

**ザンビア国  
保健投資支援プロジェクト  
事前評価調査報告書**

平成 21年 12月  
(2009年)

独立行政法人国際協力機構  
ザンビア事務所

## 序 文

ザンビア共和国は、質が確保された費用対効果の高い保健医療サービスの提供を目標として、国家保健開発計画（NHSP）に沿った開発を進めています。その目標を実現するためには、保健医療システムを支える保健施設・機材への計画的な投資が不可欠であることから、JICAはこれまで、保健施設センサス（HFC）の実施とHFCのデータを用いた保健投資計画（HCIP）の策定を支援する在外基礎調査及び技術協力プロジェクトを行ってきました。このたび保健省は、保健投資技術ワーキンググループ（CITWG）のリード・ドナーをつとめるJICAに対し、策定したHCIPを実施していくための技術協力の要請を行いました。それを受けて日本政府は2008年度新規技術協力プロジェクト案件として「保健投資支援プロジェクト」を採択し、同年2008年8月14日（木）～2008年8月27日（火）の間で事前評価調査団を派遣しました。本報告書は、同調査団の調査結果を取りまとめたものです。

ここに、本調査にご協力を賜りました関係各位に対しまして、深甚なる謝意を表しますとともに、今後のプロジェクトの実施に向けて、一層のご協力をお願いします。

平成21年12月

独立行政法人国際協力機構  
ザンビア事務所長 鍋屋 史朗

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## 略 語 表

AIDS	Acquired Immunodeficiency Syndrome	後天性免疫不全症候群（エイズ）
ART	Anti-retroviral Treatment	抗レトロウイルス薬療法
ARV	Anti-retroviral	抗レトロウイルス薬
CBoH	Central Board of Health	中央保健総局
CDC	Centers for Disease Control and Prevention	米国疾病対策予防センター
CIDRZ	Center for Infectious Disease Research in Zambia	(CDC の支援するザンビア国内プロジェクト)
DOTS	Directly Observed Treatment, Short-course	直接監視下短期化学療法
DCI	Development Cooperation Ireland Aid	アイルランド開発協力庁
GIS	Geographical Information System	地理情報システム
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria	世界エイズ・結核・マラリア対策基金
HIV	Human Immunodeficiency Virus	ヒト免疫不全ウイルス
HSSP	Health Services and Systems Program	(USAID の支援するプロジェクト)
JICA	Japan International Cooperation Agency	国際協力機構
NAC	National HIV/AIDS/STI/TB Council	国家エイズ / 性感染症 / 結核対策評議会
PDM	Project Design Matrix	プロジェクト・デザイン・マトリックス
PEPFAR	President's Emergency Plan for AIDS Relief	米国大統領エイズ救済緊急計画
PMTCT	Prevention of Mother-to-child Transmission	母子感染予防
PO	Plan of Operation	プロジェクト作業計画書
USAID	United States Agency for International Development	米国国際援助庁
UTH	University Teaching Hospital	ザンビア大学教育病院
VCT	Voluntary Counseling and Testing	自発的カウンセリング及び検査
ZPCT	Zambia Prevention Care Treatment Partnership	(USAID の支援するプロジェクト)
ZNBTS	Zambia National Blood Transfusion Services	ザンビア国家血液輸血サービス



## 事業事前評価表

<p>1. 案件名 保健投資支援プロジェクト (Health Capital Investment Support Project)</p>
<p>2. 協力概要</p> <p>(1) プロジェクトの概要</p> <p>本案件は、ザンビア国保健省 (MoH) による既存及び新規に投資された医療資機材<sup>1</sup>の適切な運用・維持管理体制の強化支援を行うことを中心として、MoH が策定・実施する「保健投資計画<sup>2</sup>」の効果的な実施を支援するものである。</p> <p>本案件はプロジェクト対象地域 (最大3州) を選定した後、以下の (1) ~ (3) の活動を通して MoH 担当官及び州保健局職員の能力向上を図る; (1) 医療資機材の整備計画及び管理体制の構築、(2) 第二次及び第三次病院において導入する医療機材の選定基準の設定、(3) 医療資機材の調達手順及び適切な運用と維持管理 (予防的管理手法に基づく) を定めた「調達計画」の策定。最終的には (4) 医療資機材の運用と維持管理に対するモニタリング・評価体制の構築を行い、プロジェクト目標である「保健投資の計画と効率的な運用を通じて各レベル (第一次~第三次) 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」が達成されることを目指す。</p> <p>(2) 協力期間: 2009年4月1日~2012年3月31日 (予定)</p> <p>(3) 協力総額 (日本側): 約320百万円</p> <p>(4) 協力相手先機関: 保健省 (MoH)</p> <p>(5) 国内協力機関: 特になし</p> <p>(6) 裨益対象者及び規模: 直接裨益者: MoH 担当官 (4人)、対象州保健局の医療機材専門官、プロジェクト対象3州の保健施設従事者 (約180人) 及び利用者 (約15千人) 間接裨益者: プロジェクト対象3州の住民 (約4,000千人)</p>
<p>3. 協力の必要性・位置付け</p> <p>(1) 現状及び問題点</p> <p>1991年から開始されたザンビアの保健改革では、保健医療セクター全体を効果的、効率的なシステムとして再構築する試みとして、基礎的保健医療サービスパッケージ (Basic Health Care Package, 以下、BHCP) を制定したが、保健施設及び機材が適切に維持管理されていないため、BHCPの提供は不十分な状況にある。国家保健開発計画では、従来の都市部病院 (第三次病院等) に偏重した保健医療サービス提供システムから脱却し、第二次 (州) 病院、第一次 (郡) 病院及</p>

1 医療資機材 (Medical Assets) とは、医療機材 (Medical Equipment、例: 保育器、麻酔器等) 及び医療施設・インフラ (例: 病院の建物、手術室等) 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。本稿では医療資機材と医療機材を使い分けていることに注意。

2 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。MoHの局横断組織である保健投資技術作業部会により策定される。

び地方ヘルスセンターを、BHCPを推進する中心的なサービス提供機関として位置づけている。

一方、地方保健施設の機能を強化するためには、提供可能な保健サービス内容、施設の維持管理状況、医療機材及び人員の配置、サービスを提供される地域住民の保健医療指標や、保健施設へのアクセス状況などの把握が不可欠である。それらのデータを他の保健医療データベースとともに整備することは、保健施設の建設・管理、医療資機材の購入・修繕といった保健投資計画策定のための基礎的な活動と捉えることができる。我が国は2004年、在外基礎調査「全国保健施設センサス」にて保健施設センサスデータベースを構築した。2006年2月～2008年3月に実施した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」では、同データベースを活用し効率的な保健医療サービスを提供するための投資計画を策定するための技術協力を行った。本案件は、同保健投資計画に沿った医療現場での活動を支援するために要請されたものである。

## (2) 相手国政府国家政策上の位置付け

ザンビア政府は第五次国家開発計画（FNDP）の Health Chapter Priority Programs（2.13）において、保健インフラの整備（同18）、医療機材等への投資（19）、保健管理情報システムの整備（20）を目標に掲げている。また同目標の具体的な達成に向けて、MoHは2003年にアフリカ開発銀行の支援のもと医療機材・インフラの管理状況分析を実施し、同分析結果に基づき2006年に医療機器・インフラ管理政策（案）を作成した。

また効率的・一律的な保健投資に向けてヘルスポスト、ヘルスセンター及び第一次（郡）病院レベルにおける「医療機材基準」は既に制定されており、第二次（州）病院及び第三次（ザンビア大学医学部附属教育病院（UTH））レベルにおける基準も2008年現在作成中である。本プロジェクトはそれら政策及び基準に沿って実施し、各政策の目標達成に貢献するものである。

## (3) 我が国援助政策との関連、JICA 国別事業実施計画上の位置付け

我が国は2008年のTICAD IV 横浜宣言においてアフリカに対する保健システム強化への支援を宣言し、そのために「保健インフラ及び施設の拡充等を通じ、保健医療サービスの供給を改善する。」「正確な保健情報に基づいた政策決定を可能とするため、保健システムのモニタリング及び評価体制の構築を促進する。」（横浜行動計画）と表明している。ザンビアのJICA 国別事業実施計画においては、「費用対効果の高い保健医療サービスの充実」を援助重点分野としており、本案件はそのうち「保健行政能力向上」サブプログラムに位置づけられる。

## 4. 協力の枠組み

### (1) 協力の目標

#### ① プロジェクト目標と指標

[目標] 保健投資の計画と効率的な運用を通じて各レベル（第一次～第三次）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。

[指標] 対象地域の保健投資計画における各レベル医療機関の医療資機材管理予算の増加、対象地域における医療機材の不具合の減少（指標はプロジェクト開始初期に決定）

#### ② 上位目標と指標

[目標] 国家保健戦略計画に基づき各レベルの医療機関における医療資機材の状態が向上する。

[指標] 医療施設の整備状況、医療機材基準に拠る「主要医療機材」の70%以上が稼動状況にあること

### (2) 成果（アウトプット）及び活動

成果1：医療資機材の管理のための計画及び仕組みが対象地域において整備・活用される。

活動1-1：既存の医療資機材の管理に関する計画及び仕組みを調査する。

活動 1-2 : 医療資機材の管理に関する人員・組織体制、研修実施能力を調査する。

活動 1-3 : 対象地域における医療資機材の管理モデルを開発する。

活動 1-4 : 対象地域における医療資機材を適切に管理できるようになるための能力開発モデルを実施、モニタリング、評価する。

活動 1-5 : 全ての州保健局の医療機材及び環境衛生の担当官に対して研修を実施する。

活動 1-6 : 医療資機材の管理活動を通じて得られた教訓を取りまとめる。

活動 1-7 : 医療資機材の管理活動に関する計画及び教訓を成果として取りまとめ、対象地域以外に配布する。

成果 1 の指標 : 医療機材及びインフラの管理ガイドラインの作成、研修を受講した州保健局スタッフ数、対象地域において研修を受講したその他関係スタッフ数

成果 2 : 第二次及び第三次病院における医療機材基準が対象地域において整備・活用される。

活動 2-1 : 第一次病院を対象とした既存の医療機材基準の内容及び、第二次、第三次病院を対象とした医療機材基準の策定状況について調査する。

活動 2-2 : 第二次、第三次病院における医療機材台帳を作成する。

活動 2-3 : 既存の民間医療機材業者のアフターケアサービス提供内容について調査する。

活動 2-4 : 第二次、第三次病院の医療機材基準を策定する。

活動 2-5 : 対象地域の医療機材の調達にあたり、「医療機材基準」を活用する。

成果 2 の指標 : 第二次及び第三次病院における「医療機材基準」の作成、対象地域における「医療機材基準」を満たした機材の調達数

成果 3 : 医療資機材の調達手順及び適切な運用と維持管理(予防的管理手法)を定めた「調達計画」が策定される。

活動 3-1 : 医療資機材の運用と維持管理に計上している予算の状況について調査する。

活動 3-2 : 医療資機材の運用と維持管理を適切に行うための能力強化モデルを策定する。

活動 3-3 : 医療資機材の運用と維持管理を実施、モニタリング、評価する。

活動 3-4 : 上記活動 3-2 ~ 3-3 を反映させた医療資機材の「調達計画」を策定し、併せて医療資機材の適切な運用・維持管理を盛り込む。

成果 3 の指標 : 対象地域において機材等の予防的維持管理を実施している医療施設の数、対象地域の医療施設における「調達計画」の作成

成果 4 : 医療資機材の運用・維持管理に対するモニタリング・評価体制が、保健管理情報システム(HMIS)の一部として整備される。

活動 4-1 : 保健管理情報システムの一環として保健施設センサデータベースを更新する仕組みを策定する。

活動 4-2 : 保健施設センサデータベースの更新に基づき、定期的に保健投資計画を更新する仕組みを策定する。

活動 4-3 : 医療資機材に関する最新の情報を保健セクターの国家的なモニタリング・評価活動(合同年次事業調査等)に活用する。

成果 4 の指標 : 保健施設センサデータベースの定期的な更新、保健施設センサデータベースの保健管理情報システムへの統合、保健投資計画の定期的な更新

### (3) 投入

#### ① 日本側



- ・投入の総額（3年間）：約320百万円
- ・専門家：6職種（保健計画、医療機材管理、医療施設管理、環境改善、保健情報管理、研修管理）  
（総括、業務調整は他の職種と兼任）
- ・供与機材：車両、普及用資機材等
- ・研修員受入：保健施設管理等（若干名）
- ・現地業務費：ローカルコンサルタント備上経費等

#### ②ザンビア側

- ・C/P：プロジェクト・ダイレクター、医療機材専門官、品質管理官、統計専門官、対象地域の州保健局担当者、対象州医療施設における医療資機材管理ユニットスタッフ
- ・施設：MoH内のプロジェクト事務所及び施設
- ・ローカル経費負担：プロジェクト事務所運営経費、研修参加経費等

#### (4) 外部条件・前提条件

##### ①外部条件

- ・医療資機材を適切に管理するための国家予算が削減されない。
- ・研修を受けた参加者が現在以上に人事異動しない。

##### ②前提条件

- ・保健投資計画が早期に承認される。（2009年3月予定）
- ・対象となる州保健局の医療機材専門官等、主要なC/Pが配置される。

#### 5. 評価5項目による評価結果

##### (1) 妥当性

##### ①ザンビア政府の政策・ニーズとの整合性

本プロジェクトは「保健インフラ」、「医療機材」、「保健管理情報システム」それぞれの整備を目標としたザンビア政府の第五次国家開発計画（FNDP）およびその実施計画書である国家保健戦略（NHSP）（2006-2010）に貢献するものである。本案件は2008年12月の完成を目指してMoHが策定中の「保健投資計画」に沿い、かつMoHが現在取り組んでいる第二次・第三次病院の医療機材基準および調達計画の策定も支援することから、ザンビア政府の政策・ニーズに整合する。

##### ②JICA事業実施計画との整合性

我が国は2008年のTICAD IV横浜宣言においてアフリカに対する保健システム強化を宣言し、そのために「保健インフラ及び施設の拡充等を通じ、保健医療サービスの供給を改善する。」「正確な保健情報に基づいた政策決定を可能とするため、保健システムのモニタリング及び評価体制の構築を促進する。」（横浜行動計画）と表明している。ザンビアのJICA国別事業実施計画においては、「費用対効果の高い保健医療サービスの充実」を援助重点分野としており、本案件はそのうち「保健行政能力向上」サブプログラムに位置づけられる。

##### ③日本の経験の活用

本案件で導入する医療資機材の維持管理や保健投資計画の推進に必要な技術は、5Sや改善活動など、日本の強みを生かした分野であり、既に他地域の同類プロジェクトにおいて成果を挙げてきた技術である。

##### ④援助協調における役割分担

日本政府は2007年4月に援助協調枠組みであるザンビア共同援助戦略（JASZ）に共同署名し、そのうち保健セクターについては世銀、カナダ、米国等と並ぶアクティブドナーを担っている。保健セクターにおいては2006年にセクターワイドアプローチ（SWAPs）に署名し、そのうち「保

健投資」サブセクターにおいて JICA は唯一のリードドナーとなっている。

(2) 有効性

本案件はプロジェクト開始初期に約6ヶ月間の状況調査を行い、その結果に基づき各成果及びプロジェクト目標の達成が可能となるよう実情に即した活動計画を策定する予定である。

また本案件は対象地域における既存の人材の研修を行う一方、国家レベルにおいても医療機材基準の策定や保健投資計画の改訂などを併せて実施することで、アウトプット及びプロジェクト目標の達成に向けて包括的なアプローチを行う予定である。

外部条件・前提条件については、保健投資計画の完成など現時点で満たされていない事柄も含まれているものの、MoH の取り組みによりプロジェクト開始までに満たされる可能性が高いと見込まれる。プロジェクト開始時点で前提条件が万一満たされない場合は、プロジェクト開始当初の状況調査期間中にそれへの対処を行うことで、プロジェクト本格活動への支障を最小限に抑えることが可能である。

(3) 効率性

本案件においては、MoH の既存又は現在作成中の政策及び組織を活用しつつその強化を目指すため、新規の組織設立や政策策定の支援を行うことは予定していない。また過去や類似の技術協力プロジェクト等の成果や教訓を活用すること（後述）、プロジェクト開始初期に6ヶ月間の状況調査により現実的な活動計画を立案した後に本格活動を開始することから、効率的な事業実施が期待できる。また医療機材の維持管理など一部の活動については現地の業者やコンサルタントを積極的に活用することにより、コスト削減が期待できる。以上から、本案件の効率性は高いと判断される。

(4) インパクト

①制度・政策面

本案件の実施においては、数州を対象地域として選定し、既存の制度・組織を活用・強化しつつ医療資機材の維持管理及び計画的な投資を促進していく手法を採用する。当初より MoH を関与させ、プロジェクト終了後の他州への普及も念頭に置いた能力開発モデルを策定・実施していくことから、他州に対しても比較的容易に普及させていくことが可能と考えられる。

また、本プロジェクト活動より得られた成果や教訓は、MoH が策定中の「保健投資計画」の円滑な実施、「保健管理情報システム」のモニタリング・評価システムの強化といった政策レベルにも資する。

②プログラム面

ザンビア保健分野においては1991年の保健改革以降 BHCP の制定により地方保健施設の機能強化が推進されているが、各医療施設における医療資機材の維持管理能力は極めて不足しており、それゆえ JICA 及び他ドナーによる HIV/ エイズ、母子保健、ウィルス検査精度といった各サブセクターの協力事業の円滑な進捗にも支障を来している。よって保健投資サブセクターにおいて本案件が成果を挙げることは、医療資機材管理の脆弱さが限定要因となって支障を来している他の保健分野案件に対しても、正のインパクトを及ぼすものと考えられる。

(5) 自立発展性

①ザンビア政府のオーナーシップ

本案件はザンビア政府が推進している BHCP に沿い、医療資機材の適切な維持・管理手法の強化を通じて保健投資計画の効果的な実施を支援するものであることから、今後ともザンビア政府による保健投資計画の実施に向けた主体的な取り組みが継続していくものと思われる。

## ②既存の体制・組織の活用

本案件は MoH 既存の保健投資計画及び医療資機材管理の担当官、対象地域の医療施設の機材保守管理担当者及びその組織体制を活用して実施するため、新たに人員・組織体制を雇用・構築して実施するものではないことから、プロジェクト終了後もその成果を継続・活用していくことが可能である。

## ③適用・普及可能な技術の指導

医療資機材の維持管理体制の強化にあたっては、高度な専門技術ではなく、5S や改善活動など、習得するのに特別な専門性を必要としない手法が有効である。本案件でも支援するそれらの手法はザンビアにおいても適用でき、かつプロジェクト終了後もザンビア側が主体的に普及させていくことが可能である。

## 6. 貧困・ジェンダー・環境等への配慮

ザンビアは人口の約 54% が絶対的貧困層であり、その割合は地方にいく程高い。またザンビアでは HIV/ エイズの成人感染率は 14.3%、国民の平均寿命は約 38 歳であること等、保健医療水準は極めて低い。本案件は地方の第一次及び第二次レベル病院における医療資機材の適切な維持管理の支援を中心とするものであることから、多数の貧困及び病気に苦しむ人々に対して、間接的ながらも短期的に裨益することが期待できる。

## 7. 過去の類似案件からの教訓の活用

### (1) 「ザンビア国保健投資計画策定支援プロジェクト」

同プロジェクトの実施にあたっては、EC による保健情報管理システム構築支援と連携を図るなど、援助協調枠組みを有効活用した。一方、専門家の活動可能時期や派遣タイミングが相手国のニーズと必ずしも一致しない状況が見られたことが反省事項であった。本案件においては、薬品調達システムや車輛整備支援等の他ドナー活動とも情報交換を行うなど、引き続き保健 SWAPs における援助協調枠組みを有効活用し、効果的な連携も視野に入れて活動することとする。また専門家の投入にあたっては、より柔軟に派遣時期を設定できるシャトル型派遣を予定している。

### (2) 「エリトリア国保健医療サービス向上のための医療機材管理システム強化プロジェクト」

同案件は GNI が 220USD、国民の 66% が貧困層というエリトリア国において実施中であること、医療機材の維持管理を民間業者ではなく病院関係者で実施せざるを得ない状況であること、そのために既存の医療機材管理保守ユニット (BMEU) を強化していく等、本案件と多くの類似性があることから、その教訓を本案件に活用することが可能と思われる。既に医療機材管理に関する専門家の派遣計画や活動内容においては同案件を参考としたほか、医療施設レベルでの協力に加え、中央政策レベルに対する支援も行うという重層的なアプローチについても、本案件に取り入れて案件形成を行った。

## 8. 今後の評価計画

中間評価：プロジェクト開始後約 1 年半後に実施

終了時評価：プロジェクト終了の約半年前に実施

事後評価：プロジェクト終了 3 年後を目処に実施予定

## 第1章 事前評価調査概要

### 1-1 調査団派遣の経緯と目的

ザンビア政府によるプロジェクト要請を受け、本プロジェクトの成果や活動内容を具体化し、実施の妥当性を検討・評価することを目的として以下のとおり実施した。

### 1-2 団員の構成

役割	氏名	所属
総括	瀧澤 郁雄	JICA 人間開発部 保健行政課 主査
保健投資計画	鈴木 葉子	保健投資計画策定支援プロジェクト 元専門家
協力計画1	松久 逸平	JICA ザンビア事務所 所員
協力計画2	Priscilla Likwasi	JICA ザンビア事務所 在外専門調整員

### 1-3 調査日程

2008年8月14日（木）～2008年8月27日（水）

日付		日程
8月14日	木	ルサカ着 JICA ザンビア事務所打ち合わせ
8月15日	金	8.30 日本大使館表敬 9.30 保健省協議 Mr. Chimfwembe, Director of Planning and Development, Mrs. Kapihya Director of Human Resource and Administration, 10.00 保健省プロジェクト主要関係者打ち合わせ
8月16日	土	PDM、PO、ミニッツ案作成
8月17日	日	PDM、PO、ミニッツ案作成
8月18日	月	現地調査（中央州） rural health centre along the Great North Road, in Chibombo district, Liteta Hospital (1st level) and Kabwe General Hospital (2nd level hospital) ;
8月19日	火	現地調査（中央州ムンブワ郡ミッション病院）
8月20日	水	UTH 院長訪問（Dr. Mwaba） 他ドナー調査（Transaid） PDM、PO、ミニッツ案作成
8月21日	木	保健投資技術作業部会出席 保健省とプロジェクトデザインにつき協議 Mr. Chimfwembe, Mr. Chikwenya, Mr. Peleti, Mr. Mwila E., Mr. Ngoma, Mr. Mukobe, Terrance, Mr. Banda C.,
8月22日	金	他ドナー調査（DFID、世界銀行） PDM、PO、ミニッツ作成
8月23日	土	ミニッツ最終版作成
8月24日	日	ミニッツ最終版作成
8月25日	月	ミニッツ署名

8月26日	火	資料整理 JICA ザンビア事務所報告、日本大使館報告
8月27日	水	ルサカ発

## 第2章 要請内容

「ザ」国側の本件に対する期待は、保健投資計画（HCIP）の実施促進にとどまらず、医療施設・医療機材・車両等の運用および維持管理にかかる全国レベルでのシステム強化を支援することであった。医療施設・医療機材・車両等の運用および維持管理にかかるシステム強化については、対処方針として想定していた協力のスコープを超えるものであったが、以下の理由から妥当と判断し、スコープに含めることで保健省と合意した。

- (1) HCIP に沿った投資が持続的な効果を生むためには、整備された医療施設・医療機材が適切に運用・維持管理される必要がある。
- (2) 「ザ」国保健システムの現状として医療施設・医療機材の運用・維持管理にかかる人材・機材・予算配分はきわめて不十分であり、早急な能力強化が必要である。
- (3) 「ザ」国政府は医療施設・医療機材の運用・維持管理の重要性を認識しており、そのための人材確保や政策・ガイドラインの整備、予算確保を具体的に進めようとしている  
なお、車両の運用・維持管理については、英 DFID の資金により、同分野の技術協力を専門とする英国 NPO（Transaid）が現状分析を行い、政策提言もまとめている。同提言を実施に移すためには何らかの技術協力が不可欠であると思われるものの、同 NPO による継続的支援が最も望ましく、JICA 側として本プロジェクトのスコープに含めることの妥当性は高くないものと考えられたため、スコープ外とすることで保健省との合意を得た。

### 第3章 プロジェクト基本計画

本調査の結果策定されたプロジェクトの概要は、冒頭「事前評価調査表」及び付属資料「締結ミニッツ」に記載のとおり。

医療施設・医療機材の適切な運用・維持管理体制の強化支援を本プロジェクトのスコープに含めることは妥当であるが、デザイン上以下の配慮が必要であると考えられた。

- (1) 案件の初期に現状分析の期間をおき、同分析を以後の活動計画（モデル構築計画）に反映させる。医療施設・医療機材の適切な運用・維持管理体制の強化について「ザ」国政府のコミットメントは高いが、保健省が進める組織改革（中央、州、県、医療施設の各レベルにおける機材保守管理専門職の新規配置等）や、関連政策・国家指針の整備については流動性が高く、計画と実態との乖離や、将来的な見通しについての的確な分析が、的確な活動計画策定のためには不可欠である。したがって、協力開始後5ヶ月程度を現状分析と活動計画（モデル構築計画）の策定にあてることで保健省と合意した。
- (2) パイロット地域を選定し、モデルの成果を実証した上で、政府ガイドライン等に反映させる。「ザ」国政府の期待は、全国を対象に医療施設・医療機材の適切な運用・維持管理体制の強化を行うことであった。しかしながら「ザ」国は広大な国土を有し、かつ現状では医療施設・医療機材の運用・維持管理に関してシステムとして機能しているものがほとんどないことから、州単位でパイロット地域を選定し、同州内で機能する体制を実証的にモデルとして構築し、同経験を反映させつつ国家の政策・ガイドライン等を整備することがより効果的であると考えられた。
- (3) 現地教育機関等との連携により、持続的な人材育成プログラムを作成すると共に、「ザ」国の現状（人材、設備・機材、予算制約等）を踏まえて現実的なモデルを構築する。現在「ザ」国で医療機材の運用・維持管理に従事する人材育成事業を実施しているのは、ザンビア大学附属教育病院（UTH）生物工学科のみである。医療施設に特化したプログラムは存在しない。パイロット地域を対象とする人材育成を行う場合には、UTH等の現地教育機関と連携し、「ザ」国内における人材育成プログラムの制度化にも貢献することが、自立発展性を高めるために有効と考えられた。また、1次病院以下のレベルでは運用・維持管理を専門とする人材が極めて少ないことから、各施設における参加型施設管理・改善手法（5S等）や計画的・予防的維持管理（PPM）の導入を支援すると共に、必要に応じて州保健局または州病院の技師によるサービスやUTHあるいはメーカー代理店等によるサービスを楽しむ仕組みを制度化する必要があると考えられた。これらは保健省に調査団見解として伝えた。

## 第4章 その他の留意事項

本件は、精度管理されたデータに基づく合理的な保健投資の実施（医療施設・医療機材の整備）と、投資効果の持続性を改善するための医療施設・医療機材の運用・維持管理体制の強化に取り組むものである。今後、TICAD IVでの政府コミットメント等を踏まえ、「ザ」国保健分野において資金協力を通じた医療施設・医療機材の整備を支援する場合には、以下のとおり、本プロジェクトとの一体的な実施が強く推奨される。

- (1) 資金協力対象施設の選定に際しては、保健投資計画との整合性を確認する。保健投資計画には、全国の保健施設の状況分析を踏まえ、優先的に新設・改修が必要とされる施設が含まれており、個々の医療施設・医療機材整備案件の上位計画となるものである。
- (2) 資金協力対象施設の選定に際して、可能であれば、本プロジェクトがパイロットとして選定した地域内の施設から選定する。本プロジェクトでは地域内での医療施設・医療機材の運用・維持管理体制の構築を支援する計画であることから、資金協力による投資効果の持続性改善への貢献が期待される。

以上



## 付 属 資 料

1. 締結ミニッツ（2008年8月）
2. 討議議事録（R/D）及びミニッツ（2009年4月）
3. Situation Analysis on Health Capital Investment Plan（保健投資計画団員）


**THE MINUTES OF MEETING OF THE PREPARATORY STUDY  
ON THE TECHNICAL COOPERATION FOR  
HEALTH CAPITAL INVESTMENT SUPPORT PROJECT**


Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Preparatory Study Team (hereafter referred to as "the Team"), headed by Mr. Ikuo Takizawa, to the Republic of Zambia (hereinafter referred to as "Zambia") from August 14 to August 27, 2008 for the purpose of discussing the framework of the project entitled "Health Capital Investment Support Project" (hereinafter referred to as "the Project").

During its stay in Zambia, the Team collected information through field visits, reviewed existing documents, and had series of discussions on the Project with the authorities and stakeholders in Zambia.

As a result, the Team and the Zambian authorities concerned reached common understanding regarding the matters referred to in the document attached hereto.

Lusaka, Zambia  
August 26, 2008

  
\_\_\_\_\_  
Mr. Ikuo Takizawa  
Leader  
Preparatory Study Team  
Japan International Cooperation Agency  
Japan

  
\_\_\_\_\_  
Dr. Velepi Mtonga  
Acting Permanent Secretary  
Ministry of Health  
Republic of Zambia

## **The Attached Document**

### **1. Background of the Project**

In 1992, the Ministry of Health (MOH) embarked on radical health reforms which primarily aimed at improving the quality of health service delivery. The core tenets of the reforms included decentralization of health service planning and management, implementation of a basic package of care focusing on primary health care and improvement of health infrastructure, medical equipment and transport system.

The inadequate financial resources have made it difficult to realize the full ambition of the reform process. Though some funds have been pumped into infrastructure development, these have not been adequate to match the infrastructure needs and the sector needs to re-strategize if quality provision of health services to the population is to be guaranteed. And to avoid further deterioration, health physical asset management systems such as preventive maintenance need to be strengthened and mainstreamed.

Several reviews (World Bank 1999 and African Development Bank 1999) pointed at the lack of (preventive) maintenance, over-straining of existing facilities, most equipment being old and obsolete, and the limiting of technical backstopping to the Ministry of Works and Supplies' artisans. Other key concerns raised include; focus on physical expansion instead of rehabilitation, inadequate information on infrastructure requirements for effective delivery of the basic packages, shortage of staff housing, inadequate mobilization of community efforts and little use of existing capital-funding programmes.

In the context of the health reforms, infrastructure and equipment need to correspond to the package of care provided by health facilities. Draft packages of care are available for Health Post as well as Second and Third Level Hospitals. The existing packages of care, i.e. for First Level Hospitals, Rural and Urban Health Centres are undergoing revision.

The MoH had planned on developing new standards and norms for infrastructure and equipment in 1999 based on the package of care for all levels of the health care delivery system. This process has not been done in a comprehensive manner. Standards for infrastructure and equipment have been developed for the Health Post, Health Centre and the First Level Hospitals. There are however no standards of medical equipment for Second, and Third Level Hospitals. The MoH further has no maintenance procedures and policy guidelines to guide institutions in undertaking preventive and corrective maintenance; hence there is no objective rationale for allocation of funds for maintenance and repair. However, a national framework for preventive maintenance of infrastructures and equipment has been developed.

The MoH, with support from JICA, has drafted a comprehensive Health Sector Capital Investment Plan (HSCIP). The project on Health Facility Census (HFC) facilitated the collection of vital information on the status and availability of health infrastructure countrywide which served as a basis for the development of the HSCIP. The HSCIP needs to be augmented with policies, systems, standards and procurement plans. To facilitate the development of standards, procurement plans, systems and policies for management of health physical assets at all levels of the health care delivery system, support is being sought from JICA.



VCM

## **2. Tentative Framework of the Project**

Based on the discussions, considering funding and technical feasibility, a tentative framework of the project is agreed as follows. Details are described in the attached Project Design Matrix (PDM) (Annex 1) and Plan of Operation (PO) (Annex 2).

### **2-1. Project Title**

Health Capital Investment Support Project

### **2-2. Target Groups**

#### **<Medical Equipment>**

##### **Provincial level**

- Principal Medical Equipment Officers of all Provincial Health Offices
- Medical Equipment Technologists or Hospital Engineers in the Second Level Hospitals in the pilot area(s)

##### **District level**

- Environmental Health Officers of District Health Management Team (DHMT) in the pilot area(s)
- Medical Equipment Technologists (or Electrical Technicians or Refrigeration Technicians) of the First Level Hospitals in the pilot area(s)

##### **Health Center/Health Post level**

- Medical Equipment Technicians in the Urban Health Centers in the pilot area(s)
- Health center in charges in the Rural Health Centers in the pilot area(s)
- Available qualified staff in the Health Posts in the pilot area(s)

#### **<Infrastructure>**

##### **Provincial level**

- Chief Environmental Health Officers (or Environmental Health Technologist) of all Provincial Health Offices
- Hospital Engineers in the Second Level Hospitals in the pilot area(s)

##### **District level**

- Environmental Health Officers of DHMT in the pilot area(s)
- Electrical Technicians (or Carpenters or Plumbers) of the First Level Hospitals in the pilot area(s)

##### **Health Center/Health Post level**

- Environmental Health Technologists in the Urban/Rural Health Centers in the pilot area(s)
- Available qualified staff in the Health Posts in the pilot area(s)

### **2-3. Duration of the Project**

Three (3) years from the first dispatch of the expert.

### **2-4. Master Plan of the Project**

#### **Overall Goal:**

Conditions of the health physical asset (i.e., medical equipment, infrastructure and utilities) in health systems in Zambia is improved to support delivery of quality health services at all levels, within the framework of the National Health Strategic Plan.

#### **Project Purpose:**

Capacity of public health physical asset management is improved in the pilot area(s) to plan and cost effectively manage capital investment to facilitate delivery of quality health services at all levels of service delivery.

**Outputs:**

- 1) Management policies and mechanisms for medical equipment, infrastructure and utilities are developed and operationalized in the pilot area(s)
- 2) Standards (i.e. types of equipment, generic specifications and quantity) of medical equipment for Second and Third Level Hospitals are developed and operationalized in the pilot area(s).
- 3) Procurement plans as a component of planned preventive maintenance of medical equipment, infrastructure and utilities are developed and operationalized in the pilot area(s).
- 4) Monitoring and evaluation mechanisms for medical equipment, infrastructure and utilities are developed, operationalized and integrated into the Health Management Information System.

**Activities:**

- 1-1 Review existing management policies, policy drafts and mechanisms for medical equipment, infrastructure and utilities
- 1-2 Assess the actual staffing and organizational structure related to health physical asset management, training capacity of national institutions in the area of health physical asset management
- 1-3 Design a model to develop health physical asset management capacity in the pilot area(s)
- 1-4 Implement, monitor and evaluate a model to develop health physical asset management capacity in the pilot area(s)
- 1-5 Train Principal Medical Equipment Officers and Chief Environmental Health Officers from all Provincial Health Offices (PHOs)
- 1-6 Incorporate lessons learned from the pilot to the management policies for medical equipment, infrastructure and utilities
- 1-7 Disseminate the finalized management policy and lessons from the pilot activities to other areas
  
- 2-1 Review existing standards (i.e., types of equipment, generic specifications and quantities) of medical equipment for the First Level Hospital and draft standards (if available) of medical equipment for the Second and Third Level Hospitals
- 2-2 Make an inventory of the existing medical equipment of the Second and Third Level Hospitals
- 2-3 Assess the capacity of private suppliers about their aftercare services
- 2-4 Develop standards of medical equipment for the Second and Third Level Hospitals
- 2-5 Use the standards in procurement of medical equipment in the pilot area(s)
  
- 3-1 Assess the practice of and budget allocation for preventive maintenance of health physical asset in the pilot area(s)
- 3-2 Design a model to develop capacity of planned preventive maintenance of health physical asset in the pilot area(s)
- 3-3 Implement, monitor and evaluate a model to develop capacity of planned preventive maintenance of health physical asset in the pilot area(s)
- 3-4 Develop procurement plans in line with planned preventive maintenance of health physical asset in the pilot area(s)
  
- 4-1 Develop a mechanism to update Health Facility Census database as an integral part of Health Management Information System

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- 4-2 Develop a mechanism to revise Health Capital Investment Plan periodically based on the updated Health Facility Census database
- 4-3 Utilize the updated information on health physical asset in national monitoring and evaluation activities (e.g., Joint Annual Review)

## **Inputs**

### **Japanese side**

- Technical Experts (e.g. Health Planning Specialist, Medical Equipment Management Specialist, Health Infrastructure Management Specialist, 5S/Total Quality Management (TQM) Specialist, Health Information Management Specialist, and Training Specialist/Administrator).
- Costs of necessary local consultants who will work for the Project
- Costs of local training and capacity building activities
- Costs of necessary equipment and materials for project implementation (e.g. computers and printers for the project office)

### **Zambian side**

- Project manager
  - Director of Directorate of Policy and Planning
- Focal persons:
  - Medical Equipment Specialist (Directorate of Clinical Care and Diagnostics);
  - Principal Planner for Medical Equipment (Directorate of Planning and Development);
  - Quantity Surveyor (Directorate of Policy and Planning);
  - Senior Statistician (Directorate of Policy and Planning); and
  - Principal Planners (Directorate of Policy and Planning).
- Space and related facilities for the project office (e.g. telephone, internet, furniture etc) within the MoH Building
- Running costs of the project office (e.g. telephone, water, electricity, maintenance of project vehicle etc)
- Contribution to the training costs (e.g. payment of out of pocket allowances etc.)

## **3. Implementation Structure of the Project**

### **3-1. Formal Decision Making Structure**

The Steering Committee should be organized for the following functions:(1) to formalize the annual work plan for the Project under the framework of the Record of Discussions (R/D), (2) to review and authorize the overall progress of the Project as well as the achievements of the above-mentioned annual work plan, and (3) to formalize decisions on the matters concerning the Project.

The composition of the Steering Committee is expected as follows:

Chairperson: Project Director (Permanent Secretary of the Ministry of Health)

Co-chairperson: Resident Representative of JICA Zambia Office

Members:

a) Zambian side:

- Project Manager (Director of the Directorate of Planning and Development)
- Other members from the Directorate of Policy and Planning, Directorate of Clinical Care and Diagnostics, and Directorate of Human Resource and Administration.

b) Japanese side:

- JICA Technical Experts
  - JICA Zambia staff
- c) Other members mutually agreed by both sides

(Note: The details of functions and the composition of the Steering Committee will be finalized upon the signing of the R/D.)

### **3-2. Day-to-Day Operations**

Supervision of day to day activities of the Project will be undertaken by the Director of the Directorate of Policy and Planning. The day-to-day facilitation, coordination, implementation and monitoring of the Project activities will be handled by the focal persons in collaboration with the JICA experts.

The Project will explore the possibilities of collaborating with the local resources such as national training institutions and private suppliers.

### **4. Pre-conditions for the Commencement of the Project**

JICA and MoH agreed that the following pre-conditions should be fulfilled before the commencement of the Project:

- (1) The MoH finalizes the Capital Investment Plan (2008-2010)
- (2) The MoH secures adequate personnel who will be the target group of the Project, particularly Principal Medical Equipment Officers to be assigned at the Provincial Health Offices.

### **5. Tentative Schedule before the Commencement of the Project**

- (1) August 2008: Preparatory study on the Project (at present)
- (2) September 2008: Report to the JICA Head Quarters (HQ) of the result of the Study
- (3) Between September and November 2008: Internal approval of Record of Discussion (R/D) by JICA HQ
- (4) December 2008: Signing on R/D between Permanent Secretary of MoH and Resident Representative of JICA Zambia Office
- (5) Preparation for the commencement of the Project by MoH and JICA Zambia Office (e.g. preliminary selection of pilot area(s) and recruitment of Japanese experts)
- (6) March 2009: Commencement of the Project

### **6. Target Areas**

The pilot area(s) will be determined based on the results of the situation analysis. Province should be the unit of the selection for the pilot, and initially maximum of three (3) provinces should be selected. Based on the Mid-Term Evaluation of the initial pilot activities, expansion to other areas will be considered. The counterpart funding from the MoH may need to be available for such expansion.

End

Annex 1. Project Design Matrix  
Annex 2. Plan of Operation

Annex 1. Project Design Matrix  
 Project Name: Health Capital Investment Support Project  
 Project Start: 23, 2008  
 Target Group:  
 Version: 0

Project Period: Three (3) years from the first dispatch of the expert.  
 - Available qualified staff in the Health Posts in the pilot area(s)  
 - Chief Environmental Health Officers (or Environmental Health Technologist) of all Provincial Health Offices  
 - Hospital Engineers in the Second Level Hospitals in the pilot area(s)  
 - Environmental Health Officers of DHMT in the pilot area(s)  
 - Electrical Technicians for Carpenters or Plumbers of the First Level Hospitals in the pilot area(s)  
 - Environmental Health Technologists in the Urban/Rural Health Centers in the pilot area(s)  
 - Available qualified staff in the Health Posts in the pilot area(s)

**Objective/Verifiable Indicators**  
 1. Proportion of health facilities that meet the infrastructure standards.  
 2. Proportion of health facilities in which more than 70% of the critical equipment is in working condition. 1. Critical equipment shall be selected based on the equipment standards.  
 3. The budget for the physical asset management is allocated according to the policy guidelines at all levels of service delivery in the pilot area(s)  
 4. Proportion of non-fundamental medical equipment is reduced in the pilot area(s)

Narrative Summary (Overall Goal)	Means of Verification	Important Assumptions
<p>Conditions of the health physical asset (i.e., medical equipment, infrastructure and utilities) in health facilities in Zambia is improved to support delivery of quality health services at all levels, within the framework of the National Health Strategic Plan.</p>	<p>1. HFC database 2. HFC database</p>	<p>The model is rolled out to other areas.</p>
<p><b>[Project Purpose]</b> Capacity of public health physical asset management is improved in the pilot area(s) to plan and cost-effectively manage capital investment to facilitate delivery of quality health services at all levels of service delivery.</p>	<p>1. Expenditure report 2. HFC database</p>	<p>Budget allocation for physical asset management is not reduced.</p>
<p><b>[Outputs]</b> 1) Management policies and mechanisms for medical equipment, infrastructure and utilities are developed and operationalized in the pilot area(s). 2) Standards (i.e., types of equipment, generic specifications and quantity) for medical equipment for the Second and the Third Level Hospitals are developed and operationalized in the pilot area(s). 3) Procurement plans as a component of planned preventive maintenance of medical equipment, infrastructure and utilities are developed and operationalized in the pilot area(s). 4) Monitoring and evaluation mechanisms for medical equipment, infrastructure and utilities are developed, operationalized and integrated into the Health Management Information System.</p>	<p>1-1. Management policies, guidelines for medical equipment and infrastructure 1-2. Training reports 2-1. Standard for medical equipment for the Second and Third Level Hospitals 2-2. Inventory forms from the pilot facilities 3-1. Project monitoring report 3-2. Procurement plans from the pilot facilities 4-1. HFC database 4-2. HIS database 4-3. HCFR is periodically reviewed.</p>	<p><b>Important Assumptions</b> Turn-over of the trained staff does not increase.</p>
<p><b>[Activities]</b> 1-1 Review existing management policies, policy drafts and mechanisms for medical equipment, infrastructure and utilities 1-2 Assess the actual staffing and organizational structure related to health physical asset management, training capacity of national institutions in the area of health physical asset management 1-3 Design a model to develop health physical asset management capacity in the pilot area(s) 1-4 Implement, monitor and evaluate a model to develop health physical asset management capacity in the pilot area(s) 1-5 Train Principal Medical Equipment Officers and Chief Environmental Health Officers from all Provincial Health Offices (PHOs) 1-6 Incorporate lessons learned from the pilot to the management policies for medical equipment, infrastructure and utilities 1-7 Disseminate the finalized management policy and lessons from the pilot activities to other areas 2-1 Review existing standards (i.e., types of equipment, generic specifications and quantities) of medical equipment for primary hospital and draft standards (if available) of medical equipment for the Second and the Third Level Hospitals 2-2 Make an inventory of the existing medical equipment of the Second and the Third Level Hospitals 2-3 Assess the capacity of private suppliers to provide ancillary services 2-4 Develop standards of medical equipment for the Second and the Third Level Hospitals 2-5 Use the standards in procurement of medical equipment in the pilot area(s) 3-1 Assess the practice of and budget allocation for preventive maintenance of health physical asset in the pilot area(s) 3-2 Design a model to develop capacity of planned preventive maintenance of health physical asset in the pilot area(s) 3-3 Implement, monitor and evaluate a model to develop capacity of planned preventive maintenance of health physical asset in the pilot area(s) 3-4 Develop procurement plans in line with planned preventive maintenance of health physical asset in the pilot area(s) 4-1 Develop a mechanism to update Health Facility Census database as an integral part of Health Management Information System 4-2 Develop a mechanism to revise Health Capital Investment Plan periodically based on the updated Health Facility Census database 4-3 Utilize the updated information on health physical asset in national monitoring and evaluation activities (e.g., Joint Annual Review)</p>	<p><b>Japanese side</b> - Technical Experts (e.g. Health Planning Specialist, Medical Equipment Management Specialist, Health Infrastructure Management Specialist, SS7000 Quality Management (TQM) Specialist, Health Information Management Specialist, and Training Specialist/administrator). - Costs of necessary local consultants who will work for the Project - Costs of necessary locally build activities - Costs of necessary equipment and materials for project implementation (e.g. computers and printers for the project office)</p> <p><b>Zambian side</b> - Project manager - Director of Directorate of Policy and Planning - Focal persons: - Medical Equipment Specialist (Directorate of Clinical Care and Diagnostics); - Principal Planner for Medical Equipment (Directorate of Planning and Development); - Quantity Surveyor (Directorate of Policy and Planning); - Senior Statistician (Directorate of Policy and Planning); and - Principal Planners (Directorate of Policy and Planning). - Space and related facilities for the project office (e.g. telephones, internet, furniture etc) within the MoH Building - Running costs of the project office (e.g. telephone, water, electricity, maintenance of project vehicle etc) - Contribution to the training costs (e.g. payment of out of pocket allowances etc).</p>	<p><b>[Pre-condition]</b> 1) The MoH finalizes the Capital Investment Plan (2008-2010) 2) The MoH appoints a Project Manager for the target Group of the Project, particularly Principal Medical Equipment Officers to be assigned at the Provincial Health Offices.</p>

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Annex 2. Tentative Plan of Operation

	2009												2010												2011												2012											
	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12		
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**RECORD OF DISCUSSIONS  
BETWEEN  
JAPAN INTERNATIONAL COOPERATION AGENCY AND AUTHORITIES  
CONCERNED OF THE GOVERNMENT OF THE REPUBLIC OF ZAMBIA  
ON  
JAPANESE TECHNICAL COOPERATION FOR  
THE HEALTH CAPITAL INVESTMENT SUPPORT PROJECT**

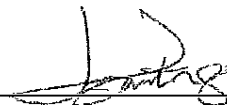
Japan International Cooperation Agency (hereinafter referred to as “JICA”) exchanged views and had a series of discussions with Zambian authorities concerned with respect to desirable measures to be taken by JICA and Zambian Government for the successful implementation of the Health Capital Investment Support Project”.

As a result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the Government of Japan and the Government of Zambia, signed in Lusaka on 27th June 2006 (hereinafter referred to as “the Agreement”), the Team and Zambian authorities concerned agreed on the matters referred to in the document attached hereto.

Lusaka, 9<sup>th</sup>, April, 2009

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Mr. Shiro Nabeya  
Resident Representative,  
Japan International Cooperation Agency  
Zambia Office



Dr. Velepi Mtonga  
Permanent Secretary,  
Ministry of Health  
Republic of Zambia

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## THE ATTACHED DOCUMENT

### I. COOPERATION BETWEEN JICA AND ZAMBIAN GOVERNMENT

1. The Government of Zambia will implement the Health Capital Investment Support Project (hereinafter referred to as “the Project”) in cooperation with JICA.
2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

### II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan and the provisions of Article of the Agreement, JICA, as the executing agency for technical cooperation by the Government of Japan, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

#### 1. DISPATCH OF JAPANESE EXPERTS

JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Article III-(B) of the Agreement will be applied to the above-mentioned experts.

#### 2. PROVISION OF MACHINERY AND EQUIPMENT

JICA will provide such machinery, equipment and other materials (hereinafter referred to as “the Equipment”) necessary for the implementation of the Project as listed in Annex III. The provision of Article III-(e) of the Agreement will be applied to the Equipment.

#### 3. TRAINING OF ZAMBIAN PERSONNEL IN JAPAN

JICA will receive the Zambian personnel connected with the Project for technical training in Japan.

### III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF ZAMBIA

1. The Government of Zambia will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.
2. The Government of Zambia will ensure that the technologies and knowledge acquired by the

Zambian nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of Zambia.

3. In accordance with the provisions of Article V of the Agreement, the Government of Zambia will grant in Zambia privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.
4. In accordance with the provisions of Article VII of the Agreement, the Government of Zambia will take the measures necessary to receive and use the Equipment provided by JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.
5. The Government Zambia will take necessary measures to ensure that the knowledge and experience acquired by the Zambian personnel from technical training in country, Japan, or third country, will be utilized effectively in the implementation of the Project.
6. In accordance with the provision of Article V-1(2)-(b) of the Agreement, the Government of Zambia will provide the services of Zambian counterpart personnel and administrative personnel as listed in Annex IV.
7. In accordance with the provision of Article V-1(2)-(a) of the Agreement, the Government of Zambia will provide the buildings and facilities as listed in Annex V.
8. In accordance with the laws and regulations in force in Zambia , the Government of Zambia will take necessary measures to supply or replace at its own expense machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above.
9. In accordance with the laws and regulations in force in Zambia , the Government of Zambia will take necessary measures to meet the running expenses necessary for the implementation of the Project.

#### IV. ADMINISTRATION OF THE PROJECT

1. The Permanent Secretary for the Ministry of Health, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.
2. The Director of the Directorate of Policy and Planning, as the Project Manager, will be responsible for the managerial and technical matters of the Project.

3. The Japanese Team Leader will provide necessary recommendations and advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.
4. The Japanese experts will give necessary technical guidance and advice to Zambian counterpart personnel on technical matters pertaining to the implementation of the Project.
5. For the effective and successful implementation of technical cooperation for the Project, the Project Steering Committee, whose functions and composition are described in Annex VI will be established.
6. The day-to-day facilitation, coordination, implementation and monitoring of the Project activities will be handled by the focal persons in collaboration with the JICA experts.
7. The Project will explore the possibilities of collaborating with the local resources such as national training institutions and private suppliers.

#### V. JOINT MONITORING AND EVALUATION

1. Monitoring of the Project will be conducted jointly by JICA and the Zambian authorities concerned, every Six (6) months of the cooperation term in order to determine progresses in the project implementation.
2. Evaluation of the Project will be conducted jointly by JICA and the Zambian authorities concerned, during the last six months of the cooperation term in order to examine the level of achievement.

#### VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VI of the Agreement, the Government of Zambia undertakes to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in Zambia except for those arising from the willful misconduct or gross negligence of the Japanese experts.

#### VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and Zambian Government on any major issues arising from, or in connection with this Attached Document.

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## VIII. MESURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of Zambia, the Government of Zambia will take appropriate measures to make the Project widely known to the people of Zambia.

## IX. TERM OF COOPERATION

The duration of the Project under this Attached Document will be three (3) years from the first dispatch of the Experts.

- ANNEX I      MASTER PLAN
- ANNEX II     LIST OF JAPANESE EXPERTS
- ANNEX III    LIST OF MACHINERY AND EQUIPMENT
- ANNEX IV    LIST OF ZAMBIAN COUNTERPART AND ADMINISTRATIVE PERSONNEL
- ANNEX V     LIST OF OFFICE SPACE AND FACILITIES
- ANNEX VI    PROJECT STEERING COMMITTEE

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**OVERALL GOAL:**

Conditions of the health physical asset (i.e., medical equipment, infrastructure and utilities) in health systems in Zambia is improved to support delivery of quality health services at all levels, within the framework of the National Health Strategic Plan.

**PROJECT PURPOSE:**

Capacity of public health physical asset management is improved in the pilot area(s) to plan and cost effectively manage capital investment to facilitate delivery of quality health services at all levels of service delivery.

**OUTPUTS:**

- 1) Management policies and mechanisms for medical equipment, infrastructure and utilities are developed and operationalized in the pilot area(s).
- 2) Standards (i.e. types of equipment, generic specifications and quantity) of medical equipment for Second and Third Level Hospitals are developed and operationalized in the pilot area(s).
- 3) Procurement plans as a component of planned preventive maintenance of medical equipment, infrastructure and utilities are developed and operationalized in the pilot area(s).
- 4) Monitoring and evaluation mechanisms for medical equipment, infrastructure and utilities are developed, operationalized and integrated into the Health Management Information System.

**ACTIVITIES:**

- 1-1 Review existing management policies, policy drafts and mechanisms for medical equipment, infrastructure and utilities
- 1-2 Assess the actual staffing and organizational structure related to health physical asset management, training capacity of national institutions in the area of health physical asset management
- 1-3 Design a model to develop health physical asset management capacity in the pilot area(s)
- 1-4 Implement, monitor and evaluate a model to develop health physical asset management capacity in the pilot area(s)

- 1-5 Train Principal Medical Equipment Officers and Chief Environmental Health Officers from all Provincial Health Offices (PHOs)
- 1-6 Incorporate lessons learned from the pilot to the management policies for medical equipment, infrastructure and utilities
- 1-7 Disseminate the finalized management policy and lessons from the pilot activities to other areas
  
- 2-1 Review existing standards (i.e., types of equipment, generic specifications and quantities) of medical equipment for the First Level Hospital and draft standards (if available) of medical equipment for the Second and Third Level Hospitals
- 2-2 Make an inventory of the existing medical equipment of the Second and Third Level Hospitals
- 2-3 Assess the capacity of private suppliers about their aftercare services
- 2-4 Develop standards of medical equipment for the Second and Third Level Hospitals
- 2-5 Use the standards in procurement of medical equipment in the pilot area(s)
  
- 3-1 Assess the practice of and budget allocation for preventive maintenance of health physical asset in the pilot area(s)
- 3-2 Design a model to develop capacity of planned preventive maintenance of health physical asset in the pilot area(s)
- 3-3 Implement, monitor and evaluate a model to develop capacity of planned preventive maintenance of health physical asset in the pilot area(s)
- 3-4 Develop procurement plans in line with planned preventive maintenance of health physical asset in the pilot area(s)
  
- 4-1 Develop a mechanism to update Health Facility Census database as an integral part of Health Management Information System
- 4-2 Develop a mechanism to revise Health Capital Investment Plan periodically based on the updated Health Facility Census database
- 4-3 Utilize the updated information on health physical asset in national monitoring and evaluation activities (e.g., Joint Annual Review)



ANNEX II

LIST OF JAPANESE EXPERTS

1. Health Planning Specialist
2. Medical Equipment Management Specialist
3. Health Infrastructure Management Specialist
4. 5S/Total Quality Management (TQM) Specialist
5. Health Information Management Specialist
6. Training Specialist/Administrator



ANNEX III

LIST OF MACHINERY AND EQUIPMENT

1. Necessary equipments for the transfer of technology/skills to the Zambian personnel connected with the Project
2. Other equipment and materials mutually agreed upon as necessary for the implementation of the Project will be provided.
3. The Government of Zambia will bear the cost of maintenance and operation for the equipment and facilities.

Note:

1. The above- mentioned equipment is limited to equipment necessary for the transfer of technology/ Skills to the Zambian personnel connected with the Project.
2. The contents, specifications and quantity of the above-mentioned equipment to be provided each year will be discussed in principle every year between the Japanese experts and Zambian counterpart personnel based upon the annual plan of the Project, within the allocated budget of the Japanese fiscal year.

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## ANNEX IV

### LIST OF ZAMBIAN COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Project Director;  
Permanent Secretary for the Ministry of Health
2. Project Manager;  
The Director of the Directorate of Policy and Planning
3. Focal persons:
  - Medical Equipment Specialist (Directorate of Clinical Care and Diagnostics);  
Principal Planner for Medical Equipment (Directorate of Policy and Planning);
  - Chief Planner Infrastructure (Directorate of Policy and Planning);
  - Principal Information Communication Technology Officer (ICT), (Directorate of Policy and Planning); and
  - Principal Planners (Directorate of Policy and Planning).
- 4 Administrative Personnel
  - (1) Secretary
  - (2) Driver
  - (3) Office Assistant (orderly)

ANNEX V

LIST OF OFFICE SPACE AND FACILITIES

- (1) Sufficient office space for the implementation of the Project
- (2) Other necessary facilities for the Japanese Experts
- (3) Utilities and services, such as the supply of electricity, gas and water, sewerage system, telephones and furniture necessary for the implementation of the Project.

## ANNEX VI

### PROJECT STEERING COMMITTEE

#### 1. Functions

The Project Steering Committee shall meet at least once a year and whenever the necessity arises, in order to fulfill the following functions:

- (1) To approve the annual plan of operation for the Project under the framework of the Record of Discussions.
- (2) To review the overall progress of the Project as well as the achievements of the above-mentioned annual plan of operation.
- (3) To review and exchange views on major issues arising from or in connection with the Project.

#### 2. Composition

- (1) Chairperson: Project Director (Permanent Secretary of the Ministry of Health)
- (2) Co-chairperson: Resident Representative of JICA Zambia Office
- (3) Members:
  - a) Zambian Counterparts:
    - Project Manager (Director of the Directorate of Policy and Planning)
    - Other members from the Directorate of Policy and Planning, Directorate of Clinical Care and Diagnostics, and Directorate of Human Resource and Administration.
  - b) Japanese side:
    - JICA Technical Experts
    - JICA Zambia staff
  - c) Other members mutually agreed by both sides

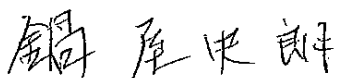
Note: Representative(s) of the Embassy of Japan in Zambia may attend the Project Steering Committee as observer(s).

**MINUTES OF MEETING**  
**BETWEEN**  
**JAPAN INTERNATIONAL COOPERATION AGENCY AND AUTHORITIES**  
**CONCERNED OF THE GOVERNMENT OF THE REPUBLIC OF ZAMBIA**  
**ON**  
**JAPANESE TECHNICAL COOPERATION FOR**  
**THE HEALTH CAPITAL INVESTMENT SUPPORT PROJECT**

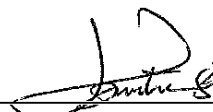
Japan International Cooperation Agency (hereinafter referred to as "JICA") exchanged views and had a series of discussions with the authorities concerned of the Republic of Zambia with respect to desirable measures to be taken by JICA and the Government of the Republic of Zambia for successful implementation of the above-mentioned Project (hereinafter referred to as "the Project").

As a result of the discussions, both sides agreed upon the matters in the document attached hereto. This Document is related to the Record of Discussions on the Project, signed on the same date.

Lusaka, 9<sup>th</sup>, April, 2009



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Resident Representative,  
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Permanent Secretary,  
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Republic of Zambia

## THE ATTACHED DOCUMENT

### I. PROJECT DESIGN MATRIX

The Project Design Matrix (hereinafter referred to as "PDM") and Plan of Operations (hereinafter referred to as "PO") was elaborated through discussions by JICA and the Zambian authorities concerned. Both sides agreed to recognize PDM and PO as an implementation tool for project management, and the basis for monitoring and evaluation of the Project. The PDM and PO will be utilized by both sides throughout the implementation of the Project. The PDM and PO (Version 1) is shown in Annex 1 and Annex 2

The PDM and PO will be subject to change within the framework of the Record of Discussions when necessity arises in the course of implementation of the Project by mutual consent.

### II. Pilot Area (s)

In accordance with the Minutes of Meeting, signed in Lusaka on August 26, 2008, the pilot area(s) will be determined based on the results of the situation analysis. Province should be the unit of the selection for the pilot, and initially maximum of three (3) provinces should be selected. Based on the Mid-Term Evaluation of the initial pilot activities, expansion to other areas will be considered. The counterpart funding from the MoH may need to be available for such expansion.

End

ANNEX 1 PDM (Version 1)

ANNEX 2 PO (Version 1)

Annex 1. Project Design Matrix (Version 1)  
 Project Name: Health Capital Investment Support Project  
 Project Site: Zambia  
 Date: March 20, 2009  
 Version: 0

Target Group:  
 - Principal Medical Equipment Officers of all Provincial Health Offices  
 - Principal Medical Technicians or Hospital Engineers in the Second Level Hospitals in the pilot area(s)  
 - Principal Medical Technicians or Hospital Engineers in the Third Level Hospitals in the pilot area(s)  
 - Medical Equipment Technicians (or Electrical Technicians or Refrigeration Technicians) of the First Level Hospitals in the pilot area(s)  
 - Medical Equipment Technicians in the Urban Health Centers in the pilot area(s)  
 - Health center in charge in the Rural Health Centers in the pilot area(s)

Project Period: Three (3) years from the first dispatch of the expert.

Available qualified staff in the Health Posts in the pilot area(s)  
 - Chief Environmental Health Officers (or Environmental Health Technologist) of all Provincial Health Offices  
 - Hospital Engineers in Second Level Hospitals in the pilot area(s)  
 - Hospital Engineers in Third Level Hospitals in the pilot area(s)  
 - Electrical Technicians (or Carpenters or Plumbers) of the First Level Hospitals in the pilot area(s)  
 - Environmental Health Technologists in the Urban/Rural Health Centers in the pilot area(s)  
 - Available qualified staff in the Health Posts in the pilot area(s)

Objective	Means of Verification	Important Assumptions
<b>Objective 1: Improve the health physical asset (i.e., medical equipment, infrastructure and utilities) in health facilities in Zambia to support delivery of quality health services at all levels, within the framework of the National Health Strategic Plan.</b>	<b>1. Proportion of health facilities that meet the infrastructure standards. 2. Proportion of health facilities in which more than 75% of the critical equipment is in 2. HFC database working condition. 1. Critical equipment shall be selected based on the equipment standards.</b>	<b>The model is rolled out to other areas.</b>
<b>1) Management policies and mechanisms for medical equipment, infrastructure and utilities are developed and operationalized in the pilot area(s).</b>	<b>1-1. Management policies and guidelines for medical equipment and infrastructure are developed. 1-2. Number of Principal Medical Equipment Officers and Chief Environmental Health Officers in the Provincial Health Offices who received training 1-3. Number of target group personnel who received training in the pilot area(s)</b>	<b>Budget allocation for physical asset management is not reduced.</b>
<b>2) Standards (i.e., types of equipment, generic specifications and quantity) of medical equipment for the Second and the Third Level Hospitals are developed and operationalized in the pilot area(s).</b>	<b>2-1. Standard for medical equipment for the Second and Third Level Hospitals is developed. 2-2. Number of medical equipment procured in line with the Standard is increased in the pilot area(s)</b>	
<b>3) Procurement plans as a component of planned preventive maintenance of medical equipment, infrastructure and utilities are developed and operationalized in the pilot area(s).</b>	<b>3-1. Proportion of health facilities regularly undertaking preventive maintenance in the pilot area(s). 3-2. Procurement plans in line with the planned preventive maintenance are developed in the health facilities in the pilot area(s)</b>	
<b>4) Monitoring and evaluation mechanisms for medical equipment, infrastructure and utilities are developed, operationalized and integrated into the Health Management Information System.</b>	<b>4-1. HFC database is regularly updated. 4-2. HFC database is integrated in the HMIS 4-3. HCIP is periodically reviewed.</b>	
<b>5) Review existing management policies, policy drafts and mechanisms for medical equipment, infrastructure and utilities</b>	<b>5-1. Review existing management policies, policy drafts and mechanisms for medical equipment, infrastructure and utilities</b>	
<b>6) Assess the actual staffing and organizational structure related to health physical asset management, training capacity of national institutions in the area of health physical asset management</b>	<b>6-1. Assess the actual staffing and organizational structure related to health physical asset management, training capacity of national institutions in the area of health physical asset management</b>	
<b>7) Design a model to develop health physical asset management capacity in the pilot area(s)</b>	<b>7-1. Design a model to develop health physical asset management capacity in the pilot area(s)</b>	
<b>8) Implement, monitor and evaluate a model to develop health physical asset management capacity in the pilot area(s)</b>	<b>8-1. Implement, monitor and evaluate a model to develop health physical asset management capacity in the pilot area(s)</b>	
<b>9) Train Principal Medical Equipment Officers and Chief Environmental Health Officers from all Provincial Health Offices (PHOs)</b>	<b>9-1. Train Principal Medical Equipment Officers and Chief Environmental Health Officers from all Provincial Health Offices (PHOs)</b>	
<b>10) Incorporate lessons learned from the pilot to the management policies for medical equipment, infrastructure and utilities</b>	<b>10-1. Incorporate lessons learned from the pilot to the management policies for medical equipment, infrastructure and utilities</b>	
<b>11) Disseminate the finalized management policy and lessons from the pilot activities to other areas</b>	<b>11-1. Disseminate the finalized management policy and lessons from the pilot activities to other areas</b>	
<b>12) Review existing standards (i.e., types of equipment, generic specifications and quantity) of medical equipment for primary hospital and draft standards (if available) of medical equipment for the Second and the Third Level Hospitals</b>	<b>12-1. Review existing standards (i.e., types of equipment, generic specifications and quantity) of medical equipment for primary hospital and draft standards (if available) of medical equipment for the Second and the Third Level Hospitals</b>	
<b>13) Make an inventory of the existing medical equipment of the Second and the Third Level Hospitals</b>	<b>13-1. Make an inventory of the existing medical equipment of the Second and the Third Level Hospitals</b>	
<b>14) Assess the capacity of private suppliers to provide aftercare services</b>	<b>14-1. Assess the capacity of private suppliers to provide aftercare services</b>	
<b>15) Develop standards of medical equipment for the Second and the Third Level Hospitals</b>	<b>15-1. Develop standards of medical equipment for the Second and the Third Level Hospitals</b>	
<b>16) Use the standards in procurement of medical equipment in the pilot area(s)</b>	<b>16-1. Use the standards in procurement of medical equipment in the pilot area(s)</b>	
<b>17) Assess the practice of and budget allocation for preventive maintenance of health physical asset in the pilot area(s)</b>	<b>17-1. Assess the practice of and budget allocation for preventive maintenance of health physical asset in the pilot area(s)</b>	
<b>18) Design a model to develop capacity of planned preventive maintenance of health physical asset in the pilot area(s)</b>	<b>18-1. Design a model to develop capacity of planned preventive maintenance of health physical asset in the pilot area(s)</b>	
<b>19) Implement, monitor and evaluate a model to develop capacity of planned preventive maintenance of health physical asset in the pilot area(s)</b>	<b>19-1. Implement, monitor and evaluate a model to develop capacity of planned preventive maintenance of health physical asset in the pilot area(s)</b>	
<b>20) Develop procurement plans in line with planned preventive maintenance of health physical asset in the pilot area(s)</b>	<b>20-1. Develop procurement plans in line with planned preventive maintenance of health physical asset in the pilot area(s)</b>	
<b>21) Develop a mechanism to update Health Facility Census database as an integral part of Health Management Information System</b>	<b>21-1. Develop a mechanism to update Health Facility Census database as an integral part of Health Management Information System</b>	
<b>22) Develop a mechanism to revise Health Capital Investment Plan periodically based on the updated Health Facility Census database</b>	<b>22-1. Develop a mechanism to revise Health Capital Investment Plan periodically based on the updated Health Facility Census database</b>	
<b>23) Utilize the updated information on health physical asset in national monitoring and evaluation activities (e.g., Joint Annual Review)</b>	<b>23-1. Utilize the updated information on health physical asset in national monitoring and evaluation activities (e.g., Joint Annual Review)</b>	

**Important Assumptions**  
 Turn-over of the trained staff does not increase.  
 [Pre-condition]  
 (1) The MoH finalizes the Capital Investment Plan (2005-2010)  
 (2) The MoH secures adequate personnel who will be the target group of the Project, particularly Principal Medical Equipment Officers to be assigned at the Provincial Health Offices.



**Annex 2. Plan of Operation (Version 2)**

	2009												2010												2011												2012											
	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12								
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1-2	Assess the actual status and organizational structure related to health physical asset management, training capacity of national institutions in the area of health physical asset management																																															
1-3	Design a model to develop health physical asset management capacity in the pilot area(s)																																															
1-4	Implement, monitor and evaluate a model to develop health physical asset management capacity in the pilot area(s)																																															
1-5	Train Principal Medical Equipment Officers and Chief Environmental Health Officers from all Provincial Health Offices (PHOs)																																															
1-6	Incorporate lessons learned from the pilot to the management policies for medical equipment, infrastructure and utilities																																															
1-7	Disseminate the finalized management policy and lessons from the pilot activities to other areas																																															
	<b>2) Standards (i.e., types of equipment, generic specifications and quantity) for medical equipment for the Second and the Third Level Hospitals are developed and operationalized in the pilot area(s).</b>																																															
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### 3. Situation Analysis on Health Capital Investment Plan (保健投資計画団員)

#### **Situation Analysis on Health Capital Investment Plan**

##### **3-1. Background of the development of the Health Capital Investment Plan**

The Ministry of Health (MoH) of Zambia had been striving to establish an efficient health system under the vision to “..provide the people of Zambia with equity of access to cost-effective, quality health care as close to the family as possible..”. One of the priorities set by the MoH was to improve physical asset (i.e. medical equipment, infrastructure, and transport) to enable the health facilities to provide quality health care services.

In order to improve the physical asset, the importance of an evidence-based, prioritised plan had been recognised. Such a plan could not be developed without having detailed data on the physical assets. Indeed, the Third National Health Strategic Plan (NHSP) (2001-2005) listed the compilation of health facility database as one of the priority activities. The mid-term review of the Third NHSP (2001-2005) also specifically recommended the “establishment of health facility infrastructure and medical equipment databank”. In response to this need, the Japan International Cooperation Agency (JICA) agreed to provide technical assistance to MoH in conducting the Health Facility Census (HFC) and developing much needed database on the health facility with a view to utilize the data for the Capital Investment Plan.

The HCIP development process began in 2006, with technical support from JICA. The initial stage of the process was to build capacity of the staff from the Provincial Health Office (PHO), District Health Management Team (DHMT), and Second Level Hospitals to use the HFC data and other health indicators for analysing the situation and prioritising interventions for health capital investment. Information considered for the situation analysis include distribution of health services, human resource availability, population distribution, poverty headcounts, and utilization of health services based on HMIS data.

By the end of 2007, all 74 DHMT and Level 2 Hospitals submitted their Health Capital Investment Plan to the MoH. The MoH screened the Plans, estimated the cost for the prioritised interventions, and eventually developed the Health Capital Investment Plan (2008-2010) (draft). It is envisioned that the National Capital Investment Plan will be finalised by December 2008.

##### **3-2. Health Capital Investment Plan (HCIP)**

The objective of the Capital Investment Plan is “to significantly improve the availability, distribution and condition of appropriate essential infrastructure and equipment so as to improve equity of access to, and quality of essential health services”. It includes the list of the interventions with the estimated cost over the 4 years period. It is a guiding document for

the government and stakeholders who are interested in investing in the health sector in Zambia; thus all investment should be planned within the framework of the HCIP. As of August 2008, the medical equipment component is not included in the HCIP, although the government is intending to include it and finalise the HCIP by the end of 2008.

In order to operationalize the HCIP, the MoH developed the annual Infrastructure Operational Plan (2008). This Operational Plan includes a list of the health facilities and staff houses to be constructed or rehabilitated with the budget allocated for each intervention. The Operational Plan also includes the procurement plan for 23 back-up generators and a plan for the installation of solar panels for 584 Rural Health Centers (RHCs). Although the Operational Plan also includes the list for diagnostics and medical equipment to be procured, the quantity and the estimated cost of equipment are not described.

### 3-3. Budget for the Capital Investment

In the Health Capital Investment Plan, the costs for infrastructure are estimated as follows (currency in US\$):

**Table 1. Estimated cost for Capital Investment (Infrastructure Development)**

Province	Year 1	Year 2	Year 3	Year 4	Grand Total
Central	1,698,861	8,018,489	4,789,323	2,916,433	17,423,107
Copperbelt	1,039,593	16,835,184	8,241,447	11,100,302	37,216,526
Eastern	795,915	6,344,969	4,875,083	5,654,791	17,670,758
Luapula	1,619,777	7,076,136	2,293,432	4,236,093	15,225,438
Lusaka	2,234,991	5,234,983	3,296,469	3,760,635	14,527,079
North Western	3,431,368	7,151,210	6,490,408	7,649,745	24,722,732
Northern	3,205,000	16,106,569	6,639,749	11,848,256	37,799,574
Southern	819,331	9,693,598	12,754,065	12,468,600	35,735,595
Western	1,583,731	4,043,656	6,449,848	5,880,466	17,957,701
Grand Total	16,428,568	80,504,793	55,829,826	65,515,321	218,278,509

*Source: Health Capital Investment Plan (2008-2010)*

In the Infrastructure Operational Plan, the budget for 2008 for infrastructure is allocated as follows (currency in US\$ at the rate of K3,400 = US\$1). The grand total of US\$17,728,420 mirrors the expenditure ceiling for the Health Infrastructure Development written in the 2008-2010 Medium Term Expenditure Framework and the 2008 Budget (Ministry of Finance and National Planning).

**Table 2. Budget for Capital Investment (Infrastructure Development) in the Operational Plan**

Province	2008
Central	2,243,482
Copperbelt	1,585,801

Eastern	2,583,841
Luapula	1,954,749
Lusaka	1,214,330
North Western	2,525,762
Northern	2,390,474
Southern	1,214,020
Western	2,015,961
Grand Total	17,728,420

*Source: 2008 Infrastructure Operational Plan*

The budget allocated for the medical equipment procurement is unknown.

### **3-4. Monitoring and Evaluation of the Capital Investment**

The HFC database contains useful information for the monitoring and evaluation of the activities related to capital investment. The database can also be used to review and revise the Capital Investment Plan. The Directorate of Policy and Planning/MoH had started developing the mechanisms of periodically updating the HFC database, although it has not been finalised. This effort should be continued.

The National Capital Expenditure Planning Technical Working Group had been recently revised and renamed as the Capital Investment Technical Working Group (TWG). The TWG will be the overseeing the activities related to the capital investment and management of the physical assets. The members in the TWGs are the representatives from the government and the Cooperating Partners. The list of the TWG members is still being finalised (draft list is attached in Annex 3). The Monitoring and Evaluation Committee at the Ministry of Health will be reported on the implementation of the capital investment by the Capital Investment TWG.

No matter how much investment is made on the physical asset, if the invested assets are not well managed, the investment is not worthy. Thus, it was decided to include management of the physical assets in the new Project. Following chapter is the situation analysis of the management aspect of the medical equipment and infrastructure.

## **Chapter 4. Situation Analysis on the Management of the Physical Asset**

### **4-1. Management Structure of Medical Equipment and Infrastructure**

The MoH is currently undertaking restructuring, through which new establishments for physical asset management were created. The recruitment for these newly established posts is currently on-going. The current management structure for medical equipment is summarised in Annex 1.

#### **a) National Level**

At the national level, the MoH has establishment of three posts: Medical Equipment Specialist and Medical Equipment Technician under the Directorate of Clinical Care and Diagnosis and Medical Equipment Policy Planner under the Directorate of Policy and Planning. However, at the time of preparatory study, only one post, namely Medical Equipment Specialist, is filled. According to the MoH, the recruitment for the other two posts is still on-going, although it is unknown when the posts will be filled. Given the current staffing situation, at the national level, the Medical Equipment Specialist has to shoulder all tasks concerning the management of medical equipment including planning, monitoring, and providing technical support with all levels of institutions (i.e. PHO, DHMT, Provincial and District Hospitals).

As for the infrastructure, there are two persons who are responsible for physical asset management: Infrastructure Specialist (i.e. Architect) and Quantity Surveyor. These two posts had been filled. They are responsible for planning construction and rehabilitation of health infrastructure, coordination and supervision of activities, and monitoring and evaluation.

#### **b) Provincial Level**

The role of the PHO in management of medical equipment is very little at this moment. The MoH is planning to have an establishment (i.e. Principal Medical Equipment Officers) in each province. In order to have a structurally sound medical equipment maintenance system, the newly recruited personnel should be trained on the technical skills in repairing the medical equipment, on the planning skills for Planned Preventive Maintenance, and communication skills to raise awareness among the managers of health facilities.

As for the infrastructure, the PHO plays a role in monitoring the infrastructure and managing the funds for infrastructure project, which will be directly remitted from the MoH to them. According to the Infrastructure Operational Plan (2008), the PHO is responsible for ensuring that funds are utilized in accordance with the Operational Plan, ensuring that all procedures are adhered to as outlined in the Operational Plan, submission of monthly technical and financial report on funds to the MoH, Directorate of Planning and Development, ensuring that all works are supervised accordingly, and ensuring that all works are implemented according to MoH standard.

#### **c) Second Level and Third Level Hospitals**

The University Teaching Hospital (UTH) has the Biomedical Engineering Department composed of 7 staff with different qualifications (e.g. biomedical engineering, electronics etc.). The Biomedical Engineering Department repairs broken medical equipment of UTH as well as other hospitals upon request, and offers training courses to lower level institutions. It has the

highest technical skills in the country, though their technical capacity can be strengthened through further training.

The UTH also has a Maintenance Department, which is composed of around 70 staff with different qualifications such as electronics, plumbing, carpentry, etc. The Maintenance Department undertakes minor repair of the infrastructure. For example, at the time of the preparatory study, the Department was undertaking the rehabilitation of the C Block (Obstetrics and Gynaecology Ward) Theatre. The Department does not offer any training courses to lower level institutions.

In the Level 2 Hospitals, there are often the maintenance team, which is composed of electrical engineers, plumbers and so on. The maintenance team undertakes minor repair of medical equipment and infrastructure.

#### **d) District Level**

In the DHMT, the Environmental Health Technicians (EHTs) are responsible for the management of both medical equipment and infrastructure. In most cases, the EHTs are more involved with infrastructure and less so with medical equipment management because of their qualification and training background.

According to the new MoH Staff plan, each First Level Hospitals has an establishment for Medical Equipment Technologist. However, at the time of the preparatory study, the establishment has not been filed. For the infrastructure, the Environmental Health Technician, in collaboration with electrician and other available resources, is taking care of the infrastructure maintenance. Although further detailed situation analysis is necessary, it seems to be rather difficult to equip personnel with high skill of medical equipment maintenance particularly corrective repair at the district level (both DHMT and District Hospitals). Perhaps it is more appropriate to train them on the Planned Preventive Maintenance, rather than corrective repair.

#### **e) Other Issues on the Management Structure**

At the time of preparatory study, the management structure at all levels of administrative and health institutions does not seem to be functioning as it is expected to be: even though there is an establishment for person responsible for medical equipment management at the Provincial Health Office (PHO) or District Health Management Team (DHMT), it is observed that most of these institutions do not have personnel with adequate capacity or not have any personnel at all. There is also currently no formal networking structure to connect maintenance persons of different levels. Furthermore, no formal mechanism exists with job request/fault reporting forms, equipment identification code, service history, etc. Some Second and Third Level Hospitals

have medical equipment maintenance team, however, lack of funding, qualified personnel and proper workshop equipment had reduced their effectiveness.

#### **4-2. Policies, Guidelines, and Standards**

The Ministry of Health (MoH) conducted the situation analysis on the medical equipment and infrastructure management, in collaboration with the Africa Development Bank (ADB), in 2003. Based on this situation analysis, the MoH developed the “Medical Equipment and Infrastructure and Maintenance Policy” in 2006, though this policy is still at the draft stage. The situation analysis on transport management was conducted by Transaid, a UK-based non-profit organization, funded by the Department for International Development (DfID) in 2004.

Infrastructure standards had been reviewed, and appropriate size and types of health facilities for the different levels of care had been defined by the MoH. The list of essential equipment and accessories has already been defined for the health post, health centre and the First Level Hospitals in the “Standards for Medical Equipment for District Health Facilities”. For the Second and Third Level Hospitals, the MoH has also already developed the standard for the supporting equipment. The MoH is now planning to develop the standards for medical equipment for the Second and Third Level Hospitals.

However, both for medical equipment and infrastructure management, the MoH has no maintenance procedures and policy guidelines to guide institutions in undertaking preventive and corrective maintenance; hence there is no objective rationale for allocation of funds for maintenance and repair.

#### **4-3. Allocation of Financial Resources**

The MoH developed the Health Capital Investment Plan (HCIP) (2008-2010) using the Health Facility Census data as is described in the previous Chapter. Based on the draft HCIP, Infrastructure Operational Plan (2008) is developed. The budget for the physical assets will be disbursed according to this Plan to the respective institutions. However, in its nature, the HCIP does not include the budget for recurrent costs (maintenance and running costs). As for the recurrent costs, there is no written plan at all the levels of the government institutions to reflect the cost of maintenance, including spare parts and service contracts, or cost of consumable items and replacement of worn out accessories; thus no systematic financial allocation is made for such costs. Health institutions are supposed to set aside 10% of their allocated grants for maintenance of both medical equipment and infrastructure. However, the interview with some hospitals revealed that such budget is not systematically allocated, as higher priorities are often

given to drugs by the management of health institutions and other clinical items. As a result, in reality, the maintenance costs (preventive as well as corrective repair) are rather disbursed on ad-hoc basis. The study team found that this is sometimes caused by the lack of (or little) understanding on the importance of maintenance issues among the hospital management.

#### **4-4. Actual Maintenance Practices**

Maintenance practices for both medical equipment and infrastructure is very poor. There is no structured Planned Preventive Maintenance (PPM) in place due to financial and human resources constrains as well as lack of awareness on the importance of PPM. During the field visit, the study team found that at the University Teaching Hospital, the staffs of the Biomedical Engineering Department were aware of the importance of the PPM, and some type of PPM had been conducted including user-training of clinical staff. However, their initiative was discontinued due probably to lack of leadership and understanding from clinical staff.

At the health institution level, the word, “maintenance”, usually refers to “corrective repair”. When a medical equipment is broken, many hospitals try to use the internal service person, Medical Equipment Technologists (or Electrical Technicians), contact higher level institutions (DHMT or MoH) for support, or outsource the repair to the supplier using their own budget. Depending on the skill level required for the repair, the hospitals either use internal Medical Equipment Technologists (or Electrical Technicians) or contact higher level institutions (DHMT or MoH) for support or outsource the repair to the supplier using their own budget. However, during the field visit, the study team saw a lot of medial equipment which are not functioning and abandoned in the health institutions due to lack of person with adequate skill within the facility, lack of spare parts in some cases die to old models, inadequate equipment in the workshop, late reporting to and response from the higher level institutions, or lack of funds to outsource the repair service.

The capacity of the persons responsible for repair varies depending on the qualification and training of the staff. However, in general, the capacity to repair medical equipment within the government institutions seems to be low in Zambia. According to the Equipment and Infrastructure Management Situation Analysis conducted by the MoH and ADB in 2003, this is because many highly skilled technicians and engineers go to the private sector for better compensation.

Only the medical equipment provided through a donor-funded Project receive after-service from the supplier. However such services are available only during the project period. For example,



through the ORET Project, which was funded by the MoH and the Royal Government of Netherlands, the MoH installed diagnostics and medical equipment in 71 health facilities. The equipment under the ORET project is maintained by PHILLIPS through a service contract during the project period. As far as ORET Project is concerned, the after-service system by the suppliers seems to be working well in general. Unfortunately many suppliers registered with National Tender Board have no capacity to provide adequate after-service. Therefore, screening of suppliers based on such capacities may need to be explored as a part of standardization.

#### **4-5. Training**

Given the current capacity of the medical equipment maintenance personnel in the health institutions, training is necessary to develop their capacity. The UTH Biomedical Engineering Department offers 1-month training course on the preventive and corrective maintenance for hospital based electronics technicians, twice a year. The tuition, excluding lodging, is K2,250,000 (US\$661 at the rate of K3,400=US\$1), which is paid by the participated Provincial Health Offices (PHOs) or hospitals.