

BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR IMPROVEMENT
OF
THE INSTITUTE OF HEALTH SCIENCE OF QUELIMANE
IN
THE REPUBLIC OF MOZAMBIQUE

JULY, 2004

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
YAMASHITA SEKKEI INC.

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Preface

In response to a request from the Government of Mozambique, the Government of Japan decided to conduct a basic design study on the Project for Improvement of the Institute of Health Science of Quelimane in the Republic of Mozambique and entrusted the study to the Japan International Cooperation Agency (JICA)

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JICA sent to Mozambique a study team from November 15 to December 24, 2003.

The team held discussions with the officials concerned of the Government of Mozambique, 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 Mozambique 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 Mozambique for their close cooperation extended to the teams.

July, 2004

Yasuo Matsui
Vice President
Japan International Cooperation Agency

July, 2004

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Improvement of the Institute of Health Science of Quelimane in the Republic of Mozambique.

This study was conducted by Yamashita Sekkei, Inc. under a contract to JICA, during the period from November, 2003 to July, 2004. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Mozambique 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,

Fumio Arai
Project Manager,
Basic Design Study Team on
The Project for Improvement of the Institute
of Health Science of Quelimane in the
Republic of Mozambique
Yamashita Sekkei Inc.



LOCATION MAP



PERSPECTIVE

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Abbreviations

AfDB	African Development Bank
CIDA	Canadian International Development Agency
DANIDA	Danish International Development Assistance
DPS	Provincial Health Directorate
EP1	Ensino Primário 1° ciclo
EP2	Ensino Primário 2° ciclo
ESG1	Ensino Secundário 1° ciclo
ESG2	Ensino Secundário 2° ciclo
EU	European Union
FINNIDA	Finnish International Development Agency
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HIS	Health Information System
LB	Live Births
JICA	Japan International Cooperation Agency
MISAU	Ministry of Health
PARPA	Plan d'action pour la Réduction de la Pauvreté Absolue
PDRH	Human Resources Development Plan
PHC	Primary Health Care
PESS	Health Sector Strategic Plan
SDC	Swiss Development Co-operation
SIDA	Swedish International Development Cooperation Agency
SWAP	Sector Wide Approach to Policymaking
SWAp	Sector Wide Approach to Programming
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific and Cultural Organization.
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Summary

Summary

The main objectives of the Government of Mozambique's "Five-Year National Plan 2000-2004" are to promote the social, economic development of the country and departure from poverty. To this end, the Government of Mozambique drew up the "Action Plan for the Reduction of Absolute Poverty 2001-2005" (PARPA) and included the plan among its the Government of basic policies.

In accordance with the basic policy of the central government, the country's health sector worked out the "Strategic Plan for Health Sector 2001-2005" (PESS) and is in the process of concentrating its energies on fulfilling its role. In this context, the health sector gives top priority to the improvement of the quality of health service to the people and the training of highly skilled medical professionals as part of its efforts to support the central government's plan to realize "departure from poverty."

The Health System in Mozambique is composed of a Central Hospital, the top referral hospital in the country, with provincial hospitals, district hospitals, health centers, and health posts operating peripherally throughout the country. Unfortunately, the referral system is functioning poorly due to the shortage of medical professionals who link with people and hospitals in the community. In addition, Mozambique still faces an absolute shortage of medical professionals. Training center graduates entering the healthcare system still lack knowledge to reliably run the health posts. Therefore, as a new policy, the core efforts to improve the quality of medical services in Mozambique will focus on basic-level and intermediary-level healthcare.

There are currently four institutes of health science in Mozambique that offer intermediate-level training courses (located in Maputo, Beira, Quelimane and Nampula) and 10 training centers that offer basic and primary level courses (located in Chicumbane, Chikete, Chimoio, Tete, Mocuba, Pemba, Lichinga, Inhambane, Nhamatanda and Massinga).

The Quelimane Institute of Health Science has been using a three-story building that was constructed on the northern side of the premises of Quelimane Provincial Hospital, the key hospital in the province of Zambezia, in the 1970s. However, the hospital has plans to improve and expand its facilities, which are currently too small, and demands that the Institute of Health Science move to another. As is clear from the above descriptions, the Institute of Health Science's facilities are limited in scale. At the same time, its facilities are superannuated, creating problems not only for its operation as an Institute of Health Science, but also for its functions as a venue of learning and living for its students. It is therefore urgently necessary to implement this project.

Under the circumstances mentioned above, the Government of Mozambique requested the Government of Japan to provide grant aid to cover the costs of procuring facilities and equipment for the Quelimane Institute of Health Science, an institute located in the city of Quelimane in the province of Zambezia, and of improving the institute's curriculum and educational environment.

In response to the Government of Mozambique's request, the Government of Japan dispatched a JICA study team to conduct a basic design study in Mozambique from November 15, 2003 till December 24, 2003. After analyzing the results of the basic design study, the study team prepared the basic design and equipment plan, presented an outline of the basic design to the representatives of the Government of Mozambique from March 20, 2004 to March 29, 2004, and prepared this basic design study report.

The basic design of the planned facilities will include a minimum number of facilities necessary for the operation of a total of 9 classes.

The project site is located approximately 10 kilometers away from a road running from downtown Quelimane to the Zalala Coast. A lake called Lago Segunda is located about 1 kilometer behind the project site. During the rainy season, the water levels of Lake Segunda (located about 1 kilometer rearward from the project site) rise considerably and threaten to flood the project site. For this reason, it will be necessary to make the height of the floor higher than that of the road running in front of the project site in the facility plan.

The following table outlines the facility plan for this project formulated in consideration of the above mentioned conditions.

	Facility	Total floor space (in square meters)
1.	Administration building	289.10
2.	Instructor's room building No. 1	216.75
3.	Instructor's room building No. 2	217.50
4.	Instructor's room building No. 3	217.50
5.	Toilet for instructors	48.96
6.	Classroom building No. 1	263.34
7.	Classroom building No. 2	283.56
8.	Classroom building No. 3	283.56
9.	Toilet for classroom	141.00
10.	Special classroom building No. 1	323.10
11.	Special classroom building No. 2	288.01
12.	Auditorium	556.38
13.	Canteen building	576.28
14.	Dormitory for Male student	968.82
15.	Dormitory for Female student	978.72
16.	Instructor accommodation No. 1	234.00

	Facility	Total floor space (in square meters)
17.	Instructor accommodation No. 2	234.00
18.	Guard station	10.89
19.	Electric room	71.50
20.	Outdoor substation	67.24
21.	Water tank	58.83
22.	Elevated water tank	21.50
	Total	6,350.54

When this project is implemented, the total number of classes at the Quelimane Institute of Health Science will be increased from 5 basic-level classes and 1 intermediary –level class to 4 basic-level classes and 5 intermediary-level classes. The enrollment quota for of these classes will be 30 students. Thus, the enrollment quota for the institute of the health science as a whole will be 270.

The equipment plan should be in line with the new 9-course curriculum that Institute of Health Science plans to introduce. Since it has been confirmed that the planned student dormitories, auditorium, and instructor accommodations will play an important role in the Institute of Health Science’s planned activities, the equipment plan should include equipment, necessary for the efficient use of these facilities.

In deciding on the specifications for individual pieces of equipment, equipment likely to be difficult to maintain and manage should be excluded. Equipment used widely at the other health science institutes should be procured.

The following table lists the equipment selected in consideration of the above-mentioned requirements.

Equipment	Main specifications or constituent elements	Planned quantity	Intended use
Binocular microscope for use in training	1. Binocular type 2. Lighting: halogen lamp 3. Magnification: objective lens: 4X, 10X, 40X times, 100X; eyepiece: 10X	30	For use in basic medical education/training
Surgical needle set	1. Surgical needle: 5 types 2. Surgical needle: 5 types 3. Gynecologic needle: 5 types 4. Surgical silk: 5 types	6	For use in basic medical education/training
Forceps set	1. Material: steel 2. No. of constituent elements:	6	For use in basic medical education/training
Hospital ware for use in medical education/training	1. Surgical gloves: 2 sizes 2. : 2-hook type, with casters 3. Infusion set: 200 sets 4. Infusion bottle: glass, 1000 ml 5. Elastic bandage 6. Nutrient catheter: 5 sizes, with funnel tube 7. Endotracheal tube: 15 sizes, with cuff/without cuff 8. Urethral catheter: 3 sizes	6	For use in basic medical education/training
Desktop computer for use in training	1. OS: Windows XP Professional 2. CPU: Pentium 4 2.60 Ghz 3. Primary memory: 128 Mb	16	To be used in training in computer room.

Equipment	Main specifications or constituent elements	Planned quantity	Intended use
	<ol style="list-style-type: none"> 4. Hard disk: 40 GB 5. CD-ROM drive 6. Floppy disk 7. Monitor: 15" liquid crystal monitor 		
Desk for student	<ol style="list-style-type: none"> 1. Desk for student 2. 2. Materials <ol style="list-style-type: none"> 1) Top board: melamine-coated decorative laminate 2) Frame: steel 3. With storage case and side hook 4. Dimensions: approx. 650 mm (W) by 450 mm (D) by 700 mm (H) 	270	For student to use in the class.
Reading table	<ol style="list-style-type: none"> 1. Carrel 2. Materials: decorative plywood 3. For a single student 4. Approx. 900 mm (W) by 700 mm (D) by 1200 mm (H) 	12	Reading table
Desk for instructor	<ol style="list-style-type: none"> 1. Materials <ol style="list-style-type: none"> 1) Top board: melamine-coated decorative laminate 2) Base: steel 2. No. of drawers: 3 or more (right side of desk) 3. With key-operated lock 4. Approx. 1200 mm (W) by 700 mm (D) by 700 mm (H) 	40	Desk for general instructor. To be used in staff room and classroom.
Chair for instructor	<ol style="list-style-type: none"> 1. Seat separated from seat back 2. With armrest 3. Materials <ol style="list-style-type: none"> 1) Seat/seat back: cloth-covered urethane 2) Base: plastic 4. With casters 	40	Chair for use in staff room. To be used in staff room and classroom.
Chair for use in accommodations	<ol style="list-style-type: none"> 1. Materials <ol style="list-style-type: none"> 1) Seat/seat back: cloth-covered urethane 2) Base: plywood 2. Dimensions of seat: approx. 500 mm (W) by 550 mm (D) by 450 mm (H) 	200	Chair for use with study desk. To be used in study area within accommodation.
Chair for use in auditorium	<ol style="list-style-type: none"> 1. Materials <ol style="list-style-type: none"> 1) Seat/seat back: plastic covered with artificial leather 2) Base: steel 2. Dimensions of seat: approx. 500 mm (W) by 480 mm (D) by 440 mm (H) 	310	To be used in the auditorium during ceremonies, general meetings, or seminars.
Chair for use in canteen	<ol style="list-style-type: none"> 1. Stackable 2. Materials <ol style="list-style-type: none"> 1) Seat/seat back: polypropylene 2) Base/frame: steel 3. Dimensions <ol style="list-style-type: none"> 1) Seat/seat back: 400 mm (W) by 400 mm (D) by 440 mm (H) 2) Height of seat back: approx. 850 mm 	144	Chair for use with table in canteen
Bunk bed	<ol style="list-style-type: none"> 1. Type: bunk bed 2. Materials <ol style="list-style-type: none"> 1) Frame: steel 2) Mattress: urethane or polyester 3. Dimensions <ol style="list-style-type: none"> 1) Frame: approx. 1900 mm (L) by 600 mm (D) by 1700 mm (H) 	100	For use in student accommodations
Steel shelf	<ol style="list-style-type: none"> 1. Material: steel 2. Max. capacitive load 3. No. of shelves: 5 4. Dimensions: approx. 900 mm (W) by 600 mm (D) by 1700 mm (H) 	72	Furniture. To be used for storing books.
Medium-sized bus	<ol style="list-style-type: none"> 1. Diesel engine 2. 30 or more passengers 3. Manual, 5-speed 4. With air conditioner 	1	For transportation of students and instructors during extramural training
Minibus	<ol style="list-style-type: none"> 1. Diesel engine 2. 15 or more passengers 3. Manual, 5-speed 4. With air conditioner 	1	For transportation of students and instructors during extramural training

Judging from the sizes of the planned facilities, the situation of the local construction industry, and the budget systems of the governments of the two countries, it will take 17.5 months to complete this project - 5.5 months to complete the working drawing/tender work and 12 months to complete the construction work. The estimated cost of this project is ¥1.057 billion (of which ¥926 million is to be defrayed by the Government of Japan, and ¥131 million by the Government of Mozambique).

The Human Resources Directorate of the Ministry of Health of Mozambique is to accept applications for admission to the basic-level courses from within the province of Zambezia and place the graduates from these courses with medical institutions within the province. The Directorate is to accept applications for admission to the intermediary-level courses from the four provinces in the central part of the country (Zambezia, Tete, Manica and Sofala) and place the graduates from these courses with medical institutions within the four provinces. In actuality, however, the Directorate accepts applications for admission to all the courses from across the country and places the graduates from all the courses with medical institutions all over the country. In this context, the implementation of this project is expected to produce the following beneficial effects. There will be indirect beneficiaries of this project in almost all parts of the country.

<Direct Effects>

- 1) An educational environment necessary for the implementation of the curriculum for the institutes of health science which the Ministry of Health draws up will be created in the Quelimane Institute of Health Science.
- 2) The contents of the basic-level courses (assistant pharmacist course, general medical assistant course, mother/child health care nursing course, and general nursing assistant course) will be improved, and as a result, a total of 120 students will graduate from these courses every 18 months.
- 3) The contents of the intermediary-level courses (pharmacist course, general medical technician course, mother/child health care technician course, general nursing technician course, and laboratory technician course) will be improved, and as a result, a total 150 students will graduate from these courses every 30 months.

<Indirect Effects>

The Directorate of Human Resources accepts applications for admission to all the courses from across the country and places the graduates from all the courses with medical institutions all over the country. It is expected, therefore, that the implementation of this project will facilitate the spread and improvement of healthcare service not only in the four provinces but in almost all parts of the country.

As mentioned above, this project will produce many beneficial effects and at the same time will promote the progress of the human resources development program in Mozambique. All this will improve the training of medical professionals and the economic and social development of the country. It is a matter of great significance, therefore, to implement this project with the Government of Japan's grand aid.

If the facilities and equipment procured for the Institute of Health Science built under this project are to be continuously and effectively used and properly operated, maintained, and managed, the Mozambique side is required to note the following particulars.

(1) Facility/Equipment Operating, Maintaining, and Managing System

The Mozambique side plans to appoint an electrical engineer and mechanical engineer to take charge of the, maintenance and management of the facilities and equipment to be procured under this project. These two engineers are to supervise the construction and equipment works together with the superintendent from the start of the construction work. Upon the completion of the project, they are also expected to use their deepened knowledge of maintenance and management of equipment and individual facilities to help establish a full-fledged facility/equipment maintenance and management system. The Institute's staff members and students are also expected to commit themselves to the establishment of a facility/equipment maintenance and management system that makes it possible to maintain and manage the facilities/equipment on a continuous basis.

(2) Cost of Facility/Equipment Operation, Maintenance and Management

The total cost incurred by the Institute of Quelimane for the operation, maintenance, and management of the facilities and equipment to be procured under this project is estimated at 1,939,800,000 meticals (approximately ¥9 million). Electricity and telephone charges are expected constitute a large proportion of the total cost. The facilities to be procured under this project are

designed to minimize these expenses. If the staff members and students use electricity and telephones haphazardly, however, the cost of facility operation will likely be a heavy financial burden on the Institute. As such, the Institute must make efforts to raise the awareness of its staff and students on the need to minimize these expenses. This will enable the Institute to take effective preventive measures before unnecessary expenses are incurred.

(3) An Institute Open to Communities

This purpose of this project is to improve the facilities and equipment of an Institute of Health Science engaged in the training of medical professionals who are preparing to head health centers and health posts in the future. At present, few of these medical facilities are headed by well-qualified medical professionals. The main purpose of an Institute of Health Science is to help its students acquire knowledge of medical practice. But it is equally important that the students learn how to operate medical facilities and equipment smoothly on the same footing as community residents through close communications with community residents. It is therefore necessary that the classrooms and or auditorium at the Institute of Health Science be open to community residents for activities conducted in common with the students themselves—albeit not to an extent that will hamper the smooth implementation of the Institute of Health Science’s curriculum. Through such activities, the students are expected to learn how the health centers and health posts can be operated under the leadership of community residents.

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Chapter 1 Background of the Project

Chapter 1 Background of the Project

The Ministry of Health of Mozambique laid down the “Strategic Plan for Health Sector 2002-2010” (PESS) on the basis of the Government of Mozambique's basic policies. In the plan, the Ministry places importance on offering improved the health care services to the people as a policy measure to promote the "reduction of absolute poverty" campaign, an endeavor advocated by PARPA. In this context, the Ministry gives top priority to the training of highly skilled medical professionals.

The Health System in Mozambique is composed of a Central Hospital, the top referral hospital in the country, with provincial hospitals, district hospitals, health centers, and health posts operating peripherally throughout the country. Unfortunately, the referral system is functioning poorly due to the shortage of medical professionals who link with people and hospitals in the community. In addition, Mozambique still faces an absolute shortage of medical professionals, Training center graduates entering the healthcare system still lack knowledge to reliably run the health posts. Therefore, as a new policy, the core efforts to improve the quality of medical services in Mozambique will focus on basic-level and intermediary-level healthcare.

Mozambique has, a total of four Institutes of Science (in Maputo, Beira, Nanpla and Quelimane) and 10 training centers. The Quelimane Institute is located on the premises of Quelimane Provincial Hospital, the key hospital in the province, and therefore shares the use of the kitchen and several other facilities with the hospital. However, the hospital has plans to improve and expand its existing facilities and demands that the Institute be moved from the hospital's premises, which have grown too small.

Under these circumstances, the Government of Mozambique decided to relocate the Institute to a site located approximately 10 kilometers northeast of the center of the city of Quelimane and to construct facilities larger than the existing ones. To make this possible, the Government of Mozambique requested the Government of Japan for grant aid for the procurement of necessary facilities and equipment.

The details of the request follow.

Facilities (New Construction)

- Administration Block
- Lecture Block

- Common Facilities
- Dormitories and Accommodation
- Utilities
- Library Block
- Gymnasium
- External Works

Education Equipment

- Educational equipment on general techniques
- Educational equipment on basic techniques
- Maternal healthcare equipment
- Child healthcare equipment
- Community healthcare equipment
- Geriatric equipment
- Others