

DEPARTMENT OF HEALTH

NO. 1

THE REPUBLIC OF SOUTH AFRICA

BASIC DESIGN STUDY REPORT ON THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT
FOR HOSPITALS IN THE REPUBLIC OF SOUTH AFRICA

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ON
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FOR HOSPITALS
IN THE REPUBLIC OF SOUTH AFRICA**

February 1997

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DEPARTMENT OF HEALTH

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PREFACE

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

JICA sent to South Africa a study team from 27 July 1996 to 9 September 1996. The team held discussions with the officials concerned of the Government of South Africa, and conducted field studies at the study areas. After the team returned to Japan, further studies were made. Then, a mission was sent to South Africa from 9 November 1996 to 19 November 1996 in order to discuss a draft report, and as this result, the present report was finalized.

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

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

February 1997



Kimio Fujita

President

Japan International Cooperation
Agency

February 1997

Mr. Kimio Fujita
President
Japan International Cooperation Agency
Tokyo, Japan

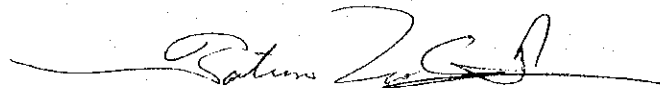
Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Improvement of Medical Equipment for Hospitals in the Republic of South Africa.

This study was conducted by Binko Ltd., under a contract to JICA, during the period 17 July 1996 to 24 February 1997. In conducting the study, we have examined the feasibility and rationale of the project with due consideration of the present situation of South Africa, and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

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

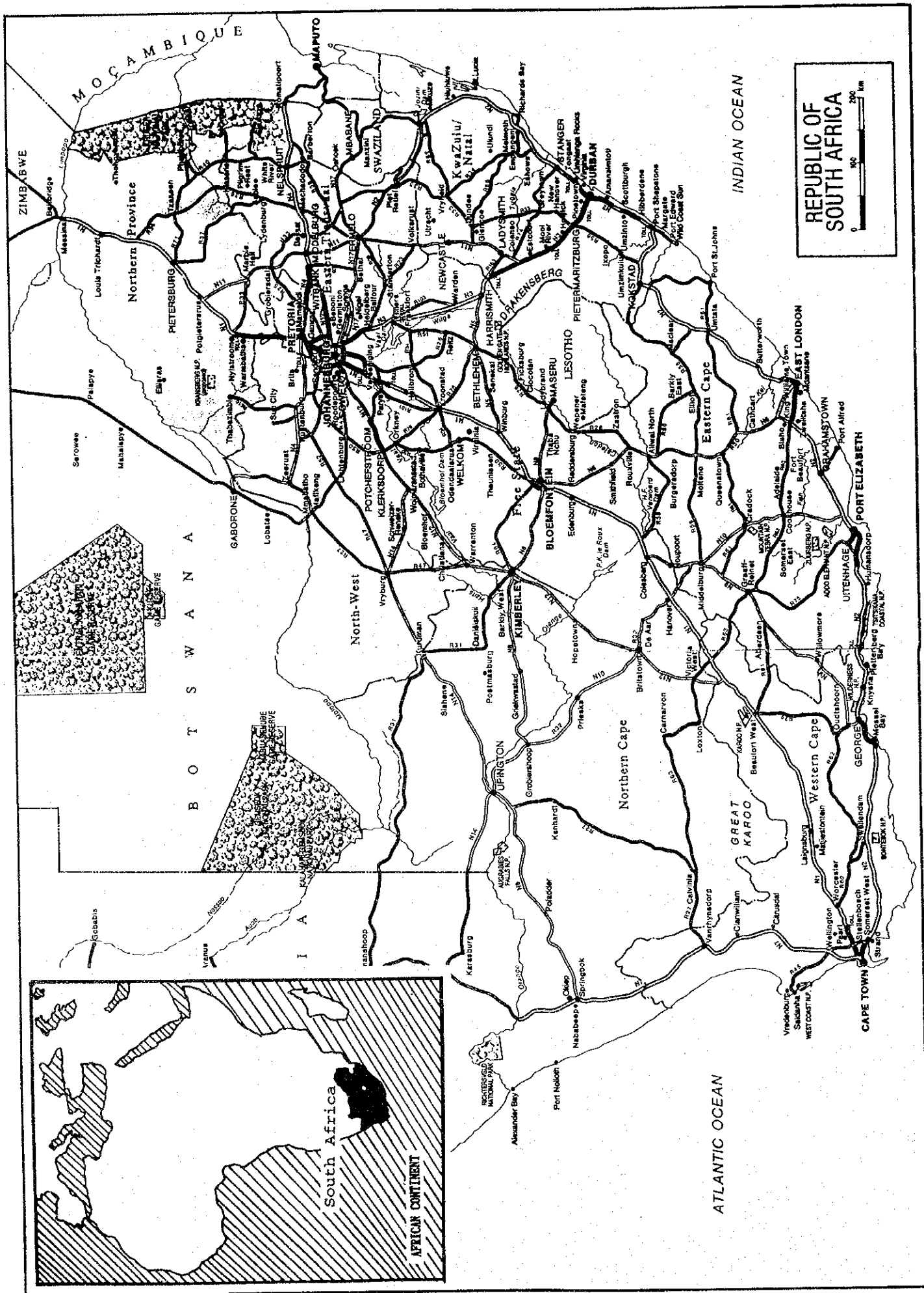
Very truly yours



Tatsuro Nakajima

Project Manager

Basic Design Study Team on the
Project for Improvement of
Medical Equipment for Hospitals
Binko Ltd.



PROJECT SITE

Designated Hospital

Designated Hospital	Province
① Thembu Hospital	Mpumalanga
② Umtata Hospital	Eastern Cape
③ George Hospital	Western Cape
④ Tshwaragano Hospital	Northwest
⑤ Boksburg-Benoni Hospital	Gauteng
⑥ Qwa-Qwa Hospital	Free State
⑦ King Edward VII Hospital	Kwazulu-Natal
⑧ Kimberley Hospital	Northern Cape
⑨ Penge Hospital	Northern



AFRICAN CONTINENT



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CHAPTER 1. BACKGROUND OF REQUEST

1-1 Details of Request

The Republic of South Africa, located at the southernmost extremity of the African continent, is a state with population of 43,931,000 (1994). Black people is approximately 80% of the total population. In this country, segregation (apartheid) had been enforced for a long period of time since the government by white people, however, this policy ended as a result of the first national election in 1994 by all races, leading to the birth of a new government led by black people with Mr. Nelson Mandela as President. The present government thus started with many issues to be solved.

Racial differences, in particular, is serious in all area which result from apartheid (difference in average income, for example, amounts to 12 times between black people and white people). Correction of these differences has been the biggest issue.

Under such circumstances the South African government stroke out the "Reconstruction Development Project" (RDP) and has been tackling the correction of racial differences in various fields. The central administrative authorities (ministries) closely cooperate with state governments in promoting the reform of racial differences.

The racial differences in public health care are extremely big, creating a dual structure: the facilities for white people are at a level as high as the advanced countries', whereas the medical level for black people living in the urban residential areas and in the former homelands is that of developing countries.

Most of the black people belong to poor class, and approximately 50% of them live in the country side centered around the former homelands. They are in a situation far from the benefits of medical system due to high unemployment rate and poor condition of medical organizations. Furthermore, there has been a rapid increase of black people who move to large cities for jobs since the start of new government in 1994, and these black people have built up illegal residential areas in the periphery of large cities. As a result, the disease rate of infants and children have become especially high due to shortage of water and lack of proper sanitation.

Consequently, the racial differences in the public health are extremely big: the infant mortality rate is 54.3/1,000 for black people while it is 7.3/1,000 for white people (1992).

In order to dissolve the differences in public health, the South African government has been tackling the reform of medical system by adopting policies to build clinics to reinforce primary medical system especially on the country side, to introduce free medical services for children (up to 6 years old) and pregnant women, and to emphasize importance of public health not only medical care. It has become, however, difficult to handle increasing number of patients on account of a high inflation rate, a steep rise in labor cost. It is worse in local hospitals, in particular, due to lack and obsolescence of medical facilities and equipments.

For these reasons, the South African government formed a project to improve medical equipments by selecting general hospitals in all 9 states of the country (one secondary or tertiary hospital from each state), which require the most urgent improvement and based upon consultation between the survey group and the South African side (January, 1995), and made a request for grant-aid.

1-2 Summary of Request

The request from South Africa, in a summary, is to procure medical equipments to correct racial differences in medical service at public medical facilities in urban and local districts especially for black people and poor people.

The request for medical equipments was prepared after consultation and discussion with the South African side during the survey for the basic design and additional analysis in Japan. All medical equipments are needed urgently for basic and essential medical activities and they are requisite to execute this project.

The main medical equipments requested are as follows:

Major Equipments

Designated Hospital	No. of Items (Q'ty)	Major Equipment
1) Themba Hospital (Mpumalanga Province)	127 (451)	Instruments for orthopedic (Forceps, Knife, Reaming, etc.), Anaesthetic machine, Ventilator, Bedside monitor, Argon laser, Phaco emulsification machine, Equipment of rehabilitation, C-arm, X-ray unit (Bucky type), Mobile X-ray unit, Endoscope (Gastroscope, Sigmoidoscope, etc.), Dental equipment (Dental unit, Instruments for dental), Ambulance cars(3), Mobile clinic vehicle (4), Pneumatic Tourniquet, Defibrillator w/Ventilator, Liquid Nitrogen Flask, others.
2) Umtata Hospital (Eastern Cape Province)	85 (426)	Infant incubator, Infusion pump, Equipments of ENT (Micro-air drill, Laryngoscope, etc.), Electrocardiograph, Orthopedic operating table, Anaesthetic machine, Bedside monitor, Suction unit, Defibrillator, Phaco emulsification machine, Operating microscope, Autoclave, Instruments of ophthalmology, Mobile clinic vehicle (2), Tympanoplasty Set, others.
3) George Hospital (Western Cape Province)	74 (170)	Video endoscope, Autoclave, Treatment set for ophthalmology, Yag laser, Refractometer, Phaco emulsification machine, Ultrasound for ophthalmology, Color doppler ultrasound, Operating lamp, X-ray unit (Bucky type), Mobile X-ray unit, Delivery table, Defibrillator, Electrocardiograph, Operating table, Hysteroscope, Ventilator, Capnograph, Daylight Film Processor, Plasma Sterilizer, others.
4) Tshwaragano Community Hospital (Northwest Province)	94 (308)	Ultrasound, C-arm, X-ray unit (Bucky type), Mobile X-ray unit, Anaesthetic machine, Bedside monitor, Defibrillator, Dermatome, Autoclave, Dental unit, Dental X-ray, Endoscope, CO ₂ Incubator, Fluorescence microscope, Blood gas analyzer, Bath for rehabilitation, Mobile clinic, NICU Ventilator, Spirometer, Instruments for orthopedic, others.
5) Boksburg-Benoni Hospital (Gauteng Province)	49 (150)	CT Scan, C-arm, Bedside monitor, Ventilator, Pulse oximeter, Blood gas analyzer, Endoscope, Autoclave, Keratometer, Chart projector, Slit lamp, Perimeter, Ultrasound for ophthalmology, Instruments for orthopedic, Arthroscope, others.
6) Qwa-Qwa Hospital (Free State Province)	15 (19)	Screening X-ray unit, X-ray unit (Bucky type), Mobile X-ray unit, Color doppler ultrasound, Operating table, Ventilator, Equipments for rehabilitation, Medical gas panel, Incinerator, Teleradiography, others.
7) King Edward VIII Hospital (Kwazulu-Natal Province)	10 (18)	CT Scan, Screening X-ray unit, Color doppler ultrasound, Endoscopic ultrasound scanning system, Argon laser, Video camera system for rotary retinoscope, Echo cardiological ultrasound, Cerebral oximeter, Data information system, Cerebral Oximeter, Data Information System, others.
8) Kimberley Hospital (Northern Cape Province)	141 (1,254)	X-ray unit (Bucky type), Tomography X-ray unit, Mobile X-ray unit, Blood gas analyzer, Argon laser, Audiometer, Autoclave, Endoscope, Cardiotocograph for fetal, Bedside monitor, Infusion pump, Operating table, Operating microscope, Phaco emulsification machine, Infant incubator, Ventilator, Autoclave, Ambulance cars, Air-conditioner, Water Purificator, others.
9) Penge Hospital (Northern Province)	122 (1,440)	Anaesthetic machine, Haemoglobin meter, Infant incubator, Infusion pump, X-ray unit (Bucky type), Sphygmomanometer, Patient trolley, Suction unit, Patient bed, Electrocardiograph, Mobile clinic vehicle (2), others.
Total	717 (4,236)	

CHAPTER 2. CONTENTS OF THE PROJECT

2-1 Objectives of the Project

2-1-1 Objectives of the Project

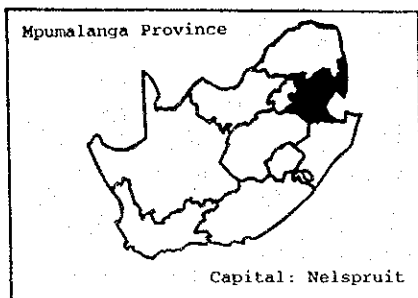
This project responds to the health and medical care field among many fields for the policies to correct racial differences based upon the "Reconstruction Development Project (RDP)" that is a priority project of the new South African Government. The racial differences in this field are outstanding especially, and consequently there exists a dual structure: the medical service level for the white people is at a level as high as the advanced countries, while the medical service level for the poor black people living in urban areas and in the former homelands is at a level of developing countries. In particular, 50% of black people inhabit mainly in the former independent homelands under situations where they cannot enjoy the benefits of medical care system on account of a high unemployment rate and the underdeveloped medical care organizations.

Among the above-mentioned contents, the purpose of this project consists in the unification of medical care service by improving the medical care equipment and peripheral instruments at the general hospital especially for black people, which is established in each of the 9 provinces of the country, and these general hospitals require the most urgent improvements in the correction of racial differences in terms of provision of medical care service at public medical care facilities.

2-1-2 Outline of the Designated Facilities of the Project

(1) Themba Hospital (Mpumalanga Province)

1) Outline of Mpumalanga Province



- * Population ('94): 2,838,500 (6.9% of whole population)
(Black people 88%, white 10%, and coloured 2%)
- * Area (km²): 81,816 km²
(6.7% of whole area, population density: 34.7)
- * Number of public hospitals ('94): 24 sites (4,383 beds)
- * Number of public clinics ('93): 287 sites (PHC)
- * Public health indexes:

Mean life span	63.5 years old
Birth rate	4.3 (per woman)
Neonatal mortality	41.2/1,000
Number of doctors/10,000	3
Number of nurses/10,000	28

2) Summary of Themba Hospital

Themba Hospital is located near Nelspruit, the capital of province, and is one of the largest hospitals in the province covering the Bongani District (former homeland) in its service area. This hospital is a main referral hospital of the area with 550 beds to provide the secondary medical care service. The administration of the hospital is established properly, and respective medical departments, inspection department, and wards are maintained clean and controlled reasonably. After the reborn of the South Africa, the number of patients is increasing remarkably followed by absolute shortage of medical equipment and peripheral instruments. In the radiology department where the average X-ray inspections were at the level of 20,000 cases for the past 3 years, which has increased by approximately 20%. Moreover, at the obstetrics and gynecology department and pediatrics department, there have been conspicuous increases in the number of patients because of charge-free medical care services according to the RDP policy. Accordingly, the hospital is making efforts to reinforce its affiliated community health centres and clinics for leveling off the medical activity. This project also includes the equipment which will be provided to the affiliated Bongani community health centres and 14 clinics.

3) Comments

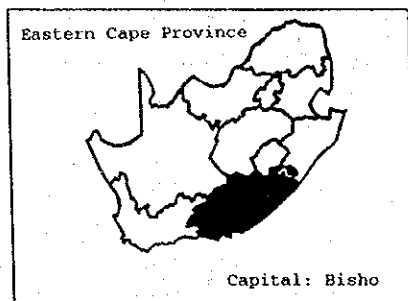
This hospital is well controlled in terms of both maintenance of existing equipment and hospital management. The requested medical equipments also include those for Bongani Community Health Centre and 13 affiliated clinics of this hospital.

4) Major Activity and Index

	1993	1994	1995
Outpatient 95,808 (Annual Average)	96,060	93,540 Ratio 97.4%	97,824 Ratio 104.6%
Inpatient 25,044 (Annual Average)	23,796	25,656 Ratio 107.8%	25,680 Ratio 100.1%
X-ray Examination	19,008	19,344 Ratio 101.8%	21,768 Ratio 112.5%
Major Diseases	Internal Medicine: Respiratory Condition (Including TB), Infectious Condition (Typhoid, Malaria, AIDS), Diabetes Mellitus Surgery: Trauma, Burns, Sepsis Pediatrics: Respiratory Infections, Gastro-enteritis, Praffin Poisoning Gynecology: Disorders of Pregnancies, Pelvic Inflammatory Diseases, Fibroma Others: -		
Major Operation	1. Laparotomy 2. Caesarians 3. Hysterectomy 4. Hernias 5. Thyroidectomy 6. Prostatectomy		
Operation 5,320 (Annual Average)	5,364	4,956 Ratio 92.4%	5,640 Ratio 113.8%
Major Causes of Death	1. Trauma 2. Burns 3. AIDS 4. Pneumonia 5. Sepsis		
Delivery 5,664 (Annual Average)	5,724	5,148 Ratio 89.9%	6,120 Ratio 118.9%

(2) Umtata Hospital (Eastern Cape Province)

1) Outline of Eastern Cape Province



- * Population ('94): 6,665,400 (16.4% of whole population)
(Black people 88%, coloured 6%, white 5%, and Asian 1%)
- * Area (km²): 170,616 km²
(13.9% of whole area, population density: 34.1)
- * Number of public hospitals ('94): 65 sites (17,544 beds)
- * Number of public clinics ('93): 530 sites (PHC)
- * Public health indexes:
 - Mean life span 59.6 years old
 - Birth rate 4.6 (per woman)
 - Neonatal mortality 58.2/1,000
 - Number of doctors/10,000 3
 - Number of nurses/10,000 33

2) Summary of Umtata Hospital

This hospital is located in Umtata City, the central city of the former independent homeland "Transkei" which is the most influenced area by the Apartheid policy throughout the era of the former South Africa. In the former era, the public health administration was implemented also on an independent basis in the name of the Transkei Self-Governing District, and probably because of this former system, it seems that the administrative organization has not been functioning smoothly under the central government and the provincial government even after the political shift to the present new South Africa. The hospital, which is in a large site adjacent to Umtata University, is an affiliated hospital with Medical Department of Umtata University to educate and train doctors for black people ever since the era of the former independent homeland. More than 90% of the present professors of the university are the employed doctors from overseas, and this single aspect also indicates the province of the former era.

The hospital is a general hospital composed of the medicine department, surgery department, obstetrics and gynecology department, paediatrics department, orthopedic department, ophthalmology department, ENT, dental department, etc. At the same time, this hospital is the top referral hospital which covers the whole area of the former independent homeland. The facilities including the management office are at the site for the main facility wards, however, the pediatrics department, ophthalmology department and orthopedic department are located in a place 5 km away from the main facilities.

The requested equipment and peripheral instruments are to supplement the currently used equipment and peripheral instruments

which are in an absolute shortage due to the increase in the number of patients and are indispensable for renewal and supplement to maintain general medical treatment.

Both orthopedic department ward (called Bedford Centre) and ophthalmology department ward that are separated from the headquarters facilities are managed by Dutch doctors and Indian doctors respectively. The management is good and evaluated favorably. It should be said that the request from both wards for equipment and peripheral instruments should be examined positively in this project. The weak points of management of the entire hospital need to be improved by the provincial Department of Health as soon as possible.

3) Comments

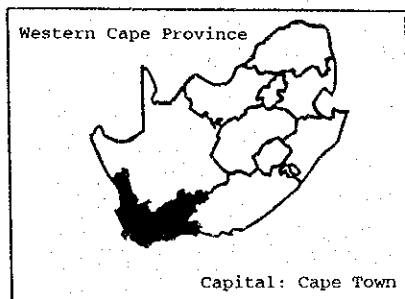
The management system of this hospital is quite poor. It does not seem that the person responsible for management controls the whole hospital. It is desired to reinforce the management system as soon as possible.

4) Major Activity and Index

	1993	1994	1995
Outpatient 474,680 (Annual Average)	428,752	560,144 Ratio 130.6%	435,144 Ratio 77.7%
Inpatient 67,027 (Annual Average)	62,164	74,432 Ratio 119.7%	64,485 Ratio 86.6%
X-ray Examination	50,708	51,176 Ratio 100.9%	45,012 Ratio 88.0%
Major Diseases	Gynecology: Disorders of Pregnancy, Cervical Carcinoma, Pelvic Inflammatory Disease Pediatrics: Diarrhea, Malnutrition, Respiratory Orthopedic: Trauma, Traffic Accident Ophthalmology: Cataract, Trauma, Diabetic ENT: Otitis Media, Sinusitis, Advanced Head & Neck Cancers		
Major Operation	1. Caesarians 2. Hysterectomy 3. Burns 4. Fractures 5. Cataract 6. Mastoidectomy		
Major Causes of Death	1. Eclampsia 2. Diarrhea 3. Septicemic diseases 4. Tuberculosis 5. Advanced Cancers		
Delivery 8,711 (Annual Average)	8,389	8,413 Ratio 100.3%	9,331 Ratio 110.9%

(3) George Hospital (Western Cape Province)

1) Outline of Western Cape Province



- * Population ('94): 3,620,200 (8.9% of whole population)
(coloured people 52%, Black 26%, and white 22%)
- * Area (km²): 129,386 km²
(10.6% of whole area, population density: 28)
- * Number of public hospitals ('94): 46 sites (15,156 beds)
- * Number of public clinics ('93): 365 sites (PHC)
- * Public health indexes:

Mean life span	64.8 years old
Birth rate	2.7 (per woman)
Neonatal mortality	26.8/1,000
Number of doctors/10,000	15
Number of nurses/10,000	70

2) Summary of George Hospital

This is a core hospital of the area and a secondary medical facility with 200 beds. The hospital is presently under reconstruction because the hospital buildings are too old to use. When the reconstruction work is completed in June, 1997, the number of beds will increase by 80 to a total of 280 beds. It is expected that it will be possible to deal with the increasing number of outpatients to diagnosing and treating departments, X-ray and ultrasonic inspection department, together with the increase in the number of surgical operations.

Although the existing equipment and peripheral instruments are maintained comparatively well, quantitative shortage is arising as a serious problem because of the increase of patients. The request to this project is centered around the renewal of the existing equipment and peripheral instruments, and it is judged that the contents of the request are appropriate by and large.

3) Comments

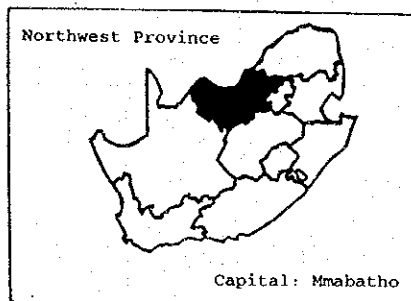
In comparison with the number of beds, the existing medical equipments are maintained comparatively well. However, most of the main instruments are outdated and obsolete, therefore, it is needed to renew these medical equipments. Wards and ICU rooms are presently under construction for expansion. Reinforcement of equipment is also required to improve the hospital function after completion of the renovation work.

4) Major Activity and Index

	1993	1994	1995
Outpatient 29,968 (Annual Average)	21,617	30,771 Ratio 142.3%	37,515 Ratio 121.9%
Inpatient 14,981 (Annual Average)	12,660	15,285 Ratio 120.7%	16,999 Ratio 111.2%
X-ray Examination	139,028	165,843 Ratio 119.3%	170,268 Ratio 102.7%
Major Diseases	Internal Medicine: Diabetes Mellitus, Cardio-Vascular, Lung Cancer Surgery: Peptic Ulceration Diseases, Burns, Arterial Insufficiency Pediatrics: Malnutrition, Respiratory (Asthma & Pneumonia), Gastro-enteritis Gynecology: Pelvic Inflammatory Diseases, Cervical Carcinoma, Miscarriages Others: Urinary Tract Infections, Wound Infestations, Chronic Pancreatitis		
Major Operation	1. Sterilizations 2. Removal of Cataracts 3. Caesarians 4. Internal Fixation of Fractures 5. Prostatectomy 6. Hernias		
Operation 4,087 (Annual Average)	3,947	4,323 Ratio 109.5%	3,990 Ratio 92.3%
Major Causes of Death	1. Trauma 2. Tuberculosis 3. Malnutrition 4. Cancer 5. Heart Attacks		
Delivery 5,664 (Annual Average)	3,012	3,056 Ratio 101.5%	2,976 Ratio 97.4%

(4) Tshwaragano Hospital (North West Province)

1) Outline of Northwest Province



- * Population ('94): 3,506,800 (8.6% of whole population)
(Black people 95%, coloured 4%, and white 1%)
- * Area (km²): 118,710 km²
(9.7% of whole area, population density: 29.5)
- * Number of public hospitals ('94): 30 sites (9,271 beds)
- * Number of public clinics ('93): 268 sites (PHC)
- * Public health indexes:

Mean life span	64.1 years old
Birth rate	4.5 (per woman)
Neonatal mortality	43.3/1,000
Number of doctors/10,000	2
Number of nurses/10,000	27

2) Summary of Tshwaragano Hospital

This hospital is a community hospital with 250 beds. It is located 350 km southwest of the province capital Mmabatho. This is a secondary medical care facility in a living area for black people and is located far from other cities. The number of outpatients is approximately 140,000 and the number of inpatients is approximately 31,000. Both numbers are large for the size of the hospital, and the occupancy rate is at an extremely high rate of about 91%. This is accordingly the core medical facility of the area.

The present position of the existing medical equipment and peripheral instruments shows that X-ray units of the department of radiology have been used for more than 20 years. It is judged that X-ray photographing amounting to yearly 9,000 cases (positive achievements in '95) is very difficult to continue. Surgical operation rooms have obsolete equipment such as anaesthetic machines, ventilators, bedside monitors. These medical equipments need an urgent renewal in order to handle approximately 1,300 cases of surgical operations (the average in past 3 years). At the obstetrics and gynecology department and the infant room, the yearly number of deliveries has increased by approximately 12% for the past 3 years, in order to meet this request, therefore, it is needed to improve the functions of these departments by renewing the surgical instrument sets for the obstetrics and gynecology and infant incubators.

3) Comments

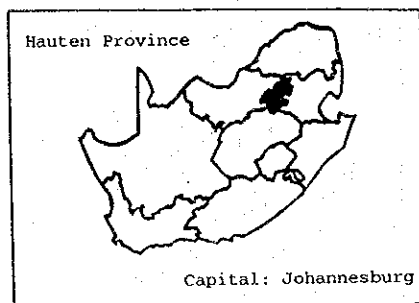
There are many obsolete medical equipments among the main existing equipment, and they need renewal. Configuration of departments and wards of the relevant facility consists of comparatively small-sized buildings, and space is not enough by and large. Therefore, it is important to assure places for new it is important to assure places for new installation of procured equipment and the existing equipment as well.

4) Major Activity and Index

	1993	1994	1995
Outpatient 112,049 (Annual Average)	74,700	120,200 Ratio 160.9%	141,247 Ratio 117.5%
Inpatient 24,969 (Annual Average)	17,786	25,382 Ratio 142.7%	31,739 Ratio 125.0%
X-ray Examination	8,332	7,187 Ratio 86.3%	8,021 Ratio 111.6%
Major Diseases	Internal Pulmonary Tuberculosis, Airway Diseases, Cardiac Diseases Medicine: Cardiac Diseases Surgery: Stab Wounds, Appendicitis, Breast Carcinoma Pediatrics: Pneumonia, Gastro-enteritis, Fractures Gynecology: Pelvic Inflammatory Diseases, Ectopic Gestation, Vaginitis Others: Fractures, Miscarriage, Traffic Accidents		
Major Operation	1. Caesarians 2. Circumcision 3. Thoractomy 4. Tubal Ligation 5. Hydrocelectomy 5. Appendectomy		
Operation 1,292 (Annual Average)	1,567	1,059 Ratio 67.6%	1,251 Ratio 118.1%
Major Causes of Death	1. Tuberculosis 2. Perinatal Condition 3. Airway Obstruction 4. Gastro-enteritis 5. Disorders of the Central Nervous System		
Delivery 1,852 (Annual Average)	1,762	1,828 Ratio 103.7%	1,967 Ratio 107.6%

(5) Boksburg-Benoni Hospital (Hauten Province)

1) Outline of Hauten Province



- * Population ('94): 6,847,000 (16.8% of whole population)
(Black people 65%, white 29%, coloured 4%, and Asian 2%)
- * Area (km²): 18,760 km²
(1.5% of whole area, population density: 365)
- * Number of public hospitals ('94): 37 sites (20,715 beds)
- * Number of public clinics ('93): 273 sites (PHC)
- * Public health indexes:

Mean life span	65.6 years old
Birth rate	3.0 (per woman)
Neonatal mortality	35.2/1,000
Number of doctors/10,000	13
Number of nurses/10,000	64

2) Summary of Boksburg-Benoni Hospital

This hospital is a secondary medical facility (partial provision ofttertiary medical service), and facility improvement is underway in order to provide enough service to a rapidly growing peripheral population of black people. The hospital is managed properly including staff control. Presently, the clinic department is under reconstruction for expansion. The equipment and peripheral instruments to be provided by this project will be supplied to this new building (to be completed in July '97). Most of the existing equipment is old by and large and needs renewal, accordingly. Ventilators, anaesthetic machines, C-arms, bedside monitors which are used in operation rooms and ICU rooms already exceed their service life. It is, therefore, an urgent problem to install the equipment that is suitable for the increase in the number of patients. It was decided to introduce CT scans in '94 and approval was given by the province authority and the arrangement of doctors and engineers was already completed, waiting simply for appropriation of budget. There is no problem of the introduction as far as technology and request are concerned.

3) Comments

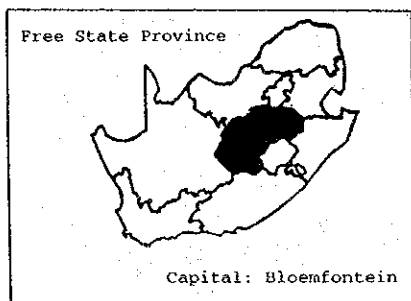
The existing medical equipments include old and comparatively new equipment with good maintenance. In order to catch up with a rapidly increasing population, facilities of the hospital are being improved (some are under construction for expansion).

4) Major Activity and Index

	1993	1994	1995
Outpatient 189,699 (Annual Average)	190,708	187,251 Ratio 98.2%	191,139 Ratio 102.1%
Inpatient 18,405 (Annual Average)	17,006	17,620 Ratio 103.6%	20,589 Ratio 116.9%
X-ray Examination	36,367	39,353 Ratio 108.2%	37,397 Ratio 95.0%
Major Diseases	Internal Cardiac Diseases, Pulmonary Diseases, Medicine: Hypertension Surgery: Acute Abdomen, Gallbladder, Thyroiditis Pediatrics: Gastro-enteritis, Tuberculosis, Pneumonia Gynecology: Incomplete Abortions, Fibroids, Ovarian Diseases Others: -		
Major Operation	1. Laparotomies 2. Appendectomy 3. Hernias 4. Tonsillectomies 5. Caesarians 6. Cataract		
Operation 6,210 (Annual Average)	6,107	6,408 Ratio 104.9%	6,114 Ratio 95.4%
Major Causes of Death	1. - 2. - 3. - 4. - 5. -		
Delivery 6,405 (Annual Average)	7,048	6,127 Ratio 86.9%	6,041 Ratio 98.6%

(6) Qwa-Qwa Hospital (Free Province)

1) Outline of Free Province



- * Population ('94): 2,804,600 (6.9% of whole population)
(Black people 85%, white 13%, and coloured 2%)
- * Area (km²): 129,437 km²
(10.6% of whole area, population density: 21.7)
- * Number of public hospitals ('94): 33 sites (7,147 beds)
- * Number of public clinics ('93): 168 sites (PHC)
- * Public health indexes:

Mean life span	63.6 years old
Birth rate	3.7 (per woman)
Neonatal mortality	45.4/1,000
Number of doctors/10,000	5
Number of nurses/10,000	39

2) Summary of Qwa-Qwa Hospital

This hospital consists of 2 facilities of the Manapo: Detached Hospital and the Elizabeth Ross Detached Hospital. This is a core hospital for the secondary medical care in the former homeland Qwa-Qwa District. There are 16 items of requested equipments, which are limited to those for the radiology, ICU, and physical therapy room. The present problem is the shortage of staff including doctors. Only 3 among 19 doctors are native black doctors, and others are employed from foreign countries. Both hospitals are separated about 7 km from each other. While the Manapo Hospital is a general hospital, Elizabeth Ross Hospital has a background of Christian's mission hospital and is a clinic hospital for tuberculosis and mental disease. Both hospitals are located in a mountainous area near Lesotho about 350 km south of Johannesburg. Heavy snow during the midwinter sometimes causes traffic isolation from the peripheral areas. Accordingly, there are cases where the referral system is not available, and therefore, the function as the core medical facility of the area has been requested.

3) Comments

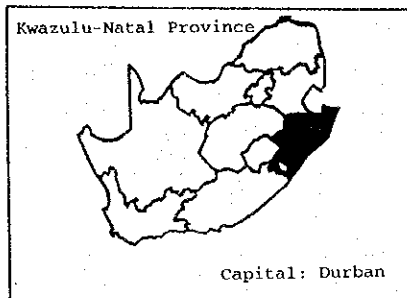
Although existing equipments include some old ones, the overall operating ratio seems good. Request of equipment is made mainly for the radiology department, ICU, and physical therapy department which require improvement in particular at present. Elizabeth Ross Hospital, an affiliated hospital to Manapo Hospital, also makes a request for X-ray units.

4) Major Activity and Index

	1993	1994	1995
Outpatient 91,644 (Annual Average)	89,577	115,279 Ratio 128.7%	70,075 Ratio 60.8%
Inpatient 7,142 (Annual Average)	4,004	3,725 Ratio 93.0%	13,697 Ratio 367.7%
X-ray Examination	25,819	21,862 Ratio 84.7%	19,919 Ratio 91.1%
Major Diseases	Internal Medicine: Pneumonia, AIDS, Diabetes Surgery: Trauma, Burns, Ulcers Pediatrics: Burns, Malnutrition, Diarrhea Gynecology: Incomplete Abortion, Fibroids, Pelvic Inflammatory Diseases Others: -		
Major Operation	1. Caesarians 2. Incomplete Abortion 3. Skin Graff 4. Int. Fixation 5. Ext. Fixation 6. Appendectomy		
Operation 3,712 (Annual Average)	3,370	3,961 Ratio 117.5%	3,806 Ratio 96.1%
Major Causes of Death	1. Pneumonia 2. Diarrhea 3. AIDS Complication 4. - 5. -		
Delivery 4,815 (Annual Average)	4,061	5,296 Ratio 130.4%	5,089 Ratio 96.1%

(7) King Edward VIII Hospital (Kwazulu Natal Province)

1) Outline of Kwazulu-Natal Province



- * Population ('94): 8,549,000 (21% of whole population)
(Black people 83%, Asian 9%, white 7%, and coloured 6%)
- * Area (km²): 91,481 km²
(7.5% of whole area, population density: 93.5)
- * Number of public hospitals ('94): 62 sites (24,709 beds)
- * Number of public clinics ('93): 373 sites (PHC)
- * Public health indexes:

Mean life span	63.5 years old
Birth rate	4.3 (per woman)
Neonatal mortality	44.7/1,000
Number of doctors/10,000	5
Number of nurses/10,000	44

2) Summary of King Edward VIII Hospital

This is a typical public hospital which can provide the tertiary medical service in Kwazulu-Natal Province. The requested medical equipments are a CT scan, X-ray units for screening room, an endoscopic ultrasonic scanning system, which are mainly for the radiology department, and most of them are highly advanced mechatronic equipments. Presently, one unit of CT scanner is used to handle an average of yearly 5,706 cases of examination. This means a daily average of 19 cases of inspection and that the scanner has been used to a maximum capacity. Although it is less than 10 years since procurement of the unit, its degree of exhaustion is vehement, requiring its renewal and replenishment. Two units out of 3 X-ray units have been used for longer than 20 years since their procurement, and the reduction in their function is outstanding, arising the necessity of renewal. As for the ultrasonic machine, its yearly examination in '95 amounted to 50,532 cases, which also shows the full use of the existing equipment with a high degree of exhaustion. An endoscopic ultrasonic scanning system and argon laser, etc. are requested by operation rooms of other departments (internal department and ophthalmology department) for renewal.

3) Comments

This hospital boasts of the second largest scale in South Africa, has CT scanners and colour doppler ultrasonic diagnosing units for quality medical care services.

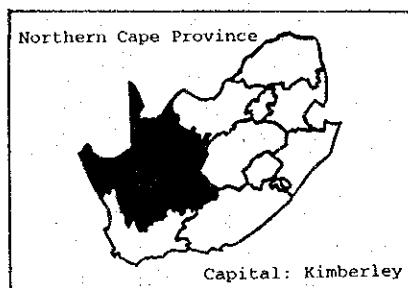
On account of a tertiary medical care facility, the items of requested equipments are not many and they are mainly large-sized equipments such as CT scanner, screening type X-ray units and colour doppler ultrasonic machine.

4) Major Activity and Index

	1993	1994	1995
Outpatient 533,958 (Annual Average)	472,464	567,935 Ratio 120.2%	561,475 Ratio 98.9%
Inpatient 67,120 (Annual Average)	64,320	67,440 Ratio 104.9%	69,600 Ratio 103.2%
X-ray Examination	206,801	227,289 Ratio 109.9%	246,141 Ratio 108.3%
Major Diseases	Internal Medicine: Tuberculosis, H.I.V., Diabetes Mellitus Surgery: Trauma, Ulcers, Burns Pediatrics: H.I.V., Tuberculosis, Gastro-enteritis Gynecology: Incomplete Abortion, Breast Abscess, Cervical Carcinoma Others: Abscess, Calculus Digestive, Gastro-intestinal Hemorrhage		
Major Operation	1. Hernias 2. Arthroplasty 3. Hysterectomy 4. Extraction of Lens 5. Thoracotomy 6. Nephrotomy		
Operation 34,416 (Annual Average)	1,567 nos.	1,059 nos. Ratio 67.6%	1,251 nos. Ratio 118.1%
Major Causes of Death	1. Trauma 2. Tuberculosis 3. Malnutrition 4. Cancer 5. Heart Attacks		
Delivery 10,213 (Annual Average)	-	Ratio - %	Ratio - %

(8) Kimberley Hospital (Northern Cape Province)

1) Outline of Northern Cape Province



- * Population ('94): 763,900 (1.9% of whole population)
(Black people 56%, white 32%, and coloured 16%)
- * Area (km²): 363,389 km²
(29.7% of whole area, population density: 2.1)
- * Number of public hospitals ('94): 21 sites (2,191 beds)
- * Number of public clinics ('93): 122 sites (PHC)
- * Public health indexes:

Mean life span	64 years old
Birth rate	2.9 (per woman)
Neonatal mortality	31.5/1,000
Number of doctors/10,000	4
Number of nurses/10,000	44

2) Summary of Kimberley Hospital

This is the largest public medical facility in Northern Cape Province. Because the former hospital discriminated white people from black people explicitly in the medical care service, a large-scale reconstruction work (to be completed in February '97) of the facility especially emergency department has been underway presently to make it a facility suitable for the new South Africa. Not only the facility but also the absolute number of medical care equipments run short on account of the increase in black patients. The request includes the improvement of the radiology department as the top priority, and at the same time, renewal of equipment such as bedside monitors and a blood gas analyzer, etc. for operation rooms and ICU related rooms has been applied. According to the description of the requested lists of equipment, there has been no supply or renewal of medical equipment for more than five years. Although expensive medical equipments of difficult budgeting are included, the hospital desires their procurement through this project.

3) Comments

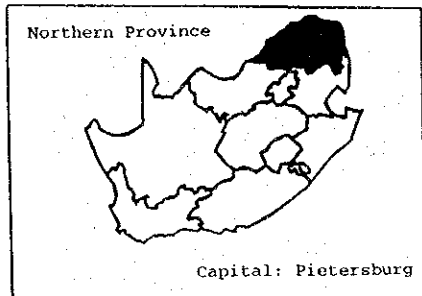
Because this hospital is carrying out new construction and renovation works on a large scale, the emergency department is transferred temporarily, resulting in a difficult state to provide ordinary medical care. The renovation work of the emergency department to which the X-ray is to be installed will be completed in the fiscal '96, and the new construction ward will be completed by February '97.

4) Major Activity and Index

	1993	1994	1995
Outpatient 122,119 (Annual Average)	130,832	131,836 Ratio 100.8%	103,690 Ratio 78.7%
Inpatient 26,520 (Annual Average)	26,997	28,186 Ratio 104.4%	24,377 Ratio 86.5%
X-ray Examination	47,358	43,683 Ratio 92.2%	46,046 Ratio 105.4%
Major Diseases	Internal Medicine: Infections, Hypertensive, Diabetes Surgery: Trauma, Hernia, Abdominal disease Pediatrics: Tuberculosis, Pneumonia, Malnutrition Gynecology: Pelvic Inflammatory Diseases, Incomplete Abortion Others: Malignancies		
Operation 5,661 (Annual Average)	6,573	5,461 Ratio 83.1%	4,949 Ratio 90.6%
Delivery 4,483 (Annual Average)	5,030	5,007 Ratio 99.5%	4,483 Ratio 89.5%

(9) Penge Hospital (Northern Province)

1) Outline of Northern Province



- * Population ('94): 5,120,600 (12.6% of whole population)
(Black people 97%, white 2.5%, and coloured 0.5%)
- * Area (km²): 119,606 km²
(8.9% of whole area, population density: 42.8)
- * Number of public hospitals ('94): 36 sites (10,603 beds)
- * Number of public clinics ('93): 287 sites (PHC)
- * Public health indexes:

Mean life span	62.7 years old
Birth rate	5.8 (per woman)
Neonatal mortality	57.0/1,000
Number of doctors/10,000	2
Number of nurses/10,000	30

2) Summary of Penge Hospital

Penge Hospital used to be managed as a hospital attached to a private asbestos mine company for mine workers and peripheral inhabitants. The hospital was closed once due to closing the operation of the mine in '92, and the hospital was bought up by the provincial Department of Health in '95 and was opened up again as a public clinic. This time, the province government is promoting a 2nd phase 3-year plan to establish a community hospital with 80 beds through implementation of reconstruction of the hospital. Tender for the 1st phase work is already completed and the work will start in January 1997. The 2nd phase work is at a stage of budgeting. Presently, the PHC, obstetrics department, pediatrics department provide general clinic services, and the number of benefited people amounts to approximately 15,000. At the time when the hospital is promoted to a community hospital, it is expected that the facility will be a core hospital which provides the secondary medical care services to a benefited population of approximately 100,000 people.

3) Comments

Present Situation in Penge Hospital is at a clinic level, and medical tools are at the level of consultation room of hospital without main existing medical equipment.

The sterilizing units of the CSSD and operating lamps of ceiling hung type for theater, will be procured by the improvement plan for facility which will be in progress by the South African Government as a part of the facility equipment.

Outline of the Project Objective Hospitals and Related Medical Care Facilities

(1/2)

Name of facility	Themba Hospital	Umtata Hospital	George Hospital	Tshwaragano Community Hospital	Boksburg-Benoni Hospital
Location (Population in 1994)	Mpumalanga Province (Population: 2,838,500)	Umtata, Eastern Cape Province (Population: 6,665,400)	George, Western Cape Province (Population: 3,620,200)	Kuruman, North West Province (Population: 3,505,800)	Boksburg, Gauteng Province (Population: 6,847,000)
Facility classification	Secondary medical care facility (general hospital) (Number of affiliated clinics: 13 clinics and 1 community health center)	Secondary medical care facility (general hospital, affiliated hospital to Umtata University Hospital)	Secondary medical care facility (general hospital) (Affiliated hospitals: Tendoretu Community Center and 7 other facilities)	Secondary medical care facility (gen. hospital) (Affiliated facilities: 6 health stations, 20 clinics)	Secondary medical care facility (partially tertiary medical care) (general hospital)
Objective benefited Population*: Racial configuration	Themba and peripheral area (2,400km ²): 220,000: Black: 88%, white: 10%, colored: 2%	Umtata and peripheral area 200,000: Black: 88%, colored: 6%, white: 5%, Asian: 1%	George City and peripheral area (43,800km ²) 144,000: Colored: 52%, black: 26%, white: 22%	Battleharos & Kuruman areas (18,000 km ²) 155,000: Black: 95%, colored: 4%, white: 1%	Boksburg-Benoni City and peripheral area (422 km ²) 528,000: Black: 65%, white: 29%, colored: 4%, Asian: 2%
Number of beds*	564 beds	1,159 beds	200 beds**	250 beds	544 beds
Number of those engaged in medical care*	828 persons Doctors and interns.....44 Nurses, midnurses, asst. nurses ..296 Engineers and paramedical33 Others455	3,715 persons Doctors and interns.....130 Nurses, midnurses, asst. nurses 1,212 Others2,373	495 persons Doctors and interns 56 Nurses, midnurses, asst. nurses... 231 Engineers and paramedical 82 Clerical work staff..42 Others.... 84	518 persons: Doctors and interns 17 Nurses, midnurses, asst. nurses....430 Engineers and paramedical 61 Others -	1,343 persons: Doctors and interns 65 Nurses, midnurses, asst. nurses .. 620 Engineers and paramedical 35 Clerical work staff . 111 Others . 512
Facility Utilization					
• Number of inpatients	93 '94 '95 Inpatients 23,796 25,656 25,680	'93 '94 '95 Inpatients 62,164 74,432 64,485	'93 '94 '95 Inpatients 12,660 15,285 16,999	'93 '94 '95 Inpatients 17,786 25,382 31,739	'93 '94 '95 Inpatients 17,006 17,620 20,589
• Avr. hospitalization days	Average days - - 6.8 days	Average days - - 7 days	Average days - - 4 days	Average days - - 3.0 days	Average days - - 8.4 days
• Bed operability ratio (%)	Bed operability ca. 85% on the average (excl. pediatrics and ophthalmology)	Bed operability 140%	Bed operability 81%	Bed operability 91%	Bed operability - 87%
State of Activity	A core hospital in Themba and peripheral areas and provides the secondary medical care and partially the primary health care. The hospital receives referral patients from 1 health center and 13 clinics which are in charge of the hospital.	This hospital is a core hospital in Umtata and peripheral areas and provides the secondary medical care. Under the control of the hospital there is a facility specializing in orthopedic surgery titled Bedford Center. The ophthalmology department and pediatrics department are located 5 km away from the main facility. The project also includes equipment for these facilities. Umtata City is the central city of the former independent homeland, "Transkey," which was the most isolated area in the former regime.	• This hospital is a core and general hospital in George District (the southern area of Western Cape Province) and has the function as a referral hospital for 8 regional hospitals in the area. • For the purpose of clinical activities, the hospital has the following facilities: the internal dept. (24 beds), surgical dept. (30 beds), pediatrics dept. (34 beds), gynecology & obstetric dept. (38 beds), ophthalmology dept. (beds), urology dept. (15 beds), neurology dept. (6 beds), orthopedic surgery dept. (15 beds), plastic surgery dept. (2 beds), ICU room (2 beds) and infant room (14 beds).	• This is a community hospital which assumes the role of the core hospital of the Battleharos and Kuruman areas. The hospital functions as a referral hospital for 6 health centers and 20 clinics in the areas. • For the purpose of clinical activities, the hospital has the following facilities: the internal dept. (40 beds), surgical dept. (8 beds), pediatrics dept. (36 beds), gynecology & obstetric dept. (3 beds), ophthalmology dept. (3 beds), physical therapy dept. (2 beds), kidney (4 beds), infectious diseases (60 beds), cardiac inspection (6 beds), orthopedic surgery dept. (12 beds), dermatology dept. (5 beds), dental dept. (2 beds), ICU (2 beds), mental disease dept. (16 beds), gynecology dept. (41 beds), and emergency aid (10 beds).	• This is a core general hospital in Boksburg City (in the suburbs of Johannesburg) and peripheral areas and provides the secondary medical care services. The hospital receives referral patients from clinics in the coverage area of the relevant hospital. • For the purpose of clinical activities, the hospital has the following facilities: the internal dept. (112 beds), surgical dept. (111 beds), pediatrics dept. (87 beds), obstetric dept. (30 beds), ophthalmology dept. (10 beds), orthopedics dept. (59 beds), ICU (3 beds), obstetrical dept. (70 beds), infant room (62 beds).
Main clinical departments	• Surgical dept. • Anesthetic dept. • Orthopedic dept. • Urology dept. • Physical therapy dept. • Internal dept. • Obstetrical dept. • Ophthalmology dept. • Gynecology dept. • Plastic surgery dept. • Pediatrics dept. • Mental disease dept.	• Internal dept. • Surgical dept. • Pediatrics dept. • Gynecology dept. • Obstetrical dept. • Orthopedic dept. • Plastic surgery dept. • Ophthalmology dept. • ENT dept.	• Surgical dept. • Tumor dept. • Internal dept. • Pediatrics dept. • Trauma dept. • Urology dept. • Mental disease dept. • Dermatology dept. • Obstetrical dept. • Ophthalmology dept. • Gynecology dept. • Neurology dept. • Orthopedic dept. • Plastic surgery dept.	• Internal dept. • Obstetrical dept. • Surgical dept. • Orthopedics dept. • Pediatrics dept. • Dermatology dept. • Gynecology dept. • Dental dept. • Ophthalmology dept. • Mental disease dept. • Urology dept. • Physical therapy dept.	• Internal dept. • Orthopedics dept. • Surgical dept. • Brain surgery dept. • Pediatrics dept. • Cardiosurgery dept. • Obstetrical dept. • ENT dept. • Gynecology dept. • Physical therapy dept. • Ophthalmology dept. • Urology dept.

* As of 1995

** (The hospital is under construction for expansion and renovation, presently.
After completion in July '97, the hospital will be a general hospital with 280 beds.)

Name of facility	Qwa-Qwa Hospital (Manapo Detached Hospital and Elizabeth Ross Detached Hospital)	King Edward Hospital (Kwazulu-Natal Province)	Kimberley Hospital	Penge Hospital	
Location (Population in 1994)	Wishhock, Free Province (Population: 2,804,600)	Kongera and Durban, Kwazulu-Natal Province (Population: 8,549,000)	Kimberley, Northern Cape Province (Population: 763,900)	Present situation: A clinic in Penge, Northern Province	Post Improvement Plan by South African Government:
Facility classification	Secondary medical care facility (general hospital) (Affiliated facilities: 26 clinics)	Tertiary medical care facility (general hospital)	Secondary medical care facility (general hospital)	Primary medical care facility (primary health care)	Secondary medical care facility (general hospital)
Objective benefited population* : Racial configuration	Qwa-Qwa District: 600,000: Black: 85%, white: 13%, colored: 2%.	Durban area (365km ²) 1,015,000 : Black: 83%, Asian: 9%, white: 7%, colored: 6%	Kimberley City and peripheral area 750,000: Colored: 56%, Black: 32%, white: 16%	Penge area 5,000: Black: 97%, white: 2.5%, colored: 0.5%	The Penge dist. and 6 other regions 255,000: Black: 97%, white: 2.5%, colored: 0.5%
Number of beds*	552 beds	1,913 beds	498 beds	None	62 beds at opening (80 beds at completion)
Number of those engaged in medical care*	680 persons: Doctors and interns 19 Nurses, midnurses, asst. nurses. 508 Engineers and paramedical 13 Others 140	2,549 persons Doctors and interns 143 Nurses, midnurses, asst. nurses 2,080 Engineers and paramedical 116 Others 210	1,585 persons: Doctors and interns 53 Nurses, midnurses, asst. nurses... 724 Engineers and paramedical 14 Others 794	The hospital is managed by nurses and assistant nurses (about 5 staff).	228 staff for 80 beds: Doctors, interns 7 Nurses, midnurses, asst. nurses . 126 Administrative Staff 18 Others 186
Facility Utilization	'93 '94 '95	'93 '94 '95	Yearly average '93 '94 '95	Available only for outpatients without hospitalizing facilities	-
• Number of inpatients	Inpatients 4,004 3,725 13,697	Inpatients 64,320 67,440 69,600	Inpatients 26,977 28,186 24,377	-	-
• Ave. hospitalization days	Average days - - 11.5 days	Average days - - -	Average days 6 days	-	-
• Bed operability ratio (%)	Bed operability - - 43%	Bed operability 95 to 100%	Bed operability 79%	-	-
State of Activity	• Manapo Detached Hospital is a secondary medical care facility which assumes the aerial core hospital in the Qwa-Qwa District, and the hospital has its affiliated Elizabeth Ross Hospital (tuberculosis and mental disease patients). The hospital also functions as a referral hospital for 26 clinics in the district. • Beds are provided to the following departments: internal dept., surgical dept., pediatrics dept., obstetrical dept., orthopedical dept., dental dept., ICU room, and gynecology dept. for clinical activities.	• This hospital is located in Durban City, one of the 3 largest cities of South Africa. The hospital has the function as an academic hospital in charge of the tertiary medical care in this area, and receives a large number in interns. • Beds are provided to the following departments: internal dept. (475 beds), surgical dept. (368 beds), pediatrics dept. (257 beds), obstetrical dept. (127 beds), ophthalmology dept. (52 beds), ENT dept. (20 beds), urology dept. (28 beds), Kidney dept. (8 beds), orthopedical dept. (183 beds), dermatology dept. (28 beds), dental dept. (27 beds), ICU (16 beds), gynecology dept. (324 beds) for clinical activities.	• This hospital is a core general hospital in Kimberley City and Northern Cape State and provides the secondary medical care service. The hospital receives referrals not only from the subordinate medical care facilities in the province but also from the neighboring provinces (Northwest Province and Free State Province). • Beds are provided to the following departments: internal dept. (90 beds), surgical dept. (114 beds), pediatrics dept. (98 beds), obstetrical and gynecology dept. (58 beds), ophthalmology dept. (6 beds), ENT dept. (6 beds), urology dept. (10 beds), orthopedical dept. (50 beds), NICU (16 beds), ICU (87 beds), CCU (4 beds), isolation room (12 beds), emergency aid (62 beds), tumor (20 beds) for clinical activities.	This hospital is presently acting as a clinic affiliated to H.C. Boshof Hospital. This clinic conducts medical care activity at the primary medical care level. Patients who cannot be handled by this clinic are referred to H.C. Boshof Hospital.	(Summary of the of Improvement Plan by South African Government) The Plan will be implemented according to the 3-year plan starting 1995 with the following schedule: <u>1st period:</u> Ordinary outpatient/emergency outpatient & obstetrics dept's and operation room, etc. Activity as a hospital w/ 62 beds. <u>2nd period:</u> Extension of the hospital with establishment of rehabilitation dept., etc. Activity as a hospital with 80 beds.
	• Internal dept. • Dental dept. • Surgical dept. • Physical therapy dept. • Pediatric dept. • Ophthalmology dept. • Obstetrical dept. • Plastic surgery dept. • Gynecology dept. • Orthopedical dept. • Urology dept.	• Internal dept. • Urology dept. • Dental dept. • Surgical dept. • Physical therapy dept. • Pediatric dept. • Kidney dept. • Obstetrical dept. • Cardiac internal dept. • Gynecology dept. • Orthopedical dept. • Ophthalmology dept. • Plastic surgery dept. • ENT dept. • Dermatology dept.	• Internal dept. • Urology dept. • ENT dept. • Surgical dept. • Physical therapy dept. • Pediatric dept. • Kidney dept. • Obstetrical dept. • Orthopedical dept. • Gynecology dept. • Plastic surgery dept. • Ophthalmology dept. • Dermatology dept.	Overall medical care relating to the primary medical care.	• Internal dept. • Surgical dept. • Pediatric dept. • Gynecology dept. • Obstetric dept. • Urology dept. • Orthopedics dept. • Others

2-2 Basic Concept of the Project

In order to achieve the equal chance of public health medical care service to the poor class of black people on country sides, this project has the purpose of improving medical care equipment at general hospitals (one secondary or tertiary medical care facility in each province) of which improvement is an urgent problem in the 9 provinces of the country. The project will lead to the correction of discrimination in medical care services against the black people who were isolated and received only very poor medical services in the former homelands and other areas by the Apartheid Policy.

The first request was made by 9 hospitals (one hospital of 9 provinces) for 745 types of medical equipments. Mutual discussions were repeated on the request and it was decided at the time of conclusion of the proceedings the project will cover 717 types, however as a result of consultation in the course of additional research, it was finally determined that the project will cover medical instruments for 671 types (4,080 items).

2-2-1 Confirmation of the Contents of Request

(1) Confirmation of project site

It is confirmed that this project will cover the following 9 hospitals.

Province	Designated Hospitals
1. Mpumalanga Province	Themba Hospital (Including Bongani Heath Centre & Clinics)
2. Eastern Cape Province	Umtata Hospital
3. Western Cape Province	George Hospital
4. North West Province	Tshwaragano Community Hospital
5. Hauten Province	Boksburg-Benoni Hospital
6. Free State Province	Owa-Owa Hospital (Manapo & Elizabeth Ross)
7. Kwazulu Natal Province	King Edward VIII Hospital
8. Northern Cape Province	Kimberley Hospital (Including West End Hospital)
9. Northern Province	Penge Hospital

- 1) It is confirmed that Boksburg-Benoni Hospital should be the designated hospital in Gauteng Province, because this hospital is their top priority hospital and the benefited people by this hospital are the poor black people, and these characteristics and appropriateness meet the tenet of the project. It is agreed mutually to preclude Karafin Hospital, Natal Sprit Hospital, Baraguana Hospital and Soeto District Public Health Centres (14 sites) from the objectives of research.
- 2) As for Mpumalanga Province, Bongani Health Centre and clinics in Bongani District (former homeland), which are affiliated to Themba Hospital, were added to the objectives of research, because the staff and medical equipment of the foregoing 21 clinics are fully managed and supervised by Themba Hospital.
- 3) Qwa-Qwa Hospital of Free State Province is a generic name of Manapo Detached Hospital and Elizabeth Ross Detached Hospital. The present situation shows that Manapo Detached Hospital is a general hospital of the district, and Elizabeth Ross Detached Hospital is a specialty hospital with a tuberculosis ward and a mental disease ward. The medical superintendent of Manapo Detached Hospital also assumes the role of the medical superintendent of Elizabeth Ross Detached Hospital.
- 4) West End Detached Hospital (with a tuberculosis ward and a mental disease ward, in particular), which is an affiliated hospital to Kimberley Hospital of Northern Cape Province, is included in the objectives of research, because it is confirmed that all management and supervision of the hospital are under Kimberley Hospital.
- 5) As to the present situation of Penge Hospital of Northern Province, the hospital mainly provides the primary health care under the supervision of H.C. Boshof Hospital, which is a

public secondary medical facility in this province. Penge Hospital used to belong to a private company engaged in asbestos mining and was closed once due to the closure of the company 4 years ago ('92) and was bought up by the provincial government in '95. It is expected to open the hospital again as a community hospital with 80 beds through a 2-phase, 3-year project, which was planned in '96. The budget for the 1st phase has already appropriated (approximately 10 million rands /250 million yen). The work will start in January '97.

The outline of the 2-phase, 3-year renovation project plan for Penge Hospital is as follows:

1st phase

To improve and reconstruct the buildings of the former hospital and remodel the present clinic facility into a hospital with 62 beds. To provide medical services for outpatients and emergency patients mainly at the internal medicine department, surgical department, obstetrics department and pediatrics department, and to improve delivery rooms, operation rooms(2), the CSSD room, radiology room, laboratory, pharmacist's office, laundry and administration ward. The hospital is planned to have a total of 62 beds. General ward (with 42 beds for pediatrics, internal medicine, surgery, etc.) will be the renovation of the existing buildings, and a ward for obstetrics (with 20 beds) will be newly constructed.

The work will take 10 - 20 months and will be completed at the end of 1997.

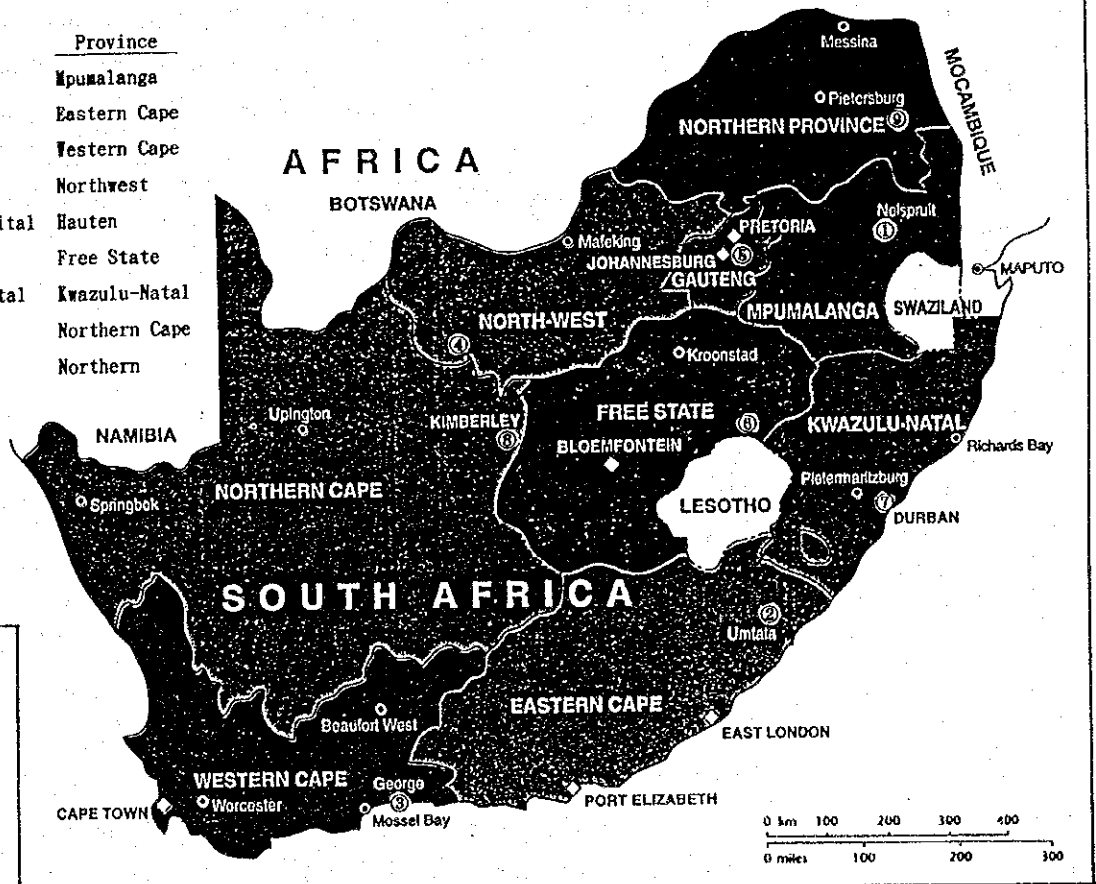
2nd phase

18 beds (for obstetrics department) will be added to the 62 beds of the 1st phase to a total of 80 beds. Rehabilitation block, staff/administration block and technical block (garage, maintenance room, etc.) will be newly constructed. The work of the 2nd phase will construct new buildings to reinforce the function of the hospital. Budget application has been submitted to the provincial government with an amount of 7.5 million rands (approx. 188 million yen). The work is expected to be undertaken in the next fiscal year (April '97 - March '98) with a period of 12 months (a total of 80 beds).

As for medical personnel, H.C. Boshof Hospital will provide overall support which includes 3 doctors' return to the hospital. The project intends to increase the medical staff to a total of 337 personnel in 3 years.

PROJECT SITE

Designated Hospital	Province
① Thembu Hospital	Npumalanga
② Umtata Hospital	Eastern Cape
③ George Hospital	Western Cape
④ Tshwaragano Hospital	Northwest
⑤ Boksburg-Benoni Hospital	Hauten
⑥ Qwa-Qwa Hospital	Free State
⑦ King Edward VII Hospital	Kwazulu-Natal
⑧ Kimberley Hospital	Northern Cape
⑨ Penge Hospital	Northern



AFRICAN CONTINENT



(2) Request for equipment

The contents of lists of request for equipment being attached to the request documents cover 717 types of equipments which are listed in the proceedings at the time of research on basic design. As a result of mutual discussion according to the supplementary research, duplicated requests and unnecessary or non-urgent request were eliminated, then there followed changes in request priorities and quantity (reduction in quantity), and consequently, the final objective medical equipments resulted in 671 types (4,080 items). In selecting equipment, the following concepts have been discussed and agreed with the designated hospitals at the local research of the basic design.

Basic Concepts of Equipment Plan

- (1) To examine the equipment based on the requested equipment list.
- (2) Installation work will be included in the plan, excluding improvement and reconstruction work of buildings.
- (3) Consumables and items other than medical care equipments are excluded, as a rule.
- (4) As a rule, renewal of the existing equipment is the objective of the project. As to the medical equipments that are procured newly, the reasons will be confirmed sufficiently.
- (5) Equipments which are not requested but considered necessary will be included in the objectives.

Selection standard for setting the instruments plan:

Priority standard

- (1) Equipments necessary for basic and essential clinic activity.
- (2) Renewal of existing equipments
- (3) Equipments with which demand (numbers of patients and specimens) in diagnosing and curing activities can be confirmed fully.
- (4) Equipments of which operation and maintenance are possible technically.
- (5) Equipments of which maintenance are affordable, including purchase of consumables and spare parts.

Deletion standard

- (1) Equipments which need introduction of new staff and new technologies.
- (2) Equipments of which installation is impossible judging from the province of infrastructure of hospital (instruments which require additional construction and major improvement of facility).
- (3) Equipments of low cost performance (low demand despite expensive prices).
- (4) Equipments which require establishment of a new department, unless it can accommodate with enough personnel and financial resources.
- (5) Duplicated equipments (in requests, facilities and by other aid organizations).
- (6) Items other than medical equipments, consumables and reagents.
- (7) Equipments which may violate rules on treatment of wastes and radioactive substances.
- (8) Equipments of which maintenance is difficult technically or financially.

Table 2-2-(2) Required Equipments

Designated Hospital	Original Requirement (Quantity of Equipment)	Minutes of Discussion (Quantity of Equipment)	Supplementary Survey (Quantity of Equipment)	Major Equipment
1) Thenba Hospital (Mpumalanga Province)	224 (5,447)	127 (451)	127 (451)	Instruments for orthopedic (Forceps, Knife, Reaming, etc.), Anaesthetic machine, Ventilator, Bedside monitor, Argon laser, Phaco emulsification machine, Equipment of rehabilitation, C-arm, X-ray unit (Bucky type), Mobile X-ray unit, Endoscope (Gastroscope, Sigmoidoscope, etc.), Dental equipment (Dental unit, Instruments for dental), Ambulance, Mobile clinic, Others.
2) Umtata Hospital (Eastern Cape Province)	68 (107)	85 (426)	89 (430)	Infant incubator, Infusion pump, Equipments of ENT (Micro-air drill, Laryngoscope, etc.), Electrocardiograph, Orthopedic operating table, Anaesthetic machine, Bedside monitor, Suction unit, Defibrillator, Phaco emulsification machine, Operating microscope, Autoclave, Instruments of ophthalmology, Mobile clinic, Others.
3) George Hospital (Western Cape Province)	29 (112)	74 (170)	69 (160)	Video endoscope, Autoclave, Treatment set for ophthalmology, Yag laser, Refractometer, Phaco emulsification machine, Ultrasound for ophthalmology, Color doppler ultrasound, Operating lamp, X-ray unit (Bucky type), Mobile X-ray unit, Delivery table, Defibrillator, Electrocardiograph, Operating table, Hysteroscope, Ventilator, Others.
4) Tshwaragano Community Hospital (Northwest Province)	83 (201)	94 (308)	75 (227)	Ultrasound, C-arm, X-ray unit (Bucky type), Mobile X-ray unit, Anaesthetic machine, Bedside monitor, Defibrillator, Darnatome, Autoclave, Dental unit, Dental X-ray, Endoscope, CO ₂ Incubator, Fluorescence microscope, Blood gas analyzer, Bath for rehabilitation, Mobile clinic, Others.
5) Boksburg-Benoni Hospital (Hauteng Province)	56 (212)	49 (150)	49 (150)	CT Scan, C-arm, Bedside monitor, Ventilator, Pulse oximeter, Blood gas analyzer, Endoscope, Autoclave, Xeratometer, Chart projector, Slit lamp, Perimeter, Ultrasound for ophthalmology, Others.
6) Qwa-Qwa Hospital (Free State Province)	26 (42)	15 (19)	16 (20)	Screening X-ray unit, X-ray unit (Bucky type), Mobile X-ray unit, Color doppler ultrasound, Operating table, Ventilator, Equipments for rehabilitation, Medical gas panel, Incinerator, Others.
7) King Edward VIII Hospital (Kwazulu-Natal Province)	10 (18)	10 (18)	10 (18)	CT Scan, Screening X-ray unit, Color doppler ultrasound, Endoscopic ultrasound scanning system, Argon laser, Video camera system for rotary retinoscope, Echo cardiological ultrasound, Cerebral oximeter, Data information system, Others.
8) Kimberley Hospital (Northern Cape Province)	186 (1,348)	141 (1,254)	114 (1,184)	X-ray unit (Bucky type), Tomography X-ray unit, Mobile X-ray unit, Blood gas analyzer, Argon laser, Audiometer, Autoclave, Endoscope, Cardiotocograph for fetal, Bedside monitor, Infusion pump, Operating table, Operating microscope, Phaco emulsification machine, Infant incubator, Ventilator, Autoclave, Ambulance, Others.
9) Penge Hospital (Northern Province)	63 (124)	122 (1,440)	122 (1,440)	Anaesthetic machine, Haemoglobin meter, Infant incubator, Infusion pump, X-ray unit (Bucky type), Sphygmomanometer, Patient trolley, Suction unit, Patient bed, Electrocardiograph, Mobile clinic, Others.
Total	745 (3,611)	717 (4,236)	671 (4,080)	