

**BASIC DESIGN STUDY REPORT  
ON  
THE PROJECT FOR IMPROVEMENT OF  
NATIONAL INSTITUTE OF PEDIATRICS  
IN THE SOCIALIST REPUBLIC OF VIET NAM**

**MARCH 2003**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

**MEDICAL ENGINEERING & PLANNING CO., LTD.**

**FUJITA PLANNING CO., LTD.**

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**03-046**

# Map of Viet Nam



## PREFACE

In response to a request from the Government of the Socialist Republic of Viet Nam, the Government of Japan decided to conduct a basic design study on the Project for Improvement of National Institute of Pediatrics and entrusted the study to the Japan International Cooperation Agency (JICA).

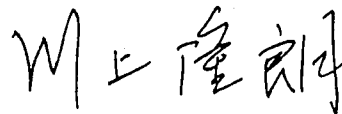
JICA sent to Viet Nam a study team from November 4 to November 27, 2002.

The team held discussions with the officials concerned of the Government of Viet Nam, 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 Viet Nam in order to discuss a draft basic design, and as this result, the present report was finalized.

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

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

March, 2003



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Takao KAWAKAMI

President

Japan International Cooperation Agency

March, 2003

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Improvement of National Institute of Pediatrics in the Socialist Republic of Viet Nam.

This study was conducted by the joint venture between Medical Engineering & Planning Co., Ltd. and Fujita Planning Co., Ltd., under a contract to JICA, during the period from November, 2002 to March, 2003. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Viet Nam 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.

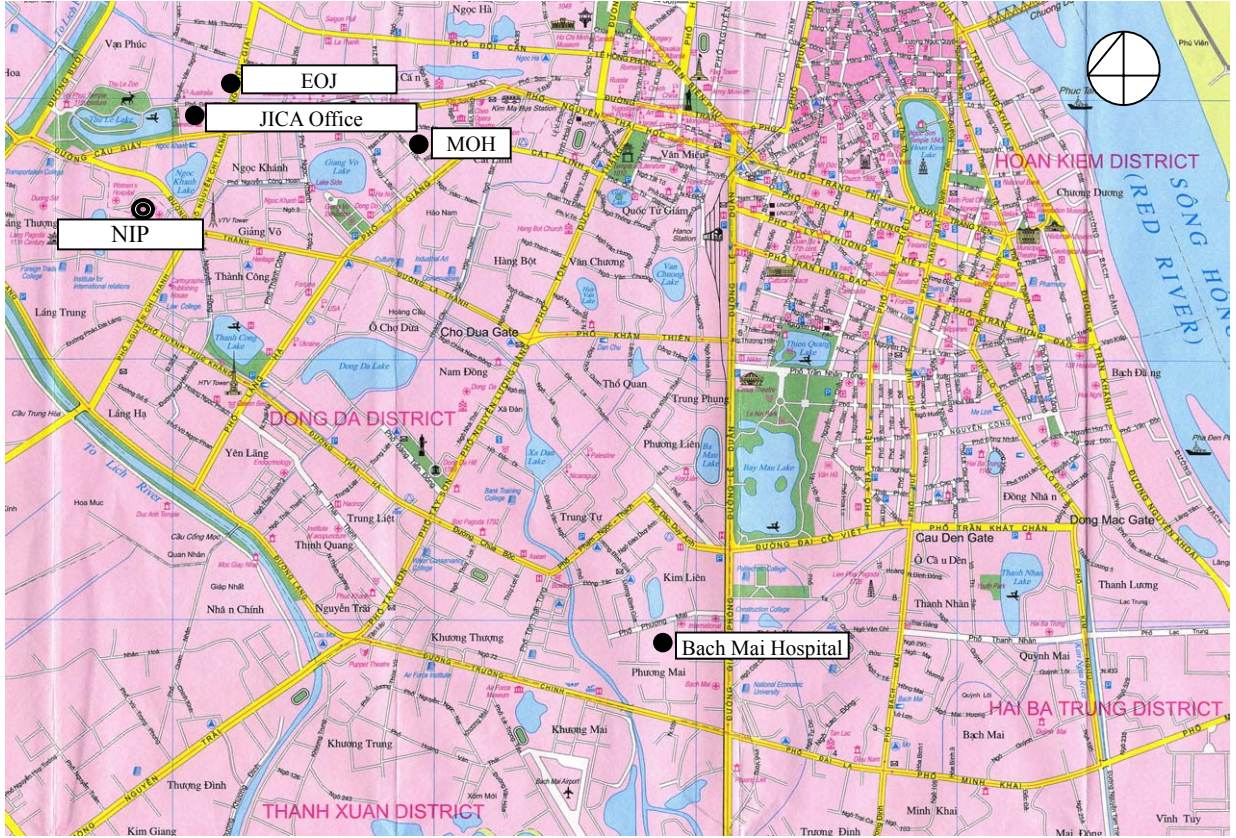
Very truly yours,

與座卓

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Takashi YOZA  
Project manager,  
Basic design study team on  
the Project for Improvement of National  
Institute of Pediatrics  
The joint venture between  
Medical Engineering & Planning Co., Ltd. and  
Fujita Planning Co., Ltd.

# Map of Hanoi City



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### Abbreviation

A/P	Authority to Pay
B/A	Banking of Arrangement
BD-DD	Basic Design and Detailed Design
E/N	Exchange of Note
ENT	Ear, Nose, ant throat
ICU	Intensive Care Unite
JICA	Japan International Cooperation Agency
MOH	Ministry of Health
MPI	Ministry of Planning and Investment
NIP	National Institute of Pediatrics
O/M	Operation and Maintenance
VND	Viet Nam Don

## **SUMMARY**

## SUMMARY

Vietnamese health indices in the field of pediatric medical care such as an infant mortality rate of 30 per 1,000 births and a mortality rate of children under age five of 39 per 1,000 births (source: The State of the World's Children 2002 by UNICEF) are recognized as still leaving a lot of room for improvement. Furthermore, the country's structure of pediatric diseases, in which infectious diseases and respiratory ailments rank highest, followed by pregnancy complications, infant mortality due to low weight at birth, perinatal newborn lung ailments and other serious maternal and child related diseases and ailments.

That being the case, the Vietnamese government has established the Strategy for the People's Health Care and Protection 2001-2010 in its Socioeconomic Development 5-Year Plan for the period 2001-2005, with improvement of the state of health of children in Viet Nam as the overall goal and target figures of lowering infant mortality to below 25 per 1,000 births and the mortality rate of children under age five to below 32 per 1,000 births as well as also calling for efforts to lower other such indices such as the rate of underweight births and the rate of malnutrition among children under age five. In order to attain those goals the country's Ministry of Health is working hard to secure investment funds for the field of health and medical care, strengthen operation and management systems, and capability of medical facilities, and train the necessary human resources, but at many medical care installations that actually receive patients the facilities and equipment are in a sorry state of deterioration from long years of use, making them unable to provide their patients with adequate medical care services.

The National Institute of Pediatrics (NIP), the target site of this project, was originally set out on the grounds of the Bach Mai hospital in 1967, but later, in 1975, with assistance from the Swedish government facilities were built and equipment was procured for it at its present location, where it has



been operating since 1981. That government subsequently provided it technical assistance in hospital operation and management, but that cooperation was discontinued in 1999 on the basis of the judgment that it was capable of accomplishing operation and maintenance on its own. It is now operating as a highly specialized medical care center in the field of pediatrics and, having gained the trust and confidence of the Vietnamese people, receives a large number of patients referred to it by many other hospitals. However, the NIP's medical equipment and apparatus has been in use for more than twenty years since the installation was first established, it is no longer in very good condition, and that is recognized to be an obstacle to provision of its patients with adequate medical care services. The NIP is called for the improvement of the medical service by urgently replacing medical equipment. That is why the Vietnamese government has made a request to the Japanese government for the necessary funds for provision of the medical equipment and apparatus urgently needed by the NIP in order to improve its medical care services.

In response to a request from the Viet Nam, the Government of Japan decided to conduct a basic design study on this Project and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Viet Nam a study team from November 4 to November 27, 2002. The team held discussions with the officials concerned of the Government of Viet Nam, 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 Viet Nam in order to discuss a draft basic design study from February 9, 2003 to February 15, 2003.

This project, by replacing mainly equipment that is urgently needed and/or lacking in its quantity for treatment, aims for recovery and improvement of medical services, the level of which has declined. The project's equipment plan has been formulated according to the following policies. The Vietnamese side takes care of the facilities.

The Criteria of Selection of Equipment by the Study Team

- (i) Old/decrepit equipment to be urgently replaced.
- (ii) Equipment that lacks in its quantity
- (iii) Equipment that is imperative for the disease treatment.
- (iv) Equipment that is used very frequency.

Table S-1 below lists the main equipment items selected for each section based on the above policies:

Table S-1 The main equipment items selected

Department	Equipment
Operating	Operating Table, Operating Lamp, Anesthesia Apparatus (with Ventilator), Electro Surgical Unit, Defibrillator, Laparo Endoscopic Surgical Set for Pediatric with Video, Gastrointestinal Fiberscope Set with Video, Colonofiberscope Set, Bronchofiberscope with TV, Ultrasonic Surgical Scapel Aparatus, Surgical Microscope for Microsurgery, Patient Monitor for Anesthesia Apparatus, Pulse Oximeter, Infusion Pump, Syringe Pump
X-ray	X-ray Diagnostic TV System, General X-ray Machine, Mobile X-ray Machine, C-arm X-ray TV System for Surgery, Ultrasound Portable, Automatic X-ray Film Processor
ICU	Low Pressure Continue Electro Suction Pump, Electric Suction Pump, Ultrasonic Nebulizer, Infant Incubator, Infant Ventilator, Bed Side Monitor with Capnography, Pulse Oximeter with Capnography, Syringe Pump, Infusion Pump
Premature	Infant Incubator, Electric Suction Pump, Low Pressure Continous Suction Pump, Color Ultrasound, Doppler, Infant Ventilator, Pulse Oximeter, Oxygen Monitor, Bilirubin Analyzer, Infusion Pump, Syringe Pump

The implementation of this project, which starts with the exchange of notes (E/N) between the governments of Viet Nam and Japan and followed by the conclusion of contracts with equipment suppliers, is estimated to take about eleven months for completion. About 1.5 months are needed for detailed design and 2.0 months for tendering procedures. Procurement, transportation, and installation of equipment are estimated to take about 7.5 months after the approval of procurement contracts by the Japanese government.

Implementation of this project is expected to bring about various benefits as described below:

(1) Direct Beneficial Effects

- 1) The increase in the number of patients is expected by the ability of the required medical service to a patient to be offered by this project.
- 2) By renewal equipment and supplementing deficient items, NIP will be able to improve the function of diagnosis and medical treatment.

(2) Indirect Beneficial Effects

- 1) The improvement of diagnosis and medical treatment accuracy leads to reduction of patient's corporal and mental burden, and reservation of the safety under diagnosis and medical treatment.
- 2) The recovery of the proper functions of the target facilities will enable them to act as the top referral facilities, such as the enrichment of technical guidance to other medical facilities and appropriate medical care for referred patients.

To ensure that the project will be executed and completed without delay and that the equipment will be operated smoothly and effectively after installation so that the initial project goals will be achieved, certain groundwork needs to be done by the Vietnamese as listed below.

(1) Organization and Manpower

It is desirable to construct a system of central management, and a project implementation committee consisting of the director of the NIP and heads of the Department of Health, etc should hold regular consultation concerning the management of equipment.

(2) Finance and Financial Planning

- 1) Financial plans should be made and the balance of income and expenditure should be grasped monthly.

It is necessary to keep track of the income and expenditure of each hospital, not only in terms of the current management costs of the hospitals but also setting an eye to future renewal of equipment and improvement of hospital functions. Monthly costs of medical equipment costs must be grasped clearly, and be ensured it.

- 2) In addition to securing the funds for paying the operation and maintenance costs of the hospital, funds should be reserved for the renewal of equipment due to the passage of the service life of equipment and the aging of equipment.

The results of our field survey indicated that many of the existing equipment items have been used for over 20 years after procurement, and there are problems of the functionality and safety of equipment. To solve these problems for the future, it is necessary to reserve funds for the renewal of equipment, not depending on the implementation of this project. Projections concerning the service life and aging of equipment should be made for this purpose.

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**CHAPTER 1**  
**BACKGROUND OF THE PROJECT**

## Chapter 1 Background of the Project

### (1) Background of Grant Aid Request

Vietnamese health indices in the field of pediatric medical care such as an infant mortality rate of 30 per 1,000 births and a mortality rate of children under age five of 39 per 1,000 births (source: The State of the World's Children 2002 by UNICEF) are recognized as still leaving a lot of room for improvement. Furthermore, the country's structure of pediatric diseases, in which infectious diseases and respiratory ailments rank highest, followed by pregnancy complications, infant mortality due to low weight at birth, perinatal newborn lung ailments and other serious maternal and child related diseases and ailments. In this situation, the Ministry of Health of Viet Nam is working hard to secure investment funds for the field of health and medical care, strengthen operation and management systems, and capability of medical facilities, and train the necessary human resources, but at many medical care installations that actually receive patients the facilities and equipment are in a sorry state of deterioration from long years of use, making them unable to provide their patients with adequate medical care services.

The National Institute of Pediatrics (NIP), the target site of this project, was originally set out on the grounds of the Bach Mai hospital in 1967, but later, in 1975, with assistance from the Swedish government facilities were built and equipment was procured for it at its present location, where it has been operating since 1981. That government subsequently provided it technical assistance in hospital operation and management, but that cooperation was discontinued in 1999 on the basis of the judgment that it was capable of accomplishing operation and maintenance on its own. It is now operating as a highly specialized medical care center in the field of pediatrics and, having gained the trust and confidence of the Vietnamese people, receives a large number of patients referred to it by many other hospitals.

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(2) Outline of Grant Aid Request

- 1) Date of Request: February, 2001
- 2) Amount of Request: 1,240 million yen
- 3) Description of Request: Improvement of medical equipment of the NIP

General X-ray Machine, CT scanner, Endoscopes, Suction Pump, Operating Table,  
Operating Light, Infant Incubator, etc. Total 261 items

(3) Alteration of the Content of Request

This project, by replacing mainly equipment that is urgently needed and/or lacking in its quantity for treatment, aims for recovery and improvement of medical services, the level of which has declined. The Vietnamese side takes care of the facilities. The main items of equipment to be provided in the project are indicated in Table 1-1.



Table 1-1 The Main Items of Equipment to be provided in the Project

Department	Equipment
Operating	Operating Table, Operating Lamp, Anesthesia Apparatus (with Ventilator), Electro Surgical Unit, Defibrillator, Laparo Endoscopic Surgical Set for Pediatric with Video, Gastrointestinal Fiberscope Set with Video, Colonofiberscope Set, Bronchofiberscope with TV, Ultrasonic Surgical Scapel Aparatus, Surgical Microscope for Microsurgery, Patient Monitor for Anesthesia Apparatus, Pulse Oximeter, Infusion Pump, Syringe Pump
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