

**FEASIBILITY STUDY REPORT
ON
THE PROJECT FOR RENOVATION
OF
THE CILACAP SPINNING MILL
IN THE REPUBLIC OF INDONESIA**

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FEBRUARY, 1985

THE JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

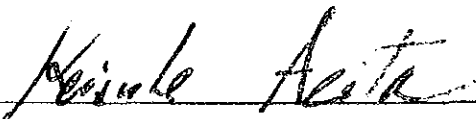
In response to the request of the Government of the Republic of Indonesia, the Government of Japan decided to conduct a feasibility study on the Project for Renovation of the Cilacap Spinning Mill and entrusted the study to the Japan International Cooperation Agency (JICA). The JICA sent to Indonesia a survey team headed by Mr. Ikuo Arita from 8 to 26 August, 1984.

The team exchanged views with the officials concerned of the Government of Indonesia and conducted a field survey in the Cilacap area with the cooperation of the Indonesia officials concerned. After the team returned to Japan, further studies were made and the present report has been prepared.

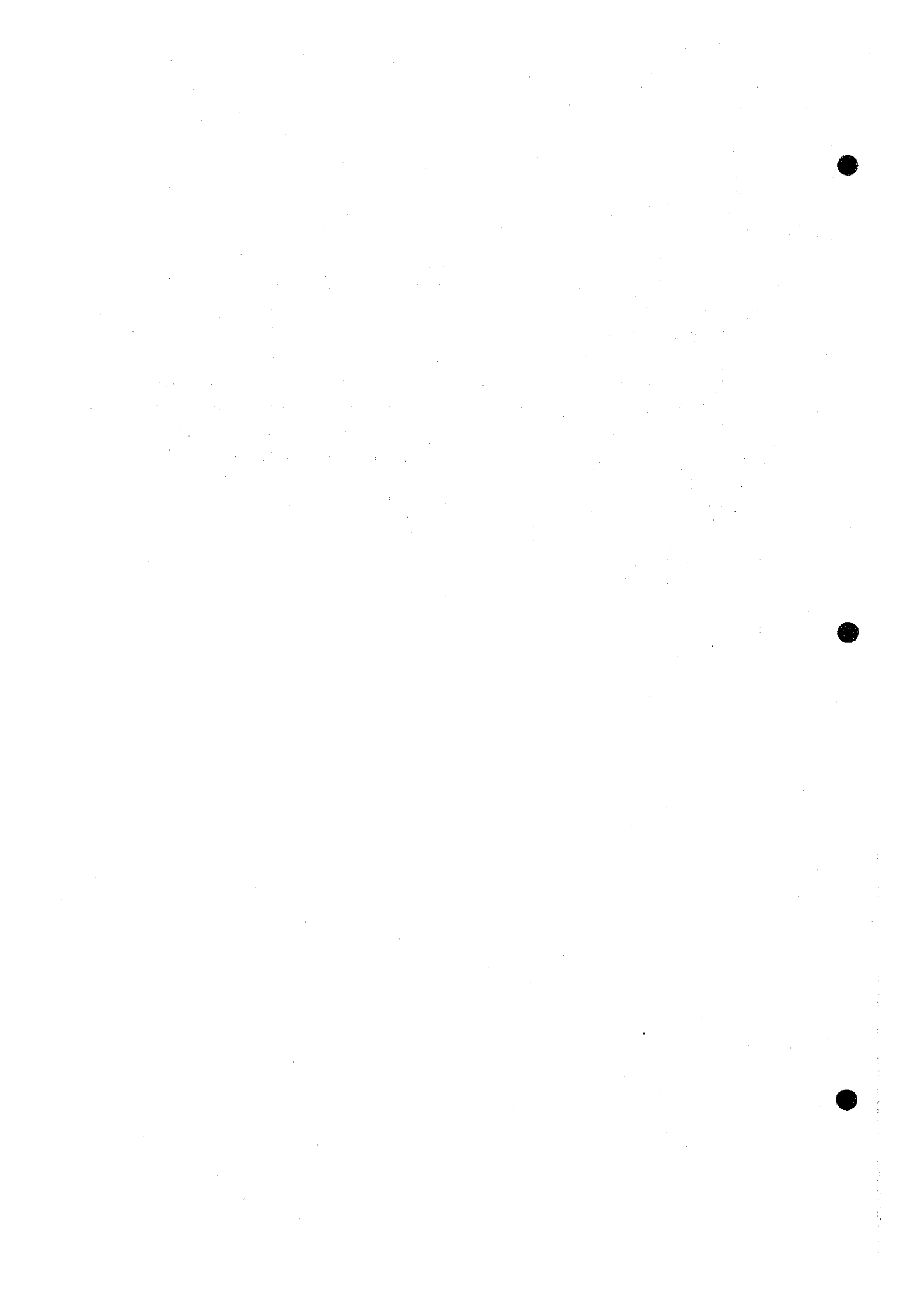
I hope that this report will serve for the development of the Project and contribute to the promotion of friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Government of the Republic of Indonesia for their close cooperation extended to the team.

Tokyo, February, 1985



Keisuke Arita
President
Japan International Cooperation Agency



SUMMARY, CONCLUSION AND RECOMMENDATION

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SUMMARY, CONCLUSION AND RECOMMENDATION:

1 Summary:

1-1 History and Transitions of Cilacap Spinning Mill and its Perimetrical Condition:

Construction of No. 1 Cilacap mill was in full scale from 1953 and formal production began from October, 1956, when this mill of 30,000 spindles scale equipped with major Japan-made machines began production of weaving yarn of yarn count 20 ~ 30's single yarns and double twisted yarns.

By proposal of board of directors of the National Industrial Bank (BIN), it was decided that an additional spinning mill of 30,000 spindles would be constructed in 1961. This new mill was called Cilacap No. 2 Mill and was completed in 1963, which, equipped with Japan-made machines for production, air conditioning and electricity generation, began operations formally in September, 1963. Following the results of feasibility study made in 1969, remodelling plan for No. 2 Mill for production of blended yarns of polyester and cotton was taking shape, and through assistances rendered by Ditjen Perindustrian Textile (Textile Industry Bureau), BAPPENAS (Planning Bureau) and Japanese government, remodelling of 9,600 spindles and financial preparation for yarn dyeing facilities were made and the reconstruction works started in 1971 and the mill commenced its formal operation in June, 1972.

Up till 1975, Cilacap Mill had belonged to "Pinda Sandang Jateng" in central Java. Then Cilacap Mill was transferred to the central government by the presidential decree on 14th April, 1983 and was placed under control of the Ministry of Industry to belong to PT Industry Sandang II, which has its head office in Surabaya, and came to the present.

Although scope of Cilacap Mill's facilities is the biggest in Sandang II organization, its turnover is observed to be extremely low. Its major spinning yarn number counts are 20's and 30'S and current operational condition is observed extremely poor.

Cilacap city is situated at about 300 Km to east-southeast of Jakarta city and at latitude 7°45'S and longitude 109°00'E and only one harbor city in Republik Indonesia facing Indian Ocean. Its population as at the end of 1983 was about 174,000, which shares 0.7% of total Java state and 12.9% of total Cilacap Prefecture. It is considered that in future, taking advantage of its favorable location, Cilacap city will endeavour for its development and improvements, aiming at well-balanced city of harbor, sight-seeing and industries.

Figure 1 indicates map of central Java, and Figure 2 shows urban development plan (Master plan).

Of recent, the electric power enterprise in Indonesia has been remarkably strengthened, which particularly in Java island, power supply plan for the power supply demand has been provided.

150,000 volts power transmitting line to Cilacap has already been connected to 500,000 volts line at Ungaran and Cirebon. Power transmitting lines network is shown in Figure 3. 150,000 volts power transmitting line leading to Cilacap is of two-circuit type, which in addition is to be connected to medium and small sized hydroelectric power plants in central Java, whereby fairly stable power supply has already been made.

As a policy of government of Republik Indonesia, the country prefers to receive electric power from the public electric company in Java island, and it is fairly considered to be natural that a government-run company will take its required electric power from the public electric power company.

Currently, Cilacap Spinning Mill is taking all of its required water such as industrial and drinking water from wells. Because consumption volume of water increases by industrial dev-

elopments and improvements in people's living standard, the consumption of underground water will also increase, and as the result of this tendency, securing high quality water in future will be made more and more difficult.

With the aforesaid background, the water supply works have been underway since studies made in 1977 with an aim of improving urban environment. Since March, 1984 the charging system has been published and already supply of clean water has been made in some areas, where water supply capacity is about 200 liters per second, of which 10% is estimated to be supplied for industrial uses.

Figure 1 Map of Central Java



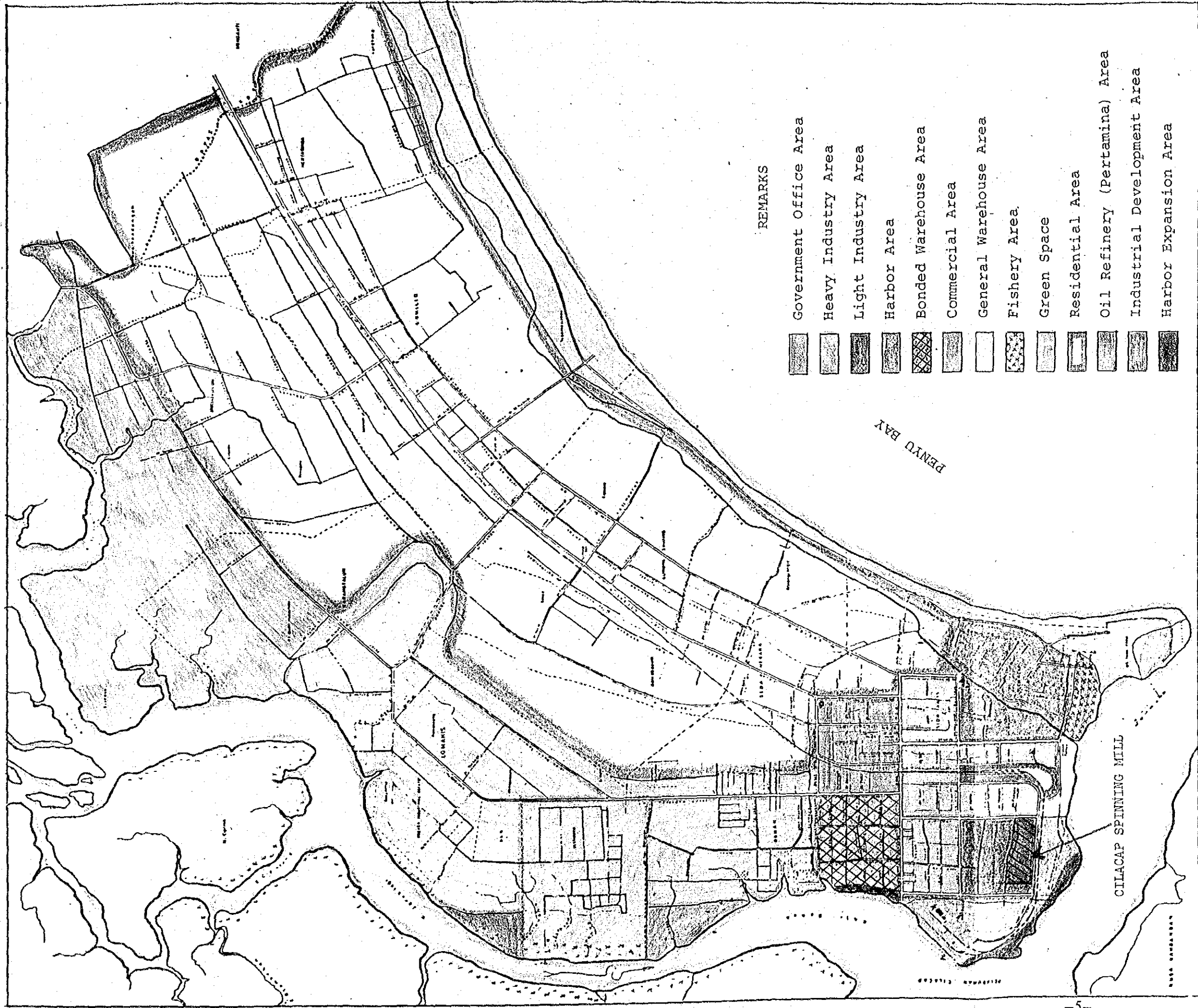
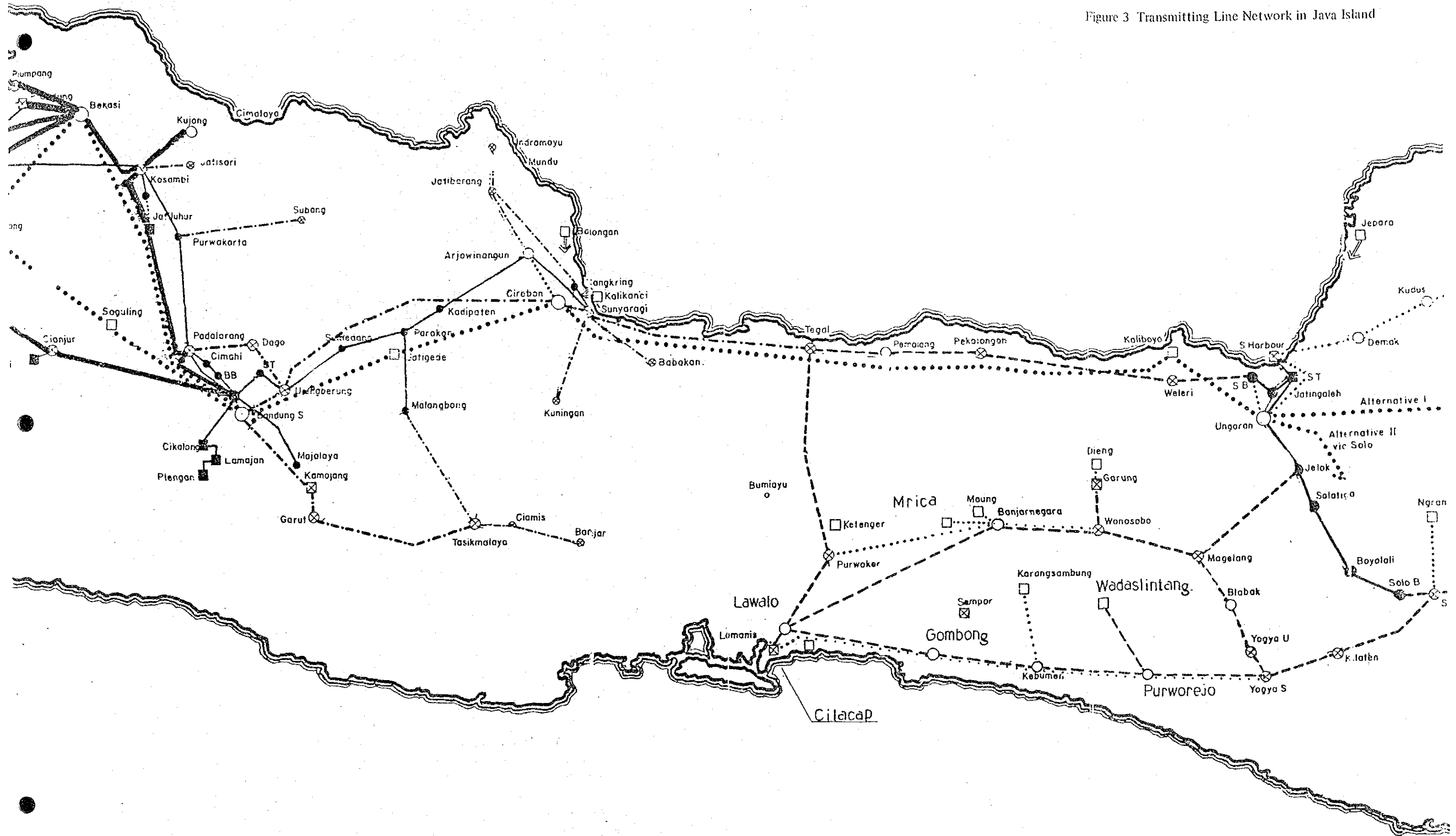


FIGURE 2 MASTER PLAN OF CILACAP CITY

Figure 3 Transmitting Line Network in Java Island



1-2 Study of Marketing and Distribution

Industries are concentrated on Java island, where the concentrating condition of textile industry is amazing. Out of total population of Indonesia, 61% is concentrated on this island and consequently it may well be considered that in Indonesia, the domestic market for the textile products is Java island only. The economic recession of Indonesia keeping from latter half of 1981 is still not recovering from the bottom and growth of her domestic economy has not been observed, however, as far as textile industry is concerned, the exports of textile products have recovered a little and increased since March, 1983 when rupia was devaluated. In the textile exports, majority is shared by woven fabrics including grey clothes and spun yarns are less. Due to high prices of materials, exports of spun yarns are not much lucrative, while exports of woven fabrics is observed sufficiently lucrative assisted by promotional policy for export by the government. However, volume of the textile exports by the local manufacturers of Indonesia is regretfully only a part of the whole volume, which poses grave problem. Collection of relative informations in various countries of destination is observed shortcoming, however, in the first place, we deem that they should aim at production of the high quality textile products which are worth good for the international markets. The 4th 5-year plan started from April, 1984 states that the country should free herself from excessive reliance on oil exports and strengthen areas of labour concentrative works, as well as to encourage exports of non-petrochemical products such as light industries products.

As a spinning mill, if it is in the first place tries to produce high quality yarns good for international markets, to raise selling prices by sales of the high quality yarns for woven fabrics for exports and knit products, and to maintain proper costs by rationalization in the mill, it can maintain strong competitive power. It will no doubt contribute largely to improve profitability if such system could be established where high quality woven fabrics are produced with high quality yarns within Sandang II group and the produced high woven fabrics are sold to international markets in clothes. From the aforesaid viewpoints, yarns to be produced as the project of the spinning mill should be the yarns of the most general nature and the largest distribution volume in both domestic and international markets, whereas a part of them should be production of other yarns with high profitability. The yarns are dependent on the market, however, turnover to production of yarns with high profitability should also be the important point for the spinning mill.

For setting the selling prices, it has been decided that the prices should be taken from the quotation prices in Indonesian domestic market for the 1st grade yarns as at August, 1984.

The following indicates kinds and selling prices of the yarns produced:

Cotton Combed Yarn	Ne 30's	Rp757,000/bale
— do —	Ne 40'S	Rp771,000/bale
— do —	Ne 60'S	Rp990,000/bale
Polyester/Cotton 65/35 Blended Yarn	Ne 45's	Rp690,000/bale
Polyester/Cotton 48/52 Blended Yarn	Ne 45'S	Rp815,000/bale

In the following, transition of number of spindles for the spinning equipments up to the 5th year are indicated, where the number in 1983/84 period (from April, 1983 to March, '84), the last year of the 3rd 5-year plan was 2,464 thousand spindles, and the total fabric production was 2,347 million meters.

The target set for 1988/89 period, the last year of the 4th 5-year plan starting from April, 1984 is 3,303 million meters for fabric production, which is comprised of 2,753 million

meters for domestic consumption and 550 million meters for exports. In other words, about 41% (7.1% per year) of increment in the production is assessed over 5 years, allocating about 17% in the total fabric production to the export in order to acquire foreign currencies.

In order to achieve this 4th plan, strengthening of the existing spinning equipments is required, where the additional spindles required are assessed to be 1,040 thousand spindles over 5 years by a simple proportionate calculation, which if exempted for the growth in export volume, would amount to about 400 thousand spindles.

However, it seems that the existing equipments include many of the old-fashioned and inefficient one, as well as about 150 thousand spindles unused. Therefore, the productivity of the equipments should be improved by replacement of the old equipments into new ones or by renovation such as repairs and remodels. Thus, for achievement of 41% increment in the textile consumption volume over 5 years, it should be required that the number of the newly purchased spinning equipment is increased to 600 ~ 800 thousand by the end of 5th year, and it can be assumed that the total number of spindles (operating number of spindles) is increased from the present about 2,300 thousand to 2,700 ~ 2,900 thousand by an increment of 400 ~ 600 thousand spindles through improvement of the productivity in the existing equipments.

1-3 Studies on Raw Materials:

The majority of cotton being used in Republik Indonesia is American cotton. Consequently, the raw cotton for use should be considered based on the American cotton. At the actual use, the arrived cotton shall throughly examined and be classified into grades, staple length and character according to the using purpose, and often attention shall be paid to admixture of foreign staples, honeydew and immatured cotton.

Purchasing price of cotton fluctuates actually as the items of market, however, a slightly higher price than the expected value has been set for each grade. The price range is US\$93.94 ~ 104.35 for SM 1-1/6" ~ SM 1-3/8".

For polyester fiber, on the assumption that all required volume can be supplied by 4 manufacturers within Republik Indonesia, the purchasing for A-grade cotton has been set at Rp1,835/kg. However, because the market is the seller's market even now, if further increment in consumption volume keeps on, the short supply is envisaged unless the fiber production facilities are increased and strengthened.

1-4 Analysis of the Present Condition for the Existing Mill:

Generally speaking, more of less quality raw cotton is used. There are wide discrepancies of the used raw cotton volume per bale by kinds of the raw cotton, and also there are many problems with blending method of raw cotton and spinning conditions.

The operating pattern is 3 teams 3 shifts, and annual operating days are about 300. Discrepancy between the production plan and the result is remarkably wide, and production volume and shares of product kinds differ largely, from which it is considered that liaison between headoffice and the mill, namely, business and sales department and production department is not functioning smoothly.

The yarn quality is observed extremely poor with high unevenness ratio (U%), thick and thin yarns and cyclical unevenness, which are assessed to be not with the yarn quality salable with normal market prices.

The quality control data are being collected, however, the collected data, which is important, are not made use of, and therefore, the training and guidance from the very start is positively desired.

In respect of production machines and facilities, the CP-1 Mill and CP-2 Mill are designed to be based on the pure cotton yarns and blended yarns of chemical fibers and cotton respectively. Figure 4, 5, and 6 indicate layouts and machine positioning of No. 1 and No. 2 Mills respectively.

Maintenance conditions for the machines are observed to be insufficient, for which review of the maintenance system should be required. The CP-1 Mill is now 30 years old, where machines and auxiliary facilities are observed to be obsolete and old-fashioned, which will not be expectable for improvements in efficiency by mere repairs and amendments and replacements of all categories of the machinery would be required. The CP-2 Mill is now about 20 years old, where carding engines and spinning frames are judged to be recoverable in their performances by repairs and amendments.

At Cilacap Mill, the required power has been procured by buying from the electric company (PLN) and through private electricity generation (by Diesel generation). The Mill is now receiving 6,000 volts supply from PLN, however, as the urban electricity distribution circuits are for 20,000 volts, its receiving facilities for the electricity shall be renewed for 20,000 volts in future. There are much problems involved in its electricity receiving facilities and distribution facilities within the mill, for which remodelling and repairs are desired to be made at the time of the renovation. Further, capability of the private power generation facilities is only good for operation of 3 sets of machine out of 5, and even these 3 sets can only be operable with the output far less than their rated power. Due to these conditions, the unit cost of electric power by the private power generation is made higher than that bought from PLN.

Refrigerators are not well maintained and are observed to be obsolete, and they have to be all replaced by now. Air conditioning facility in the CP-1 Mill is now observed to be in deteriorated conditions through use for years in respect of decrease in blowing air volume, corrosion and blocking, and shall be replaced, while those in the CP-2 Mill are still recoverable for use if repaired.

As for building, both CP-1 and CP-2 mills are old by more than 20 years and their conditions are considerably beaten and corroded by weather and sea breeze, and fundamental repairs are required for those building elements excluding the main structures.

Total number of employees are 1,091, which is broken down into 848 for production department, 84 for utility department and 159 for administration department, and their average wage is about 70,000Rp., which is fairly higher than those factories in vicinity of Cilacap Mill.

As for the profitability, the result for period from January to June 1984 reveals that the raw materials cost is higher than sales revenue and deficit is keeping on, where if sales and general administration costs incurred at the head office are added to the working costs, the deficit amount would be considerable figures. Therefore, whatever fundamental counter-measures should be applied to this situation to stop this losing tendency as soon as possible.

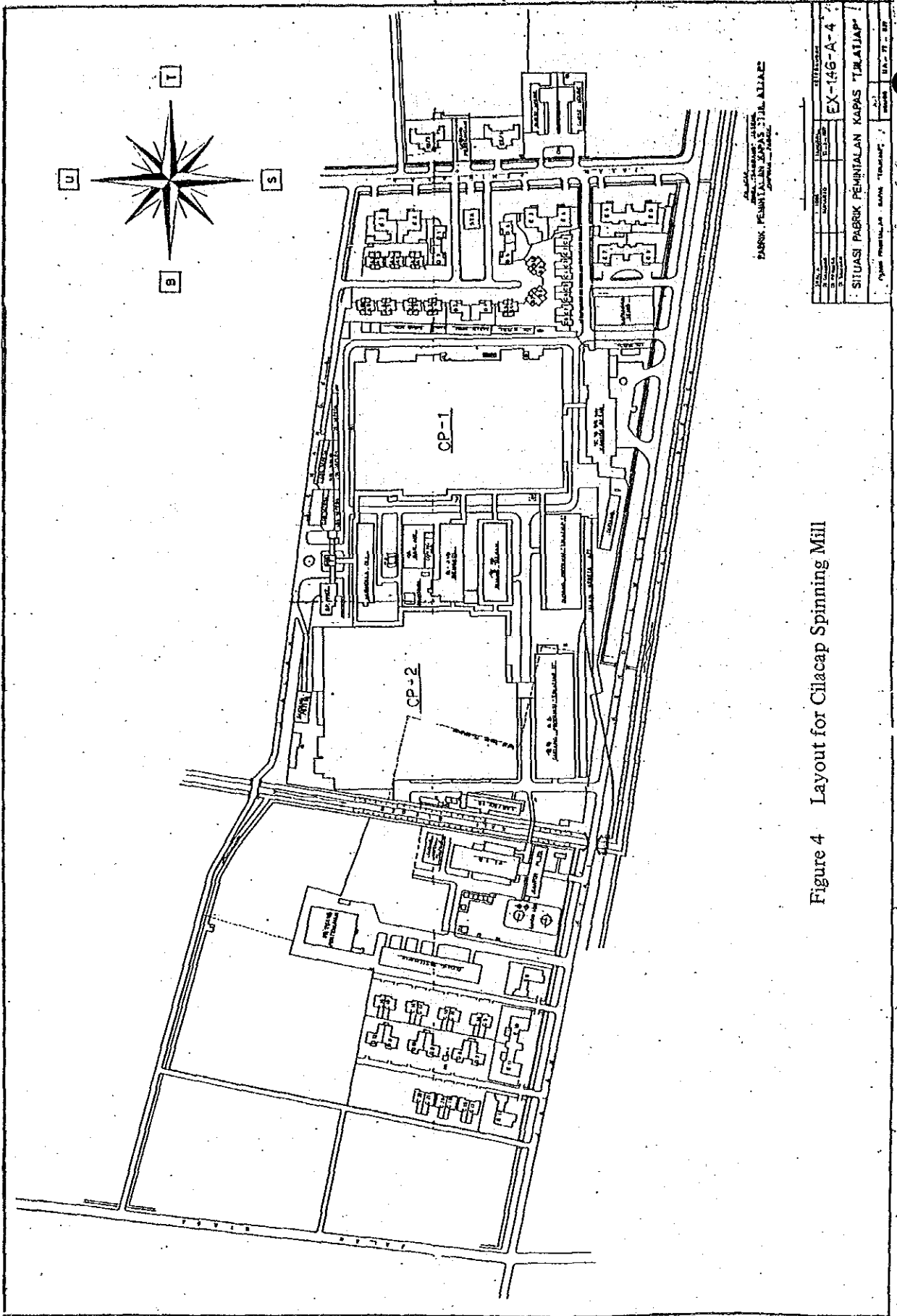
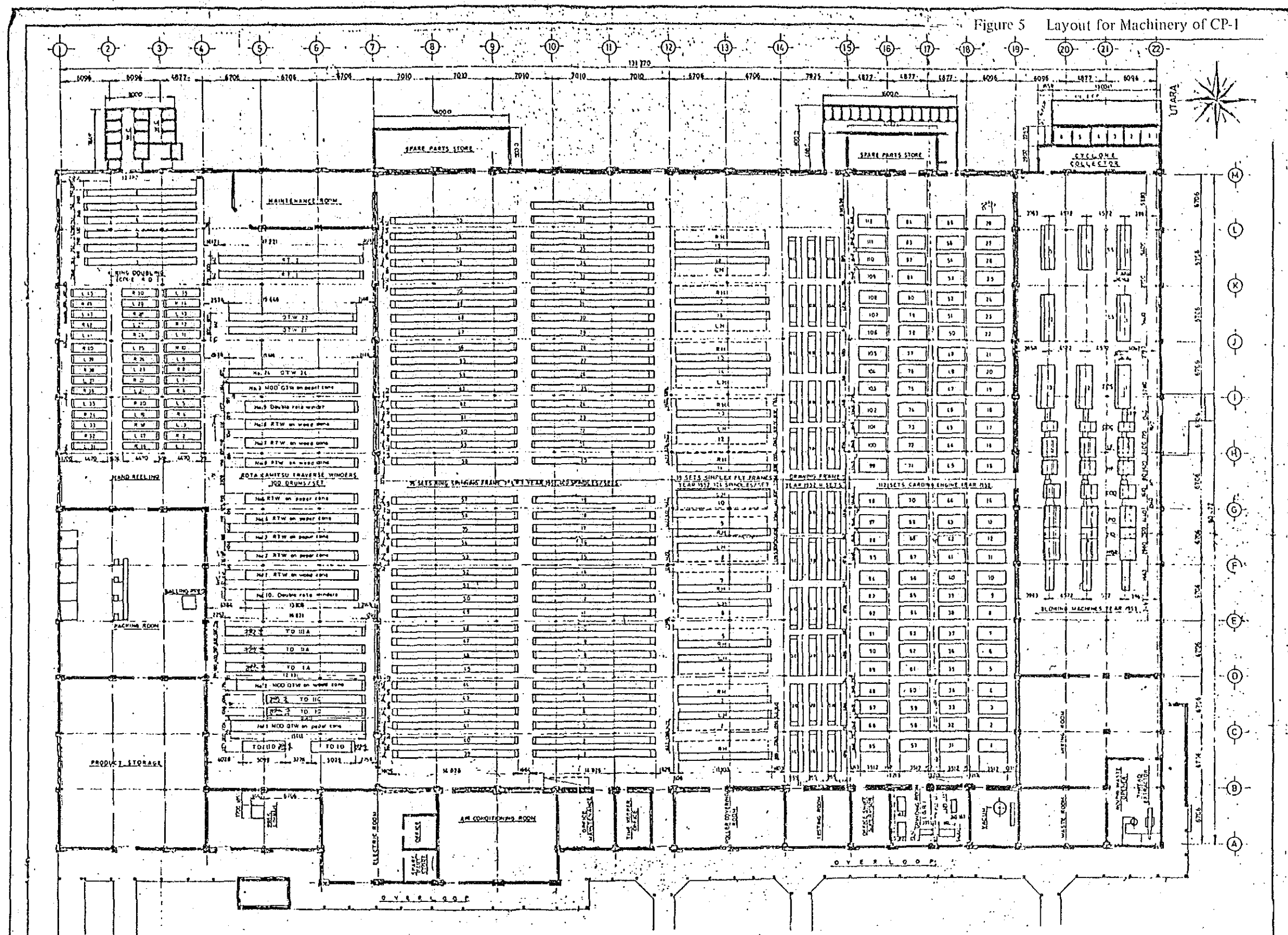


Figure 4 Layout for Cilacap Spinning Mill

Figure 5 Layout for Machinery of CP-1



SKALA	1:100	DWG. NO.	EX-146-B
DISEKANER	...		
DIREKSI	...		
DIBAHAS	...		
LAY OUT MESIN MESIN PRODUKSI "TP. I"			
PABRIK PEMINTALAN KAPAS TELUKAJAYA		A 1	UKURAN DALAM MM
		MINOR	118 - 83 - 011

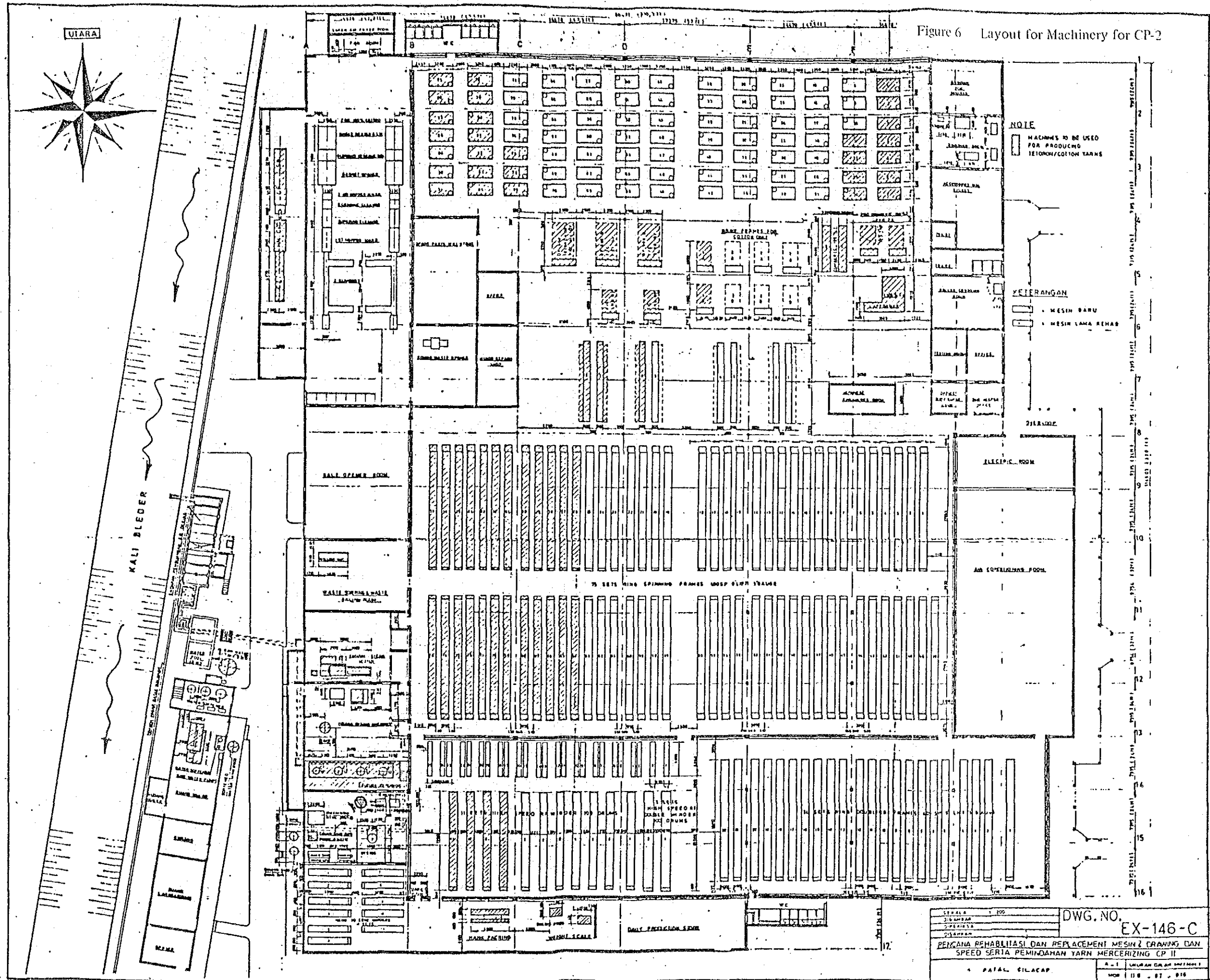
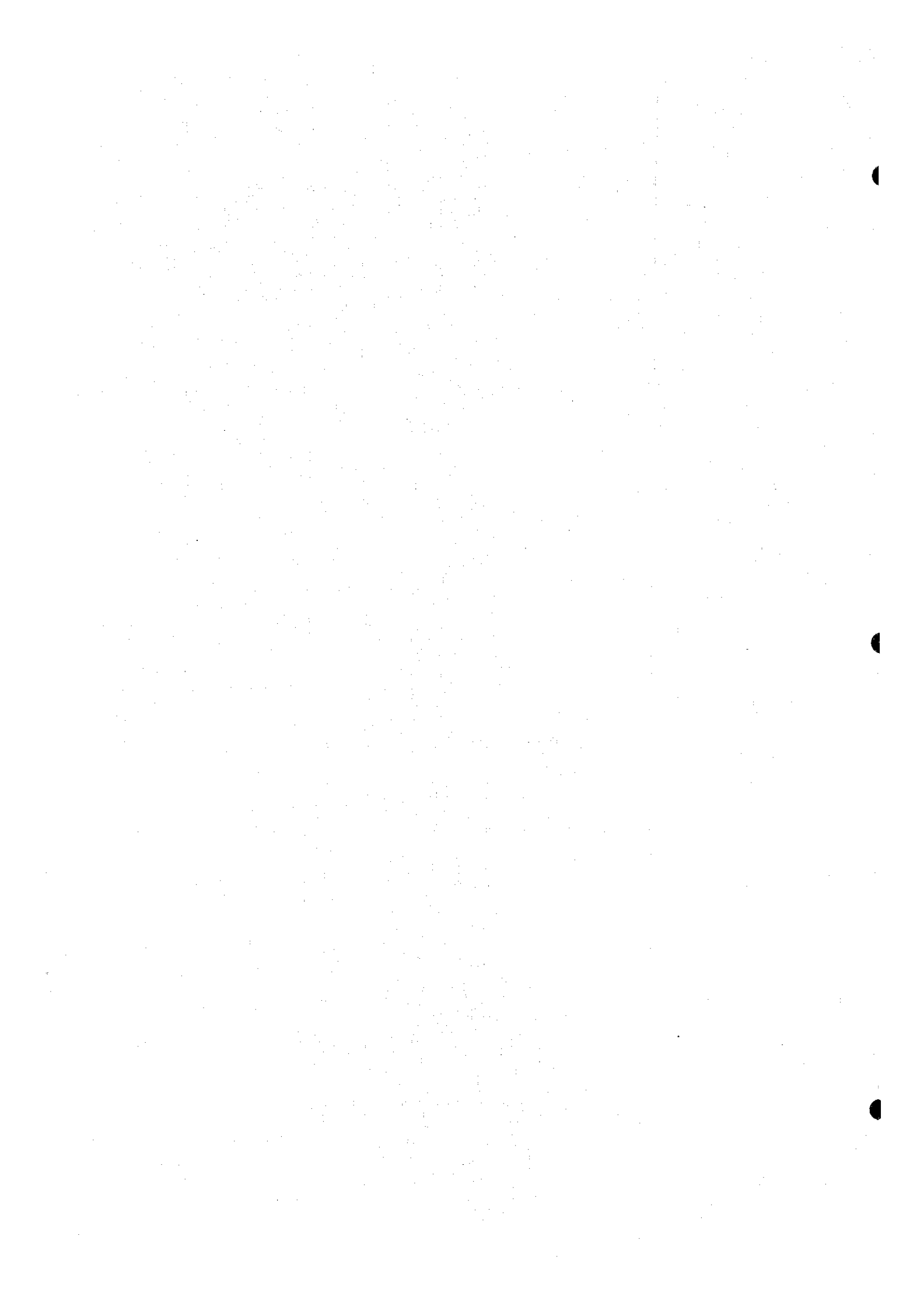


Figure 6 Layout for Machinery for CP-2



1-5 Scope of Renovation Project and Engineering:

Consumption volume of raw materials at full operation is 5,490 tons of raw cotton and 1,572 tons of polyester fibers on a yearly basis.

The following is the yearly production plan (348 days, 8,352 hours);

CP-1 Mill:	Cotton Comber Yarns	Ne 30'S	6,605 bales
	— do —	Ne 40'S	9,765 bales
	— do —	Ne 60'S	1,310 bales
CP-2 Mill:	Polyester/Cotton 65/35 Blended Yarn	Ne 45'S	7,425 bales
	Polyester/Cotton 48/52 Blended Yarn	Ne 45'S	7,035 bales
<u>Total:</u>			<u>32,140 bales</u>

Scopes of facilities are 78 sets (31,200 spindles) of spinning frames for the CP-1 Mill, and 74 sets (29,600 spindles) for the CP-2 Mill, which totals 60,800 spindles. At the CP-2 Mill, all of 91 sets carding engines and 74 sets out of 75 of spinning frames are to be remodelled and repaired for reuse, however, almost all of other existing production machines are to be removed to be replaced by the newly purchased machines. Machine arrangements are now designed to achieve smoother flow of semimanufactured goods with more high speed and large packaged machines as compared with the older facilities. In addition, as the winder, 16 sets (960 drums) of automatic winder with air splicer knotters are introduced. Table 1 and 2 indicate number of sets of major production machine, while Figures 7, 8 and 9 show the mill's lay-out, as well as positioning charts of machines in CP-1 and CP-2 Mills respectively. At this mill, we are planning to produce yarns of high quality to be good for international market.

Electric power is to be bought for all of them from the electric power company (PLN), while for the emergency use, a set of private generating facility for capacity of 500KVA will be purchased. For the electrical facilities, receiving voltage will be 20KV, 50HZ, secondary voltage 6.6KV and low voltage will be 3-phases 4 lines 400V at secondary side of transformer and 380V for motors. Further, voltage for the existing production machines which are to be reused as well as for electric lights and miscellaenous taps will be 220V unchanged.

As for the air conditioning facilities, those in the CP-1 Mill will all be disassembled and removed to be replaced by the new ones, where the major equipments will be imported from foreign countries and auxiliary materials will be procured locally, while the facilities in the CP-2 Mill will be reused for almost all of them.

As for the refrigerating facilities, 3 sets (energy-saving type) of 600 refrigerating tons capacity will be newly installed in addition to centralization of blowers of the automatic winders, whereby energy savement is aimed at.

As for the building concerns, a new warehouse for storing the raw cotton bales will be erected, by which current scattered locations of the warehouses will be centralized and efficient warehouse control will be achieved. Further, at the renovation, it is proposed not only to repair and amend facilities directly related to the production itself, but also to do works required for waterproofing, anticorrosion, reinforcements and paintings.

As the working plan as a whole, it is proposed to complete the works in 13 months from the time of contract, while as the production planning, the CP-2 Mill will commence its operation as from 12th month from the contract, and CP-1 Mill from 14th month therefrom, with which the full operation will commence as from 15th month from the time of the contract.

Table 3 indicates the implementation schedule.

As for the number of employees to be used, the total will be 1,046, which is almost same as the current complement. While number of personnels for utility and administration departments is planned to be unchanged from the current status, those in production department is set to be somewhat less than the current numbers despite the shift system will be changed from 3 teams 3 shifts to 4 teams 3 shifts.

The large-scale renovation requires comprehensive techniques and guidance in techniques of spinning works control after the renovation is also required. For this reason, the technical guidance should be indispensable to be introduced from the foreign countries and for this purpose, the required number of engineers to be sent there is considered to be 7 engineers (139 man months.)

Table 1 MAIN PRODUCTION MACHINE LIST FOR CP-1 MILL

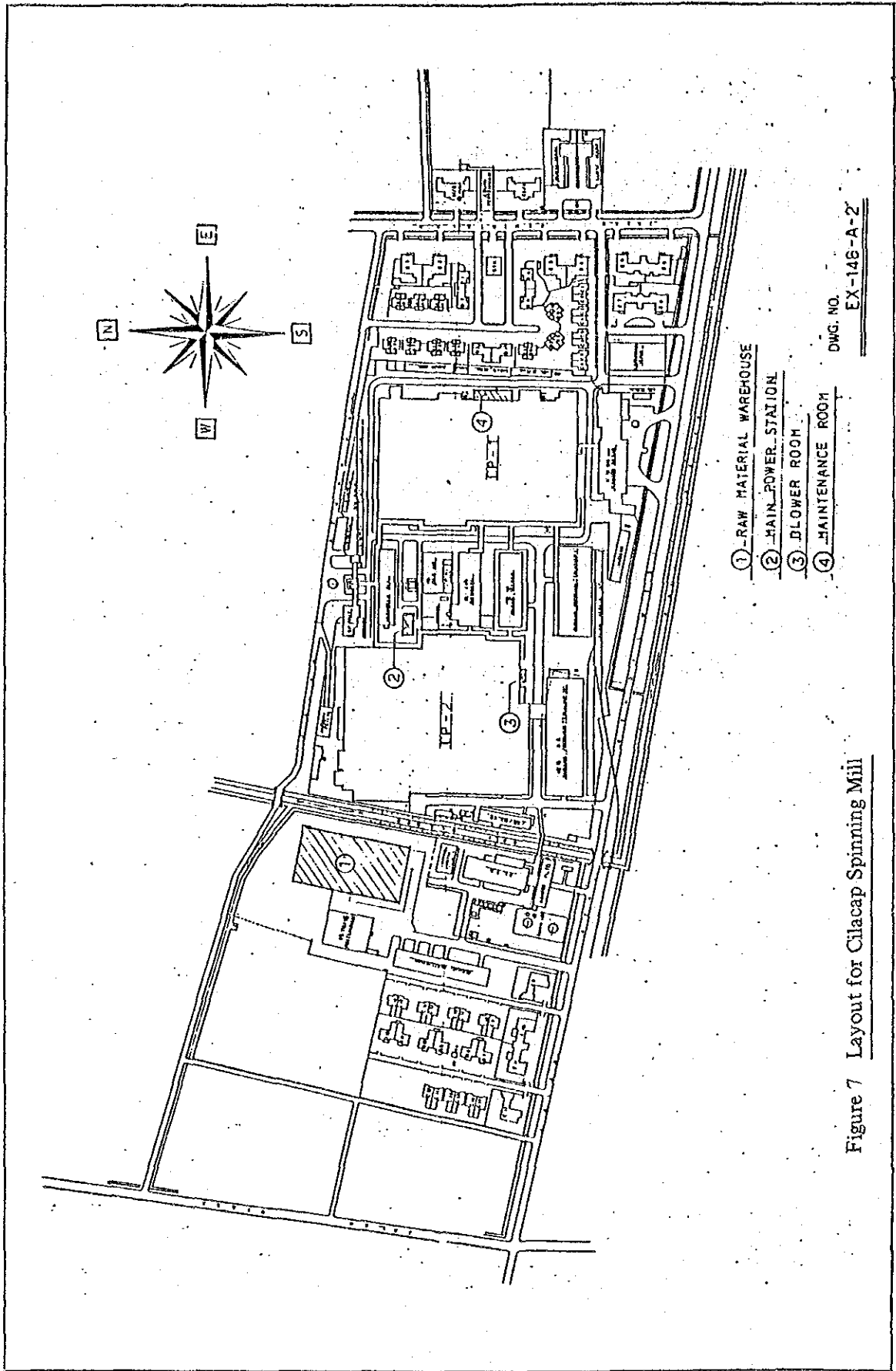
<u>Item No.</u>	<u>Machine/Equipment</u>	<u>Quantity</u>
RS-1	Blowing Section	
RS-1-1	Blow Room Machinery	2 lines
RS-2	Carding Section	
RS-2-1*	Semi High Production Card	54 sets
RS-3	Combing Section	
RS-3-1	High Speed Drawing Frame (Pre-Drawing)	5 sets
RS-3-2	Sliver Lap Former	3 sets
RS-3-3	High Production Comber	22 sets
RS-4	Drawing Section	
RS-4-1	High Speed Drawing Frame (1st Drawing)	5 sets
RS-4-2	High Speed Drawing Frame (2nd Drawing)	5 sets
RS-5	Roving Section	
RS-5-1	High Speed Simplex Fly Frame	9 sets
RS-6	Spinning Section	
RS-6-1	Ring Spinning Frame	78 sets
RS-7	Winding Section	
RS-7-1	Automatic Cone Winder	8 sets
RS-7-2*	R.T. Cone Winder	2 sets

* shows the machines to be improved.

Table 2 MAIN PRODUCTION MACHINE LIST FOR CP-2 MILL

<u>Item No.</u>	<u>Machine/Equipment</u>	<u>Quantity</u>
RS-1	Blowing Section	
RS-1-1	Blow Room Machinery for Cotton	1 line
RS-1-2*	Blow Room Machinery for Polyester	1 line
RS-2	Carding Section	
RS-2-1*	Semi High Production Card for Cotton	19 sets
RS-2-2*	Semi High Production Card for Polyester	18 sets
RS-3	Combing Section	
RS-3-1	High Speed Drawing Frame (Pre-Drawing)	2 sets
RS-3-2	Sliver Lap Former	1 set
RS-3-3	High Production Comber	8 sets
RS-4	Drawing Section	
RS-4-1	High Speed Drawing Frame (Grain Adjust Drawing for Polyester)	2 sets
RS-4-2	High Speed Drawing Frame (1st Drawing for P.65%: C.35%)	2 sets
RS-4-3	High Speed Drawing Frame (1st Drawing for P.48%: C.52%)	2 sets
RS-4-4	High Speed Drawing Frame (2nd Drawing for P.65%: C.35%)	2 sets
RS-4-5	High Speed Drawing Frame (2nd Drawing for P.48%: C.52%)	2 sets
RS-5	Roving section	
RS-5-1	High Speed Simplex Fly Frame (P.65%: C.35%)	3 sets
RS-5-2	High Speed Simplex Fly Frame (P.48%: C.52%)	2 sets
RS-6	Spinning Section	
RS-6-1*	Ring Spinning Frame (P.65%: C.35%)	38 sets
RS-6-2*	Ring Spinning Frame (P.48%: C.52%)	36 sets
RS-7	Setting Section	
RS-7-1	Full Automatic Vacuum Steam Setter (1 set to be improved)	2 sets
RS-8	Winding Section	
RS-8-1	Automatic Cone Winder (P.65%: C.35%)	4 sets
RS-8-2	Automatic Cone Winder (P.48%: C.52%)	4 sets
RS-8-3*	R.T. Cone Winder (Re-Winding)	1 set

* shows the machines to be improved.

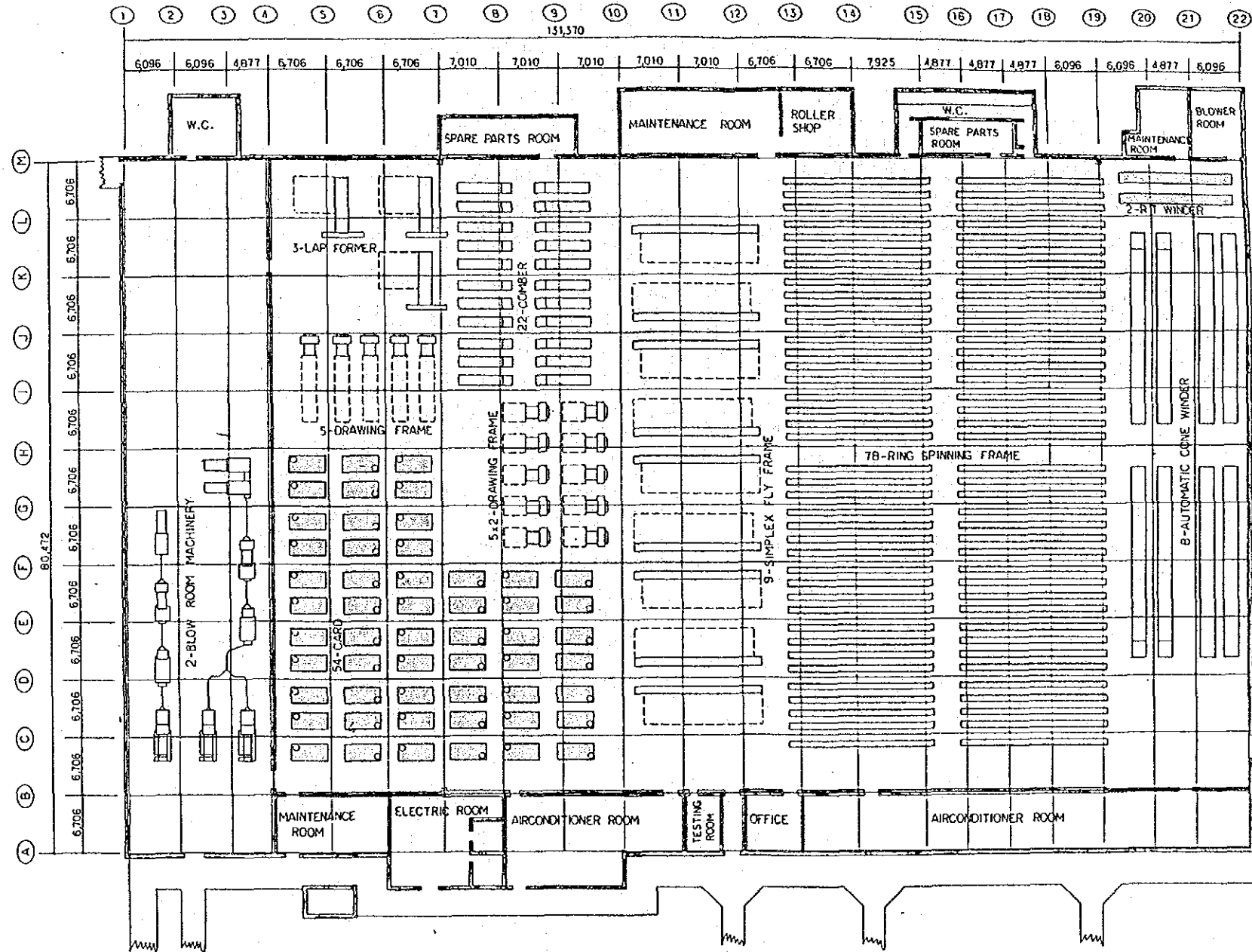


- ① - RAW MATERIAL WAREHOUSE
- ② - MAIN POWER STATION
- ③ - LOWER ROOM
- ④ - MAINTENANCE ROOM

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Figure 7 Layout for Cilacap Spinning Mill

Figure 8 Layout for Production Machinery of CP-1



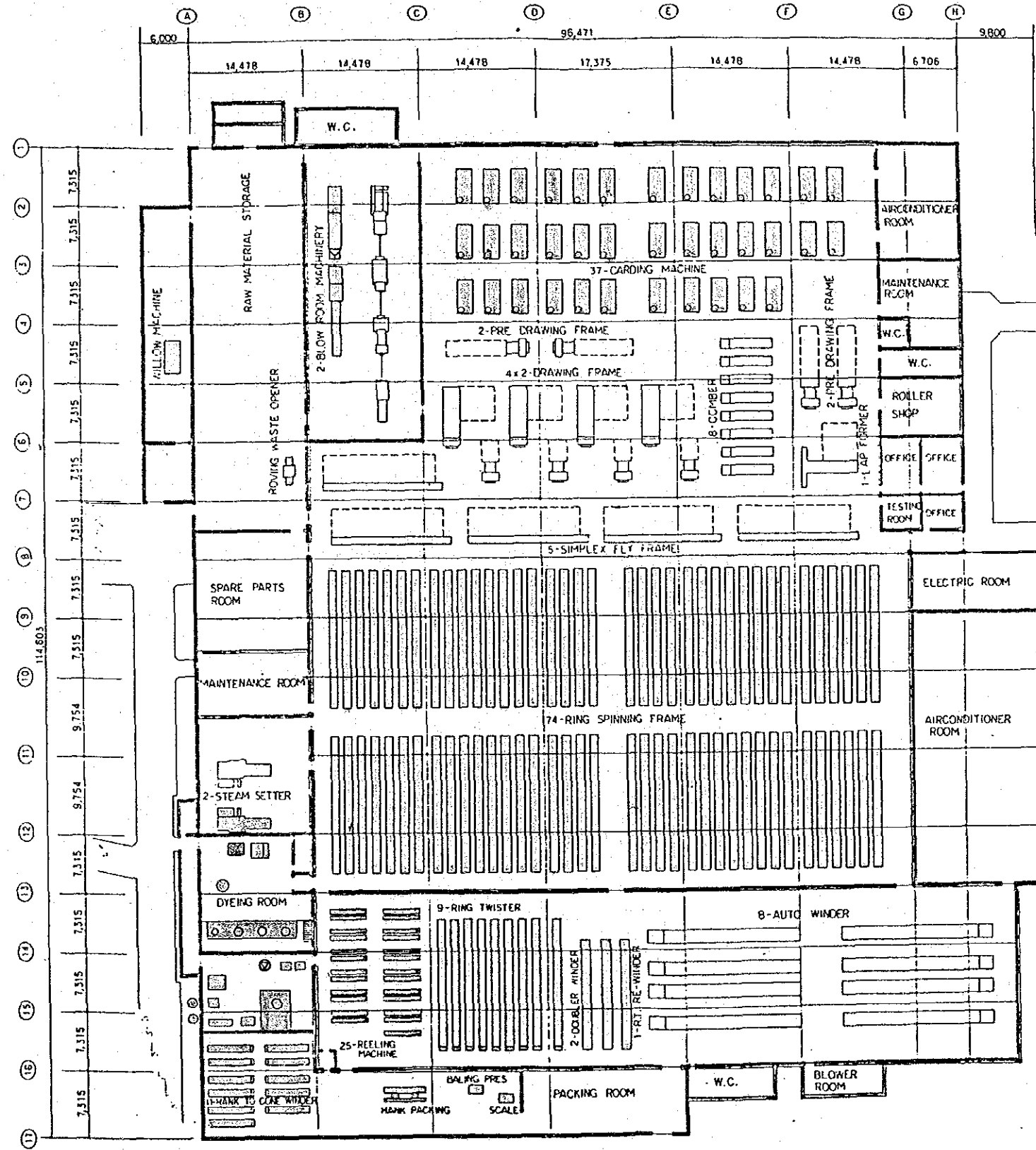
Remarks:
 White colour shows the machines to be newly installed.
 Green colour shows the machines to be utilized after improvement through the renovation project plan.

MARK	DESCRIPTION	DATE	CHECKED

R E V I S I O N S

TITLE			
LAYOUT			
CILACAP SPINNING MILL CP-1			
DRAWN	<i>H. B. ...</i>	DATE	3 SEPT., 1984. SCALE 1/2
CHECKED	<i>[Signature]</i>	DWG NO.	EX-146-10
APPROVED	<i>[Signature]</i>		

Figure 9 Layout for Machinery of CP-1



Remarks:

- White colour shows the machines to be newly installed.
- Green colour shows the machines to be utilized after improvement through the renovation project plan.
- Orange colour shows the machines to be utilized as existing after movement through the renovation project plan.
- Pink colour shows the machines to be out of the scope of the renovation project plan and to be moved.
- Blue colour shows the machines to be out of the scope of the renovation project plan and to be kept as existing.

MARK	DESCRIPTION	DATE	CHECKED

REVISIONS

TITLE			
LAYOUT			
CILACAP SPINNING MILL CP-2			
DRAWN	DATE	SCALE	TYP
	3 SEPT 1984	1/1	
CHECKED			
APPROVED		EX-146-20	

Table 3 IMPLEMENTATION SCHEDULE

EVENT	Beginning of Full Operation														
	Effectiveness of Eng. Contract														
	CP-1 Mechanical Completion & Start up CP-Mechanical Completion & Start up CP-1 Trial Operation														
YEAR	0-Year											1st Year			
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
WORKS	Detailed Design, Documentation														
	New Building Works (Warehouse, Sub-station)														
	Repairs for CP-2 Sp. Building														
	Repairs for CP-1 Sp. Building														
	EL. Auxiliary Equipment Dismantlement														
	Wiring for EL. & Ut. Equipment														
	Wiring for CP-2 Production Machine & Light														
	Wiring for CP-1 Production Machine & Light														
	Ut. Auxiliary Equipment Dismantlement														
	Water & Refrigerator Equipment														
	CP-2 Air Conditioning Equipment														
	CP-1 Air Conditioning Equipment														
	CP-2 Sp. Machine Dismantlement														
	CP-2 Sp. Machine Rehabilitation & Erection														
	CP-1, Dismantlement														
CP-1, Rehabilitation & Erection															

1-6 Investment and Financing:

The following points are required as the prerequisite for calculating the investing amount: The machinery and equipments to be purchased: The important machinery and equipment are eligible for the preferential treatment to be free from the import duty. Prices for the domestically-made machines and equipments are including installations and trial run works.

Works on the site: All is to be procured locally.

Materials required for the works: Domestic procurements are to supersede over the imports which are limited to the unavoidable cases.

Exchange rates: US\$ 1=Rpl, 040, ¥ 100=Rp431

Setting the case: The standard case is not to be set, but the following is set for reference:

Items Classification	Equity	Borrowing (long term)		Interest	
		Foreign currency	Local currency	Foreign currency	Local currency
Case 1	0%	80%	20%	8%	18%
Case 2	0%	80%	20%	6%	18%
Case 3	30%	56% (80)	14% (20)	10%	18%

1) Investment

Construction and Repair Costs:

Construction and repair costs for Cilacap Mill (fixed capital excluding interest accruing while under construction) is estimated to be 2,270 millions Rp (5.27 billion yen). When the interest accruing while under construction is added to this amount, the required fixed capitals are 23.6 billion Rp for the case 1, 23.4 billion Rp for the case 2 and 23.37 billion Rp for the case 3., of which breakdown are shown in Tables 4 and 5-1-3.

Working Capital:

The net amount of working capital will be 4 billion Rp for all of 1-3 cases, of which breakdown is shown in Table 6.

The ratio of foreign currencies against local currency in the total amount of investment is 76:24 for all cases of 1-3.

Table 4

SUMMARY OF CAPITAL COST ESTIMATE

Capital Requirements	Item	Foreign		Local	Total
		(¥1,000)	RP. 1,000		
A. Civil Works:					
	a. Buildings			1,285,200	1,285,200
	b. Structures			19,000	19,000
	Sub-total (A)			1,304,200	1,304,200
B. Equipment and Materials:					
	a. Spinning Machinery & Equipment	(3,469,750)	14,954,622	16,119	14,970,741
	b. Utility Equipment	(378,200)	1,630,042	611,680	2,241,722
	c. Electricity Equipment	(134,100)	577,971	711,390	1,349,361
	Sub-total (B)	(3,982,050)	17,162,635	1,399,189	18,561,824
C. Ocean Freight and Insurance		(286,335)	1,234,105		1,234,105
D. Porthandling and Local Freight				165,598	165,598
E. Erection Cost:					
	a. Maker Erection Supervising Fee	(79,950)	344,584	53,600	398,184
	b. Local Staff Erection Fee			37,282	37,282
	Sub-total (E)	(79,950)	344,584	90,882	435,466
F. Preoperational Expenses:					
	a. Engineering & Know-how Fee	(85,725)	369,475	20,800	390,275
	b. Grand Supervising & Training Fee	(64,650)	278,641	37,600	316,241
	c. Salaries Local Staff			212,566	212,566
	d. Electric Power			89,446	89,446
	Sub-total (F)	(150,375)	648,116	360,412	1,008,528
G. Base Cost Estimate		(4,498,710)	18,389,440 (85%)	3,320,281 (15%)	22,709,721 (100%)
	(ΣA ~ F)				
H. Interest During Construction:					
	a. Case-1	(181,435)	781,983 (88%)	108,986 (12%)	890,969 (100%)
	b. Case-2	(136,309)	587,490 (85%)	105,976 (15%)	693,466 (100%)
	c. Case-3	(153,408)	661,190 (100%)		661,190 (100%)
	(Including Preoperational Expenses)				
I. Total Fixed Capital Requirements					
	a. Case-1 (G + H.a)	(4,680,145)	20,171,423 (85%)	3,429,267 (15%)	23,600,690 (100%)
	b. Case-2 (G + H.b)	(4,635,019)	19,976,930 (85%)	3,426,257 (15%)	23,403,187 (100%)
	c. Case-3 (G + B.c)	(4,652,118)	20,050,630 (86%)	3,320,281 (14%)	23,370,911 (100%)
J. Working Capital					
	(Case 1 ~ 3 Sameness)	(194,520)	838,382 (21%)	3,196,986 (79%)	4,035,368 (100%)
K. Grand Total Financing Required					
	a. Case-1 (I.a + J)	(4,874,665)	21,009,805 (76%)	6,626,253 (24%)	27,636,058 (100%)
	b. Case-2 (I.b + J)	(4,829,539)	20,815,312 (76%)	6,623,243 (24%)	27,438,555 (100%)
	c. Case-3 (I.c + J)	(4,846,638)	20,889,012 (76%)	6,517,267 (24%)	27,406,279 (100%)

Table 5-1 TOTAL CAPITAL AND SOURCE OF FUND (CASE-1)

(Unit: RP.1,000)

Item	Before Operation	After Operation	Total	Ratio (%)
	0-Year	1st-Year		
<u>Capital Requirements</u>				
Fixed Capital				
Buildings	1,285,200		1,285,200	4.6
Structures	19,000		19,000	0.1
Machinery & Equipment	16,067,438	35,401	16,102,839	58.3
Utility Equipment	4,267,680	26,474	4,294,154	15.5
Preoperational Capital	1,899,497		1,899,497	6.9
Total Fixed Capital (A)	23,538,815	61,875	23,600,690	85.4
Working Capital (B)		4,035,368	4,035,368	14.6
Total (A+B)	23,538,815	4,097,243	27,636,058	100.0
<u>Source of Fund</u>				
Share Capital				
Long-term Loan (Foreign)	22,108,789		22,108,789	80.0
Long-term Loan (Local)	1,430,026	4,097,243	5,527,269	20.0
Total	23,538,815	4,097,243	27,636,058	100.0

Table 5-2 TOTAL CAPITAL AND SOURCE OF FUND (CASE-2)

(Unit: RP.1,000)

Item	Before Operation	After Operation	Total	Ratio (%)
	0-Year	1st-Year		
<u>Capital Requirements</u>				
Fixed Capital				
Buildings	1,285,200		1,285,200	4.7
Structures	19,000		19,000	0.1
Machinery & Equipment	16,067,438	35,401	16,102,839	58.7
Utility Equipment	4,267,680	26,474	4,294,154	15.6
Preoperational Capital	1,701,994		1,701,994	6.2
Total Fixed Capital (A)	23,341,312	61,875	23,403,187	85.3
Working Capital (B)		4,035,368	4,035,368	14.7
Total (A+B)	23,341,312	4,097,243	27,438,555	100.0
<u>Source of Fund</u>				
Share Capital				
Long-term Loan (Foreign)	21,950,777		21,950,777	80.0
Long-term Loan (Local)	1,390,535	4,097,243	5,587,778	20.0
Total	23,341,312	4,097,243	27,438,555	100.0

Table 5-3 TOTAL CAPITAL AND SOURCE OF FUND (CASE-3)

(Unit: RP.1,000)

Item	Before Operation	After Operation	Total	Ratio (%)	
	0-Year	1st-Year			
Capital Requirements					
Fixed Capital					
Buildings	1,285,200		1,285,200	4.7	
Structures	19,000		19,000	0.1	
Machinery & Equipment	16,067,438	35,401	16,102,839	58.7	
Utility Equipment	4,267,680	26,474	4,294,154	15.7	
Preoperational Capital	1,669,718		1,669,718	6.1	
Total Fixed Capital (A)	23,309,036	61,875	23,370,911	85.3	
Working Capital (B)		4,035,368	4,035,368	14.7	
Total (A+B)	23,309,036	4,097,243	27,406,279	100.0	
Source of Fund					
Share Capital	8,221,886		8,221,886	30.0	
Long-term Loan (Foreign)	15,087,150	260,368	15,347,518	56.0	80
Long-term Loan (Local)		3,836,875	3,836,875	14.0	20
Total	23,309,036	4,097,243	27,406,279	100.0	

Table 6 SUMMARY OF WORKING CAPITAL (CASE-1 ~ 3)

Item/Year	Time	Operating Year 1			Operating Year 2 - II		
		Local	Foreign	Total	Local	Foreign	Total
		RP.1,000	RP.1,000 (¥1,000)	RP.1,000	RP.1,000	RP.1,000 (¥1,000)	RP.1,000
A. CURRENT ASSETS:							
Cash							
Receivables	0.4 Months	710,326		710,326	821,955		821,955
Inventories	0.5 Months	887,907		887,907	1,027,444		1,027,444
Raw-Materials							
Cotton	2.5 Months		2,095,956 (486,301)	2,095,956		2,510,786 (582,549)	2,510,786
Polyester	0.5 Months	109,353		109,353	114,108		114,108
Packing Materials	1 Month	22,121		22,121	25,525		25,525
Semi-finished Goods	1 Month	816,383		816,383	913,925		913,925
Finished Goods	0.5 Months	910,096		910,096	995,833		995,833
Total Inventories		1,857,953	2,095,956 (486,301)	3,953,909	2,049,391	2,510,786 (582,549)	4,560,177
Total (A)		3,456,186	2,095,956 (486,301)	5,552,142	3,898,790	2,510,786 (582,549)	6,409,576
B. CURRENT LIABILITIES							
Trade Accounts Payable	1.5 Months	259,200	1,257,574 (291,781)	1,516,774	300,000	1,506,472 (349,529)	1,806,472
Total (B)		259,200	1,257,574 (291,781)	1,516,774	300,000	1,506,472 (349,529)	1,806,472
C. Net Working Capital (A-B)		2,196,986	838,382 (194,520)	4,035,368	3,598,790	1,004,314 (233,020)	4,603,104

2) Financing:

The required capitals for each of the case will be as follows:

	(Unit: 1,000Rp)		
	Case 1	Case 2	Case 3
Fixed Capitals	23,600,690	23,403,187	23,370,911
Working Capitals	4,035,368	4,035,368	4,035,368
<u>Total:</u>	<u>27,636,058</u>	<u>27,438,555</u>	<u>27,406,279</u>

In addition to the above, for the case 1 only, a short term loan will be required to be appropriated for the shortcoming in the working capital, and the term for borrowing this fund will be 6 years from the 2nd to the 7th years. The interest for the borrowing fund will be 18% to be refunded one year later, of which borrowing amount by fiscal year is shown in Table 7.

Source of Fund and Loaning Condition:

As the required source of fund to be appropriated at initial stage of the project (starting and second years), investments or long term loan is thought of. The cases 1 and 2 are based on an assumption that all required funds are borrowed, and the case 3 assumes that 30% is funded by equity and 70% by borrowed money. As for the investments, those by the government (issuing shares) and by own fund are probable, and for borrowing fund from outside, long term loan from foreign country is conceivable. Similarly, for domestic aspects it is assumed that the long term loan can be obtainable. The financing period is supposed to be common for both cases in foreign currencies and in local currency, where the term will be 12 years including maximum 2 years of grace of payment period for the capital sum with the refundment of the capital sum to be made for equal amount twice a year for 20 times.

Table 7 REPAYMENT SCHEDULE (SHORT TERM BORROWING)

CASE - 1

(Unit: RP. 1,000,000)

Year	Principal	Principal Repayment	Balance Unpaid	Interest (18%/Year)
2	15.0	0	15.0	2.7
3	370.0	15.0	370.0	66.6
4	470.0	370.0	470.0	84.6
5	370.0	470.0	370.0	66.6
6	400.0	370.0	400.0	72.0
7	200.0	400.0	200.0	36.0
8	0	200.0	0	0
Total	1,825.0	1,825.0	0	328.5

Remarks: 1) Interest: 18% annually
2) Repayment: Annual installment

1-7 Income, Cost and Financial Statements:

1) Sales Revenue:

The annual sales revenue for the initial year of the operation commencement is estimated at 21,309,768,000Rp, and their yearly sales revenue after second year and thereafter of the inauguration will be 24,658,645,000Rp.

2) Production Cost:

The major cost items are as follows;

Share of cost for the raw materials in the production cost is 70% on an average for 11 years, which is the largest share.

Share of cost for energies in the production cost is 12% on an average for 11 years, which is the highest next to the materials cost.

The unit costs for the utility services are Rp73.2/KWH for electricity and Rp220/1tr for fuel.

Technical assistance fee is treated as the cost accruing in the period from the effective date of the engineering contract to the commencement of operation being treated as the preoperational expenses, and that accruing after the commencement being treated as the manufacturing cost, and it is assessed that for a period including the initial full year and a part of the second year (about 7 months), the training by the trainers from the advanced countries in textile engineering should be required.

The method of depreciation is said to have been revised by a new regulation as from January, 1984, and practically the method by fixed amount according to the memorandum exchanged on 24th August, 1984 has been applied adopting the useful lives and depreciation ratio of which schedule is shown in Table 8, where it will be noted that the share of the depreciation cost in the production cost is about 9% on an average for 11 years.

As for the transfer of the head office cost, the expenses accrued in head office, Sandang II comprising of expenses for sales and general administration costs are to be distributed, which is estimated to be 327,288,000Rp for the initial year of the operation and 377,649,000Rp for normal years thereafter.

3) Calculations for Income and Cost:

As the prerequisite of the calculations, the life of the facilities for the financial calculation purpose is set as 11 years and the corporation tax is estimated to be at 35% at the maximum. Tables 9-1 ~ 3 indicates the cost calculations according to this condition.

The aggregate of the financial lives will be as follows;

<u>Items</u>	<u>Case 1</u>	<u>Case 2</u>	<u>Case 3</u>
Total Operating Profit	31.16 billions Rp	31.35 billions Rp	31.39 billions Rp.
Average Profit Ratio	11.6%	11.7%	11.7%
Total Income before Tax	13.55 billions Rp	16.95 billions Rp	17.48 billions Rp.
Average Profit Ratio	5.1%	6.3%	6.5%
Total Income after Tax	8.85 billions Rp	11.07 billions Rp	11.42 billions Rp
Average Profit Ratio	3.3%	4.1%	4.3%
Current Ratio Average	1.54	1.59	1.88
Quick Ratio Average	0.44	0.46	0.54

4) Financial Analysis:

If appraised in respect of the net present value, the project is feasible for all cases of 1-3;

<u>Discount Rate</u>	<u>Case 1</u>	<u>Case 2</u>	<u>Case 3</u>
13% (before tax)	1.0365 billions Rp	1.234 billions Rp	1.2663 billions Rp
12% (after tax)	0.6388 billions Rp	0.166 billions Rp	0.0895 billions Rp

Benefit cost ratio (after tax deduction) is as follows;

<u>Item</u>	<u>Case 1</u>	<u>Case 2</u>	<u>Case 3</u>
Discount Rate 12%	1.023	1.006	1.003
No Discount	1.94	1.91	1.91

Internal rate of return are as follows;

<u>Item</u>	<u>Case 1</u>	<u>Case 2</u>	<u>Case 3</u>
IRR before Tax	13.82%	13.98%	14.01%
IRR after tax	12.52%	12.14%	12.07%

Ratio in IRR before tax is getting higher in the order of the cases 3, 2 and 1. Adversely, ratio in IRR after tax is getting higher in the order of the cases 1, 2 and 3. Cause for these tendency is that the underlying condition for each of the case differs that is, the amounts for depreciation differ, amounts for interest differ, and amounts for corporation tax and payment commencement year differ. For the other indices, the calculated results for each case are, based on 11 years of the financial life, as follows;

<u>Item</u>	<u>Case 1</u>	<u>Case 2</u>	<u>Case 3</u>
Pay-back Period:			
Before Tax	5 years 11 Months	5 years 10 Months	5 years 11 Months
After Tax	5 years 11 Months	6 years 2 Months	6 years 2 Months
Average Ratio of Breakeven			
Capacity Utilization:	82.2%	77.8%	77.1%
Debt Service Coverage Ratio:			
Average Value	1.18	1.31	1.67

In respect of the fund operations, the value is getting lower in the order of the cases 3, 2 and 1, the aspects of which are indicated in Table 10-1-3.

5) Sensitivity Analysis and Comprehensive Appraisal:

In the above status of the Case 1, operation of this project remains questionable in respect of profitability and financing. Therefore, we shall analyze the sensitivity, changing the prerequisite as follows:

By enforcing very strict control over operations, waste ratio for total production processes will be saved by 1%. As the result, production will increase by 1% with the materials cost remained same. Having the same borrowing conditions as in the case 1 (interest: 8% for foreign currency and 18% for local currency), this new case is called "case 4". The result of calculations for the new case is as follows:

<u>Change in Conditions</u>	<u>IRR before Tax</u>	<u>IRR after Tax</u>
Sales Revenue: 1% up		
Variable Cost: 1% up (for packing materials and power cost only)	14.78%	13.16%

Internal rate of return are improved, as compared with the case 1, by 0.96% before tax and by 0.64% after tax.

Break-even capacity utilization to 89.6% after 4 years, which is improved by 4% from 93.6% of the case 1.

Conditions of financing is fairly improved and short term borrowing is not necessary. This condition is shown in Table 11.

As the result of comprehensive appraisal, the case 3 of 30% investment and 70% borrowing is considered to be the most ideal type in respect of all of financial indices. However, in case of all funds being borrowed in, also the case 2 can secure manageability as an enterprise, while the case 1 involves a problem in interest for the borrowed fund. Therefore, the problem can be settled in the case 4 which is the amended version of the case 1.

Table 8 DEPRECIATION SCHEDULE

(Unit: RP. 1,000,000)

(Case 1)

<u>Basis</u>	<u>Opening Values</u>	<u>Depreciation Rate</u> <u>(Straight-line Method)</u>
1) Buildings	1,285.2	Yearly 5% (Useful Lives 20 years)
2) Structures	19.0	Yearly 10% (Useful Lives 10 years)
3) Machinery and Equipment	16,102.8	Yearly 8 $\frac{1}{3}$ % (Useful Lives 12 years)
4) Utility Equipment	4,294.2	Yearly 10% (Useful Lives 10 years)
5) Preoperational Expenses	1,899.5	Yearly 20% (Useful Lives 5 years)
	<u>23,600.7</u>	

(Case 2)

<u>Basis</u>	<u>Opening Values</u>	<u>Depreciation Rate</u> <u>(Straight-line Method)</u>
1) Buildings	1,285.2	Yearly 5% (Useful Lives 20 years)
2) Structures	19.0	Yearly 10% (Useful Lives 10 years)
3) Machinery and Equipment	16,102.8	Yearly 8 $\frac{1}{3}$ % (Useful Lives 12 years)
4) Utility Equipment	4,292.2	Yearly 10% (Useful Lives 10 years)
5) Preoperational Expenses	1,702.0	Yearly 20% (Useful Lives 5 years)
	<u>23,403.2</u>	

(Case 3)

<u>Basis</u>	<u>Opening Values</u>	<u>Depreciation Rate</u> <u>(Straight-line Method)</u>
1) Buildings	1,285.2	Yearly 5% (Useful Lives 20 years)
2) Structures	19.0	Yearly 10% (Useful Lives 10 years)
3) Machinery and Equipment	16,102.8	Yearly 8 $\frac{1}{3}$ % (Useful Lives 12 years)
4) Utility Equipment	4,294.2	Yearly 10% (Useful Lives 10 years)
5) Preoperational Expenses	1,669.7	Yearly 20% (Useful Lives 5 years)
	<u>23,370.9</u>	

Table 9-1 PROJECTED INCOME STATEMENTS (CASE- 1)

(Unit : RP. 1,000,000)

Item / Year	1	2	3	4	5	6	7	8	9	10	11	Total
Production (Bale/Year)	27,854	32,140	32,140	32,140	32,140	32,140	32,140	32,140	32,140	32,140	32,140	349,254
Capacity Utilization (%)	87	100	100	100	100	100	100	100	100	100	100	-
A. <u>Sales Revenue</u>	21,309.8	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	267,895.8
B. <u>Variable Costs :</u>												
Raw-Materials	12,685.1	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	160,589.1
Packing Materials	265.5	306.3	306.3	306.3	306.3	306.3	306.3	306.3	306.3	306.3	306.3	3,328.5
Power Charge	2,304.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	27,407.3
Total Variable Costs (B)	15,254.9	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	191,324.9
C. <u>Fixed Costs :</u>												
Maintenance Expenses	157.9	333.0	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	5,288.8
Labour Expenses (Direct)	762.1	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	8,414.1
Labour Expenses (Indirect)	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	3,159.2
Other Expenses	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	2,128.5
Technical Assistance Fee	439.7	201.6	0	0	0	0	0	0	0	0	0	641.3
Depreciation	2,217.7	2,217.4	2,217.4	2,217.4	2,217.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1	21,680.4
Head Office Expenditures	327.3	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	4,103.3
Total Fixed Costs (C)	4,385.4	4,375.5	4,374.0	4,374.0	4,374.0	3,994.0	3,994.0	3,994.0	3,994.0	3,994.0	3,562.7	45,415.6
D. <u>Manufacturing Cost (B+C)</u>	19,640.3	21,982.5	21,981.0	21,981.0	21,981.0	21,601.0	21,601.0	21,601.0	21,601.0	21,601.0	21,169.7	236,740.5
E. <u>Operating Profit (A-D)</u>	1,669.5	2,676.1	2,677.6	2,677.6	2,677.6	3,057.6	3,057.6	3,057.6	3,057.6	3,057.6	3,488.9	31,155.3
F. <u>Financial Charges :</u>												
(i) Interest on L-T Debt (Foreign 8%)	1,768.7	1,724.5	1,547.6	1,370.7	1,193.8	1,017.0	840.1	663.2	486.4	309.5	132.6	11,054.1
(ii) Interest on L-T Debt (Local 18%)	994.9	970.1	870.7	771.1	671.7	572.1	472.7	373.1	273.7	174.1	74.7	6,218.9
(iii) Interest on S-T Debt (Local 18%)	0	2.7	66.6	84.6	66.6	72.0	36.0	0	0	0	0	328.5
Total Financial Charges (F)	2,763.6	2,697.3	2,484.9	2,226.4	1,932.1	1,661.1	1,348.8	1,036.3	760.1	483.6	207.3	17,601.5
G. <u>Total Cost of Sales (D+F)</u>	22,403.9	24,679.8	24,465.9	24,207.4	23,913.1	23,262.1	22,949.8	22,637.3	22,361.1	22,084.6	21,377.0	254,342.0
H. <u>Income Before Tax (E-F)</u>	-1,094.1	-21.2	192.7	451.2	745.5	1,396.5	1,708.8	2,021.3	2,297.5	2,574.0	3,281.6	13,553.8
I. <u>Corporation Tax (Max. 35%)</u>	0	0	0	0	89.9	482.8	592.1	701.5	798.1	894.9	1,142.6	4,701.9
J. <u>Net Income (H-I)</u>	-1,094.1	-21.2	192.7	451.2	655.6	913.7	1,116.7	1,319.8	1,499.4	1,679.1	2,139.0	8,851.9
K. <u>Accumulated Income</u>	-1,094.1	-1,115.3	-922.6	-471.4	184.2	1,097.9	2,214.6	3,534.4	5,033.8	6,712.9	8,851.9	-
L. <u>Ratios :</u>												
Operating Profit as % of Sales	7.8	10.9	10.9	10.9	10.9	12.4	12.4	12.4	12.4	12.4	14.1	11.6
Income before Tax as % of Sales	-5.1	-0.1	0.8	1.8	3.0	5.7	6.9	8.2	9.3	10.4	13.3	5.1
Income after Tax as % of Sales	-5.1	-0.1	0.8	1.8	2.7	3.7	4.5	5.4	6.1	6.8	8.7	3.3

Table 9-2 PROJECTED INCOME STATEMENTS (CASE-2)

(Unit : RP. 1,000,000)

Item / Year	1	2	3	4	5	6	7	8	9	10	11	Total
Production (Bale/Year)	27,854	32,140	32,140	32,140	32,140	32,140	32,140	32,140	32,140	32,140	32,140	349,254
Capacity Utilization (%)	87	100	100	100	100	100	100	100	100	100	100	-
A. Sales Revenue	21,309.8	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	267,895.8
B. Variable Costs :												
Raw-Materials	12,685.1	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	160,589.1
Packing Materials	265.5	306.3	306.3	306.3	306.3	306.3	306.3	306.3	306.3	306.3	306.3	3,328.5
Power Charge	2,304.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	27,407.3
Total Variable Costs (B)	15,254.9	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	191,324.9
C. Fixed Costs :												
Maintenance Expenses	157.9	333.0	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	5,288.8
Labour Expenses (Direct)	762.1	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	8,414.1
Labour Expenses (Indirect)	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	3,159.2
Other Expenses	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	2,128.5
Technical Assistance Fee	439.7	201.6	0	0	0	0	0	0	0	0	0	641.3
Depreciation	2,178.2	2,177.9	2,177.9	2,177.9	2,177.9	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1	21,482.9
Head Office Expenditures	327.3	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	4,103.3
Total Fixed Costs (C)	4,345.9	4,336.0	4,334.5	4,334.5	4,334.5	3,994.0	3,994.0	3,994.0	3,994.0	3,994.0	3,562.7	45,218.1
D. Manufacturing Cost (B+C)	19,600.8	21,943.0	21,941.5	21,941.5	21,941.5	21,601.0	21,601.0	21,601.0	21,601.0	21,601.0	21,169.7	236,543.0
E. Operating Profit (A-D)	1,709.0	2,715.6	2,717.1	2,717.1	2,717.1	3,057.6	3,057.6	3,057.6	3,057.6	3,057.6	3,488.9	31,352.8
F. Financial Charges :												
(i) Interest on L-T Debt (Foreign 6%)	1,317.0	1,284.1	1,152.5	1,020.7	889.1	757.3	625.7	493.9	362.2	230.5	98.8	-8,231.8
(ii) Interest on L-T Debt (Local 18%)	987.8	963.1	864.3	765.5	666.7	568.1	469.3	370.5	271.7	172.9	74.1	6,174.0
(iii) Interest on S-T Debt (Local 18%)	0	0	0	0	0	0	0	0	0	0	0	0
Total Financial Charges (F)	2,304.8	2,247.2	2,016.8	1,786.2	1,555.8	1,325.4	1,095.0	864.4	633.9	403.4	172.9	14,405.8
G. Total Cost of Sales (D+F)	21,905.6	24,190.2	23,958.3	23,727.7	23,497.3	22,926.4	22,696.0	22,465.4	22,234.9	22,004.4	21,342.6	250,948.8
H. Income Before Tax (E-F)	-595.8	468.4	700.3	930.9	1,161.3	1,732.2	1,962.6	2,193.2	2,423.7	2,654.2	3,316.0	16,947.0
I. Corporation Tax (Max. 35%)	0	0	194.5	319.8	400.5	600.3	680.9	761.6	842.3	923.0	1,154.6	5,877.5
J. Net Income (H-I)	-595.8	468.4	505.8	611.1	760.8	1,131.9	1,281.7	1,431.6	1,581.4	1,731.2	2,161.4	11,069.5
K. Accumlated Income	-595.8	-127.4	378.4	989.5	1,750.3	2,882.2	4,163.9	5,595.5	7,176.9	8,908.1	11,069.5	-
L. Ratios :												
Operating Profit as % of Sales	8.0	11.0	11.0	11.0	11.0	12.4	12.4	12.4	12.4	12.4	14.1	11.7
Income before Tax as % of Sales	-2.8	1.9	2.8	3.8	4.7	7.0	8.0	8.9	9.8	10.8	13.4	6.3
Income after Tax as % of Sales	-2.8	1.9	2.1	2.5	3.1	4.6	5.2	5.8	6.4	7.0	8.8	4.1

Table 9-3 PROJECTED INCOME STATEMENTS (CASE-3)

(Unit : RP. 1,000,000)

Item / Year	1	2	3	4	5	6	7	8	9	10	11	Total
Production (Bale/Year)	27,854	32,140	32,140	32,140	32,140	32,140	32,140	32,140	32,140	32,140	32,140	349,254
Capacity Utilization (%)	87	100	100	100	100	100	100	100	100	100	100	-
A. <u>Sales Revenue</u>	21,309.8	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	24,658.6	267,895.8
B. <u>Variable Costs :</u>												
Raw-Materials	12,685.1	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	160,589.1
Packing Materials	265.5	306.3	306.3	306.3	306.3	306.3	306.3	306.3	306.3	306.3	306.3	3,328.5
Power Charge	2,304.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	2,510.3	27,407.3
Total Variable Costs (B)	15,254.9	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	17,607.0	191,324.9
C. <u>Fixed Costs :</u>												
Maintenance Expenses	157.9	333.0	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	5,288.8
Labour Expenses (Direct)	762.1	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	8,414.1
Labour Expenses (Indirect)	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	3,159.2
Other Expenses	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	2,128.5
Technical Assistance Fee	439.7	201.6	0	0	0	0	0	0	0	0	0	641.3
Depreciation	2,171.9	2,171.4	2,171.4	2,171.4	2,171.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1	21,450.6
Head Office Expenditures	327.3	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	4,103.3
Total Fixed Costs (C)	4,339.6	4,329.5	4,328.0	4,328.0	4,328.0	3,994.0	3,994.0	3,994.0	3,994.0	3,994.0	3,562.7	45,185.8
D. <u>Manufacturing Cost (B+C)</u>	19,594.5	21,936.5	21,935.0	21,935.0	21,935.0	21,601.0	21,601.0	21,601.0	21,601.0	21,601.0	21,169.7	236,510.7
E. <u>Operating Profit (A-D)</u>	1,715.3	2,722.1	2,723.6	2,723.6	2,723.6	3,057.6	3,057.6	3,057.6	3,057.6	3,057.6	3,488.9	31,385.1
F. <u>Financial Charges :</u>												
(i) Interest on L-T Debt (Foreign 10%)	1,534.8	1,496.4	1,343.0	1,189.5	1,036.0	882.5	729.0	575.6	422.1	268.6	115.1	9,592.6
(ii) Interest on L-T Debt (Local 18%)	690.6	673.3	604.2	535.1	466.1	397.0	328.0	258.9	189.9	120.8	51.8	4,315.7
(iii) Interest on S-T Debt (Local 18%)	0	0	0	0	0	0	0	0	0	0	0	0
Total Financial Charges (F)	2,225.4	2,169.7	1,947.2	1,724.6	1,502.1	1,279.5	1,057.0	834.5	612.0	389.4	166.9	13,908.3
G. <u>Total Cost of Sales (D+F)</u>	21,819.9	24,106.2	23,882.2	23,659.6	23,437.1	22,880.5	22,658.0	22,435.5	22,213.0	21,990.4	21,336.6	250,419.0
H. <u>Income Before Tax (E-F)</u>	-510.1	552.4	776.4	999.0	1,221.5	1,778.1	2,000.6	2,223.1	2,445.6	2,668.2	3,322.0	17,476.8
I. <u>Corporation Tax (Max. 35%)</u>	0	9.6	265.7	343.7	421.5	616.3	694.2	772.1	850.0	927.9	1,156.7	6,057.7
J. <u>Net Income (H-I)</u>	-510.1	542.8	510.7	655.3	800.0	1,161.8	1,306.4	1,451.0	1,595.6	1,740.3	2,165.3	11,419.1
K. <u>Accumulated Income</u>	-510.1	32.7	543.4	1,198.7	1,998.7	3,160.5	4,466.9	5,917.9	7,513.5	9,253.8	11,419.1	-
L. <u>Ratios :</u>												
Operating Profit as % of Sales	8.0	11.0	11.0	11.0	11.0	12.4	12.4	12.4	12.4	12.4	14.1	11.7
Income before Tax as % of Sales	-2.4	2.2	3.1	4.1	5.0	7.2	8.1	9.0	9.9	10.8	13.5	6.5
Income after Tax as % of Sales	-2.4	2.2	2.1	2.7	3.2	4.7	5.3	5.9	6.5	7.1	8.8	4.3

Table 10-1 SOURCES AND APPLICATIONS OF FUNDS (CASE-1)

Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
SOURCES												
Profit before interest		1,669.5	2,676.1	2,677.6	2,677.6	2,677.6	3,057.6	3,057.6	3,057.6	3,057.6	3,057.6	3,488.9
Depreciation		2,217.7	2,217.4	2,217.4	2,217.4	2,217.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
Share Capital	0											
Loans	23,538.8	4,097.3	*) 15.0	*)370.0	*)470.0	*)370.0	*)400.0	*)200.0				
Working Capital (Creditors)		1,516.8	289.7									
Total Sources	23,538.8	9,501.3	5,198.2	5,265.0	5,365.0	5,265.0	5,295.0	5,095.0	4,895.0	4,895.0	4,895.0	4,895.0
APPLICATIONS												
Fixed Capital	23,538.8	61.9										
Working Capital (Debtors)		5,552.2	857.4									
Repayment of Principal			2,763.7	2,778.6	3,133.6	3,233.6	3,133.6	3,163.6	2,963.6	2,763.6	2,763.6	2,763.6
Interest		2,763.6	2,697.3	2,484.9	2,226.4	1,932.1	1,661.1	1,348.8	1,036.3	760.1	483.6	207.3
Corporation Tax						89.9	482.8	592.1	701.5	798.1	894.9	1,142.6
Surplus Disposal												
Total Applications	23,538.8	8,377.7	6,318.4	5,263.5	5,360.0	5,255.6	5,277.5	5,104.5	4,701.4	4,321.8	4,142.1	4,113.5
Net Cash Inflow	0	1,123.6	-1,120.2	1.5	5.0	9.4	17.5	-9.5	193.6	573.2	752.9	781.5
Accumulated Reserves	0	1,123.6	3.4	4.9	9.9	19.3	36.8	27.3	220.9	794.1	1,547.0	2,328.5

Remark: *) = Bank Borrowing

Table 10-2 SOURCES AND APPLICATIONS OF FUNDS (CASE-2)

(Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
SOURCES												
Profit before interest		1,709.0	2,175.6	2,717.1	2,171.1	2,717.1	3,057.6	3,057.6	3,057.6	3,057.6	3,057.6	0,388.9
Depreciation		2,178.2	2,177.9	2,177.9	2,177.9	2,177.9	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
Share Capital	0											
Loans	23,341.3	4,097.3										
Working Capital (Creditors)		1,516.8	289.7									
Total Sources	23,341.3	9,501.3	5,183.2	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0
APPLICATIONS												
Fixed Capital	23,341.3	61.9										
Working Capital (Debtors)		5,552.2	857.4									
Repayment of Principal			2,742.6	2,744.0	2,744.0	2,744.0	2,744.0	2,744.0	2,744.0	2,744.0	2,744.0	2,744.0
Interest		2,304.8	2,247.2	2,016.8	1,786.2	1,555.8	1,325.4	1,095.0	864.4	633.9	403.4	172.9
Corporation Tax				194.5	319.8	400.5	600.3	680.9	761.6	842.3	923.0	1,154.6
Surplus Disposal												
Total Applications	23,341.3	7,918.9	5,847.2	4,955.3	4,850.0	4,700.3	4,669.7	4,519.9	4,370.0	4,220.2	4,070.4	4,071.5
Net Cash Inflow	0	1,582.4	-664.0	-60.3	45.0	194.7	225.3	375.1	525.0	674.8	824.6	823.5
Accumulated Reserves	0	1,582.4	918.4	858.1	903.1	1,097.8	1,323.1	1,698.2	2,223.2	2,898.0	3,722.6	4,546.1

Table 10-3 SOURCES AND APPLICATIONS OF FUNDS (CASE-3)

(Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
SOURCES												
Profit before interest		1,715.3	2,722.1	2,723.6	2,723.6	2,723.6	3,057.6	3,057.6	3,057.6	3,057.6	3,057.5	3,488.9
Depreciation		2,171.9	2,171.4	2,171.4	2,171.4	2,171.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
Share Capital	8,221.9	4,097.3										
Loans	15,087.1											
Working Capital (Creditors)		1,516.8	289.7									
Total Sources	23,309.0	9,510.3	5,183.2	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0
APPLICATIONS												
Fixed Capital	23,309.0	61.9										
Working Capital (Debtors)		5,552.2	857.4									
Repayment of Principal			1,918.8	1,918.4	1,918.4	1,918.4	1,918.4	1,918.4	1,918.4	1,918.4	1,918.4	1,918.4
Interest		2,225.4	2,169.7	1,947.2	1,724.6	1,502.1	1,279.5	1,057.0	824.5	612.0	389.4	166.9
Corporation Tax			9.6	265.7	343.7	421.5	616.3	694.2	772.1	850.0	927.9	1,156.7
Surplus Disposal												
Total Applications	23,309.0	7,839.5	4,955.5	4,131.3	3,986.7	3,842.0	3,814.2	3,669.6	3,525.0	3,380.4	3,235.7	3,242.0
Net Cash Inflow	0	1,661.8	227.7	763.7	908.3	1,053.0	1,080.8	1,225.4	1,370.0	1,514.6	1,659.3	1,653.0
Accumulated Reserves	0	1,661.8	1,889.5	2,653.2	3,561.5	4,614.5	5,695.3	6,920.7	8,290.7	9,805.3	11,464.6	13,117.6

Table 11 SOURCES AND APPLICATIONS OF FUNDS (CASE-4)

(Unit: RP.1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
<u>SOURCES</u>												
Profit before interest		1,856.9	2,894.5	2,896.0	2,896.0	2,896.0	3,276.0	3,276.0	3,276.0	3,276.0	3,276.0	3,707.3
Depreciation		2,217.7	2,217.4	2,217.4	2,217.4	2,217.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
Share Capital	0											
Loans	23,538.8	4,097.3										
Working Capital (Creditors)		1,516.8	289.7									
Total Sources	23,538.8	9,688.7	5,401.6	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4
<u>APPLICATIONS</u>												
Fixed Capital	23,538.8	61.9										
Working Capital (Debtors)		5,552.2	857.4									
Repayment of Principal			2,763.7	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6
Interest		2,763.6	2,794.6	2,418.3	2,141.8	1,865.5	1,589.1	1,312.8	1,036.3	760.1	483.6	207.3
Corporation Tax					177.8	354.7	584.4	681.1	777.9	874.6	971.3	1,219.0
Surplus Disposal												
Total Applications	23,538.8	8,377.7	6,315.7	5,181.9	5,083.2	4,983.8	4,937.1	4,757.5	4,577.8	4,398.3	4,218.5	4,189.9
Net Cash Inflow	0	1,311.0	-914.1	-68.5	30.2	129.6	176.3	355.9	535.6	715.1	894.9	923.5
Accumulated Reserves	0	1,311.0	396.9	328.4	358.6	488.2	664.5	1,020.4	1,556.0	2,271.1	3,166.0	4,089.5

2 Conclusion:

It can be said that the execution of the renovation project for Cilacap Spinning Mill should be efficient for stabilizing employment conditions in Cilacap area, contribution to the local society and the export promotion policy for non-petrochemical products which the Indonesian government is aiming at. In addition, the effect of influence of the technologies brought up in newly erected model factory under government-run Sandang II Spinning Group to other factories is weighed to be enormous. Further, this will be the model case for improving the government-run spinning mills which are still equipped with older facilities.

In Concrete terms;

- 1) Due to low productivity, poorer quality or difficulties in obtaining parts in factories with old facilities installed 20 to 30 years before, there is possibility of scaling down of mill size or suspension of mill's operation due to deterioration in the profitability. Renovation to make the most of experiences and techniques of those mill workers working in the present Mill is indispensable.
- 2) Direct and indirect contributions to developments of the local society in its fields of transportation and commerce through the renovation for the Mill and subsequent permanent operations. That is to say, increase in demand for the packing and its related materials accompanied with the increase in deliveries of products from the Mill operated, increase in demand for construction materials and bringing up construction engineering works induced by the renovation for the Mill, should be expectable.
- 3) The government has established their export target to double values for non-petrochemical exports to attain more than 10 billion dollars in the 4th 5-years plan. What the government is most expecting consists mainly of 33 items, of which 9 items including textiles are considered to be the important ones.
As for the textiles, the major items for export will be the cloth and sewn product, however, in order to maintain the stable quality, it should be needless to say that yarns of high quality are required.
- 4) That by the renovation into modern spinning mill, the high quality products are produced with the optimum cost should make up sound foundation for the government-run Sandang II Spinning Group as the Champion Mill, which encourages other mills for their improvements in technologies and influences them to improve their natures.
Further, we consider that the knowledge for the textile mills obtained through effecting the renovation must be useful in improving and developing older facilities now equipped in the government-run spinning mills in future.
- 5) Although the foundation of industries in Cilacap city is yet to be brought up more and more, from the viewpoint that the city is situated in the center of Java island and the only one harbor city along the coast facing the Indian Ocean, it is estimated that the city will be growing in greater stride as the industrial city. Particularly, in respect of a spinning mill, having the importing harbor for large amount of the raw cottons at its nearest location, the Mill is in a very advantageous position in respect of attaining reduction in its transportation cost for the materials.

On the other hand, in respect of the finance, the following points are considered to be disadvantageous for the Mill's profitability:

- 1) Price of raw material
- 2) Interest on borrowed fund
- 3) Head office cost and labour costs in auxiliary and administration departments.

Nevertheless, also in order to take a role for attaining aims of the 4th 5-year plan, executing this project is considered to be very significant.

3 Recommendation:

In order that the modern spinning mill is developed again through the renovation project and the profitability is improved while higher productivity and quality are maintained, the following points must be had regards to:

1) Decrease in Materials Prices:

Share of the materials cost in production cost in normal fiscal years is observed to be about 68%. Therefore, in order to reduce the material price, especially the cotton price, improvements in purchasing pattern, selection of places of origin and improvements in accumulating methods are required. In addition, by strict enforcement of cotton tests, improvements in cotton blending techniques as well as in yield should be aimed at.

2) Reduction of Interest on Borrowed Fund:

It is required to find out the measure to reduce the interest on borrowed funds for investment on the fixed assets, starting cost and working capital. In case of the all funds borrowed in, the condition of 6% to 10% interest on long term debt in foreign currency and 18% interest on long term debt in local currency will worsen the profitability, fall short of the working capital, and may invite such situation where legal appropriation of the profit cannot be made. Consequently, if any dividend to the shareholders is expected, the average interest on the long term debt shall be less than 8%.

3) Application of the Preferential Measures and Special Privilege:

In order to decrease the cost for the renovation and improve profitability in finance, it is considered necessary that the preferential measures and special privileges are given to the fixed asset tax, business tax, as well as to treatment of dividend for shareholders.

4) Reduction of the Head Office Cost and Labour Costs in Auxiliary and Administration Department:

In order to attain higher labour productivity, it is considered necessary that the head office costs is rationalized to alleviate the burden on the Mill. On the other hand, at the Mill side, the rationalization of personnels set up for the production department has been incorporated in this project, while that for the auxiliary and administrative departments are to remain present status due to strong wishes from the departments concerned. However, also in this respect, the rationalization should be carried out in near future to reduce the cost required.

5) Introduction and Transfer of Technologies of Foreign Countries:

For the development of modern mill by the renovation, a chain of high individual technology as well as the comprehensive engineering power covering from the fundamental design to the detailed design and further to the process control, should be required. Further, to maintain competitive mill operation after completion of the Mill, higher controlling techniques for the spinning operations should be required. Even after the term of the contracted technical assistance by the foreign countries being incorporated in this project having been expired, the continuous introduction of the required technologies from the foreign countries and their transfer should be sought for.

**FEASIBILITY STUDY REPORT
ON THE PROJECT FOR RENOVATION OF
THE CILACAP SPINNING MILL
IN THE REPUBLIC OF INDONESIA**

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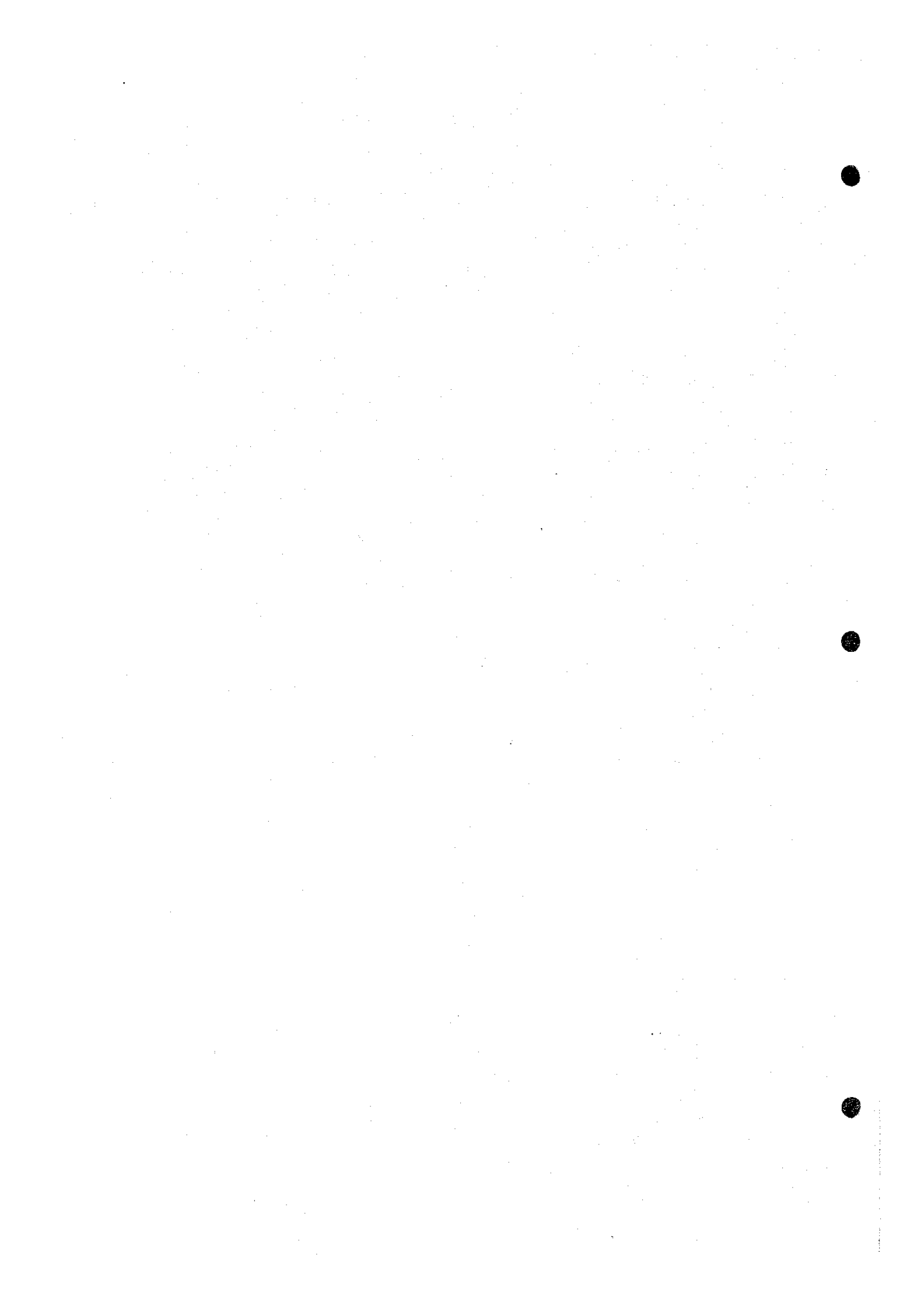
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ABBREVIATIONS

<u>UNIT</u>		<u>GENERAL</u>	
US\$	American Dollar	CP-1	Cilacap No.1 Mill
Rp	Indonesian Rupiah	CP2	Cilacap No.2 Mill
¥	Japanese Yen	RPM, rpm	Revolution per Minute
mm	Millimetre	D.B.	Dry bulb
cm	Centimetre	W.B.	Wet bulb
m	Metre	CV%	Coefficient of Variation
km	Kilometre	U%	Uster %
in, "	Inch	IPI	Imperfection Indicator
mm ²	Square Millimetre	SGM	Strict Good Middling
cm ²	Square Centimetre	GM	Good Middling
m ²	Square Metre	SM	Strict Middling
km ²	Square Kilometre	M	Middling
m ³	Cubic Metre	SLM	Strict Low Middling
ℓ	Litre	LM	Low Middling
mg	Milligramme	SGO	Strict Good Ordinary
g	Gramme	GO	Good Ordinary
kg	Kilogramme	BG	Below Grade
ton, t	Ton	FOB	Free on Board
lb, LB	Pound	CIF	Cost, Insurance and Freight
gr	Grain	C&F	Cost and Freight
OZ	Ounce	IRR	Internal Rate of Return
psi	per Square inch	ROE	Return on Equity
ppm	Parts per Million	GDP	Gross Domestic Products
cal	Calorie	JIS	Japanese Industrial Standards
Kcal	Kilocalorie	HASS	Japanese Air-conditioning & Sanitary Standards
USRT	US Refrigerating Ton	LNG	Liquid Natural Gas
ph	Potential of Hydrogen	PLN	National Electric Power Company
LX	Lux	CB	Circuit Breaker
mmAq	Millimetre Aqua (H ₂ O)	VCB	Vacuum Circuit Breaker
h, hr	Hour	OCB	Oil Circuit Breaker
min	Minute	FL	Fluorescent Lamp
D, d	Denier	DC	Direct Current
's, Ne	English Yarn Count	NFB	No Fuse Breaker
tex	Tex System Yarn Count	H.T.	High Tension
Bale,	400 pounds	L.T.	Low Tension
V	Volt	φ	(Mechanic) Diameter
KV	Kilovolt	φ, p	(Electric) Phase
A	Ampere	S	Steel Structure
VA	Volt-ampere	RC	Reinforced Concrete Structure
KVA	Kilovolt-ampere		
W	Watt		
KW	Kilowatt		
KWH	Kilowatt-hour		
Hz	Hertz		



1 HISTORY AND TRANSITIONS OF CILACAP SPINNING MILL AND ITS PERIMETRICAL CONDITION

1-1 History and Transitions of Cilacap Cotton Spinning Mill

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1-1 History and Transitions of Cilacap Cotton Spinning Mill

1-1-1 Years 1950 ~ 1960:

When the government had planned the urgent 4-years development project in 1950, the project contained construction of the initial spinning mill (No. 1 Cilacap mill) of 30,000 spindles level in Cilacap.

In 1952, under control of the Ministry of Economics, the Republic of Indonesia, preparations for the mill construction was commenced.

In 1951, a contract for purchasing machineries from Japan was concluded by the Ministry of Economics, and at commencement of the mill construction in 1953, the control was shifted from the Ministry of Economics to the National Industrial Bank (BIN).

The construction of the No. 1 Cilacap mill was commenced in full swing in 1953, and its formal operation was commenced in October, 1956. This spinning mill of 30,000 spindles class equipped with major machineries of Japanese make started for production of single and doubled cotton weaving yarns of 20 ~ 30 yarn counts.

The registered name for the mill was Pabrik Pemintalan Kapas Cilacap (Cilacap Cotton Spinning Mill), which is subsidiary company of BIN, and its establishment was under legal status of Limited Liability company.

In 1957, though small in size, machineries of doubler and twisting frame (both made in Japan) were additionally installed, which made the mill capable of producing sewing threads for cement bags, etc.

In accordance with the government ordinance enacted in 1960, the company's status was shifted to a member of "Djantra Yasa", a state enterprise and its formal transfer from BIN to the Industrial Ministry was carried out on 30th December, 1960.

1-1-2 Years 1961 ~ 1970:

By government ordinance of 1961, the company was characterized as the mill of independent profit system although legally this was not reflected, but was still under control of the state enterprise "Djantra Yasa".

In 1961, following proposal by board of directors of BIN, a big expansion to construct a new mill of 30,000 spindles class was decided. This new mill was called as Cilacap No. 2 mill, which was completed in 1963. This No. 2 mill equipped with production, air-conditioning and generating equipments of Japanese makes went into the formal operation in September, 1963.

By the government ordinance of 1964, the company was enlisted for a member of mills of "PINDA SANDANG JATENG" in Central Java under control of "PAPIPDA", and consequently was placed under control of local government (Central Java State), and the Ministry of Home Affairs.

1-1-3 Years 1970 ~ 1983:

In 1969, following the results of feasibility study survey conducted through collaboration of Japanese Government, remodelling plan of Cilacap No. 2 mill for production of polyester cotton blended yarns was taking shape. In 1970, the board of directors of "PINDA SANDANG" decided to effect this remodelling plan, and it was decided to make preparations for the earlier execution.

By assistances rendered from the DITJEN PERINDUS TRIAN TEKSTIL (Textile Industry Bureau), BAPPENAS (Planning Bureau) and Japanese government, fund preparation for remodelling 9,600 spindles and yarn dyeing facilities was made.

In the beginning of 1971, the remodelling works of Cilacap No. 2 mill was commenced, and in June, 1972 the formal operation was started by Central Java State Government.

By 1975, Cilacap mill had been under control of "PINDA SANDANG JATENG" in Central Java, however, in 1976 the mill was positioned as a member of "PERUSAHAAN DAERAH SANDANG JATENG" in Central Java.

1-1-4 Years from 1983 up to now:

On 14th April, 1983, by presidential ordinance, Cilacap mill was transferred to the Central Government and went under control of the Ministry of Industries, and then became a member mill of "P.T. INDUSTRI SANDANG II" (government-run) whose head office resides in Surabaya.

1-2 Cilacap Mill's Position in Sandang II

1-2-1 Scope of Facilities and Production Volume:

Numbers of spinning mills (including weaving) owned by Sandang II are 10, of which numbers of facility equipped and actual production results (monthly average for January to June, 1984 period) are shown in Table 1.

Table 1 Numbers of Facilities and Production Volume per Mill in Sandang II Group

Items Mill Names	No. of Facilities		Production Volume	
	No. of spindles	No. of looms	Bales/Month	1,000m/month
* Patal Secang	36,372	—	1,256	—
* Patal Lawang	37,984	—	1,342	—
* Patal Grati	36,372	—	1,374	—
* Patal Tohpati	20,400	—	862	—
* Patal Cilacap	60,000	—	1,168	—
** Pabriteks Tegal	30,236	1,000	574	1,267
*** Patun Muriateks	—	196	—	287
*** Patun Infiteks	—	210	—	274
**** Patun Madurateks	—	169	—	216
**** Patun Makateks	—	85	—	160
Total	221,364	1,660	6,576	2,204

Note: * Spinning Mill **Spinning, Weaving & Dyeing/Finishing Mill

*** Weaving & Dyeing/Finishing Mill **** Weaving Mill

As it is clear from the above, despite scope of facilities equipped at Cilacap mill is the largest in the state-run Sandang II Spinning Co., its production volume is observed to be extremely small.

Having major spinning yarn number counts of 20^s and 30^s, Cilacap mill should produce output of several times more than the above as its standard output volume. Surely, the current operational situation is observed to be the worst one. In the beginning of 1984, the total numbers of spindles in Indonesian spinning facilities were 2,545,770 spindles. (Source taken from Indonesian Spinning Association).

Consequently, Sandang II has 9% share of total facilities in Indonesia, which, when combined with the facilities owned by another state-run Spinning Sandang I (with 226,728 spindles equipped), will occupy as large as about 18% in total Indonesian facilities.

1-2-2 Numbers of Employees:

Since the company was established in 1953, the facilities increased to 30,000 spindles in 1956 and to 60,000 spindles in 1963.

On the other hand, however, numbers of employees increased to about 1,100 in 1957, to 2,300 in 1963 and to 3,000 to the maximum in 1968, then gradually decreased to 2,700 in 1975, to 2,600 in 1980 and down to 2,500 in 1982. In 1983, for preparation for transfer of its management from state-run to government-run, a policy of decreasing numbers of employees has been adopted, by which the numbers has drastically been decreased to 1,100 in 1983 and is maintained at this level up to now.

Throughout 1960s and up to middle of 1970s, the company developed very smoothly and flourished, which is also clear from transition of employee numbers in the period. Now, the brilliant image of Cilacap which was then No. 1 spinning mill in Indonesia and contributed local areas by providing with vast employment chances, is gone. Now it is the time when the most importance should be attached to profitability and principle of fewer people of superior ability shall be penetrated, and it is considered that this principle will lead to the employment stability of the employees in the end.

The total numbers of employees in 10 mills of Sandang II amount to 6,450, out of which the numbers of employees at Cilacap mill share 17% which is the largest following Pabriteks Tegal. On the other hand, Sandan I has about 6,000 in its employment, which is about same as Sandang II.

1-2-3 Profitability:

Table 2 indicates gross profit on sales of 10 mills of Sandang II group over January – June 1984 period. (Data from Sandang II).

Although there are partially some points where calculation method for the gross profit on sales is not clear, even so, the profitability comparison among each mill is considered to be possible, from which it may be said that only Cilacap mill is suffering loss, resulting in big burden on the present Sandang II. In order to remove the disgrace of the maximum scope of facility and maximum extent of loss and to revive once again, earlier fundamental and efficient operation should be required. In order to achieve this aim, not only endeavours by Sandang II head office, but also powerful back-up by the country itself would be required. It is needless to say that the revival of Cilacap mill will no doubt contribute to improvement in profitability of Sandang II as a whole, and at the same time, it surely serves as an good impetus to the other mills in the group to level up all mills in Sandang II group.

Table 2 Gross Profit on Sales of Sandang II Units (Jan. – Jun. 1984)

(Unit: Rp. 1,000)

	Unit/Item	East Unit	West Unit	Total
1	Patal Secang	371,602	–	371,602
2	Patal Grati	379,704	–	379,704
3	Patal Lawang	498,613	–	498,613
4	Patal Tohpati	538,077	–	538,077
5	Patun Madurateks	12,829	–	12,829
6	Patun Makateks	58,413	–	58,413
7	Patal Cilacap	–	–111,169	–111,169
8	Pabriteks Tegal	–	156,090	156,090
9	Patun Muriateks	–	47,910	47,910
10	Patun Infiteks	–	4,713	4,713
Total Profit/Loss		1,859,238	97,544	1,956,782
Selling & Managing Expenses		–533,775	–132,910	–666,685
Profit before Tax		1,325,464	–35,366	1,290,097

1-3 Conditions of Location

1-3-1 Population and Industries in Cilacap City

Cilacap city is the only one harbour town which is opening to the Indian Ocean and is locating at approximately 300 Km east-southeast of Jakarta City and at latitude 7°45' South and at longitude 109°00' East.

The population of the city was approximately 174,000 people at the end of 1983, which was about 0.7% of Central Java State and about 12.9% of Cilacap District.

Table 3 Population and Population Density

	Population	Density	Year
Cilacap City	173,700	3,466 people/Km ²	1983
Cilacap District	1,348,600	629 people/Km ²	1983
Central Java State	26,610,500	777 people/Km ²	1983
Java Island Total	96,892,900	733 people/Km ²	1983
Indonesia Total	158,082,700	83 people/Km ²	1983

Although the growth rate of population is 2.3% in the whole Indonesia, that of Cilacap City has been 1.3% on average, which is very low, since 1970. It is supposed to be due to the fact that the infrastructure for the industry has not been established sufficiently and also due to the transmigration policy to other islands of the Government.

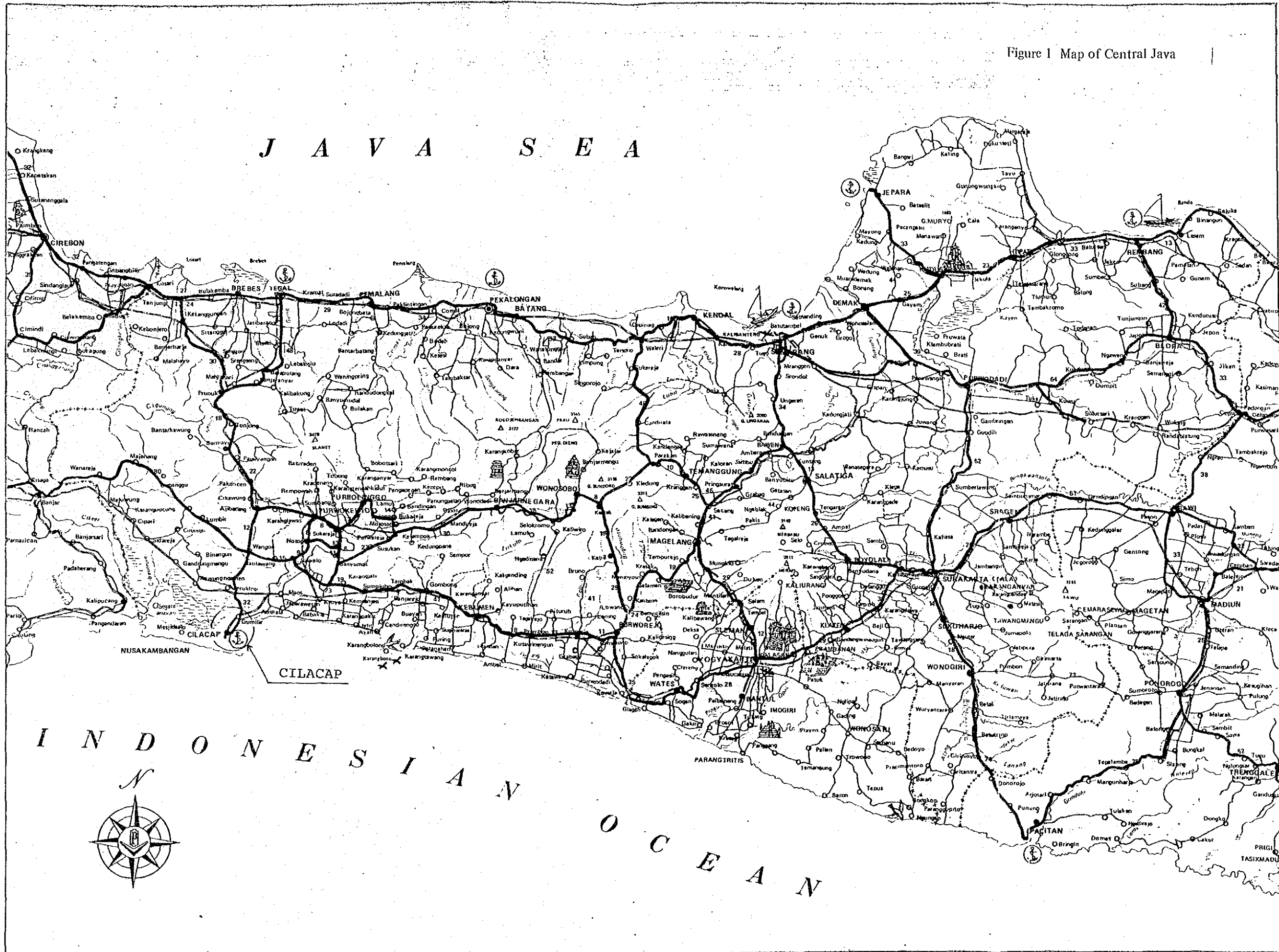
The industries in the Cilacap city are still in their early days. The major factories in the city are Cilacap Spinning Mill, which is the mill for this innovation project, Nusantara Cement Factory of 550 workers and production capacity of 7,000 tonnes per year, Pertamina-Cilacap Refinery of 1,250 workers and refining capacity of 300,000 barrels per day, and Pasir Besi

Foundry of 200 workers and 25,000 tonnes per year. Nevertheless, through utilizing the advantages of the location of Cilacap city, the city is trying to establish a complex of harbour, tourism and industry town and is expected to be developed and well organized in the long run.

Consequently it is expected that the population shall be gradually increasing as the employment opportunities shall be increased.

Central Java State map and the master plan of Cilacap City are shown in the figure 1 and 2.

Figure 1 Map of Central Java



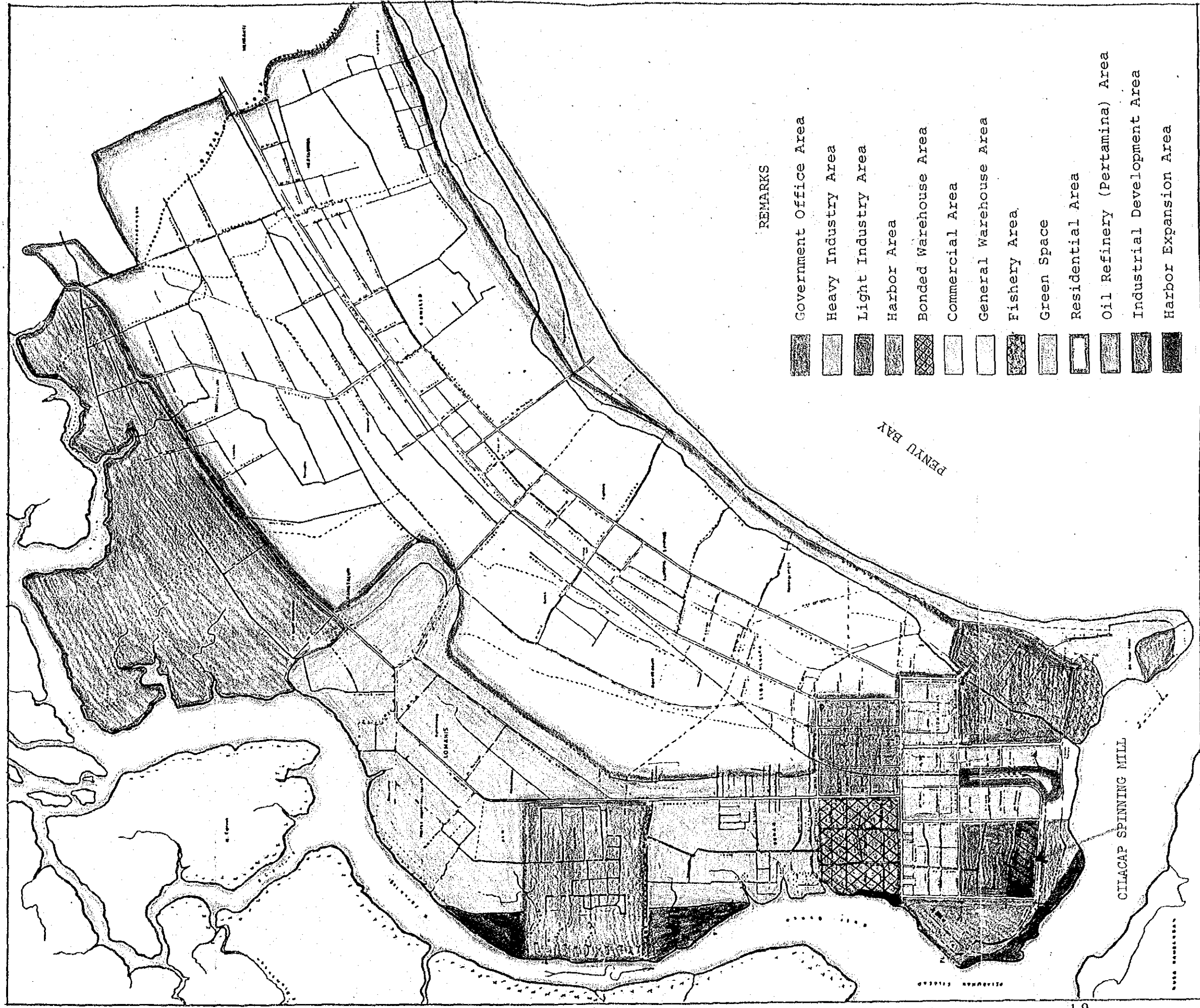
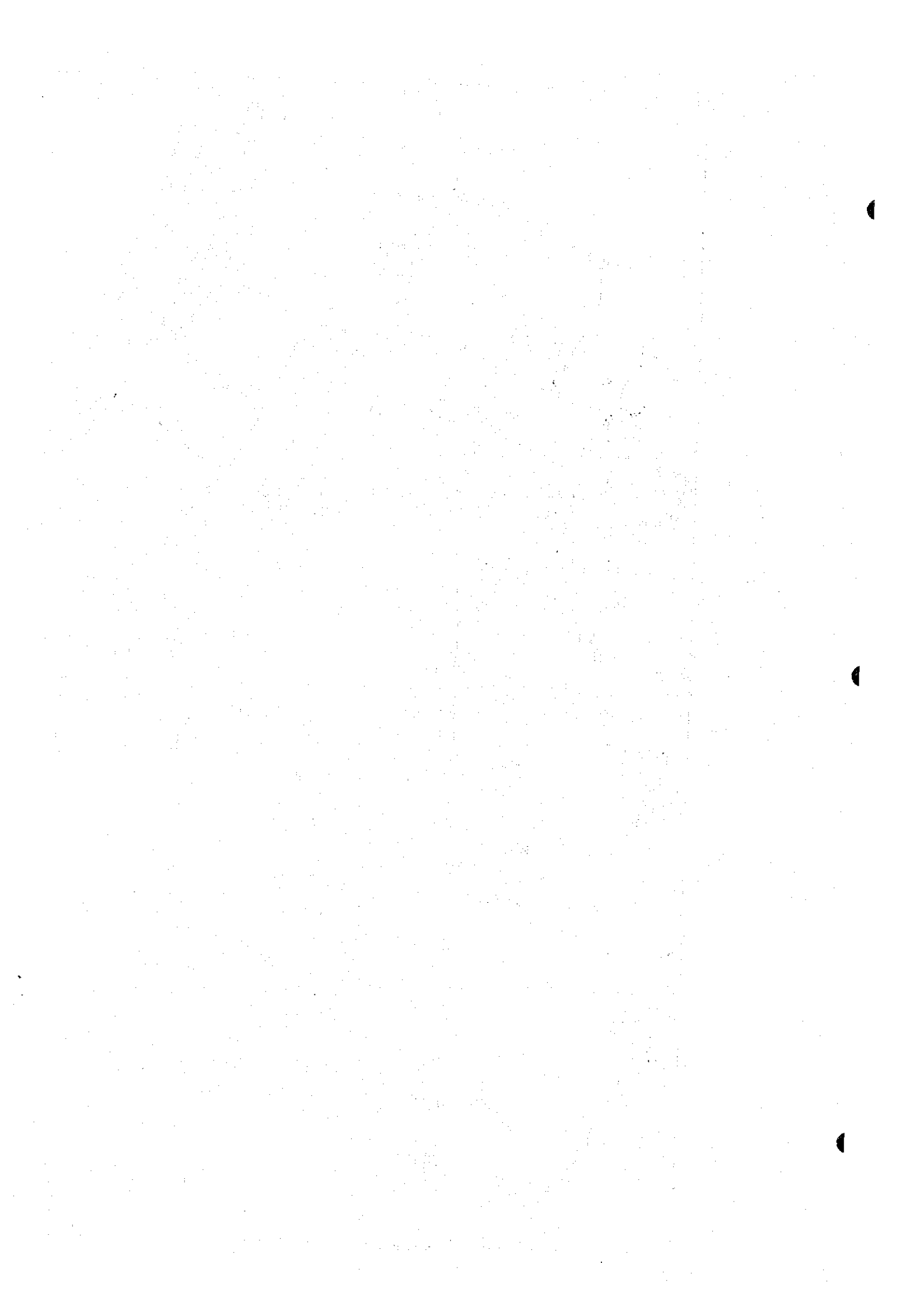


FIGURE 2 MASTER PLAN OF CILACAP CITY



1-3-2 Transportation System and Location of the Mill

The transportation system which connect Cilacap City with major cities in Java Island is shown in the Table 4.

Table 4 Transportation System to Cilacap

<u>Transportation</u>	<u>Major Cities</u>	<u>Times per day</u>	<u>Hours Required</u>
Long-Distance Bus Service	Bandung	1	5 hours
	Jakarta via Bandung	1	9 hours
	Yogyakarta	2	3 hours
	Surabaya via Yogya & Solo	1	12 hours
Railway Services (from Kroya Station)*	Bandung	2	3.5 hours
	Jakarta via Purwokerto & Cirebon	2	8 hours
	Yogyakarta	2	3 hours
	Surabaya via Yogya & Solo	2	9 hours
Airway Services	Jakarta	1	1.25 hours

Note: * Kroya is located about 30km east-Northeast of Cilacap.

The Cilacap Spinning Mill is located at the south end of the City and in the downstream of Donan River. It is belonging to the light industry area of the master plan. The surrounding area is a quiet residential region. However the altitude of the area is 2–3 meters above sea level and it causes inconvenience in drainage due to tide and salty well water.

The path of flow of both material and men to an from the mill is good. And it is conveniently located for the sea transportation because the distance between the harbour to the mill is about 1 km. It is regrettable that the pavement on the Kyai Kendilwesi which is the main access road for materials and on the Semangka which is the main access road for men is insufficient.

Especially it is easily expected that these roads would be inconvenient for transportation of materials and commuting of men in rainy seasons.

1-3-3 Weather Conditions

The weather in Cilacap City is the oceanic tropical climate, which is characterized by high temperature, heavy rain, and high humidity, and which is quite similar to other Indonesian cities. There is almost no special weather conditions such as typhoons, earthquakes, and tornadoes. However it would be noted to draw attention to the considerably strong trade wind from Australian Continent during dry seasons and the lightning due to cumulonimbus clouds.

The weather conditions are shown on Table 5.

Table 5 Weather Conditions

Temperature and Relative Humidity in 1981.

items	month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
Maximum Temperature (°C)		29	29	29	29	29	29	29	29	29	29	28	30	29.0
Minimum Temperature (°C)		25	25	25	25	25	25	25	25	25	25	24	25.5	25.1
Relative Humidity (%)		72	74	72	73	73	72	73	72	70	71	72	68	71.8

Temperature and Relative Humidity in 1982.

Maximum Temperature (°C)	29	28	30	30	30	30	30	29	29	29	30	29	29	29.4
Minimum Temperature (°C)	25	24	26	25.5	25.5	26	26	26	25	25	25.5	25	25	25.3
Relative Humidity (%)	72	71	72	69	69	73	71	71	70	70	69	72	71	70.8

Temperature, Relative Humidity, and Precipitation in 1983.

Maximum Temperature (°C)	29	29	29	29	28	28	28	27	26	27	28	28	28	28.0
Minimum Temperature (°C)	25	25.5	25	25.5	24.5	24	24	24	23.5	24	25.5	25.5	25.5	24.8
Relative Humidity (%)	72	73	71	73	75	72	72	77	78	78	82	83	83	76.4
Precipitation (mm)														
Monthly Total (mm)	279	281	166	119	586	280	35	2	2	2	233	747	406	261
Daily Maximum (mm)	53	55	29	18	63	92	25	1	1	1	117	108	139	-
Wind : Velocity (knots)	1-4	2-5	1-4	1-4	1-8	2-11	4-13	2-10	3-8	0-8	0-8	1-5	0-3	-
Prevalailing direction	NW	NW	NW	NW	SE	SE	SE	SE	SE	SE	SE	SE	SW	SW

1-4 Electric Condition and Water Resources

1-4-1 Electricity:

In Indonesia, electricity industry has been remarkably strengthened of late and particularly in Java island electric power supply plan is prepared for the increasing demand. For example, in Java island, an electricity transmitting line project (PLN EHV project) for 500,000 volts which is backbone of the transmitting networks, has started from 1979.

In this project, at West Java area the construction is now near to completion, and actual operation has already been commenced. According to this project, the power supply plans are that total 3,100,000 KW by thermal power generation with coal is to be supplied from Suralaya, total 1,200,000 KW by hydroelectric power plant in Saguling and Cirata, both in Western Java, and further 4,000,000 KW is to be supplied from Paiton in Eastern Java.

The big project is to connect these power plants with Jakarta, Bandung, Semarang and Surabaya by power transmitting lines of 500,000 volts capacities. One will realize how big the scope of this project from the fact that in 1983, the maximum power generation result in Java island was only 1,200,000 KW. This project reflects the Indonesian government's policy of cutting domestic demands for oil and LNG and expanding exports, and completion of installation works for the 500,000 volts power transmitting lines is scheduled in 1987. At beginning of 1985, power supply for Suralaya - Jakarta - Bandung - Semarang course will be put in service, where the necessary works are said to be almost completed.

150,000 volts power transmitting line to Cilacap has already been connected with the 500,000 volts trunk line at Ungaran and Cirebon.

Figure 3 indicates the transmitting line network in Java island. 150,000 volts power transmitting line leading to Cilacap is of double circuit system, which in addition to supplies to Cilacap, is scheduled to be connected to middle and small sized hydroelectric power plants in central Java, and actually power supply has been already in effect fairly stably. However, cities at Southern side (at the side of Indian Ocean) of central Java including Cilacap are distant from 500,000 volts line course and is considered to be inferior position geographically. To make up for this inferiority, a project aiming at completeness of this 150,000 volts transmitting line is underway. According to the construction project for PLN after 1984, another 150,000 volts power transmitting lines of 2 circuits have been underway for ensuring power supplies to the area at Indian Ocean side including Cilacap to be completed in 1988.

In the first place, 2 circuits lines of 150,000 volts connecting Solo and Jogjakarta with Rawalo near Cilacap are to be installed. For this purpose, a total 31,000 KW power plants at Wadaslitang and supplies from other hydroelectric power plants are to join this 150,000 volts transmission lines.

Secondly, 2 circuit lines connecting Wonosobo with Rawalo are to be constructed to which total 220,000 KW terrestrial heat generation at Garung in mountainous area of central Java together with total 370,000 KW hydroelectric power at Mrika are to join. Further, in future this is planned to connect to Tasikmalaya in mountainous area of Western Java with 150,000 volts power transmitting line. Thus, the power supply to Cilacap area will be further strengthened.

Figure 4 indicates single line power supply network by 13th branch at Wiraya which includes Cilacap.

At Lomanis substation catering for urban Cilacap, there are at present 2 sets for transformer equipped which with capacity of 20,000 KV Ampere, are capable of decreasing voltage from 150,000 volts to 20,000 volts.

Actual maximum load ratio of these transformers are 57% and 32% respectively. In addi-

tion to these, another transformer for 30,000 KVA is scheduled to be additionally installed with the actual works to be commenced in 1985 and to be completed in 1986.

The contracted power to be increased by the renovation project for Cilacap mill will be about 3,000 KVA, which, as is clear from comparison with capacity at Lomanis substation, is considered to be free from worry over shortage of power supply by Indonesian utility company (PLN).

In urban Cilacap, power is supplied by overhead electric power lines of 20,000 volts., of which outline is given in Figure 5.

Power supply to Cilacap spinning mill is effected by means of this 20,000 volts distribution line. Consequently, it means that the supply to the mill will be taken from the same distribution line catering for the general civil uses including those facilities at harbor.

The distance between Lomanis substation and Cilacap spinning mill is about 4 Km, which is comparatively near. As its policy, the Indonesian government prefers that in Java island, the electricity is supplied from the Indonesian utility company (PLN). It should be a matter of course that a government-run spinning mill receives supply of power from PLN in the well arranged power supply system of PLN.

Figure 3 Transmitting Line Network in Java Island

