

#### 4. Minutes of Discussions

##### (1) Preparatory Survey (Basic Design)

MINUTES OF DISCUSSIONS  
PREPARATORY SURVEY (BASIC DESIGN)  
ON THE PROJECT FOR THE REHABILITATION OF THE UNIVERSITY TEACHING  
HOSPITAL INFRASTRUCTURE AND REPLACEMENT OF OBSOLETE EQUIPMENT  
IN THE DEPARTMENTS OF OBSTETRICS AND GYNECOLOGY AND PEDIATRICS  
IN THE REPUBLIC OF ZAMBIA

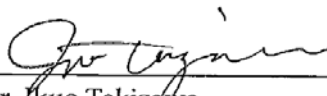
Based on the results of the Preparatory Survey (Preliminary Study), the Government of Japan decided to conduct a Preparatory Survey (Basic Design) on the Project for the Rehabilitation of the University Teaching Hospital(UTH) Infrastructure and Replacement of Obsolete Equipment in the Departments of Obstetrics and Gynecology and Pediatrics (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

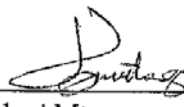
JICA sent to Zambia the Preparatory Survey (Basic Design) Team (hereinafter referred to as "the Team"), which is headed by Mr. Ikuo Takizawa , Regional Project Formulation Advisor for Health, JICA Regional Support Office for Africa, and is scheduled to stay in the country from March 22 to April 12, 2009.

The Team held discussions with the officials concerned of the Government of the Republic of Zambia and conducted a field survey.

In the course of discussions and field survey, both parties have confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Preparatory Survey (Basic Design) Report.

Lusaka, April 7, 2009

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

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

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to improve the quality of health services delivered by the University Teaching Hospital(UTH) , and also, the enhancement of the capacity of the UTH in providing pre-service and in-service training of health care professionals through the procurement of medical equipment.

### 2. Project Sites

The Project Site , which is shown in Annex-1, is the University Teaching Hospital(UTH) in Lusaka, Zambia.

### 3. Responsible and Implementing Agency

3-1. The Responsible Agency is the Directorate of Policy and Planning, the Ministry of Health, the Government of Zambia.

3-2. The Implementing Agency is the University Teaching Hospital(UTH).

### 4. Project Equipment

The list of requested equipment finally agreed upon between the Government of the Republic of Zambia and the Team are shown in Annex-2-1 and 2-2. The items were selected based on the results of the previous survey(Preliminary Study) , in consideration of the progress of rehabilitation works which the UTH has implemented, and also, the necessity and adequacy of the items. The request of project equipment will be recommended to the Government of Japan for approval.

However, as the appropriate rehabilitation works have not been initiated in the D-block, the Zambian side and the Team mutually agreed that the provision of equipment for the D-block which is shown in Annex-2-2 , should be recommended to the Government of Japan upon the confirmation of the following conditions:

- (1) to submit the minutes of discussions of the Executive Committee Meeting to be held in the UTH, in which the implementation of the rehabilitation of the D-block is specified ,to JICA Zambia office by the end of April,2009.
- (2) to initiate the tender procedure for the above mentioned rehabilitation of the D-block by the end of June, 2009, and, to initiate the rehabilitation works by the end of July , 2009.

### 5. Japan's Grant Aid Scheme

The Zambian side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Republic of Zambia as explained by the Team and described in Annex-3 and Annex-4.

## 6. Schedule of the Survey

- 6-1. The consultants will proceed to further studies in Zambia until April 12, 2009.
- 6-2. JICA will prepare the draft report in English and dispatch the draft report explanation mission to Zambia in August, 2009.
- 6-3. In case that the contents of the report are accepted in principle by the Government of the Republic of Zambia, JICA will complete the final report (the Basic Design Report) and send it to the Government of the Republic of Zambia around November, 2009.

## 7. Other Relevant Issues

### 7-1. Project Title

Both sides agreed to change the title of the Project to "the Project for the Improvement of the Medical Equipment of the University Teaching Hospital in the Republic of Zambia", instead of "the Project for the Rehabilitation of the University Teaching Hospital(UTH) Infrastructure and Replacement of Obsolete Equipment in the Departments of Obstetrics and Gynecology and Pediatrics ".

### 7-2. Rehabilitation of the Facilities

Both sides reconfirmed that the rehabilitation of the facilities would be undertaken by the Zambian side. The Team recognized that the rehabilitation works have made significant progress from the time of previous survey.

### 7-3. Proper Operation and Maintenance of the Procured Equipment

The Zambian side agreed to secure and allocate enough budget to operate and properly maintain the procured equipment by the Project. The Zambian side also agreed to promote the effective and appropriate use, and maintenance of the procured equipment focusing on planned preventive maintenance.

The Japanese side confirmed that the initial training on the proper operation and daily maintenance of the equipment should be provided by the suppliers.

### 7-4. Plan of Soft Component Program and Other Forms of Technical Assistance

The Zambian side requested technical assistance as a soft component program of Japan's Grant Aid , and possibly through other forms (e.g. training of Biomedical Engineering Department and other hospital staff) , regarding operation and maintenance system for the equipment. The Team would convey the request to the Government of Japan.

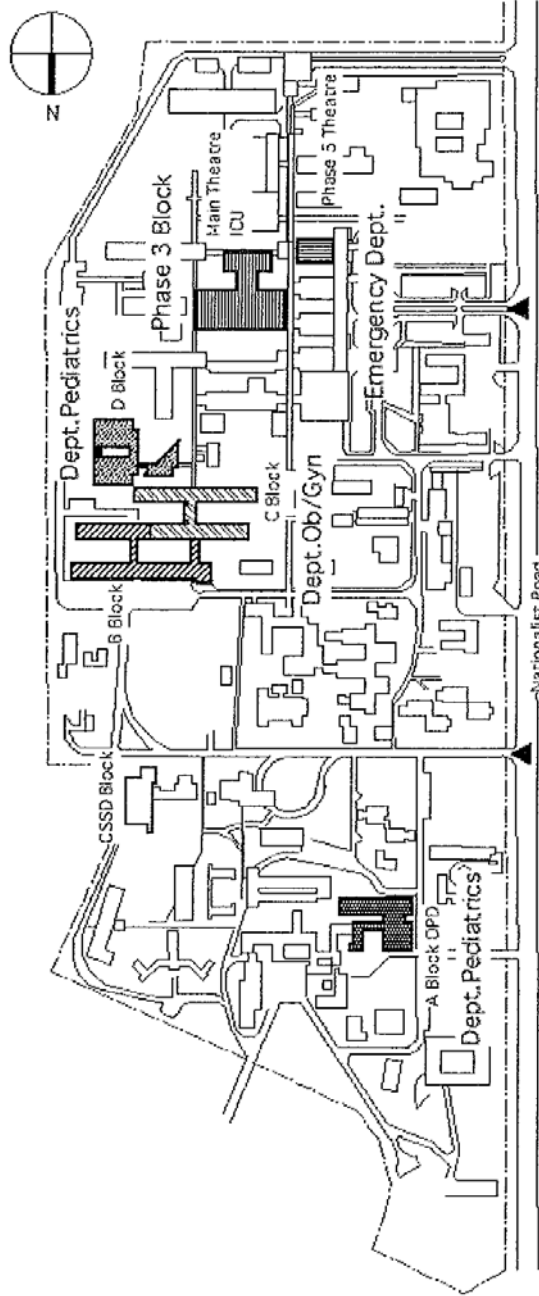
Annex-1 : Site Map

Annex-2-1: Requested Equipment

Annex-2-2: Requested Equipment for D-block

Annex-3 : Japan's Grant Aid Scheme

Annex-4 : Major Undertakings by each Government



SITE MAP

UNIVERSITY TEACHING HOSPITAL

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## Requested Equipment

Item No.	Description	Quantity
<b>(Main Operation Theater)</b>		
A-1	Anesthesia Machine	2
A-2	Suction Machine, Large	4
A-3	Suction Machine, Medium	4
A-4	Operating Table	2
A-5	Electrosurgical Unit	4
A-6	Autoclave, Medium	2
A-7	Operating Light	4
A-8	Patient Monitor with IBP	3
A-9	Defibrillator	1
A-10	Syringe Pump	2
<b>(Emergency Operation Theater)</b>		
B-1	Anesthesia Machine	3
B-2	Suction Machine, Large	3
B-3	Suction Machine, Medium	3
B-4	Operating Table	3
B-5	Electrosurgical Unit	3
B-6	Operating Light	3
B-7	Patient Monitor	3
B-8	Defibrillator	1
B-9	Syringe Pump	1
<b>(Obstetric &amp; Gynecology Operation Theater)</b>		
C-1	Anesthesia Machine	3
C-2	Suction Machine, Large	3
C-3	Suction Machine, Medium	3
C-4	Operating Table	2
C-5	Electrosurgical Unit	3
C-6	Autoclave, Small	1
C-7	Patient Monitor	3
C-8	Laparoscope	1
C-9	Defibrillator	1
C-10	Syringe Pump	1
C-11	Infant Resuscitation Machine	1
<b>(PICU)</b>		
D-1	Ventilator, Pediatric & Adult	1
D-2	Ventilator, Infant	3
D-3	Patient Monitor	10
D-4	Infusion Pump	5
D-5	Defibrillator, Adult & Pediatric	1
D-6	Suction Machine, Portable	6
D-7	Syringe Pump	3
D-8	X-Ray, Mobile	1
D-9	Ultrasound machine, Color Doppler	1

Code	Description	Quantity
(MICU)		
E-1	Ventilator, Pediatric & Adult	9
E-2	Ventilator, Infant	1
E-3	Patient Monitor	10
E-4	Infusion Pump	10
E-5	Defibrillator, Adult & Pediatric	1
E-6	Suction Machine, Medium	8
E-7	ICU bed	10
E-8	Nebulizer	2
(Delivery Room)		
F-1	Ultrasound Machine, OB/GY	1
F-2	Vacuum Extractor	2
F-3	Infant Resuscitation Machine	3
F-4	Delivery Bed	17
F-5	Cardiotocograph (CTG)	3

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## Requested Equipment for D-block

Code	Description	Priority
(Pediatric Operation Theater)		
G-1	Anesthesia Machine	2
G-2	Suction Machine, Large	2
G-3	Suction Machine, Medium	1
G-4	Operating Table	2
G-5	Electrosurgical Unit	2
G-6	Autoclave, Medium	1
G-7	Operating Light	2
G-8	Patient Monitor	1
G-9	Defibrillator	1
(NICU)		
H-1	Ventilator, Infant	3
H-2	Patient Monitor, Infant	4
H-3	Infusion Pump	6
H-4	Ultrasound Machine, Color Doppler	1
H-5	Infant Incubator	18
H-6	X-Ray, Mobile	1
H-7	Bilirubinometer, Transcutaneous	1
H-8	Hematocrit Centrifuge	1
H-9	Phototherapy Machine	4
H-10	Autoclave, Table Top	1
H-11	Laryngoscope, Neonatal	6
H-12	Suction unit, Portable	3
H-13	Infant Resuscitation Machine	2

## JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as “the GOJ”) is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on the law and the decision of the Government of Japan (hereinafter referred to as “the GOJ”), JICA has become the executing agency of the Grant Aid for General Projects.

The Grant Aid is non-reimbursable fund to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

### 1. Grant Aid Procedures

The Japanese Grant Aid is conducted as follows-

- Preparatory Survey (hereinafter referred to as “the Survey”)
  - The Survey conducted by JICA
- Appraisal & Approval
  - Appraisal by The GOJ and JICA, and Approval by the Japanese Cabinet
- Determination of Implementation
  - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as “the G/A”)
  - Agreement concluded between JICA and a recipient country
- Implementation
  - Implementation of the Project on the basis of the G/A

### 2. Preparatory Survey

#### (1) Contents of the Survey

The aim of the Survey is to provide a basic document necessary for the appraisal of the Project by JICA and the GOJ. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the implementation of the Project.



### Annex-3

- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- Preparation of a basic design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

#### (2) Selection of Consultants

For smooth implementation of the Survey, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

#### (3) Result of the Survey

The Report on the Survey is reviewed by JICA, and after the appropriateness of the Project is confirmed, JICA recommends the GOJ to appraise the implementation of the Project.

### 3. Japan's Grant Aid Scheme

#### (1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the E/N will be signed between the GOJ and the Government of the recipient country to make a plea for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

The consultant firm(s) used for the Survey will be recommended by JICA to the recipient country to also work on the Project's implementation after the E/N and the G/A, in order to maintain technical consistency.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

(4) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex.

(6) "Proper Use"

The Government of recipient country is required to maintain and use the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

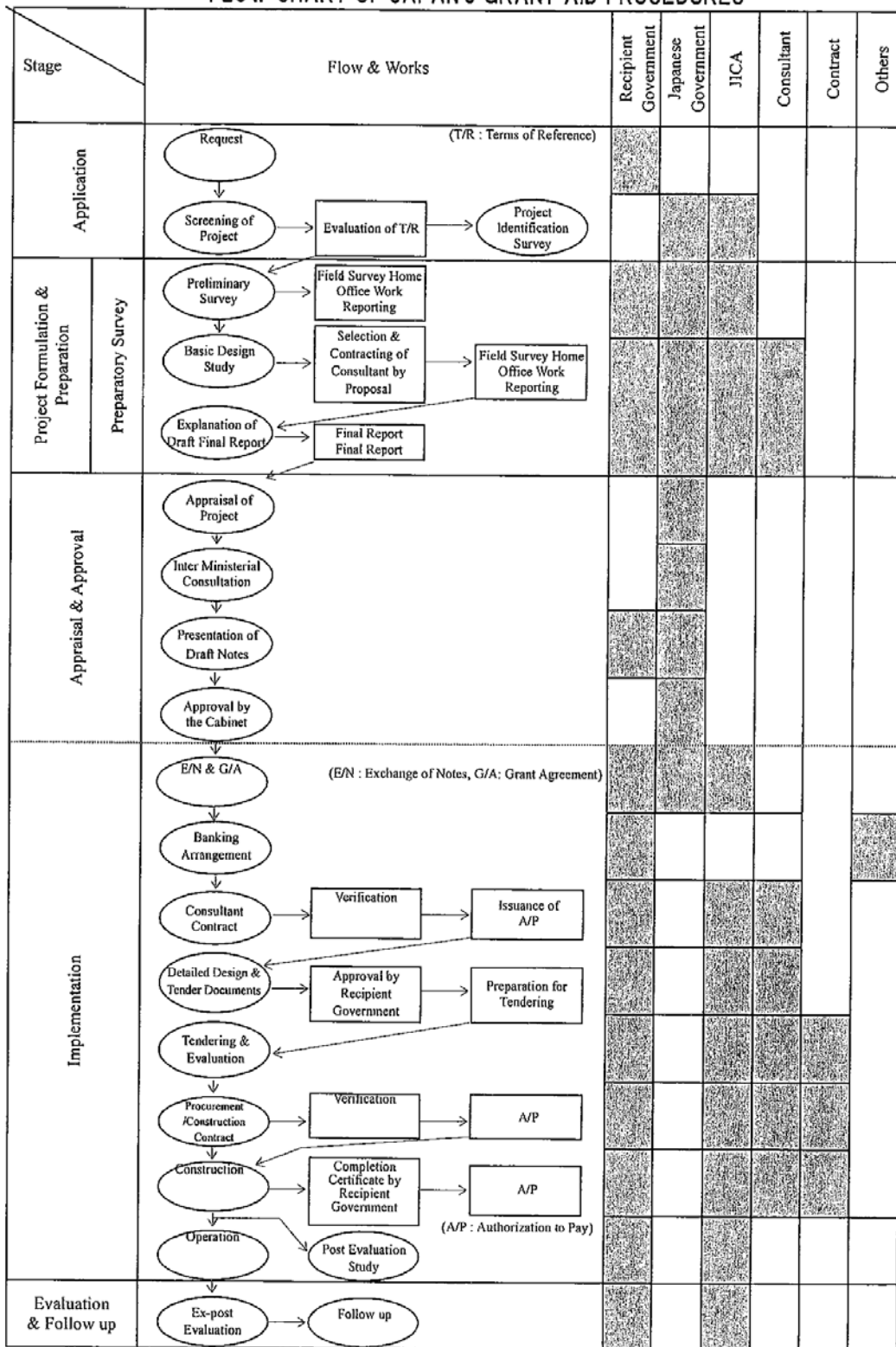
The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

(10) Social and Environmental Considerations

A recipient country must ensure the social and environmental considerations for the Project and must follow the environmental regulation of the recipient country and JICA socio-environmental guidelines.



FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



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## Major Undertakings to be taken by Each Government

NO	Items	To be covered by Grant Aid	To be covered by Recipient side
1	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		●
	2) Water Supply		●
	3) Drainage		●
	4) Furniture and Equipment		●
2	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
3	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine(Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
4	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contract, their entry into the recipient country and stay therein for the performance of their work		●
5	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		●
6	To maintain and use properly and effectively the equipment provided under the Grant Aid		●
7	To bear all the expenses, other than those covered by the Grant Aid, necessary for the Project		●

(2) Explanation of Draft Report

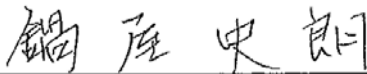
MINUTES OF DISCUSSIONS  
ON THE PREPARATORY SURVEY (BASIC DESIGN)  
ON THE PROJECT FOR THE IMPROVEMENT OF THE MEDICAL EQUIPMENT  
OF THE UNIVERSITY TEACHING HOSPITAL  
IN THE REPUBLIC OF ZAMBIA  
(EXPLANATION ON DRAFT REPORT)

From March to April 2009, the Japan International Cooperation Agency (hereinafter referred to as “JICA”) dispatched a Basic Design Study Team to Zambia on the Project for the Improvement of the Medical Equipment of the University Teaching Hospital (hereinafter referred to as “the Project”), and through discussions, field survey, and technical examination of the results in Japan, JICA prepared a draft report of the study.

In order to explain and to consult with the concerned officials of the Government of Zambia on the components of the draft report, JICA sent to Zambia the Draft Report Explanation Team (hereinafter referred to as “the Team” ), which is headed by Mr. Shiro Nabeya, Chief Representative, JICA Zambia Office, from August 17 to August 25.

As a result of discussions, both sides confirmed the main items described on the attached sheets.

Lusaka, August 21, 2009



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Mr. Shiro Nabeya  
Leader  
Draft Report Explanation Team  
Japan International Cooperation Agency  
Japan



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

## ATTACHMENT

### **1.Components of the Draft Report**

The Zambian side agreed and accepted the components of the draft report explained by the Team.

### **2.Japan's Grant Aid Scheme**

The Zambian side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Zambia as explained by the Team and described in Annex-3 and Annex-4 of the Minutes of Discussions signed by both parties on April 7, 2009.

### **3. Cost Estimation**

Both sides agreed that the Project Cost Estimation, as attached in Annex-3, should never be duplicated or released to any third parties before the signing of all the Contracts for the Project.

The Team explained to the Zambian side that the Project Cost Estimation is provisional and would be further examined by the Government of Japan for the approval of the Grant.

### **4.Schedule of the Study**

JICA will complete the final report in accordance with the confirmed items and send it to the Zambian side around November 2009.

### **5. Confidentiality of the Project**

Both sides confirmed that all information related to the Project including detailed specifications of the equipment and other technical information shall not be released to any outside party before the signing of all the Contract(s) for the Project.

### **6.Other Relevant Issues**

#### 6-1. Project Sites

The Project Sites, which are shown in Annex-1.

#### 6-2. Project Equipment

The both sides agreed to the contents of the medical equipment which will be procured in the Project, which are shown in Annex-2.

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### 6-3. Undertakings of the Zambian Side

The Zambian side agreed to secure and allocate the necessary budget for undertakings to be done on a timely manner, based on the provisional amount shown in the draft report and the attachment of the Minutes, which is shown in Annex-3.

### 6-4. Rehabilitation of the Facilities

The Zambian side reconfirmed that the rehabilitation of the facilities would be undertaken by the Zambian side, and also, confirmed to complete the necessary rehabilitation works of D-Block by the beginning of the rainy season of this year, namely around November 2009.

The details of the contents of the rehabilitation and the work schedule (D-Block, MICU, and A-Block) are shown in Annex-4. The Zambian side explained to the Team that adequate funds are already secured to complete the rehabilitation work of the facilities according to the schedule.

### 6-5. Operation and Maintenance of the Procured Equipment

The Zambian side agreed to secure and allocate enough budget to operate and maintain the procured equipment by the Project, of which financial resources should be part of the self-earned revenue (medical fees from patients) of the UTH or/and of the Operational Grant from the Ministry of Health (hereinafter referred to as "the MoH").

The Zambian side also agreed to promote the effective and appropriate use, and maintenance of the procured equipment focusing on planned preventive maintenance, including the periodical maintenance work after the completion of the Project.

### 6-6. Soft Component Program

Both sides agreed to implement a soft component program of Japan's Grant Aid, regarding maintenance and management system for the medical equipment. The Zambian side agreed to the contents of this program shown in the draft report.

The Zambian side also agreed on the work schedule and the following responsibilities:

- (1) The UTH shall assign members of staff of UTH, also of the MoH, if necessary, who will coordinate the soft component program activities in collaboration with Japanese engineer(s).
- (2) The UTH shall bear necessary expenses for the meetings, workshops, seminars, and training sessions of the soft component program.

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(3) The findings and experiences from the soft component program should be shared among all the departments of the UTH (Not only the participants of the model departments in the soft component program, but also all the staffs of the UTH should be incorporated into this system.).

#### 6-7. Tax Exemption of the Medical Equipment

The Zambian side reconfirmed to exempt the import tax and other relevant taxes of the medical equipment to be procured.

#### 6-8. Prompt Customs Clearance of Medical Equipment

The Zambian side reconfirmed to ensure prompt unloading and customs clearance of the medical equipment to be procured at ports of disembarkation in Zambia, subject to the Zambian Government receiving the shipping documents in reasonable time.

Both sides agreed that the MoH should be responsible for liaising with the other relevant authorities in order to ensure the smooth customs clearance, in case of the delay to the procedure.

#### 6-9. Project Title

Both sides confirmed that the title of the Project has changed to “the Improvement of the Medical Equipment of the University Teaching Hospital” from “the Rehabilitation of the University Teaching Hospital Infrastructure and Replacement of Obsolete Equipment in the Departments of Obstetrics and Gynecology and Pediatrics” from the time of dispatch of the Team.

#### 6-10. Actions of the Zambian Government regarding the Misappropriation of the Public Funds in the Health Sector

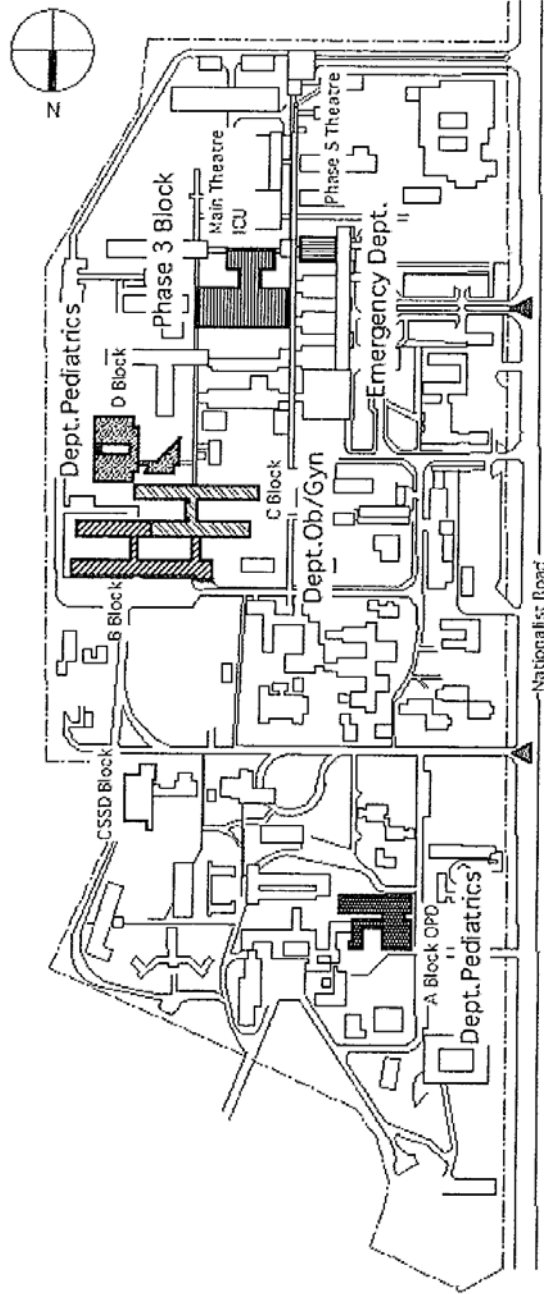
The Team conveyed to the Zambian side that the Japanese Government has expressed deep concern about the matters regarding the misappropriation of the public funds in the health sector, which should be clarified and resolved as soon as possible.

The MoH explained to the Team that the Zambian side has been making a lot of efforts towards the clarification and resolution of the matters and presented some actions and measures, according to the GAP (Governance Action Plan) agreed between the MoH and the Cooperation Partners, which the MoH has been implementing successfully.



- ANNEX 1 Project Site
- ANNEX 2 Project Equipment
- ANNEX 3 Project Cost Estimation
- ANNEX 4 Schedule of the Rehabilitation Work of the Facilities of the Zambian Side

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SITE MAP

UNIVERSITY TEACHING HOSPITAL

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## Project Equipment

Item No.	Description	Quantity
<b>(Main Operation Theater)</b>		
A-1	Anesthesia Machine	2
A-2	Suction Machine, Large	4
A-3	Suction Machine, Medium	4
A-4	Operating Table	2
A-5	Electrosurgical Unit	4
A-6	Autoclave, Medium	2
A-7	Operating Light	4
A-8	Patient Monitor with IBP	3
A-9	Defibrillator	1
A-10	Syringe Pump	2
<b>(Emergency Operation Theater)</b>		
B-1	Anesthesia Machine	3
B-2	Suction Machine, Large	3
B-3	Suction Machine, Medium	3
B-4	Operating Table	3
B-5	Electrosurgical Unit	3
B-6	Operating Light	3
B-7	Patient Monitor	3
B-8	Defibrillator	1
B-9	Syringe Pump	1
<b>(Obstetric &amp; Gynecology Operation Theater)</b>		
C-1	Anesthesia Machine	3
C-2	Suction Machine, Large	3
C-3	Suction Machine, Medium	3
C-4	Operating Table	2
C-5	Electrosurgical Unit	3
C-6	Autoclave, Small	1
C-7	Patient Monitor	3
C-8	Laparoscope	1
C-9	Defibrillator	1
C-10	Syringe Pump	1
C-11	Infant Resuscitation Machine	1
<b>(PICU)</b>		
D-1	Ventilator, Pediatric & Adult	1
D-2	Ventilator, Infant	3
D-3	Patient Monitor	10
D-4	Infusion Pump	5
D-5	Defibrillator, Adult & Pediatric	1
D-6	Suction Machine, Portable	6
D-7	Syringe Pump	3
D-8	X-Ray, Mobile	1
D-9	Ultrasound Machine, Color Doppler	1

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Code	Description	Quantity
(MICU)		
E-1	Ventilator, Pediatric & Adult	9
E-2	Ventilator, Infant	1
E-3	Patient Monitor	10
E-4	Infusion Pump	10
E-5	Defibrillator, Adult & Pediatric	1
E-6	Suction Machine, Medium	8
E-7	ICU bed	10
E-8	Nebulizer	2
(Delivery Room)		
F-1	Ultrasound Machine, OB/GY	1
F-2	Vacuum Extractor	2
F-3	Infant Resuscitation Machine	3
F-4	Delivery Bed	17
F-5	Cardiotocograph (CTG)	3
(Pediatric Operation Theater)		
G-1	Anesthesia Machine	2
G-2	Suction Machine, Large	2
G-3	Suction Machine, Medium	1
G-4	Operating Table	2
G-5	Electrosurgical Unit	2
G-6	Autoclave, Medium	1
G-7	Operating Light	2
G-8	Patient Monitor	1
G-9	Defibrillator	1
(NICU )		
H-1	Ventilator, Infant	3
H-2	Patient Monitor, Infant	4
H-3	Infusion Pump	6
H-4	Ultrasound Machine, Color Doppler	1
H-5	Infant Incubator	18
H-6	X-Ray, Mobile	1
H-7	Bilirubinometer, Transcutaneous	1
H-8	Hematocrit Centrifuge	1
H-9	Phototherapy Machine	4
H-10	Autoclave, Table Top	1
H-11	Laryngoscope, Neonatal	6
H-12	Suction unit, Portable	3
H-13	Infant Resuscitation Machine	3

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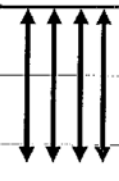
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Schedule of the Rehabilitation Work (D block)

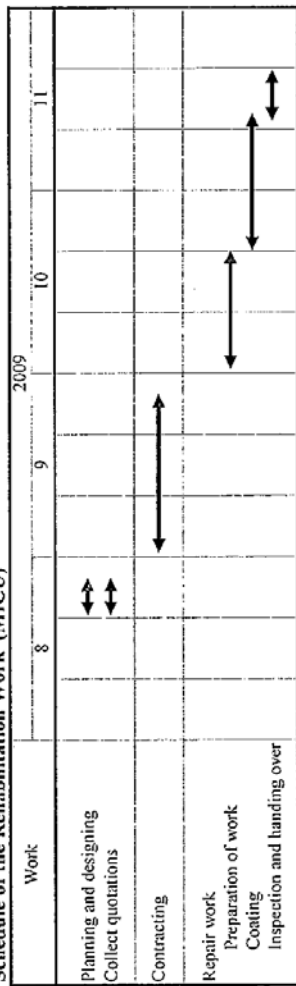
Work	Qty / Labour	Cost (K)	2009							
			8	9	10	11				
Planning and designing	1 person x 1 week	-	Completed							
Purchasing work										
Brick	4,000 pcs.	149,290,000	Completed							
Cement	170,000 bags (50kg)	14,000,000	Completed							
Building sand	30 t	10,200,000	Completed							
Brick force wire	300 m	2,700,000	Completed							
Iron sheet	various size	750,000	Completed							
Timber	various size	89,290,000	Completed							
Roofing nails	various size	21,400,000	Completed							
Delivery of material										
Brick	4,000 pcs.	-	↕							
Cement	170,000 bags (50kg)	-	↕							
Building sand	30 t	-	↕							
Brick force wire	300 m	-	↕							
Iron sheet	various size	-	↕							
Timber	various size	-	↕							
Roofing nails	various size	-	↕							
Repair work										
Brick layer	4 persons	-								
General worker	6 persons	-								
Carpenter	6 persons	-								
General worker	3 persons	-								
Supervisor	3 persons	-								
Interior rehabilitation										
Painter	6 persons	-								
Carpenter	4 persons	-								
General worker	2 persons	-								
Supervisor	3 persons	-								

Financial resources : UTH

Labour : UTH and part time worker

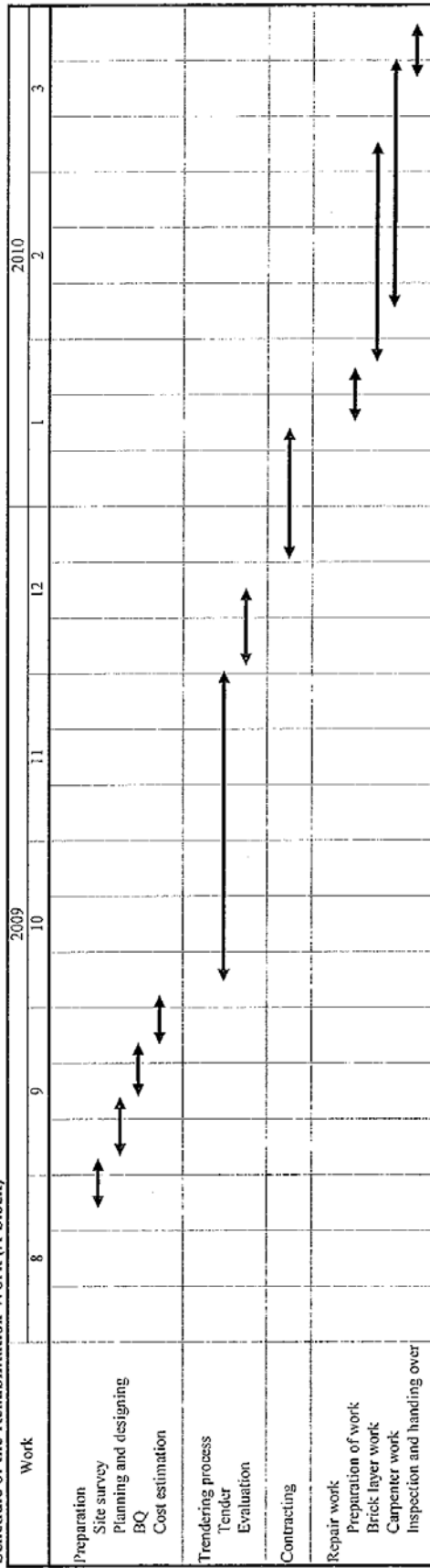


Schedule of the Rehabilitation Work (MICU)



Financial resources : UTH  
Labour : To be contracted

Schedule of the Rehabilitation Work (A block)



Financial resources : Mohi and UTH  
Work schedule : This work schedule is subject to alteration, because Ministry of Works and Supplies is responsible for the procedure of this rehabilitation work.  
Labour : To be contracted

**5. Soft Component (Technical Assistance) Plan**

**PREPARATORY SURVEY (BASIC DESIGN) ON  
THE PROJECT FOR THE IMPROVEMENT  
OF THE MEDICAL EQUIPMENT  
OF THE UNIVERSITY TEACHING HOSPITAL  
IN THE REPUBLIC OF ZAMBIA**

**SOFT COMPONENT (TECHNICAL ASSISTANCE) PLAN  
“ASSISTANCE FOR THE ENHANCEMENT  
OF THE MAINTAINANCE AND MANAGEMENT  
OF MEDICAL EQUIPMENT”**

**FUJITA PLANNING CO., LTD.**



## **(1) Background**

The Project for the Improvement of the medical equipment of the University Teaching Hospital in the Republic of Zambia is planning to procure the medical equipment for the University Teaching Hospital (hereinafter referred to as “UTH”) in order to improve and revitalize its clinical services through the replacement of the deteriorated medical equipment and addition of new equipment.

At the UTH, six (6) engineers working in the Biomedical Engineering Department (hereinafter referred to as “BME”) are in charge of the maintenance and management of the medical equipment. The task of the BME is to keep an inventory of the newly-procured equipment and to maintain and manage the existing medical equipment in an adequate manner. While the inventory and daily work records are kept in files for management, there is no adequate organisation, compilation or updating of procurement methods for supplies and spare parts relating to the operation of the equipment, nor of information on the equipment suppliers and after-sales service providers. Moreover, the BME has not been fully able to perform the duties required of it, such as giving users instructions on the handling and operation of the equipment, and training and encouraging them to carry out maintenance and inspection of the equipment by themselves.

If the procedures and methods relating to maintenance and management are complicated, it will be difficult to integrate them as a system and as a result, these procedures and methods will not be practiced over an extended period of time. Also, valuable information and methods provided to enable appropriate maintenance and management cannot be used effectively unless they are shared by the parties concerned. To improve this kind of situation that is often observed at the UTH, it is necessary to introduce an approach that will change the mindset of the BME engineers and users of the equipment and improve the workplace environment, thereby encouraging them to endeavour to maintain and manage the medical equipment appropriately. In this respect, utilization of the soft component by Japanese engineers will be significant in ensuring that the medical equipment to be procured by means of the Grant Aid will be used for an extended period of time and in supporting the smooth start-up of the Project.

## **(2) Goals**

This Soft Component aims to change the mindset of the hospital management staffs, BEM engineers and users of medical equipment and to improve the workplace environment, thereby encouraging them to endeavour to maintain and manage the medical equipment appropriately. More specifically, the goal is to enable the BME engineers and users of medical equipment, as well as the hospital management, to share the same perspective in recognising the necessity and importance of the maintenance and management of the medical equipment and in understanding that planned preventive maintenance and the use of equipment management logs will lead to the establishment of appropriate maintenance and management practices.

### (3) Outputs

It is expected that the equipment management logs and planned preventive maintenance manuals will be prepared and introduced as tools to be used for maintenance and management of the medical equipment. At the same time, a medical equipment maintenance and management system (personnel and structure) will be established to facilitate and reinforce maintenance and management.

### (4) How the Outputs of the Soft Component are to be Measured

Table 1 shows the outputs of the soft component and the indices to verify their achievement.

**Table 1 Indices to Measure the Outputs of the Soft Component**

Outputs	Indices of Achievement
Documentation	<ol style="list-style-type: none"> <li>1. Medical equipment management logs (Draft)</li> <li>2. Planned Preventive Maintenance (PPM) manuals related to the main equipment for equipment users (Draft)</li> <li>3. Flow-charts (Flow of chain of command) Draft               <ul style="list-style-type: none"> <li>- Information flow related to equipment operation</li> <li>- Procurement procedures and flow related to consumable supplies and spare parts for the medical equipment</li> <li>- Medical equipment troubleshooting / repair flow</li> </ul> </li> </ol>
Establishment of Structure and Organization	<ol style="list-style-type: none"> <li>1. Personnel specifically assigned to be in charge of equipment management.</li> <li>2. Well-designed information flow regarding the medical equipment (ex; from maintenance technicians to equipment users)</li> <li>3. Personnel from among equipment users specifically assigned to be in charge of PPM (Planned Preventive Maintenance)</li> <li>4. Procurement procedures and flow related to supplies and spare parts for the medical equipment</li> <li>5. Medical equipment troubleshooting / repair flow</li> <li>6. Final versions of the medical equipment management logs and PPM manuals</li> </ol>

### (5) Activity Plan

In this soft component programme, it is planned to introduce the 5S movement that consists of *Seiri* (Sort), *Seiton* (Set), *Seiso* (Shine), *Seiketsu* (Standardize) and *Shitsuke* (Sustain) as a means to achieve the goals. The 5S movement should be introduced in order to change the mindset of the staffs of UTH and improve their environment, and apply to the improvement of the maintenance system of the medical equipment. Firstly, on the basis of an understanding of their situation gained through workshops and the results of the research and analysis to identify potential non-monetary incentives in the culture and social environment of UTH in Zambia, we promote to put into practice a comfortable working environment. Secondly, we set the concept and the target of 5S, then organize a 5S Committee and select a model department (from among the intensive care units and operating rooms planning to procure equipment) to promote the 5S movement and formulate plans for Sort (*Seiri*), Set (*Seiton*) and Shine (*Seiso*) and carry out activities according to the plans. User maintenance and inspection manuals and equipment management logs should be

developed for the main equipment, and seminars and lecture meetings should be held to promote their use as part of the activities. The target group will consist of the BME engineers and users of equipment working for the selected model department. The aim is to strengthen the comprehensive medical equipment maintenance and management system by 1) improving the filing system for the management of medical equipment information and daily operational records, 2) improving the equipment user's knowledge about operation of the equipment and promoting integrated maintenance and management by the user, and 3) establishing and consolidating a system that will enable the uninterrupted procurement of the reagents, consumable supplies and spare parts needed for the operation of the medical equipment.

### **1) Conducting a Workshop (First Stage)**

The facility head, the person responsible for equipment management, BME engineers engaged in equipment maintenance, technicians engaged in infrastructure maintenance, doctors, laboratory technicians, chief nurses and those responsible for the procurement of medical supplies should be encouraged to participate in the workshop so that a wide range of opinions can be collected. The workshop should be conducted in a participative manner with prior preparation, allowing the participants to analyze the actions and inputs necessary to obtain the desired outcome. Measures for the organizational improvement of the maintenance and management of the medical equipment should be clearly defined on the basis of the results of the workshop.

Table 2 shows an example of the Project Design Matrix (PDM) of the soft component, which should preferably be derived from the workshop. The soft component is regarded as an activity that contributes indirectly to the achievement of the purpose of this Project, which is "the improvement and expansion of the fundamental medical services of the UTH".

Following the workshop, work should be started on creating the outline of the system and outputs by combining the elements obtained in the workshop. This outline will form the basis of the user's manual for equipment maintenance and management of the main equipment and of the equipment management log format, to be provided by the consultants and BME engineers. At the first stage, the seminar how to use and operate the user's manual for equipment maintenance (draft) and log format (draft) will be conducted. After the installation of the procured equipment, we guide that the manual and the format will introduce and use immediately.

**Table 2 Design Matrix that might be derived from the Workshop**

Outline of the Activities	Indices of Achievement	Important Assumptions
<p><b>[Overall Goal]</b></p> <p>Proper maintenance and management of the medical equipment procured in this Project.</p>	<ul style="list-style-type: none"> <li>- Reduction in the number of breakdowns</li> <li>- Shorter period from breakdown to restoration</li> </ul>	<p>Prevention of accidents caused by human error (not by acts of God). →Through implementation of safety management</p>
<p><b>[Objectives]</b></p> <ul style="list-style-type: none"> <li>- Understanding by equipment users of the concept and methods of planned preventive maintenance as well as the usefulness of the equipment management logs and how to use them.</li> <li>- Recognition by the hospital management and BME engineers of the necessity and importance of the maintenance and management of the medical equipment.</li> </ul>	<p>➤ When conducting a workshop or seminar, the agenda should be set in such a way that will lead to a change in the mindset of the people and help confirm that a change of mindset has been achieved. Arrangements should be made for the preparation of the minutes, which should be reviewed carefully.</p>	<p>There will be uninterrupted procurement of supplies and spare parts needed for equipment operation. →Collection and updating of appropriate information →Securing and provision of budget for uninterrupted procurement</p>
<p><b>[Outputs]</b></p> <p>(1) Clear definition of personnel in charge of managing each piece of equipment.</p> <ul style="list-style-type: none"> <li>- Everyone knows clearly who is responsible for the equipment.</li> <li>- If the person responsible is absent, everyone knows who takes over his/her responsibilities</li> </ul> <p>(2) Establishment of a workflow and chain of command with regard to the practice of Planned Preventive Maintenance (PPM).</p> <ul style="list-style-type: none"> <li>- PPM are easier to carry out</li> <li>- Check points and frequency of the PPM are clearly defined.</li> <li>- Everyone knows who is responsible for PPM.</li> <li>- If the person responsible is absent, everyone knows who takes over his/her responsibilities.</li> <li>- Information on medical equipment is shared among medical staff and maintenance staff.</li> </ul> <p>(3) Preparation of a well-designed maintenance management log for each item of equipment.</p> <ul style="list-style-type: none"> <li>- The log is so designed that it is easy to find out who used which piece of equipment, when and for how long.</li> <li>- The log is so designed that it is easy to find out which piece of equipment failed, when and how.</li> </ul>	<p>(1) All the staffs know clearly who is responsible for equipment management.</p> <p>(2) Planned preventive maintenance manuals will be developed. The inspection time will be shortened. The inspection ratio will increase. A system will be established to promote the sharing of equipment-related information.</p> <p>(3) Equipment use status is known to everyone. The person responsible for equipment management is able to grasp the situation immediately after the breakdown of an item of equipment.</p>	<p>Personnel in charge of equipment management and personnel in charge of PPM (and their stand-ins) do not leave their duties at the same time. →Recognition of collaborative work</p>
<p><b>[Actions needed to achieve desired outputs]</b></p> <p>To be identified from the workshop</p>		<p><b>[Personnel/materials input by UTH]</b></p> <p>To be identified from the workshop</p>

## **2) Conducting a Seminar (Second Stage)**

The maintenance and inspection manual for the main equipment and the equipment management log to be prepared by the consultants and BME engineers on the basis of the outline determined in the workshop will be put forward, and an explanation given on the items described in them and how they should be used.

The target group is the equipment users working in the model department selected in the workshop, which is the first stage of the program. What is most important about this seminar is that the participants should be made to understand that it is necessary for all the equipment users in the model department to be incorporated into this system and that laziness at work will significantly affect the effectiveness of the whole system. Therefore, emphasis should be placed on the creation of a system that the selected model department will be able to operate without problem and on ensuring that everyone in the department understands the operating methods.

The second stage of the Soft Component Programme is planned to be carried out approx six (6) months later after installation of the equipment in order to monitor the activities after the first stage of soft component. Training of the equipment users in the maintenance and inspection of the main equipment should be given by the BME engineers, acting as instructors.

It goes without saying that medical equipment, being as it is comprised of mainly metal materials, has a limited lifespan. The key point in the maintenance and management of medical equipment is how to extend the period of operability as far as possible to its natural lifespan, bearing this in mind. What is most important is to ensure that the equipment is operated in a way that is appropriate to its function. For this purpose, it is essential for the user to fully understand how to use each piece of equipment. The soft component program in this Project will not be effective unless the UTH fulfils this condition.

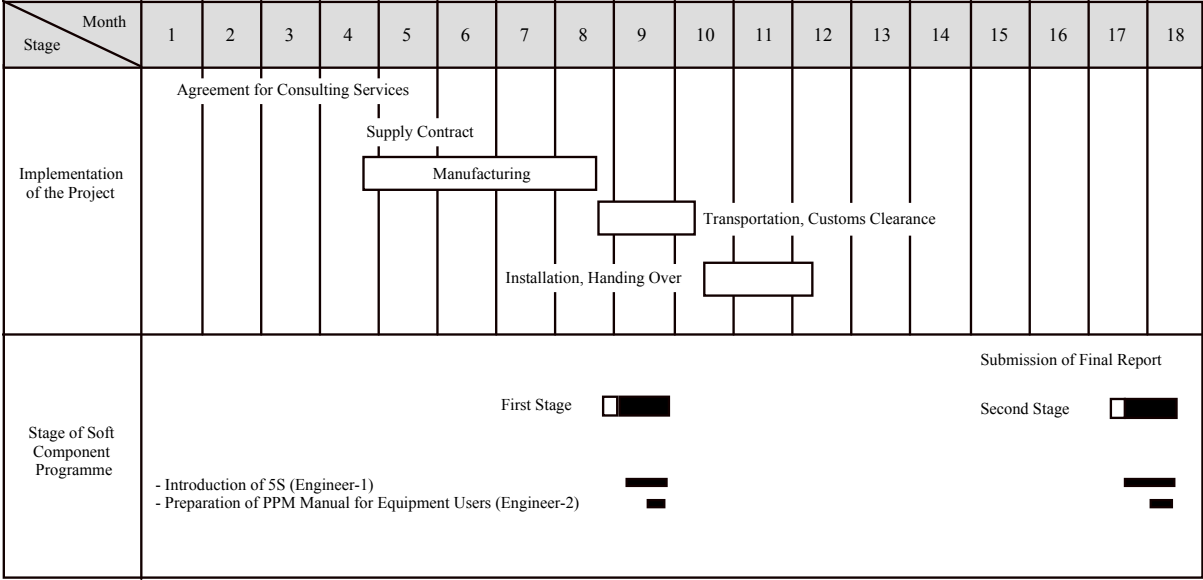
## **(6) Resources for Soft Component**

In order to conduct the seminar centering on 5S movement, the person who has enough finding and understanding, and also who recognizes the circumstances local to which it should improve it is the best for the resource. The program should be implemented with the direct support of the Japanese consultants because the Japanese consultants know the environment of workplace of UTH and understand the 5S movement of Japan.

## **(7) Work Schedule**

Two engineers should be involved. The workload should be determined in accordance with the local employment system of working eight (8) hours a day, five (5) days a week. The schedule of the first and second stage programmes should roughly be as follows: The first stage programme should be implemented after the tender and before the installation of the equipment in

the facility, and the second stage programme should be implemented approx six (6) months later after installation of the equipment. Each stage of the program should cover a period of about one (1) month each and should be carried out within the UTH.



□ Works in Japan    ■ Works in Zambia

**Figure 1 Work Schedule of the Soft Component Programme**

1) Work Schedule on the First Stage

The work schedule of the first stage is as following table:

**Table 3 Work Schedule of the First Stage**

Plan of Activities		Schedule (Weekly)				
		1st W	2nd W	3rd W	4th W	5th W
1	Kick off the 5S Seminar	■				
2	Establishment of 5S Committee (Confirm the TOR of the Committee)	■				
3	Conduct Seminar for the Implementation Group (Selection of Pilot Clinical Depts, and explain the 5S Implementation)		■			
4	S1: [Sort] Planning 1) Preparation of ME maintenance manual 2) Establishment of Rules for Equipment Allocation & Disposal 3) Establishment of Storing Rules for consumables and S/P Storing		■			
5	[Sort] Implementation 1) Take photos, check the current situation 2) Selection of the Goods and Equipment, necessary or unnecessary 3) Arrangement of Storing Volume of the Goods		■	■		
6	S2: [Set] Planning 1) Make rules regarding the keeping places by type of equipment 2) Make filing systems for the equipment manuals 3) Establishment of rules for Equipment		■			
7	[Set] Implementation 1) Take photos, check the current situation 2) Fix the equipment storing place 3) Implement the equipment manual filing 4) Check the access road			■		
8	S3: [Shine] Planning 1) Prepare Users Maintenance Manual for the equipment 2) Establishment of monitoring systems for Users maintenance activities			■	■	
9	[Shine] Implementation 1) Take photos, check the current situation 2) Conduct the cleaning of the equipment by users 3) Conduct the seminar for equipment users regarding user maintenance 4) Conduct monitoring of the user maintenance activities				■	■

■ Japanese Engineer for 5S Activities  
 ■ Japanese Engineer for preparation of users maintenance manuals

2) Work Schedule on the Second Stage

The work schedule of the second stage is as following table:

**Table 4 Work Schedule of the Second Stage**

Plan of Activities		Schedule (Weekly)				
		1st W	2nd W	3rd W	4th W	5th W
10	Confirm the 1st stage activities and explain the "Standardize" and "Sustain" - Discussions with 5S Committee - Conduct Seminar regarding "Standardize" and "Sustain"	■				
11	Review of the 1st stage activities - Problem analysis - Preparation of Check list for 3S - Make rules for 3S check procedures	■				
12	S4: [Standardize] Planning - Review of rules - Review of related manuals		■			
13	[Standardize] Impelmentation - Take photos, check current situation - Conduct seminar for users maintenance activities seminar, and arrange "standardize"		■	■		
14	Conduct 3S (Sort, Set and Shine) based on review meetings - Sort: relocation of equipment - Set: review of the equipment storing palce - Shine: monitoring the users maintenace activities			■	■	
15	S5: [Sustation] Planning Establishment rules for regular seminar and training regarding the users maintenance activities				■	
16	[Sustaion] Impelmentation - Conduct regular training - Conduct TOT				■	

■ Japanese Engineer for 5S Activities  
 ■ Japanese Engineer for preparation of users maintenance manuals

**(8) Results (Findings) from the Soft Component Programme**

**1) First Stage**

- Workshop Report (names of participants, all elements achieved during the workshop and how they were achieved, etc)
- Report of requests/proposals and draft system charts (report on decisions made and on the outline prepared in the workshop)
- Draft maintenance and inspection manual for equipment users concerning the main equipment to be procured
- Draft equipment management log

**2) Second Stage**

- Outline of the maintenance and management system (a document that explains the system through a description of the maintenance and management organization, system chart, flow of



goods and information, rules, etc.)

- Maintenance and inspection manuals for main equipment
- Equipment management logs (format in which to enter the information on daily and regular inspections, and log summarizing such information)

**(9) Responsibilities of the Projects' Implementation Unit**

**(UTH as well as Ministry of Health of Zambia Concerned)**

The UTH shall assign members of staff of UTH, also of the Ministry of Health of Zambia, if necessary, who will coordinate the soft component program activities in collaboration with Japanese engineer(s). The UTH shall bear necessary expenses for the meetings, workshops, seminars, and training sessions of the soft component program.

## 6. Other Relevant Data

(Examination Procedures of the Equipment Plan)

### Criteria of the Equipment Selection

- (A) Sufficient number of target patients.
- (B) No overlapping of equipment, e.g., the same equipment is not currently owned and separate procurement is not planned.
- (C) Availability of medical staff to operate the equipment.
- (D) Sufficient capacity to maintain and manage the equipment for operation (within the hospital or outsourced from an agent).
- (E) Availability of the budget needed to operate, maintain and manage the equipment.
- (F) Equipment of a technological level appropriate for the achievement of the objectives (The equipment is not advanced medical equipment).
- (G) No rainwater leakage in the area where the equipment is to be installed.
- (H) An appropriate operational environment in the area where the equipment is to be installed.
  - (a) Temperature, humidity, ventilation, availability of air-conditioning
  - (b) Electricity supply, water supply and drainage, supply of medical gas
  - (c) Others
- (I) If the planned installation area is inappropriate because it does not fulfil conditions (G) and/or (H), such renovation works should be completed before the equipment installation by the Project.

Code No. (Preliminary)	Item No. (Basic Design)	Equipment	Place	Preliminary Study			Criteria of Equipment Selection										Planning			Replace of Previous Grant Aid		
				Total	Priority			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	Result	Basic Design	R		A	N
					A	B	C															
(Operating Room)																						
Place: 1 - Main Operating Rooms, 2 - Emergency Rooms, 3 - Paediatrics Operating Rooms, 4 - Obstetrics & Gynaecology Operating Rooms																						
A-1	A-1	Anaesthesia Machine	1				o	o	o	o	o	o	o	o	o	2	2	-	-			
	B-1		2				o	o	o	o	o	o	o	o	o	3	3	-	-			
	G-1		3	5	4	4	o	o	o	o	o	o	o	o	o	2	2	-	-			
	C-1		4				o	o	o	o	o	o	o	o	o	3	3	-	-			
		<b>Sub Total</b>	<b>13</b>	<b>5</b>	<b>4</b>	<b>4</b>									<b>10</b>	<b>10</b>	-	-				
A-3	A-2	Suction Machine, Large	1				o	o	o	o	o	o	o	o	o	4	4	-	-			
	B-2		2				o	o	o	o	o	o	o	o	o	3	3	-	-			
	G-2		3				o	o	o	o	o	o	o	o	o	2	2	-	-			
	C-2		4				o	o	o	o	o	o	o	o	o	3	3	-	-			
	A-3		1	18	8	8	o	o	o	o	o	o	o	o	o	4	1	3	-			
	B-3		2				o	o	o	o	o	o	o	o	o	3	1	2	-			
	G-3		3				o	o	o	o	o	o	o	o	o	1	-	1	-			
	C-3		4				o	o	o	o	o	o	o	o	o	3	-	3	-			
		<b>Sub Total</b>	<b>34</b>	<b>18</b>	<b>8</b>	<b>8</b>									<b>23</b>	<b>11</b>	<b>12</b>	-				
A-4	A-4	Operating Table	1				o	o	o	o	o	o	o	o	o	2	2	-	-			
	B-4		2				o	o	o	o	o	o	o	o	3	3	-	-				
	G-4		3	7	4	4	o	o	o	o	o	o	o	o	2	2	-	-				
	C-4		4				o	o	o	o	o	o	o	o	2	2	-	-				
		<b>Sub Total</b>	<b>15</b>	<b>7</b>	<b>4</b>	<b>4</b>									<b>9</b>	<b>9</b>	-	-				
A-5	A-5	Electrosurgical Unit	1				o	o	o	o	o	o	o	o	o	4	4	-	-			
	B-5		2				o	o	o	o	o	o	o	o	3	2	1	-				
	G-5		3	7	4	6	o	o	o	o	o	o	o	o	2	2	-	-				
	C-5		4				o	o	o	o	o	o	o	o	3	-	3	-				
		<b>Sub Total</b>	<b>17</b>	<b>7</b>	<b>4</b>	<b>6</b>									<b>12</b>	<b>8</b>	<b>4</b>	-				
A-6	A-6	Autoclave, Medium	1				o	o	o	o	o	o	o	o	o	2	1	1	-			
	-		2				o	o	x	o	o	o	o	o	-	-	-	-				
	G-6		3	4	0	0	o	o	o	o	o	o	o	o	1	1	-	-				
	C-6		4				o	o	o	o	o	o	o	o	1	-	1	-				
		<b>Sub Total</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>0</b>									<b>4</b>	<b>2</b>	<b>2</b>	-				
A-7	A-7	Operating Light	1				o	o	o	o	o	o	o	o	o	4	4	-	-			
	B-7		2				o	o	o	o	o	o	o	o	3	3	-	-				
	G-7		3	9	4	4	o	o	o	o	o	o	o	o	2	2	-	-				
	-		4				o	x	o	o	o	o	o	o	-	-	-	-				
		<b>Sub Total</b>	<b>17</b>	<b>9</b>	<b>4</b>	<b>4</b>									<b>9</b>	<b>9</b>	-	-				

Code No. (Preliminary)	Item No. (Basic Design)	Equipment	Place	Preliminary Study			Criteria of Equipment Selection										Basic Design	Planning			Replace of Previous Grant Aid	
				Total	Priority			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)		Result	R	A		N
					A	B	C															
(Operating Room)																						
Place : 1 - Main Operating Room, 2 - Emergency Operating Room, 3 - Paediatrics Operating Room, 4 - Obstetrics & Gynaecology Operating Room																						
-	B-7	Patient Monitor	2																3			
	G-8		3	7	4	4														1		
	C-7		4	15																3		
	A-8		1																	3		
		<b>Sub Total</b>	<b>15</b>	<b>7</b>	<b>4</b>	<b>4</b>													<b>10</b>	<b>4</b>	<b>6</b>	
	A-9	1																	1			
	B-8	2																	1			
	G-9	3																	1			
	C-9	4																	1			
		<b>Sub Total</b>																	<b>4</b>	<b>2</b>	<b>2</b>	
	A-10	1																	2			
	B-9	2																	1			
	-	3																				
	C-10	4																	1			
		<b>Sub Total</b>																	<b>4</b>	<b>2</b>	<b>2</b>	
	C-11	4																	1			
	C-7	4																	1			
	C-8	4																	1			
	-	4																	0			
(MICU & PICU)																						
Place: 1 - MICU, 2 - PICU																						
B-1 (1-1)	E-1	Ventilator, Adult & Paediatrics	1																9			
	D-1		2	16	9	4	3												1			
		<b>Sub Total</b>	<b>16</b>	<b>9</b>	<b>4</b>	<b>3</b>													<b>10</b>	<b>10</b>		
B-1 (1-2)	E-2	Ventilator, Infant	1																1			
	D-2		2	2	1	1	0															
		<b>Sub Total</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>													<b>4</b>	<b>2</b>		
B-1 (2&3)	E-3	Patient Monitor	1																10			
	D-3		2	20	20	0	0												10			
		<b>Sub Total</b>	<b>20</b>	<b>20</b>	<b>0</b>	<b>0</b>													<b>20</b>	<b>15</b>		
B-1 (4)	E-4	Infusion Pump	1																10			
	D-4		2	20	20	0	0												5			
		<b>Sub Total</b>	<b>20</b>	<b>20</b>	<b>0</b>	<b>0</b>													<b>15</b>	<b>15</b>		

Code No. (Preliminary)	Item No. (Basic Design)	Equipment	Place	Preliminary Study			Criteria of Equipment Selection										Planning			Replace of Previous Grant Aid
				Total	A	B	C	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	Result	Basic Design	R	
(MICU & PICU)																				
Place : 1 - MICU, 2 - PICU																				
B-1 (5-1)	-	Defibrillator, Adult	-	2	2	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
B-1 (5-2)	-	Defibrillator, Paediatric	-	1	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
-	E-5	Defibrillator, Adult & Paediatric	1	-	-	-	-	0	0	0	0	0	0	0	0	0	0	1	1	-
-	D-5		2	-	-	-	-	0	0	0	0	0	0	0	0	0	0	1	1	-
		<b>Sub Total</b>		<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>											<b>2</b>	<b>2</b>	-
B-1 (6)	E-6	Suction Machine, Medium	1	16	16	0	0	0	0	0	0	0	0	0	0	0	0	8	5	3
	D-6	Suction Machine, Portable	2					0	0	0	0	0	0	0	0	0	0	6	3	3
		<b>Sub Total</b>		<b>16</b>	<b>16</b>	<b>0</b>	<b>0</b>											<b>14</b>	<b>8</b>	<b>6</b>
B-2	-	Blood Gas Analyzer	1,2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B-3	D-7	Syringe Pump	2	10	3	1	6	0	0	0	0	0	0	0	0	0	0	3	-	3
B-4	-	Phototherapy Machine	2	4	1	1	2	0	0	0	0	0	0	0	0	0	0	0	-	-
B-5	-	Bilirubinometer, Transcutaneous	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-
B-6	-	Haematocrit Centrifuge	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-
B-7	-	Oxygen Tent	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-
B-8	D-8	X-Ray, Mobile	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	-	1
B-9	-	Infant Incubator	2	5	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	-
B-10	-	Infant Incubator, Transport	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-
B-11	-	Autoclave, Table Top	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
B-12	-	Autoclave, Medium	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
-	D-9	Ultrasound Machine, Color Doppl	2	-	-	-	-	0	0	0	0	0	0	0	0	0	0	1	-	1
-	E-7	ICU Bed	1	-	-	-	-	0	0	0	0	0	0	0	0	0	0	10	10	-
-	E-8	Nebulizer	1	-	-	-	-	0	0	0	0	0	0	0	0	0	0	2	1	1
(Delivery Room)																				
C-1	F-1	Ultrasound Machine	-	2	0	1	1	0	0	0	0	0	0	0	0	0	0	1	-	1
C-2	F-2	Vacuum Extractor	-	5	3	1	1	0	0	0	0	0	0	0	0	0	0	2	1	1
C-3	F-3	Infant Resuscitation Machine	-	5	3	1	1	0	0	0	0	0	0	0	0	0	0	3	2	1
C-4	-	Infant Incubator	-	7	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	-
C-5	F-4	Delivery Bed	-	10	10	0	0	0	0	0	0	0	0	0	0	0	0	17	17	-
C-6	F-5	Cardiotocograph (CTG)	-	4	3	0	1	0	0	0	0	0	0	0	0	0	0	3	1	2
(NICU)																				
D-1	H-1	Ventilator, Infant	-	6	5	0	1	0	0	0	0	0	0	0	0	0	0	3	2	1
D-4	H-2	Patient Monitor	-	5	5	0	0	0	0	0	0	0	0	0	0	0	0	4	-	4
D-5	-	Blood Gas Analyzer	-	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-
D-9	-	Electrolyte Analyzer	-	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-

Code No. (Preliminary)	Item No. (Basic Design)	Equipment	Place	Preliminary Study			Criteria of Equipment Selection										Basic Design	Planning			Replace of Previous Grant Aid		
				Total	A	B	C	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)		Result	R	A		N	
(NICU)																							
D-6	H-3	Infusion Pump	-	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	-	-	-
D-7	H-4	Ultrasound Machine, Color Doppl	-	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	-	-	1
D-8	-	X-Ray Film Marker	-	1	0	1	0	x	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
D-10	-	Infant Incubator, Transport	-	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
D-11	H-5	Infant Incubator	-	18	8	2	8	0	0	0	0	0	0	0	0	0	0	0	18	18	-	-	18
D-12	H-6	X-Ray, Mobile	-	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	-	-	1
D-13	H-7	Bilirubinometer, Transcutaneous	-	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	-	-	-
D-14	H-8	Haematocrit Centrifuge	-	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	-	-	-
D-15	H-9	Phototherapy Machine	-	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	2	2	-	-
D-16	-	Syringe Pump	-	20	0	2	18	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
D-17	H-10	Autoclave, Table Top	-	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	-	-	-
D-18	H-11	Laryngoscope, Neonatal	-	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3	3	-	-
-	H-12	Suction Machine, Portable	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	3	3	-	-	-
-	H-13	Infant Resuscitation Machine	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	3	2	1	-	-
(Laundry)																							
F-1	-	Washer Extractor	-	1	0	0	1	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-
F-2	-	Tumble Dryer	-	1	0	0	1	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-
F-3	-	Laundry Press	-	2	2	0	0	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-
F-4	-	Roll Ironer	-	1	1	0	0	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-

R: Replacement of existing Equipment, A: Additional procurement, NW: Newly introduced in the department. N: Procurement as a newly introduced in the department Replace of Previous Grant Aid: Replacement of the existing old equipment items which were procured by the previous grant aid assistance from Japan.

## 7. References

No.	Description	Format	Original Copy	Organization of Publication	Date
1	Zambia Demographic and Health Survey 2007	Document	Copy	Ministry of Health	February 2009
2	Report of the MID Term Review of the Zambia National Health Strategic Plan, NHSP IV, 2006-2010	Document	Copy	Ministry of Health	November 2008
3	Health Sector Joint Annual Review Report 2007	Document	Copy	Ministry of Health	2007
4	Ministry of Health, 2005 Annual Report	Document	Copy	Ministry of Health	September 2006

