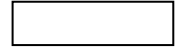


MINISTRY OF PUBLIC HEALTH  
THE REPUBLIC OF YEMEN



**BASIC DESIGN STUDY REPORT  
ON  
THE PROJECT FOR IMPROVEMENT OF MEDICAL  
EQUIPMENT IN HOSPITALS  
FOR  
MATERNAL AND CHILD HEALTH CARE  
IN  
THE REPUBLIC OF YEMEN**

**JANUARY, 2000**

**JAPAN INTERNATIONAL COOPERATION AGENCY  
INTERNATIONAL TECHNO CENTER CO., LTD.**

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## PREFACE

In response to a request from the Government of Yemen, the Government of Japan decided to conduct a basic design study on the Project for Improvement of Medical Equipment in Hospitals for Maternal and Child Health Care in the Republic of Yemen and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Yemen a study team from June 15 to July 23, 1999.

The team held discussions with the officials concerned of the Government of Yemen, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Yemen in order to discuss a draft basic design, and as this result, the present report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of Yemen for their close cooperation extended to the teams.

January, 2000

A handwritten signature in black ink, reading "Kimio Fujita". The signature is written in a cursive style with a long horizontal stroke at the end.

Kimio Fujita  
President  
Japan International Cooperation Agency

January, 2000

### Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Improvement of Medical Equipment in Hospitals for Maternal and Child Health Care in the Republic of Yemen.

This study was conducted by International Techno Center Co., Ltd., under a contract to JICA, during the period from June 4, 1999 to February 14, 2000. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of the Republic of Yemen and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,

Handwritten signature in black ink, consisting of three characters: 野崎保 (Nozaki Tamotsu).

Tamotsu Nozaki  
Project Manager,  
Basic design study team on the Project for  
Improvement of Medical Equipment in  
Hospitals for Maternal and Child Health  
Care in the Republic of Yemen  
International Techno Center Co., Ltd.

# REPUBLIC OF YEMEN



## Abbreviations

FFDP	First Five Year National Development Plan (1996 ~ 2000)
HDPS	Health Development Policies and Strategies (1996 ~ 2000)
MoPH	Ministry of Public Health
PHC	Primary Health Care
CSSD	Central Supply Sterilization Department
MCH	Maternal and Child Health
GHO	Governorate Health Office
UNFPA	United Nations Population Fund
E/N	Exchange of Notes
B/A	Banking Arrangement
A/P	Authorization to Pay
Governorate	Yemen is divided into province areas called Governorate

**BASIC DESIGN STUDY ON THE PROJECT  
FOR  
THE IMPROVEMENT OF MEDICAL EQUIPMENT FOR IN HOSPITALS  
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## **Chapter 1 Background of the Project**

## **Chapter 1 Background of the Project**

### **1-1 Background of the Project**

#### **1-1-1 Social and Economic Situation and Current Trends**

The Republic of Yemen (hereinafter referred to as "Yemen") was formed in May 1990, as a result of the unification of Yemen Arab Republic (or North Yemen) and the People's Democratic Republic of Yemen (or South Yemen). The North Yemen became independent from Turkey in 1918, and the South Yemen became independent from Great Britain in 1967. After the unification, the political situation of Yemen as well as the economic activities was unstable. Even though oil productivity increased, other economic activities stagnate, because of increase of the fiscal deficit, accelerated inflation, accumulated foreign debt, high population growth rate and so on. Under such conditions, a civil war erupted in May 1994. In October 1995, the nation was reunited under the new constitution. In that year, the First Five Year National Development Plan (FFDP, 1996 - 2000) was inaugurated and mandated to implement a program for the adjustment of Yemen's macroeconomic structure, with the assistance from the World Bank and the International Monetary Fund (IMF). By the adjustment of structure of macroeconomy and the increase of the income from oil export, the ordinary deficit reduced and the annual inflation rate was also alleviated temporarily. However, a sharp decline in the price of oil in 1998 made the control of the macroeconomy difficult, and the foreign debt increased. Even though the government had cut down subsidies and development assistance, the fiscal deficit has increased to 6% of the GNP, and the annual inflation rate has reached 11%.

#### **1-1-2 Present Situation of the Nation's Health**

The Health Development Policies and Strategies (HDPS, 1996 - 2000) in the FFDP were conceived in 1995. As a goal, it was focused on the rectification of district health system through creating a system being equitable and accessible with an emphasis on improvement of health care facilities and strengthening of primary health care (PHC), and allocation of a large part of sector investment budget toward the improvement of primary health care facilities, to be available proper health care in rural areas. A maternal mortality rate is 1,400 per 100,000 while an infant mortality rate is 130 per 1,000 live births (statistics in 1990), which are the worst when compared with Yemen's

Arab neighbors. Such health statistical indicates remain serious problems in the reproductive health. To improve the condition, the government plans to train community midwives who will assist deliveries at home, (which account to 80% of all deliveries) and also to improve outpatient examinations for mother and child health (called MCH centers). Specifically, these centers offer the guidance for family planning, and conduct the medical and clinical examinations to pregnant women, and provide vaccinations to newborn babies and infants, etc. On the other hand, hospitals can not provide adequate medical services as referral facilities for lower-level health centers and health units because the existing medical equipment is old and dilapidated. To improve this condition, the government with the assistance from the World Bank is introducing a District Health System for providing adequate / universal access to health care services at the district hospitals, by improving the facilities and their managing ability of some district hospitals. However, this government effort is not proceeding as planned because of weaknesses and inefficiencies exist within the MoPH regarding allocation and availability of sector improvement funds.

### **1-1-3 Maternal and Child Health**

“Yemen Demographic and Maternal and Child Health Survey (YDMCHS), 1997” (which is a nationally representative survey of 12,685 ever-married women 15-49.) presents findings on various issues related to maternal and child health including antenatal care and delivery assistance, immunization, and childhood illness and treatment. The delivery care throughout the survey report pointed out the following:

#### **(1) Place of Delivery**

Table 1-1 indicates that only 16 percent of births in the five (5) years preceding the survey took place in a health facility. Women less than 20 years are slightly more likely to deliver in a health facility than older women (21 percent, compared with 15 percent). Also, as birth order increases, the likelihood that the delivery will take place in a health facility decreases (from 27 percent among first births to 13 percent among fourth or higher order births). In urban areas, 31 percent of births occur in a health facility compared with 11 percent of births in rural areas. By region, 19 percent of births in both the Coastal and the Plateau and Desert regions take place in a health facility compared with 8 percent of births in the Mountainous region. By education, delivery in a health facility in much more common among mothers with secondary or higher education than among those with limited education or who are illiterate. Finally, the proportion of births taking place in

a health facility is directly related to the number of antenatal care visits.

**Table 1-1 Place of Delivery**

Background Characteristic	Health Facility	At Home	Other	Missing
Mother's age at birth: < 20	21.0%	78.8%	0.1%	0.1%
20-30	14.4	85.3	0.0	0.3
35 +	15.0	84.7	0.0	0.3
Birth Order: 1	26.8	73.0	--	0.2
2-3	15.3	84.4	0.0	0.2
4-5	12.6	87.7	0.0	0.3
6 +	12.6	87.1	0.0	0.3
Residence: Urban	30.6	69.1	0.0	0.3
Rural	11.1	88.6	--	0.2
Region: Coastal	18.9	81.0	0.0	0.2
Mountainous	7.5	92.3	0.0	0.1
Plateau and Desert	19.1	80.5	--	0.3
Mother's Education: Illiterate	12.5	87.3	0.0	0.2
Literate	24.5	75.0	0.0	0.4
Primary Complete	31.6	67.8	0.2	0.4
Preparatory Complete	46.0	54.0	0.0	0.0
Secondary Complete	52.4	47.6	0.0	0.0
Antenatal Care Visits: None	8.0	91.9	0.0	0.1
1-3	23.7	76.3	0.0	0.0
4 +	42.4	57.5	0.0	0.0
Don's know / missing	16.5	68.7	0.0	14.8
Average	15.5%	84.2%	--	0.2%

-- Less than 0.05 percent

( Source: YDMCHS, 1997, number of survey were 12,685 )

## (2) Assistance During Delivery

Table 1-2 present information on the person who provided assistance at delivery for births in the five (5) years preceding survey. If the mother was assisted by more than one type of provider, only the most qualified provider is considered. Doctors (15 percent) or trained nurse / midwives (7 percent) assisted in about One-fifth (22 percent) of births in the five-year period. Traditional birth attendants provided assistance at the delivery for another one-fifth (21 percent) of births, and relatives or friends assisted for more than half (52 percent) of births. Only 5 percent of birth were delivered without assistance. Births to mothers under 20 years of age and first births are much more likely to be assisted by a health professional than other births. Medically assisted deliveries are more common for urban births, and for births to women living in the Coastal or Plateau and Desert regions, and for births to highly educated mothers, and births to mothers who had four or more antenatal visits.

**Table 1-2 Assistance during Delivery**

Background Characteristic	Doctors	Nurse / M.W.	TBA	Relative/Other	No one	Missing
Mother's age at birth: < 20	21.2%	7.2%	21.4%	48.0%	2.1%	0.1%
20-30	13.7	6.9	21.7	53.0	4.4	0.2
35 +	15.0	4.9	18.6	53.0	8.3	0.2
Birth Order: 1	26.6	9.4	19.5	42.6	1.7	0.2
2-3	14.2	7.6	22.0	53.1	2.9	0.1
4-5	12.2	6.6	21.7	54.3	4.8	0.3
6 +	12.3	4.9	21.0	54.5	7.0	0.2
Residence: Urban	28.8	18.1	14.4	35.2	3.2	0.2
Rural	11.0	3.3	23.1	57.2	5.1	0.2
Region: Coastal	16.4	12.4	27.1	38.2	5.8	0.2
Mountainous	7.5	2.6	21.5	65.0	3.2	0.3
Plateau and Desert	19.2	6.6	18.3	50.5	5.2	0.2
Mother's Education: Illiterate	12.5	4.4	21.9	55.9	5.0	0.2
Literate	23.2	12.5	18.1	42.1	3.9	0.2
Primary Complete	28.5	21.1	18.5	29.3	2.2	0.4
Preparatory Complete	40.8	20.7	13.6	22.5	2.3	0.0
Secondary Complete	44.4	33.7	10.2	9.8	1.9	0.0
Antenatal Care Visits: None	8.4	3.3	22.9	59.8	5.5	0.1
1-3	21.6	10.0	20.9	44.4	3.1	0.0
4 +	39.9	18.8	11.9	25.8	3.5	0.1
Missing	15.7	10.5	17.7	38.5	4.8	12.8
Average	15.0%	6.6%	21.2%	52.2%	4.7%	0.2%

--Less than 0.05 percent

M.W.: Mid Wife

TBA: Traditional birth Attendant

( Source: YDMCHS, 1997, number of survey were 12,685 )

### 1-1-4 Health Sector Development Plan

The government has declared the HDPS as its health policy accompanying the FFDP. The HDPS, emphasis is placed on the improvement of the national health system, and main objectives are the followings:

- (1) to extend the curative and preventive services and primary health care (PHC) to the nationals.
- (2) to improve the diagnosis and curative services of hospitals as the measures for diseases.
- (3) to strengthen the procurement and supply of pharmaceutical products.
- (4) to pursue the improvement of comprehensive living standard by linking with the government organization in the health-related matters, such as education, environment, foods, housing, drinking water, and sewage facilities.

Especially, as one of the improvement measures of PHC, a large amount of budget for investment has been put into the addition of medical facilities since 1996 in order to cover the health and medical care of rural areas and to improve the access to medical facilities.

In 1998, the Ministry of Public Health (hereinafter referred as "MoPH") has put forward a

Health Sector Reform strategy, and designed to address the defaults of the current health system. Reform strategies fit with the bases and principle for HDPS, as outlined in the FFDP. Overall, the reforms concentrate on greatly improved management systems, decentralization of numerous functions to the level of the district, cost sharing with the users of health services, a stronger policy and management role for the MoPH, and a smaller role in direct service provision. Key elements of the reform will include the following:

- 1) decentralization of planning, decision making and financial management,
- 2) district health system approach,
- 3) community co-management of health systems,
- 4) cost sharing,
- 5) essential drugs policy, and realignment of the management of the logistics system for drugs and medical supplies,
- 6) decentralized, outcome-based management system from the central to the community level, with an integrated focus on gender,
- 7) hospital autonomy and eventual basic health facility autonomy,
- 8) intersectional cooperation, and
- 9) sector wide approach to donor funding and programming, with a stronger role of the MoPH in coordinating donor assistance.

## **1-2 Outline of the Request**

### **1-2-1 Outline of the Request**

Though the improvement of maternal and child health is being implemented by the government of Yemen, little achievement has been made in the improvement of medical services and financial reforms in secondary and tertiary health facilities because of lack of enough running cost for existing facilities and short provision of a capital budget for new facilities. In recognition of this, the Government of Yemen has requested the Government of Japan to help the improvement of the said facilities. In response to this request, a Project Formulation Study by the Japanese side was conducted in 1997 to define an outline for a project to improve the maternal and child health, and based on the results of this study the Government of Yemen selected ten hospitals and applied to a Japanese grant aid for improving medical equipment in these hospitals. When a Basic Design Study Team (Study Team) arrived in Yemen, the Minister of the MoPH requested the Study Team that Wahada hospital should be selected as the hospital to be improved for the Governorate of Aden instead of Aden hospital which had earlier been earmarked for improvement. The Study Team in consideration of this request conducted a study of Wahada hospital, that this hospital was the tertiary

hospital for mother and child health care in the southern part of the Country. It was also noted that the existing equipment of the hospital is much older than that of Aden hospital. The Study Team therefore concluded that the improvement of Wahada hospital would be more beneficial than the improvement of Aden hospital as far as the health care to mothers and children was concerned. The Study Team accepted the request from the Yemen side regarding the replacement of Aden hospital with Wahada hospital for this Project. Beihan and Hagr district hospitals were excluded from the Project due to security concerns. As the final confirmation by the both parties, the following eight (8) hospitals were selected as target of this Project.

**Table 1-3 Project Sites (Hospitals) Requested by the Yemen Government**

Name of the Hospital	Location of the Hospital	Level of the Hospital
1) Al-Sabeen Hospital	Sana'a City	MCH Specialized Hospital
2) Al-Thawra Hospital	Al-hodeidah Governorate	Governorate Hospital
3) Mukalla MCH Hospital	Hadramout Governorate	MCH Specialized Hospital
4) Wahada Hospital	Aden Governorate	MCH Specialized Hospital
5) Matnah Hospital	Sana'a Governorate	District Hospital
6) Al-Turba Hospital	Taiz Governorate	District Hospital
7) Yarim Hospital	Ibb Governorate	District Hospital
8) Tour Al-Baha Hospital	Lahej Governorate	District Hospital

## **1-2-2 Present Situation of the selected Hospitals for the Project**

### **(1) Clinical and Diagnostic Activities**

Table 1-4 shows the clinical and diagnostic activities in the hospitals, which are selected for the Project. The numbers of the deliveries and caesarean operations at district hospital level are extremely small compared with the numbers of the outpatients. Since Yemen side is promoting to be delivered at the hospital regarding a women who is predicated some risk on delivery, the potential demand for hospitals is considered to be very high. Accordingly the improvement of the clinical and diagnostic service is indispensable in the selected hospitals.

On the other side, the conspicuous concentration phenomenon of the outpatients at urban general hospitals and MCH hospitals can not be passed over and therefore from the viewpoint of the construction of a referral system, the improvement of district hospitals which are placed as its secondary health facilities becomes very important.

**Table 1-4 Clinical and Diagnostic Activities in the Hospitals selected for the Project Sites, Year of 1998**

Name of the Hospital	Number of Outpatients	Number of Inpatient Admission	Number of Delivery	Number of Caesarean Operation	Number of Surgical Operation
1) Al-Sabeen Hospital	51,127	12,176	4,160	684	1,248
2) Al-Thawra Hospital	48,430	1,740	29	15	513
3) Mukalla MCH Hospital	67,158	3,945	2,148	199	***
4) Wahada Hospital	66,500	1,490	280	***	100
5) Matnah Hospital	49,018	3,059	85	32	999
6) Al-Turba Hospital	40,647	9,619	3,115	274	1,213
7) Yarim Hospital	17,444	3,866	257	***	15
8) Tour Al-Baha Hospital	5,616	3,526	1,974	259	731

\*\*\* : Don't know / missing

( source: Basic Design Study, July 1999 )

## (2) Personnel

At present, the number of doctors, nurses and paramedical staff is smaller than required by the staffing criteria. It should be noted, however, that the government is re-deploying the hospital staff members within respective governorate in conformity with district health system. The present numbers of staff in the selected hospitals for the Project are as follows:

**Table 1-5 Number of Staff in each Hospital**

Name of the Hospital	Number of Staff	Name of the Hospital	Number of Staff
1) Al-Sabeen Hospital ( 500 beds )	• Specialists: 49 • Obstetrics & Gynecology Obs. & Gyae.: 20 • Pediatrics Pediatrician: 25 • Emergency • General practitioner: 50 • Nurses: 150 • Mid wife : 7	5) Matnah Hospital ( 72 beds )	• Specialists: 12 • Obstetrics & Gynecology Obs. & Gyae.: 1 • Pediatrics Pediatrician : 1 • Internal & Surgical Medicine • General practitioner : 27 • Emergency • Nurse: 15 • Mid wife: 6 • Foreign doctors: 6
2) Al-Thawra Hospital ( 259 beds )	• Specialists: 13 • Obstetrics & Gynecology Obs. & Gyae.: 1 • Pediatrics Pediatrician: 2 • Orthopedics • Urology • General practitioner: 37 • ENT • Dental • Nurse: 85 • Mid wife: 3 • Emergency • Foreign doctors: 11	6) Al-Turba Hospital ( 131 beds )	• Specialists: 3 • Obstetrics & Gynecology Obs. & Gyae.: 2 • Pediatrics • Ophthalmology • General practitioner : 4 • Internal & Surgical Medicine • Nurse: 28 • ENT • Dental • Foreign doctors: 3 • Urology • Emergency
3) Mukalla Hospital ( 100 beds )	• Specialists: 17 • Obstetrics & Gynecology Obs. & Gyae.: 6 • Pediatrics Pediatrician: 5 • Emergency • General practitioner: 14 • Nurse: 82 • Mid wife: 20 • Foreign doctors: 3	7) Yarim Hospital ( 20 beds )	• Specialists: 5 • Obstetrics & Gynecology Obs. & Gyae.: 1 • Pediatrics • General practitioner : 4 • Internal & Surgical Medicine • Nurse: 1 person • Mid wife: 2 • Urology • ENT • Foreign doctors: 5 • Ophthalmology • Emergency
4) Wahada Hospital ( 480 beds )	• Specialists: 50 • Obstetrics & Gynecology Obs. & Gyae.: 17 • Pediatrics Pediatrician: 23 • Ophthalmology • Dental • General practitioner: 96 • Rehabilitation • Nurse: 153 • Mid wife: 40 • Emergency	8) Tour Al-baha Hospital ( 60 beds )	• Specialists: 3 • Obstetrics & Gynecology Obs. & Gyae.: 1 • Pediatrics • General practitioner : 3 • Internal & Surgical Medicine • Nurse: 58 • Mid wife: 16 • Emergency • Foreign doctors: 2

( Source: Basic Design Study, July 1999 )



### **1-2-3 Contents of the Request**

Among the requested items from the Yemen side, office furniture such as desks and chairs, and consumables such as surgical sutures, and catheters are excluded from the Project, and the Yemen side accepted this exclusion. Thus, the following items are listed up as the requested equipment for the Project.

#### **(1) Out-Patient Department**

Ultrasound Diagnostic Equipment, Weighing Scale, Height Scale, Basic Treatment Set, Thermometer, Stethoscope, Sphygmomanometer, Hot Air Sterilizer, Wheel Chair, Stretcher, e.t.c., Total 26 items

#### **(2) Labor, Delivery and Recovery Room**

Weighing Scale, Medical Refrigerator, Delivery Table, Suction Unit, Instrument Cabinet, Hot Air Sterilizer, Wheel Chair, Breastfeeding Machine, Infusion Pump e.t.c., Total 32 items

#### **(3) Neonatal Department**

Baby Cot, Incubator, Phototherapy Unit, Bilirubin meter, Ultrasonic Nebulizer, Pulse Oxymeter, Infusion Pump, Neonatal Monitor, oxygen Box, e.t.c., Total 14 items

#### **(4) Operation Room**

Caesarean Section Set, D&C Operation Set, Operation Light, Operation Table, Electrosurgical Unit, Suction Unit, Anaesthetic Unit, Defibrillator e.t.c. , Total 10 items

#### **(5) Central Supply Sterilization Department (C.S.S.D.)**

High Pressure Steam Sterilizer, Cabinet, Ultrasonic Cleaner, Hot Air Sterilizer, Total 4 items

## **Chapter 2   Contents of the Project**

## **Chapter 2 Contents of the Project**

### **2-1 Objectives of the Project**

In the First Five Year National Development Plan (FFDP, 1996 – 2000) the Yemeni government set health promotion objectives within the context of “Health for All Strategy (HFA 2000)” by the World Health Organization (WHO) in order to provide health care services equitably to all people. One of the major development objectives listed in the FFDP is to make education and health care available to all people. Accordingly, a health care reform measure is being implemented in cooperation with international organizations or other donor countries to improve the health of the people, targeting especially at the maternal and child health. However, the progress of the health care reform presented by the government is hampered by financial difficulty as a large part of the budget has been directed to the rebuilding of the nation after the unification. The economic conditions have been unfavorable, too. In addition, because of the political situation of Yemen during the Gulf War, rich oil producing neighboring countries stopped financial assistance and expelled Yemen workers who were working there. As a result, more than one million workers returned home, so incomes in foreign currencies which had been available, were almost exhausted.

In such a condition, the purpose of this Project is to contribute to the improvement of the health care services for mothers and children, which is defined as top priority of the Health Development Policies and Strategies (HDPS, 1996 – 2000) in the FFDP. Some of the specific policies which are defined in the plan are instituting a district health system as the decentralization of authority in the health care administration, securing funds for the health sector reform with the cooperation of the Ministry of Finance and the Ministry of Planning and Development, and introducing a cost sharing program so as to make the health care system self-reliant.

### **2-2 Basic Concept of the Grant Aid Project**

The government of Yemen has been executing various measures to implement the health development plan (Health Sector Reform) in line with the approach of the HDPS. In some of regions, primary health care facilities, such as health centers and health units have already been renovated. The target has been shifted to District and Governorate hospitals, some of which are included in this Project. The objective of this Project is to assist the improvement of diagnostic and curative capabilities for maternal and child health in the district, governorate and specialized hospitals for

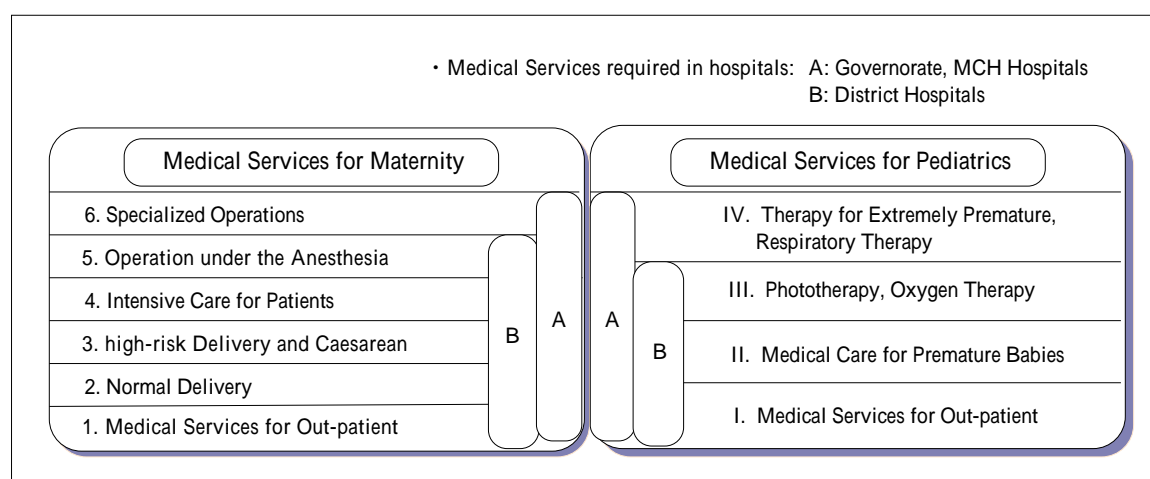
mothers and children (called MCH hospital) with assistance of Japan, taking into consideration the balanced development of the national health system according to the HDPS.

The Government of Yemen has set indices for development of maternal and child health for year 2000 as follows.

**Table 2-1 Indices for Development of Mother and Child Health**

Index items	1990	Goals in year 2000
- Accessibility to medical service (%)	45	90
- Infant mortality (until 12 months after birth, per 1,000 live births)	130	60
- Mortality of expectant and nursing mothers (per 100,000 births)	1,400	700
- Population growth (%)	3.1	2.8

Any project / program which is to improve medical services provided at hospitals involves the improvement of facilities and equipment, and such improvement requires a large amount of funding. Because of limited available funds, it is financially difficult for the Yemeni government to implement such improvement. In the principal cities where primary health care facilities have been renovated to a certain degree as mentioned previously, it is of urgency that the medical facilities which back up these primary health care facilities be improved to establish the referral system firmly. In the field study conducted in this basic design study, the Study Team found that the medical facilities targeted the Project act as back up medical facilities, which support primary health care facilities.



**Figure 2-1 Standardized Medical Services on the Hospitals**

Figure 2-1 shows a basic concept of the Project. The core of the Project is to improve the medical equipment, which is used in the above-mentioned hospitals, so that they are able to provide standardized medical services to mothers and children in the health care referral system. This Project will revitalize and strengthen the functions of the hospitals, which have been impaired by the lack of basic equipment for a long time. Consequently, with capacity building of the staff members concerned, the hospitals will provide appropriate medical services to mothers and children. Equipment will be provided to improve the following specific functions; 1) diagnosing and treating outpatients, 2) assisting normal deliveries, 3) performing obstetric operations, for example, Caesarean sections to pregnant women who are expected to have high risk deliveries, 4) diagnosing and treating newborn babies and infants, and 5) sterilizing medical and surgical instruments. Table 2-2 is a summary of the present condition of each hospital, sections covered by the Project, and planned inputs from the Yemen side.

**Table 2-2 Outline of the Project and the Input Plan by the Yemen Side**

Name of the Hospital	Present State of the Medical Services*						Target Level by the Project				Input by the Yemen Side	
	Maternity			Pediatrics								
( MCH Hospitals ) • Al-Sabeen Hospital • Mukalla MCH Hospital • Wahada Hospital	1	2	3	4	5	6	I	II	III	IV	• Maternity : 1 ~ 6 • Pediatrics : I ~ IV	《Al-Sabeen Hospital》 1) Recruitment of staff for C.S.S.D. department.
( Governorate Hospital ) • Al-Thawra Hospital	1	2	3	4	5	6	I	II	III	IV	• Maternity : 1 ~ 6 • Pediatrics : I ~ IV 《Remarks》 Scope of Equipment Plan is limited on delivery and operation room of the existing facility.	• Renovation of maternity department.
( District Hospitals ) • Matnah Hospital	1	2	3	4	5	6	I	II	III	IV	• Maternity : 1 ~ 4 • Pediatrics : I ~ III	• Renovation of pediatric dept. 1) Recruitment of add. Medical staff for the pediatrics and delivery department.
• Al-Turba Hospital											• Maternity : 1 ~ 4	
• Yarim Hospital											• Pediatrics : I ~ III	
• Tour Al-Baha Hospital												

\* Refer the Figure 2-1 means upgrade of the medical services with renovation of existing facilities and recruitment of additional staff by the Yemen side.

## **2-3 Basic Design**

### **2-3-1 Design Concept**

Prior to formulating the basic design of the Project, the following policies were set up respecting surrounding conditions and regional environment.

#### **(1) Staff allocation and their training program to be taken by the Yemen side**

The Yemeni Government and governorate health offices (GHO) plan the staff allocation and training program. Those are the additional nurses to the Matnah hospital and training sessions for general practitioners in the Al-Turba, Yarim and Tour Al-Baha hospitals in the areas of diagnostic and curative in paediatrics. Furthermore, medical faculties of the Sana'a University will train operation of Ultrasound Diagnostic Equipment and diagnostic methods for district hospitals concerned, managed by the MoPH with assistance from UNFPA. The selection of equipment shall be prepared with the consideration of above-mentioned activities by the Yemen side.

#### **(2) Natural and power supply environment**

Climate is different in inland and coastal region. Sana'a and Taiz, which are located in the inland region, have high temperatures and dry weathers while Al-Hodeidah, Hadramout and Aden, which are located in the coastal region, have high temperatures and wet weathers. In the implementation of the Project, the installation of air conditioners by the Yemeni side must be confirmed before installing sophisticated equipment in the operating rooms and the neonatal departments of the hospitals to avoid problems to the equipment. Furthermore, to protect against power supply interruptions and failures, uninterrupted power supplies (UPS) are to be provided for the equipment installed in the operating rooms and the neonatal departments.

#### **(3) Local procurement and local representatives**

Many local agents who represent foreign manufacturers of medical equipment in Yemen are large family own companies or members of large industrial groups, which is typical in many developing countries. Show rooms and workshops are available to display medical equipment; spare parts and consumables are also in stock.

Many products of medical equipment locally available are those of Japanese, European and

American manufacturers. However, products from China, Taiwan and Korea are becoming available because of their competitive prices. There is little medical equipment manufactured locally. There are many qualified bio-medical engineers with basic skills trained by manufacturers. Such engineers who are in agreement with the manufacturers are providing after-sale services and offer repair services all over the country. In order to provide their services to rural areas they make business trips by themselves or use their business partners living in rural areas. In this way, many local representatives have systems to provide medical equipment maintenance services, and in fact they are under maintenance service contract with private hospitals as well as major public hospitals for sophisticated equipment like CT, MRI, and X-ray Diagnostic Equipment.

Since hospitals in this Project can receive proper maintenance services for medical equipment procured from Japan, Europe, and USA, products to be procured for the Project are selected from those countries. However, the first priority is given to Japanese products according to the general guidance of the Grant Aid.

#### **(4) Equipment maintenance**

In order to achieve the goals of the Project, it is necessary to have a system that enables the equipment procured on the Project to be utilized effectively. Because of differences in the functions of equipment, some equipment is used daily for diagnosis and treatment while others are used only in emergencies. However, all these types of equipment must be maintained to function all the time. The following methods are suggested for the maintenance of the equipment.

##### **1) Maintenance work by each medical facility**

Standard maintenance work required for the equipment procured on the Project should be provided by each hospital in accordance with the procedures described in the operation and maintenance manuals, which come with the equipment.

##### **2) Repair work by the maintenance department of each governorate health office (GHO) and by local representatives of manufacturers**

The operations of sophisticated equipment are now electronically controlled. If such equipment breaks down, it is difficult to identify the exact cause. Examples of such items are Patient Monitor, Infant Ventilator, Ultrasound Diagnostic Equipment, etc. If the engineers of the maintenance department of each GHO cannot repair these items, then help must be available from the local

representatives of the manufacturers. Therefore, it is important to institute a system, which relays a request for help to the local representatives.

### **3) Maintenance system for each facility**

To be kept in good performance, each equipment requires a checkup before and after its use. It is ideal that the medical staff who use the equipment conduct such checkups. Therefore, it is necessary to provide the medical staff with training programs enabling them to perform daily maintenance procedures for equipment.

It is ideal that the supplier of the equipment provides such daily maintenance training in addition to ordinary operational training at the time of the installation of the equipment. However, in reality the training sessions provided by the supplier is very basic with limited contents. Thus, in this Project the consultant will introduce “Soft Component Program” to supplement the operational training provided by the supplier, and make hospital staff understand the importance of maintenance and to establish the above-mentioned system which enables the hospital staff to perform daily maintenance procedures and repair work.

### **(5) Medical equipment and their grades**

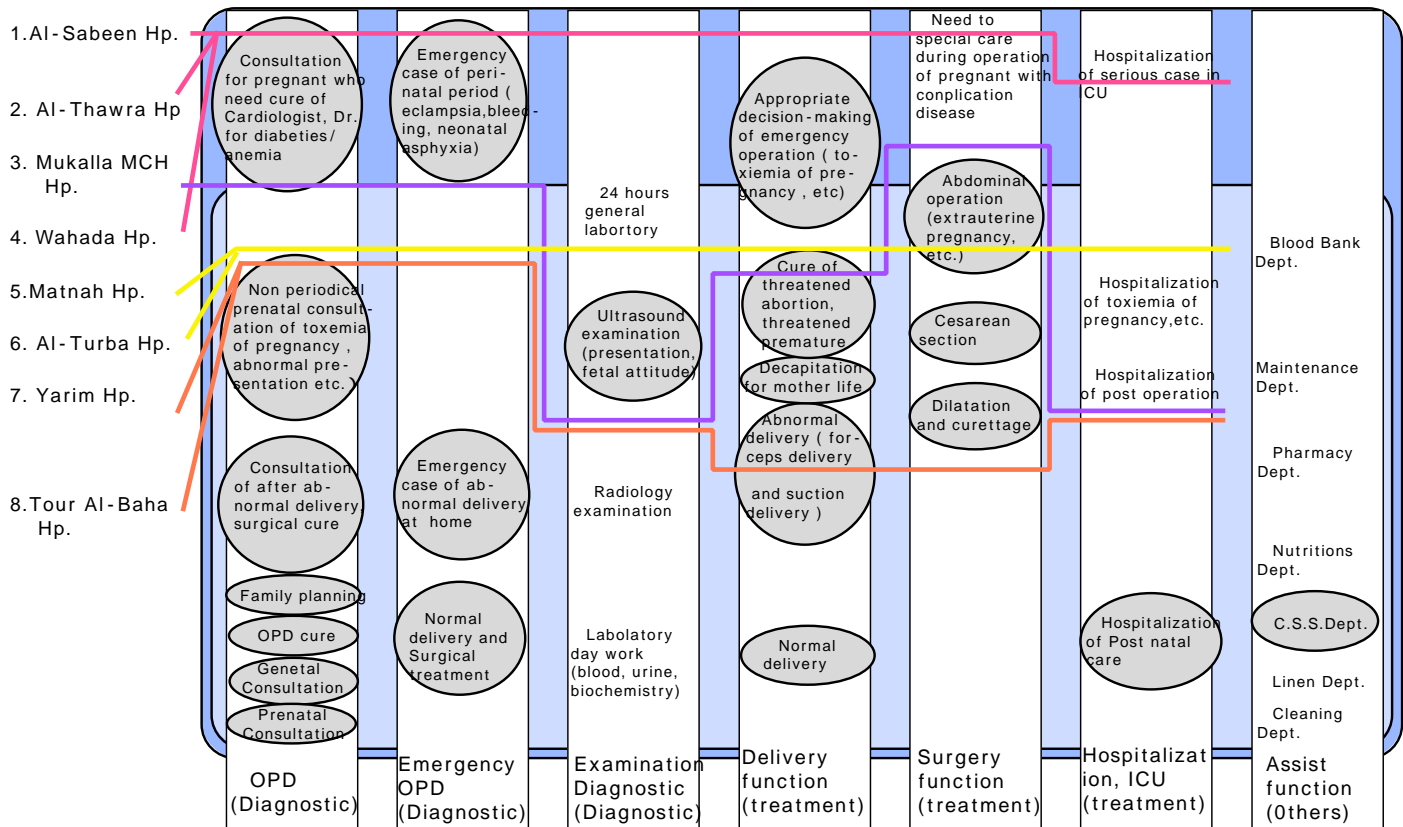
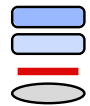
Prior to preparing the equipment plan of the Project, the design policy was set up in respect for the target levels of medical services describing in the national health sector reform approach and the current availability of the medical services to provide to mothers and children in each hospital.

Figure 2-2 shows the comparison between currently available medical services in each hospital at a standardized level of medical services stated in the National Health Sector Reform.



## Obstetric Dept.

- Standardized Level of Medical Services
- Governatnare and MCH hospital
- District hospital
- Currently available Services ( colored line)
- Target Services to be achieved by the Project



## Pediatric Dept.

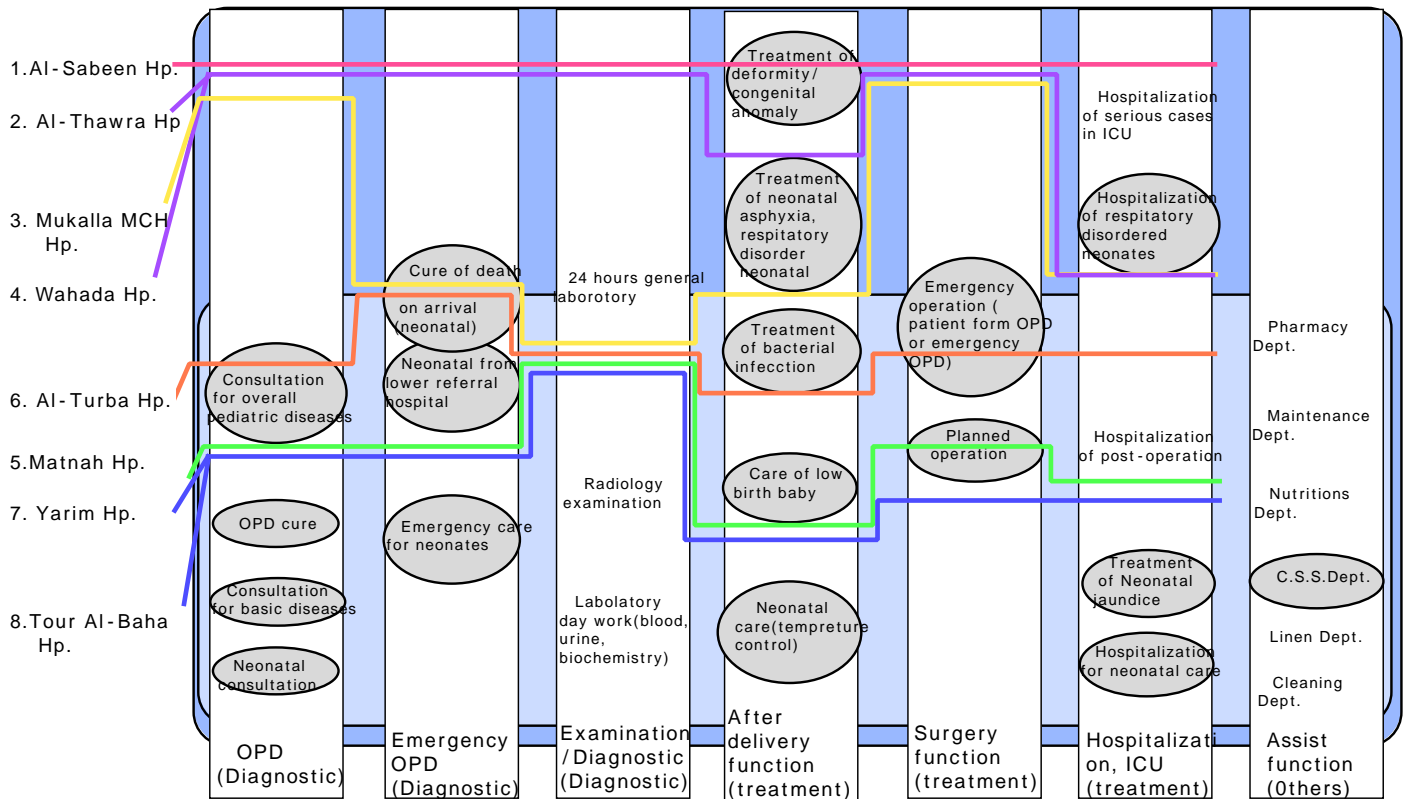


Figure 2-2 Currently Available Services and Target Level of Services in MCH Medical Care in Hospitals

### **1) Selection of items**

If any of the followings are required as inputs from the Yemen side, only inputs found as feasible by the Study Team are incorporated into the Project:

- \* extending / renovating the existing building, moving into a new building, employing additional staff members, and training medical staff;
- \* consumables and furniture are excluded from the Project;
- \* only the items , which are considered appropriately maintainable by the Yemen side in view of technical and budgetary aspects are planned; and
- \* items to be procured must be considered capable of improving the medical services of the hospitals qualitatively and quantitatively.

### **2) Determination of grades**

The grades of the equipment to be procured are:

- \* to be able to conduct examinations and treatments which are provided as primary and secondary level medical services;
- \* at technical levels which can be easily operated and maintained by the present staff of the hospitals;
- \* to meet the current demands of examinations and treatments required by the hospitals; and
- \* at levels which can be cost-effectively maintained by the Yemen side.

### **3) Determination of quantities**

The quantities of the items to be procured are determined on the basis of the following points:

- \* the quantities of the existing items which are old, dilapidated or damaged and in need of replacement;
- \* the quantities which are considered deficient for satisfying the current needs of the hospitals;
- \* the quantities of other items which are related in medical functions, so that there will be no redundancy; and
- \* availability of space for the installation of equipment.

#### **4) Equipment which are newly introduced to the hospitals**

Currently in hospital without paediatricians, such as the Al-Turba, Yarim, and Tour Al-Baha hospitals, general practitioners are conducting medical services in paediatrics. Among the equipment in paediatrics, only Infant Ventilator requires specific skills, so a Infant Ventilator is planned only for the Al-Sabeen hospital, which has the experience of operating the equipment. Ultrasound Diagnostic Equipment shall be newly introduced to some hospitals on the condition that operators receive proper training and hospital can afford operation costs.

#### **(5) Work schedule**

As the locations of the hospitals are far from one another, the implementation of the Project must be scheduled carefully in consideration of the routes for inland transportation and the natural conditions. If interruptions to the medical services of the hospitals are expected or some part of the existing equipment is to be moved to another place during the installation of the procured equipment, then the schedule must include extra time to absorb and minimize such inconvenience to the hospitals.

### **2-3-2 Basic Design**

#### **(1) Overall plan**

The scope of the Project is to improve the equipment used for medical services currently conducted by targeted hospitals. In principle, the Project is to renew and supplement the existing equipment. Additionally, the Project will procure items, which are essential for providing basic medical services. Furthermore, the Project introduces such items as Ultrasound Diagnostic Equipment for the purpose of strengthening their functions of supporting primary health care facilities in the health care referral system. The hospitals to be improved on the Project are as follows.

##### **1) Hospitals specialized for mothers and children (called MCH Hospital)**

Al-Sabeen hospital, Mukalla hospital and Wahada hospital is the largest hospitals, which provide medical services to mothers and children in the health care referral system. In these hospitals, especially, basic equipment which is used for examining and treating outpatients, performing obstetric operations, assisting deliveries, diagnosing and treating newborn babies and infants, and sterilizing medical and surgical instruments are old and dilapidated, and in need of replacement.

Therefore, the Project will replace these basic items. In addition, Ultrasound Diagnostic Equipment, which is necessary for ante and post natal and fetal examinations, will be introduced to improve the diagnostic functions of the hospitals.

## **2) Governorate and district hospitals**

Governorate and district hospitals to be covered by the Project function as referral facilities for lower-level health centers and health units in the health care system and provide medical services directly to local people. At present, these district hospitals as well as the governorate hospital are not equipped adequately with basic equipment. Therefore, in consideration of the shortage, the Project will procure basic items such as thermometers, stethoscopes and sphygmomanometers, which will be used at the initial stage of examination at the outpatient. In addition, the Project will procure items, which will be used in obstetric examinations, cesarean operations, and deliveries, and basic items which will be used in treating newborn babies and infants, and items necessary for sterilizing medical and surgical instruments.

## **(2) Equipment plan**

Some of the items listed in the original request were redundant and some descriptions were unclear, the Study Team prepared a new list, which identified the real need. The Yemen party accepted this list after an explanation by the Study Team. The procurement of equipment on the Project is planned in accordance with this list. Some hospitals have already received the assistance from Japan (debt release) and the World Bank. So, it is necessary to take the following factors into consideration while preparing the equipment list: i.e., sizes, quantities and type of the existing equipment which was improved by those assistance.

The outline of the main equipment is explained bellow.

### **1) Out-patient Department**

The contents of the equipment include the general and basic equipment for outpatient examination. As a result of the study of the hospitals, it was found that many of the items had been original acquired by the support from foreign countries. However, no replacement or supplement was conducted afterwards, as a result the equipment deteriorated, troubled, broke down, and become insufficient. By considering the activities, the medical personnel, and the state of the existing equipment of each hospital, the plan shall be made to replace, add, or procure the equipment as

need be.

- Instruments cabinet

Instrument cabinets are used for storing the medical instruments and pharmaceutical products. At present, instruments and pharmaceutical products are stored in wooden cabinets. However because the number of cabinets is insufficient and wooden cabinets cannot be tightly locked, they are messy and dusty. One stainless steel cabinet will be planned for one examination room, but some hospitals may have one cabinet for two rooms depending on the layout of the hospital.

- Fetal dropper

This item can provide early diagnosis of pregnancy, confirmation of live fetus, and diagnosis of hydatid mole. Midwives working at the health centers diagnose the pregnant women using the portable fetal droppers. This item is for the obstetrics outpatients department.

- Gynaecological examination table

Examination tables in the examination rooms of the hospitals have worn out mats, lack of parts, or cannot be positioned properly. A need for replacement was confirmed. Examination tables with stainless steel finish and vinyl covered mattresses shall be planned for the examination rooms.

- Stretcher

This item is used for transferring the emergency patients and the patients of the obstetrics gynecology and the pediatrics department. One or two stretchers shall be planned for each hospital.

- Hot air sterilizer

This is used for sterilizing the surgical instruments such as tweezers and surgical knives. Although the original request was for steam-type, hot air sterilizers shall be planned considering the water quality, difficulty in obtaining distilled water, and the easiness of handling at hospitals. The location of installation and the number of sterilizers shall be determined by considering the layout of the hospital and the frequency of use.

- Examination light

By considering the ease to replace and obtain bulbs, a light with incandescent bulb (home-use bulb)

shall be planned for. One light for each examination room shall be planned for as a rule.

- Ultrasound diagnostic equipment

Ultrasound diagnostic equipment that can diagnose the pregnant women, whether the baby was alive, twin or not, and help to determine the expected delivery date shall be planned. Arrangement for one Ultrasound Diagnostic Equipment each shall be made for Al-Sabeen and Wahada hospitals. Each of the other hospitals shall have one Ultrasound Diagnostic Equipment located at the outpatient department.

- IUD insertion and removal kit

This item is a set for inserting and removing the IUD (contraceptive device) for the purpose of family planning.

## **2) Labor, Delivery and Recovery Room**

The equipment is basic for the delivery rooms. Since most of them were not replaced or supplemented, they deteriorated, broke down, and/or became insufficient in number. Replacement, addition, and/or procurement of this equipment shall be planned for considering the activity, state, the personnel, and the present state of each hospital.

- Delivery table

This item is planned for replacement. Delivery table that has an adjustable height and whose sitting posture or supine positions are adjustable shall be planned.

- Suction unit

The equipment is used to absorb blood and secreted matters at delivery. Obstetric suction units are requested. By considering that both the general suction unit and the obstetric suction unit have the same function, and also taking into account the frequency of absorption work, only obstetric suction unit shall be planned. Thus, the equipment shall be of the type that can be operated for both types of suction, and the suction tube shall be exchanged as necessary.

- Bed for patients

Dilapidated beds shall be replaced for the existing delivery rooms and recovery rooms of hospitals.

- Fetal monitor

This equipment is used for monitoring the reserve ability of fetus for delivery stress in relation to the fetal movement and fetal heart rate before the start of delivery. The fetal monitor is effective equipment and is planned for Wahada hospital, which showed ability to use them from a technical standpoint.

### **3) Neonatal Department**

Basically, the equipment is essential for the neonatal care, such as for premature and low weight babies. In Wahada hospital, the neonatal department is located in the infant ward. Matnah hospital is planning to have one. In the other hospitals, newborn babies are laid in the same beds with mothers. For this reason the equipment shall be planned for the recovery rooms of the delivery departments and the wards.

- Baby cot

Many baby cots are found in the maternal and child special hospitals, which have neonatal departments. Al-Thawra hospital has no neonatal department. Babies are laid in the same beds with mothers where they are attended after delivery and also procedures for the newborn babies are conducted. However, babies who need medical treatment have to be accommodated separately from their mothers in order to prevent them from infection or annoying other mothers and babies, so baby cots are necessary. The hospitals having neonatal departments shall have the baby cots replaced and/or added. One to three baby cots shall be planned for every hospital, which has no neonatal department, and these baby cot will be Installed in women word. However, patient acceptance system, nursing care, local characteristics, level of the hospital, personnel, and technical level will be taken into consideration.

- Infant incubator

Infant Incubators are often found in the MCH Hospitals with a few in governorate hospitals. Premature babies and low weight newborn babies should be nursed and/or treated in the infant incubator. In the hospitals where proper handling of infant incubator was confirmed from the technical and personnel capacities, infant incubators shall be replaced and/or added. For the hospitals having no infant incubator but the support of the MoPH was confirmed in the technical and personnel aspects, the number of incubator shall be determined by considering the hospital

activities, its scale, and also its location. Closed-type incubators capable of maintaining temperature, humidity and oxygen at an optimal level and capable of providing a shield for air to prevent infection shall be planned.

- Infant warmer

The outside temperature easily affects the body temperature of a newborn baby. Newborn babies are treated or undergo procedure while the heat from the warmer maintains the body temperature.

- Phototherapy unit

This equipment is used for the nosotropic treatment of neonatal jaundice. Stand-type unit with fluorescent light shall be planned.

- Infant ventilator

From the study, only Al-Sabeen hospital has an infant ventilator. It is difficult to recruit staff versed in endotracheal technique and respiratory control. For this reason, the infant ventilator shall be planned for Al-Sabeen Hospital only. The planned specification will emphasize pressure controlled, gas driven ventilators whose circuit system has an indication for newborn babies and infants.

- Neonatal monitor

This equipment checks the electrocardiogram, heart rate, and respiration rate of premature and newborn babies. Only the maternal and child emergency department of Al-Sabeen hospital has a neonatal monitor, which was procured by the World Bank. Other hospitals have none. Several monitors shall be planned for the hospitals having the technical capability to use the monitors in order to improve the diagnostic and treatment techniques.

- Pulse oxymeter

This item determines the oxygen insufficiency of the patient. It is easy to use and necessary for measuring the blood oxygen concentration. One to two units shall be planned for the hospitals.

#### **4) Operation Room**

This Project covers the obstetric operation rooms. As a result of the study, it was found that many operating tables were old and could neither be adjusted vertically nor tilted. As for anesthetic units,



many hospitals were using the halothane evaporator for the anesthetic medicines. Within the equipment plan, deteriorated and/or broken down equipment shall be replaced and/or added.

- Operating table

The deteriorated operating tables at Wahada, Matnah, Yarim, and Tour-Al-Baha hospitals shall be replaced. Since Al-Sabeen hospital can handle the situation with the existing equipment, it shall be excluded. Universal-type operating table with manually adjustable height and position shall be planned with the addition of obstetric accessories.

- Operation light

Deteriorated operating lights at Al-Sabeen, Wahada, Yarim, Tour-Al-Baha hospitals shall be replaced. Because Matnah and Al-Turba hospitals can handle the situation with the existing equipment, they shall be excluded. Ceiling-type light shall be planned for some hospitals, and stand-type light shall be planned for others. Details are shown below. At Wahada hospital, the stand-type operation light is deteriorated and shall be replaced also.

\*Ceiling-type: Al-Thawra, Al-Sabeen, Wahada, and Mukalla hospitals

\*Stand-type: Wahada, Yarim, and Tour-Al-Baha hospitals

- Electrosurgical unit

The equipment is planned for operating room of the Al-Turba hospital and the closed operation room of Mukalla hospital. The equipment at Al-Sabeen, Wahada, and Yarim hospitals are deteriorated and shall be replaced.

- Defibrillator

One defibrillator shall be planned for each hospital just in case defibrillation is required during an operation.

## **5) Central Supply Sterilization Department (C.S.S.D.)**

Only Wahada hospital has an independent CSSD. Al-Sabeen hospital has a sterilization room in the newly built emergency ward. However, this Project covers only the sterilization room located in the old buildings. At other hospitals, the CSSD is located next to the operation department and most are used for sterilizing the medical and surgical instruments. Frequent failure of water processing unit and sterilizer controller is experienced. This is due to poor water quality,

fluctuating power supply, and inadequate maintenance.

- High pressure steam sterilizer

According to the study, sterilization rooms were located next to the operation rooms in most of the hospitals. Because of frequent power failure, poor water quality, unreliable power supply, and inadequate maintenance, water processing device and the sterilizer controller break down often. Water processing devices with easy maintenance shall be planned. Sterilizers shall have manual doors instead of automatic ones. The controller shall be selected from the non-microcomputer controlled ones.

- Hot air sterilizer

This equipment shall be planned as a supplemental of high-pressure steam sterilizer, or as the sterilizer for emergency operation. A new hot air sterilizer shall be introduced to Al-Sabeen Hospital because it has been sterilizing by boiling which has poor sterilization effects. Al-Turba and Yarim hospitals, which had none before, will have one each. Al-Thawra, Mukalla, Wahada, and Tour-Al-Baha hospitals have deteriorated high-pressure steam sterilizers, which shall be replaced.

The prospective improvement of the medical services in relation with the procured equipment is showed as Table 2-3. Table 2-4 is the final list of the equipment procured for the Project.

Table 2-3 Prospective Improvement as for the Equipment

Quality and Volume of services  
 Quality of services  
 Volume of services

	1 Al-Sabeen Hospital				2 Al-Thawra Hospital				3 Mukalla Hospital									
	Equipment plan				After installation		Equipment plan				After installation							
	Replacem ent	Addit ional	New	Total Qt'y	Mater nal care	Pediat ric care	Replacem ent	Addit ional	New	Total Qt'y	Mater nal care	Pediat ric care	Replacem ent	Addit ional	New	Total Qt'y	Mater nal care	Pediat ric care
<b>A. Out-Patient Department</b>																		
1	Instruments Cabinet	4	2		6				2	2						0		
2	Instruments Trolley	3	3		6				0				3			3		
3	Fetal Doppler			1	1				1	1			1			1		
4	Stethoscope (Adult)	2	3		5				4	4			1			1		
5	Stethoscope (Infant)			2	2				3	3					1	1		
6	Examination Table (Gynecology)	1			1				0				1			1		
7	Examination Table	9			9				0				2			2		
8	Sphygmomanometer (Adult)	4	1		5			2	2				5			5		
9	Sphygmomanometer (Infant)			2	2				0						1	1		
10	Weight and Height Scale (Adult)	2			2				1	1			1			1		
11	Weighing Scale (Infant)			1	1				0							0		
13	Height Scale (Infant)			2	2				2	2					1	1		
14	Thermometer			6	6			30	30				15			15		
15	Diagnostic Set (ENT)	1			1				1	1					2	2		
17	Wheel Chair	1	1		2				1	1					1	1		
18	Stretcher	1			1				1	1			2	1		3		
19	Hot Air Sterilizer			3	3				0				2			2		
20	Examination Light	4			4				0						3	3		
21	Ultrasound Diagnostic Equipment	1			1				0						1	1		
22	IUD Insertion & Removal Set	4			4				0						2	2		
23	Basic Treatment Set	5			5			4	4				3			3		
24	Screen	3	3		6				0				3			3		
25	Resuscitation Set (Infant)			1	1				2	2					1	1		
26	Resuscitation Set (Adult)			1	1				1	1					1	1		
27	Endotracheal Set (Adult)			1	1				1	1					1	1		
28	Endotracheal Set (Infant)			1	1				2	2					1	1		
<b>B. Labor, Delivery and Recovery Room</b>																		
1	Instruments Cabinet				0		1		1				2			2		
2	Cart with Trash Can				0		1		1							0		
3	Fetal Doppler				0				0				1			1		
4	Sphygmomanometer (Adult)				0			1	1				2			2		
5	Weighing Scale (Infant)				0		1		1				1			1		
7	Delivery Table				0		4		4				2			2		
8	Step				0				3	3					2	2		
9	Revolving Chair				0		2	1	3				1	1		2		
10	Examination Light				0		2		2				2			2		
11	Suction Unit				0				1	1			1			1		
12	Suction Pump (Pedal)				0				1	1					1	1		
13	Suction Pump (Infant)				0				1	1			1			1		
14	Vacuum Extractor				0				1	1			1			1		
15	Uterine Evacuation Set				0				1	1					1	1		
16	Obstetric Forcep				0		2		2				2			2		
17	Bed (Patient)				0		7		7				15			15		
18	Bedside Console				0				7	7			12			12		
19	Screen				0				2	2					2	2		
20	Oxygen Inhalation Set				0				1	1					1	1		
21	Hot Air Sterilizer				0		1		1				0			0		
22	Sterilisation Container				0			1	1				3			3		
23	Ultrasound Diagnostic Equipment				0				0							0		
24	Medical Refrigerator				0				1	1					1	1		
25	Fetal Monitor				0				0							0		
26	Perineal Set				0		2		2						2	2		
27	Resuscitation Set (Adult)				0				1	1					1	1		
28	Resuscitation Set (Infant)				0				1	1					1	1		
29	Endotracheal Set (Adult)				0				1	1					1	1		
30	Endotracheal Set (Infant)				0				1	1					1	1		

Table 2-3 Prospective Improvement as for the Equipment

Quality and Volume of services  
 Quality of services  
 Volume of services

	1 Al-Sabeen Hospital						2 Al-Thawra Hospital						3 Mukalla Hospital					
	Equipment plan				After installation		Equipment plan				After installation		Equipment plan				After installation	
	Replacem ent	Addit ional	New	Total Qty	Mat ernal care	Pediat ric care	Replacem ent	Addit ional	New	Total Qty	Mat ernal care	Pediat ric care	Replacem ent	Addit ional	New	Total Qty	Mat ernal care	Pediat ric care
<b>C. Neonatal Department</b>																		
1	Baby Cot	8			8				2	2					4	4		
2	Incubator	7			7				0						2	2		
3	Infant Warmer			1	1				0						2	2		
4	Phototherapy Unit	1	1		2				0						1	1		
5	Infant Ventilator		1		1				0								0	
6	Neonatal Monitor			2	2				0								0	
7	Billirubinometer			1	1			1	1						1	1		
8	Ultrasonic Nebulizer			1	1			1	1						1	1		
9	Pulse Oxymeter			2	2			1	1						1	1		
10	Oxygen Box			2	2			1	1						2	2		
11	Resuscitation Set (Infant)		1		1				0						1	1		
12	Endotracheal Set (Infant)		1		1			1	1						1	1		
<b>D. Operation Room</b>																		
1	Operation Table				0			1	1				2			2		
2	Operation Light	4			4			1	1				1			1		
3	Anaesthetic Unit	4			4			1	1				1			1		
4	Electrosurgical Unit		1		1			1	1				1			1		
5	Mayo Table	2	3		5			1	1				1	1		2		
6	Defibrillator		1		1			1	1						1	1		
7	Epidural Anaesthesia Set			2	2			2	2						2	2		
8	Caesarean Section Set	5			5		2		2				2			2		
9	Decapitation Set	1			1			1	1						1	1		
10	Hysterectomy Abdomen Set	2			2		1		1				2			2		
11	Resuscitation Set (Adult)			1	1			1	1						1	1		
12	Resuscitation Set (Infant)			1	1			1	1						1	1		
<b>E. C.S.S.D</b>																		
1	High Pressure Steam Sterilizer	2			2				0							0		
2	Hot Air Sterilizer			1	1		1		1				1			1		
3	Ultrasonic Cleaner			1	1			1	1						1	1		
4	Cabinet			1	1			1	1				2			2		

Table 2-3 Prospective Improvement as for the Equipment

Quality and Volume of services  
 Quality of services  
 Volume of services

	4 Wahada Hospital								5 Matnah Hospital						6 Al-Turba Hospital					
	Equipment plan				After installation		Equipment plan				After installation		Equipment plan				After installation			
	Replacem ent	Additi onal	New	Total Qty	Matern al care	Pediatr ic care	Replacem ent	Additi onal	New	Total Qty	Matern al care	Pediatr ic care	Replacem ent	Additi onal	New	Total Qty	Matern al care	Pediatr ic care		
<b>A. Out-Patient Department</b>																				
1	Instruments Cabinet	4	8		12					0					3	3				
2	Instruments Trolley	9	2		11					0			3			3				
3	Fetal Doppler			5	5			1	1					1	1					
4	Stethoscope (Adult)		8		8		1	1	2			2			2					
5	Stethoscope (Infant)			5	5			1	1			1	1		2					
6	Examination Table (Gynecology)	5			5				1	1				1	1					
7	Examination Table	12	1		13			1	1			3			3					
8	Sphygmomanometer (Adult)	3	6		9		1	1	2			2			2					
9	Sphygmomanometer (Infant)			6	6			1	1				1		1					
10	Weight and Height Scale (Adult)	2		2	4				0			3			3					
11	Weighing Scale (Infant)	2	1		3				0						0					
13	Height Scale (Infant)			1	1			1	1					1	1					
14	Thermometer			12	12			2	2			2	13		15					
15	Diagnostic Set (ENT)			3	3			1	1					2	2					
17	Wheel Chair		1	2	3			1	1			1			1					
18	Stretcher			2	2		2		2			1	1		2					
19	Hot Air Sterilizer	4	1		5			2	2			1			1					
20	Examination Light	7	5		12				0			1	1		2					
21	Ultrasound Diagnostic Equipment			1	1		1		1			1			1					
22	IUD Insertion & Removal Set			4	4		2		2			1	1		2					
23	Basic Treatment Set			10	10			4	4			2	1		3					
24	Screen	1			1				0			1			1					
25	Resuscitation Set (Infant)			4	4			1	1					1	1					
26	Resuscitation Set (Adult)			6	6			1	1					1	1					
27	Endotracheal Set (Adult)			6	6			1	1					1	1					
28	Endotracheal Set (Infant)			4	4			1	1					1	1					
<b>B. Labor, Delivery and Recovery Room</b>																				
1	Instruments Cabinet			2	2			1	1					2	2					
2	Cart with Trash Can			3	3				0			2			2					
3	Fetal Doppler			2	2			1	1			1			1					
4	Sphygmomanometer (Adult)			3	3			1	1					2	2					
5	Weighing Scale (Infant)			1	1			1	1					2	2					
7	Delivery Table	4			4			1	1			1	1		2					
8	Step			3	3			1	1					2	2					
9	Revolving Chair			3	3			1	1			1	1		2					
10	Examination Light	2	2		4		1	1	2					2	2					
11	Suction Unit	2			2		1		1			1			1					
12	Suction Pump (Pedal)			2	2			1	1					1	1					
13	Suction Pump (Infant)			1	1		1		1					1	1					
14	Vacuum Extractor			1	1			1	1			1			1					
15	Uterine Evacuation Set			1	1			1	1					1	1					
16	Obstetric Forcep			2	2				0			2			2					
17	Bed (Patient)	25			25			2	2			2			2					
18	Bedside Console			25	25			2	2					2	2					
19	Screen				0			1	1					2	2					
20	Oxygen Inhalation Set			2	2				0					1	1					
21	Hot Air Sterilizer	1			1		1		1			1			1					
22	Sterilisation Container			4	4				0			3			3					
23	Ultrasound Diagnostic Equipment	1			1				0						0					
24	Medical Refrigerator			1	1			1	1					1	1					
25	Fetal Monitor			1	1				0						0					
26	Perineal Set			4	4			2	2			1	3		4					
27	Resuscitation Set (Adult)			2	2			1	1					1	1					
28	Resuscitation Set (Infant)			2	2			1	1					1	1					
29	Endotracheal Set (Adult)			2	2			1	1					1	1					
30	Endotracheal Set (Infant)			2	2			1	1					1	1					

Table 2-3 Prospective Improvement as for the Equipment

Quality and Volume of services  
 Quality of services  
 Volume of services

	4 Wahada Hospital						5 Matnah Hospital						6 Al-Turba Hospital					
	Equipment plan				After installation		Equipment plan				After installation		Equipment plan				After installation	
	Replacem ent	Additi onal	New	Total Qty	Matern al care	Pediat ric care	Replacem ent	Additi onal	New	Total Qty	Matern al care	Pediat ric care	Replacem ent	Additi onal	New	Total Qty	Matern al care	Pediat ric care
<b>C. Neonatal Department</b>																		
1	Baby Cot			0				1	1						0			
2	Incubator	7		2	9		1	1	2			2			2			
3	Infant Warmer			3	3			1	1					1	1			
4	Phototherapy Unit	1	2		3			1	1					1	1			
5	Infant Ventilator			0					0						0			
6	Neonatal Monitor			2	2			1	1					1	1			
7	Billirubinometer			1	1			1	1					1	1			
8	Ultrasonic Nebulizer			1	1			1	1					1	1			
9	Pulse Oxymeter			2	2			1	1					1	1			
10	Oxygen Box			3	3			1	1					1	1			
11	Resuscitation Set (Infant)			2	2			1	1					1	1			
12	Endotracheal Set (Infant)			2	2			1	1					1	1			
<b>D. Operation Room</b>																		
1	Operation Table	2			2		1		1					1	1			
2	Operation Light	5			5				0						0			
3	Anaesthetic Unit	2			2		1		1				1		1			
4	Electrosurgical Unit			3	3				0					1	1			
5	Mayo Table			3	3				0					2	2			
6	Defibrillator			1	1			1	1					1	1			
7	Epidural Anaesthesia Set			3	3		2		2					2	2			
8	Caesarean Section Set			4	4		2		2					2	2			
9	Decapitation Set			2	2			1	1			1			1			
10	Hysterectomy Abdomen Set			4	4		2		2			1	1		2			
11	Resuscitation Set (Adult)			2	2			1	1					1	1			
12	Resuscitation Set (Infant)			2	2			1	1					1	1			
<b>E. C.S.S.D</b>																		
1	High Pressure Steam Sterilizer	1			1				0			1			1			
2	Hot Air Sterilizer		2		2				0					1	1			
3	Ultrasonic Cleaner			1	1			1	1					1	1			
4	Cabinet			1	1				0						0			

Table 2-3 Prospective Improvement as for the Equipment

Quality and Volume of services  
Quality of services  
Volume of services

	7 Yarim Hospital						8 Tour Al-Baha Hospital					
	Equipment plan				After installation		Equipment plan				After installation	
	Replacem ent	Addit ional	New	Total Qty	Matern al care	Pediat ric care	Replacem ent	Addit ional	New	Total Qty	Matern al care	Pediat ric care
<b>A. Out-Patient Department</b>												
1	Instruments Cabinet	3	2		5				3	3		
2	Instruments Trolley	2	3		5				3	3		
3	Fetal Doppler			1	1				1	1		
4	Stethoscope (Adult)	5			5		1	2		3		
5	Stethoscope (Infant)			2	2				1	1		
6	Examination Table (Gynecology)	1			1				1	1		
7	Examination Table	2	3		5		2			2		
8	Sphygmomanometer (Adult)	1	4		5		1	2		3		
9	Sphygmomanometer (Infant)			2	2				1	1		
10	Weight and Height Scale (Adult)			3	3		1			1		
11	Weighing Scale (Infant)			2	2					0		
13	Height Scale (Infant)			2	2				1	1		
14	Thermometer			25	25				15	15		
15	Diagnostic Set (ENT)			2	2				1	1		
17	Wheel Chair	1			1		2			2		
18	Stretcher	1			1				1	1		
19	Hot Air Sterilizer			1	1				1	1		
20	Examination Light			5	5				4	4		
21	Ultrasound Diagnostic Equipment				0				1	1		
22	IUD Insertion & Removal Set	1	1		2				2	2		
23	Basic Treatment Set			5	5				2	2		
24	Screen	1	4		5		1		1	2		
25	Resuscitation Set (Infant)			1	1				1	1		
26	Resuscitation Set (Adult)			1	1				1	1		
27	Endotracheal Set (Adult)			1	1				1	1		
28	Endotracheal Set (Infant)			1	1				1	1		
<b>B. Labor, Delivery and Recovery Room</b>												
1	Instruments Cabinet	1			1				1	1		
2	Cart with Trash Can			1	1				1	1		
3	Fetal Doppler				0				1	1		
4	Sphygmomanometer (Adult)			1	1				1	1		
5	Weighing Scale (Infant)			1	1				1	1		
7	Delivery Table	2			2		2			2		
8	Step			1	1		1	1		2		
9	Revolving Chair			1	1		2			2		
10	Examination Light			1	1		1	2		3		
11	Suction Unit			1	1				1	1		
12	Suction Pump (Pedal)			1	1				1	1		
13	Suction Pump (Infant)			1	1				1	1		
14	Vacuum Extractor			1	1				1	1		
15	Uterine Evacuation Set			1	1				1	1		
16	Obstetric Forcep				0				2	2		
17	Bed (Patient)	10			10					0		
18	Bedside Console	4			4					0		
19	Screen			2	2		2			2		
20	Oxygen Inhalation Set			1	1				1	1		
21	Hot Air Sterilizer				0				1	1		
22	Sterilisation Container			2	2				1	1		
23	Ultrasound Diagnostic Equipment				0					0		
24	Medical Refrigerator			1	1				1	1		
25	Fetal Monitor				0					0		
26	Perineal Set			2	2				2	2		
27	Resuscitation Set (Adult)				0				1	1		
28	Resuscitation Set (Infant)				0				1	1		
29	Endotracheal Set (Adult)			1	1				1	1		
30	Endotracheal Set (Infant)			1	1				1	1		

Table 2-3 Prospective Improvement as for the Equipment

Quality and Volume of services  
 Quality of services  
 Volume of services

	7 Yarim Hospital						8 Tour Al-Baha Hospital								
	Equipment plan				After installation		Equipment plan				After installation				
	Replacem ent	Addit ional	New	Total Qty	Matern al care	Pediat ric care	Replacem ent	Addit ional	New	Total Qty	Matern al care	Pediat ric care			
<b>C. Neonatal Department</b>															
1	Baby Cot	1			1					1	1				
2	Incubator			1	1					1	1				
3	Infant Warmer			1	1					1	1				
4	Phototherapy Unit			1	1					1	1				
5	Infant Ventilator				0						0				
6	Neonatal Monitor				0						0				
7	Bilirubinometer			1	1					1	1				
8	Ultrasonic Nebulizer			1	1					1	1				
9	Pulse Oxymeter			1	1						0				
10	Oxygen Box			1	1					1	1				
11	Resuscitation Set (Infant)			1	1						0				
12	Endtracheal Set (Infant)			1	1						0				
<b>D. Operation Room</b>															
1	Operation Table	1			1					1					
2	Operation Light	1			1					1					
3	Anaesthetic Unit	1			1						0				
4	Electrosurgical Unit			1	1					1	1				
5	Mayo Table			2	2						0				
6	Defibrillator			1	1					1	1				
7	Epidural Anaesthesia Set	2			2					2	2				
8	Caesarean Section Set	2			2					2	2				
9	Decapitation Set			1	1					1	1				
10	Hysterectomy Abdomen Set	2			2					2	2				
11	Resuscitation Set (Adult)			1	1					1	1				
12	Resuscitation Set (Infant)			1	1					1	1				
<b>E. C.S.S.D</b>															
1	High Pressure Steam Sterilizer	1			1					1	1				
2	Hot Air Sterilizer			1	1					1	1				
3	Ultrasonic Cleaner			1	1					1	1				
4	Cabinet	2			2					1	1				



Table 2-4 Equipment list

		1. Al-Sabeen Hospital	2. Al-Thumra Hospital	3. Muballa Hospital	4. Wasatli Hospital	5. Munaah Hospital	6. Al-Turba Hospital	7. Yassin Hospital	8. Tour Al-Baha Hospital	Total Quantity
<b>A. Out-Patient Department</b>										
1	Instruments Cabinet	6	2	0	12	0	3	5	3	31
2	Instruments Trolley	6	0	3	11	0	3	5	3	31
3	Fetal Doppler	1	1	1	5	1	1	1	1	12
4	Stethoscope (Adult)	5	4	1	8	2	2	5	3	30
5	Stethoscope (Infant)	2	3	1	5	1	2	2	1	17
6	Examination Table (Gynecology)	1	0	1	5	1	1	1	1	11
7	Examination Table	9	0	2	13	1	3	5	2	35
8	Sphygmomanometer (Adult)	5	2	5	9	2	2	5	3	33
9	Sphygmomanometer (Infant)	2	0	1	6	1	1	2	1	14
10	Weight and Height Scale (Adult)	2	1	1	4	0	3	3	1	15
11	Weighing Scale (Infant)	1	0	0	3	0	0	2	0	6
13	Height Scale (Infant)	2	2	1	1	1	1	2	1	11
14	Thermometer	6	30	15	12	2	15	25	15	120
15	Diagnostic Set (ENT)	1	1	2	3	1	2	2	1	13
17	Wheel Chair	2	1	1	3	1	1	1	2	12
18	Stretcher	1	1	3	2	2	2	1	1	13
19	Hot Air Sterilizer	3	0	2	5	2	1	1	1	15
20	Examination Light	4	0	3	12	0	2	5	4	30
21	Ultrasound Diagnostic Equipment	1	0	1	1	1	1	0	1	6
22	IUD Insertion & Removal Set	4	0	2	4	2	2	2	2	18
23	Basic Treatment Set	5	4	3	10	4	3	5	2	36
24	Screen	6	0	3	1	0	1	5	2	18
25	Resuscitation Set (Infant)	1	2	1	4	1	1	1	1	12
26	Resuscitation Set (Adult)	1	1	1	6	1	1	1	1	13
27	Endotracheal Set (Adult)	1	1	1	6	1	1	1	1	13
28	Endotracheal Set (Infant)	1	2	1	4	1	1	1	1	12
<b>B. Labor, Delivery and Recovery Room</b>										
1	Instruments Cabinet	0	1	2	2	1	2	1	1	10
2	Cart with Trash Can	0	1	0	3	0	2	1	1	8
3	Fetal Doppler	0	0	1	2	1	1	0	1	6
4	Sphygmomanometer (Adult)	0	1	2	3	1	2	1	1	11
5	Weighing Scale (Infant)	0	1	1	1	1	2	1	1	8
7	Delivery Table	0	4	2	4	1	2	2	2	17
8	Step	0	3	2	3	1	2	1	2	14
9	Revolving Chair	0	3	2	3	1	2	1	2	14
10	Examination Light	0	2	2	4	2	2	1	3	16
11	Suction Unit	0	1	1	2	1	1	1	1	8
12	Suction Pump (Pedal)	0	1	1	2	1	1	1	1	8
13	Suction Pump (Infant)	0	1	1	1	1	1	1	1	7
14	Vacuum Extractor	0	1	1	1	1	1	1	1	7
15	Uterine Evacuation Set	0	1	1	1	1	1	1	1	7
16	Obstetric Forcep	0	2	2	2	0	2	0	2	10
17	Bed (Patient)	0	7	15	25	2	2	10	0	61

Table 2-4 Equipment list

		1. Al-Sabeen Hospital	2. Al-Thumra Hospital	3. Muballa Hospital	4. Wasadu Hospital	5. Munaib Hospital	6. Al-Turba Hospital	7. Yassin Hospital	8. Tour Al-Baha Hospital	Total Quantity
18	Bedside Console	0	7	12	25	2	2	4	0	52
19	Screen	0	2	2	0	1	2	2	2	11
20	Oxygen Inhalation Set	0	1	1	2	0	1	1	1	7
21	Hot Air Sterilizer	0	1	0	1	1	1	0	1	5
22	Sterilisation Container	0	1	3	4	0	3	2	1	14
23	Ultrasound Diagnostic Equipment	0	0	0	1	0	0	0	0	1
24	Medical Refrigerator	0	1	1	1	1	1	1	1	7
25	Fetal Monitor	0	0	0	1	0	0	0	0	1
26	Perineal Set	0	2	2	4	2	4	2	2	18
27	Resuscitation Set (Adult)	0	1	1	2	1	1	0	1	7
28	Resuscitation Set (Infant)	0	1	1	2	1	1	0	1	7
29	Endotracheal Set (Adult)	0	1	1	2	1	1	1	1	8
30	Endotracheal Set (Infant)	0	1	1	2	1	1	1	1	8
C. Neonatal Department										
1	Baby Cot	8	2	4	0	1	0	1	2	18
2	Incubator	7	0	2	9	2	2	1	1	24
3	Infant Warmer	1	0	2	3	1	1	1	1	10
4	Phototherapy Unit	2	0	1	3	1	1	1	1	10
5	Infant Ventilator	1	0	0	0	0	0	0	0	1
6	Neonatal Monitor	2	0	0	2	1	1	0	0	6
7	Billirubinometer	1	1	1	1	1	1	1	1	8
8	Ultrasonic Nebulizer	1	1	1	1	1	1	1	1	8
9	Pulse Oxymeter	2	1	1	2	1	1	1	0	9
10	Oxygen Box	2	1	2	3	1	1	1	1	12
11	Resuscitation Set (Infant)	1	0	1	2	1	1	1	0	7
12	Endtracheal Set (Infant)	1	1	1	2	1	1	1	0	8
D. Operation Room										
1	Operation Table	0	1	2	2	1	1	1	1	9
2	Operation Light	4	1	1	5	0	0	1	1	13
3	Anaesthetic Unit	4	1	1	2	1	1	1	0	11
4	Electrosurgical Unit	1	1	1	3	0	1	1	1	9
5	Mayo Table	5	1	2	3	0	2	2	0	15
6	Defibrillator	1	1	1	1	1	1	1	1	8
7	Epidural Anaesthesia Set	2	2	2	3	2	2	2	2	17
8	Caesarean Section Set	5	2	2	4	2	2	2	2	21
9	Decapitation Set	1	1	1	2	1	1	1	1	9
10	Hysterectomy Abdomen Set	2	1	2	4	2	2	2	2	17
11	Resuscitation Set (Adult)	1	1	1	2	1	1	1	1	9
12	Resuscitation Set (Infant)	1	1	1	2	1	1	1	1	9
E. C.S.S.D										
1	High Pressure Steam Sterilizer	2	0	0	1	0	1	1	1	6
2	Hot Air Sterilizer	1	1	1	2	0	1	1	1	8
3	Ultrasonic Cleaner	1	1	1	1	1	1	1	1	8
4	Cabinet	1	1	2	1	0	0	2	1	8

## **Chapter 3    Implementation Plan**

## **Chapter 3 Implementation Plan**

### **3-1 Implementation Plan**

#### **3-1-1 Implementation Concept**

##### **(1) Basic items relating to execution work**

The government of Japan appraises the Project, and if it is judged to be appropriate, then the Exchange of Notes (E/N) concerning the Project shall be signed between the governments of Yemen and Japan. In accordance with the E/N, Japanese consultant and the Japanese equipment supplier shall sign the contract with MoPH, which represents the government of Yemen. The government of Japan shall verify each agreement / contract with Yemen.

##### **(2) Implementation schedule**

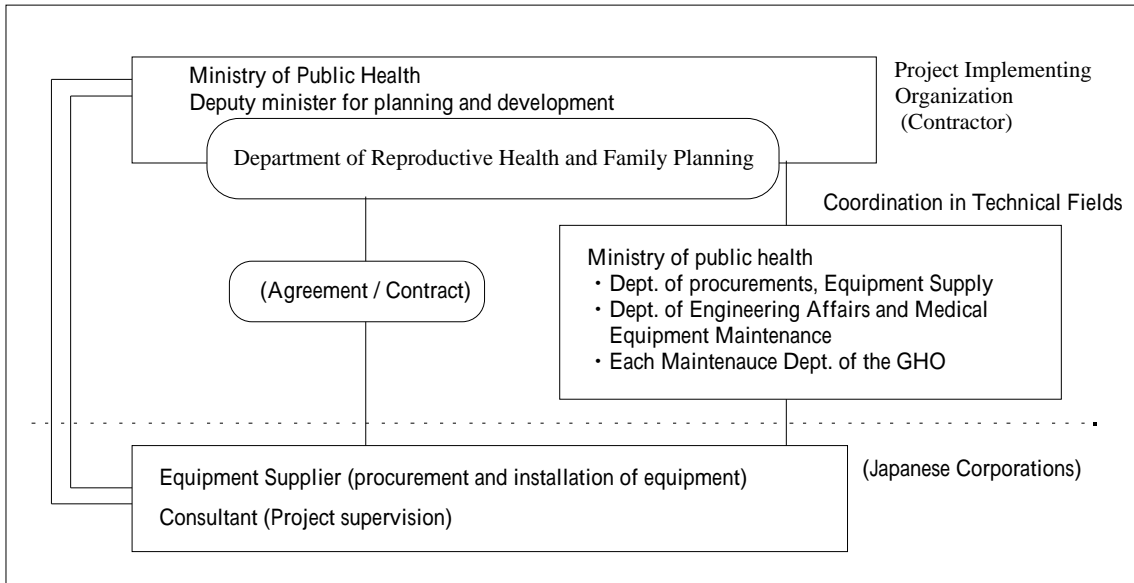
The necessary period to complete the work is estimated as twelve (12) months. We planned the implementation schedule with the consideration of the factor that the medical services must be provided continuously during the installation period.

##### **(3) Procurement procedure**

The equipment supplier shall be selected through a competitive tender open to the Japanese companies in accordance with the grant aid scheme.

##### **(4) Project implementation system**

The Project shall be implemented under the supervision of the MoPH. The MoPH shall be the contracting party on the Yemen side in agreement / contract related to the Project such as the consulting services, equipment supply, and/or the banking arrangement (B/A). The arrangement of discussions on the technical matters of the Project shall be coordinated by the Reproductive Health and Family Planning Department and the related departments of the MoPH as well as by the maintenance department of each GHO. The outline of the implementation system is as shown in Figure 3-1.



**Figure 3-1 Project Implementing System**

**(5) Roles of the consultant and equipment supplier**

**1) Consultant**

After the signing of the E/N, the MoPH shall conclude the consultancy agreement on tender-related works and the supervision of the Project with the Japanese consultant company, and Japanese government shall verify the said agreement. For the smooth implementation of the Project, it is important to conclude the agreement immediately after signing of the E/N. After Japanese government verifies the agreement, the consultant shall start services such as preparation of tender documents, obtain the approval, conducts the tender, and supervising the implementation of the Project.

**2) Equipment Supplier**

The contractor, who will to procure and install the equipment shall be selected through tender. As a rule for the tender, the bidder offering the lowest price shall be the successful bidder. The contractor will then conclude the supply contract with the successful bidder of the equipment and obtain the verification of the Japanese government. The contractor shall complete required works in the contract and hand over the equipment to the MoPH after the final inspection.

### **3-1-2 Implementation Condition**

In implementing the Project, special attention shall be paid to the following points.

#### **(1) To minimize the interruption of medical services during the installation period**

Because hospitals covered by the Project continue the daily medical care services during the installation work, the period in which the services are interrupted must be minimized. In order to minimize the interruption, the procurement process of the equipment shall be strictly supervised, and the installation and inspection schedule shall be formulated through discussion in advance and strictly observed with those related to the hospitals. Especially at the time of installation, safety measures shall be taken for the patients and the medical staff.

#### **(2) Inland transportation routes in Yemen**

Yemen has two harbors. One is Al-Hodeidah and the other one is Aden. Considering the fact that the hospitals covered by the Project are located across all Yemen, it would be convenient to use Aden harbor and plan the inland transportation to each hospital.

#### **(3) Customs clearance and tax exemption procedure**

In implementing the Project, services conducted by the Japanese nationals such as the consultant and the equipment supplier as well as the procured equipment shall be exempted from all taxes imposed by the domestic law of Yemen. However, because difficulties may be anticipated during the course of customs clearance and tax exemption procedure, it is necessary to pay sufficient attention to those issues by alerting the related agencies and confirming the necessary procedures.

### **3-1-3 Scope of Works**

The Project shall be implemented under the cooperation of the governments of Yemen and Japan. The works to be borne by both parties are as follows.

#### **(1) Works to be carried out by the government of Japan**

Japanese side shall:

- 1) Execute the procurement of the equipment on the Project,

- 2) transport the equipment to the respective hospitals, which includes marine and inland transportation in Yemen,
- 3) install and set up the equipment, and
- 4) perform the test run, give instructions for operation and maintenance and do final inspections for all the equipment.

## **(2) Works to be carried out by the Government of Yemen**

Yemen side shall:

- 1) Provide proper medical staff, such as assigning of new staff or re-allocation of existing staff to district hospitals concerned,
- 2) complete the renovation or rehabilitation works related to the hospitals concerned,
- 3) prepare the evacuation of the places where the equipment procured on the Project will be installed and laying of power supply lines, water supply lines, drainage lines, etc.,
- 4) complete the preparation work for the installation of the equipment,
- 5) provide temporary storage facilities for the equipment upon arrival until the installation, and
- 6) provide a secure delivery route for the procured equipment.

### **3-1-4 Consultant Supervision**

Based on the Japanese grand aid scheme, the Japanese consultant shall conclude the consultancy agreement with the MoPH. In compliance with this agreement, the consultant shall provide services of planning and holding a tender and of overseeing the implementation of the Project. The consultant shall check documents prepared by tenderers in such points as whether the procurement is to be executed as scheduled in whether the equipment offered meets specifications required in the tender documents, etc.

The purpose of the work is to ensure proper execution by the equipment supplier. The consultant offers advice and guidance for any adjustments in the implementation of the Project. This supervisory work includes the followings.

#### **(1) Assisting with tender procedures and contracting**

To select a Japanese trading company to take charge of the equipment procurement / installation work, the consultant will prepare tender documents, announce a tender publicly, accept applications

from applicants, handout tender documents to tenderers, accept tenders offered, evaluate the results, and give advice to the recipient to conclude a contract with the successful tenderer.

**(2) Instructions, advice and coordination for the supplier**

The consultant shall examine the work schedule, provide instructions and advice to the supplier.

**(3) Inspection and approval of the manufacturing documents and installation layout**

The consultant shall examine and approve manufacturing documents and installation layout, and other necessary documents submitted by the supplier.

**(4) Report of the progress of the Work**

The consultant monitors the condition of the sites and the implementation of the Project and reports the progress of the works to the authorities of both governments.

**(5) Inspection and testing upon completion**

The consultant shall attend the on site inspection and trial operation of the equipment in order to confirm that the equipment is consistent with the provisions of the contract. Final inspection reports shall be submitted to authorities concerned on the Yemeni side.

**(6) Training in maintenance and operation of the equipment**

Equipment to be procured in the Project requires basic maintenance and operation skills. It will be necessary to train the medical and maintenance staff in operation and troubleshooting of the equipment during the period of installation, adjustment, and test running. The consultant shall give necessary instructions for the training programs.

**3-1-5 Procurement Plan**

The following points shall be noted in procuring equipment in the Project.

**(1) Guidelines for origin of the equipment**

Most of the equipment for the Project will be Japanese products. However, in order to ensure a



competitive bidding in the tendering process and also the availability of after sale services in Yemen, we need to consider that the following equipment would be procured from third countries: Gynecology Examination Tables, Thermometers (ear type), Suction Pumps (Pedal type), Vacuum Extractors, Fetal Monitors, Infant Ventilators, Pulse Oxymeters, Electro-surgical Units, and High Pressure Steam Sterilizers. The procurement from countries other than Japan shall not be considered on the basis of the prices only, but on other factors as ease of procurement, availability of repair or after sales service (including easy supply of replacement parts and consumables), popularity, etc.

## **(2) Transportation period**

The equipment to be procured from Japan and the third countries (European countries) need twenty-one (21) to twenty-five (25) days for the marine transportation, and approximately twenty-one (21) days for the customs clearance and the inland transportation, altogether forty-two (42) to fifty-six (56) days.

### **3-1-6 Implementation Schedule**

After the signing of the E/N by both governments, the Project will be implemented in the following two (2) stages; tender and tender-related works and procurement and installation of the equipment.

#### **(1) Tender and tender-related works**

After signing of the consultancy agreement between the MoPH and the consultant, and after verification of the said agreement by the government of Japan, the preparation of tender and tender-related works will start. The tender and tender-related works include final confirmation of the technical specifications of the equipment and preparation of the instructions to tenderer(s). This set of documents needs to be approved by the Yemen side. Then, the consultant shall announce the tender publicly, and call for applications for tendering, distribute the tender documents to applicants, hold the tender, evaluate the submitted documents from applicants, nominate the winner and help to conclude the supply contract between the MoPH and the supplier. This stage takes about three (3) months.

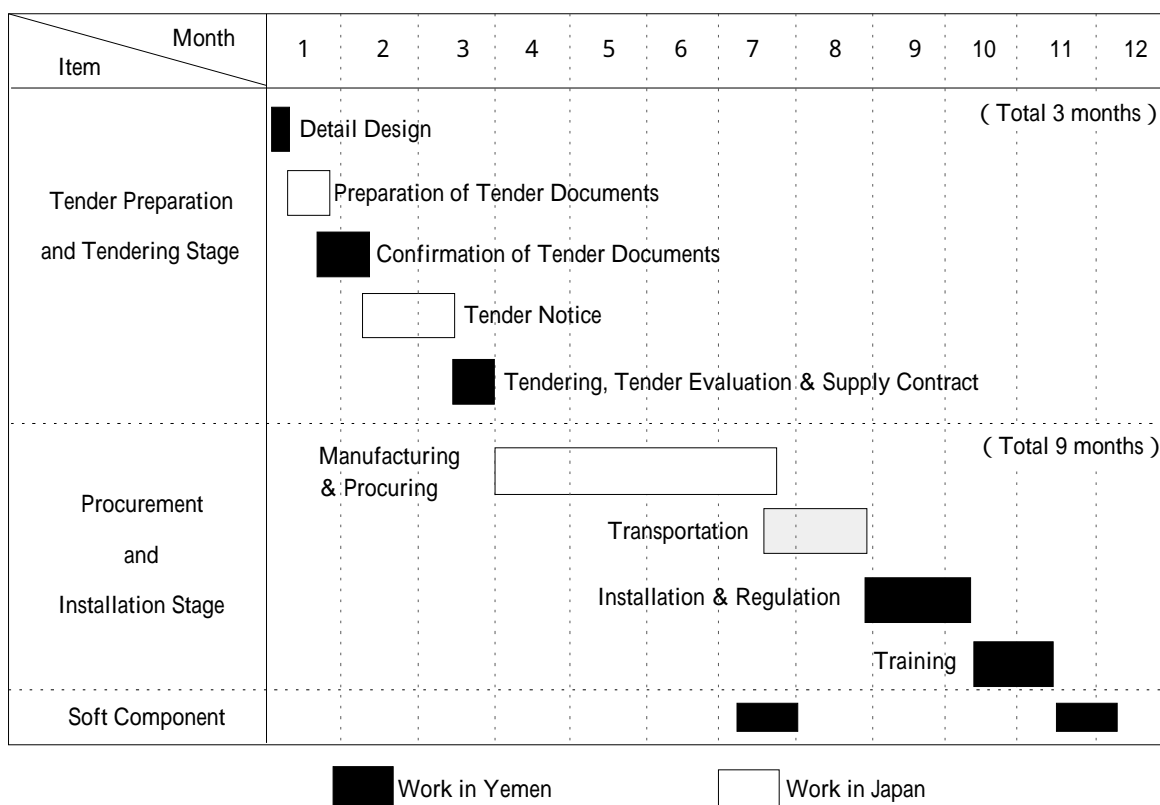
**(2) Procurement and installation of the equipment**

After the Japanese government verifies the supply contract between the MoPH of Yemen and the equipment supplier, the supplier starts procuring the equipment in compliance with the contract documents. The works related to the equipment procurement, transportation and installation in the hospitals takes about seven and half (7.5) months.

**(3) Soft component program by the consultant**

As a part of the Project, the consultant will provide soft component program for sustainable operation of the equipment. There is a need to train the hospital staff and familiarize them with daily maintenance and trouble shooting. This program takes a total of 2.3 months.

The implementation of the Project is scheduled from the signing of the E/N to the completion of the works as shown in Figure 3-2.



**Figure 3-2 Implementation Schedule**

### **3-1-7 Obligations of the Government of Yemen**

The obligations of the government of Yemen in relation to the implementation of the Project are as follows.

- (1) To provide the necessary information and data for the Project,
- (2) to ensure support to the supplier, such as prompt customs clearance of the equipment under the Project at ports of disembarkation in Yemen,
- (3) to exempt Japanese nationals who are staying in Yemen for providing services in connection to the implementation of the Project, from customs duties, internal taxes and fiscal levies which may be imposed in Yemen,
- (4) to accord necessary security and protection to Japanese nationals entering or staying in Yemen for purpose of providing services and to their equipment brought in for the implementation of the Project,
- (5) to bear commissions, namely advising commissions of an Authorizations to Pay (A/P) and payment commissions in connection to the Project,
- (6) arranging the personnel / budgets required in order to effectively implement this planning (including O/M costs of equipment procured using grant aid),
- (7) to ensure that the equipment procured under the grant aid from Japan is maintained and used properly and effectively for the Project,
- (8) to provide necessary permission, licenses, and other authorization for implementing the Project, if necessary, and
- (9) to bear all the expenses, such as operation and maintenance cost of the equipment.

### **3-1-8 Soft Component Program**

Soft Component Program is necessary to support establishing a system so that the staff members of the hospitals who operate the equipment can perform preventive maintenance in compliance with manuals before and after handling. At present, most of the staff members who operate the equipment are not well trained. The equipment often breaks down due to lack of proper attention and basic knowledge of the equipment. Some equipment, even though installed recently, is left unused as they have broken down due to lack of daily and periodical maintenance. The insufficient knowledge about the usage of the equipment might cause shorter life of the equipment and imprecise data output by the equipment.

To improve such situation, the program, at first, prepares technical documents including tables and sheets used for daily inspection and check-up. Then the training on the basic operation of the equipment is done so that the staff members can perform daily and periodical maintenance. It is important to train the exact persons who are in charge of operating, checking and cleaning the equipment in order to make the program successful. The program will be focused on the following nine (9) equipment.

**Table 3-1 Equipment to be covered by the Soft Component Program**

Name of the Equipment		
(1) Fetal Doppler	(4) Electrosurgical Unit	(7) Anaesthetic Unit
(2) Ultrasound Diagnostic Equipment	(5) High Pressure Steam Sterilizer	(8) Fetal Monitor
(3) Infant Incubator	(6) Suction Unit	(9) Defibrillator

### **(1) Training contents**

The above mentioned program is executed as follows.

- 1) -1 A curriculum and a text book are prepared for the trainees to understand the basic principle of the equipment.
- 2) -1 An inspection work sheet and a checkup list are prepared for the daily inspection of each item which is mentioned above. These sheet and list are used to inspect the outside appearance of the main body and the attachments, to clean the attachments after use, to set and release the controllers required for the operation and to confirm the standard operation of a respective item.
- 2) -2 A manual is prepared to suggest what step should be taken when the equipment breaks down. Preferably, this manual should be prepared in a format of flowchart.
- 3) -1 A schedule is prepared for offering a training session at 2 hospitals. The date of the training session, attendants are decided beforehand. Training session is offered at Al-Sabeen hospital with attendants from Matnah hospital, Al-Thawra hospital and Yarim hospital, another one is Wahada hospital with attendants from Al-Turba hospital, Tour Al-baha hospital and Mukalla MCH hospital.

### **(2) Training schedule and trainers**

The consultant will assign two (2) engineers for the Soft Component Program. At the first step, one engineer shall provide necessary documents, such as textbooks, inspection sheets, and flowchart for

troubleshooting, etc. in cooperation with the MoPH authorities concerned. As the second step, the training sessions shall conduct two (2) engineers with documents mentioned above, following the equipment installation. The schedule of each program described in Figure 3-2.

### 3-2 Project Cost Estimation

#### (1) The Japanese side

Cost for designing and procuring the equipment

#### (2) Cost borne by the Yemen side

None

### 3-3 Operation and Maintenance Costs

#### (1) Present state of the operation and maintenance costs

Table 3-2 shows the revenues of the hospitals, which are allocated by the MoPH in 1999, and Table 3-3 shows fees paid by patients of each hospital. And in general, personnel emoluments of the hospitals allocated by the GHO, except MCH hospitals, such as Al Sabeen and Wahada, which receive personnel emoluments directory from the MoPH.

**Table 3-2 Hospitals Revenues to be arranged by the MoPH, FY 1999** (unit: Yemen rial)

Name of the Hospital	Operation and Running Costs					Total
	Fuel expenses	Lighting & heating expenses	Food and drugs expenses	Facility	Medical equipment	
1) Al-Sabeen Hospital	1,092,000	330,000	23,491,260	1,112,000	277,000	26,302,260
2) Al-Thawra Hospital	360,000	108,000	7,660,200	816,000	204,000	9,148,200
3) Mukalla Hospital	387,600	103,200	5,754,240	450,240	112,560	6,807,840
4) Wahada Hospital	1,818,000	576,000	36,211,200	1,502,400	375,600	40,483,200
5) Matnah Hospital	300,000	72,000	5,468,400	331,200	82,800	6,254,400
6) Al-Turba Hospital	516,000	144,000	8,673,000	873,600	218,400	10,425,000
7) Yarim Hospital	276,000	72,000	6,924,000	456,000	114,000	7,842,000
8) Tour Al-Baha Hospital	144,000	66,000	1,815,000	206,400	51,600	2,283,000

( Source : MoPH, Financial Affairs )

**Table 3-3 Revenues from Patients**

(unit: Yemen rial)

Name of the Hospital	FY 1996	FY 1997	FY 1998
1) Al-Sabeen Hospital	13,327,909	31,427,299	39,021,599
2) Al-Thawra Hospital	-	8,000,000	12,400,000
3) Mukalla Hospital	-	-	-
4) Wahada Hospital	-	4,165,830	5,635,380
5) Matnah Hospital	3,713,910	5,142,865	7,417,040
6) Al-Turba Hospital	4,690,000	4,690,000	4,690,000
7) Yarim Hospital	34,000	39,700	110,200
8) Tour Al-Baha Hospital	95,120	149,880	262,035

( Source : Hospital Survey, July, 1999 )

The Table 3-4 shows the estimated amounts of additional costs to the hospitals newly arising from this Project. The cost estimation of the equipment calculated on July 1999.

**Table 3-4 Estimated Annual Running Cost of Main Equipment**

(unit: Yemen rial)

Name of the Hospital	Name of Equipment / Annual Running Cost				Total / Hospital
	Ultrasound Scanner	Pulse Oxymeter	Operation Light	Anaesthetic Unit	
1) Al-Sabeen Hospital	1,089,000	26,400	-	-	1,115,400
2) Al-Thawra Hospital	-	13,200	35,100	286,800	335,100
3) Mukalla Hospital	544,500	13,200	-	-	557,700
4) Wahada Hospital	1,089,000	26,400	-	-	1,115,400
5) Matnah Hospital	-	13,200	-	-	13,200
6) Al-Turba Hospital	-	13,200	-	143,400	156,600
7) Yarim Hospital	-	13,200	-	-	13,200
8) Tour Al-Baha Hospital	486,000	-	17,550	-	503,550
Grand Total					3,810,150

The equipment will be installed around December 2000. After the installation of the equipment, there is one year of warranty period. Therefore, a budgetary consideration should be taken for year 2002 and thereafter. Table 3-5 shows budgetary estimations for year 2002 and evaluates the financial viability of the hospitals in bearing the increased cost for operation and maintenance of the equipment. Through an evaluation, it is confirmed that all the hospitals except Tour Al-Baha Hospital could make appropriate budgetary allocations for operation and maintenance of the procured equipment under the Project. In the case of Tour Al-Baha hospital, the hospital will start new services, ultrasound diagnosis and caesarean operation, after receiving the necessary equipment procured by the Project. The income of the two new services is expected 600,000 rials per year, which should be enough to cover the estimated additional costs of 503,550 rials.

**Table 3-5 Inspection of the Financial Viability of the Hospitals**

(unit: Yemen rial)

Name of the Hospital	Budget from MoPH FY 2002 / (A)	Cost Sharing Money FY 2002 / (B)	Total Income (A)+(B)	Running Cost FY 2002 / (C)	(C) / (A)+(B) ( % )
1) Al-Sabeen Hospital	26,302,260	47,430,997	73,733,257	1,115,400	1.15
2) Al-Thawra Hospital	9,148,200	15,072,278	24,220,478	335,100	1.38
3) Mukalla Hospital	6,807,840	*6,571,027	13,378,867	557,700	4.17
4) Wahada Hospital	40,483,200	6,849,840	47,333,040	1,115,400	2.36
5) Matnah Hospital	6,254,400	9,015,458	15,269,858	13,200	0.09
6) Al-Turba Hospital	10,425,000	5,700,724	16,125,724	156,600	0.97
7) Yarim Hospital	7,842,000	373,949	8,215,949	13,200	0.16
8) Tour Al-Baha Hospital	2,283,000	918,505	3,201,505	503,550	15.73

\* As for Mukalla hospital, because cost sharing will be introduced from 1999, the figures are calculated based on January to March of 1999.

\* Revenues (cost sharing money) from patients of the Tour Al-Baha hospital include the income from new medical services, such as ultrasound diagnosis and caesarean operations.

\* Budget from the MoPH in FY 2002 leaves the budget of FY 1999.

\* Cost sharing money from patients of each hospital in FY 2002 is calculated 5% increase annually from the results of 1996, 1997 and 1998.

**[Assumptions]**

## 1) Conditions for Ultrasound Diagnosis

Charge of diagnosis: 400 Yemen rial / patient

Number of patients: 3 patients/day x 300 days/year = 900 patients/year

Expected Revenues: 360,000 Yemen rial

## 2) Conditions for caesarean

Charge of caesarean: 1,200 Yemen rial / patient

Number of patients: 1 patient/day x 200 days/year = 200 patients/year

Expected Revenues: 240,000 Yemen rial

## **Chapter 4 Project Evaluation and Recommendation**



## **Chapter 4 Project Evaluation and Recommendation**

### **4-1 Project Effect**

The aim of this Project is to improve medical care services for maternal and child health in the selected hospitals. The following effects are expected from providing the necessary equipment to the hospitals, assuming that the Government of Yemen would provide necessary budget and human resources to the hospitals.

#### **(1) Effects and impact for the people in the coverage area of the hospital which are improved on the Project**

##### **1) Improved basic medical service**

At present, the hospitals are not providing appropriate medical services because of dilapidation and shortage of equipment. Therefore, the Project will procure such equipment as stethoscopes, sphygmomanometers and thermometers, which will be used for providing basic medical services. Thus, this Project contributes to the improvement of basic medical services, and about 350,000 outpatients per year who visit the hospitals will benefit from the Project.

##### **2) Support for primary health care (PHC)**

Many donors, i.e., international organizations and donor countries, have assisted the improvement of activity in the primary health care facilities, which are positioned under the governorate and district hospitals in the health care referral system. Therefore facilities already provide appropriate primary health care services. It is indispensable that the governorate and district hospitals also need to improve as secondary and tertiary hospitals which buck up the primary health care facilities. Since this Project improves the medical equipment of some governorate and district hospitals and makes them capable of assisting high-risk deliveries, treating premature babies, unnecessary referring to general hospitals or MCH hospitals will be avoided.

##### **3) Effect on the introduction of a system to receive payments from services**

The objective of the cost sharing strategy in Yemen is to secure sufficient funds through revenues from fees and charges for services in order to finance maintenance costs of facilities, equipment and

supply of drugs, as well as to provide financial incentives to hospital workers for higher motivation and performance. Because the main objective of cost sharing is to make adequate funds available at the facilities which actually are providing medical service, the revenues from cost sharing need to stay within where they are generated in order to avoid losses which occur if the revenues are transferred through different administrative levels. Community co-managed control systems will be established to ensure that the collected funds are used appropriately according to the guidelines set up a national level and the district management decisions.

Even though the cost sharing strategy is not introduced as a national policy, many hospitals charge patients for their services. This trial is advisable since the hospitals can become financially self-reliant. However, there are some problems. As findings from the interviews to patients, they were not satisfied with the quality of services that they received because hospitals did not provide adequate services to their payment. Also, the government has not implemented policies and regulations on payment exemption for the poor, disables, elder, mother, and child.

This service-for-payment trial adopted by many hospital lacks fairness and equality as well as provision of proper medical services to the patients. A strategy will need development of making necessary structural guidelines affordable for people in the country. The service-for-payment will take a long time until the government institutes a national wide system. However, the hospitals being improved on the Project will be able to assure their patients that the hospitals are able to provide proper medical services, especially to mothers and children. Thus, this Project will help the government of Yemen to soften the resistance of the people against the introduction of a national system to receive charges for medical services.

#### **4) Number of mothers and children who benefit from the Project**

The district hospitals improved on the Project are medical facilities, which provide medical services locally. It is expected that the numbers of mothers and children who benefit from the Project will be about 170 thousand each for Matnah hospital and Yarim hospital, about 340 thousand for Al-Turba hospital, and about 65 thousand for Tour Al-Baha hospital (refer to Figure 4-1).

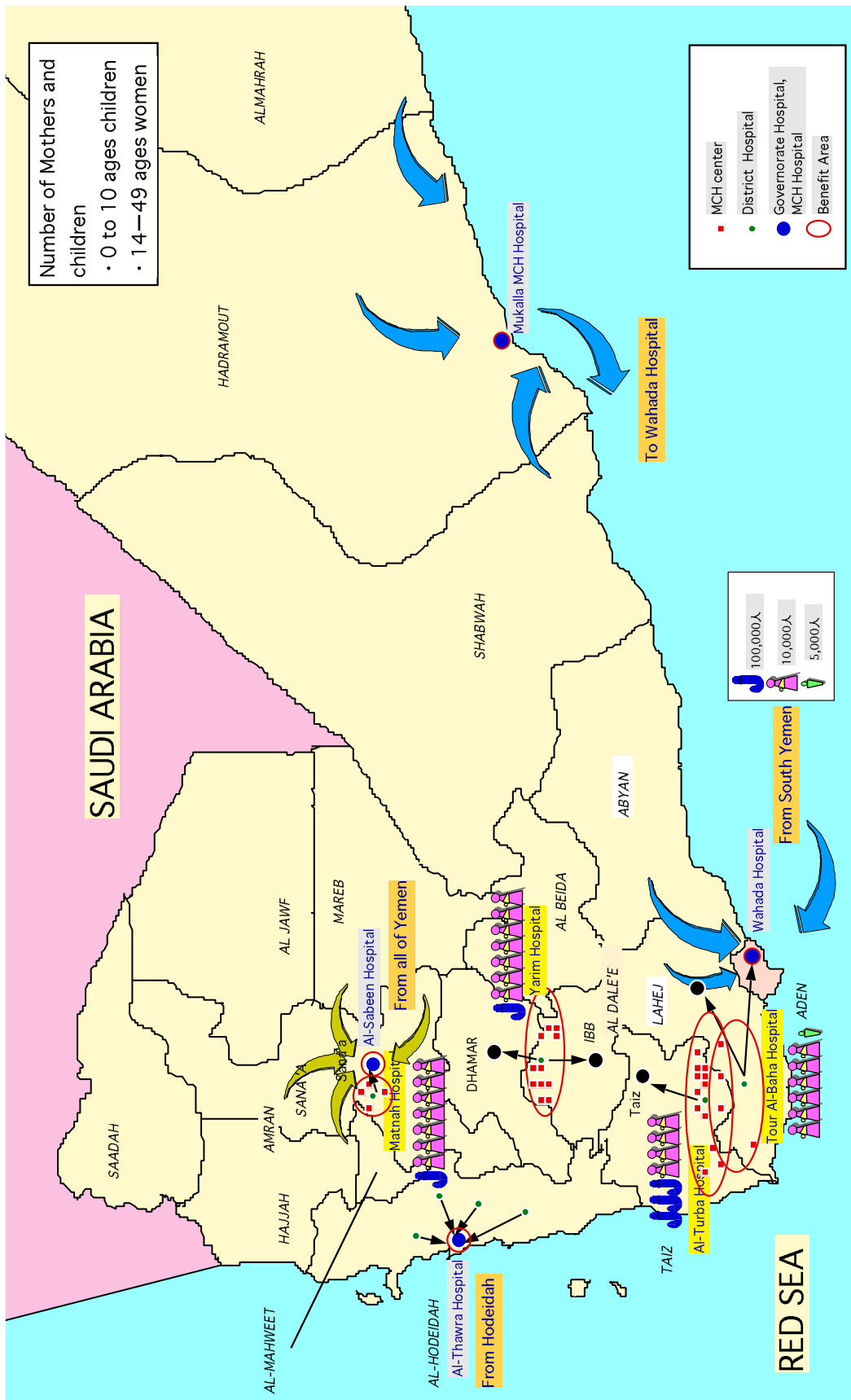


Figure 4-1 Number of mother and child

## **(2) Appropriateness of the Project**

### **1) Administrative plan**

Yemen has a proper number of trained human resources, however there exists disparities in the distribution and deployment of key staff due to overstaffing in urban areas and understaffing in rural areas. Although some of district hospitals which are located in rural areas, have been in operation for more than ten years, these hospitals are affected by a shortage of medical workers. To solve this problem, the health care departments of each GHO is retaining medical workers and stationing them in the district hospitals. No major reorganization of existent hospital management system is planned for the implementation of this Project because the Project is only to supplement the present operation of the hospitals, except Matnah hospital which has a plan to increase the size of its staff with medical workers being transferred from other medical facilities in the governorate.

### **2) Budgetary consideration**

It is estimated that annually a total of 3,810 thousand Y.R. will be required for the operation and maintenance of the procured equipment in 2002 (refer to table 3-5). As we explained in Chapter 3-3, we confirmed that all target hospitals could manage the operation and maintenance cost.

## **4-2 Recommendation**

It is expectable that the improvement made by the implementation of the Project triggers some other beneficial effects in the general activities of the hospitals, such as planning of the staff allocation and financing management, medical and clinical activities to the patients and its evaluations, and training of medical personnel etc. Therefore, this Project should be implemented promptly and effectively to lay foundations for future development of the hospital management. Especially, appropriate steps should be taken on the following problems involving not only the staff of the maintenance departments of the GHO but the entire staff of the hospitals for reforming the health care system into a sound operation.

## **4-2-1 Problems to be Solved**

### **(1) Operation and maintenance of the medical equipment**

To utilize the medical equipment effectively, it is important to institute a system which enables the staff members of the hospitals to perform daily and periodical maintenance of the equipment. It is also important that the maintenance departments of the GHO establish the good relations with the local representatives of the manufacturers in order to maintain suitable performance of the equipment, especially, sophisticated and require continual procurement of consumables and reagents equipment concerned.

In addition, it is preferable that the staff of the GHO and the hospitals acquires and keep technical documents such as maintenance manuals, operation manuals and circuit diagrams for major equipment. It is also advisable to keep a table, which lists the manufacturer's serial numbers for the equipment. All of them are necessary or helpful for carrying out the maintenance work. In addition, it is important to develop and train engineers who will perform the maintenance work. For establishment of the maintenance management system, such as above-mentioned activities, the consultant will plan and execute the training sessions through a soft component program.

### **(2) Budgetary measures**

It is confirmed that the running cost of the medical equipment procured on the Project is bearable as mentioned above. However, some budgetary measures should be taken for the repair cost should an unexpected breakdown happen. For the repair work to be executed promptly, the GHO or the hospitals themselves must be prepared financially for such unexpected breakdowns of the equipment.

### **(3) Redeployment of medical personnel**

The government has a plan to promote the standardization of health care services in connection with the Health Sector Reform Strategy under the HDPS. Under this policy, the health care departments of the GHO are considering the efficient allocation of human resources in public health service at respective governorate. In addition, for successful implementation of the Project, it is important that the staff members of the target hospitals shall be trained their specialty, especially in the fields of the obstetric surgery and the treatment of premature babies and neonates. Preferably, training sessions for existing staff members should be considered at specialized institutions, such as

MCH hospitals, general hospitals and medical faculties of Sana'a university for assuring the qualified physicians, nurses and medical specialists.

#### **4-2-2 Recommendation**

##### **(1) Restructuring hospital operation**

###### **1) Business conscious management (management and leadership)**

The government has introduced a policy, which decentralizes health care management. Now, each hospital takes part in the management of its own operation. However, because the hospitals had been directly under the MoPH and governed centrally until the start of the decentralization, the directors of the hospitals and the staff are not aware of the responsibility they have in the operation of the hospitals. Under current severe environment, the directors and administrators have to recognize how important the operational management and the financial rationalization are in order to achieve the efficient hospital operation.

###### **2) Lifting doctors' morale**

It is important to manage the doctors' working hours efficiently in the personnel management of the hospitals. In many cases, the services of the hospitals are provided on doctors' instructions. If doctors delay the starting time of the outpatient clinics, then not only do the patients have to wait longer, but also the staff of other departments have to delay their work. For example, nursing care, laboratory tests, dispensing of medicines, clerical work, etc. which should be executed on the instructions of doctors would be delayed. Also, if doctors do not start ward rounds on time, then the work of other staff will be affected in the same way. Therefore, the doctors must act responsibly as members of the organizations. Although each of the hospital is an aggregate of specialists, without instructions from doctors, it cannot perform effectively. Therefore, not only from the point of personnel management but also from the point of efficient hospital operation, lifting the doctors' morale is the foundation of establishing "good" hospitals.

##### **(2) Securing income**

Public medical facilities play a major role in providing medical services to the people, and they must provide services at a standardized level of quality. On the other hand, many hospitals are not able to provide such quality services in an efficient manner. The reason is that, as the

responsibility of running the hospitals is being transferred to the administrators, managers or directors of the hospitals because of the government's policy of decentralization of health care system, the hospitals are in confusion and not running smoothly. Sooner or later, each medical facility is forced to compete for patients and receive fees for the services. Therefore, the hospitals must improve the quality of the services in consideration of their locations, the sizes of the areas and populations they serve, and the existence and conditions of other medical facilities in the same areas. To secure a certain amount of income from the services the hospital must not only secure a certain number of patients but also improve the services they provide by acquiring specialties. They must charge the patients fairly for the service offered. Each hospital must recognize the present condition of the hospital, analyze the problems and improve the condition.

### **(3) Adopting management indicators**

It is important to grasp that the following examples of indicators would be considered for the hospital management: 1) the geographical and historical conditions of the hospital, 2) the number of beds the hospital has, 3) the types of medical services the hospital is offering, 4) the average number of patients the hospital examines or treats per day, 5) the geographical area the hospital serves, 6) changes in the demand for medical services, 7) the conditions of other medical facilities which are located in the same region or in other regions, and 8) problems which exist in the region. With evaluating periodically these indicators for the hospitals management policies can be improved drastically.

### **(4) Monitoring and evaluating the effects of the Project**

For the purpose of making this Project a major contributor to the program of the Yemen government which promotes the health of mothers and children by improving the health care system, the following examples of indicators should be monitored and evaluated continually after the implementation of the Project. Through the evaluation of the effect of the Project, existing problems may be extracted, and solutions can be applied, so that this Project will bring about optimal benefits to further the government policies and programs.

#### **1) Hospital structures**

- (a) Present state of medical services and standardized target level in obstetrics and gynecology and peadiatrics (refer to Figure 2-2)

- (b) Changes in the size of personnel (especially, doctors and nurses)

## **2) Hospital activities**

- (a) Medical services
  - \* Numbers of outpatients and emergency patients treated,
  - \* Utilization rate of beds in each medical department,
  - \* Number of patients treated in ICU and utilization rate of ICU,
  - \* Number of surgical operations performed in gynecology (classified for each body part treated),
  - \* Number of births (grouped by normal deliveries and by caesarean cases),
  - \* Number of examinations performed for each test item,
  - \* Number of patients referred from medical facilities of lower level,
  - \* Number of patient referred to specialized hospitals or general hospitals in principal cities.
- (b) Hospital Management
  - \* Analyzing income and expenditure for each medical department (e.g., outpatient, inpatient, ICU, maternity, laboratory, diagnostic imaging, etc.),
  - \* Analyzing the system which receives payments for services.
- (c) Operation of major equipment
  - \* Ventilator (number of patient treated annually and number of days used),
  - \* Ultrasound Diagnostic Equipment (number of patients examined annually),
  - \* Incubator (number of infants treated annually), etc.

## **3) Outcome in medical services**

- (a) Growth rates in the number of examinations on pregnant women and in the number of examinations on newborn babies and infants,
- (b) Number of patients guided and treated in family planning and growth rate thereof,
- (c) Success rate of emergency treatment in life saving and growth rate thereof,
- (d) Cases for which caesarean sections are performed, and number of caesarean sections performed for each case,
- (e) Cases for which emergency operations are performed, and number of such operations (in obstetrics & gyneacology and peadiatrics),
- (f) Changes in the average number of days of hospitalization,



- (g) Cases for which ICU are used, and recovery rate and death rate,
- (h) Changes in the rates of complete recovery, light recovery or mortality of babies born with low birth weights (below 2,500 grams),
- (i) Cases of complication, and changes in the ratio of patients with complication,
- (j) Changes in the hospital mortality.

## **Appendices**

1. Member List of the Survey Term

( 1 ) Basic Design Study ( June 15 July 23, 1999 )

Mr. Daini TSUKAHARA Team Leader  
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Mr. Toshihiko MATSUKI Cost and Procurement  
International Techno Center Co., Ltd.

( 2 ) Explanation of Draft Final Report

( December 1    December 14, 1999 )

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Mr. Shigetaka TOJO    Equipment Planner I  
International Techno Center Co., Ltd

Ms. Yumi ISHIKAWA    Equipment Planner II  
International Techno Center Co., Ltd.

## 2. Survey Schedule

(1) Basic Design Study (June 15 July 23, 1999)

M/D	Team A	Stay	Team B	Stay
6/15/99 (Tue.)	Departure (Narita) Frankfurt			Frankfurt
6/16/99 (Wed.)	Frankfurt Sana'a			Sana'a
6/17/99 (Thu.)	<ul style="list-style-type: none"> <li>• Courtesy call to Embassy of Japan, Ministry of Public Health (MOPH), Ministry of Planning &amp; Development (MOPD)</li> <li>• Visit to WHO, UNFPA</li> </ul>			Sana'a
6/18/99 (Fri.)	Team Meeting			Sana'a
6/19/99 (Sat.)	<ul style="list-style-type: none"> <li>• Discussion with MOPH (Nozaki, Kaneko, Ishikawa, Matsuki, Translator Ishikawa)</li> </ul>	Sana'a	<ul style="list-style-type: none"> <li>• Discussion with MOPH Sana'a Hadramout (Tojo, Suzuki)</li> </ul>	Mukalla
6/20/99 (Sun.)	<ul style="list-style-type: none"> <li>• Discussion with GTZ (Kaneko, Ishikawa, Matsuki)</li> <li>• Discussion with Head of supply / statistics sec. (Nozaki, Translator Ishikawa)</li> <li>• Discussion with Maintenance dept. (Nozaki, Kaneko, Ishikawa, Matsuki, Translator Ishikawa)</li> </ul>	Sana'a	<ul style="list-style-type: none"> <li>• Discussion with Hadramout Health Office</li> <li>• Discussion with Mukalla MCH Hospital (Tojo, Suzuki)</li> </ul>	Mukalla
6/21/99 (Mon.)	<ul style="list-style-type: none"> <li>• Discussion with Sana'a Governorate health office (Nozaki, Kaneko, Ishikawa, Matsuki, Translator Ishikawa)</li> <li>• Survey on Al-Sabeen Hospital (Nozaki, Kaneko, Ishikawa, Matsuki, Translator Ishikawa)</li> <li>• Discussion with MOPH (Nozaki, Translator Ishikawa)</li> <li>• Discussion with UNAID (Kaneko, Ishikawa, Matsuki)</li> </ul>	Sana'a	<ul style="list-style-type: none"> <li>• Survey on Mukalla MCH Hospital (Tojo, Suzuki)</li> </ul>	Mukalla
6/22/99 (Tue.)	<ul style="list-style-type: none"> <li>• Survey on Al-Sabeen Hospital (Nozaki, Kaneko, Ishikawa, Translator Ishikawa)</li> <li>• Questionnaire</li> <li>• Discussion with Dutch Embassy (Nozaki)</li> <li>• Survey on Agent (Matsuki)</li> </ul>	Sana'a	<ul style="list-style-type: none"> <li>• Survey on Mukalla MCH Hospital (Tojo, Suzuki)</li> </ul>	Mukalla

M/D	Team A	Stay	Team B	Stay
6/23/99 (Wed.)	<ul style="list-style-type: none"> <li>• Survey on Al-Sabeen Hospital ( Kaneko, Ishikawa )</li> <li>• Discussion with supply / statistics sec. ( Nozaki, Translator Ishikawa )</li> <li>• Survey on Al-Sabeen Hospital ( MCH )</li> <li>• Discussion with MOPH ( Nozaki, Translator Ishikawa )</li> <li>• Discussion with YFCA ( Nozaki, Ishikawa, Translator Ishikawa )</li> <li>• Survey on Agent ( Matsuki )</li> <li>• Mr. Iwaki and Dr. Egami Arrive at Sana'a</li> </ul>	Sana'a	<ul style="list-style-type: none"> <li>• Discussion with Hadramout Health Office</li> <li>• Survey on Mukalla MCH Hospital ( Tojo, Suzuki )</li> </ul>	Mukalla
6/24/99 (Thu.)	<ul style="list-style-type: none"> <li>• Survey on Al-Sabeen Hospital ( Nozaki, Kaneko, Ishikawa, Matsuki, Translator Ishikawa )</li> <li>• Courtesy call to Embassy of Japan ( Mr. Iwaki, Dr. Egami, Nozaki, Translator Ishikawa )</li> <li>• Visit to Minister of MOPH ( Mr. Iwaki, Dr. Egami, Nozaki, Translator Ishikawa )</li> <li>• Discussion with WB ( Mr. Iwaki, Dr. Egami, Nozaki, Kaneko, Ishikawa, Matsuki, Translator Ishikawa )</li> <li>• Survey on Agent ( Matsuki )</li> </ul>	Sana'a	<ul style="list-style-type: none"> <li>• Survey on Ibn Sinna Hospital ( Tojo, Suzuki )</li> </ul>	Mukalla
6/25/99 (Fri.)	<ul style="list-style-type: none"> <li>Sana'a Al-Hodeidah ( Mr. Iwaki, Dr. Egami, Nozaki, Kaneko, Ishikawa, Matsuki, Translator Ishikawa )</li> <li>• Visit to Al-Thawra Hospital</li> <li>• Discussion with Hospital persons</li> </ul>	Al-Hodeidah	Team meeting ( Tojo, Suzuki )	Mukalla
6/26/99 (Sat.)	<ul style="list-style-type: none"> <li>• Survey on Al-Thawra Hospital /</li> <li>• Discussion with Health Office, PHC</li> </ul>	Al-Hodeidah	<ul style="list-style-type: none"> <li>• Discussion with Hadramout Health Office</li> <li>• Hearing of Hagr Hospital ( Tojo, Suzuki )</li> </ul>	Mukalla
6/27/99 (Sun.)	<ul style="list-style-type: none"> <li>• Survey on Al-Thawra Hospital ( Mr. Iwaki, Dr. Egami, Nozaki, Kaneko, Ishikawa )</li> <li>• Visit to Health Office ( Nozaki, Matsuki, Translator Ishikawa )</li> <li>• Discussion with PHC, Statistics, Malaria div.</li> </ul>	Al-Hodeidah	<ul style="list-style-type: none"> <li>• Discussion with Hadramout Health Office</li> <li>• Hearing of Hagr Hospital ( Tojo, Suzuki )</li> </ul>	Mukalla
6/28/99 (Mon.)	<ul style="list-style-type: none"> <li>• Survey on Health Office, Maintenance center</li> <li>• Survey on Health center</li> <li>• Survey on Al-Thawra Hospital</li> </ul>	Al-Hodeidah	<ul style="list-style-type: none"> <li>• Discussion with Hadramout Health Office</li> <li>• Hearing of Hagr Hospital ( Tojo, Suzuki )</li> </ul>	Mukalla
6/29/99 (Tue.)	<ul style="list-style-type: none"> <li>• Discussion with Health Office</li> <li>• Survey on Al-Thawra Hospital Al-Hodeidah Sana'a</li> </ul>	Sana'a	<ul style="list-style-type: none"> <li>• Discussion with Hadramout Health Office ( Tojo, Suzuki )</li> <li>Hadramout Sana'a</li> </ul>	Sana'a

M/D	Survey Schedule		Stay	
6/30/99 (Wed.)	<ul style="list-style-type: none"> <li>• Discussion with MOPH ( Mr. Iwaki, Dr. Egami, Nozaki, Matsuki, Translator Ishikawa )</li> <li>• Matnah Hospital ( Tojo, Suzuki, Kaneko, Ishikawa )</li> </ul>		Sana'a	
7/1/99 (Thu.)	<ul style="list-style-type: none"> <li>• Discussion with MOPH ( Mr. Iwaki, Dr. Egami, Nozaki, Translator Ishikawa )</li> <li>• Matnah Hospital ( Kaneko, Ishikawa, Suzuki )</li> <li>• Al-Sabeen Hospital ( Ishikawa, Translator Ishikawa )</li> <li>• Discussion with MOPH ( Mr. Iwaki, Dr. Egami, Nozaki, Tojo )</li> <li>• Discussion with WB ( Matsuki, Ishikawa, Translator Ishikawa )</li> <li>• Mr. Tsukahara arrive at Sana'a</li> </ul>		Sana'a	
7/2/99 (Fri.)	<ul style="list-style-type: none"> <li>• Discussion with Mr. Yamamoto</li> </ul> Team Meeting		Sana'a	
7/3/99 (Sat.)	<ul style="list-style-type: none"> <li>• Discussion with Family Health Project ( Nozaki, Matsuki )</li> <li>• Survey on Matnah Hospital( Mr. Tsukahara, Mr. Iwaki, Dr. Egami, Suzuki, Kaneko, Translator Ishikawa )</li> <li>• Survey on Al-Sabeen Hospital ( Mr. Tsukahara, Mr. Iwaki, Dr. Egami, Ishikawa )</li> </ul>		Sana'a	
7/4/99 (Sun.)	<ul style="list-style-type: none"> <li>• Courtesy call to MOPD ( Mr. Tsukahara, Mr. Iwaki, Dr. Egami, Nozaki, Tojo, Matsuki )</li> <li>• Discussion with MOPH ( Mr. Tsukahara, Mr. Iwaki, Dr. Egami, Nozaki, Tojo, Matsuki )</li> <li>• Courtesy call to Embassy of Japan ( Mr. Tsukahara, Mr. Iwaki, Dr. Egami, Nozaki, Tojo, Matsuki )</li> </ul>		Sana'a	
7/5/99 (Mon.)	<ul style="list-style-type: none"> <li>• Discussion with MOPH ( Mr. Tsukahara, Mr. Iwaki, Dr. Egami, Nozaki, Tojo, Matsuki )</li> <li>• Discussion with UNFPA ( Mr. Tsukahara, Mr. Iwaki, Dr. Egami, Nozaki, Tojo, Matsuki )</li> <li>• Discussion with MOPH ( Mr. Tsukahara, Mr. Iwaki, Dr. Egami, Nozaki, Tojo, Matsuki )</li> <li>• Survey on Yarim Hospital ( Kaneko, Ishikawa, Suzuki, Ishikawa )</li> </ul>		Sana'a	
7/6/99 (Tue.)	<ul style="list-style-type: none"> <li>• Discussion of Minutes at MOPH ( Mr. Tsukahara, Mr. Iwaki, Dr. Egami, Nozaki, Tojo, Matsuki )</li> <li>• Discussion of Minutes at MOPD ( Mr. Iwaki, Nozaki, Matsuki )</li> <li>• Signing of Minutes at MOPD ( Mr. Tsukahara, Mr. Iwaki, Dr. Egami, Nozaki, Tojo, Matsuki )</li> <li>• Report to Embassy of Japan ( Mr. Tsukahara, Mr. Iwaki, Dr. Egami, Nozaki, Tojo, Matsuki )</li> <li>• Survey on Yarim Hospital ( Kaneko, Ishikawa, Suzuki, Ishikawa )</li> </ul>		Sana'a	
7/7/99 (Wed.)	Team meeting <ul style="list-style-type: none"> <li>• Report to Embassy of Japan ( Mr. Iwaki, Dr. Egami, Nozaki )</li> </ul> Departure to Japan (Mr. Tsukahara, Mr. Iwaki)		Sana'a	
7/8/99 (Thu.)	<ul style="list-style-type: none"> <li>• Al-Sabeen Hospital ( Nozaki, Kaneko, Ishikawa )</li> <li>• Discussion with MOPH ( Matsuki, Suzuki, Translator Ishikawa )</li> <li>• Discussion with Sana'a Governorate</li> </ul>		Sana'a	
7/9/99 (Fri.)	Team meeting		Sana'a	
7/10/99 (Sat.)	<ul style="list-style-type: none"> <li>• Discussion with MOPH ( Nozaki, Kaneko, Ishikawa, Translator Ishikawa )</li> <li>• Discussion with Drug and Medical supply dept.</li> <li>• Discussion with Health affairs management</li> </ul>	Sana'a	Sana'a Aden ( Tojo, Matsuki, Suzuki )	Aden
7/11/99 (Sun.)	Sana'a Taiz	Taiz	<ul style="list-style-type: none"> <li>• Discussion with Health Office ( Tojo, Matsuki, Suzuki )</li> <li>• Survey on Wahada Hospital ( Tojo, Matsuki, Suzuki )</li> </ul>	Aden
7/12/99 (Mon.)	<ul style="list-style-type: none"> <li>• Discussion with Health Office ( Nozaki, Kaneko, Ishikawa, Translator Ishikawa )</li> <li>• Survey on Maintenance center</li> </ul>	Taiz	<ul style="list-style-type: none"> <li>• Survey on Wahada Hospital</li> <li>• Discussion with Aden Health Office ( Tojo, Matsuki, Suzuki )</li> </ul>	Aden

M/D	Team A	Stay	Team B	Stay
7/13/99 (Tue.)	• Survey on Al-Turba Hospital ( Nozaki, Kaneko, Ishikawa, Translator Ishikawa )	Taiz	• Survey on Wahada Hospital • Discussion with Aden Health Office ( Tojo, Matsuki, Suzuki )	Aden
7/14/99 (Wed.)	• Survey on Al-Turba Hospital ( Kaneko, Ishikawa ) • Discussion with Health Office ( Nozaki, Translator Ishikawa )	Taiz	• Discussion with Lahej Health Office ( Tojo, Matsuki, Suzuki ) • Survey on Tour Al-baha Hospital ( Tojo, Matsuki, Suzuki )	Aden
7/15/99 (Thu.)	• Discussion with Taiz Health Office ( Nozaki, Kaneko, Ishikawa, Translator Ishikawa )	Taiz	• Survey on Wahada Hospital • Discussion with Aden Health Office ( Tojo, Matsuki, Suzuki )	Aden
7/16/99 (Fri.)	Taiz Sana'a Team meeting	Sana'a	• Discussion with Lahej Health Office • Survey on Tour Al-Baha Hospital ( Tojo, Matsuki, Suzuki ) Aden Sana'a ( Tojo )	Aden
7/17/99 (Sat.)	• Discussion with MOPH ( Nozaki, Tojo, Kaneko, Ishikawa )	Sana'a	Team meeting	Aden
7/18/99 (Sun.)	• Discussion with MOPH ( Nozaki, Tojo, Kaneko, Ishikawa )	Sana'a	• Aden Health Office Survey on Maintenance center • Survey on Aden Hospital • Market survey ( Matsuki, Suzuki )	Aden
7/19/99 (Mon.)	• Discussion with MOPH ( Nozaki, Tojo, Kaneko, Ishikawa )	Sana'a	• Aden Health Office Survey on Maintenance center • Visit to Ibn Hospital (Lahej ) • Market survey ( Matsuki, Suzuki )	Aden
7/20/99 (Tue.)	• Discussion with MOPH ( Nozaki, Tojo, Kaneko, Ishikawa )	Sana'a	• Discussion with Lahej Health Office • Discussion with Aden Health Office • Survey on Wahada Hospital ( Matsuki, Suzuki )	Aden
7/21/99 (Wed.)	• Discussion with MOPH ( Nozaki, Tojo, Kaneko, Ishikawa, Matsuki, Suzuki ) • Report to Embassy of Japan Sana'a Frankfurt	Air Plane	• Discussion with Lahej Health Office • Discussion with Aden Health Office Aden Sana'a ( Matsuki, Suzuki )	Sana'a
7/22/99 (Thu.)	Frankfurt Frankfurt Tokyo			Air Plane
7/23/99 (Fri.)	Tokyo			



## ( 2 ) Explanation of Draft Final Report (December 1 - December 14, 1999)

M/D	Survey Schedule	Stay
12/1/99 (Wed.)	Tokyo ( 14:30 ) Frankfurt ( 18:30 ) ( Mr. Iwaki, Nozaki, Tojo, Ishikawa )	Sana'a
12/2/99 (Thu.)	Frankfurt ( 13:00 ) Sana'a ( 23:10 ) ( Mr. Iwaki, Nozaki, Tojo, Ishikawa )	Sana'a
12/3/99 (Fri.)	Team Meeting	Sana'a
12/4/99 (Sat.)	• Discussion with MOPH ( Mr. Iwaki, Nozaki, Tojo, Ishikawa ) Tokyo ( 10:55 ) Frankfurt ( 14:50 ) ( Mr. Iwama )	Sana'a
12/5/99 (Sun.)	• Discussion with MOPH ( Mr. Iwaki, Nozaki, Tojo, Ishikawa ) Frankfurt ( 13:00 ) Sana'a ( 23:10 ) ( Mr. Iwama )	Sana'a
12/6/99 (Mon.)	• Courtesy call to Embassy of Japan • Courtesy call to MOPH • Courtesy call to MOPD • Minutes Discussion with MOPH ( Mr. Iwama, Mr. Iwaki, Nozaki, Tojo, Ishikawa )	Sana'a
12/7/99 (Tue.)	• Minutes Discussion with MOPH ( Mr. Iwama, Mr. Iwaki, Nozaki, Tojo, Ishikawa )	Sana'a
12/8/99 (Wed.)	• Signing of Minutes ( MOPH, MOPD ) ( Mr. Iwama, Mr. Iwaki, Nozaki, Tojo, Ishikawa ) • Report to Embassy of Japan ( Mr. Iwama, Mr. Iwaki )	Sana'a
12/9/99 (Thu.)	Sana'a ( 00:45 ) Frankfurt ( 07:35 ) ( Mr. Iwama, Mr. Iwaki ) Frankfurt 発 ( 13:00 ) Tokyo ( Mr. Iwama, Mr. Iwaki ) • Discussion with MOPH / Spec. of equipment ( Nozaki, Tojo, Ishikawa )	Sana'a
12/10/99 (Fri.)	• Team Meeting ( Nozaki, Tojo, Ishikawa ) • Tokyo ( 08:30 ) ( Mr. Iwaki )	Sana'a
12/11/99 (Sat.)	• Discussion with MOPH / Spec. of equipment ( Nozaki, Tojo, Ishikawa )	Sana'a
12/12/99 (Sun.)	• Discussion with MOPH / Spec. of equipment ( Nozaki, Tojo, Ishikawa ) • Report to Embassy of Japan ( Nozaki, Tojo, Ishikawa )	Air Plane
12/13/99 (Mon.)	Sana'a ( 00:45 ) Frankfurt ( 07:35 ) Frankfurt ( 13:30 ) Tokyo ( Nozaki, Tojo, Ishikawa )	Air Plane
12/14/99 (Tue.)	• Tokyo ( 08:30 ) ( Nozaki, Tojo, Ishikawa )	

### 3. List of Party Concerned in Yemen

#### Ministry of Planning and Development

Mr. Khaled Ahmed Jaber Afif

Director General for Cooperation with  
the States of Asia, Australia & Africa

Mr. Ahmed Hussein A.Jawi

General Directorate for International  
Cooperation,  
Director for cooperation with the States  
of Asia, Australia

#### Ministry of Public Health

Mr. Mohammed Gharamah Al-Raee

Deputy Minister

Mr. Faisal M. Al-Gohaly

Deputy Minister

Dr. Abdulla Jassar Al-Thamiry

Director General of Technical  
Corporation,  
International and Public Relations

Dr. Jamal Amran

Deputy Director General Tec.  
Cooperation

Dr. Fouzia A.Ghramah

Tec. Cooperation in Hadhramout

Dr. Nagiba A. AbdulGhani

Director of Reproductive Health

Dr. Abdul Hakeem Kohlani

Director General of National Center for  
Disease

Surveillance, Acting Director General  
PHC

Dr. Nabil Al Gonaid

Reproductive Health Dept., Coordinator,  
Supervisor

Dr. Ahmad Al Mashray

Head of Supply / Statistics Sec.

Dr. Al-Harazi Hussein

Director General of Maintenance Dept.

Mr. Nagib Abdo Al-Kubati

Biomedical Engineer

Mr. Hizam A. Mohamed

Biomedical Engineer

Mr. Lutfi Abdul – Lateef Ismaeel

Director of Health Affairs management

Mr. Mansour Lawzi

Director of Statistics

Dr. Abdul-Qawy Al-Janeed

Responsible of Store of Medical Supply

Mr. Omar Aashuur

Director of Tax Exemption

Dr. Ali Isurah Mharam

Director General of Medical Supply

Mr. Musaid R. Al-Arasi

Deputy Director of Medical Supply

Ms. Samira Taher                      Training of Reproductive Health Dept.,  
Supervisor

Sana'a Governorate Health Office

Dr. Mohamed M. hajar              Director General, Capital Head Office

Al-Sabeen Hospital

Dr. Aruea El Rabee                  Director  
Dr. Ahmed Shamsaan              Assist. Director for Technical Affairs  
Dr. Abdul Hakt Ali Alsein          Assistant Head, Pediatric Specialist  
Dr. Abdulwahal Modmagi          Pediatric Surgery  
Dr. Aaiad Al Kaaky                  Anesthesia Specialist  
Dr. Fatima Al-matary                Delivery Section  
Dr. Abdul Kareem                    Surgeon  
Dr. Alsir                                In-charge of Operation room  
Dr. Mohamed Al-Mufhama          Laboratory Specialist  
Dr. Khalid Sheha                    Laboratory Specialist, Immunology and  
Immuno-haematology  
Dr. Taher Obid                        Manager General Supervising  
Dr. Fatehia Mahmaid Al hobaishy    Gyne./Obst. Dr

Hodeidah Health Office

Dr. Abdul haafiz Salah Qasim.      Director General of Hodeidah  
Eng. Abdul-bari A. Al-kabati        Director of Operational and  
Maintenance of Medical Equipment  
Dr. Khaled Al-shaibani              Director of PHC  
Dr. Khaalid Sarwy                    Director of Malaria

Al-Thawra Hospital

Dr. Mohammed Mohammed Katkat    Vice Director  
Mr. Abudullah Al-Naqeeb            Director of Technical Affairs  
Mr. Mohammed Hasan                Director of Financial Affairs  
Dr. Fawzia Baobaid                  Gynecologic/Obstetric Specialist  
Dr. Mnagi Gehril                      General Practitioner, Pediatric  
Dr. Abdul Rahim                        General Practitioner, Pediatric  
Dr. Sana Al-Shhary                    General Practitioner, Gyne./Obs.

Dr. Mahmand Mohammed Othman  
Pediatric Specialist

Al-Matna Hospital

Dr. Mohamed Saleh Al-Gadari

General Director

Dr. Jamal Elmattaky G.P., T.B. control program M.H.

Mr. Colonel Hussein M. Ahyary

Chief of Banimatal District council

Ms. Beenamol Nurse

Dr. Abdul Sahmau Aveelei Deputy D.G. M.H. Surgeon

Mr. Mohamen A. Al-Yawari Statistician

Mr. Mohamen Qubeti Accountant

Mr. Nabil Asbali Finance Department

Salakhana Health Center

Dr. Badraan Aiduruusy Director of Building, Maintenance

Yarim Hospital

Dr. Ali J. Mhoharam Director

Taiz Health Office

Mr. Mohammad Ahmad Al-Aanity

Vice Governor

Dr. Abdulwahab Al-Ghirbani Director General

Dr. Abdul Wahhab Al-Abbas Director General

Dr. Mansour al-Badwi Director of Medical Services

Mr. Haamid Al-Yuusty Staff of Medical Services

Dr. Abdullah Murshid Director of P.H.C.

Al-Turba Hospital

Dr. Fadl A. Al-Qubati Asst. General Manager

Haderamaut Health Office

Dr. Salim Kubiad AL Obathani

General Director

Dr. Salim Obpid Crhanim P.H.C. Director of Govern. Health Office

Dr. Amir Salimin Belufiar Haed M.C.H. Director Gyne. & Obs.

Specialist

Dr. Ahlam S Beiosk	Reproductive Health Director
Ms. Amal Bamielhad	Project of C.M.W., Haed
Dr. Mohamed O. Mofaieh	General Health, Haed
Dr. Fowzia A. Saeed	Technical Cooperator, MOH
Dr. Bamusa Al Abi	Director of I.B.W.
Mr. Abdulla Salr	Nursing dept. M.C.H.
Dr. Safia it sli	M.C.H. Director Mukalla
Dr. Saeed O. Alfadhly	Director of Medical Supply
Dr. Mohamed Mofaileh	Health service unit, chief, G.H.O.

#### Ibn Sinna Hospital

Mr. Almed Ali Jail	Manager M.E.
Mr. Omer Mubarkr Al . H.	Assistant Anaesthesiorogist
Mr. Feis Abadallah	Lab. technisian
Mr. Ahmed Ali Jail	Maintenance Manager
Mr. Muhamed Saeed Al-Sowmani	Equipment Section Technician
Dr. Abdullu Bin Ghowth	Specialist of Community Medicine University of Hadramout

#### Aden Health Office

Dr. Shawsan Mohamed	D.G. Aden G.H.O.
Dr. Mohmed Ali	G.D. Nonbed Facility Aden G.H.O.
Dr. Radiya A. Razzack	Head of Reproduct Health Aden G.H.O.
Mr. Ikam S. Ali A. Krim Wadi	Head of Statistcs Aden G.H.O.
Mr. A. Karim Wadi	Financial Manager Aden G.H.O.
Dr. Nagib Al-Homeekani	D.G. of P.H.C. Aden G.H.O.

#### Wahada Hospital

Dr. Nasramin Al-Qirshi	Vice Director, (Head of Pediatrician)
Dr. Alkhader Nassaer-Laswar	General Director
Mr. Taha Kamol-mohd	Head of Finance
Dr. Sina Saleh Saleh Bin	Pediatrician
Dr. Hana Anwer	G. P.

#### WHO

Dr. Mohammed Al-Khateeb	Representative
-------------------------	----------------

UNFPA

Mr. Soma Pudasaini Representative

USAID

Mr. Abdulali A. Alshami Development Program Specialist

Ms. Fawzia H. Youssef Health and Population Specialist

YFCA

Dr. Yahia Yhia Al-Babily Executive Director

Ms. Tamila Ghalib Al-Sharie Midwife

Dutch Embassy

Dr. Mohamed Al-Sakaff Senior Program Health Officer

GTZ

Mrs. Yasmeen Hamdan Gender Component

WB

Mr. Qaiser Khan Cluster Leader,  
Human Development Sector

Mr. Yasser El-Gammal Social Fund Specialist,  
M. East & North Africa

Mr. Arun R. Joshi Education Specialist  
Mr. Hashem Awnallah Operations Officer of Human  
Development Sector

Embassy of Japan in Yemen

Akira Hoshi Ambassador Extraordinary and  
Plenipotentiary

Kenjiro Mori Counsellor

Toshiyuki Sakaguchi First Secretary

Hideaki Yamamoto Second Secretary

Shinji Matsuo Second Secretary

Masaaki Watanabe Special assistant

Seita Inoue Medical Attache

Yasuhiro Kihara                      Medical Attache  
Shinji Hirose                          Operations  
Mr. Abdulrahman Thabet Al-Faqueh  
Senior Assistant

4. Minutes of Discussion  
(1) Basic Design Study

MINUTES OF DISCUSSIONS  
ON THE BASIC DESIGN STUDY  
ON THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT IN HOSPITALS  
FOR MATERNAL AND CHILD HEALTH CARE  
IN  
THE REPUBLIC OF YEMEN

In response to a request from the Government of the Republic of Yemen (hereinafter referred to as "Yemen"), the Government of Japan decided to conduct a Basic Design Study on the project for improvement of medical equipment in hospitals for maternal and child health care (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Yemen the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Daini Tsukahara, Director of Second Project Management Division, Grant Aid Project Management Department, JICA and is scheduled to stay in the country from June 16 to July 22, 1999.


The Team held discussions with the officials concerned of the Government of Yemen and conducted field surveys at the study areas.

In the course of discussions and field surveys, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

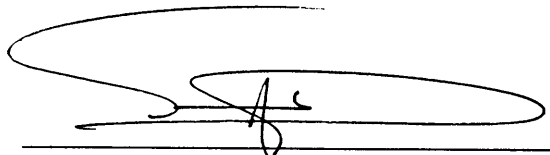
Sana's, July 6, 1999



Mr. Daini Tsukahara  
Leader  
Basic Design Study Team  
Japan International Cooperation Agency



Mr. Mohamed Gharama Al-Raee  
Deputy Minister for Planning and Development  
Ministry of Public Health  
The Republic of Yemen 6/7/99



Mr. Hisham Sharaf Abdalla  
Deputy Minister for International Cooperation  
Ministry of Planning and Development  
The Republic of Yemen



ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve medical services for maternal and child health care in

## 7. Other Relevant Issues


- 7-1 The Team explained the Yemen side that the inclusion of equipment in the Project would be difficult if the requested equipment needs rehabilitations and/or extensions of facilities and if such works are not budgeted yet.
- 7-2 The Yemen side strongly requested the Team to take due account of the rehabilitation or extension plans of the facilities and recruitment of staff intended by the Yemen side for the Project.
- 7-3 The Team requested the Yemen side to submit to the Team before July 21, 1999 the time schedule and financial measures needed and made for rehabilitations and extensions of facilities and also recruitment of additional medical staff and/or their training in the hospitals, which are necessary to improve their maternal and child health care services.
- 7-4 The Team presented the Yemen side the results of its field surveys on Al-Sabeen Hospital, Matnah Hospital, Al-Thawra Hospital (Al-Hudeidah), and Mukalla MCH Hospital, which are summarized in Annex-IV.
- 7-5 The Yemen side will prepare the final request of equipment for each hospital with quantities and priorities after consultations with the Team and submit it before July 21, 1999.

**A Out-Patient Department**

- 1 Instruments Cabinet
- 2 Instruments Trolley
- 3 Fetal Doppler
- 4 Stethoscope
- 5 Examination Table (Gynecology)
- 6 Examination Table
- 7 Sphygmomanometer (Mercury, Stand Type)
- 8 Weight and Height Scale (Adult)
- 9 Thermometer (Ear type)
- 10 Weight Scale (Infant)
- 11 Sphygmomanometer (Infant)
- 12 Stethoscope (Infant)
- 13 Trash Can
- 14 Diagnostic Set (ENT)
- 15 Wheel Chair
- 16 Stretcher
- 17 Hot Air Sterilizer
- 18 Resuscitation Set
- 19 Examination Light
- 20 Height Scale (Neonatal)
- 21 Ultrasound Diagnostic Equipment
- 22 IUD Insertion Kit
- 23 IUD Removal Kit
- 24 Height Scale (Adult)
- 25 Screen
- 26 Basic Treatment Set

**B Labor, Delivery and Recovery Room**

- 1 Delivery Table
- 2 Stool
- 3 Mouth Gag
- 4 Mucus Extractor (manual)
- 5 Examination Light
- 6 Sphygmomanometer (Stand Type)
- 7 Screen
- 8 Instruments Cabinet
- 9 Trash Can
- 10 Suction Unit
- 11 Suction Pump (Infant)
- 12 Vacuum Extractor
- 13 Obstetric Forcep







- 14 Bed (Patient)
- 15 Bedside Console
- 16 Revolving Chair
- 17 Breast Pump
- 18 Endotracheal Set
- 19 Epidural Anaesthesia Set
- 20 Oxygen Inhalation Set
- 21 Infusion Pump
- 22 Hot Air Sterilizer
- 23 Sterilisation Container
- 24 Weight Scale (Neonatal)
- 25 Perineal Set
- 26 Medical Refrigerator
- 27 Cart with Trash Can
- 28 Kidney Basin
- 29 Sponge Bowl
- 30 Fetal Doppler
- 31 Fetal Monitor
- 32 Resuscitation Set

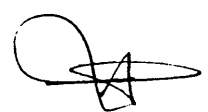
**C Neonatal Department**

- 1 Baby Cot
- 2 Incubator
- 3 Infant Warmer
- 4 Phototherapy Unit
- 5 Infant Ventilator
- 6 Neonatal Monitor
- 7 Billirubinometer
- 8 Ultrasonic Nebulizer
- 9 Pulse Oxymeter
- 10 Syringe Pump
- 11 Ultrasound Diagnostic Equipment
- 12 Resuscitation Set (Neonatal)
- 13 Endtracheal Set (Neonatal)
- 14 Oxygen box

**D Operation Room**

- 1 Caesarean Section Set
- 2 Decapitation Set
- 3 Uterine Evacuation Set
- 4 Hysterectomy Abdomen Set
- 5 Operating Table
- 6 Operation Light

— OP



- 7 Anaesthetic Unit
- 8 Electrosurgical Unit
- 9 Mayo Table
- 10 Defibrillator
- E C.S.S.D
- 1 High Pressure Steam Sterilizer
- 2 Ultrasonic Cleaner
- 3 Storing Cabinet
- 4 Dry oven

## Japan's Grant Aid Scheme

### 1. Grant Aid Procedures

1) Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	( Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

### 2. Basic Design Study

#### 1) Contents of the Study

The aim of the Basic Design Study (hereafter referred to as "the Study"), conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows:

- a) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- d) Preparation of a basic design of the Project
- e) Estimation of the costs of the Project

The contents of the original request 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 Japan's Grant Aid Scheme.

The Government of Japan 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 jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations in the recipient country through the Minutes of Discussions.

## 2) Selection of Consultants

For the smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA selects (a) firms(s) based on proposals submitted by interested firms. The firm(s) selected carry (ies) out the Basic Design Study and write(s) a report, based upon terms of reference set by JICA. The consulting firm(s) used for the Study which is (are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

## 3. Japan's Grant Aid Scheme

### 1) What is Grant Aid ?

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

### 2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

3) "The period of the Grant Aid" means the one fiscal year in which the Cabinet approves the Project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed. However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

4) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When both Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of the third country.

However the prime contractors, namely, consulting contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or

Japanese corporations controlled by persons of Japanese nationality.)

5) 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 the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

6) Undertakings required of the Government of recipient country

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

- a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
- b) To provide facilities of the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
- c) To secure buildings prior to the procurement in case the installation of the equipment.
- d) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
- e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
- f) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

7) "Proper Use"

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

8) "Re-export"

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

9) 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"). The Government of Japan 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 the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.



Necessary Measures to be taken by the Government of Yemen

The following measures should be taken by the Government of Yemen on condition that the Grant Aid by the Government of Japan is extended to the Project:

1. To provide data and information necessary for the Project;
2. To bear commissions to a Japanese bank for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commission;
3. To ensure prompt unloading, tax exemption, customs clearance and prompt internal transportation therein of the equipment for the Project purchased under the Grant Aid;
4. To exempt Japanese juridical and physical nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Yemen with respect to the supply of the products and services under the verified contract;
5. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into Yemen and stay therein for the performance of their work;
6. To provide necessary permissions, licenses and other authorizations for implementing the Project, if necessary;
7. To assign appropriate budget and staff for proper and effective use of equipment and provided under the Grant Aid;
8. To maintain and use properly and effectively the equipment provided under the Project; and
9. To bear all the expenses, other than those to be borne by the Grant Aid within the scope of the Project.

	1 Al-Sabeen		2 Al-Thawra		3 Mukalla MCH		4 Wahada		5 Matnah		6 Al-Turba		7 Y arim		8 Tour Al-Baha		9 Hagar	
	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.
<b>A. Out Patient Department</b>																		
1 Instruments Cabinet	0	C	2	A	0	C			0	C								
2 Instruments Trolley	0	C	0	C	3	A			0	C								
3 Fetal Doppler	0	C	1	A	2	A			1	A								
4 Stethoscope	0	C	0	C	3	A			2	A								
5 Examination Table (Gynecology)	0	C	0	C	1	A			0	C								
6 Examination Table	0	C	0	C	2	A			0	C								
7 Sphygmanometer (Mercury, Stand Type)	0	C	2	A	3	A			3	A								
8 Weight and Height Scale (Adult)	0	C	1	A	1	A			0	C								
9 Thermometer (Ear type)	2	A	2	A	15	B			2	A								
10 Weight Scale (Infant)	0	C	0	C	0	C			0	C								
11 Sphygmanometer (Infant)	0	C	0	C	1	A			1	A								
12 Stethoscope (Infant)	0	C	0	C	0	C			1	A								
13 Trash Can	0	C	0	C	0	A			0	C								
14 Diagnostic Set (ENT)	0	C	1	A	2	A			1	A								
15 Wheel Chair	0	C	1	A	1	A			1	A								
16 Stretcher	0	C	1	A	3	A			2	A								
17 Hot Air Sterilizer	0	C	0	C	2	A			2	A								
18 Resuscitation Set	0	C	1	A	2	A			2	A								
19 Examination Light	0	C	0	C	3	A			0	C								
20 Height Scale (Neonatal)	0	C	2	A	1	A			1	A								
21 Ultrasound Diagnostic Equipment	0	C	0	C	1	B			1	A								
22 IUD Insertion Kit	0	C	0	C	1	A			2	A								
23 IUD Removal Kit	0	C	0	C	1	A			0	C								
24 Height Scale (Adult)	0	C	0	C	1	A			0	C								
25 Screen	0	C	0	C	3	A			0	C								
26 Basic Treatment Set	0	C	3	A	3	A			3	A								
<b>B. Labor Delivery and Recovery Room</b>																		
1 Delivery Table	0	C	4	A	2	A			0	C								
2 Stool	0	C	3	A	2	A			0	C								
3 Mouth Gag	0	C	0	C	2	A			0	C								
4 Mucus Extractor (manual)	0	C	0	C	2	A			0	C								
5 Examination Light	0	C	2	A	2	A			1	A								
6 Sphygmanometer (Stand Type)	0	C	1	A	2	A			1	A								
7 Screen	0	C	0	C	0	C			0	C								
8 Instruments Cabinet	1	A	1	A	2	A			0	C								

	1		2		3		4		5		6		7		8		9		
	Al-Sabeen	Al-Thawra	Mukalla MCH	Wahada	Matnah	Al-Turba	Yarim	Tour Al-Baha	Hagar	Q'ty	Priot.	Q'ty	Priot.	Q'ty	Priot.	Q'ty	Priot.	Q'ty	Priot.
9	0	C	0	C	0	C	0	C	0	C									
10	0	C	1	A	1	A			1	A									
11	1	A	0	C	1	A			1	A									
12	0	C	0	C	1	A			0	C									
13	0	C	2	A	2	A			1	A									
14	0	C	7	A	15	A			0	C									
15	0	C	0	C	12	A			0	C									
16	0	C	1	A	2	A			0	C									
17	0	C	0	C	0	C			0	C									
18	1	A	1	A	1	A			0	C									
19	0	C	1	A	0	C			2	A									
20	0	C	1	A	1	A			0	C									
21	2	A	0	C	2	A			0	C									
22	0	C	1	A	0	C			1	A									
23	0	C	0	C	3	A			0	C									
24	0	C	0	C	1	A			1	A									
25	0	C	2	A	2	A			0	C									
26	0	C	0	C	1	A			0	C									
27	0	C	1	A	0	C			0	C									
28	0	C	2	A	2	A			1	A									
29	0	C	2	A	2	A			1	A									
30	1	A	0	C	1	A			0	C									
31	1	A	0	C	0	C			0	C									
32	1	A	1	A	1	A			0	C									
Neonatal Department																			
1	0	C	0	C	4	B			3	B									
2	0	C	0	C	2	B			4	B									
3	1	A	0	C	2	B			1	B									
4	2	A	0	C	2	B			2	B									
5	0	C	0	C	0	C			0	C									
6	2	A	0	C	0	C			0	C									
7	1	A	1	A	1	B			1	B									
8	0	C	1	A	1	B			1	B									
9	2	A	2	B	2	B			1	B									
10	2	A	1	A	2	B			1	B									
11	0	C	0	C	0	C			0	C									

	1		2		3		4		5		6		7		8		9									
	Al-Sabeen	Priot.	Al-Thawra	Priot.	Mukalla MCH	Qty	Priot.	Qty	Wahada	Qty	Priot.	Matnah	Qty	Priot.	Al-Turba	Qty	Priot.	Yarim	Qty	Priot.	Tour Al-Baha	Qty	Priot.	Hagar	Qty	Priot.
12 Resuscitation Set (Neonatal)	2	A	0	C	2	B			2	B																
13 Endotracheal Set (Neonatal)	1	A	0	C	1	B			0	C																
14 Oxygen box	1	A	1	A	2	B			1	B																
<b>15 Operating Table</b>																										
1 Caesarean Section Set	5	A	2	A	2	A			2	A																
2 Decapitation Set	1	A	0	C	1	A			0	C																
3 Uterine Evacuation Set	2	A	1	A	2	A			2	A																
4 Hysterectomy Abdomen Set	2	A	1	A	1	A			2	A																
5 Operating Table	0	C	0	C	2	A			1	A																
6 Operation Light	3	A	0	C	1	A			0	C																
7 Anaesthetic Unit	2	A	0	C	1	A			1	A																
8 Electrosurgical Unit	1	A	0	C	1	A			0	C																
9 Mayo Table	0	C	0	C	2	A			0	C																
10 Defibrillator	1	A	1	A	1	A			1	A																
<b>11 C.S.D</b>																										
1 High Pressure Steam Sterilizer	0	C	0	C	0	C			0	C																
2 Ultrasonic Cleaner	0	C	1	A	1	A			1	A																
3 Storing Cabinet	0	C	1	A	2	A			0	C																
4 Dry oven	1	A			1	A																				

**Addend of Memorandum**  
**Basic Design Study**  
**On**  
**The Project for Improvement of Medical Equipment in Hospitals**  
**For**  
**Maternal and Child Health Care**  
**In**  
**The Republic of Yemen**

The members of the Basic Design Study Team (hereinafter referred to as "Team") held discussions with the officials concerned of the Government of Yemen (hereinafter referred to as "Yemen") and conducted a field survey at all the Project area. As a result of the discussions and field surveys, both parties confirmed the following items with reference attached documents.

(1) Through a series of discussions, the both parties prepared the final request of equipment for each hospitals with quantities and assigned the priorities as described Annex I.

A: Equipment which was confirmed its feasibility for the Project by both sides.

B: Equipment which was requested further study to be confirmed its feasibility for the Project.

C: Equipment which was not confirmed its feasibility and agreed deletion from the request by the Yemen side.

(2) The Yemen side prepared the time schedule and financial measures needed and made for rehabilitations and extensions of facilities also recruitment of additional medical staff and/or their training in the hospitals. The items of the requested documents are as follows;

1) Al Thawra Hospital (Al Hodeidah Governorate)

Construction schedule, source of budget and estimated cost of new building.

2) Hajar District Hospital (Hadoramout Governorate)

Recruitment of additional medical staff and their training for surgical operation and neonatal care department.

3) Al Sabeen Hospital (Sana'a City)

Schedule of management shift of the Emergency Building.

4) Matnah District hospital (Sana'a Governorate)

Recruitment of additional medical staff for neonatal care department.

5) To make a training to the medical staffs of the diagnostic techniques using with ultrasound scanner.

All the documents will prepare and submit to the Team before end of August, 1999 through the Embassy of Japan, in Sana'a.

The final items of the Project will be considered after further study in Japan based on the collecting documents on the field surveys and replay of the questionnaires from Yemen side. The draft of basic design of the Project will be explained October, 1999 by the Team, the final report send to Yemen side around February, 2000.

Sana'a July 21, 1999

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and health information  
فيصل مختار الغوالي  
مدير عام التخطيط  
والإحصاء والمعلومات  
الصحية

	1		2		3		4		5		6		7		8		9		
	Al-Sabeen		Al-Thawra		Mukalla MCH		Al-Wahada		Matnah		Al-Turba		Yarim		Tour Al-Baha		Hagar		
	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	
<b>A Out-Patient Department</b>																			
1	Instruments Cabinet	6	A	2	A	0	C	11	A	0	C	3	A	5	A	3	A	2	B
2	Instruments Trolley	6	A	0	C	3	A	11	A	0	C	3	A	5	A	3	A	2	B
3	Fetal Doppler	1	A	1	A	2	A	5	A	1	A	1	A	1	A	1	A	1	B
4	Stethoscope (Adult)	5	A	0	C	3	A	9	A	2	A	2	A	5	A	3	A	1	B
5	Stethoscope (Infant)	2	A	0	C	0	C	6	A	1	A	2	A	2	A	1	A	1	B
6	Examination Table (Gynecology)	1	A	0	C	1	A	5	A	1	B	1	A	1	A	1	A	1	A
7	Examination Table	9	A	0	C	2	A	12	A	1	B	3	A	5	A	2	A	1	B
8	Sphygmomanometer (Adult)	10	A	2	A	3	A	60	A	2	A	2	A	5	A	3	A	1	B
9	Sphygmomanometer (Infant)	2	A	0	C	1	A	6	A	1	A	1	B	2	A	1	A	1	B
10	Weight and Height Scale (Adult)	2	A	1	A	1	A	4	A	0	C	3	A	4	A	1	A	1	B
11	Weighting Scale (Infant)	1	A	0	C	0	C	5	A	0	C	0	C	2	A	0	C	1	B
12	Height Scale (Adult)	0	C	0	C	3	A	2	A	0	C	0	C	0	C	0	C	2	B
13	Height Scale (Infant)	2	A	2	A	1	A	0	C	1	A	1	A	2	A	1	A	1	B
14	Thermometer	6	A	30	A	15	A	2	A	2	A	15	A	25	A	15	A	10	B
15	Diagnostic Set (ENT)	1	A	1	A	2	A	3	A	1	A	2	A	2	A	2	A	1	B
16	Trash Can	0	C	0	C	0	C	12	A	0	C	0	C	5	A	3	A	2	B
17	Wheel Chair	2	A	1	A	1	A	3	A	1	A	1	A	1	A	2	A	1	B
18	Stretcher	1	A	1	A	3	A	2	A	2	A	2	A	1	A	2	A	1	B
19	Hot Air Sterilizer	3	A	0	C	2	A	11	A	2	A	1	A	1	A	2	A	1	B
20	Examination Light	4	A	0	C	3	A	10	A	0	C	2	A	5	A	3	A	2	B
21	Ultrasound Diagnostic Equipment	1	B	0	C	1	A	1	A	1	A	1	A	1	A	1	A	1	B
22	IUD Insertion & Removal Set	4	A	0	C	1	A	6	A	2	A	2	A	1	A	1	A	1	B
23	Basic Treatment Set	2	A	3	A	3	A	9	A	3	A	3	A	5	A	1	A	2	B
24	Screen	6	A	0	C	3	A	1	A	0	C	1	A	5	A	1	A	2	B
25	Resuscitation Set (Infant)	1	B	1	B	1	B	3	A	1	B	1	B	1	B	1	B	1	B
26	Resuscitation Set (Adult)	1	B	1	A	2	A	10	B	2	A	1	A	2	A	1	A	1	B
27	Endotracheal Set (Adult)	1	B	1	B	1	B	7	A	1	B	0	C	1	B	1	B	0	B
28	Endotracheal Set (Infant)	1	B	1	B	1	B	3	A	1	B	0	C	1	B	1	B	0	B
<b>B Labor, Delivery and Recovery Room</b>																			
1	Instruments Cabinet	1	A	1	A	2	A	2	A	0	C	2	A	1	A	1	A	1	B
2	Cart with Trash Can	2	A	1	A	2	B	4	A	0	C	2	A	1	A	1	A	1	B
3	Fetal Doppler	1	A	0	C	1	A	2	A	0	B	1	B	0	C	1	A	1	B
4	Sphygmomanometer (Adult)	4	A	1	A	2	A	3	A	1	A	2	A	1	A	2	A	1	B
5	Weighting Scale (Infant)	1	A	1	B	1	A	2	A	1	A	2	A	1	A	1	A	1	B
6	Trash Can	0	C	0	C	0	C	0	A	0	C	0	C	1	A	3	A	1	B
7	Delivery Table	2	A	4	A	2	A	3	A	1	B	2	A	2	A	2	A	1	B
8	Step	2	A	3	B	2	A	3	A	1	A	2	A	1	A	3	A	1	B
9	Revolving Chair	2	A	3	A	2	A	3	A	1	B	2	A	1	A	3	A	1	B
10	Examination Light	2	A	2	A	2	A	3	A	2	B	2	A	1	A	3	A	1	B
11	Suction Unit	1	A	1	A	1	A	1	A	1	A	1	A	1	A	1	A	1	B
12	Suction Pump (Pedal)	1	B	1	B	1	B	1	B	1	B	1	B	1	B	1	B	1	B
13	Suction Pump (Infant)	2	A	0	C	1	A	1	A	1	A	1	A	1	A	1	A	1	B
14	Vacuum Extractor	1	A	0	C	1	A	1	A	1	A	1	A	1	A	1	A	1	B
15	Uterine Evacuation Set	1	B	1	B	1	A	4	A	1	B	1	A	1	A	2	A	1	B
16	Obstetric Forcep	2	A	2	A	2	A	3	A	0	C	1	A	0	C	3	A	1	B
17	Bed (Patient)	12	A	7	A	15	A	19	A	0	C	2	A	10	A	0	C	3	B
18	Bedside Console	0	C	4	B	12	A	19	A	0	C	2	B	4	A	0	C	3	B
19	Screen	0	C	2	B	2	B	0	A	1	B	2	B	2	A	2	A	1	B
20	Oxygen Inhalation Set	2	A	1	A	1	A	2	A	0	C	1	A	1	A	2	A	1	B
21	Hot Air Sterilizer	1	A	1	A	0	C	1	A	1	A	1	A	0	C	1	A	1	B
22	Sterilisation Container	4	A	0	C	3	A	4	A	0	C	3	A	2	A	1	A	1	B
23	Ultrasound Diagnostic Equipment	1	B	0	C	0	C	1	A	0	C	0	C	0	C	1	B	0	C
24	Medical Refrigerator	1	B	0	C	1	A	2	A	0	C	0	C	1	B	1	A	1	B
25	Fetal Monitor	1	A	0	C	0	C	2	B	0	C	0	C	0	C	0	C	0	C
26	Perineal Set	4	A	2	A	2	A	1	A	0	C	4	A	2	A	2	A	1	B
27	Resuscitation Set (Adult)	1	B	1	B	1	B	4	B	1	B	1	B	0	C	1	B	1	B
28	Resuscitation Set (Infant)	1	B	1	B	1	B	2	B	1	B	1	B	0	C	1	B	1	B
29	Endotracheal Set (Adult)	1	B	1	A	1	A	1	A	0	C	1	A	1	A	1	A	1	B
30	Endotracheal Set (Infant)	1	B	1	B	1	B	2	B	1	B	1	B	0	C	1	B	1	B

	1		2		3		4		5		6		7		8		9		
	Al-Sabeen		Al-Thawra		Mukalla MCH		Al-Wahada		Matnah		Al-Turba		Yarim		Tour Al-Baha		Hagar		
	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	Qty	Priot.	
<b>C Neonatal Department</b>																			
1	Baby Cot	8	A	2	B	4	B	0	C	3	B	0	C	1	A	1	A	3	B
2	Incubator	7	A	0	C	2	B	9	A	4	B	2	A	1	A	0	C	0	C
3	Infant Warmer	1	A	0	C	2	B	3	A	1	B	1	A	1	A	0	C	0	C
4	Phototherapy Unit	2	A	0	C	2	B	4	A	2	B	1	A	1	A	0	C	0	C
5	Infant Ventilator	1	A	0	C	0	B	0	C	0	C	0	C	0	C	0	C	0	C
6	Neonatal Monitor	2	A	0	C	0	B	2	A	0	C	1	A	0	C	0	C	0	C
7	Billirubinometer	1	A	1	A	1	B	1	A	1	A	1	A	1	A	0	C	0	C
8	Ultrasonic Nebulizer	0	C	1	A	1	B	1	A	1	A	1	A	1	A	0	C	1	B
9	Pulse Oxymeter	2	A	2	A	2	B	4	A	1	A	1	A	1	A	0	C	0	C
10	Oxygen Box	1	A	1	A	2	B	4	A	1	A	1	A	1	A	0	C	1	B
11	Resuscitation Set (Infant)	2	B	0	C	2	B	4	A	2	B	2	B	1	B	0	C	1	B
12	Endtracheal Set (Infant)	1	B	1	B	1	B	4	A	1	B	1	B	0	C	0	C	1	B
<b>D Operation Room</b>																			
1	Operation Table	0	C	1	B	2	A	2	A	1	A	1	A	1	A	1	A	1	B
2	Operation Light	4	A	1	B	1	A	5	A	0	C	0	C	1	A	1	A	1	B
3	Anaesthetic Unit	4	A	1	B	1	A	2	A	1	A	1	A	1	A	0	C	1	B
4	Electrosurgical Unit	1	A	1	B	1	A	3	A	0	C	1	A	1	A	1	A	0	C
5	Mayo Table	5	A	1	B	2	A	3	A	0	C	2	A	2	A	0	C	1	B
6	Defibrillator	1	A	1	A	1	A	2	A	1	A	1	A	1	A	1	B	1	B
7	Epidural Anaesthesia Set	1	A	1	B	0	C	3	A	2	A	0	C	1	A	0	C	1	B
8	Caesarean Section Set	5	A	2	B	2	A	4	A	2	A	2	A	2	A	2	A	1	B
9	Decapitation Set	1	A	1	B	1	B	2	A	0	C	1	A	0	C	1	A	0	C
10	Hysterectomy Abdomen Set	2	A	1	B	2	A	4	A	2	A	2	A	2	A	2	A	0	C
11	Resuscitation Set (Adult)	1	B	1	B	1	B	3	A	1	B	1	B	1	A	1	A	1	B
12	Resuscitation Set (Infant)	1	B	1	B	1	B	3	A	1	B	1	B	1	A	1	A	1	B
<b>E C.S.S.D</b>																			
1	High Pressure Steam Sterilizer	2	A	0	C	0	C	0	C	0	C	1	A	1	A	1	A	1	B
2	Hot Air Sterilizer	1	A	1	A	1	A	1	A	0	B	1	B	1	A	1	A	1	B
3	Ultrasonic Cleaner	1	B	1	A	1	A	1	A	1	A	1	A	1	A	1	A	0	C
4	Cabinet	1	B	1	A	2	A	1	A	0	C	0	C	2	A	1	A	1	B



(2) Explanation of Draft Final Report

MINUTES OF DISCUSSIONS  
ON THE BASIC DESIGN STUDY  
ON THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT  
IN HOSPITALS FOR MATERNAL AND CHILD HEALTH CARE  
IN  
THE REPUBLIC OF YEMEN  
(EXPLANATION ON DRAFT REPORT)

In July 1999, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Improvement of Medical Equipment in Hospitals for Maternal and Child Health Care (hereinafter referred to as "the Project") to the Republic of Yemen (hereinafter referred to as "Yemen"), and through discussion, 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 the Yemen on the components of the draft report, JICA sent to Yemen the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Toshiyuki Iwama, Deputy Director of the Second Project Management Division, Grant Aid Project Management Department, from December 1 to December 14, 1999.

As a result of discussions, both parties confirmed the main items described on the attached sheet. The Team will proceed to further works and prepare the Basic Design Study Report.

Sana'a, December 8, 1999


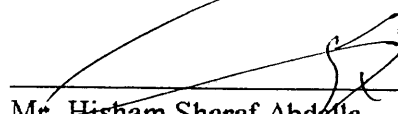


Mr. Toshiyuki Iwama  
Leader  
Draft Report Explanation Team  
Japan International Cooperation Agency



8/12/1999

Mr. Faisal M. Al-Gohary  
Acting Deputy Minister for Planning and Development  
Ministry of Public Health  
The Republic of Yemen



Mr. Hisham Sharaf Abdalla  
Deputy Minister for International Cooperation  
Ministry of Planning and Development  
The Republic of Yemen

## ATTACHMENT

### 1. Components of the Draft Report

The Government of Yemen agreed and accepted in principle the components of the draft report explained by the Team.

### 2. Japan's Grant Aid Scheme

The Yemen side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Yemen as explained by the Team and described in Annex-II and Annex- III of the Minutes of Discussions signed by both parties on July 6, 1999.

### 3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed item and send it to the Government of Yemen by March, 2000.

### 4. Other relevant issues

4-1 The Yemen side strongly asks the Team to re-consider assistance to the Hagr Hospital. An amount of about 20,000 US dollars from Social Fund for Development has been allocated for the renovation of the Hospital, and the procurement process for works has already started. A plan to train the Hospital staff has also been established. The Team acknowledges the high degree of commitment and ownership of the Yemen side to improve the medical services to Hadramout Governorate. However, the Team has not been able to visit the site due to the increased security measures imposed to the Team from the JICA Headquarters. There is no indication at this moment to lift this ban, and this would cause a severe problem at the time of equipment installation and supervision. In order to overcome this problem the only possible choice would be the procurement of the equipment through local shopping under a separate Grant Aid scheme, the so-called "*Grant Assistance for Grass Roots Project*".

The Team suggests the Yemen side to consult with the Embassy of Japan on how to apply for it. The consultant members of the Team will also provide information of the necessary equipment to help the Yemen side to prepare the application.

4-2 After re-examining the financial position of the Tour Al-Baha Hospital and the Yarim Hospital, the Team concludes that the Tour Al-Baha Hospital has a financial capability of operating one ultrasound, while the Yarim Hospital does not. Therefore, one ultrasound for the Tour Al-Baha Hospital will be considered for the Project.

4-3 There is a need to train the Hospital staff to familiarize with daily maintenance and trouble shooting. The Yemen side requests the Team to consider this as a part of the Grant Aid Project. Should the request be included as a "*Soft Component*" to the Project, the Yemen side will bear the local cost (such as travel expenses and accommodation to the local hospital staff) from the funds provided by the Reproductive Health Project funded by UNFPA.

