4 協議議事録

(1) 基本設計調査時協議議事録

MINUTES OF DISCUSSIONS
ON
THE PROJECT FOR CONSTRUCTION OF PRODUCTION FACILITIES
OF LIVE ATTENUATED MEASLES AND POLIOMYELITIS VACCINES
IN
THE REPUBLIC OF INDONESIA

In response to the request made by the Government of the Republic of Indonesia, the Government of Japan decided to conduct a basic design study on the Project for Construction of Production Facilities for live attenuated measles and poliomyelitis vaccines (hereinafter referred to as "The Project") and the Japan International Cooperation Agency (JICA) sent a basic design study team headed by Dr. Konosuke Fukai, Chairman, Board of Directors, The Research Foundation for Microbial Diseases of Osaka University from December 1 to December 20, 1988.

The team had a series of discussion with the authorities concerned of the Government of the Republic of Indonesia, headed by Dr. M. S. Nasution, President Director, Perum Bio Farma and conducted a field survey in Bandung.

As a result of the discussions both parties agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

Jakarta, December 9, 1988

Konosuke Fukai
Dr. Konosuke Fukai
Leader
Basic Design Study Team
JICA

Dr. M. S. Nasution
President Director
Perum Bio Farma

Dr. Slamet Soesilo
Director General
of Food and Drug Control
Ministry of Health

ATTACHMENT

1. OBJECTIVE

The objective of the Project is to construct production facilities of live attenuated measles and poliomyelitis vaccines in Perum Bio Farma, the state owned enterprise manufacturing biologicals under the supervision of the Ministry of Health, so that Bio Firma will manufacture the above mentioned vaccines for the Expanded Program on Immunization in Indonesia.

2. SCOPE OF ACTIVITIES

The planned activities in the project facilities are as follows;

2.1 SPF Chiken and Other Animal Breeding

2.2 Bulk Production

2.3 "In process" Quality Control and Quality Control of Final Products

2.4 Filling, Lyophilization and Packaging

3. PROJECT SITE

The project site is in the premise of Perum Bio Farma, 28 Jalan Pasteur, Bandung, West Java, as shown in Annex I.

4. EXECUTING ORGANIZATIONS

The executing organization of the Project is the Ministry of Health and Perum Bio Farma.

(1)Overall responsibilities;

Secretary General of the Ministry of Health

(2)Responsibilities for management and administration;

Director General of Food and Drug Control, the Ministry of Health

(3)Responsibilities for implementation of the Project, and for operation and maintenance of the facilities after its completion;

President Director, Perum Bio Farma

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5. MAJOR ITEMS REQUESTED

The team will convey to the Government of Japan the request of the Government of Indonesia that the former take necessary measures to cooperate by providing the facilities and eqiupment listed in Annex II under the scheme of Japan's Grant Aid.

6. GRANT AID PROGRAM

The Indonesian side has understood Japan's Grant Aid System explained by the team which includes a principle of use of a Japanese consultant firm and Japanese contractors for the implementation.

7. TECHNICAL COOPERATION

The Indonesian side has requested technical assistance from the Government of Japan for the effective and efficient operation of the facilities under the Grant as below;

7.1 Transfer of fundamental technology for production of live attenuated measles and poliomyelitis vaccines

7.2 Dispatching of Japanese experts

7.3 Training of Indonesian counterparts

7.4 Supply of Equipment

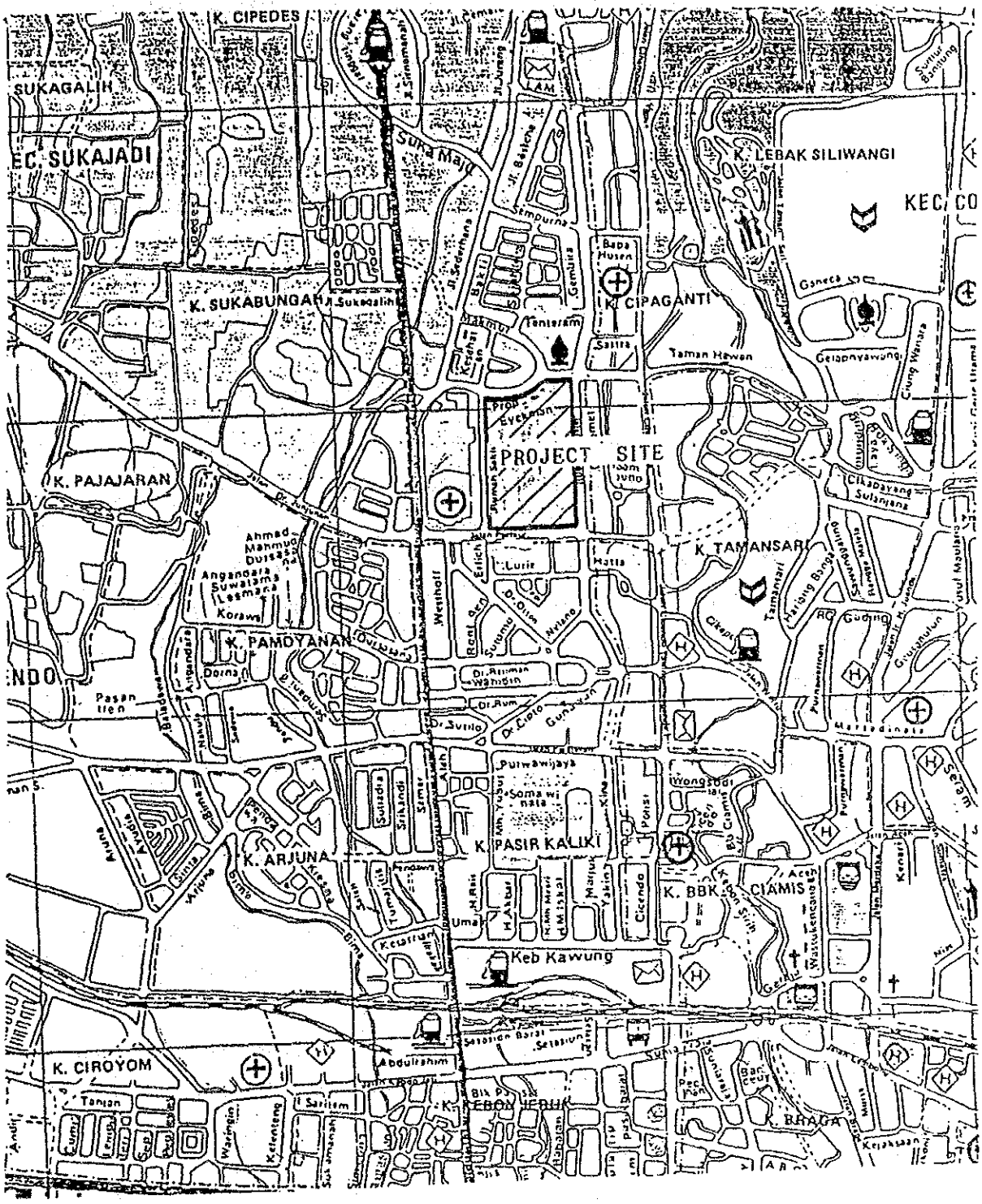
The Team will recommend to the Japanese Government that such assistance be extended under the scheme of Japan's technical cooperation. The details of technical cooperation shall be discussed with the Implementation Survey Team to be dispatched by JICA in 1989.

8. UNDERTAKINGS BY INDONESIAN SIDE

The Indonesian side will take necessary measures listed in Annex III on condition that the Grant Aid would be extended to the Project.

Annex 1

PROJECT SITE



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Annex II

MAJOR ITEMS REQUESTED

1. Measles Vaccine Production Facilities with;
   - 1.1 Washing and Sterilization Room
   - 1.2 Media Preparation Room
   - 1.3 Vaccine Production Area
   - 1.4 Incubation Room
   - 1.5 Filling Room
   - 1.6 Freeze Drying Room
   - 1.7 Labelling and Packaging Room
   - 1.8 Freezer Room
   - 1.9 Store Room
   - 1.10 Office for Record Keeping

2. Poliomyelitis Vaccine Production Facilities with;
   - 2.1 Washing and Sterilization Room
   - 2.2 Media Preparation Room
   - 2.3 Vaccine Production Area
   - 2.4 Incubation Room
   - 2.5 Blending Room
   - 2.6 Filling Room
   - 2.7 Freezer Room
   - 2.8 Store Room
   - 2.9 Office for Record Keeping

3. Quality Control Facilities with;
   - 3.1 Antibody Test Room
   - 3.2 Pathological Specimen Preparation Room
   - 3.3 Sterility Room
   - 3.4 Microscopy Room
   - 3.5 Cold Room
   - 3.6 Cell Culture Room
   - 3.7 Virus Culture Room
   - 3.8 Office for Record Keeping

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4. Animal Facilities with;

4.1 SPF Chicken Breeding Room

4.2 Seed Chicken Breeding Room

4.3 Monkey Breeding Room

4.4 Quarantine Room

4.5 Small Animal Testing Room

4.6 Neurovirulence Room

4.7 Autopsy Room

4.8 Washing and Preparation Room

5. Equipment for the above facilities;

1. Production Facilitiy

A. Bulk Production Area

1. Laminar Flow Cabinet
2. Air Shower
3. Incubation Room
4. Cold Room
5. Pass Box
6. Deep Freezer (-80℃)
7. Freezer (-20℃)
8. Others

B. Washing and Preparation Area

1. Double End Autoclave
2. Double End Drying Oven
3. D. W. I. Production Equipment
4. Bottle Washing Machine
5. Others

C. Filling, Packing and Medium Preparation Area

1. Vials Washing Machine
2. Drying-Sterilizing Cooling Tunnel
3. Filling Machine
4. Full/Half Stoppering Machine

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5. Capping Machine
6. Freeze Dryer for Large Scale Production
7. Chiller Unit (for Freeze Dryer)
8. Air Curtain
9. Pooling Tank 1000liter
10. Laminar Flow Cabinet
11. Air Shower
12. Pass Box
13. Printing Machine
14. Labelling Machine
15. Packaging Machine
16. Cold Room (+4℃)
17. Filtration Devices
18. Others

D. Workshop/General Maintenance Service Equipment
1. Oil-free Air Compressor
2. Electronics Refrigerant Maintenance Tools
3. Air Conditioner Maintenance Tools
4. Glass Pipe Cutting Machine
5. Electronic Service Tools
6. Particle Counter
7. Others

2. Animal Facility

A. SPF Chicken Breeding Area
1. Vinyl Isolator
2. Cage for Chicken
3. Pass Box
4. Incubator
5. Egg Storage Unit
6. Others

B. Washing and Preparation
1. Multi purpose Cage Washer
2. Double End Autoclave
3. Others

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C. Animal Testing Area

1. Cage for Monkey
2. Cage for Mouse
3. Cage for Guinea pig
4. Cage for Rabbit
5. Cage Rack
6. Others

3. Quality Control Facility

A. Pathological Testing Area

1. Microscope
2. Others

B. Virus Antibody Testing Area

1. Deep Freezer (-80℃)
2. Freezer (-20℃)
3. Cold Room
4. Incubation Room
5. Centrifuge (Large Volume Type)
6. Ultra Centrifuge
7. Clean Bench
8. Air Shower
9. Pass Box
10. Others

C. Washing and Preparation Area

1. Double End Autoclave
2. Double End Drying Oven
3. Drying Oven
4. Slow Freezing Machine
5. Others

4. Supporting Facilities

1. Steam Boiler
2. Electric Generator

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Annex III

UNDERTAKINGS BY THE GOVERNMENT OF INDONESIA

1. To secure the land for the Project and clear, level and reclaim the site if necessary.

2. To provide the following facilities /utilities in connection with the Project;

   2.1 Power Distribution to the site

   2.2 Water Supply to the site

   2.3 Main Drainage from the site

   2.4 Gas Supply to the site

   2.5 Telephone Trunkline to the Main Distribution Frame/Panel(MDF) of the Building

   2.6 Perimeter Fencing and Installation of Gates in and around the site

   2.7 Access Roads to the site

   2.8 General Furniture

   2.9 Others

3. To ensure necessary budget and personnel for proper and effective operation and maintenance of facilities and equipment provided under the grant, which includes the following;

   3.1 Recruit and placement of sufficient number of personnel with adequate qualification and experience in;

   1) vaccine production

   2) quality control

   3) animal breeding

   4) operation and maintenance of facilities and equipment

   3.2 Procurement of necessary animals and materials for operation such as;

   1) African green monkey

   2) Cynomolgus monkey

   3) Animal feedstuffs

   4) Media and reagents

   5) Other consumables

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4. To use and maintain properly and effectively the facilities to be constructed and the equipment to be provided under the Grant Aid.

5. To ensure prompt unloading, tax exemption, customs clearance at the port of disembarkation in Indonesia and to ensure prompt internal transportaion of materials and equipment provided under the Grant.

6. To exempt or bear Value Added Tax(VAT), as far as conform with the existing regulation, which will be imposed with respect to procuring products and services necessary for the implementation of the Project in the following cases;
   1) When Japanese nationals sign contracts with the Government of Indonesia.
   2) When Japanese nationals purchase products and services necessary for the construction of the proposed facilities or equipment to be installed in the proposed facilities.
   3) When Japanese nationals sign contracts with Indonesian sub-contractors with respect to the execution of duties under the contracts mentioned above.

7. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contracts such facilities as may be necessary for their entry into Indonesia and stay therein for the execution of the Project.

8. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Indonesia with respect to the supply of the products and services under the verified contracts as far as conform with the existing regulation.

9. To bear all the expenses other than those to be borne by the Grant.

10. To bear the commissions, if necessary, to the Japanese foreign exchange bank for the banking services based upon the banking arrangement.

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(2) ドラフト・レポート説明時協議議事録

MINUTES OF DISCUSSIONS ON THE BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF PRODUCTION FACILITIES OF LIVE ATTENUATED MEASLES AND POLIOMYELITIS VACCINES IN THE REPUBLIC OF INDONESIA

In response to the request made by the Government of the Republic of Indonesia, the Government of Japan decided to conduct a basic design study on the Project for Construction of Production Facilities of Live Attenuated Measles and Poliomyelitis Vaccines (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Republic of Indonesia a team headed by Dr. Konosuke Fukai, Chairman, Board of Directors, the Research Foundation for Microbial Diseases of Osaka University from December 1 to December 20, 1988.

As a result of the study, JICA prepared a draft final report and dispatched a team to explain and discuss it from April 16 to April 22, 1989.

Both parties had a series of discussions on the Report and agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

Jakarta, April 20, 1989

Konosuke Fukai
Dr. Konosuke Fukai
Leader
Basic Design Study Team
JICA

Drs. Darodjatun
President Director
Perum Bio Farma

Dr. Gandung Hartono
Director General
of Communicable Disease Control
and Enviromental Health
Ministry of Health

Drs. Slamet Soesilo
Director General
of Food and Drug Control
Ministry of Health

ATTACHMENT

Major Points of Understanding:

1. Both parties, in principle, agreed to the basic design proposed in the Draft Final Report with minor changes.

2. Both parties understood that the calculation of the production cost should be based on the economical and social aspects. The Indonesian side judged that the depreciation of building and equipment is not included in the estimation of the production cost.

3. The Indonesian side confirmed that necessary staffs and budget would be arranged for the operation after the completion of the project.

4. The Indonesian side reconfirmed the measures to be taken for the realization of the Project as agreed on in the Minutes of Discussions dated December 9, 1988.

5. The Indonesian side wishes the project to be completed in line with the schedule.

6. The Final Basic Design Study Report will be submitted in early June, 1989.

(3) プロジェクト方式技術協力議事録－1

MINUTES OF DISCUSSIONS
ON
FUNDAMENTAL TECHNOLOGY TRANSFER FOR THE PRODUCTION OF LIVE ATTENUATED MEASLES AND POLIOMYELITIS VACCINES
BETWEEN
THE JAPANESE PRELIMINARY SURVEY TEAM
AND
THE INDONESIAN AUTHORITIES CONCERNED

The Japanese Preliminary Survey Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (JICA) and headed by Dr. Konosuke FUKAI, Chairman, Board of Directors, Research Foundation for Microbial Diseases of Osaka University visited the Republic of Indonesia from February 29 to March 9,1988, for the purpose of making the study on the Fundamental Technology Transfer for the Production of Live Attenuated Measles and Poliomyelitis Vaccines Project (hereinafter referred to as "the Project") requested by the Government of the Republic of Indonesia.

The Team had a series of discussions and exchanged views with the Indonesian authorities concerned, and observed the related facilities. As the result of the discussions and study, both sides agreed to record the essential matters referred to in the Annex attached hereto.

Jakarta, March 8, 1988

Konosuke Fukai
Dr. Konosuke FUKAI
Leader,
Preliminary Survey Team,JICA

Dr. M.S.Hasution
President Director,
Perum Bio Farma

DIREKTORAT JENDERAL PENGAWASAN OBAT DAN MAKANAN

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ector General
of Food and Drug Control
Ministry of Health

[Annex]

1. The name of the Project :

Fundamental Technology Transfer for the Production of Live Attenuated Measles and Poliomyelitis Vaccines

2. Summary of Discussion :

The signifcance of the project proposal in improving general health status of Indonesian people and the eligibility of the project have been confirmed through the mutual discussion and an observation by the Mission revealing that the Government of Indonesia places great emphasis upon reducing infant morbidity and mortality from communicable diseases preventable by vaccination with the sharp increased coverage rates so far achieved as in one of the targets of the 4th Five Year Developoment Plan (REPELITA IV), and promising potentiality in facilities and staff currently possessed by Perum Bio Farma.
However both sides acknowledge the necessity of assistance under the grant aid scheme as for the facilities.

In order to materialize with the subsequent maintenance the proposed project, Indonesian side has stressed its determination to make the best efforts in establishing the multi-sectoral supporting system for not only the production itself but also for the proper function of distribution-vaccination procedure through the well organised administrative channels irrespective of limited cooperation period.

Under such circumstances, detailed discussion for the decision of the tentative implementation plan of the project prior to the conclusion of the Record of Discussion will be highly recommended.

3.Project Site (Execution Organization)

Perum Bio Farma, Bandung

4.Indonesian Organization Responsible for the Project.

(1)Overall responsibilities:

Secretary General of Ministry of Health

(2)Responsibilities for management and administration:

Director General of Food and Drug Control,
Ministry of Health

(3)Responsibilities for implementation of the Project:

President Director,
Perum Bio Farma

(4) プロジェクト方式技術協力議事録－2

MEMORANDUM OF DISCUSSION
ON THE FUNDAMENTAL TECHNOLOGY TRANSFER PROJECT
FOR PRODUCTION OF LIVE ATTENUATED MEASLES AND POLIOMYELITIS VACCINE

The Japanese Study Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (JICA) visited the Republic of Indonesia from 25th August to 4th September 1988. The Team had discussions on the implementation plan of the Fundamental Technology Transfer Project for Production of Live Attenuated Measles and Poliomyelitis Vaccines (hereinafter referred to as "the Project") with the Indonesian Authorities concerned. For the final decision which will be made at the signing of the Record of Discussions on the implementation of the Project, the Team and Perum Bio Farma agreed to record the results of discussions as the document attached hereto.

Jakarta, 3rd September, 1988

Konosuke Fukai

Dr. Konosuke Fukai
Leader
Japanese Study Team, JICA

Dr. M.S. Nasution
President Director
Perum Bio Farma

DIREKTORAT JENDERAL PENGAWASAN OBAT DAN MAKANAN
RI

Dr. Slamet Soesilo
Director General
of Food and Drug Control
Ministry of Health

LIST OF PARTICIPANTS

Perum Bio Farma

M.S. Nasution
President Director of Perum Bio Farma

J. Sutaryo
Production Director of Perum Bio Farma

Mrs. S. Soeharto
Director of Finance of Perum Bio Farma

Mrs. Ina Madiadipura
Chief, Bureau of Viral Vaccine Production

Benny Kaligis
Chief, Department of Viral Vaccine Quality Control

Japanese Study Team

Fukai, Konosuke
Chairman, Board of Directors, Research Foundation for Microbial Diseases of Osaka University

Yoshioka, Isao
Executive Director, Japan Poliomyelitis Research Institute

Yamamoto, Hiroshi
Vice-Chief, Section of Manufacture, Laboratory Division, Japan Poliomyelitis Research Institute

Miyatake, Katsumasa
Supervisor, Research and Development Department, Kanonji Institute, Research Foundation for Microbial Diseases of Osaka University

Taguchi, Tohru, JICA Office, Jakarta.

Annex I.

I. Technical Cooperation

1. Bio Farma expressed to prefer the start of measles and polio sections of the project simultaneously. The team agreed to the proposal with reservation that some phase differences may occur between two sections in project execution.

2. The implementation of the project will be step-wise as shown in the followings :

   1) Transfer of basic technology for measles and polio vaccines production and control

   2) Pilot production of measles vaccine

   3) Pilot production of polio vaccine

   4) Basic production of measles vaccine

   5) Basic production of polio vaccine

   6) Consolidated production of both measles and polio vaccines.

   Details are shown in Annex 2.

3. A term of 5 years is adequate as the project period.

4. To anticipate the implementation and execution of the project, both side recommended that the Japanese Government invite senior staff members of Bio Farma to visit the facilities of the participated organizations in Japan before starting the project.

5. Bio Farma will dispatch 3 counter parts every year to receive training in Japan.

   The candidates for 1988/89 and 1989/90 fiscal years are as the followings :

1988/89 Mr. Sugeng Raharso, DVM (measles SPF egg production)

Mr. Erman Boedisetianto, MD (measles vaccine production)

Mrs. Ina Madiadipura, MD (polio vaccine production)

Mr. Agus Wahyu Widayanto,DVM (neurovirulence test)

1989/90 Mrs. Kartini, MD (polio vaccine production)

Mr. Benny Kaligis, MD (polio vaccine quality control)

Mrs. Itjeu Salim (polio vaccine production)

Mr. Castam Fahtadinata (measles vaccine production)

(For the following years, nomination has not yet been done).

Further, Bio Farma requested to the team to accept two more trainees for measles vaccine production every year, utilizing "Training course of biologicals production". The team promised to consider the request.

Candidates of this category are :

1988 Mrs. Lia Siti Halimah, DVM (measles vaccine production)

Mrs. Antik Tjantika, Biologist (measles vaccine control and test)

1987 Mr. Sufirman (measles vaccine, freeze drying)

Mr. Gaos Setjapradja (measles vaccine production).

(Refer Annex 2).

6. The list of equipment to be used for the project execution is attached as Annex 3.

7. As the measles vaccine strain, CAM-70 strain which has been successfully used in Japan and in South American countries since 1970, will be used. Small scale comparative field study between currently used measles vaccine in Indonesia and CAM-70 vaccine

will be conducted as a part of the project activity, to validate the adoption of CAM-70 strain.

8. When the pilot products of measles and polio vaccines become available in the project, small scale field study will be conducted to confirm their safety and usefulness.

9. WHO requirement for measles and polio vaccines will be applied for production of the vaccines.

10. To submit application of OPV (Sabin) production in Bio Farma for WHO should be considered prior to the basic production of the vaccine.

II. Grant Aid

In connection with the grant aid,

1. Bio Farma has expressed as follows :

   a) Production of 7.5 million doses of measles vaccine (10 doses/vial) and 20 million doses of polio vaccine (10 doses/vial) is the ultimate goal.

   b) Supply of SPF eggs from outside do not fulfill the specific requirements. The production of SPF eggs for measles vaccine production has to be managed by Bio Farma itself.
   Moreover, as special precaution is indispensable for treatments, Bio Farma has to take care of monkeys for vaccine production.
   Animal facility of a little larger scale than that shown in the original proposal will be necessary to perform these tasks.

c) Bio Farma prefers completion of all construction of the facilities in single phase, except unavoidable circumstances.

d) The facilities should be compatible with international standards, such as GMP standard of US FDA, considering the inspection of WHO.

2. Tentative floor plans of the facilities are attached as Annex 4A 4B 4C. $4D_1$ and $4D_2$

3. The list of equipment is attached as Annex 5.

TECHNICAL COOPERATION

MAIN EQUIPMENT FOR MEASLES & OPV VACCINE PRODUCTION

1. Production Facility First Floor

A. Bulk Production Area

Equipment No.	Name of Equipment	Number of Equipment: Measles Vacc.	Number of Equipment: O P V
1	Centrifuge	2	3
2	Microscope	2	8
3	Precission Water Bath	2	1
4	Deep Freezer (-80°C) for Bulk	3	5
5	Vacuum Pump	1	1
6	Compressor	1	1
7	Magnetic Stirrer	1	15
8	Personal Computer (PC) + printer (complete set)	2	2
9	Deep freezer (-20°C)	-	8
10	Roux bottle 1.5 L	-	3,000

B. Washing and Preparation Area

Equipment No.	Name of Equipment	Number of Equipment: Measles Vacc.	Number of Equipment: O P V
11	Ultra Filtration Unit	1	-
12	pH meter	1	1
13	Electronic Balance	1	1

C. Filling, Packaging and Medium Preparation Area

Equipment No.	Name of Equipment	Number of Equipment: Measles Vacc.	Number of Equipment: O P V
14	Freeze Dryer	1	-
15	Osmometer	1	-
16 a.	Glassware (Specification will be described later)	PM	PM
b.	Reagents	PM	PM
c.	Medium	PM	PM
d.	Miscellaneous	PM	PM
17	Moisture Content apparatus	1	-
18	Liquid Nitrogen tank	3	6

Equipment No.	Name of Equipment	Number of Equipment	
		Measles Vacc.	O P V
19	Spectrophotometer	1	1
20	Filtration Device (cartridge type)	-	5
21	Gas Sterilizer	-	3
22	Filtration Device (Disk type)	4	4
23	Cell dispenser	-	6
24	Pooling tank 300 L	-	3
25	Pooling tank 100 L	-	8

TECHNICAL COOPERATION

MAIN EQUIPMENT FOR MEASLES & OPV VACCINE PRODUCTION

1. Animal Facility First Floor

A. SPF Chicken Breeding Area

Equipment No.	Name of Equipment	Number of Equipment
1	Vinyl Isolator	10
2	Cage for SPF Chicken	10
3	Cage for SPF Chick	5
4	Incubator	1

B. Washing and Preparation Area

Equipment No.	Name of Equipment	Number of Equipment	
		Measles vacc.	O P V
5	Poly-Sealer (Feed - Packing Machine)	2	-
6	Desinfection tank	2	2

C. Animal Testing Area

Equipment No.	Name of Equipment	Number of Equipment	
		Measles vacc.	O P V
7	Fixing Box for Monkey	2	6
8	Cage for Monkey	50	50
9	Cage for Mice	150	-
10	Cage for Guinea Pigs	15	15
11	Cage for Rabbit	15	15
12	Cage Rack	15	15
13	Balance (for Monkey)	4	6
14	Electronic Balance (for - Small Animal)	7	-
15	Electronic Thermometer	2	-
16	Refrigerator	2	2
17	Autopsy kit (set)	1	5

TECHNICAL COOPERATION

MAIN EQUIPMENT FOR MEASLES & OPV VACCINE PRODUCTION

1. Quality Control Facility — Second Floor

A. Pathological Testing Area

Equipment No.	Name of Equipment	Number of Equipment	
		Measles vacc.	OPV
1	Microscope	1	15
2	Precision water bath	1	10
3	Tissue Embedding Console	1	-
4	Microtome	1	-
5	Refrigerator	1	-
6	Warming Plate	1	-
7	Paraffin oven	1	-
8	Paraffin Block Humidifier	1	-
9	Auto Technicon	1	-
10	Fluorescens Microscope	2	-
11	Cryostat (Freezing Microtome)	1	-
12	Deep Freezer	1	-
13	Ice maker unit	1	1

B. Virus, Antibody Testing Area

Equipment No.	Name of Equipment	Number of Equipment	
		Measles vacc.	OPV
14	Equipment for ELISA, complete set	1	1
15	Incubator (37°C)	1	2
16	CO_2 - Incubator	4	1
17	Deep Freezer (-80°C)	1	3
18	Freezer (-20°C)	1	5
19	Centrifuge (Small Volume)	1	2
20	Magnetic Stirrer	1	10
21	Ultra Filtration Unit	1	1
22	Water Bath	1	1

C. Washing, and Preparation Area

Equipment No.	Name of Equipment	Number of Equipment	
		Measles vacc.	OPV
23	Cell dispenser	-	5

GRANT AID

MAIN EQUIPMENT FOR MEASLES & OPV VACCINE PRODUCTION

1. Production Facility First Floor

A. Bulk Production Area

Equipment No.	Name of Equipment	Number of Equipment: Measles Vacc.	Number of Equipment: O P V
1	Laminar Flow Cabinet	3	3
2	Air Shower	2	2
3	Hand Washer	4	5
4	Incubation Room (37°C)	1	1
5	Incubation Room	1 (27°C)	2 (33.5°C)
6	Pass Box	2	2
7	Deep Freezer (-80°C) for Bulk	20	15
8	Freezer (-20°C)	2	7
9	Roux Bottle 1.5 L	1500	7,000
10	Magnetic Stirrer	-	15

B. Washing and Preparation Area

Equipment No.	Name of Equipments	Number of Equipments: Measles Vacc.	Number of Equipments: O P V
11	Double End Autoclave	3	6
12	Double End Dry Oven	2	2
13	D.W.I. Production Equipment	1	-
14	Roux Botttle Washing Machine	1	-
15	Washing Machine	3	-
16	Dryer (after washing)	2	-
17	Dry Oven	1	1
18	Cold Room (4°C)	1	-
19	Vacuum-Drying Oven	1	-

C. Filling, Packaging and Medium Preparation Area

Equipment No.	Name of Equipment	Number of Equipment	
		Measles Vacc.	O P V
20	Automatic vials washing machine	1	1
21	Drying-Sterilizing Cooling Tunnel	1	1
22	Accumulating Table	2	1
23	Filling Machine	1	1
24	Full/Half Stoppering Machine	1	1
25	Collecting table.	2	1
26	Freeze Dryer for large scale production	1	-
27	Chiller Unit (for Freeze Dryer)	1	-
28	Air Curtain	1	1
29	Capping Machine	1	1
30	Inspection Machine	1	1
31	Pooling Tank 1000 L	1	-
32	Laminar Flow Cabinet	2	2
33	Air Shower	1	1
34	Hand Washer	2	2
35	Pass Box	2	2
36	Printing Machine	1	1
37	Labeling Machine	1	1
38	Leaflet folding Machine	1	-
39	Packaging Machine	1	1
40	Cold Room (4°C)	2	-
41	Particle Counter	1	-
42	Filtration Device (Cartridge type)	-	5
43	Filtration Device (Disk type)	4	4

D. Workshop/General service

Equipment No.	Name of Equipment	Number of Equipment
44	Oil-free Air Compressor	1
45	Electric Generator	1
46	Steam Boiler	1
47	Electronic Refrigerant leak detector	1
48	Air conditioning tool cabinet	1
49	Air velocity indicating instrument	1

Equipment No.	Name of Equipment	Number of Equipment
50	Duct calculator, metric system	1
51	Glass pipe cutter machine	1
52	Complete electronic tool set	1

GRANT AID

MAIN EQUIPMENT FOR MEASLES & OPV VACCINE PRODUCTION

1. Animal Facility First Floor

A. SPF Chicken Breeding Area

Equipment No.	Name of Equipment	Number of Equipment
1	Vinyl Isolator	25
2	Cage for SPF Chicken	25
3	Pass Box	2
4	Incubator	2
5	Egg Storeroom unit (17°C)	1

B. Washing and Preparation Area

Equipment No.	Name of Equipment	Number of Equipment	
		Measles Vacc.	O P V
6	Multi purpose Cage Washer	2	2
7	Washing Machine with dryer (household type)	2	1
8	Double End Autoclave	4	1
9	Electric Autoclave	1	1

C. Animal Testing Area

Equipment No.	Name of Equipment	Number of Equipment	
		Measles Vacc.	O P V
10	Cage for Monkey	150	450
11	Cage for Mice	350	200
12	Cage for Guinea Pigs	35	35
13	Cage for Rabbit	35	35
14	Cage Rack	35	35

GRANT AID

MAIN EQUIPMENT FOR MEASLES & OPV VACCINE PRODUCTION

1. Quality Control Facility Second Floor

A. Pathological Testing Area

Equipment No.	Name of Equipment	Number of Equipment	
		Measles Vacc.	O P V
1	Microscope	-	10

B. Virus, Antibody Testing Area

Equipment No.	Name of Equipments	Number of Equipments	
		Measles Vacc.	O P V
2	Deep Freezer (-80°C)	-	2
3	Freezer (-20°C)	-	5
4	Cold Room	2	1
5	Incubation Room (37°C)	1	2
6	Centrifuge (Large Volume)	1	1
7	Ultra Centrifuge	1	1
8	Magnetic Stirrer	-	10
9	Clean Bench	3	3
10	Air Shower	1	1
11	Hand Shower	2	2
12	Pass Box	1	1

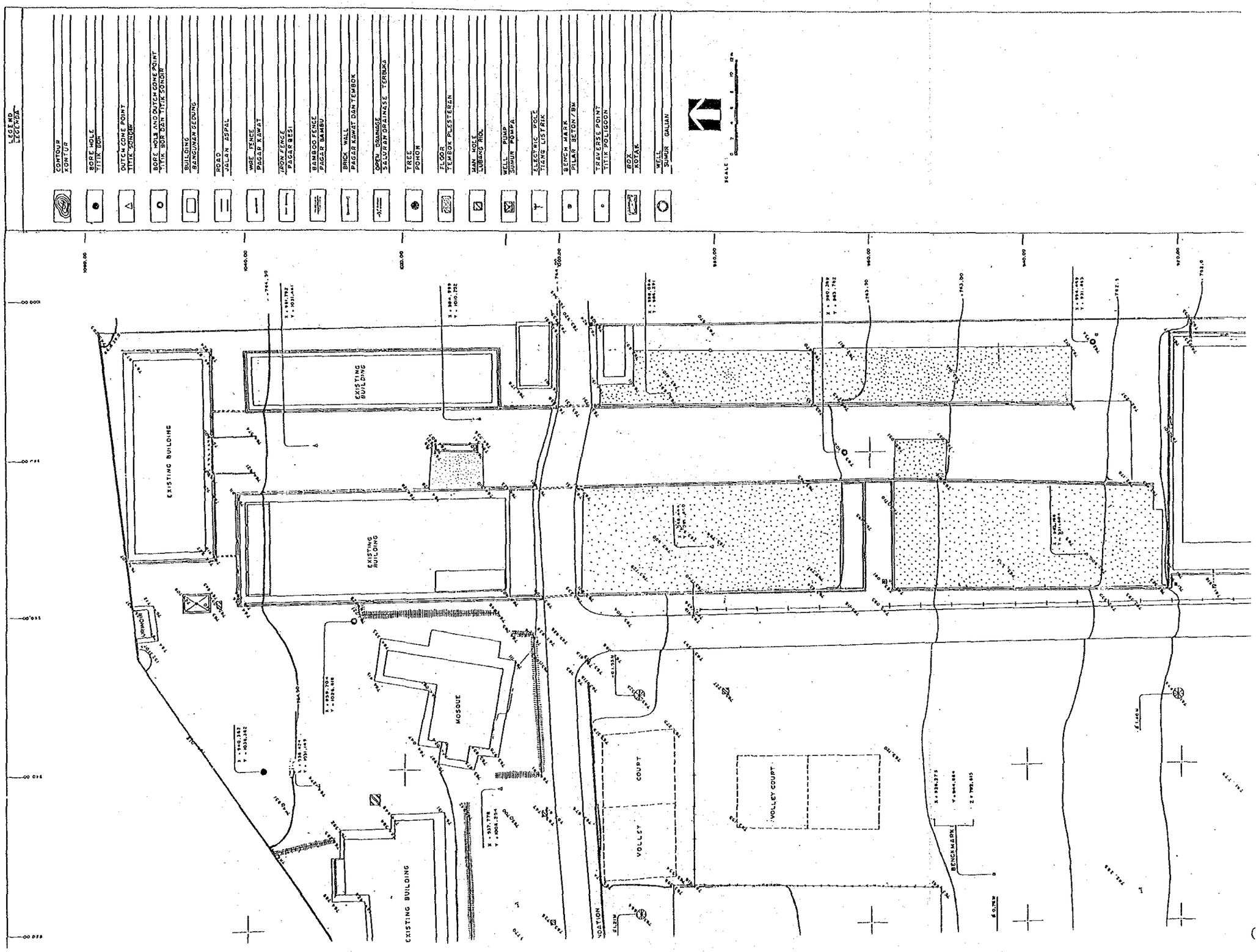
C. Washing and Preparation Area

Equipment No.	Name of Equipments	Number of Equipments	
		Measles Vacc.	O P V
13	Double End Autoclave	2	2
14	Double End Dry Oven	1	1
15	Washing Machine	2	2
16	Dryer	2	2
17	Slow Freezing Machine	-	1

5．建設予定地状況

(1)　敷地現況写真

(2) 敷地測量図・ボーリングデータ



敷地測量図

ボーリングデータ

SOIL INVESTIGATION
FOR THE PROPOSED TWO AND THREE STORY BUILDINGS
AT JALAN PASTEUR NO. 28
BANDUNG, INDONESIA

I. INTRODUCTION

This report presents data developed from soil investigation for the Proposed Buildings at Jalan Pasteur No. 28, Bandung, Indonesia.

The location of the project site is shown on plate 1 enclosed in this report.

This report presents as follows :

a. Data from the results of drillings, cone penetration tests and laboratory tests.

b. Recommendation of foundation of the proposed building based on the subsurface condition encountered.

II. SCOPE AND PURPOSE

The purpose of this soil investigation is to explore the subsurface conditions of the site, to evaluate the strength of the layers encountered and develope recommendation of foundation of the proposed building.

The scope of the investigation included :

a. Field exploration program to evaluate the subsurface conditions of the site and to obtain samples for logging and laboratory testing.

b. Laboratory testing on undisturbed samples taken from the boring holes.

c. Recommendation of foundation for the proposed building.

The field exploration was performed during the period of December 05 to December 16 1988.

Details of the field explorations and laboratory testings are presented in the Appendices I and II in this report.

III. SUBSURFACE CONDITIONS

The subsurface conditions of the site were investigated by performing 10 points cone penetration tests (CPT) and 4 points drilling.
Drillings were performed to 25 m deep each from the existing ground surface.

A brief summary of subsurface conditions are as follows :

POINT NO.	RANGE OF DEPTH IN METERS	STRATUM DESCRIPTION
1	0.00 - 0.50	fill material
	0.50 - 4.45	silty clay, medium stiff

POINT NO.	RANGE OF DEPTH IN METERS	STRATUM DESCRIPTION
	4.45 - 9.00	tuffaceous silty clay, silt, soft to medium stiff
	9.00 - 11.45	silty sand, medium dense
	11.45 - 16.00	gravelly sand, dense to very dense
	16.00 - 25.40	gravelly sand, very dense
3	0.00 - 0.85	sandy gravel, fill material
	0.85 - 4.00	silty clay, medium stiff
	4.00 - 9.00	tuffaceous silt, soft
	9.00 - 12.00	silty sand, medium dense to dense
	12.00 - 25.25	gravelly sand, very dense
8	0.00 - 4.00	silty clay, soft
	4.00 - 8.00	tuffaceous silt, soft
	8.00 - 10.00	tuffaceous silt, stiff
	10.00 - 16.00	silty sand, very dense
	16.00 - 20.00	gravelly sand, very dense
	20.00 - 25.30	sandy silt, hard
10	0.00 - 3.50	silty clay, medium stiff
	3.50 - 8.15	tuffaceous silt, stiff
	8.15 - 10.25	tuffaceous silt, very stiff
	10.25 - 16.20	silty sand, dense to very dense
	16.20 - 23.00	gravelly sand, very dense
	23.00 - 25.30	sandy silt, hard

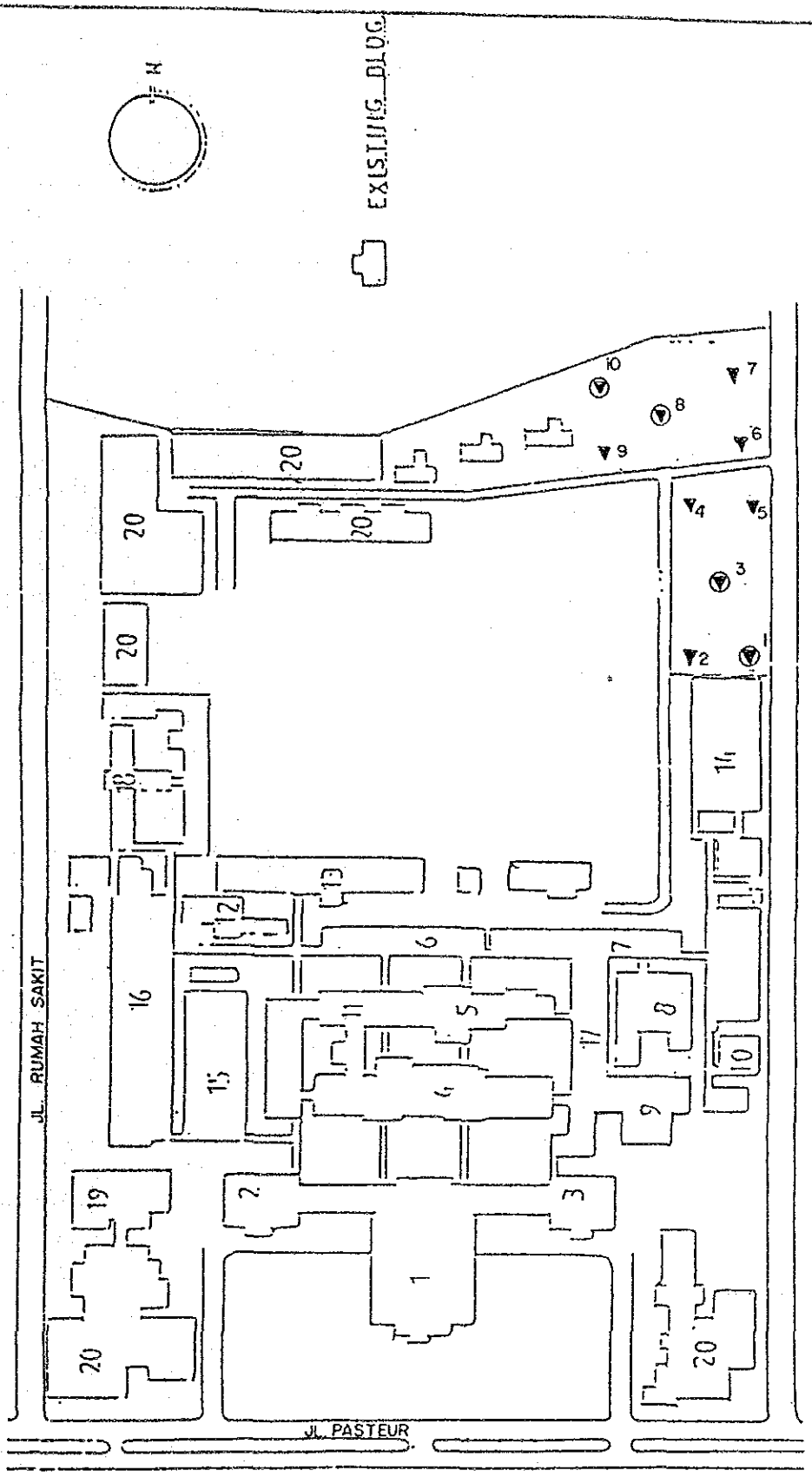
The highest ground water level (GWL) measured in the boring holes during drilling performance are as follows :

POINT NO.	GWL IN METER FROM THE EXISTING GROUND SURFACE
1	- 4.10
3	- 4.25
8	- 4.60
10	- 4.60

From the results of CPT points 1 to 7 the average cone resistance from existing ground surface to 7.00 m depth ranging from 2 to 8 kg/cm2 (soft soil layers), the hard layer with cone resistance of more than 200 kg/cm2 encountered at depths between 8.80 to 10.00 m from the existing ground surface.

CPT points 8 to 10 from existing ground surface to 8.00 m depth the cone resistance ranging from 2 to 6 kg/cm2 (soft soil layers), the hard layer with cone resistance of more than 200 kg/cm2 found at the depth vary from 9.20 to 10.00 m from the existing ground surface.

The locations of boring holes and cone penetration tests could be seen in the map plate 1 and the results presented as bor logs plates A.2.1 to A.2.4 and graphs plates A.1.1 to A.1.10 enclosed in this report.



LEGEND :

○ BORING POINT

▼ CPT POINT

LOCATION OF BORING AND CPT POINT
Bio Farma – Jalan Pasteur, Bandung
SCALE 1 : 2000

PLATE I

BORING LOG

Pt. SOILENS

PROJECT	BIO FARMA – BANDUNG
JOB NO.	1319
CLIENT	PERUM BIO FARMA
LOCATION	JALAN PASTEUR NO.28, BANDUNG
BORE HOLE NO.	1
ELEVATION	
COORDINATES	
DEPTH	25.40 m.
GROUND WATER LEVEL	–4.10 m. IN DEPTH.

DATE STARTED	December 5, 1989
DATE COMPLETED	December 7, 1989
BORING METHOD	Coring, Sampling
SAMPLING METHOD	Thin Walled (Shelby) Tube
STANDARD PENETRATION TEST TYPE	Cable Hoisted Hammer (CHH)

FOREMAN : Furkon
DRILL MASTER : E. Syaefudin
LOGGED BY : Furkon
REVIEWED BY : Aditin Soedarto
DRAWN BY : Oeddy S.
CHECKED BY : Wirastusrini
APPROVED BY : Rismantojo

Depth in meter	USCS Symbol	Rock / Soil Description
0.50	ML	CLAYEY SILT, brown coloured, few fine grained sand and gravels, stiff, moist. (fill material)
4.45	CH	SILTY CLAY, dark brown coloured, trace organic matter at 3.45 – 4.00 meters depth, soft to medium stiff.
8.25	CL	TUFFACEOUS SILTY CLAY, brown coloured, trace gravels at 4.45 – 5.00 meters depth, medium plastic, soft.
9.00	ML	TUFFACEOUS SILT, light brownish gray coloured, soft, saturated.
11.45	SM	SILTY SAND, brown coloured, trace gravels, medium to coarse grained sand, gravels sized Ø 0.50–2.00 cm, angular, medium dense to dense.
18.00	SP	GRAVELLY SAND, brown coloured, few silt, medium to coarse grained sand, gravels sized Ø 0.50–3.00 cm, angular to subangular, uncemented, medium dense to dense.
25.40	SP	GRAVELLY SAND, brown coloured, trace silt, medium to coarse grained sand, gravels sized Ø 0.50–3.00 cm, angular to subangular, uncemented, very dense.

END OF THIS BORING.
CASING DOWN TO –23.25 METERS DEPTH.

SAMPLE: 1.00 – 1.75; 5.00 – 5.75

POCKET PENETRATION TEST q_u, Kg/cm²: 1.00 – 1.50; 1.25 – 1.25; 2.20 – 1.50; 3.00 – 1.25; 3.45 – 1.25; 4.00 – 1.25; 4.45 – 1.25; 5.00 – 1.50; 5.75 – 1.50; 6.25 – 1.50; 7.00 – 1.25; 7.45 – 1.25; 8.00 – 1.00; 8.45 – 1.00; 9.00 – 1.00

STANDARD PENETRATION TEST

Depth in meter	Number of Blows (blows/cm)
1.90	5, 30
3.15	4, 30
4.15	5, 30
5.90	2, 40
7.15	4, 30
8.15	2, 30
9.15	19, 30
10.15	48, 30
11.15	22, 30
12.15	61, 30
13.15	14, 30
14.15	26, 30
15.15	73, 30
16.15	25, 27
17.15	50, 26
18.15	50, 26
19.15	91, 29
20.15	92, 23
21.15	50, 30
22.15	85, 25
23.15	85, 25
24.15	88, 23
25.15	84, 25

Graph of N: N/FOOT (20, 40, 60, 80, 100)

Recovery % (20, 40, 60, 80, 100); R.Q.D. %

WEATHERING	
F	rock fresh, crystals bright, few joints may show slight staining.
VSw	rock generally fresh, joint stained, some joints may show clay if open.
Sw	rock generally fresh, joint stained and discoloration extends into rock up to 1 in. Open joints contain clay.
Mw	significant portions of rock show discoloration and weathering effects, except quartz.
W	all rock except quartz discolored or stained some fragments of strong rock usually left.
HW	mass effectively reduced to "Soil" with only fragments of strong rock remaining.
CW	rock reduced to "Soil".

HARDNESS OF ROCK	
very soft	can be scratched easily with finger nail.
soft	can be scratched with finger nail.
moderately hard	can be scratched easily with knife, can't be scratched with finger nail.
hard	difficult to scratched with knife.
very hard	can't be scratched with knife.

HARDNESS OF SOIL

140 lb. Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency	
0 to 4	very loose	0 to 2	very soft
4 to 10	loose	2 to 4	soft
10 to 30	medium dense	4 to 8	medium stiff
30 to 50	dense	8 to 15	stiff
50+	very dense	15 to 30	very stiff
		30+	hard

Proportions Used		
trace	0 to 10%	
few	10 to 20%	
some	20 to 35%	
and	35 to 50%	

FORM SF. 01 B

PLATE A.2.1

BORING LOG

P.T. SOILENS

PROJECT	BIO FARMA – BANDUNG
JOB NO.	1319
CLIENT	PERUM BIO FARMA
LOCATION	JALAN PASTEUR NO.28, BANDUNG
BORE HOLE NO.	3
ELEVATION	
COORDINATES	
DEPTH	25.25 m.
GROUND WATER LEVEL	–4.25 m. IN DEPTH.

DATE STARTED	December 8, 1988
DATE COMPLETED	December 10, 1988
BORING METHOD	Coring, Sampling
SAMPLING METHOD	Thin Walled (Shelby) Tube
STANDARD PENETRATION TEST TYPE	Cable Hoisted Hammer (CHM)

FOREMAN : Furkon
DRILL MASTER : E. Syaifudin

LOGGED BY : Furkon
REVIEWED BY : A. Soedarto

DRAWN BY : Deddy S.
CHECKED BY : Wirastuti/al

APPROVED BY : Rismentoja

SCALE	SAMPLE	ELEVATION in meter	DEPTH in meter	USCS. SYMBOL	GRAPHIC SYMBOL	ROCK / SOIL DESCRIPTION
			0.05	QP		asphalt penetration
1	1.00		0.25			SANDY GRAVELS, brown coloured, few silt, with boulder Ø 10.00 – 20.00 cm (fill material)
2	1.70			CH		SILTY CLAY, dark brown coloured, few carbonized matter at 1.00 – 1.80 meters depth, high to medium plastic, medium stiff.
3						
4	4.00		4.00	ML		TUFFACEOUS CLAYEY SILT, brown coloured, medium plastic, medium stiff
5	4.70					
6						
7			7.00	ML		TUFFACEOUS SILT, light brownish gray coloured, trace gravels at 8.45 – 9.00 meters depth, low plastic, soft
8						
9			9.00	SM		SILTY SAND, light brown coloured, medium to coarse grained sand, gravels sized Ø 0.50–3.00 cm, angular shaped, uncemented, medium dense to dense.
10						
11						
12			12.00	SP		GRAVELLY SAND, brown coloured, few silt, coarse to medium grained sand, gravels sized Ø 0.10 – 3.00 cm, angular to subangular shaped, uncemented, dense to very dense.
13						
14						
15						
16						
17			17.00	SP		GRAVELLY SAND, brown coloured, trace silt, medium to coarse grained sand, gravels sized Ø 0.50–3.00 cm, angular to subangular shaped, uncemented, very dense.
18						
19						
20						
21						
22						
23						
24						
25			25.25			END OF THIS BORING. CASING DOWN TO –24.40 METER DEPTH.
26						
27						
28						
29						
30						

DEPTH in meter	POCKET PENETRATION TEST q_u - Kg/cm²
1.00	1.00
1.70	2.25
2.15	2.25
3.00	1.50
3.45	1.50
4.00	1.25
4.75	1.25
5.15	1.10
6.00	1.25
6.45	1.00
7.00	0.75
7.50	0.75
8.00	0.75
8.45	0.75
9.00	0.75

STANDARD PENETRATION TEST

DEPTH in meter	NUMBER OF BLOWS (blows/15 cm)	GRAPH OF N (20, 40, 60, 80, 100)	N / FOOT
1.25	5		
	30		
2.15	4		
	30		
6.15	4		
	30		
7.15	2		
	30		
8.15	3		
	30		
9.15	25		
	30		
10.15	45		
	30		
11.15	65		
	30		
12.15	78		
	25		
13.15	85		
	30		
14.15	85		
	25		
15.15	85		
	25		N>100
16.15	85		
	20		N>100
17.15	84		
	25		N>100
18.15	82		
	23		N>100
19.15	80		
	24		
20.15	87		
	27		
21.15	85		
	22		N>100
22.15	50		
	25		
23.15	50		
	15		N>100
24.15	50		
	15		N>100
25.15	50		
	10		N>100

RECOVERY % (20, 40, 60, 80, 100) — R.Q.D. % (20, 40, 60, 80, 100)

WEATHERING	
F	- rock fresh, crystals bright, few joints may show slight staining.
VSw	- rock generally fresh, joint stained, some joints may show clay if open.
Sw	- rock generally fresh, joint stained and discoloration extends into rock up to 1 in. Open joints contain clay.
Mw	- significant portions of rock show discoloration and weathering effects, except quartz.
W	- all rock except quartz discolored or stained some fragments of strong rock usually left.
HW	- mass effectively reduced to "Soil" with only fragments of strong rock remaining.
CW	- rock reduced to "Soil".

HARDNESS OF ROCK	
very soft	- can be scratched easily with finger nail.
soft	- can be scratched with finger nail.
moderately hard	- can be scratched easily with knife, can't be scratched with finger nail.
hard	- difficult to scratched with knife.
very hard	- can't be scratched with knife.

HARDNESS OF SOIL — 140 lb. Wt. x 30" fall on 3" O.D. Sampler

Cohesionless Density		Cohesive Consistency		
0 to 4	very loose	0 to 2	very soft	
4 to 10	loose	2 to 4	soft	
10 to 30	medium dense	4 to 8	medium stiff	
30 to 50	dense	8 to 15	stiff	
50+	very dense	15 to 30	very stiff	
		30+	hard	

Proportions Used	
trace	0 to 10%
few	10 to 20%
some	20 to 35%
and	30 to 50%

FORM SF. 01 B

PLATE A.2.2

BORING LOG

P.t. SOILENS

PROJECT	: BIO FARMA – BANDUNG
JOB NO.	: 1319
CLIENT	: PERUM BIO FARMA
LOCATION	: JALAN PASTEUR NO.28, BANDUNG
BORE HOLE NO.	: 8
ELEVATION	:
COORDINATES	:
DEPTH	: 25.30 m
GROUND WATER LEVEL	: –4.60 m IN DEPTH

DATE STARTED	: December 11, 1988
DATE COMPLETED	: December 13, 1988
BORING METHOD	: Coring, Sampling
SAMPLING METHOD	: Thin Walled (Shelby) Tube
STANDARD PENETRATION TEST TYPE	: Cable Hoisted Hammer (CHH)

FOREMAN : Furkon	LOGGED BY : Furkon	DRAWN BY : Deddy S.	APPROVED BY : Riamentoin
DRILL MASTER : E. Syaefudin	REVIEWED BY : A. Soedarto	CHECKED BY : Wirastusrini	

SCALE	SAMPLE	ELEVATION in meter	DEPTH in meter	USCS. SYMBOL	GRAPHIC SYMBOL	ROCK / SOIL DESCRIPTION
1–4	1.00, 1.70, 4.00, 4.70, 8.00, 8.70		4.00	CH		SILTY CLAY, dark brown coloured, high to medium plastic, soft.
4–8			8.00	ML		TUFFACEOUS CLAYEY SILT, light brown coloured, trace gravels at 6.56 – 8.00 meters depth, low plastic, soft to medium stiff, saturated.
8–10			10.00	ML		TUFFACEOUS SILT, light brown coloured, trace medium to coarse grained sand, non plastic, stiff to very stiff, saturated.
10–16			16.00	SM		SILTY SAND, brown coloured, few gravels, medium to coarse grained sand, gravels sized Ø 0.50 – 2.00 cm, angular to subangular shaped, uncemented, very dense
16–20			20.00	SP		GRAVELLY SAND, dark brown coloured, few silt, medium to coarse grained sand, gravels sized Ø 0.50 – 3.00 cm, angular to subangular shaped, uncemented, very dense.
20–25.30			25.30	ML		SANDY SILT, dark gray coloured, few gravels, medium to coarse grained sand, hard. (completely weathered sandy siltstone).
25.30						END OF THIS BORING. CASING DOWN TO –25.40 METERS DEPTH.

DEPTH in meter	POCKET PENETRATION TEST q_u, Kg/cm²
1.00	1.00
1.70	1.25
2.15	0.75
3.00	1.00
3.45	1.00
4.00	1.25
4.70	1.50
5.15	1.00
6.00	0.50
6.56	0.50
8.70	4.5

STANDARD PENETRATION TEST

DEPTH in meter	NUMBER OF BLOWS (Blows/15 cm)
1.65	2, 30
3.15	4, 30
4.65	2, 30
6.15	2, 38
7.15	8, 30
8.65	16, 30
10.15	49, 30, 90
11.15	30, 86
12.15	25, 90
13.15	27, 86
14.15	27, 84
15.15	28, 85
16.15	27, 50
17.00	10, 50
18.15	15, 92
19.15	17, 93
20.15	25, 50
21.15	10, 50
22.15	15, 50
23.15	10, 50
24.15	15, 50
25.15	15

GRAPH OF N N / FOOT (20, 40, 60, 80, 100)

RECOVERY % (20, 40, 60, 80, 100)

R.Q.D. %

WEATHERING	
F	- rock fresh, crystals bright, few joints may show slight staining.
VSW	- rock generally fresh, joint stained, some joints may show clay if open.
SW	- rock generally fresh, joint stained and discoloration extends into rock up to 1 in. Open joints contain clay.
MW	- significant portions of rock show discoloration and weathering effects, except quartz.
W	- all rock except quartz discolored or stained some fragments of strong rock usually left.
HW	- mass effectively reduced to "Soil" with only fragments of strong rock remaining.
CW	- rock reduced to "Soil".

HARDNESS OF ROCK	
very soft	- can be scratched easily with finger nail.
soft	- can be scratched with finger nail.
moderately hard	- can be scratched easily with knife, can't be scratched with finger nail.
hard	- difficult to scratched with knife.
very hard	- can't be scratched with knife.

HARDNESS OF SOIL

140 lb. Wt. x 30" fall on 2" O.D. Sampler

Consistency Density			
0	to	4	very loose
4	to	10	loose
10	to	30	medium dense
30	to	50	dense
50+			very dense

Cohesive Consistency			
0	to	2	very soft
2	to	4	soft
4	to	8	medium stiff
8	to	15	stiff
15	to	30	very stiff
30+			hard

Proportions Used			
trace	0	to	10%
few	10	to	20%
some	20	to	35%
and	35	to	50%

FORM SF. 01 B

PLATE A.2.3

BORING LOG

P.T. SOILENS

PROJECT	BIO FARMA – BANDUNG
JOB NO.	1319
CLIENT	PERUM. BIO FARMA
LOCATION	JALAN PASTEUR NO.28 BANDUNG
BORE HOLE NO.	10
ELEVATION	
COORDINATES	
DEPTH	25.30 m.
GROUND WATER LEVEL	–4.80 M. IN DEPTH.

DATE STARTED	December 14, 1988
DATE COMPLETED	December 14, 1988
BORING METHOD	Coring, Sampling
SAMPLING METHOD	Thin Walled (Shelby) Tube
STANDARD PENETRATION TEST TYPE	Cable Hoisted Hammer (CHH)

FOREMAN : Furkon	LOGGED BY : Furkon	DRAWN BY : Deddy S.	APPROVED BY : Rismantojo
DRILL MASTER : E. Syaefudin	REVIEWED BY : A. Soedarto	CHECKED BY : Wirastutini	

SCALE	SAMPLE	ELEVATION in meter	DEPTH in meter	USCS. SYMBOL	GRAPHIC SYMBOL	ROCK / SOIL DESCRIPTION
1–8	0.50, 1.20, 2.00, 2.70, 3.30, 4.20, 5.00, 5.75, 6.20, 7.00, 7.70		3.50	CH		SILTY CLAY, dark brown coloured, high to medium plastic, medium stiff to stiff, moist.
4–8	3.30, 4.20, 5.00, 5.75, 6.20, 7.00, 7.70		8.15	ML		TUFFACEOUS CLAYEY SILT, light brown coloured, low plastic, medium stiff to stiff, saturated.
8–10	7.70, 8.15, 9.30, 9.80		10.25	ML		TUFFACEOUS SILT, light brown coloured, few medium to coarse grained sand, non plastic, stiff to very stiff, saturated.
10–16	9.80, 10.25		16.20	SM		SILTY SAND, brown coloured, few gravels, medium to coarse grained sand, gravels sized Ø 0.50—3.00 cm, angular to subangular shaped, uncemented, dense to very dense.
16–23			23.00	SP		GRAVELLY SAND, dark gray to black coloured, few gravels, medium to coarse grained sand, gravels sized Ø 0.50—3.00 cm, angular to subangular shaped, very dense, (completely weathered sandstone)
23–25			25.30	ML		SANDY SILT, brown coloured, few gravels, medium to coarse grained sand, gravels sized Ø 0.50 — 3.00 cm angular to subangular shaped, hard, (completely weathered sandy siltstone).
25–30						END OF THIS BORING. CASING DOWN TO –23.30 METERS DEPTH.

DEPTH in meter	POCKET PENETRATION TEST q_u, Kg/cm²
0.50	1.00
1.20	1.50
1.65	1.00
2.00	1.00
2.70	1.25
3.15	1.50
3.30	1.50
4.20	2.50
4.65	2.00
5.00	1.25
5.75	1.25
6.20	1.25
7.00	1.00
7.70	2.00
8.15	1.30
9.30	2.00
9.80	>4.5
10.25	>4.5

STANDARD PENETRATION TEST

DEPTH in meter	NUMBER OF BLOWS (Blows/Cm)	GRAPH OF N N / FOOT (20, 40, 60, 80, 100)
1.35	5, 30	
2.85	7, 30	
4.35	9, 30	
5.90	11, 30	
7.85	6, 30	
9.55	42, 30	
11.15	40	
12.15	30, 70, 30	
13.15	82	
14.15	27, 80	
15.15	25, 80	
16.15	28, 81	
17.15	30, 50	
18.15	15, 50	N>100
19.15	10, 50	N>100
20.15	12, 50	N>100
21.15	10, 50	N>100
22.15	15, 50	N>100
23.15	12, 50	N>100
24.15	13, 50	N>100
25.15	15, 50	N>100
	15	N>100

RECOVERY % (20, 40, 60, 80, 100) — R.Q.D. %

WEATHERING	
F	- rock fresh, crystals bright, few joints may show slight staining.
VSw	- rock generally fresh, joint stained, some joints may show clay if open.
Sw	- rock generally fresh, joint stained and discoloration extends into rock up to 1 in. Open joints contain clay.
Mw	- significant portions of rock show discoloration and weathering effects, except quartz.
W	- all rock except quartz discolored or stained some fragments of strong rock usually left.
Hw	- mass effectively reduced to "Soil" with only fragments of strong rock remaining.
Cw	- rock reduced to "Soil".

HARDNESS OF ROCK	
very soft	- can be scratched easily with finger nail.
soft	- can be scratched with finger nail.
moderately hard	- can be scratched easily with knife, can't be scratched with finger nail.
hard	- difficult to scratched with knife.
very hard	- can't be scratched with knife.

HARDNESS OF SOIL

140 lb. Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency	
0 to 4	very loose	0 to 2	very soft
4 to 10	loose	2 to 4	soft
10 to 30	medium dense	4 to 8	medium stiff
30 to 50	dense	8 to 15	stiff
50+	very dense	15 to 30	very stiff
		30+	hard

Proportions Used			
trace	0	to	10%
few	10	to	20%
some	20	to	35%
and	35	to	50%

FORM SF. 01 B

PLATE A.2.4

6．収集資料リスト

(1) インドネシア国の概要に関するもの

1）インドネシア概況

2）主要経済指標

3）交換レート表（Rp/US$, Rp/Yen）（1983.1～1988.10）

4）バンドン気象データ

5）バンドン市街地図

6）日系企業投資状況

(2) インドネシア国の保健医療に関するもの

1）第5次国家開発5ヵ年計画（保健医療部分の抜粋）

2）母子保健状況の分析

3）インドネシアにおける予防接種率表（1986/1987 ～1988/1989）

4）必須薬品単価表

5）保健省の予算（1986/1987 ～1988/1989）

6）アセアン GMPガイドライン

(3) Perum Bio Farma に関するもの

1）既存生産機器リスト

2）生産機器代理店リスト

3）財務データ

4）製品別売上量・金額

5）製品別単価表

6）動物別購買数と使用数及びその金額

7）Perum Bio Farma 紹介パンフレット

8）高低測量図およびボーリングデータ

9）既設井戸水水質分析表

10）既設電力・蒸気・給水設備ルート図

(4) 建築に関するもの

1）住宅及びビルディングに対する火災予防基準（全21冊）

2）耐震基準

3）生コンクリート基準

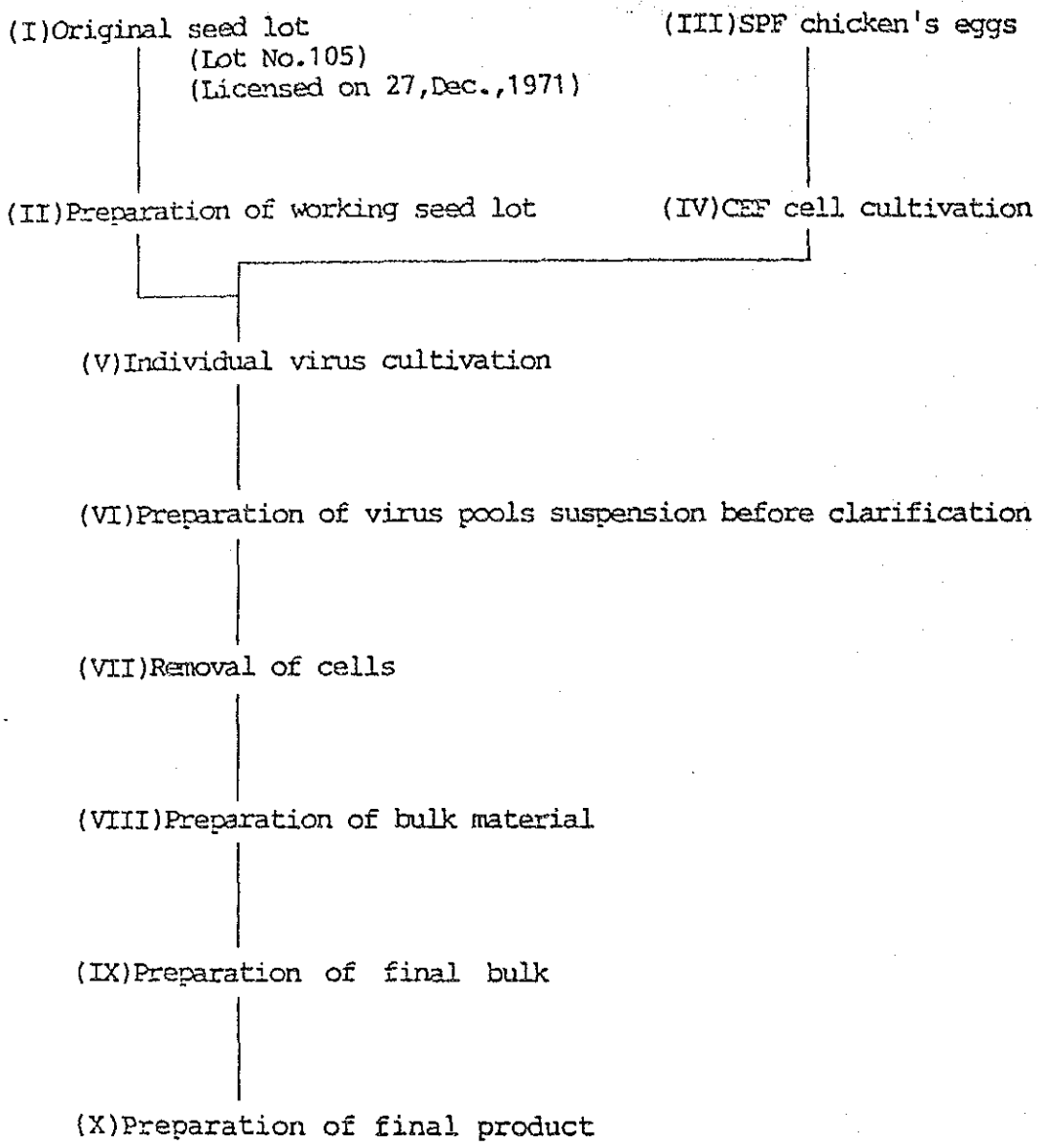
4）大蔵省及び国家建設計画委員会　建設コスト資料

5）公共事業省　建設資材単価表

7. その他

(1) 麻疹ワクチン製造工程フローチャート

Flowchart of Measles Vaccine Production (Summary)



A part of production process was changed according to a part revision of the Minimum requirements for biological products of Japan at Oct. 1985.

Laboratory Control(LC) is according to the Minimum requirements for biological products of Japan and/or the Requirements for measles vaccine (LIVE) of WHO.

Flowchart of Measles Vaccine Production

(I)Original seed lot

Passage history: $MK_3HK_8CAm_{90}HK_2CAm_4CAM_{35}CEF_{12}$
Lot NO. 105
Licensed on 17,Dec.1970

(II)Preparation of seed lot

Working Seed lot is prepared from original seed lot with the passaging culture with CEF cells and the passage number is within 4.

CEF12th(Lot105) : Original seed lot

First propagation

Inoculation into CEF culture

Incubatoin at 27 C for 10-14 days

CEF13th(Lot105-1)

Second propagation

Inoculation into CEF culture

Incubation at 27 C for 10-14 days

CEF14th(Lot105-2)

Third propagation

Inoculation into CEF culture

Incubation at 27 C for 10-14 days

CEF15th(Lot105-3)

Fourth Propagation

Inoculation into CEF culture

Incubation at 27 C for 10-14 days

CEF16th(Lot105-4) : Working seed lot

Storage below -60 C

(III)SPF Developing eggs

Fertilized Eggs from SPF Chicken

Incubation at 37±1 C for 10-11days

Developing eggs

PC:Developing check
Contamination check

(IV)Individual cell culture(CEF)

Developing eggs

Cutting out

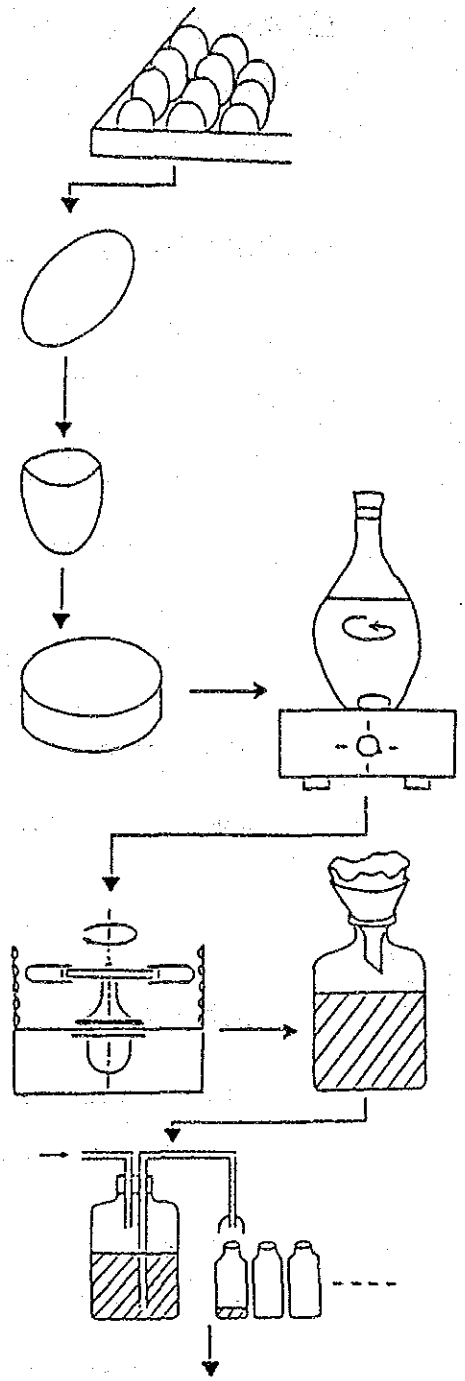
Embryos w/o head and internal organ

Digestion with 0.25% Trypsin sol. twice

Stop the digestion
by addition of calf serum

Centrifugation(1500 rpm for 15 min. at 4-10 C)

Preparation of cell suspension
(1.0-1.5X10^{6}cells/ml)
with MEM medium with 5% calf serum



(To be continued)

(V) Individual virus culture

Individual cell culture Preparation of seed virus sol.

Inoculation of seed virus

Absorption at 27 C for 90 min.

Addition of medium 199 with 3% calf serum
(100ml/Roux bottle)

Incubation at 27 C for 6-10 days)

PC: Contamination check

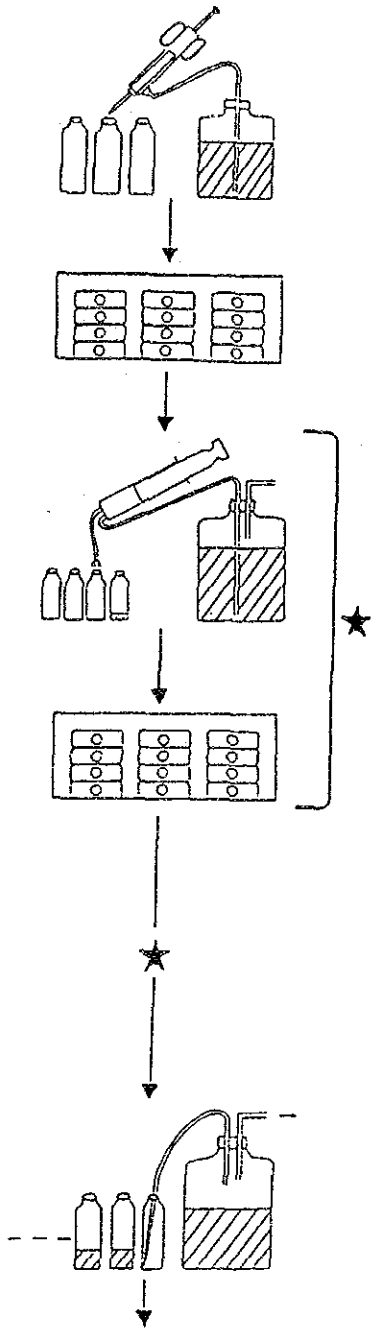
Medium changing to medium 199 w/o calf serum

Incubation at 27 C for 2-4 days(Totally 10-14days)

PC: Contamination check

Harvest(cells and culture medium)

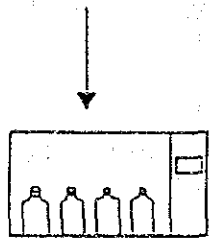
(To be continued)



(Continued)

Pool in stainless bottles
3-5 liter/bottle

PC:Sterility test



Storage below -60 C

Pool the single harvest

I/C:Tests on single harvest

1.Sterility test(bacteria,fungi,mycoplasmas)
2.Tests for freedom from extraneous viruses
1)Inoculation of human tissue culture cells
2)Inoculation of primary tissue cultures of embryonic chick cells
3)Inoculation of primary renal tissue cultures of chick cells
4)Inoculation of monkey renal tissue culture cells
3.Test for virus content

(VI)Preparation of virus suspension before filtration

Individual virus suspension

(If necessary, pool)

Virus suspension before filtration

LC:Tests on virus suspension before filtration
1.Sterility test (bacteria,fungi,mycoplasmas, tubercle bacilli)

(VII)Removal of cells

Virus suspension before filtration

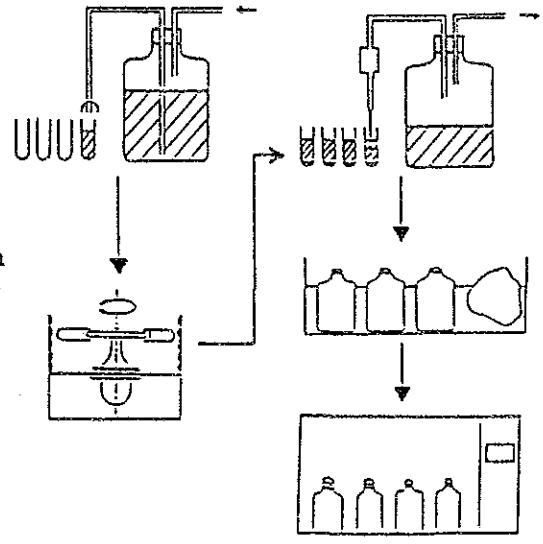
Removal of cells
by centrifugation

Pool the supernatant
by aspiration with filtration
(10.6 um)

Supernatant

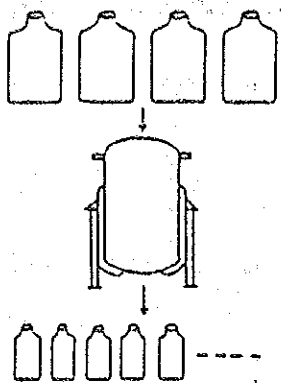
<Clarified virus pool>

Storage below -60 C



PC:Sterility test(bacteria,fungi)
Test for virus content

(VIII)Preparation of bulk material



Clarified virus pool

Pool and distribution

Bulk material(storage below -60 C)
For sample of official approval

LC:Tests on bulk material

1.Sterility test (bacteria,fungi,mycoplasmas, tubercle bacilli)

2.Tests for freedom from extraneous viruses

1)Tests in animals

(1)Inoculation of adult mice

(2)Inoculation of suckling mice

(3)Intracerebral inoculation of guinea pigs

2)Tests in cell culture

(1)Inoculation of human tissue culture cells

(2)Inoculation of primary tissue cultures of embryonic chick cells

(3)Inoculation of primary renal tissue cultures of chick cells

(4)Inoculation of monkey renal tissue culture cells

3)Inoculation of embryonated chicken eggs

3.Test for confirmation of attenuation of virus

4.Identification test

5.Test for virus content

NATIONAL ASSAY

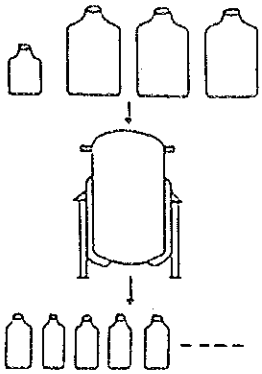
(IX)Preparation of final bulk(After Oct.1985)

Bulk material

Use of a part of bulk material

Addition of solutions for diluting and stabilizing

Final bulk



IC:Tests on final bulk

1. Staining test
2. Sterility test(bacteria,fungi)
3. Test for virus content
4. Test for freedom from abnormal toxicity (guinea pigs)

(X)Preparation of final product

Final bulk

Distribution

Freeze-drying

LC:Tests of final product before labelling

1.Test for moisture content
2.Sterility test(bacteria,fungi)
3.Potency test
4.Test for freedom from abnormal toxicity
(guinea pigs , mice)
5.Test for stability
6.Test for protein content

NATIONAL ASSAY

Inspection

Labeling

Packaging

<Final product>

LC:Tests of final product after labelling

1.Identity test

(2) BCG, D.P.T., ポリオ，麻疹に関する統計データ

TOTAL PATIENT AND DEATH NUMBERS OF DIPHTHERIA
IN HOSPITALS, YEAR 1979 -1986

No.	PROVINCE	1979		1980		1981		1982		1983		1984		1985		1986	
		P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M
1	D.I ACEH	1	1	0	0	-	-	1	-	-	-	2	1	9	1	3	0
2	SUMATERA UTARA	-	-	13	0	23	4	9	3	4	1	3	1	7	-	7	0
3	SUMATERA BARAT	33	0	38	0	61	12	55	9	96	7	108	13	77	18	37	10
4	RIAU	1	0	7	2	5	1	6	2	2	-	2	2	13	2	16	0
5	JAMBI	15	2	6	0	10	-	24	1	34	5	25	3	...	...	-	-
6	SUMATERA SELATAN	77	19	93	22	63	9	54	11	86	-	66	10	83	13	4	1
7	BENGKULU	3	0	3	0	8	1	3	-	5	2	9	3	3	1	3	1
8	LAMPUNG	37	7	61	14	72	14	57	9	70	20	70	10	18	2	21	2
9	DKI JAYA	258	43	321	70	188	9	336	17	239	17	124	6	78	11	111	7
10	JAWA BARAT	513	86	638	57	305	41	298	52	593	87	265	39	308	35	314	77
11	JAWA TENGAH	111	22	140	32	308	0	387	32	387	50	98	8	136	22	24	4
12	DI YOGYAKARTA	26	6	31	3	24	6	23	3	49	5	4	1	10	2	10	0
13	JAWA TIMUR	1.267	75	997	64	1.063	93	1.225	98	1.490	113	1.125	78	663	64	660	45
14	KALIMANTAN BARAT	9	2	27	9	25	7	29	1	246	13	57	9	11	1	9	5
15	KALIMANTAN TENGAH	2	0	0	0	-	-	1	1	-	-	-	-	2	-	0	0
16	KALIMANTAN SELATAN	31	12	40	11	16	2	9	1	6	1	28	2	8	4	...	...
17	KALIMANTAN TIMUR	26	8	17	5	10	1	...	...	48	3	57	15	77	9	5	1
18	SULAWESI UTARA	58	4	37	3	16	2	15	1	32	3	12	2	5	2	7	1
19	SULAWESI TENGAH	0	0	9	1	5	4	-	-	-	-	-	-	-	-	0	0
20	SULAWESI SELATAN	47	3	28	1	22	2	76	6	90	6	172	15	127	11	147	13
21	SULAWESI TENGGARA	0	0	6	2	1	-	-	-	1	1	-	...	...	...	0	0
22	BALI	55	9	56	15	69	21	137	25	139	27	158	21	103	12	55	9
23	NUSA TENGGARA BARAT	7	4	8	0	7	1	5	-	5	-	10	-	2	-	7	1
24	NUSA TENGGARA TIMUR	8	0	...	...	3	-	6	-	6	1	1	-	1	1	0	0
25	MALUKU	0	0	0	0	-	-	1	-	2	1	...	...	1	-	0	0
26	IRIAN JAYA	1	0	0	0	3	1	-	-	1	1	-	-	-	-	0	0
27	TIMOR-TIMUR	...	...	...	...	...	...	...	-	...	...	...	...	...	...	...	...
	TOTAL	2.586	305	2.576	311	2.303	231	2.756	272	3.631	364	2.396	239	1.742	239	1.440	177
	CFR (%)		11.79		12.07		10.03		9.87		10.02		9.97		12.11		12.29

Source : PPM & PLP, MOH

[Note] 1. P : Patient Numbers M : Death Numbers

2. $CFR = \frac{\text{Death Numbers}}{\text{Patient Numbers}} \times 100(\%)$

TOTAL PATIENT AND DEATH NUMBERS OF PERTUSSIS
IN HOSPITALS, YEAR 1979 -1986

No.	PROVINCE	1979		1980		1981		1982		1983		1984		1985		1986	
		P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M
1	D. I ACEH	1	0	128	4	1	-	-	-	7	-	...	-	-	-	0	-
2	SUMATERA UTARA	15	0	15	1	23	8	-	-	7	-	6	-	3	1	0	-
3	SUMATERA BARAT	4	0	35	0	43	-	40	-	44	1	15	-	3	-	11	-
4	RIAU	2	1	0	0	-	-	-	-	1	-	-	-	-	-	0	-
5	JAMBI	0	0	0	0	4	-	7	-	3	-	11	-	-	...	0	-
6	SUMATERA SELATAN	0	0	8	1	41	3	48	-	15	-	12	1	17	2	...	...
7	BENGKULU	19	0	0	0	1	-	-	-	-	-	-	-	-	-	-	-
8	LAMPUNG	0	0	0	0	-	-	2	-	3	1	-	-	-	-	3	-
9	DKI JAYA	2	0	...	...	4	-	1	-	2	-	2	-	2	-	0	-
10	JAWA BARAT	65	7	32	2	28	4	10	-	10	-	32	-	196	7	46	3
11	JAWA TENGAH	10	0	...	...	...	...	-	-	70	-	11	-	114	-	29	1
12	DI YOGYAKARTA	16	1	60	1	68	1	21	-	9	-	-	-	2	1	2	-
13	JAWA TIMUR	3	0	9	0	17	1	1	-	40	1	72	1	21	1	0	-
14	KALIMANTAN BARAT	5	2	2	0	5	-	...	-	10	1	8	-	3	-	6	...
15	KALIMANTAN TENGAH	1	0	0	0	-	-	21	-	2	-	-	-	2	-	0	...
16	KALIMANTAN SELATAN	1	0	...	...	1	-	1	-	2	-	11	4	1	-	0	-
17	KALIMANTAN TIMUR	1	0	0	0	8	-	...	-	13	1	6	-	7	-	2	-
18	SULAWESI UTARA	13	1	15	0	50	-	26	-	20	-	41	-	7	-	7	-
19	SULAWESI TENGAH	1	0	4	1	12	-	-	-	2	-	-	-	-	-	0	-
20	SULAWESI SELATAN	6	0	11	0	12	-	5	-	11	-	2	-	4	1	5	-
21	SULAWESI TENGGARA	1	0	5	0	13	-	-	-	-	-	...	-	...	-	...	-
22	BALI	0	0	28	1	31	-	18	-	28	1	11	-	15	1	14	1
23	NUSA TENGGARA BARAT	0	0	2	0	1	-	-	-	3	-	-	-	4	-	1	1
24	NUSA TENGGARA TIMUR	4	0	0	0	20	-	2	-	30	1	45	1	10	-	2	-
25	MALUKU	0	1	...	...	6	-	11	-	1	-	-	-	2	-	0	-
26	IRIAN JAYA	24	-	...	...	...	-	-	-	7	-	1	-	3	-	0	-
27	TIMOR-TIMUR	-	-	-	-	-	-	3	-	...	...	-	-	-	-	-	...
	TOTAL	194	13	354	11	389	17	217	0	340	7	286	7	416	14	128	6
	CFR (%)		6.70		3.11		4.37		0.00		2.06		2.45		3.37		4.69

[Note] 1. P : Patient Numbers M : Death Numbers

TOTAL PATIENT AND DEATH NUMBERS OF TETANUS
IN HOSPITALS, YEAR 1979 -1986

No.	PROVINCE	1979		1980		1981		1982		1983		1984		1985		1986	
		P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M
1	D. I ACEH	93	33	116	30	180	37	72	12	39	6	55	17	104	20	66	9
2	SUMATERA UTARA	138	47	97	39	246	33	96	11	29	6	54	16	91	9	53	6
3	SUMATERA BARAT	41	0	64	1	67	18	42	6	50	8	23	4	39	9	31	7
4	RIAU	9	3	11	3	19	9	9	2	14	3	10	3	16	5	12	4
5	JAMBI	32	14	2	0	17	3	29	1	30	8	47	3	111	111	0	0
6	SUMATERA SELATAN	98	33	164	45	125	2	93	18	63	23	109	22	57	10	35	6
7	BENGKULU	15	1	29	9	9	3	20	-	21	4	25	7	28	2	18	5
8	LAMPUNG	218	44	258	89	198	44	179	40	185	42	213	45	89	17	150	32
9	DKI JAYA	198	42	123	36	128	26	174	29	84	15	201	43	159	29	112	17
10	JAWA BARAT	1.484	322	1.561	223	1.016	209	422	56	601	111	886	141	1.102	156	1.273	180
11	JAWA TENGAH	1.249	308	187	48	-	-	879	119	785	127	182	35	1.241	221	103	19
12	DI YOGYAKARTA	142	43	187	48	136	31	119	16	73	15	119	27	95	20	135	33
13	JAWA TIMUR	2.584	702	1.561	390	2.374	521	1.937	433	2.073	398	2.040	378	2.024	390	2.005	227
14	KALIMANTAN BARAT	76	33	105	46	51	24	48	15	17	3	39	13	24	8	5	0
15	KALIMANTAN TENGAH	12	10	4	1	3	-	1	-	5	1	1	-	4	1	0	0
16	KALIMANTAN SELATAN	126	49	132	57	45	14	30	13	48	14	54	20	19	7	0	0
17	KALIMANTAN TIMUR	73	21	71	41	64	20	-	-	29	5	162	55	89	32	5	4
18	SULAWESI UTARA	230	84	203	57	125	22	99	23	76	20	70	19	49	12	39	8
19	SULAWESI TENGAH	10	5	22	14	11	3	10	2	2	1	5	-	1	-	10	1
20	SULAWESI SELATAN	299	74	112	21	215	42	249	56	280	60	246	43	241	49	244	33
21	SULAWESI TENGGARA	26	9	29	139	47	14	22	5	10	4	3	2	-	-	0	0
22	BALI	459	130	451	45	241	51	253	53	182	36	220	47	163	31	124	32
23	NUSA TENGGARA BARAT	74	31	90	14	68	26	60	7	47	14	71	9	35	11	55	12
24	NUSA TENGGARA TIMUR	5	3	-	-	53	20	39	20	16	7	37	17	22	8	8	3
25	MALUKU	39	19	64	32	26	11	23	6	29	9	30	3	50	22	37	7
26	IRIAN JAYA	75	45	63	37	32	9	40	14	12	2	6	3	15	8	0	0
27	TIMOR-TIMUR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOTAL	7.805	2.105	5.706	1.465	5.496	1.192	4.945	957	4.800	942	4.908	972	5.868	1.188	4.520	645
	CFR (%)	(26.97)		(25.67)		(21.69)		(19.35)		(19.63)		(19.80)		(20.25)		(14.27)	

[Note] 1. P : Patient Numbers M : Death Numbers

TOTAL PATIENT AND DEATH NUMBERS OF NEONATORUM
TETANUS IN HOSPITALS, YEAR 1980 -1986

No.	PROVINCE	1980		1981		1982		1983		1984		1985		1986	
		P	M	P	M	P	M	P	M	P	M	P	M	P	M
1	D. I ACEH	4	3	24	17	13	10	9	3	8	3	15	6	23	7
2	SUMATERA UTARA	60	34	73	35	31	16	14	6	20	12	18	6	21	9
3	SUMATERA BARAT	-	-	10	4	8	6	10	3	5	2	11	4	10	5
4	RIAU	-	-	-	-	2	2	3	1	12	4	4	3	4	4
5	JAMBI	-	-	11	-	10	9	1	-	...	...	...	...	-	-
6	SUMATERA SELATAN	74	36	61	32	59	27	28	14	80	31	59	24	15	5
7	BENGKULU	5	3	3	2	...	...	6	2	9	3	-	-	7	4
8	LAMPUNG	53	30	72	25	96	37	54	34	60	22	55	22	13	5
9	DKI JAYA	12	9	153	84	98	35	32	16	72	36	46	28	19	12
10	JAWA BARAT	146	64	163	71	159	71	160	56	188	74	455	167	353	134
11	JAWA TENGAH	...	...	...	...	43	22	197	63	...	...	15	-	9	4
12	DI YOGYAKARTA	-	-	14	10	20	11	5	3	4	0	3	-	3	0
13	JAWA TIMUR	254	124	459	209	412	167	343	140	288	126	210	101	183	71
14	KALIMANTAN BARAT	33	14	46	30	28	14	12	16	32	19	28	16	6	2
15	KALIMANTAN TENGAH	2	2	3	3	2	2	3	1	2	1	8	7	0	0
16	KALIMANTAN SELATAN	17	8	11	8	9	7	24	12	...	...	-	-	-	-
17	KALIMANTAN TIMUR	...	...	...	...	...	...	90	38	...	...	-	-	-	-
18	SULAWESI UTARA	46	27	43	21	53	26	39	19	32	14	25	11	14	3
19	SULAWESI TENGAH	17	12	10	6	5	2	-	-	...	...	-	-	2	2
20	SULAWESI SELATAN	16	4	32	17	23	6	18	7	20	13	25	8	37	22
21	SULAWESI TENGGARA	10	6	12	7	13	7	11	7	2	1	...	...	-	-
22	BALI	146	87	130	78	120	79	82	58	62	35	61	31	37	26
23	NUSA TENGGARA BARAT	24	19	29	15	19	10	13	8	16	10	18	10	7	3
24	NUSA TENGGARA TIMUR	...	...	...	...	...	...	...	...	41	26	23	17	7	2
25	MALUKU	16	11	82	28	12	8	15	4	20	2	19	7	12	8
26	IRIAN JAYA	24	19	35	28	34	22	12	7	2	1	22	13	0	0
27	TIMOR-TIMUR	...	...	...	...	...	...	...	...	...	...	-	-	...	...
	TOTAL	959	512	1476	730	1269	596	1181	518	975	435	1201	481	782	328
	CFR (%)	(53.39)		(49.46)		(46.97)		(43.86)		(44.62)		(40.05)		(41.94)	

[Note] 1. P : Patient Numbers M : Death Numbers

TOTAL PATIENT AND DEATH NUMBERS OF POLIOMYELITIS
IN HOSPITALS, YEAR 1979 -1986

No.	PROVINCE	1979		1980		1981		1982		1983		1984		1985		1986	
		P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M
1	D.I ACEH	-	-	-	-	-	-	-	-	2	-	-	-	3	-	2	-
2	SUMATERA UTARA	5	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-
3	SUMATERA BARAT	-	-	-	-	4	-	1	-	-	-	1	1	1	-	2	-
4	RIAU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	JAMBI	3	-	3	-	4	-	2	-	3	-	-	-	-	-	...	-
6	SUMATERA SELATAN	12	1	6	-	6	1	6	-	8	-	7	-	8	1	1	-
7	BENGKULU	3	-	5	-	1	1	1	-	2	-	-	-	-	-	-	-
8	LAMPUNG	5	-	2	-	-	-	1	-	1	-	1	1	-	-	6	-
9	DKI JAYA	5	-	2	-	7	-	3	-	1	-	-	-	-	-	-	-
10	JAWA BARAT	2	1	7	-	11	-	4	-	12	1	11	-	7	-	-	-
11	JAWA TENGAH	2	-	1	-	...	-	-	-	22	1	-	-	15	-	16	-
12	DI YOGYAKARTA	4	-	-	-	-	-	2	-	3	-	5	-	2	-	-	-
13	JAWA TIMUR	26	-	19	-	65	-	16	-	57	3	54	-	13	-	-	-
14	KALIMANTAN BARAT	2	-	...	1	-	-	...	-	-	-	-	-	1	-	-	-
15	KALIMANTAN TENGAH	-	-	1	-	1	-	1	-	-	-	-	-	-	-	...	...
16	KALIMANTAN SELATAN	1	-	1	1	...	-	-	-	-	-	-	-	-	-	1	-
17	KALIMANTAN TIMUR	1	-	-	-	1	-	2	-	2	1	-	-	1	-	...	...
18	SULAWESI UTARA	1	-	-	-	1	-	1	-	-	-	-	-	2	-	1	-
19	SULAWESI TENGAH	-	-	2	-	-	-	...	-	-	-	-	-	-	-	3	-
20	SULAWESI SELATAN	-	-	9	-	-	-	8	-	3	-	1	-	-	-	...	-
21	SULAWESI TENGGARA	1	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-
22	BALI	20	-	36	2	55	1	25	-	4	-	3	-	11	-	-	-
23	NUSA TENGGARA BARAT	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
24	NUSA TENGGARA TIMUR	-	-	-	-	-	-	-	-	2	1	1	-	-	-	-	-
25	MALUKU	-	-	-	-	-	-	-	-	1	1	-	-	7	-	-	-
26	IRIAN JAYA	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
27	TIMOR-TIMUR	-	-	-	-	-	-	6	-	...	...	...	-	-	-	...	...
	TOTAL	94	2	94	4	159	5	79	0	124	8	84	2	73	1	33	0
	CFR (%)	2.13		4.26		3.14		0.00		6.45		2.38		1.37		0.00	

[Note] 1. P : Patient Numbers M : Death Numbers

TOTAL PATIENT AND DEATH NUMBERS OF MEASLES
IN HOSPITALS, YEAR 1979 -1986

No.	PROVINCE	1979		1980		1981		1982		1983		1984		1985		1986	
		P	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M
1	D. I ACEH	7	0	7	0	14	1	-	-	4	0	-	-	5	0	6	0
2	SUMATERA UTARA	57	0	47	0	47	3	32	2	8	0	12	0	50	0	11	0
3	SUMATERA BARAT	2	0	13	0	39	0	65	1	65	0	34	1	33	0	37	0
4	RIAU	2	0	4	1	1	0	8	0	3	1	1	0	18	0	1	0
5	JAMBI	14	1	2	0	67	2	43	2	60	0	37	0	...	...	...	...
6	SUMATERA SELATAN	40	1	42	4	96	11	81	6	36	0	39	2	55	2	37	0
7	BENGKULU	0	0	3	2	4	0	-	-	4	1	1	0	4	0	10	1
8	LAMPUNG	10	2	6	0	-	-	37	4	70	5	41	1	11	1	14	1
9	DKI JAYA	30	1	46	6	970	141	273	5	152	12	140	4	84	2	-	-
10	JAWA BARAT	201	31	45	1	114	5	124	6	136	6	420	15	191	4	485	14
11	JAWA TENGAH	74	0	58	0	...	...	339	8	704	4	82	1	521	19	33	1
12	DI YOGYAKARTA	16	1	8	1	34	2	6	1	3	0	19	0	...	...	74	0
13	JAWA TIMUR	106	4	143	4	246	19	819	55	1.041	50	1.078	69	632	28	902	37
14	KALIMANTAN BARAT	10	1	2	0	8	0	2	0	19	0	3	0	30	4	37	3
15	KALIMANTAN TENGAH	5	0	2	0	8	1	1	0	11	0	1	0	5	0	12	0
16	KALIMANTAN SELATAN	2	0	12	1	27	0	12	0	53	1	20	0	5	1	...	...
17	KALIMANTAN TIMUR	14	0	57	4	7	0	...	...	24	0	61	3	24	0	32	0
18	SULAWESI UTARA	82	0	283	2	230	6	137	2	245	2	101	2	21	0	41	0
19	SULAWESI TENGAH	2	1	35	2	11	0	1	0	13	0	8	0	0	0	38	0
20	SULAWESI SELATAN	10	0	8	1	16	0	4	0	60	10	39	3	20	0	88	4
21	SULAWESI TENGGARA	0	0	1	0	5	1	13	0	10	0	10	0	...	...	...	...
22	BALI	159	7	173	3	219	2	412	10	328	7	381	11	104	3	112	3
23	NUSA TENGGARA BARAT	0	0	111	6	17	3	64	3	91	1	50	0	87	4	81	2
24	NUSA TENGGARA TIMUR	16	1	...	...	16	4	47	0	179	3	347	13	30	0	16	0
25	MALUKU	1	0	6	0	55	7	60	2	18	1	3	0	41	1	20	0
26	IRIAN JAYA	43	7	33	0	27	0	72	3	35	3	2	0	12	0	0	0
27	TIMOR-TIMUR	-	-	1	-	-	-	...	...	...	...	...	...	...	...	...	...
	TOTAL	903	58	1148	38	2278	208	2652	110	3372	107	2930	125	1983	69	2087	66
	CFR (%)	6.42		3.31		9.13		4.15		3.17		4.27		3.48		3.16	

[Note] 1. P : Patient Numbers M : Death Numbers

IMMUNIZATION RATIO OF BCG, DPTIII, POLIO III
AND MEALSES IN EACH PROVINCE, YEAR 1984/85 - 1987/88

UNIT : (%)

No.	PROVINCE	BCG				DPT (3 times)				POLIO (3 times)				MEALSES			
		'84/85	'85/86	'86/87	'87/88	'84/85	'85/86	'86/87	'87/88	'84/85	'85/86	'86/87	'87/88	'84/85	'85/86	'86/87	'87/88
1	D.I ACEH	52.7	47.5	48.8	79.5	13.7	23.8	30.4	66.5	9.7	19.3	29.1	66.7	11.0	22.9	31.2	71.3
2	SUMATERA UTARA	45.8	60.9	56.8	76.8	6.2	17.2	39.4	60.5	4.7	11.0	36.6	61.9	6.8	15.3	36.6	56.3
3	SUMATERA BARAT	54.9	56.1	59.6	89.8	22.4	28.5	42.1	76.9	21.0	27.5	40.6	79.2	23.9	29.8	38.3	59.0
4	RIAU	56.6	69.8	82.6	78.7	14.9	25.7	52.7	61.4	12.7	24.5	40.8	63.0	12.5	28.0	47.6	52.7
5	JAMBI	25.9	41.1	97.0	80.1	5.0	9.8	61.7	72.7	3.7	5.9	57.9	73.2	8.7	6.9	67.2	68.4
6	SUMATERA SELATAN	52.3	54.7	61.6	68.5	14.1	20.2	37.3	50.4	12.2	16.0	36.7	51.7	11.3	20.0	40.5	43.5
7	BENGKULU	72.3	83.6	85.6	73.0	18.6	46.4	70.4	76.0	15.8	41.7	70.1	70.7	23.4	50.1	109.0	80.0
8	LAMPUNG	45.1	48.0	64.8	70.6	5.7	16.0	43.2	61.0	5.0	13.0	43.1	60.7	5.9	18.0	43.6	52.2
9	DKI JAYA	43.5	62.8	68.8	80.1	21.2	36.7	44.6	57.3	20.6	35.1	44.6	58.7	7.1	17.3	24.8	41.8
10	JAWA BARAT	64.1	74.1	73.5	90.0	6.6	16.8	48.3	76.4	6.5	15.0	45.1	79.4	7.5	17.5	42.0	64.5
11	JAWA TENGAH	69.2	85.7	78.8	83.3	12.3	39.2	62.4	72.8	12.5	36.3	62.3	73.2	17.1	43.3	66.9	69.1
12	DI YOGYAKARTA	72.7	77.3	72.5	85.8	23.2	48.1	63.4	80.7	23.2	46.4	63.2	80.5	10.3	47.6	56.5	77.9
13	JAWA TIMUR	54.1	63.2	61.3	68.4	21.0	39.2	45.9	56.4	17.1	40.0	46.9	57.3	20.9	39.5	43.0	50.4
14	KALIMANTAN BARAT	34.6	32.8	47.5	69.8	7.9	11.7	22.9	51.3	5.6	9.2	20.8	52.2	2.0	6.5	25.3	43.3
15	KALIMANTAN TENGAH	45.0	56.8	57.9	79.2	9.8	27.9	32.2	53.5	14.1	23.2	29.8	53.2	18.0	31.7	42.8	53.2
16	KALIMANTAN SELATAN	42.6	52.3	60.0	59.7	5.8	22.5	31.7	49.5	3.9	16.4	31.5	49.8	4.2	19.0	40.1	43.3
17	KALIMANTAN TIMUR	35.5	50.5	35.9	58.0	13.0	21.9	30.1	42.7	11.8	20.3	26.7	41.7	7.1	16.1	28.8	36.0
18	SULAWESI UTARA	65.9	66.7	57.6	82.4	17.1	36.8	47.7	81.6	11.1	26.3	39.6	83.4	14.7	33.8	48.3	73.9
19	SULAWESI TENGAH	34.7	50.5	54.8	68.0	2.1	7.3	25.0	52.3	1.8	5.7	20.7	49.1	2.9	6.4	30.7	46.3
20	SULAWESI SELATAN	53.0	59.1	52.4	72.8	8.7	29.3	41.1	57.5	7.8	16.4	34.9	58.0	8.9	15.0	35.0	55.6
21	SULAWESI TENGGARA	50.4	49.4	62.0	55.7	8.3	11.1	41.1	47.5	3.8	5.2	33.4	48.1	3.6	5.7	36.7	40.3
22	BALI	49.4	65.5	66.2	81.5	34.2	58.5	57.9	69.0	33.6	57.7	58.0	69.0	28.0	51.2	49.8	62.3
23	NUSA TENGGARA BARAT	63.9	68.0	66.2	61.2	5.1	11.4	52.6	54.7	4.7	9.2	35.8	54.2	5.9	33.1	51.3	44.3
24	NUSA TENGGARA TIMUR	36.9	37.3	72.5	51.9	3.5	7.0	43.2	41.6	2.2	2.7	27.3	41.4	3.3	9.8	74.1	52.2
25	MALUKU	20.7	21.0	27.4	42.5	7.9	7.8	18.3	31.6	8.6	7.0	13.9	31.2	6.3	4.9	19.9	27.3
26	IRIAN JAYA	35.6	24.8	53.4	65.0	9.3	12.9	30.5	43.9	9.5	11.2	25.2	44.0	11.0	11.0	29.3	46.1
27	TIMOR-TIMUR	40.9	33.2	53.5	62.0	8.2	15.5	22.3	33.7	8.0	15.0	22.5	31.4	25.7	20.4	32.7	40.9
	INDONESIA	55.7	64.6	66.1	76.7	12.9	27.0	46.5	63.5	11.5	24.1	44.2	64.6	12.7	26.4	45.2	56.8

Source : Directorate General of PPM & PLP, MOH R.I, 1987

IMMUNIZATION RATIO OF TT II FOR PREGNANT WOMAN,
DT AND TT II FOR CHILDREN IN EACH PROVINCE, YEAR 1984/85 - 1987/88

UNIT : (%)

No.	PROVINCE	TT FOR PREGNANT WOMEN (2 times)				D T				T T (2 times)			
		1984/85	1985/86	1986/87	987/88	1984/85	1985/86	986/87	1987/88	1984/85	1985/86	1986/87	1987/88
1	D. I ACEH	16.0	17.9	17.1	28.1	20.1	15.1	24.8	34.7	11.9	17.3	19.0	51.6
2	SUMATERA UTARA	14.5	19.3	19.3	19.7	17.3	24.4	24.6	18.6	19.0	22.5	23.2	30.7
3	SUMATERA BARAT	25.8	16.1	16.1	26.3	18.2	24.8	40.0	58.0	16.4	23.7	37.7	43.8
4	RIAU	14.5	16.3	16.3	20.2	23.7	35.3	50.9	60.3	11.7	40.9	45.2	44.7
5	JAMBI	6.3	17.4	17.4	23.5	13.6	9.8	83.4	80.6	11.1	9.3	65.8	52.5
6	SUMATERA SELATAN	12.5	14.4	14.4	18.3	36.6	33.2	52.1	20.6	26.0	33.0	39.2	8.1
7	BENGKULU	12.8	22.6	22.6	28.6	65.9	47.5	73.9	45.4	69.4	42.6	45.2	48.6
8	LAMPUNG	13.3	14.2	14.2	22.4	63.2	30.4	43.4	27.2	57.4	38.2	37.4	17.7
9	DKI JAYA	7.9	11.1	11.1	26.0	29.6	30.7	46.3	78.5	34.1	33.4	40.4	58.0
10	JAWA BARAT	25.2	28.3	28.3	46.3	30.2	37.7	49.7	43.4	31.1	36.3	40.1	53.3
11	JAWA TENGAH	32.2	46.2	46.2	34.5	57.8	75.7	76.7	69.8	58.9	66.0	63.5	59.6
12	DI YOGYAKARTA	23.8	29.5	29.5	45.1		100.0	100.0		57.1	78.0	79.4	69.2
13	JAWA TIMUR	15.2	20.3	20.3	26.7	45.9	29.0	80.0	80.6	41.2	60.7	72.6	75.9
14	KALIMANTAN BARAT	13.0	11.4	11.4	19.9	56.9	22.4	50.2	42.7	61.9	15.3	35.6	55.0
15	KALIMANTAN TENGAH	20.9	19.6	19.6	22.2	42.4	50.0	63.1	70.0	28.3	40.4	53.2	84.6
16	KALIMANTAN SELATAN	8.4	15.3	15.3	23.0	33.2	63.8	65.5	54.1	21.5	48.2	39.0	67.5
17	KALIMANTAN TIMUR	11.3	22.2	22.2	27.2	34.7	41.4	36.7	69.5	27.1	31.9	30.2	110.2
18	SULAWESI UTARA	22.0	24.3	24.3	32.6	53.1	64.2	52.3	45.5	43.3	50.5	51.7	70.8
19	SULAWESI TENGAH	6.8	13.3	13.3	20.4	59.1	31.2	33.6	37.6	39.0	18.5	26.6	41.2
20	SULAWESI SELATAN	26.8	30.5	30.5	33.2	33.5	39.9	68.6	75.4	24.6	29.2	55.3	
21	SULAWESI TENGGARA	13.1	14.9	14.9	20.2	31.6	27.7	35.2	28.0	37.8	32.4	37.4	57.4
22	BALI	17.3	26.2	26.2	34.5	54.7	91.4	82.8	89.0	68.2	96.7	90.7	83.3
23	NUSA TENGGARA BARAT	17.7	34.9	29.9	8.1	63.4	56.4	62.7	56.2	50.9	51.8	58.4	43.3
24	NUSA TENGGARA TIMUR	7.8	8.8	16.6	21.4	16.5	27.1	71.6	42.0	10.7	21.1	49.0	51.6
25	MALUKU	7.0	7.1	7.1	11.7	29.4	13.7	30.4	39.5	25.0	11.1	25.8	57.5
26	IRIAN JAYA	10.5	9.2	9.2	18.0	30.2	18.4	28.2	37.5	22.1	11.7	50.6	57.1
27	TIMOR-TIMUR	9.9	4.1	4.1	11.2	12.6	17.6	14.7	17.3	7.2	9.8	9.6	32.2
	INDONESIA	19.8	24.7	25.5	27.2	39.4	41.4	58.8	54.7	38.0	44.1	51.4	53.7

Source : Directorate General of PPM & PLP, MOH R.I

[Note] 1. TT : Tetanus Toxoid, DT : Diphtheria and Tetanus Toxoid