No. 01

Basic Design Study Report on the Project for the Rehabilitation of the Medical Facilities of Central Hospitals in the Republic of Zimbabwe

March. 1991

Japan International Cooperation Agency

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PREFACE

In response to a request from the Government of the Republic of Zimbabwe, the Government of Japan has decided to conduct a Basic Design Study on the Project for the Rehabilitation of the Medical Facilities of Central Hospitals and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Zimbabwe a survey team headed by Dr. Akera, Vice-President of the National Children's Hospital, Ministry of Health and Welfare, Director of Medical Research Center, from October 6 to November 1, 1990.

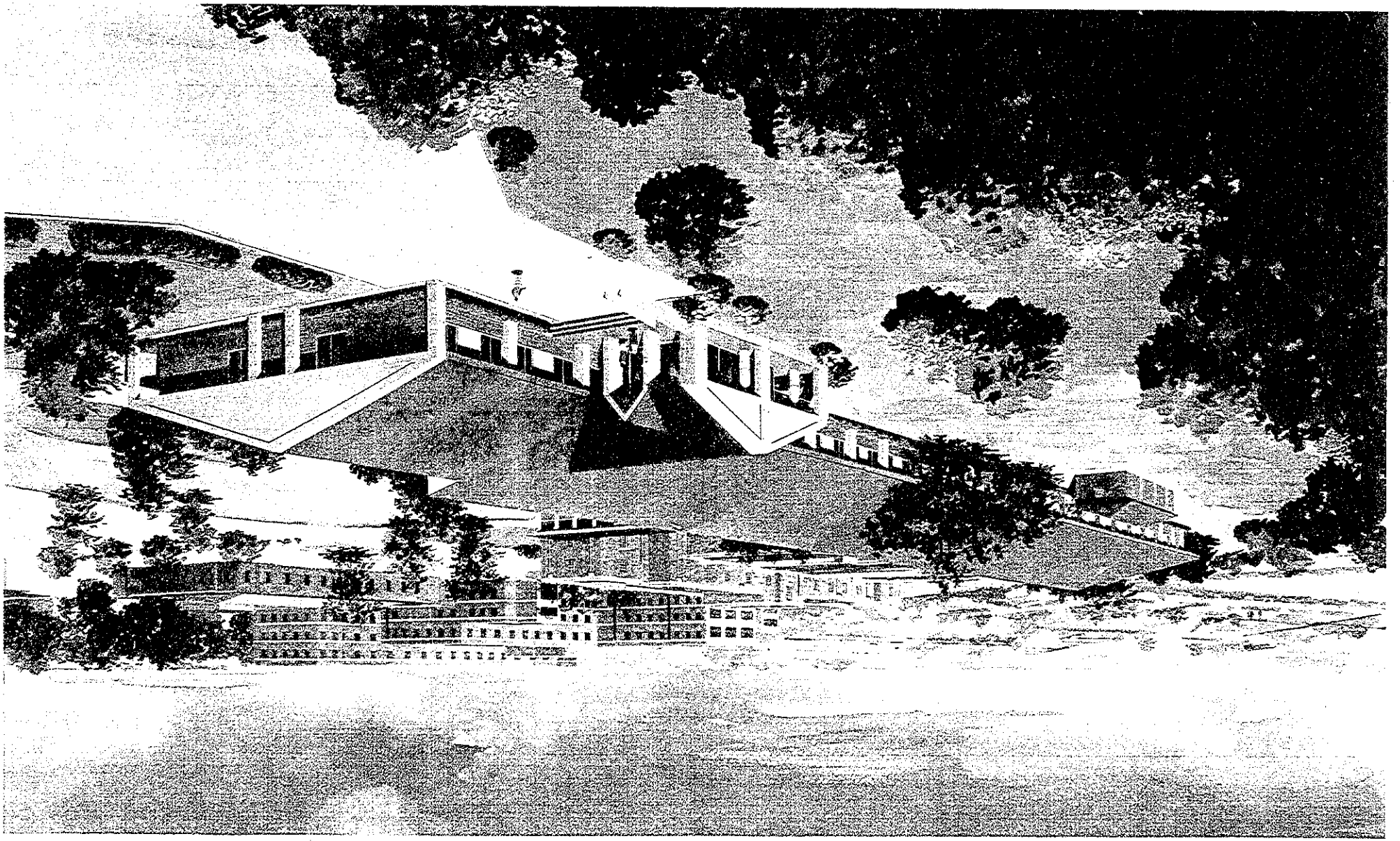
The team exchanged views with the officials concerned of the Government of Zimbabwe and conducted a field survey. After the team returned to Japan, further studies were made. Then, a mission was sent to Zimbabwe in order to discuss the draft report and the present report was prepared.

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

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

March, 1991

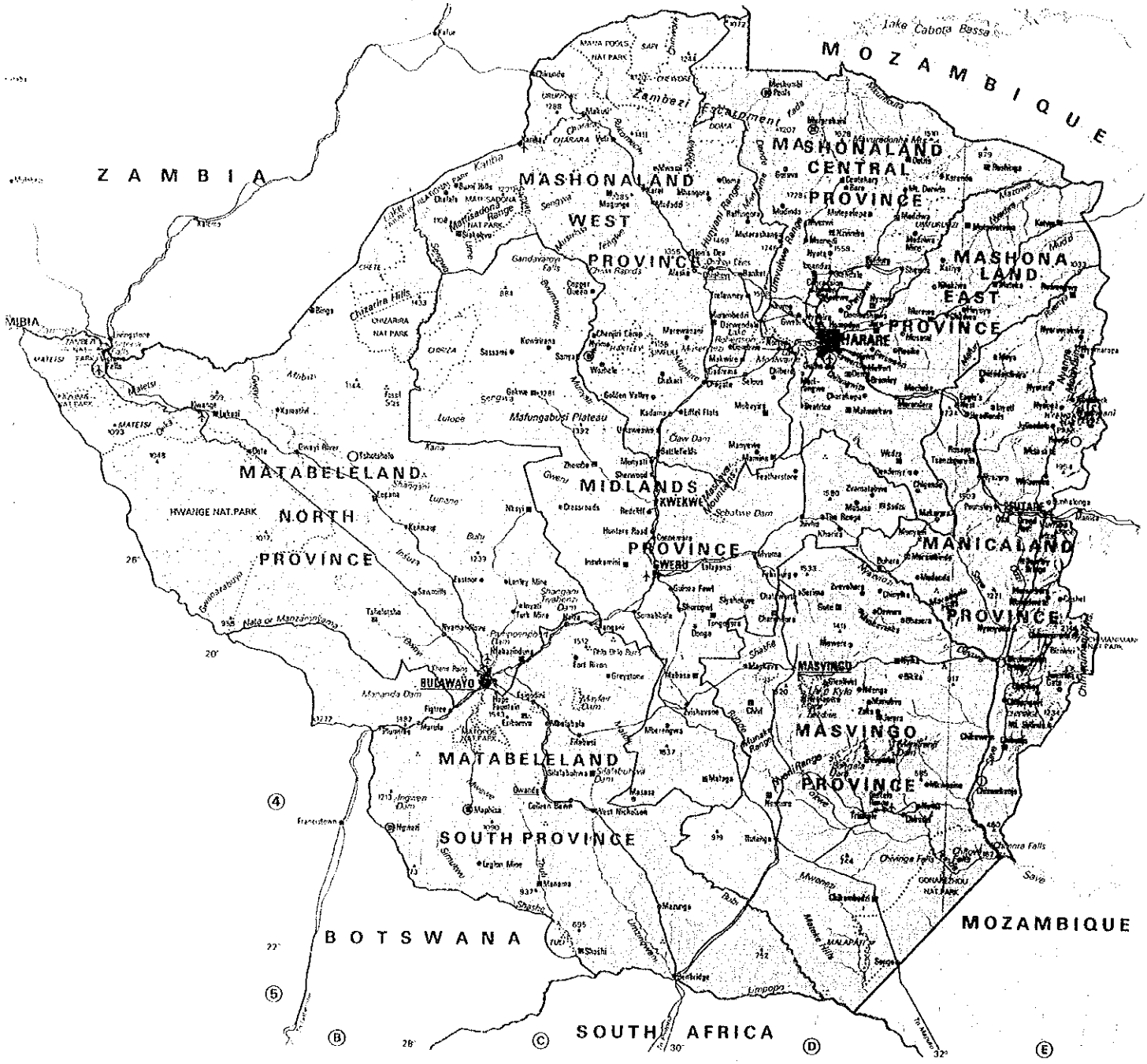
Kensuke Yanagiya
President
Japan International Cooperation Agency



Complete Map of the Republic of Zimbabwe

ジンバブエ共和国全図

Complete Map of the Republic of Zimbabwe



Map of Bulawayo City

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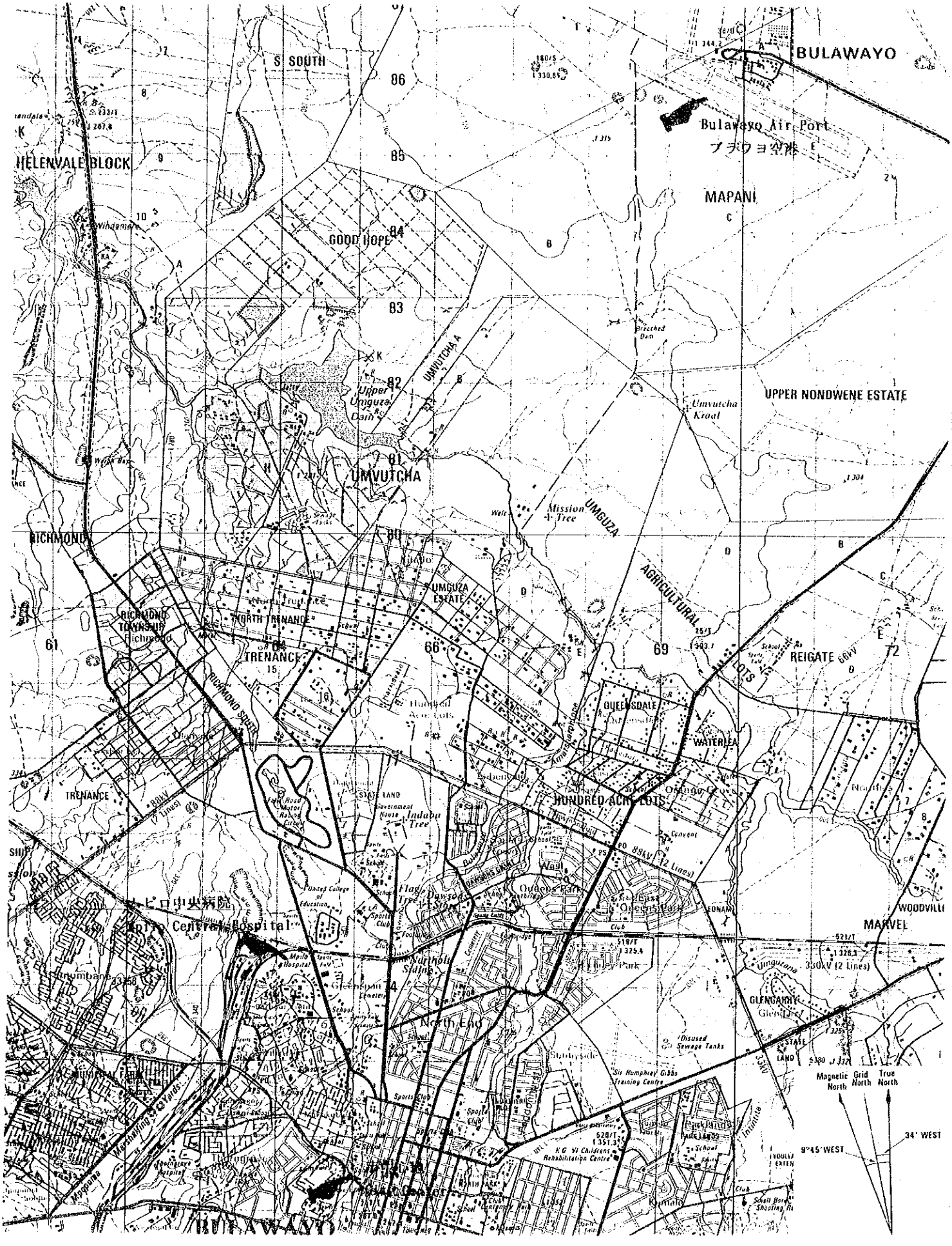
ブラワヨ市街地図
Map of Bulawayo City



Maternity Ward

Project Facilities

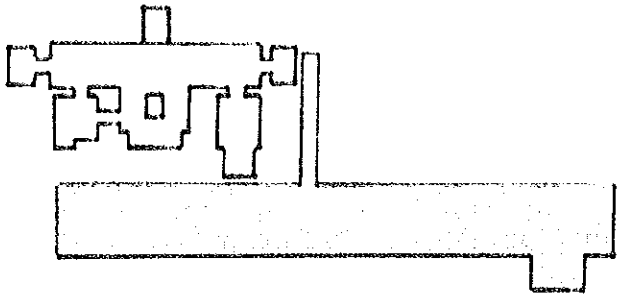
Project Site

PROJECT SITE

建 設 予 定 地

MATERNITY BLOCK

産 科 病 棟



SUMMARY

SUMMARY

The Republic of Zimbabwe is a landlocked country in southern Africa with a population of about 9.5 million (1989) and land area of 391,000 km^2, which is 1.03 times that of Japan.

Among the nations in this region, Zimbabwean has a highest standard of education, and according to statistics, the literacy rate was as high as 68.8% in 1980 when this nation become independent from.

The economy of this nation marked an annual GDP growth as high as 7.2% during a period before independence (1968-1974), but hit by the oil crisis in 1974, this dropped to a negative value in fiscal year 1979/1980. After independence (1980), it took a favorable turn, and a growth rate of 2.7% was achieved in 1985. The Government formed its first five-year development plan (1986/1990) in 1986 and set the annual GDP goal at 5.1%. However, decreases in investment due to a shortage of foreign currency, an unbalanced economy, and worsening of the national accounts make it necessary to form the five year plan mentioned above to include a policy for extension of medical services to local level to enable all the nation to be equally favored, and the Government formed a concrete plan called "ZIMBABWE HEALTH FOR ALL ACTION PLAN" and carried into effect.

The three largest death causes are measles, pneumonia, and malignant diarrhea in Zimbabwe. Infectious diseases and endemic diseases, such as malaria and schistosomiasis occur frequently in some districts.

Taking the position that these diseases are mostly ascribable to lack of means of the medical service, the "ZIMBABWE HEALTH FOR ALL ACTION PLAN" which is the core of the medical facilities reinforcement plan of this country intends to attain the purpose by reinforcement and improvement of each level of the hierarchic medical service system: primary, secondary, tertiary, and quaternary medical services.

The Mpilo Central Hospital, are positioned as quaternary medical service facilities dividing the whole country, consisting of eight provinces, into two groups to take charge of four provinces in South West part of country. They are responsible for making the medical policy of the Ministry of Health known to subordinate institutions, treatment of patients transferred from lower sectors, and education of medical workers engaged in local facilities. Due to lack of primary medical service facilities in the provinces, however, those patients who should be treated in primary medical institutions in each district on principle have to converge into this hospital.

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This hospital, built in 1950, cannot meet the present requirements not only because the facilities have become obsolete but also from shortage of space itself. Those most affected are mothers and children, who have a physically and socially weak position that results in high death rates.

Those patients who should be treated in primary medical institutions in each district on principle have to converge into this hospital. In view of this situation, the Government of the Republic of Zimbabwe made a request to the Government of Japan for assistance in the Project for Rehabilitation of Medical Facilities of Mpilo Central Hospital in the Republic of Zimbabwe, the most pressing medical project in the country.

In response to this request, the Government of Japan decided to conduct a Basic Design Study of the Project.

The Government of Japan entrusted the study to the Japan International Cooperation Agency (JICA) which sent a survey team to Zimbabwe during the period from October 6 to November 1, 1990 to investigate and examine the necessity of facilities and equipment as well as concrete contents and to exchange views with the relevant officials of the Government of the Republic of Zimbabwe. After the team returned to Japan, results of the field survey were analyzed and examined to prepare the basic design of facilities and equipment plus a maintenance and management plan. These were incorporated in a draft final report, and a team was sent to Zimbabwe from February 13 to 24, 1991 to explain the report to the relevant officials of the Government of the Republic of Zimbabwe, who then acknowledged the draft report.

This project is positioned as the medical facilities reinforcement plan of this country and aims at building a delivery ward, operation theater plus CSSD ward, and ante-natal ward in the Obstetrics Department of Mpilo Central Hospital and providing the facilities with the medical equipment necessary for smooth promotion of health and medical activities in this country.

The agency in charge of enforcement and management of this project is the Family Health Project Department. The project site is located on the premises of Mpilo Central Hospital in Bulawayo City in the Province of Matabeleland North.

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Facilities and equipment most suitable to the said purpose and contents of the activities are as follows:

(1) Facilities

Ward/Department Name	Main Room Name
(1) Delivery Ward	1,387.5 m² Reinforced concrete, one-story building
Outpatient Department	Entrance, Office, Reception Office, and Waiting Area
Medical Examination Department	Operation Theater, Nurse Station, Dirty Room
Labour Ward	Labour Ward
Delivery Department	Delivery Room, Nurse Station
(2) Operation + CSSD Department	1,235.0 m² Reinforced concrete, one-story building
Operation Theatre	Operation Theater, Nurse Station
Recovery Room	Recovery Room, Nurse Station
C.S.S.D. Department	Autoclave Room, Sterilizing Work Area, Sterilized Room
(3) Ante-natal Ward	Ante-natal Room 370.50 m² Reinforced concrete, one-story building
(4) Others	
Transformer House, Medical Gas Cylinder Room	87.5 m² brick structure, one-story building
Roofed passage	191.75 m² Reinforced concrete one-story building
Total floor area	3,272.25 m²

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(2) Medical Eguipment

Department Name	Principal Eguipment
1. Outpatient Department	Ambulance (with radio set), Stretcher
2. Medical Examination Department	Gynecological Examination Couch, Feto Scope, Portable Examination Light, Ultrasound Apparatus (portable-type)
3. Ante-natal Unit	Bed, Feto Scope, E.C.G. Machine
4. Labour Ward	Labour Bed, Fetal Monitor, Entonox Equipment
5. Delivery Ward	Delivery Bed, Normal Delivery Set, Operation Light, Suction Machine, Vacuum Extractor
6. Operation Theatre	Theatre Operation Table, Operation Light, Boyles Machine, Diathermy Machine, Suction Machine, Defibrillator, Cardiac Monitor, Caesarian Section
7. Recovery Ward	Stretcher, Boyles Machine, Suction Machine, Cardiac Monitor
8. C.S.S.D. Department	Autoclave, Ultrasonic Cleaner

The estimated approximate expenses for the work to be borne by Zimbabwe	Z$131,000.00 (7.3 mil. J yen)

The estimated cost for the annual maintenance and management for said facilities and equipment are expected to be Z$440,000.00 (34.64 mil J. yen) per year excluding personnel expenses, which the Government of the Republic of Zimbabwe can afford.

In consideration of the work volume, it is advisable to divide the project into two phases for execution with assistance from Japan.

Detailed design and bidding will require 5.5 months as the first phase, and 5.5 months as the second phase. The construction work will require 12 months as the first phase and 8 months as the second phase.

Contents of the work for each term are as follows:

First phase: Operation theatre + CSSD ward, Equipment
Second phase: Labour ward, Antenatal ward, Equipment

Execution of this project is expected to help achievement the target of reducing the death rate of mothers and children by 50 percent, the subject of the highest priority among various activities in the medical field of this country, and to contribute greatly to the promotion of health preservation activities as the national policy under the slogan of "Health for all by the Year 2000." The costs of construction and management necessary for execution of this plan to be born by the Zimbabwe side remain within the range the government can afford, and its executing system is completed to cause no concern for setting about it.

For these reasons, it is believed to be appropriate to put this project into practice with assistance from Japan.

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SECTION 1 INTRODUCTION

SECTION 1 INTRODUCTION

The Government of the Republic of Zimbabwe (hereinafter called "Zimbabwe" employed the slogan of "Health for all by the Year 2000" in its first five-year plan (1986-1990) and aims at expansion of the medical system and its penetration to less-favored districts to enable all the nation to utilize the medical services.

The Government-formed "ZIMBABWE HEALTH FOR ALL ACTION PLAN" for the field concerned working out a concrete policy and putting it into practice. However, decreases in investment due to a shortage of foreign currency, an unbalanced economy, and worsening of the national accounts make it difficult to achieve the objective.

In these circumstances, the Government of Zimbabwe set it the most important subject at present (until primary medical service facilities are sufficiently provided in each district) to reinforce the medical facilities of central hospitals for execution of this "ZIMBABWE HEALTH FOR ALL ACTION PLAN" and formed the Project for the Rehabilitation of the Medical Facilities of Central Hospital in the Republic of Zimbabwe. In view of the difficulty to put through this project by itself, the Government of Zimbabwe made a request to the Government of Japan for assistance to this project.

The Government of Japan decided to conduct a basic design study of the project, and sent to Zimbabwe a survey team headed by Dr. T.Akera, Vice-President of National Children's Hospital, Ministry of Health and Welfare, from October 6 to November, 1990. The team confirmed and discussed the details of the request, conducted surveys on the background of the Project and on local conditions, confirmed the Project procedures, explained to Zimbabwe Government officials the formalities of the Grant Aid system of the Government of Japan, and further confirmed the undertakings of the two Government, in preparation for execution of the Project.

Based on these local survey results, JICA examined the adequacy, details, scale, execution schedule, and cost of the Project, and, after explanaining the draft final report, compiled the results into this report.

The team members, survey itinerary, list of key interviewees, and copies of the minutes of discussion are attached as Annex 1 through 4 at the end of this report.

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SECTION 2 BACKGROUND TO THE PROJECT

2-1 General Conditions in Zimbabwe

2-2 Summary of Medical Field

2-3 Current Situation of the Related Rrogram

2-4 Evolution and Details of Request

SECTION 2 BACKGROUND TO THE PROJECT

2-1 General Conditions in Zimbabwe

The Republic of Zimbabwe is a landlocked country in southern Africa, situated between 15° and 23° south latitude and between 25° and 33° east longitude, bordered on the east by Mozambique, on the south by the Republic of South Africa, on the southeast by the Republic of Botswana, and on the north (and northwest) by the Republic of Zambia. The total land area is 391,000 square kilometers, 1.03 times that of Japan. The veld at altitudes from 900 to 1200meters accounts for 40 percent of the land area. The highland, at altitudes from 1200 to 1500 meters and dividing the veld into two parts forms, the watershed of the Zambezi on the north and the Limpopo on the south.

The climate is subtropical but relatively mild in temperature because of the high altitude. The hottest season is October, with an average temperature of 22°C, and the coolest season lasts from June to July, with an average temperature of 13°C. Average annual precipitation is 1400 mm in the eastern veld, 800 mm in the northeastern veld, and 400 mm or less in the lowlands along the Limpopo, providing a national anuual average precipitation of about 700 mm.

This country has a population of 9.5 million estimated as of December 1989. About 95 percent of the people are Black; mostly Shona groups are widely distributed, with the eastern half as the most densely populated district, followed by Ndebele (Matabale) groups occupying the middle west provinces.

Zimbabwe is rich in mineral, agricultural and aquatic resources, and its manufacturing industry has developed and diversified next to the Republic of South Africa among the nations situated south of Sahara to produce most necessary consumption goods within the country. Adding to the infrastructure comparatively well provided, including main roads, railroad, and power supply facilities, the nation has advanced financial and physical flow systems, high-quality labor force, and excellent administrative capabilities of the Government. Thus, Zimbabwe is under the most favorable conditions for economical development of its people.

After independence, the economy was well sustained in 1980 and 1981. But business was at a standstill from 1982 to 1984 under the influence of worldwide depression and drought. Making an annual GDP growth of 7.3% in 1985, the slowdown in economic activity continued since 1986.

In the first five-year development plan for the period from 1986 to 1990, the Government set the annual GDP goal at 5.1% and started development activities with agricultural

and mineral industries as the principal sectors, but is confronted with enormous difficulties, including decrease in investment due to shortage of foreign currency, an unbalanced economy, and worsening of the national accounts.

One of the greatest problems facing this nation today is how to given employment to the large number of jobless people. The number of the educated and still out of employment is expected to reach 300,000 in 1990. Solution of this problem hinges on increase of investment. Accordingly, the Government enforced the "New Investment Law" in May, 1989, and decided to make a mid-course correction toward upholding of market mechanism rather than controlled economy. How to make the liberalization policy to promote investment consist with the Africanization policy the Government has been driving is, however, a problem awaiting solution.

Economical and technological assistance from Japan to this nation started in 1980, immediately after its independence, with the first gratuitous assistance. Since then, a total of ¥6,600 million of onerous financial assistance, a total of ¥10,897 million of gratuitous assistance (on the basis of note exchanged), and a total of ¥1,400 million of technological assistance (actual record of JICA) were furnished this nation with by 1988. In 1987, the Government of Japan made an outlay of $8.82 million for Zimbabwe to rank the tenth place among development assistance countries accounting for 3.3% of the total amount granted from abroad.

2-2 Summary of the Medical Field

2-2-1 Historical Background of the Medical Field

After the revolutionary war over the 15 years from 1965 on, the Republic of Zimbabwe became independent.

In the prerevolutionary era, medical services for Zimbabwe were very poor, with insufficient facilities and equipment.

When the nation became independent (1980), there were only 16 hospitals for the 7.5 million Zimbabwean who accounted for 98 percent of the population, as compared with 22 hospitals for 250,000 European people. Such a differential placed mothers and children in an especially weak position among the Zimbabwean. According to statistics, the infant mortality rate was 120 of every 1000 Zimbabwean babies as compared with 18 of every 1000 European babies then.

There remains a regrettable expression in the health statistics for all Zimbabwean. The statistics of 1979 said the average life expectancy of Zimbabwean who constituted the majority of the population, was 45 years while that of the European, a minority in the country, was 65. The immunity rate for diseases was 10 percent for Zimbabwean children as compared with 98 percent for European children.

As the target of health preservation activities related to this project, the Government continues to expand medical services and to help them penetrate to each district under the slogan of "Health for all by the Year 2000." Concretely, the Government aims at establishment of a hierarchic medical service system, consisting of the primary medical service (VHW and RHC), secondary medical service (DHSC), tertial medical service (PHSC), and quarternary medical service (Ministry of Health, central hospital, and special hospital), and reinforcement of the medical facilities at each level (central, province, district, and village) to provide an equal medical service throughout the land.

There are four central hospitals, which are basically quartenary medical service facilities; this project relates to two of these central hospitals (Harare Hospital and Mpilo Hospital). This is because these two hospitals have been exclusively for Zimbabwe natives and other two hospitals have been exclusively for European from the prerevolutionalry era. Medical services for Zimbabwe natives have been poor, both in quality and quantity, as compared with those for European, and no substantial improvement has been made since the hospitals were built in 1950. The death rate of mothers and children has remain high due to insufficient facilities and poor access to health services.

2-2-2 Current Medical Condition and Policy

The first-five year development plan for the period from 1986 to 1990, with the historical background of the medical field as mentioned above, aims at expansion of the medical system and its penetration to less-favored districts under the slogan of "Health for all by the Year 2000." As a basic approach to this subject, the Government of the Republic of Zimbabwe is making an effort to reinforce the medical facilities at each level (central, province, district, and village). To promote this policy, it formed the Project for Rehabilitation of the Medical Facilities of Central Hospital and promote the movements for medical system reinforcement on the basis of early treatment, reeducation of the people engaged in medical services, and preferential allocation of financial resources to preventive medicine and health promotion activities.

As a concrete measure for the medical policy mentioned above, the Ministry of Health formed "ZIMBABWE HEALTH FOR ALL ACTION PLAN" and announced the details of the activities as well as the method of executing the plan. This plan is carried

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forward during the period of the first five-year development plan, from 1986 to 1990, and it is scheduled to attain the goal by 2000.

The plan intends to form a nationwide medical information network, as its most important subject, to regularly collect newest data on medical services at each level by educating specialists and organizing all the sections, from the central authority to each institution at the village level, into a body. It is also an important problem to be solved how to work out a measure to make possible the expenditure.

This concrete activities plan gives priority and sets the goal as follows. No means are secured to sufficiently finance the actual enforcement of this policy.

1) Priority of Activities Plan

A) Protection and Promotion of Health of Specific Population Groups

Material and Child Health
Child Spacing and Fertility Regulations
Workers Health
Care of the Elderly
Information and Education for Health
Nutrition
Promotion of Oral Health
Accident Prevention
Blindness Prevention

B) Promotion and Protection of Mental Health

C) Improvement of Life Environment

Community Water Supply and Sanitation
Control of Environmental Health Hazards
Environmental Health in Rural and Urban
Development and Housing
Food Safety

D) Prevention and Control of Communicable Diseases

Expanded Programme on Immunization
Control of Diarrhoeal Diseases Programme

Mararia
Schistosomiasis
Tuberculosis
Leprosy
Sexually Transmitted Diseases
Respiratory Infections

E) Prevention and Control of Non-communicable Diseases

Cardiovascular Diseases
Rheumatic Heart Diseases
Cancer

2) Other Administrative Efforts

A) Diagnostic, Therapeutic and Rehabilitative Services in Support of Primary Health Care

- Development of Radiological Services for Health Systems based on Primary Health Care
- Health Services Laboratories
- Clinical Laboratory Services
- Government Analyst Laboratory
- Pharmaceutical and Other Medical Supplies
- Traditional Medicine
- Rehabilitation Services

B) Organization and Development of Health System

- Organization of Health System based on Primary Health Care
- Managerial Process for National Health Development
- Information Support for the Health System
- Health Research Promotion
- Health Legislation

C) Securing of Resources

- Physical and Material Resources
- Health Manpower including training and Development
- Financial Resources
- Organizational Responsibility for Implementation Conclusion

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2-2-3 Current Diseases

As described before, the Government of the Republic of Zimbabwe is making an effort to reinforce the medical facilities with a view to expansion of the health preservation system and its to less-favored districts. The necessity of such a health policy is vividly explained by the table below, showing the current diseases of this country.

The difference in numbers of patients between Mashonaland Province where Harare City, the capital, is situated and other provinces clearly shows the difference in medical services and life environment between urban and local areas.

Statistics of Number of Patients by Province and by Disease in 1985

	Province Name / Disease Name	Matabeleland Prov.	Mashonaland Prov.	Manicaland Prov.	Masvingo Prov.	Midlands Prov.	Tetungwither Prov.	Total
1	Malaria (clinical)	77,642	67	81,949 (11)	36,055	55,485	12,713 (19)	263,891 (19)
2	Diarrhea	60,871	30	41,353 (45)	30,097 (2)	48,458 (2)	8,369 (43)	189,078 (92)
3	Gonorrhea	43,665	155	21,598	33,851	13,375	5,599	118,343
4	Chancroid	9,884	464	6,551	5,210	2,271	3,333	27,713
5	Measles	1,626 (2)	37	5,137 (70)	4,318 (12)	5,583 (6)	807 (10)	17,508 (100)
6	Trachome	2,026	40	1,622	4,291	-	6	7,985
7	Whooping cough	0	1	601	730	733 (1)	-	2,065 (1)
8	Typhoid	149	115	150 (5)	505	24 (20)	-	943 (25)
9	Anthrax	349	8	78 (1)	46	248 (19)	1	730 (20)
10	Viral hepatitis	0	129	157 (3)	111	22 (9)	-	413 (12)
11	Meningitis	104	13	59 (11)	112 (1)	1 (1)	1 (1)	290 (14)
12	Tetanus (neonatal)	42 (4)	1	53 (5)	16 (1)	42 (6)	-	154 (16)
13	Polio	20	1	15	33	-	-	69
14	Rabies	24	0	8 (6)	15	-	1	48 (6)
15	Trypanossomiasis	0	4	1	-	-	-	5
16	Diptheria	1	0	3	-	-	-	4

Notes 1. Data for Mashonaland East Prov. and Mashonaland Central Prov. are not included.
2. The value in parentheses indicates the number of the dead.

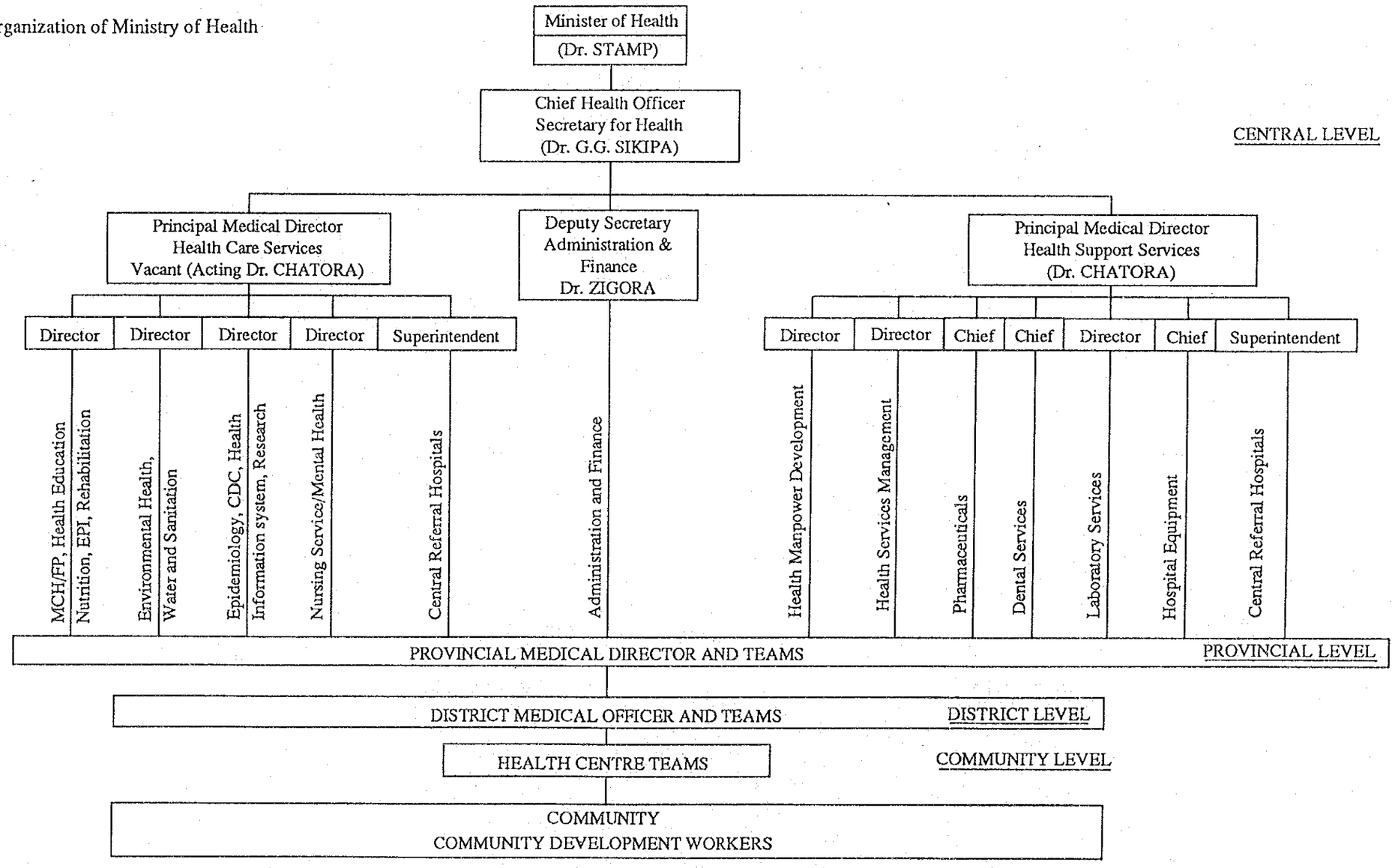
Source: Health Report dated December 31, 1985, the Republic of Zimbabwe

2-2-4 Present Situation in Medical Services

1) Executing Organ and Directly Responsible Department in the Republic of Zimbabwe

Executing Organ: Ministry of Health
Responsible Department: Family Health Project Department (FHP/PSIP)

A) Organization of Ministry of Health



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B) Breakdown of Budget of Ministry of Health

(Unit: Z$)

Fiscal Year	1987/88	1988/89	1989/90	1990/91
Budget Per Annum	293,570,000	328,983,000	386,228,000	459,467,000
I. Administration And General	14,515,000	11,401,000	15,577,000	15,134,000
A. Salaries, wages and allowances	10,141,000	5,995,000	7,868,000	10,224,000
B. Subsistence and transport	630,000	900,000	1,080,000	1,467,000
C. Incidental expenses	1,219,000	1,377,000	1,500,000	1,803,000
D. Grants	1,475,000	3,029,000	5,029,000	1,530,000
E. Furniture and equipment	50,000	100,000	100,000	110,000
F. Loans	1,000,000			
II. Medical Care Services	230,596,800	235,646,000	284,121,000	382,592,000
A. Salaries, wages and allowances	93,148,000	89,146,000	115,125,000	153,392,000
B. Subsistence and transport	2,850,000	3,587,000	3,920,000	5,700,000
C. Incidental expenses	460,000	613,000	683,000	1,000,000
D. Supplies and services	36,000,000	48,538,000	54,000,000	77,000,000
E. Grants to local authorities, missions and voluntary organizations	47,810,500	48,050,000	57,850,000	83,500,000
F. Other grants	31,506,300	37,915,000	44,000,000	51,700,000
G. Payments for Government responsibility patients	320,000	597,000	683,000	700,000
H. Payment to non-government institutions	4,200,000	4,200,000	5,100,000	5,300,000
I. Furniture and equipment	14,302,000	3,000,000	2,760,000	4,300,000
III. Preventive Services	46,530,700	44,245,000	50,753,000	59,132,000
A. Salaries, wages and allowances	20,733,000	20,349,000	24,214,000	29,335,000
B. Subsistence and transport	3,000,000	4,700,000	5,096,000	5,800,000
C. Field operations	12,162,700	9,890,000	10,786,000	11,800,000
D. Grants	10,405,000	9,006,000	10,307,000	11,807,000
E. Furniture and equipment	230,000	300,000	350,000	390,000
IV. Research	1,927,500	1,969,000	2,415,000	2,609,000
A. Salaries, wages and allowances	1,185,000	1,329,000	1,629,000	1,819,000
B. Subsistence and transport	326,000	450,000	516,000	530,000
C. Incidental expenses	346,500	120,000	200,000	200,000
D. Furniture and equipment	70,000	70,000	70,000	60,000

Source: MOH-VOTE15.16.

As seen from above table, the personnel expenses account for a large part of the budget per annum appointed to each department. Of the budget for each fiscal year, the percentage the personnel expenses account for is estimated as follows:

42% for 1987/88, 36% for 1988/89, 39% for 1989/90, and 42% for 1990/91.

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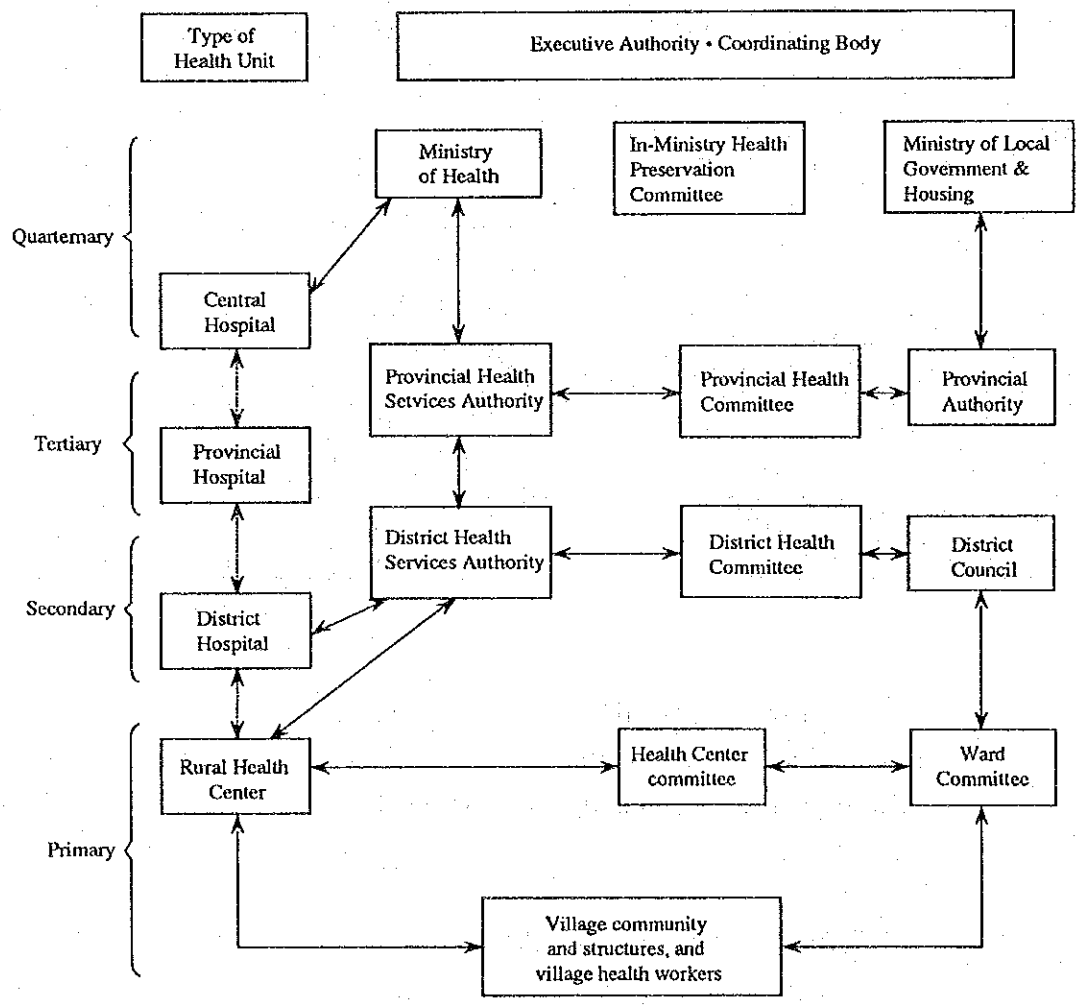
These figures are ascribable to that fact that all the Government medical service institutions are under direct control of the Ministry of Health and personnel expenses of these institutions are supplied directly from this ministry.

Maintenance and management expenses of each Government medical institution are also included in direct expenses of the Ministry of Health.

2) General Health Preservation System

Medicine in the Republic of Zimbabwe is striving forward a big political goal of extending its facilities and activities to the village level and abolishing the differential between urban and rural districts to provide all people with equal medical services.

Starting from a very weak organization in 1980 when this country became independent, the medical system gradually build up a structure to cover the levels from primary medical service to quaternary medical service as shown below.



3) Types and Number of Medical Institutions and Their Distribution

Put concretely, the medical institutions at the primary to quaternary levels mentioned above include six governmental institutions and two private institutions:

1) Rural Health Centers (RHCs),
2) Rural Hospitals,
3) District Hospitals,
4) General,
5) Provincial Hospitals, and
6) Central Hospitals,

and

1) Mission Hospitals and
2) Industrial Hospitals.

These institutions are distributed over the nation as shown in the figure below.

A) Number of Each Type of Medical Institution

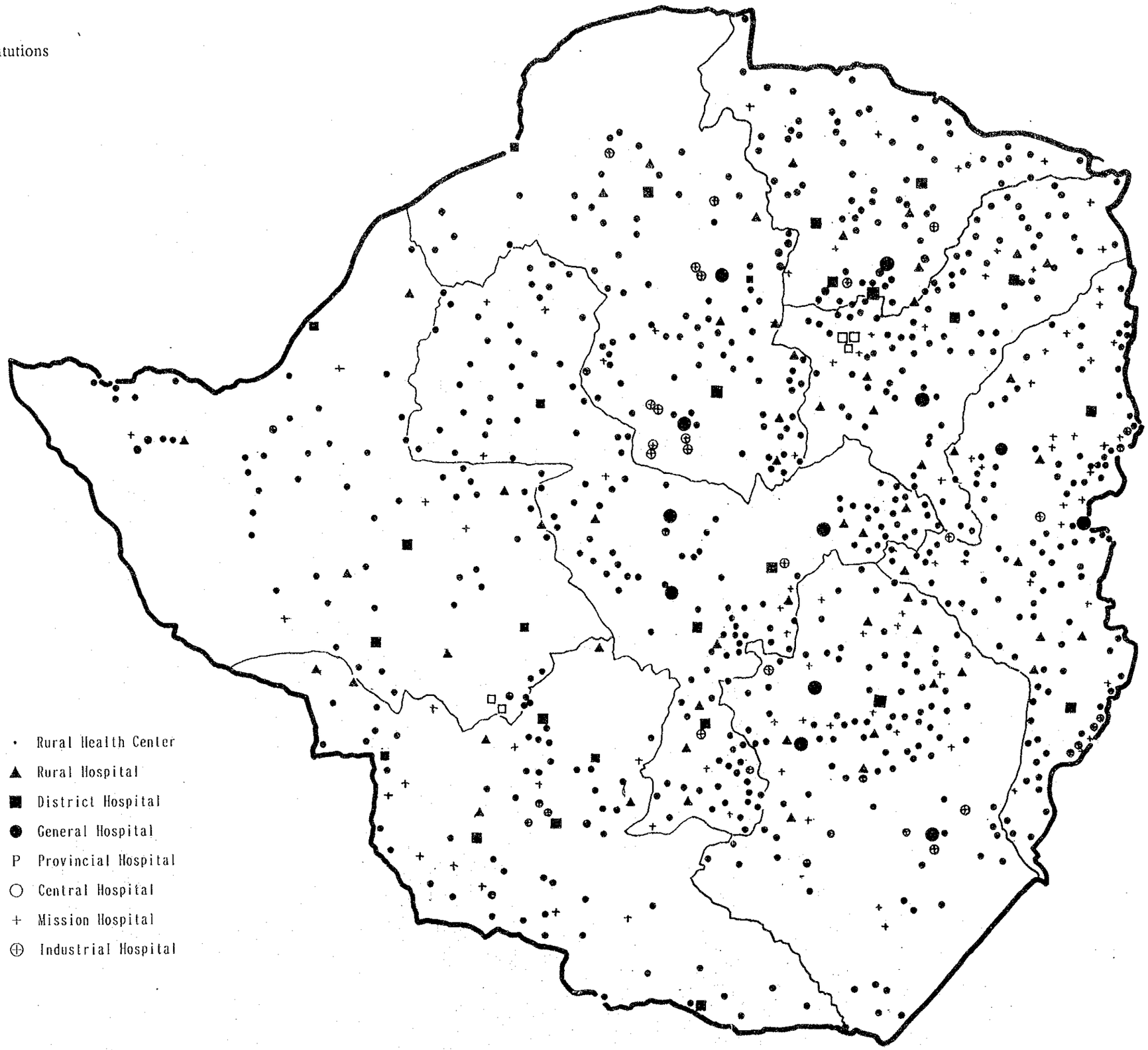
Governmental Institutions

1) Rural Health Center 450
2) Rural Hospital 49
3) District Hospital 26
4) General Hospital 6
5) Provincial Hospital 7
6) Central Hospital 4

Private Institutions

1) Mission Hospital 85
2) Industrial Hospital 53

B) Distribution of Medical Institutions



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4) Present State of Medical Institutions and Their Roles

A) Primary Medical Service (VCW and RHC)

As the primary medical service system in Zimbabwe, the villages inhabited by the least-favored people have VCWs (Village Community Workers) and RHCs (Rural Health Centers).

a) VCW

The VCW or village health worker is selected by each village and is the key person connecting the people in the village with the RHC (Rural Health Center).
The person elected VCW takes a 3 months course including field work.
The VCW is in charge of teaching the village about basic medical services and promoting preventive environmental sanitation practices.
As the village cannot afford the expenses, the salary for each VCW plus necessary medicines and equipment shall be supplied by the RHC and bicycle by the Ministry of Community Department.
The Ministry of Health plans to post one VCW for each village with a population of 50 to 200 by the year 1990.

b) RHC

Each RHC has three trained medical specialists, consisting 3 nurses and 2 nurses aids.
The RHC is planned to cover maternal and child medical services, environmental sanitation, promotion of countermeasures against infection, and examination and treatment, as well as rehabilitation, as the basic health preservation activities in the future.
Generally, the facilities of an RHC are arranged as shown in Fig.b-1 to provide outpatient, obstetric, labour, observation, and emergency treatment.

Standard Rural Health Center Facilities

Today, there are 450 RHCs across the country and one RHC takes care of 21,333 persons, but in three years when all the intended RHCs, 315 in total, have been built, the ratio will become one RHC per 12,549 persons. If the ratio of one RHC for 9,000 persons is achieved by providing 1,067 RHCs in total, however, the most remote point can be included in the range of 8 km from an RHC. The Ministry of Health considers this is the lowest level it should ensure to the people living in villages.

Standard Rural Health Center Facilities

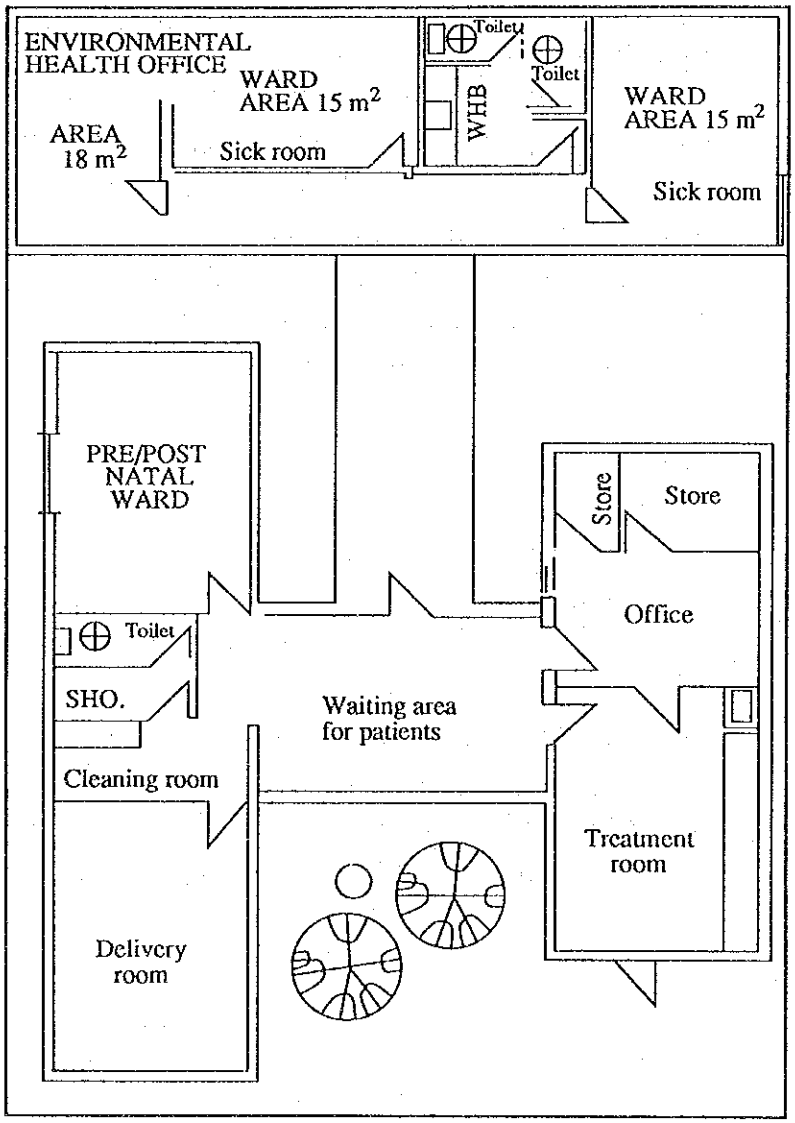

Figure b-1

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B) Secondary Medical Service

For the medical service system on the district level, prevention and treatment duties are entrusted to the District Health Service Authority (DHSA), and the functions include following two items:

a) To assist and monitor the PHC (for primary medical service) and make an effort to enhance PHC performance, and

b) To treat patients transferred mainly from the Rural Health Center.

The District Health Service Authority consists of the executive offices of the DMO HSS, DNO DEHC DP.

c) A district hospital has 65 beds on the average, while the standard specification regulates the number of beds as 140.

C) Tertiary Medical Service

The health preservation activities of the secondary medical service are under the control of the Provincial Health Service Authority (PHSA). PHSA has the following functions:

a) To superintend, assist, and improve medical service throughout the province, and

b) To treat patients transferred from the district hospital on the level of the province hospital.

The Provincial Health Service Authority consists of the executive office of the Provincial Medical Director (PMD), the Provincial Nursing Officer (PNO) and the Provincial Health Services Administrator (PHSA) under the chairmanship of the PMD.

c) A provincial hospital has 160 beds on the average.

D) Quaternary Medical Service

The medical system on this level consists of (4) the Central Hospital, (6) special hospital, and the executive office of the Ministry of Health.

These hospitals treat patients transferred from the Provincial Hospital as well as those from the primary and secondary medical service. Both hospitals also serve as educational facilities for the staff sent from the Ministry of Health and universities.

It has a management system similar to the medical system on the provincial level, but it is under the direct control of the Ministry of Health.

A health preservation activities plan is, therefore, formed by the Ministry of Health and conveyed to subordinate offices.

A central hospital has 515 beds on the average. For the two hospitals concerned to this project, Harare Central Hospital has 930 beds, while Mpilo Central Hospital has 627 beds.

Note:
VHC : Village Health Worker
RHC : Rural Health Center
DHSA : District Health Service Authority
PHSA : Provincial health Service Authority

2-3 Current Situation of the Related Program

2-3-1 National Development Plan

In 1980, when Zimbabwe became independent from the Government formed the "National Development Plan" to restore its infrastructure which had been destructed by the revolutionary war and to unite the nation, and the plan was executed for four years.

By the end of this period, the state of affairs of this country was stabilized and its infrastructure was restored. But, on the other hand, many problems, including economic recovery, came to the fore. In order to resolve them, the Government formed its first five-year (1986-1990) plan in 1986, and put it into effect.

This plan is composed of five sections as follows:

Section 1: THE ECONOMY

Section 2: OVERALL ECONOMIC DEVELOPMENT (1986-1990)

Section 3: SECTORIAL DEVELOPMENT

3-1 Agricultural and Rural Development

During the Plan period, agricultural output is expected to grow at 5.0 per cent, per year. It is projected that over the Plan period, employment in the sector will increase at an average annual rate of 2.2 per cent.

3-2 Mining and Quarrying

During the Plan period, output in the mining sector is projected to grow at between 6 and 7 per cent, annually, and cumulative investment in fixed capital necessary for this growth rate is estimated at about $962 million.

3-3 Manufacturing Industry

The sector is projected to grow at an average annual rate of 6.5 per cent. Wage employment in the sector is expected to increase from 169,000 workers in 1985, to nearly 200,000 workers by 1990.

3-4 Energy and Water Development

To increase the use of coal and electricity in rural areas, thus raising the quality of life of the rural population, and at the same time reducing the degradation of the environment caused by the destruction of forests; and

3-5 Construction and Housing

Plan includes an ambitious development programme for housing which aims at completing 75,000 to 100,000 housing units over the Plan period.

3-6 Distribution and Housing

During the Plan period, Government will increase its participation in the development of the distribution and tourism sector. Infrastructure in rural areas such as roads, bridges, transport, telephone services will be further improved, rural traders will be encouraged to improve their buildings and other facilities.

3-7 Transport and Communications

Investment in the sector for the five year period is estimated at $855 million, $794 million of this amount will be financed through PSIP. Employment is expected to increase from 50,000 in 1985 to 60,000 by 1990.

3-8 Health

Government has accepted the goal of "Health For All by the Year 2000". This entails continued expansion and decentralization of the health care system in order to make health services available to all.

3-9 Education and Manpower

Aim at maximising the use of resources and avoiding duplication in public sector training through greater co-ordination. Of special importance is the co-ordination between the Ministry of labour, Manpower Planning and Social Welfare and the Ministry of Education in developing programmes that will enable school leavers to acquire skills.

The National Vocational Training Centre in Harare will be the focal point for training of skilled manpower. The Centre will develop training modules and curricula and will also provide teaching materials. The seven Technical colleges are being strengthened to enable them to provide more facilities for vocational education.

3-10 Community Development

During the Plan period Government will implement forward-looking strategies of the world Plan of Action of Women. Government will also strengthen women's organisations through legal registration, improvement of banking and credit facilities for women, promotion of appropriate technologies for women and also the formation of a national umbrella body. Government will also promote equal opportunities by abolishing all practices that discriminate against women and intensity education programme on women's rights.

3-11 Culture and Sports

In the area of sport, the Sports and Recreation Council has been formed to co-ordinate and restructure all sporting associations in Zimbabwe to remove the imbalance that existed in the past. Going hand in hand will their restructuring will be the construction of sports fields at growth points and at rural service centres on a self help basis. These facilities will provide the necessary venues for sports trials, coaching clinics and competitions that are necessary for sport development.

In the promotion of culture, based upon the principles of democratisation and decentralisation of cultural facilities and services, the establishment of the National Library and Documentation service has been initiated. Culture Houses, whose components include local museums, galleries, libraries, arts and crafts production and marketing, as well as recreation halls, are being established at district level. District and Provincial Arts Councils represent a new venture as an outreach of the National Arts Council. The teaching of music, drama, dance, art and crafts, as well as behavioural cultural aspects, is to be crucial undertaking within the school system. There will also be an intensive programme, backed by appropriate institutional facilities, to produce cultural multi-media materials and to train relevant personnel.

Section 4: FINANCING THE PLAN

One of the main tasks of Government during the Plan period is to reduce the gap that exists between government expenditure and revenue.
The budget deficit which is estimated at $8089 million for fiscal year 1985/86 will be reduced progressively to about $630 million by 1990/91.

Section 5: STATISTICAL ANNEXES

The planning for the medical field related to this project is included in section 3, which describes about the followings:

Goal: "Health for all by the Year 2000"

Statistics: Fundamentally, the plan aims at expansion of the medical system and its penetration to each district, and as a basic approach to this subject, the Government is making an effort to reinforce the medical facilities at each level (central, province, district, and village).

Policy:

1) Improvement of nutritive condition to resolve the infantile mulnutrition problem

2) Execution of a proper family plan by a conclusive health care education for the final goal of having the maternal and child mortality to meet the increase of population at 2.84% far higher than the annual GDP rate of 2%.

3) Reduction of premature infant birth rate from current 37.9 to 35.1% by 1990 when the first five-year development plan ends by enhancing the

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life level.

4) Pervasion of primary medical service to provide all the nation with an equal medical service. To attain this purpose, a plan should be executed to reinforce the primary health center facilities at every level from primary to quarternary medical services with necessary funds secured.

5) After completing the five-year plan in 1990, 6 district hospitals are newly constructed. Facilities of existing 8 provincial hospitals are reinforced. For central hospitals, their facilities are reinforced as far as practical. As a result, the rate of delivery in the presence of the midwife is raised from current 66.1% to 100%. Family plan education is given to all the women to raise the infant imnuity rate from current 42% to 100%.

6) The life environment is improved. Sanitary arrangements are completed for the water supply system and the drainage system is thoroughly furnished.

7) Emphasis is placed on bringing-up of medical workers. The number of junior high school graduates who enter the training center, in particular, is raised from 13,776 as of 1985 to 20,000 by 1990.

8) Public welfare facilities are reinforced.

9) Culture and sports facilities are reinforced.

As above, the goal, strategy, and detailed reform plan are set forth. Due to financial problems, particularly for shortage of foreign currency, however, a large part of the plan has to depend on assistance from other countries for complete execution. This plan aims at reinforcement of medical facilities of central hospitals, which basically provide quarternary medical service but are currently positioned, in the midway of reinforcement of medical facilities, as a institution to take charge of even primary medical service, which should be basically provided by the primary medical institutions. It is considered that the Government of Zimbabwe is at grips with the Project for the Rehabilitation of the Medical Facilities of Central Hospital as a part of its first five-year development plan under these circumstances.

2-3-2 ZIMBABWE HEALTH FOR ALL ACTION PLAN

As a national development plan in the medical field, "ZIMBABWE HEALTH FOR ALL ACTION PLAN" (1980-2000) was formed as mentioned before and put into practice. Visible results achieved in the ten years from 1980 when the plan started were announced in "A DECADE OF IMPLEMENTING HEALTH FOR ALL STRATEGIES."

A) Neonatal death rate:

1980	1988
140 to 120/1000	53/1000

B) Infant immunity rate:

1982	1988
25%	80%

C) Rate of propagation of Child Health Card:

1980	1988
N/A	90%

D) Rate of propagation of knowledge of dehydration preventive measures for diarrhea:

1980	1988
N/A	90% or more

E) Preventive measures against respiratory diseases is propagated to all schools.

F) At least 90% of the pregnant women to go to a hospital at least once during the period of pregnancy.

At least 60% of the pregnant women to deliver in an institution with a delivery unit.

About 20,000 midwives took training on safe birth and hygien as well as preventive measures against tetanus.

G) Rate of propagation of use of contraception appliances:

1982	1988
14%	43% or more

H) Remarkable progress is recognized in propagation of safe drinking water and sanitary facilities from the time of independence.

I) For primary health care, efforts were made particularly in the training of members of various types of medical facilities and medical specialists.

The number of graduates from the Medical Department of Zimbabwe University increased from 40 to 80 per year, and staff members educated during this period number more than three times the total number of medical specialists working at the time of independence.

J) A remarkable increase was achieved in the number of medical specialists working in public medical facilities as shown below:

	1981	1989
Doctor	346	644
Registered nurse	2,057	3,924
Certified nurse	2,622	6,493
Environmental health inspector	75	135
Environmental health technician	343	682

The increase in medical workers not appearing in these statistics is also noteworthy.

K) In the field of research, a well drilling rig known worldwide as the Zim Pump was invented by the Blair Research Laboratory. This laboratory continues investigations of water sanitation.

L) A Department of Medical Equipment and Maintenance was established in the Ministry of Health as a reception office for any demand from an individual medical institution and to provide maintenance service as well as equipment.

M) In this decade (1980 - 1990), Z$8.5 million was invested in district and mission hospitals to equip them with sufficient medical appliances to enable local inhabitants to enjoy better treatment at nearby facilities.

N) Thirty medical equipment maintenance engineers have been trained in Parirenyatwa Training Center, and thirty-two persons are now being trained there.

O) Seven provincial hospitals came to have medical equipment maintenance work-shops. These hospitals have the same capability the shop in other three central hospitals has.

P) The building program has progressed satisfactorily.

a) Reconstruction tasks were carried out in 450 RHCs and 231 new

RHCs were completed. Three multidisciplinary training schools for state-certified nurses and environmental technicians were completed, and a fourth is under construction. These schools include management courses in their curriculums.

b) A new general hospital was completed in Chitungwiza.

c) Three provincial medical warehouses and a new branch medical warehouse were completed in Bulawayo.

d) For medical service officers, 103 buildings were completed.

e) For paraplegics, 36 buildings were completed.

f) New out-patient departments were completed for four district hospitals, with a fifth under construction.

g) For medical students assisting rural area service, ten buildings were completed.

h) A Drugs Quality Control Laboratory, newly completed, is expected to serve Zimbabwe and neighboring countries.

i) A rehabilitation school was completed in Marondera.

J) In addition to the above, improvements and extensions were made to a number of health facilities at provincial and central hospitals.

Q) As part of the ongoing exercise of strengthening health facilities, eight district hospitals were upgraded with a World Bank loan and with the aid of generous grants from various donor countries.

2-3-3 Study of Duplication with Similar Project

Ministry of Health is responsible to all project of assistance to this field from other countries. Contents of assistance projects for facility and equipment provided in the past and run on at present are as follows:

(Unit: 1000 Z$)

Donar country, organ / Project name	1987/88	1988/89	1989/90	1990/91	1991/92	Total
① Word Bank loan						
* Equipment repletion for district hospital	-	-	1,540	1,540	1,540	4,620
* Expansion of district hospital	2,695	2,695	2,695	2,695	-	10,780
② Norway						Subtotal 15,400
* RHC construction work	-	1,932	1,932	1,932	1,932	7,728
* RHC furniture and equipment	-	-	2,016	2,016	2,016	6,048
* Cooperation to MCH training	605	605	605	605	605	3,024
③ Netherland						Subtotal 16,800
* PHC/FP Cooperation to training	603	603	603	603	603	3,015
④ ODA						Subtotal 3,015
* Furnishing of medical equipment	207	207	207	-	-	621
* Cooperation to medical management training	-	583	583	583	583	2,332
						Subtotal 2,953
						Total 53,568

Based on examination of above list, it is judged that there is no duplication with other similar project in this project, which has been formed in line with the medical service improvement plan of the Government of the Republic of Zimbabwe.

2-4 Evolution and Details of Request

2-4-1 Evolution of the Request

The Government of the Republic of Zimbabwe employed the slogan of "Health for All by the Year 2000" in its first five-year plan (1986-1990) and aims at expansion of the medical system and its penetration to less-favored districts to enable all the nation to utilize medical services. As the basic approach to this goal, the Government is making an effort to strengthen the medical facilities at each level: central, provincial, district, and village. As a basic approach to this subject, the Government of the Republic of Zimbabwe is making an effort to reinforce the medical facilities at each level (central, province, district, and village). To promote this policy, it formed the Project for the Rehabilitation of the Medical Facilities of Central Hospital and promotes the movements for medical system reinforcement on the basis of early treatment, reeducation of the people engaged in medical services, and preferential allocation of financial resources to preventive medicine and health promotion activities.

Replenishment of medical facilities for mothers and children is a subject to be immediately tackled since children account for 55% of the population of 9.2 million, or 70% together with mothers. Under these circumstances, reinforcement becomes increasingly necessary for the maternal and child medical facilities of the two central hospitals, Harare and Mpilo, serving as a national medical center. The child center now used in Harare Hospital is a ward built in the 1950's as an adult ward with a capacity of 126 beds. The bed occupancy percentage of this ward is as high as 100 to 126.4%, and children from eight to fourteen are obliged to be accommodated in the adult ward. The child center acts as the primary forwarding center for district hospitals in and around Harare City as well as the secondary forwarding center for the provincial hospital, but its medical equipment and ward are too obsolete to serve this purpose. It is necessary to build a new child ward and equip it with the appliances suitable for a national center.

The maternal and child unit in the Mpilo Hospital was built in 1950 and has 92 beds for parturient women and 50 beds for babies. The bed occupancy percentage of this unit was as high as 155.6% (parturient women) and 110.5% (baby) in 1988. It has become necessary to extend its facilities and update its equipment to perform its duty as the primary forwarding center for district hospitals in Bulawayo City and Matabeleland North Province as well as the secondary forwarding center for the provincial hospital.

This is the background for the Government of the Republic of Zimbabwe's request for assistance from Japan for the Project of the Rehabilitation of the Medical Facilities in Central Hospital to reinforce the facilities of these two wards.

This survey team performed field observation and investigation to examine the degree of emergency of the subject and adequacy of assistance from Japan. After repeated discussion, the team reached the conclusions described on (para 2-4-2) with full recognition of the necessity of improvements and additions of rehabilitation of pediatric facilities of Harare Central Hospitals requested by the Government of the Republic of Zimbabwe, and in consideration of the following points:

1) In view of the present state of medical services in the Republic of Zimbabwe, the Ministry of Health gives a high priority to rehabilitation of the Obstetrics Department of Mpilo Central Hospital.

2) A great deal of money (about 3500 million in a very rough estimate) will be required to execute the full request.

3) Existing facilities are too remote from proposed facilities, which will cause inconvenience in using both facilities in the future. Therefore, the plan should be reexamined to resolve the difficulties in functional connection between the proposed facilities which can cause trouble in the sequence of work and existing facilities.

4) As it is also aimed at provision of full facilities as the only educational hospital in this country, partial execution of the request will have no effect.

2-4-2 Details of Request

The points of the request for assistance from Japan for the Project of the Rehabilitation of the Obstetrics Department of Mpilo Hospital confirmed by this survey team are summarized below.

1) Purpose of Project

   A) To improve nursing for general patients by relieving congestion in the obstetric ward, and to lower the prenatal death rate (reduction by 50%)

   B) To improve nursing for babies by securing sufficient sickroom space, and to lower the neonatal death rate (reduction by 50%)

   C) To improve emergency care by enlarging the operation room space

   D) To lower the death rates for babies and pregnant women by securing a sufficient number of premature infant lifesaving units, baby cots, incubators, and beds

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2) Project Site: On the grounds of Mpilo Central Hospital, Bulawayo, Matabeleland North Province

3) Executive Authority: Ministry of Health

4) Principal Facilities: Construction of delivery ward, operation room + CSSD ward, and ante-natal ward as well as procurement of medical appliances

SECTION 3 PROJECT SITE AREA

3-1 Positioning of Bulawayo City
3-2 Natural Environment
3-3 Social Environment (Basic Infrastructure)
3-4 Summary of Mpilo Central Hospital

SECTION 3 PROJECT SITE AREA

3-1 Positioning of Bulawayo City

Bulawayo City, the project site, is situated in Matabeleland North Province in the southwestern region approximately 500 km far from Harare City, Capital of Zimbabwe, and is the second largest city, next to Harare City with a population of 1 million.

Main industry of this region is the commercial farms owned mainly by Europeans, it constitutes a center of the mining and manufacturing industries as well as agriculture.

For the medical field, two of the four central hospitals of this country are located in this city, and 168 of the 705 doctors in total work in Bulawayo City. This city has 142 medical facilities, including these two central hospitals.

3-2 Natural Environment

Bulawayo City is situated in the veld. On the rim of the central veld lies the lowland at 900 meters or less in altitude, and on the border with Mozambique on the east scatter mountains at 1,800 meters or more, including Mt. Inyangani at 2,592 meters, the highest.

The climate is subtropical but relatively mild in temperature because of the high altitude. The hottest season is October, with an average temperature of 22°C, and the coolest season lasts from June to July, with an average temperature of 13°C.

Average annual precipitation is 800 mm in the northeastern area, 100 mm or less in the lowlands along the Limpopo, providing a national annual average precipitation of about 700 mm.

3-3 Social Environment (Basic Infrastructure)

3-3-1 Roads

The road system consists of the national highway, prefectural roads, and municipal roads, all paved with asphalt and being 18 m to 38 m wide in the city area. Although paved a fairly long time ago, they are well maintained with very little rough places. The road is provided with a drainage way at each side under a firm road administration.

3-3-2 Water Supply and Drainage System

Water supply system and drainage system are both fully equipped. The water provided by the supply system can be safely drunk as it is. It seems that breeding of mosquitoes is effectively prevented by the complete drainage system.

3-3-3 Electricity

As a great amount of coal is produced, thermal power generation is the core of the electric industry. With the network of transmission line set up throughout over the country, the power is supplied even in fairly remote suburbs.

Hydraulic power generation is also used in some districts, but due to the great difference in precipitation between dry and wet seasons, it is not so trustworthy than thermal power generation. According to statistics for 1980, 8,713.7 mil. KWH was generated to fully cover the consumption of 8,246.3 mil. KWH of the year (statistics prepared in 1989). Power supply is so stable that preparatory generator against power failure has been never used in the existing facilities in the project site.

3-3-4 Communications

Communications means, including telephone, telex, and facsimile, are propagated fairly well so that no inconvenience is feared in normal business work.

According to statistics for 1986:

Post offices:	170	
Postal service agents:	130	
Telephone circuits:	237,702	
Telex circuits:	90,700	(statistics prepared in 1989)

3-4 Summary of Mpilo Central Hospital

3-4-1 Present State of Patients

Mpilo Central Hospital takes charge of the quaternary medical services, serves as a transfer center from the tertiary medical service facilities, and an educational institution of medical specialists working in subordinate units. However, defectiveness of subordinate medical facilities and their equipment resulting in shortage of doctors willing to work in such institutions makes this hospital have to treat patients at the primary level. Thus, this hospital takes care of about a million of patients.

It treated 37,875 outpatients a year (actual record of 1989), and the following cases took the first to fourth places.

1.	Unforced miscarriage:	2,322
2.	Pelvic peritonitis:	1,457
3.	Bronchitis:	1,242
4.	Gastroenteritis and colonitis:	1,148

3-4-2 Details of Treatment and Service

Mpilo Central Hospital, a collection of special hospitals rather different from the general hospital seen in Japan, has examination departments necessary as a general hospital. Treatment services of this hospital cover all cases of diseases. In 1989, some diseases causes death of two digits in percentage.

Table 3-1 Statistics for patients and diseases which caused death of two digits in percentage in 1989

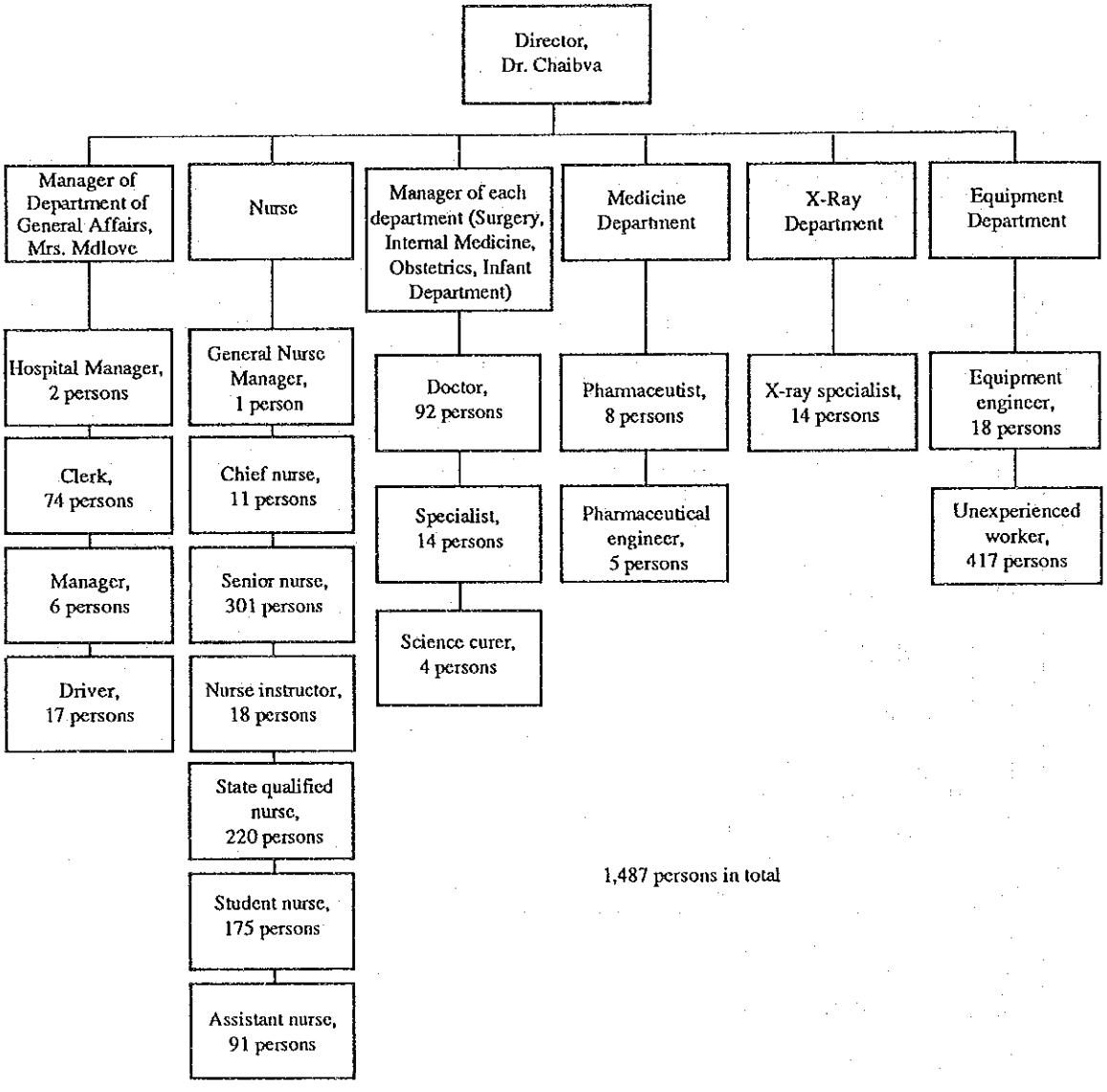
(Mpilo Central Hospital Statistics for 1989)

	Disease Name	Number of Patients (persons)	Number of Death (persons)	Mortality (%)
1	Gastroenteritis and Colitis	1,148	53	4.6
2	Tuberculosis-pulmonary	384	56	14.6
3	Tuberculosis-meningitis	23	14	60.1
4	Cerebral malaria	71	14	19.7
5	Oesophagus unspecified	289	61	21.1
6	Stomach unspecified	70	25	35.7
7	Liver primary	204	51	25.0
8	Head of pancreas	27	11	40.7
9	Bronchus and lung unspecified	165	45	27.3
10	Cervix uteri unspecified	292	28	9.6
11	Prostate	58	13	22.4
12	Bladder-unspecified	77	29	37.7
13	Thyroid gland	29	11	37.9
14	Malignant neoplasm-unspecified	30	18	60.0
15	Unspecified nature-brain	21	11	52.4
16	Diabetes mellitus	465	43	9.3
17	Diabetes with ketoacidosis	43	15	34.9
18	Kwashiorkor	261	37	14.2
19	Marasmic Kwashiorkor	53	13	24.5
20	Acidosis	36	11	30.6
21	Dehydration	207	28	13.5
22	Unspecified psychosis	292	11	3.8
23	Benign intracranial Hypertension	17	13	76.5
24	Rheumatic carditis NOS	119	18	15.1
25	Hypertensive heat desease	130	14	10.8
26	Hypertensive renal disease	30	11	36.7

	Disease Name	Number of Patients (persons)	Number of Death (persons)	Mortality (%)
27	Pulmonary embolism	35	14	40.0
28	Cor pulmonale (chronic) NOS	39	10	25.6
29	Cardimyopathy	151	27	17.9
30	Congestive heart failure	424	16	3.8
31	Cerebro vascular accident with hypertension	165	55	33.3
32	Cerebro vascular accident without hypertension	74	32	43.2
33	Pneumoccoal pneumonia	360	17	4.7
34	Bronchpneumonia	1,242	164	13.2
35	Asthma	262	18	6.9
36	Other noninfective gastroenteritis and colitis	67	18	26.9
37	Intentional adhessions with obstruction	97	22	22.7
38	Peritonitis NOS	29	12	41.4
39	Cirrhosis of liver	82	27	32.9
40	Hepatic coma	15	11	73.3
41	Liver failure	77	68	88.3
42	Nephrotic syndrom unspecified	91	12	13.2
43	Acute renal failure unspecified	93	53	57.0
44	Chronic renal failure	74	44	59.5
45	Renal failure unspecified	90	67	74.5
46	Urinary tract infection	200	13	6.5
47	Puerperal sepsis	240	12	0.4
48	Decubitus ulcer	42	12	28.6
49	Neonatal seosis	194	42	21.5
50	Senility	12	10	83.3
51	Respiratory failure	14	14	100.0
52	Cachexia	19	13	68.4
Total		8,729	1,457	16.6

3-4-3 Organization and Staff

This Examination Department is under control of the management system of the hospital as a whole, and this project has no independent management system.



3-4-4 Current State of Annual Budget

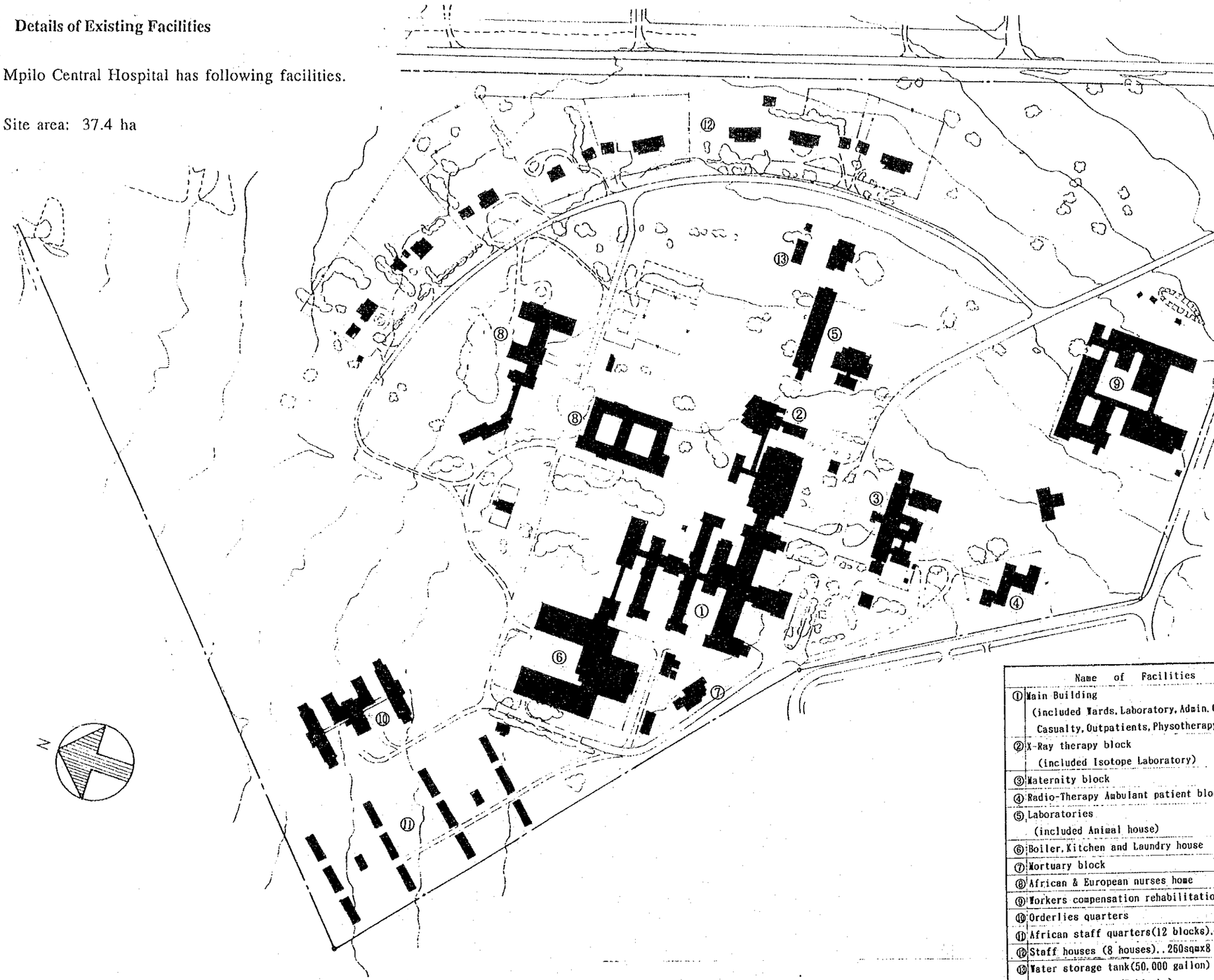
In Zimbabwe, hospital management is basically under direct control of the Ministry of Health. Therefore, salary for the staff, maintenance expenses of the hospital facilities, as well as maintenance and management expenses of medical equipment are not included in the budget presented by the hospital to the Ministry of Health.

If the hospital reports about maintenance or improvement requirements to the Ministry of Health when required, the Ministry of Health give an instruction to the responsible authority.

3-4-5 Details of Existing Facilities

Mpilo Central Hospital has following facilities.

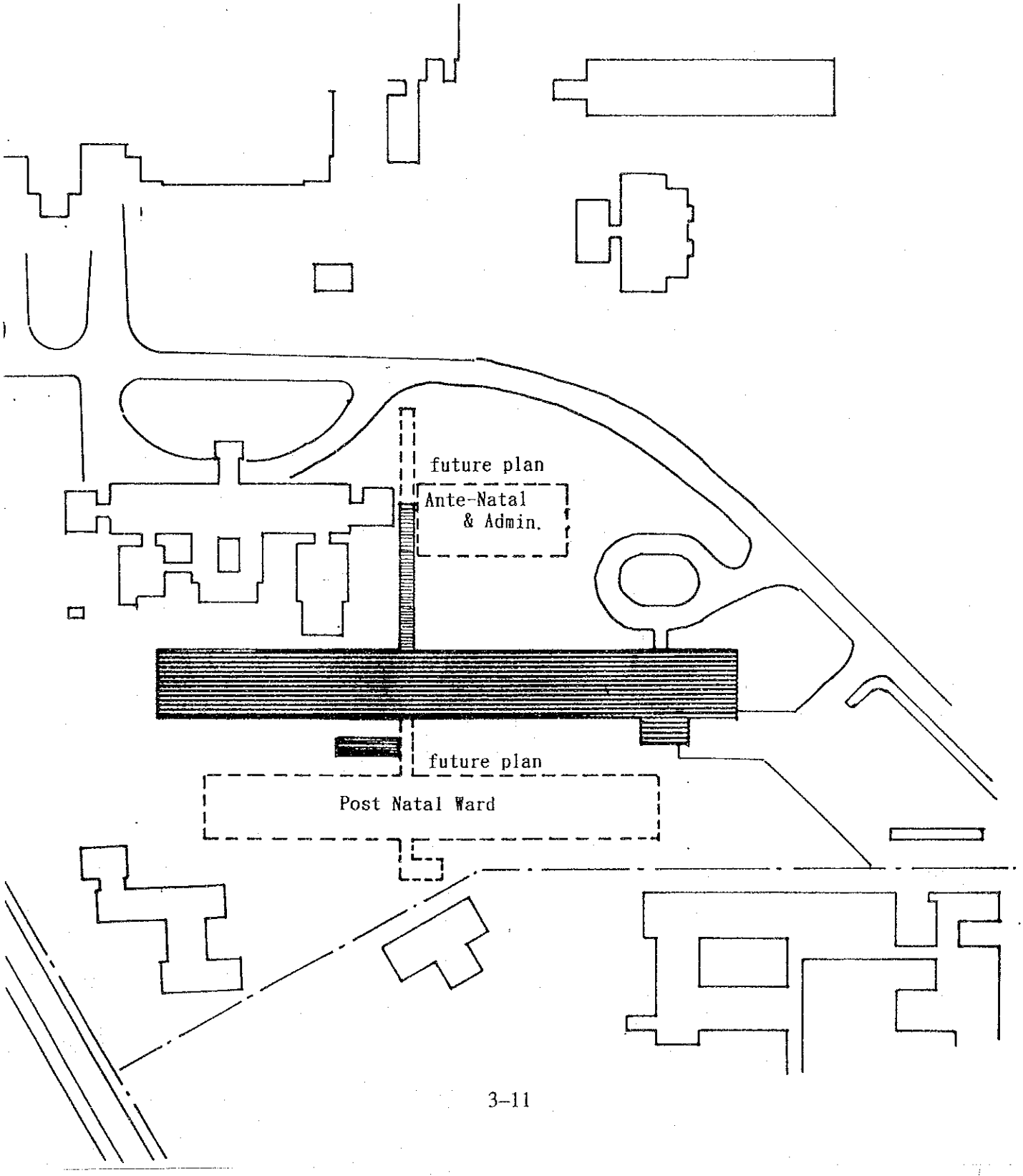
Site area: 37.4 ha



	Name of Facilities	Floor Areas
①	Main Building (included Wards, Laboratory, Admin. Office, Casualty, Outpatients, Physotherapy)	Approx. 7800 sqm
②	X-Ray therapy block (included Isotope Laboratory)	Approx. 600 sqm
③	Maternity block	Approx. 3550 sqm
④	Radio-Therapy Ambulant patient block	Approx. 735 sqm
⑤	Laboratories (included Animal house)	Approx. 1500 sqm
⑥	Boiler, Kitchen and Laundry house	Approx. 3400 sqm
⑦	Mortuary block	Approx. 360 sqm
⑧	African & European nurses home	Approx. 6400 sqm
⑨	Workers compensation rehabilitation center	Approx. 4000 sqm
⑩	Orderlies quarters	Approx. 3864 sqm
⑪	African staff quarters(12 blocks)..200sqmx12	Approx. 2400 sqm
⑫	Staff houses (8 houses)..260sqmx8	Approx. 2080 sqm
⑬	Water storage tank(50,000 gallon) and Sub Stations(3 blocks)	

3-4-6 Future Development Plan

The near future plan of this hospital relates to establishment of sufficient nursing for pregnant women and neonates by expansion of the obstetrics facilities related to this project. As a middle and long term targets, reinforcement of the facility to meet a million of patients and perfection of equipment for upbringing of medical specialists, for which, hosever, no concrete plan has been formed.



SECTION 4 PROJECT SUMMARY

SECTION 4 PROJECT SUMMARY

4-1 Object

The objective of this project is to lower the neonatal death rate as well as the prenatal death rate by extending the obstetric ward of Mpilo Central Hospital.

4-2 Study and Examination of Request

4-2-1 Study of Project Adequacy and Necessity

1) Details of Medical Services of Obstetric Department Concerned

The department concerned nominally has 90 beds, but the inpatients actually number 156 on the average, and 40 to 45 outpatients come to the hospital a day. Statistics for 1989 show the state of the examination department concerned as follows:

A) Number of Outpatients, Discharges, Beds (Occupied), and Beds (Nominal)

Number of Outpatients		40 patients per day	Number of beds occupied	Nominal number of beds
Number of discharges		39 cases per day		
Number of inpatients	Prenatal beds	90 patients on the average	156	90
	Postnatal beds	66 persons on the average		
Number of neonatal in patients		62 persons on the average	62	50

Statistics given above clearly indicates shortage of beds and baby cots

B) Statistics on Neonates in 1989

Line births	12,119
Still births	408
Abortions	125
Total	12,552

Miscarriage accounts for 1% of total cases, and such a high percentage is considered ascribable to the fact that a large number of birth is given by persons under age.

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C) Statistics on Birth and Death of Premature Infants in 1989

Birth		Death	
Male	1,417	Male	194
Female	1,608	Female	118
Total	3,025	Total	312

The 3,025 cases mentioned above account for 24.1% of normal birth, and 10.3% of premature infants were dead.

D) Statistics on deliveries in 1989

1.	Normal vaginal delivery:	8,371 cases
2.	Breech delivery:	449 cases
3.	Vacuum extraction:	207 cases
4.	Forceps delivery:	2 cases
5.	Destruction delivery:	8 cases
6.	Lower segment caesarian section:	1,993 cases
7.	Ruptured uterus:	20 cases
8.	Multiple delivery (twins, triplets, quads):	288 cases
	Total:	11,338 cases

E) 1989 statistics show one prenatal death occurs in every 1000 pregnant women.

2) Present State of Medical Equipment in Obstetrics Department Concerned

As seen from the list below, the utensils possessed are all at a low level and small in quantity. As most of them are obsolete, it is considered necessary to replenish sufficient utensils in order to build up a desirable lineup after the project is completed.

Ward Name	Appliance Name	Total number possessed	Usable	Under repairs	Superannuation
① Neonatal ward	Incubator	7	5	2	Four units are very old.
② Neonatal ward	Phototherapy lamp	3	3	–	
③ Neonatal ward	Oxygen monitor	3	3	–	
④ Neonatal ward	Pulmo-vents	1	1	–	
⑤ Neonatal ward	E.C.G. monitor	1	1	–	
⑥ Neonatal ward	Radiant Heater	1	1	–	
⑦ Neonatal ward	Suction machine	3	2	1	Two units are very old.
① Delivery ward	Incubator	2	2	–	Both units are very old.
② Delivery ward	Pulmo-vents	1	1	–	
③ Delivery ward	E.C.G. machine	1	1	–	This is very obsolete.
④ Delivery ward	Cardiac monitor	3	3	–	
① Operating theater	Operating table	1	1	–	This is very old.

(Data supplied by Ministry of Health)

3) Present State of Medical Services in Existing Facilities

Patients, who came to the hospital for delivery, are kept waiting sitting on the chair in the congested corridor after being examined. The delivery room (two), provided by dividing a place with a small partition and having ordinary beds (two unit for each room), is used also as an antenatal room. It is an unbelievable fact that forty deliveries are performed a day on the average in such facilities. The hospital plans to have the patients to stay at hospital for 48 hours after delivery in the case of successful delivery of a normal baby, but due to shortage of beds, many patients have to leave 12 hours later. In hospital, the mother monitors her baby as well as learns how to suckle and deal with a baby by giving suck to hers. In the antenatal ward, six to seven beds are arranged in a room at an interval of as small as 60

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cm. Even in that manner, beds are not sufficiently provided, and 6 6patients have to sleep on a mat laid on the floor under the bed on the average a day.

The newborn of 1,200 g or less in weight, who should lie in the incubator, have to be housed in large numbers in an air-conditioned room instead because of shortage of this appliance. The mother comes in the room at two-hour intervals to see her baby. There is neither respiration monitor nor pulmo-vents and for these babies, and the mother serve as a monitor. Due to shortage of doctors, nurses and facilities required for help to the newborn of this group, the matter is left to take its own course. If a baby gains wight for himself, he will be removed to the room for babies from 1,200 g to 1,500 g, and treated in the same manner as those who weighed within this range when delivered. The premature infant is requested to leave hospital when he becomes about 1,800 g in weight. These babies are housed in a relatively small room, which is air-conditioned according to the wight of the group. All these rooms are filled with beds to excess, and the conditions are worsened by mothers coming in at two-hour intervals. Therefore, it is recommendable to reduce the number of beds in each room by increasing the number of infant rooms.

A newborn baby is put in the incubator for observation only when he has an infectious disease or he is unstable in condition. Most of the incubators are old and their function is considered unreliable. Due to shortage, two babies are put in an incubator. A newborn baby generally leaves the hospital in a short time after delivery unless his mother is dead or she rejects to take him over, when he has to stay there for a long time. Nevertheless, congestion in the obstetric and neonatal ward of the hospital concerned is miserable and waiting for an early resolution. The central sterilizing room fulfills almost no function at present, and the people wash their hands in the laundry.

The dirty room is neibored with the neonatal room on a side and by the tableware cleaning and service room on the other side. Since there is no more than one operating room, when cesarean section or emergency operation is required, the patient has to be sent to the main hospital in the stretcher through outdoor area over the distance of 100 m.

4) Adequacy of implementation of this project

In consideration to the present state of treatment, utensils, and medical service in the Examination Department comcerned, adequacy of implementation of this project is described as follows:

A) Construction of new delivery ward

Six rooms are added to existing two delivery rooms, eight in total, to smoothly treat 40 deliveries a day on the average. The Labour room to be newly constructed will largely reduce the burden imposed to parturient women immediately before delivery. Repletion of six examination rooms will help precisely grasp the condition of the unborn baby and mother, which is changing every moment to take any necessary step. This will result in reduction of perinatal death. Maternal death, which hardly takes place in advanced nations, still occurs at the rate of one for every 1,000 deliveries. Under these circumstances, this project is expected to have a large effect and construction of the delivery ward is judged really appropriate.

B) Construction of new ante-natal ward

Due to shortage of space of the existing ante-natal ward, 66% of patients are lying under the bed on the average everyday. So-called expectant mothers are divided into two groups for the purpose of treatment; those who are immediately before delivery and others. Shortage in sickroom space has influence to the working area of the medical staff. This can get in their way to take necessary action to a parturient women to result in her death in some case. Construction of a new ante-natal ward (27 beds) by this project helps relieve the congestion in existing facilities. Moreover, transfer of parturient women immediately before delivery to the newly constructed ward facilitates treatment required at each stage, labor and delivery, to prevent accidents, such as maternal death, premature birth, and miscarriage, which are liable to take place in the process of delivery. On the basis of these effects, this plan is judged appropriate.

C) Construction of operation + CSSD ward

The existing facilities has no more than one operation room, where ten cesarean sections are carried out a day on the average. If a patient falls into a state which requires operation during another patient is being operated, the person must be brought to the main ward 100 m away. In consideration for accidents taking place in some cases during transportation of the patient, including premature birth, miscarriage, and death, construction of new operation rooms is considered one of the most important subjects for the Examination Department concerned.

Due to shortage of space, sterilized and unsterilized materials are not properly stored in the existing facility, which is considered to have a large influences to neonates, including in-hospital infection. On the basis of these survey results and consideration, this plan is believed quite appropriate.

D) Procurement of medical equipment

The request for medical equipment is considered quite reasonable for solving the pressing problems. It is particularly important to secure transporting means for patients for reduction of ante-natal death. Procurement of ambulances with wireless system for exclusive use of this Examination Department facilitates communications with the hospital in case of emergency of the patient to take a necessary measure. Employment of ambulances with wireless system is thus considered appropriate in view of reduction of perinatal death, the initial objective.

4-2-2 Study of Activity Operation Program

1) Development in annual budget

The record on annual budget of the Republic of Zimbabwe, Ministry of Health, and the hospital concerned is as follows:

(Unit: Z$)

	1987/88	1988/89	1989/90	1990/91
① Annual budget	5,496,925,000	6,046,618,000	6,932,534,000	9,009,156,000
		Compared with previous year 11% up	Compared with previous year 11.5% up	Compared with previous year 13% up
② Budget assigned to Ministry of Health	247,362,000	293,261,000	352,866,000	459,467,000
	4.5% of ①	4.85% of ① Compared with previous year 11.9% up	5.1% of ① Compared with previous year 12% up	5.07% of ① Compared with previous year 13% up
③ Budget assigned to the hospital concerned	5,318,000	6,412,300	7,178,000	8,458,000
	2.15% of ②	2.18% of ② Compared with previous year 20.6% up	2.03% of ② Compared with previous year 11.2% up	1.84% of ② Compared with previous year 11.8% up

(Data provided by Ministry of Health)

As seen for the above table, the annual budget assigned to the Ministry of Health rises at a commensurate rate to the rise of national budget. The fact that it accounts for 5% of the national budget indicates an attitude of the Government to place importance on its medical policy. Another fact that 2% the total budget of the Ministry of Health is assigned to a hospital is considered to explain the present state of this hospital taking charge of not only the quaternary medical service, its basic duty, but also primary and secondary services.

2) Breakdown of expenses of the hospital concerned (1987/88-1990/91)

The annual budget assigned to this hospital has been used for each item as follows:

(Unit: Z$)

	1987/88	1988/89	1989/90	1990/91
Travel at government expense	12,500	13,800	10,000	15,000
Lease of car	135,000	149,000	123,000	143,000
Office supplies and printing cost	64,500	70,500	75,0000	100,000
Bedding and linen	289,000	363,000	340,000	500,000
Miscellaneous in-hospital expenses	194,000	204,0.00	210,000	240,000
Electricity, light and heat expenses	350,000	479,000	370,000	360.000
Medicines for internal and surgical department	3,750,000	4,120,000	4,90,000	5,500,000
Miscellaneous office expenses	154,000	172,000	200,000	350,000
Reservation (surplus)	369,000	841,000	1,000,000	1,250,000
Total	5,318,000	6,412,300	7,178,000	8,458,000

(Data presented by Mpilo Hospital)

Personnel expenses as well as facility and equipment repair and replenishment expenses are not included in the amount given in above list. This means government medical facilities management is basically under the direct control of Ministry of Health in the Republic of Zimbabwe. However, the budget drawn up as above is used by the actual expenses settlement method, and in the case of shortage, the amount is made up by Ministry of Health.

Such circumstances are clearly understood from the breakdown of Ministry of Health budget (1987/88-1990/91), 2-2-4-1)B).

3) Personnel lineup in Examination Department concerned (1989-90)

Senior consultant	4	
Registered doctor	6	
Senior medical officer	12	
Nurse	2	
Senior sister	4	
Junior sister	30	78
Qualified nurse	30	
Assistant nurse	12	
General helper	20	
Staff (total):	120	

The working system of the staff is of 3 shifts, 24 hours.

For the number of midwives, the chief nurse, senior sisters and qualified nurse, 62 in total, are qualified as midwife.

4) Examination of personnel plan after completion of project

In the Examination Department, 120 members, including doctors and nurses, are working in the 3 shift, 24 hour system at present.

This project intends to supplement the space shortage of existing facilities to enlarge the working area of the staff and increase the number of beds to enable the patients who are lying under the bed to use a bed for better medical services as its main objective. Therefore, the scope of the work of this Examination Department is not enlarged in particular.

Both the Ministry of Health and this hospital has no intention to increase of staff by new employment in relation to this project. They consider the present lineup mentioned above is sufficient to fulfill the purpose.

5) Examination of budget plan in relation to this project

A) Examination of work budget in relation to this project to be born by the Government of Zimbabwe

As the project site is located on the premises of the hospital concerned, it is unnecessary to procure a new land for implementation of this project. There is no building in the place, and what should be removed are a few trees only.

Among the items related to expenses born by the Government of Zimbabwe (see attached minute), nothing requires budgeting in particular, and all these expenses can be dealt within the annual budget of Ministry of Health.

B) Examination of maintenance and management budget after completion of this project

As seen from the breakdown of expenses by Ministry of Health and the hospital concerned mentioned above, management of the hospital is basically under direct control of Ministry of Health, and this ministry is responsible for all personnel expenses as well as maintenance and management expenses of the facilities.

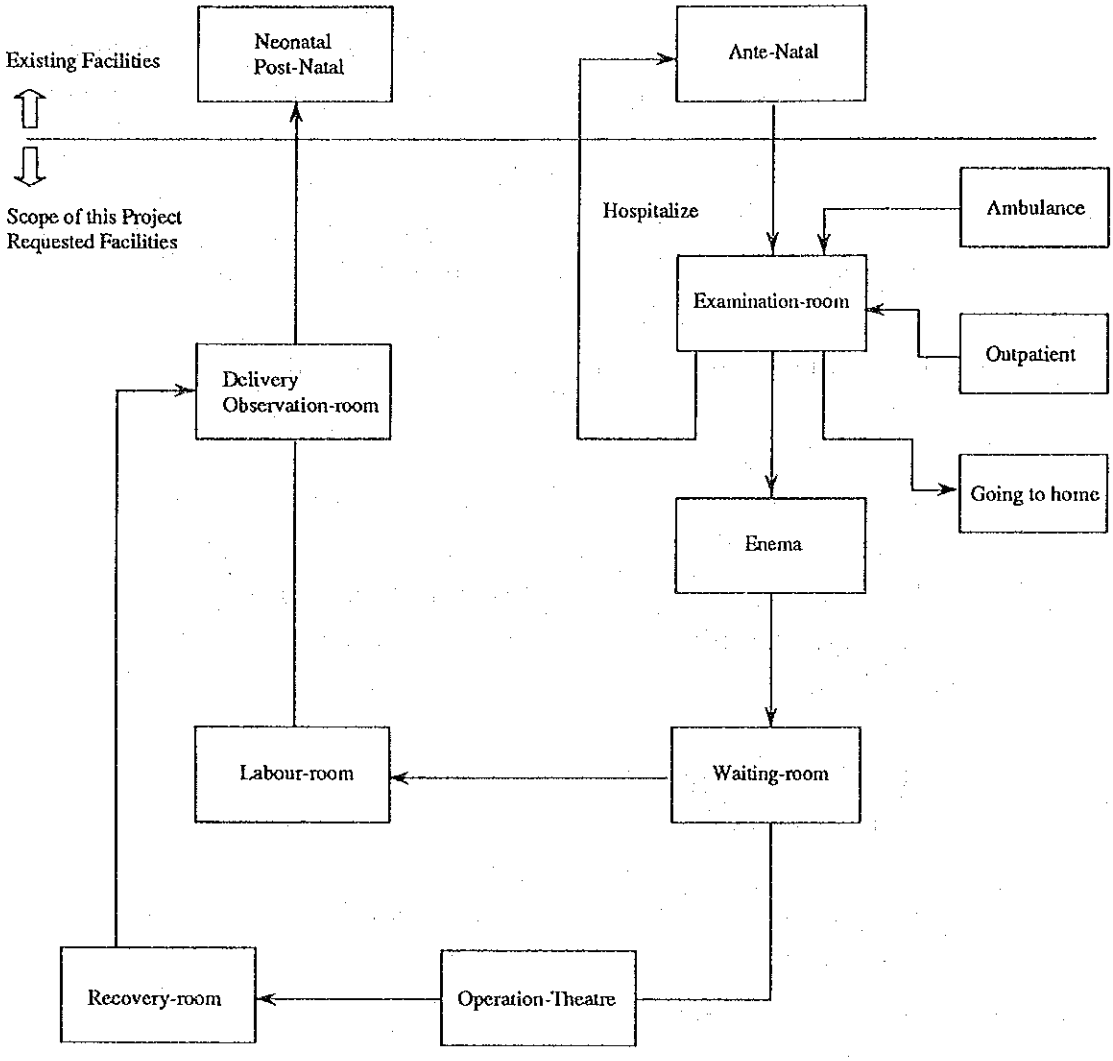
Therefore the hospital request the Ministry of Health the amount necessary for daily medical services only, and receive from it.

The Government of Zimbabwe give top priority to maternal and child medical services, and the budget of the Ministry of Health is going up at a fairly high rate in these three years, namely 11%, 12%, and 13% up.

In the present state that the whole nation supports the movements for enhancement of its medical service system, the Ministry of Health is sure that the degree of increase in miscellaneous expenses exacted after completion of this project will cause no problem since they will be set off by increase in annual budget. It is judged free from care that no special budget has been drawn up.

4-2-3 Study of Structural Factors of Facilities

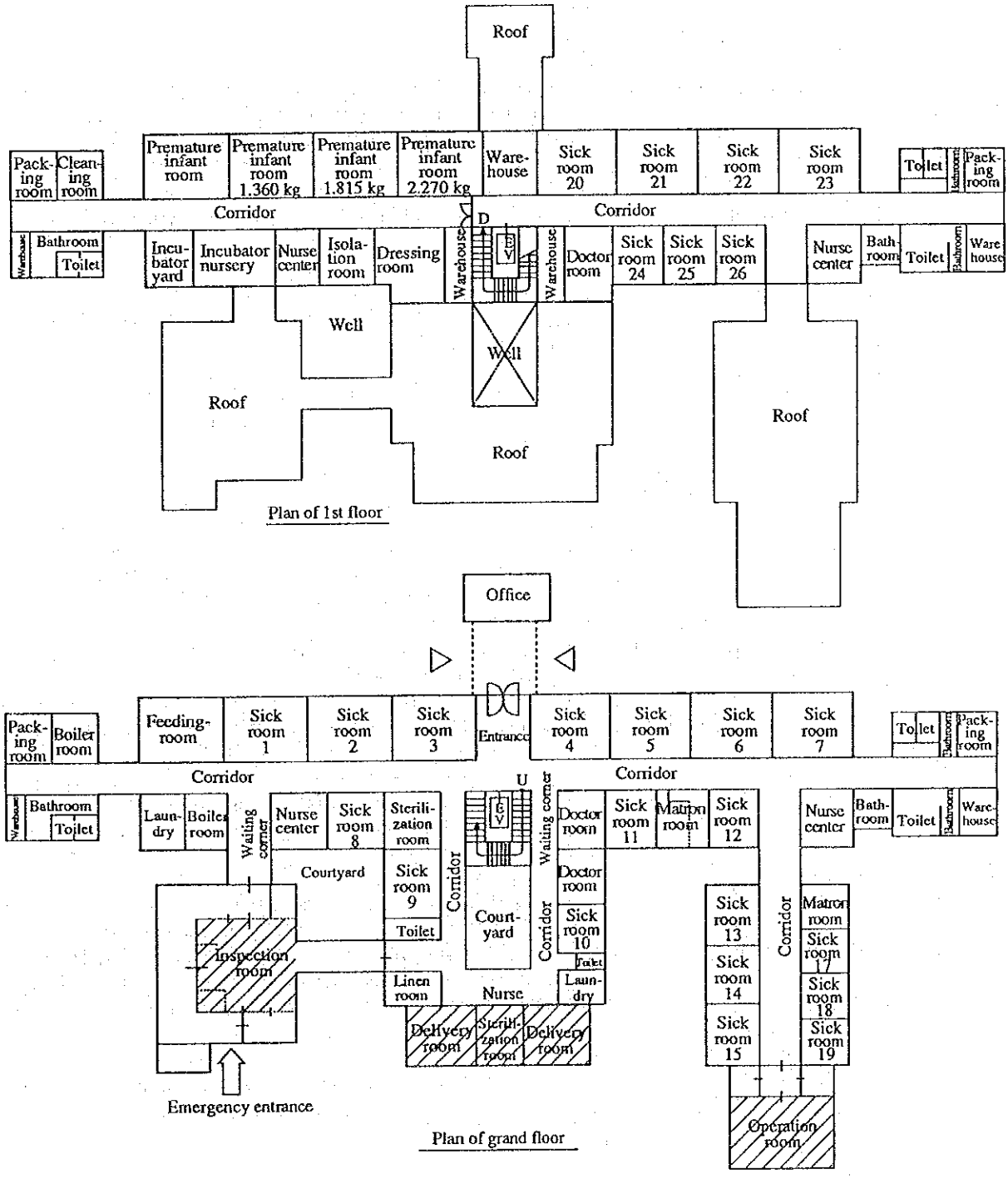
This project has the character as expansion of the examination department of existing facilities. The systematic relations between these two facilities are as follows in relation to each role.



As shown above, this project is expected to help further improvement and repletion of the examination department concerned by in corporation to the existing facilities.

Execution of this project provides a space of about 129 m^2 in floor area by removing all the functions of the inspection, delivery, operation and CSSD to the new facility. This resolves the problem of patients lying under the beds and the extreme congestion in the hospital to help sufficient display of the faculty as the obstetric ward and reduction of the ante-natal death rate in the end.

Among the facilities of this Examination Department shown below, the shaded portion is the part to be reconstructed into sickrooms by the efforts of the Government of Zimbabwe after completing this project.



4-2-4 Study of Requested Facilities and Equipment

1) Facilities

Details of the request by the Government of the Republic of Zimbabwe have been examined from the viewpoint of function and convenience of this facility, and the results are as follows.

Ward, Department Name	Reason of request, function
① Delivery Ward	
Outpatient Department	Reception of outpatient, reception of emergency activities, preparation and storage of outpatients' clinical record, clerical work
Examination, Inspection Department	Examination of outpatients and emergency patients, and examination and inspection of pregnant women in delivery period
Labor Department	Observation of a parturient woman in periodical travail, and concentrated observation of a parturient woman with complication, including gestational toxicosis
Delivery Department	Examination of a parturient woman in travail at two to three minute interval, delivery work, postnatal observation of at least two hours
② Operation + CSSD Ward	
Operation Department	Required for the operation of a parturient woman for whom necessity of cesarean section or abnormal delivery has been recognized after examination or inspection.
Recovery Department	Required for the observation of at least four to six hours after operation is completed
C.S.S.D. Department	Central sterilizing facilities to totally cover the Examination Department concerned
③ Prenatal Ward	Enema for a parturient woman, preparation for delivery and waiting for beginning of labor after examination or inspection
④ Others	
Power room, medical gas cylinder room	A generator is installed for power reception and transformation, and as an emergency power source at the time of power failure. Also, nitrous oxide cylinder and oxygen cylinder for medical use as well as compression and suction feeders are installed.
Roofed passage	Passage connecting the existing obsteric ward and this facility

2) Equipment

Requested equipment basically include those medical appliances necessary for the works of the examination department concerned, that is ante-natal inspection, delivery, operation, and C.S.S.D, and they are considered generally reasonable.

4-3 Project Description

4-3-1 Location and Present Condition of Project Site

For the construction site of this project, the location, shape, state of the circumference, and condition of infrastructure are summarized below.

1) Summary of project site

1. Site	: Premises of Mpilo Central Office, Bulawayo City, Matabeleland North Province
2. Area	: 11,500 m^2
3. Distance from City Center	: About 4 km from Bulawayo Municipal Office
4. Land category	: Existing hospital site
5. Present condition	: Lot with no building on it since it was originally a site to be used for a future plan
6. Difference in altitude	: There is a difference in altitude of about 2.0 m (incline of 1.3%) between the east end to west end with the existing obstrics ward as its center.
7. Nature of ground	: The surface soil has a character similar to the Kanto loam, red in color, and the lower layer is a graniterock bed.

8. Configuration of ground : The site is about 11,500 m^2 in area. The site puts no restriction on the construction plan since there is no building or other physical solid which may interfere the work.

4-3-2 Summary of Facility and Equipment

In view of the function of this facility, details of facility and equipment as well as function and size considered appropriate areas follows.

1) Facilities

① Delivery Ward		
Outpatient Department	Function: Main room:	Reception of outpatient, reception of emergency activities, preparation and storage of outpatients' clinical record, clerical work Entrance, office, reception corner, waiting area
Medical Examination, Department	Function: Main room:	Examination of outpatients and emergency patients, and examination and inspection of pregnant women in delivery period Examination room, nurse station, dirty room
② Operation + CSSD Department		
Operation Theatre	Function: Main room:	Required for the operation of a parturient woman for whom it has been recognized necessary to perform cesarean section or abnormal delivery after examination or inspection. Operation room, anesthetic room, cleaning room
Recovery Room	Function: Main room:	Required for the observation of at least four to six hours after operation is completed Recovery room, nurse station
C.S.S.D. Department	Function: Main room:	Central sterilizing facilities to totally cover the Examination Department concerned Autoclave, sterilizing work room, sterilizing room
③ Ante-natal Ward		
Delivery Department	Function: Main room:	Examination of a parturient woman in travail at two to three minute interval, delivery work, postnatal observation of at least two hours Delivery room, nurse station
Labor Department	Function: Main room:	Observation of a parturient woman in periodical travail, and concentrated observation of a parturient woman with complication, including gestational toxicosis Labor room

Ante-natal Ward	Function: Main room:	Enema for a parturient woman, preparation for delivery and waiting for beginning of labor after examination or inspection Prenatal room
④ Others		
Transformer House, Medical Gas Cylinder Room	Function:	Power supply to this facility on receiving, transforming, and power failure
Roofed passage	Function:	Passage connecting the existing facility and this

(2) Equipment

1. Outpatient Department	Function: Main equipment:	Reception of outpatient, reception of emergency activities, preparation and storage of our patients' clinical record, clerical work Ambulance (with radio set), stretcher
2. Medical Examination Department	Function: Main equipment:	Prenatal examination of the patient, examination and inspection of parturient women in the delivery period Gynecological Examination Couch, Feto Scope, Portable Operation Light, Ultrasound Apparatus (portable)
3. Ante-natal Unit	Function: Main equipment:	Used by parturient women to wait for delivery on beginning of labor pains Bed, Feto Scope, E.C.G. Machine
4. Labor Ward	Function: Main equipment:	Antenatal observation in the first term of delivery work or labor pains (periodical contraction of the womb) and uterine opening Labour Bed, Fetal Monitor, Entonox Equipment
5. Delivery Ward	Function: Main equipment:	The second term of delivery work lasting two hours on the average, or when the baby comes out from the uterine os and pass through the birth canal Delivery Bed, Normal Delivery Set, Operation Suction Machine, Vacuum Extractor
6. Operation Theatre	Function: Main equipment:	Operation of a parturient woman for whome it has been recognized necessary to perform cesarean section or abnormal delivery after examination or inspection. Theatre Operation Table, Operation Light, Boyles Machine, Diathermy Machine, Suction Machine, Defibrillator, Pulmo-Vents, Cardiac Monitor, Caesarian Section Set

7. Recovery Room	Function:	Recovery observation of a patient after operation
	Main equipment:	Stretcher, Boyles Machine, Pulmo-Vents, Cardiac Monitor, Defibrillator
8. C.S.S.D. Department	Function:	Sterilizing for protection of delivery patients from in-hospital infection
	Main equipment:	Autoclave, Portable Autoclave

4-3-3 Maintenance Plan

In the medical system of the Republic of Zimbabwe, the hospital concerned is directly managed by Ministry of Health and under control of it. Therefore, the facility and equipment related to this project are naturally placed under direct control of Ministry of Health.

1) Facility Maintenance and Management Method

For maintenance and management of the facility, Ministry of Health sends a specialist to perform a periodical inspection. When it has been found to require repair or improvement, a report is made to the related authority and repair or improvement work is ordered at the expense of Ministry of Health.

For damage to the facility due to an accident, the hospital shall report the fact to Ministry of Health, and a necessary action is taken after the procedure as above. Therefore, facility repair cost is not appropriated in the budget of the hospital.

2) Equipment/Machinery Maintenance/Management System/Method

In parallel with the facility mentioned above, equipment and machinery are under direct control of Ministry of Health. The Ministry has its equipment/machinery repair shop on the premises of the hospital, maintenance and management of the equipment and machinery is entrusted to this repair shop in principle.

Therefore, replenishment of superannuated equipment and machinery is requested through this shop, and after examination by the Medical Equipment Maintenance Department of Ministry of Health, they are procured and supplied.

3) Outline of Maintenance and Management

Expenses required for operation of the Examination Department after execution of this plan are shown in Table 4-1. Personnel expenditure and those for the existing facility are excluded.

Table 4-1 Maintenance and Management Expenses

(Unit: Z$)

Item	First year after opening	Second year	Remarks
1. Light and fuel expenses	212,205.25	246,794.71	1, 4, 5
2. Facility mending cost	70,400.00	81,875.52	2, 3, 8, 13
3. Machinery maintenance cost	38,976.00	45,329.10	General 9, 10
4. Machinery maintenance cost	89,136.00	103,665.17	Medical 7, 12
5. Communications expenses	5,112.00	5,945.26	6
6. Office expenses	24,000.00	27,912.00	11
Total	439,829.25	511,521.76	Figures shown above correspond to item number described in Annex 5

Notes: 1. The amount was calculated with the rise of commodity price estimated to be 16.3%.
2. Refer to Annex 5 for details of the cost.

Of the expenses described in the above list, items 2, 3, and 4 are directly managed by the Ministry of Health and paid from the budget of this ministry. As these items are excluded from the budget for the hospital, the above plan is further detailed as follows:

A) Maintenance and management expenses including in budget of Ministry of Health

(Unit: Z$)

Item	First year after opening	Second year	Remarks
2. Facility mending cost	70,400.00	81,875.52	2, 3, 8, 13
3. Machinery maintenance cost	38,976.00	45,329.10	General 9, 10
4. Machinery maintenance cost	89,136.00	103,665.17	Medical 7, 12
Total	198,512.00	230,869.79	

B) Maintenance and management expenses including in budget of hospital

(Unit: Z$)

Item	First year after opening	Second year	Remarks
1. Light and fuel expenses	212,205.25	246,794.71	1, 4, 5
5. Communications expenses	5,112.00	5,945.26	6
6. Office expenses	24,000.00	27,912.00	11
Total	241,317.25	280,652.00	

C) History of budget of Ministry of Health and hospital

(Unit: Z$)

	1978/88	1988/89	1989/90	1990/91
Budget Ministry of Health	247,362,000	293,261,000	352,688,000	459,467,000
	4.5% of ①	4.85% of ① Increase by 11.9% as compared with the previous year	5.1% of ① Increase by 12% as compared with the previous year	5.07% of ① Increase by 13% as compared with the previous year
Buget of hospital	5,318,000	6,412,300	7,178,000	8,458,000
	2.15% of ②	2.18% of ② Increase by 20.6% as compared with the previous year	2.03% of ② Increase by 11.2% as compared with the previous year	1.84% of ② Increase by 11.8% as compared with the previous year

(Source: Ministry of Health)

As seen from the above, facility maintenance and management expenses to be paid by the Ministry of Health amount for as low as 0.04% of the budget of this ministry and those paid by the hospital amount for also as low as 2.8% of the budget of the hospital.

For this reason, the additional maintenance and management expenses for execution of this plan are considered to be fully covered by the budget as ever, that is, no additional budgeting is needed.

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SECTION 5 BASIC DESIGN

SECTION 5 BASIC DESIGN

5-1 Design Policy

The basic design is prepared based on the following policy, taking the environmental conditions of the project site into consideration, in line with the details of this project plan, and having an eye to the organic character, durability as well as economy.

5-1-1 Policy for Natural Conditions

The project site, Bulawayo City, is situated at the altitude from 1,200 m to 1,500 m. The climate is divided into two seasons: rainy and dry seasons. Average annual precipitation is about 600 mm. Sufficient countermeasures shall be taken for in-room temperature and humidity setting, drainage for rain, heat insulation for sunshine, lightening conduction for thunderbolt.

1) Temperature and Humidity

In Bulawayo City, the lowest temperature is from 6 to 8°C and the highest temperature is from 21 to 22°C in the dry season lasting from June to July, and the lowest temperature is from 14 to 18°C and the highest temperature is from 25 to 31°C in the rainy season. There is a difference in temperature between the rainy and dry seasons, and between day and night.

Average annual humidity is 55%. A sufficient consideration shall be given to room ventilation, and functionally necessary rooms are equipped with an air-conditioning system.

2) Sunshine and Rain

The climate is subtropical (20° south latitude) but relatively mild in temperature because of the high altitude. The design shall ensure good ventilation, and long eaves are used to meet the concentrated heavy rain to prevent the rain coming into the room.

3) Earthquake and Thunderbolt

Most of the land of the Republic of Zimbabwe is situated on the base rock, and no earthquake has been recorded. No special consideration is given to lateral stress

for the structure as estimated from the volume of wall and wall section in various facilities at the project site. Structural design shall be made in the manner to satisfy the structural standard in this area. There are many thunderbolts in the rainy season, and lightening rods shall be provided to prevent damage due to thunderbolts.

5-1-2 Policy for Social Conditions

Although public peace and order has been improved, a sufficient countermeasures should be taken against theft using the lock and others.

Consideration shall be given to the custom that life facilities are not commonly used by people at different social positions and different posts.

5-1-3 Policy for Building Conditions

Support shall be provided by the local consultant because of the procedure necessary for preparation of design documents, application of construction, intermediate work inspection, and inspection of the finished building conforming to the Building Standard of the Republic of Zimbabwe, in design of the facility and selection of materials.

5-1-4 Use of Local Industry and Local Materials

The construction industry has working capability at a generally high level in this country, and some corporation are playing an active part worldwide. Success of the construction work depends on cooperation with proper specialists at the site. The system should be organized with due consideration to burden sharing with local subcontractors and personnel disposition.

Construction materials can be generally procured at the site except for aluminium sash, fitting, glass plate (large size, 8 mm or more in thickness), sanitary porcelain ware, facility equipment, kitchenware, and electrical materials. Therefore, in material selection plan for this facility, importance shall be placed on goods available at the site with due consideration for maintenance and management after it is completed. The local construction method shall be employed to allow the local industry to carry out the work at their level.

5-1-5 Policy for Maintenance and Management Capability of Executing Agency

This facility consists of the central sterilizing department, operation department, delivery department, outpatient department, and ante-natal room. These departments are divided into blocks to provide a plan ready for operation and management with the nurse station, office, and reception corner as the work center.

Importance is placed on energy saving in view of reduction of maintenance and management expenses.

Construction materials are selected on the basis of conformity to natural conditions and maintainability. Construction method is selected on the basis of workability.

Equipment is selected with due consideration easiness for workers at the site to use as well as maintainability.

5-1-6 Policy for Range and Level of Facility and Equipment

Facility design and equipment selection for this facility are mapped out as follows by the general conditions of the Republic of Zimbabwe.

1) The design shall be made in the manner to meet additional works to be required by increase of the number of patients, development in the medical field and sophistication of examination in the future,

2) The number of structural poles and supporting walls is reduced to the limit in the space where some changes are expected in the future by providing a space as large as the structure and economy allows.

3) The main structure is planned by a common method in Zimbabwe.

4) Utensils medical workers at the site are accustomed to use are shall be selected for ease of medical activities and maintenance.

5-1-7 Policy of Construction Period

The construction period shall be examined with due consideration to equipment procurement, technical level and qualitative conditions of the workers at the site, work site conditions, and the environment.