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**BASIC DESIGN STUDY REPORT**  
**ON**  
**THE PROJECT FOR IMPROVEMENT OF BASIC MEDICAL**  
**EQUIPMENT FOR MOTHER AND CHILD HEALTH**  
**IN**  
**THE REPUBLIC OF SURINAME**

**JULY 2003**

**JAPAN INTERNATIONAL COOPERATION AGENCY**  
**FUJITA PLANNING CO., LTD.**

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## **PREFACE**

In response to a request from the Government of Suriname, the Government of Japan decided to conduct a basic design study on the Project for Improvement of Basic Medical Equipment for Mother and Child Health and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Suriname a study team from February 24 to March 18, 2003.

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

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

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

July, 2003

Takao Kawakami  
President  
Japan International Cooperation Agency

## **Letter of Transmittal**

We are pleased to submit to you the basic design study report on the Project for Improvement of Basic Medical Equipment for Mother and Child Health in the Republic of Suriname.

This study was conducted by Fujita Planning Co., Ltd., under a contract to JICA, during the period from February to August, 2003. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Suriname 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.

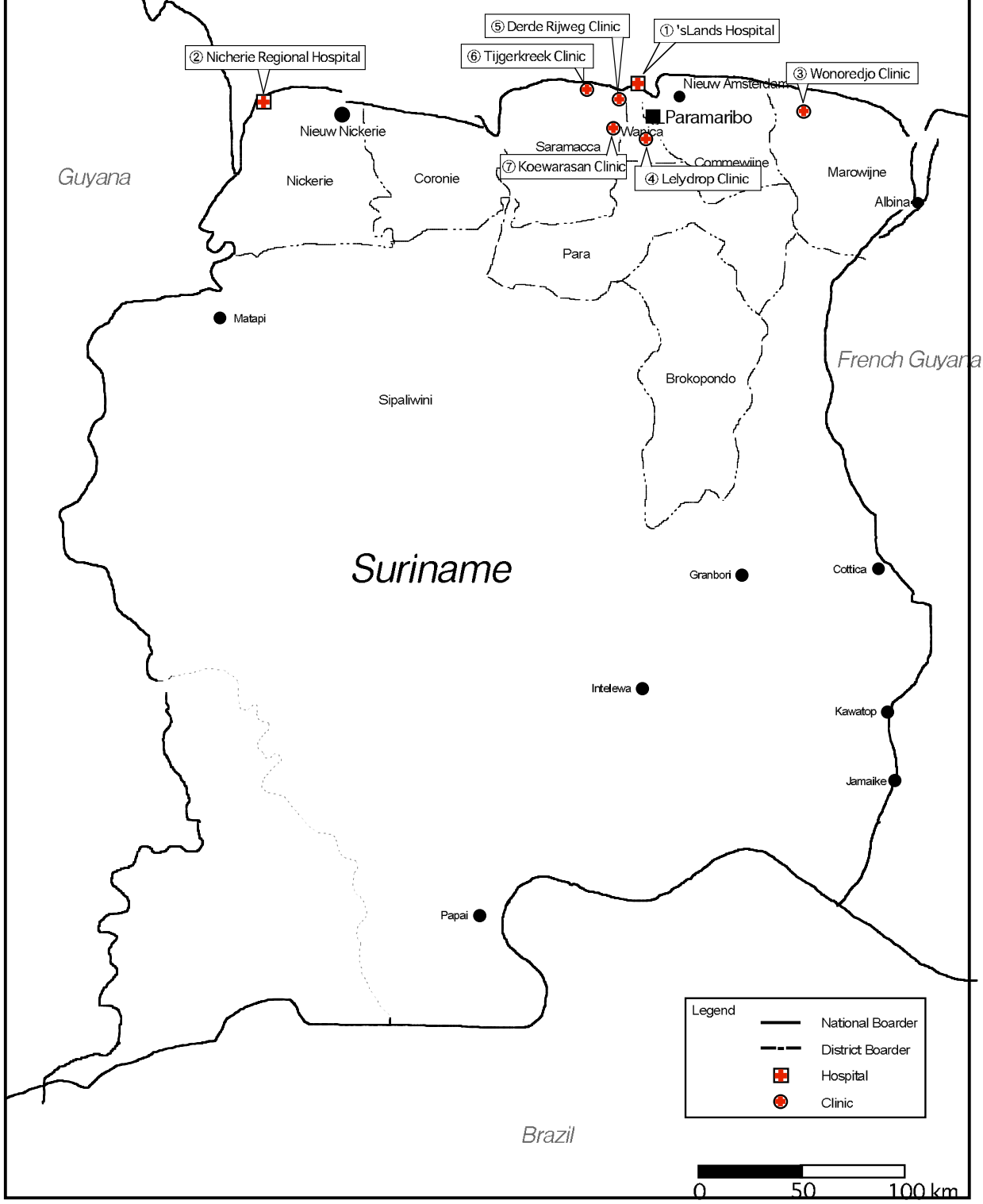
Very truly yours,

Tamotsu Nozaki  
Project manager,  
Basic design study team on  
The Project for Improvement of Basic Medical Equipment  
For Mother and Child Health  
In the Republic of Suriname  
Fujita Planning Co., Ltd.

# Republic of Suriname Project Site Location Map

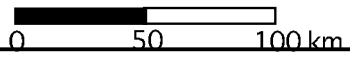


Atlantic Ocean



Legend

- National Boarder
- District Boarder
- Hospital
- Clinic



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## Abbreviations

BOG*	Bureau van Openbare Gezondheidszorg (Bureau of Public Health)
CSSD	Central Sterilizing Supply Department
GMTD*	Gemeenschappelijke Medisch Technische Dienst (Medical Equipment Maintenance Foundation)
ICU	Intensive Care Unit
IDB	Inter American Development Bank
MOH	Ministry of Health
MSA	Ministry of Social Affairs
MSH	Management Sciences for Health
PAHO	Pan American Health Organization
PHC	Primary Health Care
RGD*	Regionale Gezondheidsdienst (Regional Health Services)
SZF*	Staatsziekenfonds (State Health Insurance Fund)
UNFPA	United Nations Population Fund

(\*: Dutch language)

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## **Summary**

## Summary

Encompassing a land area of 163,270km<sup>2</sup>(almost half the size of Japan), the Republic of Suriname (hereinafter referred to as “Suriname”) lies on the Atlantic Coast of South America with French Guiana to the east, Guyana to the west, and Brazil to the south. In 1975, it became independent from the Netherlands, which, as Suriname’s former suzerain, has since supported the country’s socio-economic development with a total amount of 1.5 billion dollars over a period of some 15 years and remains to be the primary contributor to Suriname. Following the second oil crisis in 1979, Suriname’s economy continued to stagnate or decline throughout the 1980s. After a decade of turmoil with a military coup in February 1980 and execution of more than dozen political opponents in December 1982, Suriname finally restored itself in the 1990s as a truly democratic nation.

Suriname’s GNP and GNP per capita in 1999 were about 560 million US dollars and 1,312 US dollars respectively, which fell to about 360 million US dollars and 880 US dollars during the mid 1990s, but have been on the steady increase since the launching of structural reform programs under the guidance of IMF and World Bank. Due to the underdeveloped domestic manufacturing industries, Suriname depends on imports for much of its consumer goods. It has an urban-type economy with a majority of working population being employed by the government or other service sectors and only a small minority engaging in agriculture, mining, or other production industries. Nearly 50% of wageworker population are either civil servants or employed by the public sector, meaning that half of the nation lives on public funds. Suriname’s largest product is bauxite, which used to be exported almost exclusively to the United States but now is shipped to Europe also. Bauxite and related products once accounted for 90% of Suriname’s total exports, but now fell to around 40% (or about 300 million US dollars) due to increased competition by inexpensive Asian products. Other exports include, crude oil, gold, rice, marine products (mostly shrimp), and banana. Production of crude oil has been on the increase and is expected to become the country’s major export item following bauxite.

Health sector reform is explicitly incorporated in the Government’s Multi-annual Development Plan 2001-2005 as the top priority agenda for the country’s health/medical sector. Recognizing that restructuring of the health sector was necessary to better utilize the limited financial and human resources, the Ministry of Health of Suriname (MOH) began performing studies in November 1998 under the technical cooperation program (Support of Health Sector Reform) by Inter-American Development Bank (IDB) to assess the status of the health sector, especially its financing structure.

Progress reports of these studies indicated the necessity of reform in such areas as health insurance and government subsidy. The Surinamese Government wishes to carry out the reform programs to be formulated as a result of the technical cooperation studies under a loan project.

Judging from the number and scales of various medical facilities, there does not seem to be clear division of primary, secondary, and tertiary care among the facilities in the medical referral system in Suriname. Generally, clinics provide primary care, including preventive care, and hospitals are in charge of secondary and tertiary care. Of the total population of about 430,000, around 80% live in the northern coastal area, and about 60% resides in the Paramaribo metropolitan area. This means that while a majority of people has relatively easier access to hospitals, those living away from the metropolitan area are deprived, because establishing medical facilities and deploying health workers in such local areas is extremely difficult in Suriname. As for the mother-and-child health, which is the focal point of this Project, the infant mortality rate and the maternal mortality rate are 27 (per 1,000 births) and 110 (per 100,000 births) respectively, which are lower than the averages of Central/South America and the Caribbean countries of 30 and 190, but are the second worst following Guiana among the neighboring nations. To improve the mother-and-child health indices, the MOH recognizes the importance of enhancing initial and emergency treatment capabilities and is endeavoring to strengthen primary care and other medical services provided by hospitals. The MOH plans to establish a comprehensive mother-and-child health care system that includes initial diagnosis/treatment and obstetric assistance, which will be disseminated among local clinics in an effort to provide more equitable medical services to local residents. To this end, the MOH has introduced the primary care service package (including basic examinations and outpatient services that are essential to primary care, as well as simple tests, deliveries, and other medical services) to the clinics that are core providers of primary care and is encouraging the clinics to adhere to the package. The MOH also intends to enhance the capabilities of hospitals to handle high-risk deliveries and emergency cases so that they will be better able to complement the clinics.

Although upgrading of the insufficient or deteriorated facilities and equipment of the hospitals and clinics is needed to ensure basic medical services to the general public, the MOH has been failing to make proper appropriations for the maintenance and control of the facilities and equipment of each medical institution due to a lack of administrative faculty. At the same time, the health facilities are using revenues collected from their patients to cover their daily expenses, leaving little fund for maintenance and renewal of facilities and equipment. Under these circumstances, the Government of Suriname requested the Government of Japan to extend assistance for upgrading the equipment of certain medical facilities to improve the country's mother-and-child health care services.

In response to the request of the Surinamese Government, the Japanese Government dispatched a Basic Design Study Team to Suriname during February 24 to March 18, 2003 to examine how the proposed assistance project related to the overall mother-and-child health care reform programs of Suriname, survey the present activities and peripheral conditions of the target facilities, check the contents of the requested equipment items, and study the current status and problems of medical services provided in Suriname to determine the necessity and appropriateness of the proposed project. Upon returning to Japan and analysis of the survey findings, the Study Team went back to Suriname during the period between May 26 and June 6, 2003 to present an outline of the Draft Basic Design to the Surinamese authorities concerned and finalized this report.

The study confirmed that, on the primary care (clinics) level, the MOH and the Regional Health Service (Regionale Gezondheidsdienst, RGD), with the assistance of Pan American Health Organization (PAHO), UNICEF and other international organizations, were promoting the strict adherence to standard treatment protocol and that the provision of the basic equipment requested would work in conjunction with such assistance programs and contribute to the improvement of mother-and-child health care in Suriname. In addition, this Project intends to upgrade some hospitals that accept high-risk pregnancy and childbirth cases, which cannot be handled on the clinic level, thereby vitalizing the entire mother-and-child health care services in Suriname. The Basic Design Study confirmed that the target facilities of this Project, consisting of two hospitals and five clinics, were struggling to provide proper mother-and-child care due to insufficient or deteriorated equipment. In view of the above, this Project is deemed necessary for the improvement of mother-and-child health care, and the implementation thereof in the form of grant aid is appropriate. The target facilities of this Project and the main equipment to be procured are listed in the tables below.

#### **Project Sites**

<b>Name of Facility</b>	<b>District</b>	<b>Name of Facility</b>	<b>District</b>
1. 'sLands Hospital	Paramaribo	3. Wonoredjo Clinic	Marowijne
2. Nickerie Regional Hospital	Nickerie	4. Lelydrop Clinic	Wanica
		5. Derde Rijweg Clinic	Wanica
		6. Tijgerkreek Clinic	Saramacca
		7. Koewarasan Clinic	Wanica

### Outline of the Planned Equipment

Facility	Name of Equipment
2 Hospitals	Electrocardiograph, Cardio Tocograph, Ultrasound Diagnostic Equipment, Delivery Table, Infant Warmer, Infant Incubator, Pulse Oximeter, Operating Table, Anesthesia Apparatus, Electro-surgical Unit, Patient Monitor, Defibrillator, Fluoroscopic X-ray Diagnostic Equipment, Mobile X-ray Diagnostic Equipment, X-ray Film Processor, Centrifuge, Binocular Microscope, etc.
5 Clinics	Weighing Scale, Sphygmomanometer, Examination Light, Delivery Table, Suction Unit, Doppler Fetus Detector, Infant Incubator, Phototherapy Unit, Ultrasound Diagnostic Equipment (Portable), Binocular Microscope, Drying Oven, Spectrophotometer, Centrifuge, etc.

This Project, if approved, will be implemented over a period of about eight months, of which four months will be spent for public tender and detailed design, and another four months for the procurement and installation of equipment and the implementation of the Soft Component Program by the consultant. The total cost of this Project is estimated at 331.8 million yen (of which 328 million yen will be borne by the Government of Japan, and 3.8 million yen by the Government of Suriname).

The operating expenses of the target facilities are covered by the appropriations from the MOH and payments from patients. Considering the fact that most of the equipment to be procured by this Project will be of basic type requiring little maintenance work and those needing regular servicing can generate extra income, the current budget will sufficiently cover the operating expenses of the newly procured equipment. The actual maintenance work will continue to be done by the technicians of the medical facilities and outside vendors. To strengthen the maintenance capability of each target facility, this Project intends to implement the Soft Component Program. Since this Project includes the upgrading of peripheral facilities and technical training of medical staff, it is likely to produce immediate results upon its completion. More specifically, implementation of this Project is expected to bring the following effects and benefits:

#### **(1) Enhancement of Mother-and-Child Care**

This Project, by providing basic medical equipment, renovating facilities, and giving technical training to medical staff, will likely enhance the mother-and-child health care services in Suriname.

#### **(2) Contribution to Reproductive Health**

As indicated by the Multi-annual Development Plan 2001-2005, upgrading of medical facilities is

urgently needed. Thus, the Project will apparently contribute to the reproductive health of Surinamese people, as it is designed to support pregnancy, childbirth, and pediatric care in the two hospitals and five clinics that play central roles in mother-and-child health in Suriname. Fortifying these core facilities will lead to the improvement of the maternal mortality rate and other mother-and-child health indices.

To improve the functionality of the medical system, the overall medical activities, including the financing and operations of facilities, contents of medical services provided by each clinical department, fostering of medical staff, and coordination with other medical facilities, need to be examined. To achieve the maximum overall result, each function needs to be improved by the conscious efforts of individual staff members. To best utilize the equipment to be provided by this Project for the effective enhancement of the functionality of each target site, the Surinamese side needs to work sincerely on the following agendas:

### **(1) Operation and Maintenance of the Equipment**

Daily inspection by the operator is essential for the effective utilization of the equipment to be provided by Japan. For high-tech equipment that needs servicing by specialists or equipment that requires regular replenishment of consumable items, each medical facility should enter into a service agreement with the local agent of the equipment manufacturer to ensure their proper maintenance and uninterrupted supply of expendables. While the Project plans to strengthen and support the operation and maintenance system of each medical facility by implementing the Soft Component, it is important for each facility to designate personnel in charge of controlling the documentation related to the equipment, such as maintenance manual, operation manual, circuit diagram, and a list of serial number, in line with the Soft Component Program.

### **(2) Fostering of Medical Staff**

Implementation of this Project includes technical training of Surinamese medical personnel. More specifically, such skills as prenatal examinations using ultrasound diagnostic equipment, obstetric assistance, and basic neonatal care, will be taught mostly for the health workers of the target clinics. Continuing this type of training not only for the physicians and paramedical staff of the target facilities, but also for the health workers of other medical institutions will lead to the overall enhancement of mother-and-child health in Suriname.

### **(3) Introduction and Utilization of Proper Assessment System**

In addition to the procurement of medical equipment, this Project plans to implement the Soft

Component Program to establish a system for the operation and maintenance of the equipment, for which important economic indicators and medical statistical techniques will be discussed with and taught to the personnel of the target facilities to assess the operational status of not only the equipment but also the entire organizations. Examples of such indicators include the bed occupancy rate, average number of patients per day, outpatient/inpatient ratio, number of patients per physician per day, and average medical fees collected per patient per day. These indices will be compiled during the project implementation period so that the data will be available for periodic assessment after the completion of the Project, which will be essential for continual improvement of the operational efficiency and the quality of medical services of the target facilities. Full utilization of such operation/maintenance system by each site will also help the Project to produce the maximum result.

The MOH is gradually transferring its authority to individual hospitals and clinics. Thus, not only MOH but also the individual staff members of the target medical facilities should share the sense of responsibility for the sound administrative/financial management of medical institutions and further improvement of mother-and-child health.

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



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

### **1-1 Present Status of the Health Sector in Suriname**

Health sector reform is explicitly incorporated in the Government's Multi-annual Development Plan 2001-2005 as the top priority agenda for the country's health/medical sector. Recognizing that restructuring of the health sector is necessary to better utilize the limited financial and human resources, the Ministry of Health of Suriname (MOH) began performing studies in November 1998 under the technical cooperation program (Support of Health Sector Reform) by Inter-American Development Bank (IDB) to assess the status of the health sector, especially its financing structure. Progress reports of these studies indicated the necessity of reform in such areas as health insurance and government subsidy. The Surinamese Government wishes to carry out the reform programs to be formulated as a result of the technical cooperation studies under a loan project.

On the other sides, judging from the number and scales of various medical facilities, there does not seem to be clear division of primary, secondary, and tertiary care among the facilities in the medical referral system in Suriname. Generally, clinics provide primary care, including preventive care, and hospitals are in charge of secondary and tertiary care. Of the total population of about 430,000, around 80% live in the northern coastal area, and about 60% resides in the Paramaribo metropolitan area. This means that while a majority of people has relatively easier access to hospitals, those living away from the metropolitan area are deprived, because establishing medical facilities and deploying health workers in such local areas is extremely difficult in Suriname. As for the mother-and-child health, which is the focal point of this Project, the infant mortality rate and the maternal mortality rate are 27 (per 1,000 births) and 110 (per 100,000 births) respectively, which are lower than the averages of Central/South America and the Caribbean countries of 30 and 190, but are the second worst following Guiana among the neighboring nations. To improve the mother-and-child health indices, the MOH recognizes the importance of enhancing initial and emergency treatment capabilities and is endeavoring to strengthen primary care and other medical services provided by hospitals. The MOH plans to establish a comprehensive mother-and-child health care system that includes initial diagnosis/treatment and obstetric assistance, which will be disseminated among local clinics in an effort to provide more equitable medical services to local residents. To this end, the MOH has introduced the primary care service package (including basic examinations and outpatient services that are essential to primary care, as well as simple tests, deliveries, and other medical services) to the clinics that are core providers of primary care and is encouraging the clinics to adhere to the package. The MOH also intends to enhance the

capabilities of hospitals to handle high-risk deliveries and emergency cases so that they will be better able to complement the clinics.

**Table 1-1** Trends of Basic Demographic Indicators

Indicator	Year of 1998	Year of 1999	Year of 2000
Estimated population	424,590	430,261	435,797
Total births	10,449	10,367	10,064
Still births	228	223	260
Birth rate (per 1,000 pop.)	24.1	23.6	22.5
Death rate (per 1,000 pop.)	6.6	7.0	7.1
Infant death (under 1 year)	163	227	175
Perinatal death	334	331	386
Neonatal death	92	109	146
Death in children (1 to 4 years)	79	50	73
Maternal death	9	11	15

Source) Annual Report of the Chief Medical Officer, Year 2000, Ministry of Health, Suriname

**Table 1-2** Leading Causes of Hospitalization and Causes of Death (Year of 2000)

Causes of Hospitalization*	Number	Causes of Death	Number	Rate
Pregnancy, childbirth & puerperium	4,586	Hypertension, cardiovascular	446	1.02
Gastrointestinal diseases	2,159	Cerebrovascular	326	0.75
Hypertension & Cardiovascular diseases	1,986	External causes	263	0.60
Diseases of respiratory system	1,533	Malignant neoplasms	252	0.58
External causes	1,048	Certain conditions originating in the perinatal period	192	0.44
Certain conditions originating in perinatal period	954	Gastrointestinal disorders	184	0.42
Cerebrovascular diseases	792	Diabetes mellitus	125	0.29
Malignant neoplasms	779	HIV / AIDS	110	0.25
Certain vector-borne diseases	590	ARI	73	0.17
Urogenital disorders	548	Diseases of the urinary system	65	0.15
		Others	641	1.47

Remark \*: Data was available only from St. Vincentius, Academic and Diakonessen Hospitals.

Source) Annual Report of the Chief Medical Officer, Year 2000, Ministry of Health, Suriname

## 1-2 Request of Assistance to the Government of Japan

The Surinamese Government's Multiannual Development Plan aims to "provide equitable medical services for the nation" as one of its basic objectives. To achieve this, the MOH has formulated short-term programs to improve health services for the socially weak, especially for mothers and children by providing enhanced medical services, including pregnancy and pediatric care and obstetric assistance to promote reproductive health, and is endeavoring to foster medical professionals and upgrade medical facilities. While training of medical personnel, especially that

of the clinics' staff is being carried out with the support of some NGOs and other aid organizations, upgrading of medical facilities and equipment is being delayed due to strained finances. One of the reasons for the lack of funds is that the MOH and the medical institutions are using their revenues barely to cover their daily expenses with little left for the renewal of the facilities and equipment. Under these circumstances, the Government of Suriname requested the Government of Japan to extend assistance for the upgrading of selected medical facilities and their equipment for the purpose of enhancing mother-and-child health care services in Suriname.

On the primary care or clinics level, the Regional Health Service (RGD), with the assistance of Pan American Health Organization (PAHO), UNICEF and other international organizations, is promoting the strict adherence to standard treatment protocol. Thus, the implementation of this Project will work synergistically with these assistance programs and contribute to the promotion of mother-and-child health. In addition, the provision of medical equipment for the target hospitals that handle high-risk pregnancy and childbirths is expected to stimulate the vitalization of the mother-and-child health care activities as a whole.

**Table 1-3** Proposed Project Sites to the Japanese Government

Name of Facility	District	Name of Facility	District
1. 'sLands Hospital	Paramaribo	5. Wonoredjo Clinic	Marowijne
2. Nickerie Regional Hospital	Nieckerie	6. Lelydrop Clinic	Wanica
3. Albina Hospital	Marowijne	7. Derde Rijkweg Clinic	Wanica
4. Central Laboratory	Paramaribo		

**Table 1-4** Outline of the Requested Equipment

Facility	Name of Equipment
3 Hospitals	Electrocardiograph, Cardio Tocograph, Ultrasound Diagnostic Equipment, Delivery Table, Infant Warmer, Infant Incubator, Pulse Oximeter, Operating Table, Anesthesia Apparatus, Electro-surgical Unit, Patient Monitor, Defibrillator, Fluoroscopic X-ray Diagnostic Equipment, Mobile X-ray Diagnostic Equipment, X-ray Film Processor, Centrifuge, Binocular Microscope, etc.
Central Laboratory	Binocular Microscope, Drying Oven, pH Meter, Spectrophotometer, Centrifuge, etc.
3 Clinics	Weighing Scale, Sphygmomanometer, Examination Light, Delivery Table, Suction Unit, Doppler Fetus Detector, Infant Incubator, Phototherapy Unit, Ultrasound Diagnostic Equipment (Portable), Binocular Microscope, Drying Oven, Spectrophotometer, Centrifuge, etc.