(B) Utility and facility room, etc.

Total 30 x 15 = 450 m^2

Boiler room
Electric receiver room
Workshop
Generator room
Water treatment room

(C) Warehouse for materials and finished products

35 x 35 = 1,225 m^2

(D) Welfare room

15 x 30 = 450 m^2

Canteen, Toilet, Locker, Extra room and Rest Room.

(E) Office 15 x 20 = 300 m^2

(F) Guard room 5 x 7.5 = 37.5 m^2

Total Space for Building:
5,012.5 m^2

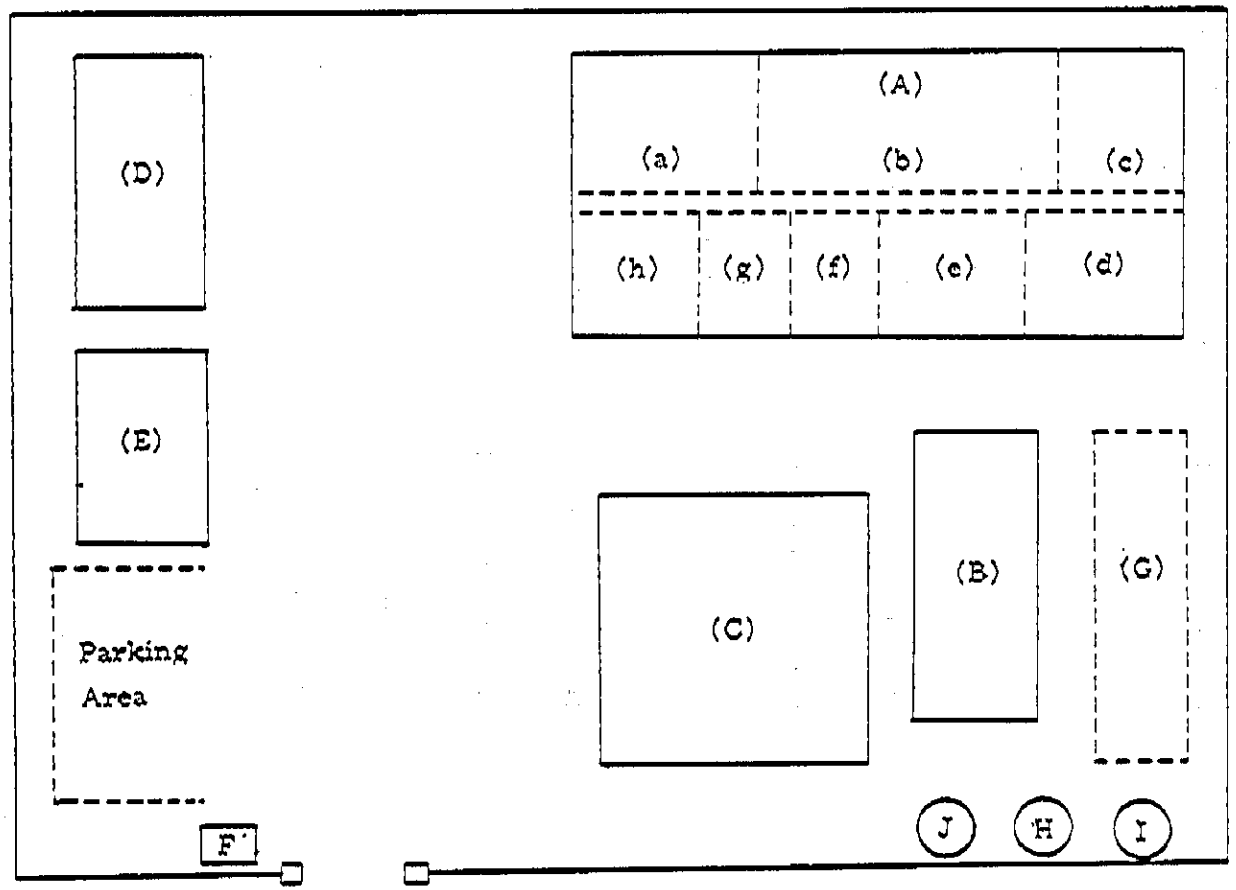
(G) Water treatment facility

(H) Water tank tower

(I) Oil tank

(J) Well pump

Fig. V-5 FACTORY/LAYOUT



(A) Production factory
- (a) Compounding room
- (b) Manufacturing room
- (c) Drying room
- (d) Testing room
- (e) Packing room
- (f) Inspection room
- (h) Temporary warehouse

(B) Utility facility room

(C) Warehouse for material and finished goods

(D) Welfare room

(E) Office

(F) Guard room

(G) Water treatment facility

(H) Water tank tower

(I) Oil tank

(J) Well pump

CHAPTER 5 PRODUCTION PROCESS, TECHNOLOGY AND EQUIPMENT

5-1 Introduction

Condom production by the continuous dipping method needs particular techniques in all the manufacturing processes. Among other things, dispersion in the quality of raw latex materials is a determining factor for the quality of finished products. As was stated in detail in CHAPTER 1, PART IV, it is a prerequisite to build up plantations and improve its refining capability in order to assure equal and high quality raw latex throughout year. Technology required in the following step is the one for compounding; a techniques to vulcanize by applying chemicals for raw latex and the compound latex suitable for the processing that follows. This processing needs a specific technique, because it is affected by the temperature and humidity, especially high temperature, throughout year.

Processing in high-temperature conditions is accompanied by several difficulties, which is one of the causes for the failure of condom production in the tropical regions. The manufacturing (moulding) process shall be adjusted in accordance with the level of vulcanized latex. As to this process, too, it will be advised to take a full advantage of the experiences and knowledge of production techniques in tropical regions.

As is in these facts, it will be indispensable for condom production to ensure high quality raw latex and to adopt particular production knowhow to cope with the high-quality condoms with a high level of yield.

In the next step, it will be desirable to have a set of condom-manufacturing machines to meet the quantity required in Indonesia, forecast to grow steadily every year. It is hoped, too, that Indonesia in the future will become capable of manufacturing condoms of varied kinds (multi-color and form-fitted type, for example) simultaneously to cope with such requirements. In the case of policy to expand domestic demands of condoms, simultaneous production of various types of condom shall be helpful.

5-2 Production Process

5-2-1 Compounding Process

Compounding process are composed mainly of three processes, dispersing, homogenizing chemicals and to vulcanize latex with the chemicals crushed.

(1) Disperding

Compounding chemicals in the ball-mill are crushed into particles and equally dispersed with gentle stirring so that they may become uniform.

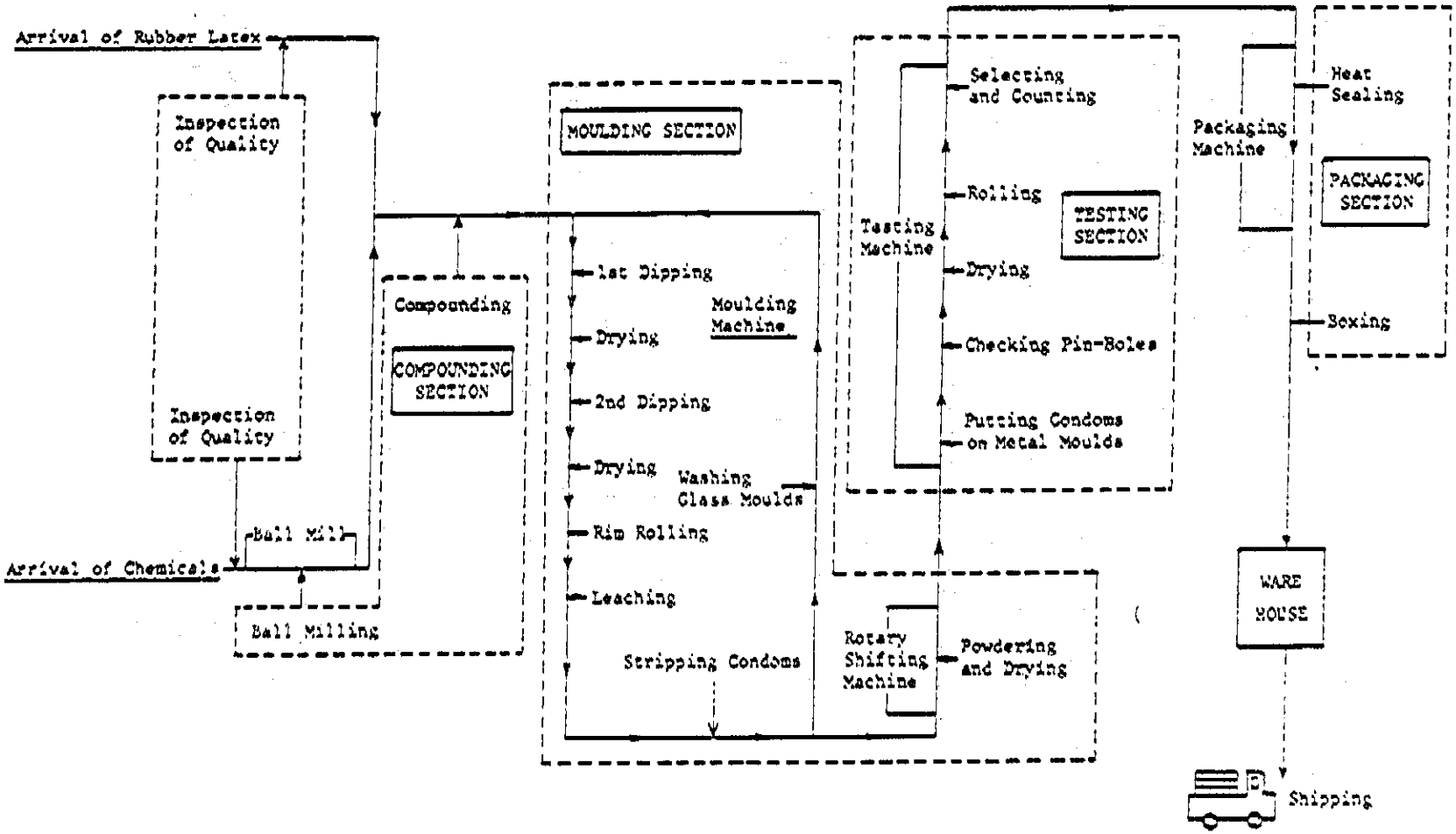
(2) Homogenizing

After the ball-milling, compounding chemicals will be crushed again to be smaller particles by homogenizer.

(3) Vulcanizing

Vulcanization process is the key part of condom production. Heating temperature and length of vulcanization period are determining factors of the quality of condom.

Fig. V-6 FLOW SHEET OF THE CONDOM PRODUCTION PROCESS



5-2-2 Moulding Process

The condoms are manufactured by the so-called direct dipping method. With this method, the glass moulds are dipped in a latex tank and then taken out carefully. The latex adhered on the mould's surface is dried and de-moulded afterwards. At the factory, the production is made by the continuous rotation with repetition of washing, drying, rim-rolling, hot-water dipping and stripping.

(1) First Dipping

In a dipping tank, dosed latex is filled. When glass moulds dive into the dipping tank, necessary amount of latex is adhered to each glass mould.

(2) First Drying

Then, the moulds move to a drying chamber in order to evaporate moisture and form of condoms will be shaped on the glass moulds.

(3) Second Dipping

To avoid existence of pinhole and to strengthen the condom, the glass moulds will again dive into dipping tank to make double wall film.

(4) Second Drying

After the second dipping, the moulds move into drying chamber.

(5) Rim Rolling

When the moulds come to the rim making process, the edge part of condoms are automatically rolled and form rubber ring.

(6) Leaching

The glass moulds will be driven into hot water bath to remove impurities and unnecessary chemicals.

(7) Stripping

After entering into hot water bath, the condoms will be automatically stripped off from the moulds.

(8) Washing

Thereafter, bare-glass mould will be washed by round revolving brush and successively returned to first dipping tank.

5-2-3 Drying Process

The condoms stripped from glass moulds are transferred to rotary shifting machine where powdering, depowdering and post-vulcanization are performed simultaneously. Surplus powder remaining on condom is removed off.

5-2-4 Pinhole Testing Machine

Automatic pinhole testing machine makes use of insulation character of the rubber. Detectives of pinholes on condoms will take place in this machine which can also roll up condoms and count the number of accepted condoms.

(1) Feeding

Untested condoms will be put on the metal moulds by the hands of female workers.

(2) Pinhole testing

By the detective device, condoms are judged whether there is pinhole on condom or not and the judgement will be memorized by recording machines.

(3) Rolling and selection

Tested condoms will be rolled up and separated automatically for acceptance and rejection. Only accepted condoms will be rolled up.

5-2-5 Packing Process

After pinhole testing, condom will be hermetically sealed into laminated tape in order to protect from deterioration, stickiness by humidity and worm-eaten.

5-2-6 Inspection Process

(1) Raw Material Entry Inspection

Factory specification of raw material shall be set and all the raw materials to be processed shall be inspected for the conformability to the specification.

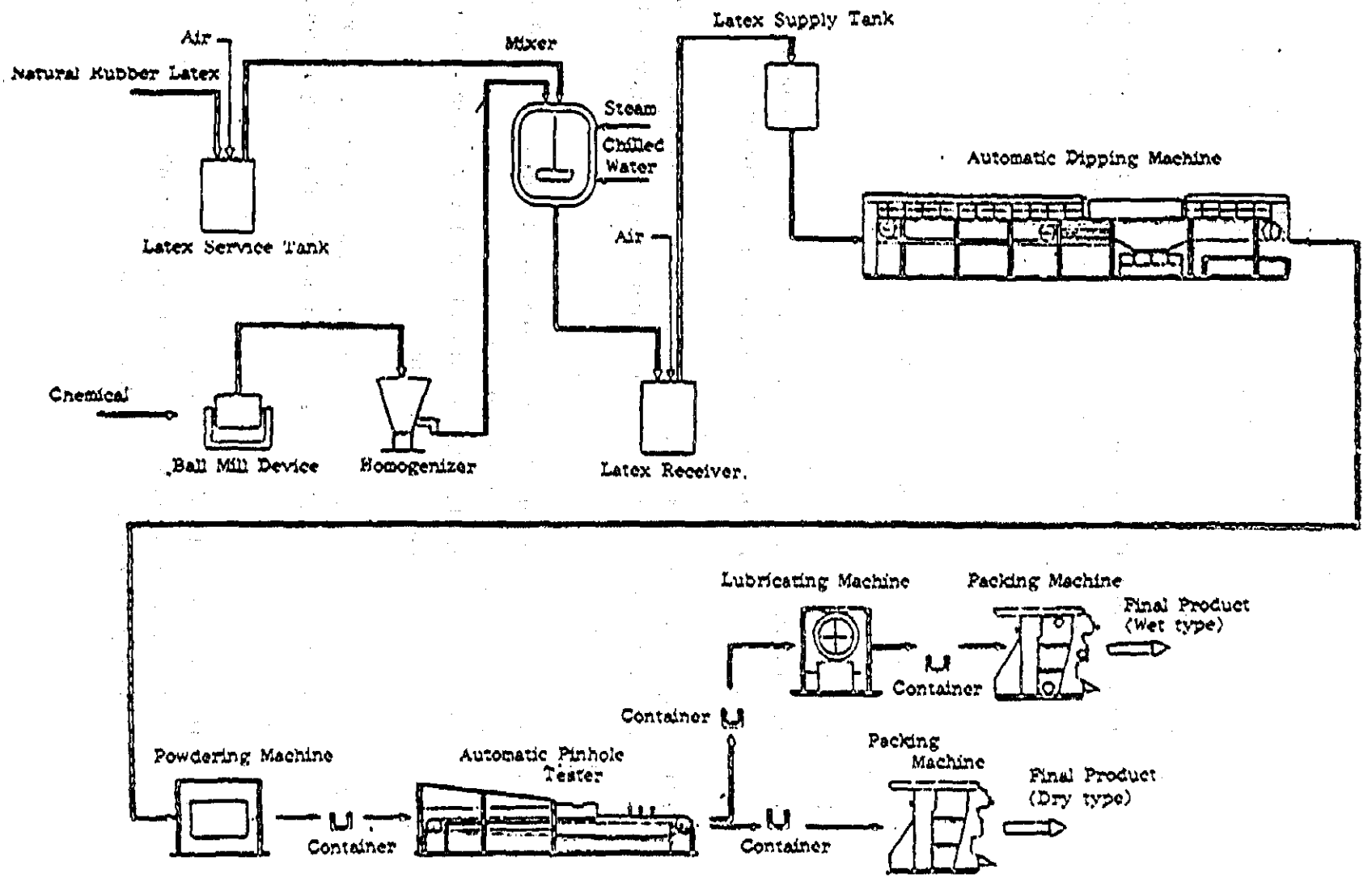
(2) Process Inspection

This is a process inspection which checks the conformability of raw materials being used to the factory specification and the compliance with the standard of operation.

(3) First Sampling Inspection

According to the number of condoms in each production batch, appropriate size of sample shall be taken from the batch and tested if the characteristic figure of each tested condom meets the standard or not.

Fig. V-7 PROCESS FLOW DIAGRAM FOR LATEX CONTRACEPTIVES PLANT



(4) Entire Inspection

Since a condom with pinholes makes no sense, inspection of pinhole shall be performed for all the condoms produced.

(5) Final Inspection

To guarantee the quality of the products, final inspection on a sampling basis shall be performed and the results shall be kept in file.

5-3 The Role of Manufacturing Division

5-3-1 Compounding Works

(1) The weight of compounding chemical shall be measured and they will be put into ball-mill for dispersion treatment.

(2) Dispersed chemicals in the ball-mill shall be circulated into colloidal-mill and the chemicals shall be crushed again into smaller particles.

(3) The weight of natural rubber latex will be measured and it will be poured into vulcanizing tank.
Dispersed chemicals diluted with distilled water will also be put into same tank with stirring.

(4) After the operation mentioned above, the lot number of raw materials and chemicals shall be filled in the compounding list.

(5) Operation of vulcanization works.
- Air conditioning operation of vulcanizing tank
- Cooling operation after vulcanization

(6) Heating and cooling temperatures will be recorded automatically.

(7) Vulcanized latex drawn from vulcanized tank shall be put into storage tanks. Temperature for storage shall be kept at 8 - 12°C.

(8) Daily reports of compounding will be filled.

(9) Production of distilled water.

- Reclamation and washing of ion-exchange resin
- Filling of water into automatic demineralizer apparatus and pouring of distilled water into storage tank

(10) Vulcanized latex will be circulated to the supply tank of automatic manufacturing plant. The viscosity of the supply latex will be adjusted to the specified level after measurement.

5-3-2 Moulding and Powdering Works

(1) Operation of automatic manufacturing plant

(2) Watching latex tank and reaching tank

(3) Adjustment of viscosity and height of latex in the tank

(4) Observation of drying temperature

(5) Observation of operational speed

(6) De-powdering operation in each batch :

- Powdering
- Drying
- De-powdering

(7) Take-over operation :

Production condition of each shift group will be notified to next shift group.

(8) Daily manufacturing report will be recorded.

(9) Stoppage and adjusting works at the end of week.

5-3-3 Testing Works

(1) Operation of pinhole tester

- Temperature adjustment of electric conductivity tank
- Adjustment of machinery speed

(2) Product rolling works :

Female workers are required to put on finger cot in advance to operation after cleaning nail.

(3) Stoppage and fixing of machine

(4) Recording of testing report

5-3-4 Packing Works

(1) Tape Sealing

- Acceptance of bulk condom and packing tape

- Operation of automatic packing machine
- Adjustment of machine and adjustment of packing tape
- Process inspection:
  Each inspector per machine checks the quantity inspected and packs to gross box.
- Stoppage and adjustment of machine
- Recording of daily report

(2) Boxing

Acceptance of tape-sealed products and packing in box.

Packing of tape-sealed products to three pieces packet or dozen box if necessary.

Inspection process

Recording of daily report

5-3-5 Inspection Works

(1) Entry inspection of natural rubber latex
- Total solid content
- Dry rubber content
- Viscosity
- Alkalinity
- Coagulation content
- MST
- KOH No.
- VFA No.

(2) Process inspeciton of natural rubber latex
- Total solid content
- Viscosity
- Alkalinity
- MST

(3) Entry inspection of chemicals
- Sulphur
- Zinc Oxide
- Vulcanization accelerator
- Ammonium Water
- Cilicic Anhydride
- Silicon Oil

(4) Entry inspection of glass mould

(5) Entry inspection of packing material

(6) Appearance test of condom (JIS Z9006 selected sampling test one time)

(7) Tensile strength test of condom

(8) Elasticity inspection of condom

(9) Pinhole testing of condom by electric resistance

(10) Water leakage test of condom

(11) Length and weight of condom

(12) Bursting strength test of condom

(13) Patrol inspection in testing machine

(14) Accuracy inspection of testing machine

(15) Process inspection of tape packing

(16) Process inspection of boxing

(17) Entry inspection of finished products

(18) Inspection of plant, machinery and utility facility

5-4 List of Equipments and Tools Required for Condoms Production

5-4-1 Compounding Equipments

Capacity : more than 1,200 ℓ/day

List :
- Vulcanizing Mixer
- Ball Mills
- Colloid Mills
- Demineralizing Apparatus
- Cooling Apparatus
- Water Pumps
- Cooling Water Tanks
- Latex Tanks
- Air Compressors
- Water Tanks
- Measuring Wares
- Others

5-4-2 Automatic Moulding Machines

Capacity : more than 125 gross/H
(Operation of 24 hours a day. Actual production quantity shall be calculated by substructing defected goods.)

List : Automatic Moulding Machine
Drying Apparatus
Chiller Units
Dust Collectors
Containers
Cooling Apparatus

5-4-3 Automatic Pinhole Testing Machines

Capacity : more than 170 gorss/H
(Operation of 24 hours a day. It will be subject to change depending upon workers' skill.)

List : Automatic Pinhole Testing Machines
Containers

5-4-4 Packing Machines

Capacity : more than 170 gross/H

List : Packing Machines (Heat Sealer)
Lubricating Apparatus

5-4-5 Inspection Equipments

List : Water Leakage Testing Device
Bursting Volume Testing Device
Tensile Testing Device
Aging Ovens
Electrical Testing Device
Gauges for Measuring Thickness
Punchers (Dumbbell Type)
Balances
Air Compressor
Others

5-4-6 Laboratory Instruments

List :

- Stability Tester
- Densitometer
- Ovens
- pH Meter
- Stirrers
- Sylinders
- Desicators
- Balances
- Rubber Roller
- Beakers
- Thermometers
- Plastic Beakers
- Dispersing Balances
- Pipets
- Burrets
- Filter Paper
- Stroboscope
- Stop Watches
- Weighing Bottles
- Water Distilling Apparatus
- Erlenmeyer Flasks
- Reagents
- Volumetic Flasks
- Small Ball Mills
- Glass Plates
- Small Vulcanizing Apparatus
- Glass Moulds
- Air Compressor
- Water Baths
- Refregirators
- Viscosimeters

5-5 List of Equipments and Tools Required for Utility and Maintenance Facilities

5-5-1 Boiler

Capacity: 1.2 - 2.5 t/H
(Normal pressure is 6 kg/cm^2)

List: Water Tube Boiler or Once-through Boiler
(for Heavy Oil)

5-5-2 Water Tank and Pump

Pump : Capacity of more than 30 t/H

Tank : Capacity of more than 20 m^3

5-5-3 Electric Power Receiver and Generator

Capacity : more than 500 kW/H
AC 220V
AC 380V
50 Hz

5-5-4 Equipments and Tools in Work Shop

List:
- Lathes
- Bench Drills
- Grinders
- Portable Electric Grinders
- Hack Saw Machine
- Surface Plate
- Portable Electric Drills
- Stand Type Electric Drills
- Electric Welders

Gas Welders
Anvil
Winches
Air Compressors
Chain Blocks
Vacuum Cleaner
Working Table
Piping Tool
Hand Tool
Measuring Tool
Electric Testers
Carpenter's Tool
Other Expendables

CHAPTER 6 PROJECT IMPLEMENTATION AND PLANT OPERATION

6-1 Organization for Implementation of this Project

The company which will implement the Project and operate the factory will be the Government owned pharmaceutical company, P.T. Kimia Farma, manufacturing more than 200 pharmaceutical products and they are working with BKKBN which has been designated as executing agency by the Indonesian Government.

For the purpose of implementing this project, BKKBN has formed project team consisting mainly of staff in Administration and Management Division in co-operation with P.T. Kimia Farma. The same project team successfully completed the construction of oral contraceptive factory under USAID assistance. The condom production factory is also expected to become one division of P.T. Kimia Farma. However, as the production of condom is the first experience in Indonesia and the production is considered to be difficult especially in tropical country, it is essential that engineers who have long enough experience in manufacturing condom in tropical country will be assigned to work for the project and will have the assignment during the construction of the factory as well as operation and maintenance after the commencement of factory operation. It is also recommended to the greatest extent that the possible engineers who possess the experience of operation in similar tropical climate condition as in Indonesia will be participated in this project and train Indonesian major staff engineers.

6-2 Construction Plan of Condom Production Plant

6-2-1 Major Tasks which must be Performed by Indonesian Counterpart up to the Time of Delivering Plant Equipment

The machinery and equipment which will be installed in the factory are very diverse in nature and in many cases are technologically sophisticated. Only a few are presently being made in Indonesia. However, P.T. Kimia Farma, implementing organization of the project has the experience of constructing large pharmaceutical factory in Jakarta and oral contraceptive factory in Bandung, intends to level the land and to construct factory building, access road, water supply as well as waste water facility up to the factory and necessary piping and wiring works in the factory. These works must be completed before the arrival of machinery and equipment to the factory.

6-2-2 Implementation Schedule

This time schedule is made on the basis of the date of contract to become effective between plant supplier and purchaser.

Plant designing: a period in which a plant supplier, after negotiations with Indonesia in details, performs designing activities in accordance with all the specifications.

Parts procurement: a period in which the supplier, in its country, completes procurement of components and production equipment necessary for the plant assembling.

Plant assembling: a period in which the supplier, in its country, assembles plant equipment. In that country, the supplier later conducts pre-shipment trial operations of this equipment, disassembles it partially for technical confirmation and packs for shipment.

After clearing the customs, the machinery and equipment are to be installed and assembled at the local factory in about four months.

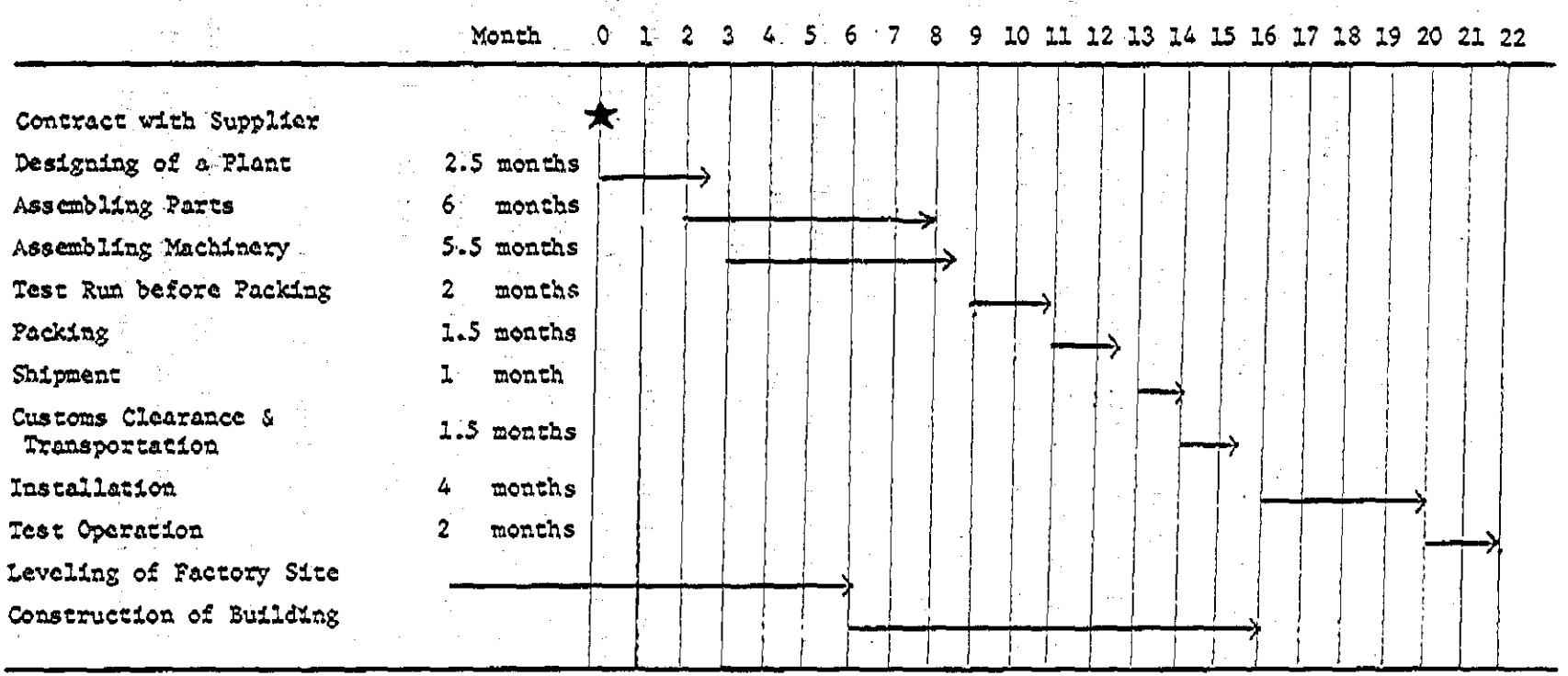
Trial run: this is due 19 months after the supplier starts designing. This length of time should be confirmed by two contracting parties when the contract is signed.

The purchasing and levelling of a factory site should start before the contract is concluded, because a factory construction likely will require a long span of time. The factory construction should be completed within 15 months after the supplier's designing work starts.

To work out a time schedule, it will be wise to conduct constructions in the dry season. Land levelling and factory construction, among other things, are advised to be started in around April.

Some note also should be taken that situations of key transportation roads in Indonesia will deteriorate in the rainy season.

Fig. V-8 SCHEDULE OF PLANT CONSTRUCTION



6-3 Organization for Plant Operation and Manpower Planning

6-3-1 Organization for Plant Operation

The organization shown in Fig. V-9 will be adopted in part of P.T. Kimia Farma, and it shows the minimum departments and bureaus required for condom production.

(1) Department of general-affairs covers general-affairs, personnel, procurement, accounting and warehouse.

(a) Bureau of general affairs and personnel: staff employment, receptionist and security staff.

(b) Bureau of procurement: procurement of raw materials required for production.

(c) Bureau of accounting: accounting and treasury.

(d) Bureau of warehouse: receipt of arriving raw materials, delivery, maintenance and supervision of both semi-finished and finished products.

(2) Department of manufacturing covers compounding, manufacturing, pinhole testing, packing and utilities supply.

(a) Bureau of compounding: receipt and maintenance of raw materials, manufacturing of vulcanized latex.

(b) Bureau of manufacturing: production of condoms.

(c) Bureau of pinhole testing: pinhole testings and rolling operation.

(d) Bureau of packing: packing in accordance with packing specifications.

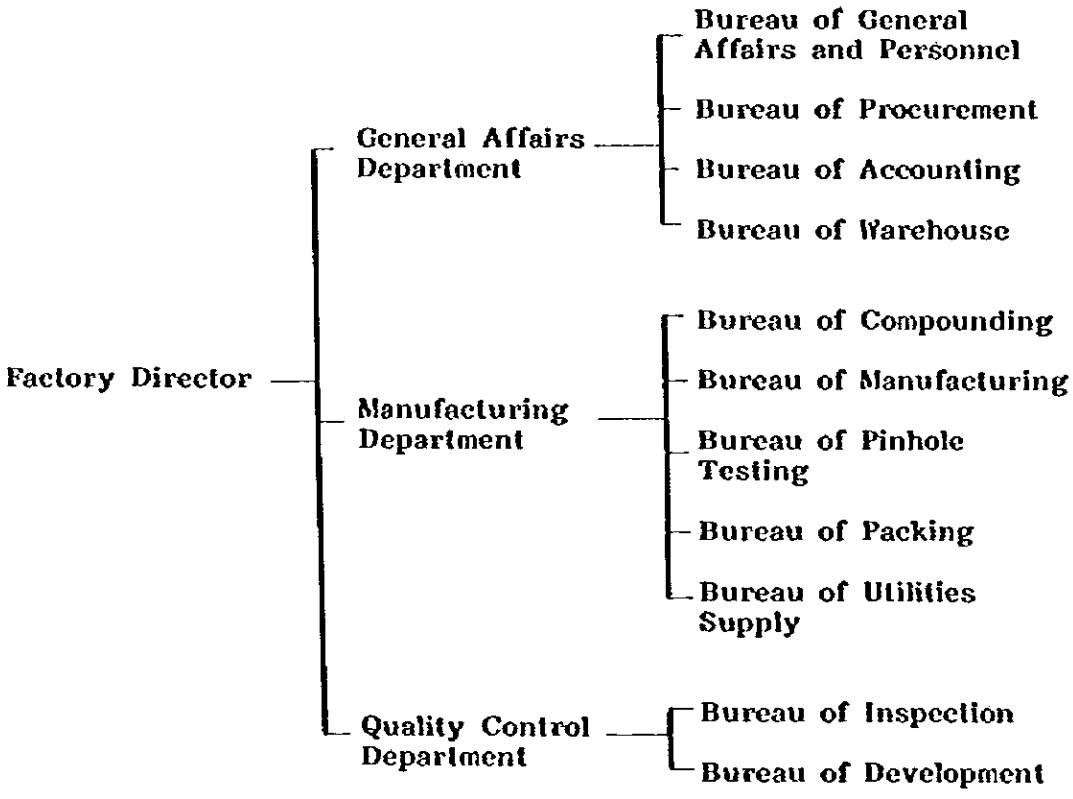
(e) Bureau of utilities supply: operation, maintenance and inspection of generators, boilers, water supply and waste water treatment facilities maintenance of plant process.

(3) Department of quality control covers inspection and development.

(a) Bureau of inspection: receipt and inspection of raw materials, inspection of each process, guarantee of the quality of product.

(b) Bureau of development: improvement of the quality of the latex in Indonesia, development of compounding, quality control, improvement of production efficiency in each process.

Fig. V-9 CHART OF ORGANIZATION



6-3-2 Manpower Planning

The manpower will have to be built up in a process where annual production capacity increases from 600,000 gross to 900,000 gross. Consequently, the present 8-hour working time system by three groups of the manufacturing division will be shifted to an eight hour working time system by four groups, which will require an increase of one full group. This change needs to build up the manpower for pinhole inspection and packing processes to increase production capacity. The manpower built-up program due to a production increase from 600,000 gross a year to 900,000 gross a year is shown in the following tables. (See Tables V-9 and V-10)

Table V-9 LIST OF MANPOWER PROGRAM FOR ANNUAL PRODUCTION CAPACITY OF 600,000 GROSS

Non-marking : Male
○Mark : Female

	Factory Manager	Manager	Chief of Bureau	Assistant Chief of Bureau	Clerk and Factory Worker	Total
Factory Director	1					1
General Affairs Department		1				1
Bureau of General Affairs and Personnel			1	2	4 (4)	7 (4)
Bureau of Procurement			1	1	(1)	2 (1)
Bureau of Accounting			1	1	1 (1)	3 (1)
Bureau of Warehouse			1		2	3
Manufacturing Department		1				1
Bureau of Compounding			1		2	3
Bureau of Manufacturing			1	3	9	13
Bureau of Pinhole Testing			1	2	(34)	3 (34)
Bureau of Packing			1	2	(40)	3 (40)
Bureau of Utility Supply			1	3	5	9
Quality Control Department		1				1
Bureau of Inspection			1	2	(8)	3 (8)
Bureau of Development			1	2	(1)	3 (1)
Total	1	3	11	18	23 (89)	56 (89)
Grand Total						145

Table V-10 LIST OF MANPOWER PROGRAM FOR ANNUAL PRODUCTION CAPACITY OF 900,000 GROSS

Non-marking : Male
○Mark : Female

	Factory Manager	Manager	Chief of Bureau	Assistant Chief of Bureau	Clerk and Factory Worker	Total
Factory Director	1					1
General Affairs Department		1				1
Bureau of General Affairs and Personnel			1	2	4 (4)	7 (4)
Bureau of Procurement			1	1	(1)	2 (1)
Bureau of Accounting			1	1	1 (1)	3 (1)
Bureau of Warehouse			1		2	3
Manufacturing Department		1				1
Bureau of Compounding			1		2	3
Bureau of Manufacturing			1	4	12	17
Bureau of Pinhole Testing			1	2	(49)	3 (49)
Bureau of Packing			1	2	(58)	3 (58)
Bureau of Utility Supply			1	4	5	10
Quality Control Department		1				1
Bureau of Inspection			1	2	(11)	3 (11)
Bureau of Development			1	2	(1)	3 (1)
Total	1	3	11	20	26 (125)	61 (125)
Grand Total						186

CHAPTER 7 TECHNICAL ASSISTANCE SERVICES

7-1 Technical Assitance Services Required to be Provided by Foreign Firms

Even equipped with sophisticated facilities or systems, a plant cannot produce the quantities as is originally projected, or remain with the qualities requried. The production of condom, especially, needs specific techniques incomparable to those for other manufactured goods, which originates from raw materials as latex, which is obtained as a natural resource.

The fact that the number of condom manufacturers is no more than 10 in the world indicates the uniqueness of its production knowhow and the necessity of sophisticated technology.

The production of condoms in a tropical area is linked with weather conditions so intricately that condom manfuacturing plants have not paid off. With Indonesia also being a tropical country, it will be indispensable to adopt well-experienced foreign technologies for production in a tropical zone in order to make this project successful.

7-2 Overseas Training

To proceed with this project, it is imperative to gain the following technical assistance from manufacturers (plant suppliers) well versed in condom manufacturing overseas by sending qualified Indonesian experts for overseas training, as well as to proceed with preparatory works.

The following technical assistance services are necessary for Indonesia to start production smoothly immediately after trial operation of the plant.

(a)	Entry inspection technlogy of latex	Chemistry experts
(b)	Compounding technology	
(c)	Production technology and plant operation	Engineering and electrical experts
(d)	Packing technology	
(e)	Technlogy for testing process	Mathematic or chemistry express
(f)	Inspection technology	

7-3 Training in Indonesia

Supervisors in manufacturing divisions need to be trained by technical advisers on the following subjects.

(a) Trial operation

(b) Establishment of operational and maintenance systems and daily operational procedures

(c) Daily operation and maintenance

(d) Instructions on emergency shut-down, start-up and trouble-shooting

(e) Establishment of control systems and assistance in system operations

7-4 Post-operation Assistance

The stable and uniform quality of Indonesian raw latex is the determining element for condom production, and the success of this project depends greatly on the qualtiy of latex refined in Indonesia.

In this respect, the reception and inspection of raw latex will have to be performed by specialists. Primary points of the assistance services are as follows:

(a) Analysis of the entry inspection of raw latex

(b) Latex preservation technology

(c) Latex qualitiy and compounding technology

7-5 Necessary Technical Assistance after Transfer of the Plant

The transfer of the plant will be made on the date when trial operation is completed. The costs for the plant include followup services by the supplier's engineers for a one-year period.

Nevertheless, the condom production technology is very delicate and complex as stated earlier, and as such it is advisable to continue technical assistance services by the supplier's engineers at least for three years after transfer of the plant is completed.

Ref: An example of the cost of sending two technical engineers is estimated presently at about 70 million yen a year.

PART VI

CAPITAL REQUIREMENT AND FINANCING PLAN

PART VI CAPITAL REQUIREMENT AND FINANCING PLAN

CHAPTER 1 CAPITAL REQUIREMENT

The initial capital requirement necessary for constructing the condom plant is estimated at the constant prices in June 1981 and at the exchange rates of US$1=¥225=Rp620.

The total initial capital requirement amounts to Rp7,494 million as shown in Table VI-1. Within the total cost of the project, the foreign currency portion is estimated at Rp6,184 million (at ¥2,248 million equivalent) or 82.5% of the total capital requirement. Each item of the initial capital requirement is estimated as follows:

(1) Land

The land necessary for the plant is 15,000m^2 . The purchase cost is estimated at Rp70 million based on the market price of land around Banjaran.

(2) Site preparation

The cost of site preparation is estimated at Rp90 million.

(3) Access road

The construction cost of the access road which has a length of 200 m and a width of 20 m is estimated at Rp80 million.

(4) Building

The cost of building and incidental facilities construction is estimated at Rp756 million with foreign currency portion of Rp146 million.

(5) The construction cost of water supply facilities, drainage facilities, gates, outer walls, etc. is estimated at Rp165 million with foreign currency portion of Rp8 million.

(6) Plant machinery and equipment

The purchase cost of main plant machinery and equipment including auxiliary equipment is estimated at Rp4,572 million (at ¥1,662.7 million equivalent) on FOB basis.

(7) Ocean freight and insurance

Ocean freight and insurance charge for plant machinery and equipment is estimated at Rp103 million.

(8) Unloading and inland transportation

Volume of plant machinery and equipment is computed at 840 m^3 and unit cost of unloading and inland transportation from the port of Jakarta to the plant site is estimated at Rp43,000. Therefore, unloading and inland transportation cost is calculated at Rp36 million.

(9) Installation works

Cost of local workers for plant machinery and equipment installation is estimated at Rp5 million.

(10) Services and transfer of technology

A) The cost of dispatch of technicians for the machinery and equipment installation works is estimated at Rp106 million for 20 man months.

B) The cost of dispatch of after-care experts is estimated at Rp385 million for 24 man months.

C) The cost of other services such as consultant fee for tender document is estimated at Rp56 million.

Table VI-1 INITIAL CAPITAL REQUIREMENT

¥100 = Rp275

Item	Foreign portion (¥1,000)	Foreign portion (Rp1,000)	Local portion (Rp1,000)	Total (Rp1,000)
1. Land			70,000	70,000
2. Site preparation			90,000	90,000
3. Access road construction			80,000	80,000
4. Building construction	53,158	146,185	609,815	756,000
5. Civil engineering works	3,063	8,424	157,096	165,520
6. Plant machinery and equipment	1,662,704	4,572,436		4,572,436
7. Ocean freight and insurance	37,520	103,180		103,180
8. Inland transportation etc.			36,120	36,120
9. Installation works			5,000	5,000
10. Services & transfer of technology	198,983	547,203		547,203
A) Dispatch of technicians	38,560	106,040		106,040
B) Dispatch of after-care experts	140,000	385,000		385,000
C) Others	20,423	56,163		56,163
11. Contingencies	293,314	806,614	262,007	1,068,621
Total	2,248,742	6,184,042	1,310,038	7,494,080
Ratio %		82.5%	17.5%	100%

Source : Mission Team

(11) Contingencies

The price contingency and physical contingency are calculated by multiplying by 15% for foreign portion and by 25% for local portion of the total project cost.

CHAPTER 2 FINANCING PLAN

The amount of capital required for implementing the project consists of the initial capital requirement necessary for constructing the plant and the working capital required for operating the plant. The initial capital requirement is estimated at Rp7,494 million at 1981 prices. The working capital requirement at full operation is estimated at Rp418 million based on the production costs.

According to the financing plan, the foreign component (Rp 6,184 million) of the initial capital requirement is to be covered by long-term loan and the local component (Rp1,310 million) is to be financed by equity capital. The terms of long-term loan are supposed to be 15 years including a grace period of 5 or 7 years with annual interest rate 3-5%. The working capital is to be financed by a short-term loan from state banks. The financing plan is given in Table VI-2.

Table VI-2 SOURCES OF FINANCE

Unit : Rpl,000

	Foreign portion	Local portion	Total	Remarks
Initial capital requirement				
Long-term loan	6,184,042		6,184,042	annual interest rate: 3 5%, repayment period: 15 years including a grace period of 5 or 7 years
Equity capital		1,310,038	1,310,038	dividends: 0%
Sub-total	6,184,042	1,310,038	7,494,080	
Working capital				
Short-term loan		418,294	418,294	annual interest rate: 13.5%
Total	6,184,042	1,728,332	7,912,374	

Source : Mission Team

PART VII

FINANCIAL ANALYSIS

PART VII FINANCIAL ANALYSIS

CHAPTER 1 PRODUCTION COST

Production costs consist of operation costs, financial costs and depreciation costs. The operation costs include material cost, power and other utility cost, labor cost, overhead and administration cost, maintenance and repair cost and others. Each element is estimated as follows:

(1) Material cost

The unit cost of basic raw material and various auxiliary materials such as chemicals, additives and packaging materials is estimated at Rp799 per gross with foreign currency portion of Rp260.

(2) Utility cost

Water and fuel oil for generators and boilers are required. The unit cost of utility is estimated at Rp114.9 per gross.

(3) Labor cost

Labor cost consists of direct labor cost and indirect labor cost. Unit labor cost is estimated at Rp229 per gross (at 550,000 gross-production operation) - Rp 178.6 per gross (at 900,000 gross-production operation) based on the wage and salary level of P.T. Kimia Farma.

(4) Maintenance and repair cost

Maintenance and repair cost is calculated by multiplying the acquisition cost of machinery and equipment by a fixed rate. The fixed rate is decided to be 0.5% for the first year operation and one percent for the operation from the second year on based on the experience in Japan.

(5) Insurance cost

Insurance premium for machinery, equipment and building is calculated by multiplying their prices by 0.4%.

(6) Depreciation cost

The depreciation cost is to be calculated according to the life time and by a straight line method making the residual value zero. The life time of the machinery and equipment is to set 10 years and that of the building is to set 15 years.

(7) Financial cost

The interest to be paid is to be calculated according to the financing plan as shown in Table VI-2.

Table VII-1 shows the estimate of operation costs from 1983/84 to 1997/98.

The estimate of total production costs including financial and depreciation costs is described in Tables VII-2-1 - VII-2-6 as to each different term and interest rate.

Table VII-1 OPERATION COST ESTIMATE

(Unit: Rp1,000)

	Year	Production (gross)	Total Operation Costs	Raw Materials	Local Materials	Imported Materials	Labor	Utility, Repair, Maintenance, and Others
1	1983/84	550,000	676,196 (1,229)	439,450 (799)	296,450 (539)	143,000 (260)	126,140 (229)	110,606 (201)
2	1984/85	610,000	760,044 (1,245)	487,390 (799)	328,790 (539)	158,600 (260)	131,040 (214)	141,614 (232)
3	1985/86	660,000	813,159 (1,232)	527,340 (799)	355,740 (539)	171,600 (260)	138,460 (209)	147,359 (223)
4	1986/87	690,000	843,376 (1,222)	551,310 (799)	371,910 (539)	179,400 (260)	141,260 (204)	150,806 (218)
5	1987/88	750,000	904,370 (1,205)	599,250 (799)	404,250 (539)	195,000 (260)	147,420 (196)	157,708 (210)
6	1988/89	800,000	954,965 (1,193)	639,200 (799)	431,200 (539)	208,000 (260)	152,320 (190)	163,445 (204)
7	1989/90	850,000	1,004,860 (1,182)	679,150 (799)	458,150 (539)	221,000 (260)	156,520 (184)	169,190 (199)
8	1990/91	900,000	1,054,755 (1,171)	719,100 (799)	485,100 (539)	234,000 (260)	160,720 (178)	174,935 (194)
9	1991/92	900,000	1,054,755 (1,171)	719,100 (799)	485,100 (539)	234,000 (260)	160,720 (178)	174,935 (194)
10	1992/93	900,000	1,054,755 (1,171)	719,100 (799)	485,100 (539)	234,000 (260)	160,720 (178)	174,935 (194)
11	1993/94	900,000	1,054,755 (1,171)	719,100 (799)	485,100 (539)	234,000 (260)	160,720 (178)	174,935 (194)
12	1994/95	900,000	1,054,755 (1,171)	719,100 (799)	485,100 (539)	234,000 (260)	160,720 (178)	174,935 (194)
13	1995/96	900,000	1,054,755 (1,171)	719,100 (799)	485,100 (539)	234,000 (260)	160,720 (178)	174,935 (194)
14	1996/97	900,000	1,054,755 (1,171)	719,100 (799)	485,100 (539)	234,000 (260)	160,720 (178)	174,935 (194)
15	1997/98	900,000	1,054,755 (1,171)	719,100 (799)	485,100 (539)	234,000 (260)	160,720 (178)	174,935 (194)

Note: Parentheses indicate unit costs (Unit: Rp/gross)

Table VII-2-1 PRODUCTION COST ESTIMATE (5 YEARS: 3%)*

(Unit: Rp1,000)

Year	Production (gross)	(1) Variable Costs	Raw Materials	Labor	Utilities	(2) Fixed Costs	Labor	Maintenance, Repair and Insurance	(3) Operation Costs (1)+(2)	(4) Financial Costs (interest)	(5) Depreciation	(6) Total Production Costs (3)+(4)+(5)	(7) Unit Production Costs (Rp per gross)
1.	550,000	600,225	439,450	97,580	63,195	75,971	28,560	47,411	676,196	220,908	549,046	1,446,150	2,629
2.	610,000	659,956	487,390	102,480	70,089	100,085	28,560	71,525	760,044	224,766	549,046	1,533,856	2,514
3.	660,000	713,074	527,340	109,900	75,834	100,085	28,560	71,525	813,159	227,732	549,046	1,589,937	2,408
4.	690,000	743,291	551,310	112,700	79,281	100,085	28,560	71,525	843,376	229,828	549,046	1,622,250	2,351
5.	750,000	804,285	599,250	118,860	86,175	100,085	28,560	71,525	904,370	233,327	549,046	1,686,743	2,248
6.	800,000	854,880	639,200	123,760	91,920	100,085	28,560	71,525	954,965	217,682	549,046	1,721,693	2,152
7.	850,000	904,775	679,150	127,960	97,665	100,085	28,560	71,525	1,004,860	202,005	549,046	1,755,911	2,065
8.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	186,333	549,046	1,790,134	1,989
9.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	167,781	549,046	1,771,582	1,968
10.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	149,229	549,046	1,753,030	1,947
11.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	130,677	66,768	1,252,200	1,391
12.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	112,125	66,768	1,233,648	1,370
13.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	93,573	66,768	1,215,096	1,350
14.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	75,020	66,768	1,196,543	1,329
15.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	56,469	66,768	1,177,992	1,308

*: A grace period and interest rate of long-term loan, 5 years: 3%.

Table VII-2-2 PRODUCTION COST ESTIMATE (5 YEARS: 4%)

(Unit: Rp1,000)

Year	Production (gross)	(1) Variable Costs	Raw Materials	Labor	Utilities	(2) Fixed Costs	Labor	Maintenance, Repair and Insurance	(3) Operation Costs (1)+(2)	(4) Financial Costs (interest)	(5) Depreciation	(6) Total Production Costs (3)+(4)+(5)	(7) Unit Production Costs (Rp per gross)
1.	550,000	600,225	439,450	97,580	63,195	75,971	28,560	47,411	676,196	282,748	549,046	1,507,990	2,741
2.	610,000	659,956	487,390	102,480	70,089	100,085	28,560	71,525	760,044	286,606	549,046	1,595,696	2,615
3.	660,000	713,074	527,340	109,900	75,834	100,085	28,560	71,525	813,159	289,572	549,046	1,651,777	2,502
4.	690,000	743,291	551,310	112,700	79,281	100,085	28,560	71,525	843,376	291,668	549,046	1,684,090	2,440
5.	750,000	804,285	599,250	118,860	86,175	100,085	28,560	71,525	904,370	295,167	549,046	1,748,583	2,331
6.	800,000	854,880	639,200	123,760	91,920	100,085	28,560	71,525	954,965	273,338	549,046	1,777,349	2,221
7.	850,000	904,775	679,150	127,960	97,665	100,085	28,560	71,525	1,004,860	251,478	549,046	1,805,384	2,123
8.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	229,622	549,046	1,833,423	2,037
9.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	204,885	549,046	1,808,656	2,009
10.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	180,149	549,046	1,783,950	1,982
11.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	155,413	66,768	1,276,936	1,418
12.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	130,677	66,768	1,252,200	1,391
13.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	105,941	66,768	1,227,464	1,363
14.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	81,204	66,768	1,202,727	1,336
15.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	56,469	66,768	1,177,992	1,308

*: A grace period and interest rate of long-term loan, 5 years; 4%.

Table VII-2-3 PRODUCTION COST ESTIMATE (5 YEARS: 5%)*

(Unit: Rp1,000)

Year	Production (gross)	(1) Variable Costs	Raw Materials	Labor	Utilities	(2) Fixed Costs	Labor	Maintenance, Repair and Insurance	(3) Operation Costs (1)+(2)	(4) Financial Costs (interest)	(5) Depreciation	(6) Total Production Costs (3)+(4)+(5)	(7) Unit Production Costs (Rp per gross)
1.	550,000	600,225	439,450	97,580	63,195	75,971	28,560	47,411	676,196	344,589	549,046	1,569,831	2,854
2.	610,000	659,956	487,390	102,480	70,089	100,085	28,560	71,525	760,044	348,447	549,046	1,657,537	2,717
3.	660,000	713,074	527,340	109,900	75,834	100,085	28,560	71,525	813,159	351,413	549,046	1,713,618	2,596
4.	690,000	743,291	551,310	112,700	79,281	100,085	28,560	71,525	843,376	353,509	549,046	1,745,931	2,530
5.	750,000	804,285	599,250	118,860	86,175	100,085	28,560	71,525	904,370	357,008	549,046	1,810,424	2,413
6.	800,000	854,880	639,200	123,760	91,920	100,085	28,560	71,525	954,965	328,994	549,046	1,833,005	2,291
7.	850,000	904,775	679,150	127,960	97,665	100,085	28,560	71,525	1,004,860	300,950	549,046	1,854,856	2,182
8.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	272,910	549,046	1,876,711	2,085
9.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	241,990	549,046	1,845,791	2,050
10.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	211,069	549,046	1,814,870	2,016
11.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	180,149	66,768	1,301,672	1,446
12.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	149,229	66,768	1,270,752	1,411
13.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	118,309	66,768	1,239,832	1,377
14.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	87,388	66,768	1,208,911	1,343
15.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	56,469	66,768	1,177,992	1,308

*: A grace period and interest rate of long-term loan, 5 years: 5%.

Table VII-2-4 PRODUCTION COST ESTIMATE (7 YEARS: 3%)*

(Unit: Rp1,000)

Year	Production (gross)	(1) Variable Costs	Raw Materials	Labor	Utilities	(2) Fixed Costs	Labor	Maintenance, Repair and Insurance	(3) Operation Costs (1)+(2)	(4) Financial Costs (interest)	(5) Depreciation	(6) Total Production Costs (3)+(4)+(5)	(7) Unit Production Costs (Rp per gross)
1.	550,000	600,225	439,450	97,580	63,195	75,971	28,560	47,411	676,196	220,908	549,046	1,446,150	2,629
2.	610,000	659,956	487,390	102,480	70,089	100,085	28,560	71,525	760,044	224,766	549,046	1,533,856	2,514
3.	660,000	713,074	527,340	109,900	75,834	100,085	28,560	71,525	813,159	227,732	549,046	1,589,937	2,408
4.	690,000	743,291	551,310	112,700	79,281	100,085	28,560	71,525	843,376	229,828	549,046	1,622,250	2,351
5.	750,000	804,285	599,250	118,860	86,175	100,085	28,560	71,525	904,370	233,327	549,046	1,686,743	2,248
6.	800,000	854,880	639,200	123,760	91,920	100,085	28,560	71,525	954,965	236,234	549,046	1,740,245	2,175
7.	850,000	904,775	679,150	127,960	97,665	100,085	28,560	71,525	1,004,860	239,110	549,046	1,793,016	2,109
8.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	218,800	549,046	1,822,601	2,025
9.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	195,609	549,046	1,799,410	1,999
10.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	172,419	549,046	1,776,220	1,973
11.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	149,229	66,768	1,270,752	1,411
12.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	126,039	66,768	1,247,562	1,386
13.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	102,849	66,768	1,224,372	1,360
14.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	79,659	66,768	1,201,182	1,334
15.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	56,469	66,768	1,177,992	1,308

*: A grace period and interest rate of long-term loan, 7 years: 3%.

Table VII-2-5 PRODUCTION COST ESTIMATE (7 YEARS : 4%)*

(Unit: Rp1,000)

Year	Production (gross)	(1) Variable Costs	Raw Materials	Labor	Utilities	(2) Fixed Costs	Labor	Maintenance, Repair and Insurance	(3) Operation Costs (1)+(2)	(4) Financial Costs (interest)	(5) Depreciation	(6) Total Production Costs (3)+(4)+(5)	(7) Unit Production Costs (Rp per gross)
1.	550,000	600,225	439,450	97,580	63,195	75,971	28,560	47,411	676,196	282,748	549,046	1,507,990	2,741
2.	610,000	659,956	487,390	102,480	70,089	100,085	28,560	71,525	760,044	286,606	549,046	1,595,696	2,615
3.	660,000	713,074	527,340	109,900	75,834	100,085	28,560	71,525	813,159	289,572	549,046	1,651,777	2,502
4.	690,000	743,291	551,310	112,700	79,281	100,085	28,560	71,525	843,376	291,668	549,046	1,685,090	2,440
5.	750,000	804,285	599,250	118,860	86,175	100,085	28,560	71,525	904,370	295,167	549,046	1,748,583	2,331
6.	800,000	854,880	639,200	123,760	91,920	100,085	28,560	71,525	954,965	298,074	549,046	1,802,085	2,252
7.	850,000	904,775	679,150	127,960	97,665	100,085	28,560	71,525	1,004,860	300,950	549,046	1,854,856	2,182
8.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	272,910	549,046	1,876,711	2,085
9.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	241,990	549,046	1,845,791	2,050
10.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	211,069	549,046	1,814,870	2,016
11.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	180,149	66,768	1,301,672	1,446
12.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	149,229	66,768	1,270,752	1,411
13.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	118,309	66,768	1,239,832	1,377
14.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	87,389	66,768	1,208,912	1,343
15.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	56,469	66,768	1,177,992	1,308

*: A grace period and interest rate of long-term loan, 7 years: 4%.

Table VII-2-6 PRODUCTION COST ESTIMATE (7 YEARS: 5%)*

(Unit: Rp1,000)

Year	Production (gross)	(1) Variable Costs	Raw Materials	Labor	Utilities	(2) Fixed Costs	Labor	Maintenance, Repair and Insurance	(3) Operation Costs (1)+(2)	(4) Financial Costs (interest)	(5) Depreciation	(6) Total Production Costs (3)+(4)+(5)	(7) Unit Production Costs (Rp per gross)
1.	550,000	600,225	439,450	97,580	63,195	75,971	28,560	47,411	676,196	344,589	549,046	1,569,831	2,854
2.	610,000	659,956	487,390	102,480	70,089	100,085	28,560	71,525	760,044	348,447	549,046	1,657,537	2,717
3.	660,000	713,074	527,340	109,900	75,834	100,085	28,560	71,525	813,159	351,413	549,046	1,713,618	2,596
4.	690,000	743,291	551,310	112,700	79,281	100,085	28,560	71,525	843,376	353,509	549,046	1,745,931	2,530
5.	750,000	804,285	599,250	118,860	86,175	100,085	28,560	71,525	904,370	357,008	549,046	1,810,424	2,413
6.	800,000	854,880	639,200	123,760	91,920	100,085	28,560	71,525	954,965	359,915	549,046	1,863,926	2,329
7.	850,000	904,775	679,150	127,960	97,665	100,085	28,560	71,525	1,004,860	362,791	549,046	1,916,697	2,254
8.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	327,020	549,046	1,930,821	2,145
9.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	288,370	549,046	1,892,171	2,102
10.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	249,720	549,046	1,853,521	2,059
11.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	211,069	66,768	1,332,592	1,480
12.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	172,419	66,768	1,293,942	1,437
13.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	133,769	66,768	1,255,292	1,394
14.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	95,119	66,768	1,216,642	1,351
15.	900,000	954,670	719,100	132,160	103,410	100,085	28,560	71,525	1,054,755	56,469	66,768	1,177,992	1,308

*: A grace period and interest rate of long-term loan, 7 years: 5%.

CHAPTER 2 REVENUES

The outlet for products of the condom plant is guaranteed in the national family planning program. The purchase price would be determined in the meeting among the Ministry of Finance, the BAPPENAS, the Ministry of Health and the BKKBN based on the production cost. At the time of the price determination, they intend to make reference to present bulk purchase price of condoms in international market. The international bulk purchase prices of condoms vary from about US$3.0/gross to over US$5.0/gross (CIF) depending on the timing of trade, suppliers, import quantities and type and/or quality of the products. According to the careful investigation of the statistical data from various sources, about US$4.0 - US$4.5 would be the most proper estimate. Therefore, we take these figures as the government purchase unit price.

CHAPTER 3 FINANCIAL RATE OF RETURN

The computation of the internal financial rate of return for the project is made on the following assumptions.

(1) The project life is 15 years after operation.

(2) The production of condoms starts in 1983/84 at 550,000 gross operation level and production level is gradually expanded to 900,000 gross at full operation from 1990/91 on. The production program is given in CHAPTER 3, PART V.

(3) The salvage value of the assets is estimated at Rp488 million. The breakdown of the amount is that Rp70 million is for land and the rest for working capital. The salvage value of machinery, equipment and building is zero because of depreciation method.

(4) The corporate income tax is exempted for the first five years of production and the rate of 45% is applied to the sixth year of production and thereafter.

(5) International and domestic transaction taxes are exempted according to the favorable measures for the field of population and family planning taken by the Ministry of Finance.

(6) No dividend is paid for the equity capital.

The internal financial rate of return (IFRR) is calculated for the following two cases.

Case I	the selling price:	US$4.0/gross
Case II	the selling price:	US$4.5/gross

The result of the calculation is shown in Table VII-3. The IFRR before tax for the project is 9.40% or 12.88% for the respective selling price of US$4.0/gross or US$4.5/gross. And the IFRR after tax varies from 6.84% to 10.28% according to the selling price and financing terms. Therefore, on the condition that long-term loan with annual interest rate of 3 - 5% is available for the initial capital requirement, the project is considered financially feasible. The financial feasibility of the project depends on the price. If the Government sets the purchase price of the products below the international bulk purchase price, say US$3.5/gross, the IFRR after tax goes down to 3.58 - 3.95%. In this case, the project is financially feasible but by a narrow margin.

Table VII-3 INITIAL FINANCIAL RATE OF RETURN

Unit: %

	Case I Selling price US$ 4.0/gross	Case II Selling price US$ 4.5/gross
Before tax	9.40	12.88
After tax		
Case A (Grace period: 5 years)		
(i) 3%	6.84	9.90
(ii) 4%	6.98	10.02
(iii) 5%	7.12	10.15
Case B (Grace period: 7 years)		
(i) 3%	6.94	9.98
(ii) 4%	7.11	10.13
(iii) 5%	7.27	10.28

Source: Table VII-4-1 - VII-4-12

On the condition of corporate income tax exemption, the possible prices that cover just investment and operation costs of the project are calculated for the respective cases of interest rate of long-term loan as follows:

for 3%	US$3.21/gross
for 4%	US$3.32/gross
for 5%	US$3.43/gross

Considering financing terms for working capital, the actual financial cost of the project is higher than the interest rate for the long-term loan. If the selling prices are set at these figures described above, the costs of the project would exceed the revenues. However, since the share of financial cost of short-term loan to the total cost is small, the gap between costs and revenues would not be so large. Therefore, regardless of the profit, the Government of Indonesia can get condoms at US$3.2 - US$3.5 per gross, at cheaper price than international market prices by introduction of a local condom production.

Table VII-4-1 CALCULATION OF FINANCIAL RATE OF RETURN (5 YEARS; 3%)*

Case I Selling price: US$4.0/gross Unit: Rp 1,000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0		-7,494,080	-7,494,080
1	1983/84	550,000	1,364,000	262,129	676,196	0	425,675	425,675
2	1984/85	610,000	1,512,800	28,580	760,044	0	724,176	724,176
3	1985/86	660,000	1,636,800	21,968	813,159	0	801,673	801,673
4	1986/87	690,000	1,711,200	15,527	843,376	0	852,297	852,297
5	1987/88	750,000	1,860,000	25,916	904,370	0	929,714	929,714
6	1988/89	800,000	1,984,000	21,538	954,965	118,038	1,007,497	889,459
7	1989/90	850,000	2,108,000	21,300	1,004,860	158,440	1,081,840	923,400
8	1990/91	900,000	2,232,000	21,336	1,054,755	198,839	1,155,909	957,070
9	1991/92	900,000	2,232,000	0	1,054,755	207,188	1,177,245	970,057
10	1992/93	900,000	2,232,000	0	1,054,755	215,536	1,177,245	961,709
11	1993/94	900,000	2,232,000	0	1,054,755	440,910	1,177,245	736,335
12	1994/95	900,000	2,232,000	0	1,054,755	449,258	1,177,245	727,987
13	1995/96	900,000	2,232,000	0	1,054,755	457,606	1,177,245	719,639
14	1996/97	900,000	2,232,000	0	1,054,755	465,955	1,177,245	711,290
15	1997/98	900,000	2,720,294	0	1,054,755	474,303	1,665,539	1,191,236

*: A grace period and interest rate of long-term loan, 5 years; 3%.

Table VII-4-2 CALCULATION OF FINANCIAL RATE OF RETURN (5 YEARS: 4%)*

Case I Selling price: US$4.0/gross Unit: Rp 1,000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0	0	-7,494,080	-7,494,080
1	1983/84	500,000	1,364,000	262,129	676,196	0	425,675	425,675
2	1984/85	610,000	1,512,800	27,580	760,044	0	724,176	724,176
3	1985/86	660,000	1,636,800	21,968	813,159	0	801,673	801,673
4	1986/87	690,000	1,711,200	15,527	843,376	0	852,297	852,297
5	1987/88	750,000	1,860,000	25,916	904,370	0	929,714	929,714
6	1988/89	800,000	1,984,000	21,538	954,965	92,992	1,007,497	914,505
7	1989/90	850,000	2,108,000	21,300	1,004,860	136,177	1,081,840	945,663
8	1990/91	900,000	2,232,000	21,336	1,054,755	179,359	1,155,909	976,550
9	1991/92	900,000	2,232,000	0	1,054,755	190,504	1,177,245	986,741
10	1992/93	900,000	2,232,000	0	1,054,755	201,622	1,177,245	975,623
11	1993/94	900,000	2,232,000	0	1,054,755	429,978	1,177,245	747,267
12	1994/95	900,000	2,232,000	0	1,054,755	440,910	1,177,245	736,335
13	1995/96	900,000	2,232,000	0	1,054,755	452,041	1,177,245	725,204
14	1996/97	900,000	2,232,000	0	1,054,755	463,172	1,177,245	714,073
15	1997/98	900,000	2,720,294	0	1,054,755	474,303	1,665,539	1,191,236

*: A grace period and interest rate of long-term loan, 5 years: 4%

Table VII-4-3 CALCULATION OF FINANCIAL RATE OF RETURN (5 YEARS: 5%)*

Case I Selling price: US$4.0/gross Unit: Rp 1,000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0	0	-7,494,080	-7,494,080
1	1983/84	500,000	1,364,000	262,129	676,196	0	425,675	425,675
2	1984/85	610,000	1,512,800	28,580	760,044	0	724,176	724,176
3	1985/86	660,000	1,636,800	21,968	813,159	0	801,673	801,673
4	1986/87	690,000	1,711,200	15,527	843,376	0	852,297	852,297
5	1987/88	750,000	1,860,000	25,916	904,370	0	929,714	929,714
6	1988/89	800,000	1,984,000	21,538	954,965	67,947	1,007,497	939,550
7	1989/90	850,000	2,108,000	21,300	1,004,860	113,914	1,081,840	967,926
8	1990/91	900,000	2,232,000	21,336	1,054,755	159,880	1,155,909	996,029
9	1991/92	900,000	2,232,000	0	1,054,755	173,794	1,177,245	1,003,451
10	1992/93	900,000	2,232,000	0	1,054,755	187,708	1,177,245	989,537
11	1993/94	900,000	2,232,000	0	1,054,755	418,647	1,177,245	758,598
12	1994/95	900,000	2,232,000	0	1,054,755	432,561	1,177,245	744,684
13	1995/96	900,000	2,232,000	0	1,054,755	446,475	1,177,245	730,770
14	1996/97	900,000	2,232,000	0	1,054,755	460,390	1,177,245	716,855
15	1997/98	900,000	2,720,294	0	1,054,755	474,303	1,665,539	1,191,236

*: A grace period and interest rate of long-term loan, 5 years; 5%.

Table VII-4-4 CALCULATION OF FINANCIAL RATE OF RETURN (7 YEARS; 3%)*

Case I Selling price: US$4.0/gross Unit: Rp 1,000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0	0	-7,494,080	-7,494,080
1	1983/84	550,000	1,364,000	262,129	676,196	0	425,675	425,675
2	1984/85	610,000	1,512,800	28,580	760,044	0	724,176	724,176
3	1985/86	660,000	1,636,800	21,968	813,159	0	801,673	801,673
4	1986/87	690,000	1,711,200	15,527	843,376	0	852,297	852,297
5	1987/88	750,000	1,860,000	25,916	904,370	0	929,714	929,714
6	1988/89	800,000	1,984,000	21,538	954,965	109,689	1,007,497	897,808
7	1989/90	850,000	2,108,000	21,300	1,004,860	141,742	1,081,840	940,098
8	1990/91	900,000	2,232,000	21,336	1,054,755	184,229	1,155,909	971,680
9	1991/92	900,000	2,232,000	0	1,054,755	194,665	1,177,245	982,580
10	1992/93	900,000	2,232,000	0	1,054,755	205,101	1,177,245	972,144
11	1993/94	900,000	2,232,000	0	1,054,755	428,061	1,177,245	749,184
12	1994/95	900,000	2,232,000	0	1,054,755	422,997	1,177,245	734,248
13	1995/96	900,000	2,232,000	0	1,054,755	453,432	1,177,245	723,813
14	1996/97	900,000	2,232,000	0	1,054,755	463,868	1,177,245	713,377
15	1997/98	900,000	2,720,294	0	1,054,755	474,303	1,665,539	1,191,236

*: A grace period and interest rate of long-term loan, 7 years; 3%.

Table VII-4-5 CALCULATIONOF FINANCIAL RATE OF RETURN (7 YEARS; 4%)*

Case I Selling price: US$4.0/gross Unit: Rp1,000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0	0	-7,494,080	-7,494,080
1	1983/84	550,000	1,364,000	262,129	676,196	0	425,675	425,675
2	1984/85	610,000	1,512,800	28,580	760,044	0	724,176	724,176
3	1985/86	660,000	1,636,800	21,968	813,159	0	801,673	801,673
4	1986/87	690,000	1,711,200	15,527	843,376	0	852,297	852,297
5	1987/88	750,000	1,860,000	25,916	904,370	0	929,714	929,714
6	1988/89	800,000	1,984,000	21,538	954,965	81,861	1,007,497	925,636
7	1989/90	850,000	2,108,000	21,300	1,004,860	113,914	1,081,840	967,926
8	1990/91	900,000	2,232,000	21,336	1,054,755	159,880	1,155,909	996,029
9	1991/92	900,000	2,232,000	0	1,054,755	173,794	1,177,245	1,003,451
10	1992/93	900,000	2,232,000	0	1,054,755	187,708	1,177,245	989,537
11	1993/94	900,000	2,232,000	0	1,054,755	418,647	1,177,245	758,598
12	1994/95	900,000	2,232,000	0	1,054,755	432,561	1,177,245	744,684
13	1995/96	900,000	2,232,000	0	1,054,755	446,475	1,177,245	730,770
14	1996/97	900,000	2,232,000	0	1,054,755	460,389	1,177,245	716,856
15	1997/98	900,000	2,720,294	0	1,054,755	474,303	1,665,539	1,191,236

*: A grace period and interest rate of long-term loan, 7 tears; 4%

Table VII-4-6 CALCULATION OF FINANCIAL RATE OF RERUTN (7 YEARS: 5%)*

Case I Selling price: US$4.0/gross Unit: Rp1.000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0	0	-7,494,080	-7,494,080
1	1983/84	550,000	1,364,000	262,129	676,196	0	425,675	425,675
2	1984/85	610,000	1,512,800	28,580	760,044	0	724,176	724,176
3	1985/86	660,000	1,636,800	21,968	813,159	0	801,673	801,673
4	1986/87	690,000	1,711,200	15,527	843,376	0	852,297	852,297
5	1987/88	750,000	1,860,000	25,916	904,370	0	929,714	929,714
6	1988/89	800,000	1,984,000	21,538	954,965	54,033	1,007,497	953,464
7	1989/90	850,000	2,108,000	21,300	1,004,860	86,086	1,081,840	995.754
8	1990/91	900,000	2,232,000	21,336	1,054,755	135.530	1,155,909	1,020,379
9	1991/92	900,000	2,232,000	0	1,054,755	154,923	1,177,245	1,024,322
10	1992/93	900,000	2,232,000	0	1,054,755	170,315	1,177,245	1,006,930
11	1993/94	900,000	2,232,000	0	1,054,755	404,733	1,177,245	772,512
12	1994/95	900,000	2,232,000	0	1,054,755	422,126	1,177,245	755,119
13	1995/96	900,000	2,232,000	0	1,054,755	439,518	1,177,245	737,727
14	1996/97	900,000	2,232,000	0	1,054,755	456,911	1,177,245	720,334
15	1997/98	900,000	2,720,294	0	1,054,755	474,303	1,665,539	1,191,236

*: A grace period and interest rate of long-term loan, 7 years; 5%

Table VII-4-7 CALCULATION OF FINANCIAL RATE OF RETURN (5 YEARS; 3%)*

Case II Selling price: US$4.5/gross Unit: Rp1,000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0	0	-7,494,080	-7,494,080
1	1983/84	550,000	1,534,500	262,129	676,196	0	596,175	596,175
2	1984/85	610,000	1,701,900	28,580	760,044	0	913,276	913,276
3	1985/86	660,000	1,841,400	21,968	813,159	0	1,006,273	1,006,273
4	1986/87	690,000	1,925,100	15,527	843,376	0	1,066,197	1,066,197
5	1987/88	750,000	2,092,500	25,916	904,370	0	1,162,214	1,162,214
6	1988/89	800,000	2,232,000	21,538	954,965	229,638	1,255,497	1,025,859
7	1989/90	850,000	2,371,500	21,300	1,004,860	277,015	1,345,340	1,068,325
8	1990/91	900,000	2,511,000	21,336	1,054,755	324,389	1,434,909	1,110,520
9	1991/92	900,000	2,511,000	0	1,054,755	332,738	1,456,245	1,123,507
10	1992/93	900,000	2,511,000	0	1,054,755	341,086	1,456,245	1,115,159
11	1993/14	900,000	2,511,000	0	1,054,755	566,460	1,456,245	889,785
12	1994/95	900,000	2,511,000	0	1,054,755	574,808	1,456,245	881,437
13	1995/96	900,000	2,511,000	0	1,054,755	583,156	1,456,245	873,089
14	1996/97	900,000	2,511,000	0	1,054,755	591,505	1,456,245	864,740
15	1997/98	900,000	2,999,294	0	1,054,755	299,853	1,944,539	1,344,686

*: A grace period and interest rate of long-term loan, 5 years; 3%

Table VII-4-8 CALCULATION OF FINANCIAL RATE OF RETURN (5 YEARS: 4%)*

Case II Selling price: US$4.5/gross Unit: Rp 1,000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0	0	-7,494,080	-7,494,080
1	1983/84	550,000	1,534,500	262,129	676,196	0	596,175	596,175
2	1984/85	610,000	1,701,900	28,580	760,044	0	913,276	913,276
3	1985/86	660,000	1,841,400	21,968	813,159	0	1,006,273	1,006,273
4	1986/87	690,000	1,925,100	15,527	843,376	0	1,066,197	1,066,197
5	1987/88	750,000	2,029,500	25,916	904,370	0	1,162,214	1,162,214
6	1988/89	800,000	2,232,000	21,538	954,965	204,592	1,255,497	1,050,905
7	1989/90	850,000	2,371,500	21,300	1,004,860	254,752	1,345,340	1,090,588
8	1990/91	900,000	2,511,000	21,336	1,054,755	304,909	1,434,909	1,130,000
9	1991/92	900,000	2,511,000	0	1,054,755	316,054	1,456,245	1,140,191
10	1992/93	900,000	2,511,000	0	1,054,755	327,172	1,456,245	1,129,073
11	1993/94	900,000	2,511,000	0	1,054,755	555,328	1,456,245	900,017
12	1994/95	900,000	2,511,000	0	1,054,755	566,460	1,456,245	899,785
13	1995/96	900,000	2,511,000	0	1,054,755	577,591	1,456,245	878,654
14	1996/97	900,000	2,511,000	0	1,054,755	588,722	1,456,245	867,523
15	1997/98	900,000	2,999,294	0	1,054,755	599,853	1,944,539	1,344,686

*: A grace period and interest rate of long-term loan, 5 years; 4%.

Table VII-4-9 CALCULATION OF FINANCIAL RATE OF RETURN (5 YEARS; 5%)*

Case II Selling price: US$4.5/gross Unit: Rp 1,000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0	0	-7,494,080	-7,494,080
1	1983/84	550,000	1,534,500	262,129	676,196	0	596,175	596,175
2	1984/85	610,000	1,701,900	28,580	760,044	0	913,276	913,276
3	1985/86	660,000	1,841,400	21,968	813,159	0	1,006,273	1,006,273
4	1986/87	690,000	1,925,100	15,527	843,376	0	1,066,197	1,066,197
5	1987/88	750,000	2,092,500	25,916	904,370	0	1,162,214	1,162,214
6	1988/89	800,000	2,232,000	21,538	954,965	179,547	1,255,497	1,075,950
7	1989/90	850,000	2,371,500	21,300	1,004,860	232,489	1,345,340	1,112,851
8	1990/91	900,000	2,511,000	21,336	1,054,755	285,430	1,434,909	1,149,479
9	1991/92	900,000	2,511,000	0	1,054,755	299,344	1,456,245	1,156,901
10	1992/93	900,000	2,511,000	0	1,054,755	313,258	1,456,245	1,142,987
11	1993/94	900,000	2,511,000	0	1,054,755	544,197	1,456,245	912,048
12	1994/95	900,000	2,511,000	0	1,054,755	558,111	1,456,245	898,134
13	1995/96	900,000	2,511,000	0	1,054,755	572,025	1,456,245	884,220
14	1996/97	900,000	2,511,000	0	1,054,755	585,940	1,456,245	870,305
15	1997/98	900,000	2,999,294	0	1,054,755	599,853	1,944,539	1,344,686

*: A grace period and interest rate of long-term loan, 5 years; 5%.

Table VII-4-10 CALCULATION OF FINANCIAL RATE OF RETURN (7 YEARS; 3%)*

Case II Selling price: US$4.5/gross Unit: Rp 1,000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0	0	-7,494,080	-7,494,080
1	1983/84	550,000	1,534,500	262,129	676,196	0	596,175	596,175
2	1984/85	610,000	1,701,900	28,580	760,044	0	913,276	913,276
3	1985/86	660,000	1,841,400	21,968	813,159	0	1,006,273	1,006,273
4	1986/87	690,000	1,925,100	15,527	843,376	0	1,066,197	1,066,197
5	1987/88	750,000	2,092,500	25,916	904,370	0	1,162,214	1,162,214
6	1988/89	800,000	2,232,000	21,538	954,965	221,289	1,255,497	1,034,208
7	1989/90	850,000	2,371,500	21,300	1,004,860	260,317	1,345,340	1,085,023
8	1990/91	900,000	2,511,000	21,336	1,054,755	309,779	1,434,90	1,125,130
9	1991/92	900,000	2,511,000	0	1,054,755	320,215	1,456,245	1,136,030
10	1992/93	900,000	2,511,000	0	1,054,755	330,651	1,456,245	1,125,594
11	1993/94	900,000	2,511,000	0	1,054,755	558,111	1,456,245	898,134
12	1994/95	900,000	2,511,000	0	1,054,755	568,547	1,456,245	887,698
13	1995/96	900,000	2,511,000	0	1,054,755	578,982	1,456,245	877,263
14	1996/97	900,000	2,511,000	0	1,054,755	589,418	1,456,245	866,827
15	1997/98	900,000	2,999,294	0	1,054,755	599,853	1,944,539	1,344,686

*: A grace period and interest rate of long-term loan, 7 years; 3%.

Table VII-4-11 CALCULATION OF FINACIAL RATE OF RETURN (7 YEARS; 4%)*

Case II Selling price: US$4.5/gross Unit: Rp 1,000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0	0	-7,494,080	-7,494,080
1	1983/84	550,000	1,534,500	262,129	676,196	0	596,175	596,175
2	1984/85	610,000	1,701,900	28,580	760,044	0	913,276	913,276
3	1985/86	660,000	1,841,400	21,968	813,159	0	1,006,273	1,006,273
4	1986/87	690,000	1,925,100	15,527	843,376	0	1,006,197	1,066,197
5	1987/88	750,000	2,092,500	25,916	904,370	0	1,162,214	1,162,214
6	1988/89	800,000	2,232,000	21,538	954,965	193,461	1,255,497	1,062,036
7	1989/90	850,000	2,371,500	21,300	1,004,860	232,489	1,345,340	1,112,851
8	1990/91	900,000	2,511,000	21,336	1,054,755	285,430	1,434,909	1,149,479
9	1991/92	900,000	2,511,000	0	1,054,755	299,344	1,456,245	1,156,901
10	1992/93	900,000	2,511,000	0	1,054,755	313,258	1,456,245	1,142,984
11	1993/94	900,000	2,511,000	0	1,054,755	544,197	1,456,245	912,048
12	1994/95	900,000	2,511,000	0	1,054,755	558,111	1,456,245	898,134
13	1995/96	900,000	2,511,000	0	1,054,755	572,025	1,456,245	884,220
14	1996/97	900,000	2,511,000	0	1,054,755	585,939	1,456,245	870,306
15	1997/98	900,000	2,999,294	0	1,054,755	599,853	1,944,539	1,344,686

*: A grace period and interest rate of long-term loan, 7 years; 4%.

Table VII-4-12 CALCULATION OF FINANCIAL RATE OF RETURN (7 YEARS; 5%)*

Case II Selling price: US$4.5/gross Unit: Rp 1,000

	Year	Production (gross)	Sales Revenue (+ Salvage Value)	Total Capital Requirement	Total Operation Costs	Corporate Income Tax	Net Cash Flow before Tax	Net Cash Flow after Tax
0	1982/83	0	0	7,494,080	0	0	-7,494,080	-7,494,080
1	1983/84	550,000	1,534,500	262,129	676,196	0	596,175	596,175
2	1984/85	610,000	1,701,900	28,580	760,044	0	913,276	913,276
3	1985/86	660,000	1,841,400	21,968	813,159	0	1,066,273	1,006,273
4	1986/87	690,000	1,925,100	15,527	843,376	0	1,066,197	1,066,197
5	1987/88	750,000	2,092,500	25,916	904,370	0	1,162,214	1,162,214
6	1988/89	800,000	2,232,000	21,538	954,965	165,633	1,255,497	1,089,864
7	1989/90	850,000	2,371,500	21,300	1,004,860	204,886	1,345,340	1,140,454
8	1990/91	900,000	2,511,000	21,336	1,054,755	261,080	1,434,909	1,173,829
9	1991/92	900,000	2,511,000	0	1,054,755	278,473	1,456,245	1,177,772
10	1992/93	900,000	2,511,000	0	1,054,755	295,865	1,456,245	1,160,380
11	1993/94	900,000	2,511,000	0	1,054,755	530,283	1,456,245	925,962
12	1994/95	900,000	2,511,000	0	1,054,755	547,676	1,456,245	908,569
13	1995/96	900,000	2,511,000	0	1,054,755	565,068	1,456,245	891,177
14	1996/97	900,000	2,511,000	0	1,054,755	582,461	1,456,245	873,784
15	1997/98	900,000	2,999,294	0	1,054,755	599,853	1,944,539	1,344,686

*: A grace period and interest rate of long-term loan, 7 years; 5%.

PART VIII

ECONOMIC EVALUATION

PART VIII ECONOMIC EVALUATION

CHAPTER 1 INTRODUCTION

The purpose of the project is to guarantee a regular and continuous supply of condoms for distribution to new and old acceptors in the national program by local production. Since its inception in 1969/70, the national family planning program in Indonesia has been in operation over ten years. It has experienced the expansion of program areas to cover all of Indonesia, and has had remarkable success not only in the number of new acceptors recruited but in establishing an efficient family planning network.

Contraceptives such as oral pill, IUD and condom are provided by program supplies free of charge on a "cafeteria basis". Program supplies of contraceptives, however, have heavily depended on donor agencies such as USAID, UNFPA and others. The quality and quantity of supplies tend to be unstable owing to donors' reasons.

In order to smooth the regular supplies of contraceptives to acceptors, the Government of Indonesia has an intention to develop a local capability for contraceptive production. The manufacture of oral pill has already started and the plan of IUD local production is ongoing. Now it is deeply desired to have a condom plant.

Acceptance of the condom is about 6% of all current users and about 10% of all new acceptors. These figures have fluctuated partly by condom supply situation as mentioned in CHAPTER 2 and 3, PART II. With a guarantee of regular supply, it is expected that the share of condom users of all family planning acceptors is increasing. According to the following reasons, the growing need of condom is expected.

(1) In respect to oral pill which continues to be the most popular contraceptive chosen by acceptors, various undesirable side-effects such as irregular bleeding, or headache, are complained of especially among users who continue to take oral pills for a few years. Acceptors who experience side-effects of oral pill would like to switch to another method.

(2) The presence of religious constraints toward the gynecological examination among women, prevents the prevalence of IUD. There also exist psychological barrier against insertion of alien substance into the body and anxiety about expulsion.

(3) It is expected that more men will participate in family planning. Of the contraceptive methods adopted in the national program, condom is the only method for male acceptors.

(4) According to the trade statistics, import of condoms has been increased. In 1980, about 75,000 gross of condoms were imported. From this fact, voluntary condom users have been increasing especially in urban areas.

CHAPTER 2 ECONOMIC EVALUATION OF THE PROJECT

2-1 Economic Rate of Return

The aim of the economic analysis is to investigate the economic feasibility of the project from a viewpoint of the national economy. All costs and benefits used in the economic analysis of the project have to represent real value to the economy. The costs and the benefits used in the financial analysis are modified by deducting transfer items such as taxes and subsidies and also adjusted by using real prices, that is, shadow prices estimated on the basis of the opportunity cost.

Modification and adjustment introduced in the analysis are described as follows:

(1) Corporate income tax

Since duties and excise taxes are exempted by the favorable treatment for the population and family planning field, corporate income tax is only transfer item.

(2) Land

In the financial analysis, purchase price is estimated at Rp70 million. The proposed plant site is now utilized as paddy field. Land cost to be used in the economic analysis should be estimated based on opportunity cost of land, that is value-added of agricultural production of the land. The opportunity cost of the land is estimated at Rp620,000 per annum. (Rice productivity in Bandung area 2.2 t/ha, the share of production cost 30%, international rice price - Thai rice 5% broken - US$433/t : 433$/t x 620Rp/$ x 2.2t/ha x 1.5ha x (1-0.3) = 620,142).

(3) Unskilled worker

In the financial analysis wage rate for unskilled workers is estimated at Rp50,000 - 60,000 per month based on the wage level of P.T. Kimia Farma. These figures are higher than general wage level. According to the minimum wage guideline, income statistics and interviews with government officials, the wage for unskilled workers in factories is around Rp35,000 per month. (Minimum wage rate - in West Java - Rp700/day, working days per month 25 days, allowance in kind almost the same as the wage: 700Rp/day x 25 day/month x 2 = 35,000 Rp/month.)

(4) Fuel oil

In Indonesia, domestic prices of oil products are subsidized by the Government. In the economic analysis, fuel cost should be adjusted by using international prices. Unit cost of fuel used in the economic analysis is estimated at Rp207/gross instead of Rp89.7/gross used in the financial analysis.

With regard to other elements such as exchange rate, and product price, the prevailing market prices used in the financial analysis are considered to represent their real values to the economy.

After the modification and adjustment, the internal economic rate of return for the project is calculated as shown in Table VIII-1. The calculated value of economic rate of return is 8.59% or 12.18% for selling price US$4.0/gross or US$4.5/gross respectively.

Table VIII-1-1 CALCULATION OF ECOMONIC RATE OF RETURN

Case I Selling price: US$4.0/gross Unit: Rp1,000

	Year	(1) Production (gross)	(2) Sales Revenue	(3) Total Capital Requirement	(4) Total Operation Costs	(5) Total (3)+(4)	(6) Net Benefit
0	1982/83	0		7,407,355		7,407,355	-7,407,355
1	1983/84	550,000	1,364,000	262,749	717,261	980,010	383,990
2	1984/85	610,000	1,512,000	29,200	806,677	835,877	676,923
3	1985/86	660,000	1,636,800	22,588	863,137	885,725	751,075
4	1986/87	690,000	1,711,200	16,147	896,033	912,180	799,020
5	1987/88	750,000	1,860,000	26,536	962,595	989,131	870,869
6	1988/89	800,000	1,984,000	22,158	1,017,585	1,039,743	944,257
7	1989/90	850,000	2,108,000	21,920	1,072,085	1,094,005	1,013,995
8	1990/91	900,000	2,232,000	21,956	1,126,585	1,148,541	1,083,459
9	1991/92	900,000	2,232,000	620	1,126,585	1,127,205	1,104,795
10	1992/93	900,000	2,232,000	620	1,126,585	1,127,205	1,104,795
11	1993/94	900,000	2,232,000	620	1,126,585	1,127,205	1,104,795
12	1994/95	900,000	2,232,000	620	1,126,585	1,127,205	1,104,795
13	1995/96	900,000	2,232,000	620	1,126,585	1,127,205	1,104,795
14	1996/97	900,000	2,232,000	620	1,126,585	1,127,205	1,104,795
15	1997/98	900,000	2,650,294	620	1,126,585	1,127,205	1,523,089

*: IRR = 8.5931%

Table VIII-1-2 CALCULATION OF ECONOMIC RATE OF RETURN

Case II Selling Price: US$4.5/gross

Unit: Rp1,000

	Year	(1) Production (gross)	(2) Sales Revenue	(3) Total Capital Requirement	(4) Total Operation Cost	(5) Total (3)+(4)	(6) Net Benefit
0	1982/83	0	0	7,407,355		7,407,355	-7,407,355
1	1983/84	550,000	1,534,500	262,749	717,261	980,010	554,490
2	1984/85	610,000	1,701,900	29,200	806,677	835,877	866,023
3	1985/86	660,000	1,841,400	22,588	863,137	885,725	955,675
4	1986/87	690,000	1,925,100	16,147	896,033	912,180	1,012,920
5	1987/88	750,000	2,092,500	26,536	962,595	989,131	1,103,369
6	1988/89	800,000	2,232,000	22,158	1,017,585	1,039,743	1,192,257
7	1989/90	850,000	2,371,500	21,920	1,072,085	1,094,000	1,277,495
8	1990/91	900,000	2,511,000	21,956	1,126,585	1,148,541	1,362,459
9	1991/92	900,000	2,511,000	620	1,126,585	1,127,205	1,383,795
10	1992/93	900,000	2,511,000	620	1,126,585	1,127,205	1,383,795
11	1993/94	900,000	2,511,000	620	1,126,585	1,127,205	1,383,795
12	1994/95	900,000	2,511,000	620	1,126,585	1,127,205	1,383,795
13	1995/96	900,000	2,511,000	620	1,126,585	1,127,205	1,383,795
14	1996/97	900,000	2,511,000	620	1,126,585	1,127,205	1,383,795
15	1997/98	900,000	2,929,294	620	1,126,585	1,127,205	1,802,089

*: IRR = 12.1888%

2-2 Effects on the National Family Planning Program

The Project is expected to secure a regular supply of condoms as required in the national program. Its contribution can be summarized as follows:

(1) It will promote the participation in family planning of eligible couples who have had the psychological barrier to using oral pills or IUDs or else found it difficult to obtain condoms through the program.

(2) It will enable those acceptors, who have been using oral pills or IUDs but have experienced side-effects, IUD expulsion or other troubles, to switch to condoms.

(3) It will facilitate increased participation of men in family planning.

(4) It will help diffuse the understanding of family planning, especially among men who have been kept from active participation.

The population and family planning is considered as one of the top priorities in the present Indonesian development plan. It is hardly an exaggeration to say that the national family planning program is the key component on which will depend the nation's future socio-economic development.

2-3 Other Benefits of the Project

The other conceivable economic effects as follows are expected.

(1) Foreign exchange savings

Without the project, the Government has to purchase condoms abroad by its annual appropriations. In fact, the Government purchased condoms of US$800,000 in 1980/81 and US$440,000 in 1981/82. When all condoms required in the national program are purchased abroad, the import cost is estimated at US$2.2 - 3.6 million per annum. If condom requirements are supplied by domestic production, a considerable sum of foreign exchange savings is expected even after cancelling out the foreign exchange needed in the project. Net annual foreign exchange savings calculated are shown in Table VIII-2.

(2) Improvement in quality of latex

The project is supposed to use domestic latex. Essentially condom manufacturing needs high quality latex. In order to utilize Indonesian latex, improvement in quality is necessary. Therefore the implementation of the project is expected to have an effect on improvement in quality of latex by technical guidance on quality control of rubber trees, and latex-collecting and refining technology.

(3) Accumulation of managerial and technological know-how and development and up-grading of workers' skills.

TABLE VIII-2-1 NET FOREIGN EXCHANGE SAVINGS (5 YEARS)*

Case I Selling price: US$4.0/gross

Unit: US$1,000

	Foreign Exchange Saving	Foreign Exchange Expenditure			Net Foreign Exchange Savings					
		3%	4%	5%	3%	Accumulation	4%	Accumulation	5%	Accumulation
0	0	9,974	9,974	9,974	-9,974		-9,974		-9,974	
1	2,200	752	852	951	1,448	-8,526	1,348	-8,626	1,249	-8,725
2	2,440	836	936	1,035	1,604	-6,922	1,504	-7,122	1,405	-7,320
3	2,640	874	973	1,073	1,766	-5,156	1,667	-5,455	1,567	-5,753
4	2,760	896	996	1,096	1,864	-3,292	1,764	-3,691	1,664	-4,089
5	3,000	941	1,041	1,141	2,059	-1,233	1,959	-1,732	1,859	-2,230
6	3,200	949	1,039	1,129	2,251	1,018	2,161	429	2,071	-159
7	3,400	957	1,037	1,116	2,443	3,461	2,363	2,792	2,284	2,125
8	3,600	965	1,034	1,104	2,635	6,096	2,566	5,358	2,496	4,621
9	3,600	935	995	1,054	2,665	8,761	2,605	7,963	2,546	7,167
10	3,600	905	955	1,005	2,695	11,456	2,645	10,608	2,595	9,762
11	3,600	875	915	955	2,725	14,181	2,685	13,293	2,645	12,407
12	3,600	845	875	905	2,755	16,936	2,725	16,018	2,695	15,102
13	3,600	815	835	855	2,785	19,721	2,765	18,783	2,745	17,847
14	3,600	785	795	805	2,815	22,536	2,805	21,588	2,795	20,642
15	3,600	755	755	755	2,845	25,381	2,845	24,433	2,845	23,487

*: A grace period for long-term loan: 5 years

TABLE VIII-2-2 NET FOREIGN EXCHANGE SAVINGS (7 YEARS)*

Case I Selling price: US$4,0/gross

Unit: US$1,000

	Foreign Exchange Saving	Foreign Exchange Expenditure			Net Foreign Exchange Savings					
		3%	4%	5%	3%	Accumulation	4%	Accumulation	5%	Accumulation
0	0	9,974	9,974	9,974	-9,974		-9,974		-9,974	
1	2,200	752	852	951	1,448	-8,526	1,348	-8,626	1,249	-8,725
2	2,440	836	936	1,035	1,604	-6,922	1,504	-7,122	1,405	-7,320
3	2,640	874	973	1,073	1,766	-5,156	1,667	-5,455	1,567	-5,753
4	2,760	896	996	1,096	1,864	-3,292	1,764	-3,691	1,664	-4,089
5	3,000	941	1,041	1,141	2,059	-1,233	1,959	-1,732	1,859	-2,230
6	3,200	979	1,079	1,179	2,221	988	2,121	389	2,021	-209
7	3,400	1,017	1,116	1,216	2,383	3,371	2,284	2,673	2,184	1,975
8	3,600	1,017	1,104	1,192	2,583	5,954	2,496	5,169	2,408	4,383
9	3,600	980	1,054	1,129	2,620	8,574	2,546	7,715	2,471	6,854
10	3,600	942	1,005	1,067	2,658	11,232	2,595	10,310	2,533	9,387
11	3,600	905	955	1,005	2,695	13,927	2,645	12,955	2,595	11,982
12	3,600	867	905	942	2,733	16,660	2,695	15,650	2,658	14,640
13	3,600	830	855	880	2,770	19,430	2,745	18,395	2,720	17,360
14	3,600	793	805	818	2,807	22,237	2,795	21,190	2,782	20,142
15	3,600	755	755	755	2,845	25,082	2,845	24,035	2,845	22,987

*: A grace period for long-term loan; 7 years

TABLE VIII-2-3 NET FOREIGN EXCHANGE SAVINGS (5 YEARS)*

Case II Selling price: US$4.5/gross

Unit: US$1,000

	Foreign Exchange Saving	Foreign Exchange Expenditure			Net Foreign Exchange Savings					
		3%	4%	5%	3%	Accumulation	4%	Accumulation	5%	Accumulation
0	0	9,974	9m974	9,974	-9,974		-,9974		-9,974	
1	2,475	752	852	951	1,723	-8,251	1,623	-8,351	1,524	-8,450
2	2,745	836	936	1,035	1,909	-6,342	1,809	-6,542	1,710	-6,740
3	2,970	874	973	1,073	2,096	-4,246	1,997	-4,545	1,897	-4,843
4	3,105	896	996	1,096	2,209	-2,037	2,109	-2,436	2,009	-2,834
5	3,375	941	1,041	1,141	2,434	397	2,334	-102	2,234	-600
6	3,600	946	1,039	1,129	2,651	3,048	2,561	2,459	2,471	1,871
7	3,825	957	1,037	1,116	2,868	5,916	2,788	5,247	2,709	4,580
8	4,050	965	1,034	1,104	3,085	9,001	3,016	8,263	2,946	7,526
9	4,050	935	995	1,054	3,115	12,116	3,055	11,318	2,996	10,522
10	4,050	905	955	1,005	3,145	15,261	3,095	14,413	3,045	13,567
11	4,050	875	915	955	3,175	18,436	3,135	17,548	3,095	16,662
12	4,050	845	875	905	3,205	21,641	3,175	20,723	3,145	19,807
13	4,050	815	835	855	3,235	24,876	3,215	23,938	3,195	23,002
14	4,050	785	795	805	3,265	28,141	3,255	27,193	3,245	26,247
15	4,050	755	755	755	3,295	31,436	3,295	30,488	3,295	29,542

*: A grace period for long-term loan; 5 years

TABLE VIII-2-4 NET FOREIGN EXCHANGE SAVINGS (7 YEARS)*

Case II Selling price: US$4.5/gross

Unit: US$1,000

	Foreign Exchange Saving	Foreign Exchange Expenditure			Net Foreign Exchange Savings					
		3%	4%	5%	3%	Accumulation	4%	Accumulation	5%	Accumulation
0	0	9,974	9,974	9,974	-9,974		-9,974		-9,974	
1	2,475	752	852	951	1,723	-8,251	1,623	-8,351	1,524	-8,450
2	2,745	836	936	1,035	1,909	-6,342	1,809	-6,542	1,710	-6,740
3	2,970	874	973	1,073	2,096	-4,246	1,997	-4,545	1,897	-4,843
4	3,105	896	996	1,096	2,209	-2,037	2,109	-2,436	2,009	-2,834
5	3,375	941	1,041	1,141	2,434	397	2,334	-102	2,234	-600
6	3,600	979	1,079	1,179	2,621	3,018	2,521	2,419	2,421	1,821
7	3,825	1,017	1,116	1,216	2,808	5,826	2,709	5,128	2,609	4,430
8	4,050	1,017	1,104	1,192	3,033	8,859	2,946	8,074	2,858	7,288
9	4,050	980	1,054	1,129	3,070	11,929	2,996	11,070	2,921	10,209
10	4,050	942	1,005	1,067	3,108	15,037	3,045	14,115	2,983	13,192
11	4,050	905	955	1,005	3,145	18,182	3,095	17,210	3,045	16,237
12	4,050	867	905	942	3,183	21,365	3,145	20,355	3,108	19,345
13	4,050	830	855	880	3,220	24,585	3,195	23,550	3,170	22,515
14	4,050	793	805	818	3,257	27,842	3,245	26,795	3,232	25,747
15	4,050	755	755	755	3,295	31,137	3,295	30,090	3,295	29,042

*: A grace period for long-term loan; 7 years

2-4 Conclusion

The internal economic rate of return calculated for the project ranges 8.59 - 12.18% depending on the price assumption, which are not particularly high when compared with the opportunity cost of capital in Indonesia. Considering its contribution to the national family planning program, foreign exchange saving effect and other economic effects, however, the project is considered justifiable and desirable for the national economy.

ANNEX

ANNEX 1

MEMBER LIST OF THE JAPANESE STUDY TEAM

	Name	Title and organization
Team leader	Mr. Itsuo Koyama	Manager, Foreign Trade Division, Sagami Rubber Industries Co., Ltd.
Member	Mr. Tomiyasu Ushiama	General Manager, Sagami Industries (Malaysia) Sdn. Bhd.
Member	Mr. Teruo Kashiwagi	Manager, Machinery Division, Sagami Rubber Industries Co., Ltd.
Member	Mr. Haruo Mitake	Manager, Market Planning, Sagami Rubber Industries Co., Ltd.
Member	Mr. Toshio Suzuki	Chief of Rubber Technology, Sagami Rubber Industries Co., Ltd.
Member	Miss Machiko Watanabe	Economist, International Development Center of Japan (IDCJ) (Non-Regular Official, Sagami Rubber Industries Co., Ltd.)
Member	Dr. Yutaka Inoue	Ditto
Member	Mr. Toshio Namai	Industry Division, Mining & Industrial Planning and Survey Department, Japan International Cooperation Agency (JICA)

ANNEX 2

SURVEY SCHEDULE

During the stay in Indonesia, the study team strove to get the necessary data with the cooperation of Indonesian counterparts. The team also gathered useful information for the study concerning facilities, operational situations and working conditions, by visiting some factories.

LIST OF ORGANIZATION AND PLACES VISITED

June 8	Arrival at Jakarta
June 9	JICA Office Japanese Embassy BKKBN
June 10	P.T. KIMIA FARMA, Head Office Kimia Farma, New Factory Building under construction Kimia Farma, Pharmaceutical Factory Departure to Bandung
June 11	P.T. KIMIA FARMA, Pill Factory (Bandung) Observation of two factory sites in Banjaran P.T. KTSM. (Kanebo Tomen Sandang Synthetic Mills)
June 12	P.T. TANABE-ABADI BKKBN (Jakarta)
June 13	P.T.P. No. XII (Latex Refinary) P.T. KTSM Health Center, (Kecamatan Koja, Jakarta)
June 14	Factory Sites
June 15	Technical University in Bandung P.L.N. (Perusahaan Umum Listrik Negara) Bandung P.T. KIMIA FARMA (Bandung)

June 16	BKKBN (Bandung)
	Klinik K.B. Pasundan (Bandung)
	Klinik Moch. Ramdan
	Bank of Tokyo (Jakarta)
June 17	Departure to Jakarta
	P.T. Eisai Indonesia (Puncak)
	Research Institute of Estate Crops (Bogor)
	IPPF (Jakarta)
	MPC/BKKBN (Media Production Center)
June 18	P.T. KIMIA FARMA Head Office
June 19	Ministry of Health FDA
	Yayasan Kusuma Buana
June 21	BKKBN (Jakarta)
June 22	UNFPA
	UNICEF, Dewan Gereja di Indonesia (DGI)
	P.T. Bridgestone Tire Indonesia
June 23	JICA Office
	Japanese Embassy
	Departure to Medan (2 members)
June 24	P.T.P. V Ujng Baru Belawan
	JICA Office
	P.T. Gesuri Lloyd
	P.T. SANKYU Indonesia
June 25	Bank Pembangunan Indonesia (BAPINDO)
	OECF Office
	P.T.P. V Sungai Karang Galang

June 26	The World Bank
	USAID
	Departure to Jakarta from Medan.
June 27	P.T. Dainippon Gitakarya Printing
	P.T. Toppan Printing Indonesia
	P.T. Jaya Ohbayashi Gumi Corporation
June 29	KIMIA FARMA Head Office
	JICA Office
June 30	BKKBN
July 1	BKKBN
	Atomic Energy Research Institute
July 2	BAPENAS
	Japanese Embassy
	BKKBN
July 3	JICA Office
	Japanese Embassy
July 4	BKKBN
	Departure to Tokyo

ANNEX 3

PROFILE OF P.T. KIMIA FARMA

The Founding

Based upon Presidential decree No. 3 of 1967 dated 23rd January 1969, five State-owned Enterprises have been merged into a new organization named "BHINNEKA KIMIA FARMA" for the purpose of strengthening the position of the State owned Enterprises in view of the severe competition in the field of pharmaceutical and medical equipment manufacturing business to benefit the available idle facilities and obtain an uniform structure of management.

The transformation took place on 16th August 1971, when Bhinneks Kimia Farma assumed its new status as a State Limited Liability Enterprise with a working capital of Rp4 billion and adopting its new name of P.T. KIMIA FARMA.

Manufacturing Division

The Manufacturing Division comprises two main units, viz the Production Unit of Bandung and the Production Unit of Jakarta and they cover the manufacture of pharmaceutical products and the cultivation of medical herbs.

The total number of preparations manufactured by P.T. KIMIA FARMA is 213 consisting of tablets, injectables, capsules, and also veterinary drugs.

P.T.KIMIA FARMA also has a share in promoting the Government's program for birth control by manufacturing contraceptive tablets since fiscal 1979/80 in cooperation with the BKKBN. (National Family Planning Coordinating Board).

Plantation for Pharmaceutical Industry

P.T. KIMIA FARMA is running its own plantations of:

1.	Citronella	375 hectares
2.	Vetiver	160 hectares
3.	Patchouly	175 hectares
4.	Lemongrass	2 hectares
5.	Thyme	4 hectares

and is also developing rapidly the production of essential oils.

Quality Control

All products of P.T. KIMIA FARMA, before leaving the factories to be marketed, undergo rigorous drug quality control examinations in its own drug quality control laboratories, although their raw materials and auxiliary materials have been examined prior to production.

Trading Divisions

The Trading Division assumes its task of marketing imported pharmaceutical finished products and medical equipment as well as locally manufactured products with its distribution network covering almost the entire area of Indonesia. The marketing of narcotics both as finished products and as raw materials is very strict and is performed through authorized representatives.

Organization

P.T. KIMIA FARMA's entire activities such as the manufacture of pharmaceutical raw materials, assembling of pharmaceutical products, running plantations of medical herbs, assisted by research and control laboratories, as well as trade activities which embrace import and export activities are managed by a collective management. The management consists of five directors, one of which is the President. These widely operating activities are supported by a properly managed administration system where communication is well conducted and also a computer is in use by P.T. KIMIA FARMA.

The number of personnel employed by P.T. KIMIA FARMA is 3639, among which are 656 scientists such as pharmacists, physicians, chemists, chemical engineers, etc. These experts are assisted by 525 assistant pharmacists and 28 chemical and medical analysts.

Production of Oral Contraceptives (Pills)

The scale of investment engaged in the manufacturing of pills under P.T. KIMIA FARMA is as follows,

The space of building (including facilities)		1,300 m^2
The space of land		2,000 m^2
Capital investment:	Machinery	Rp534,000,000
	Working capital	Rp311,000,000
		Rp845,000,000

P.T. KIMIA FARMA has received financial assistance from USAID. and UNFPA will succeed with its assistance by following schedule:

First year	(1979/80)	US$1,200,000	USAID
Second	(1980/81)	US$1,700,000	USAID
Third	(1981/82)	US$1,200,000	UNFPA
Fourth	(1982/83)	US$5,500,000	UNFPA
Fifth	(1983/84)		
Sixth	(1984/85)		

Assistance from the second year consists only of main raw materials (steroid) and does not include additives.

The projection of production capacity by P.T. KIMIA FARMA is as follows:

First year	(1979/80)	10,000,000 cycles
Second	(1980/81)	24,000,000 cycles
Third	(1981/82)	36,000,000 cycles

ANNEX 4

MINUTS OF DISCUSSIONS
ON
THE LOCAL CONDOM PRODUCTION PROJECT
IN THE REPUBLIC OF INDONESIA
BETWEEN
THE NATIONAL FAMILY PLANNING COORDINATING BOARD (BKKBN-NFPCB)
AND
THE JAPANESE STUDY TEAM

At the request of the Goverment of the Republic of Indonesia for assistance in establishing the local condom production project in Banjaran, West Java (hereinafter referred to as " the Project "), the Government of Japan through Japan International Cooperation Agency (JICA) has sent a study team (hereinafter referred to as " the Team ") to conduct the feasibility study on the Project.

The Team headed by Mr. Itsuo Koyama carried out the field survey from June 8, 1981 to July 4, 1981, and had a series of discussions and exchange of views with the Indonesian authorities concerned and P.T. Kimia Farma on the Project, including visist to respective sites.

The National Family Planning Coordinating Board (hereinafter referred to as " the BKKBN ") expressed the intention of the Government of Indonesia to establish a condom production factory in Indonesia with the assistance of the Japanese Government using Japanese Technology.

The Team submitted an Interim Report to the BKKBN after the completion of the field survey.

As a result of the discussions, both parties agreed to the following contents:

1. The proposed factory site is located in Banjaran, about 18 km south Bandung, west Java Province. There are three sites considered which at present still belong to private owners, but the Indonesian authorities concerned have confirmed to make one of the sites available within 1981.

2. The description of the three sites is attached hereto in Annex.

3. Specification of Condom

   Specification of condom to be produced by the local factory is described as follows:

   3.1. Dimension:

Length	not less than 17 cm
Width	49 - 52 mm
Wall thickness	0.05 ± 0.02 mm

   3.2. Tensile Stregnth and Elongation at Break:

	Before Aging	After Aging
Tensile Strength	200 kg/cm^2	
Elongation at Break	600%	540%

   3.3. Acceptable Quality Level

   AQL 1.0

		Number of Hole	
Water Leakage Test (out of 200 pieces per batch)	Acceptance	4	Rejection 5

3.4. Coloured Condom

Coloured Condom such as pink, blue and green can be manufactured by adding colouring agents and modifying compounding process.

4. The Draft Final Report is to be submitted to the Indonesian authorities concerned in September 1981.

18 July, 1981
Jakarta, Indonesia

DR. P.P. SUKBUNG
Deputy for Administration and Management
National Family Planning Coordinating Board
(BKKBN-NFPCB)

MR. JUNSAKU KOIZUMI
Head of Industry Division
Mining & Industrial Planning and Survey Deparment
Japan International Cooperation Agency (JICA)

ANNEX

DESCRIPTION OF THE SITES

Site A : The space of Site A is about 20,000 m^2 surrounded by Lebakwangi Village (North), paper mill (South), Citalutuk river (West) and main street (East).

Site B : Total space of this site is about 500,000 m^2, of which P.T. Kimia Farma considers to obtain about 150,000 m^2. Site B is surrounded by Citalutuk river, Cisangkui river and main street.

Site C : Site C is larger than Site B and is located closer to the town of Banjaran. Site C is situated at the east side of the main street and on the right part of the Citalutuk river.

The Team found Site A to be the most desirable one among the three sites in Banjaran area, in view of appropriate space, transportation, supply and disposal of water.

ANNEX 5

MINUTES OF MEETING

ON

DRAFT REPORT OF FEASIBILITY STUDY REPORT FOR THE LOCAL CONDOM PRODUCTION PROJECT IN THE REPUBLIC OF INDONESIA

OCTOBER 15, 1981.

Dr. P.P. Sumbung
Deputy for Administration
and Management
National Family Planning
Coordinating Board (BKKBN-NFPCB).

Mr. Itsuo Koyama
Team Leader
Japanese Feasibility Study
Team

MINUTES OF MEETINGS

Jakarta, October , 1981

The Japanese study team for the Local Condom Production Project in the Republic of Indonesia (hereinafter referred to as "The Team"), sent by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), presented to the National Family Planning Coordinating Board (hereinafter referred to as "BKKBN-NFPCB") a report entitled "DRAFT FINAL REPORT, THE FEASIBILITY STUDY ON THE LOCAL CONDOM PRODUCTION PROJECT IN THE REPUBLIC OF INDONESIA".

The following is a summary of the meetings and discussions:

1. Schedule of Meetings and Participants
   The schedule of meetings and participants are listed in Annex-A and Annex-B, respectively.

2. Presentation of the Draft Final Report
   2.1 The Team presented the Draft Final Report which has been prepared based on the objectives, the scope of work, and information described in the Minutes of Discussions dated July 18, 1981.
   The presentation was made by highlighting the features of the study and results.
   2.2 BKKBN-NFPCB and The Team exchanged views on the Draft Final Report.
      (1) BKKBN-NFPCB expressed satisfaction regarding the dedication and efforts made to complete the study.
      (2) A preliminary review of the Draft Final Report indicates that the contents of the Report are objective.

(3) BKKBN-NFPCB commented as follows:

1. In principal, the content and the lay out of the Draft Final Report drawn up by The Team, is satisfactory and in accordance with the reality.
2. Basic changes are not necessary but certain completions and corrections of minor errors (typographical errors) and additional information are necessary.
3. Additional elaboration is required for the specification of the machinery components and their prices, furthermore, additional specification of the consultants fee which is included in the cost of technology transfer is necessary.
4. Concerning the land site, this has also been ascertained and the license from the local Government is in process.
5. As regard raw material and latex, the Department of Agriculture has warranted that for the condom factory latex will be supplied in quantity and in quality as requested by The Team.

(4) THE TEAM commented as follows:

1. Standard Value of Latex for Condom Use (see Table IV-2).
   Standard value of latex for condom indicates that much higher grade quality than ASTM and JIS (see Table IV-1) is required for the production of condom.
2. Merits of 3 lines Production System:With regards to the initial cost requirement, no difference exists between 2 lines system and 3 lines system.

But from the technical point of view, the following items will be expected as merits of 3 lines system;

a) Easy adjustment of production.
b) Various types of condoms (coloured and shaped) can be simultaneously manufactured.
c) High yield rate can be attained.
d) Easy handling and maintenance.

3. The Initial Capital Requirement (see Table IV-1)
   - With regard to Item No. 6 (Plant Machinery and Equipment), each cost estimate of Machinery, Boiler, Generator and Supply & Waste Water Treatment Facilities will be prepared as additional information and it will be sent to BKKBN-NFPCB after The Team return to Japan.
   - Item No. 10 (Services) includes the "Transfer of Technology" and the cost of dispatch of after-care experts is estimated for 24 man months.

4. Conclusion of the Economic Evaluation (see Chapter 2-4, Part VIII).
   The conclusion described in Chapter 2-4 is thought to be sufficient, because the details of economic effects of the Project are shown in previous sections (see Chapter 2-2, 2-3).

3. Final Report

The Draft Final Report will be considered as final after making the above mentioned modification and corrections of possible mis-spellings.

The Final Report, entitled "THE FEASIBILITY STUDY REPORT FOR THE LOCAL CONDOM PRODUCTION PROJECT IN THE REPUBLIC OF INDONESIA", will be submitted to BKKBN-NFPCB by the middle of November 1981.

Both parties agreed and accepted the above.

Annex-A

SCHEDULE OF MEETINGS

DATE	TIME	PLACE
Oct: 14, 1981	09.00-14.00	BKKBN
Oct. 15, 1981	15.00-16.00	BKKBN

Annex-8

MEMBERS OF MEETINGS

DATE: October, , 1981
PLACE: BKKBN

	NAME	TITLE	NAME OF FIRM/ORGANIZATION
1.	Dr. P.P. Sumbung	Deputy for Administration & Management	BKKBN
2.	Drs. Soenyoto	Bureau of Supply & Logistics	BKKBN
3.	Dr. Mrs. Ratna Tjaja	Bureau of Planning	BKKBN
4.	Mrs. Hartini Suhardjo	Secretariat	BKKBN
5.	Mr. Widagdo Budidarmo		Kimia Farma
6.	Mr. R. Budhipramana		Kimia Farma
7.	Mr. Dwipayana Saraswadi		Kimia Farma
8.	Mr. Itsuo Koyama	Head, The Team	Sagami Rubber Industries Co., Ltd.
9.	Mr. Teruo Kashiwagi	Plant Planning	Sagami Rubber Industries Co., Ltd.
10.	Ms. Machiko Watanabe	Demand Estimation	International Development Center of Japan
11.	Mr. Toshio Namai	Coordinator	JICA, Tokyo

ANNEX 6

INTERIM REPORT

THE FEASIBILITY STUDY

ON

THE LOCAL CONDOM PRODUCTION PROJECT

IN THE REPUBLIC OF INDONESIA

July 4, 1981

THE STUDY TEAM

JAPAN INTERNATIONAL COOPERATION AGENCY

TABLE OF CONTENTS

I. INTRODUCTION

In accordance with the scope of work which was agreed between the Japanese preliminary survey team and the National Family Planning Co-ordinating Board (BKKBN-NFPCB) on 23rd March, 1981, Japan International Cooperation Agency (JICA) has undertaken a feasibility study on the local condom production project (hereinafter referred to as "The Project") in the Republic of Indonesia.

The purpose of The Study is to investigate the feasibility of The Project exchanging views with authorities concerned in the Republic of Indonesia, carrying out field investigation and analyzing The Project from technical, economic and other points of view based on the information obtained.

During the stay in Indonesia, the Study Team carried out:

a. Discussions about the Project with the BKKBN and P.T. KIMIA FARMA as well as other ministries and agencies concerned.

b. Visits to and interviews with international agencies such as The World Bank, UNFPA, UNICEF, USAID and local foundations.

c. Visits to or interviews with relevant industries in Indonesia.

d. Collection and review of data and information which are required for the feasibility study.

In View of the necessity to check quality and storage condition of the best available latex in Indonesia, two

expert members in latex technology visited Medan which was not scheduled originally.

Based on the findings as well as data and information collected through the activities mentioned earlier, the Study Team will accomplish the feasibility study after its return to Japan.

This Interim Report is to present a brief summary of the Study Team's findings and/or observations and major elements which will be used as the basis for The Study.

Full assistance and cooperation extended by the Indonesian Counterpart, BKKBN and P.T. KIMIA FARMA as well as various authorities of the Government of the Republic of Indonesia enabled the Study Team to perform its duties with successful results. The Study Team acknowledges, and takes this opportunity to express its gratitude for such assistance and cooperation of the Indonesian Counterpart.

II. BACKGROUND

Rapid expansion of population has been creating serious economic and social problems in Indonesia. Population control is considered to be one of the necessary conditions for economic development. Hence, the Government of Indonesia has adopted the national program for family planning to reduce the birth rate and there-by to slow down population growth.

The demographic objectives stated in the Five Year Development Plan (1979 - 1984) is to reduce the 1971 level of fertility by 50 percent by the year 2000, which however, this has been advanced by ten years to 1990 by Presidential instruction. In order to achieve this goal, around 17 million out of 27.7 million eligible couples should be active contraceptive users in 1990. With the expansion of the National family planning grogram, the demand for condoms will increase rapidly as one of the most convenient contraceptives especially at the village level. To meet the growing need of condoms, the Government of the Republic of Indonesia considers the necessity of condom production to substitute the overseas purchase of this contraceptive.

Under the circumstances, the Government of the Republic of Indonesia requested the cooperation of the Japanese Government in carrying out a feasibility study on The Project to establish a condom manufacturing plant in the Republic of Indonesia.

III. FINDINGS AND OBSERVATIONS OF THE STUDY TEAM

III.1. Demand of Condom and Plant Capacity

III.1.1. Demand of Condom

In spite of the unstable supply conditions of condom and the tendency of the current users to utilize more pill and IUD during the last few years as shown by the table of the projected current users by method for the years 1981/82 through 1990/1991 (annex), the annual percentage of condom users from the beginning of the programme appears to recur steady around 5% of the total annual current users. It is therefore expected that for the years to come this percentage will be used for calculating the expected number of condom users from the annual current users which every year are anticipated to be increasing.

From the logistic point of view and also to warrant a ready availability of stocks at the lowest distribution point, it is essential that during a certain year an operation country stock of at least twice the quantity of annual condom usage should be maintained. Taking into account the above data, and the average quantity of condoms used by a customer during a year, to be one gross, the projected demand for the years starting with the fiscal year 1981/82, is shown in the following table.

CONDOM STOCKS IN INDONESIA

1981/'82 - 1990/'91

FISCAL YEAR	CURRENT USERS (C.U)	CONDOM COUNTRY (5% of C.U.)	EXPECTED OPENING STOCKS	ADDITIONAL YEARLY REQUIREMENT
1981/82	8,400,000	420,000	433,000 gross	407,000 gross
1982/83	9,400,000	470,000	420,000 gross	520,000 gross
1983/84	10,200,000	510,000	470,000 gross	550,000 gross
1984/85	11,200,000	560,000	510,000 gross	610,000 gross
1985/86	12,200,000	610,000	560,000 gross	660,000 gross
1986/87	13,000,000	650,000	610,000 gross	690,000 gross
1987/88	14,000,000	700,000	650,000 gross	750,000 gross
1988/89	15,000,000	750,000	700,000 gross	800,000 gross
1989/90	16,000,000	800,000	750,000 gross	850,000 gross
1990/91	17,000,000	850,000	800,000 gross	900,000 gross
				6,737,000 gross

N O T E : 1) Each acceptor used 12 pieces condom per month.

2) Stock Formula : 3, 3, 6, 6, 3, 3.

BKKBN

26 June 1981.

PROJECTED CURRENTUSER BY METHODS
1981/1982 - 1990/1991

FISCAL YEAR	TOTAL C.U.	I U D		P I L L		CONDOM		OTHERS	
		%	N	%	N	%	N	%	N
1981/82	8,400,000	31	2,600,000	58	4,900,000	5	420,000	6	480,000
1982/83	9,400,000	32	3,000,000	56	5,300,000	5	470,000	7	630,000
1983/84	10,300,000	33	3,400,000	54	5,600,000	5	510,000	8	790,000
1984/85	11,200,000	35	3,800,000	52	5,800,000	5	560,000	9	1,040,000
1985/86	12,100,000	35	4,300,000	50	6,100,000	5	610,000	10	1,090,000
1986/87	13,000,000	36	4,700,000	48	6,300,000	5	650,000	11	1,350,000
1987/88	14,000,000	37	5,200,000	46	6,500,000	5	700,000	12	1,600,000
1988/89	15,000,000	38	5,700,000	44	6,600,000	5	750,000	13	1,950,000
1989/90	16,000,000	39	6,200,000	42	6,700,000	5	800,000	14	2,300,000
1990/91	17,000,000	40	6,700,000	40	6,800,000	5	850,000	15	2,650,000

BKKBN

26 June 1981

The Study Team confirms these figures as reasonable as conservative estimates owing to the following reasons :

1. Actual percentage of condom users at present is 5.6% but for the calculations for the yearly requirement is used the 5% instead.

2. According to the latest computerised data, April 1981, the use of condom in Yogyakarta province shares 33.3%, North Sumatra 14.9%, South Sumatra 9.9, Central Kalimantan 9.1%, Timor Timur 13.1%, Riau 12.8%, Irian Jaya 9.6%, Centra Java 9.9%.

3. It is expected that in future more men will participate as acceptors in the family planning program.

4. The use of condom will increase proportionately to higher educational background.

III.1.2. Distribution System

Distribution system for contraceptives are well established by the BKKBN from central down to the village level. Oral contraceptives produced by P.T. KIMIA FARMA in Bandung are delivered to the Provincial headquarters directly.

The number of clinics amounts to 5,609 in March 1981 consisting of :

Ministry of Health	:	4652
Armed Force	:	401
Other Ministries	:	176
Private Clinics	:	380

The number of family planning field workers are 7,059 and the frequency of Mobile Medical Team count for 261,987 times in 1980/81.

The distributions of contraceptives are at subdistrict and village level carried by Health Centres, family planning clinics, field workers, mobile medical teams and VCDCs.

III.1.3. Production Capacity

According to present working day set by P.T. KIMIA FARMA who are Government owned enterprise entrusted to implement this project as well as Oral Pill project are 5 days/week and 240 days annually. Also labour law provides 40 hours working time a week.

Therefore, the plant should be designed in accordance with condom requirement as stated in III.1.1. However, in view of rather greater demand forecast planned by BKKBN after 1985, like 900,000 in 90/91, working time should be changed from 40 hr./week to 42 hr./week after some stage by adopting, 3 shift basis per day with 4 working team so that a team may take two continuous holidays after 6 working days, thus enabling production capacity of 900,000 gross can be maintained annually. This 3 shift basis are adopted in textile industry in Indonesia and P.T. KIMIA FARMA also expressed its adoption in condom factory.

The Study Team will design automatic continuous manufacturing equipment in 3 lines together with all necessary auxiliary equipment. The details and precise description shall be stated in the subsequent report.

III.2. Raw Materials

III.2.1. Latex

III.2.1.A Latex in Java

There are two latex refinaries, P.T. PERKEBUNAN XI and XII in Java Islands. Samples of these refineries were tested. Both analysis data show too low mechanical stability and too high V.F.A. No. (Volatile Fatty Acid) which are not suitable for the production of condom. Further more daily quality control system does not exist at present and the Study Team was also unable to obtain the monthly or past quality level records.

III.2.1.B Latex in Medan

The Study on refinaries No.PTP II, III & V was performed. As output of factories No.II & III are not large enough, the latex refined in these two factories are brought to Belawan Port where latex refined in factory No. V was also brought and contained in the same latex tank for exportation. However, majority of latex are refined in P.T.P. No. V. The Study Team is of the opinion that P.T.P. No. V has the most bright possibility among other refinaries in Medan judging from monthly analysis data.

Then, detail study on P.T.P. V was made. As a result ;

a. Importation of new drums may be necessary for transportation.

b. Filling facility to drum in factory of P.T.P. V is required.

c. Analysis of Mechanical Stability and Viscosity should be performed in P.T.P. V.

The quality of latex will change according to method and time of storage. To grasp its condition, it takes sometime. Considering these delicate fact of latex in mind, special quality control system for condom production should be completed in one year time.

After completion of the factory, if no local high quality latex is available, foreign latex used by experienced condom manufacturer should be imported for about one year period provided that during the said term, the local refinary can fulfill the standard of latex required.

III.2.2. Auxiliary Chemicals

Only Zinc Oxide can be obtained locally as a result of thourough market survey. However, following auxiliary chemicals if unavailable locally should be imported.

- Sulpher
- Accelerator
- Stabilizer

- Anti Oxidant
- Dispersing Agent
- Stripping Agent
- Lubricant

III.2.3. Packaging Material

The following materials shall be necessary:

- Polyethylene laminated aluminium tape
- Printed paper gross box
- Carton box
- Sealing tapes

These packaging materials are found to be obtainable locally.

III.3. Factory Site

Proposed factory sites by P.T. KIMIA FARMA are located in Banjaran about 18 km. south from Bandung and all of them are designated industrial zone by local authority, though they are rice fields at the present moment.

P.T. KIMIA FARMA had two sites in their mind. The Study Team made a survey three sites, adding one more site which Preliminary Survey Team had observed a few months ago.

Site A : The space of this Site A is about 20,000 m2 surrounded by Lebakwangi Village (North), paper mill (South), Citalutuk river (West) and main street (East).

The Study Team finds Site A is the most desirable among the three sites in Banjaran area because of appropriate space, transportation, supply and disposal of water.

Site B : P.T. KIMIA FARMA is interested in this site in view of availability of sufficient water for their other future projects.

Total space of this site is about 500,000 m2, but P.T. KIMIA FARMA is willing to obtain about 150,000 m2, of this space. Site B is surrounded by Citalutuk river, Cisangkui river and main street. P.T. KIMIA FARMA will find out the possibility with regard to the availability of Site A. In case of the selections of Site B, approximately 15,000 m2 will be assigned to condom factory.

Site C : Site C is larger than site B and is located much closer to the town of Banjaran. Site C is situated at the east side of the main street.

Comments on Site B & C :

For both site B & C, an entrance road of 20 meter width would be constructed. Also construction of water supply piping to factory is essential.

Should these construction be made properly, sites B and C will be utilized for condom factory.

III.4. Electricity, Water, Climate, Transportation, and Man-Power

III.4.1. Electricity

In order to solve question of stoppage of electricity, it is essential to set up generator. According to P.L.N. (Electricity Supply Office), installation of generator can be approved as emergency supply source of electricity.

General Supply of electricity by P.L.N. for industrial use is :
High Voltage; 20 KV, 3 Phase (3 line system), 50 Hz.
Low Voltage; Single Phase 220V, 3 Phase, 380 V (4 line system)

III.4.2. Water

In principle, water from the river will be utilized, but considering long term dry season, well water will be simultaneously used. Consumption of water is maximum 13 tons/Hr. Water treatment facilities for supply and disposal shall be required.

III.4.3. Steam

Imported boiler is required. The capacity of boiler will be 1200 kg/hr. Storage tank for solar oil is necessary.

III.4.4. Climate

- Temperature, 20 - 30°C / throughout year
- Humidity, 70 -100% / Do
- Thunder, frequently
  (Protector against thunder required).
- Wind, sudden gust of wind exist.

III.4.5. Transportation

III.4.5.1 Transportation of Plant

There are four routes from Jakarta to Bandung. Each route has limitation of weight and measurement. Maximum measurement of limit is as follows:

- Height	2.65 m	(Size of Cargo)
- Width	2.5 m	Do
- Length	6.0 m	Do

III.4.5.2 Transportation of latex from Medan

In case of use of latex produced and refined in Medan, latex contained in drum will be delivered to Belawan Port by train or truck, Transportation from Belawan port to Jakarta shall be made by steamer, then carried by truck from Jakarta to Banjaran.

III.4.6. Man-Power

It is said that about 70% of textile industry is located in Bandung area. The Study Team foresee no problem in respect of number of workers.

III.5. Technical Aspects

At the time of actual project implementation in 1983/84, scheduled production capacity is estimated as 550,000 gross per year and 900,000 gross in 1990/91.

Required machinery equipment, utility, building, civil works and technical services are as follows:

III.5.1.1 Main Plant

- Compounding equipment
- Fully automated continuous dipping plant
- Automatic sealing machines
- Automatic pin-hole testing machines
- Laboratory testing apparatus
- Maintenance tools
- Spare-parts

III.5.1.2 Utility

- Electric supply receiver
- Electric Generator
- Boiler

III.5.1.3 Building

- Factory with lighting
- Office
- Canteen & Welfare
- Guard House
- Warehouse
- Fence & Gate

III.5.1.4 Civil Works

- Leveling of land
- Water supply piping
- Water drainage
- Road

III.5.1.5 Others

- Factory furniture and fixture
- Office furniture and fixture
- Vehicle

III.5.2 Technical Services

The manufacturing technique of latex is delicate since it involved high polymer chemistry, and required experience in tropical area.

At the early stage, technical services are required from experienced manufacturers. The Study Team considers that Technical Services will require 5 - 10 years.

III.5.2.1 Training of Indonesian experts

The training by actual undertaker/supplier of plant and its technical know-how designates shall be essential for about three months period by three technicians.

III.5.2.2 Technical Services by experienced manufacturers

Technical Services by experienced manufacturers shall be required in various aspects, but the most important point at the initial stage shall be research and improvement of Indonesian local latex.

III.6 Implementing Schedule of the Project
(Ref.: Annex 4)

Starting date of the project shall be defined as the day when plant supplier and purchaser sign an agreement. It would require 19 months from the contract agreement to start test operation of the plant.

Purchase of land and leveling of land must be accomplished 4 months before contract be signed between purchaser and supplier.

III.7 Specification of Condom

Specification of condom to be produced from the local factory is described as follows. Besides that, coloured condom such as pink, blue and green can be manufactured by adding colouring agents and modifying compounding process.

III.7.1 Dimension

Length	not less than 17 cm
Width	49 - 52 m/m.
Wall thickness	0.05 ± 0.02 m/m.

III.7.2 Tensile Strength and Elongation at Break

	Before Aging	After Aging
Tensile Strength	200 kg/cm2	
Elongation at Break	600%	540%

III.7.3 Acceptable Quality Level

AQL	1.0	
Water leakage test	number of hole	
(out of 200 pieces per batch)	Acceptance 4	Rejection 5

III.8 Benefit Cost Analysis of the Proposed Project

III.8.1 Economic Feasibility

Based on our tentative cost data and provisional project design, rough estimation of the economic feasibility of the Project was carried out. Method used in this estimation is discount cash flow analysis (UNIDO Method). Major assumption in the estimation are as follows:

III.8.2 Benefit of the Project

Considering the economic benefit of family planning activities being intangible and the government policy on family planning having been already fixed, economic benefit of the project should be measured againts import price (CIF) of currently imported products. The difficulty, however, lies in the fact that unit cost (CIF) figures of imported products vary considerably from about $ 3 to over $ 5, depending on the timing of import, procuring agencies, suppliers, import quantities and type and/or quality of the products.

We examined carefully the statistical import data from various sources and concluded that about $ 4.0 - $ 4.5 / gross (CIF, 1981 price) would be the most

proper estimate. The reason for this is that: although some figures are much less than $ 4.0, it should be unrealistic to expect that such low priced products be available continuously in the future; because we could safely guess that these products are sold at dunping prices covering only marginal costs without covering investment costs; thus raising the capacity utilization rate. However, the prices more than, say $ 5/gross would be too high, considering in particular that fancy packaging are not required.

III.8.3 Production Schedule

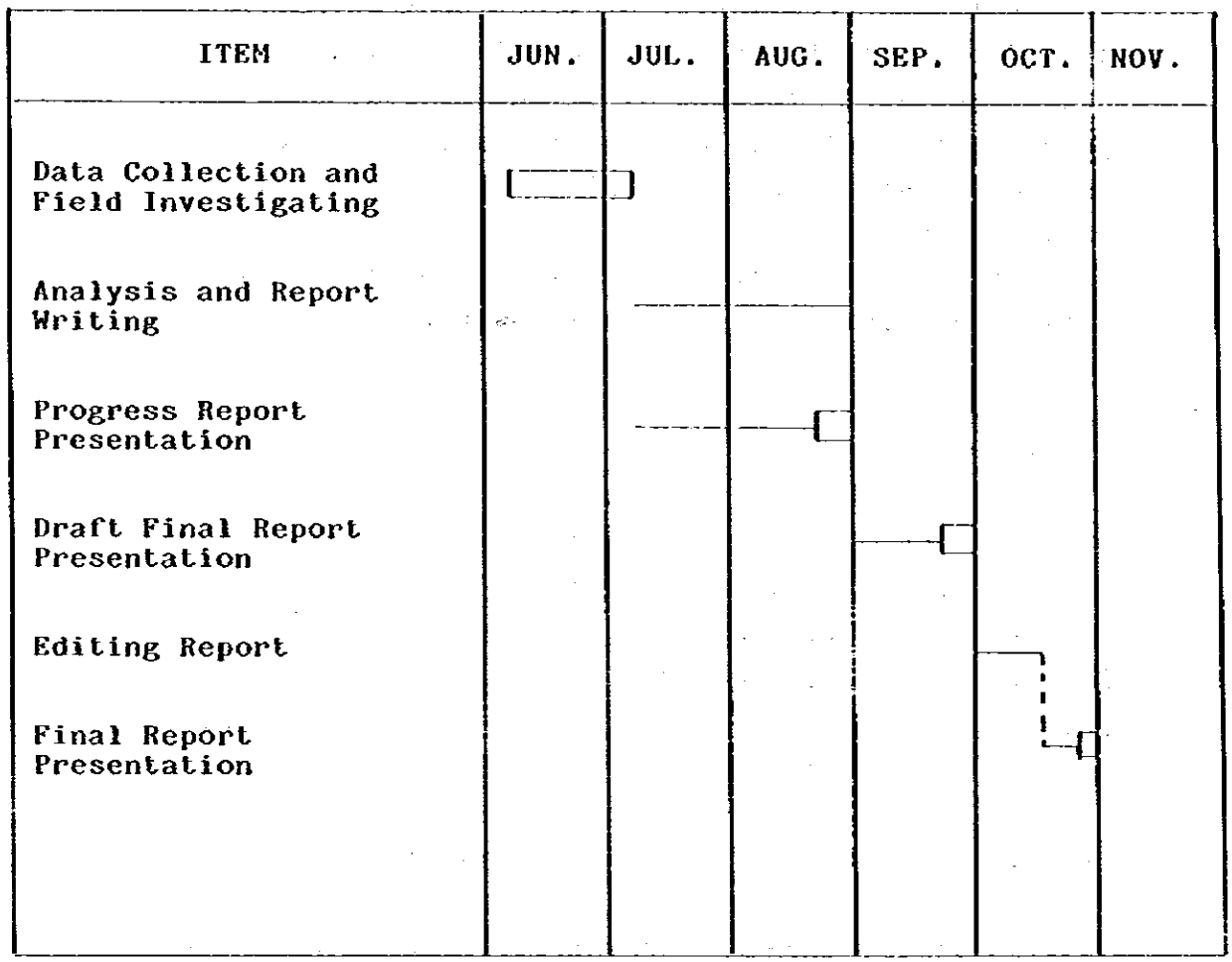
The following production schedule is assumed:
0 year; all investment carried out
1st year; 550,000 gross
2nd year; 610,000 gross
3rd year to 15th year (end of the project life); 660,000 gross - 1,000,000 gross.

III.8.4 Economic Internal Rate of Return

In view of the complicated manufacturing processing involved in the production of condoms, technical services for the first few years are assumed.

With the above assumptions as well as our tentative cost data gathered during this field survey, economic internal rate of return of the proposed project is estimated to be a quite feasible figure of about 10%.

V. REPORTING SCHEDULE



Note: ——— indicate study in Japan

[ ] indicate study in Indonesia

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Ministry of Health

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P.T. KIMIA FARMA

Drs. Utarto
Managing Director
P.T. KIMIA FARMA

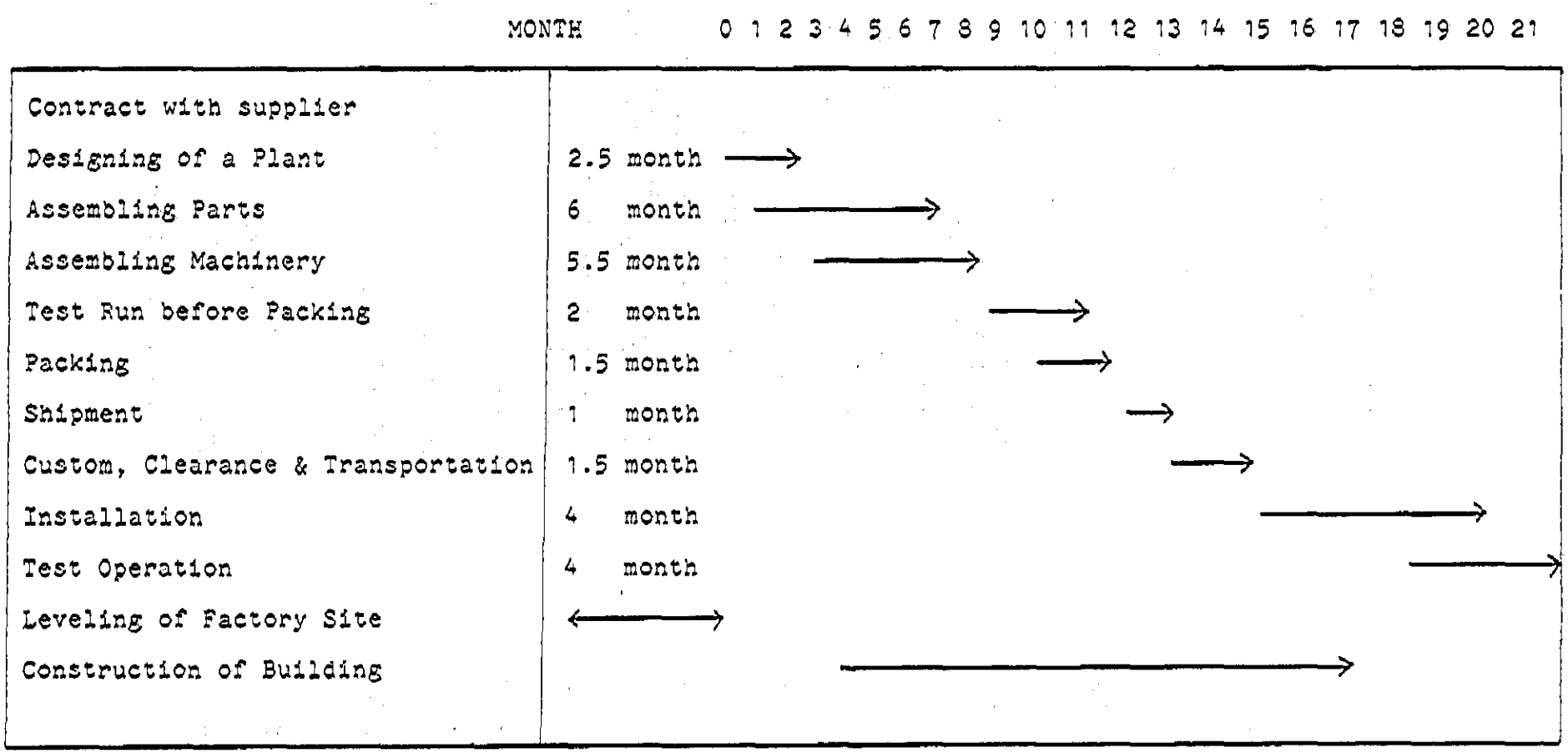
Drs. R. Budhi Pramana
P.T. KIMIA FARMA

LIST OF ORGANIZATION AND PLACES VISITED

June 8	Arrival at Jarkarta
June 9	JICA Office Japanese Embassy BKKBN
June 10	P.T. KIMIA FARMA, Head Office Kimia Farma, New Factory Building under construction Kimia Farma, Pharmaceutical Factory. Departure to Bandung.
June 11	P.T. KIMIA FARMA, Pill Factory (Bandung). Observation of two factory sites in Banjaran. P.T. K.T.S.M. (Kanebo Tomen Sandang Synthetic Mills).
June 12	P.T. TANABE-ABADI BKKBN (Jakarta)
June 13	PTP No. XII (Latex Refinary) P.T. K.T.S.M. Health Center, (Kecamatan Koja, Jakarta).
June 14	Factory Sites.
June 15	Technical University in Bandung P.L.N. (Perusahaan Umum Listrik Negara) Bandung. P.T. KIMIA FARMA (Bandung).
June 16	BKKBN (Bandung) Klinik K.B. Pansundan (Bandung) Klinik Moch. Ramdan Bank of Tokyo (Jakarta).
June 17	Departure to Jakarta P.T. Eisai Indonesia (Puncak) Research Institute of Estate Corpos. (Bogor). IPPF (Jakarta) (MPC/BKKBN (Media Production Center).

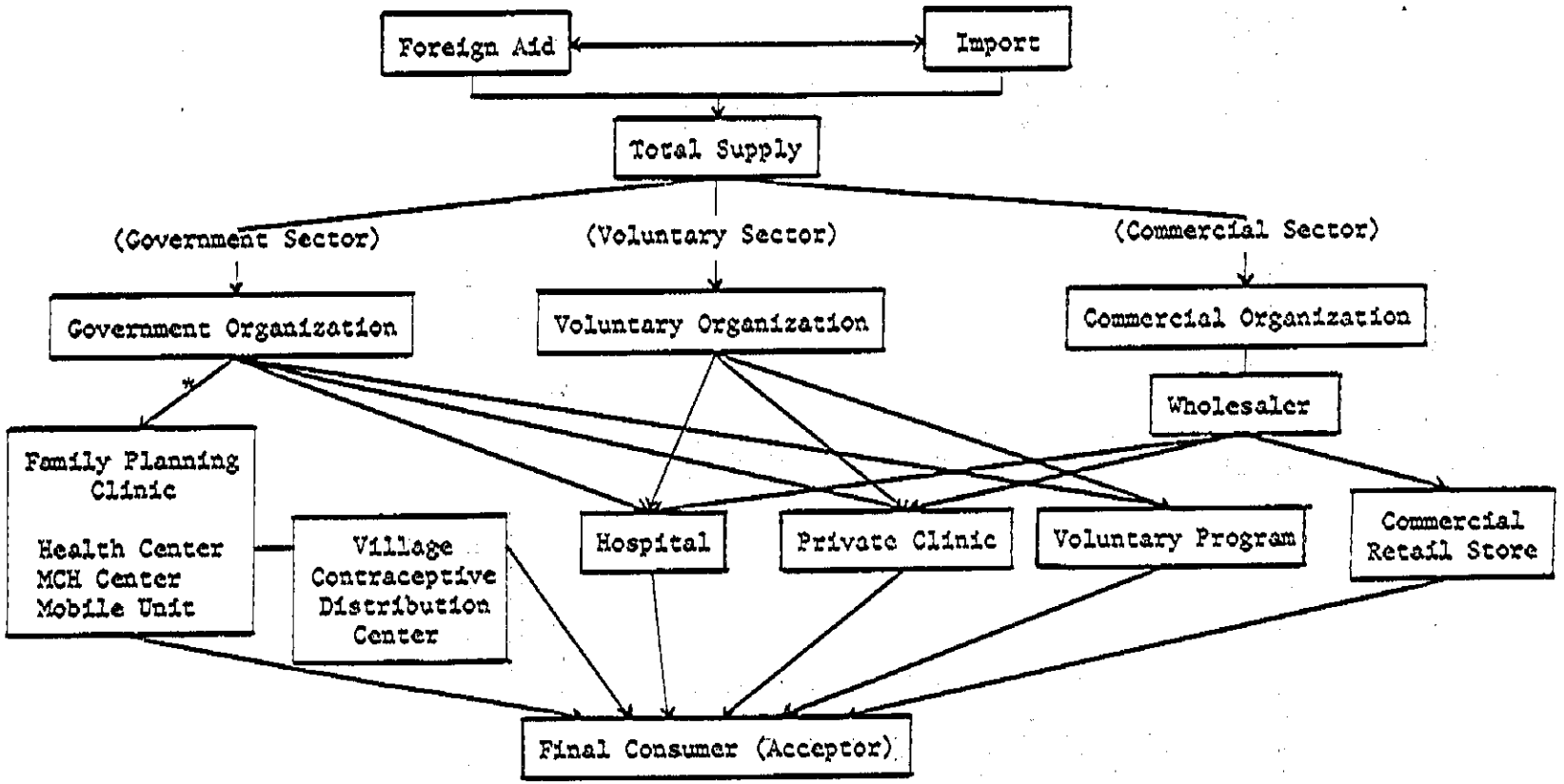
June 18	P.T. KIMIA FARMA Head Office.
June 19	Ministry of Health FDA Yayasan Kusuma Buana.
June 21	BKKBN (Jakarta)
June 22	UNFPA UNICEF, Gereja DI Indonesia (DGI) P.T. Bridgestone Tire Indonesia.
June 23	JICA Office Japanese Embassy Departure to Medan (2 members).
June 24	PTP V Utung Baru Belawan JICA Office P.T. Gesuri Lloyd P.T. Sankyu Indonesia
June 25	Bank Pembangunan Indonesia (BAPINDO) OECF Office P.T.P. V Sungai Karang Galang.
June 26	The World Bank USAID Departure to Jakarta from Medan.
June 27	P.T. Dainippon Gitakarya Printing P.T. Toppan Printing Indonesia P.T. Jaya Ohbayashi Gumi Corporation
June 29	KIMIA FARMA Head Office JICA Office
June 30	BKKBN
July 1	BKKBN Atomic Energy Research Institute
July 2	BAPENAS Japanese Embassy BKKBN
July 3	JICA Office Japanese Embassy
July 4	BKKBN Departure to Tokyo

SCHEDULE OF PLANT CONSTRUCTION



Annex 4

Conceptual Structure of Condom Distribution Channel



* more than 90% government supplies go through this channel.

Annex 5

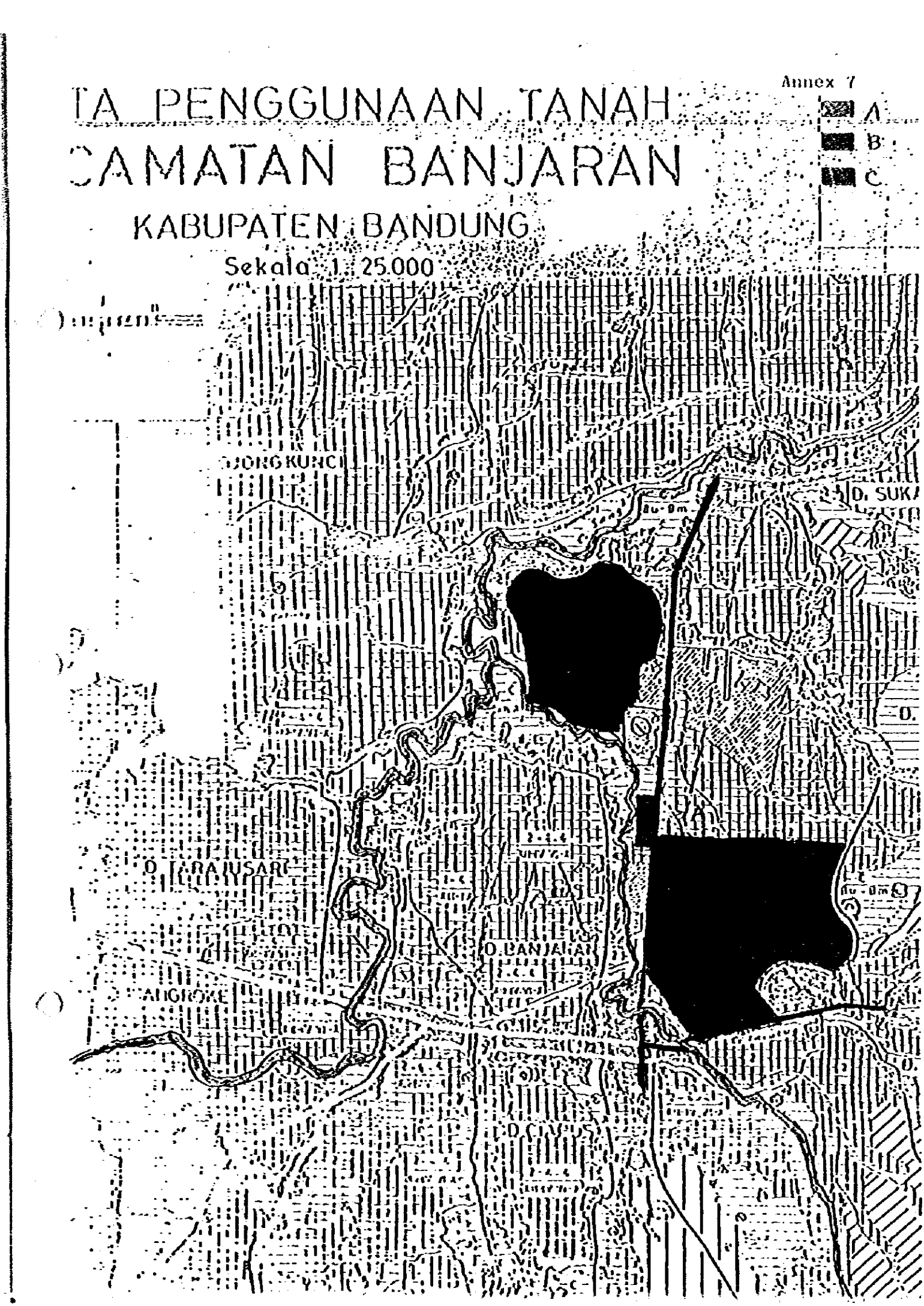
BANDUNG, 1980

AVERAGE TEMP., MOISTURE CONTENT AND RAINFALL PER MONTH

MONTH	AVERAGE TEMP.	AVERAGE MOISURE CONTENT	AVERAGE RAINFALL
JAN	22,7 C	81%	119
FEB	23.1 C	77%	58
MARCH	22.7 C	80%	393
APRIL	23.1 C	82%	274
MAY	23.4 C	76%	109
JUNE	22.9 C	76%	86
JULY	22.6 C	75%	119
AUGUST	22.2 C	73%	65
SEPT	23.1 C	73%	135
OCT	22.9 C	79%	287
NOV	22.9 C	82%	443
DEC	22.5 C	82%	276

Average temp. per year = 22.8 C
Average moisture content per year = 78%
Average rainfall per year = 197.0

Annex 7


TA PENGGUNAAN TANAH
CAMATAN BANJARAN
KABUPATEN BANDUNG
Sekala 1 : 25.000
A
B
C
D. SUKA
D. BANJARAN
ANGKOE