

No. 1

Ministry of Social Affairs
The Republic of Indonesia

BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR THE CONSTRUCTION
OF THE NATIONAL VOCATIONAL REHABILITATION CENTRE
FOR DISABLED PEOPLE
IN
THE REPUBLIC OF INDONESIA

January, 1996



JAPAN INTERNATIONAL COOPERATION AGENCY
PACIFIC CONSULTANTS INTERNATIONAL

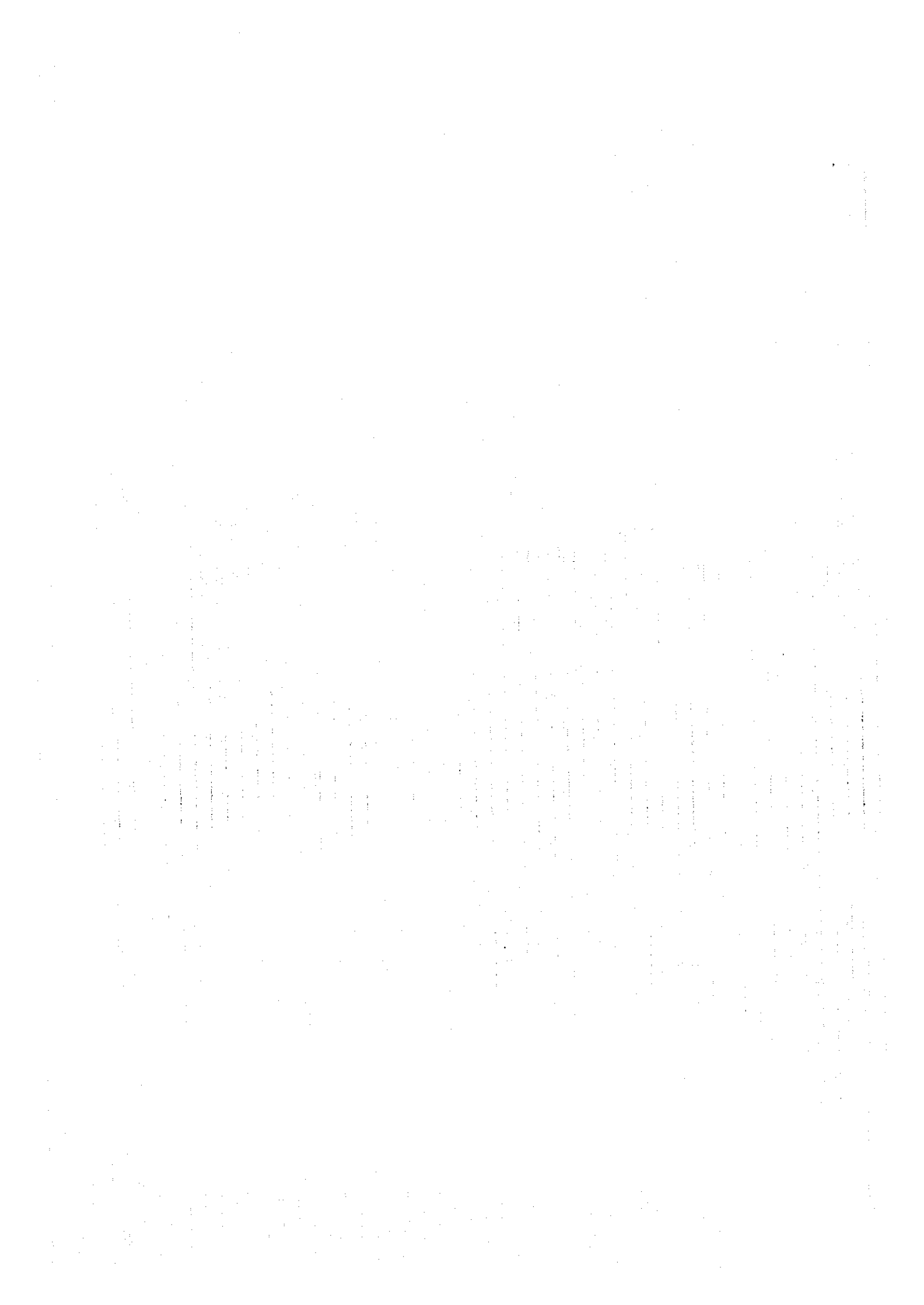
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PREFACE

In response to a request from the Government of the Republic of Indonesia, the Government of Japan decided to conduct a basic design study on the Project for Construction of National Vocational Rehabilitation Centre for Disabled People and entrusted the study to the Japan International Cooperation Agency (JICA).

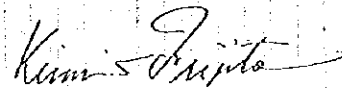
JICA sent to Indonesia a study team from 17 August to 9 September, 1995.

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

January, 1996



Kimio Fujita

President

Japan International Cooperation Agency



January, 1996

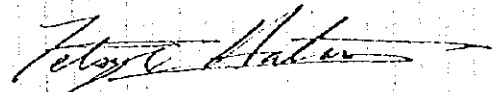
LETTER OF TRANSMITTAL

We are pleased to submit to you the basic design study report on the Project for Construction of National Vocational Rehabilitation Centre for Disabled People in the Republic of Indonesia.

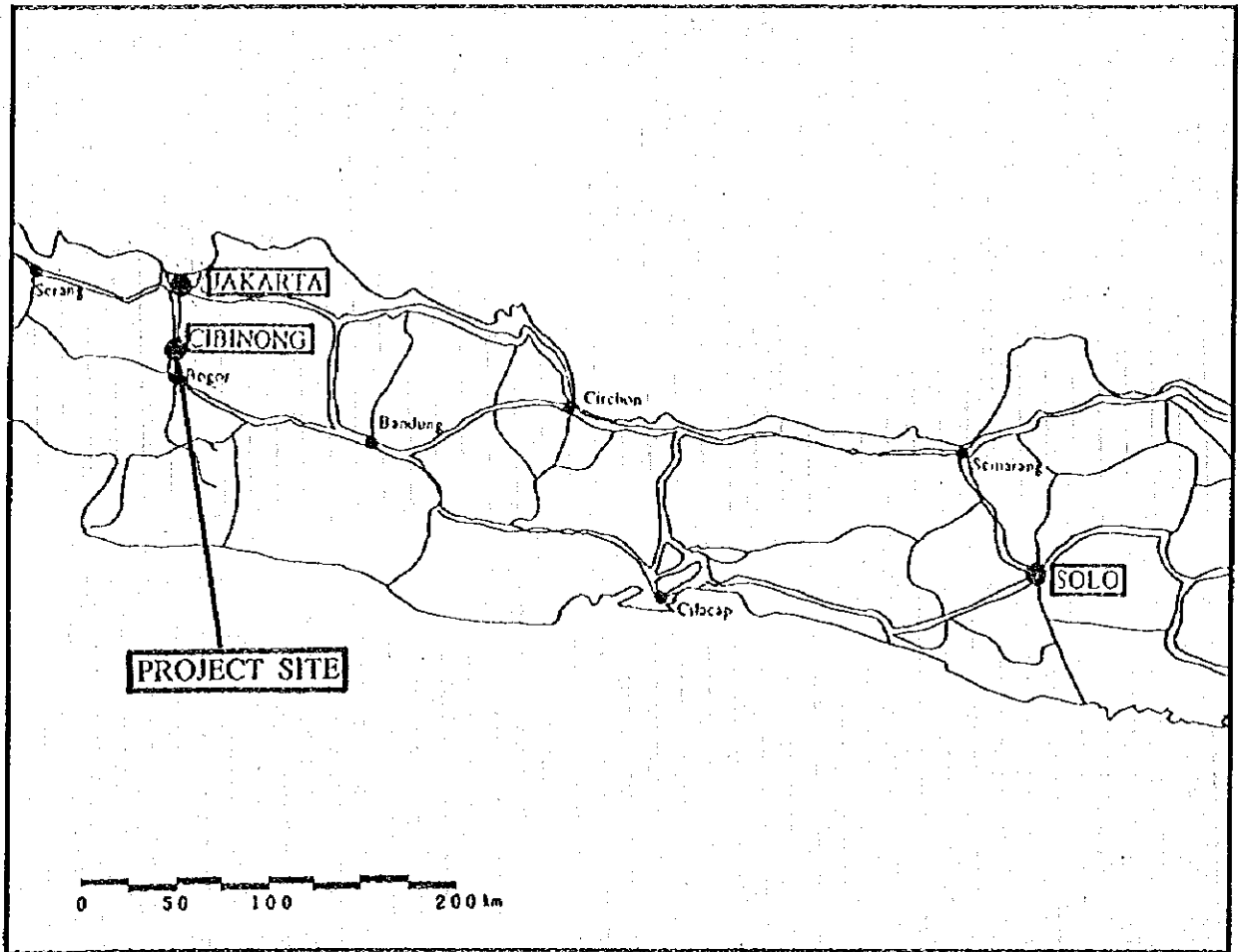
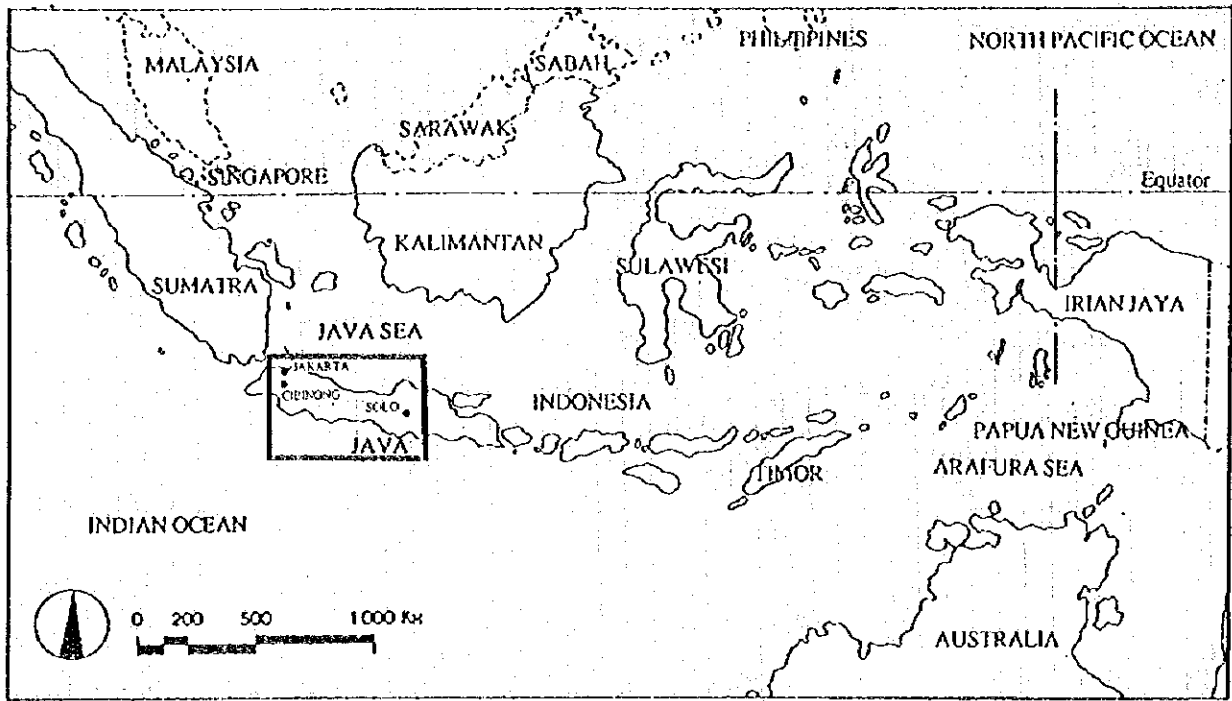
This study was conducted by Pacific Consultants International, under a contract to JICA, during the period from 11 August 1995 to 31 January 1996. In conducting the study, we have examined the feasibility and rationale of the Project with due consideration to the present situation of Indonesia and formulated 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.

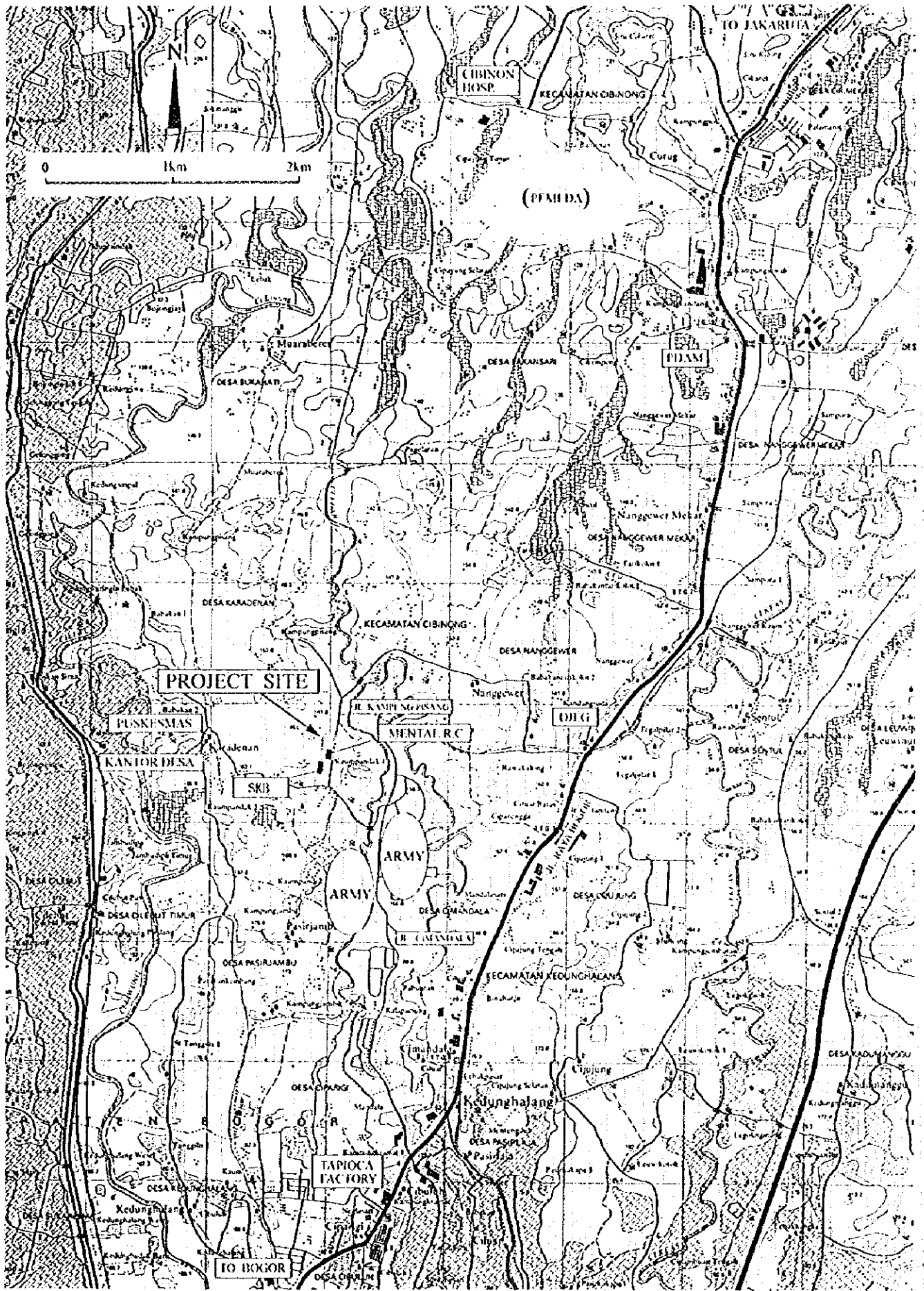
Very truly yours,



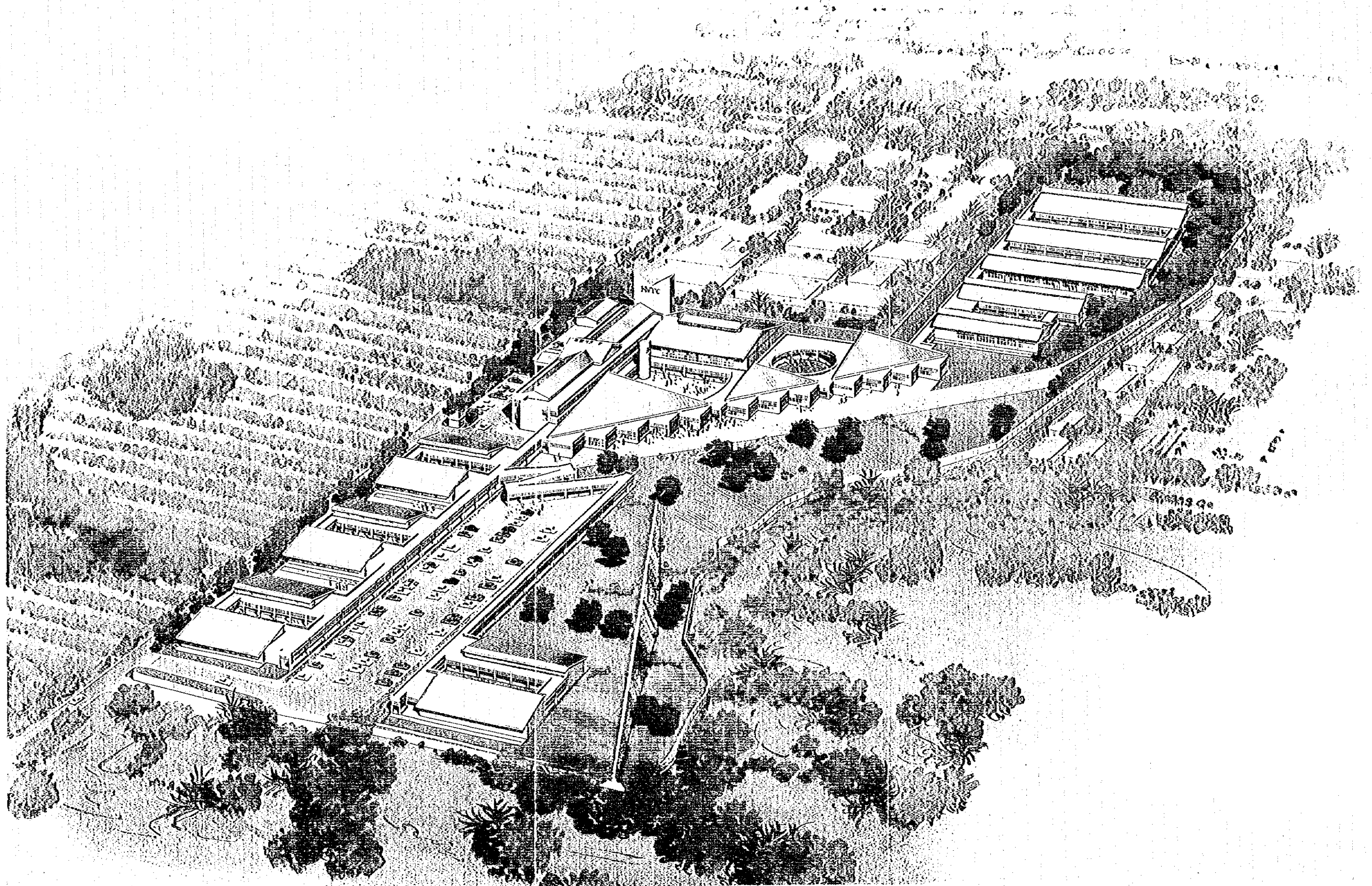
Tetsuji Hatano
Project Manager,
Basic design study team on
The Project for Construction of
National Vocational Rehabilitation
Centre for Disabled People
Pacific Consultants International



Location Map of Project Site - 1



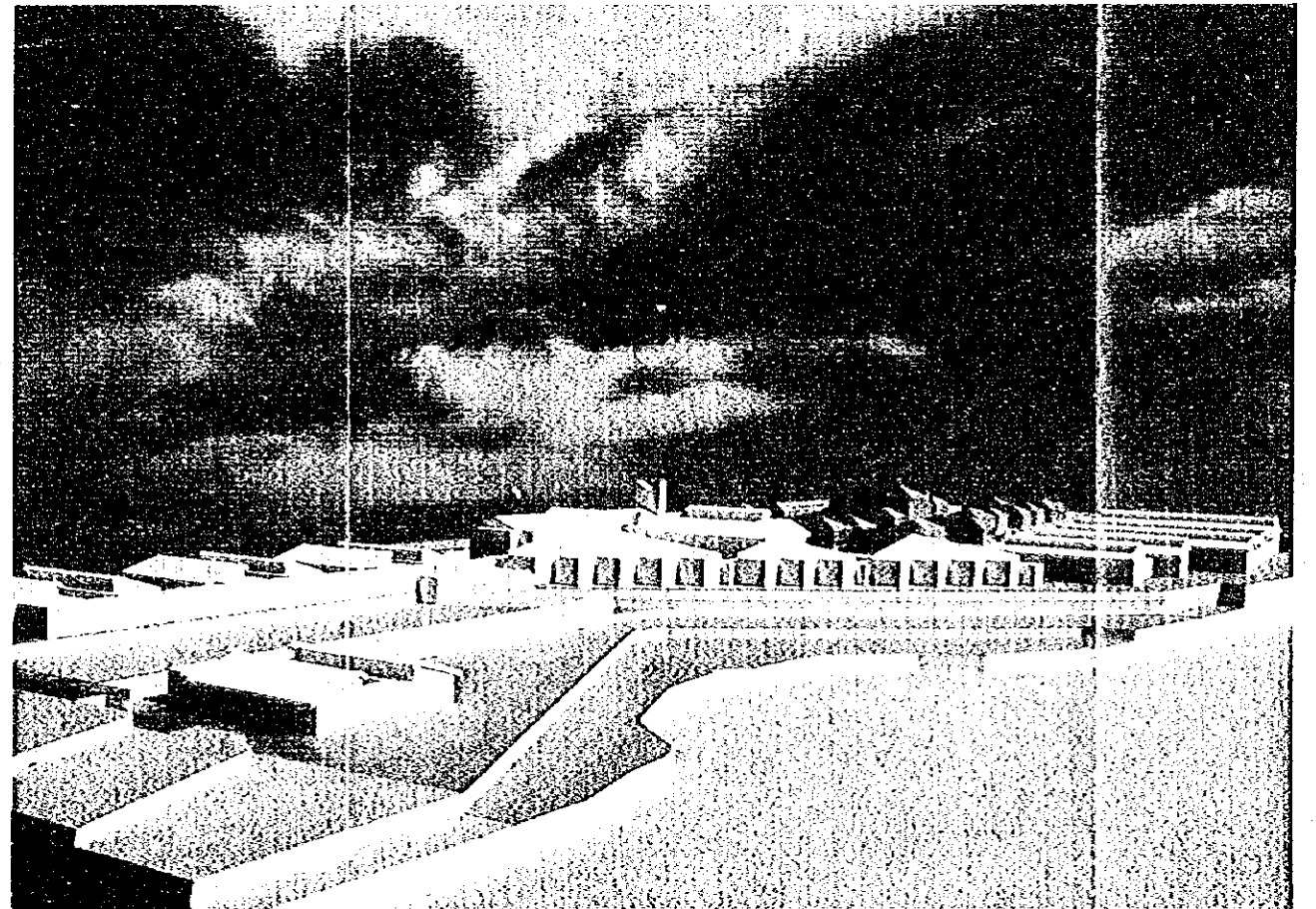
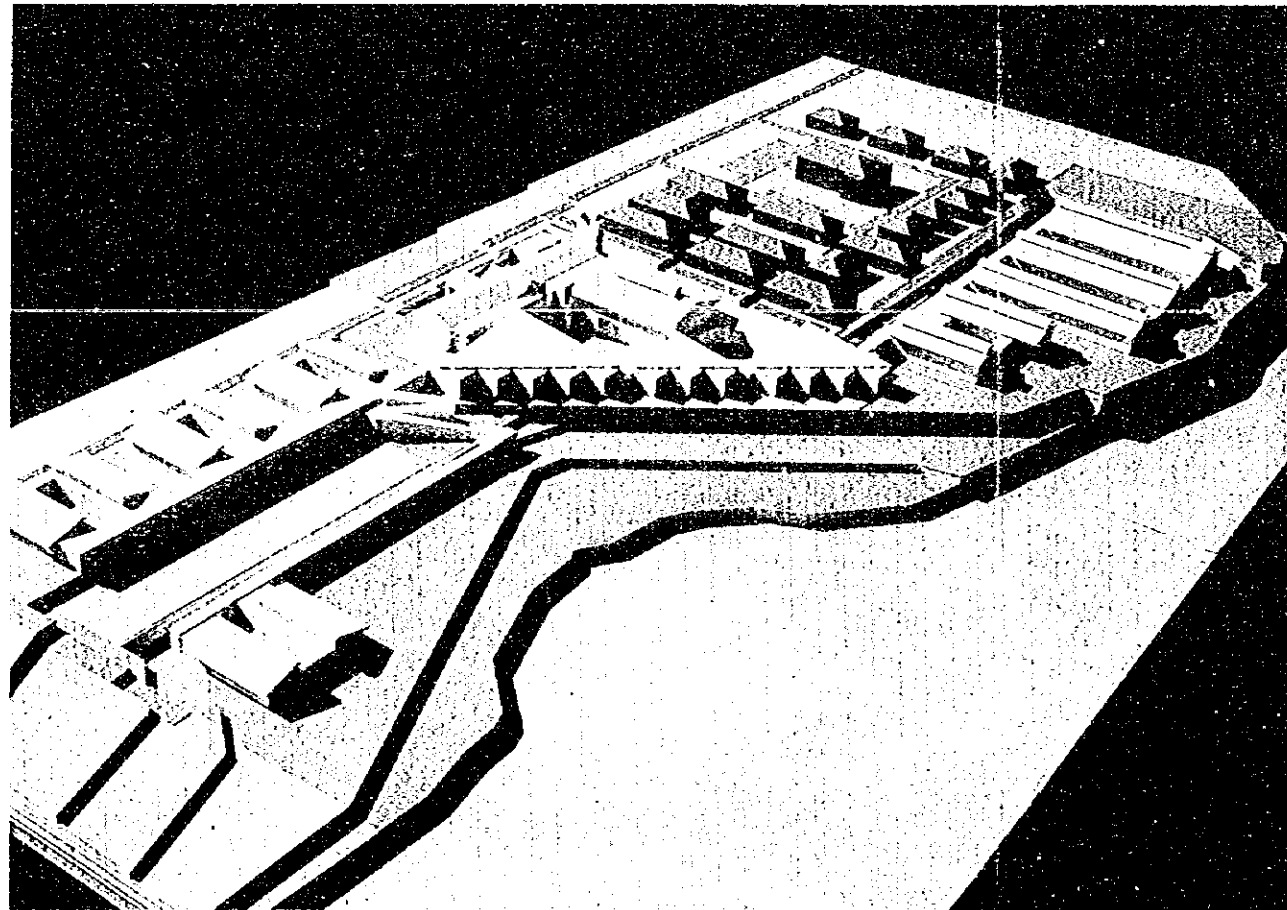
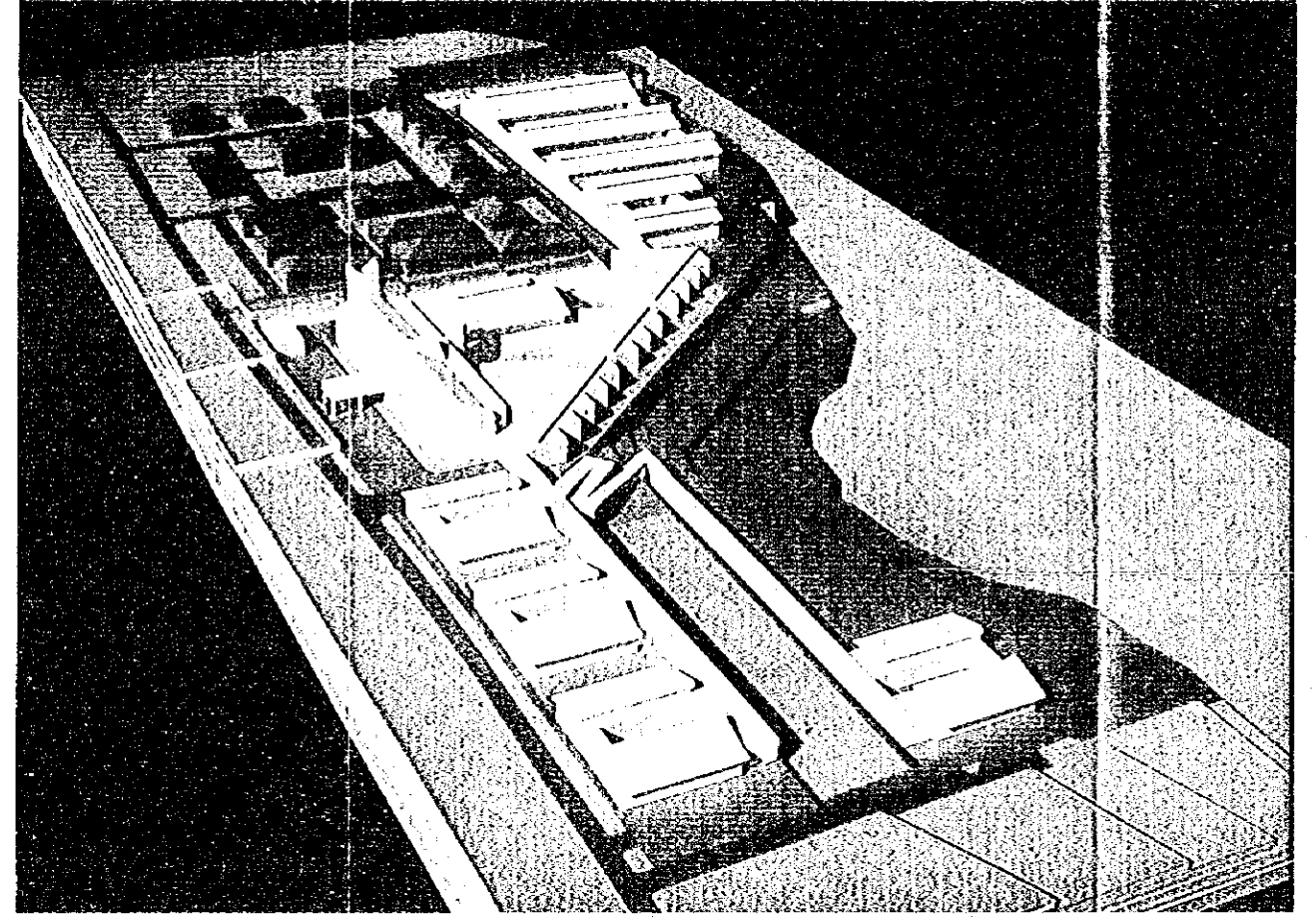
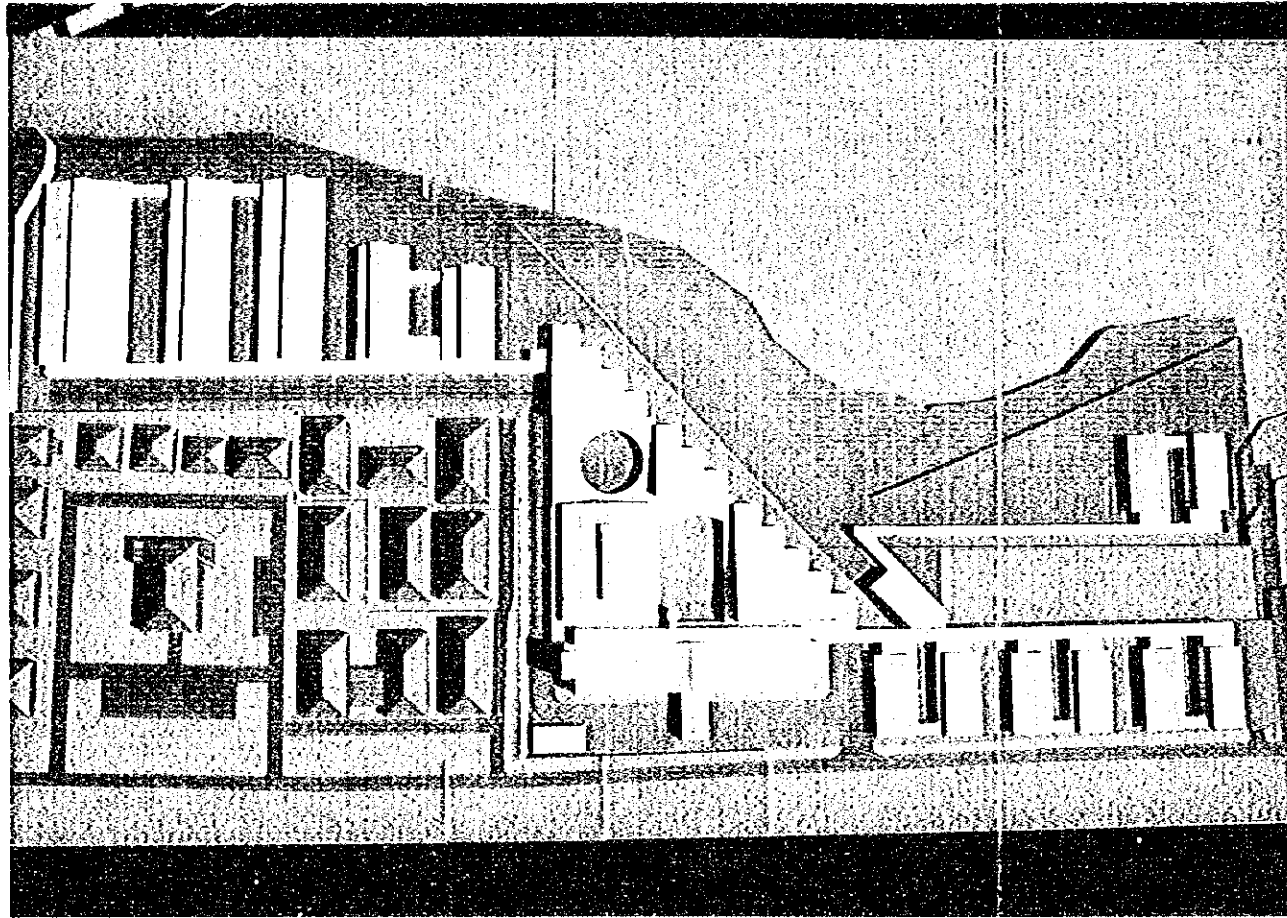
Location Map of Project Site - 2



The Project for Construction of National Vocational
Rehabilitation Centre for Disabled People

PACIFIC CONSULTANTS INTERNATIONAL

Perspective



The Project for Construction of National Vocational
Rehabilitation Centre for Disabled People

Abbreviations

A/V	Audio Visual
CEVEST	The Centre for Vocational and Extension Service Training
DEPSOS	Directorate General for the Development of Social Rehabilitation
JICA	Japan International Cooperation Agency
KUP	Kelompok Usaha Produktif
LBK	Local Bina Karya
LP Gas	Liquefied Petroleum Gas
MDF	Main Distribution Frame
MRU	Mobile Rehabilitaion Unit
NGO	Non-Governmental Organization
NVRC	National Vocational Rehabilitaion Centre
PABX	Private Automatic Branch Exchange
R.C.	Rehabilitation Centre
R&D	Research & Development
T.O.R	Terms of Reference

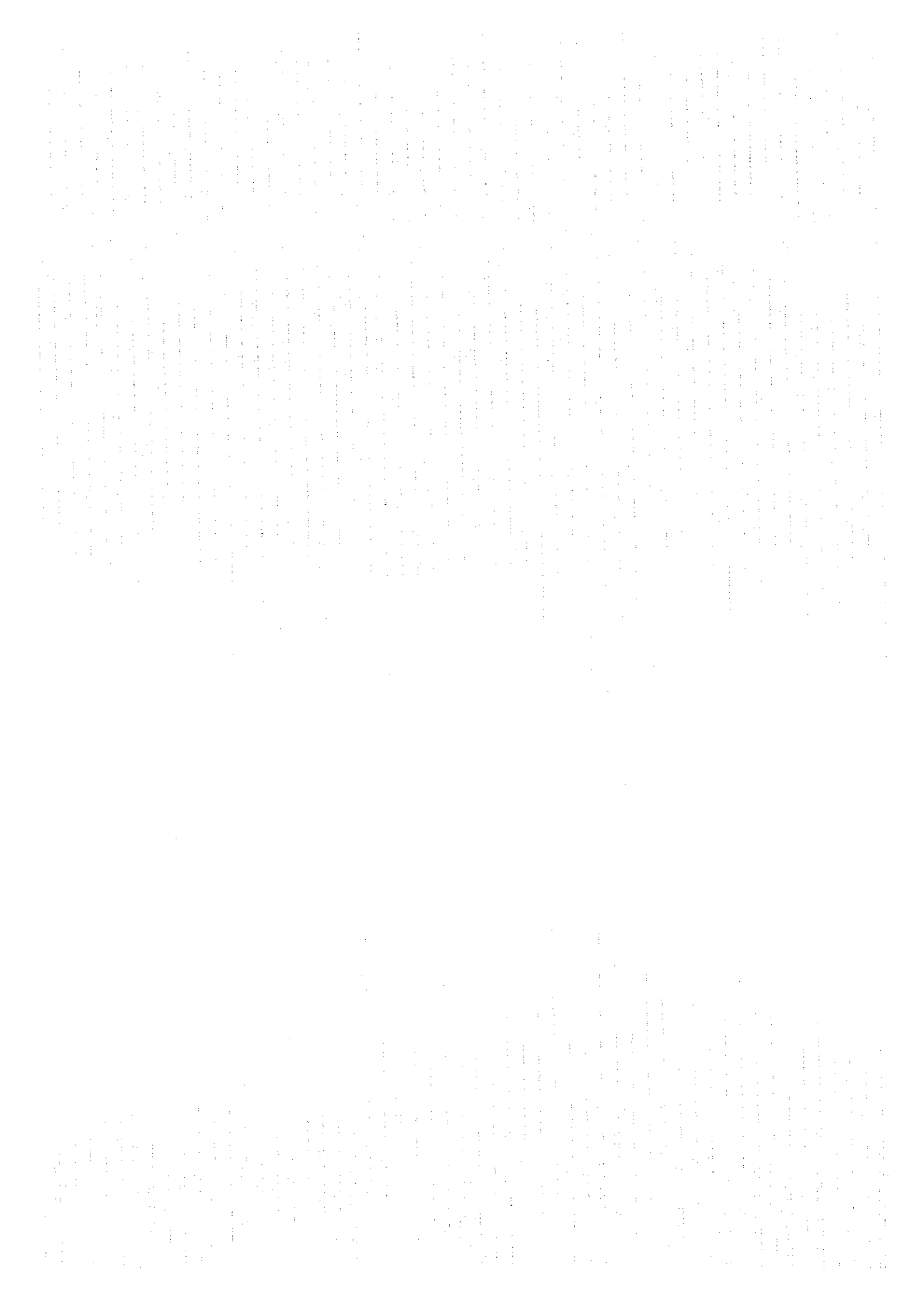
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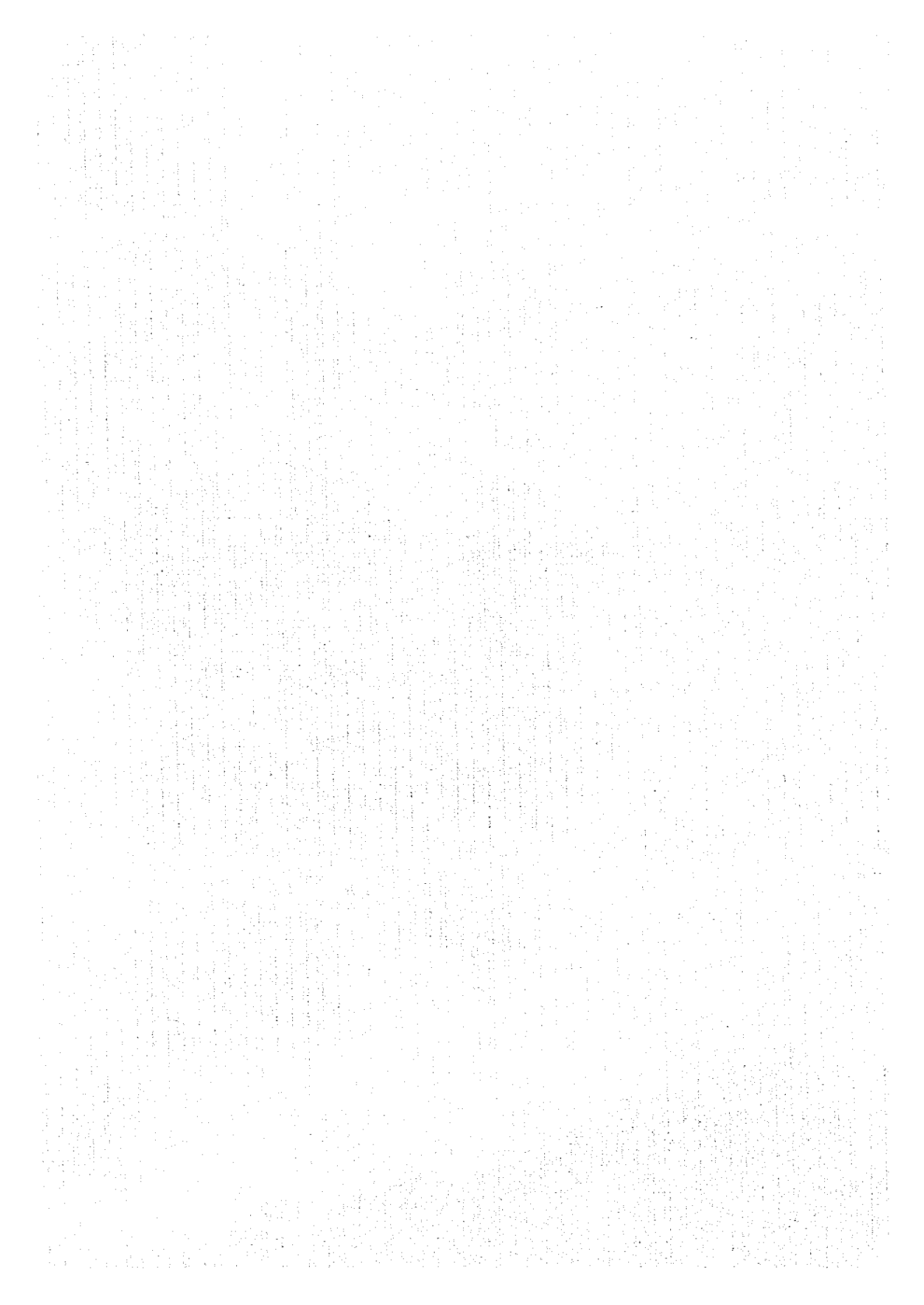
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CHAPTER 1 BACKGROUND OF THE PROJECT



CHAPTER 1 Background of the Project

1-1 Background of the Request

Indonesia is the world's largest archipelago consisting of about 13,600 islands of various sizes. The total population is currently about 189 million and is expected to become about 210 million by the year 2000 with a 2.1% growth rate annually. Amongst these, there are about 5.6 million disabled people (approximately 3.11% of the total population) residing all over the country.

In the last 25 years, the country has achieved remarkable development in the economic and social areas with a 6.8% economic growth rate annually. However, social welfare for disabled people has not yet developed sufficiently, because of the large number of disabled people and the widely spread islands. At present in 1995, the 6th Five-year Development Plan (REPELITA VI) is being promoted. In this plan, the development of social welfare services is one of the important subjects in conjunction with a durable economical growth.

Rehabilitation Service Management is conducted through the 37 public rehabilitation centres (R.C.), and many non-institutional systems which are outside of the centres. Rehabilitation centres consist of 2 PUSAT (National Level RC), 21 PANTI (Provincial Level RC) and 13 SASANA (District Level RC), and one Printing House (refer to Appendices-12, 13, 14, 15). The rehabilitation centre for physically disabled people, Prof. Dr. Soeharso (R.C. Solo), which started in 1946 as a rehabilitation centre for soldiers, has been carrying out the very important role as the only centre for physically disabled people at the national level. In all these centres, vocational training and job placement services for disabled people are offered.

However, job opportunities for disabled people are still very limited with only a 20% employment rate for people who have completed their vocational training, and thus job placement is one of the serious issues. The level of the existing vocational training is not sufficient for the needs of the advancing employment market in Indonesia, primarily due to the out-dated condition of the vocational training, which is characterized by an outdated training program with old equipment and insufficient rehabilitation personnel.

On the other hand, the role of the non-institutional systems, such as the Mobile Rehabilitation Unit (MRU), Working Guidance Station (LBK), Group of Productive Channels (KUP), etc. is highly regarded as having an important function in the Indonesia's widely spread islands. These systems also have a serious problem of a shortage of rehabilitation personnel.

Staff training for rehabilitation personnel has been offered 29 times, and only at R.C. Solo, without any organized plan. The strengthening of vocational training for disabled people by modifying and improving staff training, as well as the establishment of a research and development division, which is not carried out yet in Indonesia, are requested.

With an increased demand for rehabilitation services in both quantity and quality, the functions of rehabilitation centres need to be improved. Under these circumstances, the Government of the Republic of Indonesia requested to the Japanese Government for the technical cooperation to develop a vocational rehabilitation system. In response to this, the Project Type Technical Cooperation (PTTC) Team was dispatched to R.C. Solo in December 1994.

In parallel with the above cooperation, the Government of Indonesia, has realized the importance of establishing a new National Vocational Training Centre (NVTC) for the Rehabilitation of Disabled People conceptualized as "the Centre of Centres", with the construction of facilities and provision of equipment through Japan's Grant Aid.

In response to this request, the Japanese Government decided to conduct a Preliminary Study, and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Indonesia a Preliminary Study team, which was headed by Mr. Hideki Abe, from March 12 to 25, 1995.

As a result of discussions with the officials concerned from the Government of Indonesia and a field survey, the Japanese Government confirmed the necessity and urgency of the project and dispatched a Basic Design Study team from 17 August to 9 September 1995 to formulate a basic design for the Project.

Based on the result of the Basic Design Study, the propriety of the Project and the determination and evaluation as to the extent and contents of the Project were determined. The result of the study in detail is described in a Draft Report, with JICA dispatching a Study team for the explanation of the Draft Report, and this result, the present report was finalized.

1-2 Components of the Request

The contents of the request from the Government of Indonesia to the Japanese Government have been carefully examined for its propriety and necessity based on the result of the Preliminary Study by the Japanese Government. Next, the Basic Design Study was executed confirming the study result of the Preliminary Study and examining further details of the request.

The contents of the request, concerning the Establishment of the National Vocational Training Centre for the Rehabilitation of Disabled People, mutually agreed between the Government of Indonesia and the Japanese Government in the Minutes of Discussions dated August 24, 1995 (refer to Appendix-4) are as follows:

< Minutes of Discussions dated on August 24, 1995 - Annex 2 >

REQUESTED FACILITIES AND EQUIPMENT FOR THE PROJECT

The contents of the request finally submitted by the Indonesian side are as follows, regarding the facilities and equipment:

1. Facilities

- 1) Vocational Training Building for 100 disabled people
- 2) Work Preparation Building
- 3) Staff Training Building
- 4) Research & Development Building
- 5) Dormitories
 - a) Dormitory for Disabled People
 - b) Dormitory for Rehabilitation Staff Training
- 6) Resocialization Building
- 7) Administration Building
- 8) Dining Room and Kitchen
- 9) Multipurpose Hall

2. Equipment

Necessary equipment for above facilities

Note:

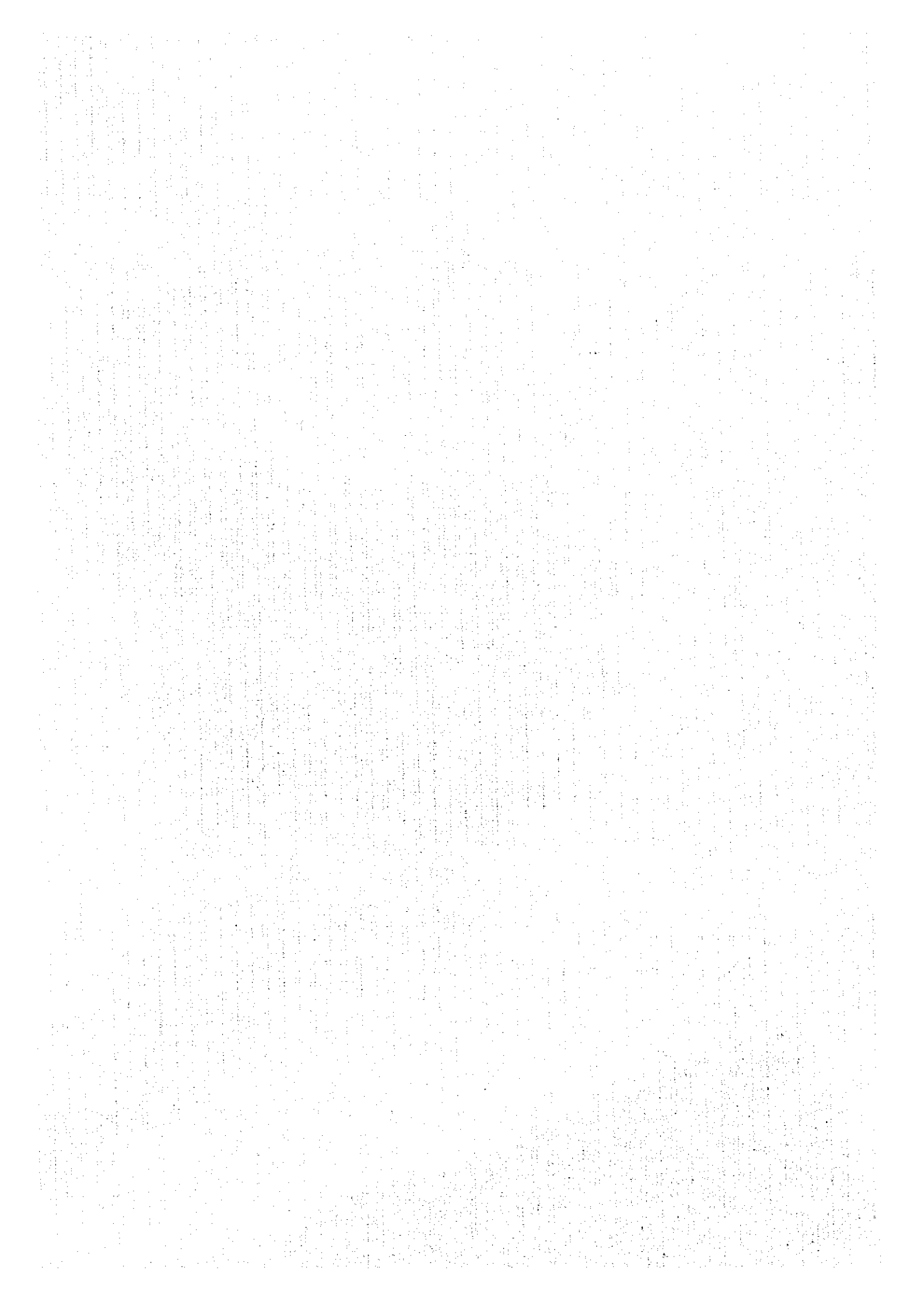
1. Both sides confirm that each item mentioned above includes the necessary common spaces such as corridors, storage, toilets, machine room, the necessary utilities such as electricity, water supply sewage, etc. The details of such common spaces and utilities will be discussed further between the Japanese and the Indonesian side.
2. The contents of equipment will be determined after further studies.

The above requested facilities and equipment are based on the following project conditions, which are also agreed between the Government of Indonesia and the Japanese Government.

The three main functions of this centre will be 1) Advanced Vocational Training, 2) Staff Training, and 3) Research & Development. The target of vocational training is limited to the lesser physically handicapped. The facilities should consider the scale formulated based on the number of trainees, and the use of wheelchairs. Based on the result of discussions with the Indonesian side, the number of trainees for the Vocational Training Course is set at 100 with 30 for the Staff Training Course.

The facilities are planned based on the further study according to the tentatively proposed facilities' floor area which was prepared and mutually agreed by the study team and the Indonesian side after the signing of the Minutes of Discussions (refer to Appendix-4).

CHAPTER 2 CONTENTS OF THE PROJECT



CHAPTER 2 Contents of the Project

2-1 Object of the Project

The immediate objective of this project is construction of National Vocational Rehabilitation Centre for disabled people, which provides; (1) advanced vocational training for the rehabilitation of disabled people; (2) staff training for rehabilitation personnel; and (3) an enhanced research and development capacity on rehabilitation and disability issues. The extent of the effect contributed by the project will be great; the production of better prepared and competent rehabilitation personnel, as well as improving the rehabilitation quality. We envisage that the ultimate goal of the project is to promote the social status of disabled people by giving them better opportunities for participating in the labour market.

2-2 Basic Concept of the Project

In this chapter, the contents of the request have been examined and the basic direction of the project has been formulated in order to establish the optimum plan. The basic concept of the project is focused particularly on the specific nature of Japan's Grant Aid Programme; assisting and enhancing the recipient country's self-effort.

2-2-1 Study Result of the Contents of the Project

Based on the contents of the request mutually agreed between the Government of Indonesia and the Japanese Government, which is mentioned in Chapter 1-2, the Basic Design Study Team discussed and studied with the Indonesian side the project condition and scale of facilities. The number of rooms and the area of each room is formulated tentatively as shown in Appendix-18. The contents of the requested facilities were finally submitted by the Government of Indonesia as shown in the following priority order.

- 1) Vocational Training Building for 100 disabled people
- 2) Work preparation Building
- 3) Staff Training Building
- 4) Research & Development Building
- 5) Dormitories
 - a) Dormitory for Disabled People
 - b) Dormitory for Rehabilitation Staff Training
- 6) Resocialization Building
- 7) Administration Building
- 8) Dining Room and Kitchen
- 9) Multipurpose Hall

2-2-2 Study and Examination of the Contents of the Request (Facilities)

The facility scale and number of rooms in the above table (Appendix-18) were carefully studied for their propriety and the result of the study, which will be the basis of the Basic Design, is as described below.

(1) Examination on the Proposed Facility Scale

Before proceeding with this project, an assumption of the capacity must be examined. Based on the discussions held during the field survey, each division will have the following capacities:

1) **Advanced Vocational Training:**

The total number of trainees for advanced vocational training in the NVRC is 100 with 20 people divided into 5 courses.

2) **Staff Training:**

The total number of staff trainees is 30 divided into staff personnel, technical personnel and other rehabilitation personnel.

3) **Research and Development:**

The total number of staff to be involved in research and development of rehabilitation issues is 7.

The above assumptions, which were mutually agreed by both the Japanese and Indonesian sides, are reasonable for the Project. The construction of the NVRC will be designed and planned based on these assumptions.

(2) **The Number of Rooms for the Dormitory**

The total number of rooms for the dormitory for the trainees in the Advanced Vocational Training is 25.

(If there are 4 trainees to a room, 25 rooms are required for a total of 100 trainees.)

(3) **Subjected Disabled People for Advanced Vocational Training**

The subjected disabled people for the advanced vocational training in the NVRC, are to be people who have only minor physical disabilities and may require the aid of a wheelchair. Blind, deaf and dumb or mentally disabled people are not included in principle.

(4) **Contents of each Division**

The following courses will be available for each division in the NVRC:

1) **Advanced Vocational Training**

- a) **Metal Work**
 - Machining
 - Small Engine Repair
 - Welding
- b) **Electronics**
 - Electronic Equipment Assembly
 - Home Appliance Repair
- c) **Computer**
- d) **Printing**
- e) **Textile Work**

- 2) Staff Training
 - a) Staff Personnel
 - b) Technical Personnel
 - c) Other Rehabilitation Personnel
- 3) Research & Development (R & D)
 - a) Rehabilitation Personnel
 - b) Facilities
 - c) Rehabilitation Equipment
 - d) Methodology

(5) Level of Advanced Vocational Training

The level of the advanced vocational training for the NVRC, aims for disabled people to be able to participate in the labour market, and is between the levels of Pasar Rebo in Jakarta and Yakkum R.C. by NGO in Yogyakarta. In regard to the computer and textile work courses, the level will be similar to that at Solo R.C. or slightly up-graded.

2-2-3 Study and Examination of the Contents of the Request (Equipment)

Through the basic design study, it was reconfirmed that the scope of the project was to provide equipment for above mentioned five training courses in the Advanced Vocational Training as well as to introduce additional functions of staff training and research and development to the facility.

The results of discussions with relevant authorities in Indonesia concerning the requested equipment are summarized as outlined below:

- 1) Instruments that are not used in similar facilities such as the R.C. Solo, and instruments that require high-level operation techniques and skills, which exceed the technical levels of trainees and instructors of the proposed facility, are included in the requested equipment list.
- 2) General furniture and fixtures for the Administrative Division that are supposed to be installed by the recipient country under the Grant Aid system guidelines are included in the list.
- 3) Equipment that is necessary for training based on the curriculum of R.C. Solo for disabled people is included for three training courses other than 3) Computer and 4) Textile Division.
- 4) While equipment necessary for staff training is currently being acquired, such equipment is requested based on the curriculum for training staff, who are involved in vocational rehabilitation programs throughout Indonesia.
- 5) Equipment to be used for processing collected data is included in the list for the R & D Division.

Results that came out, after examining the major equipment requested for each training course, staff training, R & D, the Administrative Division, and accommodation facility for the trainees and staff, are as follows:

(1) Metal Work

1) Machining

Engine units for training included in the list are necessary for acquiring skills for repairing motorcycles, cultivators, and so forth and useful for the practical training of disassembly, assembly, testing, and operation. Also, measuring instruments for engines such as a cylinder compression gauge, chamber tester, nozzle tester, and micrometer as well as general-purpose tools such as compressed air tools and wrench sets are indispensable to this training course.

2) Small Engine Repair

Such large training instruments as lathes, milling machines, drilling machines, and grinding machines of various types as well as various measuring instruments, processing tools and hand tools, which are also installed at R.C. Solo, are basic instruments necessary for giving machining training for beginners.

3) Welding

Such welding and cutting machines as an arc welding machine, gas welding kit, and pipe bender are indispensable to acquiring welding techniques. Welding machines to be used in the Home Appliance Division are covered in this course and will not be duplicated.

(2) Electronics

1) Electronic Instrument Assembly

AM modulation and demodulation system, FM modulation and demodulation system, portable illuminometer, and frequency meter are necessary for basic training of electronic techniques.

2) Home Appliance Repair

Products such as a television, radio, cassette tape recorder, refrigerator, iron, toaster etc. are indispensable to the acquisition of skills for disassembly, assembly, testing, and operation. A color TV and clamp meter and other measuring instruments are also essential for practical training of this course.

(3) Computer

Computers, printers, and other office equipment to be used mainly for the training of word processing and data base are being requested. These items have already been provided to the R.C. Solo through a project type technical cooperation project, and relevant training has been conducted without major problems.

Vocational training centres for ordinary people, which fall under the jurisdiction of the Ministry of Manpower, are about to begin computer repair training programs and are now conducting training for word processing and data base, using computers as office equipment.

(4) Printing

The course aims at giving training for offset press operations conducted in small-to medium-sized companies rather than advanced printing techniques used in large corporations that print packaging materials and stickers. Thus, the requested equipment is comprised of computers necessary for pre-processing, printer, small-sized offset press, and other instruments so that the whole printing process can be learned.

(5) Textile

Sewing machines of various types, including a 1-needle lock stitch machine, safety stitch machine, and button sewing machine; as well as industrial irons with vacuum press tables, cutting machines, body models for three dimensional cutting, sewing tool kits, etc. are indispensable for the training of sewing techniques and deemed necessary considering the fact that the same types of equipment are successfully utilized in R.C. Solo.

(6) Administrative Division/Accommodation Facility for Trainees and Staff

Buses to provide transportation for trainees and staff; copy machines and typewriters to be used in the Administrative Division; and beds, desks and chairs for the accommodation facility for trainees and staff are deemed necessary. Kitchen equipment shall be provided separately as a portion of the facility construction.

It should be noted that fixtures and general furniture requested for the five training courses, staff training, R & D, and the Administrative Division are assumed to be installed by the recipient country.

2-3 Basic Design

2-3-1 Design Concept

The basic design of the facilities and equipment in the project is based on the following design policies; with due consideration of the results of the field survey, the environmental and social conditions of Indonesia, the construction and procurement conditions, the maintenance and management ability of the facility and equipment and the construction schedule under Japan's Grant Aid assistance.

- (1) The new facilities should be considered for the use of physically disabled people including those who require the aid of wheelchair.
- (2) The good design points of relevant facilities in Indonesia and Japan should become a reference of the design, while the existing problems of the building should be improved in the plan.
- (3) The physical conditions of the space (affect of rain, sun and wind) and local customs (security, religious matters, life style and segregation of sexes) should be taken into consideration.
- (4) Design should be considered in regard to the facilities, mechanical and electrical design, and selection of equipment so as to ease the maintenance with a minimum cost.
- (5) The design and implementation of the project should be rational and comply with the schedule and activities of the Japanese Technical Cooperation expected in conjunction with this project.
- (6) Local construction methods and local materials should be considered and used as much as possible. For items of high quality and other particular items, procurement in Japan or a third country should also be considered.
- (7) On the premise that this project is executed by Japan's Grant Aid assistance, the design and implementation method of the project should be rational and comply with the schedule and guidelines formulated under the Japan's Grant Aid programme.

2-3-2 Study and Examination of the Design Criteria

(1) Basic Concept for Determination of the Facilities Scale

The determination of the facilities scale is not only a condition of the function of the facilities, but it is confined by the future operational budget as well as the activities of the NVRC.

The determination of the facilities scale is based on the following policies:

- 1) The content of the facilities and the assumption of the facilities scale should be based on the Minutes of discussions between the government of Indonesia and the Japanese Government.
- 2) Similar facilities such as R.C. Solo, Tubh Cengkareng R.C., CBR in Solo, Yakkum R.C. in Yogyakarta (NGO's R.C.), Pasar Rebo, CEVEST, Industrial R.C. in the Kingdom of Thailand, National Tokorozawa Vocational R.C., National Makuhari R.C., in Japan and National Kibikogen Vocational R.C. should be studied so as to create an optimum design for the Project.

- 3) This project is planned for the rehabilitation of physically disabled people, so the determination of the facilities scale should consider the number of disabled people which is different from the normal assumptions of facilities scale. The target of trainees is for physically disabled people excluding the visually, auditory and mentally disabled people. The Indonesian side also requested that the determination of the facilities scale should consider the use of wheelchairs.
- 4) The total capacity of the advanced vocational training courses should be designed for 100 disabled people with a course consisting of around 20 persons.
- 5) The capacity of staff training should be designed for 30 trainees, which was recognized by the Basic Design Study Survey.
- 6) The required personnel for the NVRC will be planned for 111 people. Thus, the determination of the facilities scale should be based on this assumption.

(2) Computation of the Scale of each Room

In accordance with the scale of the project mentioned in paragraph (1) Basic Concept for Determination of the Facilities Scale, the floor area is estimated based on the expected rooms and facilities for the NVRC.

The facility size will be formulated based on similar facilities in Indonesia, Japan, and other projects undertaken by Japan's Grant Aid assistance in Southeast Asia as well as discussions with experts from the Japanese Technical Cooperation in R.C. Solo.

1) Vocational Training Building

The Vocational Training Building will be the main facility of the NVRC. 5 training subjects will be implemented as follows ;

- a) Metal Work
 - Small Engine Repair
 - Machining
 - Welding
- b) Electronics
 - Electronic Equipment Assembly
 - Home Appliance Repair
- c) Computer
- d) Printing
- e) Textile Work, which was studied and confirmed in the Basic Design Study Survey.

Each subject requires a working space, classroom and storage area, based on the curriculum of R.C. Solo.

The main rooms in the Process of Vocational Training Division are as follows based on R.C. Solo, other projects undertaken by Japan's Grant Aid assistance and other facilities in Japan such as the National Tokorozawa R.C. and the National Makuhari R.C..

< Main Rooms >

- Staff room
- Metal Work Room
- Electronics Room,
- Computer Room, Printing Room
- Textile Work Room
- Classroom
- Toilet & Rest Room
- Storage
- Others.

The Computations of the scale of each room are as follows:

a) Metal Work Room

Metal Work consists of 3 courses of 1. Small Engine Repair, 2. Machining and 3. Welding.

1. Small Engine Repair is highly regarded in Indonesia for employment although it is difficult to send an expert for the Japanese Technical Cooperation. Because there is the possibility of allocating instructors and there is a plan for the training program from the Indonesian side, space for this subject should be taken in consideration.
2. Machining should be taught based on the use of ordinary lathes, as a result of studying the course level at R.C. Solo, Pasar Rebo and Yakkum R.C.
3. The teaching of welding at Cengkareng R.C. is based on acetylene and oxyacetylene gas welding. On the other hand, the level of training in CEVEST and Pasar Rebo is higher than the Cengkareng R.C.. The NVRC course should be at a level between Cengkareng R.C. and CEVEST.

The plan of metal work room should consider the layout the equipment so that people in wheelchairs can easily move around. The metal work room should also take into consideration noise, smell and gas protection.

The metal work room needs a wide space compared with the space necessary for other subjects. At the same time, the plan of the metal work room should be flexible between the space required for the each of the 3 courses.

The floor area of the metal work room in R.C. Solo is calculated as 368 square meters or 18.4 square meters per trainee.

In the NVRC, the floor area of the metal work room is calculated as a minimum of 324 square meters or 16.2 square meters per trainee, based on 20 trainees and should be considered in regard to equipment layout and the existing conditions in R.C. Solo, Pasar Rebo and CEVEST.

Figure 2-1 shows a layout plan of the metal work room.

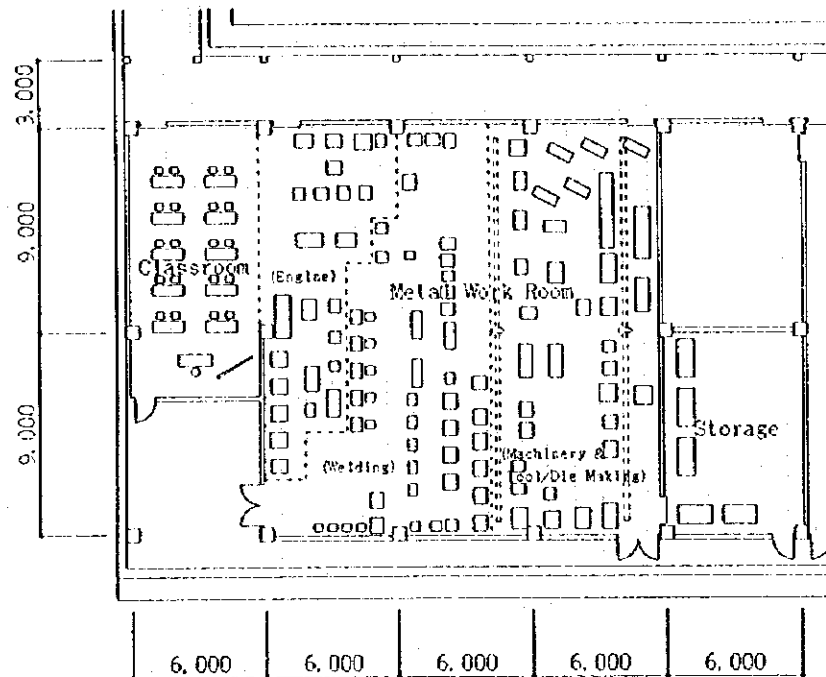


Figure 2-1 Metal Work Room

b) Electronics Room

Electronics has 2 courses of ① Electronic Equipment Assembly and ② Home Appliance Repair. ② Home Appliance Repair has a large demand in Indonesia, but it is difficult to send an expert of the Japanese Project Type Technical Cooperation. Therefore this course should consider staff and implementation programs by the Indonesian side. The targets of the placement for the electronic equipment assembly are the electronics industries such as foreign enterprises which have extended their business into Indonesia. The content of the training are basic studies such as understanding of technical drawings, instrument testing, line layout, assembling, adjustment, measurement, electronics circuits and digital circuits.

The floor areas for relevant facilities were surveyed for reference : The floor area of the radio repair room in R.C. Solo is approximately 43 square meters for 24 trainees, or an area per trainee of 1.8 square meters. As a result of the site survey, the space is small in proportion to equipment layout and work space. The electronics room in CEVEST is approximately 400 square meters and or an area per trainee of 17 square meters. The room in the National Tokorozawa R.C. in Japan is calculated as $14.2 \text{ m} \times 12 \text{ m} = 170.4 \text{ m}^2$ including a measurement room and storage.

Therefore, the floor area of electronics room is calculated as 210 square meters or 10 square meters per trainee based on the space requirement of the above facilities. Figure 2-2 shows a layout plan of electronics room.

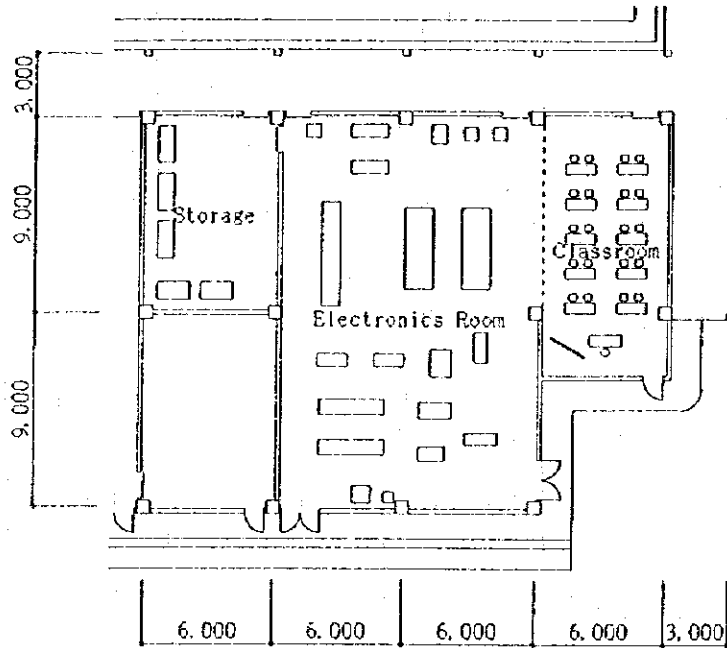


Figure 2-2 Electronics Room

c) Computer Room

The level of the computer course in the NVRC should be the same as or up-graded slightly, from the course at R.C. Solo.

The computer room in R.C. Solo is approximately 102 square meters and the area per trainee is 5.1 square meters. The plan of computer room should take into consideration the equipment layout based on the usability for disabled people, especially the location of socket outlet for computers which should have for free access. The system in R.C. Solo has installed a ceiling outlet system after renovation.

The floor area of computer room is calculated as 140 square meters for 20 trainees with 7 square meters per trainee based on the computer room in R.C. Solo and the required equipment layout for computers used by disabled people with the aid of wheelchairs.

Figure 2-3 shows a layout plan of computer room.

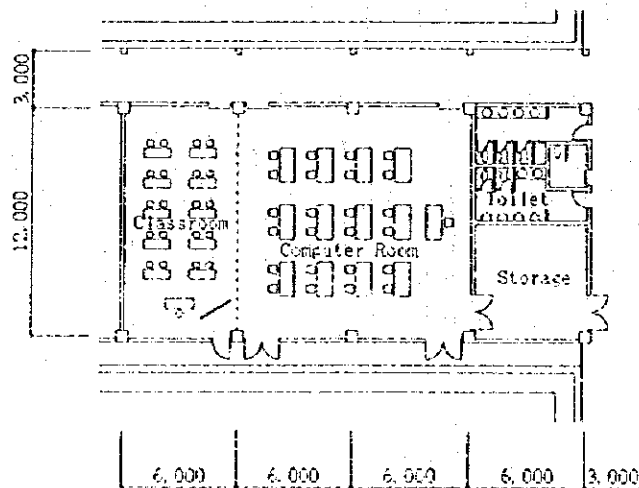


Figure 2-3 Computer Room

d) Printing Room

The content of the printing course should emphasize the pre-printing stage such as planning stage, design and making paper molds. However, the whole process of printing should be taught by including practical experience of using small off-set printing.

The printing room should be planned with consideration of the equipment layout for the movement and workability of people in wheelchairs, using the same concept as with the Metal Work Room. The pre-printing room and printing room, where an off-set printing machine will be used, should be separated.

The printing room in R.C. Solo is approximately 90 square meters and the area per trainee is 18 square meters. The floor area of the printing room is calculated as $12\text{ m} \times 12\text{ m} = 144\text{ m}^2$ for 20 trainees based on similar projects and the layout of equipment. Figure 2-4 shows a layout plan of the printing room.

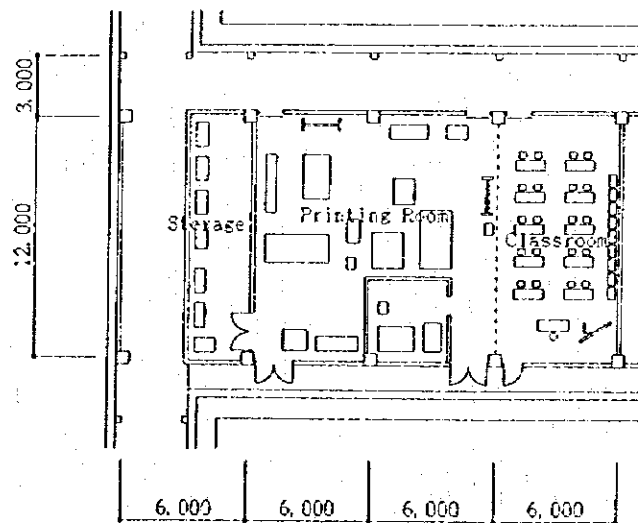


Figure 2-4 Printing Room

e) Textile Work

The level of the textile work course should be the same as, or up-graded slightly from the course at R.C. Solo.

The teaching of the textile work course in R.C. Solo is provided by the Japanese Technical Cooperation for the purpose of training specialists who are able to be employed by textile factories as well as in relevant textile markets. The contents of the training course are mainly the basic design of apparel products, drawings, cutting and using electrical sewing machines.

The floor area of the textile work room in R.C. Solo is calculated as $27.7\text{ m} \times 9.8\text{ m} = 271\text{ m}^2$ and the number of trainees is the largest among the courses in R.C. Solo.

The floor area of the textile work room in the National Tokorozawa R.C. in Japan is calculated as $13\text{ m} \times 7.2\text{ m} = 94\text{ m}^2$ including the instructor's room.

The floor area of the textile work room in the NVRC is calculated as a minimum of 210 square meters based on the discussions with the Japanese

Technical Cooperation experts in R.C. Solo and the Indonesian side as well as considering the layout of equipment. Figure 2-5 shows the layout plan of the textile work room.

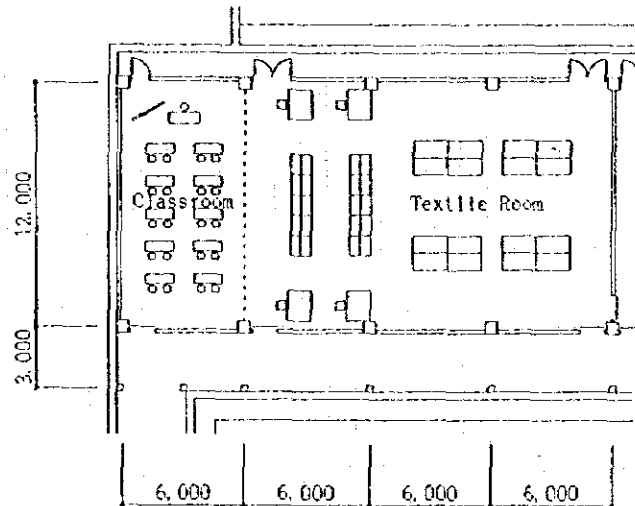


Figure 2-5 Textile Work Room

f) Classrooms

A Classroom should be planned for each subject and the floor area of a classroom for 20 trainees is calculated as $6\text{ m} \times 12\text{ m} = 72\text{ m}^2$ based on the layout of desks and chairs.

2) Work Preparation Building

The roles of the Vocational Training Preparation Division are the registration of disabled people for the vocational making of case and process record for training the observation findings and confirmation of trainees.

In R.C. Solo, the case conference, decides the direction of the rehabilitation program and is held 3 times from entry to decision of the policy for vocational aid.

At present, one expert of the Japanese Technical Cooperation in the R.C. Solo has been dispatched and the completed system of Vocational Training Preparation Division is going to be established. The essence of this system should be applied to the NYRC.

The main rooms of the Vocational Training Preparation Division are as follows, based on R.C. Solo, similar projects undertaken by Japan's Grant Aid assistance in Southeast Asia and similar facilities such as the National Tokorozawa and Makuhari R.C. in Japan.

< Main Rooms >

Vocational Training Preparation room, Audio Visual room, Case Conference room, Staff room, Counseling room, Assessment room, Storage, others.

Vocational Training Preparation room is the room for understanding the suitability of trainees by using work samples. The Vocational Training Preparation room is calculated as 60 square meters based on the existing conditions in R.C. Solo and after discussions with the experts of the Japanese Technical Cooperation and the Indonesia side.

The number of staff in this division is 9, based on the organization structure of personnel for the NVRC prepared by DEPSOS.

The area per person for the staff room is 6 square meters based on similar projects undertaken by Japan's Grant Aid assistance in Indonesia and local customs of furniture layout. So the floor area of the staff room is calculated as 54 m².

The audio visual room will be used for the explanation of training and projecting of activity records. The floor area of the audio visual room is calculated as approximately 100 square meters based on discussions with the experts of the Japanese Technical Cooperation in R.C. Solo and the Indonesian side.

The counseling rooms are used for the guidance of vocational training including counseling for vocational training as well as counseling for potential employers. The assessment room is used for the preliminary assessment of applicants to the NVRC.

The counseling rooms are calculated as 15 square meters each. Assessment room is calculated as 50 square meters based on other similar projects, and this room should have the flexibility.

3) Staff Training Building

The Staff Training Division will have the duty of carrying out training activities for all vocational rehabilitation personnel, such as staff personnel, technical personnel and other rehabilitation personnel.

In R.C. Solo, staff training course have been held 29 times from 1983 to 1994. However, the system of staff training is not established and the tools and materials are not sufficient for private firms. So, the NVRC should establish this division in accordance with the trend of advancing market needs.

The following rooms are necessary based on discussions with the Indonesian side.

< Main Rooms >

[Seminar room, Classroom, Staff room, Library, Toilet & Rest room, Equipment Storage, etc.]

The study on the scale of the seminar rooms should be based on the content of training, curriculum and number of trainees. The number of trainees in a course is around 30 persons, which was decided through discussions with the DEPSOS.

The curriculum of the training is not established and is dependent on the type or direction of the training. In general, the following functions are required:

- a) Information about the tools and materials, to be used for the training.

- b) Theoretical lessons in the class-room, on vocational training and rehabilitation issues.
- c) Practical training in the workshops.
- d) Other issues, e.g. the management of a vocational training program, management capability on handling disabled trainees, assessment procedures, etc.

In consideration of the above conditions, one general classroom for general lectures for 30 persons, and one seminar room, which will be used for seminars and lectures with AV equipment and vocational training equipment, should be provided as a minimum.

The floor area of the classroom is calculated as 72 m² and the floor area of the seminar room is calculated as 72 m².

The space for the library will be determined by the number of readers and books to be housed in this area; approximately 2 thousand books are required to stored for this project.

The library is planned to be separated with partitions into 3 spaces for 3 different uses, such as the vocational training, staff training and R & D. The scale of the library is calculated as about 200 square meters for 40 persons with 6 square meters per person. The number of persons is based on a third of 130 persons which consist of 100 trainees for vocational training course and 30 trainees for staff training course.

4) Research and Development (R & D) Building

The aim of the research and development is to monitor, appraise, evaluate and process data/information on rehabilitation issues concerning disabled people, in the frame work to finding a better system and improving activities of rehabilitation services.

The plan for the Research and Development Division should be based on the study result of similar facilities such as the National Makuhari Centre in Japan. The importance of this division is to execute the research and development for whole issues concerning the rehabilitation of disabled people including rehabilitation personnel, facilities and rehabilitation equipment.

The R & D Division consists of the following rooms based on discussions with DEPSOS and studying similar facilities in Japan.

< Main Rooms >

[Staff room, Laboratory, Conference room, Toilet & Rest room, Storage.]

The floor area of R & D should be calculated based on the number of staff, content of R & D and similar facilities in Japan.

The floor area of the laboratory in the National Makuhari R.C. is calculated as 8 m x 12 m = 96 m² for 12 staff and an area per person of 8 square meters. The floor area of the laboratory in the National Tokorozawa R.C. is calculated as 4 m x 7.2 m = 28.2 m² for one staff member.

The proposed number of staff in the NVRC is 7 persons including a director, 3 senior members and 3 other members. The floor area is calculated as 72 square meters based on this assumption. The floor area of the staff room is calculated as 52 square meters based on the equipment layout.

5) Dormitories

The important points to be considered for the planning of the dormitories are privacy and amenity based on the activities of disabled people. Considering the Indonesian standard and the limited facilities scale, the dormitory rooms should be shared by other people.

The capacity of the dormitories is to be 100 disabled people and 30 people for staff training. The dormitories should be separated into male and female taking Indonesian customs into consideration. The ratio of male and female is 3 to 1, so the plan of dormitories is 75 persons for male dormitories and 25 persons for female dormitories.

The floor area of the dormitories is calculated based on the dormitories in R.C. Solo, similar projects undertaken by Japan's Grant Aid assistance in Southeast Asia and furniture layout.

The floor area of R.C. Solo is calculated as $9.3 \text{ m} \times 5.75 \text{ m} = 53.5 \text{ m}^2$ for 10 persons and the area per trainee is 5.4 m^2 . The floor area of a Vocational R.C. in Thailand is 414 m^2 for 25 persons and the area per trainee is 7.14 m^2 . Therefore, one room is for 4 persons as a result of discussions in the Basic Design Survey.

The proposed floor area of a dormitory room for 4 trainees is calculated as 28 m^2 , the area per trainee is 7 square meters, based on similar projects and furniture layout. The dormitory room for the trainees of the staff training course is also planned as one room for 4 trainees.

Figure 2-6 shows a layout plan of a dormitory room.

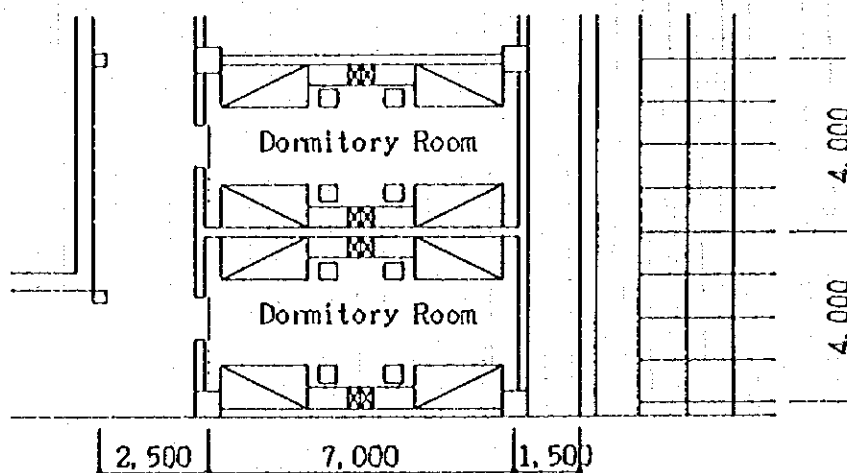


Figure 2-6 Dormitory Room

6) Resocialization Building

The Resocialization Division will have the duty to carrying out job placement services to trainees after Vocational training. If the Vocational Training Preparation Division is an entrance procedure, the Resocialization Division is an exit procedure for the total rehabilitation procedures in this project.

The Vocational Training Preparation Division and Resocialization Division are similar facilities. Therefore, the rooms of each division should be planned taking their mutual uses into consideration, and the plan should also be flexible for any future changes.

The main rooms of the Resocialization Division are the following rooms based on R.C. Solo, similar projects undertaken by Japan's Grant Aid assistance in Southeast Asia and similar facilities in Japan.

< Main Rooms >

[Staff room, Toilet & Rest room, Storage, others.]

The floor area of the staff room is calculated as 66 m² based on the number of staff, which is 11 based on the proposed personnel in the NVRC by DEPSOS. The area per person is 6 square meters.

7) Administration Building

The Administration Division will have the duties of carrying out general administration, training administration, personnel arrangement, budget accounting, etc. The Administration building is the centre of NVRC. The Administration building will be planned with a lobby in the centre and with an exhibition room and other rooms around it.

The main rooms of the Administration building are as follows based on the existing facilities in R.C. Solo and similar facilities in Thailand and Japan.

< Main Rooms >

[Lobby, Exhibition room, Director room, Staff room, Conference room, Reception room, Health Care room, Security room, Toilet & Rest room, Storage, others.]

The floor area of each room is calculated based on the number of staff and experts and the area per person in similar projects.

The number of staff is 27 based on the proposed personnel in the NVRC by DEPSOS. The area per person is 6 m² based on the existing facilities in R.C. Solo, similar projects undertaken by Japan's Grant Aid assistance and furniture layout. The other staff room will be provided for experts.

The floor area of the Director's room is calculated as 40 m² based on the R.C. Solo and similar projects undertaken by Japan's Grant Aid assistance. The conference room is used for conference and seminar. The floor area of the conference room is calculated as 100 m² with a floor area per person of 10 m².

8) Dining Room and Kitchen

The floor area of the dining room should be consider that trainees and staff will take lunch together. Therefore, the number of seats and scale of room should consider the number of trainees with wheelchairs and the staff.

The plan of the dining room should consider the space, lighting, color and flow line connection to the outside. Washing basins and drinking services will be provided in the dining room.

The capacity of the dining room should be for the provision of meals for 241 persons at one time.

The seating spaces for the proposed dining room are 70 for trainees and 30 for staff based on the existing facilities in R.C. Solo. The dining room is also important as a relaxing space for the staff, because there is no restaurant around the site.

The plan of the dining room should consider the use of wheelchairs. The space for passing should be planned as more than 1,200 mm wide. An area for preparation, cooking and service, including store rooms should be provided. To enhance the efficiency of the kitchen, the layout and selection of equipment is very important.

The proposed floor area of the dining room will be required to be approximately 216 square meters and the proposed floor area of the kitchen will be required to be 108 square meters based on the above requirements and equipment layout. A canteen, which was requested by DEPSOS, should be provided.

9) Multipurpose Hall

Multipurpose Hall will be used for various activities such as sports, meetings, lectures and recreations.

The floor area of the multipurpose hall should consider a badminton space based on the existing facilities in R.C. Solo and similar facilities in Japan. A stage will be provided for the use of meetings for 100 persons, lectures and theater. The 2 badminton courts will be provided as 6.1 m x 13.4 m each.

Therefore, the proposed floor area of the multipurpose hall is calculated as approximately 400 square meters.

10) Other

Other required facilities are covered walkways, a guard house, a machine room and an electric room, etc. The total area of other facilities is calculated as approximately 2,100 square meters based on the tentatively proposed plan.

(3) Required Rooms and their Floor Areas

Table 2-1 shows the required rooms and floor area of projected buildings.

Table 2-1 Rooms Required and their Floor Area

Buildings ^{*2}	T.O.R. ^{*1} Requested Floor Areas (m ²)	Proposed Floor Areas ^{*4} (m ²)	Remarks
1) Vocational Training Building	2,400	2,511	100 disabled people
2) Work Preparation Building	630	441	
3) Staff Training Building	768	516	
4) Research & Development	768	933	
5) Dormitories	4,296	1,852	
a) Dormitory for the Disabled People		1,389	100 trainees
b) Dormitory for Rehabilitation Staff Training		463	30 persons
6) Resocialization Building	0	288	
7) Administration Building	990	768	
8) Dining Room and Kitchen	576	540	70 seats + 30 seats
9) Multipurpose Hall	633	684	
Sub-Total	11,061	8,533	
10) Other (Covered walkways, etc.)	5,035 ^{*3}	2052 ^{*5}	
Total	16,096	10,585 ^{*6}	

*1 : The floor area was calculated from the drawings in the T.O.R. (WTA-2, Dec., 1993)

*2 : The categorization of buildings is based on Minutes of Discussions (1995. 8. 24) ANNEX 2.

*3 : The covered walkways occupies 30% of floor areas due to the shape of the site.

*4 : Floor areas are computed based on the study results which are described in the previous paragraphs.

*5 : Other facilities include the covered walkways, guard house, electrical room, etc.

*6 : The total floor area of the subject facility of this Grant Aid assistance.

2-3-3 Basic Design

(1) Site Layout Plan

The project site is located at a distance of approximately 10 km to the south-west from Cibinong which is about 50 km south from the capital, Jakarta. The site is situated on 3.5 hectares of open site adjacent to the State Mental Rehabilitation Centre. The project site has an irregular shape, slightly sloping to the north-west. The east side of the site is facing to the access road.

After the preparation of the site, retaining walls are provided in order to create a flat area for the facilities by filling. An approximately ten (10) meters high retaining wall was built along side the neighbouring village.

In the Minutes of Discussions (August 24, 1995), the Japanese side pointed out the following matters as recommendations of the site works which are to be dealt by the Indonesia side. (Appendix - 4)

- 1) The strength of the retaining wall seems to be insufficient, especially along side the residential area. Verification shall be made by the Indonesian side from the view point of the design and construction in order to secure the safety of the retaining wall.
- 2) Ample considerations regarding the relocation of the local houses shall be taken by the Indonesian side along the high retaining wall.
- 3) The boundary line of the project site shall be secured as a part of the site works of the Indonesian side.

Based on the site investigation and the analysis of the soil investigation report, the Japanese side submitted a study report of recommendations and suggestions of the site preparation works (Appendix - 10).

A layout plan was planned considering climatic conditions as well as the surrounding environment.

The layout plan has been prepared on the basis of the relationship with the structure of facilities and the flow line of people and materials as well as the points listed below:

< Basic Design Policy >

- The facilities and zonal functions should be at the same level as much as possible, considering their use by disabled people.
- In the case of having a difference levels, the slopes, staircases and floor finishes should be studied for their use by disabled people.
- Consider distances between buildings and their orientation in order to secure good ventilation and natural lighting throughout the year. Sound-proofing should also be considered.
- The administration building shall located near the main entrance for easing the approach from outside.

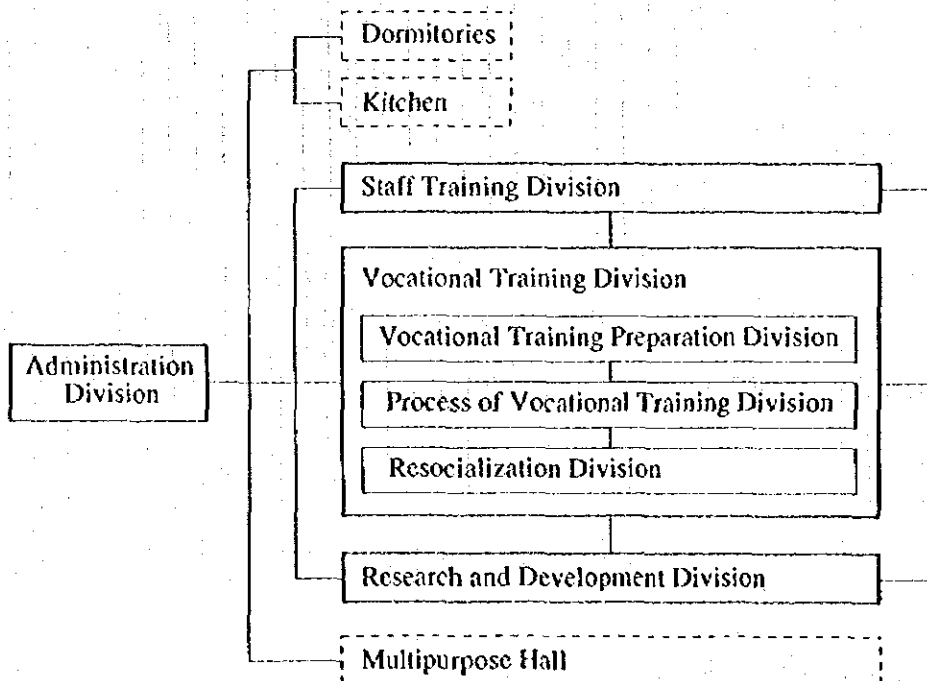
- The covered walkways are required in consideration of the climate, with large protruded areas in order for the trainees not to get wet in the rain while moving between buildings.
- Secure an extension space for the increase of trainees in the future.
- Consider the effective utilization of external spaces for the use of out-door training. For this purpose, inner gardens should be provided for air circulation as well as natural lighting.
- Consider privacy and amenities in the dormitories.
- The layout plan shall consider the specific site conditions such as the longitudinal area of the site in the South to North direction.
- Consider the effective use of the site, with the introduction of a 2 story building in some parts.

Based on the above policy, 3 alternatives (A-1, A-2, B) were discussed with DEPSOS and alternative A-2 was selected for the base of the Basic Design.

< The Structure of Facilities and Flow Line Plan >

The site layout plan should be studied in consideration of the structure of facilities, zoning and flow lines based on the site analysis. The best plan shall be chosen based on the study of the alternatives.

The following figure shows the management structure of the NVRC based on the summarized function of each division. The criteria of the zoning and flow line plan are summarized as shown in the following table. The site layout plan was formulated based on these matters.



< Organization of the Facilities >

Table 2-2 Criteria of the Zoning and Flow Line Plan

Zoning Plan	Flow Line Plan
<p>1) Adjustment to the site conditions (the long and narrow shape of land in the South to North direction, with the terraced land).</p> <p>2) The structure of facilities should be safe, legible, functional and easy to manage.</p> <p>3) Efficient layout of facilities on the site (Related functions should be on the same level)</p> <p>4) Zoning should be planned based on the content of training and curriculum.</p>	<p>1) Consider the flow lines of trainees, staff, customers, services and cars.</p> <p>2) Consider the specific site conditions.</p> <p>3) The flow lines should be as short and as convenient as possible by the optimum layout of facilities.</p> <p>4) Flow line plan shall consider the easy approach to the site and also security.</p>

(2) Architectural Designs

1) Floor Plan

In terms of floor planning, the calculated areas and the layout plan as mentioned above were used and each facility was planned based on the following criteria:

- a) The facilities should be easily understandable for users and guests
 - Consider the environment of facilities so that disabled people can work and move safely and smoothly. Therefore, simple flow lines, structure plan, the location of exits, the operation of doors and colour coordination should be considered in view of disabled people.
 - Consider the useful space so that disabled people can achieve social adaptability through training in this centre. For this purpose, space to maneuver such as the turning arc of a wheelchair and rotation space should be designed carefully particularly for floor finish, steps and stair cases.
 - The site has a difference of level so that a long ramp will be required. The ramp will also be used for the purpose of physical rehabilitation.
 - Proposed facilities shall basically be a one story building except the administration building, considering the convenience of disabled people.
- b) The facilities should be safe and comfortable for disabled people and staff
 - The kind and grade of disabled people for this project are expected to have enough ability to cope with the advanced vocational training. However, the facilities shall be designed concerning safety in everyday life as well as in emergencies particularly based on the use by disabled people. Therefore, the facilities should have a suitable selection of floor finishes, smooth surfaces for wall, elimination of steps, protection against falling from steps and walkways, protection against damage of glass and safety in the training areas.

- The climatic conditions shall be studied in order to have a healthy environment. Thus, the proposed facilities should have good ventilation, natural lighting and sun protection, particularly for dormitories, and as for toilets, shower rooms and kitchen, there should also be good ventilation and light. As for the training division, protection noise, vibration and dust, a ventilation system, etc. should be considered.
 - The specific customs and religious matters in Indonesia shall be considered.
 - Landscaping of the outdoor space such as an inner garden with lawns and flowering trees. The landscaping around dormitories should be provided for keeping privacy and for amenity use.
- c) Facilities which are functional and flexible
- The NVRC consists of various divisions such as the administration division, training division, living division and a common space. The design of these facilities should integrate the efficient relationship of each division. The zoning and flow line plan, as mentioned in (1) Site Layout Plan, should be reflected into the architectural design. The vocational training division should take into consideration the size and layout of the educational equipment and furniture in each room.
 - The architectural design should also be flexible considering any future changes such as an expansion of facilities, change of training contents and addition of courses.
- d) Facilities which are easily maintained and operated
- The maintenance and operation of the NVRC should be easy, both physically and functionally, particularly concerning those facilities that are utilized by disabled people. The materials and equipment should be selected considering the climate, durability and running and maintenance costs.
- e) A facilities plan which allows a shorter construction period
- The construction of this project shall be completed by December 1997 prior to the commencement of phase 2 of the Japanese Project-type Technical Cooperation. Therefore, in order to shorten the duration for the procurement of equipment and construction work, materials should be standardized. To achieve this, an appropriate module for the building should be set and spans standardized.
- f) Practical use of check lists for the architectural design

Check points of facilities for the use of disabled people are summarized as shown in the following check list based on the above criteria.

The architectural design should be formulated based on this check list achieving safety as well as comfortable movement for disabled people.

Check List on the Architectural Design

1. Exit and Entrance	<ul style="list-style-type: none"> • Use of swing door (basically) • No level changes or ramped approaches
2. Corridor (Inner Corridor)	<ul style="list-style-type: none"> • Keep a clear width for the use of disabled people and wheelchairs • No level changes or ramped floor • Keep visibility and safety around corners
3. Stairs (Inner)	<ul style="list-style-type: none"> • Equip with handrails and keep a clear width • No slope or steps on the landing • Furnish with non-slip measures at nosing • Non-slip floor finishes
4. Handrail	<ul style="list-style-type: none"> • Handles shall be easy to grip • Noticeable at corners or ends
5. Toilet (for Wheelchair user)	<ul style="list-style-type: none"> • No level changes between inside and outside • Equip with handrails • Non-slip floor finishes against wet conditions
6. Bathroom	<ul style="list-style-type: none"> • Equip with handrails • Non-slip floor finishes against wet conditions
7. Roof Balconies	<ul style="list-style-type: none"> • Install lightning protection • Non-slip floor finishes
8. Room	<ul style="list-style-type: none"> • Non-slip floor finishes • No level changes or Lumped floor
9. Elevator	<ul style="list-style-type: none"> • Equip with handrails • Consider the use of wheelchairs
10. Signals	<ul style="list-style-type: none"> • Install signals and guidance for safety
11. Emergency Facilities	<ul style="list-style-type: none"> • Install emergency facilities in consideration of disabled people • Emergency exit must have no level changes or ramped approaches
12. Approaches	<ul style="list-style-type: none"> • Non-slip finishes • No level changes or ramped approaches • Install guidance blocks for disabled people
13. Car Parking	<ul style="list-style-type: none"> • Keep enough space between cars for disabled people
14. Entrance	<ul style="list-style-type: none"> • Non-slip and flat finishes • Provide eaves for the entrance
15. Counter/Table	<ul style="list-style-type: none"> • Consider suitable height for reach of wheelchair user
16. Public Phone	<ul style="list-style-type: none"> • Consider for use by disabled people

2) Elevation and Cross-section Plan

For the planning of the elevation and cross section of the buildings, local building styles and local construction methods should be considered based on the following matters:

- a) The facilities should basically have no level changes. If different levels arise between facilities, a ramp will be planned;
- b) The roof will be sloped in order to quickly discharge rain water;
- c) The eaves will be protruded to protect rooms from direct sunlight;
- d) Ventilation blocks which allow sunlight and wind to pass through shall be installed in order to protect against rain water;
- e) Wall surfaces will have as large an opening as possible in order to enhance room ventilation and provide a balanced intake of sunlight;
- f) The buildings should be harmonized with the existing buildings such as the Mental R.C. and the surrounding landscape.

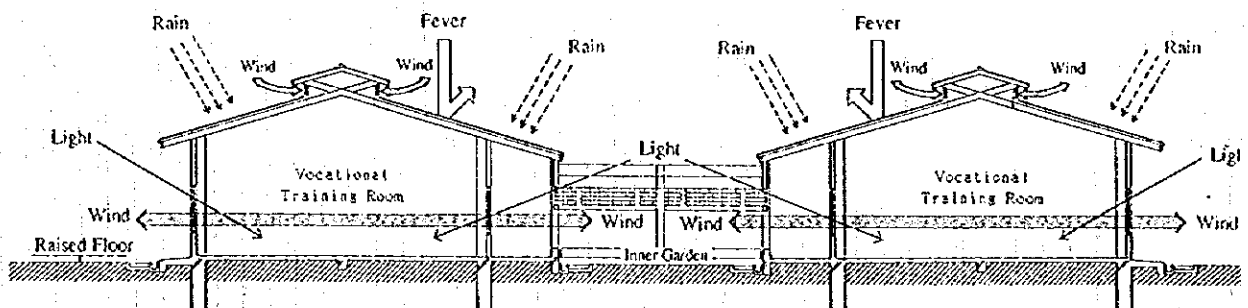


Figure 2-7 Elevation and Cross-section Plan

(3) Structural Plan

1) Basic Policy

The structure plan for the project should be formulated after a full review of the existing conditions of the site and its subsoil.

Considering the problems of the retaining wall and site preparation work, which are described Appendix - 10, "The Study Report on Site Preparation Works", it is important to provide safety measures for the future.

The structural design shall be required to withstand long-term loads such as bending and vibration. In addition, the building shall have sufficient safety to withstand short-term loads, and should not lose its durability against earthquakes,

strong winds, etc. Consideration should also be given to local construction and maintenance conditions.

2) Standard for Structural Design

Structural calculations will be in accordance with building regulations and structural design standards of Indonesia in principle.

For calculating the tolerable stress of material and analysis of the structure, the Standards of the American Concrete Institute (ACI) will be applied as required. For the steel structure, the standards of the American Institute of Steel Construction (AISC) and also the structural standard of the Architectural Institute of Japan will be applied for reference.

3) Methods and Material

Since the facilities are mainly low-rise building, the superstructure will be of a concrete frame type with brick wall in the main parts, which is widely used method in Indonesia and it is economical. A part of the building structure will use steel frames for achieving the required strength. Usually reinforcing steel bars, concrete and steel sections are locally available, but appropriate measures for quality control should be required.

Concrete : Design strength (FC) = 210 kg/cm²
(28 days Compressive Strength of Cylinder test piece)

4) Basic Structure

According to the results of the analysis of the soil survey data at 7 points on the site, the bearing capacity of first layer has a N value of 3 on the filled area and a N value of 5 on cutting area. As soil compaction in the upper layer (filling) is in the state of incomplete consolidation, sufficient measures will be required to deal with possible settlement as a result of filling.

On the basis of the above soil conditions, the buildings of the proposed facilities will be supported by piled foundations in where the ground was filled and spread foundations in where the ground was cut will be applied.

5) Design Load

Wind Load : Wind load will be calculated in accordance with the Architectural Standards of Indonesia.

Up to now in the surrounding area of the site, no significant impact of wind load on buildings were observed.

Seismic Force : Indonesia belongs to an active volcanic zone of the Pacific Ocean, in which earthquakes are a frequent occurrence.

According to the Indonesian zoning map of seismic scale, the surrounding area of the project site lies in the area of the third degree on the seismic scale.

Furthermore, for seismic force, Perencanaan Katahanan Gempa Untuk Rumah dan Gedung will be used as the base.

Dead Load : The load of objects fixed onto the building such as structural and finishing materials will be calculated in accordance with the actual condition.

Live Load : Pedoman Perencanaan Pembebanan Untuk Rumah dan Bangunan of Indonesia will be used.

(4) Utilities and Building Facilities

1) Basic Design Concepts of the Utilities Planning

The design concepts for the utilities and facilities planning shall be based on the following:

- a) The safe and healthy condition of disabled people shall be considered in the characteristics of the NVRC.
- b) The tropical climatic conditions shall be considered such as high temperature and high humidity.
- c) Equipment and spare parts shall be used considering the ease of maintenance and high interchange ability.
- d) The utilities planning shall be made considering environmental pollution.
- e) Selection of the equipment shall be made considering efficient use of energy and cost saving.

Based on the above design concepts, an outline of the utilities as planned is described hereunder. The existing condition of utilities is attached in Appendix-20.

2) Power Receiving

High voltage line (3 ph, 3 w, 20 kV, 50 Hz) and low voltage line (3 ph, 3 w, 220/380 V, 50 Hz) placed overhead on poles of the Electric Company P.T. PLN (PERSERO) have been installed along Jl. Cimandara. Electricity is supplied to MRC through a low voltage line along Jl. Kampung Pisang on the east side of the project site.

The electricity supply for new facilities will be provided through a new high voltage line from the Jl. Cimandara to the sub-station (PLN room) by the Indonesian side and connected to the new high voltage receiving panel in the electrical room of the new facilities. All works from sub-station (PLN room) will be executed by the Japanese side.

The receiving power shall be of 3 phase, 3 wires, 20 kV, 50 Hz, and an expected power of 630 kVA.

3) Main Sub-Station

The main sub-station will be located near the PLN room and sufficient space should be provided for any increase of the electrical demand due to expansion of the facilities in the future.

It is observed that there are stoppages in the power supply once in a while and variations of the voltage fluctuate by a maximum of 10% .

The variation of the voltage is generally due to the inequality of waste of electric power. However, if we consider the geographical location of the site in relation to surrounding region, it can be considered that there is no effect.

Considering the characteristics of this facilities, a transformer with a no-voltage tap changing device will be considered.

Furthermore, an emergency generator set and a constant voltage regulator will also be considered. A vacuum circuit breaker (VCB) will be provided for ease of maintenance and a VCB will be provided for increasing power demand in the future. The transformer will be of the oil filled type considering the safety of the operation and ease of maintenance. The capacity of the transformer is calculated as follows:

Lighting and socket outlet

Administration	6,000 m ² x 40 VA/m ² =	240 kVA
Dormitories	2,000 m ² x 35 VA/m ² =	70 kVA
Others	2,000 m ² x 30 VA/m ² =	60 kVA
Sub-total		370 kVA

Power

Water supply		100 kVA
Air conditioning		150 kVA
Kitchen Equipment		20 kVA
Others		100 kVA
Sub-total		370 kVA
Total		740 kVA

The demand is assumed based on a use factor of 0.8 for lighting/socket outlets of power system. The required capacity of the transformer is calculated as follows:

$$740 \text{ kVA} \times 0.8 = 630 \text{ kVA}$$

Therefore, the required capacity of transformer should be 630 kVA for the contract.

4) Generator and Feeder Wiring

A emergency generator will be provided in case of a power failure. Since the facility will be used by disabled people, it is important that electricity is supplied during a power failure for reasons of safety. Only a minimum electricity output is required, to enable the safe movement of people, and then only for a period of about 10 hours.

The capacity will be 200 kVA based on the statistical assumption of 20 VA/m² (20 VA/m² x 10,000m² = 200 kVA). The generator should be of a diesel type, which is durable and has a reliable supply of fuel. Feeder wiring will be linked to each facility by four lines of 220/380 V 50 Hz from a switchboard, and then divided into each division which is divided by type of load and facility considering the effectiveness of the system.

The capacity of the feeder wiring should meet the capacity of the facilities connected, based on safety danger dispersion and workability. The method of installing the cables will be basically by cable trenches for the shafts and ceilings, and by a piping cable method of the others.

5) Lighting and Socket Outlets

Fluorescent lights which are mounted directly on the ceiling will mainly be used, taking energy conservation into consideration and incandescent lights will be used in the entrance hall and other particular rooms. The illumination level of each room will not comply with the IES (Illuminating Engineering Society) and/or JIS standards, but it will comply with the design standards which are commonly used in Indonesia as a result of discussions with the Indonesian side.

The illumination levels of various rooms are as follows:

Room	Illumination Level	Room	Illumination Level
Classroom	300	Dormitory Room	200
Training Room	"	Dining Room	300
Library	"	Kitchen	300
Bookstore	"	Storage	70
Conference Room	"	Toilet & Shower Room	100 ~ 200
Staff Room	"	Corridor	50 ~ 75
Office	"		

Street lights will be provided around the entrance hall and each building at an interval of 30 to 50 meters for security purposes. On/off switches for the street lights will be provided with a photocell switch and timer.

The socket outlets shall be 15A sockets with earthing and two outlets will be provided at each entrance door of the training room and four for each dormitory room. Otherwise, additional outlets will be provide according to need.

6) Telephone System

A telephone line is not connected to the project site. The Indonesian side will execute the cabling work including the civil work for the installation of a telephone line to MDF in the site. PABX will be provided with a battery and battery charger to enable for communication without the power supply in the case of emergencies such as a power stoppage.

The telephones to be connected to the PABX will be:

Administration :	Director's Room	1	Telephone:	17	6 circuits
	Staff Room	5	Facsimile :	2	
	Security	1			
- R & D	:Staff	1	Computer :	2	2 circuits
	Research Room	1			
	Expert	3			
- Resocialization :	Staff	1	* The two circuits for the		
- V. Training (prepare) :	Staff	1	public telephone will		
- V. Training (process) :	Staff	1	be provided in the		
- Staff Training :	Staff	1	entrance hall.		
- Dining / Kitchen :	Kitchen	1			
	Total	17			

7) Public Address System

As most of the trainees are studying day and night, and living in the dormitories, a public address system will be required for communication and emergencies.

The main equipment (240W) will be provided at the office, and a chime and programmable controller will be mounted.

Loud-speakers will be mounted on a wall in each training room, dining room, etc. and in the corridors of the dormitory.

A battery and battery charger will be provided for the amplifier in order to announce any emergency status.

8) Intercom System

The following rooms do not require telephone sets, but intercoms will be provided for quick communication among internal rooms. This facility is strongly requested by the Indonesia side and is commonly used for communications at R.C. Solo.

The main equipment will be installed in the office, and secondary units will be provided in the following rooms. Communication can be made between the master unit and a secondary unit or between secondary units.

Administration :	Director's Room	1	Dormitory :Warden	1
	Staff Room	1	Dining / Kitchen	2
	Security Room	1	Multipurpose Room	1
Health Care Room		1	Guard House	1
- R & D	:Staff Room	1	Mechanical Room	1
	Research Room	1	Total	20
	Functional Room	1		
	Staff Room (Expert)	2		
Vocational Preparation	:Staff Room	1		
Vocational Process	:Staff Room	1		
Resocialization	:Staff Room	1		
Staff Training	:Staff Room	1		
Library	:Counter	1		

* Furthermore, a display panel will be also installed in the security room to indicate a source of emergency by manual division, which is activated by the manual operation of a bell or buzzer.

9) Emergency Alarm System

In case of accidents occurring to disabled people in the shower-room or bathroom, an emergency alarm system will be installed in the form of push-buttons which would alert staff in the security room.

10) Clock System

An electrically operated wall clock will be installed as a symbolic statement of the NVRC at the top of the external wall of the administration building.

11) Fire Alarm System/Fire Extinguishing Installations

The risk of fire in the facilities necessitates special planning considerations because of disabled people, and so an interior fire hydrant system, manual call points, and fire extinguishers (4 kg/CO₂ 3.9 kg) will be provided.

The main fire alarm panel will be located in the office.

Batteries and battery charger will be provided as a back-up power supply in the case of power failure.

12) Lightning Protection System

A lightning arrester and roof conductors will be provided to protect the buildings against lightning.

The grounding resistance of the grounding terminals shall be less than 5 (Ω), and indication posts and terminal boxes for testing shall be provided.

13) Water Supply System

The infrastructure of the water supply system is almost the same as that described for the telephone system. As the public water main is not within reach, well water will be used as the water source for the new facilities the same as for the existing facilities (MRC) after discussions with the Department of Social Affairs and its consultant (CIPTA NANC SARAW).

The well water will be fed from the deep well by a submersible pump and filtered by means of a sand separator to be stored in a water reservoir. The stored water will be fed to an elevated water tank after sterilization and supplied to the various utilities by gravity.

The deep well is assumed to have the following specification based on the existing data:

Casing diameter	:	150 mm
Depth	:	150 m
Yield	:	150 m ³ /h
Head	:	70 m

The filter medium for the sand separator is to be a regenerable type available at the local market considering the supply of spare parts in the future.

A poly-vinyl chloride pipe will be used for the water supply system considering the existing site conditions with the requirements of being corrosion-proof, economical and having easy installation.

a) Water Demand

Trainees	100 x 200 l/day = 20,000 l/day
Staff Trainees	30 x 250 l/day = 7,500 l/day
Staff	111 x 80 l/day = 8,880 l/day

Total	Ca 37 m ³ /day
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b) Water Reservoir

To store 50% of one day's consumption:

$$37 \times 0.5 = 19 \text{ m}^3$$

For fire water tank $30 \text{ m}^3 \times 2 = 60 \text{ m}^3$

Total = 79 m^3 (tank made of concrete)

c) Elevated Water Tank

To store 25% of one days consumption

$$37 \times 0.25 = 10 \text{ m}^3 \text{ (3m x 1.5 m x 1 m H, made of FRP)}$$

d) Water Feed Pumps

Operation hours	:	10 hours
Average hourly demand	:	$37 \text{ m}^3/10 \text{ hr} = 3.7 \text{ m}^3/\text{hr}$
Maximum hourly demand	:	$3.7 \text{ m}^3/\text{hr} \times 2 = 7.4 \text{ m}^3/\text{hr}$
Peak hourly demand	:	$3.7 \text{ m}^3/\text{hr} \times 3 = 11.1 \text{ m}^3/\text{hr}$
Selected pump (automatic alternation operation)	:	200l/min. x 22 m x 2.2 kw

14) Drainage System

The waste water from the MRC is percolated directly into the ground by a soak pit. For the rising of the ground water during the rainy season, the planning of the drainage system shall be carefully made to prevent water pollution.

In order to consider the environmental impact to surrounding area, a treatment plant will be installed, and then effluent will be discharged after the amount of BOD is below 60 ppm in compliance with the regulations of Effluent Control of West Java.

The system for the treatment plant will be an Aeration System on account of it's relatively simply operation and maintenance.

Furthermore, it is necessary to consider industrial waste such as waste oil, used ink, etc. from the vocational training.

The drainage of rain from the roof of buildings and areas around the facilities will be collected and discharged into the existing water channels around the site.

15) Sanitary Fixtures

The sanitary fixtures shall be carefully selected considering the local conditions of Indonesia.

Squatting type water closets have been utilized in the existing toilets in the MRC. However, these fixtures are not hygienic due to the wetness of the floor surface, and therefore a proper drainage system for the floor has to be considered.

The space for the toilet and washing area, the number of socket outlets and the water tub must be considered and also the future provision of washing machines.

The sanitary fixtures should be procured locally considering the quantities and the delivery schedule of the fixtures.

As the manufacturers of TOTO, and American Standard are available in the local market, spare parts for these makes can be supplied without any difficulties.

16) Kitchen Equipment

A hygienic kitchen layout for the new facility shall be planned considering separation of supply/return counters, dish washing sinks, food store, toilet for staff, etc. The kitchen will be able to supply 241 meals, 3 times a day.

Kitchen equipment will be selected to supply meals cooked by rice cookers, gas ranges, etc. using the LP gas.

The main equipment for the kitchen to be provided is as follows:

- Gas Fired Rice Cookers
- Gas Ranges
- High Power Type Gas Ranges
- Sinks
- Cooking & Working Tables
- Shelves
- Refrigerator
- Freezer

17) LP Gas facilities for the kitchen

The main fuel source for the kitchen will be LP Gas as it is economical as well as being convenient for cooking.

50 kg gas cylinders which are widely used in Indonesia will be installed in a separate open enclosure outside the kitchen, so that easy access for changing the cylinders can be provided.

18) Air-conditioning and Ventilation System

Air-conditioners were provided in the building of R.C. in Solo. However, several air conditioners were installed in the director's room, reception room, conference room and book storage at a later stage. Considering the above fact and the climatic conditions in Indonesia, a minimum number of air conditioners shall be required for similar rooms in the new facilities.

Furthermore, as personal computers and copy machines will be furnished as donated equipment and a PABX, and an amplifier which contain electronics are also to be provided, air conditioners are also required for the office, the copy machine room and the A/V equipment storage in order to maintain good operating conditions for the equipment.

The air conditioners will be selected based on a cooling load of 150 kca/hm².

The rooms to be air conditioned are as follows:

Administration	- Director's Room
	- Conference Room
	- Reception Room
R & D	- Staff (expert) Room
Vocational (Prepare)	- A/V Room
Vocational (Process)	- Computer Room
Staff Training	- Library
Multi Purpose Hall	

Natural ventilation is the basic scheme for all the rooms, but mechanical ventilation will be utilized in the kitchen and/or where rooms are next to an outside wall such as for the toilet and pantry.

Ceiling fans will be provided in each room of the dormitories, each training room, dining room and the administration buildings, which is common in Indonesia.

19) Lift

For the free movement of disabled people in the NVRC, a lift should be provided in the administration building.

(5) Building Material Plan

1) Basic Policy

The building material plan shall be formulated and based on the climatic conditions, the location of the site, the local construction situation, construction period, construction cost, and maintenance and operation costs. Particularly the following matters shall be included:

a) Structural Materials

In principle, the usual materials shall be reinforced concrete for the main frames, with brick walls.

It is necessary to consider quality and supply of aggregate such as cements, gravel, and bricks. However, for the roof structure, it is necessary to consider a steel frame.

b) Exterior Finishing

Considering the weather-proofing, bituminous membranes and sheet metal should be used as finishing materials.

Exterior walls will be painted with weatherproof paint to last a long time without discoloration and deterioration.

c) Interior Finishing

Interior finishing materials will be selected to match with the function of the room and the use of space.

For the use of disabled people, floors shall be non-slip and of a hardwearing type to withstand hard use.

Top-hinged outswing window will not be adopted on the corridor side because of the risks.

2) Main Finishing Materials

The main finishing materials for the building shall consider the local construction situation and construction period, as well as a reduction in operation and maintenance costs.

External Finishing

Roof:	Corrugated galvanized metal or aluminum sheets
External walls:	Mortar with paint (epoxy)
Fittings:	Aluminum windows, aluminum flush doors, aluminum louvers, steel fittings and aluminum fittings.

Internal Finishing

Ceilings:	Gypsum board with EP, 6 mm thick villa board
Internal walls:	Cement mortar with paint
Floors:	Vinyl tiles, vinyl sheet, cement mortar steel towel finish, carpet tiles

(6) Equipment Plan

In order to draw up the optimum equipment plan for the proposed grant aid project, we will make a design based on the following policies, which take into account Indonesia's natural and social conditions, the capability of maintenance and management, the procurement situation locally and from a third-country, and the grade of equipment to be supplied.

1) Policy towards Natural and Social Conditions

The highest and lowest temperatures are more than 30°C and 20°C respectively in Cibinong city where the centre is located. The humidity which is important to consider so as to maintain and manage the equipment is over 80 % through the year. Thus, the climate is characterized by high atmospheric temperatures and humidity. Therefore it is necessary to equip the centre with air conditioners on the basis of a reduction in maintenance and management costs.

The design will be developed to satisfy not only the natural and climatic conditions, but the electric situation, for example voltage fluctuation and power failure. Moreover, as the NVRC maintains a leading position as "the Centre of Centres" in Indonesia for the field of vocational training for disabled people, the training of instructors and for R & D, the equipment plan will be designated to enable this centre to contribute to the improvement of training techniques for disabled people in vocational training facilities in all parts of the country.

2) Policy towards the Maintenance methods and Management of the Implementing Agency

The equipment will be selected on the basis of conditions of the mobile rehabilitation unit which was donated in 1989 through the Japan's Grant Aid Program and the equipment supplied by the technical assistance, the actual equipment maintenance and management system and the back-up system assured by the related ministries or bodies. Moreover, the selection of equipment items should not force a considerable change to the system for the Indonesian side. Equipment items requiring special maintenance techniques or expensive spare parts will be excluded from this plan.

3) Policy towards Local and Third-country Procurements

In order to save maintenance and management costs as well as labor, the equipment items must be locally made as far as possible. If it is not possible, it should be from third-countries around Indonesia. However, in the case of remarkably poor quality of performance, the above-mentioned will not be applicable.

4) Policy towards Equipment Grade

The reduction of maintenance and management costs and labor for the Indonesia side shall be considered. Therefore, after understanding in detail the situation of maintenance and management of equipment in R.C. Solo or in other facilities, the equipment grade should be similar to that of the MRU donated by the Japan's Grant Aid Project in 1989 and of the equipment supplied by the technical assistance.

5) Policy towards Time of Execution

Time of execution will be decided in accordance with the construction as well as considering the climate, social conditions and situation of the project site. Moreover, concerning the specific equipment items which will require installation work, the time of execution shall be set in a short and smooth way through full discussions at the maker's factory before delivery.

We propose the elimination or an alternative choice of equipment items which do not satisfy the following conditions at the time of selection:

- a) The equipment will be used for training activities concerned.
- b) The equipment will be appropriate for the training purpose, training activities, size of the facility and number of trainees.
- c) The equipment will be fitted for the climate conditions such as high atmospheric temperature and humidity, environment around the site and the facility.
- d) The level of equipment will meet the contents of the training curriculum and ability of instructors.
- e) The equipment will be renewable within the budget of the centre.
- f) It is possible to maintain and manage the equipment financially and technically.
- g) The equipment is not a consumable good.
- h) The quantity or function of the equipment will not be repeated.
- i) The equipment will need relatively simple maintenance.
- j) The makers of the equipment will have a local agency or one in a neighboring country to supply spare parts easily.
- k) The equipment is not a furnishing.

Table 2 -3 shows the result of the examination of the requested equipment items which was based on the above conditions on selection. In the column, final adaptation means the final equipment items which were selected.

Table 2-3 Equipment List

NO.	ITEM NO.	ITEM	Q'TY
1	AD-001	Mini Bus	1
2	AD-002	Overhead Projector	3
3	AD-003	Slide Projector	1
4	AD-004	Screen	3
5	AD-005	White Board	5
6	AD-006	Copy Machine	1
7	AS-001	Motorcycle Engine Trainer (A)	1
8	AS-002	Motorcycle Engine Trainer (B)	1
9	AS-003	Motorcycle Engine Trainer (C)	1
10	AS-004	Hand Tractor Engine Trainer	1
11	AS-005	Motorcycle Cut-Away Model (Gasoline)	1
12	AS-006	Pedestal Grinding Machine	1
13	AS-007	Bench Drilling Machine	1
14	AS-008	Cylinder Compression Gauge	1
15	AS-009	Camber Tester	1
16	AS-010	Tune Up Tester	1
17	AS-011	Carburetor Balancer	1
18	AS-012	Nozzle Tester	1
19	AS-013	Timing Light	1
20	AS-014	Inside Micrometer	2
21	AS-015	Outside Micrometer (MM Scale)	2
22	AS-016	Outside Micrometer (Inch Scale)	2
23	AS-017	Dial Gauge	2
24	AS-018	Feeler Gauge	2
25	AS-019	Battery Quick Changer	2
26	AS-020	Nozzle Cleaning Kit	2
27	AS-021	Spark Plug Cleaner	1
28	AS-022	Electric Drill	1
29	AS-023	Body Repair Tools Set	1
30	AS-024	Spray Gun (A)	1
31	AS-025	Spray Gun (B)	1
32	AS-026	Tube Flaring and Cutting Tool	1
33	AS-027	Vernier Caliper (A)	1
34	AS-028	Vernier Caliper (B)	1
35	AS-029	Taps and Dies Set	2
36	AS-030	Socket Wrench Set (A)	2
37	AS-031	Socket Wrench Set (B)	2
38	AS-032	Torque Wrench Set (A)	1
39	AS-033	Torque Wrench Set (B)	1
40	AS-034	Torque Wrench Set (C)	1
41	AS-035	Cabby Tool Stand	3

NO.	ITEM NO.	ITEM	QTY
42	AS-036	Parts Washing Stand	1
43	MW-001	Engine Lathe (Small)	5
44	MW-002	Precision Surface Grinding Machine	1
45	MW-003	Cylindrical Grinding Machine	1
46	MW-004	Shaping Machine	1
47	MW-005	Precision Slotter	1
48	MW-006	Universal Milling Machine	1
49	MW-007	Vertical Milling Machine	1
50	MW-008	Drill Point Grinder	1
51	MW-009	Universal Cutter & Tool Grinder	1
52	MW-010	Bench Drilling Machine	1
53	MW-011	Contour Machine	1
54	MW-012	Power Hack Saw Machine	1
55	MW-013	Pedestal Grinder	1
56	MW-014	Electric Drill Portable	1
57	MW-015	Electric Sander Portable	1
58	MW-016	Precision Surface Plate	1
59	MW-017	Granite Surface Plate	1
60	MW-018	Electric Hoist with I-beam (1 ton)	2
61	MW-019	Measuring Instruments	1
62	MW-020	Upright Drilling Machine	1
63	MW-021	Arbor Press	1
64	MW-022	Band Sawing Machine	1
65	MW-023	High speed Cut-off Machine	1
66	MW-024	Gauge Block Set	1
67	MW-025	Portable Air Compressor	1
68	MW-026	Hand Tools with Wagon	5
69	MW-027	Cutting Tools	1
70	MW-028	Hydraulic Hand Pallet	2
71	MW-029	Hand Trolley	2
72	AW-001	Arc Welding Machine (AC)	3
73	AW-002	Arc Welding Machine (DC)	2
74	AW-003	Automatic Flame Plate Cutting Machine	2
75	AW-004	Welding Trainer	3
76	AW-005	Shearing Machine	1
77	AW-006	Plate Bending Machine	1
78	AW-007	Pipe Bender	1
79	AW-008	Bending Roll Machine	1
80	AW-009	Hand Grinder	1
81	AW-010	Power Hacksaw	1
82	AW-011	Riveting Machine	1

NO.	ITEM NO.	ITEM	QTY
83	AW-012	Air Compressor	1
84	AW-013	Welding Table	5
85	AW-014	Bevel Cutting Machine	1
86	AW-015	Hydraulic Tester	1
87	AW-016	Posiotioner	1
88	AW-017	Safety Trolly	2
89	AW-018	Hand Power Brush	2
90	AW-019	Tap & Die Set (MM Size)	2
91	AW-020	Tap & Die Set (Inch Size)	2
92	AW-021	Pipe Thread Cutter	1
93	AW-022	Welding Gauge (A)	5
94	AW-023	Welding Gauge (B)	2
95	AW-024	Welding Gauge (C)	2
96	AW-025	Square (A)	1
97	AW-026	Square (B)	1
98	AW-027	Steel Rule	2
99	AW-028	Measuring Tape	2
100	AW-029	Blacksmith Tongs	2
101	AW-030	Chipping Hammer	5
102	AW-031	Anvil	1
103	AW-032	Bench Vice (A)	2
104	AW-033	Dividers	1
105	AW-034	Sciber	5
106	AW-035	C Clamp	1
107	AW-036	Pipe Wrench	2
108	AW-037	Welding Helmet	5
109	AW-038	Welding Apron	5
110	AW-039	Welding Glove	5
111	AW-040	Welding Drying Oven	5
112	EL-001	Semi Conductor Application Experiment	1
113	EL-002	Logical Circuit Practice Trainer	1
114	EL-003	OP Amplifier Circuit Trainer	1
115	EL-004	AM Modulation and demodulation System	2
116	EL-005	FM Modulation and Demodulation System	2
117	EL-006	Colored Television Experimental System	2
118	EL-007	Portable DC Volt Meter	2
119	EL-008	Portable DC Ammeter	2
120	EL-009	Portable AC Volt Meter	2
121	EL-010	Portable AC Ammeter	2
122	EL-011	Electric Counter	2
123	EL-012	TV-VHF/UHF Field Level meter	1

NO.	ITEM NO.	ITEM	QTY
124	EL-013	RC Oscillator	1
125	EL-014	AF Cable	2
126	EL-015	FM/AM Signal Generator	1
127	EL-016	Digital Multi Meter	2
128	EL-017	Pattern Generator	1
129	EL-018	Spare RF Cable with Generator	2
130	EL-019	VHF Sweep Marker Generator	1
131	EL-020	Automatic Voltage Regulator	1
132	EL-021	DC Power Supply	2
133	EL-022	Dual Trace Oscilloscope	1
134	EL-023	Probe for Dual Trace Oscilloscope	1
135	EL-024	FM MPX Stereo Signal Generator	1
136	EL-025	Insulation Tester	1
137	EL-026	AM Signal Generator	1
138	EL-027	Measuring Cable for above Item	5
139	EL-028	Distortion Meter	1
140	EL-029	Tester & Spare Test Leads for Tester (A)	5
141	EL-030	Tester & Spare Test Leads for Tester (B)	5
142	EL-031	Multi-Meter	2
143	EL-032	Bench Drill Press	1
144	EL-033	Bench Grinder	1
145	EL-034	Portable Luxmeter	1
146	EL-035	Wow and Flutter Meter	1
147	EL-036	Variable Attenuator	1
148	EL-037	Rheostats	1
149	EL-038	Volt Slider (A)	1
150	EL-039	Volt Slider (B)	1
151	EL-040	Portable Standard Wattmeter	1
152	EL-041	Portable Power Factor Meter	1
153	EL-042	Tachometer	1
154	EL-043	Demagnetizer	2
155	EL-044	Head Eraser	2
156	EL-045	Testing Tape for Tape Recorder	2
157	EL-046	Signal Generator	1
158	EL-047	Clamp Meter	1
159	EL-048	Transistor Checker	1
160	EL-049	Portable Radio (AM/FM)	2
161	EL-050	Color TV	2
162	EL-051	Electric Iron	2
163	EL-052	Hi-Fi Stereo System	2
164	EL-053	Stereo Radio Cassette Recorder	2

NO.	ITEM NO.	ITEM	QTY
165	EL-054	Car Audio System	2
166	EL-055	VTR System	2
167	EL-056	Fan	2
168	EL-057	Portable Amplifier	2
169	EL-058	Refrigerator	2
170	EL-059	Water Cooler	2
171	EL-060	Radio Assembly	2
172	EL-061	Automatic Washer	2
173	EL-062	Washer (Twin Tub)	2
174	EL-063	Steam Iron	1
175	EL-064	Light Stand (A)	1
176	EL-065	Rice Cooker	1
177	EL-066	Electrician Tools Set with Tool Box	1
178	EL-067	Laser Disk Player	1
179	EL-068	Air Conditioner	1
180	EL-069	Coffee Maker	1
181	CP-001	Personal Computer	21
182	CP-002	Computer Central (Server)	1
183	CP-003	Laser Printer	2
184	CP-004	Dot type Printer	5
185	CP-005	LAN System	1
186	CP-006	Image Scanner	2
187	CP-007	Software	21
188	CP-008	Color Printer	1
189	CP-009	Compact Disk Drive	1
190	CP-010	Uninterrupted Power Supply 2KVA	21
191	PT-001	Personal Computer for Typesetting	5
192	PT-002	Image Scanner	2
193	PT-003	Laser Printer	2
194	PT-004	Full-color Dot Printer	2
195	PT-005	Process Camera	1
196	PT-006	Film Processor	1
197	PT-007	Light Table with Lettering Tools	1
198	PT-008	Vacuum Contact Printer	1
199	PT-009	Process Sink with Vertical Vat	1
200	PT-010	Electronic Plate Maker	1
201	PT-011	Heavy duty Offset Press	1
202	PT-012	Installation Tools	1
203	PT-013	Paper Folding Machine	1
204	PT-014	Paper Collator with Receiving Tray	1
205	PT-015	Wire Stitching Machine	1

NO.	ITEM NO.	ITEM	QTY
206	PT-016	Glue Book Binding Machine	1
207	PT-017	Guillotine Cutter	1
208	DL-001	High speed 1-Needle Lockstitch Machine	2
209	DL-002	1-Needle Lockstitch with Automatic Thread Trimmer	21
210	DL-003	Super high speed Safety Stitch Machine	2
211	DL-004	1-Needle 3-Tread Overlock Machine	4
212	DL-005	High speed 1-Needle Cylinder Bed Bartacking Mc.	2
213	DL-006	1-Needle Cylinder Bed Lockstitch Bar Tacking Machine	2
214	DL-007	1-Needle Embroidering Sewing Machine	2
215	DL-008	Single-Tread, Chainstitch, Button Sewing Machine	2
216	DL-009	1-Needle Lockstitch Buttonholding Machine	2
217	DL-010	Eyelet Button Holding Machine	1
218	DL-011	1-Needle Cylinder Bed Lockstitch Industrial Sewing Machine	1
219	DL-012	Flat Bed, 2-Needle, Double Chainstitch Industrial Machine	1
220	DL-013	1-Needle, Lockstitch, Standard Zigsag Stching	1
221	DL-014	Boiler with Water Softing Unit	4
222	DL-015	Industrial Type Iron with Suction Board (Under Pressing Process)	2
223	DL-016	Industrial Type Iron with Suction Board (Finishing Press Process)	2
224	DL-017	Steam Iron with Press Board	3
225	DL-018	Cutter (Vertical Blade)	2
226	DL-019	Cutter (Round Blade)	2
227	DL-020	Hand Knife	1
228	DL-021	Cloth Cutting Table (Small)	1
229	DL-022	Cloth Cutting Table (Big)	1
230	DL-023	Cloth Cutter	1
231	DL-024	Bonded Press	1
232	DL-025	Dress-Maker's Body Model (for Women-male Pants)	2
233	DL-026	Dress-Maker's Body Model (for Men-male Pants)	2
234	DL-027	Body (for Women-S.M.L.)	3
235	DL-028	Body (for Men-S.M.L.)	3
236	DL-029	Tool Set for Sewing	1
237	DL-030	Coat Hanger	2
238	DL-031	Pattern hanger	2
239	PH-001	Hand Dynamometer	2
240	PH-002	Back & Leg Dynamometer	2
241	PH-003	Platform Scale	2
242	PH-004	Spirometer	2
243	PH-005	Eye-Test Illuminator Chart	2
244	PH-006	Eye-Test Chart	2
245	PH-007	Perimeter	2
246	PH-008	Eye-Test Chart Book	2

NO.	ITEM NO.	ITEM	QTY
247	PH-009	Height Measure	2
248	PH-010	Sitting Height Measure	1
249	PH-011	Adiometer	1
250	PH-012	Personal Computer	5
251	PH-013	Laser Printer	1
252	PH-014	Dot type Printer	1
253	PH-015	Stop Watch	5
254	PH-016	Wice Test	5
255	PH-017	General Vocational Aptitude Tester	5

Note: The Numbers on the equipment list are estimated as the maximized quantities.

Legend

AD: Administration

AS: Metal Work (Small Engine Repair)

MW: Metal Work (Machining)

AW: Metal Work (Welding)

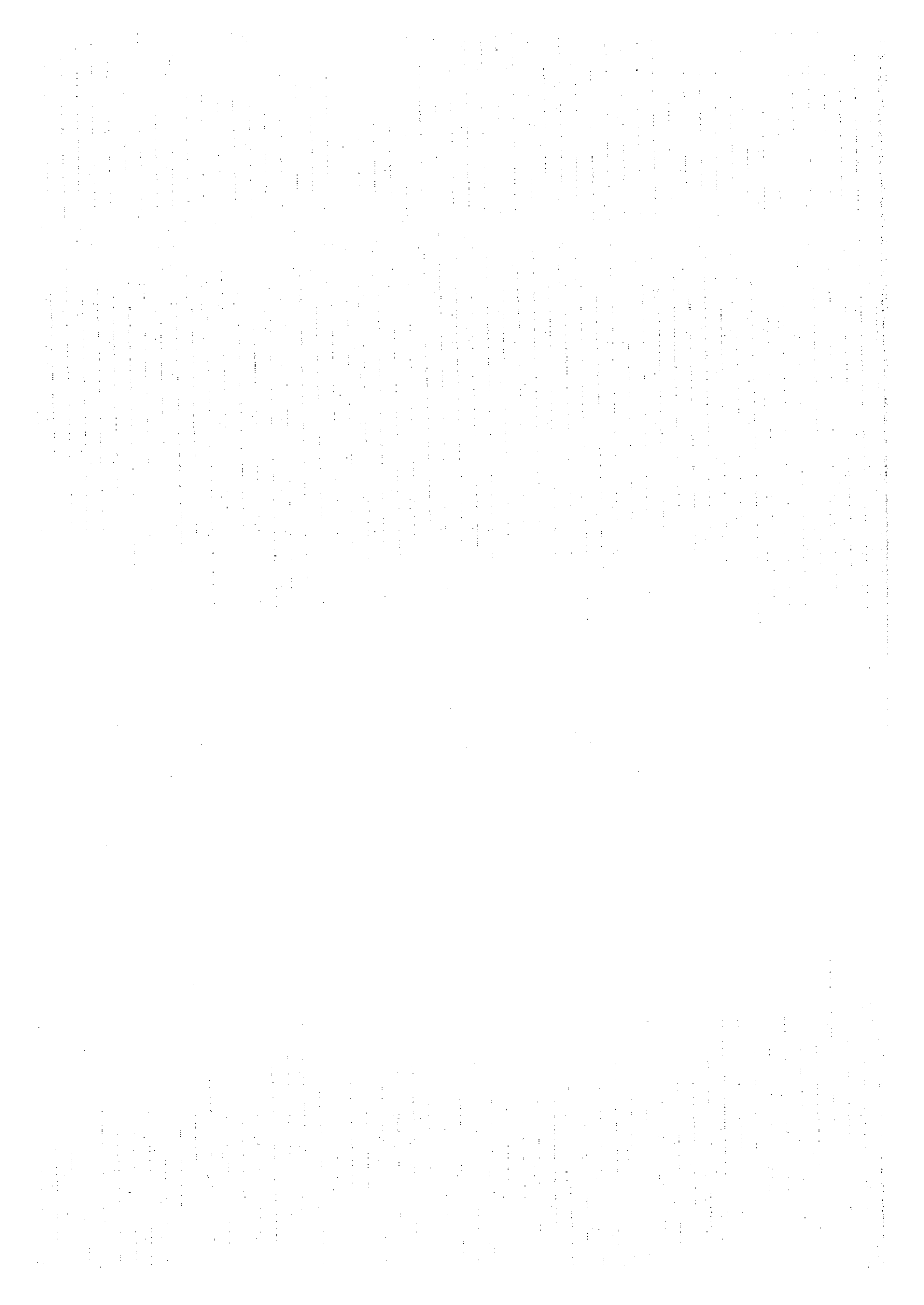
EL: Electronics(Electronic Instrument Assembly & Home Appliance Repair)

CP: Computer

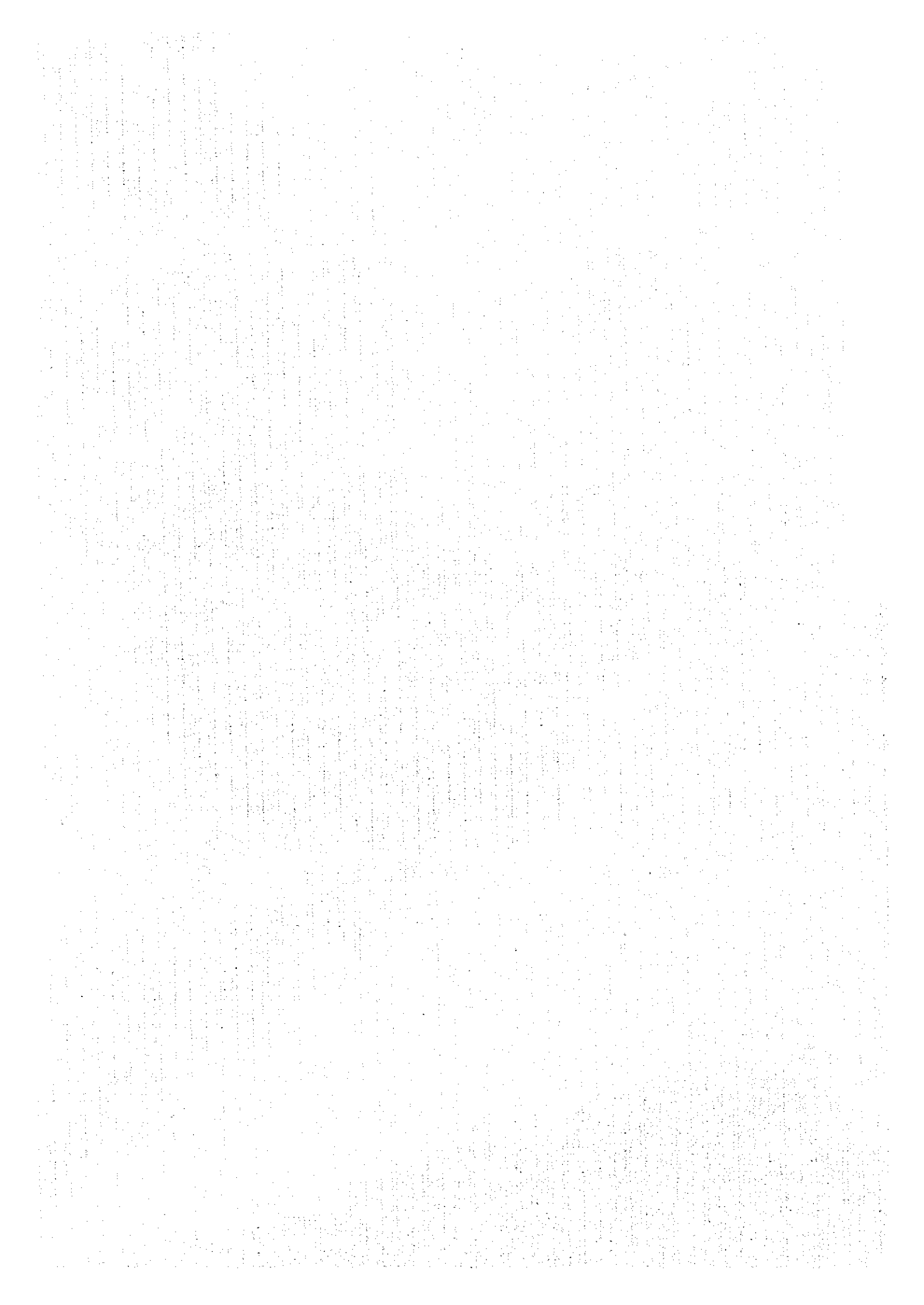
PT: Printing

DL: Textile Work

PH: Assesment/Work Preparation



CHAPTER 3 IMPLEMENTATION PLAN



CHAPTER 3 Implementation Plan

3-1 Implementation Plan

3-1-1 Implementation Concept

The understanding of the basic procedure of this project as Japan's Grant Aid Programme is important prior to the implementation of the Project. The procedure of the Project and the matters to be considered and confirmed are as follows:

(1) Basic Items

- 1) The Exchange of Notes (E/N) for the detailed design shall be concluded between the Japanese Government and the Government of Indonesia after the completion of the basic design study in January 1995.
- 2) With the E/N, Japan shall commit itself officially to assist and initiate specific action.
- 3) After the above-mentioned conclusion, a consultant contract shall be concluded between a consultant of Japanese nationality and the Government of Indonesia and detailed design work shall be started immediately.

(2) Detailed Design Stage

- 1) For the Detailed Design, full details of facilities and equipment in the Basic Design should be carefully confirmed and discussed with the implementation agency.
- 2) The Consultant shall discuss the technical problems through meetings with the relevant authorities in Japan and Indonesia during the Detailed Design stage.
- 3) The detailed drawings will probably require about 4 months to complete after the agreement of the E/N.

(3) Tender

- 1) The tender shall be conducted in accordance with JICA guidelines.
- 2) The Contract shall be conducted either as one package with a Contractor or classified in two packages with a Contractor to carry out the construction work and a supplier for the procurement of the nursing education equipment.
- 3) The Consultant will assist the implementation agency for the contracting of the construction contract in accordance with the guidelines of JICA.

(4) Contractor and Supplier

- 1) The Prime Contractor for the Project will be a Japanese contractor to undertake the construction work, with local contractors sub-contracted by the contractor.
- 2) The Construction should be liaised closely with the procurement of the vocational training and training equipment so that the implementation schedule and technical management can be controlled smoothly.

- 3) It is considered that the transportation plan and schedules for construction equipment and materials are the major factors in formulating an implementation schedule.

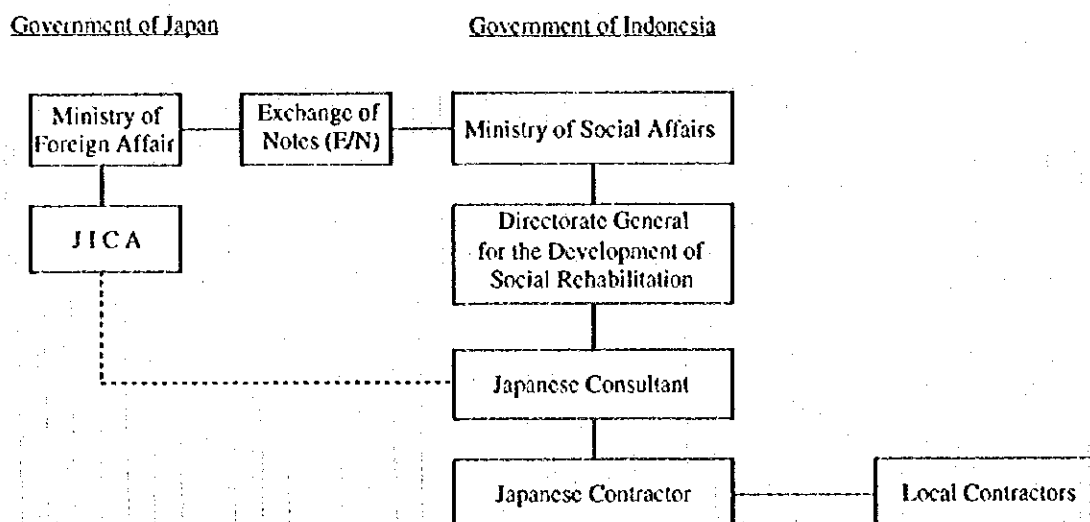
(5) Implementation Organization

The organizations involved in this project are as shown below:

- 1) The Ministry of Social Affairs of the Government of Indonesia is the decision-making body dealing with the Grant Aid Programme;
- 2) The Directorate General for the Development of Social Rehabilitation is the implementation agency which will implement the Project with a Japanese consultant and contractor.

The following diagram shows the relationship between the Government of Indonesia, the Japanese Consultant and the Contractor.

Figure 3-1 Implementation Organization



3-1-2 Implementation Conditions

Based on the consultants experiences from various projects in Indonesia and the result of the basic design study, the study team has recognized that mostly local construction materials should be used, so as to reduce the construction and the operation and maintenance costs. Although most of the vocational training equipment and other fittings for utilities will be imported, the study team has studied, through discussions with local agents, in order to select those materials available in Indonesia. Maximized use of local materials will contribute to the development of local industries.

In the long term view of the project, together with the consideration of the operation and maintenance costs of the project, local construction materials and construction methods of Indonesia should be used.

The specific situation of construction in Indonesia and points to be considered are as follows.

- (1) According to the basic procedure of Japanese Grant Aid , a Japanese contractor will be tendered and will undertake the construction of this project. However, because of

Indonesia's specific conditions on executing building construction such as communication and language problems, local customs and religious matters, local regulations and governmental approval, etc., local contractors will be sub-contracted, to give instructions directly to local labourers, assemble a suitable work force and plan the work allocation.

- (2) Considering the construction constraints of Indonesia, the implementation schedule shall be well-planned particularly in consideration to the rainy season. The civil foundations and building frame works should be executed during the dry season, preferably.
- (3) Basically, Indonesian regulations and laws are respected for the design. However, as for the building regulation, codes and standards for disabled people are not systematically established in Indonesia, and so JIS or ASTM will be applied.
- (4) The implementation schedule should consider the time required for obtaining the approval of the relevant Government authorities for various construction permits.
- (5) Overall project schedules should be formulated in consideration with the technical cooperation Phase II, which will commence in December 1997.
- (6) The reinforcement of the retaining wall on the west boundary of the project site should be executed by the Indonesian side prior to the construction by the Japanese contractor.

3-1-3 Implementation Body of the Project

The Ministry of Social Affairs is the main organization responsible for this project. The Directorate General for the Department of Social Rehabilitation will be in charge of the implementation of the Project. The Project Implementation Unit, will be formulated in order to give advice and to coordinate with the establishment of the NVRC. The Sub-Directorate of Development for the Physically Disabled Rehabilitation will provide technical support. Under the Director General for the Development of Social Rehabilitation is responsible for implementing the actual project.

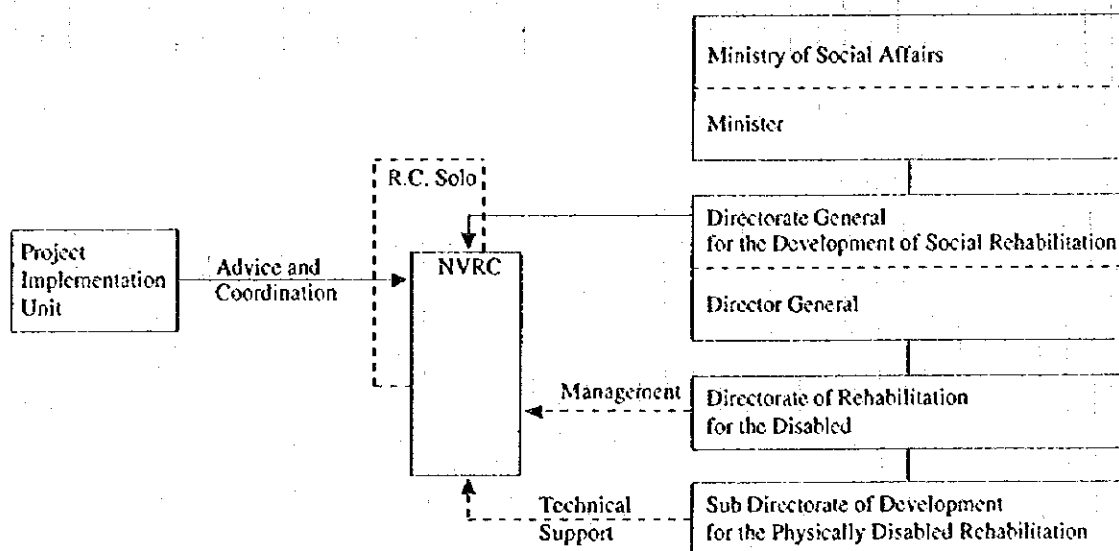


Figure 3-2 Organization of the Project Implementation

3-1-4 Scope of Works

The portions to be dealt with by the Japanese side and by the Government of Indonesia for the implementation of the Japan's Grant Aid Program are shown in Table 3-1

Table 3-1 Extent of Works

Portions by the Japanese Side	Portions by the Indonesia Side
(1) Building Works Structure works, finishing works (2) Electrical Works Power • trunk facilities, lighting, power outlets, P/A systems (3) Utilities and Facilities a) Water Supply b) Sewerage system including piping works up to the connection manhole c) Sanitary facilities d) Elevated tank and reserve tank e) Kitchen facilities f) Fire-fighting facilities g) Electrical system Cabling works from the high tension receiving panel in the PLN room to the facilities. h) Telecommunication system Cabling works from MDF to the facilities, including installation of conduit from the cross connection point at the site boundary to MDF i) Lightning Protection System j) Lighting system in the site (4) Exterior Work a) Road, path and parking lots within the site b) Centre courts and entrance gardens (5) Vocational Training Equipment The provision of equipment for vocational training and staff training (6) Dormitory (7) Gate and Guard House	(1) Site Preparation a) Ground preparation and construction of retaining wall (including the reinforcement of the retaining wall). b) Temporary power and water supply for the construction (2) External Works Landscaping, planting, fence and approach road beyond the site (3) Utilities and Facilities a) Sewerage Piping works from the connection manhole in the site to the existing sewerage line b) Storm Drainage Drainage line from the site to the existing line including the expansion work of the existing drainage line beside the existing school building c) Electrical Work Cabling works from the existing power supply point to the PLN room, the installation of high tension receiving panel and connection works d) Telecommunication Work Cabling work from cross connection point to MDF and connection of cables e) The provision of gas cylinders for the kitchen (4) Others a) Governmental works including the application and obtaining Governmental approvals and permissions b) Smooth custom clearance and tax exemptions for the imported construction materials and equipment (5) Management, operation and maintenance cost for the new building and facilities (6) Tax exemptions and necessary preferential treatment for the construction staff from Japan or a third country (7) Restoration and maintenance works for the existing facilities and equipment