳細は付属資料1.ミニッツ添付合同評価報告書Annex 6を参照



## 2) 施設・機材の提供

MoHは、コロombo市内にプロジェクト事務所スペースを提供した。

### 3-1-2 成果の実績

2014年2月にプロジェクトが開始されてから、合計8回の合同調整委員会（JCC）が開催された。

- 第1回 2014年5月8日開催
- 第2回 2014年8月21日開催
- 第3回 2014年12月2日開催
- 第4回 2015年3月26日開催
- 第5回 2015年11月12日開催
- 第6回 2016年2月11日開催
- 第7回 2017年1月27日開催
- 第8回 2017年8月25日開催

本プロジェクトは四つのワーキング・グループ（Working Group：WG）（①Monitoring & Evaluation、②Laboratory Service Sharing System & Medical Supplies Stock Management System、③Follow up System Development、④Clinical Data collection）によって運営されている。各WGは、MoHや対象4県のBH及び県保健局、JICAプロジェクトチームからの7名から18名程度のメンバーにより構成されている。WGには実務レベルの参加者が少なく、MoHのNCDsユニットに所属する技官（Consultant Community Physician）の中で、WGに参加した者は1名のみであった。

プロジェクトの活動はPDMに沿って実施された。第1～4年目の活動実績は付属資料1.ミニッツ添付合同評価報告書Annex 7を参照。成果2、成果3に関する活動の多くは、外部条件である円借款事業の遅れに影響された。

### 3-2 成果の達成状況

#### (1) 成果1の達成状況

成果1：対象4BHの管轄地域においてNCDs患者のモニタリングが向上する。																	
客観的指標		2017年第2四半期時点															
1-1 MC及びDCの患者調査のための各種ツールの有無（ベースライン値：なし、目標値：あり）		あり（改訂中、2017年11月完成予定） <達成済>															
1-2 各対象地域において、対象4BH周辺のPCIのうち、MCまたはDCにリファーした患者を追跡している施設の数・割合		ガルガムワ：6/7（85.7%） テルデニア：4/6（66.7%）* ワラカポラ：7/7（100.0%） カルワンチクディ：NA**															
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1-3 プロジェクトの非対象地域に、開発された同様のシステムを導入するため、必要な資源に関するドキュメント及び手順の有無（ベースライン値：なし、目標値：あり）		なし（2017年12月完成予定で作成中） <プロジェクト終了までの達成が見込まれる>															

注：\*テルデニアの六つのPCIのうち、1カ所はリファーした患者が誰もいない月があり、ほかの1カ所は医師不在のため診療が停止されていた。\*\*カルワンチクディでは追跡は2017年5月に開始されたばかりであり、指標計測に至らなかった。

成果1は、患者調査（指標1-1）及びリファラル・モニタリング（リファーされた患者の追跡）（指標1-2）を通じ、対象4BHの管轄地域内のNCDs患者のモニタリングの向上を図り、これらの他地域への普及を図るための文書が作成されることにより達成すると判断される。よって、終了時評価の時点においては、部分的に達成していると評価される。

#### 1) 患者調査

MoHには入院患者の死亡率・有病率情報の統計データを定期的に収集する仕組みがあるが、内科専門外来（Medical Clinic：MC）・糖尿病専門外来（Diabetes Clinic：DC）で診療を受ける患者についての統計情報を得る仕組みがなかった。本事業によりMC・DCを対象とした患者調査のツールが作成され、繰り返し行われた試行調査を通じて改善された。開発されたツールを表-2に示す。試行調査を通じた改善により、これらツールは簡便で使いやすく、費用をかけずに適切な結果を得られることが確認されている。よって指標1は既に達成されている。

表-2 患者調査のために開発されたツール（2017年7月現在）

Clinic Survey Data Collection Sheet
Clinic Survey Instruction for Data Collectors
Clinic Survey Data Entry Form (MS Excel VBA)
Clinic Survey Data Entry System (web-based)
Clinic Survey Data Processing Programme
Clinic Survey Operation Manual for RDHS (draft)
Clinic Survey Operation Manual for Institutions (draft)

第5回試行調査はキャンディ県、バティカロア県にあるMoH管轄のすべての病院を対象とするが、その結果を踏まえてツールは最終化される。これまでの試行では、多くの病院のPCにはライセンスを有する表計算ソフトウェア（Excel）がインストールされていないことが明らかとなったため、第5回試行ではウェブサイトを通じたデータ入力を試す予定である。また、世界糖尿病基金（World Diabetes Foundation）の支援を受けた糖尿病関連プロジェクトの一環として、血糖値と血圧の数値データが調査項目に追加された。さらに、MoHが実施予定の全国調査に向けて、日本側からの人材・資金の投入は最小限に抑え、MoH側が主導して調査を行うことにより、全国調査を計画・準備するための手順や必要とされる人員・資機材・予算を明らかにすることが期待されている。第5回試行調査は、対象2県が必要な人材やデータ入力のためのインターネット接続を必要なときに提供できれば、プロジェクト終了までにデータ収集・入力・分析が完了できる見込みである。

本プロジェクトで構築された患者調査の仕組みは必要に応じて調査項目を追加・削除できる柔軟性がある。データは患者の居住地別あるいは受診医療機関別に集計可能であり、医療機関レベル、県・州・国レベルのさまざまな意思決定や計画策定、政策形成に利用できる。患者データの重要性が高いことから、本プロジェクトの患者調査のツール

が完成したあと、MoHは全国調査を行う予定である。

## 2) リファラル・モニタリング

HLCのNCDs健診では受診者の中から、今後NCDsになる可能性が高い者（NCDs疑い患者）をスクリーニングし、追加的な検査や治療のためにMC/DCにリファーする。ほとんどの場合はHLCと同じ病院のMCにリファーされるが、近隣のBHにリファーされる患者もいる。以前は、リファーされたNCDs疑い患者が実際にMCを受診したかどうかを確認する手段がなかったが、本プロジェクトによりリファラル・フォーム、リファラル完了報告フォーム（back reporting form）、各種記録フォームと手順書（マニュアル）などのツールが作成され、試行を繰り返したうえで、対象4BHとその周辺のPCIで導入された。これによりPCIはスクリーニングで確認されたNCDs疑い患者がリファー先を受診したかどうかを、リファラル完了報告フォームが返送されてくることで確認することができる。

2017年6月現在、キャンディ、バティカロア、クルネガラ の3県の対象3BH及び周辺の20のPCIのうち85%に相当する17機関が、リファラル・モニタリングを適切に実施し、これらの3県はいずれも指標1-2を達成している。カルワンチクディ県の対象BHでは、新病棟の完成及びその後の内科専門医の赴任が遅れたためリファラル・モニタリングの導入が遅れ、2017年6月の時点で上記指標の実績は計測されていない。他の3県におけるリファラル・モニタリングは導入後、軌道に乗るまでに時間を要したことから、プロジェクト終了時までカルワンチクディ県で指標が達成される見込みは低い。

リファラル・モニタリング導入からしばらくたった3BHの管轄権では、HLCからリファーされたNCDs疑い患者の9割以上（2017年6月にプロジェクトが実施した調査によるとほぼ100%）が実際に紹介先で診療を受けた。他方、リファラル・モニタリングが導入されていない地域ではこの割合は70%にとどまった。リファラル・モニタリング導入地域でリファラル先受診率（リファラル完了率）が高くなった具体的な理由は十分明らかになっていないが、医療機関関係者は、NCDs疑い患者に診療を勧める際に新たなフォーム（リファラル・フォーム及びリファラル完了報告フォーム）を手渡したことが受診の必要性についての患者の認識を高めることにつながった、との共通の見方を示している。

HLCは、MC/DCから返送されてくるリファラル完了報告フォームにより、紹介患者のほぼ8割の受診を確認できている。これは既に指標1-2の目標水準を超えている。フォームの返送がなかった紹介患者については、紹介先MC/DCへの確認（院内の場合はHLC担当医がMCも担当していることが多い。院外の場合は紹介先に電話で確認する）、それでも確認できないときは、さらに地域の保健所（Medical Officer for Health : MOH）を通じて紹介患者への電話、（電話が分からない・通じない場合は）家庭訪問により確認する手順となっている。

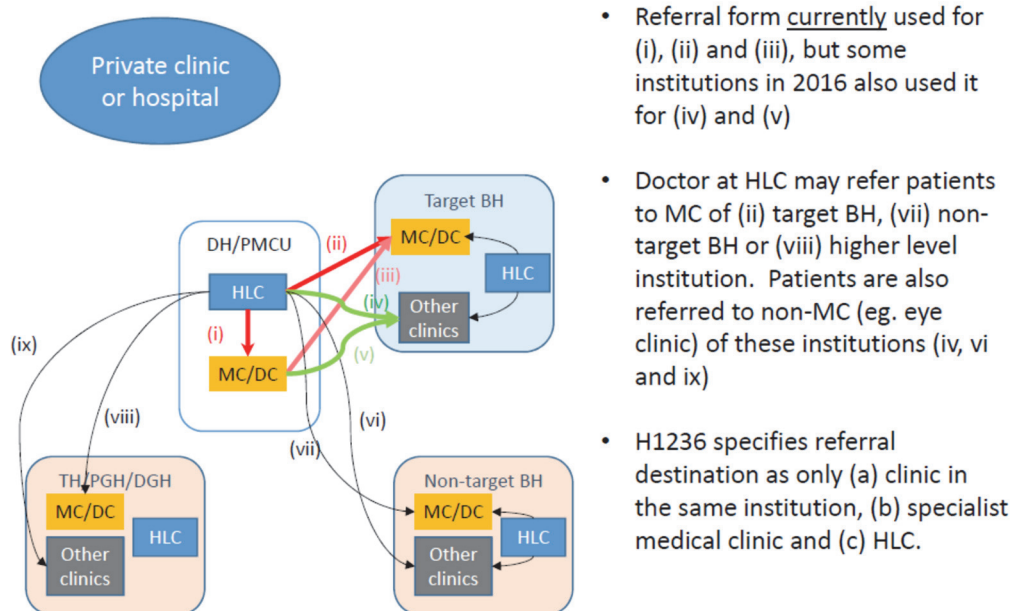
リファラル・モニタリングの各種ツールは試行を重ねて改訂されて、指標の実績をみる限り、十分に運用可能なものであると考えられる。ただし、PCIの中でも人材の乏しい機関では、フォームへの記録・集計作業が適切にできないことがある。また、県保健事務所のNCDs担当官は1名であり、この活動を十分に監督・指導するだけの時間が取れ

ない。

以上のような経験を踏まえ、持続性及び他地域への展開の可能性を念頭に、プロジェクトではリファラル・モニタリング各種フォームの簡素化、追跡手順の簡素化を検討している。

さらに、試行のプロセスや投入された資源（資金・人材）を踏まえ、新たにリファラル・モニタリングを導入する際のガイドラインを作成中である。よって、指標1-3は達成が見込まれる。

なお、リファラル・モニタリングの導入に並行して本プロジェクトは各県のNCDs担当官がHLCの活動全般をモニタリングするためのHLC監督チェックリストを作成した。MoHによると、このチェックリストは使いやすいため、プロジェクト対象地域だけでなく全国に配布され、試行的な運用が開始された。



図ー１ リファラル・モニタリングの流れ

表ー３ リファラル・モニタリングのためのツールの一覧

Referral and back reporting Form triplicate (English/Sinhala, English/Tamil)
Referral Tracking Register and the instruction (English/Sinhala/Tamil)
Referral Form Return Logbook and the instruction (English)
Notification form for MOH on defaulters (English/Sinhala/Tamil)
Sample Medical Clinic Register(English/Sinhala)
Guideline on filling the MC Register (English/Sinhala)
Guide on how to use the Referral/back-reporting Forms (English/Sinhala/Tamil)
HLC Supervision Checklist (English)

リファラル・モニタリングを他地域に導入するための文書（指標1-3）は、モニタリングの最適な仕組みが確定したあと、プロジェクト終了までに作成される見通しである。

(2) 成果2の達成状況

成果2：対象4BHの管轄地域内にあるPCIのNCDs患者のための検査サービスの利便性が向上する。																
客観的指標	2017年第2四半期時点															
<p>2-1 各対象地域におけるPCI附属HLCでの新規受診者のうち、プロジェクトによって構築・強化された検査ネットワークシステムを利用して、対象BHの検査室にて総コレステロール（TC）値または脂質プロファイル検査を受けた割合</p> <table border="1"> <thead> <tr> <th>対象地域</th> <th>ベースライン値</th> <th>目標値</th> </tr> </thead> <tbody> <tr> <td>ガルガムワ</td> <td>不明</td> <td>≥ 75 %</td> </tr> <tr> <td>テルデニア</td> <td>0.00 %</td> <td>≥ 60 %</td> </tr> <tr> <td>ワラカボラ</td> <td>0.00 %</td> <td>≥ 80 %</td> </tr> <tr> <td>カルワンチクディ</td> <td>0.00 %</td> <td>≥ 60 %</td> </tr> </tbody> </table>	対象地域	ベースライン値	目標値	ガルガムワ	不明	≥ 75 %	テルデニア	0.00 %	≥ 60 %	ワラカボラ	0.00 %	≥ 80 %	カルワンチクディ	0.00 %	≥ 60 %	<p>ガルガムワ: 87.3%            テルデニア: 75.5%            ワラカボラ: 94.0%            カルワンチクディ: 39.0%</p> <p>&lt;部分的に達成：プロジェクト終了までの達成が見込まれる&gt;</p>
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カルワンチクディ	0.00 %	≥ 60 %														
<p>2-2 各対象地域内におけるPCIのうち、プロジェクトで構築・強化した検査ネットワークシステムを使い、MCから毎月1検体以上を対象BHの検査室に送っている施設の数・割合</p> <table border="1"> <thead> <tr> <th>対象地域</th> <th>ベースライン値</th> <th>目標値</th> </tr> </thead> <tbody> <tr> <td>ガルガムワ</td> <td>0.00 % (0/7)</td> <td>100.0 % (7/7)</td> </tr> <tr> <td>テルデニア</td> <td>0.00 % (0/6)</td> <td>100.0 % (6/6)</td> </tr> <tr> <td>ワラカボラ</td> <td>0.00 % (0/7)</td> <td>100.0 % (7/7)</td> </tr> <tr> <td>カルワンチクディ</td> <td>0.00 % (0/9)</td> <td>≥ 55.0 % (5/9)</td> </tr> </tbody> </table>	対象地域	ベースライン値	目標値	ガルガムワ	0.00 % (0/7)	100.0 % (7/7)	テルデニア	0.00 % (0/6)	100.0 % (6/6)	ワラカボラ	0.00 % (0/7)	100.0 % (7/7)	カルワンチクディ	0.00 % (0/9)	≥ 55.0 % (5/9)	<p>ガルガムワ: 5/7 (71.4%)            テルデニア: 0/6 (0.0%) *            ワラカボラ: 6/7 (85.7%)            カルワンチクディ: 0/9 (0.0%)</p> <p>&lt;未達成：プロジェクト終了までに達成度の向上が見込まれるが、目標値の達成見込みは低い&gt;</p>
対象地域	ベースライン値	目標値														
ガルガムワ	0.00 % (0/7)	100.0 % (7/7)														
テルデニア	0.00 % (0/6)	100.0 % (6/6)														
ワラカボラ	0.00 % (0/7)	100.0 % (7/7)														
カルワンチクディ	0.00 % (0/9)	≥ 55.0 % (5/9)														
<p>2-3 本プロジェクトで開発されたものと類似のシステムを他地域に導入する際に有用な、手順書や必要な資源等が記された文書の有無（ベースライン値：なし、目標値：あり）</p>	<p>なし（2017年12月に完成予定）            &lt;プロジェクト終了までの達成が見込まれる&gt;</p>															

心血管疾患（Cardiovascular Disease：CVD）のリスクを適切に評価するためには総コレステロール（Total Cholesterol：TC）値を参照する必要がある。しかし、検査室のないPCIではTC値を参照せずに評価を行ってきた<sup>4</sup>。他方、PCIの専門・一般外来で血液検査が必要な患者は、検査室のある近隣の医療機関に行くか、民間検査室のサービスを利用する必要がある。成果2では、円借款により先進的な検査機器を備え検査能力を高めた四つのBHの検査室が各BHの管轄圏にある一次診療機関（PCI）にサービスを提供する「検査ネットワーク」が整備されてきた。その結果、指標2-1の検査ネットワークを用いた検査を受けた割合は向上したが、指標2-2は到達していない。指標2-3は、プロジェクト終了時までには達成が見込まれ、総合的には評価時点では部分的に達成されている。

1) HLCのための検査サービスの提供（指標2-1）

対象となる各BHにおける検査室の整備状況に応じて、HLC受診者に対する検査サービス（指標2-1）は、終了時評価までに、カルワンチクディを除く3県の対象BHで達成された。

- ・ ガルガムアでは本プロジェクトの開始前からHLC受診者のための検査ネットワークが運用されていた。本プロジェクトによりその対象地域が広がり、さらに、一般・専門外来の患者も対象として含まれるようになった。また、プロジェクトは血

<sup>4</sup> HLCではTCが参照できない場合、ガイドラインに沿って、正常値であると仮定したうえでCVDのリスクを評価する。

液サンプルの搬送のためのオートバイを5台供与した。

- ・ フラカポラでは、半自動分析機（円借款ではない）とオートバイ1台による（HLC受診者ではなく）患者のための検査ネットワークが、プロジェクトの2年目に開始された。本プロジェクトは対象をHLC受診者に広げ、血液サンプル搬送のためのオート三輪を供与した。
- ・ テルデニアでは、円借款により全自動分析機を備えた検査室が完成するのを待っていたが、予想以上の遅れがあったため、2016年9月に既存の半自動分析機を使った検査ネットワークが開始された。新たな検査室は2017年4月に完成して運用開始されたが、デング熱の流行期となったため検査需要が大きく、各PCIから受け入れる血液サンプル数を制限する必要があるがあった。
- ・ カルワンチクディでは、2017年2月に円借款による新病棟の竣工式が行われ、2017年4月に検査室が運用可能となった。検査室の水圧不足やMLTの増員の遅れにより、各PCIから受け入れる血液サンプルの数は週に5検体に制約されてきたが、他地域での検査ネットワークの運用状況を考慮すると、カルワンチクディでプロジェクト終了までに指標2-1が達成されるものと期待される。

## 2) MCのための検査ネットワーク（指標2-2）

MCのための検査ネットワークの利用（指標2-2）は低調である。ガルガムワとフラカポラは他の2地域より先に検査ネットワークの運用が開始されたが、それでも指標は目標値に達していない。他の2地域では、2017年第2四半期、MCから少なくとも毎月1検体を送ったPCIはなかった。

その理由として、①テルデニアとカルワンチクディのBHの検査室でMLTや試薬等が一時的に不足していたこと、②PCIのMCに多数の患者が来るため、医師が採血する時間を割けないことが挙げられる。また、このような状況を見越せないなかで指標の到達目標が高く設定されていたという点も指摘できる。MLTや試薬の不足は一時的なもので、カルワンチクディのBHで検査室の給水に問題が残る点を除き、終了時評価までにこれらの制約は解消した。医師の時間不足については、一部のPCIでMCとは別の日（HLC開催日等）に採血が行われており、問題解決のひとつの方法となっている。以上から、指標2-2の実績はプロジェクト終了までにある程度改善される見通しであるが、目標値を達成する見込みは高くない。

## 3) 検査ネットワークの主な効果

HLCで実施されるNCDsのスクリーニング（健診）では複数の要因によるトータル・リスク・アセスメントが行われる。検査ネットワークの利用によりTC値を参照できることで、より正確なトータル・リスク・アセスメントが可能となった。ただし、検査ネットワークでは採血当日に検査結果が得られるわけではないので、医師によっては、健診日（採血日）にTC値なしにトータル・リスク・アセスメントを行うことがある。適切なトータル・リスク・アセスメントを行うためには、TCの検査結果を得たあとにトータル・リスク・アセスメントを行うことが望ましい。

一般に、国民のコレステロール値に対する関心は高いため、無料検査が提供されるこ

とで、HLCの健診に対する関心が高まったと考えられる。フィールド調査では、検査ネットワーク開始後、HLC受診者が倍増した医療機関もみられた。

また、検査ネットワークがなければ健診受診者や患者は民間検査室の有料サービスを利用するか、検査サービスを提供する他の公的医療機関まで出向き、時間をかけて検査を受ける必要があったが、検査ネットワークの導入によりこのような時間・費用を節約することができるようになり、健診受診者や患者の利便性が高まった。

以上のように、検査ネットワークの効果は明白であるが、適切に機能させるためには以下の要素を揃える必要がある。

- ・ 自動分析機など、効率の高い検査機器
- ・ MLTと事務要員
- ・ 検体搬送手段（BHやPCIの車両あるいは公共交通）
- ・ 試薬及びその他の消耗品の継続的な供給

MoHは現在、PCIで利用するためのTCの簡易検査キットの調達を進めている。また、検体と検査結果の輸送に民間配送サービス（courier service）を利用することも検討している。運転手がいなかったためオートバイが提供されなかったテルデニアのBHでは公共交通（バス）が利用されている。

プロジェクトはこれまでの経験に基づき、他の州・県保健局が同様の検査ネットワークを導入することを想定し、検査ネットワークの運営マニュアルを再構成中であり、指標2-3はプロジェクト終了までに達成される見通しである。

### (3) 成果3の達成状況

成果3：対象4BHにおける医薬品供給管理が強化される。	
客観的指標	2017年第2四半期時点
3-1 医薬品供給管理情報システム（MSMIS）を利用している州の管轄下にあるBHの数（ベースライン値：0、目標値：4）	0（カルワンチクディBHでMSMISが部分的に稼働） ＜未達成：プロジェクト終了までに達成の可能あり＞
3-2 本プロジェクトで開発されたものと類似のシステムを他地域に導入する際に有用な、手順書や必要な資源等が記された文書の有無（ベースライン値：なし、目標値：あり）	なし（2017年11月までに作成予定） ＜プロジェクト終了までの達成が見込まれる＞

BHにおけるNCDsの診療において、必要な医薬品が常に提供できることが必要である。成果3は対象4BHに医薬品供給管理情報システム（Medical Supplies Management Information System：MSMIS）が導入されることにより、医薬品供給が改善されることをめざした。

MSMISはすべてのレベルの公的医療機関において医薬品の供給を適切に管理するためのコンピュータ化されたネットワークである。同システムはMoHが民間企業に委託して数年前に開発し、MoH管轄下の医療機関への導入が終了している。本プロジェクトでは州管轄の医療機関への初めての導入例となった。

円借款事業による対象4BHの新病棟建設が遅れたため、終了時評価時点では、カルワンチクディのBHのみにMSMISが導入されているものの、運用はまだ完全には開始されてい

ない。他の三つのBHでは、システムを設置する部屋の簡単な改修工事を行い、システム（パソコン、ネットワーク機器等）を設置し、初期設定のための医薬品の棚卸作業及びシステム利用者への研修を行ったうえで運用が開始できる。これらの作業に大きな遅れがなければ、4BHでプロジェクト終了までにMSMISが運用開始できる予定である。プロジェクトでは、州管轄下の新たな医療機関にMSMISを導入する際の計画、準備、設置のためのマニュアルを作成する予定である。よって、成果3はプロジェクト終了までに達成される見込みである。ただし、MSMISの実際の運用経験を反映してマニュアルを改訂する作業は、PDMの活動に含まれていたが、プロジェクト完了までに実施することができない。

#### (4) プロジェクト目標の達成状況

プロジェクト目標：対象4BH及びその管轄地域内のPCIにおけるNCDs管理がクラスター単位で強化される。	
客観的指標	2017年第2四半期時点
P-1. 一次医療機関（PCI）から以下の(i)～(iii)のルートでリファーされた患者のうち、紹介先の病院のMC・DCを受診した患者の割合（ベースライン値：不明、目標値：80%以上）： ① PCIのHLCから同病院のMCまたはDC ② PCIのHLCからBHのMCまたはDC ③ PCIのMCまたはDCからBHのMCまたはDC	ガルガムワ：90.9% テルデニア：88.9% ワラカボラ：96.0% カルワンチクディ：NA（制度が2017年5月に開始されたため、データ未集計） <部分的に達成：プロジェクト終了までに達成が見込まれる>
P-2. プロジェクト対象地域（コロンボを除く）内の公立病院における、MC及びDCの患者に関するデータの有無（ベースライン値：なし、目標値：あり）	あり <達成済み>
P-3. 対象4県においてクラスター単位でNCDs管理を行うためのツールパッケージの有無（ベースライン値：なし、目標値：あり）	なし（2017年10月完成予定で作成中） <プロジェクト終了までの達成が見込まれる>

プロジェクト目標の三つの指標及び三つの成果の達成の見通しから、プロジェクト目標はおおむね達成されると期待される。

プロジェクト目標の指標1はPCIのHLCあるいは専門外来（MC・DC）からリファーされた患者の80%以上がリファー先を受診することである（リファラル完了率 $\geq$ 80%）。2017年7月現在、リファラル・モニタリングと検査ネットワークの導入が遅れたカルワンチクディを除く三つの地域でこれは達成されている。プロジェクトがキャンディ県、ケゴール県、クルネガラ県で2017年4～6月に実施した比較調査によると、プロジェクト対象地域以外のリファラル完了率は70.7%であったのに対し、プロジェクト対象地域のリファラル完了率は100%であった。カルワンチクディにおいても、対象医療機関がリファラル・モニタリングと検査ネットワークを適切に運用できれば、同指標を達成できると考えられる。

指標2は4BHのMC・DCの患者情報が得られることであるが、これは2016年に実施した第4回パイロット患者調査を通して既に達成された。

指標3はNCDs管理のための各種ツールがパッケージとして整理され、将来のスケールアップのために利用可能になることである。プロジェクトでは10月までにそのようなツールのパッケージを作成する予定である。



### 3-3 実施プロセス

#### 3-3-1 PDMに関する問題

プロジェクト開始時にあったPDMバージョン1は、プロジェクト計画策定時から状況が大きく変わっているため変更が必要であるというJCCメンバーの強い要望により大幅に変更された。成果の数が4から3に減り、プロジェクトの構成は大きく変更された。PDMバージョン1とバージョン2の比較を表-4に示す。その後、中間レビューの提言を受けて、PDMバージョン2の指標の明確化、目標値の設定が行われ、2017年1月の第7回JCCでPDMバージョン3が承認された。その結果、全面的なプロジェクト活動の開始は3~4カ月程度遅れた。

表-4 PDMバージョン1とバージョン2の比較

PDMバージョン1	PDMバージョン2
<b>上位目標</b> HLC 並びに一次及び二次医療施設を含む包括的な NCDs 管理が全国で実施される。	<b>上位目標</b> 国家NCDs対策プログラムが強化される。
<b>プロジェクト目標</b> 対象4州4県の対象地域において、全国に応用可能なHLC並びに一次及び二次医療施設を含む NCDs管理モデルが開発・実施される。	<b>プロジェクト目標</b> 対象4BH及びその管轄地域内のPCIにおける NCDs管理がクラスター単位で強化される。
<b>成果1</b> HLC と対象BHにおいてトータルリスクアセスメントによる NCDs管理が強化される。	<b>成果1</b> 対象4BHの管轄地域においてNCDs患者のモニタリングが向上する。
<b>成果2</b> 対象BHにおいて必須医薬品と医療資材の在庫管理が強化される。	<b>成果2</b> 対象4BHの管轄地域内にあるPCIのNCDs患者のための検査サービスの利便性が向上する。
<b>成果3</b> NCDsサーベイランスシステムが構築される。	<b>成果3</b> 対象4BHにおける医薬品供給管理が強化される。
<b>成果4</b> NCDs管理モデル活動を全国展開するための計画がまとめられる。	/

#### 3-3-2 実施プロセスに関する問題

##### (1) 貢献要因

- ・ JCC、WG、JICAチームによる定期的な現場のモニタリング、日本側とスリランカ側の日常のコミュニケーション等を通して、プロジェクトの活動の定期的なモニタリングや問題解決を含むプロジェクト・マネジメントが効率的に実施された。

##### (2) 阻害要因

- ・ プロジェクト開始直後に行われたPDMの大幅な改訂により、全面的な活動の開始は3

～4カ月程度遅れた。ただし、日本側とスリランカ側と一緒にプロジェクトの計画をレビューし改訂したプロセスは、対象地域の最新の情報が確認できたほか、共同でプロジェクトに取り組もうというコミットメントを高めることにつながった。

- ・ 円借款事業におけるBH建設の遅れが、成果1、2の一部の活動並びに成果3のほとんどの活動の進捗に影響を与えた。
- ・ カルワンチクディのBHへのVP及び追加的なMLTの配置は、新病棟の完成後、2017年によようやく実現した。このため、カルワンチクディのリファラル・モニタリングと検査ネットワークは2017年5月に開始され、終了時評価時には、関連する指標が十分達成できていない。VPの配置は一時的なものであり、長期的に配置される保証がない。他方、MLTの配置の遅れの背景には全国的な人材不足がある。
- ・ 全般に、医療機関及び医療行政における人材不足が深刻であり、特に、プロジェクトが導入した活動が本来の職責に含まれていないような場合、十分な活動が行われなかった。本来はC/Pが実施すべき活動をJICAチームの人員が代わりに行わなければならないケースもあった。また、人材交代時の引き継ぎが不十分なことが障害となった。

### 3-3-3 外部要因に関する問題

- ・ 円借款事業によるBHの機能強化、すなわち検査室の能力強化、医薬品倉庫の設置、追加スタッフの雇用などは本プロジェクトの重要な外部条件であった。しかし、これらの点はPDMには明示されず、計画時には、円借款事業の遅れがプロジェクトに与えるインパクトについても十分な注意が払われていなかった。その結果、円借款による対象4BHの検査室、新病棟建設の完成が遅れたことにより、プロジェクト活動の進捗に大きな遅れを生じさせることとなった。
- ・ PDMにある以下の外部条件は常に満たされていたとはいえ、プロジェクトの活動と成果に影響を及ぼした。
  - ① 「スリランカ政府は、必要な試薬及び資材を継続的に供給できる」一部の検査室及び医療機関における試薬及び検査試験管不足が検査ネットワークの運用に影響を与えた。
  - ② 「対象BHに必要な機材及びMLTが配置される」新たな検査室設置の遅れが検査ネットワークの運用開始に影響を与えた。
  - ③ 「PCIにおいて検体採取（採血）を行うのに必要な人材が配置されている」そのような人材はほとんどのPCIに配置されているが、MCで採血を行うには多忙すぎた。

## 3-4 評価5項目の評価結果

### 3-4-1 妥当性

本プロジェクトはスリランカの保健分野の政策・ニーズ、日本の援助政策との整合性が高い。

#### (1) スリランカの政策・ニーズとの整合性

「国家保健マスタープラン2016～2025」にはNCDs管理の重要性を明記し、増加傾向

にあるNCDsに対処するための予防・治療サービスの改善をめざしている。MoHにおけるNCDs副総局設置は同マスタープランの提案のひとつである。NCDs管理はGOSLが取り組むSDGsの複数の目標とも関連している。さまざまな分野の協調した取り組みの必要性から、GOSLは「NCDs管理のための他分野行動計画2016～2020」を作成した。このように、NCDs管理はGOSLの取り組むべき重要な保健分野の課題として認識されてきた。

さらに、2011年に作成されたNCDs管理国家政策においてもGOSLのNCDs管理への強いコミットメントが示されている。同政策には本プロジェクトと関連する戦略として、NCDsスクリーニング（戦略No.2）、NCDsの治療（戦略No.3）、患者・リスク要因調査を含む情報整備（戦略No.6）が含まれている。

以上のように、NCDs管理を改善するための技術支援はGOSLのニーズと合致している。

## (2) 日本の援助政策との整合性

日本のスリランカに対する国別援助方針（2012）は、開発課題「脆弱性軽減のための社会基盤整備」の中で「保健医療プログラム」を設定し、①保健行政能力向上、②NCDs予防と管理の強化、③保健医療基盤の改善を三つの協力の柱としている。また、過去の紛争の影響により開発が著しく遅れている地域にも留意した公平かつ公正な支援をめざしているが、本プロジェクトでは同地域も対象4地域に含まれている。よって、本プロジェクトは日本の対スリランカ国別援助方針に合致している。

## 3-4-2 有効性

本事業の目的は「対象4BH及びその管轄地域内のPCIにおけるNCDs管理がクラスター単位で強化される」である。終了時評価時において、プロジェクト目標の指標はプロジェクト終了時までには達成が見込まれる。また、プロジェクトの成果3は達成できる見込みであるが、成果1及び成果2は一部の指標を除き、おおむね達成しているものの、一部の指標は達成の見込みが低い。成果3についてはプロジェクト終了までに達成される見込みが高い。プロジェクト目標もプロジェクト終了までに達成が見込まれるため、本事業の有効性はおおむね高い（fairly effective）と判断される。

本プロジェクトの対象地域において、NCDs管理の強化は、①HLCにおけるスクリーニングの改善（成果2：検査ネットワーク）、及び②健診で確認されたNCDs疑い患者に対する診療の促進（成果1のうちリファラル・モニタリング）を通じて実現された。このほか、NCDs患者の情報整備（成果1のうち患者調査）とMSMIS（成果3）もNCDs管理の強化につながる重要な要素である。

### (1) HLCにおけるスクリーニングの改善

検査ネットワークの導入により、HLC健診で行うトータル・リスク・アセスメントに必要な受診者のTC値が提供できるようになった。さらに、無料でTC検査ができることは、結果として、健診参加者の増加にも結びついた。ただし、健診参加者のほとんどは一般外来の患者で、多くは女性であり、参加者の広がりも限定的である。また、検査結果を受け取る前にアセスメントを行うHLCがみられるが、スクリーニングの質を高めるには、本来、HLCがTC値を受け取ったうえで、それを参照したトータル・リスク・アセ

メントを行うべきである。なお、検査ネットワークは各クラスターの施設・機材・人材・輸送手段・地理的条件に応じて構築されたが、さまざまな制約に対応しつつネットワークを稼働させた経験は、他地域でこれを実施する際に参照できる多くの知見をもたらした。

## (2) NCDs疑い患者の診療の促進

スクリーニングで見いだされたNCDs疑い患者は、必要な診療を受けるために院内外のMCにリファーされる。本事業がリファラル・モニタリングを導入した地域では、ほとんどのNCDs疑い患者がMCを受診している（指標1）。これはリファラル・モニタリング非導入地域より2割程度高い。各医療機関は、リファー先からのバック・レポートが来ない場合、患者への電話や自宅訪問によりMCの受診を勧めるなどして丁寧なトラッキングを行っている。他方、人材の乏しい一部のPCIでは、そのような個別の対応や複数の記録様式への記入が負担となっている面もある。導入された仕組みの持続性とスケールアップの可能性を高めるために、プロジェクトは、NCDs疑い患者の確実な受診という目的を損なわない範囲で負担を軽減できる方法を検討する予定である。

## (3) 患者調査とMSMIS

プロジェクトが導入した患者調査は、MC/DCを受診する患者を対象とした調査であり、MoHがもつ既存情報（生活習慣・リスク要因のサーベイ、HLC受診者情報、入院患者の死亡率・有病率情報）のギャップを埋める。PDMで目標とされた4クラスターの患者情報の収集は3年目に実施され（指標2）、以降、全国調査を見据えた県単位のパイロット調査が実施されてきた。終了時評価時にはキャンディ県、ケゴール県、バティカロア県の調査が実施されている。この調査は必要に応じて調査項目を追加する柔軟性もある。その結果はNCDs管理を、クラスター単位だけでなく、県・州レベル、全国レベルで強化するための重要な情報をもたらす。本プロジェクトは調査票、サンプリング・デザイン、データ収集・入力・整理の手順及び基本的な分析手法について支援した。調査結果の詳細な分析や実務的な利用方法の検討まではプロジェクトの範囲に含まれなかった。

四つのBHに導入されたMSMISはBHにおける薬剤・資材管理を効率化するもので、NCDsの治療に必要な薬剤の恒常的なアベイラビリティをより確実なものとするツールである。本プロジェクトにより、このシステムは地方管轄の病院で初めて導入された。4BHの施設整備の遅れによりシステムの稼働が遅れ、運用経験を踏まえたマニュアルの改訂には至らないが、本プロジェクトの経験を踏まえ、他地域への展開が円滑に進むことが期待できる。

## (4) 有効性の制約要因

地域の医療機関における人材不足と医療用品供給の不安定さはスリランカの保健セクター全般の問題であり、本プロジェクトが対処できるものではなかったが、有効性に影響を及ぼした。

プロジェクトにはNCDs管理について円借款事業との相乗効果が期待されていたが、円借款事業が遅れた場合の影響について、計画時、十分な注意が払われていなかった。

(5) 本プロジェクトに含まれなかったNCDs管理強化の要素

以上のように、プロジェクトのアプローチにはクラスター単位のNCDs管理強化につながる明確なフォーカスがあった。他方、NCDs疑い患者の早期発見・治療を進めるためにはHLC健診参加者の幅を広げることが必要である。また予防のためには生活習慣の改善を促す健康促進（教育）活動が重要である。これらの活動は、本プロジェクトと同様クラスター単位（HLCを含むPCI、二次医療施設及び保健事務所）のNCDs管理強化の一環として実施することができるが、本プロジェクトには含まれなかった。将来、これらの活動を強化することで、対象地域におけるクラスター単位のNCDs管理をさらに強化することができる。

3-4-3 効率性

本プロジェクトの投入はおおむね適切で、プロジェクト運営は適切だった。しかし、一部成果が協力期間内に十分達成できないと見込まれること、十分活用されていない投入が一部にあることから、本プロジェクトの効率性は中程度と判断される。

(1) 成果の達成状況

前述のように、本プロジェクトの成果1、2はプロジェクト終了までに達成が見込まれる。成果3は、指標が達成される見込みであるが、運用経験を踏まえたマニュアルの改訂はできない。

(2) 投入要素

専門家、C/P配置、本邦研修、機材等の投入の質・量はおおむね計画どおりで適切であったが、スリランカ側の人材不足があった。プロジェクト運営は適切で、開始時のPDM変更、円借款による施設建設やスリランカ側のMLT、VPの配置の遅れへの対応など、4年間という限定された期間に最大限の結果を残すべく、投入のタイミングと量を柔軟に変更して円滑に実施されてきた。機材のうち検体搬送用の車両の一部は、現場への配送、運転手配置、故障修理の遅れなどを理由に、終了時評価時には運用できていない。

3-4-4 インパクト

(1) 上位目標の達成度

本プロジェクトの上位目標は「国家NCDs対策プログラムが強化される」ことであり、4BHを中心としたクラスターを対象に本事業が開発し導入したリファラル・モニタリング/トラッキング、検査ネットワーク、MSMISなどを他地域に導入することが期待される。その指標の達成見込みは次のとおり。

<指標1 プロジェクトによって開発されたツールを使用している県の数と割合>

終了時評価時点では指標1の実績プロジェクトが対象とした4県のみである。ただし、プロジェクトが作成したHLC監督チェックリストは全国で試験的に使用されている。本事業がパイロットしたリファラル・モニタリング/トラッキング、検査ネットワーク

は、プロジェクト終了時まで、どの部分をどのように他地域に展開するのが適切かについての検討を行い、そのためのツール・パッケージが作成される予定である。MSMISはMoH管轄の医療機関や県保健局には既に導入されているが、州管轄の医療機関の導入は本プロジェクトが最初である。MoHはMSMISを全州の病院に広げる方針であり、本事業が開発したツールの活用が期待される。このように、本プロジェクトが開発したツールを使用する県はプロジェクト終了後、増加する見込みが高いが、終了時評価時点では、どのような速度でそのような県の数が増加するかを予測することは難しい。

他地域への展開を進めるにあたり、本プロジェクトでも制約となった医療機関への人材配置（特にMLT、専門医、PCIの職員、保健行政職員）、検査室機材と車両等の輸送手段の確保に努めることが必要である。このような条件が整った地域のみで展開することが可能である。

#### <指標2 公立病院のMC/ DCの患者に関する全国的なデータの有無>

MoHは早ければ来年（2018年）にも全国調査を実施する方針であり、同調査が実施されれば本指標は達成される。本プロジェクトが実施中の4県を対象とした全県調査を通してMoHは全国調査のための実施能力を強化しつつある。

#### (2) その他のインパクト

検査ネットワークはPCIのHLCやMCだけでなく、病院の一般外来の患者についても利用できる。PCIの診療全般を強化し、NCDsに限らず、住民の健康改善に貢献することができる。TCの簡易検査キットが導入されたあとにも、検査ネットワークはNCDs以外の疾病の患者のために活用されることが期待される。

### 3-4-5 持続性

本事業の持続性は、政策面で非常に高く、財務面、技術面で高いが、組織・管理面では一般的な人材不足に懸念がある。総合して、本事業の持続性は中程度と考えられる。

#### (1) 政策面

NCDs管理はMoHの重要課題であり、同省の高いコミットメントがある。MoHはNCDs戦略の見直しに着手する計画であるが、本プロジェクトが取り組んだNCDs疑い患者の早期発見・治療、NCDs患者情報整備の重要性は今後も変わらない。よって、政策面の持続性は十分高いと見込まれる。

#### (2) 財務面

本プロジェクトで導入された活動を継続するための費用は人件費、事務管理費に加えて採血管、検査室の試薬、検体運搬費、各種フォーム印刷費等であり、大きくない。よって、対象地域で活動を継続することについて財務面の懸念はあまりない。

他地域に展開する場合は、MSMISのライセンス料が必要となる。さらに、状況に応じ検査機器、検体運搬用車両への投資が必要とされる。これらはMoHと各州・各県保健局

の予算で賄われる。MoHの財源に大きな懸念はない。州保健局の予算は決して潤沢とはいえないが、NCDs管理の政策上の重要性を反映し、プロジェクト終了後も上記への適切な予算が配分されることが期待される。

### (3) 技術面

本プロジェクトで作成される予定の各種ツールは、対象地域で試行しながら改良を重ねたものである。今後さらに、PCIの人材の制約を念頭に、リファラル・モニタリングの簡素化が予定されている。よって、これらのツールは対象地域で利用可能な人材資源と技術能力を前提に、プロジェクト終了後も継続可能なものとなることが期待される。持続性をさらに高めるためには新任職員に適切な研修を行うことが重要である。

これらのツールは他地域への展開を念頭に作成されるが、地域ごとに異なるさまざまな状況に対応するためのオプション、導入時に必要なリソース、計画から運用までの手順等が具体的に提示されれば、その有用性はさらに高まる。

MSMISへの技術サポートはMoHがサービス契約を結ぶ民間企業により提供されている。そのような技術サポートが得られる限り、MSMISについて技術面の課題はみられない。ただし、現在のサービス契約には、州管轄の医療施設はまだ対象に加えられていない。MoHは州管轄の医療施設へのMSMISの導入を計画しており、適切なサービス契約のあり方について検討を進めている。州管轄の医療施設に対する技術サポートがサービス契約に含まれれば、MSMISについての技術面の持続性は強化される。

### (4) 組織・管理面

医療機関における人材不足、特にBHにおける専門医、MLTの不足、PCIの補助要員の不足は、中央レベルと州レベルの保健行政官の不足とともに、本プロジェクトの主な制約であった。このような保健分野全般の人材不足は本プロジェクトの持続性を脅かすことが懸念される。

本プロジェクトも経験したMLT配置の遅れの背景には、全国的なMLT人材不足がある。これに対処するためには各検査室に補助要員を配置し、MLTが本来の業務に集中できる環境を整えることが効果的であろう。

他方、MoHは今後、各MOHにHealth Promotion Officerを1名配置する計画である。これが実現すれば、MOHと連携することにより、リファラル・モニタリングの持続性が高まると考えられる。

本プロジェクトは各種消耗品やフォーマット等の供給が途絶えたことによる活動停止を何度も経験した。これらの継続的供給を確かなものとするため、さまざまなレベルでのマネジメントを改善することが持続性の確保につながる。

### 3-5 結 論

本事業の妥当性は高い。本事業はNCDs疑い患者の早期発見・早期治療に貢献し、有効性はおおむね高く、上位目標への貢献が期待できる。成果の一部指標が計画どおり達成できないと見込まれること、活用できていない投入が一部みられることから、効率性は中程度である。政策面・財務面・技術面の持続性は高いが、組織・管理面に懸念があることから、本事業の持続性は中程度である。以上を総合し、本事業は「おおむね良好 (satisfactory)」に完了すると期待される。

### 3-6 提 言

#### (1) プロジェクトへの提言

- ・ プロジェクトは、対象4BHにMSMISを導入するために必要な作業、すなわち機器の設置、利用者の研修、医薬品の棚卸しを迅速に行い、プロジェクト終了までに4BHのMSMISを稼働させるべきである。また、プロジェクト終了後にMSMISの実際の運用経験を反映してマニュアルを改訂する作業を実施機関ができるように支援する必要がある。
- ・ プロジェクト終了までにケゴール、キャンディ、バティカロワの全県患者調査を完了させる必要がある。そのため、県保健局は9月末までにデータ収集・入力を終了させるために必要な資源を配分し、各県・中央に専任調整官を任命する。
- ・ PCIの人材面の制約に配慮して、リファラル・モニタリングの持続性を高めるために、プロジェクトは高いリファラル完了率を損なわない範囲でリファラル・モニタリングの仕組みを簡素化すべきである。
- ・ 検査ネットワークで得られるようになったTC値は、HLCの健診ガイドラインに沿って、CVDのリスク評価に活用すべきである。受診者がTC検査の結果を取りにHLCに戻った際にリスク評価を行うべきことをHLC担当医に周知し、マニュアルに明記する必要がある。
- ・ 本プロジェクトにより各対象地域で繰り返されてきた試行的活動から得られた知見とノウハウは、同様の活動を導入しようとする他地域でも有用である。これらを体系化して関係者との共有を図るため、プロジェクトは、各種オプション、計画・モニタリング・監督の各段階で有用な実務上の留意点、グッドプラクティス等の有用な情報を、今後作成するツールのパッケージに含める必要がある。
- ・ 本事業で投入されたオートバイとオート三輪を速やかに活用するために、州保健局・県保健局は修理と適切な保守、運転手の公式な任命を速やかに行う。車両の活用のために配置先医療機関の変更が必要な場合は、JICAの同意の下で行う。

#### (2) MoHへの提言

- ・ 県保健局のNCDs担当官が単独で多数の業務に忙殺されているため、MoH及び州・県保健局は、追加人材の配置と協業体制の構築により地方におけるNCDs管理の強化を図るべきである。
- ・ 本プロジェクトで導入されたリファラル・モニタリングの持続性を高めるため、MoHは各BHにおけるVPの継続的な配置を確実なものとする必要がある。
- ・ 今後予定している全国患者調査の準備として、MoHは適切な実施体制の構築、人材そ



の他の資源配分を行い、本事業で得られたノウハウと能力を可能な限り維持しつつ効率的で質の高い情報を得るように努める。さらに、調査結果の分析・活用について、既存情報と併せた分析の可能性も含め、さまざまな方法を検討することが望まれる。

- ・ HLCの医師に対して、心血管系疾患のリスク評価では検査ネットワークあるいは（MoHが導入準備中の）簡易検査キットで得られるTC値を適切に参照するように、改めて指導する必要がある。
- ・ 既存のHLC健診登録フォーマット（HLC Registers）の修正を検討する際には、本事業が導入したリファラル・モニタリング及び血液検査記録フォーマットの関連性の高い項目を統合することを考慮する。
- ・ 検査ネットワークに関して：
  - ① 検査室が十分な能力を発揮できるように、MoHは自動検査機の保守と活用、MLTと補助員の配置、試薬や採血管など消耗品の安定供給、公式に任命された運転手の確保に努める。
  - ② PCIへの検査サービスの提供については、MoHが検討しているその他の方法（TC簡易検査キット、民間配送サービスの利用）と本事業における検査ネットワークの経験を比較し、それぞれの比較優位や必要条件を十分考慮したうえで、対象地域の状況に応じて何を採用するかを判断するべきである。
  - ③ 検査室及び検査ネットワークの円滑な運営のための県保健行政体制を整備することが望ましい。各県に担当官を設置し、検査室・検査ネットワークの運営について部門間及び中央レベルとの調整を行うことが考えられる。
- ・ 州管轄病院においてもMSMISの技術サポートが得られるように、MoHは、現在の技術サポート契約を再考する必要がある。また、MSMISの利用者数を広げるためにライセンスの追加購入を検討する。
- ・ NCDsに関する課題に効率的に対応するために、医師、看護師及びその他の医療従事者の派遣前研修において、NCDsの予防と治療に関する内容を盛り込むための措置を取る。

### 3-7 教訓

円借款附帯技術協力プロジェクトでは、円借款事業の進捗が重要な外部条件となるため、計画時には、円借款事業の遅れがプロジェクトに与えるインパクトについて十分考慮したうえで、計画策定を行うことが望ましい。



## 付 属 資 料

### 1. ミニッツ (M/M) (英文合同評価報告書含む)

Annex 1. PDM VER. 3

Annex 2. 評価グリッド

Annex 3. カウンターパートリスト

Annex 4. 日本人専門家リスト

Annex 5. 資機材リスト

Annex 6. 本邦研修リスト

Annex 7. プロジェクト 活動実績

Annex 8. インタビューリスト



MINUTES OF MEETINGS  
BETWEEN JAPANESE TERMINAL EVALUATION TEAM AND  
THE AUTHORITIES CONCERNED OF  
THE GOVERNMENT OF DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA ON  
JAPANESE TECHNICAL COOPERATION PROJECT FOR  
PROJECT FOR ENHANCEMENT OF NON-COMMUNICABLE DISEASES MANAGEMENT

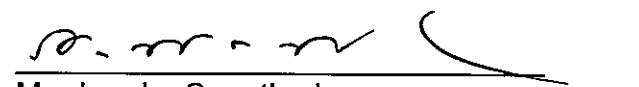
The Japanese Terminal Evaluation Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Dr. Kaname Kanai visited Sri Lanka from August 9, 2017 for the purpose of the Terminal Evaluation of "the Project for Enhancement of Non-communicable Diseases Management" (hereinafter referred to as "the Project").

During its stay in Sri Lanka, the Team reviewed the achievement of the Project jointly with officials from the Government of Democratic Socialist Republic of Sri Lanka and had a series of discussions with authorities concerned for further improvement of the Project.

As a result of the study, both sides agreed upon the matters referred to in the document attached hereto.

Colombo, Sri Lanka, 25th August, 2017

  
Dr. Kaname Kanai  
Leader  
Terminal Evaluation Team  
Japan International Cooperation Agency

  
Mr. Janaka Sugathadasa  
Secretary  
Ministry of Health, Nutrition & Indigenous  
Medicine  
Democratic Socialist Republic of Sri Lanka

## ATTACHED DOCUMENT

The Joint Coordinating Committee of the Project reviewed the joint terminal evaluation report compiled by the Team and agreed its contents. The report conclusion and recommendations are as follows:

### 1 . Conclusion

The Project is highly relevant to the national and Japanese policy agenda.

The Project is considered fairly effective in terms of achievement of its purpose through production of the set outputs, all measured by the agreed indicators. Non-communicable Diseases (NCD) management in the catchment areas of the target Base Hospitals (BHs) were strengthened principally by introducing new mechanisms that facilitate (i) improvement in NCD screening at Healthy Lifestyle Centres (HLCs) and (ii) the detected high-risk clients to obtain necessary treatment. Clinical data collection and Medical Supplies Management Information System (MSMIS) are also important elements for NCD management strengthening, while there are other necessary elements which were not addressed by the Project.

The efficiency of the Project implementation is considered moderate. While the inputs of the Project are considered generally appropriate and have been properly handled by the project management, some outputs are not expected to be fully achieved within the cooperation period and some vehicles for specimen transportation are not fully utilized.

In terms of impact, Ministry of Health, Nutrition & Indigenous Medicine (MoH) is planning to carry out island-wide clinical data collection next year. The number of the regions that uses the tools developed by the Project is likely to increase after the Project, but at the time of Terminal Evaluation, it is difficult to predict how speedy the number would increase.

Overall sustainability of the Project is considered moderate, since the sustainability in policy aspect is very high, and is expected to be generally high in financial and technical aspects, while there are concerns in organizational and administrative aspects such as general shortage of human resources.

In view of the above, it is expected that the Project would be completed satisfactory.

### 2 . Recommendations

#### *To the Project*

- The Project should expedite the series of the actions required to operationalize MSMIS at the 4 target BHs, including installation of equipment and other facilities in the identified premises, training of the prospective users of the system and stock verifications, so that MSMIS is fully operational before the conclusion of the Project.
- The Project needs to complete the on-going 5<sup>th</sup> pilot survey of the medical clinics in Kegalle, Kandy and Batticaloa districts. The Regional Directorate of Health Services or Regional Director of Health Services (RDHS) should mobilize all the resources necessary to complete the local operation, i.e. data collection and data entry by the end



of September. Consider assigning dedicated personnel in each district as well as at the central level to oversee the operation to avoid further delays.

- In view of the scarcity of human resources at Primary Care Institutions (PCIs), the Project should carefully simplify the referral follow-up system for the sake of sustainability, with due attention not to jeopardize the high referral completion rate achieved.
- Now that Total Cholesterol values are available to HLC clients thanks to the laboratory network instituted in the target areas of the Project, they should be used for the total risk assessment of Cardiovascular Disease (CVD) as per the guideline in place. Medical Officers of HLCs should be specifically instructed to do the CVD risk assessment when a client comes back for the TC result. It is also recommended to have this instruction explicitly stated in appropriate tools being produced by the Project.
- The experiences and knowledge gained through experimental operations of various systems/tools should be generously shared with stakeholders who would benefit from establishing the system developed by the Project with possible modifications to suit the local needs. To this end, the Project integrates in the final tool package to be produced useful information such as practical tips, possible options for different circumstances and good practices related to various phase of implementation including planning, monitoring and supervision.
- Provincial Directorate of Health Services or Regional Director of Health Services (PDHS) /RDHS as applicable should take necessary actions without delay to fully utilize the scooters and the three-wheeler provided for the laboratory network. They include carrying out prompt repairs and regular maintenance, deployment of designated and authorized personnel to ride them with appropriate cover in case of accident and, if necessary, reassignment of a vehicle to another institution where it is best utilized for the purpose with consent of JICA.

#### *To MoH*

- In view of multiple tasks to be performed by Medical Officer/NCD, MoH/PDHS/RDHS should consider strengthening regional NCD interventions by placing additional personnel and necessary mechanism to function as a team.
- To strengthen the sustainability of the system developed by the Project, MOH takes necessary measure to assure continuous availability of a Visiting Physician (VP) in each of the target BHs.
- In preparation for the planned island-wide clinical data collection exercise, MoH needs to consider a functional organizational set up by reviewing all the related tasks and human and other resources necessary to carry them out efficiently for the sake of quality data. In this regard, it is important to assure the know-how and capacity obtained through the Project are maintained and utilized to the extent possible. In addition, the MoH is encouraged to explore various ways to analyze and utilize the data obtained, also in combination with other available data from routine reporting and other surveys.
- Medical Officers of HLCs need to be re-oriented and supervised to use Total Cholesterol (TC) test results for the CVD risk assessment when they become available either through setting up laboratory networks or provision of Point-of-Care Test (POCT) facilities as planned by MoH.

- When revising the HLC registers, consider integrating relevant aspects of the referral tracking and laboratory test registers introduced by the Project.
- As for the lab-network;
  - In order to keep the lab-network fully functional, MoH should further strengthen its capacity to ensure proper maintenance and effective utilization of automatic analyzers, appropriate assignment of Medical Laboratory Technologists (MLTs) and laboratory assistants, sufficient and continuous supply of consumables including reagents and test tubes, and assignment of authorized transporters with adequate coverage in case of an accident.
  - As MoH considers different options to avail laboratory investigations to clients of peripheral institutions, including POCT, use of private courier services and laboratory network similar to those set up by this Project, comparative advantages and applicability of each option should be clarified in view of different local conditions before making decisions for the sake of cost-effectiveness and sustainability.
  - It is desirable to institutionalize in the regional health administrations the function to ensure smooth, continuous and quality operation of laboratories including the laboratory networks established. A designated position may be required to properly oversee laboratory-related operations in each region, coordinating necessary resources with relevant sections of regional and central health administrations.
- MoH may need to revise the scope of the current service agreement for MSMIS with the contractor, to ensure that necessary support is also provided to the institutions under provincial management. Also consider purchasing additional user licenses to ensure the institutions' access to the system.
- In order to efficiently address the challenges of NCDs, MoH should take active steps to integrate relevant aspects of their prevention and treatment in basic training of doctors, nurses and other relevant paramedics so that they are well-prepared by the time of deployment.

APPENDIX: Joint Terminal Evaluation Report



JOINT TERMINAL EVALUATION REPORT  
ON  
THE JAPANESE TECHNICAL COOPERATION PROJECT  
FOR  
PROJECT FOR ENHANCEMENT OF NON-COMMUNICABLE  
DISEASES MANAGEMENT

Democratic Socialist Republic of Sri Lanka  
and  
Japan International Cooperation Agency (JICA)

25 August 2017



## Abbreviations

BH	Base Hospital
CCP	Consultant Community Physician
CDC	Clinic Data Collection
CVD	Cardiovascular Disease
C/P	Counterpart
DC	Diabetes Clinic
DDG	Deputy Director General
DG	Director General (Health Services)
DH	Divisional Hospital
GOSL	Government of Sri Lanka
HLC	Healthy Lifestyle Centre
JCC	Joint Coordinating Committee
L/A	Loan Agreement
JICA	Japan International Cooperation Agency
MC	Medical Clinic
M&E	Monitoring & Evaluation
MLT	Medical Laboratory Technologist
M/M	Minutes of Meeting
MoH	Ministry of Health, Nutrition & Indigenous Medicine
MO	Medical Officer
MSMIS	Medical Supplies Management Information System
NCDs	Non-Communicable Diseases
NO	Nursing Officer
OPD	Out Patient Department
PCI	Primary Care Institution
PDM	Project Design Matrix
PDHS	Provincial Directorate of Health Services / Provincial Director of Health Services
POCT	Point-of-Care Test
P/O	Plan of Operations
R/D	Record of Discussion
RDHS	Regional Directorate of Health Services / Regional Director of Health Services
TC	Total Cholesterol
WG	Working Group
WHO	World Health Organization

M.



## Table of Contents

<b>1. OVERVIEW OF THE TERMINAL EVALUATION</b>	<b>4</b>
1.1 Outline of the Terminal Evaluation	4
1.2 Schedule of the Terminal Evaluation	4
1.3 Members of the Terminal Evaluation Team	5
1.4 Methods of the Terminal Evaluation	5
1.5 Procedures of the Terminal Evaluation	6
<b>2 OUTLINE OF THE PROJECT</b>	<b>6</b>
2.1 Background of the Project	6
2.2 Summary of the Project	7
2.2.1 Title of the Project	7
2.2.2 Project Sites	7
2.2.3 Project Period	7
2.2.4 Overall Goal	7
2.2.5 Project Purpose	7
2.2.6 Outputs	7
<b>3 RESULTS AND ACHIEVEMENTS OF THE PROJECT</b>	<b>7</b>
3.1 Inputs	7
3.1.1 Inputs from JICA	7
3.1.2 Inputs from MoH	8
3.2 Activities Implemented	9
3.3 Achievement of Outputs	9
3.3.1 Achievement of Output 1	9
3.3.2 Achievement of Output 2	13
3.3.3 Achievement of Output 3	15
3.4 Achievement of the Project Purpose	16
<b>4 IMPLEMENTATION PROCESS</b>	<b>17</b>
4.1 Issues of the PDM	17
4.2 Issues of the Implementation Process	17
4.2.1 Contributing factors	17
4.2.2 Constraining Factors	17
4.3 Issues of the Important Assumptions	18
<b>5 EVALUATION ON THE FIVE CRITERIA</b>	<b>18</b>
5.1 Relevance	18
5.1.1 Relevance to national needs	19



5.1.2	Relevance to Japan's development assistance policy	19
<b>5.2</b>	<b>Effectiveness</b>	<b>19</b>
5.2.1	Improvement of Screening at HLC	19
5.2.2	Prompt Treatment of High-Risk Patients	20
5.2.3	Clinical Data Collection and MSMIS	20
5.2.4	Constraining factors for the Project effectiveness	20
5.2.5	Elements of NCD management not included in the Project	21
<b>5.3</b>	<b>Efficiency</b>	<b>21</b>
5.3.1	Achievement of Outputs	21
5.3.2	Appropriateness and Utilization of Inputs	21
<b>5.4</b>	<b>Impact</b>	<b>21</b>
5.4.1	Achievement of Overall Goal	21
5.4.2	Other Impact	22
<b>5.5</b>	<b>Sustainability</b>	<b>22</b>
5.5.1	Policy Aspect	22
5.5.2	Financial Aspect	22
5.5.3	Technical Aspect	23
5.5.4	Organizational/Administrative Aspects	23
<b>6</b>	<b>CONCLUSIONS</b>	<b>23</b>
<b>7</b>	<b>RECOMMENDATIONS</b>	<b>24</b>

## ANNEXES

Annex 1	Logical Framework (Project Design Matrix Ver.3)
Annex 2	Evaluation Grid for the Terminal Evaluation
Annex 3	List of Counterparts
Annex 4	List of Japanese Experts
Annex 5	List of Equipment Procured
Annex 6	List of Counterpart Training
Annex 7	Timeframe of Activities
Annex 8	Counterparts Interviewed and Intuitions visited

# 1. Overview of the Terminal Evaluation

## 1.1 Outline of the Terminal Evaluation

The Japan International Cooperation Agency (JICA) together with the Ministry of Health (MoH), as the counterpart, commenced the Project for Enhancement of Non-Communicable Diseases Management (hereinafter referred to as “the Project”) in February 2014, with a planned duration of four (4) years. The Project is currently at a position, where a Terminal Evaluation Team (hereinafter referred to as “the Team”) is being formed jointly between JICA and MoH sides, in accordance with JICA’s evaluation guidelines, to review progress and performance of the Project and to undertake discussions with Project stakeholders with regard to the future direction of the Project.

Objectives of the Terminal Evaluation are as follows:

- To review the overall progress of the Project and evaluate the achievement to date based on the Project Design Matrix (hereinafter referred to as “PDM”) and identify those factors which promoted or inhibited the achievements;
- To analyze the performance of the Project based on the five evaluation criteria (Relevance, Effectiveness, Efficiency, Impacts and Sustainability);
- To make recommendations to the Project for the remaining period and to the related parties regarding the actions to be taken after the termination of the Project.

## 1.2 Schedule of the Terminal Evaluation

Aug. 9	Wed	<Arrival of Mr. Sonoda from Tokyo>
Aug. 10	Thu	Meeting with JICA Expert at Project Office Interviews with C/P at MoH
Aug. 11	Fri	Interviews with C/P at MoH
Aug. 12	Sat	Interviews with C/P at MoH
Aug. 13	Sun	<Travel from Colombo to Batticaloa >
Aug. 14	Mon	Kaluwanchikudy BH Kallar DH Batticaloa RDHS
Aug. 15	Tue	<Travel from Batticaloa to Kandy > Medamahanuwara DH
Aug. 16	Wed	Teldeniya BH Digana Rajawella PMCU Kandy RDHS
Aug. 17	Thu	Kegalle RDHS Nelundenia PMCU Walakapola BH <Travel back to Colombo>
Aug. 18	Fri	Meeting with JICA Project Team Report writing
Aug. 19	Sat	Report writing <Arrival of Ms. Yumiko Inoue from Tokyo>
Aug. 20	Sun	Internal Meeting
Aug. 21	Mon	JICA Office <Travel to Kurunegala>
Aug. 22	Tue	Galgamuwa BH Meegalewa DH <Travel back to Colombo> <Arrival of Mr. Kanai from Jakarta>
Aug. 23	Wed	Meeting with JICA Project Team Analysis of the Result (within the JICA Evaluation Team) Courtesy call to Embassy of Japan
Aug. 24	Thu	Meeting on the Result with Project M&E Working Group
Aug. 25	Fri	Joint Coordination Committee regarding on the Result Report to JICA Office
Aug. 26	Sat	<Departure of Mr. Kanai and Ms. Inoue to Tokyo> Additional data collection as necessary
Aug. 27	Sun	<Departure of Mr. Hajime Sonoda to Tokyo>

### 1.3 Members of the Terminal Evaluation Team

#### 1) Japanese Side

Name	Assignment	Occupation
Dr. Kaname Kanai	Leader	Executive Technical Advisor to the Director General Human Development Department, Japan International Cooperation Agency (JICA)
Ms. Yumiko Inoue	Evaluation Planning	Associate Expert, Health Team 4, Health Group 2, Human Development Department (JICA)
Mr. Hajime Sonoda	Evaluation Analysis	Senior Consultant, Global Group 21 Japan, Ltd.

#### 2) Sri Lankan Side

Name	Occupation
Dr. VTSK Siriwarudhana	Director NCD, MoH
Dr. Eshani Fernando	Director Planning MoH
Dr. Champa Aluthweera	Regional Director, RDHS, Kurunegala

### 1.4 Methods of the Terminal Evaluation

Review activities were conducted by the Terminal Evaluation Team, and its activities included reviewing project documents, such as the Record of Discussions (R/D), the latest PDM (Annex 1), progress reports, minutes of Joint Coordination Committee (JCC) and Working Group (WG) meetings, interviews and discussions with the Counterparts (C/P) and parties concerned. The Team undertook site visits/interviews in Kandy, Batticaloa, Kurunegala, Kegalle districts. The information obtained from the site visits was compared to interviews with JICA project personnel and C/P from the MoH for consistency. The Team analyzed the collected data for the project performance and implementation process as well as the five evaluation criteria listed in the following table.

#### (1) Examination of the project performance and implementation process

Examination of the project performance	<ul style="list-style-type: none"> <li>▪ Were the inputs made as planned?</li> <li>▪ Were the outputs produced as planned?</li> <li>▪ Will the project purpose be achieved?</li> <li>▪ How likely is it to have the overall goal achieved in a few years after the conclusion of the Project?</li> </ul>
Examination of the project implementation process	<ul style="list-style-type: none"> <li>▪ Were activities implemented as planned?</li> <li>▪ Were there any problems in the method for capacity development?</li> <li>▪ Were there any problems in the project management system? (i.e. monitoring, communication within the project, etc.)</li> <li>▪ How well is the project recognized within implementing organizations and counterpart organizations?</li> <li>▪ Did any problems occur during the process of implementing the project, or any other factors that influenced effectiveness?</li> </ul>

#### (2) Five Evaluation Criteria

Items	Definitions
Relevance	Relevance of the Project is reviewed by the validity of the Project Purpose and Overall Goal in connection with the Government development policy and the needs of the target groups and/or ultimate beneficiaries in Sri Lanka.

Effectiveness	Effectiveness is assessed as to what extent the Project has achieved its Project purpose, clarifying the relationship between the Project Purpose and Outputs.
Efficiency	Efficiency of the Project implementation is analysed with emphasis on the relationship between Outputs and Inputs in terms of timing, quality and quantity.
Impacts	Impact of the Project is assessed in terms of positive/negative, and intended/unintended influence caused by the Project.
Sustainability	Sustainability of the Project is assessed in terms of institutional, financial and technical aspects by examining the extent to which the achievements of the Project will be sustained after the Project is completed.

(Source: JICA Project Evaluation Guideline, 2004, JICA)

## 1.5 Procedures of the Terminal Evaluation

- (1) To review and analyse progress of the project including, the appropriateness of inputs and the level of achievement of project objectives and outputs.
- (2) To examine and agree upon evaluation questions, and to create an Evaluation Grid (Annex 2) in accordance with the five evaluation criteria (Relevance, Effectiveness, Efficiency, Impacts and Sustainability).
- (3) To evaluate and analyse the project based on the results of a questionnaire, site visits and interviews with concerned parties, with the goal of creating a comprehensive review report.
- (4) To inform the Sri Lanka and Japanese sides of the results of the evaluation and to sign a Minutes of Meeting (M/M) after both parties have agreed upon the results.

## 2 Outline of the Project

### 2.1 Background of the Project

In Democratic Socialist Republic of Sri Lanka, due to the aging population and changes of dietary habits and lifestyle, according to the health statistics of 2006/2007, all of the top five causes of deaths were attributed to Non-Communicable Diseases (NCDs). Under such situation, GOSL prioritizes the national policy for “establishment of a healthy society” in order to establish effective and sustainable health systems by reinforcing NCD control activities mainly consisting of prevention, health promotion and early detection and treatment.

In line with the changes of the disease structure in Sri Lanka, JICA implemented the development studies to strengthen health systems and they proposed a policy to reform the health sector incorporating enhanced NCD management. To utilize the results of the development studies, the MoH established the ten-year plan called “Health Master Plan 2007-16.” While the NCD management is prioritized as the key policy in Sri Lanka, JICA implemented the technical cooperation project of “Project on Health Promotion and Preventive Care Measures of Chronic NCDs” from 2008 to 2013. Based on the experience of this project, GOSL developed the national policy and guidelines on NCDs in 2009 to improve secondary prevention by early detection and treatment in addition to primary prevention.

Concerning the medical facilities implementing the NCDs measures, maintenance and refurbishment of the primary and secondary-level hospitals are insufficient due to limited provincial budgets. The insufficiency of facilities, equipment and medical specialists at secondary-level hospitals is serious issues especially in rural and poor areas, which makes it impossible to support the primary hospitals sufficiently. For the appropriate prevention and treatment of NCDs, it is urgently required to improve the secondary-level hospitals and to strengthen their referral systems. As the increase of NCD patients is boosting the demand for

pharmaceutical supplies, strengthening the production of medicines for treating NCDs is also a national priority issue.

In these circumstances, “the Project for Improvement of Basic Social Services Targeting Emerging Regions” (hereafter referred to as “the yen loan project”) based on the Loan Agreement between the GOSL and JICA signed in March 28, 2012 was launched to improve medical services in the selected regions and safe and quality essential drug production. To maximize the effectiveness of the yen loan project, by developing NCD management models, including strengthening linkages among secondary hospitals and HLCs, a technical cooperation project was requested by GOSL.

## 2.2 Summary of the Project

### 2.2.1 Title of the Project

Project for Enhancement of Non-communicable Diseases Management

### 2.2.2 Project Sites

Four Base Hospitals (BHs) (Teldeniya BH in Kandy district, Central Prov., Kaluwanchikudy BH in Batticaloa district, Eastern Prov., Galgamuwa BH in Kurunegala district North Western Prov., Warakapola BH in Kegalle district Sabaragamuwa Prov.) and their catchment areas, Colombo (MoH)

### 2.2.3 Project Period

February 2014 – January 2018 (Four years)

### 2.2.4 Overall Goal

Enhancement of the national NCD programme

### 2.2.5 Project Purpose

Strengthening of NCD management at the 4 target BHs and primary care institutions in their catchment areas as clusters

### 2.2.6 Outputs

- 1) Improved monitoring of NCD patients in the catchment areas of the 4 target BHs
- 2) Improved availability of laboratory services for NCD clients of primary care institutions in the catchment areas of the 4 BHs
- 3) Enhanced pharmaceutical supply management at the 4 target BHs

## 3 Results and Achievements of the Project

Details of the results and achievement of the Project are described in this section.

### 3.1 Inputs

#### 3.1.1 Inputs from JICA

Table 1 shows the comparison of the planned (as per R/D of October 2013) and actual inputs from the Japanese side.

Table 1: Inputs by JICA, Planned and Actual

Plan (as per R/D of October 22, 2013)	Actual (as of June 2017)
[Japanese Experts] (1) Chief Advisor (2) NCD Management	[Japanese Experts] (total M/M estimated as of July 2017, Annex 4) (1) Team Leader / NCD Management (20.7M/M)



(3) Epidemiology (4) Medical Logistics (5) Health Information System Other experts will be dispatched as necessary for the implementation of the Project	(2) Deputy Team Leader / Health Administration/ NCD Management (19.4M/M) (3) NCD Management / Medical Supply Logistics (4.0M/M) (4) Medical Supply Logistics (0.9M/M) (5) Laboratory Network (4.1M/M) (6) Laboratory Network / ICE Materials Development (1.6MM) (7) Epidemiology/Health Information System (3.8M/M) (8) Health Information System (11.7M/M)
[Local Activities Cost] (1) Workshops (2) Trainings (3) Meetings (4) Materials (5) Local consultants	1 <sup>st</sup> Year: Yen 9,197,000 2 <sup>nd</sup> Year: Yen 9,407,000 3 <sup>rd</sup> Year: Yen 10,333,000 4 <sup>th</sup> Year (1 <sup>st</sup> and 2 <sup>nd</sup> quarter): Yen 5,271,000 (estimate)
[Machinery and Equipment] Necessary equipment for the transfer of technology by the Japanese experts identified after the needs survey by the Project	Equipment for BH and PCIs including PCs, printers, refrigerators, cool boxes, office software, furniture, etc. (Yen 1,567,680) Equipment for transportation (three-wheeler, motorbikes, Rs. 2,625,500) (Annex 5)
[Counterpart Training in Japan] (1) NCD Management (2) Hospital Management	[Counterpart Training in Japan] (Annex 6) (1) NCD Management 1 personnel (2014 5/25 – 2014 6/29) 2 personnel (2015 5/10 – 2015 6/14) 1 personnel (2017 5/7 – 2017 6/11) (2) Hospital Management 2 personnel (2014 6/16 – 2014 8/9)

### 3.1.2 Inputs from MoH

Table 2 shows the comparison of the planned (as per R/D of October 2013) and actual inputs from MoH.

Table 2: Inputs from MoH

Plan (as per R/D of October 22, 2013)	Actual (as of June 2017)
[Allocation of Counterpart Personnel] (1) Project Director: Secretary, MoH will be responsible for overall coordination of the Project (2) Project Manager: Director (Planning), MoH will be responsible for the administration and implementation of the Project	[Allocation of Counterpart Personnel] (1) Project Director: Secretary, MoH (2) Project Manager: Director Health Information, MoH
[Facility] (1) Office space with necessary equipment (2) Furnished accommodation for JICA experts (3) Necessary facilities to the JICA experts for the remittance as well as utilization of the funds	[Facility] (1) Office space (2) Necessary facilities to the JICA experts for the remittance as well as utilization of the funds
[Cost Sharing]	[Cost Sharing]

(1) MoH's counterpart personnel and administrative personnel (2) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials (3) Means of transport and travel allowances for the JICA experts for official travel within country (4) Running expenses (5) Expenses for transportation of equipment as well as for the installation, operation and maintenance	(1) MoH's C/P personnel and administrative personnel (2) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials (4) Running expenses, including the transport (vehicle and fuel) for C/P (5) Expenses for transportation of equipment as well as for the installation, operation and maintenance
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### 3.2 Activities Implemented

After the commencement of the Project in February 2014, the Project conducted 7 Joint Coordination Committee (JCC) meetings. The current version of the PDM (ver.3) was approved during the 7<sup>th</sup> JCC.

- 1st : May 8, 2014
- 2nd: August 21, 2014
- 3rd: December 2, 2014
- 4th: March 26, 2015
- 5th: November 12, 2015
- 6th: February 11, 2016
- 7th: January 27, 2017
- 8th: August 25, 2017

The Project formulated 4 working groups (Monitoring & Evaluation, Laboratory Service Sharing System and Medical Supplies Stock Management System, Follow-up System Development, and Clinical Data Collection) to increase efficiency of the Project management. Each WG consists of 7 – 18 members from different sections of MoH, BHs and RDHS of the 4 districts as well as JICA Project team.

Only one Consultant Community Physician (CCP) attached to NCD unit of MoH who is in a good position to provide technical inputs to the Project was involved in one WG.

Project activities have been implemented according to the PDM. The actual timeframe of each activity component during the Project Year 1 – 4 is presented in Annex 7. Many of the planned activities were implemented according to the plan. However, progress of some activities especially related to Output 2 and 3 depends on external conditions of the yen loan project.

### 3.3 Achievement of Outputs

#### 3.3.1 Achievement of Output 1

Output 1	Objectively Verifiable Indicators	Status as of 2 <sup>nd</sup> quarter of 2017
Improved monitoring of NCD patients in the catchment areas of the 4 target BHs	1-1. Availability of a set of tools for a patient survey of Medical and Diabetes clinics. (Baseline: No, Target: Yes)	Yes (Tools in development to be finalized in Oct. 2017) <Achieved>
	1-2. Number and percentage of PCIs in the catchment areas of the 4 target BHs tracking their clients referred to	Galgamuwa: 6/7 (85.7%) Teldeniya: 4/6 (66.7%) * Warakapola:

	Medical/Diabetes Clinics in each Project site <sup>1</sup> .		7/7 (100.0%) Kaluwanchikudy: NA (the tracking only started in May 2017) <Partially achieved / Full achievement by the end of Project is uncertain.>
	Project site	Baseline	Target
	Galgamuwa	0.00% (0/7)	≥ 55.0 % (4/7)
	Teldeniya	0.00% (0/6)	≥ 65.0 % (4/6)
	Warakapola	0.00% (0/7)	≥ 85.0 % (6/7)
Kaluwanchikudy	0.00% (0/9)	≥ 55.0 % (5/9)	
1-3. Availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country. (Baseline: No, Target: Yes)			No (Under development, to be finalized by Dec 2017)  <Likely to be achieved by the end of Project >

Note: (\*) Among the 6 PCIs in Teldeniya, 1 PCI didn't have any clients referred during the month, and another PCI was hardly operational due to absence of a Medical Officer.

Output 1 is considered achieved when the monitoring of NCD patients in the catchment areas of the 4 target BHs is improved through the establishment and operationalization of the patient survey (clinical data collection) (Indicator 1-1) and the referral follow-up system (1-2), and documentation is done to facilitate implementation of the same or similar system in other areas of the country (1-3).

#### ***Clinical Data Collection***

MoH had established a system to routinely collect data on mortality and morbidity of hospitalized patients, while there was no mechanism to collect information on the patients of Medical Clinic (MC) and Diabetes Clinic (DC). Through the Project, a set of tools for a patient survey of Medical and Diabetes clinics has been drafted and improved through a series of pilot surveys. The list of the tools developed for the clinic survey is illustrated in Table 3.

Table 3: List of tools developed for the clinic survey (as of July 2017)

Clinic Survey Data Collection Sheet
Clinic Survey Instruction for Data Collectors
Clinic Survey Data Entry Form (MS Excel VBA)
Clinic Survey Data Entry System (web-based)
Clinic Survey Data Processing Programme
Clinic Survey Operation Manual for RDHS (draft)
Clinic Survey Operation Manual for Institutions (draft)

Through the pilot surveys, the tools have been improved and proved to be simple, easy to use and cost-effective. Therefore, the Indicator 1-1, availability of a set of tools for a patient survey of Medical and Diabetes clinics, is likely to be achieved by the end of the Project.

Currently the fifth pilot survey is being prepared involving all the MoH institutions in Kandy, Batticaloa and Kegalle districts, after which all the tools will be finalized. A web-based data entry will be tested for the first time in the fifth pilot, as Excel-based data entry

<sup>1</sup> This indicator measures the number and % of PCIs which managed to track 75% or more of their referred patients; 1) from HLC to MC; 2) MC to MC of BH and; 3) OPD to MC within.

was found not feasible as majority of computers at medical institutions and RDHS offices do not have the software. In addition, incorporating the request of a diabetes-related project supported by the World Diabetes Foundation, numerical data of blood sugar level and blood pressure was added to the survey item. In view of the planed island-wide survey, the 5<sup>th</sup> pilot survey is being organized by MoH with minimum inputs from JICA, in order to clarify process- and resource-related issues of such an implementation. The fifth pilot survey is expected to complete data collection, entry, and analysis by the end of the Project, provided that necessary manpower and internet connection for data entry are secured at the districts involved.

The clinical data collection mechanism being established through the Project has the flexibility to add/delete survey items as necessary. The data can be compiled either by residential areas of patients or by medical institutions. The results will be useful for various planning and policy decisions at institutional, district, provincial as well as national levels. Considering the importance of such clinical data on NCDs, MoH is planning to implement an island-wide clinical data collection survey after the tools are finalized.

### ***Referral Follow-up System***

Through medical checkup at the HLC of PCIs, high risk individuals are identified and referred to a MC for further investigation and/or treatment as required. In most cases they are referred to MC of the same institution, otherwise to MC of a nearest institution where a consultant is available. However, there was no means to know whether or not the MC received the individual referred. In the Project, tools such as referral form, back reporting form, recording formats and manuals were developed and tested to follow-up on / track referred patients in the catchment area of the 4 target BHs. By this system, PCIs can ascertain whether or not a patient has gone to the referral destination, by the back reporting from the referral destination.

As of July 2017, 17 (85%) out of 20 PCIs, excluding the 9 PCIs of Kaluwanchikudy area, appropriately carried out the referral follow-up, against the target value of 19 (66%) out of 29 PCIs. In Kaluwanchikudy area, where the referral follow-up system started only in May 2017 after a Visiting Physician was assigned to the BH following the completion of the construction of new hospital building by the yen loan project, the performance of the referral follow-up system could not be measured based on the same indicator (Indicator 1-2). Considering the gradual operationalization of the system in other areas, achievement of the Indicator 1-2 in Kaluwanchikudy area is not yet certain at the time of Terminal Evaluation.

In the catchment area of the 3 BHs where the referral follow-up system has been operational for some time, 96% of high risk individuals who were referred at PCIs actually visited the referral destinations. In contrast, according to the survey conducted by the Project in April-June 2017, only 70% of the referred individual visited the referral destinations in other areas of the same districts where no such system is in place (“control areas”). While reasons for the significant difference in the referral completion ratio between the target area and the control area have not been made clear through the survey, there is a common view among the stakeholders that giving the additional form itself may have the effect of enhancing the awareness of the individuals who are referred to MC.

The back-reporting forms are sent back to HLC for around 80% of the patients on an average who were referred to MC, which is already above the level considered successful in accomplishing the Indicator 1-2. As for the patients whose back-reporting forms are not returned by the end of the following month, PCIs further track them by telephone or home visit through relevant MOH offices.

The tools for the referral follow-up system have been improved through several revisions. It appears to be operational based on the performance measured by the indicator. While weakness in registration and record keeping was found in the field, especially at small institutions where human resources are not sufficient. In addition, MO/NCD at RDHS, who is in a position to conduct supportive supervision on these activities, do not have time to give detailed guidance on this matter.

Based on the experienced gained so far, the Project is planning to examine possibility of simplification of the referral / back reporting forms, recording forms and the procedures of the system in view of feasibility of future scale-up and sustainability.

The Project is drafting a document that guides instituting a referral follow-up system elsewhere by reviewing the trial processes as well as required resources. Thus, the Indicator 1-3 is likely to be achieved by the end of the Project.

It should be also noted that, in parallel with the development of the referral follow-up system, a HLC supervision checklist was also prepared by the Project. According to MoH, it is easy to apply and widely used not only in the project site but also in other areas in the country.

Figure 1: Conceptual diagram of the referral follow-up system

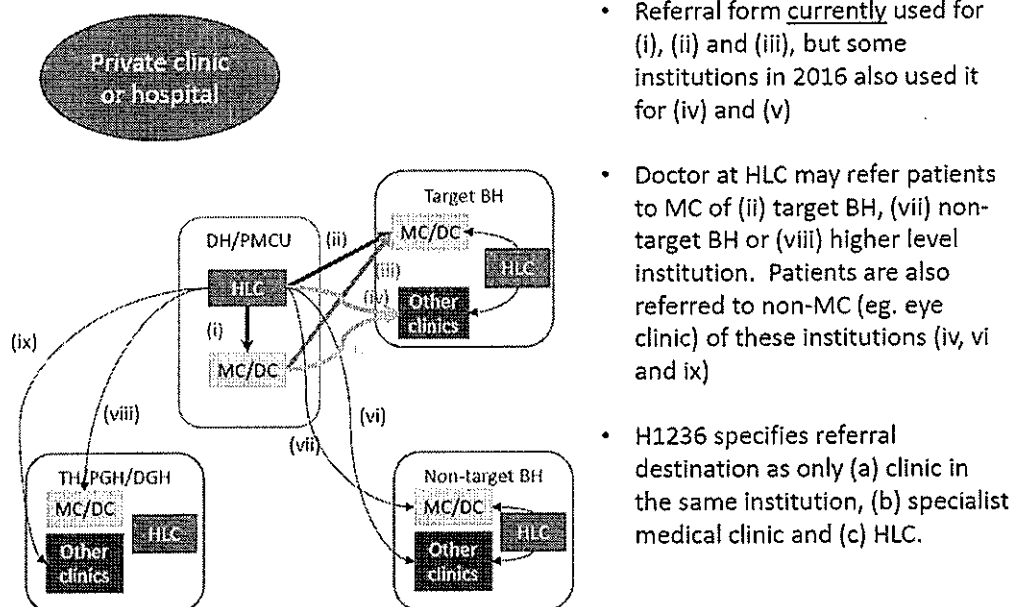


Table 4: List of tools of the referral follow-up system

Referral and back reporting Form triplicate (English/Sinhala, English/Tamil)
Referral Tracking Register and the instruction (English/Sinhala/Tamil)
Referral Form Return Logbook and the instruction (English)
Notification form for MOH on defaulters (English/Sinhala/Tamil)
Sample Medical Clinic Register(English/Sinhala)
Guideline on filling the MC Register (English/Sinhala)
Guide on how to use the Referral/back-reporting Forms (English/Sinhala/Tamil)
HLC Supervision Checklist (English)

The indicator 1-3, availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country, is expected to be achieved before the termination of the Project, once the optimum system is defined.

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### 3.3.2 Achievement of Output 2

Output 2	Objectively Verifiable Indicators	Status as of June 2017															
Improved availability of laboratory services for NCD clients of primary care institutions in the catchment areas of the 4 BHs	2-1. Percentage of new HLC clients at PCIs who had blood tests for TC or lipid profile at the target BH's laboratory through the laboratory network system established/strengthened by the Project in each Project site.	Galgamuwa: 87.3% Teldeniya: 75.5% Warakapola: 94.0% Kaluwanchikudy: 39.0%															
	<table border="1"> <thead> <tr> <th>Project site</th> <th>Baseline</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Galgamuwa</td> <td>n.a.</td> <td>≥ 75 %</td> </tr> <tr> <td>Teldeniya</td> <td>0.00 %</td> <td>≥ 60 %</td> </tr> <tr> <td>Warakapola</td> <td>0.00 %</td> <td>≥ 80 %</td> </tr> <tr> <td>Kaluwanchikudy</td> <td>0.00 %</td> <td>≥ 60 %</td> </tr> </tbody> </table>	Project site	Baseline	Target	Galgamuwa	n.a.	≥ 75 %	Teldeniya	0.00 %	≥ 60 %	Warakapola	0.00 %	≥ 80 %	Kaluwanchikudy	0.00 %	≥ 60 %	<Partially achieved / likely to be achieved by the end of the Project>
	Project site	Baseline	Target														
Galgamuwa	n.a.	≥ 75 %															
Teldeniya	0.00 %	≥ 60 %															
Warakapola	0.00 %	≥ 80 %															
Kaluwanchikudy	0.00 %	≥ 60 %															
2-2. Number and percentage of PCIs' Medical Clinics that send to the target BH's laboratory at least 1 specimen in a month for any kind of laboratory tests through the laboratory network system established/strengthened by the Project in each Project site.	<table border="1"> <thead> <tr> <th>Project site</th> <th>Baseline</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Galgamuwa</td> <td>0.00 % (0/7)</td> <td>100.0 % (7/7)</td> </tr> <tr> <td>Teldeniya</td> <td>0.00 % (0/6)</td> <td>100.0 % (6/6)</td> </tr> <tr> <td>Warakapola</td> <td>0.00 % (0/7)</td> <td>100.0 % (7/7)</td> </tr> <tr> <td>Kaluwanchikudy</td> <td>0.00 % (0/9)</td> <td>≥ 55.0 % (5/9)</td> </tr> </tbody> </table>	Project site	Baseline	Target	Galgamuwa	0.00 % (0/7)	100.0 % (7/7)	Teldeniya	0.00 % (0/6)	100.0 % (6/6)	Warakapola	0.00 % (0/7)	100.0 % (7/7)	Kaluwanchikudy	0.00 % (0/9)	≥ 55.0 % (5/9)	Galgamuwa: 5/7 (71.4%) Teldeniya: 0/6 (0.0%) Warakapola: 6/7 (85.7%) Kaluwanchikudy: 0/9 (0.0%)  <Not achieved / degree of achievement will improve but full achievement is not certain by the end of the Project>
Project site	Baseline	Target															
Galgamuwa	0.00 % (0/7)	100.0 % (7/7)															
Teldeniya	0.00 % (0/6)	100.0 % (6/6)															
Warakapola	0.00 % (0/7)	100.0 % (7/7)															
Kaluwanchikudy	0.00 % (0/9)	≥ 55.0 % (5/9)															
2-3. Availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country. (Baseline: No, Target: Yes)		No (Planned to be prepared by Dec 2017)  <Likely to be achieved by the end of Project >															

Proper cardiovascular (CVD) risk assessment requires total cholesterol (TC) value. However, at the PCIs where no laboratory services are provided, risk assessment is mostly done without TC data, by simply assuming that the clients have normal value<sup>2</sup>. Similarly, if clinic or OPD patients of PCIs need laboratory test, they need to go to a nearby institution with a laboratory facility or to a private laboratory. In the Output 2 of the Project, laboratory networks have been developed centering around the 4 BHs equipped with advanced test equipment and additional human resources by the yen-loan project serving the surrounding PCIs.

#### Lab-Network for HLC (Indicator 2-1)

Reflecting the development in each BH described below, the targets for the Indicator 2-1 have been achieved in 3 project sites, except for Kaluwanchikudy area, at the time of the terminal evaluation.

<sup>2</sup> Recognizing the scarce availability of TC test facilities, the current NCD guideline allows health care providers to assume a client has a normal TC value for the CVD risk assessment.

- In Galgamuwa area where a similar lab-network for HLC clients had been started even before the Project, the Project increased the coverage area and broaden the beneficiaries by including OPD/clinic patients. Five motorbikes were provided by the Project to transport blood samples.
- In Warakapola area which started the lab-network in the second project year with a semi-automated analyzer and one motorbike to better meet the needs of patients under treatment rather than for HLC clients, the Project expanded the service for HLC clients. To transport increased blood samples, one three-wheeler was provided by the Project.
- Teldeniya area was waiting for the completion of the new laboratory with an auto-analyzer procured by the yen loan project. However, as there were unexpected delays, it was decided to start a lab-network in September 2016 using the existing semi-auto analyzer. Though the new laboratory became operational in April 2017, the number of blood tests from each PCI was restricted due to unavailability of reagent for TC tests and excessive demand for laboratory investigation at the BH due to an epidemic of dengue for some time.
- In Kaluwanchikudy area, a lab-network became functional in late April 2017 after the inauguration of new hospital building in February 2017. It was, however, with a restriction on the number of samples at 5 per PCI per week, due to some utility problems for the laboratory and pending recruitment of additional MLTs. Based on the experience in other areas, it is expected that the relevant indicator for Kaluwanchikudy would be achieved by the end of the Project.

#### **Lab-Network for MC (Indicator 2-2)**

As for the Indicator 2-2 which reflects the use of lab-network for MC patients of PCIs, the level of achievement at the time of terminal evaluation is low. Galgamuwa and Warakapola areas, which had started the lab-network earlier than the other two project sites, are yet to reach the set target. In the other two sites, there were no PCIs which sent one or more blood samples for MC patients every month in the second quarter of 2017.

Major reasons identified for the lower-than-expected achievement of Indicator 2-2 include i) temporally restriction on sample numbers due to limited laboratory capacity (Teldeniya and Kaluwanchikudy BHs) because of shortage/lack of human resources and laboratory supplies, ii) the fact that some doctors do not have time for blood sampling at MC due to excessive number of patients<sup>3</sup>. The former situation was temporal and already improved at both the BHs, except for the supply of distilled water in Kaluwanchikudy BH. As for the later, one of the solutions would be to invite the patients who need blood tests to come over another day to take blood samples, which is already practiced in some PCIs. Now that the issue of reagent supply has been solved at least for the time being, there is a possibility that Indicator 2-2 improves to some extent by the end of the Project, but it is not certain if it will be fully achieved or not.

#### **Major Benefit of the Lab-Network**

NCD screening at HLC employs total risk assessment approach which, by right, considers TC level of the client, among others. By having a TC value of a client, it is possible to make the screening with more accuracy. However, it was found that there are HLCs where risk assessment is made before obtaining the results of blood test, as the results are not available at the same day, and doctors may give separate assessment later according to the TC test results. In order to assure use of total risk assessment approach, it would be better to make an assessment after receiving the blood test results.

In general, people are very interested in their cholesterol levels. Therefore, by offering a cholesterol test for free, more people are interested to receive medical checkup at HLC.

<sup>3</sup> Another reason for the low-than-expected achievement of the indicator is rather ambitious target level established before recognizing these constraints.

Such views were widely shared through the field visits and there were some PCIs that have reportedly doubled their HLC clients after the introduction of lab-network.

Lab-network also increased convenience of patients of PCIs who would otherwise need to pay for private laboratory services or travel and wait at institutions that offer applicable laboratory services.

While the benefits of lab-network are clear, there are several elements that are essential to functional ones. They include equipment with high efficiency such as auto-analyzers, assignment of MLTs and clerical workers, means of transportation (either by vehicles owned by BH, PCIs or public transportation), continuous supply of reagent and other consumables. The major challenges experienced by the Project were securing adequate number of MLTs and means of transportation. MoH is currently in the process of procurement of Point-of-Care Test (POCT) devices to check TC which can be handled at PCIs. MoH is also examining possibility of using courier services for transportation of specimens and test reports, which could be an option where no other effective means of transport is available. Public transportation could be another option, as already practiced quite successfully by two institutions in Teldeniya BH area to which no motorbike was provided due to absence of suitable personnel.

The Project is currently re-drafting an Operation Manual of a laboratory network based on the Project's experiences, primarily for PDHS/RDHS interested in setting up similar systems. It covers required resources alongside other tools/formats developed by the Project. Thus, Indicator 2-3 is likely to be achieved by the end of the Project.

### 3.3.3 Achievement of Output 3

Output 3	Objectively Verifiable Indicators	Status as of June 2017
Enhanced pharmaceutical supply management at the 4 target BHs	3-1. Number of the target Base Hospitals using Medical Supply Management Information System (MSMIS) for their pharmaceutical supply management (Baseline: 0, Target: 4)	0 (MSMIS is partially operational at Kaluwanchikudy BH)  <Not achieved / may be achieved by the end of the Project>
	3-2. Availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country. (Baseline: No, Target: Yes)	No (Planned to be prepared by November 2017)  < Likely to be achieved by the end of Project>

Output 3 is considered achieved when the pharmaceutical supply management at the 4 target BHs has been enhanced through the application of the MSMIS to the pharmaceutical supply management at the BHs.

MSMIS is a computerized network that is designed to strengthen the supply chain at every level and to improve the availability of medical items in all government hospitals. The system has been in development by MoH over the past years and is now ready to be installed in provincial institutions.

Due to the delay in the construction of buildings for 4 BHs under the loan project, it is now installed only in Kaluwanchikudy BH but not yet fully operational. In other 3 BHs, the system will be installed and become operational after minor renovation of the room, installation of network devices, stock verification and training of its users. Progress of these tasks is different among the 3 BHs at the time of Terminal Evaluation. Provided there are no major delays in the above actions, it is expected that the MSMIS becomes

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operational at the 4 BHs before the end of the Project. The Project is going to compile a guideline on how to plan, prepare and carry out introduction of MSMIS at a new institution. Therefore, it is likely that both indicators for Output 3 would be achieved by the end of the Project. However, some of the planned activities such as fine tuning of the system and improvement of the existing user manual based on actual operation would not be possible for the remaining project period.

### 3.4 Achievement of the Project Purpose

Project Purpose	Objectively Verifiable Indicators	Status as of June 2017
Strengthening of NCD management at the 4 target BHs and primary care institutions in their catchment areas as clusters	P-1. Percentage of patients referred from primary care institutions (PCIs) i.e. (i) from HLC@PCI to MC/DC@PCI, (ii) from HLC@PCI to MC/DC@BH and (iii) from MC/DC@PCI to MC/DC@BH, who completed the referral at the institutions specified. (Baseline: n.a., Target: ≥80%)	Galgamuwa: 90.9% Warakapola: 88.9% Teldeniya: 96.0% Kaluwanchikudy: N.A. (the system only started in May 2017) <Partially achieved / likely to be fully achieved by the end of the Project>
	P-2. Availability of data on patients of Medical and Diabetes clinics at the MoH hospitals in the 4 project sites. (Baseline: No, Target: Yes)	Yes <Achieved>
	P-3. Availability of a package of tools for NCD management at primary and secondary institutions as a cluster in the 4 target districts. (Baseline: No, Target: Yes)	No (Tools in development to be finalized in Oct. 2017) <Likely to be achieved by the end of the Project>

The Project Purpose is considered achieved when there is a strengthened NCD management at the 4 target BHs and primary care institutions in their catchment areas as clusters. Reviewing the progress of activities towards the achievement of 3 indicators of the Project Purpose and the achievement of the three outputs at the time of the Terminal Evaluation, it is expected that the project purpose will be by and large achieved.

Target for Indicator 1 is that more than 80% of patients referred from PCI (HLC or MC/DC) visit the referral destinations. As of July 2017, it has been achieved at 3 areas except for Kaluwanchikudy where the introduction of the referral follow-up system and the lab-network were both delayed. In view of the marked difference of referral completion rates between the intervention and non-intervention areas (100.0 % and 70.7% respectively) found by a sample survey undertaken by the Project in Kandy, Kegalle and Kurunegala districts in April – June 2017, Kaluwanchikudy area could also be expected to achieve the set target by the end of the Project, provided that all the institution involved implement the referral follow-up system and the lab-network, including the record keeping, so well as other three Project sites.

Target for Indicator 2 is that clinical data of MC/DC patients of the 4 BHs are available, which has been already achieved through the third and the fourth pilot surveys in 2016.

Target for Indicator 3 is that a package of tools for NCD management is compiled and become available for future scale-up. Such package under development by the Project is expected to be finalized by the end of November.

## 4 Implementation Process

### 4.1 Issues of the PDM

The original version of the PDM (ver. 1) was revised at the beginning of the Project in accordance with the strong advice from the JCC members that the project design was not appropriate anymore due to the many developments since it was formulated a year before. The structure of the Project was greatly modified, and the number of the outputs was reduced from 4 to 3. A comparative summary of the PDM ver.1 and ver. 2 is presented below.

Table 12: Overall goal, project purpose and outputs of PDM ver. 1 and ver. 2.

PDM ver. 1	PDM ver. 2
<b>Overall Goal</b> Comprehensive Non-Communicable Disease (NCD) management including Healthy Lifestyle Centre (HLC), primary medical care facilities and secondary hospitals are implemented nationwide	<b>Overall Goal</b> Enhancement of the national NCD programme
<b>Project Purpose</b> NCD management models including secondary hospitals, which are applicable to nation-wide expansion, are developed and implemented in target areas in selected four provinces	<b>Project Purpose</b> Strengthening of NCD management at the 4 target BHs and primary care institutions in their catchment areas as clusters
<b>Output 1</b> Management of NCDs by total risk assessment in HLCs and selected Base Hospitals (BHs) is enhanced	<b>Output 1</b> Improved monitoring of NCD patients in the catchment areas of the 4 target BHs
<b>Output 2</b> Essential medicine and medical supplies stock management are enhanced in selected BHs in target areas	<b>Output 2</b> Improved availability of laboratory services for NCD clients of primary care institutions in the catchment areas of the 4 BHs
<b>Output 3</b> Surveillance system for NCD is developed	<b>Output 3</b> Enhanced pharmaceutical supply management at the 4 target BHs
<b>Output 4</b> Expansion plan for NCD management model activities is finalized for nationwide implementation in other provinces	

Thereafter, in response to the recommendations made by the Mid-Term Review, clarification of the indicators of PDM Ver. 2 and setting of target values were done and formalized at the 7th JCC in January 2017 which adopted the PDM Ver. 3 with the above incorporated.

### 4.2 Issues of the Implementation Process

#### 4.2.1 Contributing factors

- Project management including periodical monitoring and troubleshooting have been carried out efficiently through such mechanisms as JCC, WG, periodical monitoring visits by the JICA team, and daily communication and close coordination between Japanese and Sri Lankan sides.

#### 4.2.2 Constraining Factors

- Major modifications of PDM at the initial moment delayed the start of full-scale activity about 3-4 months. However, the process of joint review and preparation of

new plans has led both Japanese and Sri Lankan sides to better understand the specific situations with recent developments in the target areas and strengthen their commitment to working together on the Project.

- The completion of BHs under the yen loan project has been delayed. As a result, some activities under Output 1, 2 and most of the activities under Output 3, which require certain components under the yen loan project to be in place, have experienced major delays.
- Assignment of a Visiting Physician (VP) and additional MLTs of Kaluwanchikudy BH was finally made in 2017 after the completion of the new hospital building. For this reason, the referral follow-up system and introduction of a lab-network to the BH started in May 2017, leading to a low performance of the applicable indicators at the time of the terminal evaluation. At the moment, the VP of Kaluwanchikudy BH is on temporary assignment and therefore there is no guarantee of continuous availability of a VP at the BH. With respect to MLTs, there is a shortage of domestic talent nationwide.
- Overall, shortage of human resources is serious not only in medical institutions but also in health administration. For this reason, there were cases in which the tasks related to the Project were not sufficiently handled especially if they were not included in the original job description of the C/P. There were cases where JICA project personnel on behalf of the C/P undertook those tasks which C/P is expected to undertake.
- Difficulties in handing over process cause disruption of system when staff changes occur.

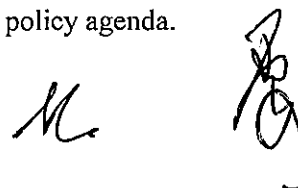
#### 4.3 Issues of the Important Assumptions

- The strengthening of hospital functions through the yen loan project, such as enhancing laboratory capabilities, establishing drug stores, recruitment of additional staff, etc., were important external conditions of the Project. However, this was not explicitly stated in the PDM, and when the Project was designed, less attention was paid to the impact of any possible delays in the implementation of the yen loan project on the Project.
- The following important assumptions shown in the PDM did not always prevail, and had certain adverse influences on project activities and outputs;
  - GOSL is able to continuously supply necessary reagents / test kits: non-availability of reagents and test tubes in some laboratory / institutions affected the operation of lab-network.
  - The target BHs are equipped with fully automated and well-maintained biochemical analysers and sufficient number of MLTs: delays in completing the new laboratories in the BHs affected the start of fully operational lab-network.
  - Primary care institutions have skilled personnel to draw blood for testing: there is such personnel in almost all the institutions but they are too busy to perform this at MC.

## 5 Evaluation on the Five Criteria

### 5.1 Relevance

The Project is highly relevant to the national and Japanese policy agenda.



### 5.1.1 Relevance to national needs

Strong national needs for the NCD management are clearly illustrated in the National Health Master Plan 2016 - 2025 which envisages reorientation of curative and preventive services to deal with an increasing burden of NCD. Creation of Deputy Director General (DDG) / NCD post was one of the proposal made through its elaboration. NCD management is related to several SDGs which GOSL is focusing its development efforts. In view of an importance of concerted efforts of relevant sectors, GOSL also prepared a “National Multi-sectoral Action Plan for the Prevention and Control of Noncommunicable Diseases 2016-2020”. Thus, NCD management has been recognized as one of the major health issues that requires attention by GOSL.

In addition, “The National Policy & Strategic Framework for Prevention and Control of Chronic Non-Communicable Diseases” developed in 2011 particularly for the prevention and the management of NCDs, also demonstrates GOSL’s commitment to the NCD control. Some key strategies in the document correspond to the objectives of the Project; cost-effective screening of NCDs (key strategy No.2), optimal NCD care (key strategy No.3), and national health information system including disease and risk factor surveillance (key strategy No.6).

Therefore, providing a technical assistance to build, institutionalize and facilitate the stronger NCD management would meet the needs of the GOSL.

### 5.1.2 Relevance to Japan’s development assistance policy

Japan’s cooperation policy to Sri Lanka assists the maintenance of facilities and capacity building in the health and medical sector to support the social services infrastructure. It also stresses the importance of the impartial and fair assistance to the underdeveloped areas affected by the conflicts over the past years. It is therefore considered that the Project, which aims to strengthen the NCD management of targeted health facilities thoroughly selected from 4 different areas, corresponds to the cooperation policy of Japan.

## 5.2 Effectiveness

The Project is considered fairly effective in terms of achievement of its purpose through production of the set outputs, all measured by the agreed indicators. It appears to be reasonable to expect that all the targets for the Project Purpose indicators will be met by the end of the Project. However, achievement of some indicators for Output 1 and 2 is uncertain and the indicators for Output 3 will be achieved by the end of the Project.

NCD management in the catchment areas of the target BHs were strengthened principally by introducing new mechanisms, as a pilot for possible application to other areas in future, that facilitate (i) improvement in NCD screening at HLCs and (ii) the detected high-risk clients to obtain necessary treatment. Clinical data collection and MSMIS are other important elements for NCD management strengthening. Meanwhile, it is important to recognize some other necessary elements which were not addressed by the Project. The following section presents observations by the Evaluation team on the effects of the Project.

### 5.2.1 Improvement of Screening at HLC

By establishing functional lab-network for PCIs, TC values of HLC clients that are important for CVD risk assessment become available. Provision of free TC test also resulted in an increase of participants to the health checkup at HLC. However, as most of the participants are invited through OPD, there are few participants who are not sick nor who do not realize that they may have risks of illness. As the checkup is held during the day, there are not many male participants. Thus, the range of participants to HLC is rather limited.

In some HLCs, risk assessment is made before receiving the results of TC test. In order to conduct the screening properly, medical personnel of the HLC should carry out a total risk assessment after receiving the TC test report.

It should be also noted that lab-network arrangement was customized according to availability of facilities, equipment, human resources, transportation means, and geographical conditions of each cluster. The experience of configuring lab-network while responding to various constraints generated a lot of know-how that can be tapped when introducing a lab-network to other areas.

### **5.2.2 Prompt Treatment of High-Risk Patients**

High risk individuals screened out at HLC are referred to the MC inside or outside the institution to receive further medical examination and/or treatment. In the area where the Project introduced the referral monitoring system, almost all the detected high-risk individuals complete the referral. This is about 20% higher than the area where this system is not introduced. Each medical institution performs careful follow-up and advises the clients to visit the MC by telephone or home visit through MOH, if a back report from the referral destination does not arrive.

On the other hand, some PCIs with limited human resources are burdened with such individual correspondence and the recording works on multiple recording formats. In order to raise the sustainability and the feasibility of scale-up of the referral follow-up system in the said context, the Project intends to simplify the system and reduce the burden on PCIs.

### **5.2.3 Clinical Data Collection and MSMIS**

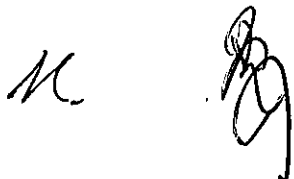
Clinic data collection for the 4 project areas, which is one of the indicators set in the PDM, was completed in the third project year. Currently district-wide pilot surveys for Kandy, Kegalle and Batticaloa regions are being carried out in view of future island-wide survey. With the flexibility to add or delete survey items as desired, the planned island-wide survey will generate important information for strengthening NCD management not only at cluster but also at district, region and national level. The Project prepared survey format and sampling design, procedures of data collection, entry and compilation, and methodologies for basic analysis. Detailed analysis of survey results and practical utilization for NCD management were not included in the Project's scope, but would be useful for future consideration.

MSMIS introduced at the four BHs improves the management of drugs and other medical supplies through the real-time monitoring of the stock status. Through the Project, introduction of MSMIS was pioneered for the first time at hospitals under regional jurisdiction. As the start of its operation delayed due to the late completion of construction of new hospital buildings at 4 BH, the Project will not be able to adjust the existing user manual based on actual operational experiences. Even so, the experience of the Project will be documented so that regions interested to introduce MSMIS to their institutions in future will be informed in advance of what to expect and how to prepare themselves.

### **5.2.4 Constraining factors for the Project effectiveness**

Shortage of human resources and unstable supply of some of the important medical supplies at local medical institutions are issues of the entire health sector that go beyond the scope of the Project. Project activities as well as the Project's effectiveness on strengthening NCD management were affected by such issues.

The Project was designed to produce synergetic effects on the yen loan project for NCD management. However, at the time of planning, the risk of delays in the yen loan project and their possible effects on this Project do not seem to have received sufficient attention.

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### **5.2.5 Elements of NCD management not included in the Project**

As mentioned above, the approach of the Project had specific focuses that lead to strengthening the NCD management on a cluster basis. On the other hand, in order to advance early detection and treatment of high-risk individuals, it is necessary to further broaden the clientele of HLC health checkup. In addition, promotion of healthy lifestyle is also important to prevent NCDs. They are important elements of NCD management not included in the scope of the Project. By strengthening these aspects, it would be possible to further strengthen NCD management on a cluster basis in the target areas.

## **5.3 Efficiency**

The efficiency of the Project is considered moderate. While the inputs of the Project are considered generally appropriate and have been properly handled by the project management, some outputs are not expected to be fully achieved within the cooperation period and some vehicles for specimen transportation are not fully utilized.

### **5.3.1 Achievement of Outputs**

As mentioned earlier, achievements of some of the indicators for Outputs 1 and 2 of the Project in Kaluwanchikudy are uncertain due to delayed start of activities. As for Output 3, while the indicators would be achieved, it is not possible to revise the current user manuals based on actual operational experiences by the end of the Project.

### **5.3.2 Appropriateness and Utilization of Inputs**

The inputs were made generally as planned and adequate, including deployment of project-related personnel by JICA, assigning Sri Lankan C/Ps, training in Japan and equipment. However, there was shortage of human resources at Sri Lankan side.

The inputs have been appropriately managed in terms of timing and quantity, with flexibility to cope with such challenges as the thorough revision of the project design at an initial stage, delays in completion of new hospital building by the yen loan project, and delayed assignment of key personnel at the institution level such as MLTs, VP, etc.

On the other hand, some of the vehicles procured for transporting blood specimens are not fully utilized at the time of Terminal Evaluation due to delayed delivery to the BH, non-assignment of a driver, and long delays in repairing defects developed.

## **5.4 Impact**

### **5.4.1 Achievement of Overall Goal**

The overall goal of the Project is “an Enhancement of the national NCD programme” for which the Project would contribute through introduction of the referral follow-up system, lab-network, clinic data collection and/or MSMIS to other regions. Prospects for achieving the defined indicators for the overall goal are as follows.

#### Indicator 1. Number and percentage of health regions using the tools developed under the Project

At the time of Terminal Evaluation, application of the tools developed by the Project is limited in the target area, i.e. the clusters centering on the 4 BHs, while the HLC supervision checklist has been already put under trial nation-wide. The referral follow-up system and the lab-network piloted by the Project will be further improved by the end of the Project as to what part and how to roll-out to other regions, and the tool package for that purpose will be prepared. MSMIS has already been introduced to all medical institutions under MoH, while the Project is the first to introduce to the hospitals under RMSD. MoH plans to introduce MSMIS to all the hospitals under provincial management, and it is expected that the tools developed through the Project will be utilized. In this way,

the number of the regions that uses the tools developed by the Project is likely to increase after the Project, but at the time of Terminal Evaluation, it is difficult to predict how speedy the number would increase.

In order to promote utilization of the products of the Project in other areas, it is necessary to secure human resources, among others MLTs, specialist doctors, medical staff and other officers, especially at PCIs, health administrators, whose shortage in the target areas was a constrain the Project. Securing proper laboratory equipment and appropriate arrangement for blood specimen transportation are also necessary. Otherwise, it is only possible to extend from the areas where these conditions are established.

#### Indicator 2. Availability of national data on patients attending medical and diabetes clinics of MoH hospitals

This indicator will be achieved when a nationwide survey is carried out, which MoH is planning to do as early as next year. The capacity of the MoH in this regard is being strengthened through the district-wide surveys in the four targeted regions undertaken by the Project.

#### **5.4.2 Other Impact**

The lab-network can be used not only for HLC and MC of PCIs but also OPD and inpatients. Therefore, the lab-network leads to strengthening of medical services of PCI in general. In this manner, the Project's contribution goes beyond NCDs. Even after the introduction of POCT for TC at HLC, lab-networks are expected to be utilized for non-HLC patients.

### **5.5 Sustainability**

Overall sustainability of the Project is considered moderate, since the sustainability in policy aspect is very high, and is expected to be generally high in financial and technical aspects, while there are concerns in organizational and administrative aspects such as general shortage of human resources.

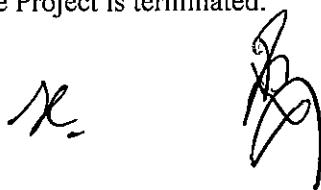
#### **5.5.1 Policy Aspect**

NCD management is an important issue and there is high commitment of the MoH. MoH is currently planning to further review the existing NCD strategy, but the importance of early detection and treatment of NCD high-risk individuals and NCD clinical information, which the Project has been working on, will remain unchanged. Therefore, the sustainability of policy aspects is expected to be very high.

#### **5.5.2 Financial Aspect**

Financial resources required in order to continue the activities initiated by the Project is not huge. In addition to personnel and administrative expenses, they include costs for blood test tubes, laboratory reagents, specimen transportation, printing of various forms, and, etc. Therefore, there is not much concern on the continuation of activities in the project area.

If the activities are extended to other areas, additional licenses for MSMIS licensing will be required for which budget must be secured. In addition, investment in laboratory equipment, specimen transporting vehicles may be required according to the needs. These are expected to be covered by the budget of MoH and/or provincial health administrations. In MoH the availability of the budget is not a big constraint. The budget for regions is never abundant, but reflecting the policy importance of NCD management, it is expected that appropriate budget would be allocated even after the Project is terminated.

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equipment, specimen transporting vehicles may be required according to the needs. These are expected to be covered by the budget of MoH and/or provincial health administrations. In MoH the availability of the budget is not a big constraint. The budget for regions is never abundant, but reflecting the policy importance of NCD management, it is expected that appropriate budget would be allocated even after the Project is terminated.

### 5.5.3 Technical Aspect

The various systems introduced at the target areas were developed by the Project through repeated trials and improvement. The planned simplification of the referral follow-up system in view of limited human resources at PCIs is expected to enhance sustainability. It must be also ensured that newly assigned personnel receive appropriate orientation on the systems.

These tools are being finalized with future application in other areas in mind. If such specific information as different options to respond to various situations that differ from region to region, human and financial resources necessary for introduction, procedures from planning, preparation to starting operation with practical tips are included in the guidelines, usefulness of the tools will be even higher.

Technical support for MSMIS is currently provided mainly by a private firm with which MoH has a service agreement. Technical problems are not foreseen as far as such support is available. Technical support for the targeted 4BH is expected to be provided by the above company out of contract. However, in the current service agreement, medical institutions under the provincial administration are not included. MoH is committed to expand MSMIS to all the hospitals under provincial administration, and currently examining adequate options of the contract arrangement. By adding this into the scope of the service agreement, technical sustainability of MSMIS will be strengthened.

### 5.5.4 Organizational/Administrative Aspects

One of the main constraints faced by the Project was shortage of human resources of medical institutions, especially specialist doctors and MLTs at BH level, as well as medical and minor staff of PCIs. The same applies to the administrative officials both at the regional and central levels. There is a concern that the general shortage of human resources threatens the sustainability of the Project.

There is a shortage of MLTs nationwide. In order to cope with it, it would be effective to assign an additional supporting staff in each laboratory for data management in order to ease the burden of MLTs.

On the other hand, the MoH's plans to place one Health Promotion Officer in each MOH and one Community Health Nurse in each medical institution will certainly contribute to ease the situation for NCD management, if realized, improving the sustainability of the referral follow-up system developed by the Project.

Sustainability and effectiveness of the systems developed by the Project also depend on continuous supply of required resources including consumables and various formats. The Project experienced breakdown of such supply chains in several occasions indicating the needs for improvements in management at various levels.

## 6 Conclusions

The Project is highly relevant to the national and Japanese policy agenda.



The Project is considered fairly effective in terms of achievement of its purpose through production of the set outputs, all measured by the agreed indicators. NCD management in the catchment areas of the target BHs were strengthened principally by introducing new mechanisms that facilitate (i) improvement in NCD screening at HLCs and (ii) the detected high-risk clients to obtain necessary treatment. Clinical data collection and MSMIS are also important elements for NCD management strengthening, while there are other necessary elements which were not addressed by the Project.

The efficiency of the Project implementation is considered moderate. While the inputs of the Project are considered generally appropriate and have been properly handled by the project management, some outputs are not expected to be fully achieved within the cooperation period and some vehicles for specimen transportation are not fully utilized.

In terms of impact, MoH is planning to carry out island-wide clinical data collection as soon as next year. The number of the regions that uses the tools developed by the Project is likely to increase after the Project, but at the time of Terminal Evaluation, it is difficult to predict how speedy the number would increase.

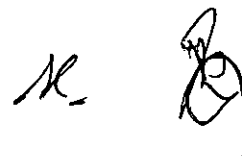
Overall sustainability of the Project is considered moderate, since the sustainability in policy aspect is very high, and is expected to be generally high in financial and technical aspects, while there are concerns in organizational and administrative aspects such as general shortage of human resources.

In view of the above, it is expected that the Project would be completed satisfactory.

## 7 Recommendations

### *To the Project*

- The Project should expedite the series of the actions required to operationalize MSMIS at the 4 target BHs, including installation of equipment and other facilities in the identified premises, training of the prospective users of the system and stock verifications, so that MSMIS is fully operational before the conclusion of the Project.
- The Project needs to complete the on-going 5<sup>th</sup> pilot survey of the medical clinics in Kegalle, Kandy and Batticaloa districts. The RDHSs should mobilize all the resources necessary to complete the local operation, i.e. data collection and data entry by the end of September. Consider assigning dedicated personnel in each district as well as at the central level to oversee the operation to avoid further delays.
- In view of the scarcity of human resources at PCIs, the Project should carefully simplify the referral follow-up system for the sake of sustainability, with due attention not to jeopardize the high referral completion rate achieved.
- Now that TC values are available to HLC clients thanks to the laboratory network instituted in the target areas of the Project, they should be used for the total risk assessment of CVD as per the guideline in place. Medical Officers of HLCs should be specifically instructed to do the CVD risk assessment when a client comes back for the TC result. It is also recommended to have this instruction explicitly stated in appropriate tools being produced by the Project.
- The experiences and knowledge gained through experimental operations of various systems/tools should be generously shared with stakeholders who would benefit from establishing the system developed by the Project with possible modifications to suit the local needs. To this end, the Project integrates in the final tool package to be produced useful information such as practical tips, possible options for different circumstances and good



practices related to various phase of implementation including planning, monitoring and supervision.

- PDHS/RDHS as applicable should take necessary actions without delay to fully utilize the scooters and the three-wheeler provided for the laboratory network. They include carrying out prompt repairs and regular maintenance, deployment of designated and authorized personnel to ride them with appropriate cover in case of accident and, if necessary, reassignment of a vehicle to another institution where it is best utilized for the purpose with consent of JICA.

#### *To MoH*

- In view of multiple tasks to be performed by MO/NCD, MoH/PDHS/RDHS should consider strengthening regional NCD interventions by placing additional personnel and necessary mechanism to function as a team.
- To strengthen the sustainability of the system developed by the Project, MOH takes necessary measure to assure continuous availability of a VP in each of the target BHs.
- In preparation for the planned island-wide clinical data collection exercise, MoH needs to consider a functional organizational set up by reviewing all the related tasks and human and other resources necessary to carry them out efficiently for the sake of quality data. In this regard, it is important to assure the know-how and capacity obtained through the Project are maintained and utilized to the extent possible. In addition, the MoH is encouraged to explore various ways to analyze and utilize the data obtained, also in combination with other available data from routine reporting and other surveys.
- Medical Officers of HLCs need to be re-oriented and supervised to use TC test results for the CVD risk assessment when they become available either through setting up laboratory networks or provision of POCT facilities as planned by MoH.
- When revising the HLC registers, consider integrating relevant aspects of the referral tracking and laboratory test registers introduced by the Project.
- As for the lab-network;
  - In order to keep the lab-network fully functional, MoH should further strengthen its capacity to ensure proper maintenance and effective utilization of automatic analyzers, appropriate assignment of MLTs and laboratory assistants, sufficient and continuous supply of consumables including reagents and test tubes, and assignment of authorized transporters with adequate coverage in case of an accident.
  - As MoH considers different options to avail laboratory investigations to clients of peripheral institutions, including POCT, use of private courier services and laboratory network similar to those set up by this Project, comparative advantages and applicability of each option should be clarified in view of different local conditions before making decisions for the sake of cost-effectiveness and sustainability.
  - It is desirable to institutionalize in the regional health administrations the function to ensure smooth, continuous and quality operation of laboratories including the laboratory networks established. A designated position may be required to properly oversee laboratory-related operations in each region, coordinating necessary resources with relevant sections of regional and central health administrations.
- MoH may need to revise the scope of the current service agreement for MSMIS with the contractor, to ensure that necessary support is also provided to the institutions under provincial management. Also consider purchasing additional user licenses to ensure the institutions' access to the system.

## Annex 1 Logical Framework (Project Design Matrix: PDM)

Ver: 3 (Nov. 2016)

**Project Title:** The Project for Enhancement of Non-Communicable Diseases Management

**Project Sites:** Four Base Hospitals (BHs) (Teldeniya BH in Kandy district, Central Prov., Kaluwanchikudy BH in Batticaloa district, Eastern Prov., Galgamuwa BH in Kurunegala district North Western Prov., Warakapola BH in Kegalle district Sabaragamuwa Prov.) and their catchment areas<sup>1</sup>, Colombo (MoH)

**Project Period:** February 2014 – January 2018 (Four years)

**Beneficiaries:** Service providers at the 4 BHs and primary care institutions in their catchment areas, NCD-related personnel/units in the RDHSs of the 4 districts and MoH, Population in the catchment areas of the 4 BHs

Narrative summary of Objectives	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b> Enhancement of the national NCD programme</p>	<p>1. Number and percentage of health regions using the tools developed under the Project. (Baseline: 0, Target 26 (100%)) 2. Availability of national data on patients attending medical and diabetes clinics of MoH hospitals. (Baseline: No, Target: Yes)</p>	<p>1. Annual NCD Review report from each health region to NCD unit of MoH with evidence (eg. copy of filled formats) 2. A periodic national survey report</p>	<p>Priority of the NCD prevention and control is maintained in health sector in Sri Lanka  GoSL is able to finance a periodic national patient survey at medical and diabetes clinics of government hospitals.</p>
<p><b>Project Purpose</b> Strengthening of NCD management at the 4 target BHs and primary care institutions in their catchment areas as clusters</p>	<p>1. Percentage of patients referred from primary care institutions (PCIs) i.e. (i) from HLC@PCI to MC/DC@PCI, (ii) from HLC@PCI to MC/DC@BH and (iii) from MC/DC@PCI to MC/DC@BH, who completed the referral at the institutions specified. (Baseline: n.a., Target: ≥80%) 2. Availability of data on patients of Medical and Diabetes clinics at the MoH hospitals in the 4 project sites. (Baseline: No, Target: Yes) 3. Availability of a package of tools for NCD management at primary and secondary institutions as a cluster in the 4 target districts. (Baseline: No, Target: Yes)</p>	<p>1. Project report (Quarterly report from PCIs)  2. Project report  3. Project report</p>	<p>GoSL provides necessary equipment, consumables and manpower to scale up the initiatives under this Project nationwide.  GoSL ensures (i) training of new personnel and (ii) refresher training of existing staff at the national, district and institutional level.</p>

<sup>1</sup> Teldeniya BH: 3 MOH areas of Medadumbara, Udadumbara and Kundasale; Kaluwanchikudy BH: 3 MOH areas of Kalwanchikudy, Vellavely and Paddipalai; Galgamuwa BH: 3 MOH areas of Galgamuwa, Enehuweva and Giribawa; Warakapola BH: 1 MOH area of Warakapola except for the survey components, which also involves MOH area of Galgamuwa.

# Annex 1 Logical Framework (Project Design Matrix: PDM)

Ver. 3 (Nov. 2016)

Narrative summary of Objectives	Objectively Verifiable Indicators	Means of Verification	Important Assumptions															
<p><b>Output 1:</b> Improved monitoring of NCD patients in the catchment areas of the 4 target BHs</p>	<p>1-1. Availability of a set of tools for a patient survey of Medical and Diabetes clinics. (Baseline: No, Target: Yes)</p> <p>1-2. Number and percentage of PCIs in the catchment areas of the 4 target BHs tracking their clients<sup>2</sup> referred to Medical/Diabetes Clinics in each Project site.</p> <table border="1" data-bbox="512 1025 671 1599"> <thead> <tr> <th>Project site</th> <th>Baseline</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Galgamuwa</td> <td>0.00% (0/7)</td> <td>≥ 55.0 % (4/7)</td> </tr> <tr> <td>Teldeniya</td> <td>0.00% (0/6)</td> <td>≥ 65.0 % (4/6)</td> </tr> <tr> <td>Warakapola</td> <td>0.00% (0/7)</td> <td>≥ 85.0 % (6/7)</td> </tr> <tr> <td>Kaluwanchikudy</td> <td>0.00% (0/9)</td> <td>≥ 55.0 % (5/9)</td> </tr> </tbody> </table> <p>1-3. Availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country. (Baseline: No, Target: Yes)</p>	Project site	Baseline	Target	Galgamuwa	0.00% (0/7)	≥ 55.0 % (4/7)	Teldeniya	0.00% (0/6)	≥ 65.0 % (4/6)	Warakapola	0.00% (0/7)	≥ 85.0 % (6/7)	Kaluwanchikudy	0.00% (0/9)	≥ 55.0 % (5/9)	<p>1-1. Project report</p> <p>1-2. Project report (Quarterly report from PCIs)</p> <p>1-3. Project report</p>	<p>1-1. Staff at the 4 BHs and primary care institutions in their catchment areas accept monitoring of NCD patients as a part of their duties.</p>
Project site	Baseline	Target																
Galgamuwa	0.00% (0/7)	≥ 55.0 % (4/7)																
Teldeniya	0.00% (0/6)	≥ 65.0 % (4/6)																
Warakapola	0.00% (0/7)	≥ 85.0 % (6/7)																
Kaluwanchikudy	0.00% (0/9)	≥ 55.0 % (5/9)																
<p><b>Output 2:</b> Improved availability of laboratory services for NCD clients of primary care institutions in the catchment areas of the 4 BHs</p>	<p>2-1. Percentage of new HLC clients at PCIs who had blood tests for TC or lipid profile at the target BH's laboratory through the laboratory network system established/strengthened by the Project in each Project site.</p> <table border="1" data-bbox="986 1032 1145 1592"> <thead> <tr> <th>Project site</th> <th>Baseline</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Galgamuwa</td> <td>n.a.</td> <td>≥ 75 %</td> </tr> <tr> <td>Teldeniya</td> <td>0.00 %</td> <td>≥ 60 %</td> </tr> <tr> <td>Warakapola</td> <td>0.00 %</td> <td>≥ 80 %</td> </tr> <tr> <td>Kaluwanchikudy</td> <td>0.00 %</td> <td>≥ 60 %</td> </tr> </tbody> </table> <p>2-2. Number and percentage of PCIs' Medical Clinics that send to the target BH's laboratory at least 1 specimen in a month for any kind of laboratory tests through the laboratory network system established/strengthened by the Project in each Project site.</p>	Project site	Baseline	Target	Galgamuwa	n.a.	≥ 75 %	Teldeniya	0.00 %	≥ 60 %	Warakapola	0.00 %	≥ 80 %	Kaluwanchikudy	0.00 %	≥ 60 %	<p>2-1. Project report (Quarterly report from PCIs)</p> <p>2-2. Project report (Quarterly report from PCIs)</p>	
Project site	Baseline	Target																
Galgamuwa	n.a.	≥ 75 %																
Teldeniya	0.00 %	≥ 60 %																
Warakapola	0.00 %	≥ 80 %																
Kaluwanchikudy	0.00 %	≥ 60 %																

<sup>2</sup> See the "MEE Framework for PDM Ver. 3" for the definition of "institutions tracking their referred clients".

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# Annex 1 Logical Framework (Project Design Matrix: PDM)

Ver. 3 (Nov. 2016)

Narrative summary of Objectives	Objectively Verifiable Indicators			Means of Verification	Important Assumptions
	Project site	Baseline	Target		
	Galgamuwa	0.00 % (0/7)	100.0 % (7/7)	2-3. Project report	
	Teldeniya	0.00 % (0/6)	100.0 % (6/6)		
	Warakapola	0.00 % (0/7)	100.0 % (7/7)		
	Kaluwanchikudy	0.00 % (0/9)	≥ 55.0 % (5/9)		
<b>Output 3:</b> Enhanced pharmaceutical supply management at the 4 target BHs	2-3. Availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country. (Baseline: No, Target: Yes)				
	3-1. Number of the target Base Hospitals using Medical Supply Management Information System (MSMIS) for their pharmaceutical supply management (Baseline: 0, Target: 4)			3-1. Project report	3-1. GoSL (RDHSS) is able to finance the running costs of MSMIS.
	3-2. Availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country. (Baseline: No, Target: Yes)			3-2. Project Report	3-2. MSMIS is properly managed and maintained at the national and district levels. 3-3. All pharmaceutical items are managed through MSMIS, including those distributed by FHB and Epidemiology unit.

Activities	Input		Important Assumptions
	By Japan	By Sri Lanka	
<b>1-1 Instituting patient survey of Medical and Diabetes clinics in the catchment areas of the 4 BHs.</b>			
1-1-1 The Project team carries out a general situation analysis in the Project implementation sites.	1) Experts: - Chief Advisor - NCD Management - Epidemiology - Medical Logistics - Health Information System	1) Counterpart personnel:	
1-1-2 WG formulated conducts an in-depth situation analysis in 4 target BHs with a focus on data flow, work flow and patient flow of their Medical and Diabetes clinics.	2) Local activities cost - Workshops - Trainings - Meetings - Materials - Local Consultants	2) Office space and necessary office facilities 3) Project office running expenses 4) Custom duties and value added tax, cost	
1-1-3 WG in consultation with RDHSS designs a data collection system and tools, including sampling methods and data items, based on the result of 1-1-2.			
1-1-4 Galgamuwa Base Hospital with selected members of the WG conducts a pilot test of the system and tools at its Medical and Diabetes clinics			
1-1-5 WG adjusts the system and tools for a similar survey at Medical and Diabetes			

## Annex 1 Logical Framework (Project Design Matrix: PDM)

Ver. 3 (Nov. 2016)

Activities	Input	Important Assumptions
clinics of primary care institutions and tests them out at selected primary care institutions in the catchment area of Galgamuwa BH.	3) Machinery and Equipment 4) Counterpart Training in Japan - NCD management - Hospital Management	for custom clearance, storage and domestic transportation for any equipment provided by the Japanese side for the Project implementation.
1-1-6 WG modifies the data collection system and tools according to the feedback from 1-1-4 and 1-1-5.		
1-1-7 A BH and primary care institutions in other project site with support from the WG carry out a patient survey at their Medical and Diabetes clinics using the modified tools.		
1-1-8 Based on 1-1-7, the WG further fine-tunes the system and tools to improve their efficacies and cost and time efficiencies.		
1-1-9 Medical statistic unit in collaboration with the WG undertakes analysis of the collected data and produces reports.		
1-1-10 WG finalize the data collection and reporting system and package the produced tools in view of nationwide application.		
1-1-11 WG determines resource requirements for replication of the system in other areas.		
Activities		Important assumptions
1-2 Establishing a system to follow up on referred clients to Medical clinics of Primary Care Institutions and Base Hospitals.		
1-2-1 The Project team carries out a general situation analysis in the project implementation sites.		- Staff at primary care institutions and BHs accept client tracking as a part of their duties.
1-2-2 WG formulated with relevant GoSL stakeholders and the JICA team carries out a situation analysis on HLC clients' compliance in obtaining further medical services at Medical clinics as advised by HLCs.		- Service providers at HLCs detect and refer "high risk" clients to MC as per the guideline.
1-2-3 WG designs intervention options based on the findings of 1-2-2, for approval by the JCC.		
1-2-4 WG develops a tracking system to follow up clients referred to Medical clinics of primary care institutions and BHs.		
1-2-4-1 Design a tracking system with appropriate monitoring mechanisms and identify necessary tools (leaflets, posters, manuals, guidelines, recording and reporting formats, etc.) and human resources.		
1-2-4-2 Develop necessary tools.		
1-2-4-3 Train relevant staffs of HLCs and Medical clinics using the tools developed.		
1-2-4-4 Pilot implementation of the system in one or more target areas and monitor its effects.		
1-2-4-5 Make necessary adjustment to the system and tools.		
1-2-4-6 Implement the modified system in other target areas, constantly monitor and fine-tune the system.		
1-2-4-7 WG finalize the system and tools.		
1-2-5 WG revises the current recording/ reporting formats related to HLCs and train record keepers.		

# Annex 1 Logical Framework (Project Design Matrix: PDM)

Ver. 3 (Nov. 2016)

Activities	Important assumptions
<p>1-2-5-1 Revise the current recording formats for HLCs to make it more user friendly with inputs from users and draft a users' manual/ handbook in the three languages for a pre-test of the improved formats.</p> <p>1-2-5-2 Pre-test the revised formats at selected HLCs in the catchment area of a selected BH.</p> <p>1-2-5-3 WG together with MONCDs modifies the formats according to the result of the pre-test.</p> <p>1-2-5-4 Pilot implementation of the modified formats at all HLCs in the catchment area of pilot BH(s) with close monitoring by the MO/NCD(s).</p> <p>1-2-5-5 Finalize and print the formats and users' manual with necessary modifications in accordance with results of the pilot implementation.</p> <p>1-2-5-6 WG provides Training of Trainers (ToT) to MO/NCDs on the new formats.</p> <p>1-2-5-7 MONCDs set up training plan in their respective districts.</p> <p>1-2-5-8 MONCDs of the target districts conduct training of record keepers as per the plan.</p> <p>1-2-5-9 MONCDs of the 4 target districts support HLCs in correct record keeping and reporting through supervisory visits and additional training/ guidance.</p>	<p>- GoSL allocates appropriate resources for provision of supportive supervision to HLCs.</p>
<p>1-2-6 WG revises and/ or develops the tools to supervise HLCs.</p> <p>1-2-6-1 WG collects and review tools currently used by MO/NCDs in all districts.</p> <p>1-2-6-2 With involvement of MO/NCDs, WG identifies current gaps in tools for monitoring/ supervising of HLCs.</p> <p>1-2-6-3 WG with involvement of MO/NCDs revise/ devise monitoring/ supervising tools in accordance with the findings of 1-2-6-2.</p> <p>1-2-6-4 MO/NCDs of the 4 districts pre-test the monitoring/ supervising tools developed and modify them as appropriate for improvement.</p> <p>1-2-6-5 WG finalizes and disseminate the tools.</p> <p>1-2-6-6 WG together with RDHSs and NCD unit monitors the usage of the tools.</p>	
<p>1-2-7 WG with NCD unit determines resource requirements for replication of the system in other areas.</p>	
<p>2-1 The Project team carries out a general situation analysis in the project implementation sites.</p>	
<p>2-2 Working Group formulated at the central level (CWG) carries out an in-depth analysis of the existing "satellite laboratory system" in Kurunegala.</p>	
<p>2-3 CWG designs a pilot model (a work flow) based on the findings of 2-2 and identifies (i) necessary tools to be used at the primary care institutions, the BHs and RDHSs, such as manuals/ guidelines, recording and reporting formats (including eligibility guideline for TC or Lipid Profile testing for HLC screening and manual on pre-examination process) and (ii) resource needs at the primary care institutions and the BHs.</p>	
<p>2-4 Preparations for implementation of the pilot model designed in 2-3.</p>	
<p>2-4-1 JICA team (for the first year of implementation) and GoSL (for the rest of the Project duration) procure necessary items identified.</p>	
<p>2-4-2 WG together with hospital staff (including MLTs) develops necessary tools and introduce them at Galgamuwa BH and primary care institutions in its catchment areas as a pilot.</p>	
<p>2-4-3 CWG fine-tunes the system based on the results of 2-4-2 and selects another pilot site for implementation of the model in view of the progress of the refurbishment of the 4 BHs.</p>	
<p>2-4-4 The RDHS of the selected pilot site formulates a regional working group (RWG) for implementation and monitoring of the pilot system.</p>	<p>- The target BHs are equipped with fully automated and well-maintained biochemical analysers and sufficient number of MLTs.</p> <p>- Service providers including MLTs at BHs and minor staff at primary care institutions are cooperative.</p>

## Annex 1 Logical Framework (Project Design Matrix: PDM)

Ver. 3 (Nov. 2016)

Activities	Important assumptions
2-4-5 CWG with the RWG(s) sets up a system and tools to monitor the progress and effects of pilot implementation.	<ul style="list-style-type: none"> <li>- Primary care institutions have skilled personnel to draw blood for testing.</li> <li>- GoSL is able to continuously supply necessary reagents/ test kits.</li> </ul>
2-4-6 CWG, RWG and/ or appropriate institution(s) identified by CWG/ RWG train(s) relevant staff of the pilot site on the tools developed.	
2-5 Implementation and fine-tuning of the pilot system.	
2-5-1 The BH and primary care institutions in the selected pilot site start operating the "satellite laboratory system" designed using the tools devised.	
2-5-2 RWG monitor the implementation closely using the devised monitoring tools and reports to the CWG periodically.	
2-5-3 RWG in consultation with the CWG make modifications to improve the pilot system.	
2-6 Introduction, fine-tuning and finalisation of the system at the four project sites.	
2-6-1 Introduction of the improved pilot system to other project sites (possibly in a staggered manner).	
2-6-2 RWGs formulated in the four target areas monitor and fine-tune the system and tools in consultation with the CWG.	
2-6-3 CWG and RWGs finalise the system and tools.	
2-7 CWG identifies and documents the resource requirements and steps for introduction of the system in other areas to guide scaling up of this initiative.	<ul style="list-style-type: none"> <li>- Technical resources needed for implementation and support of the MSMIS at the 4 BHs are available at MSD/ RMSD or the contractor of the support services for MSMIS.</li> <li>- The current phase of the MSMIS roll out is completed by Feb. 2015 as planned.</li> <li>- The 4 target BHs after refurbishment have (i) reasonable space and facility for</li> </ul>
3-1 The Project team carries out a general situation analysis in the Project implementation sites.	
3-2 WG formulated carries out an assessment of the existing electronic stock management systems in Kurunegala district, Ratnapura district and MSMIS to decide on the most suitable system to introduce to the target BHs.	
3-3 WG sets up a system and tools to monitor the progress and effects of pilot implementation of the selected system (i.e. MSMIS chosen by the WG at the meeting on the 30 <sup>th</sup> Oct. 2014).	
3-4 Preparation for and installation of the MSMIS at the main storerooms of the target BHs in pace with the on-going refurbishment.	
3-4-1 MSD assists RMSDs of the 4 target districts in completing physical stock taking and data entry into the MSMIS	
3-4-2 MSD assists to arrange for the VPN connection at each of the 4 BHs.	
3-4-3 JICA team procures necessary hardware (a PC, a printer and a VPN switch for each target BH) according to specifications provided by MSD.	
3-4-4 MSD arranges to train the system users at 1 pilot BH with involvement of corresponding RMSD according to the existing user manuals.	
3-4-5 The pilot BH and the corresponding RMSD start using the system for transactions while WG together with MSD monitor and support the operation.	
3-5 MSD with the WG fine-tunes the system and the user manuals as applicable according to feedback from (i) the target BH/ RMSD and (ii) the monitoring system set up.	
3-6 MSD assists to introduce the system to other BHs/ RDHs and monitor/ support its operation together with the WG.	
3-7 WG with MSD identify and document the resource requirements and monitoring tools for introduction of MSMIS to provincially-managed	



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# Annex 1 Logical Framework (Project Design Matrix: PDM)

Ver. 3 (Nov. 2016)

Activities	Important assumptions
institutions in view of the nation-wide expansion of the system.	a PC server and (ii) LAN connections.

BH: Base Hospital, CWG: Central Working Group, FHB: Family Health Bureau, GoSL: Government of Sri Lanka, HLC: Healthy Lifestyle Centre, LAN: Local Area Network, MC: Medical Clinic MLT: Medical Laboratory Technician: MoH: Ministry of Health, MOH: Medical Officer of Health, MSD: Medical Supply Division of MoH, MSMIS: Medical Supply Management Information System, MO: Medical Officer, NCD: Non-Communicable Disease, PCI: Primary Care Institutions (= Divisional Hospitals (DH) + Primary Medical Care Units (PMCU)) RDHS: Regional Director(ate) of Health Services, RMSD: Regional Medical Supply Division, RWG: Regional Working Group, WG: Working Group

"NCD" in this Project means Diabetes Mellitus (DM), hypertension and hyperlipidaemia.

"The Project team" refers to GoSL stakeholders together with the JICA Project team.


"HLCs" in this Project exclude mobile clinics/screening services.

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Annex 2 Evaluation Grid

Categories/ Criteria	Items to be examined	Details/Questions
<i>Implementation Status and Process of the Project</i>		
Status and Achievements	Project Inputs (planned and actual)	<u>Japan Side</u> : dispatch of experts, activity cost, equipment and materials, counterpart training in Japan <u>Sri Lanka Side</u> : assignment of counterpart staff members, facilities, activity cost
	Project Outputs	Output 1: Improved monitoring of NCD patients in the catchment areas of the 4 target BHs 1-1. Availability of a set of tools for a patient survey of Medical and Diabetes clinics. 1-2. Number and percentage of Primary Care Institutions in the catchment areas of the 4 target BHs tracking their clients referred to Medical/Diabetes Clinics. 1-3. Availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country.
		Output 2: Improved availability of laboratory services for NCD clients of primary care institutions in the catchment areas of the 4 BHs 2-1. Percentage of new HLC clients at PCIs who had blood tests for TC or lipid profile at the target BH's laboratory through the laboratory network system established/ strengthened by the Project in each Project site. 2-2. Number and percentage of PCIs' Medical Clinics that send to the target BH's laboratory at least 1 specimen in a month for any kind of laboratory tests through the laboratory network system established/ strengthened by the Project in each Project site. 2-3. Availability of documents on resource requirements and steps to be taken for instituting similar system developed under the Project in other areas of the country.
		Output 3: Enhanced pharmaceutical supply management at the 4 target BHs 3-1. Number of the target BHs using Medical Supply Management Information System (MSMIS) for their pharmaceutical supply management 3-2. Availability of documents on resource requirements and steps to be taken for instituting a similar system developed under the Project in other areas of the country.
Implementation Process	Activities (planned and actual)	Timeframe of activities conducted in light of Plan of Operation (PO) Content of activities and products (workshop, training, tools, etc.)
	Management of the Project	Monitoring mechanism and decision making process of the Project
		Backstopping of JICA HQ and Sri Lanka Offices
		Communication between JICA Experts and counterpart staff members, medical and health care workers
	Involvement and ownership of Sri Lanka side	Degrees of participation of counterpart staff members in project activities
Measures taken by the Sri Lanka side to sustain project activities (staff allocation, budget allocation, institutionalization)		
<i>Evaluation Items</i>		
Relevance	Relevancy to the policies and plans.	Is the project relevant to the objectives and the strategies of health sector of Sri Lanka? How is it related to the SDGs?
	Relevancy to the needs	Was it relevant that the project targeted the four BHs (Teldeniya BH, Kaluwanchikudy BH, Galgamuwa BH, Warakapola BH) and their catchment areas? Were there any priority needs for strengthening NDCs management?
	Relevancy to Japan's ODA policies	Is the Project relevant to the Japan's ODA policies to the Philippines?

	Relevancy of the project approach	Was the combination of the Outputs in the PDM appropriate to achieve the Project Purpose? Were there any missing or unnecessary outputs, or any logical failures in the PDM? Were external conditions and risks adequately evaluated? Are there any concrete prospect to the achievement of overall goal? Were there necessary conditions satisfied to develop models for nation-wide dissemination?
Effectiveness	Achievement of the "Project Purpose"	Will indicators of the project purpose "Strengthening of NCD management at the 4 target BHs and primary care institutions in their catchment areas as clusters" reach the target levels by the end of the project period? 1. Percentage of patients referred from primary care institutions (PCIs) i.e. (i) from HLC@PCI to MC/DC@PCI, (ii) from HLC@PCI to MC/DC@BH and (iii) from MC/DC@PCI to MC/DC@BH, who completed the referral at the institutions specified. 2. Availability of data on patients of Medical and Diabetes clinics at the MoH hospitals in the 4 project sites. 3. Availability of a package of tools for NCD management at primary and secondary institutions as a cluster in the 4 target districts. Will the project purpose indicators for CAR (No. of functioning ILHZs, No of province that conducted MNDR, No of facilities with BEMONC certification, No of facilities with PhilHealth MCP accreditation) reach the target levels by the end of the project period?
	Causal relationships between the outputs and the project purpose	Are the improvements of the Project purpose indicators attributed to achievements of the project's "Outputs"?
		Has there been any influence of the "Important Assumptions" in the achievement process of the "Project Purpose"?
		Have there been any other contributing and obstructive factors that influenced the achievement of the "Project Purpose"?
Efficiency	Achievement level of the "Outputs"	Is the achievement level of the "Outputs" appropriate?
	Implementation process and cost measures	Were the inputs of JICA consultants appropriate in terms of expertise, technical competency and assignment period?
		Was the assignment of counterpart staff members to the project appropriate?
		Was the equipment appropriate in terms of types, specifications, quality and timeliness?
		Has the equipment provided by the Project been well utilized?
		Was a series of meeting and workshop events conducted effectively?
		Were training sessions organized by the Project in Sri Lanka effectively conducted?
		Were the counterpart training courses in Japan appropriate in terms of content and duration?
		Has there been any positive or negative influence of the "Important Assumptions" in the achievement process of the "Outputs"?
		Have there been any other contributing and obstructive factors that influenced the achievement of the "Outputs"?
Impact	Achievement of the "Overall Goal"	What will be degrees of achievement of the overall goal? Enhancement of the national NCD programme" based on the following indicators? 1. Number and percentage of health regions using the tools developed under the Project. 2. Availability of national data on patients attending medical and diabetes clinics of MoH hospitals. What are the effects and impacts in those provinces not directly targeted by the Project?
		Have there been any contributing and obstructive factors that influence achievement process of the "Overall Goal"
	Positive/negative and/or expected/unexpected impact	Has there been any secondary / indirect positive or negative impacts resulting from the Project implementation?

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Sustainability	Sustainability from political and institutional aspect	Is it likely that the Government of Sri Lanka would continue its policy support for NCDs management after the completion of the Project? What plans are being prepared for the period after the Project?
	Sustainability from organizational and financial aspects	Is it likely that the MoH and the targeted BHs would continuously strengthen their capacity for monitoring and evaluation related to NCDs management? Does the MoH have organizational and financial capacity to disseminate such activities nation-wide?
		Were the following recommendations by the mid-term evaluation implemented? 1. Identification of a responsible unit of the MoH for clinic data collection and implementation of the survey and analysis. 2. Official assignation of the staffs who the transportation of blood samples.
	Sustainability from technical aspect	Do the MoH, the targeted BHs and the counterpart personnel have technical capacity to strengthen monitoring and evaluation on NCDs management and realized nation-wide dissemination?
Social and cultural aspects	Are there any social or cultural factors that may influence the sustainability of the project effect?	

Annex 3 List of Counterparts

Name	Current		In the past		CIP (Assigned period)
	Position	Remarks (JCC & Other W/O etc.)	Name	Position	
Dr. Susie Perera	Actg. Deputy Director General/Planning Director/Organization Development	JCC Follow up Lab -MSMS	Dr. Neelamani Rajapaksha Hewageegana	Deputy Director General/Planning	6/2015-9/2016
Dr. Lakshmi C. Samarasinghe	Deputy Director General/Medical Services I	JCC, CDC (Chair)	Dr. Ananda Gunasekera Dr. J.M.W. Jayasundara Bandara (Actg)	Deputy Director General/Medical Services II Deputy Director General/Medical Services II	4/2014- 9/2015-9/2016
Dr. Anil Hashiba De Silva	Deputy Director General/Medical Services II	JCC	Dr. R.R.M.L.R. Symbasagoda	Deputy Director General/Public Health Services II	4/2014-05/2017
Dr. Senath Amunugama	Deputy Director General/Public Health Services I	JCC			
Dr. Lakshman Gamalith	Actg. Deputy Director General/Public Health Services II	JCC			
Dr. A. Sunil De Alwis	Deputy Director General/Education, Training & Research	JCC			
Dr. B.V.S.H. Bannagama	Deputy Director General/Laboratory Services	JCC	Dr. Ananda Gunasekera Dr. A. Sunil De Alwis Dr. Kamal Jayasinghe	Actg. Deputy Director General/Laboratory Services Actg. Deputy Director General/Laboratory Services Actg. DDC/MSD	4/2014-9/2015 9/2015-9/2016 9/2016-9/2017
Dr. S. Champika Wickramasinghe	Actg. Deputy Director General/MCD Director/Health Information (Project Manager)	JCC M&E (Chair)/CDC, Lab -MSMS			
Dr. Eshani Fernando	Director/Planning	JCC, M&E	Dr. S.R.U. Wimalathilake Dr. Susie Perera	Director/Planning Actg. Director	4/2014-9/2017 1/2017-9/2017
Vacant	Director/Policy		Dr. Susie Perera Dr. Alinda Dingalla	Director/Policy	2/2014-9/2014 4/2014-9/2016
Dr. V.T.S.K. Sivawardhana	Director/Non-Communicable Diseases	JCC, M&E, Follow up (Chair), GDC, Lab -MSMS	Dr. N. M. M. Iqbal	Director/Non-Communicable Diseases	4/2014-9/2014
Dr. U.S.B. Ranasinghe	Director/Primary Care Services	JCC, Follow up	Dr. Indrakumari Fernando Dr. V.R. Gunasekera	Director/Primary Care Services Director/Laboratory Services	4/2014-9/2015 4/2014-7/2015
Dr. A.R.M. Thovsek	Director/Laboratory Services	Lab -MSMS	Dr. Kamal Jayasinghe	Director/Laboratory Services	1/2015-9/2016
Dr. Lal Pransika	Director/Medical Supplies Division	JCC, Lab -MSMS	Dr. Kamal Jayasinghe	Director/Medical Supplies Division	4/2014-7/2015
Dr. Pabai Prathiwandana	Chief Epidemiologist				
Dr. Shiyani Dissanayake	Director/Health Education Bureau		Dr. Neelamani Rajapaksha Hewageegana Dr. Anil Hashiba De Silva	Director/Health Education Bureau Director/Health Education Bureau	4/2014-9/2015 7/2015-9/2016
Dr. Priyanti Senadeera	Director/Family Health Bureau		Dr. R.D.F.C. Kanthi Dr. D.C. Perera	Actg. Director/Health Education Bureau Director/Family Health Bureau	6/2016-1/2017 4/2014-9/2014
Dr. Ravajjalee Heitarachchi	Actg. Director/Nutrition		Dr. B.V.S.H. Bannagama Dr. Sapumal Dhanapala	Director/Family Health Bureau Actg. Director/Health Education Bureau	6/2014-9/2016 5/2016-9/2017
Dr. Kanthi Arjyanalake	Director/Private Health Sector Development		Dr. A.M.A.S.B. Mahamithawa Dr. L.B.H. Denuwara	Director/Nutrition Director/Nutrition	4/2014-9/2015 9/2015-9/2017
Dr. Shanil Dajapaludu	Senior Fellow/Institute for Health Policy	M&E			
Dr. Susie Perera	Director/Organization Development	Follow up Lab -MSMS			
Dr. Lakshmi Kumathilake	Actg. Director/MRI	Lab, MSMS	Dr. Anil Samaranyake Dr. Deepaka Samath Thiballage Dr. Sumith Ananda Dr. U.S.B. Ranasinghe	Deputy Director (MRI) MRI Officer/IC of the Health Information Unit Actg. Director Actg. Director	4/2014-9/2015 9/2015-4/2016 4/2016-7/2016
Dr. Anesuda Wickramasinghe	MO/Office of the Senior Assistant Secretary (Medical Services)	CDC			
Dr. M.K.D.R. Buddhika Dayaratne	MO/Health Information, Medical Statistics unit	CDC			
Dr. Y.R. Gunasekera	Regional Director of Health Services/Keppalle	JCC, M&E, Follow up, Lab -MSMS	Dr. Kumar Wickramasinghe Dr. Nisani Fernando Charitha Weeraboon (Actg) H.M.A. Thilakarathne (Actg)	Regional Director of Health Services/Keppalle Regional Director of Health Services/Kandy Regional Director of Health Services/Kunegala Regional Director of Health Services/Batticaloa	4/2014-11/2015 1/2014-11/2014 1/2014-10/2015 2/2015-10/2015 4/2014-10/2015
Dr. A.M.S. Weerabandara	Regional Director of Health Services/Kandy	JCC, M&E, Follow up, Lab -MSMS			
Dr. Champika Aluthweera	Regional Director of Health Services/Kunegala	JCC, M&E, Follow up, Lab -MSMS			
Dr. I. M. Navarathna	Regional Director of Health Services/Batticaloa	JCC, M&E, Follow up, Lab -MSMS	Dr. S. Sathumugan	Regional Director of Health Services/Batticaloa	4/2014-11/2015

as of July, 2017

Current			In the past			
Name	Position	Remarks (JCC & Other MG etc.)	CIP (Assigned period)	Name	Position	CIP (Assigned period)
Dr. I.M.C.K. Ilangasinghe	Medical Officer/Planning/ Kegalle		4/2014-	Dr. A.L.F. Rahman	Regional Director of Health Services/Batticaloa	1/2015-3/2016
Dr. A.S.I. Alutharagana	Medical Officer/Planning/ Kuruwagala		2/2017-	Dr. Sisira Somaratna	Medical Officer/Planning/ Kuruwagala	4/2014-2/2017
Dr. A.N.Senarath	Medical Officer/Planning/ Kandy		5/2017-	Dr. Rajitha Jayasuriya	Medical Officer/Planning/Kandy	4/2014-3/2016
Vacant	Medical Officer/Planning/Batticaloa					
Dr. K.Kaushalye	Medical Officer/Planning/Batticaloa		4/2014-	Dr. (Mrs) P.A.S.R. Ilangakoon		4/2014-3/2015
Dr. Chamara Senadesera	Medical Officer/NCD/ Kegalle		2/2017-	Dr. J.A. Anuruptha Gunarathna	Medical Officer/NCD/ Kegalle	3/2015-2/2016
Dr. Nayana Danapala	Medical Officer/NCD/ Kandy		9/2015-	Dr. Niranjala Kulathunge		2/2015- 6/2017
Dr. D.A. Hemal Dissanayake	Medical Officer/NCD/Kuruwagala		4/2015-	Dr. Weerasuriya	Medical Officer/NCD/Kandy	4/2014-2/2015
Dr. R. Navalegithan	Medical Officer/NCD/ Batticaloa		4/2014-	Dr. A.M.Amita K. Alhauda	Medical Officer/NCD/ Kuruwagala	2/2015-9/2015
Dr. Chaminda Weeratoon	Medical Superintendent/ BH Teldeniya	Lab -MSMIS	4/2014-			4/2014-4/2015
				Dr. G.A.Chamila S. Thilakarathne		4/2014-9/2014
				Dr. W.G.D.D. Kumara (Acq)		9/2014-10/2014
Dr. Januka Gatabhaya	Acq. Medical Superintendent/ BH Warakapola	Lab -MSMIS	6/2017-	Dr. S.M.N.S. Malesha Mallawaarachchi	Medical Superintendent/ BH Warakapola	10/2014-2/2015
				Dr. W.C.P. Prabhath Weremalle (Acq)		2/2015- 6/2015
				Dr. Anura Peris (Acq)		10/2015-1/2017
Dr. Asini Munesinghe	Acq. Medical Superintendent/ BH Galle	Lab -MSMIS	5/2017-	Dr. S.M.N.S. Malesha Mallawaarachchi		1/2017-5/2017
				Dr. U.R. Srinathine	Medical Superintendent/ BH Galle	4/2014-2/2017-
				Dr. Amila Maduragoda		2/2017-5/2017-
Dr. G. Sukman	Medical Superintendent/ BH Kaluwanchiludy	Lab -MSMIS				
Provincial Director of Health Services	(Provincial Director of Health Services of 4 Provinces Proposed members of JCC but they are not of Counterpart members)					
Dr. Shanthi Samarasinghe	Provincial Director of Health Services/ Central Province	JCC	4/2014-			
Dr. K. Mungunawandan	Provincial Director of Health Services/Eastern Province	JCC	4/2014-			
Dr. N. Faresed	Provincial Director of Health Services/NW Province	JCC	5/2014-			
Dr. Kapila Bimal Kannangara	Provincial Director of Health Services/Sabaraagamuwa Province	JCC, CDC, Lab -MSMIS	4/2014-			
Others						
Dr. Virginia Mallawaarachchi	Consultant Community Physician/ NCD Unit Ministry of Health	Follow up, IEC Materials Development				
Dr. S.R.H.P. Gunawardana	Consultant community Physician/ NCD Unit/Ministry of Health	IEC Materials Development				
Dr. Indira Pathirage	Consultant Community Physician/ NW Province					
Dr. Janaka Amaralook	Focal Point of Laboratory/ RDHS Office/ Kegalle					
Mr. Abeewansa Sanderapperuma	Project Director/ MSMIS/ MSD/Ministry of Health	Lab -MSMIS		Mr. W.P.W.D. Pathirane	Deputy Director/ ICT/ Medical Supply Division	
Dr. Clive James	Registrar in Health Informatics/ Ministry of Health	CDC				
Dr. Aravinda Wickramasinghe	Registrar in Community Medicine/ Ministry of Health	IEC Materials Development, CDC				
Mr. Chaminda Perera	Project Assistant/ MSD	MSMIS				
Mr. H.M.E. Supunul Bandara	MLT Base Hospital Galle					
Mr. A.M.A.L.B. Athanayake	MLT Base Hospital Teldeniya					
Mr. Deson Samarasinghe	MLT Base Hospital Warakapola					
Mr. Venesithan	MLT Base Hospital Kaluwanchiludy					

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Annex 4 List of Japanese experts

as of the end of Jul. 2017 (estimated)

Name	Designation	Assigned number of days			
		1st year	2nd year	3rd year	4th year
Dr. Ayako TOKUNAGA	Team Leader / NCD Management ①	In Sri Lanka: 200 days In Japan: 8 days	In Sri Lanka: 150 days In Japan: 8 days	In Sri Lanka: 138 days In Japan: 12 days	In Sri Lanka: 98 days In Japan: 9 days
Ms. Naomi IMANI	Deputy Team Leader / Health Administration/ NCD Management ②	In Sri Lanka: 173 days In Japan: 8 days	In Sri Lanka: 146 days In Japan: 8 days	In Sri Lanka: 151 days In Japan: 10 days	In Sri Lanka: 79 days In Japan: 8 days
Dr. Reiko SATA	NCD Management / Medical Supply Logistics ①	In Sri Lanka: 120 days In Japan: 0			
Ms. Yuki MAEHIRA	Medical Supply Logistics ②	In Sri Lanka: 22 days In Japan: 4 days			
Mr. Hiroaki YAMAZAKI	Laboratory Network		In Sri Lanka: 80 days In Japan: 6 days	In Sri Lanka: 33 days In Japan: 4 days	
Ms. Yoko OGAWA	Laboratory Network IEC Materials Development				In Sri Lanka: 41 days In Japan: 6 days
Prof. Dr. Satoshi KANEKO	Epidemiology /Health Information System ①	In Sri Lanka: 38 days In Japan: 7 days	In Sri Lanka: 29 days In Japan: 7 days	In Sri Lanka: 24 days In Japan: 6 days	In Sri Lanka: 0 day In Japan: 2 days
Mr. Kazuya OGAWA	Health Information System ②	In Sri Lanka: 129 days In Japan: 2 days	In Sri Lanka: 103 days In Japan: 4 days	In Sri Lanka: 77 days In Japan: 6 days	In Sri Lanka: 21 days In Japan: 10 days

## Annex 5 List of Equipment Procured (1)

## Equipment for Base Hospital and Primary Care Institutions

as of Jul. 2017

No.	Item	Specification, Manufacturer, Model No.	Quantity	Unit Price (LKR)	Sub-total (LKR)	Unit Price (JPY)	Sub- total (JPY)	Location	Condition
1	Tube rack (Tube stand)	CITOTEST Tube Rack 4050-4625 3 x 8 Holes dia 19mm, Height 60mm	30	4201.35	126040.50	3911.46	117343.71	Galgamuwa BH and all the PCIs in the catchment area	Good
2	Thermometer	Anymetre	7	1170.00	8190.00	1089.27	7624.89	All the PCIs in Galgamuwa BH catchment area	Good
3	Refrigerator	SINGER GEO-200D (185L, Eco-Friendly, 2 Door)	8	45600.00	364800.00	42453.60	339628.80	Galgamuwa BH and all the PCIs in the catchment area	Good
4	Cool Box	MARINA COOLER 12LT31-16	7	5575.00	39025.00	5190.33	36332.28	All the PCIs in the Galgamuwa catchment area	Good
5	Desk top PC	Dell Optiplex 3020	2	106000.00	212000.00	82150.00	164300.00	Kaluwanchikudy BH	Good
6	LAN setting cost		1	27180.00	27180.00	20330.64	20330.64	Kaluwanchikudy BH	Good
7	UPS	PROLINK 700 VA	2	4500.00	9000.00	3487.50	6975.00	Kaluwanchikudy BH	Good
		Carbon duplicate paper	1	3100.00	3100.00	2170.00	2170.00	Kaluwanchikudy BH	Good
8	Printer	Epson LQ310 Dot Matrix Printer	2	35000.00	70000.00	27125.00	54250.00	Kaluwanchikudy BH	Good
9	Thermometer	Anymetre	2	1950.00	3900.00	1511.25	3022.50	Kaluwanchikudy BH	Good
10	Cool Box	MARINA COOLER	1	6290.00	6290.00	4704.92	4704.92	Kaluwanchikudy BH	Good
11	Cool Box	MARINA COOLER	1	5575.00	5575.00	5279.53	5279.53	Kaluwanchikudy BH	Good
12	Refrigerator	SINGER GEO-200D (185L, Eco-Friendly, 2 Door)	1	48999.00	48999.00	37974.23	37974.23	Kaluwanchikudy BH	Good
13	Refrigerator	SINGER R-SDC48(1 Door)	5	22899.00	114495.00	17746.73	88733.63	5 PCIs in Kaluwanchikudy BH catchment area	Good
14	Chair	High back chair	2	8707.50	17415.00	6748.31	13496.63	Kaluwanchikudy BH	Good
15	Desk	Writing Table with 2 drawers & P/D-44 X24X31	2	12577.50	25155.00	9747.56	19495.13	Kaluwanchikudy BH	Good
16	Office software	Microsoft office Home & Student	2	21000.00	42000.00	15708.00	31416.00	Kaluwanchikudy BH	Good
17	24 port network switch		1	18539.00	18539.00	13867.17	13867.17	Kaluwanchikudy BH	Good
	Extension cord and multi plug		1	800.00	800.00	590.40	590.40	Kaluwanchikudy BH	Good
18	Refrigerator	SINGER GEO-200D (185L, Eco-Friendly, 2 Door)	2	49999.00	99998.00	36899.26	73798.52	2 PCIs in Teldeniya BH catchment area	Good
19	Office software	Microsoft office Home & Student	3	13650.00	40950.00	10073.70	30221.10	Kurunegala RDHS	Good
20	Cool Box	MARINA COOLER	4	6290.00	25160.00	4484.77	17939.08	Teldeniya BH and PCIs in Teldeniya BH catchment area	Good
21	Thermometer	Anymetre	4	950.00	3800.00	677.35	2709.40	Teldeniya BH and PCIs in Teldeniya BH catchment area	Good
22	Reagent	1. Plain tube X 1,500 (Rs.12,660) 2. Glass tube X 100 (Rs.999) 3. Syringe X 700 (Rs.5,250)	1	18909.00	18909.00	14654.48	14654.48	Teldeniya BH (PCIs in Teldeniya BH catchment area as necessary)	Good
23	Test tube stand	Test tube rack 50 holes (Multi)	49	1200.00	58800.00	930.00	45570.00	Kaluwanchikudy BH, Warakapola BH, Teldeniya BH and their PCIs	Good
24	Thermometer	Anymetre	1	1950.00	1950.00	1511.25	1511.25	Warakapola BH	Good
25	Cool Box	MARINA COOLER	1	10710.00	10710.00	8300.25	8300.25	Warakapola BH	Good
26	Refrigerator	SINGER GEO-200D (185L, Eco-Friendly, 2 Door)	3	48999.00	146997.00	37974.23	113922.68	Warakapola BH and other 2 PCIs in Warakapola BH catchment area	Good
27	Refrigerator	SINGER R-SDC48(1 Door)	5	22899.00	114495.00	17746.73	88733.63	The other PCIs in the catchment area of Warakapola BH	Good
28	UPS	PROLINK 650 VA Ener Home Pro 700	2	3750.00	7500.00	2752.50	5505.00	Teldeniya BH	Good
29	Printer	Epson LQ310 Dot Matrix Printer	2	31400.00	62800.00	23047.60	46095.20	Teldeniya BH	Good
30	Desktop PC	Dell Vostro 3668	2	102000.00	204000.00	75592.20	151184.40	Teldeniya BH	Good
<b>Total</b>					<b>1,938,573</b>		<b>1,587,680</b>		



## Annex 5 List of Equipment Procured (2)

## Equipment for the Project Office

as of Jul. 2017

No.	Item	Specification (Manufacturer, Model No.)	Quantity	Unit Price (LKR)	Sub-total (LKR)	Unit Price (JPY)	Sub-total (JPY)	Location	Condition
1	Copy machine (small)	BROTHER Multifunction Model 7860DW 5-in-1 Multifunction Center, Laser Duplex Printing/Laser Faxing/ Laser Copying/Colour Scanning/PC Faxing with wire and wireless network	1	64960.00	64960.00	51123.52	51123.52	Project Office (Colombo)	Good
2	Desktop PC	ACER VERITON M2611	3	85000.00	255000.00	66895.00	200685.00	Project Office (Colombo)	Good
3	Laptop PC	HP Pavilion i5 Sleekbook I4, I4-B065TX with DOS D7N87PA#LUF	2	79500.00	159000.00	62487.00	124974.00	Project Office (Colombo)	Good
4	Copy machine	GANON IR2520	1	407240.00	407240.00	320090.64	320090.64	Project Office (Colombo)	Good
5	Laptop PC	ACER ASPIRE E1-572 Intel Core I5 4th GEN 4200u 1.6GHz	2	72000.00	144000.00	56592.00	113184.00	Project Office (Colombo)	Good
6	Software	Stata/IC volume (5 single-user licences)	1			401853.00	401853.00	Online management (purchased by USD)	Good
<b>Total</b>					<b>1,030,200</b>		<b>1,211,910</b>		

## Equipment for Specimen Transportation for Laboratory

as of Jul. 2017

Item	Quantity	Unit Price (LKR)	Sub-total (LKR)	Location	Condition
Three-wheeler	1	585,000	585,000	Kegalle	Good
Motorbikes	2	185,500	371,000	Kaluwanchikudi	Good
Motorbikes	5	185,500	927,500	Galgamuwa	Good / needs repairs
Motorbikes	4	185,500	742,000	Theldeniya	Good
<b>Total</b>			<b>2,625,500</b>		

Annex 6 List of Counterpart Training

Year	Title of the Training	Duration	Name of the Participant	Designation	Organization
2014	RTC: Lifestyle-Related Diseases Prevention	25 <sup>th</sup> May ~ 29 <sup>th</sup> June 2014	1. Dr. Ajith Prasantha Weerakoon	Consultant Community Physician	Dept. of Health Services, Kandy
2014	Hospital Management	16 <sup>th</sup> June ~ 9 <sup>th</sup> August 2014	2. Dr. P.Kumar Wickremasinghe 3. Dr. Chaminda Y. S. B. Weerakoon	RDHS – Kegalle Medical Superintendent	RDHS – Kegalle Base Hospital – Theldeniya
2015	Lifestyle Related Diseases Prevention	10 <sup>th</sup> May ~ 14 <sup>th</sup> June 2015	4. Dr. Anuradha S. Gunaratne 5. Dr.K.M.G. Kumudu Bandara	Medical Officer – NCD Unit Consultant Community Physician	PDHS Office – Kegalle PDHS - Kandy
2017	Life-Style Related Diseases Prevention (A)	7 <sup>th</sup> May ~ 11 <sup>th</sup> June 2017	6. Dr. (Ms) Dona Stephiney Virgine Mallawarachchi	Consultant Community Physician	NCD Unit – Ministry of Health

N.  


# Annex 7 Timeframe of Activities

Output	Activities	Activities performed as of 31 July, 2017																	
		SU	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU						
Output 1: Improved monitoring of NCD patients in the catchment areas of the 4 target BHs.	1-1 Instituting patient survey of Medical and Diabetes clinics in the catchment areas of the 4 BHs.																		
	1-1-1 The Project team carries out a general situation analysis in the Project Implementation sites.																		
	1-1-2 WG formulated conducts an in-depth situation analysis in 4 target BHs with a focus on data flow, work flow and patient flow of their Medical and Diabetes clinics.																		
	1-1-3 WG in consultation with RDHS designs a data collection system and tools, including sampling methods and data items, based on the result of 1-1-2.																		
	1-1-4 Gagamawa BH with selected members of the WG conducts a pilot test of the system and tools at its Medical and Diabetes clinics.																		
	1-1-5 WG adjusts the system and tools for a similar survey at Medical and Diabetes clinics of primary care institutions and tests them out at selected primary care institutions in the catchment area of Gagamawa																		
	1-1-6 WG modifies the data collection system and tools according to the feedback from 1-1-4 and 1-1-5.																		
	1-1-7 A BH and primary care institutions in other project sites with support from the WG carry out a patient survey at their Medical and Diabetes clinics using the modified tools.																		
	1-1-8 Based on 1-1-7, the WG further fine-tunes the system and tools to improve their efficacy and cost and fine efficiencies.																		
	1-1-9 Medical statistic unit in collaboration with the WG undertakes analysis of the collected data and produces reports.																		
	1-1-10 WG finalize the data collection and reporting system and package the produced tools in view of nationwide application.																		
	1-1-11 WG determines resource requirements for replication of the system in other areas.																		
	1-2 Establishing a system to follow up on referred clients to Medical clinics of Primary Care Institutions and Base Hospitals.																		
	1-2-1 The Project team carries out a general situation analysis in the project Implementation sites.																		
	1-2-2 WG formulated with relevant CoSL stakeholders and the JICA team carries out a situation analysis on HLC clients compliance in obtaining further medical services at Medical clinics as advised by HLCs.																		
	1-2-3 WG designs intervention options based on the findings of 1-2-2, for approval by the JCC.																		
1-2-4 WG develops a teaching system to follow up clients referred to Medical clinics of primary care institutions and Base Hospitals.																			
1-2-5 WG revises the current recording/reporting formats related to HLCs and train record keepers.																			
1-2-6 WG revises and/ or develops the tools to supervise HLCs.																			
1-2-7 WG with NCD unit determines resource requirements for replication of the system in other areas.																			
Output 2: Improved availability of laboratory services for NCD clients of primary care institutions in the catchment areas of the 4 BHs.	2-1 The Project team carries out a general situation analysis in the project Implementation sites.																		
	2-2 Working Group formulated at the central level (CWG) carries out an in-depth analysis of the existing "satellite laboratory system" in Kurunegala.																		
	2-3 CWG designs a pilot model (a work flow) based on the findings of 2-2 and identifies (i) necessary tools to be used at the PCs, the BHs and RDHSs, and (ii) resource needs at the PCs and the BHs.																		
	2-4 Preparations for implementation of the pilot model designed in 2-3.																		
	2-4-1 JICA team (for the first year of implementation) and CoSL (for the rest of the Project duration) procure necessary items identified.																		
	2-4-2 WG together with hospital staff (including MLTs) develops necessary tools and introduces them at Gagamawa BH and primary care institutions in its catchment areas as a pilot.																		
	2-4-3 CWG fine-tunes the system based on the results of 2-4-2 and selects another pilot site for implementation of the model in view of the progress of the refurbishment of the 4 BHs.																		
	2-4-4 The RDHS of the selected pilot site formulates a regional working group (RWG) for implementation and monitoring of the pilot system.																		
	2-4-5 CWG with the RWG(s) sets up a system and tools to monitor the progress and effects of pilot implementations.																		
	2-4-6 CWG, RWG and/ or appropriate institution(s) identified by CWG/ RWG train(s) relevant staff of the pilot site on the tools developed.																		

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Annex 7 Timeframe of Activities

Activities performed as of 31 July 2017

Outputs	Activities	MW			RMS			RW			AH			T			
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
Output 3: Enhanced pharmaceutical supply management at the 4 target BHs.	2-5 implementation and fine-tuning of the pilot system.																
	2-5-1 The 8H and primary care institutions in the selected pilot site start operating the "satellite laboratory system" designed using the tools devised.																
	2-5-2 RWG monitor the implementation closely using the devised monitoring tools and reports to the CWG periodically.																
	2-5-3 RWG in consultation with the CWG make modifications to improve the pilot system.																
	2-6 Introduction, fine-tuning and finalisation of the system at the four project sites.																
	2-6-1 Introduction of the improved pilot system to other project sites (possibly in a staggered manner).																
	2-6-2 RWGs formulated in the four target areas monitor and fine-tune the system and tools in consultation with the CWG.																
	2-6-3 CWG and RWGs finalise the system and tools.																
	2-7 CWG identifies and documents the resource requirements and steps for introduction of the system in other areas to guide scaling up of this initiative.																
	3-1 The Project team carries out a general situation analysis in the Project implementation sites.																
Output 4: Enhanced pharmaceutical supply management at the 4 target BHs.	3-2 WG formulated carries out an assessment of the existing electronic stock management systems in Kunenehla district, Rabhapura district and MSMIS to decide on the most suitable system to introduce to selected system (i.e. MSMIS chosen by the WG at the meeting on the 30th Oct. 2014).																
	3-4 Preparation for and installation of the MSMIS at the main storehouses of the target BHs in pace with the on-going refurbishment.																
	3-4-1 MSD assists RMSDs of the 4 target districts in completing physical stock taking and data entry into the MSMIS.																
	3-4-2 MSD assists to arrange for the VPN connection at each of the 4 BHs.																
	3-4-3 JICA team procures necessary hardware (a PC, a printer and a VPN switch for each target BH) according to specifications provided by MSD.																
	3-4-4 MSD arranges to train the system users at 1 pilot BH with involvement of corresponding RMSD according to the existing user manuals.																
	3-4-5 The pilot BH and the corresponding RMSD start using the system for transactions while WG together with MSD monitor and support the operation.																
	3-5 MSD with the WG fine-tunes the system and the user manuals as applicable according to feedback from (i) the target BH/ RMSD and (ii) the monitoring system set up.																
	3-6 MSD assists to introduce the system to other BHs/ RQHs and monitor/ support its operation together with the WG.																
	3-7 WG with MSD identify and document the resource requirements and monitoring tools for introduction of MSMIS to provincially-managed institutions in view of the nation-wide expansion of the system.																
Project Management	Production of draft work plan.																
	Familiarization of the JICA Team through meeting/ interviewing main stakeholders at MoH, Development																
	Project preparation (Office set-up and recruiting project staff).																
	Discussion of draft work plan.																
	Discussion of framework of the situation analysis.																
	Conduction of the Situation Analysis (data collection, analysis, dissemination of results).																
	Finalization of the work plan based on the Situation Analysis of NCD activities.																
	Revision of POM (with baseline data collection by Working Groups as necessary) and production of M&E Preparation for Midterm Review.																
	Midterm Review.																
	Preparation for Terminal Evaluation.																
	Terminal Evaluation.																

Annex 8 Counterparts Interviewed and Intuitions Visited for the Terminal Evaluation

Counterparts / Institutes	Location	Date
Dr. B.V.S.H. Benaragama, Actg. DDG/MSD, MoH	Colombo	Aug 10
Dr. Clive James, C/P for clinic data collection, MoH	Colombo	Aug 10
Dr. Virginie Mallwaarachchi, CCP at NCD unit, MoH	Colombo	Aug 11
Dr. V.T.S.K. Siriwardhana, Director/NCD, MoH	Colombo	Aug 11
Dr. Lakshmi C. Somathunga, DDG/MS2, MoH	Colombo	Aug 11
Dr. S. Champika Wickramasinghe, DDG/NCD, MoH	Colombo	Aug 12
Kaluwanchikudy BH	Batticaloa	Aug 14
Kallar DH	Batticaloa	Aug 14
Dr. L.M. Navaratnaraja, RDHS Batticaloa	Batticaloa	Aug 14
Dr. R. Navalogithan, MO/NCD Batticaloa	Batticaloa	Aug 14
Medamahanuwara DH	Kyandy	Aug 15
Teldeniya BH	Kyandy	Aug 16
Digana Rajawella PMCU	Kyandy	Aug 16
Dr. A.M.S. Weerabandara, RDHS Kandy	Kyandy	Aug 16
Dr. Nayana Danapala, MO/NCD Kandy	Kyandy	Aug 16
Dr. Kumudu Bandara, CCP@PDHS Central Province	Kyandy	Aug 16
Dr. V.R. Gunasekara, RDHS Kegalle	Kegalle	Aug 17
Nelundenia PMCU	Kegalle	Aug 17
Walakapola BH	Kegalle	Aug 17
Galgamuwa BH	Kurunegala	Aug 22
Meegalewa DH	Kurunegala	Aug 22
Dr. D.A. Hemali Dassanayake, MO/NCD Kurunegala	Kurunegala	Aug 22

Note: At each BH and DH visited, individual / group interviews were conducted with Medical Superintendent, Divisional Medical Officers, MOs / RMOs and other medical / non-medical personnel of HLC, MLTs.