

**Ministry of Health
The Republic of Zambia**

**FINAL REPORT
ON
HEALTH CAPITAL INVESTMENT
SUPPORT PROJECT (2015-2016)
IN
THE REPUBLIC OF ZAMBIA**

March 2016

JAPAN INTERNATIONAL COOPERATION AGENCY

**THE CONSORTIUM OF
FUJITA PLANNING CO., LTD. AND NIHON SEKKEI, INC.**

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Health Capital Investment Support Project (2015-2016)
in The Republic of Zambia
Final Report
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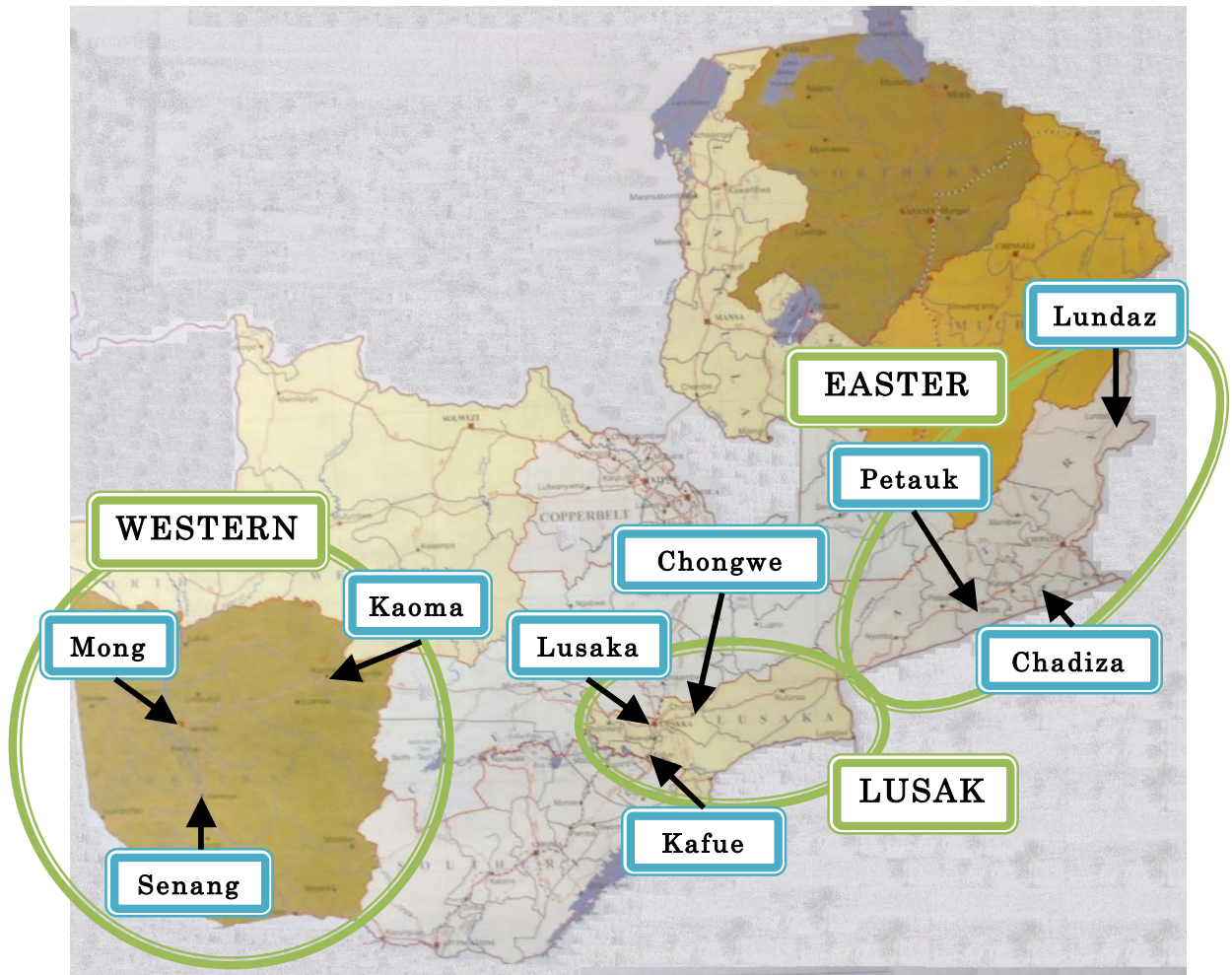
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Repair work for mortuary refrigerator, Kaoma DH



Visit Cancer Centre



Visit Lusaka PHO



Visit Chipata 1st level Hospital



ME technician training
Opening address of PHO Eastern



ME technician training, Lecture



ME technician training
Speech of ME officer



ME technician training
Participants



Inventory work, Chadiza DH



Repair work of X-ray machine, Lundazi DH



ME Workshop, Senanga GH



User training, Kafue DH



Dissemination WS, Eastern



Dissemination WS, Western



Dissemination WS, Lusaka



Dissemination WS, Lusaka

1. Summary of the Project

1.1 Background and Details of the Project

In the Republic of Zambia, strengthening capacity of health facilities in rural area is promoted as one of the important strategy in “The 5th National Health Development Plan (2011-2015)”, to reduce the unbalance between urban hospitals and those in rural areas in terms of health service provision. The Strategy is followed from “The 4th National Health Development Plan (2006-2010)”, with emphasis on the health facilities at district level, which are considered as important facilities responsible for primary health care in the community.

Therefore, it is necessary that rural health facilities are well equipped in order to attain desirable functions of their original role. To accomplish this purpose, health capital investment plan for construction of infrastructure, maintenance of health facilities, and also procurement and maintenance of medical equipment need to be planned and implemented properly. In order to develop the health capital investment plan, following data shall be taken into account; the details of health service provision, the situation of facility maintenance, arrangement of medical equipment and assignment of health human resource, health status of residents in the community and the access to health facilities.

In light of this background, Government of Zambia requested for support in establishing health capital investment system. The Government of Japan carried out the “National Health Facilities Census” and supported the development of health facilities census database. Additionally, technical cooperation project, “Health Capital Investment Plan Support Project 1 (2006-2008) was carried out. Which resulted in the development of Health Capital Investment Plan (2008-2010) and infrastructure investment structures were established. However, contentious planning using the developed plan and proper management such as operation and maintenance for invested medical equipment and facilities still have numerous challenges.

To overcome these challenges, the Ministry of Health (MOH) of Zambia carried out “Health Capital Investment Support Project (HCISP)” from January 2010 to January 2013 supported by Japan, which aimed at improving the management capacity for medical equipment and facility from primary to tertiary level health facilities. The principal results of the project are; 1) Develop the system to manage the medical equipment and facility, 2) Develop the medical equipment standard and infrastructure standard at secondary and tertiary level 3).Operate the planned preventive maintenance of medical equipment and facility in target district. The activities have been carried out at the following three pilot provinces: Lusaka, Western and Eastern Province.

At the terminal evaluation on October 2012, the achievements of the HCISP below were confirmed and the recommendations for embedding medical equipment and facility management mechanism at all Health institutions in pilot area were mentioned.

[Achievements]

- Development of the medical equipment management guideline and distribution to all Provincial Health Office (PHO)

- Technical training of medical equipment and facilities management and supervision of the management
- Provision of the standard medical equipment list for secondary and tertiary hospital and distribution to all PHO
- Development of knowledge and skill of medical facility management by 5S technique through pilot activities
- Improvement of medical equipment and facility management through capacity building of medical staff at PHO and District Health Office (DHO) (Lusaka, Western Province, Eastern Province)

[Recommendations]

- Capacity building of DHO to develop an annual plan based on the needs of Health facilities through the utilization of evidence based planning tool, such as medical equipment standards, updated inventory, monitoring form.
- Simply and promptly decommissioning medical equipment
- Capacity building of operating staff for medical equipment and facility management in PHO, DHO and each facility and strengthening training for them.
- Strengthening protocols for procurement and donation of medical equipment with check by technician and user before handing over
- Establishing workshop for medical equipment at primary, secondary, tertiary level hospitals and building referral system for medical equipment management. Strengthening maintenance contract of medical equipment with ME agents.
- Considering transfer of budget for medical equipment management from PHO to DHO.
- Establishing medical infrastructure standard
- Assessing the impact of 5S through operational research before dissemination of 5S nationwide.

From these recommendations above, the Government of Japan decided to implement extension phase of “Health Capital Investment Support Project (2010-2013)” (herein after called HCISP Ex).

1.2 Purpose of the Project

This project aims to supplement the “Health Capital Investment Support Project (2010-2013)”. Based on the background of the request, the outline of the project, the general condition of health in Zambia, the situation of assistance for health area, project team accomplished duties in accordance with the plan below.

[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.

[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

[Outputs]

- (1) Management mechanisms for medical equipment, infrastructure and utilities are developed.
- (2) Standards of Health Infrastructure for Second and Third Level Hospitals are developed.
- (3) Health physical asset management mechanisms, with the emphasis on planned preventive maintenance, are operationalized in the project sites.

Overall Goal, Project Purpose and Outputs are same as the original project. The activities on the original project were the following;

[Activities on HCISP (Original)]

(1) Activities for Outputs 1

- 1) Undertake a situational analysis pertaining to health physical asset management
- 2) Develop guidelines for health physical asset management
- 3) Develop mechanisms for health physical asset management
- 4) Develop a data collection mechanism
- 5) Disseminate health physical asset management mechanism, with the emphasis on planned preventive maintenance, to provincial officials nationwide

(2) Activities for Outputs 2

- 1) Undertake a situational analysis in relation to the standards of medical equipment for the Second and Third Level Hospitals
- 2) Make an inventory of the existing medical equipment of the Second and Third Level Hospitals in the pilot areas
- 3) Develop national standards of medical equipment for the Second and Third Level Hospitals

(3) Activities for Outputs 3

- 1) Undertake a situational analysis pertaining to the enabling environment and practices of planned preventive maintenance of health physical assets in the pilot site
- 2) Train personnel in the project sites on health physical asset management mechanism, with the emphasis on planned preventive maintenance
- 3) Develop preventive maintenance plans of health physical assets in the project sites
- 4) Facilitate the implementation of health physical asset management mechanism
- 5) Plan the supportive supervising visits to the health facilities in the project sites
- 6) Conduct the supportive supervising visits to the health facilities in the project sites
- 7) Collect data on health physical assets in the project sites

- 8) Create database for health physical assets in the project sites
- 9) Promote the use of health asset management database among stakeholders

The main purposes of the HCISP have been achieved. Now, the purposes of HCISP Ex are the following:

- (1) At the facility level, the capacity to utilize evidence-based planning tools and to integrate into annual district plans should be developed.
- (2) The capacity to advocate replacement of obsolete equipment should be further strengthened.
- (3) Infrastructure standards should be established.

To attain the above mentioned purposed, the following activities are implemented in the Extension Phase based on each output in the HCISP.

[Activities on HCISP Ex]

(1) Activities for Outputs 1

- 1) To publicize the health facility maintenance guideline through dissemination workshop.
- 2) To publicize the medical equipment guideline through dissemination workshop.

(2) Activities for Outputs 2

- 1) To survey the current situation of infrastructure in second and third level hospitals.
- 2) To develop the infrastructure standard for second and third level hospitals.
- 3) To develop the health infrastructure management guideline.

(3) Activities for Outputs 3

- 1) To select pilot district and hospitals, or health centres.
- 2) To survey the current maintenance conditions of medical equipment, and to analyze issues and learns, etc.
- 3) To survey availability of medical equipment.
- 4) To conduct technical training for medical equipment maintenance.
- 5) To support developing health capital investment plan by district Health office.

1.3 Executing agency, target area, target institution

(1) Lusaka Province, Western Province, Eastern Province

- The project activities are implemented at MOH in Lusaka and target provinces
- Some activities such as dissemination of the achievement and training, involve all concerned stakeholders in all Provinces

[Lusaka Province]

Provincial Health Office

Lusaka Urban District Health Office / Chipata 1st Level Hospital

Kafue District Health Office / Kafue District Hospital

Chongwe District Health Office / Chongwe District Hospital

[Eastern Province]

Provincial Health Office

Chadiza District Health Office / Chadiza District Hospital

Lundazi District Health Office / Lundazi District Hospital

Petauke District Health Office / Petauke District Hospital

[Western Province]

Provincial Health Office / Lewanika General Hospital, Senanga General Hospital

Mongu District Health Office

Senanga District Health Office

Kaoma District Health Office / Kaoma District Hospital

(2) The member of the Project team from the government agencies and institutions

- Officers in the Directorate of Policy and Planning (DPP) (infrastructure, Budget, Planning, etc.)
- Officers in the in the Directorate of Clinical Care and Diagnostic Services (Chief Medical equipment Officer, etc.)

(3) The member of the Project team from Japan

Shuichi SUZUKI; Leader / Health Capital Investment Planning

Tamotsu NOZAKI; Sub-Leader / Medical Equipment and Facility Planning

Hiroshi YOSHINO; Medical Equipment Management

Kuniko YOSHIZAWA; Medical Infrastructure Planning

Maiko NAGASAWA; Budget Plan support

Kohdai TATENO; Project Coordinator / Medical Equipment Management

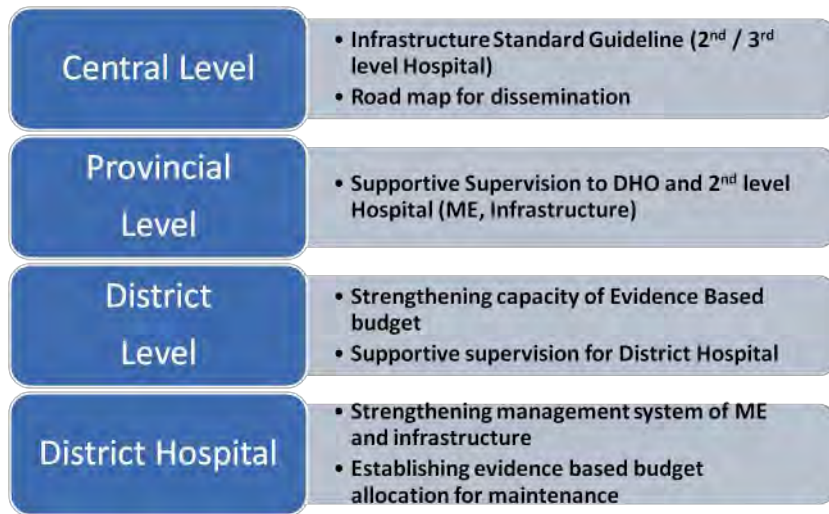
1.4 Period of the HCISP Extension Phase

From March 2015 to March 2016

1.5 Structure of the project

The project output will contribute for the several levels in the health management ladder. At the central level, the guideline and Road map are major output. At the provincial level, PHO is one of the main actors for supporting district level and the project worked together for supporting district level. At the district level, the project with PHO support the capacity building of Evidence based budget and the DHO is also a main actor for supporting District Hospital and then the project worked together for supporting district hospital. For the District Hospital, the project and DHO support strengthening management system of ME and Infrastructure and establishing Evidence based budget

Structure of the Project



2016/3/9

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Figure 1-1 Project stakeholders and activities for each stakeholder

2. Results of Activities

2.1. Situation Analysis

Since the extension phase was commenced after 2 years and 2 months of the completion of the original project, the project team confirmed how each organization and persons were related to the project. As a result, core counter parts (CPs) of the project are Chief Planner (Infrastructure) in Directorate of Policy Planning and Chief Medical Equipment Officer in Directorate of Clinical care and Diagnostic Service. Due to changes in the ministries, Directorate of Maternal and Child Health was separated from MoH and attached to the Ministry of Community Development which was then renamed the Ministry of Community Development and Maternal and Child Health (MoCDMC), District Health Office (DHO) which was one of the target of intervention in the project, and the facilities under (DHO) were also transferred from the MoH to the MoCDMC (it was also renamed as District Community Health Office). However, Chief Planner (Budget and Planning) told the project team that the activities related to medical equipment and infrastructure management are still under the responsibility of the MoH. Therefore, the project is able to send the several orders to DHO as well as the 3rd and the 2nd Level Hospitals and Provincial Health Office (PHO).

The project conducted a questionnaire survey to identify current situation in the pilot site; such as PHOs, DHOs and 1st to 3rd level hospitals. The contents of the survey are as follow:

- Utilization of Health Capital Investment Plan Guideline
- Condition of Medical Equipment Management (ME management committee, inventory and database)
- Activities of Periodical Preventive Maintenance (PPM)
- Condition of Infrastructure Management

Respondent rates in Lusaka, Eastern and Western provinces are 91%, 89%, and 78%, respectively. The results of the questionnaire survey were as shown below (Please refer to Appendix. (5)7) for details);

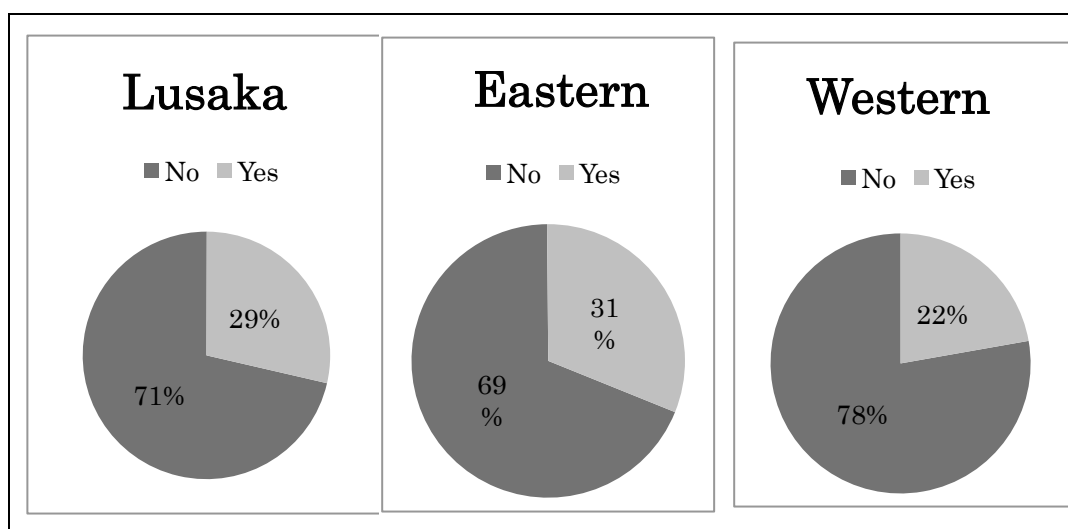


Figure 2-1 Question: there is Health Capital Investment Plan Guideline

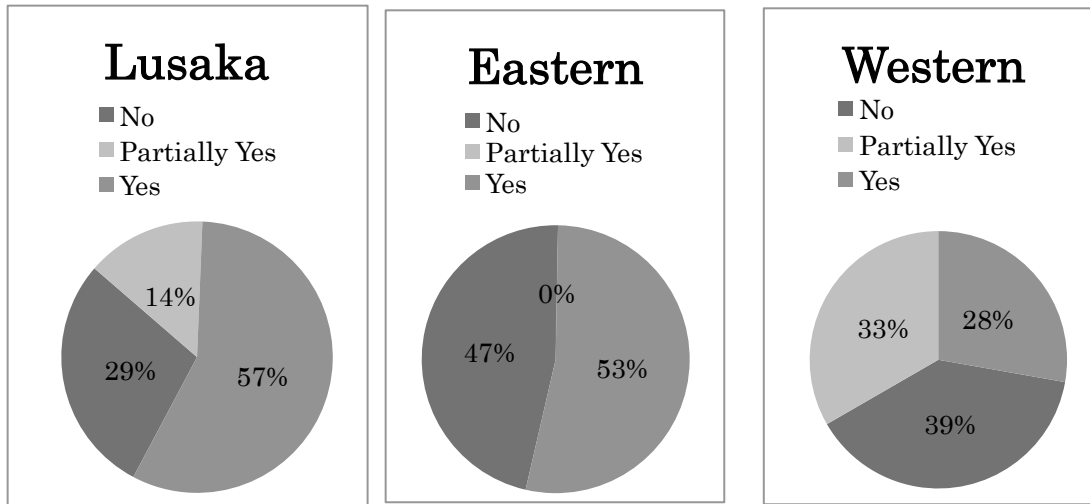


Figure 2-2 Question: Facility Database is updated

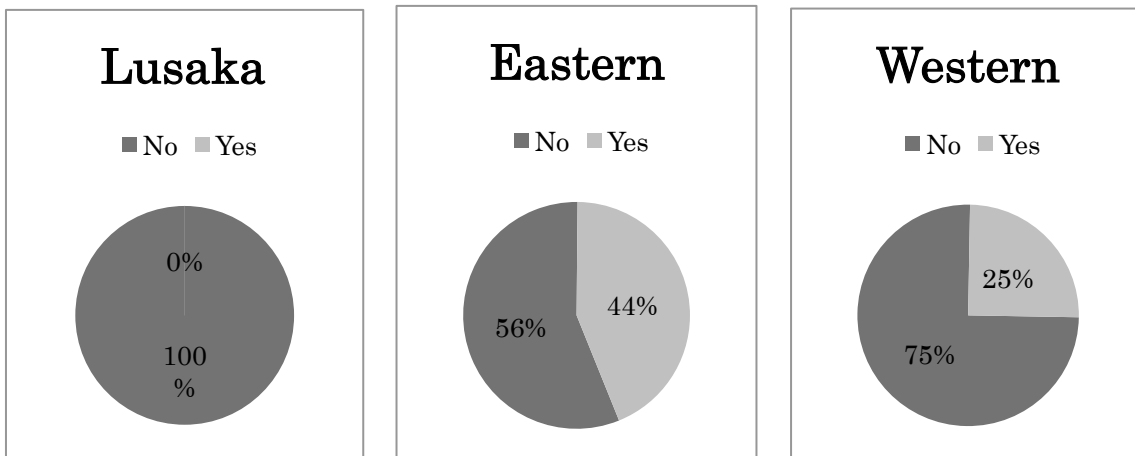


Figure 2-3 Question: Facility database is used to develop Action Plan

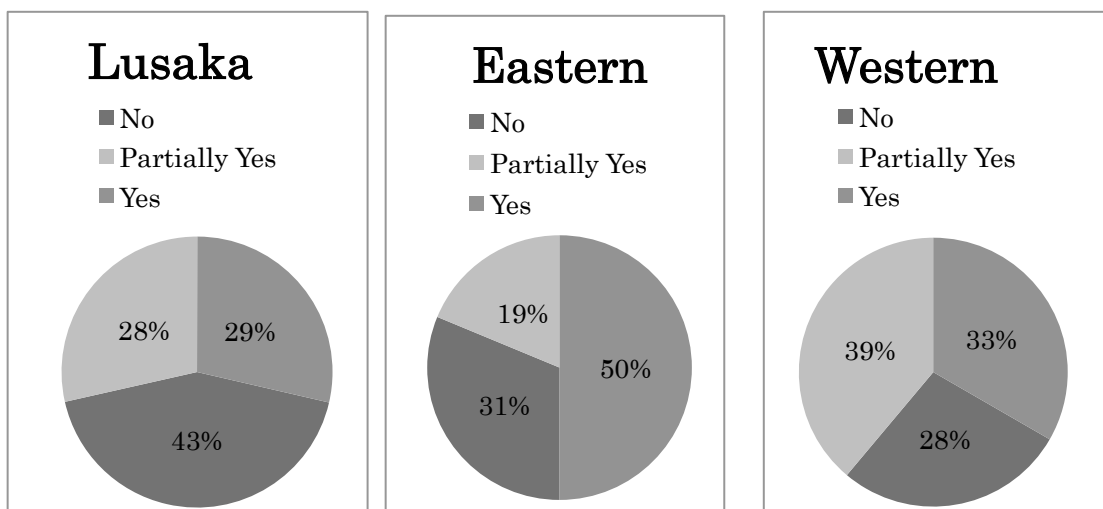


Figure 2-4 Question: ME database is updated

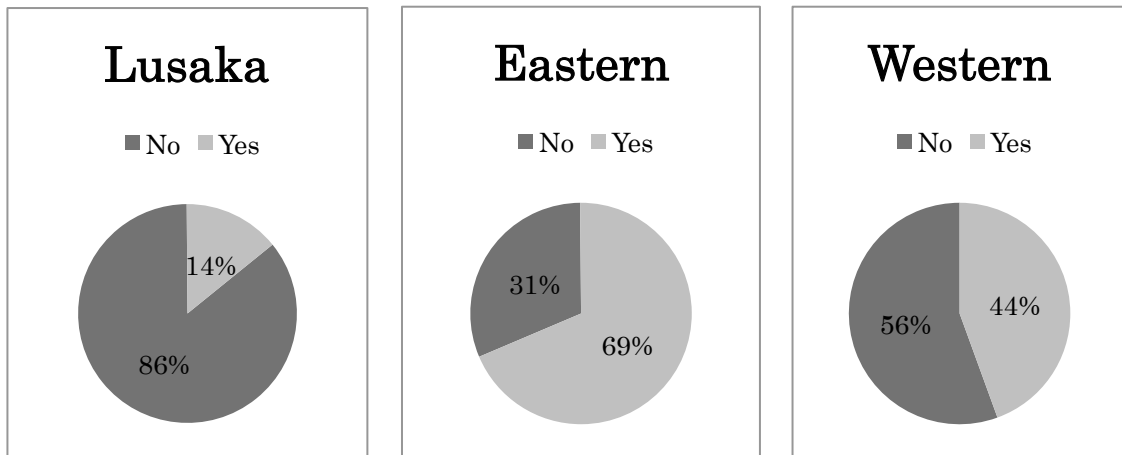


Figure 2-5 Question: ME database is utilized to develop Action Plan/

As a result, the ratio of Health Capital Investment Plan guideline which was developed for “Health Capital Investment Plan Support Project” is around 30%. Though ratios of updating facility database in Lusaka and Eastern province are more than 50%, the ratio in Western province is 28%. Ratios of utilization of facility database in Lusaka, Eastern and Western provinces are 0%, 44% and 25% respectively. Ratio of updating ME database in Lusaka and Western province is around 30% and the ratio of Eastern province is 50%. Ratio of utilization of ME database is high in Eastern Province (69%) but low in Lusaka province (14%).

Ration of utilization of both databases is low except Eastern province. In the case of Western province, since the number of districts has drastically increased from 8 to 16 after the completion of the original project, it might explain why new established districts are not able to utilize the database. In the case of Lusaka, it might be caused by a shortage of persons in charge of ME and infrastructure. The ratio of utilization of both databases after the completion of HCISP Ex might be lower than the ratio in the current situation. Therefore, the project team decides to support budget planning for maintenance through the forms filled in Microsoft Excel even through the form which was developed in the original project.

At the beginning, the project team supposed that there was a base of the experience by the original project and maintenance of ME and infrastructure was supported to weak hospitals only. However, the project team decided to support not only the pilot side but also the other district in the pilot project because some stagnation had appeared. Specifically, the project developed booklet abstracting the contents from ME management guideline and Facility database, trained the staff in pilot site and disseminate the budget planning of maintenance utilizing the booklet to all district in the pilot provinces.

2.2. Activities for Output 1 “Management policies and mechanisms for medical equipment, infrastructure and utilities are developed.”

2.2.1. To publicize the health facility maintenance guideline through dissemination workshop.

Originally, though the dissemination workshop was conducted on 25th February 2016 in Lusaka inviting Provincial Medical Officer, Infrastructure Officer and Medical equipment Officer from all Provinces (10) according to the request from MoH, the dissemination workshops have been conducted as follow due to uncertainties regarding cost sharing of the workshop by MoH;

On 19th February in Chipata, Eastern Province; 7 participants

On 22th February in Mongu Western Province; 7 participants

On 25th February in Lusaka; 16 participants

Purpose of the workshop was to introduce the Facility guideline, named “Upgrading Guidelines / Information of health Facilities and Utilities” and budget planning guidebook, named “the guidebook of budget allocation for Periodical Preventive Maintenance of Medical Equipment and Infrastructure” and to receive consultation regarding the contents of the guideline and guidebook from the participants

The Health facility maintenance guideline was introduced as one component of the guidebook.

Dissemination to the stakeholders in other provinces will be implemented by the Directorate of Policy Planning through several meetings in MoH through “MTEF National Budget Planning Launch”.

2.2.2. To publicize the medical equipment guideline through dissemination workshop.

The Health medical equipment guideline was developed in former project and it was introduced in the workshops as one component of the guidebook of budget allocation for Periodical Preventive Maintenance of Medical Equipment and Infrastructure, in the same way as 2.1.1,

Additionally, medical equipment officers in all PHO participated in ME technical training. The Health medical equipment guideline was introduced to all provinces through the training.

2.3. Activities for Output 2 “Standards of Health infrastructure for Second and Third Level Hospitals are developed.”

2.3.1. To survey the current situation of infrastructure in second and third level hospitals.

At the beginning of the extension phase, it was necessary to confirm what was required as “facility standard for 2nd and 3rd level Hospital”. In developed countries where advanced health facilities are established and renovated by their own capacity, there is no health facility standard. Since health environmental standard is frequently updated by the medical professional

organization, developing the standard by architecture is in-efficient and unrealistic. In terms of Utility, since provision of utility system is influenced not only by the level of the hospital but also the scale of the facility and urban infrastructure, it is difficult to develop utility standard for health facility without setting a scale of the facility and condition of environment. Therefore members in charge of infrastructure and utility developed realistic and pragmatic technical output through coordinating the scope of MoH respectively.

2.3.2. To develop the infrastructure standard for second and third level hospitals.

2.3.2.1. Activities for infrastructure management

(1) Considering the Concept of Infrastructure Standard based on the Objective (Changing Concept from Standard to Guideline)

The project team confirmed to MoH the background of the request for “facility standard”. In Zambia 650 health posts have been constructed since 2013 nationwide. For the construction, standard drawing for Health centre and Health post were developed and the drawings are utilized for Rapid facility supplies and easy management. Though DPP planned installation of the same methodology for constructing the 1st level hospitals, it has been difficult because there is a lot of concerning points compared to Health centers and there is no space for constructing standard 1st level hospital in urban area. However, since there is not enough number of skillful architects to design hospitals like in developed countries, it might be common to construct infrastructures based on standard drawing.

Most of 2nd and 3rd level hospitals in Zambia were constructed before the independence and all have a unique design. However, the necessity for re-construction of the facilities is increasing in the hospitals for modernizing health service provision. MoH was seeking the answer from techniques abroad regarding how to develop standard drawing for 2nd and 3rd level hospitals.

Japanese experts explained the contexts of standards in health infrastructure in Japan and the other developed countries and planners (infrastructure) understood the following matters.

- 1) There is contradiction in construction of 2nd and 3rd level hospital between unique functions in each hospital and standard drawing of the hospital.
- 2) The guideline must be the checklist for matching the design to required specification rather than figure of the facility.

(2) Contents of the Guideline

Though it was decided that contents of the guideline are utilized for construction of modernized 2nd and 3rd level hospitals in the future, the project team had to discuss constrains against developing the guideline. Unfortunately, it was difficult to set a full-scale guideline for modernized general hospital during the extension phase due to the limited resource of the project. Therefore the project team surveyed the current situation of health facilities; 2nd and 3rd hospitals and well-organized 1st level hospitals in pilot areas for prioritizing the topic for the guideline.

In general, since heavy medical equipment such as X-ray machine, is installed based on standard specification prepared by the manufacturer and supported by the engineer from the manufacturer,

there are no meaning to receive advice from architects in this matter. Regarding operation theatres which require proper ventilation control with clean air, poor maintenance was discovered even though the lamina-flow system was built-in on the ceiling. Some hospitals installed wall-mount air ventilation machine and others accumulated dust in the corner of the operation theatre. In terms of air hygiene, quality of construction materials is critical as well as airtight joinery for highly air-controlled room. Especially, it was indentified through field survey that the new constructed buildings had more structural defects than old buildings. Therefore operation theatres and intensive care units (ICU) were selected to be described in the guideline. Regarding 2nd level hospitals, some issues, such as disorganized traffic line for emergency treatment and approach of an ambulance, are identified on the field survey. Emergency care in 2nd level hospital is important for strengthening network of emergency care nationwide. The following functions were also selected. Both rooms have a unique design and the room model can also be found in Japanese hospitals.

- Endoscopy: Expecting the expansion of the demand
- Dialysis: Increasing kidney function failure caused by malaria

Additionally, following components are selected.

- How to develop Master plan for step-wise constructing the buildings in limited space
- How to develop well-functioning compact hospitals

For further consideration toward setting the level of modernization in the guideline, the project team visited 3rd level hospitals in Copper-belt province to identify the current maintenance activities and limitations of the 3rd level hospitals

(3) Developing the Guideline

Based on the results of infrastructure surveys mentioned in the above section, the standards were developed following discussion within the project team so as to become the standard guidelines for modern hospital building functions. As the available scope to be developed within one year, the guidelines were developed for Operations Theatres, ICU and Emergency Rooms in the second and third level hospitals, and for endoscopy rooms and dialysis rooms as new and advanced health services. The checklists were also created to be easily used when designing a facility. The contents of the guideline were adjusted to be a standard guideline of performance provisions in line with the function of a modern hospital building based on a master plan method which was developed for rebuilding the facilities.

To verify the contents of guidelines, the workshops were held to discuss the ideal facility for the health care providers such as the users in UTH.

The title of the guideline was named “Upgrading Guidelines / Information of health Facilities and Utilities”.

Table 2-1 List of Visit Hospitals

	Provinces	3 rd Level	2 nd Level	1 st Level
Pilot Province	Lusaka	University Teaching Hospital (UTH) Cancer Centre Chainama Hill Mental Hospital	Levy Mwanawasa Hospital	Matero Hospital CHallenge Hospital Fairview Hospital (Private) Comfort Hospital (Private)
	Eastern		Chipata General Hospital St Francis Mission Hospital	Chadiza District Hospital Petauke District Hospital Kamoto 1 st level hospital Masumba Health Centre Kapore Health Post
	Western		Lewanika General Hospital Senanga General Hospital	Kaoma District Hospital
Others	Copper-Belt	Ndola Central Hospital Kitwe Central Hospital Arthur Davison Children's Hospital		

2.3.2.2. Activities for Utility Management

(1) Definition of the Utility Standard (Changing definition from Standard to Guideline)

MoH requested the information for designing water supply, waste management (solid and liquid), electricity, ventilation and oxygen plant which are necessary for proper operation of the hospital. Though the information of these utilities is not only specified for 2nd and 3rd level hospitals but also 1st level hospitals as well, the project team collected the information from 1st level hospitals as well as 2nd and 3rd level hospitals. And also the name of the document has been changed from “Utility standard” to “Utility guideline”.

(2) Contents of the Guideline

The following components were selected as necessary utilities in the hospital

Table2-2Components of Utility described on the guideline

Category 1	Category 2
Sources of Water and Water Supply System	Sources of Water Quality Control of Water Water Supply System Water Reserving and Volume of Water
Health Care Waste Management	Classification of Health Care Waste Law and Regulations related to HealthCare Waste Health Care management in accordance with the facility level

Category 1	Category 2
	Health Care Wastewater Management Health Care Waste Management Organization Sewage Treatment System
Electric Power System (Electricity)	Power Receiving and Transforming Facilities Consideration of Electric Power Supply Capacity for District Level Facilities Electric and Electronic Engineering Back-Up Power Supply Uninterruptible Power Supply (UPS) Solar Photovoltaic (PV) Power Supply Solar Water Heater
Heating, Ventilating and Air Conditioning Systems	General Description Operating Theatres General Wards and Other Departments
Oxygen Plant	General Information Introduction of Air Separation System to Oxygen and Nitrogen

(3) Developing Guideline

For example, sewage treatment systems utilizing a reservoir and oxygen plant introduced in UTH are well known techniques in Zambia. The guideline developed based on the information for designing the systematic utilities of water supply and electric power, and medical waste management, Final draft of the guideline was edited through the discussion with Environmental Health Officer in MoH.

<p>Upgrading Guidelines/Information of Health Facilities and Utilities</p> <p>Table of Contents</p> <p>Part A: Upgrading Guidelines for 2nd and 3rd Level Hospitals</p> <p>HOSPITAL PREMISES(PHYSICAL FACILITY STANDARDS)</p> <p>Basic description</p> <p>1 Location of Provincial and National level Hospitals</p> <p>2 Construction Requirements</p> <p>3 Premises for Provincial, Specialized and National Referral Hospitals</p> <p>4 Infection Prevention and Control</p> <p>5 Safety and Security for Provincial, Specialized and National Referral Hospitals</p> <p>Critical Parts of Hospital/Keys of Upgrading</p> <p>6 Bio-clean Zoning and Operation Theaters</p> <p>7 Emergency Care Access and Flow</p>
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8 Intensive Care Unit
9 Dialysis Center
10 Endoscope Environment
11 Others
Reference

Part B: Information for Health Facility Utility Planning

1. Sources of Water and Water Supply System
 2. Health Care Waste Management
 - 2.1 Classification of Health Care Waste
 - 2.2 Laws and Regulations related to the Health Care Waste
 - 2.3 Technologies for Treatment and Disposal of Health Care Waste
 - 2.4 Health Care Wastewater Management
 - 2.5 Health Care Waste Management Organization
 - 2.6 Sewage Treatment System
 3. Electric Power System (Electricity)
 4. Heating, Ventilating and Air Conditioning Systems
 5. Oxygen Plant
- References

Since the director of the Policy and Planning, MoH, suggested the necessity of consulting stakeholders, such as officers in other directorates and officers in the hospitals, the project team collected the comments regarding the contents of the guideline during the dissemination workshop.

2.3.3. To develop the health infrastructure management guideline.

In the original project, facility management was defined as comprehensive “Facility operation management” and then the facility management guideline utilizing 5S tools was developed. In HCISP Ex, the project team discussed required facility guideline and the project team agreed that physical maintenance required for the guideline, ie, how to decide the provision of spare parts, to identify and fix the troubles. The form to identify troubles which was developed in the original project was utilized for maintenance methods and listed in the Guideline for budget allocation of PPM. In the Facility guideline developed HCISP Ex includes following contents for constructing 2nd and 3rd level hospitals the standard functions, required functions, installation and management of utilities. Therefore, the health infrastructure management guideline in the extension phase is described on the guidebook for budget planning of PPM and facility guideline.

The purpose of the guidebook of budget planning of PPM is, in terms of facility management, utilization by infrastructures staffs in district hospitals or DHO to plan the budget to fix troubles after identifying them.

The purpose of facility guideline is utilization by infrastructures staffs in the Planner in MoH for constructing 2nd and 3rd level hospitals and by infrastructures staffs in the 2nd and 3rd level hospitals to plan the budget, fix troubles after identifying them.

2.4. Activities for Output 3 “Health physical asset management mechanisms, with the emphasis on planned preventive maintenance, are operationalized in the project sites.”

2.4.1. To select pilot districts and hospitals

Based on the results of discussion with the Chief medical equipment officer of Directorate of Clinical Care and Diagnostic Services and the Provincial Medical Officers of the pilot provinces, the pilot hospitals for medical equipment management were selected as follow:.

Lusaka Province: Chipata 1st Level Hospital, Chongwe District Hospital, Kafue District Hospital
 Eastern Province: Lundazi District Hospital, Chadiza District Hospital, Petauke District Hospital
 Western Province: Lewanika General Hospital, Senanga General Hospital, Kaoma General Hospital

Selection criteria are the following;

- (1) Newly constructed hospitals or newly selected hospital; Chongwe DH, Chipata 1st level Hospital and Chadiza DH
- (2) Hospitals where the maintenance activities have stagnated; Kafe DH, Lundadzi DH, Petauke DH, Lewanika GH, Senanga GH and Kaoma DH.

2.4.2. To survey the current maintenance conditions of medical equipment, and to analyze issues and lessons, etc.

In the results of the questionnaire survey and site survey in May 2015, the current conditions of ME management are as follow:

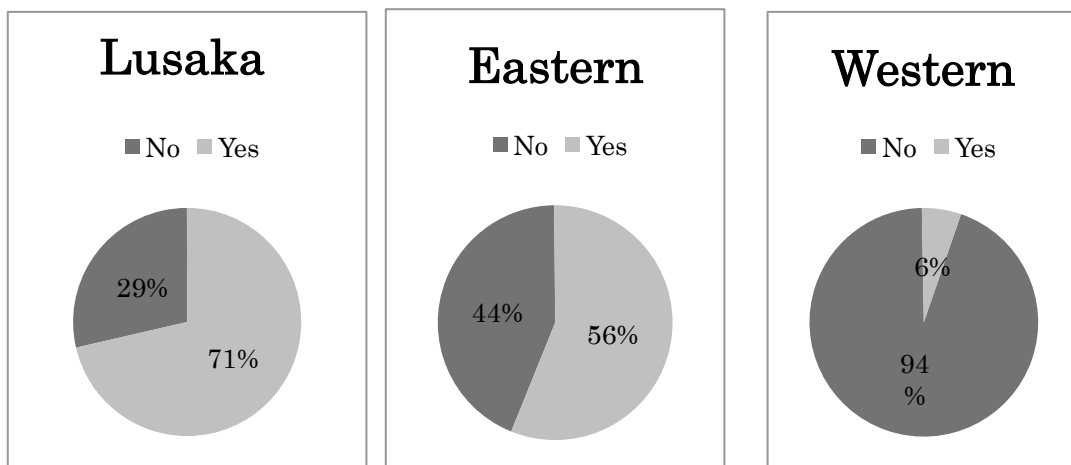


Figure 2-6 Question: ME management committee is conducted

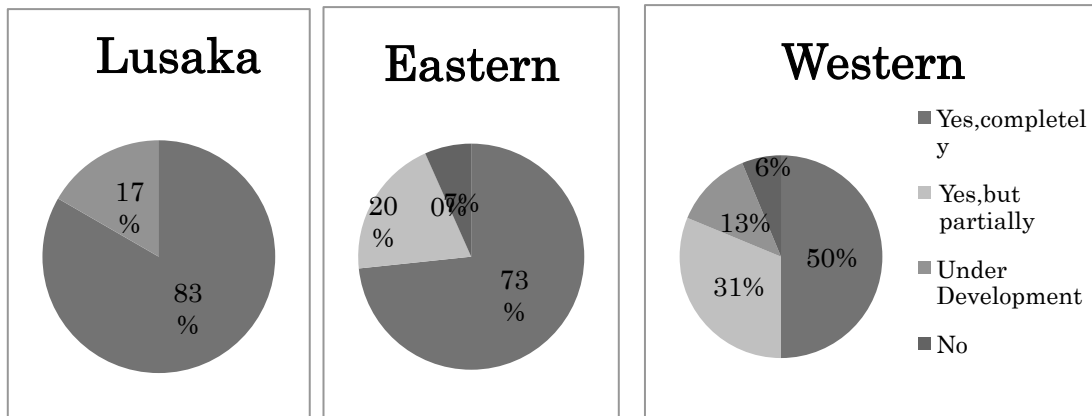


Figure 2-7 Question: ME inventory is developed.

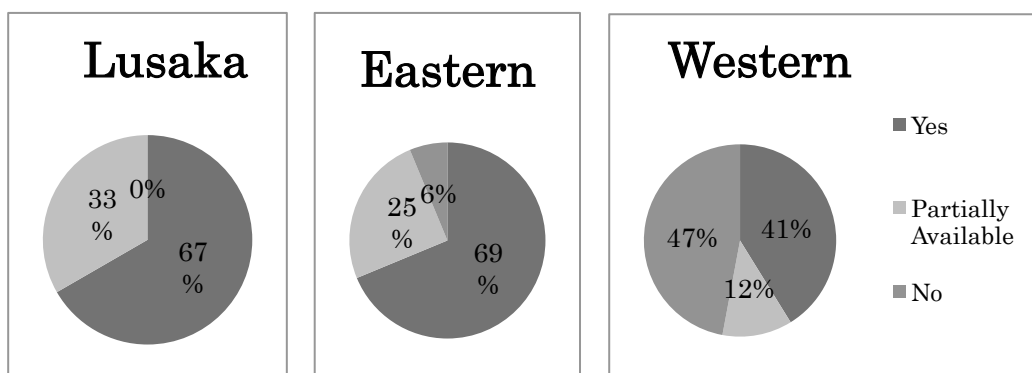


Figure 2-8 Question: Maintenance plan is developed

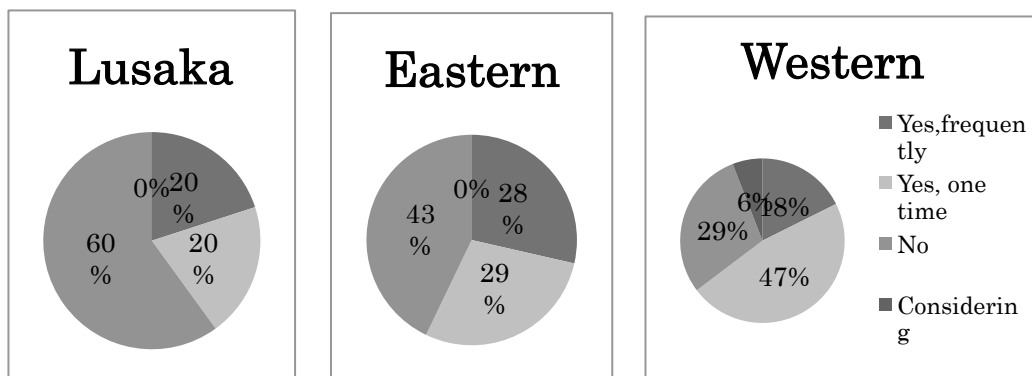


Figure 2-9 User training is conducted

By the questionnaire survey and site visits, following issues are identified;

- ME committees are not functioning in Western province.
- Though ME inventory is developed in three provinces, the ratio in Western province is low.
- Ratio of developing Maintenance plan is lower in Western province than in Lusaka and Eastern provinces.
- Ratio of conducting user training was low in all three provinces.
- Human resources is running short both in terms of quality and quantities
- It is difficult to secure spare parts

The project team decided to support establishing the ME management committee and filling ME inventory mainly based on the results of the survey.

In Western province, the ME management committees were not functioning because the number of districts in Western province was doubled - from 8 to 16 districts- . The project team visited non-pilot sites, introduced periodical preventive maintenance and invited them to the workshop.

2.4.3. To survey availability of medical equipment.

Between May and the beginning of July 2015, the project team visited each pilot hospital with officers of PHO and DHO and confirmed the current status as well as the challenges of each facility, and then reported to the MoH.

As described in the former section, the project team visited the pilot hospitals and confirmed the medical equipment inventory at each hospital. Then, in October 2015, the project team visited the pilot hospitals again to confirm the current status and challenges of each facility after the technical training for medical equipment maintenance, by using a checklist. (For details, see Appendix (5) 1)-6))

Table 2-3 Checklist for evaluating ME management activities

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

During these visits, the project team particularly recommended 1) medical equipment inventory updates, 2) implementation of daily inspections and periodical implementation of preventive maintenance to the pilot hospitals. And the project team also visited the pilot hospitals for a third monitoring on January 2016.

Two monitoring checklists were utilized for evaluating current situation of ME management in the hospitals. The checklists are shown below.

Preventive maintenance for ME was evaluated from the point of view of development of annual plan for preventive maintenance, activities for daily maintenance, periodical maintenance and trouble shooting and reporting the maintenance activities. ME inventory is a key tool for ME management because planning and implementing of the maintenance activities are done based on the information in the inventory.

Table 2-4 Checklist for evaluating Preventive Maintenance of ME

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

Results of the survey are the following:

[Lusaka Province]

After the guidance of the medical equipment management guideline in each hospital, and development of the medical equipment inventory was supported.

In Kafue District Hospital, though the ME officer was taking long leave at the 1st visit, the

project team supported developing ME maintenance plan in November and the ME officer developed it in January 2016. The ME officer filled “Equipment acceptance Records” for new equipment which they recently received in October 2015 from UNICEF. Since the ME officer was absent, the ME maintenance activities were postponed. However, the ME activities were activated at the 2nd visit and 3rd visit.

In Chongwe District Hospital, ME management committee meeting has not been conducted yet due to low commitment of the hospital management team. Since the capacity of ME technician in the hospital was low, the project team provided support from the early stages of developing ME inventory. After attending the ME technical training in July 2015, the maintenance activities were activated and monitoring score has improved. ME committee was established and the first meeting was conducted on February 2016 with the project team. All attendants of this meeting were involved as committee members and promised to have continuous meeting for sustaining ME management activities.

In Chipata 1st level Hospital, ME officer of Lusaka DHO is managing the medical equipment in the hospital since there was no medical equipment officer in the hospital which has just been upgraded from the health centre. The ME officer is visiting the health facilities in charge to check the trouble of the ME periodically. The ME officer tells that there is no homeostatic trouble.

Monitoring scores of ME maintenance activities in three hospitals have increased. The score of Chipata 1st level hospital was more than 35 of 50. Though ME management in Chongwe DH was established after the third visit and the hospital management committed to the ME management, it is expected than the committee meeting will be conducted continuously.

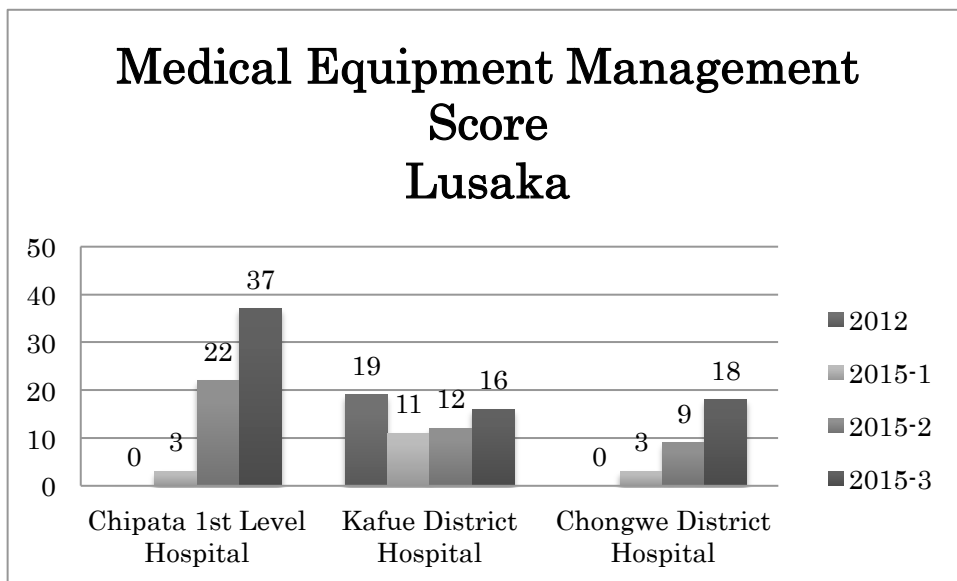


Figure 2-10 Score of ME maintenance activities (Lusaka province)

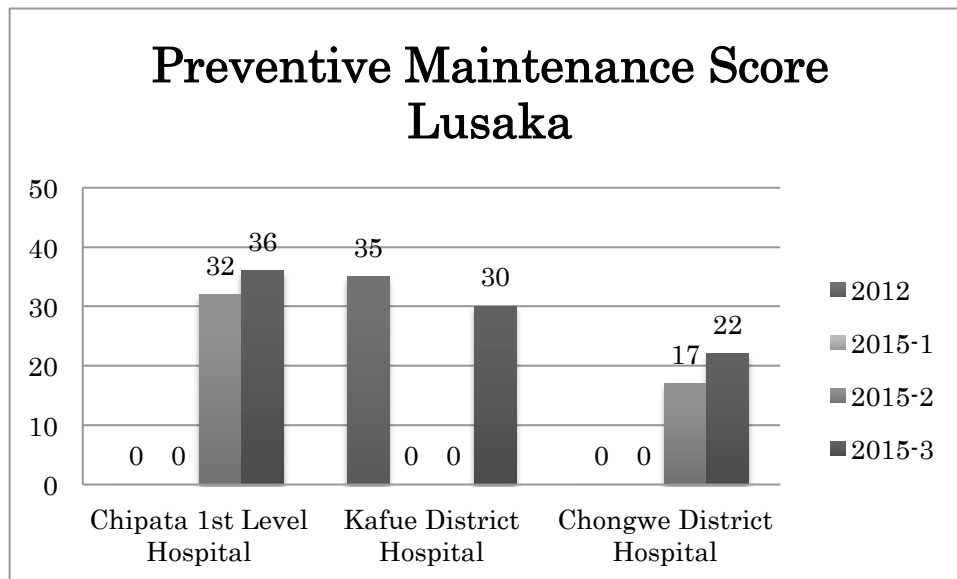


Figure 2-11 Score of PPM for ME (Lusaka province)

[Eastern Province]

Chadiza District Hospital in Eastern Province was opened after the original project completion. The medical equipment guidelines were introduced during this visit, and the project team supported the establishment of a medical equipment management committee.

It was confirmed that activities for medical equipment maintenance and renew of inventory have been implemented in the pilot hospitals. However, there are some challenges for continuous medical equipment management. For example, changes of district medical officers of Lundazi DHO and Petauke DHO at the end of 2015 may affect sustained activities because they are not familiar to the project activities. And then the project team requested ME officers in DHO to explain the necessity of ME management to DMOs. An electrician in Lundazi DH is disappointed by his work because he was hired as a catering staff. ME officer in Petauke DH is going to NORTEC but no one was assigned as his successor. It is because of the burden ME officers in DHO have to bear.

To improve the current issues, the project team requested to Directorate of Human Resource that the electrician in Lundazi DH needs to be hired as an electrician officially and a new ME officer needs to be assigned in Petauke DH.

A New ME officer in Eastern PHO was transferring from Northern PHO last December. He committed to improve ME management in the province through the monitoring for pilot hospitals.

Three facilities are increasing their monitoring scores at every visit. Especially Petauke DH scored 45 of 50 in terms of ME management activities. Regarding PPM, ME officers in three facilities were scored over 30.

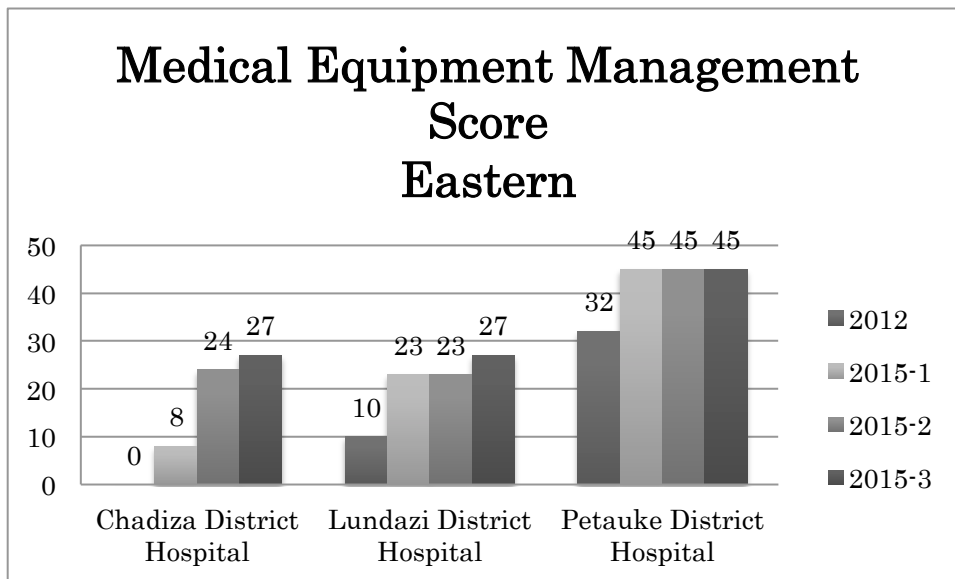


Figure 2-12 Score of ME maintenance activities (Eastern province)

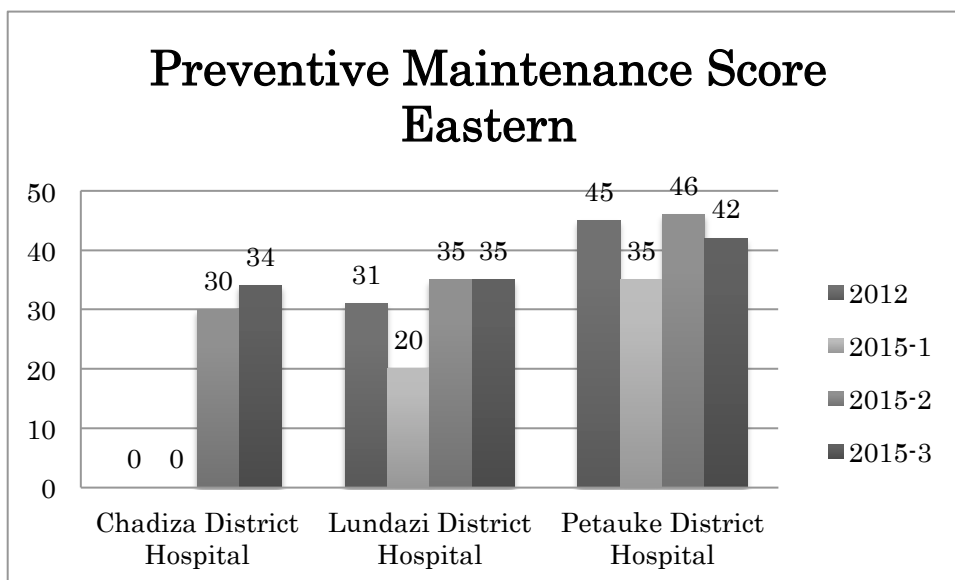


Figure 2-13 Score of PPM for ME (Eastern province)

[Western Province]

In Lewanika General Hospital, the medical equipment officer was absent for leave. Also in Senanga General Hospital, the medical equipment officer was out of the hospital for enrollment on Northern Technical College (NORTEC) medical equipment engineer course.

In Lewanika General Hospital, ME officer had completed the developing of Periodical Preventive Maintenance (PPM) plan and User Training plan even though he is often absent. The Electrician who was trained in Japan is repairing the equipment night and day. The project team recommended following the action plan developed during the training in Japan.

In Senanga General Hospital, the commitment of management to ME management committee was strengthened after the first visit by the involvement of a management officer into the committee.

In Kaoma District Hospital, the ME officer is working hard even though he is working not only

in the district hospital but also at a district health office. The project team explained how to manage user maintenance and it was introduced in operation theatres.

The monitoring scores in three hospitals are slightly increasing with every visit. Senaga GH was scored 44 of 50 at ME management activities. Scores of PPM in three hospitals were more than 35.

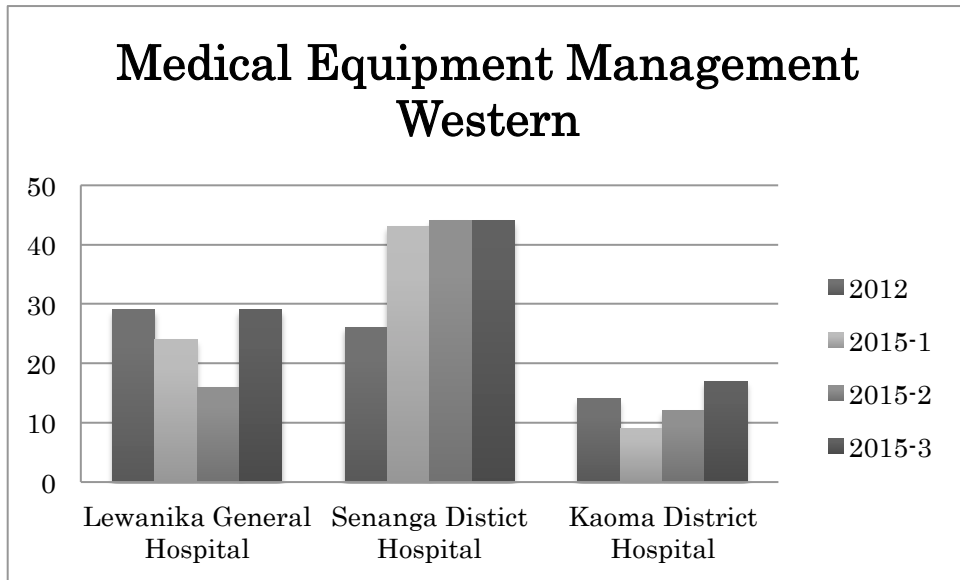


Figure 2-14 Score of ME maintenance activities (Western province)

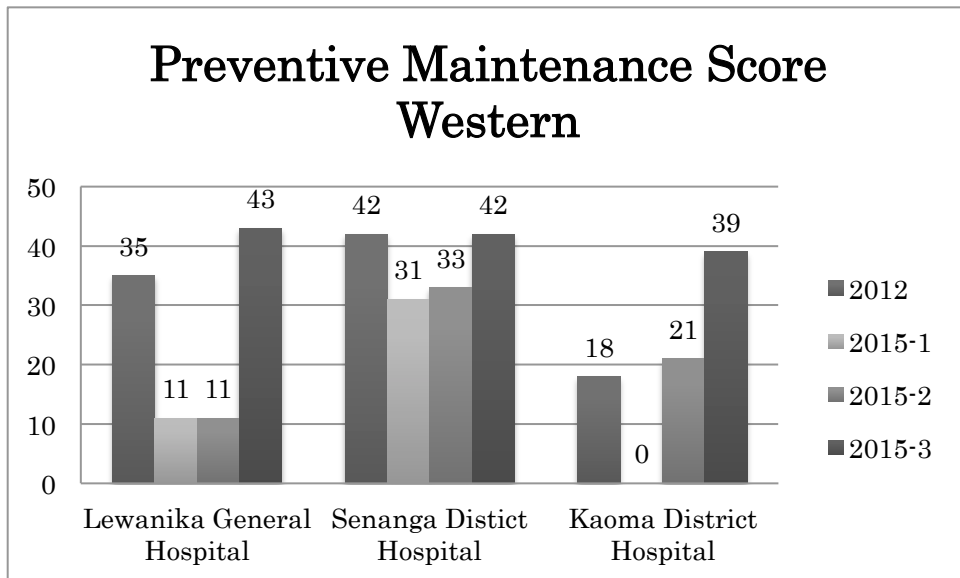


Figure 2-15 Score of PPM for ME (Western province)

2.4.4. To conduct technical training for medical equipment maintenance.

The project team conducted the technical training for medical equipment maintenance in Lusaka, Western, and Eastern provinces between July and August 2015 (4 days each). (For details, see

Appendix (5) 8))

The director of Planning Department of MoH requested that the outcome of project shall be disseminated at an early stage, and therefore the project invited the participants from Copperbelt, Luapula, Northern, Muchinga, Southern, and North-Western provinces including the pilot provinces.

Since the knowledge of the guidelines was low, the major content of medical equipment maintenance guidelines had to be explained in the first part of training. And then, the structure of equipment, the way of daily and periodic inspection, and the way of utilization were lectured. After the lecture, the way of inspection and the method of maintenance were confirmed by using the actual medical equipment at health facilities or nearby health facilities in the venue after the lecture. Although it depends on the skill of the technician, the purpose of the training was the expansion of the range of equipment which each technician is able to deal with. Also in the lecture, the way of daily and periodical maintenance for critical equipment as much as possible was emphasized.

The results of pre-test and post-test showed that 42 people out of a total of 49 people (30 out of 49 people were from the pilot provinces) increased 9.2 points. In the aggregate result by each state, the results were verified by the t-test with a corresponding before and after value, a significant difference was observed in Lusaka Province and Western Province ($p < 0.01$, $p < 0.05$ respectively)

Also the participants and the Chief medical equipment officer, MoH, discussed the issues of labor conditions for medical equipment technicians, the budget for medical equipment maintenance, and opportunity of education. Then, the importance of the evidence based budget planning and the medical equipment inventory management was underlined.

2.4.5. To support developing health capital investment plan by DHO.

Based on the discussion with the DPP and the provincial health offices in the pilot provinces, the pilot districts to support capital investment budgeting by the project were selected in the following, and then the current situation was confirmed.

Lusaka Province: Chongwe District, Lusaka Urban District, Kafue District

Eastern Province: Chipata District, Lundazi District, Petauke District

Western Province: Mongu District, Senanga District. Kaoma District

According to the results of questionnaire and field surveys as mentioned on chapter 2.1., although the medical equipment maintenance inventory is utilized in the pilot health offices and the health facilities in terms of identifying the current status of ME, most facilities do not budget

by utilizing the health capital investment plan guidelines and facilities database.

The major cause for it seems that a responsible person is not assigned for facility management, updating the facility-related database, and capital investment budget at each facility unlike medical equipment. In the original project, an environmental health officer (Environmental Health Officer / Technologist: EHO) was responsible for it; however, it was not followed. Then, it was decided to be continuously supported in the project after the discussion with MoH.

Since the current budgeting has not considered the maintenance activities, a guidebook to formulate a budget of periodical preventive maintenance (Guidebook; Budget allocation for Periodical Preventive Maintenance of Medical equipment and Infrastructure) was drafted. The contents of the guidebook were extracted from ME management guideline and tools for developing infrastructure database which were developed in the original project for describing how to develop the budget for periodical preventive maintenance (PPM). However, regarding infrastructure management, the project team amended it slightly because of some unclear points as follows;

- Change how to fill the repair points (From “when the repair is necessary” to “what is the defect”)
- Utilize the pictorial data (photo taking and utilizing map data)
- Add how to prioritize the repair and how to request the repair to upper organization

After that, it was planned to be shared on how to use the guidebook in the workshop for all the districts of pilot provinces. The workshop targeted the planner, medical equipment officer, and EHO of each pilot provincial health office, and the planners, medical equipment officer, and EHO of the district health offices, secretary, medical equipment officer, and EHO of the district hospitals. The dissemination workshops have been conducted as following. And the participants who are able to join the workshop by day trip are selected due to uncertainties regarding cost sharing of the workshop by MoH;

On 19th February in Chipata, Eastern Province; 38 participants

On 22nd February in Mongu Western Province; 51 participants

On 24th February in Lusaka; 40 participants

The districts which the project was not able to invite to the workshop are as follow;

- Eastern province: Nymba (1 of 9)
- Lusaka province: Luanguwa (1 of 8)
- Western province: Lukulu, Molbezi, Sesheke, Shangonbo, Mwandu, Mitete (6 of 16)

In the workshop, the guidebook was introduced and the participants were trying to fill the forms on the guidebook. The project team emphasized relationship between PPM and Budget planning for ME officer and EHO.

3. Challenges and lessons learnt on the project implementation

3.1. Duration from the end of former project to the commencement of the extension phase

The project has started two years after the end of the former project. In the meantime, many hospital staffs who were trained on the facility database in the former project were transferred to other health facilities. Also, the information terminal with the database was not available because of deteriorating PC and the transfer the responsible person. Therefore, it was difficult to utilize the database developed in the original project due to poor current conditions of organization, management system and human resources and then, it was decided to support maintenance activities by utilizing the Excel spreadsheet instead of utilizing the database. Thanks to the spreadsheets, the maintenance record at each facilities are kept continuously without additional inputs

3.2. Budget schedule of the Government of Zambia

Fiscal year of the Government of Zambia is from January to December. In terms of the budget of the district level, budget formulation is started from May and budget application is submitted to the provincial offices in August, and then the provincial offices approve. The project initially confirmed the current situation for budgeting, and then it was discussed on how to support budgeting. Therefore, the timing did not allow the project to support budgeting related to maintenance of medical equipment and facilities. Instead of support budgeting, the workshop for budgeting of maintenance was held in February 2016.

3.3. Support for disseminating to the other provinces

In the technical training for medical equipment maintenance, the participants were invited from all provinces based on the request from the former director of Planning Department. This enabled the project to disseminate the methods of medical equipment maintenance to the other provinces in addition to the pilot provinces. Also, the medical equipment maintenance guidelines and training materials, which were developed in the project, were provided to the lecturer of the Northern Technical College (NORTEC) in Copper belt province. If these are utilized in the college, it can lead to disseminate medical equipment maintenance techniques.

3.4. Ownership of the Ministry of Health to the project

Originally, the technical cooperation project by JICA needs to be implemented with spontaneous participation of responsible department in the recipient country. However, the commitment of Directorate of Policy Planning which is responsible department of the project deteriorated after the change of the project manager. Though the commitment for developing facility guideline was rather high, i.e., a chief planner (Infrastructure) accompanied the Japanese experts to field trips for 2nd and 3rd level hospitals, most of the activities in the pilot areas were implemented by the chief medical equipment officer, MoH, ME officer in the pilot areas and EHO in the pilot areas. The project tries to

share information through the circulation of reports of project activities by email. It is a cause of concern that low commitment of DPP might have consequences on the dissemination of the maintenance system of ME and infrastructure. The project requested to Chief Planner (Infrastructure) to disseminate the maintenance system developed in the project through “MTEF National Budget Planning Launch and to distribute the guideline and the guidebook to provincial and district level.

On the other hand, the project team was strengthening establishment and activation of ME management committee in the pilot hospitals through a better sense of responsibility regarding maintenance activities. In some hospitals, since the person in charge of ME is originally working as a carpenter or a plumber, such ME officers were difficult to involve in decision making for medical equipment maintenance due to low job title. Through the support to establish ME management committee and promotion to participate ME officer to the ME management committee by the project, ME management cycle such as budget plan, procurement of spare parts and maintenance activities were enhanced

3.5. Issues in Infrastructure Standard in Zambia

In chapter 2, it was mentioned that standard drawing were utilized for expanding the construction of same designed health facilities. An officer of MoH mentioned that there was standard drawing of 1st level hospitals as well as the drawing of health post. Though standard drawing was confirmed, notarized reference of the condition of the standard was not confirmed. Some conditions of the standard were described verbally but the condition was not followed in the health facilities.

Importance of the description of the condition of the standard is to identify medical services based on the condition clearly and to update the standard in accordance with the progress of the medical practice.

Though the health facilities in Zambia was built based on the standard drawing, standard drawing of 1st level hospitals is limited as meaning the standard for building the facility. As a result, it was considered at MoH that minimum size of each room is infrastructure standard. It was considered that facility-related departments of the MoH have the only facility professionals who are able to think how to plan for hospital construction but they have not found a way to resolve the problem. Therefore, during the project, it was decided to create the opportunities to exchange views and to visit medical facilities and health staff involved with the infrastructure planners of the MoH.

3.6. Challenges Extracted from the developing process of Utility Standard

In view of the development status of the utility in the health facility by MoH, capacities of some utilities were over specification for the health facility and inefficient operation was observed. It was a result that the design of the utility for urban areas was introduced in the hospital in rural area. On the other hand, it is difficult to install proper size of utilities in accordance with the size of the facility, condition of ME and type of health service provision because the conditions of infrastructure differ by location.

For example, some hospitals receive public water supply but other hospitals supply water by boreholes. And also some hospitals are able to use public septic tank but other hospitals have to provide their own septic tank.

In the guideline, standard volume of utilities per unit was described for efficient utilization of the utilities.

4. Attainment of the purpose and outputs based on the PDM

4.1. Attainment of the project purpose

【Verifiable Indicator】 Increase technical score of Medical Equipment Management Committee, Healthcare Facility Committee

Technical score of Medical Equipment Committee in the pilot facilities was confirmed three times. As a result, the average score of the pilot facilities was improved from 14.80 in June 2015 to 24.02 in October 2015 and 32.40 in January 2016.

Verifiable Indicator	Status of the indicator	Former Project (Oct 2012)
T Increase technical score of Medical Equipment Management Committee, Healthcare Facility Committee (50-point scale)	33.3% of MEC scored at least 35 points Average of Pilot hospital / District 2012: 16.30 2015 1 st (June): 20.58 2015 2 nd (Oct.): 24.33 2016 3 rd (Jan): 31.87	13.3% of MEC scored at least 35 points

As the results of questionnaire and field surveys, Healthcare Facility Committee had not been established in most of the hospital. Since a responsible person for infrastructure is not allocated in the district hospitals, the usage of the facility maintenance check sheet of the EHO was introduced instead of establishment of committee like medical equipment from October 2015. Though main budget for maintenance of infrastructure is disbursed in PHO or DHO, core Role of EHO is to identify the troubles (with photo) and to report to DHO. The project supported that the decision making of the planning of maintenance budget and contents is under PHO or DHO. Therefore monitoring check sheet for evaluation of facility committee was not developed.

In February 2016, the project held the dissemination workshop of maintenance budgeting guidebook in three pilot provinces, and the evaluation of maintenance check sheet of EHO and the motivation towards the activities utilizing the check sheet by the questionnaire is utilized as alternative indicators measuring the project purpose.

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 of developing it. 90% of the respondents also understood how to prioritize maintenance budget and do it. It is considerable that maintenance capacity of infrastructure was improved.

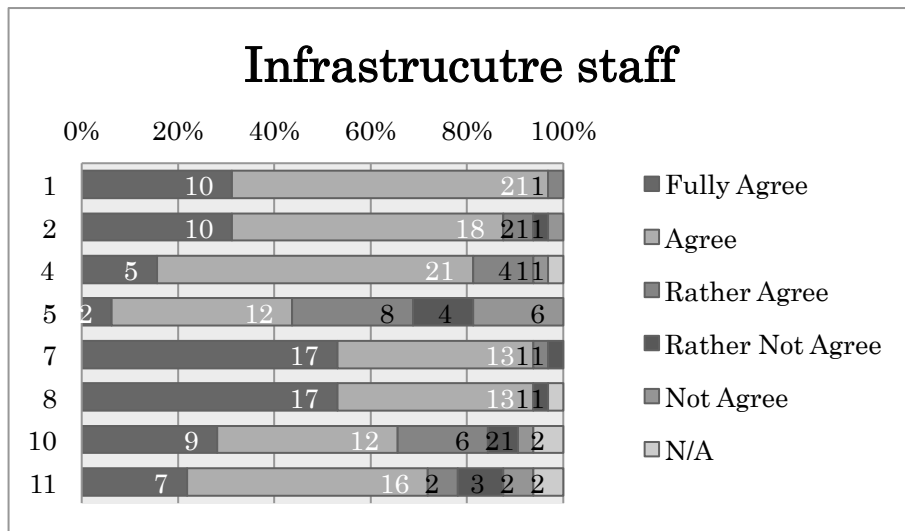


Figure 4-1 Results of Questionnaire of Infrastructure staff (n=32)

No. Questions in the questionnaire

- 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.

4.2. Attainment of Outputs

4.2.1. Output 1: Management policies and mechanisms for medical equipment, infrastructure and utilities are developed.

【Verifiable Indicator】 Nationwide stakeholders share medical equipment management model (more than half of the attendees of workshop have positive opinions on the model)

In the project, management mechanisms for ME, infrastructure and utilities are defined as Periodical Preventive Maintenance (PPM) and budget planning for PPM. And then the project developed the guidebook for PPM of ME and infrastructure and tried to disseminate it. The dissemination workshop was conducted in February 2016 to disseminate the guidebook and the facility guideline out of the pilot provinces.

The questionnaire survey was conducted in the workshop held in February 2016.

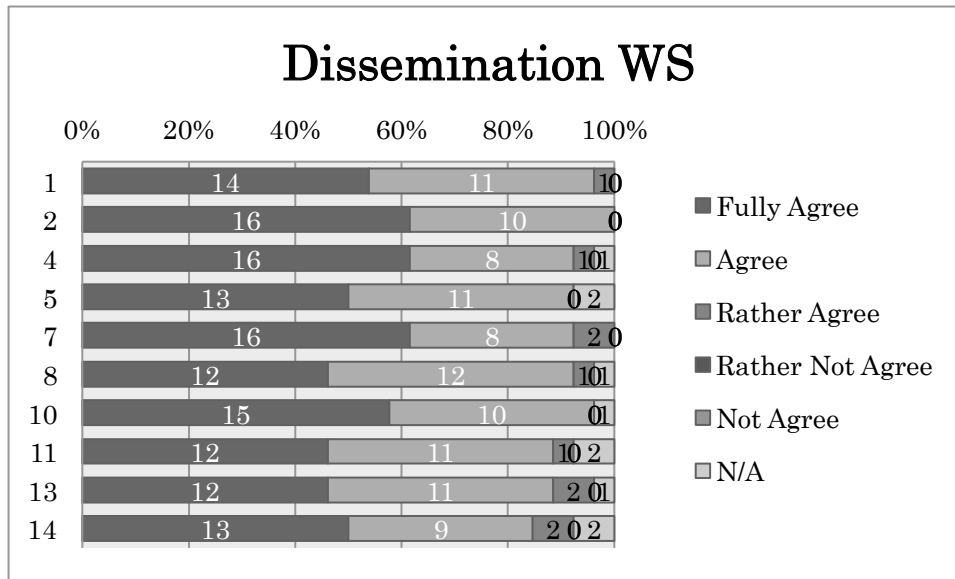


Figure 4-2 Results of Questionnaire of Dissemination workshop (n=32)

No.	Questions in the questionnaire
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.

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 it.

Unfortunately, dissemination of the concept of master plan, the guidelines and the guidebook was limited outside of the pilot provinces because the participants of the workshop were limited.

DPP will distribute the guideline and guidebook.

And more than 80% of the respondents agreed the effectiveness of maintenance system of ME and infrastructure and road map for dissemination.

4.2.2. Output 2: Standards of Health Infrastructure for Second and Third Level Hospitals are developed.

【 Verifiable Indicator 】 Healthcare facility guideline including infrastructure guideline is approved by MoH

The standard guideline was named as “Upgrading Guideline / Information of Health Facilities and Utilities”. The draft of the guideline was finalized after the consultation workshop in February 2016, and it was printed out after approval by MoH in March 2016.

4.2.3. Output 3: Health physical asset management mechanisms, with the emphasis on planned preventive maintenance, are operationalized in the project sites.

【 Verifiable Indicator 】 At least 70% of DHOs design their annual budget plan based on the medical equipment database

Since the budget schedule starts from beginning of May and ends by August annually, the project is not able to confirm the development of the annual budget plan based on the database in the project period. Therefore, capacity of utilization of the guidebook was selected as an alternative indicator for Output 3.

In order to explain the guide book for the maintenance budgeting of medical equipment and facilities, the workshop was held targeting PMOs, ME officers, and infrastructure officers in the three pilot provinces and DMOs, ME officers, and EHO in the districts, and administrators, ME officers, and EHO of the pilot hospitals.

The results of the questionnaire showed that more than 80% of respondents understood how to develop the action plan for ME and infrastructure but less than 80% of the respondents hoped to develop them. 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. And more than 90% of respondents understood how to prioritize the maintenance budget. It is very likely that the guidebook will be utilized for developing next annual budget plan. On the other hand, it is a challenge that only around 70% of respondents understood how to request the maintenance to PHO.

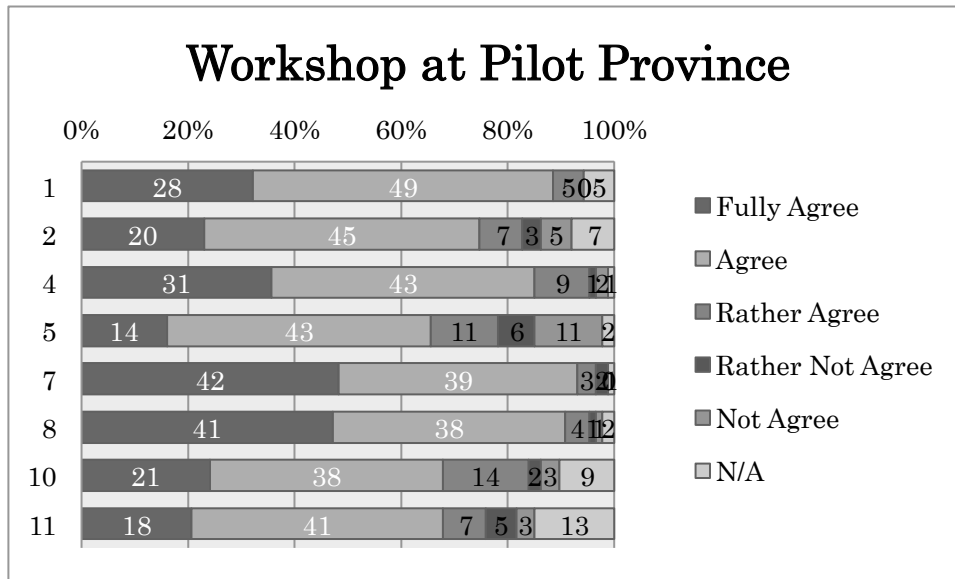


Figure 4-3 Results of Questionnaire of workshop at Pilot Province (n=87)

No.	Questions in the questionnaire
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.

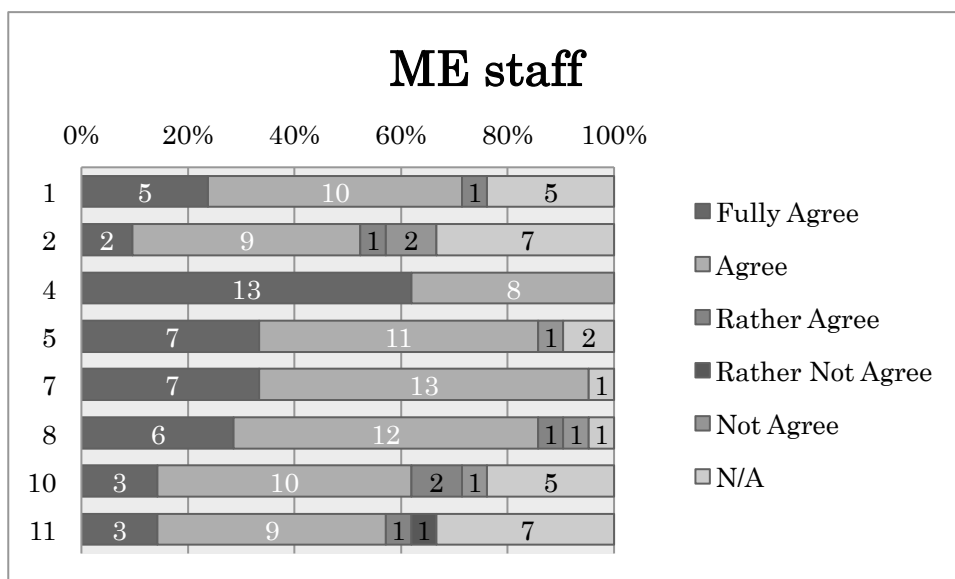


Figure 4-4 Results of Questionnaire of workshop at Pilot Province (ME staff) (n=21)

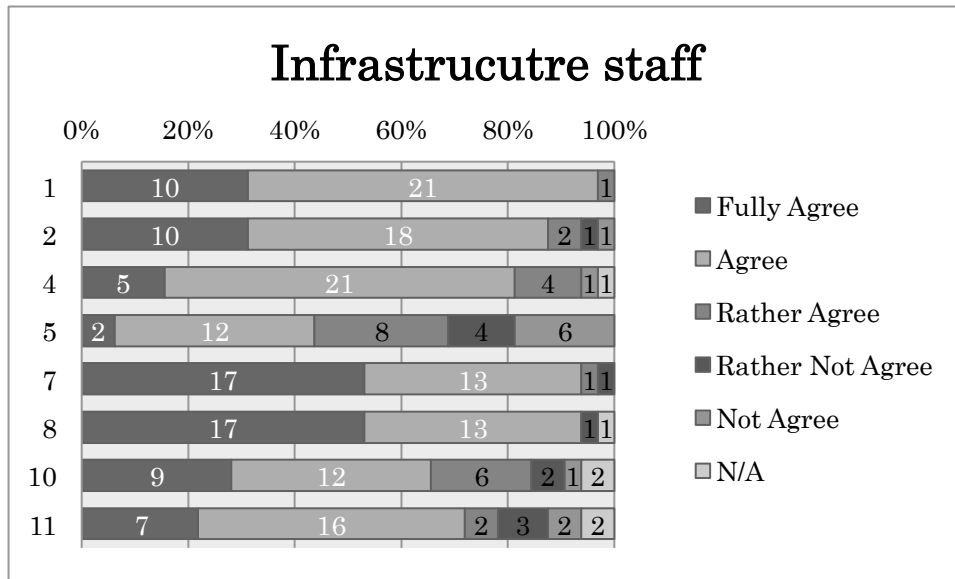


Figure 4-5 Results of Questionnaire of workshop at Pilot Province (Infrastructure Staff) (n=32)
(same as figure 4-1)

Additionally, in order to explain the guide book for the maintenance budgeting of medical equipment and facilities, the project team conducted supportive supervision to 9 pilot sites. All stakeholders in the pilot site, such as administrator, ME officer, infrastructure officer and EHO, understood the effectiveness of the guidebook and they think to utilize the guidebook for developing next annual budget plan.

The Directorate of Policy Planning (DPP) planned to orient how to develop the budget based on the guidebook at MTEF National Budget Planning Launch. And the project requested that DPP confirm whether the PPM budget would be included in the budget of hospitals, DHO and PHO or not.

5. Recommendations after the completion of the Project

5.1. Sustainability of Medical Equipment Management

In order to sustain the medical equipment management which was strengthened by the project, MoH should consider the following points;

1) Continuous user training of ME

Firstly, the project recommends the continuous user training for the medical equipment using the tools listed in the ME Management Guideline which were developed by the initial period of the project. User trainings contribute to reduce the number of preventive failures of ME and this leads to minimalize the maintenance cost. Consequently, it will help the Medical Equipment Officers to concentrate the management of medical equipment.

2) Appropriate position for ME engineers

Medical Equipment Engineers/Technicians should be assigned in the appropriate position of medical equipment engineers/technicians and receive the proper amount of salary. It was observed that some medical equipment engineers were working as an electrician, and it made them difficult to keep their motivation for their work. This situation is already reported to the Chief ME officer, MoH from the project and the immediate action should be taken by MoH.

3) Medical Equipment Management Budget

The medical equipment management budget should be earmarked at the district levels as same with the one of the provincial level. The medical equipment management cost has been earmarked and secured for the maintenance in the budget of PHO since 2012 and the officers at the PHO reported that it promoted and activated the maintenance activities although there are no records to indicate the number of repair works and troubleshooting. ME officer in the district level also mentioned that earmark of maintenance cost in PHO was also effective for the maintenance activities in the district level. It is suggested that earmark of maintenance cost in district level is effective to disburse the grant based on the plan.

4) Involvement of ME engineers/technicians

It is recommended for MoH to continuously promote establishment of ME committee in the all hospitals which must consisted from the management members of the hospitals and medical equipment officers. The committee helps hospital management secure the transparency of the ME management. It was reported at several hospitals that ME officer are often omitted from the process of receiving new equipment, ordering repair works and contract based maintenance for medical equipment. The management in the hospital needs to support ME officer for the holistic ME management.

5.2. Utilization of Health facility guidelines

Facility / Utility Guideline do not fulfill holistic condition for building hospital due to time limitation. However it is useful as the checklist to justify the design in the study phase of the drawing of hospital to be built with a foreign aid. And also for the improvement of designing and building methods of the modern health facility, it was described on the guideline that frequent commutation between infrastructure designers and medical professions is important. Additionally, it was mentioned in the guideline not only by considerations of the facility level that Zambia will need in the future, but also descriptions that can recognize the state-of-the-art idea of developed countries.

The condition of basic infrastructure which influences the specification of electricity, drainage and medical waste management, is different between urban area and rural areas. Therefore, for designing the proper utility, the guideline was developed based on the consideration of equipping several technical options with infrastructure planners in MoH. It is necessary for the utility planner to utilize the options for proper design.

5.3. Utilization of management guidelines and guidebook for periodical preventive maintenance

Among the outputs of this project, management guidelines of medical equipment, facility monitoring check sheet, maintenance budgeting guidebook are developed mainly for the district hospitals to be used. And since the provincial health offices manage most of the budget for maintenance, the project supported that the district hospitals and the district health offices can use the formats and check sheet to request repairs to the provincial health offices.

MoH approved the guideline and the guidebook. Therefore the tools for PPM were authorized. In the future, when these documents are disseminated to the other districts and provinces, the district health offices and the provincial health offices, as responsible organization to support lower organizations, need to understand the use of these documents in addition to the district hospitals which create these forms. Therefore, the guidebook for budget of PPM needs to be oriented not only towards District hospitals but also PHO and DHO. The project supported the capacity building of the staff of UTH, DHO and PHO through accompanying the supervision and assigning the lecturer of the training. After the completion of the project, MoH has a role of capacity building facilitators in upper organizations. And DPP is going to orient the budget planning based on the guideline at MTEF National Budget Planning Launch

5.4. Dissemination plan and implementation

In the dissemination workshop, February 2016, the road map for dissemination of maintenance system of medical equipment and infrastructure was demonstrated. In the experience of the project, it is necessary that trainings for maintenance of ME and infrastructure are conducted in provincial level and the guidebook for PPM and budget plan is distributed to all district health offices, district hospitals and province health offices. And then, the workshop on how to utilize the guidebook needs to be conducted to them.

The dissemination is the responsibility of the Directorate of Policy Planning, MoH.

In future, the monitoring of medical equipment and infrastructure needs to be checked in annual technical assessment utilizing the guidebook and collected data needs to be input into Health Management Information system (HMIS) for effective health capital investment at several levels.

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		■	■	■	■	■	■	■

Figure 5-1 Time table of dissemination

5.5. Conducting workshop

The participants of the workshop for budget allocation for PPM were invited from health institutions which are located day-trip area to the venue. Around 80% of invitees participated without allowances and participants were well motivated. In the speech of Provincial Medical Officer, he stated that it was the first workshop without allowances but that many stakeholders participated and committed seriously.

5.6. Project formulation

Regarding low commitment of DPP as mentioned paragraph 3.4., it was the result of discrepancy between the terms of reference of responsible department and project component because DPP is not dealing with management of medical equipment and infrastructure which are the major components of the project.

Originally, support for health capital investment in Zambia by JICA starts from health facility census to health capital investment plan. DPP is actually the responsible department for these supports. On the other hand, core concept of “Health Capital Investment Support Project” was improvement of maintenance system of medical equipment and infrastructure which work is not the responsibility of

DPP. DPP had difficulties managing it.

In the original project, Health Capital Investment Technical Working Group (TWG) was established for involving necessary stakeholders into the project. However the last TWG was conducted in July 2011. It is suggested that TWG was good mechanism for sharing information but not functioning as decision making field because there are diverse stakeholders. Therefore core counterparts of the project shall be selected from implementing agencies for the project activities, not from user of the outputs of the project, because the commitment of the user is generally low comparing to the implementer of the project activities.

At the project formulation, it is important to confirm that the responsible department has terms of reference for implementing project component.

5.7. Improvement of disbursement rate of the budget

For the smooth implementation of evidenced based maintenance budget planning supported by the project, proper disbursement of the budget is necessary. Major causes of improper maintenance of ME and infrastructure are no-allocation of money to the health facilities. The MoH has to secure an improved disbursement rate for the budget of health facilities and offices for proper maintenance activities.

In the extension phase, prioritization of the maintenance activities was mentioned on the guidebook of budget planning of PPM and instructed to pilot sites through the onsite training and the workshop for budget planning. Therefore the maintenance budget will be used effectively even though disbursement for the maintenance is limited. However, district hospitals tend to concentrate the limited disbursement for the provision of health services in the hospital and then there is no budget for the maintenance.

MoH needs to support to secure the disbursement of the budget for hospitals, PHO and DHO properly. Additionally, earmark of the maintenance budget in district level might be also effective because maintenance budget in PHO was already earmarked.

Appendix

Appendix 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.	

Appendix 2
Plan and actual Operation for
Extension Phase

Appendix 3

Input of the Project

Annex 3. List of Inputs

1. Workshop, Meeting and Training :

Total expenditure estimated 5,577,000 Yen(JICA) 1,947,000Yen(MOH)

No.	Workshop / Meeting / Training	Date	Duration	# Participants	JICA Expenditure	MOH Expenditure
1	Medical equipment Training (Lusaka)	20-23/07/2015	4days	46	1,478,000	-
2	Medical equipment Training (Western)	28-31/07/2015	4days	9	538,000	-
3	Medical equipment Training (Eastern)	10-13/08/2015	4days	10	531,000	-
4	Workshop in UTH	24-27/11, 15/12/2015	1day x5	36	60,000	-
5	Budget allocation workshop	9, 12, 19/02/2016	1day x3	164	1,260,000	700,000
6	Dissemination workshop	25/02/2016	1day	120	1,710,000	1,247,000

Exchange Rate: ZMW 1=11.6 JPY December, 2015.

Expenditure for No.5 and 6 are estimation.

2. Equipment : Total expenditure estimated 20,000 Yen

Equipment	Specification	Quantity	Amount	Location
Printer	HP LaserJet Pro P1102	2	19,399.84 Yen	Project Office

Exchange Rate: ZMW 1=11.6 JPY December, 2015.

It will be handed over to MOH at the end of the project. Project office is provided and located in MOH.

3. Training in Japan: 2 counterparts

No.	Name	Job title / Organization	Name of Course	Duration
1	KALUMBI Hillam	St. Francis Mission Hospital	Medical Equipment Maintenance(B)	05/04/2015-15/06/2015
2	KATIBA Katiba Bosco	Lewanika General Hospital		

4. Japanese Experts: 6 experts, total estimated 26.5MM

No.	Name	Job title	Period			Duration
1	Shuichi SUZUKI Mr.	Leader / Health Capital Investment Planning	2015/3-1MM	2015/10-2.5MM	2016/2-0.5MM	4MM
2	Hiroshi YOSHINO Mr.	Medical Equipment Management	2015/5-3MM	2015/10-1MM	2016/1-2MM	6MM
3	Kuniko YOSHIZAWA Ms.	Medical Infrastructure Planning	2015/4-2.5MM	2015/10-2MM	2016/1-1.5MM	6MM

4	Tamotsu NOZAKI Mr.	Sub-Leader / Medical Equipment Management / Medical Facility Planning	2015/6-2MM	2015/10-2MM	2016/1-1MM	5MM
5	Maiko NAGASAWA Ms.	Budget Plan Support	2015/4-1.5MM	2015/10-1MM		2.5MM
6	Kodai TATENO Mr.	Project Coordinator / Medical Equipment Management Assistant	2015/3-1MM	2015/7-1MM	2015/2-1MM	3MM

4. Zambian Counterparts: 82

No.	Name	Job title	Department
Ministry of Health			
1	Mr. Chimfwembe Makasa	Director Policy & Planning	Policy and Planning
2	Mr. Luwabelwa Mubita	Deputy Director, Policy & Planning	Policy and Planning
3	Ms. Kakulubelwa Mulalelo	Chief Planner, Planning and Budgeting	Policy and Planning
4	Mr. Patson Sito Mwanza	Principal Planner, Infrastructure	Policy and Planning
5	Mr. Jason Wamulumu	Principal Planner, Infrastructure	Policy and Planning
6	Mr. Patrick Banda	Principal Planner, Infrastructure	Policy and Planning
7	Mr. Gilbert Musonda	Chief Medical Equipment Officer	Clinical Care and Diagnostic Services
3rd Level Hospitals			
8	Dr. Ben Chirwa	Managing Director	University Teaching Hospital
9	Mr. Mwale Emmanuel	Medical Equipment Technician	University Teaching Hospital
10	Mr. Musakanya Edward	Medical Equipment	University Teaching Hospital
11	Mr. Chola Geoffrey	Chief Technician, Civil Engineering	University Teaching Hospital
LUSAKA Province			
12	Dr. Malama Kennedy	Provincial Health Director	Lusaka Provincial Health Office
13	Mr. Phiri Sungani	Provincial Infrastructure officer	Lusaka Provincial Health Office
14	Mr. Meetwell Chelo	Chief Environmental Health Technologist	Lusaka Provincial Health Office
15	Mr. Sinkala Christopher	Chief Medical Equipment Officer	Lusaka Provincial Health Office
16	Dr. Masaninga Masumba	District Medical Officer	Lusaka District Health Office
17	Mr. Matimba Chizongo	Environmental Health Technologist (EHT)	Lusaka District Health Office
18	Mr. Zulu Amos	Medical Equipment Technician	Lusaka District Health Office
19	Mr. Kalubula Maybin	DHIO	Lusaka District Health Office
20	Ms. Mwambazi Maureen	Matron	Chipata 1 st Hospital
21	Ms. Maureen Chikwa	Nurse	Chipata 1 st Hospital
22	Ms. Faides Mambwe	EHT	Chipata 1 st Hospital
23	Ms. Jane Botha	Nurse in charge	Chilenje 1 st Hospital
24	Ms. Lydia Somali	EHT	Chilenje 1 st Hospital

25	Ms. Bertha Kabika	R.M	Chilenje 1 st Hospital
26	Ms. Friday Matafwali	MET	Chilenje 1 st Hospital
27	Ms. Kasanga Catherine	R.M in charge	Matero 1 st Hospital
28	Ms. Tembo Lindiwe	EHT	Matero 1 st Hospital
29	Ms. Nkuri Christabel	EHT	Matero 1 st Hospital
30	Dr. Dorothy Marumahoko	District Medical Officer	Kafue District Health Office
31	Mr. Teddy Mofya	District Environmental Health Officer	Kafue District Health Office
32	Dr. Makukula Abby	Medical Superintendent	Kafue District Hospital
33	Ms. Sunkutu Gladys	Acting Hospital Administrator	Kafue District Hospital
34	Ms. Muma Maureen	EHT	Kafue District Hospital
35	Ms. Mwela Mirriam	Electrical Technician	Kafue District Hospital
36	Dr. Msiska Charles	District Medical Officer	Chongwe District Health Office
37	Mr. Alex Chilabi	EHT	Chongwe District Health Office
38	Mr. Mwanyasi Francis	EPI Technologist/Medical Equipment Technologist	Chongwe District Health Office
39	Dr. Eularia Chililala	Ag Medical Officer In-Charge	Chongwe District Hospital
40	Mr. Humphrey Lubumbe	Refrigeration Technician	Chongwe District Hospital
EASTERN Province			
41	Dr. Abel Kabalo	Provincial Health Director	Eastern Provincial Health Office
42	Mr. Gift Lupenga	Principle, Medical Equipment Officer	Eastern Provincial Health Office
43	Mr. Hillam Kalumbi	Bio-Medical Engineer, PHO	Eastern Provincial Health Office
44	Mr. Sekutenyana Michael	Infrastructure Officer	Eastern Provincial Health Office
45	Mr. Banda G Kachikoti	Environmental Health Officer	Eastern Provincial Health Office
46	Dr. Dany W. Zulu	DMO	Lundazi District Health Office
47	Mr. Chinsoto Pendavis	Environmental Health Officer	Lundazi District Health Office
48	Mr. Zimba Henry	Coldchain Technician	Lundazi District Health Office
49	Mr. Kalimukwa Richard	Hospital Administrator	Lundazi District Hospital
50	Dr. Lingenda Godfrey	Medical Officer	Lundazi District Hospital
51	Mr. Mayovu Kennedy	Electrician	Lundazi District Hospital
52	Ms. Banda Luwiza	Infrastructure	Lundazi District Hospital
53	Dr. Chisenga Allan	DMO	Petauke District Health Office
54	Mr. Bwalya Oscar	Coldchain Technician	Petauke District Health Office
55	Mr. Nkhata Alfred	Administration Manager	Petauke District Health Office
56	Mr. Sakala Elman	Ag / DHIO	Petauke District Health Office
57	Mr. Muukombwe Lwendo	Hospital Administrator	Petauke District Hospital
58	Mr. Phiri Alick	Electrical Technician	Petauke District Hospital
59	Ms. Moff Chanda	Environmental Health Officer	Petauke District Hospital
60	Dr. Mbunguchama Jonaghan	DMO	Chadiza District Health Office
61	Mr. Nundwe Lackwell	UCI (Coldchain) Technician	Chadiza District Health Office
62	Mr. Kenneth Daka	EHT/ Infrastructure Coordinator	Chadiza District Health Office
63	Mr. Simatanga Humphrey	Hospital Administrator	Chadiza District Hospital
64	Mr. Sibbilishokwe Nchimunya	EHT	Chadiza District Hospital
65	Mr. Phiri Henry	Electrical Technician	Chadiza District Hospital
WESTERN Province			
66	Dr. Silumesii Andrew	Provincial Health Director	Western Provincial Health Office

67	Mr. Luhana Elias	Principle Medical Equipment Officer	Western Provincial Health Office
68	Dr. Mapani Munfanga	Medical superintendent	Lewanika General Hospital
69	Mr. Hibajene Leo	Hospital Administrator	Lewanika General Hospital
70	Mr. Katiba Bosco	Medical Equipment Technician	Lewanika General Hospital
71	Mr. Mikololo Mubita	Information Officer (Ag Planner)	Mongu District Health Office
72	Dr. Mbozi Kenneth	DMO	Senanga District Health Office
74	Mr. Mutukwa John	Health Information Officer / Planner	Senanga District Health Office
75	Mr. Wamunyima Mubu	Medical Equipment Technician	Senanga District Health Office
76	Mr. Silukolwe David	EHT (Ag Hospital Administrator)	Senanga District Hospital
77	Dr. Sakala Jacob	DMO	Kaoma District Health Office
78	Mr. Chongo Misapa	Planner	Kaoma District Health Office
79	Mr. Lawrence Chabalala	Medical Equipment Officer	Kaoma District Health Office
80	Dr. Mukangala Banza	Medical Officer in-charge	Kaoma District Hospital
81	Ms. Chileshe Margaret	Hospital Administrator	Kaoma District Hospital
82	Mr. Siwewe Castro	Electrician	Kaoma District Hospital

Appendix 4
List of Procured Equipment

プロジェクト提供と機材リスト List of Procured Equipment												
Health Capital Investment Support Project (Year 1 to 3), (2015-2016)												
Ministry of Health, Zambia												
2010-2012, 2015-2016												
Office Items: 事務所用品												
Fujita Planning Co., Ltd.												
Budget Subject												
Consultant Name												
Registration/Labelling Number												
Registered Date in Project (D/M/Y)												
Condition of Equipment												
Transferred/ Purchased Data (D/M/Y)												
Receiver												
Reference												
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 Data (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	

Appendix 5
Reports of activities

**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										5	(5) Established, (0) Not yet established
(a) Establishment of MEMC	5	5	5	5	5	5	5	5	5	5	
(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

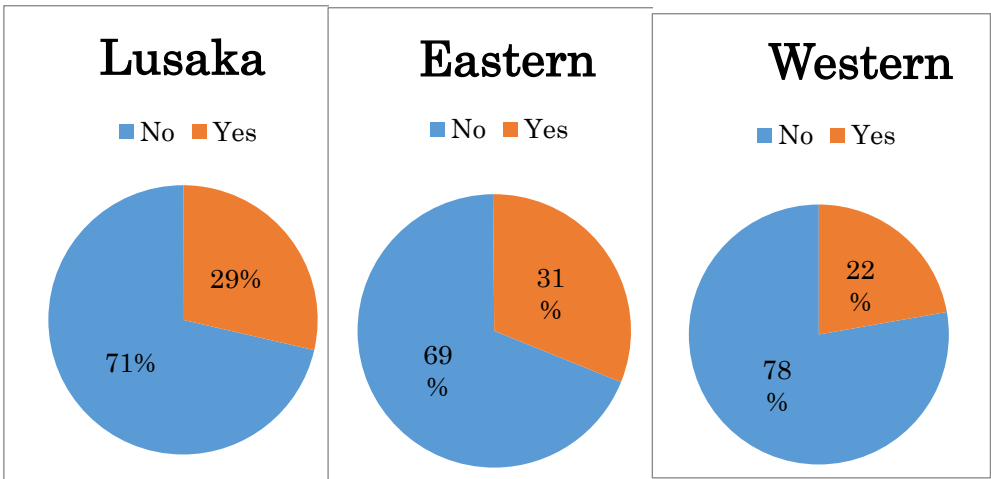


Figure .1 rates of facilities where possess HCIP guidelines or not

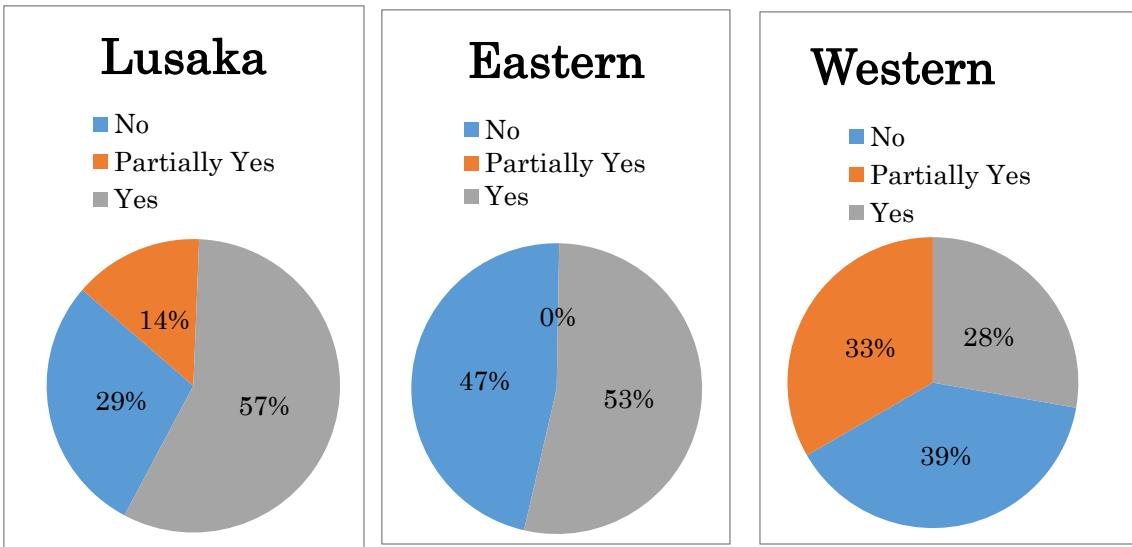


Figure 2 rates of facilities that update infrastructure database completely, partially, or not

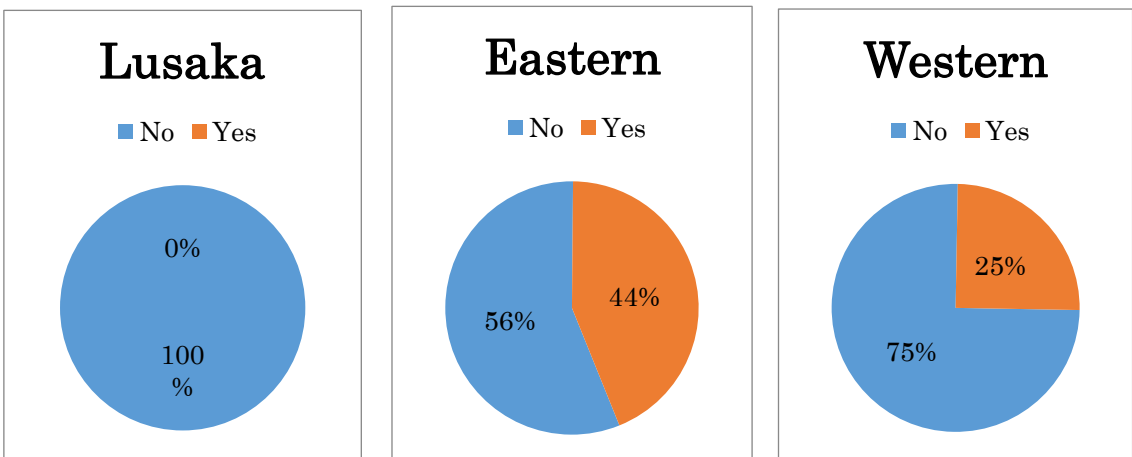


Figure 3 rates of facilities utilizing infrastructure database to making Action Plan

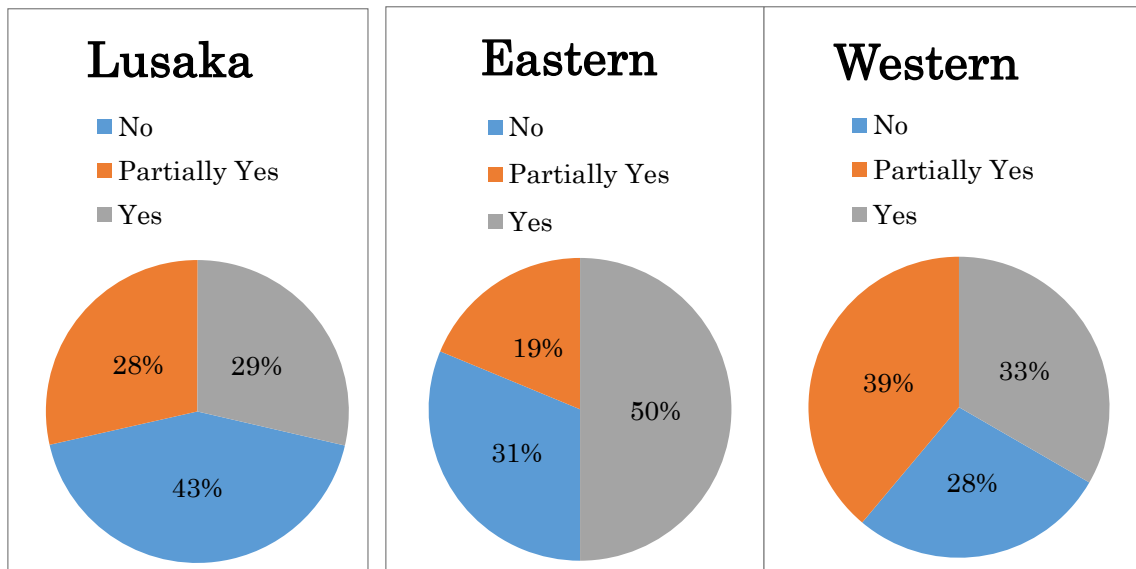


Figure 4 rates of facilities that update medical equipment database completely, partially, or not

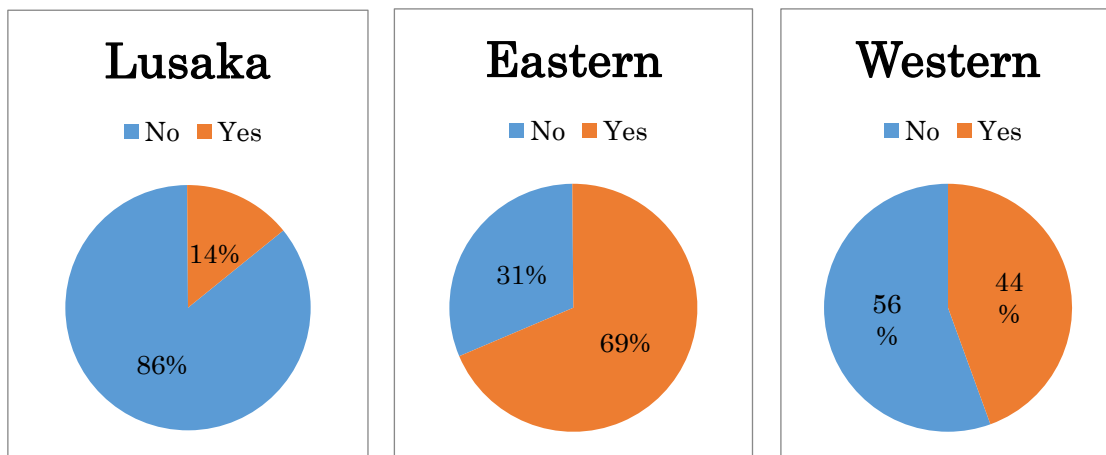


Figure 5 rates of facilities that utilize medical equipment database to making Action Plan

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.

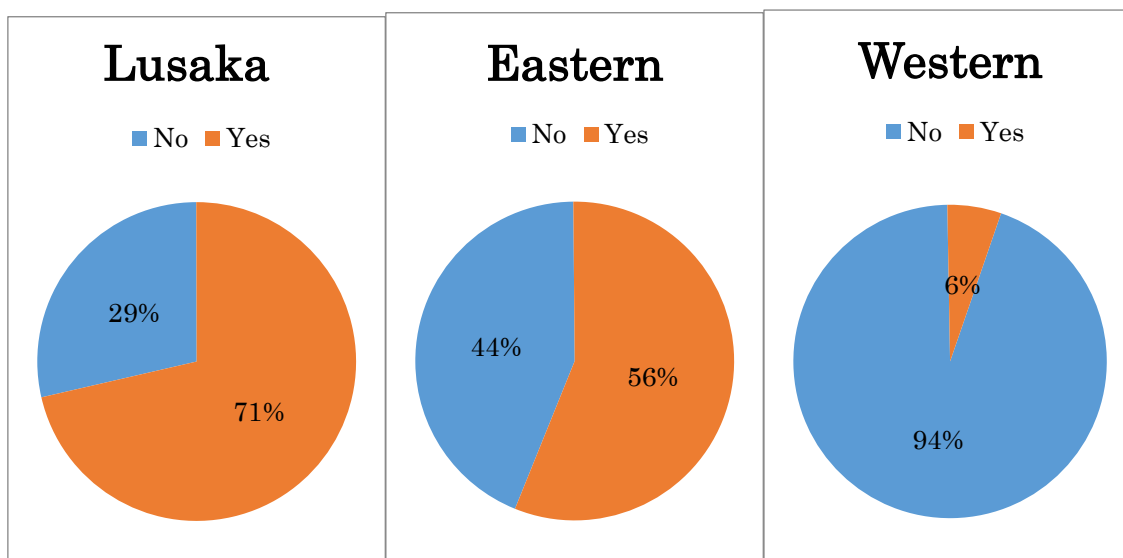


Figure 6 the rates of medical equipment committee working properly

(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.

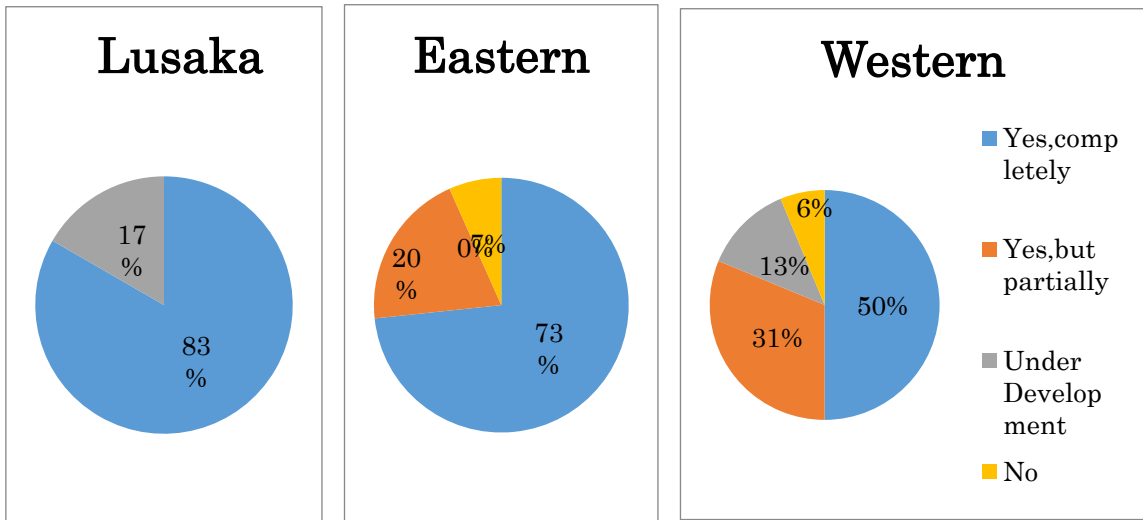


Figure 7 rates of facilities that possess complete medical equipment inventory list, partially one, or not)

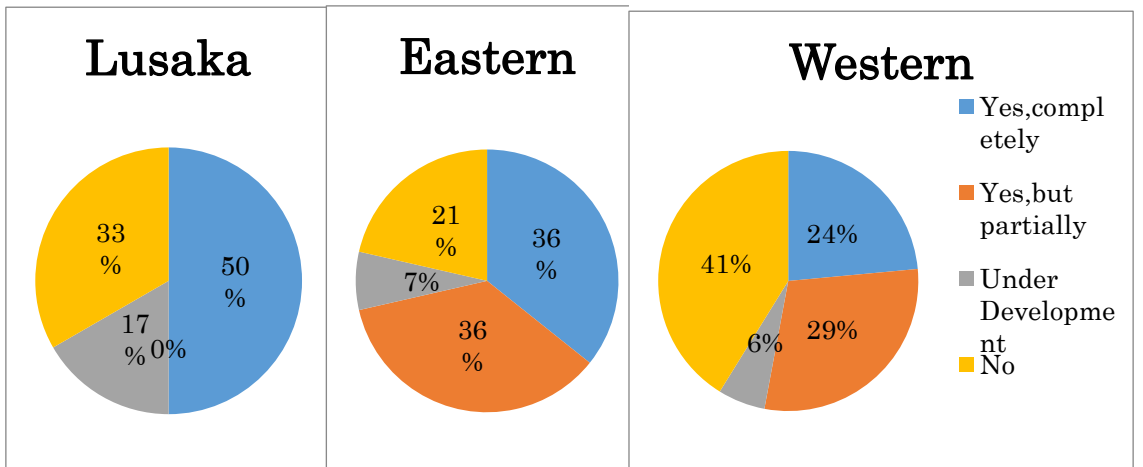


Figure 8 the rate of facilities that possess the complete consumable list, partially one, or not

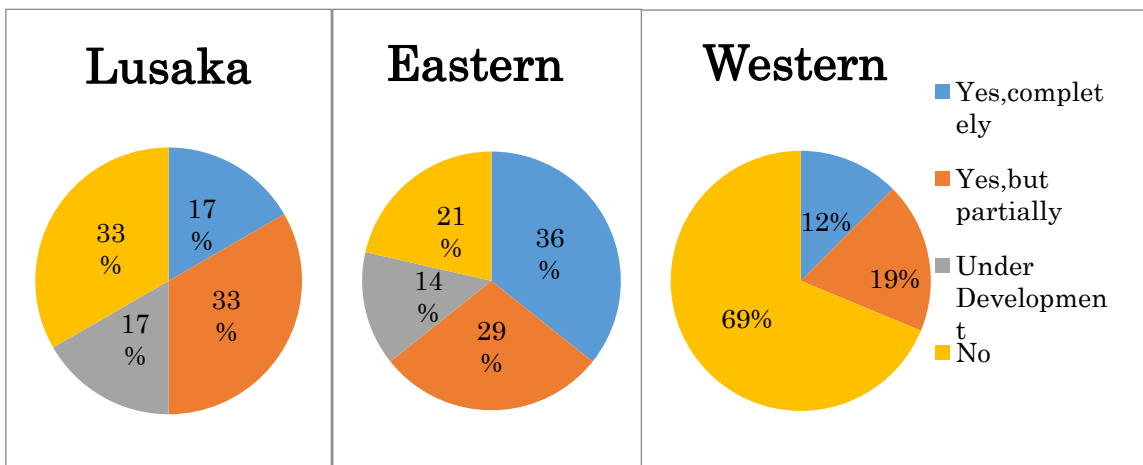


Figure 9 rate of facilities that possess complete spare parts list, partially one, or not

(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.

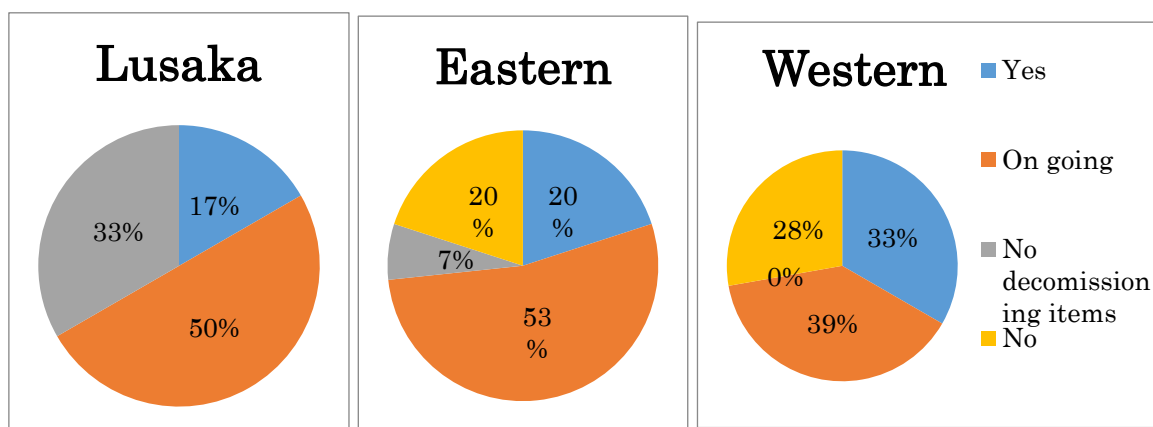


Figure 10 rate of facilities where complete decommission process for medical equipment, ongoing, no decommission items, or not yet

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.

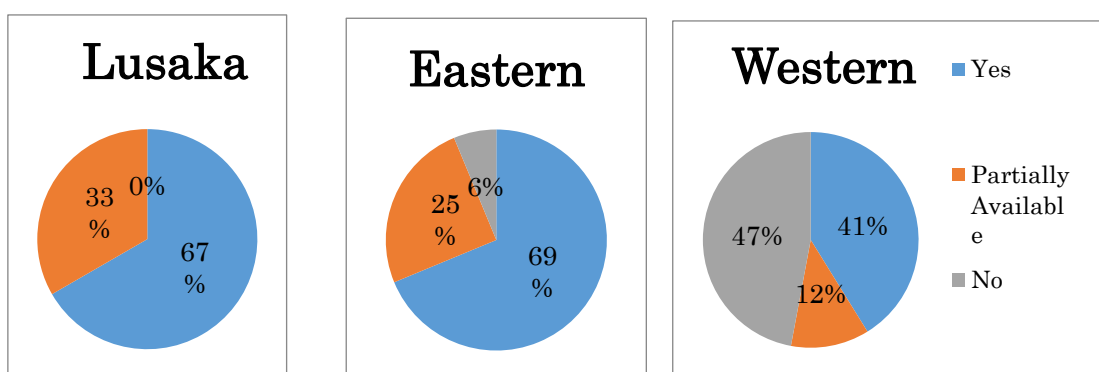


Figure 11 rates of facilities that has maintenance plan, partially available, or not

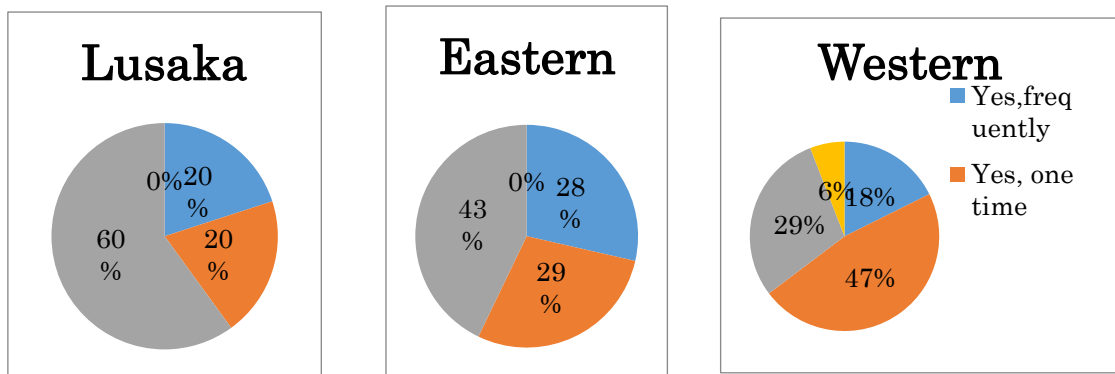


Figure 12 rates of facilities that implement user training frequently, one time, not yet, considering

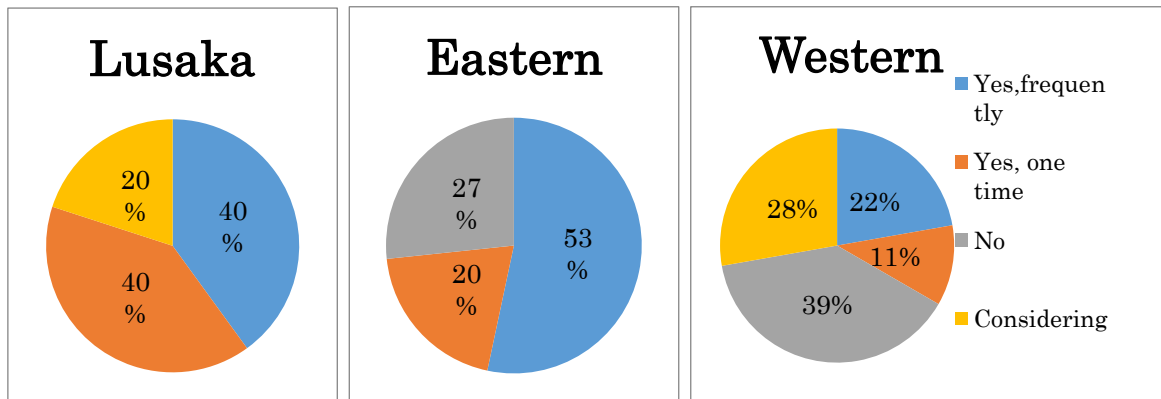


Figure 13 rates of facilities where implement daily maintenance frequently, one time, not yet, considering

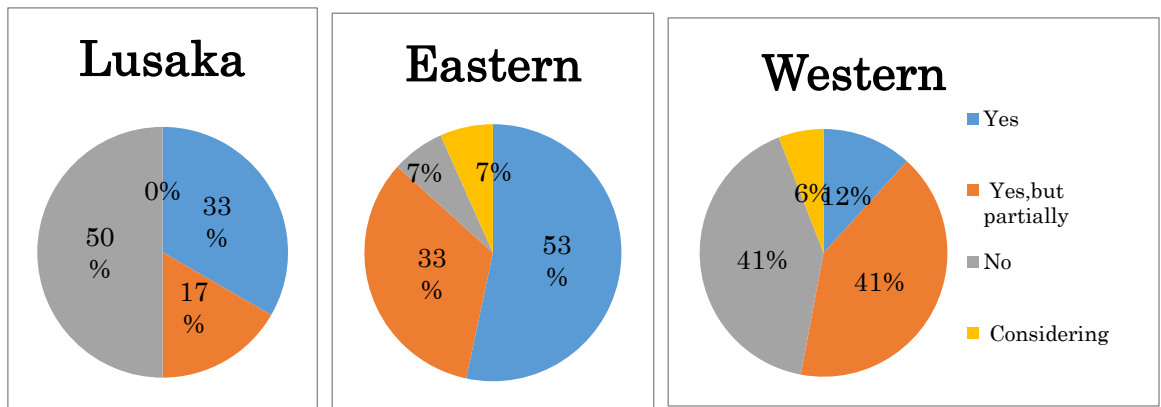


Figure 14 rates of facilities where implement the preventive maintenance completely, partially, not yet, considering

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)	Mr. Ndhlovu
	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	Opthalmoscope	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
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. Bellingtone 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		KALEKAPU MAMBO	
2	EASTERN	VUBWE DHO	PLANNER		JOSEPH LUNGU	
3	EASTERN	SINDA DHO	PLANNER		SIEGFRIED MUYERST	
4			EHT		OBERA GAMBWE	
5	EASTERN	Chadiga DHO	RHT		Daka Kenneth	
6	EASTERN	CHIPATA DHO	SE.H.O		LAMECK BANDA	
7	EASTERN	ORTUPATA DHO	CCM		Fuy. Sbowan Mubawe	
8	EASTERN	KATELE 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	KATEBE DISTRICT HEALTH OFFICE	DISTRICT PLANNER		KERAZSETH TITOLE	
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	FHO		Chinisto Rendavis	
25	EASTERN	LUNDAZI DISTRICT HOSPITAL	ENVIRONMENTAL HEALTH TECHNOLOGIST		Edna Chibuye	
26	Eastern	Chadiza Health office	Public Health Officer		Julius Samboho	
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		TUMBIKANTANI NGOMIA	
29	EASTERN	PETAKHE DHO	COLDCHAIN OFFICER		BICAR BWAAYA	
30	EASTERN	PETAKHE	HOSPITAL ADMINISTRATOR		LUGUDO MUKOMBE	
31	EASTERN	SINDA	ELECTRICIAN		HUMORAREN SEKEUETI	
32	EASTERN	KAMOTO MISSION HOSPITAL	ELECTRICIAN		SHADREK NGUEGATE	
33	EASTERN	LUNDARI DISTRICT HOSPITAL	HOSPITAL ADMINISTRATOR		RICHARD KATIMULWA	
34	EASTERN	LUNDARI DISTRICT HOSP.	MEDICAL EQUIPMENT TECHNICIAN.		Kennedy Mayora	
35	EASTERN	EPHO CHUPA	INFRASTRUCTURE OFFICER		LADRENCE KUNDA	
36	EASTERN	CHIPATA CENTRAL HOSPITAL	TECHNICIAN		VINCENT MKAJIBAYIRI	

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 HOSPITAL CENTRE	SENIOR HOSPITAL ADMINISTRATOR		Gerald Fumbo	
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	Indolozi District Health Office	EHO		Rudolus Chirisa	
43	EASTERN	JICA/MOH	PROJECT SECRETARY		FRANCIS KASASA	
44	Lusaka	JICA/MOH	Project Coordinator Medical Equipment		Kodai TATEO	
45	Lusaka	JICA/MOH	Medical Equipment Management		Hiroshi YOSHINO	

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 KAUNUWA		
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		
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 CHOLA		
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 CHIPAZONGA		
22	WESTERN	KAOMA D.H.O	INF. OFFICER CHI	SHABALALA LAWRENCE		
23	WESTERN	P.M.O	PRINCIPAL MEDICAL EQUIPMENT OFFICER	LUTHANA GUAS		
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 GIBE		
30		KUAMPA		MHEMBA		
	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 BATHIWA		
34	WESTERN	LIMUWUNGA DMO	ENVIRONMENTAL HEALTH TECHNOLOGIST	VINCENT SIAYU		
35	Western	Bikongo DRIVER	DRIVER	MULIDA - MUBASSA		
36	WESTERN	KALABO DRIVER DMO	DRIVER	B-m. MULIRO		

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	Kantambo mukwada		

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	Mumbumba 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 LUMBAI		
⑤ 59	Western	Provincial Medical Office	Administrative Officer	Alex Njesele		
⑥ 60	WESTERN	Provincial MEDICAL OFFICE	Principal Medical Equipment Officer	ELIAS LUHAMU		
⑦ 61	WESTERN	PMO	INFRASTRUCTURE OFFICER	Eng. Nixon Silooxi		
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	SHIBUYUNDI DHO	SEHO	REGINA LUBATI KABUNDI	
19	Lusaka	Shibuyunfi rampundwa	EHT	GIVEN HABAYUNGU	
20	Lusaka	SI'LUKES 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 NAMUTWE	
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 MWANYASI CHONGWE BMO	INFRASTRUCTURE OFFICE	FRANCIS MWANYASI	
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	[Redacted Signature Column]
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 NATELES	
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	KAKULISOLO 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	Kudakwange Dube		
8	Lusaka	UNFPA	Program Officer	Jeniffer Mijoo		
9	Lusaka	JICA	Health Sector Advisor	Yukari Yasutaka		
10	Lusaka	UNDP	Kazuhisa Project Technical Manager	Kazuhisa Yokumizu		
11	Lusaka	CDH	PRINCIPAL MED. EQUIP. OFFICER	GANIZAM PHIRI		
12	Lusaka	CDH	A/SMS	Citoye Mndabire		

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 Mphahlele		
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

Appendix 6
List of Technical Deliverables

Appendix 6 : List of Technical Deliverables

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

