

ザンビア国
保健省

ザンビア国
保健投資支援プロジェクト
(2015年-2016年)
ファイナルレポート

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独立行政法人
国際協力機構 (JICA)

共同企業体
株式会社フジタプランニング
株式会社日本設計

ザン事
JR
16-002

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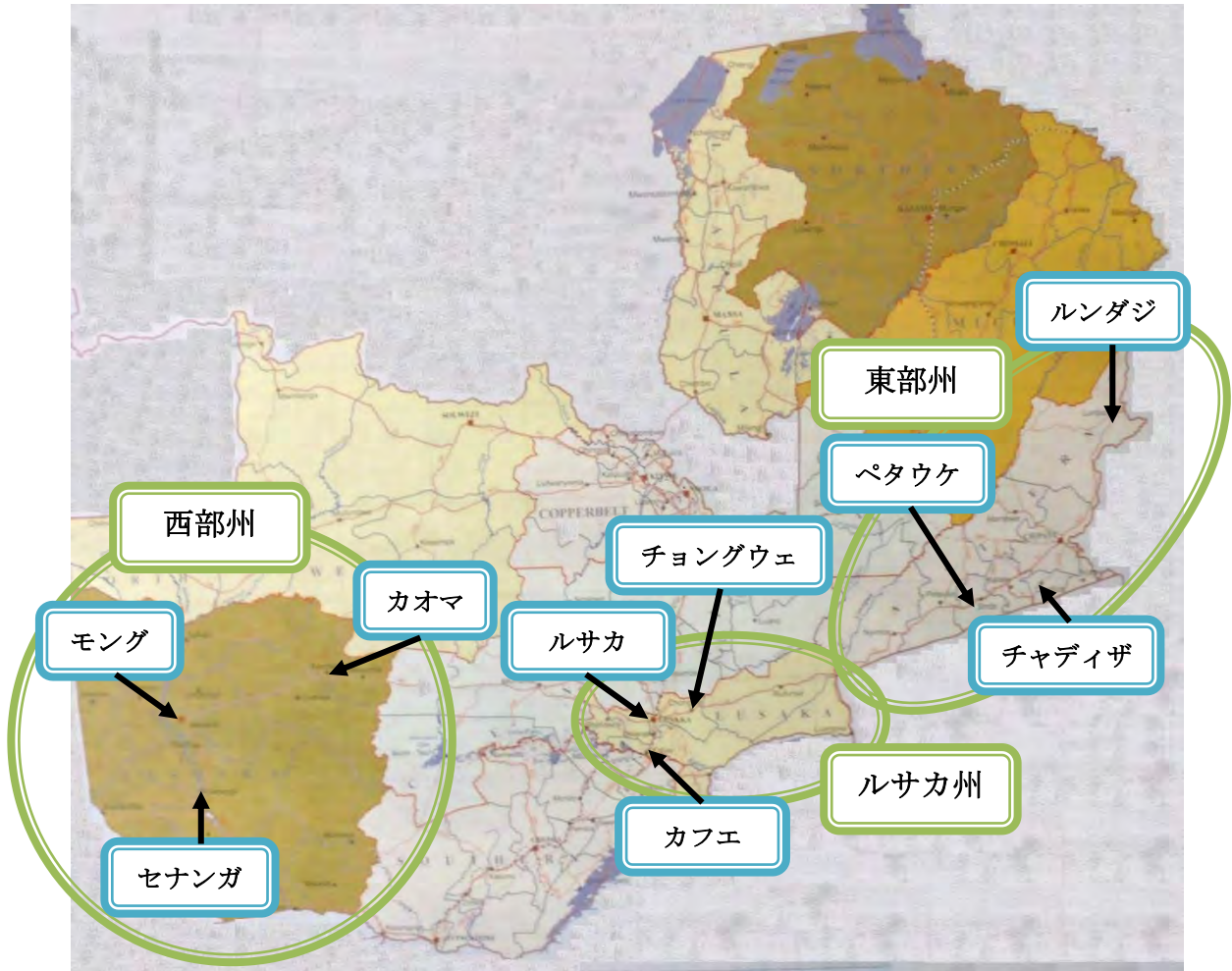
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添付資料

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- (2) 活動計画（PO）および実績
- (3) 専門家派遣実績・投入実績
- (4) 供与機材・携行機材実績（引き渡しリスト含む）
- (5) 会議議事録等
 - 1) 巡回指導報告 東部州 第1回
 - 2) 巡回指導報告 ルサカ、西部州 第1回
 - 3) 巡回指導報告 ルサカ、西部州 第2回
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 - 7) ベースライン調査報告
 - 8) 研修報告 医療機材管理
 - 9) UTH ワークショップ
 - 10) 巡回指導報告 施設モニタリング
 - 11) デイセミナーセッションワークショップ報告書
- (6) 技術協力成果品一覧

地図



活動に関する写真

	
<p>カオマ郡病院遺体冷蔵庫修理作業</p>	<p>癌センター視察</p>
	
<p>ルサカ州保健局訪問</p>	<p>チパタ 1 次病院視察</p>
	
<p>医療機材技術者研修 保健局長挨拶</p>	<p>医療機材技術者研修 講義</p>
	
<p>医療機材技術者研修 医療機材担当官挨拶</p>	<p>医療機材技術者研修 参加者</p>



チャディザ郡病院インベントリ作業



ルンダジ郡病院 X 線修理作業への同行



セナンガ医療機材ワークショップ



カフエ郡病院ユーザートレーニング



ディセミネーション WS (東部州)



ディセミネーション WS (西部州)



ディセミネーション WS (ルサカ州)



ディセミネーション WS (ルサカ州)

1. プロジェクトの概要

1.1. プロジェクトの背景・経緯

ザンビア国では、第4次国家保健開発計画（2006年～2010年）に引き続き、第5次国家保健開発計画（2011年～2015年）においても、都市部の病院に偏重した保健医療サービス提供システムからの脱却を重点政策に掲げ、地方部に位置する医療施設の機能強化を図っている。地方部のヘルスセンター、第1次（郡）病院や第2次（州）病院は、基礎的保健パッケージの提供を担う医療機関であり、特に、郡レベルの保健施設（ヘルスセンターや第1次病院）は地域住民のプライマリーヘルスケアを担う重要な機関として位置づけられている。

したがって、地方部の医療施設が本来の機能を果たすことが重要であり、そのために必要となる投資計画として、提供可能な保健サービスの内容、施設の維持管理状況、医療機材および医療従事者の配置、地域住民の保健医療指標や、医療施設へのアクセス状況などを把握し、保健施設の建設と維持管理、医療資機材の購入と維持管理のための保健投資計画を策定・実施することが求められていた。

以上のような背景の下、我が国はザンビア政府の要請に基づき、2004年、在外基礎調査「全国保健施設センサス」を実施し、保健施設センサスデータベースの構築を支援した。更に、技術協力プロジェクト「保健投資計画策定支援プロジェクト」（2006年2月～2008年3月）を実施し、同データベースを活用した保健投資計画¹の策定を支援した。その技術協力の成果としてザンビア国の保健投資計画（2008年～2010年）が策定され、同計画に基づき必要な医療資機材²を投資する仕組みが構築されたものの、その計画の継続的な実施および投資された医療資機材の適切な運用・維持管理が課題となった。

上記課題に対処するための手段として、ザンビア国保健省（MoH）は我が国の支援を基に、第1次から第3次の医療機関において医療資機材に係る維持管理能力の向上を目標とする「保健投資支援プロジェクト」を2010年1月から2013年1月の期間に実施した。プロジェクトでは、その主な成果として、(1) 医療資機材の管理のための仕組みの整備、(2) 第2次および第3次病院における医療資機材基準の整備、(3) 医療資機材の予防的管理のための計画が対象地域で運用されること、の3項目が設定され、ルサカ州、西部州、東部州の3州がパイロット地域に指定されて活動が展開された。

2012年10月に実施されたプロジェクトの終了時評価調査では、以下のような成果の発現が確認され、併せて、パイロット地域における全ての医療施設が医療資機材管理メカニズムを定着させるための提言も示された。

¹ 保健施設センサスのデータに基づき、全国の医療資機材に対する投資（病院等の施設建設・修繕、医療機材の購入・修繕）の計画を定めたもの。保健省職員で構成されている保健投資技術作業部会により策定される。

² 医療機材（Medical Equipment）および医療施設・インフラの双方を含めた、医療セクターにおける投資対象物を指す。

【成果】

- 医療機材管理ガイドラインの策定・全国の州保健局への配布
- 医療機材管理および医療施設管理の技術研修およびモニタリングの実施
- 第2次・3次病院の標準医療機材リストの作成・全国の州保健局への配布
- 5S手法による医療施設管理のパイロット活動を通じた知識・技能の向上
- 州保健局および郡保健局（ルサカ州、西部州、東部州の3州が対象）の医療関係者による医療資機材の維持管理能力の向上（医療機材・施設データ管理の整備が当成果を誘引）

【提言】

- エビデンスに基づく計画ツール（医療機材基準、更新された機材台帳（インベントリ）、モニタリングフォーム等）を活用し、施設のニーズを郡コミュニティ保健局の年間計画に反映できる能力の強化
- 医療機器の廃棄手続きの簡素化と迅速化
- 州・郡の保健局と病院の医療機材技師、施設担当者、情報担当者、計画担当者による医療機材・施設を管理する人材の更なる技能向上と関係者の訓練の強化
- 医療機材の調達と受入れのためのガイドラインの強化と効果的な実施、医療機材技師と利用者を含むレビューの実施
- 1次、2次、3次病院における医療機材ワークショップの実施および医療機材の維持管理にかかるリファレールシステムの構築と業者との間での機材保守管理サービス契約の強化
- 州保健局に付与されている医療機材保守管理予算枠の郡コミュニティ保健局への分権化の検討
- 医療施設基準の確立
- 5S手法の全国展開に先立ち、オペレーショナルリサーチ（OR）の保健医療サービス改善におけるインパクトの検証

以上の提言を受け、我が国政府は、「保健投資支援プロジェクト（2010-2013年）」の延長を行う方針を決定し、2014年12月10日に討議議事録（R/D）にてプロジェクト協力期間の延長について合意形成が図られた。

1.2. プロジェクトの目的

本プロジェクトは、「保健投資支援プロジェクト（2010-2013年）」を補完する目的で実施された。要請の背景、プロジェクトの概要、ザンビア国の保健医療分野の概況、これまでの当該分野の支援状況を踏まえて、以下の方針に基づき、業務が遂行された。

【上位目標】

国家保健開発計画（National Health Strategic Plan）の枠組みに従って、質の高い保健医療サービスの提供をサポートするために保健医療資機材の管理能力が改善される。

【プロジェクト目標】

保健投資の計画と効率的な運用を通じて各レベル（第2次～第3次）の医療機関において医療資機材の維持管理能力が向上する。

【成果】

- ① 医療資機材の管理のための仕組みが整備される。
- ② 第2次および第3次病院における医療資機材基準が整備される。
- ③ 医療資機材における予防的管理のための計画が対象地域にて運用される。

「上位目標」、「プロジェクト目標」、「成果」は、元案件である「保健投資支援プロジェクト（2010-2013年）」から変更はない。活動は、終了時評価の提言の中から、延長期間で成果が見込まれる①エビデンスに基づく計画ツールの活用とそのツールを年間計画に反映できる能力の強化、②医療機材・施設を管理する人材の更なる技能向上と関係者の訓練の強化、③医療施設基準の確立、に関して実施された。

【元案件の活動】

- ① 成果1にかかる活動
 - i. 医療資機材管理に関する現状分析を実施する。
 - ii. 医療資機材管理のガイドラインを策定する。
 - iii. 医療資機材管理のメカニズムを開発する。
 - iv. 医療資機材データ収集のメカニズムを開発する。
 - v. 全国の州保健局に計画的予防維持管理に重点を置いた医療資機材管理のメカニズムを周知する。
- ② 成果2にかかる活動
 - i. 第2次、第3次病院の医療機材基準に関する現状分析を実施する。
 - ii. パイロット地域の第2次、第3次病院の医療機材台帳を作成する。
 - iii. 第2次、第3次病院の医療機材の基準を開発する。
- ③ 成果3にかかる活動
 - i. 対象地域における医療資機材の予防的管理手法の状況を調査する。
 - ii. 予防的管理手法を中心とした医療資機材管理の仕組みについて対象地域の人材に指導する。
 - iii. 医療資機材の予防的管理のための計画が対象地域において作成される。
 - iv. 医療資機材管理の仕組みの運用を支援する。
 - v. 対象地域の医療施設に対する巡回指導を計画する。
 - vi. 対象地域の医療施設に対する巡回指導を実施する。
 - vii. 医療資機材データを対象地域において収集する。
 - viii. 医療資機材のデータベースが対象地域において構築される。
 - ix. 医療資機材データの利用を関係者に働きかける。

【延長フェーズの活動】

- ① 成果1にかかる活動
 - i ワークショップを通じて医療施設管理ガイドラインを関係者に周知する。
 - ii ワークショップを通じて医療機材管理ガイドラインを関係者に周知する。
- ② 成果2にかかる活動
 - i 第2次、第3次病院のインフラ調査を実施する。
 - ii 第2次、第3次病院の施設整備基準を作成する。
 - iii 医療施設管理にかかるガイドラインを作成する。
- ③ 成果3にかかる活動
 - i 医療機材管理のパイロット郡および要員、ヘルスセンターを選定する。
 - ii 医療機材管理状況の現状を調査し、課題、教訓等の分析を行う。
 - iii 医療機材の設置状況を調査する。
 - iv 医療機材管理に関する技術研修を実施する。
 - v 郡コミュニティ保健局等に対して年度予算計画の策定支援を行う。

上記のとおり、成果1「医療資機材の管理のための仕組み」は元案件で整備されており、延長フェーズの活動は、成果2ならびに成果3の活動の成果を成果1のワークショップを通じて、関係者に通知する順番となっている。

1.3. プロジェクトの実施機関、対象地域・施設

(1) 対象地域・施設

活動はルサカの保健省本省およびプロジェクト対象州内で実施したが、成果の発表、研修などの一部業務は、全州の関係者を対象に実施した。

【ルサカ州】

州保健局

ルサカ郡保健局／チパタ1次病院

カフエ郡保健局／カフエ郡病院

チョングェ郡保健局／チョングェ郡病院

【東部州】

州保健局

チャディザ郡保健局／チャディザ郡病院

ルンダジ郡保健局／ルンダジ郡病院

ペタウケ郡保健局／ペタウケ郡病院

【西部州】

州保健局／レワニカ総合病院／セナンガ総合病院

モング郡保健局

セナンガ郡保健局

カオマ郡保健局／カオマ郡病院

(2) 関係官庁・機関

- ・ 保健省政策・計画局担当官（インフラ担当官等）
- ・ 保健省臨床ケア・診断サービス局担当官（医療機材担当官）

当初、郡以下の保健医療関連組織がコミュニティ開発・母子保健省に移管されたことにより、郡以下の活動に関して同省との連携を検討していたが、施設ならびに医療機材の投資予算策定、維持管理は、保健省の管轄より変更されていなかった。従って、コミュニティ開発・母子保健省には、プロジェクトの概要を紹介し、郡保健局や郡病院における活動を説明するにとどめた。

その後、2015年9月に、郡以下の保健医療関連組織が、再び保健省に移管された。

1.4. プロジェクト期間

2015年3月17日～2016年3月16日

1.5. プロジェクトの構造

プロジェクトの活動は、保健省、州保健局、郡保健局、郡病院の各階層に対して実施された。保健省本省においては、施設・設備ガイドラインの策定を支援し、展開計画を提示した。州保健局に対しては郡保健局や病院に対する巡回指導を共に実施し、州保健局の指導能力強化を支援した。郡保健局ならびに郡病院に対しては、維持管理に関する予算策定の支援と維持管理活動の支援を実施した。

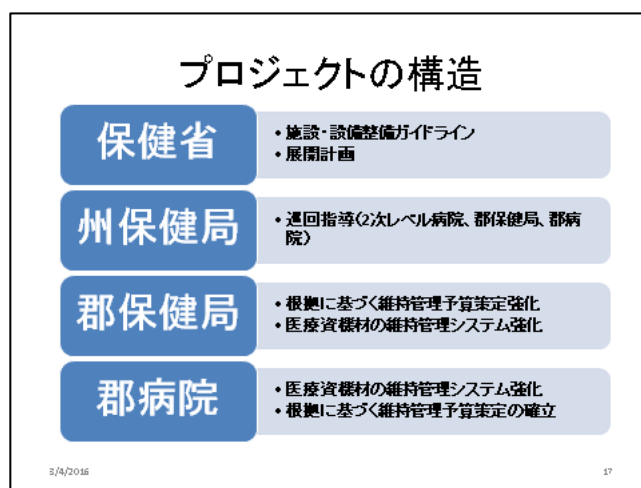


図 1-1 プロジェクトの活動と各関係者との関係

2. 活動内容

2.1. 現状の確認

2013年1月に「保健投資支援プロジェクト（2010年～2013年）」が終了後、本延長フェーズの開始まで、2年2ヶ月が経過していたため、まず、プロジェクトの関係機関ならびに関係者を確認した。その結果、引き続き、保健省内責任部署は政策計画局であり、首席計画官（インフラ担当）と主任計画官（インフラ担当）、臨床ケア診断サービス局の医療機材担当官が主なカウンターパート（C/P）であり、元案件と同じ担当官が任命されていることを確認した。2012年に行われた省庁再編により、保健省のプライマリーヘルス・母子保健部門が分離され、コミュニティ開発・母子保健省となった。これにより、プロジェクトの活動対象機関のうち州保健局、3次レベル病院、2次レベル病院は、保健省の傘下のままであったが、郡保健局以下の保健行政、保健施設は、コミュニティ開発母子保健省に移管されていた。しかし、政策計画局の主任計画官（予算・計画）に確認したところ、医療機材や医療施設などの保健投資予算は保健省の管轄であることを確認した。従ってプロジェクトは、元案件と同様、保健省から州保健局や郡保健局、3次レベル病院、2次レベル病院、1次レベル病院へ、活動に関する通達を発出することができた。

また、保健省政策計画局と協議し、現状を把握するため、パイロット州の州保健局、郡保健局、1次～3次レベル病院に対するアンケート調査を実施した。回収率は、ルサカ州91%、東部州89%、西部州78%で、調査内容は以下の通り。

- ・ 保健投資計画ガイドラインの使用状況
- ・ 医療機材管理（委員会、台帳、データベース）の状況
- ・ 定期的予防維持管理（Periodical Preventive Maintenance：PPM）の状況
- ・ 施設管理の状況

アンケートの結果は、以下の通り。（詳細は添付資料（5）7）参照）

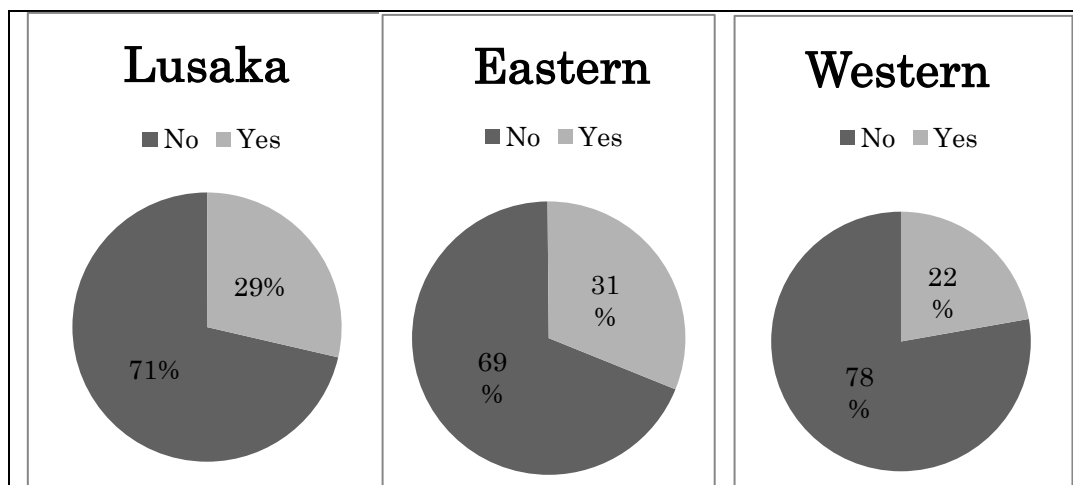


図 2-1 保健投資計画ガイドラインを所有している割合

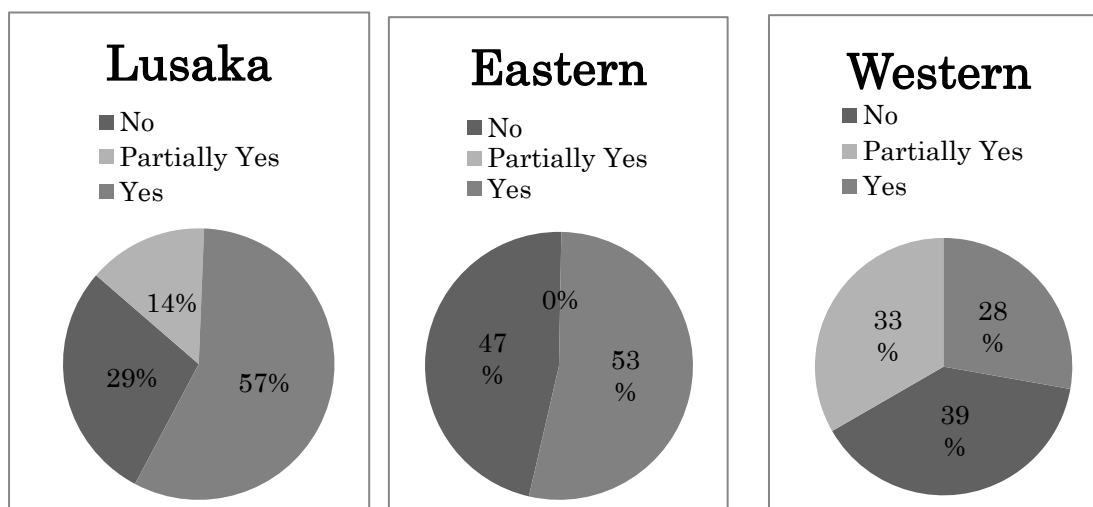


図 2-2 施設データベースを更新している割合

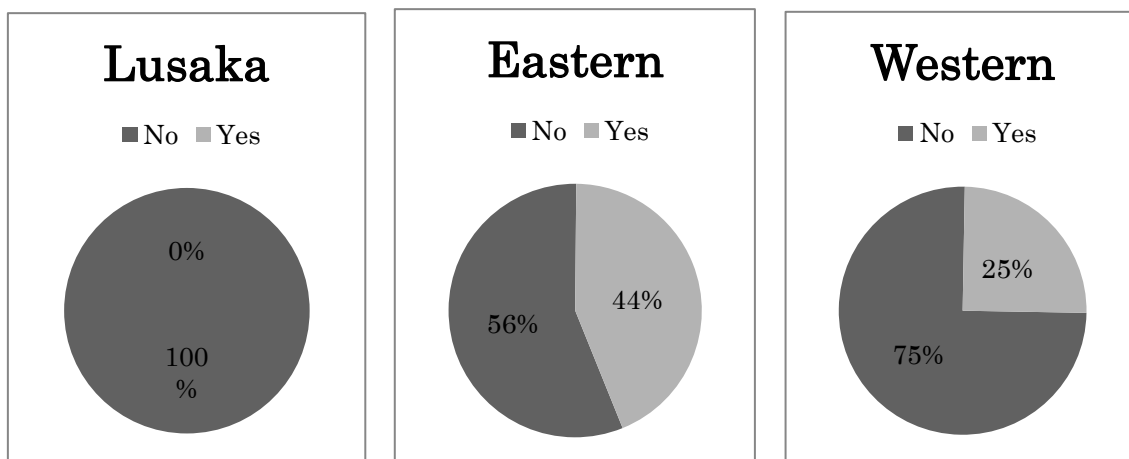


図 2-3 施設データベースを行動計画策定に利用している割合

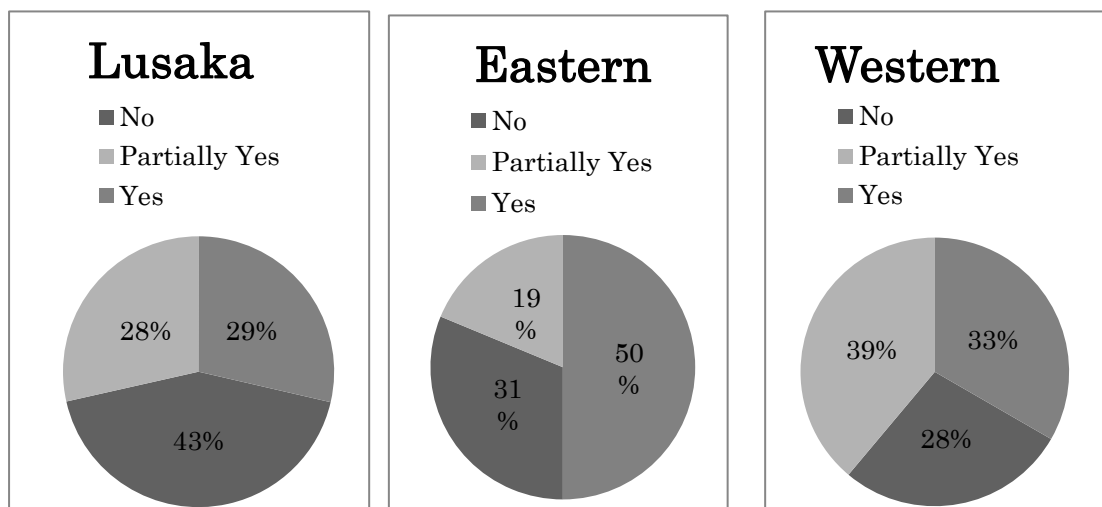


図 2-4 医療機材データベースを更新している割合

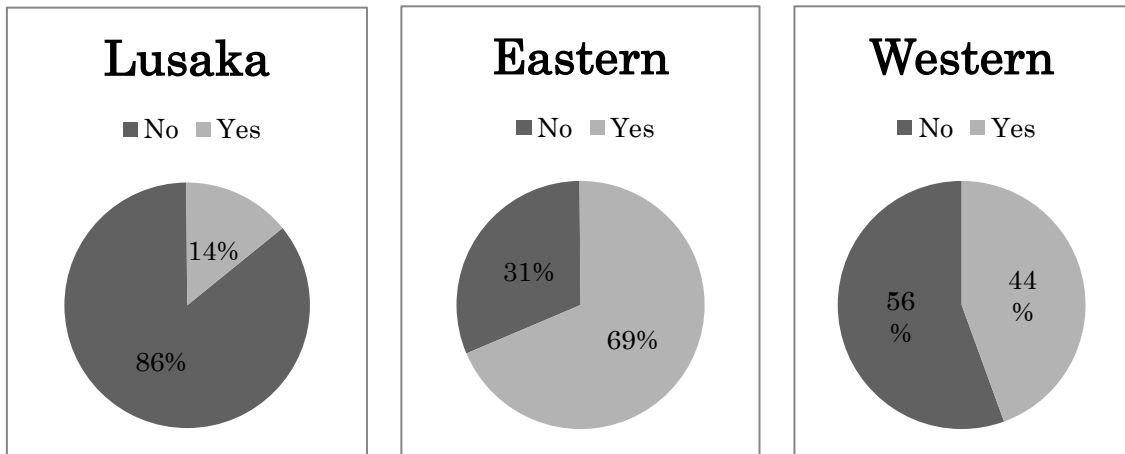


図 2-5 医療機材データベースを行動計画策定に利用している割合

アンケートの結果、「保健投資計画策定支援プロジェクト」で策定された保健投資計画ガイドラインを所有している割合は、3割程度であった。施設データベースは、ルサカ州と東部州は50%を超えているが、西部州では28%であった。施設データベースの行動計画への活用割合は、ルサカで0%、東部で44%、西部で25%であり、医療機材データベースの更新割合は、ルサカ州と西部州で30%程度、東部州で50%であった。医療機材データベースの行動計画への活用割合は、東部州で69%と高いものの、ルサカ州では14%であった。

元案件終了後、両データベースの行動計画策定への活用割合が、東部州を除いて低いことが明らかになった。その理由としては、西部州は、この2年間で郡の数が8郡から16郡に増加し、元案件の支援を受けていない郡が活用できていない。ルサカ州は、医療機材管理担当者や施設管理担当者の配置数が不足していることなどが考えられる。この状況から、延長フェーズ終了後には更なる活用割合の低下が懸念される。したがって、元案件のデータベースのコンテンツは活用するものの、各種フォームをマイクロソフト・エクセルのスプレッドシートに入力する方法を採用し、維持管理にかかる予算策定活動を支援した。

当初、医療機材管理や施設管理の向上は、元案件の協力の基礎があることから、延長フェーズでは、底上げが必要な施設に対して集中的に支援することを想定していたが、パイロット州全体において停滞が見られたことから、パイロット州全域に対する支援も検討した。具体的には、維持管理予算の方法を医療機材ガイドラインや施設データベースから抽出して冊子（最終的には定期的予防維持管理の予算策定ガイドブックとなった）とし、パイロット施設に指導するとともに、パイロット州の全郡を対象にこの冊子を用いた維持管理と予算策定方法を周知した。

2.2. 成果1「医療資機材の管理のための仕組みが整備される」にかかる活動

2.2.1. ワークショップを通じて医療施設管理ガイドラインを関係者に周知する。

当初、ワークショップは保健省の意向を受け、全州保健局（10州）から局長、施設管理担当者、医療機材管理担当者を招聘し、2016年2月下旬にルサカにて開催す

る予定であった。しかし、保健省側が、コストシェアに必要な予算をワークショップの招待状発出までに確保できなかった³ことから、急遽、プロジェクト側予算のみで実施する内容に変更された。具体的には、JICA ザンビア事務所の「国内出張に伴う日当、宿泊費規定（2015年7月1日改訂）」では、保健省の設定した日当、宿泊費の全額を賄うことができない⁴ため、宿泊費を伴う参加者の招聘を断念し、パイロット州である、ルサカ州、東部州、西部州の3ヶ所で実施した。各ワークショップの参加人数は以下の通りであった。

2016年2月19日：東部州：7名

2016年2月22日：西部州：7名

2016年2月25日：ルサカ州：16名

ワークショップの目的は、「施設・設備整備ガイドライン」および「定期的予防維持管理の予算策定ガイドブック」の説明と両印刷物に対する意見聴取、維持管理システムの全国展開計画の紹介である。

今回、招聘できなかったパイロット州以外の州関係者への周知は、保健省政策計画局の責任において、保健省の各種会合を（MTEF⁵ナショナル・バジェット・プランニング・ラウンチ⁶等）通じて周知することとなった。

2.2.2. ワorkshopを通じて医療機材管理ガイドラインを関係者に周知する。

ワークショップの開催は、上記のとおりである。

上記に加えて、パイロット州以外の州関係者へは、医療機材管理の技術研修（2015年7~8月開催）に、全州の医療機材管理者を招聘し、医療機材管理ガイドラインの周知を図っている（詳細は、2.4.4.に記載）

2.3. 成果2「第2次および第3次病院における医療資機材基準が整備される」にかかる活動

2.3.1. 要請内容の真意を確認する。

ザンビア国からの要請事項の一つとして「第2次、第3次レベル病院の施設基準」の作成があったが、具体的にどのようなものを求めているのか、確認する必要がある

³ そもそも活動にかかる経費は政府負担であるが、予算上の制約等、やむを得ない事情がある場合はプロジェクトからの支援も可能である。ただし、JICA 事務所の規定額を超えて支援することはできない。

⁴ 例えば、上級職位（Division I）の場合、JICA ザンビア事務所の規定では宿泊料が都市部で380クワチャ、地方部で240クワチャであるが、ザンビア政府規定では、都市部で800クワチャ、地方部で700クワチャである。JICA が支援する場合でも、この差額は保健省等政府機関が負担する必要がある。

⁵ MTEF=Medium Term Expenditure Framework；中期予算計画

⁶ 中長期予算策定準備会合：各部署（州保健局含む）が、今年度の活動と予算の執行状況と来年度の活動と予算要求を発表する会合。毎年7月に開催される。

た。自国で高度医療施設を開発・更新している先進諸国において、これらを施設側の基準として一貫したものを作成することはない。その理由は医療技術の進歩による医療環境基準は、医療活動の当事者である各医療系の専門団体によって更新されるため、施設設計の専門家がそのようなものを纏めることは非効率で現実的ではないからである。一方で、設備システムは病院のレベルだけでなく、施設規模や都市インフラにより規定される事項が大きいと、特定の病院規模と環境設定が与えられていない状況で「基準作成」という手順に矛盾があった。そのため、施設と設備はそれぞれの保健省側担当者の目的に合わせてスコープを調整し、与えられた時間で可能な範囲で、要請本来の目的に沿った、現実的で「施設基準」の代わりとなる成果品が何かを模索し、作成する手順を進めることを保健省カウンターパートと合意した。

2.3.2. 第2次、第3次レベル病院のインフラを調査し、ガイドラインを作成する。

2.3.2.1. 施設整備に関する活動

(1) 目的を考慮した施設基準の考え方の整理（基準からガイドラインへ）

ザンビア保健省が施設基準を求める背景について確認した。保健省は2013年から全国に新たに650のヘルスポストを建設する計画を立案し、実施している。保健ポスト、保健センターなどは、標準図面を作成し、同じデザインで建設することにより、迅速な施設供給と、容易な管理となるようにしている。同様の手法を1次レベル病院にも実行しようと、保健省政策計画局で標準図面を作成しているが、実際には下位施設より考慮すべき要素が多くなっていることや、裨益人口が増加している地域に自由に建設する敷地の余裕が無いことから、標準図面そのままに建設できないケースも多いようである。とはいえ、先進国のように各病院個別の設計を行える人材の層も十分でないことから、標準図を基点に施設を考える発想が根付いている。

一方で、2次、3次レベル病院の多くはザンビア独立前に建設されたもので、個別のデザインとなっており、近代医療の求める機能に対応しきれないことから建替の必要性が増してきており、その手段を保健省は外国の技術の中から模索しようとしていた。そこで、ザンビア政府の下位レベルの医療施設に対して実施してきた標準化の発想から、2次、3次レベル病院の施設基準を求めたと思われる。

日本や他の欧米諸国の病院設計に関連する医療側の基準の構成などを説明し、2次3次病院の建替などの整備を標準図面による施設基準という方法で行うことに矛盾があること、形態そのものより求められる医療機能との関連性を説明した設計をチェックするためのガイドラインとすべきことは、早期に保健省カウンターパートと合意した。

(2) ガイドラインの内容

記すべき内容は、今後の2次3次病院建設の際に役に立つものとする方針は決まったが、限られた時間で何がどこまで出来るかを詰める必要があった。保健省カウンターパートは、総合病院全体の整備ガイドラインの必要性を主張したが、病院全体の近代化を図るための設計方法を1冊の図書とすると、病院計画専門の研究室が医療関係者と共に特別グループを作り、何年かかけて調査・研究して作成すべきが

リユームであり、本延長フェーズでは到底こなすことが出来ない人員構成と業務量である。そのため、ガイドラインの範囲を限定するために、何に焦点を当てるべきかを抽出すべく、パイロット3州の2次3次病院及び、周辺のよく整備された1次病院の視察を行った。

画像診断などの大型機材が入るところは、機材メーカーの仕様や設置基準によって拘束され、メーカー担当者からの協力と支援を得ているため、高度な医療といえども施設の専門家の観点から指針を示す意義は少ないと考えられた。そこで画像診断関係については、参考図書のみ提示した。

一方、クリーンエアが必要で、空調や衛生管理が重要とされる手術室は、天井から新鮮な空気が出る構造で建設されていたものも含め、維持管理が出来ておらず、空調設備は一般の壁掛けユニットになっているものがせいぜいで、新しい病院であっても平面計画には問題が見受けられた。空気衛生の観点からは、厳しい衛生管理の必要な部屋には気密性の高い建具も必要であるが、建具の質にも問題があった。加えて、近年建設された新しい施設のほうが、建物の構造的な質に問題があることも判明した。これらに加えて、海外搬送せずに国内で治療できるようにしたいというザンビア国の医療関係者の願望が強いことも配慮すべきと考えた。上記、諸条件を勘案し、手術室と集中治療室の整備は3次レベル病院の医療の質の向上に重要な要素と考え、ガイドラインで取り扱うこととした。

2次レベル病院に関しては、規模の大きな病院での救急患者への医療行為の中で敷地内動線が機能的でなかったり、救急車のアクセスに問題のあるところが見受けられた。ザンビア国は、国土が広く、患者搬送の距離と時間の限界を考慮して、2次病院が強化すべきところとして、救急関連部門のネットワーク強化が重要と考え、ガイドラインで取り扱うこととした。

上記以外の要素では、内視鏡と、人工透析をガイドラインに加えることとした。内視鏡はこれから拡大する医療分野であること、人工透析はマラリアを原因とした腎機能に障害がある患者が多いというザンビア国の地域特性があることで需要が増加していることが訪問調査で確認できたこと、どちらも施設の部屋のしつらえが特徴的であり、日本の医療団体の施設基準も入手できたことにもよる。

更に、保健省カウンターパートからの今後の必要性を考慮した要望により、古い施設の限られた敷地内で医療活動を継続したまま段階的建替えを行うためのマスタープランの作成ポイントと、建替えで目標とすべき、「コンパクトで機能的な病院」で将来展開のための空地を残す意義についても加えることとした。

上記内容の記述に当たって、どのレベルを目標とするかを決定するに当たり、保健省カウンターパートと共にルサカ州以外のコッパーベルト州の3次病院を訪問し、維持管理能力の現状と限界を視察して、ガイドラインの記述内容について協議した。

(3)ガイドラインの作成

本来、医療の専門家からのインプットが必要であることからザンビア国内のみで資料を探すことは難しく、第1回及び第2回現地業務の前に、数ヶ月の国内業務として調査を行い協議のベースとなる資料を収集した。これらの情報を基に、先述の

経緯を経てガイドラインのドラフトを作成した。これにザンビア国の医療の現場からの意見を取り入れるため、ザンビア大学付属教育病院(University Teaching Hospital:UTH)の関連部門のスタッフとワークショップを開催し、必要に応じて UTH の医療現場を訪問し、適切な医療従事者に面会し、ザンビア国特有の事情に対応できるように記述内容を調整した。

表 2-1 担当専門家が訪問した医療施設

	州	3次病院	2次病院	1次以下医療施設
パイロット州	ルサカ	ザンビア大学付属教育病院(UTH) 癌センター チャイナマ精神病院	レビ・ムワナ総合病院	マテロ郡病院 チレンジェ郡病院 フェアビュー病院(私立) コンフォート病院(私立)
	東部	州内に3次病院なし ⁷	チパタ総合病院 セント・フランシスミッション病院	チャディザ郡病院 ペタウケ郡病院 カモト郡病院 マズハザン保健センター カポレ保健ポスト
	西部	州内に3次病院なし	レワニカ総合病院	セナンガ郡病院 カオマ郡病院
その他	コッパーベルト	ンドラ中央病院 キトゥエ中央病院 アサーデビトソン小児病院		

2.3.2.2. 設備整備に関する活動

(1) 設備基準の特定（基準からガイドラインへ）

設備基準に関する保健省の要望は、医療施設の運営に欠かせない給水、廃棄物管理（廃棄物、排水）、電気、空調、酸素プラントといった施設設備（以下、ユーティリティー）を整備・設計するための多様な情報であった。これらは2次、3次レベル医療施設に特化されるものではなく、1次レベル医療施設においても必要な情報であるため、現況調査では、郡レベルの1次レベル医療施設、州レベルの2次病院、更にUTHといった3次医療施設を踏査のうえ、収集と整理に務めた。以上を考慮し、設備基準という表現から設備ガイドラインと変更した。

(2) ガイドラインの内容

設備ガイドラインには医療施設に不可欠なユーティリティーについて、下表に示すような内容を整理した。

⁷ 2016年に東部州チパタ総合病院が中央病院（3次レベル）に格上げされたとのことであるが、調査時点ではまだ2次レベルの総合病院であった。

表 2-2 施設整備ガイドラインの記載項目

大項目	小項目
給水システム	水源 水質管理 給水システム 貯水システムと貯水量
医療廃棄物管理	医療廃棄物・排水の定義 ザンビア国における関連法規 施設レベルに応じた廃棄物処理管理 医療排水処理管理 医療廃棄物・排水処理にかかる管理機構 下水処理システム
電気・配電システム	受変電設備 1次レベルの医療施設にかかる電気設備 電気設備の管理 発電機 無停電電源設備 太陽光発電 太陽熱給湯設備
空調換気システム	主な診療科における空調換気の考え方 手術室における空調換気の考え方 病棟における空調換気の考え方
酸素プラント	酸素製造のメカニズム 酸素プラント設備 (事例として UTH のシステムを紹介)

(3) ガイドラインの作成

例えば、ザンビア国の地方で採用されている貯水池を利用した下水処理システム、UTH で導入されている酸素プラント等は、ザンビア国において周知の技術として導入されている。他の給水設備や電気設備、ならびに廃棄物処理管理を含め、体系的なシステムとしてユーティリティーの設計を検討できるような情報の整理を心がけガイドラインを作成した。最終稿は、保健省のカウンターパートである政策計画局のインフラ担当官、更に、医療環境管理を担当する部門の環境担当官等と数度にわたる意見交換を重ね、作成を進めた。

同ガイドラインのタイトルは、施設に関するものと併せて「Upgrading Guideline / Information of Health Facilities and Utilities (日本語名:施設・設備整備ガイドライン)」となった。

表 2-3 施設・設備整備ガイドライン：目次

パート A：2次、3次レベル病院のアップグレードガイドライン 基礎的事項 1. 州、国立レベル病院の位置 2. 建設要求事項 3. リファラル病院 4. 感染管理 5. 病院の安全対策 病院機能のアップグレード 6. バイオクリーンゾーンと手術室 7. 救急ケア 8. 集中治療室 9. 人工透析 10. 内視鏡 11. その他 パート B：医療設備計画 1. 給水システム 2. 医療廃棄物管理 3. 電気・配電システム 4. 空調換気システム 5. 酸素プラント
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施設・設備整備ガイドラインの承認にあたり、臨床ケア・診断サービス局や州保健局、病院の施設担当等からの意見聴取をする必要があると、保健省政策計画局長より意見があり、成果1におけるワークショップにて意見を聴取した。

2.3.3. 医療施設管理にかかるガイドラインを作成する。

元案件において、医療施設管理は施設運営管理全般と定義され、5S⁸に基づく医療施設運営ガイドラインが策定されたが承認されなかった。本延長フェーズで保健省と協議したところ、求められているガイドラインは、物理的な維持管理に関するもの、すなわち不具合を確認して修繕することであった。そこで延長フェーズでは、物理的な維持管理をするためのフォーム等の開発を検討したが、既に元案件で施設データベース作成時に不具合を確認する帳票類を作成していたことから、そのフォームを活用することとし、「定期的予防維持管理の予算策定ガイドブック」にて、維持管理方法として紹介した。今回作成した「施設・設備整備ガイドライン」には、医療施設を2次、3次レベルに整備するための性能基準とその必要性、設備の設置、管理等が記載されている。延長フェーズでは、「定期的予防維持管理の予算策定ガイドブック」と「施設・設備整備ガイドライン」を医療施設管理にかかるガイドライ

⁸整理、整頓、清掃、清潔、しつけの頭文字 (S) で、日本の製造業で発展した業務環境改善。

ンとしている。

定期的予防維持管理の予算策定ガイドブックは、施設管理という側面では、郡保健局ならびに郡病院のインフラ担当官が施設の不具合を確認し、その不具合を修繕するための予算策定に活用することを目的としている。

施設・設備整備ガイドラインは、保健省のインフラ担当官や州保健局のインフラ担当官が、今後の2次、3レベル病院の建設に活用することと、2次、3次レベル病院の施設管理担当官が、施設の維持管理に活用することを目的としている。

2.4. 成果3「医療資機材における予防的管理のための計画が対象地域にて運用される」にかかる活動

2.4.1. 医療機材管理のパイロット郡および病院を選定する。

保健省臨床ケア・診断サービス局医療機材担当官との協議、ならびにパイロット州の保健局長と相談した結果、医療機材管理のパイロット病院を以下のとおり選定した。

ルサカ州：チパタ1次病院、チョングェ郡病院、カフエ郡病院

東部州：ルンダジ郡病院、チャディザ郡病院、ペタウケ郡病院

西部州：レワニカ総合病院、セナンガ総合病院、カオマ郡病院

選定基準は、①新規導入病院（チョングェ郡病院、チパタ1次病院、チャディザ郡病院）②活動が停滞している病院（カフエ郡病院、ルンダジ郡病院、ペタウケ郡病院、レワニカ総合病院、セナンガ総合病院、カオマ郡病院）である。

2.4.2. 医療機材管理状況の現状を調査し、課題、教訓等の分析を行う。

2.1. で述べたアンケート調査の結果、医療機材管理の現状は以下の通りであった（詳細は添付資料（5）7）参照）。また、2015年5月にパイロット施設を訪問し、医療機材管理状況を確認した。

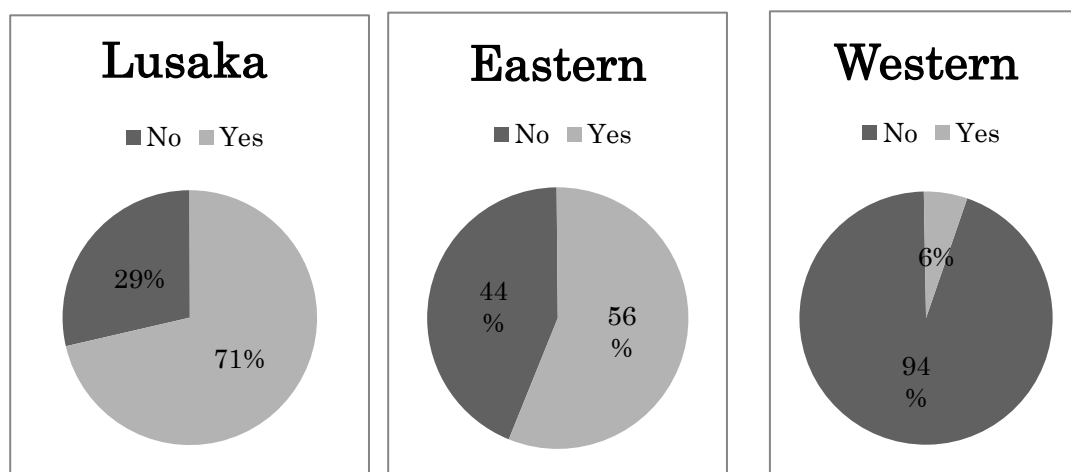


図 2-6 医療機材管理委員会が開催されている割合

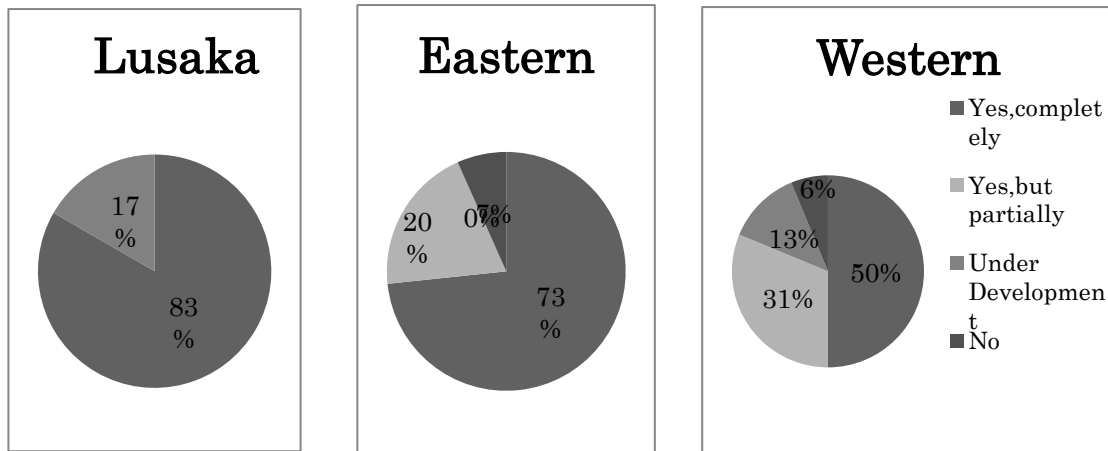


図 2-7 医療機材台帳が作成されている割合

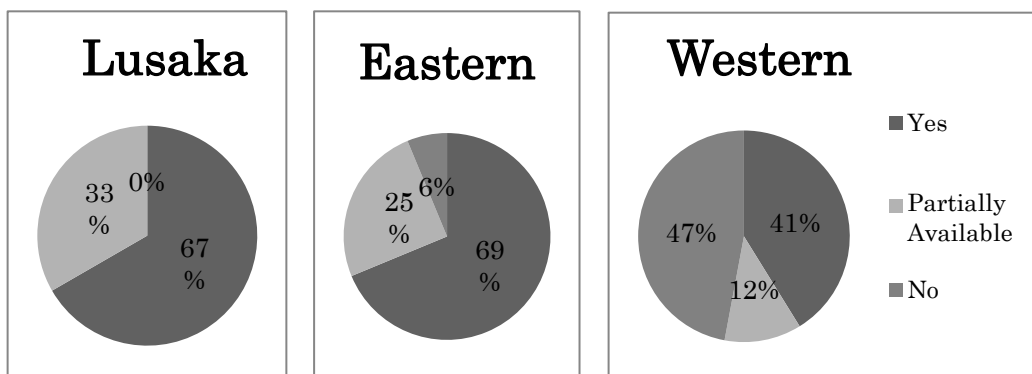


図 2-8 維持管理計画を策定している割合

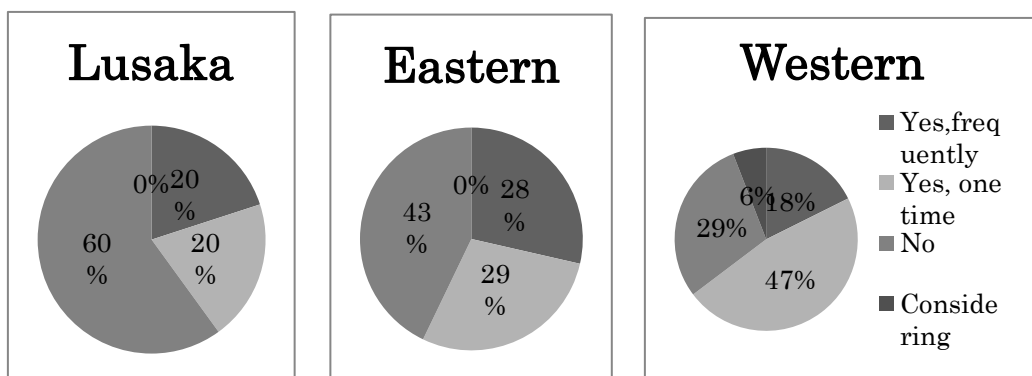


図 2-9 使用者研修を実施している割合

アンケートならびに、現場踏査により、医療機材管理の課題として、以下の点が挙げられた。

- 西部州では、医療機材管理委員会がほとんど機能していない。
- 医療機材台帳は、3州とも50%以上作成されているが、西部州の割合が低い。
- 維持管理計画の作成も、ルサカ州、東部州と比較して、西部州の割合が低い。

- ▶ 使用者研修は、3州も頻繁には実施されていない。
- ▶ 医療技術者が量的、質的に不足している。
- ▶ スペアパーツの入手が困難である。

パイロットサイトは、新規導入が3施設、残りは停滞施設であったため、医療機材管理委員会の設置ならびにその活性化、機材管理台帳の整備を中心に支援することとした。

西部州において、医療機材管理委員会が機能していない理由としては、郡の数が大幅に増加したことに起因すると考えられた。したがってプロジェクトでは、パイロットサイト以外の郡も訪問し、計画的予防維持管理を紹介するとともにワークショップへの参加を促すこととした。

2.4.3. 医療機材の設置状況を調査する。

2015年5月～7月初旬にかけて、州保健局や郡保健局の担当官とともに各パイロット病院を訪問し、各施設の現状ならびに課題を確認し、保健省に報告した。

その後、2015年10月に再度パイロット病院を訪問し、チェックリストを用いて医療機材研修後の各施設の現状確認ならびに課題を確認した（詳細は添付資料（5）1）～6）参照）。

巡回指導では、①医療機材台帳の更新、②日常点検の実施、③定期的予防維持管理の実施、などを提言した。

2016年1月には3度目のパイロット病院調査を実施し、医療機材台帳の更新状況や医療機材管理にかかる指導を行った。

パイロット病院訪問時の医療機材管理に関する現状確認には2種類のチェックリストを用い、医療機材の状況ならびに管理活動を評価した。2種類のチェックリストは次頁に示すとおりである。

医療機材管理活動の評価は、医療機材管理委員会の活動状況、機材の基本情報となる台帳の作成および分析にかかる活動、ならびに医療機材廃棄にかかる活動の評価の総評である。医療機材管理活動の主体となる委員会の設立が重要な活動である。

表 2-4 医療機材管理活動の評価チェックリスト

Monitoring Items	Maximum Score	Scoring Criteria
Monitoring Data		
(Medical Equipment Management Monitoring items)		
(1) Establishment of MEMC		
(a) Establishment of MEMC	5	(5) Established, (0) Not yet established
(2) Number of MEMC meeting		
(a) Number of MEMC meeting	4	(4) Monthly, (3) Bimonthly, (2) Quaterly, (0) Less than quaterly
(b) Creation of minutes of meetings	1	(1) Created, (0) Not Created
(3) Inventory of medical equipment		
(a) List up	3	(3) Completed, (1) Under preparation, (0) Not year standard.
(b) Every 6 months review	2	(2) Done, (0) Not yeat done.
(4) Consumables		
(a) List up necessary consumables	3	(3) Completed, (1) Under preparation (0) Not yet started
(b) Every 6 months review	2	(2) Done , (0) Not Yet done.
(5) Spare parts		
(a) List up necessary spare parts	3	(3) Completed, (1) Under preparation, (0) Not yet started
(b) Every 6 months review	2	(2) Done, (0) Not yet done
(6) Equipment plan		
(a) Analysis of inventory list	5	(5) Completed, (2) Partial, (0) Not yet
(b) Procurement plan based on standard / necessity	5	(5) Completed, (2) Partial, (0) Not yet
(c) Add procurement plan to annual action plan	5	(5) Done, (0) Not yet
(7) Decommissioning		
(a) List up of items	2	(2) Completed, (0) Not yet
(b) Transfer to items to storage	2	(2) Completed, (1) Partially transferred, (0) Not yet
(c) Submission of request letter to Board of survey	1	(1) Submitted, (0) Not yet
(d) Conduct of decommission survey mission	1	(1) Completed, (0) Not yet
(e) Approval of decommission request	1	(1) Approved, (0) Not yet
(f) Purchase of order for replacement if necessary	1	(1) Submitted, (0) Not yet
(g) Implementation of decommission auction	1	(1) Bid successful, (0) Not yet
(h) Removal of items from hospital	1	(1) Removed, (0) Not yet
Total	50	Max. 50

医療機材における予防的維持管理活動の評価は、予防的維持活動の年間計画立案、日常点検・定期点検・故障修理対応にかかる活動と、これら活動にかかる集計報告活動の総評となっている。台帳の情報を基に予防的維持管理活動を計画し、実行することが必要であり、上記医療機材管理活動の台帳管理が必要条件となっている。

表 2-5 医療機材における予防的維持管理活動の評価チェックリスト

Monitoring Items	Maximum Score	Scoring Criteria
Monitoring Data		
(Preventive Maintenance Monitoring Items)		
(1) Action plan of maintenance		
(a) Annual plan is available	5	(5) Available, (0) Not available
(2) Daily maintenance		
(a) Check sheet and recording form available	4	(4) Available, (1) Partially available, (0) Not available
(b) User training plan present	4	(4) Present, (1) Partially present, (0) Not present
(c) User training implemented	5	(5) Implemented, (3) Partially implemented, (0) Not implemented
(d) Monitoring and necessary instruction is implemented every 3 months	4	(4) Completed, (3) Partially implemented, (0) Not implemented
(3) PPM		
(a) PPM Check sheet and recording form available	3	(3) Available, (1) Partially available, (0) Not available
(b) PPM plan present	3	(3) Present, (1) Partially present, (0) Not present
(c) PPM implemented	3	(3) Implemented, (1) Partially implemented, (0) Not implemented
(d) monitoring and necessary instruction is implemented	3	(3) Completed, (1) On going, (0) Not yet started
(4) Corrective maintenance		
(a) Job request form available	3	(3) Available, (0) Not available
(b) Maintenance record available	3	(3) Available, (0) Not available
(5) Data collection		
(a) Data is summarized and reported every month	5	(5) Yes, (0) No
(b) Annual activity report is prepared	5	(5) Yes, (0) No
Total	50	Max. 50

調査結果は以下のとおりである。

【ルサカ州】

各病院で医療機材管理ガイドラインに基づき医療機材管理手法を説明した後、医療機材台帳の作成を支援した。カフエ郡病院は、1回目の訪問の際に医療機材担当者が休暇取得中であったが、モニタリング活動には参加をしてもらい台帳更新を行った。2015年11月に医療機材管理計画の策定を指導し、2016年1月に計画を策定した。また、2015年10月にUNICEFより新規機材が調達されており、新規機材登録台帳へ記載し、今後のメンテナンス計画に役立てるよう指導を行った。医療機材担当者がモニタリング活動1回目まで長期休暇を取得していたため、維持管理活動が中断されていたが、2回目のモニタリングの際には復帰をしており、その後、更新された台帳を基に予防的維持管理活動の計画、実施されたことにより第3回目のモニタリングではスコアの上昇が認められた。

チョングエ郡病院は、病院管理チームのコミットメントが低く、医療機材管理委員会が開催されていなかったため、両チェックリストのスコアが低い状態であった。医療機材担当者も医療機材に対する専門の知識が少なかったため、台帳の作成支援から進めた。2015年7月の医療技術者研修に参加し、研修で習得した日常点検の手法や年間計画の立案が実施されたことで、以降のモニタリングにて予防的維持管理活動のスコアが上昇した。2016年2月には日本人専門家同席のもと、医療機材管理

委員会を設立し、会議を開催した。医療機材管理には病院経営陣側からの支援が不可欠であり、技術者の支援を継続的に行うよう委員会の中で提言した。

チパタ 1 次レベル病院は、保健センターから格上げされたばかりであり、医療機材担当官はいないことから、郡保健局の医療機材担当官が台帳を作成した。ルサカ郡内においてはゾーン毎に 1～2 名の医療機材担当官が置かれ、担当する各施設を巡回する体制をとっている。医療機材担当官は、郡保健局所属であるものの、定期的な施設への訪問により医療機材状況を的確に把握し、機材の不具合に対して逐次対応を行っており、不具合が恒常的に発生していることはないということであった。年間計画の策定が遅れたため、予防的維持管理活動のスコアは 0 点であったが、医療機材担当者は 2010-2012 年の活動で技術者研修を受講し、医療機材の管理技術が向上したことから、3 回目の訪問では高得点を取得した。

上記のように 3 施設とも訪問ごとに医療機材管理活動に関するスコアは上昇しており、チパタ 1 次レベル病院では 50 満点中、35 点を上回った。チョングェ郡病院では、3 回目の訪問の後ではあるものの、医療機材管理委員会が設立され、医療機材管理に関するマネジメントからのコミットを得られることができたことから、今後も継続した委員会の開催が期待される。チョングェ郡病院およびチパタ 1 次病院は 2012 年の段階で対象施設となっていなかったことから、初回のモニタリングでは、特に予防的維持管理活動ではスコアが 0 であったが、継続的な指導および医療機材管理委員会への働きかけを行うことでスコアが上昇した。

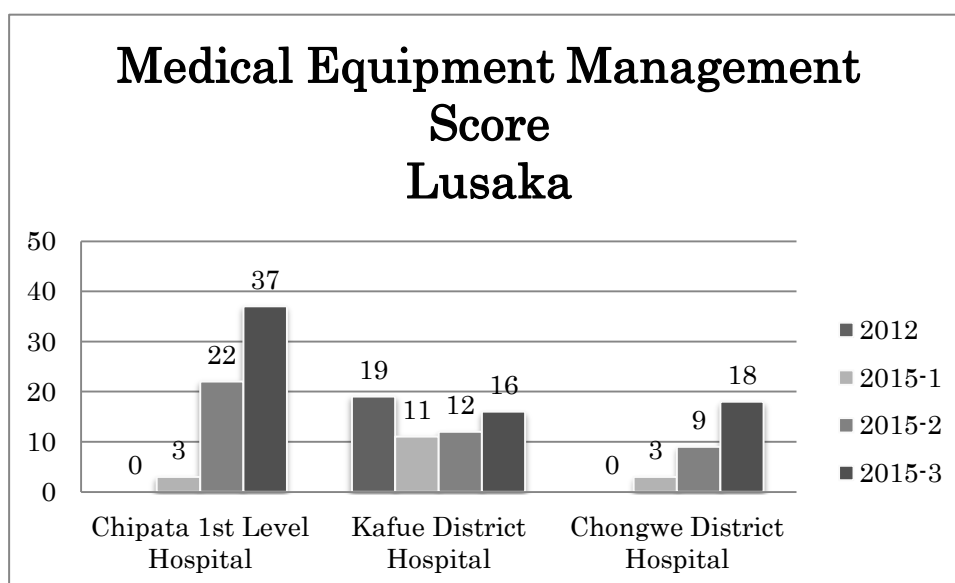


図 2-10 医療機材管理活動の評価 (ルサカ州)

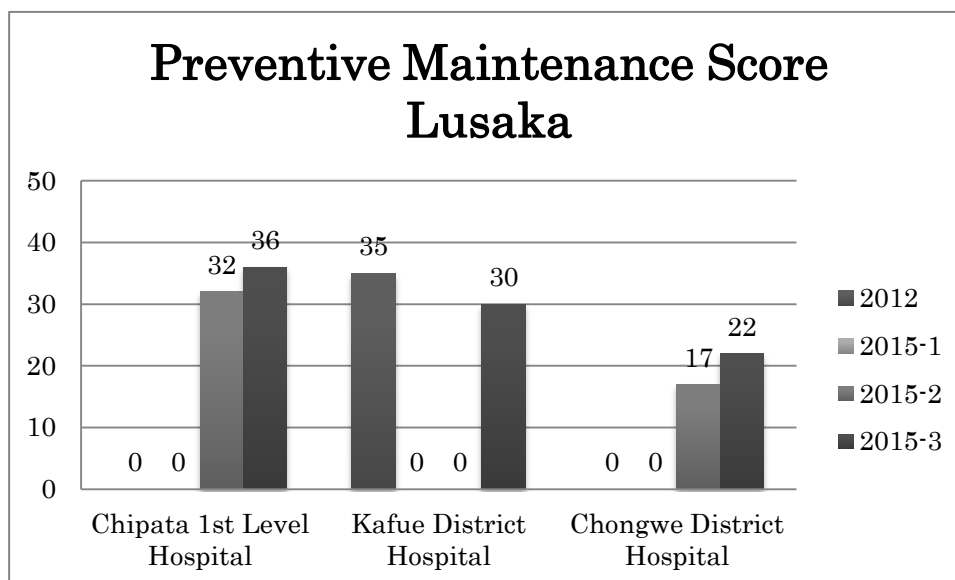


図 2-11 医療器材における予防的維持管理活動の評価（ルサカ州）

【東部州】

東部州チャディザ郡病院は、元案件の終了後に、開院した病院であり、初回の訪問では医療器材ガイドラインを説明し、医療器材管理委員会の設立を支援した。パイロット病院では、医療器材管理活動ならびに器材台帳の更新、常日頃の稼働状況の点検等が行われていた。しかし、ルンダジ郡とペタウケ郡では保健局長が 2015 年末に交代したことから、両者に対して医療器材維持管理の重要性、必要性について説明を行ったものの、説明時間を十分に確保することが困難であったため、引き続き州保健局の医療器材担当者がフォローすることで対応を図ることとした。また、ルンダジ郡の郡病院に従事する電気技師は、過去 10 年、厨房スタッフとして雇用されており、幾分、労働意欲を失っている（郡保健局によると、毎年、正規ポストによる雇用を保健省に申請しているものの、未だに実現していない）。更に、ペタウケ郡の医療器材維持管理担当者が Northern Technical College（NORTEC、ンドラの技術大学、ディプロマ・コース）医療器材エンジニアコースに入学したものの、その後任が未だに補充されておらず、郡保健局の技術者に大きな負担が掛かっている。

これらの状況を改善するため、保健省人事局に対し、ルンダジ郡の郡病院に勤務する電気技師を正規ポストで雇用すること、ペタウケ郡の郡病院に医療器材維持管理技術者を補充するよう、要請した。

また、東部州の州保健局医療器材担当者には、これまで北部州の州保健局に勤務していた医療器材主任担当官が、昨年末に着任している。2016 年 1 月に実施したパイロット病院のフォローアップ業務は、この新任担当官の同行のもと実施することができた。その際、同担当官から、状況の改善に邁進するという力強い発言もあり、プロジェクト終了後も州保健局による適切なスーパービジョンが期待できる。

3 施設とも巡回指導ごとにスコアを伸ばし、医療器材管理活動においてペタウケ郡病院では最終的なスコアとして 45 点（50 点満点）を獲得した。予防的維持管理

活動に関しては、3回目の訪問において3施設の医療器材担当者とも30点以上を獲得した。

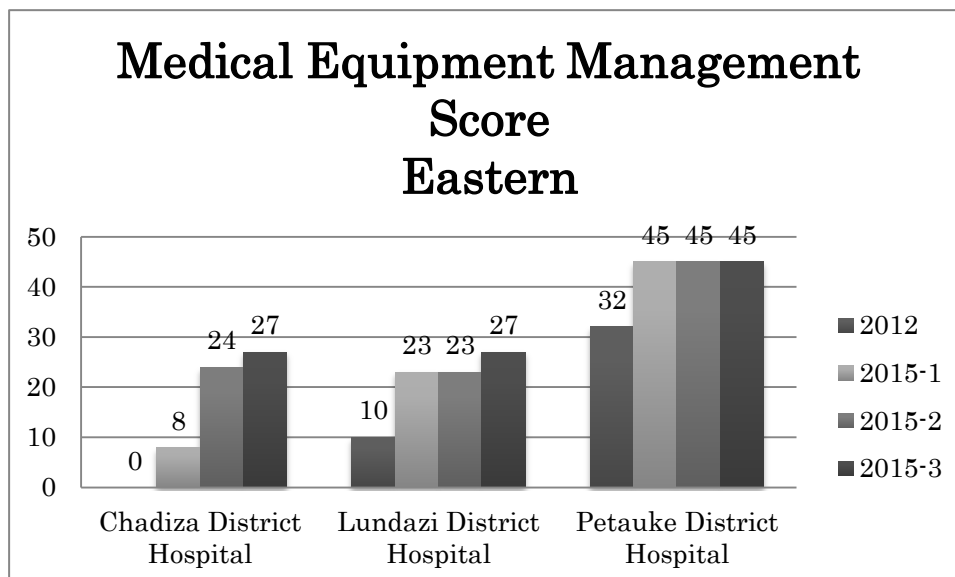


図 2-12 医療器材管理活動の評価（東部州）

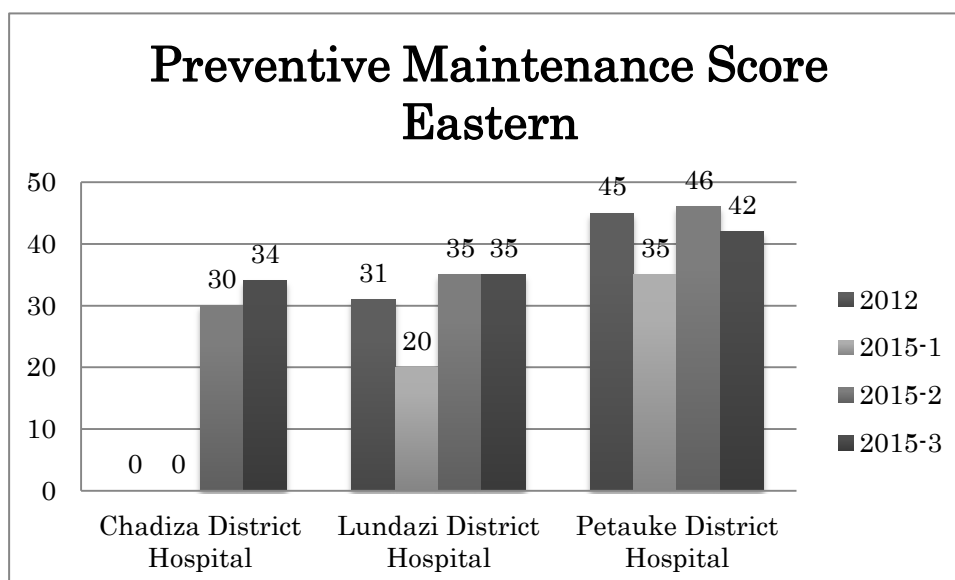


図 2-13 医療器材における予防的維持管理活動の評価（東部州）

【西部州】

7月に実施した初回訪問時にはレワニカ総合病院は、医療器材担当者が休暇のため不在であった。またセナンガ総合病院の医療器材担当者は NORTEC 医療器材エンジニアコースに就学中であった。レワニカ総合病院では、医療器材主担当者の病院不在が目立つものの、維持管理年次活動計画の策定やユーザーへのトレーニングなどが実施されていた。本邦研修受講者である電気技師は昼夜問わず、病院で発生し

た機材への不具合に対応していた。日常の機材対応で忙しいものの、本邦研修後の年次活動計画に沿って維持管理活動を実施するよう指導した。

セナंगा総合病院では、第1回の巡回指導以降、医療機材管理委員会のメンバーに各部門長が加わり、マネジメント層のコミットメントがより高くなった。

カオマ郡病院の医療機材担当者は、郡保健局の医療機材担当官が兼任しており、多忙であるものの、元案件より継続した活動を実施していた。ユーザー点検（日常点検）の実施方法について説明をし、パイロット部署として手術室においてユーザー主導による管理手法を導入した。

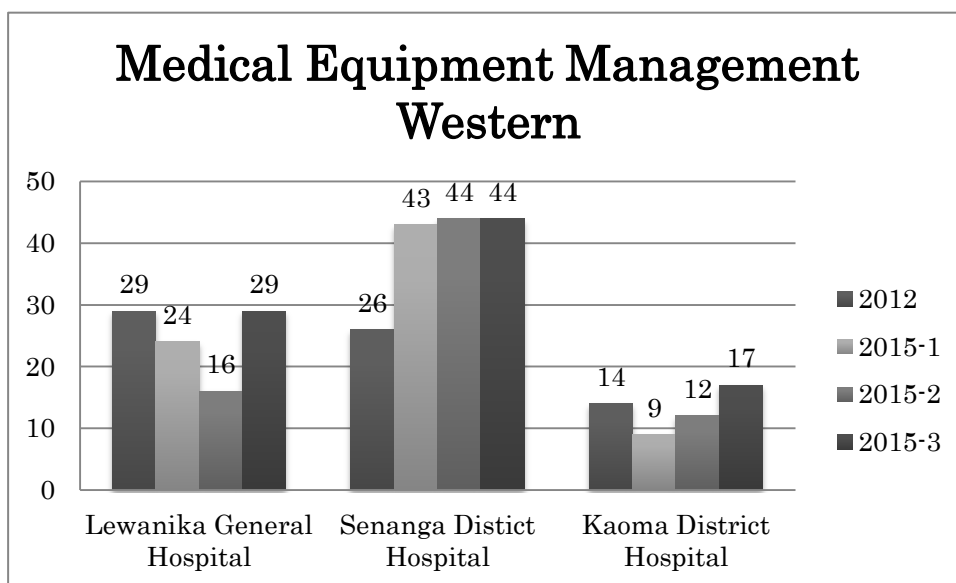


図 2-14 医療機材管理活動の評価（西部州）

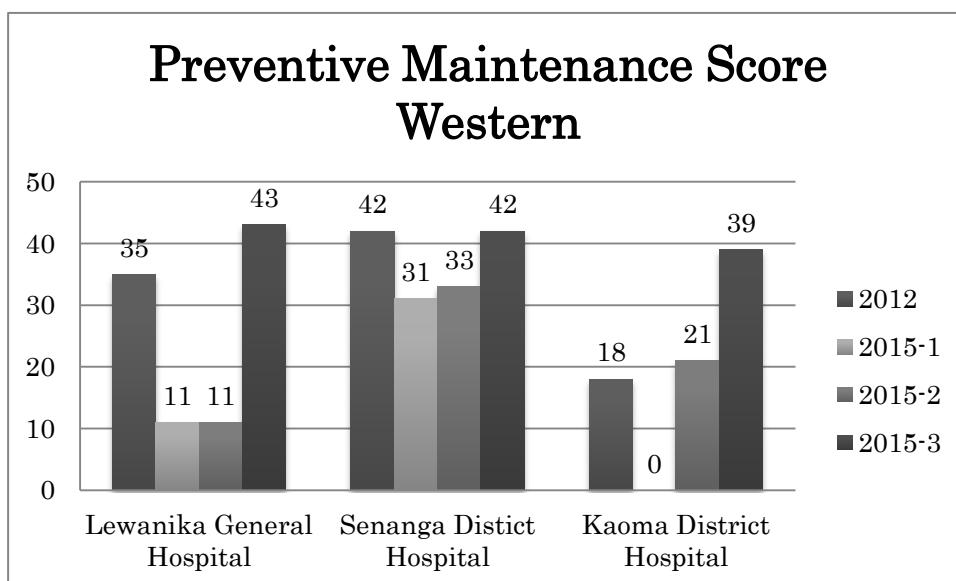


図 2-15 医療機材における予防的維持管理活動の評価（西部州）

3 施設とも医療機材管理活動は微増ではあるものの着実にスコアを上げ、医療機材管理活動においては、セナंगा総合病院では最終的に 44 点（50 点満点）を記録した。医療機材担当者の実施する予防的維持管理活動は活発であり、スコアにおいても 3 施設とも 35 点を上回った。パイロット 3 州の巡回指導には州保健局より医療機材担当者が同行し、各施設における医療機材管理の状況把握と、施設や担当者に合わせた助言を行った。またプロジェクトが終了しても州内でモニタリングが行えるよう、医療機材担当者とスコアリング作業を分担して行った。今後、自発的かつ継続的なモニタリングが期待される。

2.4.4. 医療機材管理に関する技術研修を実施する。

2015 年 7 月～8 月にかけて、ルサカ州、西部州、東部州の 3 箇所で医療機材管理の技術研修を開催した（各 4 日間）。（詳細は添付資料（5）8）参照）

前保健省政策計画局長より、プロジェクトの成果を早期に普及したいとの依頼を受け、ルサカ州の研修には、パイロットサイト以外の州（コッパーベルト州、ルアプラ州、北部州、ムチンガ州、南部州、北西州）からも参加者を招聘した。

まず、医療機材管理ガイドラインの認識を高めるため、研修の導入の部分で同ガイドラインを説明し、その後、機材毎の構造、日常点検・定期点検の仕方、また使用方法などを講義した。また講義後に会場内の医療施設もしくは近隣の医療施設にて実物の医療機材を用いて、機材の点検の仕方、維持管理の方法を確認した。個々の技術者が対応できる機材の範囲を広げることが研修の目的であり、重要な機材毎に日常点検や定期点検の仕方を指導し、出来る範囲内での対応を心がけるよう説明した。

研修前後にプレテストとポストテストを実施し、計 49 名（うちパイロット州からは、30 名）の参加者のうち、42 名はポストテストの点数が平均点において 9.2 ポイント上昇した。州別の集計結果では、前後値を対応のある t 検定により検証した結果、ルサカ州および西部州にて有意差が認められた（それぞれ $p < 0.01$, $p < 0.05$ ）。

また参加者と保健省医療機材担当者と間で、医療機材技術者の待遇、医療機材管理予算、教育の機会の課題などが議論され、医療機材台帳を管理し、根拠に基づく予算策定の重要性を共有した。

2.4.5. 郡コミュニティ保健局等に対して年度予算計画の策定支援を行う。

保健省政策計画局ならびにパイロット州保健局と協議し、予算策定支援をするパイロット郡を以下のように選定し、2015 年 5 月に各施設を訪問し、現状を確認した。

ルサカ州：チョンゲ郡、ルサカ郡、カフエ郡

東部州：チパタ郡、ルンダジ郡、ペタウケ郡

西部州：モンゴ郡、セナंगा郡、カオマ郡

2.1. で述べたとおり、アンケート調査ならびに現地踏査の結果、各州および郡保健局、医療施設とも、医療機材管理台帳は、医療機材の数量や状態を把握するとい

う側面では活用されているものの、保健投資計画ガイドラインや施設データベースなどを活用して保健投資計画を策定している施設は少なかった。また、施設管理委員会は、すべての施設で設置されていなかった。

医療機材と比較して、施設管理ならびに施設関連のデータベースの入力者、投資予算の責任者が各施設にて任命されていないことが主因と考えられる。元案件では、環境衛生官（Environmental Health Officer / Technologist : EHO）を責任者としたが、責任者としての役割が徹底されていなかった模様であることから、保健省と協議し、再度、EHO に対して施設管理と予算策定を支援することとした。

維持管理活動が、その予算計画の策定に活用されていない現状に対して、定期的予防維持管理（PPM）の予算を策定するためのガイドブック（施設と医療機材の定期的予防維持管理の予算策定ガイドブック）（案）を作製した。ガイドブックは、元案件で開発された医療機材管理ガイドラインや施設データベースの作成方法等のツールを用いて、どのように定期的予防維持管理の予算を策定するかということを抽出したものであり、本延長フェーズで独自に開発したものではない。ただし、施設管理に関しては、元案件のツールでは施設管理者が運用するに当たり不明瞭な点が見受けられたことから、多少、修正を加えた。具体的には①修繕箇所の記入方法（いつ頃修理が必要か、という記述から具体的な瑕疵を記入するようにした）、②図や写真の活用（Google マップの使用方法や写真フォームの追加）、③優先順位の付け方と上位組織への要請方法（フォームの追加）、である。

2016年2月にパイロット州の全郡を対象としたワークショップでその使用方法を共有する予定であったが、保健省側がコストシェアに必要な予算をワークショップの招待状発出までに確保できず、急遽、プロジェクト側予算のみで実施するデザインに変更した。成果1のワークショップ同様、JICA ザンビア事務所の「国内出張に伴う日当、宿泊費規定（2015年7月1日改訂）」では、保健省の設定した日当、宿泊費の全額を賄うことができないことから、宿泊費を伴う参加者の招聘を断念し、各パイロット州の州都に日帰りで参加可能な郡保健局のプランナー、医療機器担当官、EHO、郡病院の事務長、医療機材担当官、EHO を招聘した。各ワークショップの参加人数は以下の通りであった。

2016年2月19日：東部州：38名

2016年2月22日：西部州：51名

2016年2月24日：ルサカ州：40名

招聘できなかった郡保健局は東部州（9郡中：ニンバ郡）西部州（16郡中：ルクル郡、モルベジ郡、セシェケ郡、シャンゴンボ郡、ムワンディ郡、ミテテ郡）ルサカ州（8郡中：ルアングア郡）である。

ワークショップでは、「施設と医療機材の定期的予防維持管理（PPM）の予算策定ガイドブック」の説明とともに、演習を実施し、医療機材管理者ならびに医療施設管理者が PPM を予算策定に結び付けられるよう指導した。

3. プロジェクト実施運営上の課題・工夫・教訓

3.1. 元案件終了から延長フェーズ開始までの期間

元案件終了から延長フェーズの開始までに2年間が経ち、その間に、施設データベースの研修を受けたスタッフの多くが異動していたことに加え、データベースを収納した情報端末の多くが故障などにより使用できない状況となっていた。従って、データベースの継続的な活用は、現状の組織、管理体制、人員では難しいと判断し、データベースを活用する代わりにデータベースのフォームをマイクロソフト・エクセルのスプレッドシートにて作成し、維持管理活動を支援することとした。それにより、新たな投入をすることなく維持管理活動の記録を積み上げることが可能となった。

3.2. ザンビア政府の予算スケジュール

ザンビア政府の会計年度は1月~12月であり、郡レベルの予算は、毎年、5月第2週から策定作業が開始され、8月第1週に州に提出し、州が承認する。プロジェクトは、予算策定の現状をまず把握し、それから予算策定支援の方法を検討したことから、医療機材と施設の維持管理にかかる予算策定を直接的に支援することは、時期的にできなかった。そのため、2016年2月に維持管理にかかる予算策定のためのワークショップを開催し、プロジェクトが策定したガイドブックの周知を図るとともに、演習を通じて活用するためのスキル向上を図った。

3.3. 他州への普及支援

機材管理研修は、前政策計画局長の依頼により全州から参加者を受け入れたことで、パイロット州以外でも本プロジェクトの機材維持管理手法を普及することが可能となった。またコッパーベルト州にある NORTEC の講師に本プロジェクトで作成した医療機材管理ガイドラインと研修テキストを提供した。同専門学校の授業に活用してもらうことにより、医療機材管理技術の普及に貢献すると期待される。

3.4. 保健省のオーナーシップとプロジェクト実施体制

技術協力プロジェクトは本来、先方政府の主管部署が積極的にかかわり、プロジェクトを実施、遂行することが求められる。しかし、本プロジェクトでは、保健省側プロジェクトマネージャーの交代により、主管部署である政策計画局のプロジェクト活動に対するコミットメントが低下した。施設・設備整備ガイドラインの作成に関しては、現場踏査への政策計画局の主任計画官（インフラ担当）が同行するなど、ある程度のコミットメントは見られたが、特にパイロット地域における活動（維持管理や予算策定支援）の多くは、保健省治療ケア・診断サービス局の医療機材担当官と、州保健局、郡保健局の担当者と共に実施されており、施設管理に関する保健省側のコミットメントは極めて低かった。プロジェクトとしては、活動報告書の送付や説明の機会

を設けて、情報共有を図ったが、プロジェクトマネージャーの交代後はその機会を得ることも難しくなった。今後、施設と医療機材の維持管理体制の全国への普及は政策計画局の責任により実施されることとなるが、このオーナーシップの低さによる全国普及への影響が懸念される。プロジェクトとしては、首席計画官（インフラ担当）に対して、MTEF ナショナル・バジェット・プランニング・ラウンチ等を通じて周知するとともに、施設・設備整備ガイドライン、定期的予防維持管理の予算策定ガイドブックの配布などを依頼した。

一方、対象病院においては、維持管理のオーナーシップを高めるため、医療機材管理委員会の設立と活動の活性化に力を入れた。医療機材管理担当者は、大工や配管工が臨時で担当している病院があるが、その場合、低職位であることから、医療機材管理に関する意思決定に関与することは難しかった。プロジェクトが医療機材管理委員会の設立を促進し、そのメンバーとして医療機材管理担当者が参加することで、医療機材管理の一体性（予算、補修部品の調達や管理、維持管理活動）を確保することができた。

3.5. ザンビア国の医療施設基準の課題と展開

第2章にて記述した通り、ザンビアの医療施設は、標準図面を作成し同じデザインで建設していくことで全国への普及を図ってきた。保健ポストなどに始まり、現在は1次病院までの基準が存在すると保健省の関係者は公言している。

標準図面は存在するが、基準となる条件を公証性のある記述として確認することはできなかった。口頭でいくつかの条件を提示することはあったが、医療施設の実態から、その条件が確認されない状況である。

基準となる条件の記述の重要性は、それが根拠としている医療サービスを明解に示し、その医療行為の進歩に従って変化させることができることにある。

標準図面によってボトムアップを図ってきたザンビア国の医療施設であるが、1次病院レベルになると、標準図面の持つ基準としての意味に限界が来ており、その結果、空間機能を説明することなく、各部屋の最低サイズをリストアップしたものが施設基準ではないかと考えられていた一面が保健省にはあった。それは、保健省の施設関連の部署が施設専門の担当者のみで病院建設の計画方法を考えようとする姿勢から脱却できず、問題解決が見出せなかったためと考えられる。そのため、プロジェクト中は、保健省の施設担当職員と共に医療施設・関係者を訪問して意見交換する機会を作るよう工夫した。

3.6. 設備整備基準策定過程で抽出された課題

これまで保健省が進めてきた保健医療施設整備におけるユーティリティーの整備状況を鑑みると、都市部で導入したユーティリティーの設計内容を農村部の医療施設に導入した結果、過大なキャパシティのユーティリティーが導入されており、非効率な運用が見られた。一方、施設規模や診療サービス、医療機器の整備状況からユーテ

ィリティーの仕様選択や規模の設計を試みても、ベースとなる都市インフラの整備状況に地域差があることから、適切な設備の導入が可能とは言い難い。例えば、郡病院レベルでも、給水が水道公社によって行われている施設もあれば、敷地内の井戸から供給している施設もある。同様に排水システムも地域の貯水池に排水できる施設がある一方、貯水池を整備する必要がある施設も存在する。施設・整備ガイドラインでは上記を考慮し、規模別（単位あたり）の標準設定を示すことで、より効率的な設備の導入方法を示した。

4. PDM に基づいた目標・成果の達成状況

4.1. プロジェクト目標の達成見込み

【指標】 医療機材委員会、医療施設委員会の技術スコアが上昇する。

延長期間中においてパイロット施設における医療機材委員会の技術スコアを3回確認した。その結果、パイロット病院平均で 2015 年 6 月の 14.80 点、10 月では 24.02 点、2016 年 1 月では 32.40 点と顕著に上昇した。

指標	2016 年 1 月	2012 年 10 月 (第 1 回終了時評価時)
医療機材委員会、医療施設委員会の技術スコア(50 点満点)が上昇する。	対象施設の 33.3%の医療機材委員会が 35 点以上を獲得した。 対象施設における平均スコア 第 1 回(6 月)14.8 点 第 2 回(10 月)24.02 点 第 3 回(1 月)32.40 点	対象施設の 13.3%の医療機材委員会が 35 点以上を獲得した。 延長フェーズのパイロット施設の平均スコアは 16.3 点

質問票調査ならびに、現地調査の結果、医療施設委員会は、ほとんどの病院で設置されていないことが判明した。また、郡病院にはインフラ担当官が存在しないことから、医療機材のように委員会を設置することを止め、まずは 2015 年 10 月より、郡病院の EHO に対して、施設の維持管理チェックシートの使用方法を指導した。また、施設の新築や大規模修繕、高額な医療機材の購入を除き、医療資機材整備（修繕等）業務は国から州に移管されており、医療資機材の維持管理予算もその多くは州保健局が申請することとなっている。そのため郡病院で管理可能な維持管理予算はそれほど多くなく、医療器具の購入やペンキなどの補修材の購入などが可能な程度である。プロジェクトでは病院の担当者に対し、写真を撮るなどしてチェックシートに問題点を記載し、優先順位を付け必要な費用を見積もるとともに、郡病院の予算では支出できない修繕活動のリストを上位機関へ提出し、最終的には修繕の規模や予算、実施決定などは上位機関で判断してもらうことにした。したがって、技術スコアの開発ならびに確認は実施していない。

2016 年 2 月にパイロット 3 州において「施設と医療機材の定期的予防維持管理 (PPM) の予算策定ガイドブック」のディセミネーションワークショップを開催し、そのアンケート結果から、施設管理者の維持管理チェックシートの評価と活動への意欲を確認し、代替指標とした。

アンケート結果より、90%以上の参加者が、施設の活動計画策定方法を理解し、80%以上が実施したいと考えているという結果を得た。また、90%以上の参加者が、維持管理予算の優先順位付の方法を理解し、実践できると回答している。以上のことから、施設管理においても維持管理能力が向上したと考えられた。

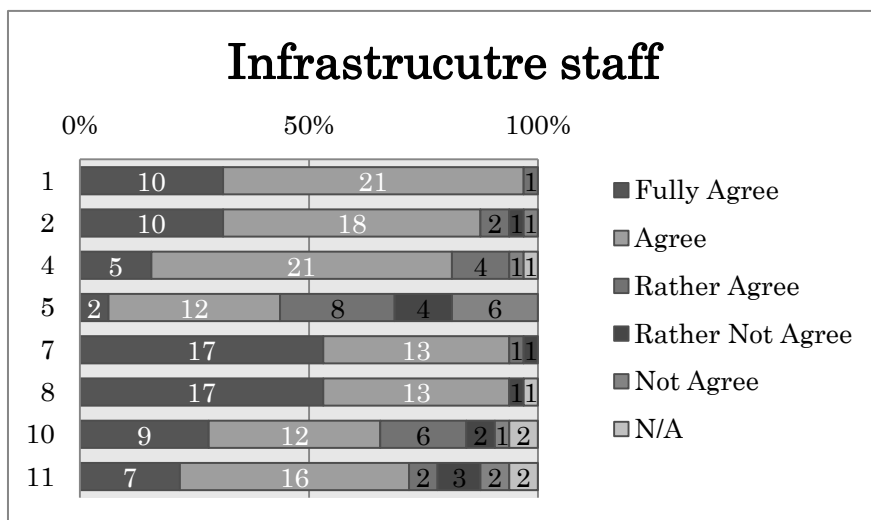


図 4-1 施設管理者のアンケート結果 (n=32)

No.	アンケートの質問事項
1	I understand how to develop action plan for infrastructure.
2	I develop action plan for infrastructure in our organization.
4	I understand how to develop action plan for medical equipment.
5	I develop action plan for medical equipment in our organization.
7	I understand how to prioritize maintenance budget.
8	I can prioritize maintenance budget in our organization.
10	I understand how to request maintenance to PHO.
11	I request maintenance to PHO utilizing the forms learned in the workshop.

また、アンケートでは、郡レベルから州保健局に対するメンテナンスの要請方法とその実施に関しても回答を依頼したが、肯定的な回答は 60~70%程度の参加者のみからしか得られなかった。現行では、維持管理予算の多くが、州保健局に付与されていることから、郡と州の連携を高める必要があることが伺える。

4.2. 成果の達成状況

4.2.1. 成果1 「医療資機材の管理のための仕組みが整備される」

【指標】医療資機材の管理モデルを全国の関係者が共有する（セミナー参加者の半数以上がモデルに対して肯定的意見）

プロジェクトでは、医療資機材の管理モデルを「定期的予防維持管理（PPM）」および「PPM を活用した維持管理予算の策定」とし、「定期的予防維持管理の予算策定ガイドブック」を策定し、パイロット郡での普及を図った。また、「施設・設備整備ガイドライン」を策定した。ディセミネーションワークショップ（2016年2月開

催) は、上記、ガイドブックのパイロット郡以外への普及ならびにガイドラインの州保健局や2次レベル、3次レベル病院への周知を目的に実施され、その際にアンケートを実施した。

アンケート結果より、90%以上の参加者がインフラ投資におけるマスタープラン作成の有用性を理解し、作成したいと回答した。同様に、医療機材ガイドラインや施設ガイドラインの有用性についても理解し、活用したいと回答した。

予算策定ガイドブックならびにそのフォームに関しても、90%以上が理解し、活用したいと回答しており、多くの参加者から肯定的な意見が得られた。

しかし、参加者が、パイロット州のみと限定的であったことから、全国の関係者への共有を図ることはできなかった。今後、保健省がパイロット州以外への共有を図るべくガイドブックならびにガイドラインの配布を実施する予定である。

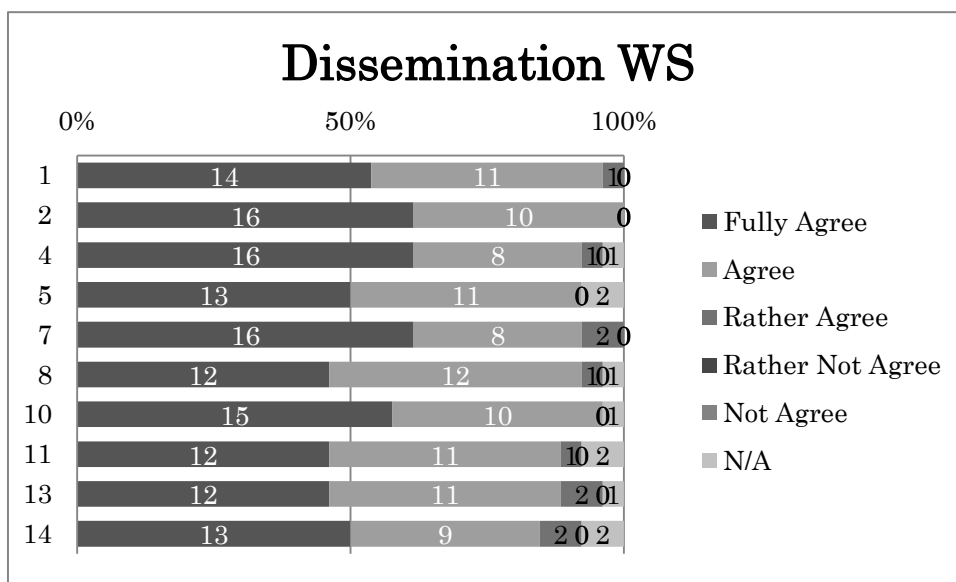


図 4-2 ディセミネーションワークショップのアンケート結果 (n=26)

No.	アンケートの質問事項
1	Master plan is effective for Infrastructure Investment.
2	We hope to develop Master plan in our organization.
4	ME management guideline is effective for proper ME management.
5	We hope to install ME management forms in our organization.
7	Facility management checklist is effective for proper facility management.
8	We hope to install facility management forms in our organization.
10	Budget allocation guidebook is effective for proper budget allocation for maintenance.
11	We hope to install budget allocation forms in our organization.
13	Road map is effective for proper dissemination of ME and infrastructure management.
14	We hope to conduct training for ME and infrastructure management.

また、アンケートでは、この医療機材と施設の維持管理システムの展開計画の有効性を確認したところ、80%以上の参加者から肯定的な回答を得られた。

4.2.2. 成果2「第2次および第3次病院における医療資機材基準が整備される」

【指標】インフラ基準が包含された医療施設ガイドラインが保健省にて承認される。

タイトル：「Upgrading Guideline / Information of Health Facilities and Utilities（日本語名：施設・設備整備ガイドライン）」が策定され、2016年2月開催のワークショップにおける意見聴取を反映させ、2016年3月に承認された。

4.2.3. 成果3「医療資機材における予防的管理のための計画が対象地域にて運用される」

【指標】少なくとも70%の郡保健局が、医療資機材のデータに基づいて年間予算計画を作成する。

予算策定スケジュールは、例年5月から開始されており、本プロジェクト期間中に年間計画策定を確認することが難しい。そのため、代わりに「施設と医療機材の定期的予防維持管理（PPM）の予算策定ガイドブック」の理解と活用の可能性を代替指標とし、各パイロット州にて、「施設と医療機材の定期的予防維持管理（PPM）の予算策定ガイドブック」を周知させるためのワークショップを開催した。

アンケート結果から、80%以上の参加者が施設と医療機材の活動計画（年間予算計画）の作成方法を理解したものの、作成を検討している割合は80%未満であった。しかし、参加者のうち、医療機材管理者と施設管理者に絞ると、医療機材管理者は80%以上が医療機材の活動計画を作成すると回答し、施設管理者も80%以上が施設の活動計画を作成すると回答している。また、維持管理予算の優先順位付けに関しても、理解の割合と活用する割合は90%程度あり、2017年度の予算策定においてプロジェクトが示したガイドブックを活用することが期待できる。一方、州保健局への要請方法に関しては70%前後と低く、課題が残る結果となった。

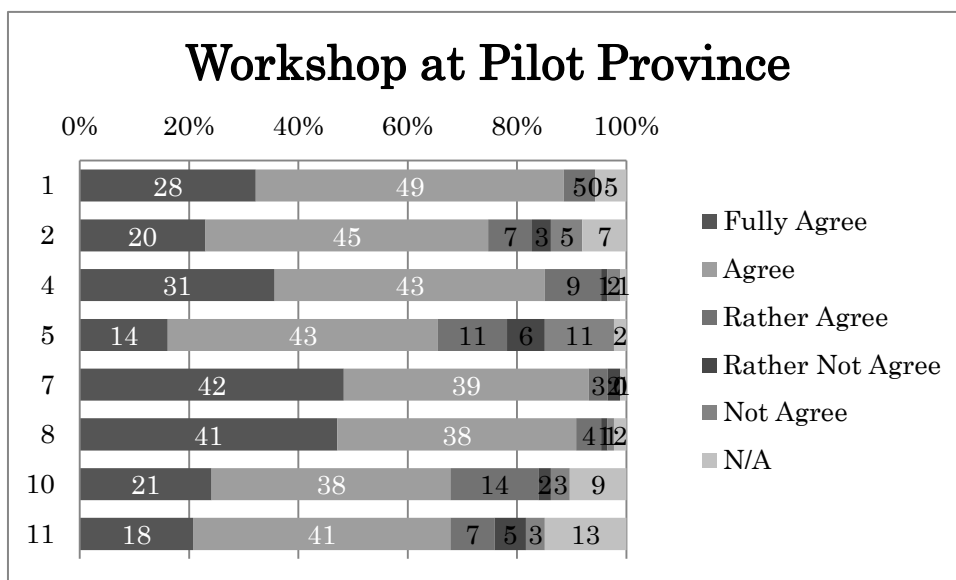


図 4-3 パイロット州ワークショップのアンケート結果 (n=87)

No.	アンケートの質問事項
1	I understand how to develop action plan for infrastructure.
2	I develop action plan for infrastructure in our organization.
4	I understand how to develop action plan for medical equipment.
5	I develop action plan for medical equipment in our organization.
7	I understand how to prioritize maintenance budget.
8	I can prioritize maintenance budget in our organization.
10	I understand how to request maintenance to PHO.
11	I request maintenance to PHO utilizing the forms learned in the workshop.

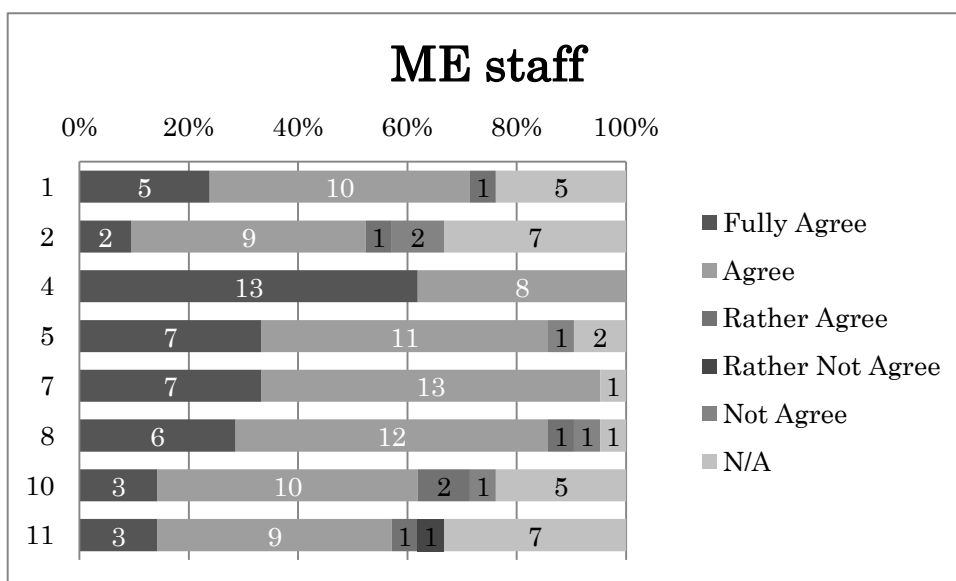


図 4-4 パイロット州ワークショップのアンケート結果 (医療機器担当) (n=21)

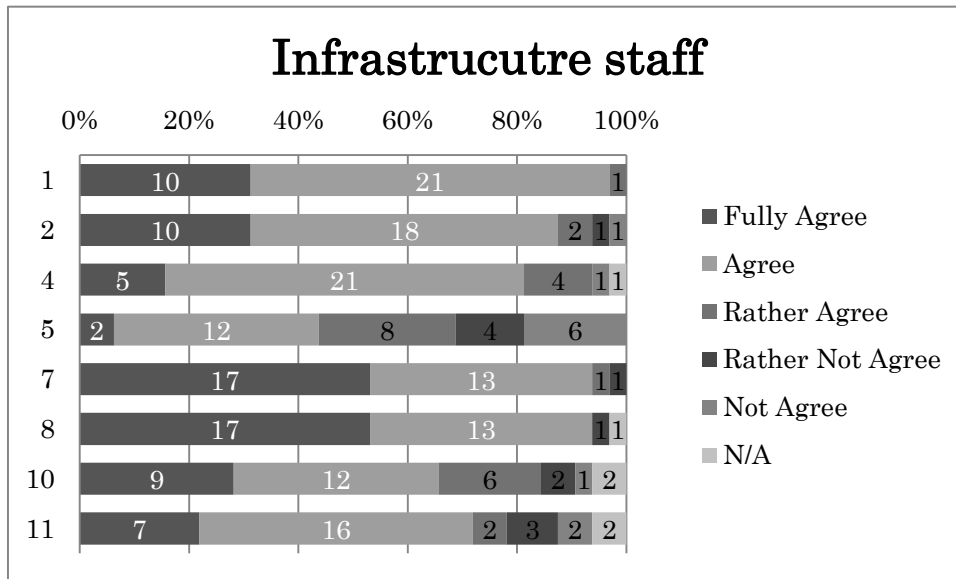


図 4-5 パイロット州ワークショップのアンケート結果（インフラ担当）（n=32）
（図 4-1 と同じ）

また、パイロット州（3 州）の州保健局長、医療機材担当官、インフラ担当官、パイロット郡（9 郡）の郡保健局長、医療機材担当官、EHO、パイロット病院の事務長、医療機材担当官、EHO に対して、医療機材および施設の維持管理予算策定のためのガイドブックを説明した。その結果、口頭ではあるが、全関係者がその有用性を認め、2017 年度の予算策定時に活用を検討すると回答した。

保健省政策計画局は、バジェット・プランニング・ラウンチにて、ガイドブックを活用した予算策定の指導を実施する予定である。また、実際にガイドブックが活用され、医療機材と施設の PPM の予算が反映されたか、政策計画局に確認するように依頼した。

5. プロジェクト終了後に向けての提言

5.1. 医療機材管理の継続性

延長フェーズの医療機材管理モニタリングより、病院内の医療機材ユーザーに対する研修の必要性が指摘された。医療機材管理ガイドラインに基づきユーザーに対して医療技術者による継続的な指導を行うことで、医療機材の故障やトラブルシューティングを減少させ、機材管理にかかる費用の削減だけでなく、人員不足である医療技術者の有効活用に貢献することが期待される。プロジェクトで開発した医療機材ガイドラインには、ユーザー研修に活用できるツールも含まれていることから、有効活用が期待できる。

また、病院で働く医療機材技術者は適切な職位に就けておらず十分な報酬を受けていないことから、技術者研修を通じて、保健省医療機材担当官への課題の周知を図るとともに、適切な職位が与えられるよう依頼した。医療技術者の定着のためにも適切な職位に就ける配慮が必要である。

2012年から州保健局の予算に維持管理費用の項目が追加されたことにより、計画に対して支出される維持管理費用が確保された。州保健局に対する聞き取りにより、この措置により維持管理活動が活性化したという発言があったが、故障に対する緊急対応および修理対応の統計的なデータがなかったため、数値的に効果が発現したというエビデンスを得ることはできなかった。しかしながら州レベルだけでなく、郡レベルにおいてもこの予算の恩恵を受けたという維持管理費用の有効性を訴える技術者は多かった。郡保健局レベルにおいても同様に維持管理費用の確保が行われることにより、計画に対してより適切に維持管理が行うことが可能になると容易に推察されることから、郡保健局レベルの維持管理費用の確保の有効性を保健省へ提言した。

また、医療施設における医療機材の受入・修理・点検に医療機材技術者が立会っていない場合があり、マネジメントレベルから、医療機材技術者が医療機材のマネジメント全般を手掛けるよう働きかける必要がある。プロジェクトでは、医療機材管理委員会を設置し、そこに病院のマネジメントレベルと医療機材管理者が参加することにより、医療機材管理の透明性が確保され、効果的であると考え、推進してきた。今後、保健省が、医療機材管理委員会の設置とその運営を進めることが重要である。

5.2. 施設整備ガイドラインの展開と活用

施設整備ガイドラインは、時間の制約により、総合病院の要素を全体的に記述するには至っていない。また、近代的な病院の設計は、単にガイドラインを読んだだけで出来るようになるものではない。しかし、ザンビア保健省は、外国の援助等で建設される病院の図面の検討段階では設計内容を判断するチェックリストとしては有用であり、十分に活用出来ると考えている。

設計のロジックを習得するには時間を要するが、その第一歩として、今回のガイドラインの説明部分から、設計者が医療従事者や関連する他の専門分野の人との意見交換をふんだんに行うことの大切さやそのための情報が伝われば、ザンビア国における

近代医療施設設計・建設の手法改善に繋がると考えている。このような観点から、必ずしも今後すぐにザンビア国で取り組める施設レベルの留意点のみならず、先進国の最先端の発想を認識できるような記述も、有効と思われる章に含めた。新施設の建設や建替えの検討用に活用してもらえればと考えている。

また、電気設備をはじめ、給水設備、廃棄物処理の仕様を決定する際に大きな要因となる周辺インフラの整備状況は、都市部と農村部で相違が見られる。そこで、適切なユーティリティーの設計を成し得るには、多くのオプションが備わった技術情報を備えることが望ましいという考えを基に、カウンターパートと共に本ガイドラインの作成に務めた。ユーティリティーの仕様をはじめ、規模の設計を担当する技術者は、オプションの組み合わせと設計を適切に行えるよう技能向上に努めることが望まれる。

5.3. 管理ガイドラインの活用

本プロジェクトの成果のうち、医療機材の管理ガイドライン、施設のモニタリングチェックシート、維持管理予算策定のためのガイドブックは、主に郡病院で活用することを目的に策定されている。また、州保健局には維持管理予算の多くが割り当てられていることから、本プロジェクトは、各種フォームやチェックシートは、郡病院や郡保健局が州保健局に対して、補修や修繕を要請する目的で使用することを支援してきた。これらのツールの有効性は、パイロット施設での活動を通じて確認され、保健省もガイドライン等を承認している。今後、他郡、他州への普及は、保健省の手に委ねられているが、普及に当たり、これらのフォームを作成する郡病院のみならず、郡病院の指導的立場である郡保健局や州保健局もその活用方法を理解する必要がある。従って、「定期的予防維持管理の予算策定ガイドブック」は、郡病院のみならず州保健局、郡保健局の施設担当官、医療機材担当官、計画担当官等に周知される必要がある。プロジェクトでは、UTHの技術者や州保健局、郡保健局の担当官が巡回指導に同行し、研修講師として活用することにより、上位監督機関の能力向上を図ってきたが、プロジェクト終了後は、同様の活動を保健省に担っていただく必要がある。

これらの活動は、保健省政策計画局が、バジェット・プランニング・ラウンチにて、ガイドブックを活用した予算策定の指導を実施する予定である。

5.4. ロードマップの策定と運用

2016年2月のディセミネーションワークショップにて、本プロジェクトの成果を普及するためのロードマップ（展開計画）を発表した。プロジェクトの経験から、州レベルで、医療機材の維持管理研修と、施設のモニタリング研修を実施するとともに、州保健局、郡保健局、郡病院に対して、医療機材管理ガイドラインと維持管理予算策定のためのガイドブックを配布し、その使用方法に関するワークショップを開催することが必要である旨を説明した。そのためには、各州の代表者に対して指導者研修を実施するとともに、その後、各州保健局が郡保健局ならびに病院を対象としたワークショップを実施する必要がある。

普及に関しては、保健省政策計画局が責任を持って実行する必要があるが、ディセミネーションワークショップにて、保健省政策計画局からガイドライン、ガイドブックを活用していく旨の言及を得た。

また、将来的には、毎年実施される技術アセスメントの調査項目として、ガイドラインの活用、維持管理の状況などを追加するとともに、保健マネジメント情報システムに、維持管理の情報が統合されることが望ましいと、ワークショップにて提言したところ、参加者から、統合することが必要との意見があるとともに、各州の研修においても、情報担当官を参加させるべきとの意見があった。

Time Table of Dissemination

Activities	Responsible	2016				2017			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
1. Approve tools	DPP	■							
2. Adapt into current works	TWG(MOH), PHO, DHO		■	■	■	■	■	■	■
3. Training budget	Responsible Unit, PHO		■						
4. Maintenance Budget	Responsible Unit, PHO, DHO		■						
5. TOT	Responsible Unit, PHO					■			
6. Training at Province level	PHO, DHO						■	■	■
7. Information management	All		■	■	■	■	■	■	■

図 5-1 展開計画の時間軸

5.5. 日当の発生を伴わないワークショップの開催

維持管理予算策定支援ガイドブックのワークショップは、予算上の観点から宿泊を伴わない施設からの参加者に限定した開催となった。日当宿泊費の支払われない限られた状況であったものの、招聘者の7~8割の出席があり、ワークショップ参加に対する医療従事者、州・郡の医療行政官の意識の高さが伺えた。州保健局長からの挨拶の中で、「このような限られた予算設定の中でのワークショップの開催は初めてであったが、高出席率であったことは特筆すべきことであり、今後同様な条件下における開催も検討されるべきである」との提言があった。

5.6. プロジェクト実施体制

既に、3.4.にて、主管部署である政策計画局のプロジェクトに対するコミットメントの低下を述べたが、これは、政策計画局の業務に施設や機材の管理 (Management)

が含まれていないにもかかわらず、プロジェクトコンポーネントに施設管理と医療機材管理が含まれていたことにより、プロジェクトの主管部署とプロジェクトの実施内容の齟齬の結果と考えられる。保健投資にかかる JICA のザンビア保健省への協力は、元来、施設センサスの実施と、保健投資計画の策定から開始されており、この段階では、政策計画局は、適切な主管部署であった。しかし、本延長フェーズの元案件である「保健投資支援プロジェクト」は、施設と医療機材の維持管理の向上に主眼を置いたプロジェクトであり、政策計画局には、本来業務である計画策定と異なる管理業務の実施が難しい側面が見られた。

元案件では、保健投資技術作業部会を通じて、臨床ケア・診断サービス局やテクニカル・サポート局などの関係者の巻き込みを図ることを予定したが、同作業部会は、2011年7月以降開催されていない。作業部会は、情報共有の場としては意味があると考えられるが、プロジェクトの意思決定の場としては、関係者が多すぎる分、機能しなかったと考えられる。従って、プロジェクトの主管部署はプロジェクト活動を主に実施する部署を選定することが重要であり、プロジェクト活動の成果を活用する部署は、プロジェクトに対するコミットメントがそれほど高くないことを留意する必要がある。今後、プロジェクトの詳細策定段階で、プロジェクトの要請部署（もしくは主管部署）とプロジェクトコンポーネントの整合性を確認し、求められるプロジェクト実施体制と先方主管部署の業務内容とのギャップをどのように解消するのか、慎重に検討する必要があると考えられる。

5.7. 予算に対する資金供給の向上

プロジェクトにて支援した根拠に基づく維持管理予算策定を実行するためには、実際に、各施設に対して予算で計上された資金が供給される必要がある。巡回指導ならびに、ワークショップのアンケートにおいて、医療機材や施設の維持管理が滞る要因として、資金が供給されていないことが多く挙げられている。プロジェクトでは、施設と医療機材の定期的予防維持管理（PPM）の予算策定ガイドブック内で、必要な維持管理活動に優先順位を付けることと、どの組織が実施するかを明示するフォームを活用しており、予算が少ない中でも、優先的に予算を付けるべき活動を明記できるようにした。しかし、郡病院は、予算が予定通りに供給されない場合は、医療サービスの維持に資金を回すため、維持管理の予算はますます削減される傾向にある。従って、保健省は、各医療施設、各保健局に計画された予算に合わせて資金が供給されるよう、支援する必要がある。一方、元案件の成果として、州保健局の予算内に維持管理予算がイヤーマーク⁹されたことがある。郡レベルでも維持管理予算が確保できるようイヤーマークされるべきと考える。

⁹ 資金を特定の用途に指定すること

添付資料

添付資料 1

PDM

Annex 1: Project Design Matrix for Extension Period (April 2015)

Narrative Summary	Verifiable Indicators	Means of Verification	Status of November 2015	status of October 2012
Overall Goal				
Conditions of the health physical asset (i.e., medical equipment, infrastructure and utilities) in health systems in Zambia are improved to support delivery of quality health services at all levels, within the framework of the National Health Strategic Plan.	1. Proportion of Non-Functioning medical equipment is reduced by 20%	1. Medical equipment inventory	17.85% (Pilot Facilities)	33.30%
	2. Proportion of health facilities needed for major repair is reduced by 20%	2. Health facility Monitoring records		21.70%
Project Purpose				
Capacity of public physical health asset management is improved in the pilot areas to plan and cost effectively manage capital investment to facilitate delivery of quality health services at all levels of service delivery	Increase technical score of Medical Equipment Management Committee, Healthcare Facility Committee	Technical score check on the on-site instruction	Average of Pilot hospital / District (ME) 2012: 16.30 2015 1st; 20.58 2015 2nd 24.33 2016 3rd [Alternative indicator of technical score of Infrastructure] As the results of the questionnaire, more than 90% of respondents understood how to develop the action plan for infrastructure and also 80% of them think to develop. 90% of the respondents also understood how to prioritize maintenance budget and to do	13.3% of MEC scored at least 35 points
Outputs				
1) Management mechanisms for medical equipment, infrastructure and utilities are developed	Nationwide stakeholders share medical equipment management model (more than half of the attendees of workshop have positive opinions on the model)	Questionnaire for attendees in Dissemination	As the results of the questionnaire, more than 90% of respondents understood that Master plan is effective for Infrastructure Investment and hoped to develop it. 90% of the respondents also understood effectiveness of guidelines of ME and infrastructure and hoped to use the guidelines. Regarding the guidebook, 90% of respondents understood and hoped to use.	
2) Standards of medical equipment and infrastructure for the Second and Third Level Hospitals are developed	Healthcare facility guideline including infrastructure guideline is approved by MOH	Issues of Approved Guideline	The draft was finalized after the consultation workshop February 2016, and it was printed out after approval by MoH in March 2016.	The standard lists for second and third level hospitals were finalized and printed in Sep 2012.
3) Health physical asset management mechanisms, with the emphasis on planned preventive maintenance, are operationalized in the project sites	At least 70% of DMOs design their annual budget plan based on the medical equipment database	Budget Plan	Since budget schedule will start from May, it is difficult to confirm [Alternative indicator of budget plan] In terms of the answer of ME staff (including ME officers, electricians and cold chain officers) and Infrastructure staff (including EHO and EHT), more than 80% of the respondents hope to develop the action plan. It is confident that the guidebook will be utilized for developing next annual budget plan.	

添付資料 2
活動計画 (PO) 及び実績

添付資料 3
専門家派遣実績
投入実績

業務従事者の従事計画/実績表

契約件名：ザンビア国・保健投資支援プロジェクト（2015年-2016年）

1. 現地業務

担当業務	格付		渡航回数	2015年												2016年			累計	
				3	4	5	6	7	8	9	10	11	12	1	2	3	日数	人月		
鈴木 修一 (総括/保健投資予算計画)	2	計画	3	3/21-4/19 (30日間)														120	4.00	
		実績	3	3/21-4/19 (30日間)														122	4.07	
吉野 洋 (医療機材管理)	4	計画	3				6/17-8/31 (75日間)											150	5.00	
		実績	3				5/30-8/23 (86日間)											180	6.00	
古澤 久仁子 (医療施設計画)	3	計画	3	4/11-6/24 (75日間)														180	6.00	
		実績	3	4/11-6/24 (75日間)														180	6.00	
野崎 保 (副総括/医療機材計画・医療設備計画)	3	計画	3				6/1-7/30 (60日間)											150	5.00	
		実績	3				6/3-8/2 (61日間)											156	5.20	
長澤 真衣子 (予算策定支援)	4	計画	2	4/11-5/25 (45日間)														105	3.50	
		実績	2	4/11-5/25 (45日間)														62	2.07	
館野 広大 (業務調整/医療機材管理補助)	5	計画	3	3/21-4/19 (30日間)						8/1-8/30 (30日間)								90	3.00	
		実績	3	3/21-4/19 (30日間)						7/25-8/24 (31日間)								95	3.17	
現地業務小計 (自社負担での従事者分は含まない)																	計画	795	26.50	
現地業務実績累計																	実績	795	26.50	
現地業務実績累計																		795	26.50	

2. 国内業務

担当業務	格付		2015年												2016年			累計	
			3	4	5	6	7	8	9	10	11	12	1	2	3	日数	人月		
鈴木 修一 (総括/保健投資予算計画)	2	計画	3/9-3/13 (5日間)															10	0.50
		実績	3/9-3/13 (5日間)															10	0.50
国内業務小計 (当月)																	計画	10	0.50
国内業務実績累計																	実績	10	0.50
国内業務実績累計																		10	0.50

報告書等	△ 業務計画書																	△ 簡易業務進捗報告書
																		ファイナルレポート △

凡例： : 業務従事計画 : 業務従事実績 : 自社負担

添付3 投入実績一覧

1. ワークショップ・研修

概算総支出：3,149,000円（JICA）

No.	ワークショップ ・研修	日程	期間	参加 人数	支出 (JICA)
1	医療機材研修 (ルサカ州)	2015年7月 20日～23日	4日間	46人	1,478,000円
2	医療機材研修 (西部州)	2015年7月 28日～31日	4日間	9人	538,000円
3	医療機材研修 (東部州)	2015年8月 10日～13日	4日間	10人	531,000円
4	ワークショップ (於ザンビア大学 附属教育病院)	2015年12月 11日、15日、 24日～27日	1日X5回	36人	60,000円
5	予算策定支援 ワークショップ	2016年2月 19日、22日、 24日	1日X3回	129人	494,000円
6	ディセミネーション ワークショップ	2016年2月 19日、22日、 25日	1日X3回	30人	48,000円

通貨レート：1ザンビアンクワチャ=11.6円（2015年12月時点）

2. 本邦研修：2名

No.	研修員名	職位・所属先	研修コース名	研修期間
1	KALUMBI Hillam	St. Francis Mission Hospital	医療機材維持管 理（B）	2015年4月5 日～6月15日
2	KATIBA Katiba Bosco	Lewanika General Hospital		

3. ザンビア側カウンターパート：82名

No.	氏名	職位	部門
保健省			
1	Mr. Chimfwembe Makasa	Director Policy & Planning	計画局
2	Mr. Luwabelwa Mubita	Deputy Director, Policy & Planning	計画局
3	Ms. Kakulubelwa Mulalelo	Chief Planner, Planning and Budgeting	計画局
4	Mr. Patson Sito Mwanza	Principal Planner, Infrastructure	計画局
5	Mr. Jason Wamulumu	Principal Planner, Infrastructure	計画局
6	Mr. Patrick Banda	Principal Planner, Infrastructure	計画局
7	Mr. Gilbert Musonda	Chief Medical Equipment Officer	臨床診断サービス局
3次医療施設			
8	Dr. Ben Chirwa	Managing Director	ザンビア大学附属教育病院
9	Mr. Mwale Emmanuel	Medical Equipment Technician	ザンビア大学附属教育病院
10	Mr. Musakanya Edward	Medical Equipment	ザンビア大学附属教育病院
11	Mr. Chola Geoffrey	Chief Technician, Civil Engineering	ザンビア大学附属教育病院
ルサカ州			
12	Dr. Malama Kennedy	Provincial Health Director	ルサカ州保健局

13	Mr. Phiri Sungani	Provincial Infrastructure officer	ルサカ州保健局
14	Mr. Meetwell Chelo	Chief Environmental Health Technologist	ルサカ州保健局
15	Mr. Sinkala Christopher	Chief Medical Equipment Officer	ルサカ州保健局
16	Dr. Masaninga Masumba	District Medical Officer	ルサカ郡保健局
17	Mr. Matimba Chizongo	Environmental Health Technologist (EHT)	ルサカ郡保健局
18	Mr. Zulu Amos	Medical Equipment Technician	ルサカ郡保健局
19	Mr. Kalubula Maybin	DHIO	ルサカ郡保健局
20	Ms. Mwambazi Maureen	Matron	チバタ一次病院
21	Ms. Maureen Chikwa	Nurse	チバタ一次病院
22	Ms. Faides Mambwe	EHT	チバタ一次病院
23	Ms. Jane Botha	Nurse in charge	チバタ一次病院
24	Ms. Lydia Somali	EHT	チバタ一次病院
25	Ms. Bertha Kabika	R.M	チバタ一次病院
26	Ms. Friday Matafwali	MET	チバタ一次病院
27	Ms. Kasanga Catherine	R.M in charge	マテロー一次病院
28	Ms. Tembo Lindiwe	EHT	マテロー一次病院
29	Ms. Nkuri Christabel	EHT	マテロー一次病院
30	Dr. Dorothy Marumahoko	District Medical Officer	カフエ郡保健局
31	Mr. Teddy Mofya	District Environmental Health Officer	カフエ郡保健局
32	Dr. Makukula Abby	Medical Superintendent	カフエ郡保健局
33	Ms. Sunkutu Gladys	Acting Hospital Administrator	カフエ郡保健局
34	Ms. Muma Maureen	EHT	カフエ郡保健局
35	Ms. Mwela Mirriam	Electrical Technician	カフエ郡保健局
36	Dr. Msiska Charles	District Medical Officer	チョングエ郡保健局
37	Mr. Alex Chilabi	EHT	チョングエ郡保健局
38	Mr. Mwanyasi Francis	EPI Technologist/Medical Equipment Technologist	チョングエ郡保健局
39	Dr. Eularia Chililala	Ag Medical Officer In-Charge	チョングエ郡病院
40	Mr. Humphrey Lubumbe	Refrigeration Technician	チョングエ郡病院
東部州			
41	Dr. Abel Kabalo	Provincial Health Director	東部州保健局
42	Mr. Gift Lupenga	Principle, Medical Equipment Officer	東部州保健局
43	Mr. Hillam Kalumbi	Bio-Medical Engineer, PHO	東部州保健局
44	Mr. Sekutenyana Michael	Infrastructure Officer	東部州保健局
45	Mr. Banda G Kachikoti	Environmental Health Officer	東部州保健局
46	Dr. Dany W. Zulu	DMO	ルンダジ郡保健局
47	Mr. Chinsoto Pendavis	Environmental Health Officer	ルンダジ郡保健局
48	Mr. Zimba Henry	Coldchain Technician	ルンダジ郡保健局
49	Mr. Kalimukwa Richard	Hospital Administrator	ルンダジ郡病院
50	Dr. Lingenda Godfrey	Medical Officer	ルンダジ郡病院
51	Mr. Mayovu Kennedy	Electrician	ルンダジ郡病院
52	Ms. Banda Luwiza	Infrastructure	ルンダジ郡病院
53	Dr. Chisenga Allan	DMO	ペタウケ郡保健局
54	Mr. Bwalya Oscar	Coldchain Technician	ペタウケ郡保健局
55	Mr. Nkhata Alfred	Administration Manager	ペタウケ郡保健局
56	Mr. Sakala Elman	Ag / DHIO	ペタウケ郡保健局
57	Mr. Muukombwe Lwendo	Hospital Administrator	ペタウケ郡病院
58	Mr. Phiri Alick	Electrical Technician	ペタウケ郡病院
59	Ms. Moff Chanda	Environmental Health Officer	ペタウケ郡病院
60	Dr. Mbunguchama Jonaghan	DMO	チャディザ郡保健局
61	Mr. Nundwe Lackwell	UCI (Coldchain) Technician	チャディザ郡保健局
62	Mr. Kenneth Daka	EHT/ Infrastructure Coordinator	チャディザ郡保健局

63	Mr. Simatanga Humphrey	Hospital Administrator	チャディザ郡病院
64	Mr. Sibbilishokwe Nchimunya	EHT	チャディザ郡病院
65	Mr. Phiri Henry	Electrical Technician	チャディザ郡病院
西部州			
66	Dr. Silumesii Andrew	Provincial Health Director	西部州保健局
67	Mr. Luhana Elias	Principle Medical Equipment Officer	西部州保健局
68	Dr. Mapani Munfanga	Medical superintendent	レワニカ総合病院
69	Mr. Hibajene Leo	Hospital Administrator	レワニカ総合病院
70	Mr. Katiba Bosco	Medical Equipment Technician	レワニカ総合病院
71	Mr. Mikololo Mubita	Information Officer (Ag Planner)	モンゴ郡保健局
72	Dr. Mbozi Kenneth	DMO	セナンガ郡保健局
73	Mr. Mutukwa John	Health Information Officer / Planner	セナンガ郡保健局
74	Mr. Wamunyima Mubu	Medical Equipment Technician	セナンガ郡保健局
75	Mr. Silukolwe David	EHT (Ag Hospital Administrator)	セナンガ郡保健局
76	Dr. Sakala Jacob	DMO	カオマ郡保健局
77	Mr. Chongo Misapa	Planner	カオマ郡保健局
78	Mr. Lawrence Chabalala	Medical Equipment Officer	カオマ郡保健局
79	Dr. Mukangala Banza	Medical Officer in-charge	カオマ郡病院
80	Ms. Chileshe Margaret	Hospital Administrator	カオマ郡病院
81	Mr. Siwewe Castro	Electrician	カオマ郡病院

添付資料 4
供与機材・携行機材実績
(引き渡しリスト含む)

プロジェクト名 Counterpart Organization Cooperation Period												
Health Capital Investment Support Project (Year 1 to 3), (2015-2016)												
Ministry of Health, Zambia 2010-2012, 2015-2016												
Office Items: 事務所備品 Fujita Planning Co., Ltd.												
Budget Subject Consultant Name												
No	Purchased Year (Project Year)	Description/ Name of Equipment/ Goods	Specification/ Standard	Quantity	Unit Price	Provider	Registration/ Labelling Number	Registered Date in Project (D/M/Y)	Condition of Equipment	Transferred/ Purchased Date (D/M/Y)	Receiver	Reference
1	Year 1	Automobile	TOYOTA Hi-lux	1	USD 28,749		ABV 4612	21/12/2009	Good	21/12/2009	DPP	
2	Year 1	Automobile	MITSUBISHI Pajero	1	USD 42,700		ABV 4810	23/12/2009	Good	23/12/2009	DCCDS	
3	Year 1	Monitor	HP LE1851w	1	ZMK -	Shreeji Investment	HCISP-001	16/04/2010	Good	16/04/2010	DPP	
4	Year 1	Desktop Computer	HP Compaq 6000 Pro	1	ZMK 4,834,830	Shreeji Investment	HCISP-008	16/04/2010	Good	16/04/2010	DPP	
5	Year 1	Color Lazer Printer	HP Color LaserJet CP1215	1	ZMK 1,590,000	Shreeji Investment	HCISP-009	16/04/2010	Good	16/04/2010	DPP	
6	Year 1	Laser Printer	HP LaserJet 2055d	1	ZMK 2,280,000	Shreeji Investment	HCISP-010	16/04/2010	Good	16/04/2010	LPHO	
7	Year 1	Photocopier	Canon iR2018	1	ZMK 17,500,000		HCISP-013	16/04/2010	Good	16/04/2010	DPP	
8	Year 1	Projector	Epson PowerLite 8+	1	ZMK 5,000,000	Cosmic Computers	HCISP-014	16/04/2010	Good	16/04/2010	DPP	
9	Year 1	Projector Screen	Screen 60x60' tripod	1	ZMK 1,026,000	Cosmic Computers	HCISP-015	16/04/2010	Good	16/04/2010	DPP	
10	Extension Phase 1	Laser Printer	HP Laserjet P1102	1	ZMW 836.20	Computer Land	HCISP-401	20/04/2015	Good	20/04/2015	DPP	
11	Extension Phase 2	Laser Printer	HP Laserjet P1102	1	ZMW 836.20	Computer Land	HCISP-402	20/04/2015	Good	20/04/2015	DCCDS	

添付資料 5
会議議事録等

**Monitoring and Assessment of the Medical Equipment Management Activities
in the Eastern Province
On the Health Capital Investment Support Project (Extension Phase)**

Prepared by: Tamotsu NOZAKI Mr.,
Facility Planning/Medical Equipment Planning

1. Objectives of the trip

- To assess of adopted situation concerning the Medical Equipment Management Guidelines which was introduced through the Health Capital Investment Support Project (2010-2012).
- To conduct supportive supervision. The topics and areas of supervision are subject to the request from the hospitals for improving the current status.

2. Sites

- Chadiza District (District Health Office and District Hospital), Lundazi District (District Health Office and District Hospital) and Petauke District (District Health Office and District Hospital), in Eastern Province

3. Contents of the activities

- Scoring the medical equipment management activities at Lundazi and Petauke DHs by using the scoring format
- To introduce the medical equipment management tools which were summarized and introduced in the HCISP (2010-2012) in Chadiza DH

4. Work Schedule

The work schedule (summary of activities) is show in Table below.

Table 1: Work Schedule

No.	Date	Activities	Stay
1	22 June (Mon)	Move to Chipata	Chipata
2	23 June (Tue)	Discussion with PMO Preparation of the documents for Chadiza DH	Chipata
3	24 June (Wed)	Explanation and introduction of medical equipment management tools in Chadiza DH	Chipata
4	25 June (Thu)	Existing medical equipment inventory works in Chadiza DH	Chipata
5	26 June (Fri)	Existing medical equipment inventory works in Chadiza	Chipata

No.	Date	Activities	Stay
		DH	
6	27 June (Sat)	Documentation	Chipata
7	28 June (Sun)	Documentation	Chipata
8	29 June (Mon)	Scoring and supportive supervision of medical equipment management in Lundazi DH	Lundazi
9	30 June (Tue)	Scoring and supportive supervision of medical equipment management in Lundazi DH	Chipata
10	01 July (Wed)	Scoring and supportive supervision of medical equipment management in Petauke DH	Petauke
11	02 July (Thu)	Scoring and supportive supervision of medical equipment management in Petauke DH	Petauke
12	03 July (Fri)	Move to Lusaka	Lusaka

5. List of members who met in Eastern Province

The members who have met in the province were listed in the Table below.

Table 2: List of CPs in the Province

	Name	Status, Organization/Institution
Provincial Health Office, Chipata	Dr. Abel Kabalo	PMO, Provincial Health Office, Eastern Province
	Mr. John Chibale	Senior Medical Equipment Officer, PHO
Chadiza District	Dr. Lingenda Godfre	DMO, Chadiza Community District Office
	Mr. Lackwell Nundwe	UCI Technician, Chadiza Community Health Office
	Dr. Danyiki Dieumerici	Medical Officer, Chadiza District Hospital
	Mr. Enocks Nyambe	Clinical Officer, Chadiza District Hospital
	Mr. Henry Phiri	Electrical Technician, Chadiza District Hospital
Lundazi District	Mr. Henry Zimba	UCI Technician, Lundazi Community Health Office
	Mr. Richard Kalimukwa	Administrator, Lundazi District Hospital
	Mr. Kennedy Mayovu	Electrical Technician, Lundazi District Hospital
Petauke District	Dr. Kennedy Chalwe Kabuswe	DMO, Petauke Community District Office
	Mr. Kalembo Mambwe	Planner, Petauke Community District Office
	Mr. Oscar Bwalya Coldchaim	Administrator, Petauke District Hospital
	Mr. Oscar Bwalya	UCI Technician, Petauke Community District Office
	Mr. Alick Phiri	Electrical Technician, Petauke District Hospital

6. Activities

Chadiza District Hospital was inaugurated in 2013, after HCISP (2010-2012) left from Zambia. The supervision team (Mr. John Chibale, Medical Equipment Officer of PHO - Eastern Province and Japanese expert), explained the purpose of visit. The two Governments, Government of Zambia and Japan, headed by the Zambian Health Ministry have decided to continue the Project as "Extension Phase 2015-2016". The visiting supervision team also introduced medical equipment management tools to the medical equipment management

board members of the hospital. In addition, it also has explained the outline of “Medical Equipment Management Guideline” which was summarized and published in the HCISP (2010-2012).

Organized the medical equipment management board

Under the instruction of the supervision team, the hospital administrative members who are heads of the respective departments, nominated the medical equipment management board members. The Electrical Technician tasks is given to the secretary of the Board. The name and their status post in the hospital are listed in the table below:

Table 3: Nominated Board Members for Strengthening Medical Equipment Management

No	Name	Status/Position
1	Dr. Danyiki Dieumerci	Chair of members
2	Mr. Henry Phiri	Electrical Technician, Secretary of the Board
3	Mr. Enocks Nyambe	Clinical Care Department
4	Mr. Lagzouras Mvula	Procurement Department
5	Mr. Chongo Mwansanika	Imaging Department
6	Mr. Roy Simukonde	Laboratory Department
7	Mr. Setswayo Ckimalo	Nursing Services Department
8	Mr. Emmanuel Tembo	Human Resources Department
9	Mr. Simatanga Humphrey	Administration Department

A total of 14 templates have been introduced for medical equipment managing tools.

- Form 1. Annual Planning Form
- Form 2. Medical Equipment Inventory Form
- Form 3. Medical Equipment Development Planning Sheet
- Form 4. Spare Parts Planning Form
- Form 5. Consumables Planning Form
- Form 6. Procurement Plan Form
- Form 7. Daily Maintenance Check Sheet
- Form 8. Daily Maintenance Log Sheet
- Form 9. Planned Preventive Maintenance Check and Log Sheet
- Form 10. PPM/User Training Planning Form
- Form 11. Job Request Form
- Form 12. Equipment Acceptance Record
- Form 13. Monthly Report (Medical Equipment Maintenance)
- Form 14. Annual Report (Medical Equipment Maintenance)

7. Conclusion

Member of Medical Equipment Management Board is required to endeavor to conduct its medical equipment management activities based on the “Medical Equipment Management Guideline”. It is strongly required especially for critical to conform with the Guideline

instructions, such as 1) update of medical equipment inventory, especially registration of newly procured / introduced medical equipment, as well as to delete from the inventory medical equipment which is going to be dis-commissioned by the Ministry of Works and Supplies, 2) promotion of the Daily Maintenance Activities of major medical equipment which would be conducted by equipment users and technicians, 3) Planned Preventive Maintenance (PPM) which is going to be conducted by technicians in the respective hospitals.

In terms of the budgeting measures for medical equipment management and maintenance, it will be required to calculate it with evidence-based process. Budget plan should be considered procurement of medical equipment itself which is going to be introduced in the system, as well as replacement of the existing dilapidated ones, spare parts for repair, and consumables for continuous running of the medical equipment.

Also all district medical offices do not have workshop as well as maintenance and repair tools for breakdown medical equipment. Concerned staff members of the medical equipment management and maintenance would be made several applications to the provincial office for funding so that work environment can be improved.

8. Attachment:

Following documents are attached as Annex I, II and III.

Annex-1: Photographs of the assessment / monitoring activities in the 3 districts

Annex-2: Result of assessment concerning the medical equipment management status

Annex-3: Medical equipment inventory sheets (Latest version)

Date: 18 August 2015

**Monitoring and Assessment of the Medical Equipment Management Activities
in Lusaka and Western Province
Health Capital Investment Support Project (Extension Phase)**

Medical Equipment Planning
Hiroshi YOSHINO

1. Objectives of the trip

- To assess adopted situation concerning the Medical Equipment Management Guidelines which was introduced through the Health Capital Investment Support Project (2010-2012).
- To conduct supportive supervision. The topics and are of supervision are subject to the request from the hospitals for improving the current status.

2. Pilot Sites

Lusaka Province

- Chipata 1st Level Hospital
- Chongwe District Hospital
- Kafue District Hospital
- Chilenge 1st Level Hospital / Matero 1st Level Hospital (Grant Aid Project Sites)

Western Province

- Lewanika General Hospital
- Senanga General Hospital
- Kaoma District Hospital

3. Contents of the activities

- Scoring the medical equipment management activities at each facility by using the scoring format.
- To introduce the medical equipment management tools which was introduced in the HCISP (2010-2012) at Chipata 1st Level Hospital, Chongwe District Hospital, Chilenge and Matero 1st Level Hospital.

4. Work Schedule

The work schedule is shown in Table 1.

Table 1. Work Schedule for Monitoring and Assessment of MEM activities

No	Date	Activities
1	1 June (Mon)	Visiting Matero DH
2	2 June (Tue)	Visiting Matero DH
3	3 June (Wed)	Visiting Chilenge DH
4	4 June (Thu)	Visiting Chilenge DH
5	5 June (Fri)	JICA Zambia office
6	6 June (Sat)	Documentation
7	7 June (Sun)	Documentation
8	8 June (Mon)	Preparation for supportive supervision (SV)
9	9 June (Tue)	Meeting with DP
10	10 June (Wed)	
11	11 June (Thu)	Meeting Mr. Sinkala Meeting Mr. Musakanya
12	12 June (Fri)	Meeting DP Meeting DHO Technician
13	13 June (Sat)	Documentation
14	14 June (Sun)	Documentation
15	15 June (Mon)	Visiting CDH
16	16 June (Tue)	Visiting CDH, LusakaDMO
17	17 June (Wed)	
18	18 June (Thu)	SV at Chipata
19	19 June (Fri)	SV at Chipata
20	20 June (Sat)	Documentation
21	21 June (Sun)	Documentation
22	22 June (Mon)	SV at Chongwe DH
23	23 June (Tue)	SV at Chongwe DH
24	24 June (Wed)	SV at Kafue DH
25	25 June (Thu)	SV at Kafue DH
26	26 June (Fri)	SV at Chipata
27	27 June (Sat)	Documentation
28	28 June (Sun)	Documentation
29	29 June (Mon)	Travelling to Mongu
30	30 June (Tue)	SV at Lewanika GH
31	1 July (Wed)	SV at Lewanika GH
32	2 July (Thu)	SV at Senanga
33	3 July (Fri)	SV at Senanga
34	4 July (Sat)	SV at Kaoma
35	5 July (Mon)	Documentation
36	6 July (Tue)	Documentation
37	7 July (Wed)	
38	8 July (Thu)	SV at Koma, Travelling to Mongu
39	9 July (Fri)	SV at Lewanika
40	10 July (Sat)	SV at Senanga

SV: Supportive supervision

5. List of members who met in Pilot Facilities

Lusaka Province

No.	Facility	Position	Name
1	Lusaka PHO	Lusaka PMO	Dr. Malama Kennedy
2	Lusaka PHO	Lusaka Principal Medical Equipment Officer	Mr. Sinkala Christopher
3	Lusaka DHO	Lusaka DMO	Dr. Zulu Gideon
4	Lusaka DHO	Medical Equipment Technologist	Mr. Musiwa Emmanuel
5	Lusaka DHO	Medical Equipment Technician	Mr. Kabwe Aaron
6	Lusaka DHO	Medical Equipment Technician	Mr. Mulenga Dalius
7	Kafue DH	Hospital Administrator	Ms. Namutowe Patricia
8	Kafue DH	Electrical Technician	Ms. Mwela Mirriam
9	Kafue DH	Maintenance Officer	Mr. Mtonga Moses
10	Chongwe DHO	Chongwe DMO	Dr. Msiska Charles
11	Chongwe DHO	EPI Officer	Mr. Mwanyasi Francis
12	Chongwe DH	Ag Medical Officer In-charge	Dr. Mbiiza Christabel
13	Chongwe DH	Refrigeration Technician	Mr. Lubumbe Humphrey
14	Chipata 1st Level Hospital	Nurse	Ms. Chikwa Maureen

Western Province

No.	Facility	Position	Name
1	Western PHO	Western PMO	Dr. Silumesii Andrew
2	Western PHO	Western Principal Medical Equipment Officer	Mr. Luhana Elias
3	Lewanika GH	Hospital Director	Dr. Mutanga k. Mapani
4	Lewanika GH	Hospital Administrator	Mr. Hibajene Leo Chiinga
5	Lewanika GH	Electrician	Mr. Katiba
6	Senanga DHO	Senanga DMO	Dr. Mbozi K
7	Senanga DHO	Medical Equipment Technician	Mr. Wamunyima Mubu
8	Senanga DH	Electrician	Mr. Muyunda Lutangu
9	Kaoma DHO	Kaoma Ag DMO	Dr. Njikho George
10	Kaoma DHO	Electrical Technician	Mr. Gudo Castro Siwewe

6. Activities

Activities done at each facility are shown below. Scoring of Medical Equipment Management are attached as Annex.

1) Chipata 1st level Hospital (18 June, 2015)

Mr. Darius Mulenga and Mr. Aaron Kabwe (PIC of medical equipment at the hospital) from Lusaka DHO attended.

Japanese expert (Yoshino) explained the Medical Equipment Management (MEM) activities, which will be implemented through HCISP activities to Sr. Chikwa. Mr. Kabwe, PIC performed the inventory after the first visit and planning to establish Medical Equipment Management Committee at the hospital. Mr. Aaron Kabwe from Lusaka DHO is well experienced for implementing MEM activities in other facilities and actively started MEM.

After upgrading from urban health centre to 1st level hospital, there is no in house engineer/ technician for medical equipment. They are facing problem with capacity of incinerator. It has not enough capacity for whole medical waste generated from the facility.

Need to follow MEM to analyze the inventory data, which Mr. Kabwe collected in July, 2015.

2) Chongwe District Hospital (22 and 23 June, 2015)

Mr. Darius Mulenga from Lusaka DHO attended.

Yoshino expert explained the MEM activities which expected to be achieved by the PIC of medical equipment at the facility to Dr. Mbiiza. Team made a visit to all department for the first inspection of medical equipment in the facility. Mr. Lubumbe and Mr. Mulenga took inventory.

Japanese expert shared the forms for consumables / spare parts list, procurement list and daily maintenance sheets.

Incinerator will be commissioned soon for medical waste.

Need to follow MEM to analyze the inventory data collected during our team visit.

3) Kafue District Hospital (24 and 25 June, 2015)

Mr. Darius Mulenga from Lusaka DHO attended.

Yoshino explained the MEM activities which had been implemented during 2010-2012 to Ms. Patricia, Hospital Administrator. She is aware that the project activities since she worked for Chama Hospital before she came to Kafue and was involved in MEM activities.

PIC of medical equipment in Kafue DH, Mrs. Marriam Mwila was on maternity leave until July. Mrs. Mwila and the team updated the inventory and Yoshino explained that we will utilize the inventory data for further MEM activities after Mrs. Mwila comes back from her leave.

Need to provide further guidance on the MEM activities.

4) Lewanika General Hospital (30 June, 4, 8 and 9 July, 2015)

Mr. Elias Luhana from Western PHO attended.

Yoshino explained the MEM activities which had been implemented during 2010-2012 to Dr. Mapani, Hospital Director. Mr. Ngwila, the PIC of MEM is on leave. Team could not reach the document he developed for MEM because of his absence. Mr. Katiba and team performed / updated inventory, as well as repair of automatic film processor at Radiology department.

Mr. Katiba is planned to travel to Japan for Medical Equipment Management Training from August to November. After he comes back in Zambia, we will continue to work on the MEM activities including Mr. Ngwila, Medical Equipment Technician at the facility.

5) Senanga General Hospital (1 and 2 July, 2015)

Mr. Elias Luhana from Western PHO attended.

PIC of ME at the hospital is in Ndola for school until 2016 and Mr. Mubu from Kaoma DCMO is acting PIC. Yoshino interviewed Mr. Mubu about the current MEM situation and Mr. Mubu performed inventory with the team.

Need to follow MEM to analyze the inventory data collected during our team visit.

6) Kaoma District Hospital (3 and 10 July, 2015)

Mr. Elias Luhana from Western PHO attended.

Yoshino explained the MEM activities which had been implemented during 2010-2012. Mr. Gudo, PIC is covering both Kaoma DH and DCMO. He is working at present Kaoma District Workshop located in Kaoma DH. He has been working on the inventory, user training and maintenance work following MEM Guideline. Mr. Gudo and Team made inspection in each department and chose pilot department for MEM activities (User training and Daily maintenance)

7) Matero and Chilenge 1st Level Hospital (1,2 and 3,4 June)

Consultant team for soft components of “the Project for upgrading Lusaka Health Centres to District Hospitals” visited Matero on 1 and 2 June and Chilenge on 3 and 4 June. Consultant team including Yoshino made presentation regarding management of facility and medical equipment.

From medical equipment side, Yoshino introduced the MEM Guideline. He requested to establish the MEM Committee and to start taking inventory.

Inventory were done and updated for accepting new equipment.

7. Conclusion

Facility which has in-house technicians for medical equipment has been continuing HICSP/ MoH Guideline in certain level. In spite of this, in some hospitals, technicians/ engineers who are PIC of medical equipment are currently going school for medical engineering course and no one is looking after her/his work. In Kaoma and Senanga, technicians working at DCMO are covering both DCMO and District Hospital.

Hospital aware that the medical equipment maintenance is necessary for healthcare services and Director and Administrator of hospital are expressing that they are willing to help out the technicians and engineers.

The project utilizes collected inventory data as an evidence of budgetary planning. During the next visit to each facility, the project team will analyze inventory data with technicians and management of facilities for cost estimation for operation/ maintenance of medical equipment and emphasizing the effectiveness of user training (Daily maintenance) and Planned Periodical Maintenance.

Feedback from the technicians at pilot facilities and recommendation from the project are shown below:

- It is better to separate the decommissioning process (medical equipment) from any other waste or properties.
- PIC of medical equipment shall receive user/maintenance trainings at the time of reception of medical equipment.
- Districts need stand alone budget for medical equipment maintenance.
- Lacking of Engineers/ Maintenance tools/ Place or space for repair (Workshop)

8. Attachment

Following documents are attached as Annex I and II

Annex I: Photographs of the assessment / monitoring activities in the pilot facilities

Annex II: Result of assessment concerning the MEM status

Monitoring and SV in Lusaka



Monitoring and SV in Lusaka



Monitoring and SV in Lusaka



Monitoring and SV in Western



Monitoring and SV in Western



Monitoring and SV in Western



Annex II Result of assessment concerning the MEM status (Lusaka)

Monitoring Items	Lusaka		Kafue		Chongwe		Maximum Score	Scoring Criteria
	Chipata 1st Level Hospital		Kafue District Hotslital		Chongwe District Hospital			
Monitoring Data	2012	2015	2012	2015	2012	2015		
(Medical Equipment Management Monitoring items)								
(1) Establishment of MEMC								
(a) Establishment of MEMC	-	0	5	5	-	0	5	(5) Established, (0) Not yet established
(2) Number of MEMC meeting								
(a) Number of MEMC meeting	-	0	2	0	-	0	4	(4) Monthly, (3) Bimonthly, (2) Quaterly, (0) Less than quaterly
(b) Creation of minutes of meetings	-	0	1	1	-	0	1	(1) Created, (0) Not Created
(3) Inventory of medical equipment								
(a) List up	-	1	3	3	-	3	3	(3) Completed, (1) Under preparation, (0) Not year standard.
(b) Every 6 months review	-	0	2	0	-	0	2	(2) Done, (0) Not yeat done.
(4) Consumables								
(a) List up necessary consumables	-	1	3	1	-	0	3	(3) Completed, (1) Under preparation (0) Not yet started
(b) Every 6 months review	-	0	0	0	-	0	2	(2) Done , (0) Not Yet done.
(5) Spare parts								
(a) List up necessary spare parts	-	1	3	1	-	0	3	(3) Completed, (1) Under preparation, (0) Not yet started
(b) Every 6 months review	-	0	0	0	-	0	2	(2) Done, (0) Not yet done
(6) Equipment plan								
(a) Analysis of inventory list	-	0	0	0	-	0	5	(5) Completed, (2) Partial, (0) Not yet
(b) Procurement plan based on standard / necessity	-	0	0	0	-	0	5	(5) Completed, (2) Partial, (0) Not yet
(c) Add procurement plan to annual action plan	-	0	0	0	-	0	5	(5) Done, (0) Not yet
(7) Decommissioning								
(a) List up of items	-	0	0	0	-	0	2	(2) Completed, (0) Not yet
(b) Transfer to items to storage	-	0	0	0	-	0	2	(2) Completed, (1) Partially transferred, (0) Not yet
(c) Submission of request letter to Board of survey	-	0	0	0	-	0	1	(1) Submitted, (0) Not yet
(d) Conduct of decommission survey mission	-	0	0	0	-	0	1	(1) Completed, (0) Not yet
(e) Approval of decommission request	-	0	0	0	-	0	1	(1) Approved, (0) Not yet
(f) Purchase of order for replacement if necessary	-	0	0	0	-	0	1	(1) Submitted, (0) Not yet
(g) Implementation of decommission auction	-	0	0	0	-	0	1	(1) Bid successful, (0) Not yet
(h) Removal of items from hospital	-	0	0	0	-	0	1	(1) Removed, (0) Not yet
Total	0	3	19	11	0	3	50	Max. 50
(Preventive Maintenance Monitoring Items)								
(1) Action plan of maintenance								
(a) Annual plan is available	-	0	5	0	-	0	5	(5) Available, (0) Not available
(2) Daily maintenance								
(a) Check sheet and recording form available	-	0	4	0	-	0	4	(4) Available, (1) Partially available, (0) Not avaible
(b) User training plan present	-	0	4	0	-	0	4	(4) Present, (1) Partially present, (0) Not present
(c) User training implemented	-	0	3	0	-	0	5	(5) Implemented, (3) Partially implemented, (0) Not implemented
(d) Monitoring and necessary instruction is impleme	-	0	3	0	-	0	4	(4) Completed, (3) Partially implemented, (0) Not implemented
(3) PPM								
(a) PPM Check seet and recording form available	-	0	3	0	-	0	3	(3) Available, (1) Partially available, (0) Not available
(b) PPM plan present	-	0	3	0	-	0	3	(3) Present, (1) Partially present, (0) Not present
(c) PPM implemented	-	0	3	0	-	0	3	(3) Implemented, (1) Partially implemented, (0) Not implemented
(d) monitoring and necessary instruction is implemented	-	0	1	0	-	0	3	(3) Completed, (1) On going, (0) Not yet started
(4) Corrective maintenance								
(a) Job request form available	-	0	3	0	-	0	3	(3) Available, (0) Not available
(b) Maintenance record available	-	0	3	0	-	0	3	(3) Available, (0) Not available
(5) Data collection								
(a) Data is summarized and reported every month	-	0	0	0	-	0	5	(5) Yes, (0) No
(b) Annual activity report is prepared	-	0	0	0	-	0	5	(5) Yes, (0) No
Total	0	0	35	0	0	0	50	Max. 50

Annex II Result of assessment concerning the MEM status (Western)

Monitoring Items	Mongu		Senanga		Kaoma		Maximum Score	Scoring Criteria
	Lewanika General Hospital		Senanga District Hospital		Kaoma District Hospital			
Monitoring Data	2012	2015	2012	2015	2012	2015		
(Medical Equipment Management Monitoring items)								
(1) Establishment of MEMC								
(a) Establishment of MEMC	5	5	5	5	5	5	5	(5) Established, (0) Not yet established
(2) Number of MEMC meeting								
(a) Number of MEMC meeting	0	0	0	0	0	0	4	(4) Monthly, (3) Bimonthly, (2) Quaterly, (0) Less than quaterly
(b) Creation of minutes of meetings	1	0	1	1	1	0	1	(1) Created, (0) Not Created
(3) Inventory of medical equipment								
(a) List up	3	3	3	3	3	3	3	(3) Completed, (1) Under preparation, (0) Not year standard.
(b) Every 6 months review	2	0	2	2	2	1	2	(2) Done, (0) Not yeat done.
(4) Consumables								
(a) List up necessary consumables	3	3	3	3	0	0	3	(3) Completed, (1) Under preparation (0) Not yet started
(b) Every 6 months review	2	0	2	2	0	0	2	(2) Done , (0) Not Yet done.
(5) Spare parts								
(a) List up necessary spare parts	3	3	3	3	0	0	3	(3) Completed, (1) Under preparation, (0) Not yet started
(b) Every 6 months review	2	0	2	2	0	0	2	(2) Done, (0) Not yet done
(6) Equipment plan								
(a) Analysis of inventory list	5	0	2	5	0	0	5	(5) Completed, (2) Partial, (0) Not yet
(b) Procurement plan based on standard / necessity	0	0	0	2	0	0	5	(5) Completed, (2) Partial, (0) Not yet
(c) Add procurement plan to annual action plan	0	0	0	5	0	0	5	(5) Done, (0) Not yet
(7) Decommissioning								
(a) List up of items	2	2	2	2	2	0	2	(2) Completed, (0) Not yet
(b) Transfer to items to storage	0	2	0	2	0	0	2	(2) Completed, (1) Partially transferred, (0) Not yet
(c) Submission of request letter to Board of survey	1	1	1	1	1	0	1	(1) Submitted, (0) Not yet
(d) Conduct of decommission survey mission	0	1	0	1	0	0	1	(1) Completed, (0) Not yet
(e) Approval of decommission request	0	1	0	1	0	0	1	(1) Approved, (0) Not yet
(f) Purchase of order for replacement if necessary	0	1	0	1	0	0	1	(1) Submitted, (0) Not yet
(g) Implementation of decommission auction	0	1	0	1	0	0	1	(1) Bid successful, (0) Not yet
(h) Removal of items from hospital	0	1	0	1	0	0	1	(1) Removed, (0) Not yet
Total	29	24	26	43	14	9	50	Max. 50
(Preventive Maintenance Monitoring Items)								
(1) Action plan of maintenance								
(a) Annual plan is available	5	5	5	5	5	0	5	(5) Available, (0) Not available
(2) Daily maintenance								
(a) Check sheet and recording form available	4	0	4	1	4	0	4	(4) Available, (1) Partially available, (0) Not avaible
(b) User training plan present	1	0	4	1	0	0	4	(4) Present, (1) Partially present, (0) Not present
(c) User training implemented	3	0	3	3	0	0	5	(5) Implemented, (3) Partially implemented, (0) Not implemented
(d) Monitoring and necessary instruction is implemented every 3 months	3	0	3	3	0	0	4	(4) Completed, (3) Partially implemented, (0) Not implemented
(3) PPM								
(a) PPM Check seet and recording form available	3	0	3	3	3	0	3	(3) Available, (1) Partially available, (0) Not available
(b) PPM plan present	3	0	3	3	0	0	3	(3) Present, (1) Partially present, (0) Not present
(c) PPM implemented	1	0	3	1	0	0	3	(3) Implemented, (1) Partially implemented, (0) Not implemented
(d) monitoring and necessary instruction is implemented	1	0	3	0	0	0	3	(3) Completed, (1) On going, (0) Not yet started
(4) Corrective maintenance							0	
(a) Job request form available	3	3	3	3	3	0	3	(3) Available, (0) Not available
(b) Maintenance record available	3	3	3	3	3	0	3	(3) Available, (0) Not available
(5) Data collection								
(a) Data is summarized and reported every month	5	0	5	0	0	0	5	(5) Yes, (0) No
(b) Annual activity report is prepared	0	0	0	5	0	0	5	(5) Yes, (0) No
Total	35	11	42	31	18	0	50	Max. 50

Date: 2 November 2015

**Monitoring and Assessment of the Medical Equipment Management Activities
in Lusaka and Western Province
Health Capital Investment Support Project (Extension Phase)**

Medical Equipment Planning
Hiroshi YOSHINO

1. Objectives of the trip

- To assess adopted situation concerning the Medical Equipment Management Guidelines which was introduced through the Health Capital Investment Support Project (2010-2012).
- To conduct supportive supervision. The topics and are of supervision are subject to the request from the hospitals for improving the current status.

2. Pilot Sites

Lusaka Province

- Chipata 1st Level Hospital
- Chongwe District Hospital
- Kafue District Hospital
- Chilenge 1st Level Hospital / Matero 1st Level Hospital (Grant Aid Project Sites)

Western Province

- Lewanika General Hospital
- Senanga General Hospital
- Kaoma District Hospital

3. Contents of the activities

- Scoring the medical equipment management activities at each facility by using the scoring format.
- To introduce the medical equipment management tools which was introduced in the HCISP (2010-2012) at Chipata 1st Level Hospital, Chongwe District Hospital, Chilenge and Matero 1st Level Hospital.

4. Work Schedule

The work schedule is shown in Table 1.

Table 1. Work Schedule for Monitoring and Assessment of MEM activities

1	5 Oct (Mon)	Preparation for Supervision
2	6 Oct (Tue)	Meeting with DPP
3	7 Oct (Wed)	JICA Zambia Office
4	8 Oct (Thu)	Preparation for Supervision
5	9 Oct (Fri)	Meeting with DPP Coutesy call to Japanese Embassy SV at Matero and Chilenge 1st Level Hospital
6	10 Oct (Sat)	Documentation
7	11 Oct (Sun)	Documentation
8	12 Oct (Mon)	SV at Kafue DH
9	13 Oct (Tue)	SV at Kafue DH
10	14 Oct (Wed)	SV at Chongwe DH
11	15 Oct (Thu)	SV at Chongwe DH
12	16 Oct (Fri)	SV at Chipata 1st Level Hospital
13	17 Oct (Sat)	Documentation
14	18 Oct (Sun)	Travelling to Mongu
15	19 Oct (Mon)	Visiting PMO, Lewanika GH
16	20 Oct (Tue)	SV at Senanga GH
17	21 Oct (Wed)	SV at Senanga GH
18	22 Oct (Thu)	SV at Kaoma DH
19	23 Oct (Fri)	SV at Kaoma, Travelling to Lusaka
20	24 Oct (Sat)	Documentation
21	25 Oct (Sun)	Documentation
22	26 Oct (Mon)	Writing Report

SV: Supportive supervision

5. List of members who met in Pilot Facilities

Lusaka Province

No.	Facility	Position	Name
1	Lusaka PHO	Lusaka PMO	Dr. Malama Kennedy
2	Lusaka PHO	Lusaka Principal Medical Equipment Officer	Mr. Sinkala Christopher
3	Lusaka DHO	Lusaka DMO	Dr. Zulu Gideon
4	Lusaka DHO	Medical Equipment Technician	Mr. Kabwe Aaron
5	Lusaka DHO	Medical Equipment Technician	Mr. Mwale Kapoko
6	Lusaka DHO	Medical Equipment Technician	Mr. Mulenga Darius
7	Lusaka DHO	Medical Equipment Technician	Mr. Matafwali Friday
8	Lusaka DHO	Environmental Health Technician	Ms. Chizongo Matimba
9	Kafue DHO	Clinical Care	Mr. Chanda David
10	Kafue DHO	Environmental Health Officer	Mr. Mofya C. Teddy
11	Kafue DH	Hospital Administrator	Ms. Namutowe Patricia
12	Kafue DH	Electrical Technician	Ms. Mwela Mirriam
13	Chongwe DHO	Chongwe DMO	Dr. Msiska Charles
14	Chongwe DHO	EPI Officer	Mr. Mwanyasi Francis
15	Chongwe DH	Hospital Administrator	Ms. Mulumbenji Malijani
16	Chongwe DH	Refrigeration Technician	Mr. Lubumbe Humphrey
17	Chipata 1st Level Hospital	Nursing Officer	Ms. Mwambazi Chikwa Maureen
18	Chipata 1st Level Hospital	Environmental Health Technician	Ms. Mambwe Faides
19	Matero Hospital	Environmental Health Technician	Ms. Nkurika Christabel
20	Matero Hospital	Environmental Health Technician	Ms. Tembo Lioniwe
21	Chilenge Hospital	Registered Midwife	Ms. Kabika Bertha

Western Province

No.	Facility	Position	Name
1	Western PHO	Western Infrastructure Officer	Mr. Siloonao Nixon
2	Western PHO	Western Principal Medical Equipment Officer	Mr. Luhana Elias
3	Lewanika GH	Ag Medical Superintendent	Dr. Njekwa Samutumwa
4	Lewanika GH	Senior Hospital Administrator	Mr. Akabwao Mbeha
5	Mongu DHO	Planner	Mr. Mubita Mukololo
6	Senanga DHO	Senanga DMO	Dr. Saiti Sidney
7	Senanga DHO	Medical Equipment Technician	Mr. Wamunyima Mubu
8	Senanga DHO	Environmental Health Technician	Mr. Sitali N
9	Senanga GH	Assistant Human Resource Management Officer	Ms. Mwangala Nalishebo
10	Senanga GH	Electrician	Mr. Muyunda Lutangu
11	Kaoma DHO	Kaoma DMO	Dr. Sakala Jacob
12	Kaoma DHO	Planner	Mr. Chongo Misapa
13	Kaoma DH	Hospital Administrator	Ms. Chileshe Margaret
14	Kaoma DH	Plumber	Mr. Ngenda Mwiya

6. Activities

Activities done at each facility are shown below. Scoring of Medical Equipment Management (MEM) are attached as Annex.

1) Kafue District Hospital 12 and 13 October, 2015)

Japanese expert (Yoshino) had an interview with Mrs. Mirriam Mwila, person in charge (PIC) of Medical Equipment.

There is no big progress for the Medical Equipment Management (MEM) so far, Mrs. Mwila and Hospital Administrator (HA) explained that they are planning to hold the first MEM committee meeting on November to decide the members of committee and action plan for MEM. Yoshino shared the TOR for MEM committee which is on the MEM guideline. Mrs. Mwila is planning to develop the User Training Schedule and Daily Maintenance.

They received some new equipment. Yoshino asked Mrs. Mwila to fulfill "Equipment Acceptance Record" from MEM guideline for further management and planning.

We confirmed that the next inventory would be having on January next year.

HA explained that the cost for medical equipment maintenance, 6000 ZMW/month was budgeted on year 2016.

2) Chongwe District hospital (14 and 15 October, 2015)

Team paid courtesy call to Chongwe DMO.

Yoshino had an interview with Mr. Lubumbe, person in charge of ME. They have been failing to conduct MEM meeting. Commitment of Management is not enough for MEM activities. Yoshino explained to HA the necessity of management support for sustaining MEM committee activities.

KAIZEN has introduced to the facility and utilized for their services. They decommissioned unnecessary furniture.

They received new equipment; Infant Incubator, Oxygen concentrator.

Mr. Lubumbe has been performed maintenance and repair work on their equipment and he started to optimize the knowledge and skills acquired through the project's workshop "Technical Training for Medical Equipment Technicians", however they are lacking in maintenance tools and need to borrow tools from the market near by.

3) Chipata 1st Level Hospital (16 October, 2015)

Mr. Aaron Kabwe (PIC of medical equipment at the hospital) from Lusaka DHO attended.

Yoshino had an interview with Mr. Kabwe regarding the MEM. Mr. Kabwe explained that they are planned to have the first MEM meeting on 21st October. He already developed Equipment plan and started Decommissioning work. He started developing Daily maintenance and PPM as well. Corrective maintenance have been performed accordingly.

They received new equipment; Suction pump, Resuscitator, Incubator, Oxygen concentrator from UNICEF.

4) Lewanika General Hospital (19 October, 2015)

Mr. Elias Luhana attended.

PIC of ME at the hospital, Mr. Ngwila Jailos is on leave and Mr. Bosco Katiba is now on Medical Equipment training in Japan until 8th November. Mr. Katiba is coming back in 9th November.

Mr. Nozaki will follow up to update the information.

5) Senanga General Hospital (20 and 21 October, 2015)

Mr. Elias Luhana attended.

PIC of ME at the hospital is in Ndola for school (1st year) and Mr. Mubu from KDCMO is acting PIC. Yoshino interviewed Mr. Mubu about MEM activities. Performance of

engineer is quite good in score but Mr. Luhana proposed to have meeting among Medical Superintendent, Mr. Luhana, Mr. Mubu and Mr. Katuta that they would like to involve hospital staff including each head of department to MEM and to conduct MEM meeting monthly basis to strengthening the MEM structure.

They received new equipment through Result Based Funding (RBF, MoH) but the equipment have some faulty with temperature setting and found its difficulty to procure spare parts. Team agreed that the equipment procure through the government shall be procured from the certain entity, manufacturer.

6) Kaoma District Hospital (22 and 23 October, 2015)

Mr. Luhana attended. Team paid courtesy call to Kaoma DMO.

PIC of ME at the hospital is on leave and Team could not evaluate the score for MEM.

Mr. Nozaki will follow up to update the information.

7) Matero and Chilenge 1st Level Hospital (9 October, 2015)

Matero:

Mr. Mwale Kapoko attended from Lusaka DCHO.

Yoshino had an interview to Mr. Kapoko, PIC of ME at the hospital is planning to have MEM meeting soon with the member of "Hospital In charge, Medical Equipment Technician, Labour, In patient, OPD, Dental, Theatre, Labo, EHT". 10 members have already selected for MEM committee.

Chilenge:

Mr. Aaron Kabwe attended from Lusaka DCHO.

Yoshino had an interview to Mr. Kabwe, PIC of ME at the hospital is planning to have the first MEM meeting on next month, November. Member of MEM have already nominated. Daily Maintenance Schedule has been developed quarterly and annual basis.

7. Conclusion

1) At the time of courtesy call to one DMO, the DMO explained that in his district, autoclave, ultrasound machine and collimator of X-ray are not functioning. The DMO pointed that the budget for the district and hospital are far enough for supplying minimum required equipment. In provincial level, they now have secured medical equipment maintenance budget. Team would like to request for the same secured budget frame at the district level. Yoshino is now collecting the information regarding the efficacy of the secured budget in Provincial level.

2) Even engineers are trying to turn their knowledge and skills into action but they hardly find enough/appropriate tools for service.

Feedback from the technicians at pilot facilities are shown below:

- Tool kit shall be supply under the MoH budget for maintenance service.
- We need more involvement from Management for MEM activities.

8. Attachment

Following documents are attached as Annex I and II

Annex I: Photographs of the assessment / monitoring activities in the pilot facilities

Annex II: Result of assessment concerning the MEM status

Monitoring and SV in Lusaka



Monitoring and SV in Lusaka



Monitoring and SV in Lusaka



Monitoring and SV in Western



Monitoring and SV in Western



Monitoring and SV in Western



Annex II: Result of assessment concerning the MEM status (Lusaka)

Monitoring Items	Lusaka			Kafue			Chongwe			Maximum Score	Scoring Criteria
	Chipata 1st Level Hospital			Kafue District Hospital			Chongwe District Hospital				
Monitoring Data	2012	2015-1	2015-2	2012	2015-1	2015-2	2012	2015-1	2015-2		
(Medical Equipment Management Monitoring Items)		18-Jun-15	18-Oct-15		24-Jun-15	12-Oct-15		22-Jun-15	14-Oct-15		
(1) Establishment of MEMC											
(a) Establishment of MEMC	-	0	5	5	5	5	-	0	0	5	(5) Established, (0) Not yet established
(2) Number of MEMC meeting											
(a) Number of MEMC meeting	-	0	0	2	0	0	-	0	0	4	(4) Monthly, (3) Bimonthly, (2) Quaterly, (0) Less than quaterly
(b) Creation of minutes of meetings	-	0	0	1	1	0	-	0	0	1	(1) Created, (0) Not Created
(3) Inventory of medical equipment											
(a) List up	-	1	3	3	3	3	-	3	3	3	(3) Completed, (1) Under preparation, (0) Not year standard.
(b) Every 6 months review	-	0	0	2	0	2	-	0	0	2	(2) Done, (0) Not yet done.
(4) Consumables											
(a) List up necessary consumables	-	1	1	3	1	1	-	0	1	3	(3) Completed, (1) Under preparation (0) Not yet started
(b) Every 6 months review	-	0	0	0	0	0	-	0	0	2	(2) Done, (0) Not Yet done.
(5) Spare parts											
(a) List up necessary spare parts	-	1	1	3	1	1	-	0	1	3	(3) Completed, (1) Under preparation, (0) Not yet started
(b) Every 6 months review	-	0	0	0	0	0	-	0	0	2	(2) Done, (0) Not yet done
(6) Equipment plan											
(a) Analysis of inventory list	-	0	2	0	0	0	-	0	2	5	(5) Completed, (2) Partial, (0) Not yet
(b) Procurement plan based on standard / necessity	-	0	2	0	0	0	-	0	2	5	(5) Completed, (2) Partial, (0) Not yet
(c) Add procurement plan to annual action plan	-	0	5	0	0	0	-	0	0	5	(5) Done, (0) Not yet
(7) Decommissioning											
(a) List up of items	-	0	2	0	0	0	-	0	0	2	(2) Completed, (0) Not yet
(b) Transfer to items to storage	-	0	1	0	0	0	-	0	0	2	(2) Completed, (1) Partially transferred, (0) Not yet
(c) Submission of request letter to Board of survey	-	0	0	0	0	0	-	0	0	1	(1) Submitted, (0) Not yet
(d) Conduct of decommission survey mission	-	0	0	0	0	0	-	0	0	1	(1) Completed, (0) Not yet
(e) Approval of decommission request	-	0	0	0	0	0	-	0	0	1	(1) Approved, (0) Not yet
(f) Purchase of order for replacement if necessary	-	0	0	0	0	0	-	0	0	1	(1) Submitted, (0) Not yet
(g) Implementation of decommission auction	-	0	0	0	0	0	-	0	0	1	(1) Bid successful, (0) Not yet
(h) Removal of items from hospital	-	0	0	0	0	0	-	0	0	1	(1) Removed, (0) Not yet
Total	0	3	22	19	11	12	0	3	9	50	Max. 50
(Preventive Maintenance Monitoring Items)											
(1) Action plan of maintenance											
(a) Annual plan is available	-	0	5	5	0	0	-	0	5	5	(5) Available, (0) Not available
(2) Daily maintenance											
(a) Check sheet and recording form available	-	0	1	4	0	0	-	0	1	4	(4) Available, (1) Partially available, (0) Not available
(b) User training plan present	-	0	1	4	0	0	-	0	1	4	(4) Present, (1) Partially present, (0) Not present
(c) User training implemented	-	0	3	3	0	0	-	0	3	5	(5) Implemented, (3) Partially implemented, (0) Not implemented
(d) Monitoring and necessary instruction is implemented	-	0	3	3	0	0	-	0	3	4	(4) Completed, (3) Partially implemented, (0) Not implemented
(3) PPM											
(a) PPM Check sheet and recording form available	-	0	3	3	0	0	-	0	3	3	(3) Available, (1) Partially available, (0) Not available
(b) PPM plan present	-	0	3	3	0	0	-	0	1	3	(3) Present, (1) Partially present, (0) Not present
(c) PPM implemented	-	0	1	3	0	0	-	0	0	3	(3) Implemented, (1) Partially implemented, (0) Not implemented
(d) monitoring and necessary instruction is implemented	-	0	1	1	0	0	-	0	0	3	(3) Completed, (1) On going, (0) Not yet started
(4) Corrective maintenance											
(a) Job request form available	-	0	3	3	0	0	-	0	0	3	(3) Available, (0) Not available
(b) Maintenance record available	-	0	3	3	0	0	-	0	0	3	(3) Available, (0) Not available
(5) Data collection											
(a) Data is summarized and reported every month	-	0	5	0	0	0	-	0	0	5	(5) Yes, (0) No
(b) Annual activity report is prepared	-	0	0	0	0	0	-	0	0	5	(5) Yes, (0) No
Total	0	0	32	35	0	0	0	0	17	50	Max. 50

Annex II: Result of assessment concerning the MEM status (Western)

Monitoring Items	Mongu			Senanga			Kaoma			Maximum Score	Scoring Criteria
	Lewanika General Hospital			Senanga District Hospital			Kaoma District Hospital				
Monitoring Data	2012	2015-1	2015-2	2012	2015-1	2015-2	2012	2015-1	2015-2		
(Medical Equipment Management Monitoring Items)		8-Jul-15	4-Nov-15		1-Jul-15	20-Oct-15		10-Jul-15	5-Nov-15		
(1) Establishment of MEMC											
(a) Establishment of MEMC	5	5	5	5	5	5	5	5	5	5	(5) Established, (0) Not yet established
(2) Number of MEMC meeting											
(a) Number of MEMC meeting	0	0	0	0	0	2	0	0	0	4	(4) Monthly, (3) Bimonthly, (2) Quaterly, (0) Less than quaterly
(b) Creation of minutes of meetings	1	0	0	1	1	1	1	0	0	1	(1) Created, (0) Not Created
(3) Inventory of medical equipment											
(a) List up	3	3	3	3	3	3	3	3	3	3	(3) Completed, (1) Under preparation, (0) Not year standard.
(b) Every 6 months review	2	0	0	2	2	2	2	1	2	2	(2) Done, (0) Not year done.
(4) Consumables											
(a) List up necessary consumables	3	3	3	3	3	3	0	0	0	3	(3) Completed, (1) Under preparation (0) Not yet started
(b) Every 6 months review	2	0	0	2	2	2	0	0	0	2	(2) Done, (0) Not Yet done.
(5) Spare parts											
(a) List up necessary spare parts	3	3	3	3	3	3	0	0	0	3	(3) Completed, (1) Under preparation, (0) Not yet started
(b) Every 6 months review	2	0	0	2	2	2	0	0	0	2	(2) Done, (0) Not yet done
(6) Equipment plan											
(a) Analysis of inventory list	5	0	0	2	5	5	0	0	0	5	(5) Completed, (2) Partial, (0) Not yet
(b) Procurement plan based on standard / necessity	0	0	0	0	2	2	0	0	0	5	(5) Completed, (2) Partial, (0) Not yet
(c) Add procurement plan to annual action plan	0	0	0	0	5	5	0	0	0	5	(5) Done, (0) Not yet
(7) Decommissioning											
(a) List up of items	2	2	2	2	2	2	2	0	2	2	(2) Completed, (0) Not yet
(b) Transfer to items to storage	0	2	0	0	2	2	0	0	0	2	(2) Completed, (1) Partially transferred, (0) Not yet
(c) Submission of request letter to Board of survey	1	1	0	1	1	1	1	0	0	1	(1) Submitted, (0) Not yet
(d) Conduct of decommission survey mission	0	1	0	0	1	1	0	0	0	1	(1) Completed, (0) Not yet
(e) Approval of decommission request	0	1	0	0	1	1	0	0	0	1	(1) Approved, (0) Not yet
(f) Purchase of order for replacement if necessary	0	1	0	0	1	1	0	0	0	1	(1) Submitted, (0) Not yet
(g) Implementation of decommission auction	0	1	0	0	1	1	0	0	0	1	(1) Bid successful, (0) Not yet
(h) Removal of items from hospital	0	1	0	0	1	1	0	0	0	1	(1) Removed, (0) Not yet
Total	29	24	16	26	43	45	14	9	12	50	Max. 50
(Preventive Maintenance Monitoring Items)											
(1) Action plan of maintenance											
(a) Annual plan is available	5	5	5	5	5	5	5	0	5	5	(5) Available, (0) Not available
(2) Daily maintenance											
(a) Check sheet and recording form available	4	0	0	4	1	1	4	0	1	4	(4) Available, (1) Partially available, (0) Not available
(b) User training plan present	1	0	0	4	1	1	0	0	0	4	(4) Present, (1) Partially present, (0) Not present
(c) User training implemented	3	0	0	3	3	3	0	0	3	5	(5) Implemented, (3) Partially implemented, (0) Not implemented
(d) Monitoring and necessary instruction is implemented every 3 months	3	0	0	3	3	3	0	0	3	4	(4) Completed, (3) Partially implemented, (0) Not implemented
(3) PPM											
(a) PPM Check sheet and recording form available	3	0	0	3	3	3	3	0	3	3	(3) Available, (1) Partially available, (0) Not available
(b) PPM plan present	3	0	0	3	3	3	0	0	0	3	(3) Present, (1) Partially present, (0) Not present
(c) PPM implemented	1	0	0	3	1	1	0	0	0	3	(3) Implemented, (1) Partially implemented, (0) Not implemented
(d) monitoring and necessary instruction is implemented	1	0	0	3	0	1	0	0	0	3	(3) Completed, (1) On going, (0) Not yet started
(4) Corrective maintenance											
(a) Job request form available	3	3	3	3	3	3	3	0	3	3	(3) Available, (0) Not available
(b) Maintenance record available	3	3	3	3	3	3	3	0	3	3	(3) Available, (0) Not available
(5) Data collection											
(a) Data is summarized and reported every month	5	0	0	5	0	0	0	0	0	5	(5) Yes, (0) No
(b) Annual activity report is prepared	0	0	0	0	5	5	0	0	0	5	(5) Yes, (0) No
Total	35	11	11	42	31	32	18	0	21	50	Max. 50

Monitoring and Assessment of Medical Equipment Management Activities and Updating of Medical Equipment Inventory in the Eastern and Western Provinces On the Health Capital Investment Support Project (Extension Phase, 2015-2016)

Prepared by: Tamotsu NOZAKI
Facility Utility Planning/Medical Equipment Planning

1. Objectives of the trips

- To assess the situation after the adoption of the Medical Equipment Management Guidelines which was introduced through the Health Capital Investment Support Project (2010-2012).
- To conduct supportive supervision. The topics and areas of supervision are subject to the request from the hospitals for improving the current status.

2. Sites

- Eastern Province: Chadiza District (District Health Office and District Hospital), Lundazi District (District Health Office and District Hospital) and Petauke District (District Health Office and District Hospital)
- Western Province: Lewanika General Hospital and Kaoma District Hospital

3. Contents of the activities

- Scoring the medical equipment management activities at the 3 district medical offices in Eastern Province, and 5 hospitals in Eastern and Western Provinces (Chadiza District Hospital, Lundazi district Hospital, Petauke District Hospital, Lewanika General Hospital and Kaoma District Hospital) by using the scoring format
- Update of the Medical Equipment Inventory List for the above-mentioned five hospitals

4. Work Schedule

The work schedule (summary of activities) is show in Table below.

Table 4.1: Eastern Province

No.	Date	Activities	Stay
1	25 OCT (Sun)	Move to Chipata	Chipata
2	26 OCT (Mon)	Discussion with PMO Chadiza District Health Office and District Hospital Scoring the medical equipment management activities and updating of the Medical Equipment Inventory List	Chipata
3	27 OCT (Tue)	Chadiza District Health Office and District Hospital Scoring the medical equipment management activities and updati of	Chipata

No.	Date	Activities	Stay
		the Medical Equipment Inventory List	
4	28 OCT (Wed)	Lundazi District Health Office and District Hospital Scoring the medical equipment management activities and updating of the Medical Equipment Inventory List	Chipata
5	29 OCT (Thu)	Lundazi District Health Office and District Hospital Scoring the medical equipment management activities and updating of the Medical Equipment Inventory List	Chipata
6	30 OCT (Fri)	Petauke District Health Office and District Hospital Scoring the medical equipment management activities and updating of the Medical Equipment Inventory List	Petauke
7	31 OCT (Sat)	Petauke District Health Office and District Hospital Scoring the medical equipment management activities and updating of the Medical Equipment Inventory List	Lusaka

Table 4.2: Western Province

No.	Date	Activities	Stay
1	2 NOV (Mon)	Move to Mongu	Mongu
2	3 NOV (Tue)	Lewanika General Hospital Scoring the medical equipment management activities and updating of the Medical Equipment Inventory List	Mongu
3	4 NOV (Wed)	Lewanika General Hospital Scoring the medical equipment management activities and updating of the Medical Equipment Inventory List	Mongu
4	5 NOV (Thu)	Kaoma District Hospital Scoring the medical equipment management activities and updating of the Medical Equipment Inventory List	Mongu
5	6 NOV (Fri)	Move to Lusaka	Chipata

5. List of Board members in Eastern Province and Western Province who collaborated and linked up

The Board members in the two provinces are listed in the Table below:

Table 5.1: Eastern Province

	Name	Status, Organization/Institution
Provincial Medical Office	Dr. Abel Kabalo Mr. Banda Jordan Mr. Gifuto Lupenga	PMO, Provincial Medical Office, Eastern Province Disease Surveillance Officer, PMO Senior Medical Equipment Officer, PMO
Chadiza District	Mr. Lackwell Nundwe Mr. Humphrey Simatanga Mr. Henry Phiri	UCI Technician, District Medical Office Administrator, Chadiza District Hospital Electrical Technician, Chadiza District Hospital
Lundazi District	Dr. Chisenga Allan	DMO, District Medical Office

	Name	Status, Organization/Institution
	Dr. Zulu D.W. Mr. Henryimba Mr. Richard Kalimukwa Mr. Kennedy Mayovu	Acting DMO, District Medical Office UCI Technician, District Medical Office Administrator, Lundazi District Hospital Electrical Technician, Lundazi District Hospital
Petauke District	Dr. Chisenga (newly appointed) Mr. Oscar Bwalya Mr. Oscar Bwalya Coldchaim	DMO, District Medical Office UCI Technician, District Medical Office Administrator, Petauke District Hospital

Table 5.2: Western Province

	Name	Status, Organization/Institution
Provincial Medical Office	Dr. Silumesii Andrew Mr. Luhana Elisa	PMO, Provincial Medical Office, Western Province Senior Medical Equipment Officer, PMO
Lewanika General Hospital	Dr. Mutanga K. Mapani Mr. Hibajene Leo Chiinga Mr. Parick Nyambe	Medical Superintendent Administrator Electrician
Kaoma District Hospital	Ms. Margaret Chileshe Mr. Gudo Castro Siwewe	Administrator Electrical Technician

6. Activities

6.1 General Description of the three Districts

In general, three district hospitals which were selected as pilot sites, are well-managed by the board members, both in maintenance management activities as well as updating of medical equipment inventory. Unfortunately, DMOs of Lundazi and Petauke have already been appointed as such but are still not assuming responsibilities of its posts.

6.2 Lundazi District Hospital

According to the Action Plan (Year 2015) in part, District Hospital has budget allocation for procurement of new equipment as well as for its maintenance.

In terms of the maintenance for Laboratory equipment and the equipment for Operating Theatre and X-ray, in the Lundazi District Hospital, it is being done by the local distributors, named Bio-group and Philips Medical. The above-mentioned service contractors are managed and contracted-out by the Ministry of Health HQs.

Table 4: Budget Allocation Plan by Department

No	Department	Description	Budget (K)	Remarks
1	Operating Theatre	Procurement	2,200	
		Maintenance	10,000	
2	Maternity	Procurement	5,500	Resuscitator
3	Male Ward	Procurement	12,750	Suction Unit
4	Physiotherapy	Procurement	11,100	
5	Female Ward	Procurement	10,700	BP Machine, Cardiac Table

No	Department	Description	Budget (K)	Remarks
6	Outpatient Dept.	Procurement	9,960	Diagnostic Set, Wheelchair
7	Radiology	Procurement	16,500	Ultrasound Machine
8	Laboratory	Procurement	1,500	Incubator
		Maintenance	5,000	
9	Dental Clinic	Procurement	7,100	
10	Children Ward	Procurement	4,050	Medication Trolley, BP Machine, Bedside Screen, Instrument Table

6.3 Procurement record of spare parts and consumables for operating the medical equipment in Petauke District Hospital

The Table below shows records of procurement concerning the spare parts and consumables, and supplies for operating the medical equipment in the District Health Office of Petauke. Unfortunately, supervision team and some Medical Equipment Management Board members could not confirm the relationship between the entries in the table and budget plan of the Yellow Book (see 6.4, below article).

Table 6.1: Procurement Record of Spare Parts and Consumables of the Medical Equipment

S/N	Item description	Qty	Year	Unit K	Total K	By Year
1	Carbon brushes (Centrifuge)	20	2012	25	500	
2	Halogen bulbs (Ope Light)	20	2012	250	5,000	
Sub Total (Year 2012)						5,500
1	Refrigerant R22 (Ari Con.)	13kg cylinder	2013	800	800	
2	Humidifier bottles (Oxy. Con.)	2	2013	250	500	
3	Capacitor (Circuit Board for Ultrasound)	1	2013	150	300	
Sub Total (Year 2013)						1,600
1	1-hp. motor	1	2015	3,250	3,250	
Sub Total (Jan to Jun Year 2015)						3,250
Total from January 2012 to June 2015						10,350

Source: Petauke District Health Office

7. Suggestion for promoting evidence-based budget planning (budget plan for next financial year) under the consideration of current status

Under the HCISP (2010-2012), evidence-based budget plan was suggested for improving the availability performance of medical equipment as well as securing the budget of spare parts and consumables of major medical equipment. Through the assessment of current the status in the respective districts, medical equipment management budget, which is composed of medical equipment, spare parts, and consumables are allocated and incorporated in the Action Plan (coming three years). But this allocated amount (budget) is neither calculated on the basis of experience nor evidence-based, but are indicated as **pro rated-based** figures which are given and specified by the Government (It is called Yellow Book here). Unfortunately, the Medical Equipment Management Board members and authorities who are responsible for preparing the budget plan for medical equipment management obviously

skipped this evidence-based budgeting procedures for the three districts in favor of the **pro-rated approach**.

How and when Medical Equipment Management Board members will utilize evidence-based budget approach for the Yellow Book remains a challenge to the Medical Equipment Management Board members.

8. Conclusion

Member of Medical Equipment Management Board is required to endeavor to conduct its medical equipment management activities based on the "Medical Equipment Management Guidelines". It is strongly required especially for critical equipment to conform with the Guideline instructions, such as 1) update of medical equipment inventory, especially registration of newly procured / introduced medical equipment, as well as to delete from the inventory medical equipment list which is going to be de-commission by the Ministry of Works and Supplies, 2) promotion of the Daily Maintenance Activities of major medical equipment which would be conducted by equipment users and technicians, and 3) Planned Preventive Maintenance (PPM) which is going to be conducted by maintenance technicians in the respective hospitals.

In terms of the budgeting measures for medical equipment management and maintenance, it will be required to calculate it using evidence-based process. Budget plan should consider procurement of medical equipment itself which is going to be introduced in the system, as well as replacement of the existing dilapidated ones, spare parts for repair, and consumables for continuous running of the medical equipment.

Also all district medical offices do not have workshop as well as maintenance and repair tools to repair and restore back to functional status broken down medical equipment. Concerned staff members of the medical equipment management and maintenance need to make several request applications and proposals to the provincial medical office for funding for the improvement of its work environment.

8. Attachment:

Following documents are attached as Annex I and II.

Annex-I: Result of assessment concerning the medical equipment management status

Eastern Province: Chadiza District, Lundazi District and Petauke District

Western Province: Lewanika General Hospital and Kaoma District Hospital

Annex-II: Medical equipment inventory sheets (Reviewed in October / November 2015)

Eastern Province: Chadiza District Hospital, Lundazi District Hospital and Petauke District Hospital

Western Province: Lewanika General Hospital and Kaoma District Hospital

Date: 22 February 2016

**Monitoring and Assessment of the Medical Equipment Management Activities
in Lusaka and Western Province
Health Capital Investment Support Project (Extension Phase)**

Medical Equipment Planning
Hiroshi YOSHINO

1. Objectives of the trip

- To assess adopted situation concerning the Medical Equipment Management Guidelines which was introduced through the Health Capital Investment Support Project (2010-2012).
- To conduct supportive supervision. The topics and are of supervision are subject to the request from the hospitals for improving the current status.

2. Pilot Sites

Lusaka Province

- Chipata 1st Level Hospital
- Chongwe District Hospital
- Kafue District Hospital
- Chilenge 1st Level Hospital / Matero 1st Level Hospital (Grant Aid Project Sites)

Western Province

- Lewanika General Hospital
- Senanga General Hospital
- Kaoma District Hospital

3. Contents of the activities

- Scoring the medical equipment management activities at each facility by using the scoring format.
- To introduce the medical equipment management tools which was introduced in the HCISP (2010-2012) at Chipata 1st Level Hospital, Chongwe District Hospital, Chilenge and Matero 1st Level Hospital.

4. Work Schedule

The work schedule is shown in Table 1.

Table 1. Work Schedule for Monitoring and Assessment of MEM activities

No	Date	Activities
1	8 Jan (Fri)	JICA Zambia office
2	9 Jan (Sat)	Documentation
3	10 Jan (Sun)	Documentation
4	11 Jan (Mon)	Meeting with PD
5	12 Jan (Tue)	Visiting Lusaka PMO
6	13 Jan (Wed)	Preparation for site visit
7	14 Jan (Thu)	Preparation for site visit
8	15 Jan (Fri)	Preparation for site visit
9	16 Jan (Sat)	Documentation
10	17 Jan (Sun)	Documentation
11	18 Jan (Mon)	SV at Kafue DH
12	19 Jan (Tue)	SV at Kafue DH
13	20 Jan (Wed)	SV at Chongwe DH
14	21 Jan (Thu)	SV at Chongwe DH
15	22 Jan (Fri)	SV at Chiptata Hospital
16	23 Jan (Sat)	Documentation
17	24 Jan (Sun)	Travelling to Mongu
18	25 Jan (Mon)	SV at Lewanika GH
19	26 Jan (Tue)	SV at Lewanika GH
20	27 Jan (Wed)	SV at Senanga GH
21	28 Jan (Thu)	SV at Senanga GH
22	29 Jan (Fri)	SV at Kaoma DH
23	30 Jan (Sat)	SV at Kaoma DH / Travelling to Lusaka

SV: Supportive supervision

5. List of members who met in Pilot Facilities

Lusaka Province

No.	Facility	Position	Name
1	Lusaka PHO	Lusaka PMO	Dr. Malama Kennedy
2	Lusaka PHO	Lusaka Principal Medical Equipment Officer	Mr. Sinkala Christopher
3	Lusaka DHO	Medical Equipment Technician	Mr. Kabwe Aaron
4	Lusaka DHO	Medical Equipment Technician	Mr. Mwale Kapoko
5	Kafue DH	Hospital Administrator	Ms. Namutowe Patricia
6	Kafue DH	Electrical Technician	Ms. Mwela Mirriam
7	Chongwe DHO	EPI Officer	Mr. Mwanyasi Francis
8	Chongwe DH	Hospital Administrator	Ms. Mulumbenji Malijani
9	Chongwe DH	Ag Hospital Superintendent	Dr. Chilala Mutinta
10	Chongwe DH	Refrigeration Technician	Mr. Lubumbe Humphrey
11	Chipata 1st Level Hospital	Nursing Officer	Ms. Mwambazi Chikwa Maureen
12	Chipata 1st Level Hospital	Medical Officer in charge	Dr. Evans Chinkoyo

Western Province

No.	Facility	Position	Name
1	Western PHO	Western Principal Medical Equipment Officer	Mr. Luhana Elias
2	Lewanika GH	Medical Superintendent	Dr. Mutanga K. Mapani
3	Lewanika GH	Hospital Administrator	Mr. Hibajene L. Chihinga
4	Lewanika GH	Medical Equipment Technician	Mr. Ngwila Jailos
5	Lewanika GH	Electrician	Mr. Katiba Bosco
6	Senanga DHO	Medical Equipment Technician	Mr. Wamunyima Mubu
7	Senanga GH	Ag Hospital Administrator	Mr. Silukolwe David
8	Senanga GH	Electrician	Mr. Muyunda Lutangu
9	Kaoma DH	Medical Superintendent	Dr. Sakala Jacob
10	Kaoma DH	Hospital Administrator	Ms. Chileshe Margaret
11	Kaoma DH	Plumber	Mr. Ngenda Mwiya

6. Activities

Activities done at each facility are shown below. Scores of Medical Equipment Management (MEM) are attached as Annex.

1) Kafue District Hospital 8 and 9 January, 2016)

Mr. Christopher Sinkala, Lusaka Principal Medical Equipment Officer attended the monitoring activities. The team visited Kafue DHO and explained about the activities expected following 2 day.

Japanese expert (Yoshino) interviewed Mrs. Marriam Mwela, person in charge (PIC) of Medical Equipment in Kafue DH. Hospital had a Medical Equipment Management (MEM) meeting as promised at previous visit and they created a minutes.

Mrs. Mwela filled "Equipment acceptance Records" for new equipment which they recently received.

The team made a site visit to departments which received new equipment. At the time of visiting wards, a nurse inquired how to use the new equipment and Mrs. Mwela made user training at Maternity ward. She carried out an informative and confident instruction to the nurse.

2) Chongwe District hospital (10 and 11 January, 2 February 2016)

Yoshino made an interview with Mr. Humphrey Lubumbe, person in charge of ME about the MEM activities. He explained that they had not managed to have a MEM committee meeting yet. Yoshino proposed to have a meeting soon to Dr. Chilala, Ag Hospital Superintendent.

The team made site visit to wards with Mr. Lubumbe. They received a new X-ray machine and confirmed its working in good condition.

At the operation theater, operation attend staff explained that they have a problem with a new anesthetic machine. Yoshino inspect the machine and explained the equipment itself has no problem but need to check the connection for compressed air. And the team made an inspection on an operation light and we found the deficit of the equipment. We made temporal amendment and asked to Mr. Lubumbe for further investigation with Mr. Sinkala.

Hospital called for the first MEM committee meeting and gathered key personnel for the committee. All attendants of this meeting were involved as committee member and promised to have continuous meeting for sustaining MEM activities.

3) Chipata 1st Level Hospital (12 January, 2016)

Mr. Aaron Kabwe (PIC of medical equipment at the hospital) from Lusaka DHO attended.

Yoshino had an interview with Mr. Kabwe regarding the MEM.

Mr. Kabwe explained that there is a problem with an operation light and the team visited the operation theater to inspect the condition and carried out a minor repair on the operation light.

4) Lewanika General Hospital (25 ad 26 January, 2016)

Mr. Elias Luhana, Western Principal Medical Equipment Officer attended the monitoring activities.

Yoshino interviewed Mr. Ngwila Jailos, PIC of Medical Equipment about the MEM activities. He explained the challenges of his work.

He has done with developing Periodical Preventive Maintenance (PPM) plan and User Training plan and has issues with implementation.

Yoshino interviewed Mr. Katiba Bosco, electrician of the hospital. He explained about constrain regarding human resource of maintenance staff. He is working even on the holiday for maintaining the equipment, operation of generator and user trouble shootings.

5) Senanga General Hospital (27 and 28 January, 2016)

Mr. Luhana attended through out the MEM monitoring activities.

Yoshino explained about the expected activities in following 2 days to Hospital Administrator.

Yoshino followed up for the discussion point of previous MEMC meeting and checked the minutes of discussion. Yoshino confirmed the commitment from the management to MEM activities.

The team made clean-up of MEM workshop for creating enough proper space for medical equipment maintenance.

6) Kaoma District Hospital (29 and 30 January, 2016)

Yoshino interviewed Mr. Carlos about MEM activities.

They have a problem with a compressor of mortuary refrigerator and they called Mr. Chihinga Sanki, a refrigeration technician from Luampa Mission Hospital to replace the compressor.

Yoshino attended their repair work.

7. Conclusion

1) Generally, the scores for Medical Equipment Management (MEM) and Periodical Preventive Maintenance (PPM) are increased gradually after the each Supportive Supervision of MEM.

For MEM, the average score of 3 provinces are 14.4 (out of 50) at the time of 2012. After the 1st, 2nd and 3rd monitoring, scores rose up to 15.9, 23.1 and 31.9 respectively. Facilities that scored higher than 35 are 3 out of 9 pilot facilities.

For PPM, the average score of 3 pilot provinces are 15.7 (out of 50) at the time of 2012. Scores in 2015 are counted as, chronologically, 10.8, 24.9 and 35.9. Facilities that scored higher than 35 are 6 out of 9 pilot facilities.

Scores for MEM are based on the MEM committee activities and depends on how the committee actively performed in its activities. On the other hand, the scores for PPM are calculated based on the performance of medical equipment technician or engineer who plays a key role in whole MEM activities in health facilities. 6 out of 9 facilities received more than 35 in PPM score and this means that the PIC of MEM are generally implementing their work very well. Relatively, the number of facilities that obtained higher than 35 are only 3 out of 9 pilot facilities. As sustaining MEM activities in the facilities, it is necessary that management is fully involved and support continuously to MEM activities.

2) Through out the monitoring activities, the team summarized engineers/users voices.

- Engineers and technician need to carryout more training to medical equipment users.
- Training for technicians at district would be consider for capacity building.

Possibly through Provincial engineers/technicians to district personnel

- Appropriate position of engineer/technician who is engaging in MEM.
- Seamless cooperation between Province and District in terms of budget planning.
- Involvement of engineer/technician at the time of new equipment reception.
- Proper support to MEM activities from management level.

8. Attachment

Following documents are attached as Annex I and II

Annex I: Photographs of the assessment / monitoring activities in the pilot facilities

Annex II: Result of assessment concerning the MEM status

Monitoring and SV in Lusaka



Monitoring and SV in Lusaka



Monitoring and SV in Lusaka

Monitoring and SV in Western



Monitoring and SV in Western

Monitoring and SV in Western



Annex II: Result of assessment concerning the MEM status (Lusaka)

Monitoring Items	Lusaka				Kafue				Chongwe				Maximum Score	Scoring Criteria
	Chipata 1st Level Hospital				Kafue District Hospital				Chongwe District Hospital					
Monitoring Data	2012	2015-1	2015-2	2015-3	2012	2015-1	2015-2	2015-3	2012	2015-1	2015-2	2015-3		
(Medical Equipment Management Monitoring Items)														
(1) Establishment of MEMC														
(a) Establishment of MEMC	-	0	5	5	5	5	5	5	-	0	0	5	5	(5) Established, (0) Not yet established
(2) Number of MEMC meeting														
(a) Number of MEMC meeting	-	0	0	2	2	0	0	2	-	0	0	0	4	(4) Monthly, (3) Bimonthly, (2) Quaterly, (0) Less than quaterly
(b) Creation of minutes of meetings	-	0	0	1	1	1	0	1	-	0	0	1	1	(1) Created, (0) Not Created
(3) Inventory of medical equipment														
(a) List up	-	1	3	3	3	3	3	3	-	3	3	3	3	(3) Completed, (1) Under preparation, (0) Not yet standard.
(b) Every 6 months review	-	0	0	0	2	0	2	2	-	0	0	2	2	(2) Done, (0) Not yet done.
(4) Consumables														
(a) List up necessary consumables	-	1	1	3	3	1	1	1	-	0	1	1	3	(3) Completed, (1) Under preparation (0) Not yet started
(b) Every 6 months review	-	0	0	0	0	0	0	0	-	0	0	0	2	(2) Done, (0) Not yet done.
(5) Spare parts														
(a) List up necessary spare parts	-	1	1	3	3	1	1	1	-	0	1	1	3	(3) Completed, (1) Under preparation, (0) Not yet started
(b) Every 6 months review	-	0	0	0	0	0	0	0	-	0	0	0	2	(2) Done, (0) Not yet done
(6) Equipment plan														
(a) Analysis of inventory list	-	0	2	5	0	0	0	0	-	0	2	2	5	(5) Completed, (2) Partial, (0) Not yet
(b) Procurement plan based on standard / necessity	-	0	2	5	0	0	0	0	-	0	2	2	5	(5) Completed, (2) Partial, (0) Not yet
(c) Add procurement plan to annual action plan	-	0	5	5	0	0	0	0	-	0	0	0	5	(5) Done, (0) Not yet
(7) Decommissioning														
(a) List up of items	-	0	2	2	0	0	0	0	-	0	0	0	2	(2) Completed, (0) Not yet
(b) Transfer to items to storage	-	0	1	2	0	0	0	1	-	0	0	1	2	(2) Completed, (1) Partially transferred, (0) Not yet
(c) Submission of request letter to Board of survey	-	0	0	1	0	0	0	0	-	0	0	0	1	(1) Submitted, (0) Not yet
(d) Conduct of decommission survey mission	-	0	0	0	0	0	0	0	-	0	0	0	1	(1) Completed, (0) Not yet
(e) Approval of decommission request	-	0	0	0	0	0	0	0	-	0	0	0	1	(1) Approved, (0) Not yet
(f) Purchase of order for replacement if necessary	-	0	0	0	0	0	0	0	-	0	0	0	1	(1) Submitted, (0) Not yet
(g) Implementation of decommission auction	-	0	0	0	0	0	0	0	-	0	0	0	1	(1) Bid successful, (0) Not yet
(h) Removal of items from hospital	-	0	0	0	0	0	0	0	-	0	0	0	1	(1) Removed, (0) Not yet
Total	0	3	22	37	19	11	12	16	0	3	9	18	50	Max. 50
(Preventive Maintenance Monitoring Items)														
(1) Action plan of maintenance														
(a) Annual plan is available	-	0	5	5	5	0	0	5	-	0	5	5	5	(5) Available, (0) Not available
(2) Daily maintenance														
(a) Check sheet and recording form available	-	0	1	4	4	0	0	4	-	0	1	1	4	(4) Available, (1) Partially available, (0) Not available
(b) User training plan present	-	0	1	4	4	0	0	1	-	0	1	1	4	(4) Present, (1) Partially present, (0) Not present
(c) User training implemented	-	0	3	0	3	0	0	0	-	0	3	3	5	(5) Implemented, (3) Partially implemented, (0) Not implemented
(d) Monitoring and necessary instruction is implemented	-	0	3	0	3	0	0	3	-	0	3	3	4	(4) Completed, (3) Partially implemented, (0) Not implemented
(3) PPM														
(a) PPM Check sheet and recording form available	-	0	3	3	3	0	0	3	-	0	3	1	3	(3) Available, (1) Partially available, (0) Not available
(b) PPM plan present	-	0	3	3	3	0	0	1	-	0	1	1	3	(3) Present, (1) Partially present, (0) Not present
(c) PPM implemented	-	0	1	0	3	0	0	1	-	0	0	1	3	(3) Implemented, (1) Partially implemented, (0) Not implemented
(d) monitoring and necessary instruction is implemented	-	0	1	1	1	0	0	1	-	0	0	0	3	(3) Completed, (1) On going, (0) Not yet started
(4) Corrective maintenance														
(a) Job request form available	-	0	3	3	3	0	0	3	-	0	0	3	3	(3) Available, (0) Not available
(b) Maintenance record available	-	0	3	3	3	0	0	3	-	0	0	3	3	(3) Available, (0) Not available
(5) Data collection														
(a) Data is summarized and reported every month	-	0	5	5	0	0	0	0	-	0	0	0	5	(5) Yes, (0) No
(b) Annual activity report is prepared	-	0	0	5	0	0	0	5	-	0	0	0	5	(5) Yes, (0) No
Total	0	0	32	36	35	0	0	30	0	0	17	22	50	Max. 50

Annex II: Result of assessment concerning the MEM status (Western)

Monitoring Items	Mongu				Senanga				Kaoma				Maximum Score	Scoring Criteria
	Lewanika General Hospital				Senanga District Hospital				Kaoma District Hospital					
Monitoring Data	2012	2015-1	2015-2	2015-3	2012	2015-1	2015-2	2015-3	2012	2015-1	2015-2	2015-3		
(Medical Equipment Management Monitoring Items)														
(1) Establishment of MEMC														
(a) Establishment of MEMC	5	5	5	5	5	5	5	5	5	5	5	5	5	(5) Established, (0) Not yet established
(2) Number of MEMC meeting														
(a) Number of MEMC meeting	0	0	0	0	0	0	2	2	0	0	0	2	4	(4) Monthly, (3) Bimonthly, (2) Quaterly, (0) Less than quaterly
(b) Creation of minutes of meetings	1	0	0	1	1	1	1	1	1	0	0	1	1	(1) Created, (0) Not Created
(3) Inventory of medical equipment														
(a) List up	3	3	3	3	3	3	3	3	3	3	3	3	3	(3) Completed, (1) Under preparation, (0) Not year standard.
(b) Every 6 months review	2	0	0	2	2	2	2	2	2	1	2	2	2	(2) Done, (0) Not yet done.
(4) Consumables														
(a) List up necessary consumables	3	3	3	3	3	3	3	3	0	0	0	0	3	(3) Completed, (1) Under preparation (0) Not yet started
(b) Every 6 months review	2	0	0	2	2	2	2	2	0	0	0	0	2	(2) Done, (0) Not yet done.
(5) Spare parts														
(a) List up necessary spare parts	3	3	3	3	3	3	3	3	0	0	0	0	3	(3) Completed, (1) Under preparation, (0) Not yet started
(b) Every 6 months review	2	0	0	2	2	2	2	2	0	0	0	0	2	(2) Done, (0) Not yet done
(6) Equipment plan														
(a) Analysis of inventory list	5	0	0	5	2	5	5	5	0	0	0	0	5	(5) Completed, (2) Partial, (0) Not yet
(b) Procurement plan based on standard / necessity	0	0	0	-	0	2	2	2	0	0	0	0	5	(5) Completed, (2) Partial, (0) Not yet
(c) Add procurement plan to annual action plan	0	0	0	-	0	5	5	5	0	0	0	0	5	(5) Done, (0) Not yet
(7) Decommissioning														
(a) List up of items	2	2	2	-	2	2	2	2	2	0	2	2	2	(2) Completed, (0) Not yet
(b) Transfer to items to storage	0	2	0	2	0	2	2	1	0	0	0	2	2	(2) Completed, (1) Partially transferred, (0) Not yet
(c) Submission of request letter to Board of survey	1	1	0	1	1	1	1	1	1	0	0	0	1	(1) Submitted, (0) Not yet
(d) Conduct of decommission survey mission	0	1	0	0	0	1	1	1	0	0	0	0	1	(1) Completed, (0) Not yet
(e) Approval of decommission request	0	1	0	0	0	1	1	1	0	0	0	0	1	(1) Approved, (0) Not yet
(f) Purchase of order for replacement if necessary	0	1	0	0	0	1	1	1	0	0	0	0	1	(1) Submitted, (0) Not yet
(g) Implementation of decommission auction	0	1	0	0	0	1	1	1	0	0	0	0	1	(1) Bid successful, (0) Not yet
(h) Removal of items from hospital	0	1	0	0	0	1	1	1	0	0	0	0	1	(1) Removed, (0) Not yet
Total	29	24	16	29	26	43	45	44	14	9	12	17	50	Max. 50
(Preventive Maintenance Monitoring Items)														
(1) Action plan of maintenance														
(a) Annual plan is available	5	5	5	5	5	5	5	5	5	0	5	5	5	(5) Available, (0) Not available
(2) Daily maintenance														
(a) Check sheet and recording form available	4	0	0	4	4	1	1	4	4	0	1	4	4	(4) Available, (1) Partially available, (0) Not available
(b) User training plan present	1	0	0	4	4	1	1	3	0	0	0	4	4	(4) Present, (1) Partially present, (0) Not present
(c) User training implemented	3	0	0	3	3	3	3	4	0	0	3	5	5	(5) Implemented, (3) Partially implemented, (0) Not implemented
(d) Monitoring and necessary instruction is implemented every 3 months	3	0	0	4	3	3	3	3	0	0	3	4	4	(4) Completed, (3) Partially implemented, (0) Not implemented
(3) PPM														
(a) PPM Check sheet and recording form available	3	0	0	3	3	3	3	3	3	0	3	3	3	(3) Available, (1) Partially available, (0) Not available
(b) PPM plan present	3	0	0	3	3	3	3	3	0	0	0	3	3	(3) Present, (1) Partially present, (0) Not present
(c) PPM implemented	1	0	0	3	3	1	1	3	0	0	0	0	3	(3) Implemented, (1) Partially implemented, (0) Not implemented
(d) monitoring and necessary instruction is implemented	1	0	0	3	3	0	1	3	0	0	0	0	3	(3) Completed, (1) On going, (0) Not yet started
(4) Corrective maintenance														
(a) Job request form available	3	3	3	3	3	3	3	3	3	0	3	3	3	(3) Available, (0) Not available
(b) Maintenance record available	3	3	3	3	3	3	3	3	3	0	3	3	3	(3) Available, (0) Not available
(5) Data collection														
(a) Data is summarized and reported every month	5	0	0	0	5	0	0	0	0	0	0	0	5	(5) Yes, (0) No
(b) Annual activity report is prepared	0	0	0	5	0	5	5	5	0	0	0	5	5	(5) Yes, (0) No
Total	35	11	11	43	42	31	32	42	18	0	21	39	50	Max. 50

**Monitoring and Assessment of Medical Equipment Maintenance and Management Activities, and Renewal of the Medical Equipment Inventory List of Pilot Districts and Hospitals in the Eastern Province
On the Health Capital Investment Support Project (Extension Phase, 2015-2016)**

Prepared by: Tamotsu NOZAKI
Facility Utility Planning/Medical Equipment Planning

1. Objectives of the trips

- To assess the Medical Equipment Maintenance and Management Status after the adoption of the Medical Equipment Management Guidelines which was introduced through the Health Capital Investment Support Project (2010-2012).
- To conduct supportive supervision. The topics and areas of supervision are subject to the request from the hospitals for improving the current status (Especially, in the field of medical equipment maintenance and management).

2. Sites

- Chadiza District (District Health Office and District Hospital)
- Lundazi District (District Health Office and District Hospital)
- Petauke District (District Health Office and District Hospital)

3. Contents of the activities

- Scoring the medical equipment management activities at the 3 District Health Offices and their Hospitals in the Districts by using the scoring format
- Renewal of the Medical Equipment Inventory List for the above-mentioned three (3) hospitals

4. Tentative Work Schedule

The tentative work schedule (summary of activities) is show in Table below.

No.	Date	Activities	Stay
1	17 JAN (Sun)	Move to Chipata	Chipata
2	18 JAN (Mon)	Courtesy visit to PMO, Eastern Province Chadiza District Health Office Scoring the medical equipment management activities	Chipata
3	19 JAN (Tue)	Chadiza District Hospital Scoring the medical equipment management activities and update of the Medical Equipment Inventory List	Chipata
4	20 JAN (Wed)	Lundazi District Health Office and District Hospital Scoring the medical equipment management activities and update of the Medical Equipment Inventory List	Chipata

No.	Date	Activities	Stay
5	21 JAN (Thu)	Move to Petauke Petauke District Hospital Scoring the medical equipment management activities and update of the Medical Equipment Inventory List	Petauke
6	22 JAN (Fri)	Petauke District Health Office Scoring the medical equipment management activities	Lusaka

5. List of members in Eastern Province who collaborated and linked up

The members in the province are listed in the Table below:

	Name	Status, Organization/Institution
Provincial Medical Office	Dr. Abel Kabalo	PMO, Provincial Medical Office, Eastern Province
	Mr. Banda Jordan	Disease Surveillance Officer, PHO
	Mr. Gifuto Lupenga	Senior Medical Equipment Officer, PHO
Chadiza District	Mr. Lackwell Nundwe	UCI Technician, District Medical Office
	Mr. Humphrey Simatanga	Administrator, Chadiza District Hospital
	Mr. Henry Phiri	Electrical Technician, Chadiza District Hospital
Lundazi District	Dr. Chisenga Allan	DMO, District Medical Office
	Dr. Zulu D.W.	Acting DMO, District Medical Office
	Mr. Henry Zimba	UCI Technician, District Medical Office
	Mr. Richard Kalimukwa	Administrator, Lundazi District Hospital
	Mr. Kennedy Mayovu	Electrical Technician, Lundazi District Hospital
Petauke District	Dr. Chisenga (newly appointed)	DMO, District Medical Office
	Mr. Oscar Bwalya	UCI Technician, District Medical Office
	Mr. Oscar Bwalya Coldchaim	Administrator, Petauke District Hospital

6. Activities

(1) General Description of the three Districts

In general, the three district hospitals which were selected as pilot sites, are well-managed by the board members, both in terms of maintenance management activities as well as in renewal of medical equipment inventory.

As to the annual activity plan for the next financial year, it is summarized around mid of previous year. In terms of medical equipment maintenance related issues, such as medical equipment procurement plan, lists up of necessary spare parts and consumables, scheduling PPM for major medical equipment, and so on, were planned on that time. On the other hand, disbursement of the budget for the activities is still waiting approval by the Government. It is expected to be approved beginning of February. Therefore, starting period of financial year, such as January and February, seems difficult to start the actual activities in conformity with the annual action plan.

(2) Summary of District Level

- Chadiza District

Generally speaking, Provincial Health Office (PHO) provides financial supports for the districts (and district hospitals) that exceed a certain amount of money for procuring the spare parts.

The hospital administrator raised an issue to the PHO, that he has submitted request letters for financial support to procure spare parts as well as equipment, but no reply was received by the hospital administrator since last two months. The letters were submitted in early December of last year.

The Principal Medical Equipment Officer (Mr. Gift Lupenga) who was a part of this monitoring activity, promised to

follow-up the said requests, and give feed back to the hospital administrator.

In the discussion and exchange of opinions with the acting District Medical Officer, she requested in-service training for equipment users concerning the use and operation (utilize) of common medical equipment, such as autoclaves, suction machines and oxygen concentrators, etc. which are being use both at the hospitals as well as at the health centers. The Principal Medical Equipment Officer (PMEO) promised to organize user-training sessions for district level users as his routine works.

- Lundazi District

In the discussion with the acting DMO (Head of HRD Dept.), District Health Office (DHO) is trying hard to secure and establish related staff (posts) for to the medical equipment maintenance and management as motivation. Every year, for the last ten years, the DHO is requesting the MoH HQs to appoint to the engineering posts for medical equipment maintenance and management, such as electrical technician, etc. There is one electrical technician in the hospital, but his official post is cook. DHO is trying to correct this awkward situation.

- Petauke District

The hospital electrical technician has started to go to school for a diploma course at the Northern Technical College (NORTEC) in Ndola from the last quarter of 2015, a training institution under the Ministry of Education. This is a three-year diploma course in biomedical engineering technology. The UCI technician of the DHO is supporting hospital medical equipment maintenance and management, and is developing a new electrical technician who can do medical equipment maintenance and management job.

7. Conclusion

As a matter of consensus the three District Health Offices (DHOs) and the 1st level hospitals concerned officials agreed that it is very difficult to secure / allocate proper medical equipment maintenance budget, such as procurement costs for consumable and spare parts. Even though that certain amount of the budget is indicated in the Yellow Book, it is very rarely disbursed based on its face value.

According to the Principal Medical Equipment Officer of the Eastern Province there is certain amount of budget, which can be allocated for medical equipment maintenance purpose for the respective districts under the province. Therefore, to finalize the appropriate budget for medical equipment maintenance, based on experience and using evidence-based planning technique, the budget plans both of the DHOs and the Provincial Health Office (PHOs) should be reconciled, harmonized, and consolidated.

The results of questionnaire survey and field survey of three pilot district in Lusaka, Eastern, Western Province

Health Capital Investment Support Project (HCISP)

Maiko NAGASAWA

1. General Information

1-1. Purpose of Survey

The survey was implemented to understand current situation of health capital investment plan, medical equipment and facility management system which had been supported by HCISP. The results of the survey will be utilized to develop performance of medical equipment and health facility maintenance and to make evidence-based budget plan.

1-2. Target organization of Questionnaire Survey

Provincial Medical Office: Eastern, Western and Lusaka

District Medical Office: All DMO in the three province mentioned above

Central Hospital: UTH, Chinama Hill hospital

Provincial Hospital: Levy Mwanawasa Hospital, St Francis Mission Hospital,
Chipata General Hospital, Lewanika General Hospital

District Hospital: All District hospital in three provinces mentioned above.

1-3. Target organization of Field Survey

Provincial Medical Office: Eastern, Western and Lusaka

District Medical Office; Lusaka province: Lusaka, Kafue, Chongwe

Eastern Province: Chipata, Lundazi, Petauke

Western Province: Mongu, Kaoma, Senanga

Provincial Hospital: Mpansha Mission Hospital, Chipata General Hospital,
Lewanika General Hospital

District Hospital: All District hospital in three provinces mentioned above

1-4. The duration of survey

Questionnaire survey from April to May 2015

Field Survey Lusaka Province: 23rd,27th,28th,29th April 2015

Eastern Province: from 4th May to 7th May 2015

Western Province: from 11th May to 14th May 2015

1-5. The response rate

Lusaka Province 91% Eastern Province 89% Western Province 78%

2. Results of survey

2-1. Health Capital Investment Support Project (HCISP)

According to questionnaire survey, possession rate of HCISP guideline is low. More than half facilities in Lusaka and Eastern province have updated infrastructure database, but less than half of all provinces make use of that database for making Action Plan. In reference to medical equipment database, less than half of all provinces have updated.

The field survey of each pilot district revealed that possession rate of HCISP guidelines was only 20%. In some facilities, both of Infrastructure database and Medical Equipment Database haven't been completed. Furthermore, the database utilization rate to make Action Plan was 20% for infrastructure database and 40% for medical equipment database. This means the databases aren't enough utilized to evidence-based budget planning. On the other hand, because of the absence of person in charge or break-down of PC which database was installed, database was operated only in three facilities during field survey.

In reference to low rate of updating and utilization of these databases, following reasons became clear.

- (1) Lack of support for continuing project activities from MoH or Provincial Health Office since previous project had phased out.
- (2) Contents of previous project activities were various such as input of database, data collection of infrastructure and medical equipment, medical equipment maintenance management etc. Therefore, person in charge of each activities are plural and person who superintends the project activities in each facilities were not chosen.
- (3) Method of how to utilize database were not clear
- (4) Some PC have broken down

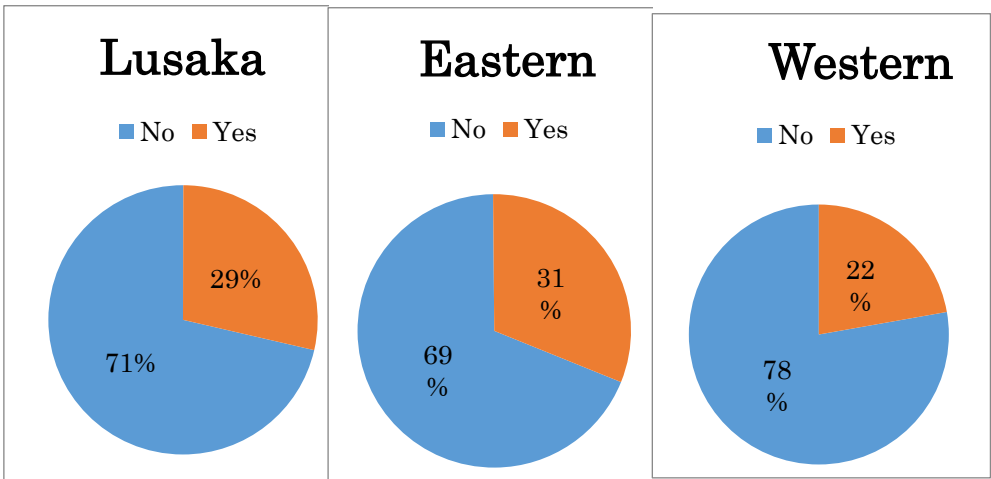


Figure .1 rates of facilities where possess HCIP guidelines or not

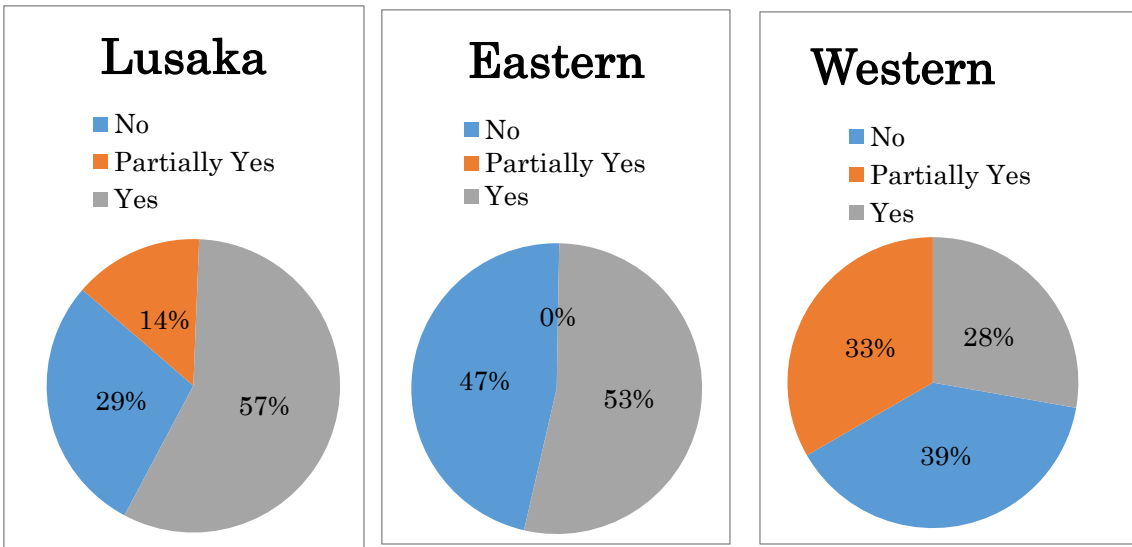


Figure 2 rates of facilities that update infrastructure database completely, partially, or not

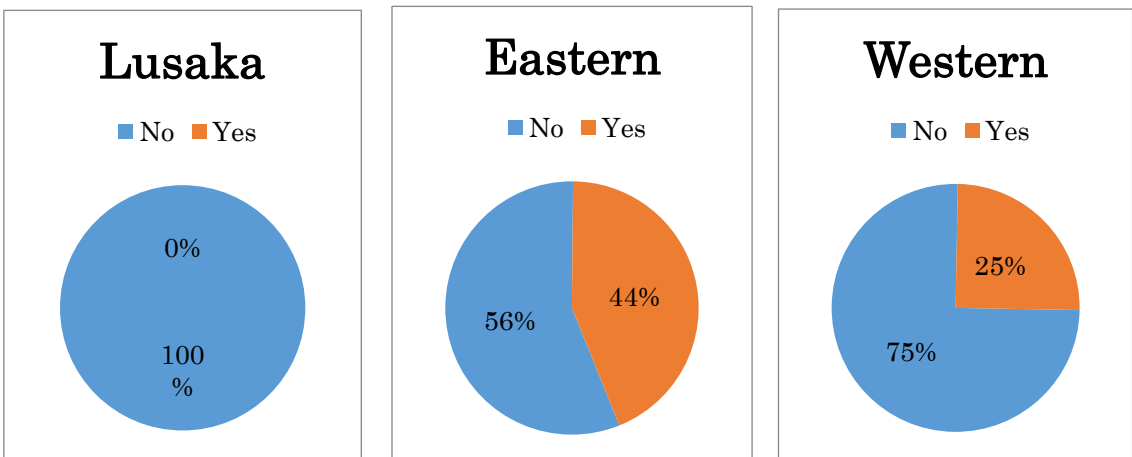


Figure 3 rates of facilities utilizing infrastructure database to making Action Plan

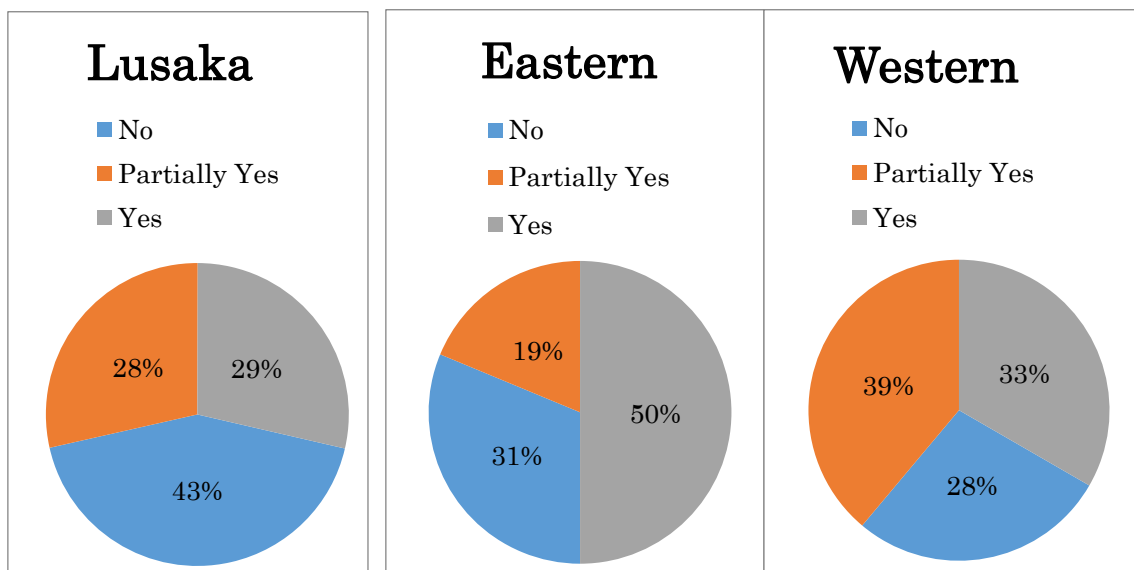


Figure 4 rates of facilities that update medical equipment database completely, partially, or not

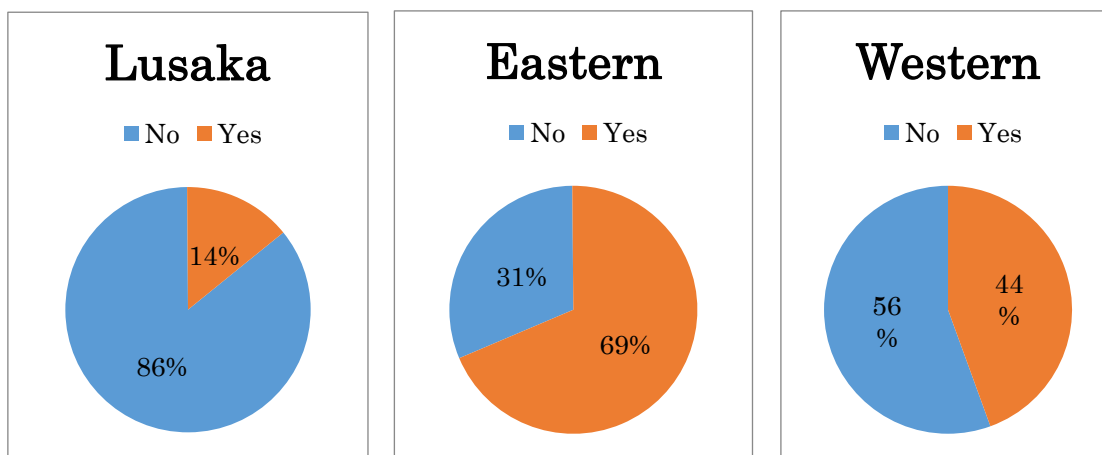


Figure 5 rates of facilities that utilize medical equipment database to making Action Plan

5-2. Medical Equipment Management

(1) Medical Equipment Management Committee

Having medical equipment management committee or not is as to the figure 6. 71% of Lusaka, 56 % of Eastern, 7% of Western province has the committee. In addition, committee meeting was held but it wasn't often. The reason why the ratio is low especially in Western province seems to be because there are a lot of meetings and members cannot be at the meeting. However, even the committee does not work, the opportunity to discuss about medical equipment matter is held in management meeting.

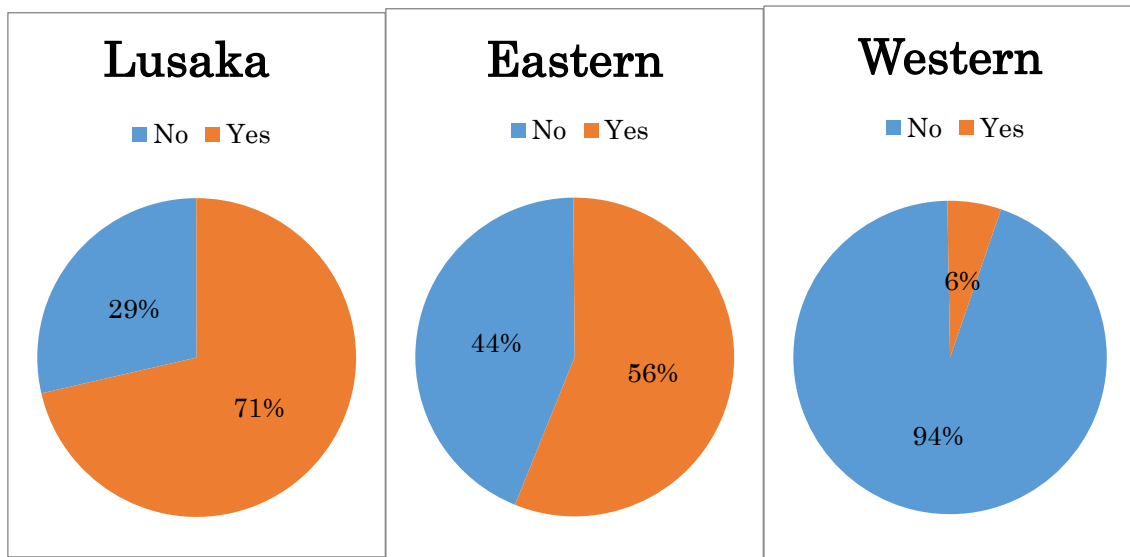


Figure 6 the rates of medical equipment committee working properly

(2) Medical Equipment Inventory List

More than half of target facilities in three pilot province have completed medical equipment inventory. According to the survey, it appears that there were two kinds of inventory list. One is made by MoH and the other is made by HCISP. 2 of Lusaka facilities (Chongwe District Health Office, Lusaka District Health Office), 2 of eastern facilities (Petauke District Health Office, Petauke District Hospital), 4 of western facilities (Western Provincial Health Office, Mongu District Health Office, Kaoma District Hospital, Lewanika General Hospital) were confirmed to use the list which was developed by JICA. Additionally, the list which JICA made is considered to be more comprehensive in comparison with another list in all facilities because JICA inventory list could fill in the details, and it's also easy to grasp the current situation.

The facilities, which have a list of completed spare part and consumable, were less than half in each province.

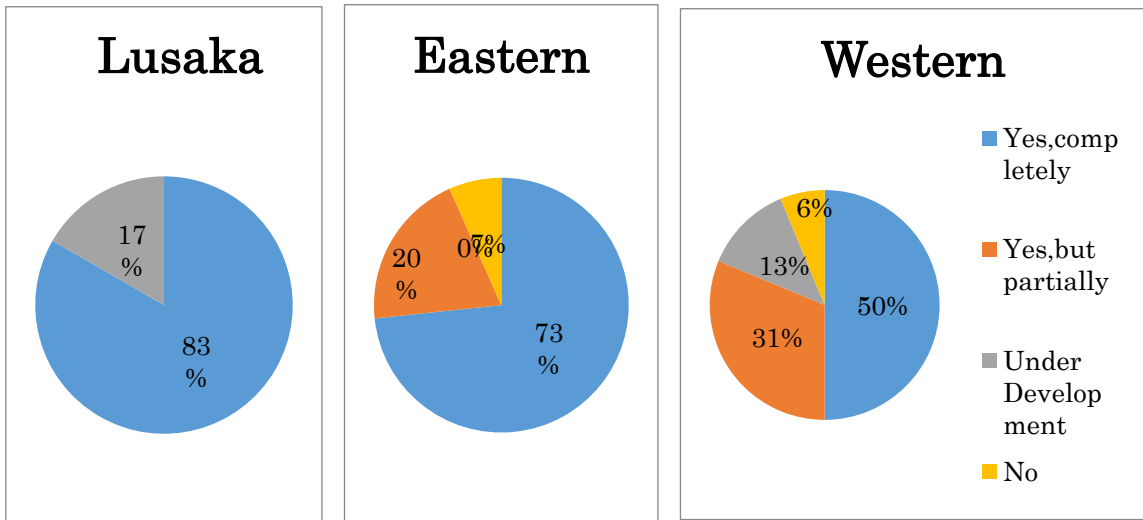


Figure 7 rates of facilities that possess complete medical equipment inventory list, partially one, or not)

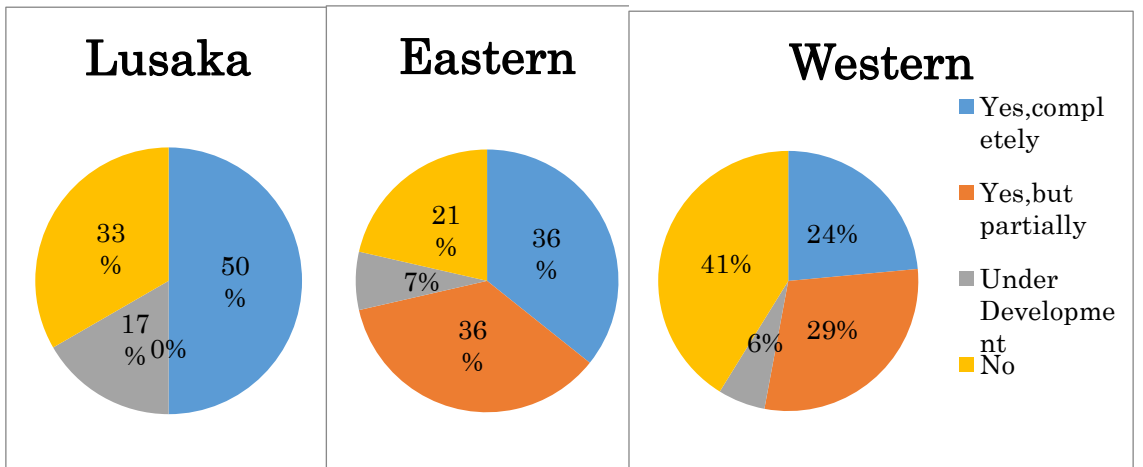


Figure 8 the rate of facilities that possess the complete consumable list, partially one, or not

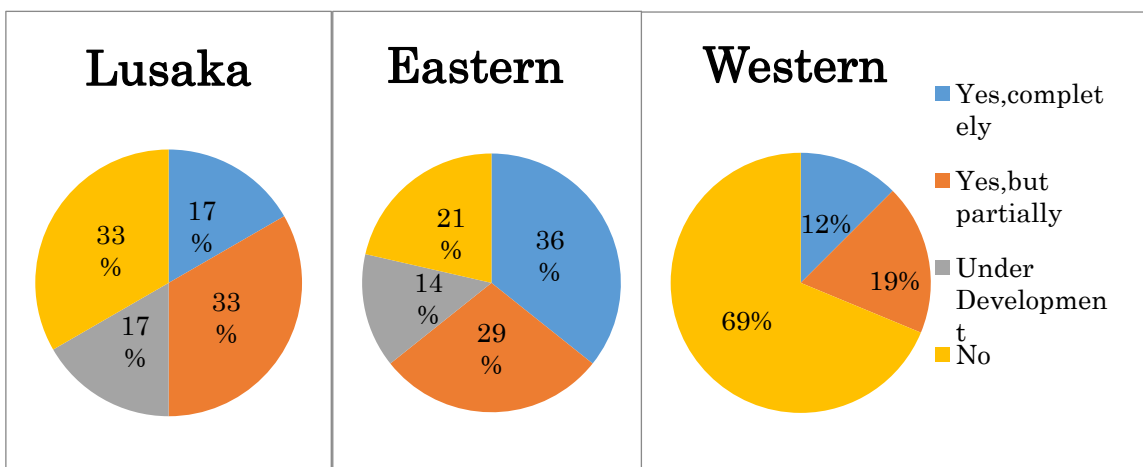


Figure 9 rate of facilities that possess complete spare parts list, partially one, or not

(3) Medical Equipment decommissioning process

About medical equipment decommissioning process, most popular answer is 'progressing'. In field survey, there were many answers that "already finished list it up, and have to wait for approval from ministries and government offices" in the facilities which chose 'progressing'. A decommissioning procedure takes very long time. Therefore, it seems to be difficult to secure space because disposal machine parts are kept.

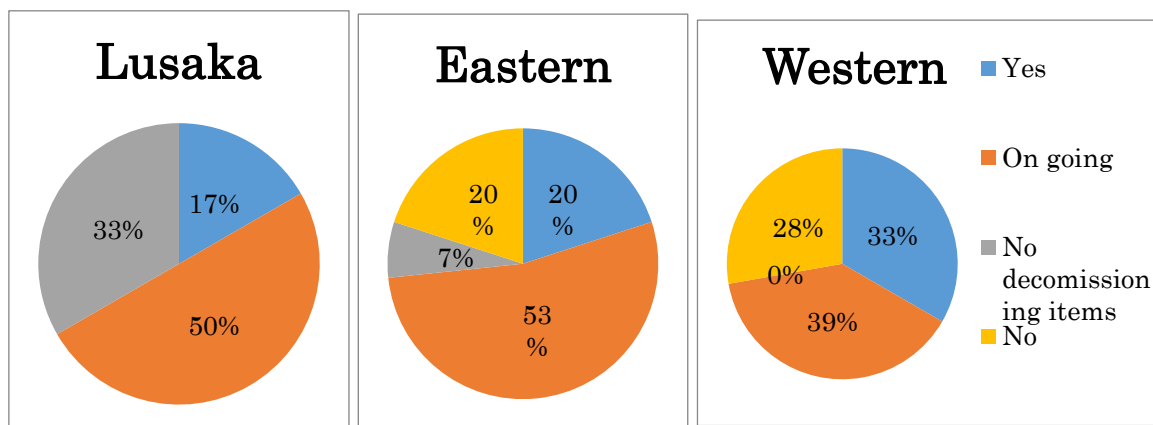


Figure 10 rate of facilities where complete decommission process for medical equipment, ongoing, no decommission items, or not yet

5-3. Medical Equipment Maintenance

The person in charge of medical equipment is registered in most of district hospitals. If they cannot solve the medical equipment problem by themselves, they directly contact with PHO. Medical equipment technician in DHO is in charge of each health center and health post, and the usual target machines are small things such as refrigerator, sphygmomanometer, state, and scale. Medical equipment officer should visit each health post and health center regularly but it is difficult to visit all the sites because of problem of transportation (expenses and means).

The user training is basically carried out when new medical equipment is installed or new staff arrives. There was some district that technician of District Hospital cooperated with DHO. They carried out user training together in each hospital, health center and each health post.

About medical equipment maintenance, following problems were pointed out in many facilities.

(1) Lack of technician

- Both sides of the number of people, the knowledge

- Even they registered at each facility, there are plural technicians who are not in the area because of skilled-up training (after the training period of three years, the technician will come back to each facility so that improvement of medical equipment maintenance ability is anticipated.)
 - Medical Equipment Officer is often dispatched by PHO because of technical problem which each DHO or district cannot manage to solve.
- (2) Difficulty in obtaining spare part
- Some medical equipment is facing to difficulties in acquiring spare part in Zambia and cannot repair it
 - A spare part is not available in district and must go to the Lusaka, but is not available because of transportation expenses.
 - Lack of budget for medical equipment maintenance at the district level
 - At district level, the maintenance cost are paid with other items of expenditure (charge for medicine and patients meals).It means budget for medical equipment maintenance isn't independent. Therefore priority of medical equipment maintenance becomes low.

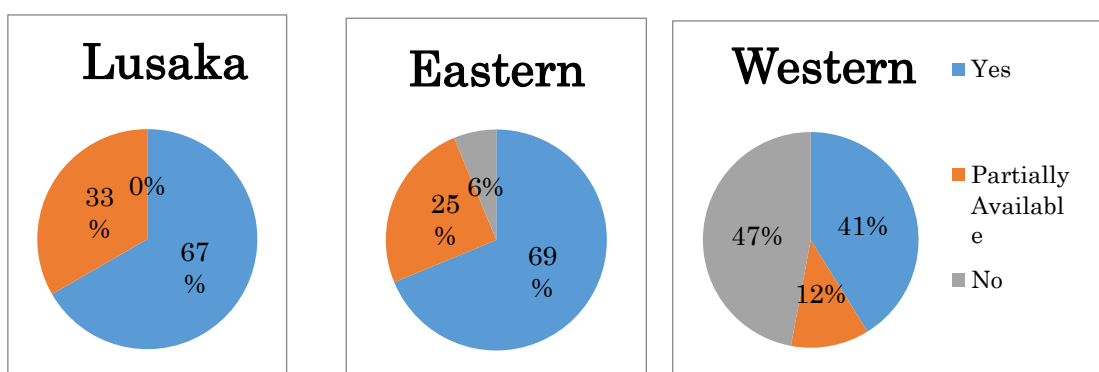


Figure 11 rates of facilities that has maintenance plan, partially available, or not

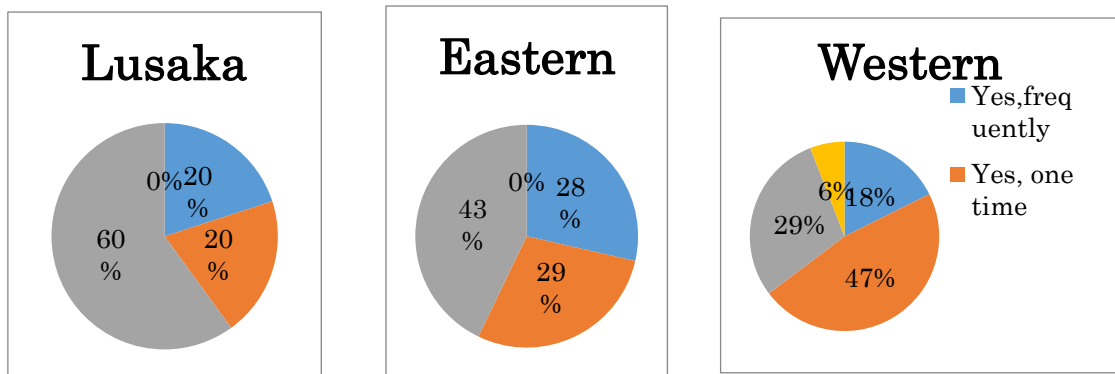


Figure 12 rates of facilities that implement user training frequently, one time, not yet, considering

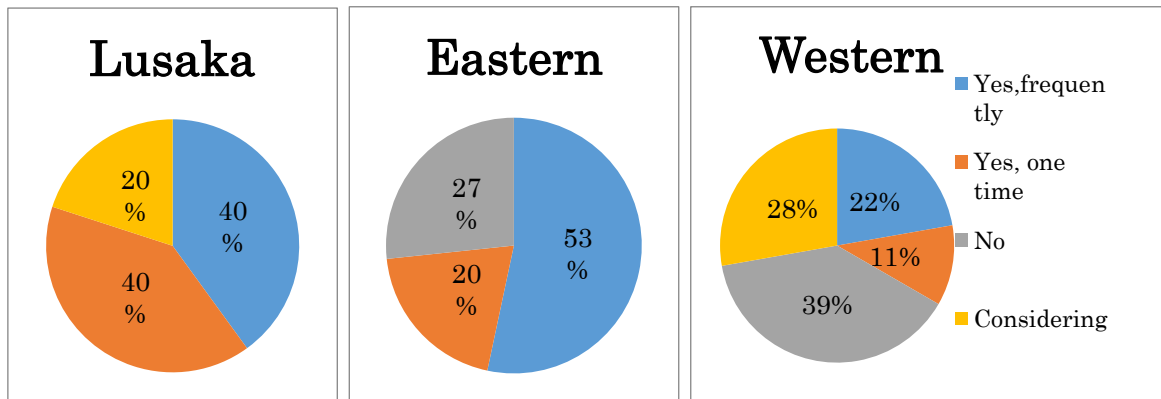


Figure 13 rates of facilities where implement daily maintenance frequently, one time, not yet, considering

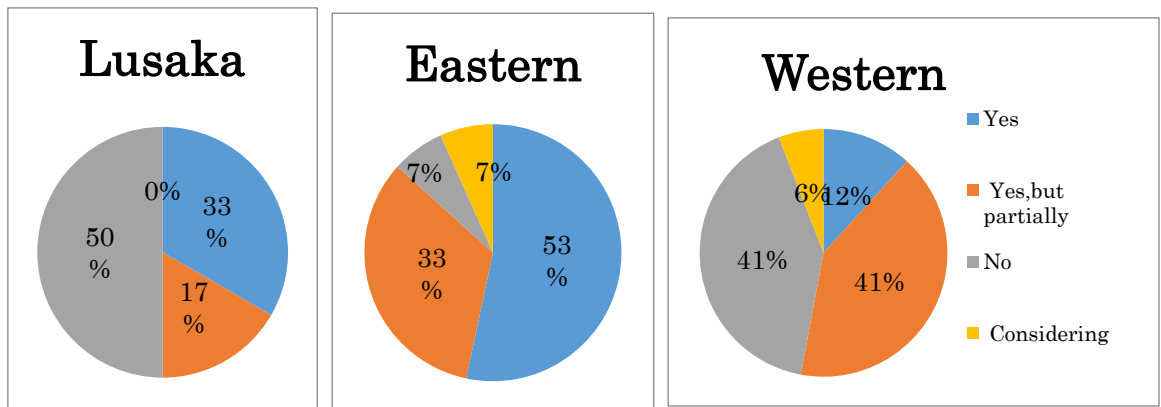


Figure 14 rates of facilities where implement the preventive maintenance completely, partially, not yet, considering

5-4. Performance Assessment(PA) and Technical Support (TS)

With three provinces, an implementation rate of Performance Assessment(PA) and Technical Support(TS) is high. Medical equipment and facility management is included at PA/TS. However, there was an opinion that area of medical equipment and facility management for existing form of the PA is too short and it isn't enough. In addition, it was recognized that the person in charge for medical equipment or health infrastructure was not involved in the member of PA/TS enforcement.

As for medical equipment, the staff of the PHO or DHO visits the field not only at the time for TS but also at the time when a trouble occurred in each facility.

5-5. The others

It was appraised that it came to be able to acquire independent maintenance budget for each PHO as a result of the previous project. When it becomes necessary, it is distributed according to the needs of DHO. The budget is spent for the wage to spare part, transport to each facility, DSA, or charges to engineer. There was an opinion that they can use such a budget only for repair not for preventive maintenance because there is insufficiency of the budget. Prioritization is necessary for effective budget planning.

The order of priority for maintenance and purchase request of medical equipment is decided by discussion in each facility. As for the priority written in Action Plan, it is not clear so that more information and analysis are needed.

6. Conclusion

Each level of health organization (such as PHO, DHO and 1st and 2nd level Hospital), is developing Action Plan annually according to Action Plan Guidebook edited by MoH. Though the guideline for Health Capital Investment Plan 2008-2010 (HCIP), Medical Equipment Database and Infrastructure Database developed in HCISP for evidence-based budget planning and prioritize budget allocation, these are not utilized appropriately in the organizations. Both of the databases are not only well understood in district level organizations but also in provincial level.

On the other hands, the budgets for health capital investment have not been developed based on the evidences.

To improve the situation, further understanding for evidence-based budget planning is necessary. For developing evidence-based budget planning, the current situation of the health facilities and medical equipment shall be understood appropriately and timely.

6-1. Challenges for evidence based budget planning

- MoH or Provincial Health Office could neither lead nor provide appropriate support to continue project activities since previous project phased out.
- Since the person in-charge for medical equipment, infrastructure, database management and data-input are different, activities under previous project has not been mutually utilized for evidence-based budget planning.
- After closing the previous project, some person in charge moved to other facilities, and existence of the database and user guides do not be informed to others.
- Since the databases (both of medical equipment and infrastructure) aren't well-known by related person in MoH, PHO and DHO, those are not utilized most

of the target site in the research. Especially infrastructure database was not utilized. It seems that how to utilize collected data was not clear. This means it is difficult to understand both current situation and needs for repair of health facility by using infrastructure database.

- Since PC was breakdown or medical equipment technician doesn't have their own official PC in some organizations, data for medical equipment was collected by paper-based.

6-2. Suggestion

- To understand current situation of medical equipment and health facilities for evidence based budget planning, medical equipment had better to be managed by paper-based data at this moment. On the other hand, it seems worth trying for health facilities to be managed by drawing up plans instead of health facility database to understand current situation.
- Clarification of how to make evidence-based budget planning and prioritize is necessary. We suggest making a booklet to explain importance and procedure of evidence-based budget planning. By using booklet, the results of previous project such as HCISP, medical equipment and infrastructure database, medical equipment list are supposed to be linked with evidence-based budget planning effectively. This is supposed to be used with Action Plan Guideline. By making use of prepared booklet, evidence-based budget planning will be informed in pilot district.

7. Action Plan

(1) Purposes

By clarifying procedure of evidence-based budget planning for medical equipment and health facilities, evidence-based budget planning will be understood and implemented properly in District level.

(2) Objectives

- Understanding adequate procedures for evidence based budget planning through current reviewing budget planning procedures.
- Developing booklet for user of tools introduced in the project. .
- Introducing Evidence-based budget planning based on the booklet in the pilot districts.

(3) Target organization

District hospitals, DHO and PHO

(4) Pilot sites

DHO and District Hospitals in following district

Lusaka province: Lusaka, Kafue, Chongwe

Eastern Province: Chipata, Lundazi, Petauke

Western Province: Mongu, Kaoma, Senanga

(5) Activities

1) Preparation of Drafting the booklet for evidence-based budget planning (October.2015)

In-charge person in MOH and Japanese expert will visit some of pilot districts and confirm to DHMT (District Health Management Team) how Action Plan (especially budget plan) had been decided and prioritized on August and September. Regarding medical equipment, how database was reflected to evidence-based budget planning will be confirmed to DHMT and PHMT. Regarding health facilities, floor plan will be understood drawn up for understanding current situation. . In-charge person and Japanese expert will draft the booklet based on collected information.

2) Supportive supervision for evidence-based budget planning in District Hospital and District Health Office (November. 2015)

Supportive supervision for evidence-based budget planning will be implemented in three pilot provinces with prepared booklet. In district level facilities, In-charge person in MOH and Japanese expert confirm how collected medical equipment and infrastructure data had reflected to Action Plan with DHMT members. And the procedure of budget planning will be reviewed according to the booklet.

3) Completion of budget planning booklet(December, 2015)

After supportive supervision for evidence-based budget planning, the draft for booklet will be finalized.

Date: 30 November 2015

**Monitoring and Assessment of the Infrastructure and
Budget Allocation Activities
in Lusaka Eastern and Western Province
Health Capital Investment Support Project (Extension Phase)**

Shuichi SUZUKI
Leader / Health Capital Investment Planning
Maiko NAGASAWA
Budget Plan Support

1. Objectives of the trip

- To demonstrate monitoring and check sheet for infrastructure maintenance management which was revised from infrastructure database, to Environmental Health Officers in District Medical Offices and District Hospitals.
- To share the result of the monitoring using the check sheet to Provincial Medical Offices, District Medical Offices and District Hospitals.
- To explain the drafted Guidebook of Budget allocation for Periodical Preventive Maintenance of Medical Equipment and Infrastructure to the hospital administrators in District Hospitals.

2. Pilot Sites

Lusaka Province

- Chipata 1st Level Hospital / Lusaka District
- Chongwe District Hospital / Chongwe District
- Kafue District Hospital / Kafue District

Eastern Province

- Chadiza District Hospital / Chadiza District
- Lundazi District Hospital / Lundazi District
- Petauke District Hospital / Petauke District

Western Province

- Lewanika General Hospital
- Senanga General Hospital / Senanga District
- Kaoma District Hospital / Kaoma District

3. Contents of the activities

- Hospital round for monitoring the current situation of infrastructure using check list with Environmental Health Officer of the hospital.
- To share the results of the monitoring at PMO, DMO and the District hospital
- To introduce the drafted Guidebook of Budget allocation for Periodical Preventive Maintenance of Medical Equipment and Infrastructure.

4. Work Schedule

The work schedule is shown in Table 1.

Table 1. Work Schedule for Monitoring and sharing of Infrastructure and Budget allocation activities

1	12 th October	Mon	Monitoring at Kafue DH	Suzuki
2	13 th October	Tue	Monitoring at Kafue DH	Suzuki
3	14 th October	Wed	Monitoring at Chongwe DH	Suzuki
4	15 th October	Thu	Monitoring at Chongwe DH	Suzuki / Nagasawa
5	16 th October	Fri	Monitoring at Chipata 1 st Hos.	Suzuki / Nagasawa
6	19 th October	Mon	PMO / Monitoring Lewanika GH	Nagasawa
7	20 th October	Tue	Monitoring at Senanga GH	Nagasawa
8	21 st October	Wed	Monitoring at Senanga GH	Nagasawa
9	22 nd October	Thu	Monitoring at Kaoma DH	Nagasawa
10	23 rd October	Fri	Monitoring at Kaoma DH	Nagasawa
11	26 th October	Mon	Monitoring at Chadiza DH	Suzuki
12	29 th October	Thu	Monitoring at Lundazi DH	Suzuki
13	30 th October	Fri	Monitoring at Petauke DH	Suzuki
14	31 st October	Sat	Monitoring at Petauke DH	Suzuki
15	2 nd November	Mon	Sharing result at Kafue DH / DMO	Suzuki
16	3 rd November	Tue	Sharing result at Chongwe DH / DMO	Suzuki
17	4 th November	Wed	Sharing result at Chipata 1 st Hos. DMO	Suzuki
18	17 th November	Tue	Sharing result at PMO Eastern / Chadiza DH / DMO	Suzuki
19	18 th November	Wed	Sharing result at Lundazi DH / DMO	Suzuki
20	19 th November	Thu	Sharing result at Petauke DH / DMO	Suzuki
21	24 th November	Tue	Sharing result at PMO Western Monitoring at Lewanika GH	Suzuki
22	25 th November	Wed	Sharing result at Senegna GH / DMO Visit Nalolo District office Visit Limulunba District Office	Suzuki
23	26 th November	Thu	Sharing result at Kaoma DH / DMO	Suzuki
24	27 th November		Sharing result at PMO Lusaka	Suzuki

5. List of members who met in Pilot Facilities

Lusaka Province

No.	Facility	Name	Position
1	PHO	Dr. Kennedy Malama	PMO
2	PHO	Mr. Christopher Sinkala	Chief Medical Equipment Officer
3	PHO	Mr. Chelo Meetwell	Chief Environmental Health Technologist
4	Lusaka DHO	Dr. Gideon Zulu	DMO
5	Lusaka DHO	Ms. Chizongo Matimba	Environmental Health Technologist
6	Kafur DHO	Dr. Dorothy Marumahoko	DMO
7	Kafur DHO	Mr. Teddy Mofya	District Environmental Health Officer
8	Kafue DH	Ms Patricia Namutowe	Hospital Administrator
9	Kafue DH	Ms. Maureen Muma	Environmental health Technologist
10	Chongwe DHO	Mr. Alex Chilabi	Environmental health Technologist
11	Chongwe DH	Ms. Mulumbenji Malijani	Hospital Administrator
12	Chipata 1 st Level Hospital	Ms. Maureen Mwambazi	
13	Chipata 1 st Level	Ms. Faides Mambwe	Environmental health Technologist

Eastern Province

No.	Facility	Name	Position
1	PHO	Dr. Abel N. Kabalo	PMO
2	PHO	Dr. John Phiri	Clinical Care Specialist
3	PHO	Mr. Jordan Banda	Disease Surveillance Officer
4	PHO	Mr. Gift Lupenga	Principle, Medical Equipment Officer
5	Chadiza DHO	Ms. Kanchepa N Sianamku	Planner
6	Chadiza DHO	Mr. Milimo Haawg'owbe	Health Information Officer
7	Chadiza DHO	Mr. Daka Kenneth	Environmental Health Technician
8	Chadiza DH	Mr. Humphery Simatanga	Hospital Administrator
9	Chadiza DH	Mr. Nchimunya Sibbilishokwe	Environmental health Technologist
10	Lundazi DHO	Dr. Wadula Zulu	DMO
11	Lundazi DHO	Mr. Pendavis Chinsoto	Environmental health Technologist
12	Lundazi DH	Ms. Hilda Chilufya	Hospital Administrator
13	Lundazi DH		Environmental health Technologist
14	Petauke DHO	Dr. Allan Chisenga	DMO
15	Petauke DHO		Me officer
16	Petauke DH	Mr. Muukombwe Lwendo	Hospital Administrator
17	Petauke DH	Ms. Lreen D.Banda	Senior Nursing Officer
18	Petauke DH	Ms. Chamda S. Moff	Environmental health Technologist

Western Province

No.	Facility	Name	Position
1	PHO	Dr. Andrew Simuesii	PMO
2	PHO	Mr. Nixion Siloonao	Infrastructure Officer
3	PHO	Mr. Luhana Elias	Medical equipment Officer
4	Lewanika GH	Dr. Munfanga Mapani	Medical Superintendent
5	Lewanika GH	Mr. Leo Hibajene	Hospital Administrator
6	Senanga DHO	Dr. Kenneth Mbozi	DMO
7	Senanga DHO	Mr. Sidney Sitali	Public health Officer
8	Senanga DHO	Mr. John Mutukwa	Health Information Officer
9	Senanga DH	Mr. David Silukolwe	Ag Hospital Administrator
10	Kaoma DHO	Dr. Jakob Sakala	DMO
11	Kaoma DHO	Mr. Misapa Chongo	Planner
12	Kaoma DHO	Mr. Lawewnce Chabalala	Medical Equipment Officer
13	Kaoma DH	Dr. Banza Mukangala	Medical Officer In-charge
14	Kaoma DH	Ms. Margaret Chileshe	Hospital Administrator
15	Kaoma DH	Mr. Castro siwewe	electrician
16	Nalolo DH	Mr. Crhistopher Zulu	Health Information officer
17	Limulunba DH	Dr. Douglas Singini	DMO

6. Activities

(1) Hospital Round

The Japanese experts interviewed to Hospital Administrator (HA) and Environmental Health Officer (EHO) regarding the current condition of the utilities and name of the buildings, annual budget of maintenance and the year of the establishment of each building

And the experts with EHO of the hospital and person assigned from PMO were going around the hospital inside and outside to check the troubles of the buildings and took photo of the troubles.

After the hospital round, the experts filled the checklist and analyze the current situation of the hospitals.

(2) Sharing the results of the hospital round

The Japanese experts submit the monitoring report of the infrastructure to PMO, DMO and the district hospitals at each pilot site by hard copy (all sites) and soft copy (only PMOs and the hospitals).

And the experts explained the summary of the monitoring results to PMO, DMO and HA and EHO of the hospitals

(3) Introducing drafted Guidebook of the budget allocation for Periodical Preventive Maintenance of Medical Equipment and Infrastructure

After the sharing the results of the monitoring, the Japanese experts request PMO and DMO to consider the budget allocation for maintenance of medical equipment and infrastructure based on the action plan of the district hospital and monitoring results and also request HA and EHO of the hospitals to develop the action plan based on the monitoring results and to request the budget allocation for the maintenance of ME and infrastructure to PMO and DOM based on the monitoring results.

7. Summary of the monitoring

1) Kafue District Hospital

Though the hospital was established in 2003, 17 major cracks and 13 major water leakage are found. And also there are many spot on the floor of the outside corridor. It will be cause of the insufficient construction works. It is considerable that the supervision of the construction should have been done strictly.

2) Chongwe District hospital

Though the hospital was established in 2011, 1ge are 8 major cracks and 11 major water leakages are found. And also major cracks are induced from distortion of the foundation of the buildings. It is considerable that the survey of the foundation has not been sufficient.

3) Chipata 1st Level Hospital

The hospital was established in 1982 and expanded frequently. Though some old buildings had the trouble of water leakage and cracks, the foundation of these buildings are not so damaged. However, since there are a lot of temporary buildings like made by containers, it is recommendable reconstruction of the temporary buildings to permanent buildings.

4) Lewanika General Hospital

Since the ward buildings were painted in 2013, most of the wards is not so bad condition except children ward and male surgical ward. Ceilings on pharmacy store are critically damaged by burning and extinguishing activities. The general hospital has money for maintenance of infrastructures comparing to the district hospitals.

5) Senanga General Hospital

The hospital has been up-graded since two years ago. Since the hospital is not under the DHO, the hospital hast to consider the budget allocation of the maintenance for the infrastructure and request the budget to PHO directly. All building have a lot of major troubles on wall and ceiling even though ART clinic was constructed in 2012.

6) Kaoma District Hospital

Even though the hospital has been established since 2007, the condition of maternity ward was critical. It was caused by poor construction and poor supervision of construction.

7) Chadiza District Hospital

Though the hospital was established in 2012, 15 major cracks and 5 major water leakages are found. The cracks were caused by ants. There are many ants nests in the ground of the hospitals. It is considerable that the survey or countermeasures against ants was not sufficient.

8) Lundazi District Hospital

The hospital was established in 1940's but was well maintained even though there were 12 major cracks and 8 major water leakage. The HA of the hospital understood well the necessity of maintenance and allocate budget to purchase materials for repair the buildings. However, large renovation, such as floor tiles is difficult to cover the budget in the hospitals and the fund is necessary from PMO or central level.

9) Petauke District Hospital

The hospital was established in 1950's and 14 major cracks and 15 major water leakages were found. Especially, the condition of operation theatre was deteriorated severely and it shall be rehabilitated as soon as possible. It is cause of the water leakages that the roofs on the old buildings are not well maintained.

8. Conclusion

Most of the HA and EHO understand the necessity of periodical preventive maintenance of the infrastructures and most of them are trying to plan the budget for rehabilitation. Unfortunately, delay allocation of the budget is critical constrain to maintain the infrastructures as well as total budget constrain in the district hospital because high priority of area in the hospital is to serve patients directory, such as medicines, foods and so on.

All PMO, DMO, and HA in the hospital understood the useful of the monitoring form of the infrastructure and consider to utilized the results of the monitoring for next budget development. Some HA and EHO in district hospitals will try to develop monitoring sheet by themselves.

Infrastructure management in central and provincial level is mainly focused on constructing new buildings rather than rehabilitation of existing buildings. To saving money for infrastructure, proper annual budget for preventive maintenance shall be secured, especially for at the district level. Therefore we recommend budget line for maintenance of the infrastructures shall be managed in district level.

9. Way forward

For further understanding the development of monitoring sheet for infrastructure and inventory sheet for medical equipment, we are planning to conduct dissemination workshop for the guidebook at each pilot province. Target participants are planner, EHO and ME officer at PHO and DHO, and Administrator, EHO and Me officer at District hospitals.

10. Attachment

Following documents are attached as Annex I and II

Annex I: result of monitoring of infrastructure

Annex II: drafted Guidebook of Budget allocation for Periodical Preventive
Maintenance of Medical Equipment and Infrastructure

Workshop for creating 2nd and 3rd level hospital standard guidelines

Discussion about created hospital standards draft with end-users' viewpoint

Above mentioned discussion had been done as a series of workshop of selected important parts needs to be improved and upgraded.

- Day 1 main topic: Emergency elements
group: Emergency department nurses and electricians
- Day 2 main topic: Operation theaters with bio-clean environment
group: Theater staff
- Day 3 main topic: Dialysis center design and ICU elements
group: Dialysis center specialists
- Day 4 main topic: Endoscope environment
group: Endoscope staff

Some topic such as "bio-clean zoning idea" is not only related with operation theaters, but also bio-clean ICU like burn unit has been explained and discussed with all group of specialists.

Since dialysis center staff is familiar with monitors for patients in common with those of ICU, designing idea of ICU had been checked with group of dialysis staff.

Main remarks

Because of organizational difference, management zone is not the same as other countries. Therefore, for example, storage location in the department need to be differently organized from world general design.

Expanding part such as Dialysis Center and Endoscope Treatment area do not have enough and adequate room for patient to spend time for prepare before main treatment.

Biggest obstacle to upgrading theater and ICU is technical level of how to design bio clean zone and precise airtight construction skill as well as maintenance of special air-condition with higher-efficiency filter.

However sharing space idea with end-users is very effective for future upgrading.

Endoscope and similar type of medical equipment will be future expanding area, and organization for operating them seems to have possibility of some variations in the future. Therefore, meeting with the specialist, Dr. Kelly was recommended by the staff. (Meeting can be sometime on Tuesday.)

Date: 18 August 2015

**Technical Training for Medical Equipment Technicians
in Lusaka, Western and Eastern Province
Health Capital Investment Support Project (Extension Phase)**

Medical Equipment Planning
Hiroshi YOSHINO
Kodai TATENO

1. Objectives of the training

- To understand the Medical Equipment Guideline, the principals and procedures of preventive maintenance;
- To obtain capacity to perform equipment operation, operation training for the users, daily maintenance training, periodical maintenance and corrective maintenance.

2. Dates and Venues:

- Lusaka Province
20th-23rd July, 2015 at University Teaching Hospital
- Western Province
28th-31st July, 2015 at Lewanika Nursing School
- Eastern Province
10th-13th Aug, 2015 at Eastern Confort Lodge

3. Contents of the training

- Introduction of Medical Equipment Management Guideline
 - 1) Objectives of medical equipment management
 - 2) Expected activities
 - 3) Three cycles of medical equipment
Life cycle, Maintenance cycle and Consumables and spare parts management cycle
 - 4) Process of medical equipment management
Medical equipment committee, Inventory, Equipment development plan, Daily maintenance,
Planned periodical maintenance (PPM), Corrective maintenance
 - 5) Forms for medical equipment management
- Lectures on Medical Equipment Theory
 - Blood pressure machine, Microscope, Suction Machine, Hot air oven and incubator
Water bath Anesthesia apparatus, Patient monitor, Pulse Oxymeter, Fetal Doppler
X-ray Unit, Automatic X-ray film processor, Solar system, Operation table
Operation light, Autoclave, Dental Unit, Refrigerator, Blood bank, Water distiller
Centrifuge, Oxygen concentrator, Infant Incubator, Ultrasound diagnostic apparatus
- Practical Exercises
 - Practical exercises on selected equipment
Measuring instruments and Electrical safety
- Pre/Post Test
 - 20 questions regarding the medical equipment which lectures provided in the contents

4. Training Schedule

The training schedules are shown in Table 1, 2 and 3.
Participants' requests and provincial equipment situation were reflected to the Training contents for each province.

Table 1. Schedule for Technical Training in Lusaka

Technical Training for Medical Equipment Technicians in Lusaka

Day	Time	Training contents	Facilitator / Trainer
1	8:30 – 8:40	Guidance of training	Mr. Yoshino
	8:40 - 9:00	Pre test	
	9:00 - 11:00	Medical Equipment Guideline	Mr. Yoshino
	11:00 – 11:15	Coffee break	
	11:15 – 11:45	Blood pressure machine	Mr. Mukoko
	11:45 - 12:15	Diagnostic set	Mr. Mphande
	12:15 – 13:00	Suction unit	Mr. Ganizani
	13:00 – 14:00	Lunch break	
	14:00 – 15:00	Microscope	Mr. Mwape
	15:00 – 15:15	Coffee break	
	15:15 – 16:20	Hot air oven and Incubator	Mr. Hillam
	16:20 – 17:00	Fetal doppler	Mr. Ganizani
	2	8:00 – 13:00	X-ray unit (Incl. Automatic X-ray film processor)
10:30 – 10:45		Coffee break	
13:00 – 14:00		Lunch break	
14:00 – 15:00		Solar system	Mr. Mwale
15:00 – 15:30		Coffee break	
15:30 – 16:30		Slit lamp	Mr. Mphande
16:30 – 17:00		Ophtalmoscope	Mr. Mphande
3	8:00 – 10:00	Anesthesia apparatus	Mr. Ganizani
	10:00 – 10:20	Coffee break	
	10:20 – 13:00	Patient monitor, Pulse oxymeter	Mr. Mukoko
	13:00 – 14:00	Lunch break	
	14:00 – 15:00	Operating light, Ceiling and Mobile, Examination Light	Mr. Hillam
	15:00 – 15:20	Coffee break	
	15:20 – 16:20	Autoclave	Mr. Ganizani
	16:20 – 17:00	Post test	
4	8:00 – 12:00	Practical training 1	Mr. Mwape
	10:30 – 10:50	Coffee break	
	12:00 – 13:00	Lunch	
	13:00 – 15:30	Practical training 2	Mr. Mukoko
	15:30 – 15:45	Coffee break	
	15:45 – 17:00	Practice for measuring instruments and electrical safety (Patient monitor, Electrosurgical unit others)	Mr. Phiri Mr. Mukoko Mr. Mwape

Table 2. Schedule for Technical Training in Western

Technical Training for Medical Equipment Technicians in Western Province

Day	Time	Training contents	Facilitator / Trainer
1	8:30 – 8:40	Guidance of training	Mr. Yoshino
	8:40 - 9:00	Pre test	
	9:00 - 11:00	Medical Equipment Guideline	Mr. Yoshino
	11:00 – 11:15	Coffee break	
	11:15 – 11:45	Blood pressure machine / Patient monitor / Pulse oxymeter	Mr. Mukoko
	11:45 - 12:15	Diagnostic set	Mr. Musakanya
	12:15 – 13:00	Suction unit	Mr. Phiri
	13:00 – 14:00	Lunch break	
	14:00 – 15:00	Microscope	Mr. Mwape Cornelius
	15:00 – 15:15	Coffee break	
	15:15 – 16:20	Hot air oven and Incubator	Mr. Mwape Cornelius
	16:20 – 17:00	Water bath	Mr. Mwape Cornelius
2	8:00 – 10:00	Anesthesia apparatus	Mr. Phiri
	10:00 – 10:20	Coffee break	
	10:20 – 13:00	Oxygen concentrator	Mr. Musakanya
	11:10 - 12:00	Infant incubator, Resuscitation Unit	Mr. Mwape Cornelius
	12:00 - 13:00	Ultrasound diagnostic apparatus / Fetal doppler	Mr. Ndhlovu
	13:00 – 14:00	Lunch break	
	14:00 – 15:00	Solar system	Mr. Kapoko
	15:00 – 15:30	Coffee break	
	15:30 – 16:15	Dental unit	Mr. Mukoko
	16:15 – 17:00	Refrigerator, Blood bank refrigerator, Body refrigerator	Mr. Kapoko
3	8:00 – 13:00	X-ray unit (Incl. Automatic X-ray film processor)	Mr. Ndhlovu
	10:30 – 10:45	Coffee break	
	13:00 – 14:00	Lunch break	
	14:00 – 15:00	Operating light, Ceiling and Mobile, Examination light	Mr. Mwape Cornelius
	15:00 – 15:20	Coffee break	
	15:20 – 16:20	Autoclave	Mr. Phiri
	16:20 – 17:00	Post test	
4	8:00 – 12:00	Practical training 1	
	10:30 – 10:50	Coffee break	
	12:00 – 13:00	Lunch	
	13:00 – 15:30	Practical training 2	
	15:30 – 15:45	Coffee break	
	15:45 – 17:00	Practice for measuring instruments and electrical safety (Patient monitor, Oxygen analyzer)	

Table 3. Schedule for Technical Training in Eastern

Technical Training for Medical Equipment Technicians in Eastern Province

Day	Time	Training contents	Facilitator / Trainer
1	8:30 – 8:40	Guidance of training	Mr. Yoshino
	8:40 - 9:00	Pre test	
	9:00 - 11:00	Medical Equipment Guideline	Mr. Yoshino
	11:00 – 11:15	Coffee break	
	11:15 – 12:15	Blood pressure machine / Patient monitor / Pulse oxymeter	Mr. Mukoko
	12:15 – 13:00	Defibrillator	Mr. Mukoko
	13:00 – 14:00	Lunch break	
	14:00 – 15:00	Autoclave	Mr. Phiri
	15:00 – 15:20	Coffee break	
	15:20 – 16:10	Hot air oven and Incubator	Mr. Mwape
	16:10 – 17:00	Microscope	Mr. Mwape
2	8:00 – 10:00	Anesthesia apparatus	Mr. Phiri
	10:00 – 10:20	Coffee break	
	10:20 – 12:00	Ultrasound diagnostic apparatus / Fetal doppler	Mr. Mwape
	12:00 - 13:00	Oxygen concentrator	Mr. Mukoko
	13:00 – 14:00	Lunch break	
	14:00 – 15:00	Solar system	Mr. Hillam
	15:00 – 15:30	Coffee break	
	15:30 – 16:15	Laundry equipment (Washing machine, Tumble dryer and Ironer)	Mr. Musakanya
	16:15 – 17:00	Refrigerator, Blood bank refrigerator, Body refrigerator	Mr. Hillam
3	8:00 – 13:00	X-ray unit (Incl. Automatic X-ray film processor)	Mr. Mukoko
	10:30 – 10:45	Coffee break	
	13:00 – 14:00	Lunch break	
	14:00 – 15:00	Dental unit	Mr. Mukoko
	15:00 – 15:20	Coffee break	
	15:20 – 16:20	<u>Equipment on Request (Infant incubator, Generator)</u>	Mr. Luhana Mr. Hillam
	16:20 – 17:00	Post test	
4	8:00 – 12:00	Practical training 1	
	10:30 – 10:50	Coffee break	
	12:00 – 13:00	Lunch	
	13:00 – 15:30	Practical training 2	
	15:30 – 15:45	Coffee break	
	15:45 – 17:00	Practice for measuring instruments and electrical safety (Patient monitor, Oxygen analyzer)	Mr. Musakanya

5. List of Participants

Refer to the attached list for 3 Technical Training participants.

6. Pre/Post Results

Before and after theoretical lectures, Pre and Post tests have taken place on 1st and 4th day. Purpose of these tests is to measure the trainees' comprehension regarding the contents of training. The test results are shown below:

1) Lusaka

Pre and Post test were performed on 1st and 4th day of the training in Lusaka.

Day: 1+4 20th-23rd July, 2015

No.	Province	Office/Facility	Title	Name	Pre	Post
1	Lusaka	Cancer Disease Hospital	Radiotherapy Equipment Technologist	Mr. Kampamba Chrispin	62	77
2	Lusaka	Chongwe DH	Rerigeration Technician and Electrician	Mr. Humphrey Lubumbe	77	80
3	Lusaka	Kafue DH	Plumber	Mr. Mtonga Moses	69	89
4	Lusaka	Katondwe MH	Electrical Technician	Mr. Elliot Mwanza	72	85
5	Lusaka	Mtendere MH	Electrical Technician	Mr. Winard Musamba	67	69
6	Lusaka	Mtendere MH	Electrician	Mr. Imers Kapansa	57	64
7	Lusaka	Mphansa MH	Electrical Technician	Mr. Kaswaya Mweemba	75	87
8	Lusaka	Lusaka DCHO	Medical Equipment Technologist	Mr. Obed Samusiko	75	85
9	Copperbelt	Thomson MH	Electrical Technician	Mr. Webby Nsama	57	59
10	Copperbelt	Kamuchanga	Electrician	Mr. Audrin Mwansa	69	72
11	Copperbelt	Mpongwe	Electrician	Mr. Dennis D. Mulongoti	69	82
12	Copperbelt	St. Theresa	Electrician	Mr. Kalumba Marlon	59	77
13	Copperbelt	Ndola	Electrician	Mr. Chengo N. Kapwele	84	90
14	Luapula	Mansa GH	Medical Equipment Technician	Mr. Siwo Elijah	94	95
15	Luapula	Samfwa	Electrician	Mr. Mwila Christopher	65	74
16	Luapula	Kawambwa GH	Electrical Technician	Mr. Boris Lukukula	84	87

No.	Province	Office/Facility	Title	Name	Pre	Post
17	Northern	Kasama	Electrician	Mr. Festus Simpanzye	67	77
18	Northern	Mbala	Electrical Technologist	Mr. Derrick Sintunfya	74	87
19	Northern	Mbala	Electrical Technician	Mr. Mutale Chanda	74	82
20	Muchinga	Chinsali	Electrician	Mr. Mashonga James	74	82
21	Muchinga	Chama	Refrigeration Technician	Mr. Collins Mumba	84	92
22	Northwestern	Mukinge Hospital	Technician	Mr. Temba Dickson	67	75
23	Northwestern	Solwezi GH	Medical Equipment Technician	Ms. Mbita Mukuka	74	75
24	Southern	Choma	Electrical Technician	Ms. Malilwe Hakamwaya	69	84
25	Southern	Livingstone	Refrigeration Technician	Mr. Bellington Mwakifwamba	69	74
26	Southern	Namwala DH	Electrical Technician	Mr. Musoka Kayuma	50	90
27	Southern	Mazabuka	Electrical Technician	Mr. Simpuleti Geoffrey	69	92
28	Lusaka	Lusaka	Medical Equipment Technician	Mr. Albert Zulu	84	92
29	Lusaka	Lusaka	Medical Equipment Technician	Ms. Lucia Chipanda	69	84
30	Lusaka	Lusaka	Medical Equipment Technician	Ms. Esnart Banda	75	72
31	Lusaka	Lusaka	Medical Equipment Technician	Mr. Mwamba Mweemba	89	89
32	Lusaka	Lusaka	Medical Equipment Technician	Mr. Chola Kelvin	89	87

Comparison between Pre and Post test is apparently improving in score. Average score of Pre is 72.3% and Post is 81.2%. 29 out of 32 (trainees who took both Pre and Post test) trainees scored higher in Post test.

2) Western Province

Pre and Post test were performed on 1st and 4th day of the training in Western Province.

Day: 1&4 28th-31st July, 2015

No.	Province	Office/Facility	Title	Name	Pre	Post
1	Western	Mongu DCHO	Electrician	Mr. Mufumpo George	69	92
2	Western	Sioma DCHO	Refrigeration Technician	Mr. Phiri Chipazanga	84	95
3	Western	Luampa MH	Refrigeration Technician	Mr. Chihinga Sanki	64	74
4	Western	Yuka MH	Electrician	Mr. Mulonda Morton	69	79
5	Western	Shangombo DCHO	EHT	Mr. Sakala William Tuzao	89	87
6	Western	Mitete DCHO	Refrigeration Assistant	Mr. Simakando Joseph	82	80
7	Western	Limulunga DCHO	EHT	Mr. Zangata Kameya	87	84
8	Western	Senanga GH	Electrician	Mr. Muyunda John	69	84

Comparison between Pre and Post test is relatively improving in score. Average score of Pre is 76.6% and Post is 84.4%. 5 out of 8 trainees scored higher in Post test.

3) Eastern Province

Pre and Post test were performed on 1st and 4th day of the training in Western Province.

Day: 1+4 10th-13th August, 2015

No.	Province	Office/Facility	Title	Name	Pre	Post
1	Eastern	Chadiza DH	Electrician	Mr. Henry Phiri	89	95
2	Eastern	Lundazi DH	Electrical Technician	Mr. Kennedy Mayovu	61	62
3	Eastern	Petauke DH	Electrical Technician	Mr. Alick Phiri	85	95
4	Eastern	St. Francis MH	Electrical Technician	Mr. Boyd Zumbi	72	89
5	Eastern	Chipata GH	Refrigeration and Aircon Technician	Mr. Vincent Mkandwire	64	92
6	Eastern	Nyanje MH	Electrician	Mr. Humphrey Sekeleti	79	85
7	Eastern	Kamoto MH	Electrician	Mr. Shadrack Ngwenya	50	82
8	Eastern	Mwami MH	Power Electrical Electrician	Mr. Dennis Banda	74	84
9	Eastern	Chipata GH	Electrician	Mr. Alex Njovu	47	34

Comparison between Pre and Post test is apparently improving in score. Average score of Pre is 69.0% and Post is 79.8%. 8 out of 9 trainees scored higher in Post test.

7. Conclusion

42 out of 49 trainees got higher scores in Post test compared with Pre test.

Comparatively, participants understood the Guideline and obtained capacity to perform equipment operation, operation training for the users, daily maintenance training, periodical maintenance and corrective maintenance in certain level. We can conclude that the method and contents of training were effective.

During the trainings, we had several discussions among the participants regarding medical equipment management.

1) Appropriate positions for technicians in hospital

In some hospitals, they don't have an appropriate position as medical equipment technicians and are not paid properly for their positions. Mr. Musonda requested the persons who work at facilities, which does not have an appropriate position, to report about the current situation to MoH to create right positions.

2) Budget for medical equipment maintenance at District level

Proper budget for Medical equipment maintenance at District level are requested. MoH allocates budget for provinces though, budget at district are necessary. Apparently, budgets are calculated as ratio, in percentile of total budget and we cannot secure the proper amount for the medical equipment/maintenance. If the budget for the equipment is allocated, service will be improved, a technician stated. Mr. Luhana explained to the participants that we need to know what equipment we have at the facility and its working status. Inventory and collected information about the medical equipment will be used as the evidence for budgetary planning. Technicians are requested to accumulate all necessary information for this and Guideline indicates what we need to follow. We can start from Inventory and planning for equipment and show the evidence for requesting our budget for maintenance.

3) Scholarship for education

Scholarship from the MoH for education (NORTEC) is limited to Provincial level. One person from each province is receiving scholarship at the moment. Technicians from district hospital and office requested to open scholarship for more people. Mr. Musonda replied that he would take it into account for accepting people from district level for the scholarship.

8. Attachment

Following documents are attached as Annex I and II

Annex I: Photographs from trainings in 3 provinces

Annex II: Participants List

Technical Training in Lusaka



Technical Training in Lusaka



Technical Training in Western



Technical Training in Western



Technical Training in Eastern



Technical Training in Eastern



Medical Equipment Technical Training Workshop in Lusaka Contact List on 20th to 23rd July, 2015

No.	Province	Office/Facility	Title	Name	Telephone	E-mail
1	Lusaka	MoH	Chief Medical Equipment Officer	Mr. Gilbert Musonda		
2	Lusaka	Cancer Disease Hospital	Principal Medical Equipment Officer	Mr. Ganizani Phiri		
3	Lusaka	UTH	Principal Medical Equipment Officer	Mr. Cornelius Mwape		
4	Lusaka	UTH	Chief Medical Equipment Technologist	Mr. Edward Musakanya		
5	Central	Central PHO	Principal Medical Equipment Officer	Mr. Charles Ndhlovu		
6	Northwestern	Northwestern PHO	Principal Medical Equipment Officer	Mr. Timothy Mukoko		
7	Lusaka	Lusaka DCHO	Medical Equipment Technologist	Mr. Mwape Kapoko		
8	Eastern	St. Francis Hospital	Biomedical Engineering Technician	Mr. Hillam Kalumbi		
9	Lusaka	Levy Mwanawasa GH	Medical Equipment Technologist	Mr. Joseph Mphande		
10	Lusaka	Cancer Disease Hospital	Radiotherapy Equipment Technologist	Mr. Kampamba Chrispin		
11	Lusaka	Chongwe DH	Refrigeration Technician and Electrician	Mr. Humphrey Lubumbe		
12	Lusaka	Kafue DH	Plumber	Mr. Mtonga Moses		
13	Lusaka	Katondwe MH	Electrical Technician	Mr. Elliot Mwanza		
14	Lusaka	Chirundu	Electrical Technician	Mr. Winard Musamba		
15	Lusaka	Chirundu	Electrician	Mr. Imers Kapansa		

Medical Equipment Technical Training Workshop in Lusaka Contact List on 20th to 23rd July, 2015

No.	Province	Office/Facility	Title	Name	Telephone	E-mail
16	Lusaka	Mphansha MH	Electrical Technician	Mr. Kaswaya Mweemba		
17	Lusaka	Lusaka DCHO	Medical Equipment Technologist	Mr. Obed Samusiko		
18	Lusaka	MoH	Medical Equipment Technician	Mr. Sinyangwe Philip		
19	Central	Kabwe GH	Medical Equipment Technician	Mr. Banda Suzgo		
20	Central	Kapiri Mposhi	Medical Equipment Technician	Ms. Grace Kalunga		
21	Central	Mkushi	Medical Equipment Technician	Mr. Samson Tembo		
22	Central	Serenje	Medical Equipment Technician	Mr. Dismus Chibulaluko		
23	Central	Liteta Hospital	Biomedical Technician	Ms. Beauty Nachimba		
24	Copperbelt	Thomson MH	Electrical Technician	Mr. Webby Nsama		
25	Copperbelt	Kamuchanga	Electrician	Mr. Audrin Mwansa		
26	Copperbelt	Mpongwe	Electrician	Mr. Dennis D. Mulongoti		
27	Copperbelt	St. Theresa	Electrician	Mr. Kalumba Marlon		
28	Copperbelt	Ndola	Electrician	Mr. Chengo N. Kapwele		
29	Luapula	Mansa GH	Medical Equipment Technician	Mr. Siwo Elijah		
30	Luapula	Samfwa	Electrician	Mr. Mwila Christopher		

Medical Equipment Technical Training Workshop in Lusaka Contact List on 20th to 23rd July, 2015

No.	Province	Office/Facility	Title	Name	Telephone	E-mail
31	Luapula	Kawambwa GH	Electrician	Mr. Boris Lukukula		
32	Northern	Kasama	Electrician	Mr. Festus Simpanzye		
33	Northern	Kasama	Electrician	Mr. Danny Kasonde		
34	Northern	Mbala	Electrical Technologist	Mr. Derrick Sintunfya		
35	Northern	Mbala	Electrical Technician	Mr. Mutale Chanda		
36	Muchinga	Chinsali	Electrician	Mr. Mashonga James		
37	Muchinga	Chama	Electrician	Mr. Charles Mwanza		
38	Muchinga	Chama	Refrigeration Technician	Mr. Collins Mumba		
39	Northwestern	Mukinge Hospital	Technician	Mr. Temba Dickson		
40	Northwestern	Solwezi GH	Medical Equipment Technician	Ms. Mbita Mukuka		
41	Southern	Choma	Electrical Technician	Ms. Malilwe Hakamwaya		
42	Southern	Livingstone	Refrigeration Technician	Mr. Bellington Mwakifwamba		
43	Southern	Namwala DH	Electrical Technician	Mr. Musoka Kayuma		
44	Southern	Mazabuka	Electrical Technician	Mr. Simpuleti Geoffrey		
45	Lusaka	Lusaka	Medical Equipment Technician	Mr. Albert Zulu		

Medical Equipment Technical Training Workshop in Lusaka Contact List on 20th to 23rd July, 2015

No.	Province	Office/Facility	Title	Name	Telephone	E-mail
46	Lusaka	Lusaka	Medical Equipment Technician	Ms. Lucia Chipanda		
47	Lusaka	Lusaka	Medical Equipment Technician	Ms. Esnart Banda		
48	Lusaka	Lusaka	Medical Equipment Technician	Mr. Mwamba Mweemba		
49	Lusaka	Lusaka	Medical Equipment Technician	Mr. Chola Kelvin		
50	Lusaka	Evelyn Hone College	Lecturer	Mr. Tsuyoshi Shoji		
51	Lusaka	MoH / JICA	Medical Equipment Management	Mr. Tamotsu Nozaki		
52	Lusaka	MoH / JICA	Medical Equipment Management Clinical Engineer	Mr. Hiroshi Yoshino		

Medical Equipment Technical Training Workshop in Mongu Contact List on 28th to 31st July, 2015

No.	Province	Office/Facility	Title	Name	Telephone	E-mail
1	Lusaka	MoH	Chief Medical Equipment Officer	Mr. Gilbert Musonda		
2	Western	Western PHO	Principal Medical Equipment Officer	Mr. Elias Luhana		
3	Lusaka	UTH	Chief Medical Equipment Technologist	Mr. Edward Musakanya		
4	Northwestern	Northwestern PHO	Principal Medical Equipment Officer	Mr. Timothy Mukoko		
5	Lusaka	Lusaka DCHO	Medical Equipment Technologist	Mr. Kapoko Mwape		
6	Lusaka	UTH	Principal Medical Equipment Officer	Mr. Cornelius Mwape		
7	Lusaka	Cancer Disease Hospital	Principal Medical Equipment Officer	Mr. Ganizani Phiri		
8	Central	Central PHO	Principal Medical Equipment Officer	Mr. Charles Ndhlovu		
9	Western	Mongu DCHO	Electrician	Mr. Mufumpo George		
10	Western	Sioma DCHO	Refrigeration Technician	Mr. Phiri Chipazanga		
11	Western	Luampa MH	Refrigeration Technician	Mr. Chilinga Sanki		
12	Western	Yuka MH	Electrician	Mr. Mulonda Morton		
13	Western	Shangombo DCHO	EHT	Mr. Sakala William Tuzao		
14	Western	Mitete DCHO	Refrigeration Assistant	Mr. Simakando Joseph		
15	Western	Limulunga DCHO	EHT	Mr. Zangata Kameya		
16	Western	Senanga GH	Electrician	Mr. Muyunda Lutangu		

Medical Equipment Technical Training Workshop in Mongu Contact List on 28th to 31st July, 2015

No.	Province	Office/Facility	Title	Name	Telephone	E-mail
17	Lusaka	HCISP/ JICA	Medical Equipment Management/ Clinical Engineer	Mr. Hiroshi Yoshino		
18	Lusaka	HCISP/ JICA	Medical Equipment Management/ Project Coordinator	Mr. Kodai Tateno		

Medical Equipment Technical Training Workshop in Chipata Contact List on 10th to 13th August, 2015

No.	Province	Office/Facility	Title	Name	Telephone	E-mail
1	Lusaka	MoH	Chief Medical Equipment Officer	Mr. Gilbert Musonda		
2	Eastern	Eastern PHO	Principal Medical Equipment Officer	Mr. John Chibale		
3	Lusaka	UTH	Chief Medical Equipment Technologist	Mr. Edward Musakanya		
4	Lusaka	UTH	Principal Medical Equipment Officer	Mr. Cornelius Mwape		
5	Lusaka	Cancer Disease Hospital	Principal Medical Equipment Officer	Mr. Ganizani Phiri		
6	Northwestern	Northwestern PHO	Principal Medical Equipment Officer	Mr. Timothy Mukoko		
7	Western	Western PHO	Principal Medical Equipment Officer	Mr. Elias Luhana		
8	Eastern	St. Francis Mission Hospital	Biomedical Engineering Technician	Mr. Hillam Kalumbi		
9	Eastern	Chadiza District Hospital	Electrician	Mr. Henry Phiri		
10	Eastern	Lundazi District Hospital	Electrical Technician	Mr. Kennedy Mayovu		
11	Eastern	Petauke District Hospital	Electrical Technician	Mr. Alick Phiri		
12	Eastern	St. Francis Mission Hospital	Electrical Technician	Mr. Boyd Zumbi		
13	Eastern	Chipata General Hospital	Refrigeration and Aircon Technician	Mr. Vincent Mkandwire		
14	Eastern	Nyanje Mission Hospital	Electrician	Mr. Humphrey Sekeleti		
15	Eastern	Kamoto Mission Hospital	Electrician	Mr. Shadrick Ngwenya		

Medical Equipment Technical Training Workshop in Chipata Contact List on 10th to 13th August, 2015

No.	Province	Office/Facility	Title	Name	Telephone	E-mail
16	Eastern	Mwami Mission Hospital	Power Electrical Electrician	Mr. Dennis Banda		
17	Eastern	Chipata General Hospital	Electrician	Mr. Alex Njovu		
18	Lusaka	HCISP/ JICA	Medical Equipment Management/ Clinical Engineer	Mr. Hiroshi Yoshino		
19	Lusaka	HCISP/ JICA	Medical Equipment Management/ Project Coordinator	Mr. Kodai Tateno		

Date: 27 February 2016

**Dissemination Workshops for
“Guidebook of Budget Allocation at pilot provinces
in Lusaka, Western and Eastern Province”
and
“Dissemination Workshops at national level
in Lusaka, Western and Eastern Province”**

Health Capital Investment Support Project (Extension Phase)

Leader / Health Capital Investment Planning
Shuichi SUZUKI

Medical Equipment Planning
Hiroshi YOSHINO
Kodai TATENO

1. Dissemination Workshops for Guidebook of Budget Allocation at pilot provinces

1-1. Objectives of the workshop

- To disseminate the draft of “Guidebook of Budget Allocation for Periodical Preventive Maintenance of Medical Equipment and Infrastructure” to the pilot provinces;
- To acquire feedback from the participants for finalizing the guidebook.

1-2. Dates and Venues:

- Lusaka Province
24th February, 2016 at Chrismar Hotel, Lusaka
- Western Province
22nd February, 2016 at Lewanika Nursing College, Mongu
- Eastern Province
19th February, 2016 at La Rochelle Lodge, Chipata

1-3. Contents of the workshop

- Summary of Health Capital Investment Support Project 2015
- How to develop Action plan for Infrastructure
 1. Utility List and Site Map
 2. Monitoring Sheet of Hospital Infrastructure
 3. Hospital Round
 4. Priority Analysis
 5. Infrastructure Maintenance Plan
 6. Annual Plan
- How to develop Action plan for Medical equipment
 1. Inventory of Medical Equipment
 2. Inventory Analysis
 3. ME Development Plan (MDP)
 4. Annual Plan
- Develop Action Plan
 1. Practical exercises for developing Action plan for Infrastructure
 2. Practical exercises for developing Action plan for Medical equipment
- Question and Answer Session

1-4. Workshop Schedule

The workshop schedules are shown in Table 1, 2 and 3.

Table 1. Schedule for the Dissemination Workshop in 3 Provinces

Act #	Time	Activities	Type of Activities	Presenter
1	09:30-10:00	Registration		
2	10:00-10:10	Opening remarks		PMO
3	10:10-10:30	Summary of Health Capital Investment Support Project 2015	Lecture	DPP / Japanese experts
4	10:30-11:00	How to develop Action plan for Infrastructure	Lecture	DPP / Japanese experts
5	11:00-11:30	How to develop Action plan for Medical equipment	Lecture	DCS / Japanese experts
6	11:30-12:00	Develop Action Plan	Practice	DPP DCS / Japanese experts
7	12:00-12:20	How to prioritize maintenance budget	Lecture / discussion	DPP DCS / Japanese experts
8	12:20-12:40	How to request to DHO and PMO on the budget schedule	Lecture / discussion	DPP DCS / Japanese experts
9	12:40-13:00	Question and Answer session		DPP DCS / Japanese experts
10	13:00 -	Lunch		

1-5. List of Participants

Refer to the Annex II: Participant Lists.

1-6. Findings and Conclusion

1) Through out the workshop, attendants were all attentive and good attitude to digest the contents of workshop. Especially in the practical part of activities, they absorbed in filling in the forms for infrastructure and medical equipment. Time of workshop were limited but attendants were in sharp concentration during the workshop.

2) After the workshop, attendants answered to questionnaire.

More than 80% of attendants answered that they understand the process of developing action plan for both infrastructure and medical equipment.

More than 70% of attendants showed that they will develop action plan for infrastructure and medical equipment at their organization.

More than 90% of attendants are able to prioritize maintenance budget at their organization.

Constrains against the budge planning process are shown below:

No.	Question	Answer
1	Constrains to develop action plan for infra	- Inadequate/irrational funding - Man power is not readily available

2	Constrains to develop action plan for ME	- Lack of funding - Not enough guidance/information
3	Constrains to prioritize maintenance budget	- Too many priority - Lack of funding - Weak Committee
4	Constrains to request maintenance to PHO	- Bureaucracy - Channel of communication - Limited resource and time
5	Comprehensive impression	- Educative, Realistic Tools, Lots of forms, Come right time

Even though they found constrains in the process of budget planning, they answered that they are willing to introduce guidebook method at their facilities.

1-7. Attachment

Following documents are attached as Annex I, II and III

Annex I: Photographs of the workshop

Annex II: Participants List

Annex III: Impression Sheet

2. Dissemination Workshops at national level

2-1. Objectives of the workshop

- To disseminate the draft of “Upgrading Guidelines/Information of Health Facilities and Utilities” to MOH and PMO;
- To acquire feedback from the participants for finalizing the guideline.

2-2. Dates and Venues:

- Lusaka Province
25th February, 2016 at Chrismar Hotel, Lusaka
- Western Province
22nd February, 2016 at Western Provincial Health Office, Mongu
- Eastern Province
19th February, 2016 at Eastern Provincial Health Office, Chipata

2-3. Contents of the workshop

Lusaka Province

- Summary of Health Capital Investment Support Project 2015
- Master plan for facility management
 1. Basic Description
 2. Critical Parts of Hospital: Bio-clean Zoning and Operation Theaters, Emergency Care Access and Flow, Intensive Care Unit, Dialysis Center, Endoscope Environment, Others
- Facility maintenance
 1. Source of Water and Water Supply System
 2. Healthcare Waste Management
 3. Electric Power Supply System (Electricity)
 4. Heating, Ventilation and Air Conditioning Systems
 5. Oxygen Plant
- Medical equipment management
 1. Inventory of Medical Equipment
 2. Inventory Analysis
 3. ME Development Plan (MDP)
 4. Annual Plan
- Summary of Healthcare Facilities in Zambia and its Future Plan
- Budget allocation for maintenance
- Road map for maintenance
- Question and Answer Session

Eastern Province and Western Province

- Summary of Health Capital Investment Support Project 2015
- Master plan for facility management
 1. Basic Description
 2. Critical Parts of Hospital: Bio-clean Zoning and Operation Theaters, Emergency Care Access and Flow, Intensive Care Unit, Dialysis Center, Endoscope Environment, Others
- Facility maintenance
 1. Source of Water and Water Supply System
 2. Healthcare Waste Management
 3. Electric Power Supply System (Electricity)
 4. Heating, Ventilation and Air Conditioning Systems
 5. Oxygen Plant
- Question and Answer Session

2-4. Workshop Schedule

The workshop schedules are shown in Table 1 and 2.

Table 1. Schedule for the Dissemination Workshop in Lusaka

Act #	Time	Activities	Presenter
1	08:00-08:30	Registration	
2	08:30-08:45	Opening remarks	JICA representative
3	08:45-09:15	Summary of Health Capital Investment Support Project 2015	DPP / Japanese experts
4	09:15-09:45	Summary of Healthcare Facilities in Zambia and its Future Plan	Director of Policy Planning / MoH
5	09:45-10:00	Tea Break	
6	10:00-10:40	Up-grading infrastructure guideline	DPP / Japanese experts
7	10:40-11:00	Infrastructure management by PPM	DPP / Japanese experts
8	11:00-11:20	Medical Equipment management by PPM	DPP / Japanese experts
9	11:20-11:40	Road map for dissemination	DPP / Japanese experts
10	11:40-12:00	Question and Answer session	DPP
11	12:00-12:15	Address from MOH	Director of PP
12	12:15-12:30	Closing remarks	MOH
13	12:30 -	Lunch	

Table 2. Schedule for the Dissemination Workshop in Western and Eastern

Act #	Time	Activities	Presenter
1	14:00-14:30	Registration	
2	14:30-14:40	Opening remarks	Ministry of Health
3	14:40-15:00	Summary of Health Capital Investment Support Project 2015	DPP / Japanese experts
4	15:00-15:15	Summary of Healthcare Facilities in Zambia and its Future Plan	Director of Policy Planning / MoH
5	15:15-15:30	Master plan for facility management	DPP / Japanese experts
6	15:30-15:45	Medical equipment management	DPP / Japanese experts
7	15:45-16:00	Facility Maintenance	DPP / Japanese experts
8	16:00-16:15	Budget allocation for maintenance	DPP / Japanese experts
9	16:15-16:30	Road map for dissemination	DPP / Japanese experts
10	16:30-16:40	Question and Answer session	DPP
11	16:40-16:50	Address from MOH / HCISP	DPP / Japanese experts

2-5. List of Participants

Refer to the Annex II: Participant Lists.

2-6. Findings and Conclusion

1) There were time constraints to explain the whole contents of guidelines and guidebook, generally most attendants agreed on the effectiveness of documents. They showed that they would like to apply the tools and forms for their infrastructure and medical equipment maintenance and budget allocation process.

2) After the workshop, attendants answered to questionnaire.

More than 90% of attendants answered that they understand the effectiveness of master planning for infrastructure investment and they will apply at their facilities.

More than 90% of attendants showed that they would utilize medical equipment management at their organization.

More than 90% of attendants agreed that the effectiveness of proper budget allocation process for maintenance.

More than 80% of attendants expressed that they hope to conduct training for infrastructure and medical equipment management.

Constraints against the budget planning process are shown below:

No.	Question	Answer
1	Constraints to develop Master plan	- Lack of technical knowledge - Financial resources
2	Constraints to introduce ME management	- Lack of human resource - Resistance to new ideas
3	Constraints to introduce facility management check list	- Lack of knowledge - User education - No expert staff
4	Constraints to introduce budget allocation	- Financial resources - Competing priorities with limited budget
5	Constraints to conduct training	- Lack of fund - Resource to motivate trainee
6	Comprehensive impression	Educative, Eye opening, Informative, Very clear

2-7. Attachment

Following documents are attached as Annex I, II and III

Annex I: Photographs of the Dissemination workshop

Annex II: Participants List

Annex III: Impression Sheet

Dissemination Workshop in Eastern 19th Feb



Dissemination Workshop in Eastern 19th Feb



Dissemination Workshop in Western 22nd Feb



Dissemination Workshop in Western 22nd Feb



Dissemination Workshop in Lusaka 24th Feb



Dissemination Workshop in Lusaka 24th Feb



Dissemination Workshop in Lusaka 25th Feb



Dissemination Workshop in Lusaka 25th Feb



Health Capital Investment Support Project Dissemination Workshop Participant List on 19th February, 2016

AM 19th February, 2016

No.	Province	Office/Facility	Title	E-mail	Name	Signature
1	EASTERN	A DHO	PLANNER		KAKEMPO MAMBO	
2	EASTERN	VUBWE DHO	PLANNER		JOSEPH LUNGU	
3	EASTERN	SINDA BHO	PLANNER		STEFAN MUYERIN	
4			EHT		OBERA GAMBWE	
5	EASTERN	Chadiza DHO	RHT		Daka Kenneth	
6	EASTERN	CHIPATA DHO	SEHO		LAMECK BANDA	
7	EASTERN	OKUPATI DHO	CCM		Fuy. Sbonon Mubane	
8	EASTERN	KATETE DHO	CCT		JERRY MAMBO	
9	EASTERN	CHIPATA DHO	PLANNER		OWEN ZIMBA	

Health Capital Investment Support Project Dissemination Workshop Participant List on 19th February, 2016

AM 19th February, 2016

No.	Province	Office/Facility	Title	E-mail	Name	Signature
10	EASTERN	MAMBWE DHO	EHT		EMMANUEL CHOLU	
11	EASTERN	MAMBWE DHO	EHO		Mumpuka. P. Ngunube	
12	EASTERN	PETAKE DHO	PHO - Infrastructure		MAPAPA BANDA	
13	EASTERN	NUSUN DHO	SEHT / CBO CHAO OFF		TEMBO ELJAH	
14	EASTERN	PETAKE DISTRICT HOSPITAL	EHT		Consilia Mwanza	
15						
16						
17						
18						

Health Capital Investment Support Project Dissemination Workshop Participant List on 19th February, 2016

AM 19th February, 2016

No.	Province	Office/Facility	Title	E-mail	Name	Signature
19	EASTERN	KAFETE DISTRICT HEALTH OFFICE	ENVIRONMENTAL HEALTH TECHNICIAN		DAVID KARDLE	
20	EASTERN	KATEJE DISTRICT HEALTH OFFICE	DISTRICT PLANNER		KERAZSETH TIFOLE	
21	EASTERN	SANT FRANCIS HOSPITAL	SENIOR ENVIRONMENTAL HEALTH TECHNOLOGIST		BRUNO M. MWALE	
22	EASTERN	ST. FRANCIS HOSPITAL	MEDICAL SUPERINTENDENT		DR SIMON CHESI	
23	EASTERN	LUNDAZI D.HO	Cold chain Officer		Henry Zimbs	
24	EASTERN	MUDATI DHO	EHO		Chinisto Rendavis	
25	EASTERN	LUNDAZI DISTRICT HOSPITAL	ENVIRONMENTAL HEALTH TECHNOLOGIST		Edna Chibuye	
26	Eastern	Chadiza Health office	Public Health Officer		Julius Samboke	
27	EASTERN	CHIRAPA EPHO	CHIEF ENV. HEALTH OFFICER		BERNARD KATONZA	

Health Capital Investment Support Project Dissemination Workshop Participant List on 19th February, 2016

AM 19th February, 2016

No.	Province	Office/Facility	Title	E-mail	Name	Signature
28	EASTERN	LUNDARI DHO	Planner		TUMBILIKANTANI NGOMIA	
29	EASTERN	PETAKHE DHO	COLDCHAIN OFFICER		Oscar Bwaza	
30	EASTERN	PETAKHE	HOSPITAL ADMINISTRATOR		LUGENDO MUKOMBE	
31	EASTERN	SINDA	ELECTRICIAN		HUMORAREN SEKEUETI	
32	EASTERN	KAMOTO MISSION HOSPITAL	ELECTRICIAN		SHADRECK NGUSEGATE	
33	EASTERN	LUNDARI DISTRICT HOSPITAL	HOSPITAL ADMINISTRATOR		RICHARD KATIMULWA	
34	EASTERN	LUNDARI DISTRICT HOSP.	MEDICAL EQUIPMENT TECHNICIAN.		Kennedy Mayora	
35	EASTERN	EPHO CHUPATA	INFRASTRUCTURE OFFICER		LAWRENCE KUNDA	
36	EASTERN	CHUPATA CENTRAL HOSPITAL	TECHNICIAN		VINCENT MUKADAYIRI	

Health Capital Investment Support Project Dissemination Workshop Participant List on 19th February, 2016

AM 19th February, 2016

No.	Province	Office/Facility	Title	E-mail	Name	Signature
37	EASTERN	CHITAPAN CENTRAL HOSPITAL	SENIOR HOSPITAL ADMINISTRATOR		Gerald Lembo	
38	EASTERN	Chyamba Central Hospital	Environmental Health Officer		Romang Zilifi	
39	EASTERN	PETAUNG DISTRICT HEALTH OFFICE (PDHO)	ENVIRONMENTAL HEALTH OFFICER (EHO)		RICHARD CHIRWA	
40	EASTERN	VUBWI DISTRICT HEALTH OFFICE	SENIOR ENVIRONMENTAL HEALTH OFFICER.		KALUBA VICTOR.	
41	EASTERN	LUNDAZI DISTRICT HOSPITAL	ENVIRONMENTAL HEALTH TECHNOLOGIST		EDNA CHIBUYE	
42	Eastern	Indaba District Health Office	EHO		Rudolus Chirisa	
43	EASTERN	JICA/MOH	PROJECT SECRETARY		FRANC KASASA	
44	Lusaka	JICA/MOH	Project Coordinator Medical Equipment		Kodai TATEO	
45	Lusaka	JICA/MOH	Medical Equipment Management		Hiroshi YOSHINO	

List

PM 19th February, 2016

No.	Province	Office/Facility	Title	Name	Signature
1	EASTERN	EPHO	PROVINCIAL INFRASTRUCTURE OFFICER	LAWRENCE KUNDA	
2	EASTERN	EPHO	CHIEF ENVIRONMENTAL HEALTH OFFICER	BERNARD KITHA	
3	EASTERN	EPHO	PLANNER	KENNEDY NKHOMA	
4	EASTERN	EPHO	Principal Medical Equip Officer	GIFT LUPONGA	
5	EASTERN	EPHO	CLINICAL CARE SPECIALIST	DR CHARLES FANAKA	
6	EASTERN	EPHO	PRINCIPAL PLANNER	KADANTU C SIAMWIINGA	
7	EASTERN	EPHO	PMO	DR KABALO ABEU N	
8	Lusaka	HCLSP	Project Coordinator Medical Equipment Manage ment	Kodai TATENO	
9	Lusaka	HCLSP	Medical Equipment Management	Hiroshi YOSHINO	
10					
11					
12					
13					
14					
15					
16					
17					

AM 22nd February, 2016
Health Capital Investment Support Project Dissemination Workshop Participant List on 22nd February, 2016

No.	Province	Office/Facility	Title	Name	E-mail	Signature
1	WESTERN	MUSQU	PLANNER	MUKOBLO MWIBIJA		
2	WESTERN	KAOMA DISTRICT HOSPITAL	HOSPITAL ADMINISTRATOR	MARGARET CHALESHE		
3	WESTERN	NKETEEMA DISTRICT HEALTH OFFICE	SENIOR ENVIRONMENTAL HEALTH OFFICER (SEHO)	ELIJAH TEMBO		
4	WESTERN	KALABO DISTRICT HOSPITAL	EHT I EPI TECHNICIAN	CHRISPIN KAUNOMWA		
5	WESTERN	KALABO DISTRICT HOSPITAL	HOSPITAL ADMINISTRATOR / RADIOGRAPHY TECHNOLOGIST	BEN SIKATUNDI		
6	WESTERN	LIMUNGA DISTRICT HEALTH OFFICE	ZEM	KONDWANI MUMONO		
7	WESTERN	MONGU DISTRICT HEALTH OFFICE	MET/EPI TECHNICIAN	GEORGE MUFUMBO		
8	WESTERN	STOMA DHO	Public Health Officer / M&E Officer	E.K. NDULISA (Infected)		
9	WESTERN	SIKONZO AMO	PLANNER	KAWANDA MUKONDBA		

AM 22nd February, 2016
Health Capital Investment Support Project Dissemination Workshop Participant List on 22nd February, 2016

No.	Province	Office/Facility	Title	Name	E-mail	Signature
10	WESTERN	MPOQU D.HJ	Principal ENVIRONMENTAL HEALTH TECHNOLOGIST	TIMOTHY MASULU		
11	WESTERN	KATIBO D.M.D	PUBLIC HEALTH OFFICER As. Planner	APULENI GORDON		
12	WESTERN	SIKONGO D.M.D	HUMAN RESOURCE MANAGEMENT OFFICER	MUFANA MAKUBA		
13	WESTERN	SIKONGO D.M.D	ENVIRONMENTAL HEALTH TECHNOLOGIST AQ EHO	KUBUBA NYIRENDA		
14	WESTERN	SENANGA D.M.D	MEDICAL EQUIPMENT TECHNICIAN	WAMUNYI MA MURU		
15	WESTERN	KAOMA K.D.H	ELECTRICAL TECHNICIAN	CASTRO SIWENE GUDO		
16	WESTERN	KUAMPA D.M.D	ENVIRONMENTAL HEALTH OFFICER	KENNEDY MULELE		
17	WESTERN	SIOMA MISSION R.H.C	IN-CHARGE	SR. PHAXIDIUS CIGOLA		
18	WESTERN	SENANGA URBAN	MEDICAL EQUIPMENT TECHNICIAN	MUNYUNDA LUTANSA		

Health Capital Investment Support Project Dissemination Workshop Participant List on 22nd February, 2016

AM 22nd February, 2016

No.	Province	Office/Facility	Title	Name	E-mail	Signature
19	WESTERN SEHANGA D.M.O	SEHANGA D.M.O	K & TORRES OFFICER	IMAMBAS MABUKU		
20	WESTERN	NALOLO D.H.O	FHO	MUCOSELA-PEGER		
21	WESTERN	SIGABA D.H.O	DECO	PHIRI CHIPAZOZA		
22	WESTERN	KAOMA D.H.O	INF. OFFICER CHI	SHABALALA LAWRENCE		
23	WESTERN	P.M.O	PRINCIPAL MEDICAL EQUIPMENT OFFICER	LUTHANA EUNAS		
24	WESTERN	SEWANGA GENERAL HOSP	PH 7	BITAL MUFALD		
25	WESTERN	NALOLO D.M.O	PLANNER	PHILIP CHINHISA		
26	WESTERN	TUKA HOSP	COLD CHAIN TECH. BIO-MED EQUIP. TECH.	MORTON MULENDA		
27	WESTERN	SEWANGA SEWANGA D.M.O	PUBLIC HEALTH OFFICER INFRA. OFFICER.	SIDNEY SAITI		

AM 22nd February, 2016
Health Capital Investment Support Project Dissemination Workshop Participant List on 22nd February, 2016

No.	Province	Office/Facility	Title	Name	E-mail	Signature
28	Western	KADUNA DMO	PLANNER	MUSAPA CHONSO		
29	Western	Limulungu DMO	PLANNER	SHIBWANUA GBBE		
30		KUAMPA		MWEEMBA		
	WESTERN	DMO	PLANNER	HABWAHDO		
31	WESTERN	KUAMPA DMO	CORDS CHAIN OFFICER	CHHANGA SANKI		
32	WESTERN	PfO	INFRASTRUCTURE OFFICER	NYON SILOONGO		
33	WESTERN	FULFIA MISSION HOSPITAL	ENVIRONMENTAL HEALTH TECHNOLOGIST	CHRISTOPHER P BATHOIA		
34	WESTERN	LIMUWUNGA DMO	ENVIRONMENTAL HEALTH TECHNOLOGIST	VINCENT SIAZYU		
35	Western	Bikongo DRIVER	DRIVER	MULINDA - MULINDA		
36	WESTERN	KALABO DRIVER DMO	DRIVER	B-m. MULINDA		

AM 22nd February, 2016 Health Capital Investment Support Project Dissemination Workshop Participant List on 22nd February, 2016

No.	Province	Office/Facility	Title	Name	E-mail	Signature
37	WESTERN	SIO/MA MISSION	DRIVER	AUSTIN MADURANSI		
38	Western	Kalabo DHO	SAO/IFOP	Jimmy Chinyaka		
39		KASIMA DHO	Driver	Nkanda Seki		
40		KALABO DHO	DRIVER	B.M. mulako		
41		NIKETEMA DHO	DRIVER	K. Mulcaens		
42		Pm O	DRIVER	M Lupale		
43		MOH	DRIVER	M. NATALA		
44		Pmo	Accounts	Conceia mbinji		
45		Pmo	RC	Kantembe munkonda		

Health Capital Investment Support Project Dissemination Workshop Participant List on 22nd February, 2016
AM 22nd February, 2016

No.	Province	Office/Facility	Title	Name	E-mail	Signature
46		PMO	Ag S/A	KERRISON ZAKALIGA		
47		PMO	DRIVER	PN KALALUKA		
48		PMO	OFFICE DRIVER	MATE MUYUNDA		
49		P.M.O	SIG	Mumbura L		
50		P.M.O	DRIVER	IDE SAALE		
51		PMO	RC	AXENDE . M .		
52	Lusaka	HCLSP	Project Coordinator Medical Device Management	Kodai TATEMO		
53	Lusaka	HCLSP	Medical Equipment Management	Hiroshi YOSHINO		
54	"	"	PROJECT DEVICE	MOFFAT NENTALE		

PM
AM Health Capital Investment Support Project Dissemination Workshop Participant List on 22nd February, 2016
22nd February, 2016

No.	Province	Office/Facility	Title	Name	E-mail	Signature
① 55	WESTERN	LEWANIKA GENERAL HOSPITAL MONGU	ELECTRICAL TECHNICIAN	BOSCO KATIBA KATIBA		
② 56	Western	LEWANIKA GENERAL HOSPITAL	MEDICAL EQUIPMENT OFFICER	NGWILA JAILOS		
③ 57	WESTERN	PROVINCIAL MEDICAL OFFICE	PROVINCIAL MEDICAL OFFICER	DR. ANDREW SILUMESII		
④ 58	WESTERN	PROVINCIAL MEDICAL OFFICE	CLINICAL CARE SPECIALIST	DR. KAUSINDA UKAMBISI		
⑤ 59	Western	Provincial Medical Office	Administrative Officer	Alex Njerele		
⑥ 60	WESTERN	Provincial MEDICAL OFFICE	Principal medical Equipment officer	ELIAS LUHAMU		
⑦ 61	WESTERN	PMO	INFRASTRUCTURE OFFICER	Eng. Nixon Siloozi		
⑧ 62	Lusaka	HCLSP	Project Coordinator Medical Equipment Management	Kodai TATEMO		
⑨ 63	Lusaka	HCLSP	Medical Equipment Management	Hiroshi YOSUKINO		

Health Capital Investment Support Project Dissemination Workshop Participant List on 24th February, 2016

24th February, 2016

No.	Province	Office/Facility	Title	Name	Signature
1	Lusaka	PHO-LSK	PRINCIPAL MEDICAL EQUIPMENT OFFICER	SINKALA CHRIS	
2	Lusaka	CHILENJE/DHO	MEDICAL EQUIPMENT TECHNOLOGIST	KAPOKO MWAPE	
3	Lusaka	CHILENJE	ENVIRONMENTAL HEALTH TECHNOLOGIST	LYDIA SOMALI	
4	Lusaka	CHILENJE	E. H. T	FAITH MWANZA	
5	Lusaka	CHILENJE	R.N	VIVIEN PHIRI	
6	Lusaka	MATERO REF HEALTH CENTRE	ENVIRONMENTAL HEALTH TECHNOLOGIST	LIPDIWE TEMBO	
7	Lusaka	MATERO REF CENTRE	ACTIONING NURSING OFFICER	EVELEU TEMBO	
8	Lusaka	MATERO 1 st LEVEL HOSPITAL	MEDICAL OFFICER IN CHARGE	Dr. GABRIEL NGOMBO	
9	Lusaka	CHIPATA LEVEL 2 HOSPITAL	ENVIRONMENTAL HEALTH TECHNOLOGIST	FAIDES. B. MAMBWE	
10	Lusaka	CHONGWE DMO	PLANNER	ANDREW CATIBANGULA	
11	Lusaka	RUFUNSA DMO	PLANNER	NICHOLAS SAKWA	
12	Lusaka	Chikanga DMO	Refrigeration Technician	SYDNEY KATYEKA	
13	Lusaka	Mpanshya Hospital	EHT	MULETA HATEYA	
14	Lusaka	RUFUNSA DHO	SEHO	CHIBEZA GOMA	
15	Lusaka	CHILANGA DHO	SEHO	SINYANGWE REDSON	
16	Lusaka	CHILANGA DHO	PLANNER	MARJORIE K. NANKAMBA NDEMENA	
17	Lusaka	SHIBUYUNJI DHO	Planner	Mwika T. Ngoma	

24th February, 2016

No.	Province	Office/Facility	Title	Name	Signature
18	Lusaka	SHIBUYANI DHO	SEHO	REGINA LUBATI KABUNDI	
19	Lusaka	Shibuyuni rampundwa	EHT	Gwen Habaungu	
20	Lusaka	SI'LUKE'S MISSION HOSPITAL	ELECTRICAL TECHNICIAN	MWEEMBA KASWATA	
21	Lusaka	CHONGWE DISTRICT HOSPITAL	MEDICAL EQUIPMENT TECHNICIAN	HUMPHREY KUBUMBE	
22	Lusaka	LUSAKA PROV. HEALTH OFFICE	INFRASTRUCTURE OFFICER	SUNGANI PHIRI	
23	Lusaka	CHONGWE DISTRICT HOSPITAL	HOSPITAL ADMINISTRATOR	MUKUMBENJI K. MATHIASI	
24	Lusaka	KAFUE DISTRICT HOSPITAL	Medical equipment Electrician	MIRIAM-L. Mwela	
25	Lusaka	Kapue DISTRICT HOSPITAL	EHO	Maureen Muma	
26	Lusaka	KAFUE DISTRICT HOSPITAL	HOSPITAL ADMINISTRATOR	PATRICIA NAMUDWE	
27	Lusaka	LUSAKA DISTRICT MEDICAL OFFICE	MEDICAL EQUIPMENT TECHNOLOGIST	MATAFWALI FRIBAY	
28	Lusaka	KAFUE DISTRICT MEDICAL OFFICE	PROCUREMENT OFFICER	HELLEN ZIMBA	
29	Lusaka	Kafue DISTRICT MEDICAL OFFICE	CLINICAL CARE OFFICER	CHANDA DAVID	
30	Lusaka	CHONGWE DISTRICT HOSPITAL	EHT	BRUCE ZULU	
31	Lusaka	FRANCIS MWANAYI CHONGWE BMO	INFRASTRUCTURE OFFICE	FRANCIS MWANAYI	
32	Lusaka	RUFUNSA DHO	BMO	MUSANBA SIYOLWE-WOODLEY	
33	Lusaka	MPANSIMA HOSPITAL RUFUNSA DISTRICT	CLINICAL CARE OFFICER	BRIAN MUIEMA	
34	Lusaka	CHIRUNDU DHO	PLANNER	COLLIN MASIYA	

24th February, 2016

No.	Province	Office/Facility	Title	Name	Signature
35	Lusaka	CHIRUNDU DHO	ENVIRONMENTAL HEALTH OFFICER	GODWIN MUNSANJE	
36	Lusaka	CHIRUNDU	EQUIPMENT TECHNICIAN	WINNARD MUSA MUSA	
37	Lusaka	MOH	CHIEF MEDICAL EQUIP OFFICER	GILBERT MUSONDA	
38	Lusaka	UTH	CHIEF HOSPITAL ADMINISTRATOR	ISAAC KAKUMBI	
39	Lusaka	UTH	MEDICAL EQUIPMENT TECH	EMMAUEL MWALE	
40	Lusaka	CHIPATA DISTRICT HOSPITAL	MEDICAL EQUIPMENT TECHNOLOGIST	AARON KABWE	
41	Lusaka	HCLSP	Project Coordinator Medical Equipment Management	Kodai TATENO	
42	Lusaka	HCLSP	Medical Equipment Management	Hiroshi YOSHINO	
43	Lusaka	HCLSP	leader of the project	Shuichi SUZUKI	
44	Lusaka	HCLSP	PROJECT SECRETARY	KASSA FANJA	
45	Lusaka	HCLSP	PROJECT DRIVER	Moffat Natero	
46	Lusaka				
47	Lusaka				
48	Lusaka				
49	Lusaka				
50	Lusaka				
51	Lusaka				

Health Capital Investment Support Project Dissemination Workshop Attendance Sheet
 25th February, 2016

No.	Province	Office / Facility	Title	Name	E-mail	Signature
1	Lusaka	MOH H/O	CHIEF PLANNER INFRASTRUCTURE	KAKULUSINDA MULAWILO		
2	Lusaka	MOH HQ	PRINCIPAL PLANNER INFRASTRUCTURE	PARTSON S MNAVZA		
3	Lusaka	MOH HQ	SENIOR ENGINEER- PLANT AND EQUIP.	LWISHA DANIEL		
4	Lusaka	CHCH	ELECTRICAL & MECHANICAL	SAMUEL MWEYA		
5	Lusaka	CHCH	HOSPITAL ENGINEER	MIKE MULONDA		
6	Lusaka	UTH	MEDICAL EQUIP TECHNOLOGIST	EMMANUEL MWALE		
7	Lusaka	UNFPA	ASRA & Youth officer	Kudakwashe Dube		
8	Lusaka	UNFPA	Program Officer	Jeniffer Mijoe		
9	Lusaka	JICA	Health Sector Advisor	Yukari Yasutaka		
10	Lusaka	UNDP	Kazuhisa Acting Yokomizo Project Manager	Kazuhisa Yokomizo		
11	Lusaka	CDH	PRINCIPAL MED. EQUIP. OFFICER	GANIZAM PHIRI		
12	Lusaka	CDH	A/SMS	Citoye Mndabwe		

Health Capital Investment Support Project Dissemination Workshop Attendance Sheet
25th February, 2016

No	Province	Office/Facility	Title	Name	E-mail	Signature
13	Lusaka	PHO	PRINCIPAL MEDICAL EQUIPMENT OFFICER	SINKALA CHRIS		
14	Lusaka	PHO	PROVINCIAL MEDICAL OFFICER	KENNEDY MALAMBA		
15	Lusaka	UTH	CHIEF HOSPITAL ADMINISTRATOR	ISAAC KAKUMBI		
16	Lusaka	PHO	INFORMATION OFFICER	SUNGANI PHIDA		
17	Lusaka	HCLSP	Project Coordinator Medical Equipment Management	Kodai TATEMO		
18	Lusaka	HCLSP	Medical Equipment Management	Hiroshi YOSHINO		
19	Lusaka	HCLSP	leader of the project	Shuichi Suzuki		
20	Lusaka	HCLSP	PROJECT SECRETARY	KARISO FRANK		
21	Lusaka	HCLSP	PROJECT DRIVER	Natasha Nyumba		
22	Lusaka					
23	Lusaka					
24	Lusaka					

Health Capital Investment Support Project
Dissemination workshop
Impression Sheet

Please fill x in () as your impression or your comments

<u>Respondent Information</u>	
00	Job title / Organization
<u>Impressions to Master Plan</u>	
01	<u>Master plan is effective for Infrastructure Investment.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
02	<u>We hope to develop Master plan in our organization.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
03	<u>What are constrains to develop Master plan?</u>
04	<u>ME management guideline is effective for proper ME management.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
05	<u>We hope to introduce ME management forms in our organization.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
06	<u>What are constrains to introduce ME management?</u>
07	<u>Facility management checklist is effective for proper facility management.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
08	<u>We hope to introduce facility management forms in our organization.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree

09	<u>What are constrains to introduce facility management check list?</u>
10	<u>Budget allocation guidebook is effective for proper budget allocation for maintenance.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
11	<u>We hope to introduce budget allocation forms in our organization.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
12	<u>What are constrains to introduce budget allocation?</u>
13	<u>Road map is effective for proper dissemination of ME and infrastructure management.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
14	<u>We hope to conduct training for ME and infrastructure management.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
15	<u>What are constrains to conduct the training?</u>
16	<u>Please give us your comprehensive impression for the workshop</u>

Thank you for your cooperation

Health Capital Investment Support Project
Dissemination workshop
Impression Sheet

Please fill x in () as your impression or your comments

<u>Respondent Information</u>	
00	Job title / Organization
<u>Impressions to Master Plan</u>	
01	<u>I understand how to develop action plan for infrastructure.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
02	<u>I develop action plan for infrastructure in our organization.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
03	<u>What are constrains to develop action plan for infrastructure?</u>
04	<u>I understand how to develop action plan for medical equipment.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
05	<u>I develop action plan for medical equipment in our organization.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
06	<u>What are constrains to develop action plan for medical equipment?</u>
07	<u>I understand how to prioritize maintenance budget.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
08	<u>I can prioritize maintenance budget in our organization.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree

09	<u>What are constrains to prioritize maintenance budget?</u>
10	<u>I understand how to request maintenance to PHO.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
11	<u>I request maintenance to PHO utilizing the forms learned in the workshop.</u> 5()Fully Agree / 4() Agree / 3()Rather Agree / 2() Rather Not Agree / 1()Not Agree
12	<u>What are constrains to request maintenance to PHO?</u>
13	<u>Please give us your comprehensive impression for the workshop</u>

Thank you for your cooperation

添付資料 6
技術協力成果品一覽

添付資料 6 : 技術協力成果品一覧

- I. “Upgrading Guidelines / Information of health Facilities and Utilities”
- II. ”Guidebook; Budget allocation for Periodical Preventive Maintenance of Medical equipment and Infrastructure”

