THE STUDY REPORT
ON
THE RENOVATION OF CAMBRIC'S MILL
GKBI MEDARI
IN
THE REPUBLIC OF INDONESIA

DECEMBER, 1986

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 has decided to conduct a feasibility study on the Project for Renovation of the Cambric Mill in Indonesia and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Indonesia a survey team headed by Mr. Akira Sugeta (Japan Consulting Institute) from July 2 to July 22, 1986.

The team had discussions with the officials concerned of the Government of Indonesia and conducted a field survey in the Project-related areas, including Yogyakarta. 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.

December, 1986

Keisuke Arita

President

JAPAN INTERNATIONAL COOPERATION AGENCY

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CHAPTER 1 INTRODUCTION

1.1 Background and Purpose of Study

1.1.1 Background of Study

GKBI Medari Mills in the Republic of Indonesia was founded in 1960 and has been operated as an integral mill for spinning, weaving and finishing for a quarter of a century. When the mill was constructed, all the textile machines are designed and fabricated using modern technology at that time. Due to prolonged usage, machineries and equipment are deteriorated and have became obsolete, causing inefficient productivity, decline of product quality as well as increase of production cost.

In the light of the situation mentioned above, it is important to review the mill by diagnosing existing states of facilities, technical capability and administrative management ability and for the Government of Indonesia to excise judgment whether the mill shall discontinue its operation for production or restore and enhance the mill by implementing renovation program for the purpose of increasing production volume, improving quality of products and lowering production cost, thus intensifying competitiveness of the products in domestic and international markets. Under these circumstances, the Government of Indonesia has requested the Government of Japan a cooperation for diagnosis of, and for planning of renovation program of GKBI integrated textile mill in Medari.

Upon receipt of the official request, the Japanese Government decided to conduct an investigation for the diagnosis and renovation project and Japan International Cooperation Agency made a preliminary survey in February, 1986. This feasibility study report has been prepared in accordance with the Scope of

Work signed in February 22, 1986, between the representatives of the Indonesian Government and the leader of the preliminary survey team of JICA.

1.1.2 Purpose of Study

The purpose of study is to diagnose the current status of existing machineries and equipment, technical level, raw materials, quality and marketability of products, operability and managerial control capability of Medari Mill by conducting field survey and to examine viability of a renovation program which comprehends to increase production volume, to improve productivity and quality, to widen width of products to enhance exportability, to advance technical level, and to rationalize management and operation capability of the mill.

1.2 Scope and Contents of Study

In accordance with Scope of Work agreed upon between Ministry of Industry, Ministry of Cooperative and JICA preliminary survey team, the following items are studied.

a) Present status of textile industry and policy thereto
b) Diagnosis of management of the mill
c) Technical diagnosis of machinery and equipment of the mill
d) Review of raw materials
e) Market study
f) Formulation of renovation program
g) Financial and economic analyses

1.3 Field Survey

JICA despatched the team headed by Mr. Akira Sugeta to the Republic of Indonesia from July 2 to July 22, 1986 for the purpose of conducting field survey. List of members of the survey team and their schedule in Indonesia are attached in Appendix.

CHAPTER 2 CONCLUSION AND RECOMMENDATION

GKBI is the Federation of Cooperatives which manufacture, on an integral base, Indonesian Traditional Batik, the name of which is as famous as that of Indonesian Batik in the world.

This organization must make its steady progress, being maintained as long as Indonesia's textile industry lasts forever. In this respect, it is judged that the renovation scheme is a prerequisite for Medari mills under GKBI's direct management.

2.1 Market

(1) The demand for cotton fabrics is estimated as follows:

Domestic demand	:	1% up yearly
Imports	:	1% up yearly
Exports	:	5% up yearly

(2) The demand for cambric is estimated as below:

Cambric domestic demand for Batik use	:	0.5% up yearly
Cambric domestic demand for general textiles	:	1% up yearly
Exports of Batik products	:	2% up yearly

(3) It is planned by Study Team that the items of production after the renovation are as under:

- Wide-width cotton cloth will be produced in No.1 weaving mill in principle.

- Cambric for Batik use and Buffing Cloth will be produced in No.2 weaving mill as they are.

2.2 Policies

(1) In place of the export incentive system hitherto effective, the Policy Package of May 6, that is, the drawback system was adopted for the purpose of refunding import duties paid for raw materials and parts.

It is assumed by Study Team that the refund by the drawback system could decrease to about one third of that of subsidy so far made by the export incentive system on the textile exports.

(2) It is also estimated by Study Team that the decrease of manufacture cost caused by the price drop of industrial fuel oils will be 3% or so.

(3) The exemption of cotton import tariff will be kept continuous in the future.

(4) The indication of Print Batik earmarked to the export is now in effect as the measure for the promotion of Traditional Batik. And the registered design system is under study, too. Study Team considers it desirous to strengthen those measures further.

2.3 Management

(1) It is considered that in order to be able to compete with other private enterprises of the same line, the positive sales activities should be conducted by any means by fostering and strengthening the marketing division. For this a

prerequisite in the innovation of organization.

(2) Study Team finds it necessary to provide the sales staff with sufficient education and training to be made by competent leaders well versed and experienced in the sales of textile items in an attempt to strengthen marketing division.

(3) Such the education and training should be carried out on a long-run basis, that is, should last to meet the requirements for actual sales activities.

(4) It is considered by Study Team that the age structure of employees largely consisting of the aged should be revised, and that workers required for renovation work must be employed newly at the time the renovation will be effected, taking into consideration the labor age structure in the future.

(5) Each of the following matters should be put into practice for the education and training of workers in Medari mills.

1) The organization of technical and routine education and training will be formulated.

2) The increase of working efficiency from the mill manager to the general workers should eagerly be pursued as well as improvement of product quality, by the adoption of T.Q.C. (Total Quality Control).

3) Production-cost mindness should be further strengthened among the employees.

(6) Production of Medari Mill had been reduced due to deterioration of production machines and delay of supply of spare parts. Also because of market recession during 1984 and 1985, financial conditions became worse and purchase of raw cotton was not smoothly done. Thus required yarn could not be secured and vicious cycle was repeated and production volumes were reduced further.

Increase of production cost due to reduction of production volume in additon to high labor cost of aged employees made financial conditions of the company worse.

Counter measure to reduce production cost by lay-off, financial assistance from the Government, and commissioning work from group companies of GKBI, all helped the financial conditions of Medari Mill and the Mill took off from the worst condition. However, unless renovation work is implemented, operation of the Mill will become difficult in due course, and the Mill will eventually be closed.

2.4 Technological Field

(1) It is apparent that in case the renovation scheme is not implemented, any recovery from assumably the worsened operational conditions with machinery and equipment so obsolete and deteriorated, together with lack of parts left under insufficient maintenance management will hardly be made to the normal condition of those operation as a matter of course. It is possible to come to notice that the production of products in Medari mills will be on the decrease year after year finally to the stoppage of operation.

(2) Study Team finds it essential to replace 500 sets of Howa-made looms installed in No.1 weaving mill with the new looms due to those obsoleteness and deterioration.

(3) In those replacement, Study Team considers it necessary to employ loom types fitted for the general cotton cloth, including that earmarked for the export.

(4) It seems to be a prerequisite to implement a big-scale remodelling of the spinning process to meet the needs for the high quality of yarn required for the production of cotton cloth for the export use.

(5) It is judged by Study Team that with the replenishment of parts attached to some portion of machines, to maintain the operation in the finishing division will possibly be made.

(6) Study Team thinks it advisable to switch the source of power from in-house generation to PLN's supply, because the PLN's supply rate is 66.77 Rp per kWh as against the in-house generation rate of 82.81 Rp per kWh.

(7) Regarding boilers, water treatment arrangements, and air-conditioning, Study Team also finds it needful to make those additional installations or reconditioning required, because of those lowering functions year by year.

2.5 Renovation Scheme

(1) Study Team examined the feasibility for the renovation of No.1 weaving mill with three kinds of Cases as the following:

Case 1 :	Shuttle looms	: 216 sets	6,600,000 yd/yr
Case 2 :	Shuttle looms	: 72 sets	
	Air-jet looms	: 50 sets	7,300,000 yd/yr
Case 3 :	Air-jet looms	: 100 sets	10,200,000 yd/yr

(2) It is necessary for Medari mills to renew the weaving preparatory machines and inspection machines so as to be able to produce wide-width fabrics.

(3) The present types of grey cloth will continuously be produced in No.2 Weaving Mill in the future.

(4) It is considered by Study Team that the renovation of all the processses, chiefly the remodelling of the spinning process, in the spinning division, should be implemented and that winders be preferably replaced with auto-winders to be required for checking the quality of yarn, particularly.

(5) It is estimated by Study Team that the total amount of investment cost to be needed for the each of project schemes will be as follows:

Project Scheme	Case-1	27,243 million Rupiah
Project Scheme	Case-2	26,431 million Rupiah
Project Scheme	Case-3	27,853 million Rupiah

2.6 Financial and Economic Analyses

(1) In case of non-implementation of renovation work, the operation of the existing machinery and equipment of Medari mills will assumably generate profits until 1992. After the year 1992, however, due to reduction of production volume and increase of maintenance cost, production cost will exceeds sales revenue, thus causing financial loss in Medari Mill.

Repayment amounting to 5,790 million Rupiah can be made by 1992 out of initial loan amount of 10,177 million Rupia outstanding in 1986. However after 1992, short term loan should be introduced due to shortage of funds.

By continuation of operation of the existing mill as it is, it will be possible to generate profits and to restore financial conditions of the mill on temporary basis, but it will be impossible to pay back initial amount loan completely and after 1995, annual loss will be increased year by year if the mill is continued to be operated.

(2) Fosterage and strengthening of textile industry is in line with Indonesian Government's policy to promote exportation of non-oil/gas products and the Government particularly places its strength in this field. Continuation of operation and maintaining the integrated Medari mill of GKBI by renovation work will quite match with the policy of the Government and economical effects to the region will be great.

(3) Financial Internal Rate of Return of Medari mills after renovation work will exceed 10% after tax for all three project schemes as shown below:

	Case 1	Case 2	Case 3
ROI Before tax	16.60%	18.93%	19.80%
ROI After tax	13.11%	15.00%	15.65%

Upon examining the above percentage together with other financial table and statements, Case 1 is not better than other two Cases. There is not so difference in each financial analysis between Case 2 and Case 3. Therefore, whether Case 2 or Case 3 should be selected is quite dependent upon other factors such as the marketability of products, the easiness of technical introduction, labour workability and fitness in running the new type of looms, in comparison with conventional looms.

(4) In case of carrying out the renovation work in Medari mills, its financial conditions will remarkably be improved in each of three Cases.

(5) Economical Internal Rate of Return shows 17% to 20% being different in each of three Cases, and all of the rates exceed the cut off rate of 8 to 10% which is generally recognized as a yardstock figure of acceptability for ordinary industrial projects in general. Also in case that the renovation work is implemented, national treasury revenue in form of cooperate income tax and duty for a period of 18 years hereafter will become more than 10 times compared with those revenue of the case that renovation scheme is not implemented.

(6) In the case that a 46% devaluation of foreign exchange rate is effected, the financial Internal Rate of Return will decrease by 3 to 4%. However, there will be not so much difference in its financial status, repayment of loan and the accumulated surplus cash in hand in any case of project schemes.

(7) Accordingly, Study Team considers that it will be a prerequisite for GKBI to promote implementation of the renovation work in Medari mills in viewpoint of finance and economics, unless the premises used in financial and economic analysis change greatly in adverse direction.

2.7 Recommendable Renovation Scheme

(1) It is judged by Study Team that as a result of financial and economic analysis, Case 3 is surely the most worthy of recommendation.

(2) It is also appraised that since the results of financial and economic analysis made in the Case 2 are very close to those of the Case 3, Case 2 is one of the preferable cases in itself.

(3) In Case 3, 100% air-jet looms are planned to be adopted. Judging from the technical control of looms, however, Study Team considers it more preferable for GKBI to employ certain numbers of air-jet looms, at first, equivalent to 70% of its total production as shown in Case 2 (shuttle looms: 72 sets, air-jet looms: 50 sets, 7,300,000 yd/yr production) than to adopt 100% air-jet looms at one time.

(4) Seeing that the large-variety-small-lot-production system tends to be adopted, as shown in the market in the future. Study Team thinks that the Case 2 will be preferable as a plan for meeting such a need.

(5) The selvage of grey cloth woven by air-jet looms is "fringe selvage." There is no problem with "fringe selvage" of grey cloth for the export use or garment use.

Sales of "fringe selvage" piece goods for general consumers have not yet been in practice in the domestic market.

(6) For the reasons stated above, Study Team judged that the Case 2 is the optimum renovation scheme from the present status of Medari mills and the market in general.

CHAPTER 3 TEXTILE INDUSTRY AND RELATED POLICY

3.1 Present Status

3.1.1 General Outlook

The history of the textile industry in Indonesia is very old. Around 1920, the local industry took its forms as a result of spreading hand looms developed domestically in Indonesia. Cotton fabrics were produced with Chinese merchants' and Indonesian Capitals. Later, about ten modern factories installed with automatic looms were founded.

Following the Second World War, the Government's financing system was applied to the import of weaving looms as one of measures for the postwar restoration. The weaving industry had developed at first in the textile industry. The three spinning mills, namely, Nerditex, Janta, Wisma Usaha started manufacturing cotton yarn hitherto being imported. This is the first production of cotton yarn in Indonesia.

In those days under the late Soekarno's reign, the then President from 1950 to 1965, eleven state-run textile mills were erected (Sandang I: 5 mills westward Western Java; Sandang II: 6 mills eastward Western Java) under the guidance of KOPROSAN, the Headquarters constituted within the Government to promote the textile projects. The number of spinning frames amounted to 230,000 spindles; that of hand looms: 324,000 sets; that of automatic looms: 27,000 sets in 1965.

Later, with the 1st five-year development plan, I Rencana Pembangunan Lima Tahun (1st REPELITA) starting from 1969 to the 3rd 5-year development plan (3rd REPELITA) ended in March

1984, the textile industry made a remarkable progress. The production trend of textile products from 1968, prior to the start of the 1st REPELITA, are shown in Table 3-1.

Table 3-1 Production Trend of Textile Products

Item	Unit	1968	1973/74 1-REPELITA*	1978/79 2-REPELITA*	1983/83	1983/84 3-REPELITA*	1984/85
Spun yarns	1,000 bales	130	316	837	1,370	1,662	1,810
Knitted and woven fabrics	Million Meters	316	927	1,576	1,709	2,347	2,588
Apparel products	Million Dzn.	n.a.	n.a.	14	21	22	26

Source: Indonesia Handbook (1985)

Remark: Asterisk * shows the production of the last year of respective 5-Year Development Plans.

Yarn production in 1968 was only 130,000 bales (230,000 tons). In 1983/84, the year-end of the 3rd REPELITA, it mounted to 1,660,000 bales (300,000 tons). Most of fabrics became woven by domestic spun yarn.

The production of knitted and woven fabrics of 316 million meters in 1968 increased remarkably to 2,347 million meters in 1983/84, showing about a 7-time rise.

In growth-ratio comparison, the annual growth rate of knitted and woven fabrics during the 1st REPELITA was 24.0%, making great strides. That in the 2nd REPELITA was 11.2%; that in the 3rd REPELITA: 8.3%. The volume of those production was on the smooth increase.

Major factors for such the progress owe to positive imports of textile machines and invitation and establishment of joint ventures chiefly formulated with Japanese partners under proper guidance and leadership taken by the Indonesian Government.

In the 1980's, Indonesian economy could not be exempted from the world-wide economic recession. Due to an aggravating export of oils, it showed a deficit in the balance of international payments, and faced to financial crisis. Such the business recession affected the textile industry at once. Accordingly, the growth rate of knitted and woven fabrics for the recent four years (1980/81 - 1984/85) lowered by 6.3% annually.

Annual production, exports, and imports of spun fabrics are shown in Table 3-2.

Table 3-2 Production and Foreign Trade of Spun Fabrics

1983	Cotton	Rayon	T/C	T/R	Total
Production	710.5	71.0	556.6	394.7	1,732.8
Import	9.3	0.8	9.5		19.6
Export	58.8	0.0	139.9		198.7

1984	Cotton	Rayon	T/C	T/R	Total
Production	761.6	76.2	596.6	423.1	1,857.5
Import	8.6	0.5	13.3		22.4
Export	94.3	-	215.9		310.2

1985	Cotton	Rayon	T/C	T/R	Total
Production	803.3	80.3	629.2	446.2	1,959.0
Import	8.5	0.6	11.4		20.5
Export	138.1	0.1	184.2		322.4

Source: Ministry of Industry

The figures in the Table show that cotton fabrics kept stable, more or less, both in their production and domestic demand, occupying about 40% of the spun fabrics. While, the production of synthetic blend consisting of fabrics of synthetic/cotton blend mainly was steadily on the increase. This trend is commonly seen in developing countries. One of the main reasons for such may lie in a gradual acceptance of their casual-oriented property (easy-care) by people in general.

Synthetic blended fabrics come first in the export of spun fabrics and were increasing in volumes year after year. Their exports in 1985, however, were lower than those in the previous year, assumably because of the quota system adopted by the U.S.A. and countries belonging to EC.

Without any prospect for improvement in 1986 compared with the previous year, the textile industry had been anticipated going dull and inactive generally. Illustratively speaking, what with little factor for any anticipated increase in consumers' buying power and what with an unfavorable factor for the abolition of export incentives instead, it had been worried that the operation of enterprises would have extremely been difficult.

Since the end of 1985, however, great changes in textile-trade markets in East Asia, have been made owing to a rapid rise of exchange rate of the Japanese Yen. That is, its production origin was switched from Japan to Taiwan and ROK due to the strong yen, which led to the increase of demand for gray cloth in the field of gray cloth for processing, especially in spun fabrics in the said both countries. Accordingly, Indonesia was thought to be a major supply source for those gray cloth. Thus, the production of spun fabrics in Indonesia seemed to be actively made. Further, the extention of effective period of export incentive system until the end of June, 1986 spurred on to such a trend.

3.1.2 Present Status of Batik Industry

In describing Batik industry, use of terminology should be clarified as follows:

The products made with wax-printing technique is called as the Traditional Batik. While, the products made with a usual printing technique, without any use of wax-printing technique is called as Print Batik for distinction from Traditional Batik. Batik products are composed of Traditional Batik and Print Batik with a modern technique.

Cambrics being so frequently used is a general term for bleached and finished cotton cloths, that generally call Biru, Prima, Primissima and Voilissima. Cambric is used to be manufactured to Batik. Furthermore, cambric is used also in the field of general textile fabrics, because the gray construction of cambric is very popular in the field of cotton fabrics.

3.1.2.1 History of Batik

Traditional Batik started as a handicraft made by females working in royal families in Indonesia. Even now, in the cities around Yogyakarta and Solo etc, where royal families had lived, or Pekalongan and Cirebon etc., entries of alien culture once, have been chief producing districts since old times. Cotton cloth has been used as raw material for Batik since then. Thus, cotton cloths prepared for Batik use have widely been known, called as Cambric, in the world. Silk manufactures have also been in use as high quality Batik. Those have deeply permeated into Indonesians' lives. So, there is still those long-rooted demand for Batik as the traditional folk costumes.

Similar items made with wax-printing technique, as being adopted in Traditional Batik, have been distributed in various parts of the world. Many kinds of prints made in various districts from Southeast Asia to West Asia, such as Indian/Thai/Malay prints belong to the same category of Traditional Batik once called "Java Print." That called as African print or wax print in West Africa has a special feature in combination of brilliant colour and special designs. Each of them has been made in various places since remote ages, and widely known as a folk costumes.

In Indonesia, a special design of Traditional Batik made for ages in various places has been handed down respectively, being favoured in Indonesians as unique clothing for people.

Recently, however, it tends to be hard to see people who wear Batik in such a large city as Jakarta. The latest trend accounts for an abundant supply of general clothing with an increasing domestic production both in spinning and weaving, and for an uprush of users' aesthetic desire for seeking fashion in Indonesia. The demand for Traditional Batik has begun decreasing recently.

Since 1970's, Chinese merchants begun to install the printing machines to make Print Batik. And Print Batik entered Batik markets actively. It has an advantage in its low cost caused by mass production, to the extent that its selling price at a market was not so different from Traditional Batiks'. Due to great profits gained by each producer of Print Batik, Print Batik products are occupying larger share of the total demand in Batik market.

3.1.2.2 Present Status of Batik Industry

The situation and production of Batik industry are shown in Table 3-3, and 3-4.

Table 3-3 Situation of Batik Industry

Location	No. of Factory	No. of Workers	Production Capacity	Selling Value
			pcs	1000 Rp
South Sulawesi	205	3,864	20,000	3,120
Bali	10	246	11,994	-
East Jawa	1,500	2,704	44,580	163,379.5
Central Jawa	7,318	24,913	4,678,242	6,229,540.5
Yogyakarta	219	1,140	21,368	103,004.5
West Jawa	845	5,851	644,371	1,810,724.5
Bengkulu	17	28	840	13,900.5
West Sumatra	18	93	-	-
Total	10,132	38,839	5,420,395	8,323,668

(Source) Balai Besar Industri Kerajinan dan Batik; Yogyakarta (1985. 8)

Table 3-4 Production of Batik Industry

Description	Production 1,000 pcs.	Production kilo-m	Amount 1,000,000 Rp
Batik (Cotton)	9,259		24,554
		880	2,889
Print Batik	1,250		2,281
Batik (Synthetic)		503	61
Sarong	2,741		5,874
Batik (Rayon)		272	518
Batik (Silk)			25
Garment	2,901		5,644

(Source) BPS: Annual Survey of Large & Medium MFG. Enterprise (1984)

Batik is producing now in about 10,000 factories in which about 40,000 of workers engaged. The total production volume of Batik is difficult to estimate with those tables, because the production in those tables expressed in pieces, the length of which is unknown. Traditional Batik pieces dealt in the market are usually 2.5 yards in length. By using this conversion of 2.5 yards per piece, the production for Traditional Batik and Print Batik are dared to be calculated 13,600,000 yards from the Table 3-3, and 42,000,000 yards from the Table 3-4 (including 3,100,000 yards of Print Batik). The both estimated value is big different.

The production of Print Batik even including Batik (synthetic), 3,600,000 yards, corresponds with the annual production made by hand printing tables of 40-45 sets, or by flat screen printing machines of only 3-4 sets. Considering the present situation of printing machines in Indonesia, the above figures are too small.

Besides the above tables, there are some information for Batik consumption in Indonesia that is 100,000,000 meters annually, or 160,000,000 yards annually in which is estimated by Mr. Kurosawa's report (JETRO).

As a result of a series of discussion with GKBI staff concerned about the recent production figures for Batik in Indonesia, the total production of Batik is estimated by mutual consent as follows:
The production in GKBI puts in parentheses.

Traditional Batik	20,000,000 yards (16,000,000 yards)
Print Batik	58,000,000 yards (9,000,000 yards)
Total	78,000,000 yards (25,000,000 yards)

Due to business recession prevailing domestically from 1985 to 1986, a large number of minor Traditional Batik manufacturers had suspended their operation for avoidance of such the recession. While, most of Print Batik factories had kept their production at normal level with active export-oriented functions of their own in spite of opposed condition of mill-operation.

- Exports of Batik are indicated in Table 3-5 as below:

Those in 1985 were not available during the field survey.

Table 3-5 Export of Cotton Batik Products

Unit: ton

	1983	1984
Woven fabrics	636	554
Apparel products	1,270	1,905
Total	1,906	2,459

Source: BPS: Export by commodity and by country of destination (1984)

- Due to the absence of statistics of exports in 1985 up to now, it is estimated that those exports in 1985 would be approximately 3,100 tons, based on Table 3-5, above. Those 3,100 tons can be converted to 31,000,000 yd in length, based on convertion rate of 1 ton = 10,000 yd.

- It was found that those export in 1985 showed 39.7% of the total production of cotton Batik products of 78,000,000 yd and that accordingly, more Batik products were exported than expected.

- Those exports by destination group in 1984 are as below:

Table 3-6 Exports of Batik Products by Destination Group (1984)

Destination	Exports Unit: ton	%
Thailand	845	34.3
Singapore	613	24.9
Saudi Arabia	552	22.4
West Asia	198	8.0
Misc.	251	10.2
Total	2,459	100.0

Source: BPS: Export by commodity and by country of destination (1984)

- From table, above, it was apparent that major export destinations were concentrated on Asian regions and that those exports to such advanced countries as the U.S.A. amounted only to less than 100 tons per each country.

3.2 Policy Towards Textile Industry

3.2.1 4th 5-Year Development Plan (4th REPELITA)

The basic conception in the 4th REPELITA starting from April, 1984 is as follows:

The 4th Plan was originally fixed as the period to make a basic frame for self-growth in the national economy by Indonesians. The Government intends to strengthen the National Economic Foundation in the 5th Plan and intends to create a rich, fair society based on the five principles of National Foundation in 6th plan.

In concrete terms, the annual economic growth during the period of the 4th Plan was fixed to be 5% in average; that of Industrial Division: 9.5%, higher than other Divisions. This shows that the industry is expected to become the leading and growing Division hereafter.

With little prospect for a remarkable growth of staple produce such as oils and natural gas in the future, measures for promoting exports of non-oil/gas products are taken to set those growth ratio at 15.8% yearly in average. Especially, an ambitious plan for attaining a 23.1-percent increase in yearly average was taken in the export of industrial products.

Textile products are included in the principal products for export promotion in parallel with plywood and fertilizer, acting a part of export increase in non-oil/gas products.

The gist of textile Industry development aimed at the 4th Plan is shown in Table 3-7.

Table 3-7 Annual Production of Textiles Scheduled in 4th Plan

Year	Spun yarns (1000 bale)	Knitted and woven fabrics (Million meter)	Apparel products (Million dozen)
1983/84*	1,662	2,347.2	22.3
1984/85	1,745	2,407	24.1
1985/86	1,774	2,446	24.5
1986/87	1,880	2,592	25.9
1987/88	1,975	2,762	27.6
1988/89	2,127	2,933	29.3

* Actual record at the end of III REPELITA

(Source) S/W Report

Remarks: * shows actual records at the end of the 3rd REPELITA.

The production of each products was scheduled to show a 6-percent increase in yearly average equally in the schedule. The percentage was lower than each rate of growth actually achieved, in respective products indicated in the 3rd Plan, namely, yarn: 13.6%; knitted and woven fabrics: 6%; apparels: 8.6%.

Table 3-8 Exports Projects of Products Scheduled in 4th Plan

Unit: Million US$

Year	Spun yarn Fabric	Apparel Products	Total	Remarks
1983/84	147.4	145.6	293.0	Actual result in end of III REPELITA
1984/85	222.7	256.6	479.3	Actual result
1985/86	190	360	550	
1986/87	220	428	650	
1987/88	257	528	785	
1988/89	285	715	1,000	

(Source) S/W Report

In line with the policy towards export promotion of non-oils/gas products, the rate of growth of them at the end of the year terminating the 3rd Plan was set as 340% in the export plan in a strong drive. Explanatory speaking, export of apparels was planned to increase about five times during the corresponding period, and exports of spun yarn/fabrics to nearly redouble also during that period.

3.2.2 Domestic Production of Raw Material for Textiles

Among Indonesia's textile industry, spinning and weaving divisions made a remarkable progress at first under the Governments positive guidance for those promotion. Subsequently, the government's guidance began concentrating on self-supply of raw material for textiles. Accordingly, major synthetic fibers, such as rayon, nylon and polyester, are already under production domestically. The government kept encouraging the cultivation of cotton, cotton acreage being on the increase annually mainly in Sulawesi Island.

Table 3-9 Production of Raw Cotton

Period (beginning August 1)	Harvested acreage	Yield	Production	Beginning stocks	Imports for consumption	Total supply
	1,000 acres	Pounds/acre			1,000 bales	
1975/76---	17	169	6	80	345	431
1976/77---	10	191	4	115	288	407
1977/78---	4	359	3	85	400	488
1978/79---	6	239	3	120	403	526
1979/80---	9	212	4	124	473	601
1980/81---	15	480	15	149	490	654
1981/82---	60	184	23	83	491	597
1982/83---	77	199	32	88	505	625
1983/84---	89	221	41	83	528	652

1/ Years beginning August 1 and ending July 31.
1 bale: 480 lbs.
(Source) Emerging Textile-Exporting Countries, 1984
(International Trade Commission)

Yield per acre of cotton was unstable yet. In 1983/84, however, its crop was 41,000 bales in cotton acreage of 89,000 acres. That in 1985 increased to about 50,000 bales, which is less than 10% of the total amount of cotton consumption in Indonesia.

It is still inevitable that prices of cotton raised domestically are comparatively higher than those of imported cotton of the same kind. There is a sign of obligatory use of raw cotton raised domestically up to 10% of the total raw cotton to be used in each mill in order to facilitate its home cultivation.

Up to now, any import of raw cotton has been exempted from custom duties. Such the preferential measure causes a large effect on expanding home consumption of cotton products. It seems to be difficult to increase its home production. And it is assumed that the current status will continue for sometime.

3.2.3 Governmental Measures for Promotion of Export

3.2.3.1 Export Incentive System

The Indonesian Government considers the export promotion of non-oil/gas products as the mainstay for improving national foreign currency reserve. As one of the export promotion measures, the export incentive system had been adopted until the end of June, 1986.

This system is the system that with each fixed percentage of respective export items, a subsidy calculated in conformity with export values is refunded. Some examples of export incentive for fabric export are shown in Table 3-10.

Table 3-10 Export Incentive for Cotton and T/C Fabrics

(%)

Product Item	Cotton fabric 100-200 g/m^2	T/C blended fabric 90 g/m^2.-
GREY FABRIC	7.32 %	14.84 %
BLEACHED	7.56	14.56
DYED	7.57	13.60
PRINTED	7.58	13.21

The export incentive system has been favourably accepted by manufacturers in the textile industry suffering from sluggish home demand, as if it were a looked for rain during the dry season. Owing to the incentive system, their export increased rapidly since 1983. Exports of textile products only amounting to US$100 million in 1980 expanded up to US$480 million in 1984.

In spite of deep concern for drastic drop of those export in 1985, when the protection movement became active, those exports could

show a 23-percent increase over those in the previous year, which was far, lower than the 63-percent increase in 1984.

The sharp criticism has arisen from textile circles in the U.S.A, against the export-incentive system with their protest that such the system would be an unfair subsidy system, violating the GATT Charters, and the Government was requested to take alternative measure; either abolishment of the export-incentive system or strengthening of quota limit. Because of this, the Government decided to discontinue this system as of the end of June, 1986.

3.2.3.2 Policy Package of May 6, 1986

Replacing this sytem, the Indonesian Government announced to enforce the new policy called as "Package of May 6, 1986," consisting of 19 ordinances and the Presidential decree. The package includes measures for promoting the export of non-oil/gas products and foreign investment.

A content excerpt regarding the export promotion of non-oil/gas products described in the policy is as per Table 3-11.

In this package,"The Refundment System regarding customs related to exports" as itemized 2 is, what is called, "Drawback System" replacing Export-Incentive System, which was abolished at the end of June, 1986.

With the utilization of drawback system as the core of export promotion, the Government encourages in increasing exports, even if imports go up, which are made allowable by making an exception to the import control. Here the Government's positive attitude for accelerating exports is observed. Because only a few weeks had passed since its enforcement, it is difficult to perceive effects of Package of May 6, 1986 on export of textile products.

Table 3-11 Package of May 6, 1986 (Excerpt)

1. Export promotion of non-petroleum/gas products

   1. Special treatment

      (1) Manufacturers exporting more than 85% of their total products may use any home products, prices of which are lower than those of similar imports for the procurement of necessary materials for manufacture and are entitled to import necessary materials, free from the centralized purchase system and the import limit.

      (2) Manufacturers exporting their products which are less than 85% of their total products must use any home products, whenever prices of such home products are lower than those of similar imports for the procurement of necessary materials for manufacture. In case prices of home products are higher than those of similar imports, home products are not yet produced, they are entitled to import necessary materials, being free from the import limit.

      (3) Manufacturers, the original contractor, engaged in the Government's project with foreign aids and/or loan are entitled to use home products, prices of which are lower than those of similar imports for the procurement of necessary materials, or to import necessary materials, being free from the import limit.

   2. Refundment system regarding customs related to exports

      Custom duties and import surcharge imposed on imported materials used for the production of exports can be refunded.

3. Customs exemption system

Regarding imports available for the production of exports, measures for the exemption of customs and import surcharge can be taken.

4. Establishment of bonded areas

(1) In addition to the bonded area in BATAM Island, two bonded areas shall be established in Jakarta.

(2) Any investment within the bonded areas shall be exempted from business lines control.

5. Refundment system of import customs, etc., related to the Governments' project with foreign aids.

Customs and import surcharge imposed on imported materials used for the Government's project with foreign aids and/or loan can be refunded.

3.2.3.3 Decrease of Fuel Oils Prices

The Indonesian Government announced officially that selling prices of some of petroleum products would be lowered. This measure was a reflex of decrease of international prices of oils. Crude oil was priced at US$25 per barrel and revised to US$20 per barrel, which was the cause of lowering petroleum product prices.

The decrease of domestic energy cost is one of the measures to support package of May 6, 1986, aiming at export promotion, the state target, by improving Indonesia's high cost economic structure.

Petroleum products which are lowered prices this time are industrial fuel oils. Recent price trend of fuel oils are shown in Table 3-12.

Table 3-12 Price Trend of Fuel Oils

Unit: Rp per Liter

	4. Jan. 1982	7. Jan. 1983	12. Jan. 1984	1. Apr. 1985	10. Jul. 1986
Avigas	240	300	300	330	250
Super	360	400	400	440	440
Premium	240	320	350	385	385
Solar	85	145	220	242	200
Diesel Oil	75	125	200	220	200

(Source): The Petroleum Report Indonesia
(TEMPO; 19th July, 1986)

3.2.4 Policies for Traditional Batik Protection and Promotion

- With the rise of Print Batik, its entry to the field of daily clothing getting much popularized has just followed the trend of the times.

- Glancing at such the current status, it was investigated how the government intends to protect and promote Traditional Batik, the traditional dress in Indonesia, as basic policies of the government.

- According to officials in charge of Ministry of Cooperative who controls the Batik industry, the following two measures were being taken and/or are under study up to now.

  (1) To ensure attachment of indication on products in order to distinguish Traditional Batik from Print Batik (already in effect).

  - It is compulsory to make the indication of "Print Batik," on the selvage of each piece goods.

  - It is believed effective to have practiced the indication of "Print Batik" on the selvage of each piece goods for the purpose of distinguishing Traditional Batik from Print Batik.
  - So called "Combination Batik," made up with hand-drawn colour and design on Print Batik has recently been on the increase. It has become harder to distinguish Traditional Batik from Print Batik than before. It seems needful to reexamine those measures whether there are any effective indication methods for the favour of Traditional Batik.

(2) Registration system of designs of Traditional Batik (now being studied)

- This system was already established in the industrialized countries. It is afraid, however, that the registered design system including the registered patent system are not yet adopted in Indonesia. It is safe to say that the registered design system is definitely required for the protection of the design in the textile industry. That system must exist for general print designs as a matter of course.

- Since the key Traditional Batik is its design, that system will work satisfactorily for its protection and promotion. Considering the future export of Traditional Batik products, it is important to have all the business circles understood its necessity as feasible in Indonesia. It is urged that the practice of registered design system in Indonesia will become effective as soon as possible.

3.2.5 Study Team's Comprehension of Policies

3.2.5.1 Policy package of May 6th, 1986

It has been still at an early stage since the captioned Policy Package was enforced as from July 1st, 1986. Study Team could not see its effects concretely yet, but would like to describe its brief views:

(1) Export refund

- Under the export incentive system hitherto adopted, the amount occupying 7-15% of the export values had been refunded for the export of fabrics.

- The amount of refund granted by the new Package will decrease down to about one third than that of the export incentive system.

- Of the manufacture cost of fabrics, the ratio of imported materials is not so high, due to the government's guidance for facilitating their home production. Therefore, the benefits of drawback system will be extremely lower than those of export-incentive system. For instance, in case of cotton fabrics, raw cotton is excluded from all the objects of drawback system, because it has not been imposed to custom duties.

- Most of supplementary materials or consumables being used in manufacture are imported goods. So those could be among the objects of drawback system. The ratio of them in the processing cost, however, is only

10-15%, less than 20% at the highest estimate. Because custom duties imposed are to be returned, those actual ratio in total of processing cost seems to be only 2-3%.

- Further, in the case of cotton/synthetic blended fabrics, of the processing cost, the actual ratio of imported materials being subject to drawback system could be 4-5% at most, as raw material of synthetic fiber is imported.

- Judging from the cases mentioned above, approximately one third of the amount of refund granted in export incentives, corresponding to 7-15% of exported product prices will assumably be refunded by the drawback system.

(2) Imports of raw material

- In the case of product exports, apparel circles downstream will be able to purchase grey cloth or finished cloth at lower prices from international markets due to the easing of import limit so far enforced (drawback of import customs).

- Polyester fibre domestically made in Indonesia is under protection by imposing custom duties on imported goods of the same kind. It is said, however, that the price of its import becomes lower than that of domestic made one with related custom duties reducted therefrom.

- And yarn and grey cloth made of synthetic blend will be available at cheaper prices in international markets.

- If such phenomena could last long, any textile manufacturers in upstream field, spinners and weavers, would receive a severe blow. Fortunately, however, both cotton yarn and fabrics will be comparatively less affected by those imports, owing to duty-free measures for cotton so far being taken, as well as to currently prevailing low cotton prices.

(3) Rationalization in management of enterprise

The Government requested every enterprise to try to decrease their manufacturing cost by rationalization at the abolishment of export incentive system. It can be said that industrial circles are requested to improve Indonesian high-cost economic structure, one of the pending problems in Indonesia, by their own efforts.

High efficiency in the enterprise must be one of the unchanged targets for any enterprises and they should endeavour to attain this as a matter of course. In compliance with the government's appeal announced at this stage for the achivement of the national target, it is expected that industrial circles cope with this subject. Efforts are necessary to rapidly modernize the organization to achieve rationalization of management, higher labour productivity, higher operating ratio, and higher technical standard.

3.2.5.2 Reduction of costs of fuel oils

It is expected naturally that the reduction of costs of fuel oil will lead to reduce public rate such as the power rate, transportation charges and so on. In each enterprise, cost of fuel will obviously lower. Of processing cost of fabrics, the ratio of fuel cost is approximately 15%. It is assumed that

the real effect of price decrease of 17% as an example in the case of light oil this time will be about 2% of processing cost. Taking into consideration comprehensive effects including the effect of decrease public rate, the refund by drawback system may be less than 3% of processing cost.

3.2.5.3 Brief conclusion

- In connection with new policies for exports, it was studied what kind of effects will be placed on the export of cotton fabrics, as stated above. Its outlook should never be optimistic from every respect. So, it is urged that the Government will take every possible measures following after the reduction of fuel-oil sales prices.

- Furthermore, it is highly expected that the textile industry as a whole will achieve a well-balanced development under the strong leadership and guidance of the Government.

3.3 Present Status of GKBI

3.3.1 History of GKBI

- The Batik industry in Indonesia had grown into a technique of quality handicrafts printed with the traditional Indian Batik method, being used in the royal family. Later, it developed into a home industry owned by each man of property in various places, and came to forming the unique cooperatives (Koperasi) as respective groups of small-sized enterprises.

- In these days, plain cloth (Cambric), a raw material for Batik, dyestuffs, and chemicals had mostly been imported (there were products printed with vegetation and minerals, still left, though). Then, each owner has bought those materials from local dealers.

- Later, however, GKBI was founded in 1948, functioning as the Federation of Cooperatives consisting of about 40 members for the purpose of making the purchase of their materials and the sales of their products in a single body for their benefits and conveniences under the Government's proper guidance.

- At that time, the Indonesian Government had applied the complete foreign currency quota system to imported goods. GKBI, the pure national combine of enterprises, had occupied the above quota of Cambrics, dyestuffs, and chemicals.

- Afterwards, the time was ripe for the domestic production of Cambrics. The integrated Mills for spinning, weaving, and finishing under GKBI's direct control was first constructed at the site of the old sugar factory located in Medari village in the vicinity of Yogyakarta, Central Java in 1960. During the period from 1960 to 1970, most of the GKBI-affiliated cooperatives constructed weaving mills of their own one by one.

3.3.2 GKBI Organization and Its Present Status

- GKBI, Gabungan Koperasi Batik Indonesia, is the Federation of the Batik Cooperatives founded on September 18th, 1948 by Batik Cooperatives scattered in Java Island for their joint benefits.

3.3.2.1 Mills of Subsidiary Cooperatives

- GKBI consists of 40 Cooperatives (called as Primer), as shown in Table 3-13 and Table 3-14. The total number of cooperative members amounts to 8,247, and that of all the looms to 4,137 sets. Of 40 Primers, 18 cooperatives produce Traditional Batik only and other 22 Primers turn out Traditional Batik and engage in weaving concurrently.

- One group of Primers producing Traditional Batik exclusively purchase cambric from GKBI, and distribute it to each cooperative member for Traditional Batik production.

- On the other hand, another group of Primers buy their yarn from GKBI, weave into grey cloth for cambric in their own weaving factories, and furnish their grey cloth to GKBI/P.T. Primatexco for finishing into cambric on a commission basis. Upon receipt of cambric, they make Traditional Batik.

- Traditional Batik products thus deliver to markets for sales through either GKBI's sales channel or their unique sales route. This does not mean that GKBI puts their all Batik products in Primer under its systematic control from those production to sales.

- To be concrete, the supply of necessary yarn and/or cambric to them seems to be one of the important roles GKBI plays. It is practical to be understood that GKBI does not put such Primers' Batik products under the strict control today.

- Primers' production in 1984 is shown in Table 3-15.

Table 3-13 Membership List of Primary Members in GKBI (1)

No.	Name of Primary member	Number of Membership	Number of Loom	Location
1	K.P.B.J.	557	175	Jakarta
2	Mitra Batik	411	540	Tasikmalaya
3	Rukun Batik	450	156	Ciamis
4	Warga Batik	126	-	Garut
5	Buditresna	789	99	Cirebon
6	Perubadi	125	-	Indramayu
7	Gaperbi	111	-	Tegal
8	Persaudaraan	67	-	Comal
9	Kopindo	297	304	Pekalongan
10	P.P.I.P.	480	498	Pekalongan
11	Buwaran	457	224	Pekalongan
12	Pekajangan	400	461	Pekalongan
13	Wonopringgo	199	208	Pekalongan
14	Setono	268	118	Pekalongan
15	Kobain	55	-	Kudus
16	P.P.B.I.	147	318	Yogyakarta
17	Karangtunggal	106	26	Yogyakarta
18	Tamtama	144	44	Yogyakarta
19	Senopati	129	-	Yogyakarta
20	Mataram	129	-	Yogyakarta

Table 3-14 Membership List of Primary Members in GKBI (2)

No.	Name of Primary member	Number of Memberships	Number of Loom	Location
21	Sakti	127	-	Kebumen
22	Perbain	34	-	Purwokerto
23	Perbaik	42	56	Purworejo
24	Batari	227	334	Solo
25	P.P.B.S.	314	50	Solo
26	K.P.N.	264	32	Solo
27	Sukowqti	211	-	Solo
28	Baka	270	24	Klaten
29	Bima	58	12	Solo
30	P.B.B.	86	-	Solo
31	Sidoluhur	67	-	Solo
32	P.B.T.	121	-	Klaten
33	Bawono	65	-	Wonogiri
34	Bakti	312	350	Ponorogo
35	Pembatik	238	68	Ponorogo
36	B.T.A.	166	40	Tulungagung
37	K.P.B.I.S.	65	-	Sidoarjo
38	Gresik	27	-	Surabaya
39	Browijoyo	47	-	Mojokerto
40	Fajar Putra	59	-	Padang
	Total	8,247	4,137	

Table 3-15 Primers' Production (1984)

	Number of Members	Production Capacity	Production in 1984
Grey Cloth	22	52,200 Ky	18,000 Ky
Traditional Batik	40	-	16,000
Print Batik	1	-	900

(Source) GKBI

- It is found that, reflected with business recession, the production of grey cloth was equivalent to one third of the production capacity then.

- As for Traditional Batik, it is also found hard to obtain some data for its production capacity. In other words, it is very difficult to obtain the precise figures, because most of Traditional Batik Primers, belonging to a mere cottage industry, try so simply to decrease or increase their production to meet the market demand.

- It was found that Print Batik was also being produced in the GKBI's group. Such an attempt made to cope with such the trend may raise a problem hardly to be solved from the point of its systematic operation in GKBI insisting on Traditional Batik protection and promotion.

3.3.2.2 Mills under Direct Management of GKBI

- GKBI erected directly managed mills one after another for the purpose to provide each primer with necessary yarn and cambric, and established the integrated organization from spinning to sewing.

- Namely, those three are Medari Mills (spinning, weaving; finishing), Plumbon Mill (spinning), and Bogor Mill (apparel). The outline of each mill is indicated in Table 3-16.

- Among those mills, 26 years have rolled since Medari Mills was founded. Each of machinery and equipment in Medari Mills has become extremely obsolete; to the extent that its normal operation has hardly been maintained. Because of this, Medari Mill was appointed by Indonesian Government as the object of factory renovation program this time.

- Actual results of survey regarding Medari Mills will be described more in details in CHAPTER 5 and 6 Diagnastic Results.

- Plumbon Mill was constructed in 1980 for the purpose of fulfilling the shortage of raw yarn for grey cloth within GKBI's group, turning out from yarn of 40's to that of high quality of 60's.

- Annual production records of the above Mill are shown in Table 3-17. This yarn is being supplied to Primers and Medari Mills and is also on sales in the market, together with that spun at Medari Mills.

Table 3-16 Factory Profile of GKBI

	MEDARI	PLUMBON	BOGOR
1. Total Investment	Rp 9,726,263,673.09	Rp15,147,196,068.45	Rp 3,627,863,231.31
2. Area			
Land	125,113 m^2	223,982 m^2	23,500 m^2
Building	46,037 m^2	18,455 m^2	3,480 m^2
3. Machinery			
Spinning	47,808 spindles	38,016 spindles	-
Weaving	908 looms	-	-
Finishing	2 unit bleaching	-	-
	1 unit mercerizing	-	-
	1 unit sanforizing	-	-
Sewing	-	-	366 units
Flat knitting	-	-	150 units
4. Production Capacity			
Yarns	21,000 Bales	16,000 Bales	-
Grey cloth	16,000,000 Yards	-	-
Cambrics	34,000,000 Yards	-	-
Shirts	-	-	12,000 Dozen
Pants	-	-	12,000 Dozen
Pull over/ Sweater	-	-	6,000 Dozen
5. Employment	1,385	560	

Source: GKBI

Table 3-17 Production of Plumbon Mill

Unit: Bales

	1981	1982	1983	1984	1985
32's card	-	264	2,924	2,425	-
40's card	-	237	1,204	2,691	7,610
42's card	1,991	5,315	6,308	2,784	2,747
44's card	-	-	121	-	-
40's comb.	-	-	-	-	122
50's comb.	-	-	-	272	1,191
60's comb.	546	1,129	366	753	-
Total	2,537	6,945	10,923	8,925	11,670

Source: GKBI

- It was learned that type of products made in Plumbon Mill kept standing in a competitive position with P.T. Primatexco and P.T. Primissima. The coordination of type of products was reportedly being made among the group in a balance way.

3.3.2.3 Related Enterprises

- GKBI has two joint ventures within its group and decides the production and sales plan upon joint discussion made among the three parties.

- The outline of those related companies is shown in Table 3-18.

- P.T. Primatexco was incorporated in 1971 as a joint venture with Nichimen/Daiwabo as an integrated mill for spinning, weaving, and finishing for cambric. Among all the joint venture with Japanese partners in Indonesia, this is the only enterprise

producing 100% cotton products. P.T. Primatexco expanded its equipment already three times, and its business turns well. This company is bleaching and finishing grey cloth made by Primers and also grey cloth (chiefly quality-Primissima) woven by P.T. Primissima, a company, which will be referred to later, holding an important position among GKBI's group.

- Under the technical consultation made frequently with P.T. Primatexco, GKBI has always been maintained a close relations with P.T. Primatexco in the field of management such as sales and production plan.

- P.T. Primissima, has been in operation with the modern spinning and weaving machinery and equipment imported from European countries as the spinning and weaving mill for the grey cloth of quality cambric (yarn of 50's-100's) since 1971.

- Without any finishing equipment, the above company makes it a rule to get its woven grey cloth to be bleached and finished chiefly at P.T. Primatexco and to sell its products to each Primer and in the general market through GKBI.

- In the course of survey made in Medari Mills, Study Team visited the above company and found that the company kept running with the modern machinery and equipment with comparatively the small number of workers. Study Team was aware of a remarkable difference in operation between the company and Medari Mills.

- Primissima, the main product, of the company has gained its high reputation in Indonesia. On the contrary, the quality of products made in Medari Mills under GKBI's direct management is still not reach to the sufficient level of quality, despite belonging to GKBI's same group.

Table 3-18 Company Profile of Related Company

	P.T. Primatexco	P.T. Primissima
1. Share holder	47.745 % GKBI	47 % GKBI
	39.510 % DAIWABO	53 % GOVERNMENT
	12.745 % NICHIMEN	of R.I.
2. Total investment		Rp 12,282,742,000
3. Area		
Land		72,555 m^2
Building		23,000 m^2
4. Machinery		
Spinning	49,776 spindles	36,288 spindles
Weaving	1,314 looms	692 looms
Finishing	2 unit bleaching	-
	2 unit mercerizing	-
	1 unit sanforizing	-
5. Production Capacity		
Yarn	26,500 Bales	10,000 Bales
Grey cloth	35,000,000 Yards	18,000,000 Yards
Cambrics	78,000,000 Yards	-
6. Employment	1,990	1,200

Source: GKBI

- P.T. Primissima is successfully managing operation and maintenance of modern machinery imported from European countries.

3.3.3 Study Team's Understanding about GKBI

3.3.3.1 GKBI's Group

- Study Team assumes that in GKBI's operation, its emphasis has been placed comparatively on mutual exchange of managerial information with its affiliated enterprises.

- Therefore, it is necessary to understand the renovation of Medari Mills as the operational matter of GKBI's group, as a matter of course.

- Study Team could not afford to inquire into this matter sufficiently in the course of survey, but believe that any reflections which may arise from the renovation work could fully be coordinated within the group.

- It should be observed in the future that GKBI will take its initiative among GKBI's group in what way, for instance, whether GKBI will transform itself to a private-management type company or keeping the present organization as it is.

3.3.3.2 GKBI's Management (Headquarters Organization)

- Ups and downs of an enterprise are entirely dependent upon the balance between the power of management (planning and marketing) and the power of technique.

- For example, no matter how could the enterprise have the first class technical ability, such high technique will not be able to earn the corresponding profit in the enterprise, unless its

managerial function is arranged to work effectively. As technique advances year after year, management faces the wave of modernization.

- From this point of view, in the case of the renovation at Medari Mills, management of GKBI Headquarters must function well and support its technical activities in parallel with the level of technical workability in Mills. Keeping pace with each other, the renovation could brings out a satisfactory result.

- It is emphasized that the inovation of the management setup and that of technique should be weighed and looked upon on the equal basis.

(1) Fulfillment of marketing division

- Marketing should be the basis of management in the enterprise, and the most important division, especially related to the export business. There are too numerous cases of failure in every attempt due to insufficient marketing.

- It is recommended to conduct its marketing activities more and more quickly by this time when GKBI is about to make its entry newly into the export business of textiles.

(2) Strengthening of planning staff

- How to reflect results of marketing on management is the most essential function of planning to be required of. Without adequate supplementary function of planning staff, GKBI will not be prosperous from the standpoint of management, even though marketing is done well.

- With full function of both marketing and planning hand in hand, managerial strategy can be determined in any enterprise, its future being visualized.

(3) Strengthening of control function

- Study Team considers it necessary to modernize GKBI's organization in order to keep the leading position among GKBI's group and to develop into the key organization of Traditional Batik industry. In addition to the above Divisions, the modern type of organization in GKBI such as technical control, sales control should be established.

CHAPTER 4 MARKET SURVEY

4.1 Market Survey of Cotton Fabrics

4.1.1 Demand Trend of Cotton Fabrics

- Indonesia's economy which had smoothly been in progress could not be exempted from the worldwide depression prevailing in 1980's, finding itself in the midst of that stagnation.

- The reason lay in the decrease of individual consumption and investment in plant and equipment domestically. The Government tried to raise general consumption needs by the increase of the public employees' salary, however such a measure did not function to the degree being expected by the authorities concerned.

- Under such circumstances, some of the enterprises in textile industry themselves have to close their mills and other enterprises found very difficult to keep their operation. In line with the national policy set up for the export promotion, they tried to find a means of escape in their export.

- Production balance of spun fabrics in recent three years is shown in Table 4-1:

Table 4-1 Production Balance in Spun Fabrics

Unit: million meter

	Production	Foreign Trade			Domestic use
		Import	Exports	Balance	
COTTON					
1983	710.5	9.3	58.8	-49.5	661.0
1984	761.6	8.6	94.3	-85.7	675.9
1985	803.3	8.5	138.1	-129.6	673.7
RAYON					
1983	71.0	0.8	0.0	0.8	71.8
1984	76.2	0.5	-	0.5	76.7
1985	80.3	0.6	0.1	0.5	80.8
BLENDED FABRIC					
1983 T/C	556.6				
T/R	394.7				
Total	951.3	9.5	139.9	-130.4	820.9
1984 T/C	596.6				
T/R	423.1				
Total	1,019.7	13.3	215.9	-202.6	817.1
1985 T/C	629.2				
T/R	446.2				
Total	1,075.4	11.4	184.2	-172.8	902.6
TOTAL					
1983	1,732.8	19.6	198.7	-179.1	1,553.7
1984	1,878.5	22.4	310.2	-287.8	1,569.7
1985	1,959.0	20.5	322.4	-301.9	1,657.1

Source: Ministry of Industry

- Those production by product group was being kept rather stable, amounting to 2 billion meters. Blended fabrics once held the leading position in the export, but the exeport of cotton fabrics expanded rapidly in 1985, showing about 40% of the total exports of spun fabrics.

- On the other hand, there were not so much fluctuation in those import. Consequently, cotton fabrics demand in domestic market in 1985 amounted to about 674 mill.m., having a 40% share of the total domestic demand of spun fabrics on a steady basis. While, blended fabrics for domestic use expanded smoothly, reaching 903 million meters, in 1985.

- Growth rate of spun fabrics for three years, calculated based on respective figures of production, exports, imports, and domestic demand in Table 4-1 is indicated in Table 4-2:

Table 4-2 Growth Rate of Spun Fabrics in 1983 - 1985

	Production	Import	Export	Domestic Use
Cotton Fabric	13.1%	-9.7%	134.9%	1.9%
Rayon Fabric	13.1	-25.0	-	12.5
T/C·T/R	13.0	20.0	31.7	10.0
Total	13.1	4.1	62.3	6.6

4.1.1.1 Domestic Demand

- In comparison of cotton fabrics with blended fabrics, it was found that there were special features in the change of domestic demand during the last three years.

- That is, the demand for cotton fabrics had been kept rather steady with a few fluctuation. While, that for blended fabrics had steadily been on the increase, showing a 10% rise annually for 1983 - 1985.

- In general, there are many points so common to both cotton fabrics and blended fabrics for consumers' use. And most of the production equipment can be used for production of both textiles flexibly. Because of this, there is an interrelation between them in the balance of demand and supply.

- For instance, it is a matter of common occurrence that due to the sales price difference between cotton fabrics and blended fabrics in the market, consumers' needs tend to shift either of them one-sidedly, and that owing to the cost fluctuation between raw cotton and synthetic fiber, each production schedule is apt to be switched to either of them. To be concrete, when the price of synthetic fibre becomes higher, the production of blended fabrics is often switched to that of cotton fabrics.

- From the fact that the trend of low cotton prices leads to the steady demand for cotton fabrics, it is considered that the present consumers' needs show the minimum demand for cotton fabrics.

- It is also considered that favourable factors for the domestic demand are in the worldwide tendency seeking for natural-fibre-made products and also in the low-price trend of raw cotton. On the contrary, an unfavourable factor is assumably in consumers' sluggish buying power at large.

4.1.1.2 Imports

- The total imports in 1985 remained stationary to be 20.5 mill.m. break-down of which are blended fabrics: 11.4 mill.m., cotton fabrics: 8.5 mill.m., rayon: 0.6 mill.m. Those imports had been made to meet the demand for quality items in each group (voile, satin, printed fabrics of high quality, etc.) and for specially finished items such as crease finish.

- Some of those high quality items are also being produced in Indonesia. Since the quality of domestic products does not meet consumers' needs for textiles of fine quality and high-fashion style. Those imports will continually and inevitably be made in the future.

4.1.1.3 Exports

Exports of spun fabrics by processed group are shown in Table 4-3:

Table 4-3 Exports of Spun Fabrics

Unit: 1,000 yards

Item	Grey Cloth			Finished Cloth		
	1983	1984	1985	1983	1984	1985
Cotton Fabric	52,962	87,599	112,511	5,862	6,727	25,610
Rayon Fabric	8	-	119	-	-	1
Blended Fabrics	86,663	146,877	101,377	53,264	69,005	82,775
Total	139,633	234,476	214,007	59,126	74,732	108,386

(Source) Ministery of Industry

- The export rate of grey cloth and finished cloth is roughly 2-3:1, exports of grey cloth being higher than those of finished cloth. Of exports of grey cloth, those of cotton-cloth showed a steady increase year by year, and began holding the same position with those of blended fabrics in 1985.

- In the finished cloth group, exports of blended fabrics, the major item, showed a 30% increase in annual average from 1983 to 1985. Exports of cotton cloth showed only 10% of those of blended fabrics in 1983, and amounted to 25.6 mill., yd, occupying about 30% of those of blended fabrics in 1985. The reason lay in the increasing trend of the demand for low and medium-class cotton cloth in international markets seeking for natural fibre-made fabrics on a worldwide basis, together with export-promotion measures taken in Indonesia.

- Exports of cotton grey cloth by destination group are shown in Table 4-4:

Table 4-4 Exports of Cotton Grey Cloth by Destination (1984)

Destination	Quantity Ton	%
U.S.A.	3,423	36.7
United Kingdom	1,491	16.0
Italy	1,172	12.6
*EC countries	1,647	17.6
Japan	1,041	11.1
Others	559	6.0
Total	9,333	100.0

* France, Germany, Netherland

(Source) BPS: Export by Commodity and by Country of Destination (1984).

- As shown clearly, the United States ranked No.1 in destination of those products, and then European countries followed in 1984.

- It is assumed that such the general tendency of those export could not have changed so much since 1984, and that exports of grey cloth to East Asia would have made in 1986.

4.1.1.4 Export Quota System

- The United States, the leading destination of textile exports from Indonesia, has begun adopting the quota system since 1983. At the initial stage, this system applied to only 4 items of garments. At present, however, the system covers 34 items including fabrics, putting the import of textile products under the strict control in the U.S.A.

- Summary of the quota system is indicated in Table 4-5:

- This quota limit has been decided by both Governments, that is, Indonesia and the U.S.A., upon their mutual consultation, year after year.

- In comparison between 1984/85 and 1985/86, according to Table 4-5, for example, Category 313 showed a 39% increase; Category 314 a 17% increase. Each percentage of increase was quite different due to results of the year and the then situation in the U.S.A. It is clear that each increase rate of the quota limit was higher than 10%.

Table 4-5 Quota List of U.S.A.

MFA Category	Description	Quota Limits (x1,000 sq. yds) 1982/1983[1]	1983/1984[1]	1984/1985[2]	1985/1986[3]
313	Sheeting	-	-	(11,500)	16,000
314	Poplin Broad	-	-	(12,000)	14,000
315	Print Cloth	-	6,563	( )	15,900
317	Twill/ Satin	-	-	( )	10,000
319	Duck	-	1,195	( )	5,260
320	Other Fabric	-	(Included in 315)	( )	10,700
331 ∫ 446	Cotton Apparels (15 items)	4-items	2-items	15-items	15-items
604 ∫ 614	Non Cellulosic Woven Fabric (3 items)	-	1-item	3-items	3-items
631 ∫ 648	Non Cellulosic Apparels (10 items)	-	1-item	10-items	10-items
Total Number of Item		4	8	34	34
Total Quota			19,530	208,971	285,000

(Source): 1) Emerging Textile-exporting Countries, 1984 (United States International Trade Commission)

2) Japanese Enterprise in Indonesia

3) Ministery of Industry

- In import of medium-class cotton fabrics such as 313 sheeting into the U.S.A., those quota limit increased up to nearly 40%.

- Following the U.S.A. quota system, some of the European countries began adopting such the quota system. In European countries, however, each of the quota now in use is not made in details. The limit of each type of items seems to be not strict and subject to mutual consultation with each of exporting countries. And yet, it belongs to import control.

- Import quota systems adopted in United Kingdom, France, and Italy are being applied in category indicated in Table 4-6.

Table 4-6 Quota List in EEC Countries

Category	Description	U.K.	Italy	France
2	Cotton Woven Fab.	o	-	-
3	Woven Fab. from Man-Made Fiber	o	o	o
6-8	Apparels	o	o	o

(Source) Ministery of Industry

- It was found that some of the Indonesian enterprises seeking for their export had been doing their best to develop export markets for such items as released from the quota limit with the mobilization of their own export-sales staff, in order to gain a great export-incentive.

- It is presumed that exports of cotton fabrics until July, 1986 could have more increased than those in that of the previous year owing to active markets in East Asia.

- Repeatedly speaking, favourably factors for the export of cotton fabrics lie principally in the Government's measures, namely, the export-incentives system, and also in the worldwide trend looking for natural fibre-made products. Meanwhile, unfavourable factors are in the quota system and in the high-cost economic structure of Indonesia. The quota limit ending in 1985 showed its high increase rate, and led to the way of orderly exportation of cotton fabrics.

4.1.2 Prices of Cotton Fabrics

- Market prices of textile products are sensitively affected by the price fluctuation of raw material market conditions and even customers' terms for contract will have an affect on them.

- Especially, those export prices are subject to the influence of international market conditions, the state of affairs in a country to be exported, prices of the same product being so frequently different.

- There are a lot of factors as enumerated above for such the price fluctuation. Sales prices of cotton fabrics collected during field survey this time are in Table 4-7.

Table 4-7 Sales Prices of Cotton Fabrics

Item	Grey Width (inch)	Export		Domestic
		Grey Cloth (Rp/yard)	Finished Cloth (Rp/yard)	Grey Cloth (Rp/yard)
Poplin	48"	800-920	950-1,100	750
ditto	63"	950-1,200	1,350	-
Satin	62"	-	1,800-2,100	-
Buffing Cloth	46"	740-775	-	-

- In comparison with the same item among the items with the quota limit, its export price to the U.S.A., shows about a 5% higher price than that to European countries. But, there is no such difference in its price among the items beyond the coverage of quota.

- Data were not made available for recent conditions of Chinese cotton fabrics entering into the international market. But those conditions are worthy of note, as one of the major factors for price fluctuation of cotton fabrics.

- The remarkable drop of raw cotton prices seen in 1986 has not been reflected on prices of cotton fabrics shown above yet. It is forecast that those prices will lower to a certain degree in "future" market hereafter.

4.2 Market Condition of Batik

4.2.1 Conditions of Batik Demand and Supply

- Keeping a breast with the rise of the textile industry, the transfer made from the Traditional Batik for clothing into the general clothing has just followed the current of the times.

- Among Batik products, Print Batik came to occupy more than 70% of the total volume of Batik products for daily clothing, as referred to in CHAPTER 3.

- Indonesian taste of so-called "traditional Batik design" has been of aesthetic sense and fostered for the long period of history. Most of the Indonesian attach themselves to Batik natually.

- It is a common practice that with the Government's encouragement, all the participants wear their Traditional Batik as the formal ceremonial dress on a formal occasion. At the formal gathering such as banquet, party, even young people are still dressed in Traditional Batik in general.

- "Movement" to use Traditional Batik also for daily dress is making headway.

- Study Team heard directly from ladies working in firms which are not related with textile field that Print Batik could be easily available and obtainable at reasonable price, but, Traditional Batik being one of essential goods after all.

- In 1980's, each utilization field of Batik and general clothes had gradually been fixed. That is to say, Batik has occupied its leading position in the field of formal dress and interior products. While, general clothes have become the mainstream in the field of daily clothing (especially casual wear).

- Accordingly, of Batik products, the field of time-honored, deep-rooted demand for Traditional Batik has been rather in stable conditions. It is estimated that its demand has remained on the same level for several years.

- On the other hand, the demand for Print Batik easily available for daily use will be changeable and unstable, being subject to economic influences as in the case with the general clothing.

- On the assumption that the recent demand for Batik has been stable and kept balanced well with the production of Batik (78 mill.yd, per yr) for several years. This matter can be summarized as the following:

- Exports of cotton Batik are shown in Table 3-5, on a weight basis.

- Based on the conversion: one ton = 10,000 yd, exports of cotton Batik in 1983 were 19 mill.yd; those in 1984: 25 mill.yd; those in 1985 will be 31 mill.yd.

- It was found that about 40% of the total Batik production had been exported, Asian regions had occupied 70% of those exported products, and Saudi Arabia has taken 20% of them.

- Print Batik has reportedly held its leading position in those export.

- The statistical summary of Batik-product market is shown in Table 4-8.

Table 4-8 Matket of Batik Products

Production of Batik			78,000 Ky/year
Traditional Batik	20,000 Ky	Domestic	47,000 Ky
Print Batik	58,000	Export	31,000

4.2.2 Trend of Cambric Demand

- Medari Mills owned by GKBI, the object mill for this feasibility study, is the factory producing cambric. While, Traditional Batik is being manufactured at Primers. Therefore, the trend of cambric demand is an important element for the study.

- As defined previously in CHAPTER 3, cambric is a generic name of bleached and finished cotton cloth for Batik use such as Biru, Prima, Primissima in itself.

- Due to wide utility in its cloth structure, however, cambric has widely been in use as cotton cloth for general clothing other than Batik, namely, as dyed and printed items, or garments-shirts, blouse.

- Now, it is said that the volume of cambric used for general cotton cloth is almost equivalent to that of cambric used for Batik in Indonesia. If so, the present production of cambric amounts assumably to 1.6 bill yd, corresponding with about twice as large as Batik production.

- Information was made available that the production of cambric could show 15-20% of that of cotton fabrics, and that cambric production would occupy 7% of the production of all the textile products.

- It is figures out cambric production to be 150-160 mill.m, based on the volume of cotton-fabric production. The production of cambric is calculated to be 160 mill.yd, based on the production of all the textiles of 240 mill.yd, which corresponds to the above figures. Therefore, the demand for cambric is estimated at 160 mill,yd. It is classified that the demand for cambric for Batik would be 78,000 thousand yards; that for general cotton cloth cloth cambric be 82,000 thousand yards.

- Cambric demand for Batik and cambric demand for general cotton cloth are in an inter-supplementary relationship (similar to the relationship between cotton cloth and blended fabrics). Seeing that each item field is apparently different, however, it will be necessary to set each demand apart.

- The production of cambric of GKBI's group is as the following:

- The principal item being produced in GKBI's group is grey cloth for cambric. Medari mills and P.T. Primatexco are being processing it into finished cloth.

- Annual production capacity for cambric cloth, that is, production capacity for cloth woven in the said group, is as under:

Medari mills :	16,000,000 yards
Primer :	18,000,000 yards
P.T.Primatexco:	35,000,000 yards
P.T.Primissima:	18,000,000 yards
Total	87,000,000 yards

- Of the above figures, cambric to be used for Batik under GKBI's group is divided as: Traditional Batik use being 16 mill.yd, Print Batik use: 9 mill.yd; total: 25 mill.yd. Cambric of 62 mill.yd left is processed at both Medari mills and P.T.

Primatexco into general cotton cloth, and partly is sold to Batik manufacturers other than GKBI at market prices.

- It is a matter of course that depending on increasing or decreasing amount of Batik production under GKBI's direct management, its volume of production and the volume of market sales will mutually be adjusted.

- Anyhow, GKBI's group has the production capacity occupying nearly about 50% of the total amount of Cambric in Indonesia. In this respect, it is safe to say that GKBI's group is the representative leader of all the Cambric manufacturers in Indonesia.

4.2.3 Price Trend

Study Team inquired into prices of Batik and cambric at GKBI, P.T. Primatexco, traders, and speciality stores. Those results are indicated in Table 4-9, and Table 4-10.

Table 4-9 Sales Prices of Batik Products

Unit: RP

	Traditional Batik	Print Batik	Remark
Biru	-	4,250	2.5 yard
Prima	4,800 - 6,000	4,300 - 4,600	"
Primissima	6,300 - 25,000	4,700 - 5,500	"
Rayon	4,300	4,000	"
Table Cloth	20,000 - 30,000	-	1.4m x 2.5m

Table 4-10 Sales Prices of Cambrics

Item	Grey Width (inch)	Grey Cloth Domestic (Rp/yard)	Grey Cloth Export (Rp/yard)	Finished Cloth Domestic (Rp/yard)	Finished Cloth Export (Rp/yard)
Biru	46	490-550	510-580	500-600	-
Biru	63	-	790-830	-	-
Prima	44	600-645	630	640-700	-
Primissima	46	660-750	-	720-810	-

- As in the same case with prices of cotton fabrics, decreasing prices of raw cotton will be reflected on prices of those products hereafter, and that the trend of Chinese cotton-cloth prices will also place its influence on export prices of grey cloth for cambrics.

4.3 Demand Forecast

4.3.1 Demand Forecast of Cotton Fabrics

- Demand forecast of cotton fabrics is summarized in Table 4-11. In general, the domestic demand for cotton fabrics will not be strong. National disposable income will not increase, consumers' purchasing power being kept low in Indonesia facing business recession.

- Domestic demand for cotton fabrics expanded to 2.2% in 1984, and stood at 0% (-0.3%) in 1985, being on the decrease from then, however.

- The growth rate of population is kept showing 2-2.1% in Indonesia. In 4th REPELITA, its growth ratio is estimated at 2.0%. Seeing that worldwide trend for seeking natural-fibre made products could not reflect so much on the demand for cotton fabrics in Indonesia, it is estimated that the annual increasing rate of those demand would be 1.0%.

- The transfer from the export incentive system into the drawback system made up to now seems to be one of the unfavourable factors for export business.

- As described in 3.2.5 "Study Team's Comprehension of Policies" in details, the export refund will assumably decrease from 7% to less than 4%. For the time being, low cotton prices of 40 ct/lb at present is considered as a favourable factor.

- A forecast says that its cotton price will increase to 70 ct/lb at the end of year and in such case, the current low cotton price will not last long.

Table 4-11 Demand Forecast of Cotton Cloth

	Favourable Factors	Unfavourable Factors	Growth %	Base Value in 1985
Demand	1. Population increase: 2% yearly 2. Worldwide trend for natural-fibre mindedness	1. Forecast made that purchasing power will not increase rapidly	+1%	Million Yards 674
Import	1. Fashion-minded trend 2. Taste for seeking higher quality products	1. Self-supply of quality products by increasing technical level	+1%	8
Export	1. Decreasing prices of raw cotton 2. Worldwide trend for seeking natural-fibre made products 3. Price drop of fuel oil 4. Managements' efforts	1. Switching from export-incentive system to drawback system 2. Quota system 3. High-cost economic structure 4. Increase of cotton prices	1986 +10% After 1987 +5%	138

(UNIT : Million Yards)

Year	Domestic	Export	Import	Production needed
1985	674	138	8	804
1990	708	185	8	885
1995	744	236	9	971
2000	782	301	9	1,074

- It is anticipated that exports of cotton fabrics in the first half of 1986 could have increased, particularly by export drive accelerated prior to the term-end of export-incentive system abolished. It is estimated that exports of cotton fabrics in 1985 will show a 10% increase over those in the previous year as a whole.

- Due to the transfer from the export-incentive system to the drawback system, exports of cotton fabrics will tend to be slow down and that, however, with 5% increase of quota limit to be assumably made, those exports will show 0.5% increase after 1987.

- Study Team expects that although a sizable increase of quota limit in the U.S.A. will hardly be feasible exportwise, a 5% of an annual increase of quota limit will be made instead.

- In such conditions of export market, it seems indispensable to try to approach to European countries and Australia as export markets from Indonesia.

- Quota system adopted in Europe is worthy of note, of course, but the sufficient information on it is still unavailable. It is known that major demand concerned focuses on wide-width cotton cloth, and promissing items are regarded as bedspread and curtain for interior use. European countries will be prospective for opening up as a new market, aided by strengthened marketing hereafter.

- It is anticipated that due to the adoption of drawback system, garment manufacturers downstream try to import cotton fabrics. Since cotton cloth in Indonesia, as stated in 3.2.5.1 "Policy Package of May 6th, 1986" is competitive in export market than that of blended cloth, imports of cotton cloth for garments will not increase so much.

- With the increase of technical level, the domestic production of quality products such as voile hitherto being imported will be on the increase.

- On the other hand, consumers' taste seeking eagerly for products of high quality is limitless. Furthermore, now comes the day of high-fashion, leading naturally to severe selection of products by consumers. Under such circumstances, imports of quality cotton-fabrics will be on the increase.

- As a result, annual 2% increase of the production of cotton fabrics will keep the balance of those demand and supply.

4.3.2 Demand Forecast of Batik and Cambric

- Demand Forecast of Batik and Cambric is summarized in Table 4-12.

- The demand for both Batik and Cambric will increase more than the demand for cotton fabrics.

- The demand for Traditional Batik will nearly level off or lower. By dint of the government's measures for promotion taken positively and assiduous efforts made in private textile companies, it is expected that any decrease of above-mentioned demand will hardly be made.

- In the meantime, it is possible that Print Batik will find a new application in the field of daily clothing. So, Study Team estimates that the domestic demand for all the Batik products will indicate a 0.5% increase annually.

- Cambric demand for Batik use will naturally be proportional to the demand for Batik. On the assumption that Cambric demand for general cotton cloth will follow the trend of domestic demand for cotton fabrics, it is estimated that the above-stated Cambric

demand will show a 1% increase annually.

- Of the total exports of Batik products, most of them are exported to Asian regions. Although it is difficult to forecast its demand, it is assumed that its demand would not change remarkably, and that with high expectation for the betterment of product designs earmarked for export and for deep plowing of interior use, exports of Batik products to the new field will be on the increase, also by dint of utmost efforts made at manufacturers.

- Seeing that the increase of Batik exports will be higher than the increase of its domestic demand, but will not be equivalent to the increase of cotton-fabric export, it is estimated that Batik exports would show a 2% increase yearly.

- With the outlook of those domestic demand and exports, it is forecasted that the production of Batik products in 2000 will increase from those production of 78 mill,yd up to 93 mill,yd, indicating a 1.2% rise annually.

- While, it seems feasible to keep a well-matched balance between demand and supply by increasing the production of cambric from the 1985-production of 160 mill.yd to the 2000-production of about 190 mill.yd, showing a 1.1% increase yearly, or a 18% increase for fifteen years.

Table 4-12 Demand Forecast for Batik/Cambric

	Favourable Factors	Unfavourable Factors	Growth %	Base Value in 1985
Demand	1. Population increase: 2% yearly 2. Taste for traditional design 3. Governments' measure for protection/promotion	1. Prompt purchasing power will not be expected 2. Fashionable trend	Batik +0.5% Cambric (Textile) +1.0%	Million Yards 47 82
Import	-	-	-	-
Export	1. Efforts for design improvement 2. Use expansion to interior field 3. Managements' efforts	1. Unique design (favourable factor sometimes)	Batik +2%	31

(UNIT : Million Yards)

Year	Cambric for Batik Domestic	Cambric for textile Domestic	Export of Batik	Production needed
1985	47	82	31	160
1990	48	86	34	168
1995	49	91	38	177
2000	51	95	42	188

4.4 Demand Forecast and Renovation Scheme

4.4.1 Basic Factors for Renovation

- Study Team finds it to be a must based on the aforementioned demand forecast, to set up the basic production outline for improvement in No.1 weaving mill leaving in obsolete conditions for establishing the renovation scheme.

- In other words, it should be noted beforehand whether the production of grey cloth for cambric, the item being produced at present, should be kept as it is now, or what kind of products, including quantity, be produced.

(1) Feasibility of continuing grey-cloth production for cambric

- The production capacity of grey cloth for cambric use in Medari mills is 16 mill.yd and that in Primer: 18 mill.yd, the total production being 34 mill.yds by both organizations which are under GKBI's direct management.

- Then, GKBI has to supply Primer with cambric for Batik use amounting to 25 mill.yds.

- Its balance forecast is in Table 4-13.

Table 4-13 Balance Forecast of Batik/Cambric in GKBI

Unit: Mill.yd.

	1985	1990	1995	2000
Production capacity of Cambrics	34	34	34	34
Batik production	25	26	28	29
Balance	9	8	6	5

- Since the increase of cambric consumption for Batik use corresponds to 1.1% yearly, as indicated in Table 4-12, the Batik production in Primer will be estimated at 29 mill.yd, in the year 2000.

- GKBI's production capacity of grey cloth for cambric use will exceed the Cambric demand for Batik use in the volume of 5 mill.yd. In other words, GKBI has its production capacity enough to cover the increase of Batik production.

- Whereas, the present production of grey cloth for cambric in No.1 weaving mill records about 7 mill.yd. Therefore, it is believed that even if the production at No.1 weaving mill would discontinue, the production of Batik products in Primer could smoothly be maintained, judging from the above balance.

- It is safe to say that there could be no hindrance at all against any stoppage of grey-cloth production for cambrics, even if taken for GKBI's benefit, in No.1 weaving mill of Medari.

(2) Field of product-variety changes

- GKBI has intended to switch its products over to grey cloth for the export for ages.

- In the forecast of Indonesian cotton fabrics, the rise of domestic demand will be equivalent to only 1% annually, whereas, the increase of those export will be 5% yearly aided by the Government's measures for export promotion and also be favourable trend of export markets.

- In case No.1 weaving mill could be operated as an organizational surplus from the conclusion made previously, its progress will hardly be made in the future, if the variety of products would be confined to those for domestic consumption. Therefore, it is essential to make its positive approach to export markets for making further growth.

- It is severely required to practice a rigid quality control to meet the requirements for turning out the very products of higher quality for export markets need than those for domestic consumption.

- It will be feasible to attain such the purpose by putting the renovation scheme into practice. At the same time, the technical innovation aiming at keeping quality products will be affected by establishing maintenance system for equipment, control system for product quality and education and training for employees.

- It is a matter of course that the proper practice of CHAPTER 2 Recommendation should be a prerequisite, considering the innovation of management, the mainstay as referred to in "3.3.3.2 GKBI's Management."

- Study Team believes that No.1 weaving mill will discontinue the grey-cloth production for Cambrics and produce grey cloth for the export as the framework of direction to establish the renovation scheme.

CHAPTER 5 MANAGERIAL DIAGNOSIS IN MEDARI MILLS

5.1 Present Status of Production Control

The amount of production in spinning, weaving, and finishing divisions at Medari Mills has been on the decrease since 1983, the peak year. Especially, a drastic drop of production was seen in 1985. Production by division group is as follows:

5.1.1 Operation and Product Quality

5.1.1.1 Spinning Division

(1) Operation

Yearly production from 1981 to 1985 and monthly production from January to May, 1986 in the Division above were:

Table 5-1 Production of Spun Yarn

Year		Production (Bales)	Tons.
1981		15,214	2,760
1982		13,543	2,457
1983		8,670	1,573
1984		9,106	1,652
1985		3,165	574
1986	JAN.	720	131
	FEB.	650	118
	MAR.	693	126
	APR.	862	156
	MAY	842	153

Source: MEDARI

That on 1981 and 1982 showed about 70% of production capacity, but, it dropped to less than 50% of its capacity since 1983. Especially, in 1985, it indicated a remarkable decrease due to insufficient purchase of raw cotton. Fortunately, however, it tended to be on the recovery gradually since the end of the year. In 1986, a stable operation could continuously be kept. As of July, 1986, the working ratio of spinning frames was 73%. Staff concerned tries to make those frames ready for increasing the above ratio by the end of the year on. So, the production in 1986 will assumably be 10,110 bales.

Judging from the current condition of respective machines and also from the cost of repairs in budget, it cannot hard be expected its huge increase. If all the spinning frames could be operable in 1987, however, its production would temporarily show about 20 percent rise.

In our study of workability in the spinning process, we consider yarn breakage as a major factor for such the workability. For information, the trend of yarn breakage during past five months is indicated as under:

Table 5-2 Yarn Breakage per 400 spls-hour

Yarn Count	JAN.	FEB.	MAR.	APR.	MAY	Average
Carded 20's	58.0	28.8	38.3	25.2	27.0	35.46
" 30's	39.2	21.4	24.3	23.0	22.7	26.12
" 40's	25.2	27.1	30.8	27.1	19.8	26.00
Combed 50's	25.2	25.6	23.0	28.0	31.8	26.72

Source: MEDARI

Yarn breakage shown above is abnormal. Unless it lowers than one third, hardly obtainable yarn of high quality is, without any possibility of increasing productivity.

There are various causes for frequent occurrence of yarn breakage. Those have been referred to its problematic points in CHAPTER 7.

(2) Product quality in front part of spinning

All the intermediate products turned out in each process should always be higher in evenness U% hitherto is used as one of the indication methods. Its present status is as below:

Table 5-3 U% of Each Products (May, 1986)

Item \ Count	CE20	CE30	CE32	CE36	CE40	CE44	CM50
Carded Sliver	5.67	3.77	3.77	3.77	4.13	4.13	4.03
Combed Sliver	-	-	-	-	-	-	5.49
Drawn Sliver II	5.50	4.47	4.47	4.47	4.23	4.23	3.20
Roving	7.0	7.15	7.15	7.15	6.23	6.23	5.10
Yarn	16.38	15.91	17.26	16.83	16.00	15.77	14.15

Source: MEDARI

Remarks: CE : Carded
CM : Combed

For comparison, USTER's standard values of U% of silvers which are used as the world-wide datum, are shown in Table 5-4.

Table 5-4 U% of Each Product (USTER) Carded

A: Carded

	Level	Carded Sliver	Drawn Sliver	Roving
	25%	3.2	3.4	4.9
U%	50%	3.6	4.0	5.8
	75%	4.1	4.9	7.0

Source: Zellweger USTER statistics

B: Combed

	Level	Carded Sliver	Combed Sliver	Drawn Sliver	Roving
	25%	3.2	3.3	2.3	3.4
U%	50%	3.6	3.8	2.5	4.1
	75%	4.1	4.7	3.0	5.1

Source: Zellweger USTER statistics

a) Regarding carded sliver, both percentage of carded sliver and combed sliver is shown as the same standard in USTER Statistics. In the 50% level, however, respective percentage of CE 20's and CM 50's made in the Mill is higher than that indicated in USTER's. From this comparison, its seems that a lot of problems lie in the card process, although such has bearings on the evenness of lap.

b) Each percentage of combed sliver turned out in the Mill is also higher than USTER's mean value. Further improvement for this matter will be requested.

c) In drawn sliver, that of sliver for 20's is particularly undesirable.

d) U% value of roved yarn is generally high. We consider that the main cause is in accumulated results of malfunction of carding, drawing, and roving machines.

e) Under such conditions of product quality in the back process as mentioned above, there is no room for any improvement in the spinning process, leading to the uneven sliver of high U% only, as referred to in Table 5-5.

Table 5-5 U% of Spun Yarn

Count / Level	Carded			Combed
	20	30	40	50
25%	12.5	13.2	14.0	11
50%	13.5	14.5	15.0	12.5
75%	15.0	15.5	16.5	13.5

Source: Zellweger USTER

(3) Quality of yarn

The up-to-date and complete data for yarn quality are not available, due to absence of IPI tester in Medari Mills. But, efforts were made to gather data obtained together with Mill people, as shown in Table 5-6.

Single yarn strength (S.Y.S) shows generally more increase than that collected by the preliminary Survey Mission in Feb., 1986, which accounts assumably for alteration of type of raw cotton.

Furthermore, U% and IPI value of yarn are high. So, in case of employing any new, revolutionary looms as well as air-jet looms, it is necessary to keep yarn quality shown in Table 5-8.

Table 5-6 Yarn Quality Data of Medari Mills

Count	Actual count	CV% of count	S.Y.S. (gram)	CV% of S.Y.S.	U%	IPI Thin	IPI Thick	IPI Nep
CE20	19.54	2.70	408.0	7.45	16.38	275	1,285	882
30	30.20	2.60	254.9	5.94	15.91	264	1,076	536
32	31.40	2.80	244.6	7.09	17.26	217	1,130	691
36	35.57	2.78	209.2	3.13	16.83	554	1,508	735
40	39.16	2.20	203.9	2.37	16.00	183	1,132	911
44	43.62	2.17	188.0	4.13	15.77	392	1,510	1,002
CM50	49.29	2.43	194.5	3.96	14.15	92	286	212

Source: MEDARI

Remarks: data of I.P.I. : FEB. 1986
data of S.Y.S. (Single Yarn Strength) and CV% data of S.Y.S. : JUL. 1986

Comparison of product quality in Medari Mill with each of the two factories of Primatexco and Plumbon, companies of GKBI's group is as shown in Table 5-7.

Table 5-7 Comparison Table of Yarn Quality

Item	Primatexco	Plumbon	Medari
Yarn count Ne	Carded 40	Carded 40	Carded 40
Grain/120 yds	24.65	24.21	24.93
Actual yarn count	40.23	40.72	39.48
CV% of yarn count	1.13	1.01	1.64
Moisture regain %	7.60	6.9	6.8
Lea strength (lbs)	60.74	55.67	57.87
CV% of lea strength	2.34	2.51	5.33
Single yarn strength (g)	189.40	178.60	181.60
CV% of single yarn strength	6.51	7.00	9.88
Elongation	5.30	4.94	5.02
Twist per inch	25.23	25.19	25.44
U%	15.18	14.14	15.78
Thin place/1,000 m	179	114	287
Thick place/1,000 m	1,016	818	1,312
Neps/1,000 m	513	546	1,027

Source: MEDARI (MAR. 1986)

Table 5-8 Standard Yarn Quality for Air Jet Loom

Item		Carded			Combed			Medari
		20	30	40	40	50	60	carded 40
CV% of yarn count		2.1	2.1	2.1	2.1	2.0	2.2	1.64
Single Yarn Strength (g)		390	260	200	210	200	170	181.6
CV% of S.Y.S.		11.4	11.7	11.6	10.5	10.0	10.3	9.88
Elongation	(%)	6.7	6.3	5.7	5.8	5.6	5.8	5.02
U	(%)	13.5	14.6	15.1	12.0	12.1	12.8	15.78
I P I pcs/1,000 m	Thin	48	80	110	21	30	41	287
	Thick	380	500	580	125	149	165	1,312
	Nep	240	470	700	145	150	160	1,027

Source: TOYODA

Data of Medari: MAR. 1986

Due to the high speed operation of air-jet looms, a little bit defects of yarn is liable to cause the loom stoppage and defects of cloth so frequently. Judging from the present quality of yarn in Medari Mills, Survey Team thinks that CV% of S.Y.S. seems to be desirable and that others to be inadequate. It is quite important to increase yarn strength; U%; I.P.I. and to attain the standard quality of yarn for cloth to be made by air-jet looms.

5.1.1.2 Weaving Division

(1) Operation

The yearly production of fabrics for 1983 - 1985 and the monthly production of them for Jan. - May, 1986 are shown as below:

Table 5-9 Production of Fabrics

Year	Annual production (yd)	Monthly production (yd)
1983	14,273,326	1,189,444
1984	11,763,790	980,316
1985	5,840,187	486,682
1986 JAN.		531,131
" FEB.	5 month Total prod.	912,887
" MAR.	4,371,302	954,009
" APR.		998,177
" MAY		975,098

Source: MEDARI

Those production decreased in 1984. Especially, due to the fall of demand caused by sluggish business concerned, it dropped very sharply in the following year. The reason why 500 sets of Howa-made R/S52" had to be all in stoppage from the end of 1985 through January, 1986 was in the decrease of production efficiency and fabric quality caused by obsolete machines and also inadequacy in the required width of fabrics for the general use, because of reed space of looms fixed for cambrics, Batik cloth.

At a point of time in July, 1986, when field survey was conducted it was found that of the total looms of 500 sets, 350 sets were running with a stabilized supply of raw cotton, it is hardly say, however, that both operational conditions and product quality are normal at all.

Since the production efficiency and fabric quality have bearings on not only looms including Toyota-made RS56" looms of 408 sets in No.2 Weaving Mill (12 sets out of said 408 sets is installed in No.1 Weaving Mill), but also on yarn quality and the level of such quality in the preparation process, it is necessary to take overall measures for solving those problems including spinning and preparation processes.

Operational conditions as of July, 1986 are as under:

(a) Condition of loom operation

It was found that the ratio of production efficiency of looms of Howa's make installed in No.1 Weaving Mill was different from that of looms of Toyota's make in No.2 Weaving Mill, which could assumably account for the difference of the current mechanical condition.

Table 5-10 Condition of Loom Operation

Mill	Loom	Nos of set	Running set	R/M	Efficiency (%)
No. 1	HOWA-52"	500	350	160	64.5
No. 2	TOYODA-56"	408	408	180	83.5
(Total)		908	758		

(Note) 12 sets of TOYODA loom in No. 1 mill are included in No. 2 mill.

Operation hours and Set Number of Looms at Work

	No.1 Weaving Mill	No.2 Mill
Number of Operation Days/Month	25	30
Operation Hours/Day	21	24
	Howa RS52"	Toyoda R/S56"
No.1 Weaving Mill	350 plus 150	12
No.2 Weaving Mill		396

Howa R/S52" of 150 sets in No.1 Mill was idle
Total number of looms in operation: 758 sets

(b) Production description

Fabric construction currently produced in Medari mills is shown in Table 5-11.

Table 5-11 Fabric Construction

Fabric	Code	Material	Count		Density/inch		Width	Length	Weight (lb/yd)	
			Warp	Weft	Warp	Weft	(inch)	(yd)	Warp	Weft
BIRU	KM200	Cotton	32's	36's	72	70	44	150	0.131	0.113
	" 202	"	"	"	70	68	46	"	0.131	0.115
	" 206	"	"	32	74	"	49.5	"	0.149	0.137
	" 208	"	"	36	69	"	49	"	0.149	0.121
PRIMA	" 100	"	40	44	92	86	44	182.5	0.135	0.127
PRIMISSIMA	" 302	"	CM50*	CM50	80	72	46	"	0.095	0.087
"	" 303	"	"	"	105	95	44	"	0.125	0.109
"	" 308	"	"	"	"	92	46	"	0.129	0.111
BUFFING CLOTH	BC100	"	20	30	86	80	"	120	0.276	0.163

Note: * CM means combed yarn.

(c) Production

Current production of weaving mills is shown in Table 5-12.

Table 5-12 Production Amount

Mill	Loom	Code	Weft Density	Loom RPM	Efficiency	Product. yd/set/day	Nos of set	Production (yd) Day	Production (yd) Month
No. 1	HOWA-52"	KM100	86	160	65	42.33	160	6,773	169,325
"	"	" 200	70	"	"	52.0	190	9,880	247,000
"	TOYODA-56"	" 202	68	180	80	84.71	12	1,017	25,425
No. 2	"	" 202	"	"	"	"	75	6,353	190,590
"	"	" 206	"	"	"	"	40	3,388	101,640
"	"	" 208	"	"	"	"	1	85	2,550
"	"	" 302	72	"	85	85.0	48	4,080	122,400
"	"	" 303	95	"	"	64.42	120	7,730	231,900
"	"	" 308	92	"	"	66.52	40	2,661	79,830
"	"	BC100	80	"	65	58.5	72	4,212	126,360
Total							758	46,179	1,297,020

Note: July, 1986

(2) Quality

In Gray Cloth Inspection Standard, black marks method 1, 3, 5, 10, the U.S. black mark, is now in use.

The inspection standard has so leniently been applied to cambric, gray cloth for Batik, because it is being used as gray cloth to be printed. As buffing cloth (BC 100) earmarked for the export is one of the industrial materials, a small defect applied to 1 point has not being counted in their grading, either, and defects arisen continuously, such as reed mark, warp streaky have also been neglected.

As long as the existing usage of fabrics remain unchanged in future, there may be no problem at all. In case of their export as gray cloth for the general clothing, however, we are afraid that there will be few passable A-grade cloth screened with the normal inspection standard.

The length of one roll is Biru; 50 yds; Prima/Primissima; 37 yds. Short cutting of buffing cloth is allowable. So acquisition ratio of A Grade is high, to its advantage.

The grading standard by U.S. black marks method is as follows: Appraisal of product quality should be made seeing that grading is more lenient than the standard.

Black marks per 1 yd:	A-Grade:	0.8 under
	B-Grade:	0.81 - 1.2
	C-Grade:	1.21 up

(a) A-Grade Ratio

Table 5-13 Classification of Cloth

Loom		HOWA Loom				TOYODA Loom				
Class	Code	KM100	KM200	KM202	Average	BC100	KM206	KM302	KM303	Average
A grade		67.5	52	67.9	62.5	87.3	75.8	80.4	82.6	81.5
B	"	32.5	48	32.1	37.5	11.2	24.2	19.6	17.4	18.1
C	"	-	-	-	-	1.5	-	-	-	0.4

Source: MEDARI

(b) Defect Occurrence Ratio by item group

Table 5-14 Detail of Cloth Defect

Defect \ Nos of code	KM100	KM200	KM202	Average	BC100	KM206	KM302	KM303	Average
Thick yarn	3.5	1.3		1.6	0.9	2.1	0.8	1.6	1.4
Slub yarn		2.6		0.9			6.4		1.6
Double warp yarn	13.3	1.3	23.1	12.6	2.6	17.7	14.9	8.8	11.0
Warp loose defect	0.7			0.2	1.7				0.4
Warp rust yarn	3.5			1.2					
Reed mark		1.3		0.4					
Bad selvage	5.6			1.9	4.6	2.9			1.9
Cut mark stream					3.7				0.9
Weft oil yarn	1.4	5.3		2.2			6.4	10.4	4.2
Weft rust yarn	8.4	6.6	7.7	7.6		2.9	2.1	6.4	2.9
Weft different count	0.7			0.2				8.0	2.0
Yarn float	9.1	4.0	7.7	6.9	4.6	8.8	8.5	7.2	7.3
Warp float		1.3		0.4	4.3		4.3	4.0	3.2
Multi warp break	5.6	9.2		4.9	2.6	14.7	6.4	9.6	8.3
Double pick	27.3	44.7	38.5	36.8	22.9	35.3	14.9	11.2	21.1
Thick bar							2.1		0.5
Thin bar	2.1	13.2	7.7	7.7	27.8		19.2	3.2	12.6
Irregular woven	2.1	1.3	7.7	3.7				4.0	1.0
Temple mark	1.4			0.5	5.7				1.4
Stain					0.6			0.8	0.4
Oil stain	8.4	7.9	7.7	8.0	1.4	2.9	6.4	17.6	7.1
Rust stain	7.0			2.3	14.3	11.8	2.1	4.8	8.3
Tear defect					2.3	2.9	4.3	2.4	3.0

Source: MEDARI

A-Grade ratio of Howa looms is lower than that of Toyoda looms.

It was found that there are various defects, such as double pick; thin bar, double warp yarn, multi-warp break, yarn float, oil stain in cloth.

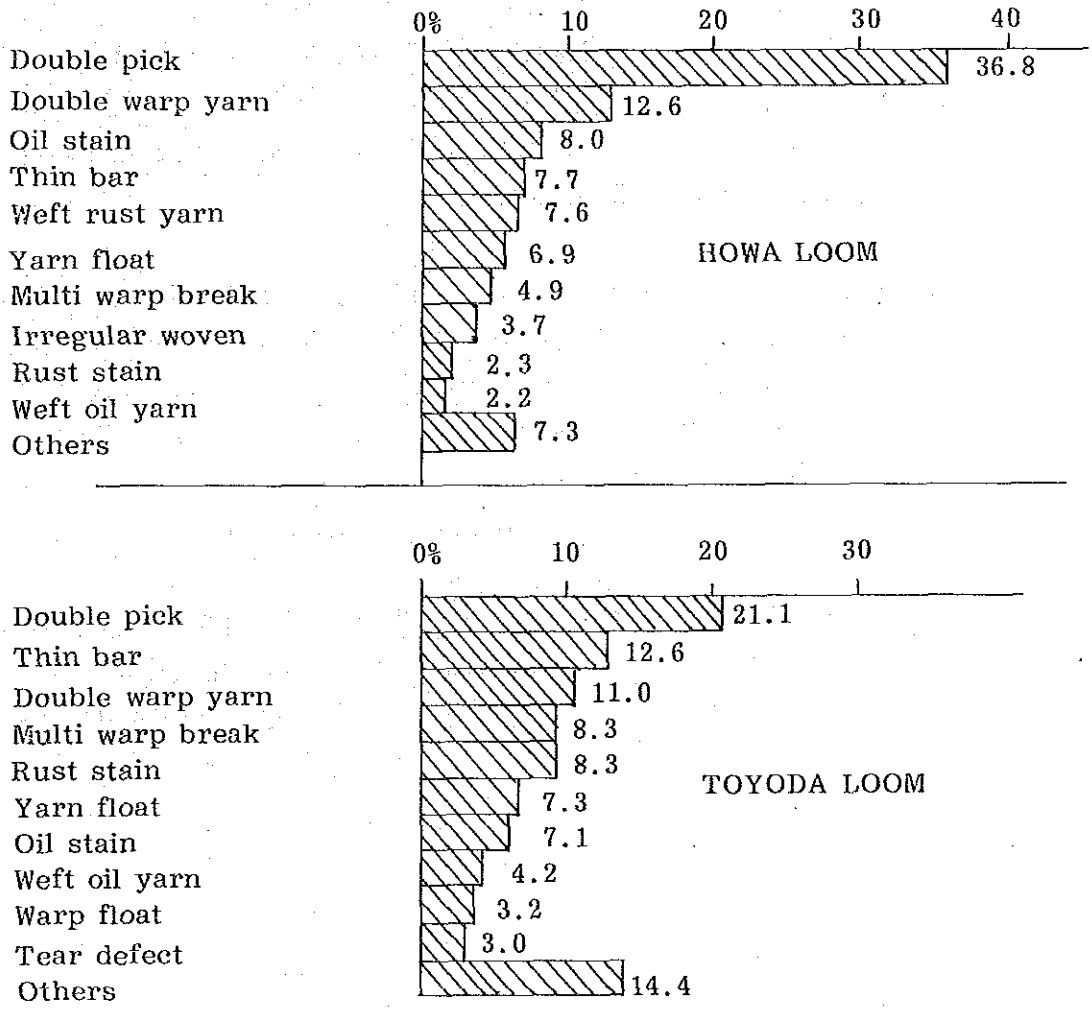


Fig. 5-1 Detail of Fabric Defect

5.1.1.3 Finishing Division

As for the recent trend of production in Finishing Division, the production of cotton fabrics dropped sharply in 1983 and 1984 from the peak amounting to 29,500,000 yds (2,460,000 yds/month) in 1981. That in 1985 was 8,750,000 yds (730,000 yds/month), which was only one third of that in the record year.

Due to the market recovery and efforts assiduously made by GKBI, those production in 1986 showed a recovery up to 1,000,000 yds monthly, still being lower in quantity to maintain a three-shift run (see Table 5-15).

Our brief review of those production by each fabrics group leads to a clear grasp of special features in Finishing Division (Table 5-16). Namely, it reveals that Biru is 47%; Prima: 42%, Premissima/Voil: 4% in composition ratio in average. From these ratios, it is clear that the production of Primissima, so-called a high-quality product among cambrics is extremely low.

This fact shows us the real condition of impossibility in easy finishing of Primissima being required of its high quality, which accounts for decreasing functions of finishing equipment - lack of parts.

Table 5-15 Production Records of Finishing Mill

Unit: 1,000 yards

Year (month)		Annual	Monthly
1981	JAN. - DEC.	29,469	2,456
1982	"	28,836	2,403
1983	"	23,667	1,972
1984	"	12,590	1,049
1985	"	8,748	729
1986	JAN.	-	905
"	FEB.	-	1,154
"	MAR.	-	999
"	APR.	-	1,267
"	MAY	-	1,193
"	JUN.	-	927

Source: MEDARI

Table 5-16 Production Records of Finishing Mill by Fabrics Group

Unit: 1,000 yards

		BIRU	PRIMA	PRIMI-SSIMA	VOIL	BER-COLIN	POPLIN	TOTAL
1986	JAN.	197	524	16	8	158	2	905
	FEB.	423	556	58	-	117	-	1,154
	MAR.	478	366	66	2	85	2	999
	APR.	801	435	23	1	7	-	1,267
	MAY	611	507	19	26	29	1	1,193
	JUN.	484	322	58	10	52	1	927

Source: MEDARI

The Finishing Division in Medari Millsof GKBI's own is required performing its finishing of all the Cambrics including those of high quality. So, urgent measures for increasing the technical level there should be taken.

It has been noted that the quality of cambrics finished there is comparatively good, taking into consideration the machinery and equipment running for twenty-five years. This owes much to a lot of workers having rich experiences gained in the finishing Mill through many years.

The allowable level of quality fabrics, however, confines to that of cambrics. In order to get the high quality of the bleached products in general, the more effective setup of process control there should be made up, for examples, a rigid enforcement of chemical concentration control in the bleaching process and the final inspection of products in all quantity. By any manner of means, it is necessary to raise the quality of GKBI's products by reorganization of the procedure of process control and establishment of responsible operation system.

5.1.2 Maintenance of Machinery and Equipment

5.1.2.1 Spinning Division

Due to the lack of periodical maintenance and insufficient replacement of damaged parts at each maintenance, the existing machinery and equipment have become obsolete quickly since its operation. Similar to a man's body, any physical part calls upon its remedy, whenever it gets damaged. Otherwise, it triggers a chain reaction which resorts to a serious medical operation.

This is quite applicable to the case of any spinning and weaving factory.

By the way, the cost of maintenance in spinning process in Medari Mills from June, 1985 to May, 1986 (12 months) was 8,785 Rp/bale in monthly average, which corresponds to monthly values of 3,400,000 Rp. Therefore, the actual cost of repairs in the Mill is estimated at about 7.1 Rp/spindle. It is difficult to keep the normal mechanical conditions with such the cost indicated above, because its cost is only one tenth of the normal cost of 720 Rp/spindle.

Furthermore, replacement of imported part has hardly been made, because about 30% custom duty is imposed on imported parts. With the insufficient cost of maintenance, we are afraid that machinery and equipment will get obsolete further. Seeing that an effective application of maintenance cost produce a 100-percent effect or its unproper application gets less than 50-percent effect, the key staff should preferably make their proper judgment "where they have to spend money."

The existing equipment of the spinning process are as the following:

List of Machines

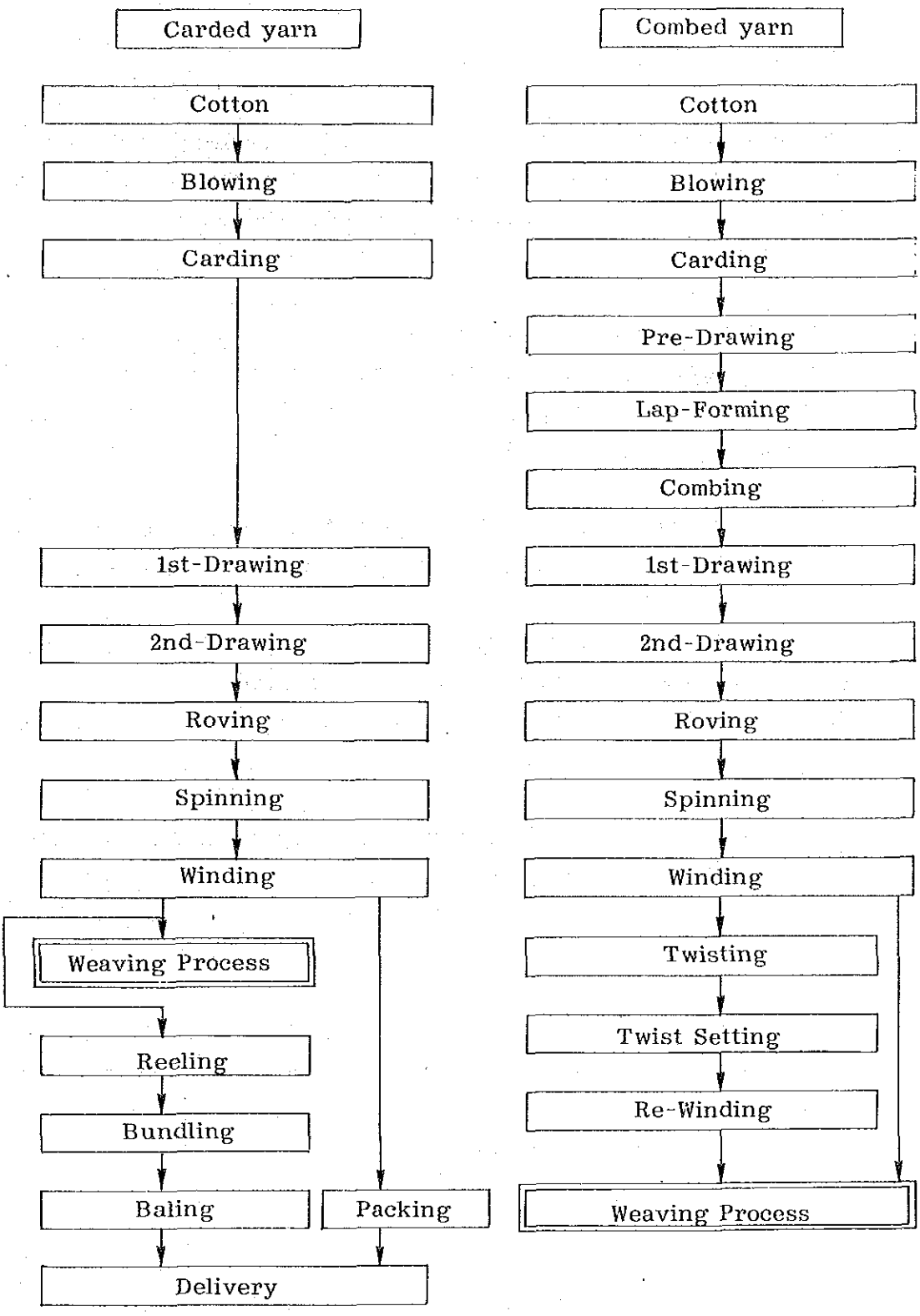
(Spinning)

Process	Model	Maker	Year made	Sets	Remarks
Blowing/Picking		HOWA OHTORI	1959/1972	3 lines	4 Scutcher
Carding	CM	HOWA	1959	108 sets	
Drawing	DF 59	HOWA	1959	3 sets	
Ditto	DF 600	HOWA	1972	1 set	
Ditto	D-800 FP	HARA	1978	2 sets	
Pre-Dlowing	D-800 FP	HARA	1978	1 set	
Lap-Forming	J-7	FUJI	1979	1 set	
Combing	Cartory K	HOWA	1978	6 sets	
Roving	RS-3	HOWA	1959	8 sets	80 spls.
Ditto	RM-5	HOWA	1969	2 sets	80 spls.
Ditto	RM 100	HOWA	1972	4 sets	96 spls.
Ditto	RM 100	HOWA	1980/81	4 sets	96 spls.
Spinning	SF	HOWA	1959	41 sets	400 spls. NITTO-arm
Ditto	HS	HOWA	1959	31 sets	
Ditto	UA 27	HOWA	1972	24 sets	400 spls. SKF PK225 (HARA)
Ditto	UA 27	HOWA	1978	20 sets	432 spls. SKF PK220
Winding	RT	KAMITSU	1959	12 sets	100 drums
Ditto	RT	KAMITSU	1972	2 sets	100 drums

Although looms erected in 1959, the year of establishment, were partially remodelled, most of the looms have been obsolete in general.

Study Team considers it necessary to replace drawing machines DF59 with the new ones as promptly as possible, because of those out-dated type rarely seen.

The general flow of the spinning process is as below:



Process Flow Chart for Cotton Yarn

5.1.2.2 Weaving Division

Machines made from 1959 to 1966 became extremely obsolete due to the long period of use of them. Since those manufacturers stop producing any of the parts concerned, the upkeep of those functioning will hardly be made hereafter.

Although new machines made posterior to 1976 can sufficiently be in use, their production efficiency and product quality are on the decrease, mechanically caused by delayed fixing due to the lack of parts.

The average cost of repairs in the past four years at Medari Mills was about Rp 12/yd, a half of the standard cost of repairs in Japan.

Under the basic principle that the rise of productivity lowers manufacture cost and that the increase of product quality raises profits, we would like to recommend increasing the cost of repairs.

Procedures for fixing machines on a priority basis for increasing production/product quality are as follows:

a) Warping machines

The cause for double warp, fabric defect, is in warping machines, which account for the malfunction of warp stoppage devices attached to Schlafhorst warpers. There is no parts to fix out. So, urgent arrangement to purchase parts is required.

b) Sizing machines

Owing to malfunction of cavity box level control by Baba Industries C-9 Sizing machine, adjustment of size solution is now being made by hand. So the result is unstable. It is recommendable to purchase parts for proper adjustment.

c) Looms

Defects of fabric, such as double pick and thin bar occupy 40% of the total defects, occuring most frequently. Fixing of the picking part of Toyoda loom remains delayed. Necessary is to purchase picking bracket especially and replace bobbins of defected weft promptly.

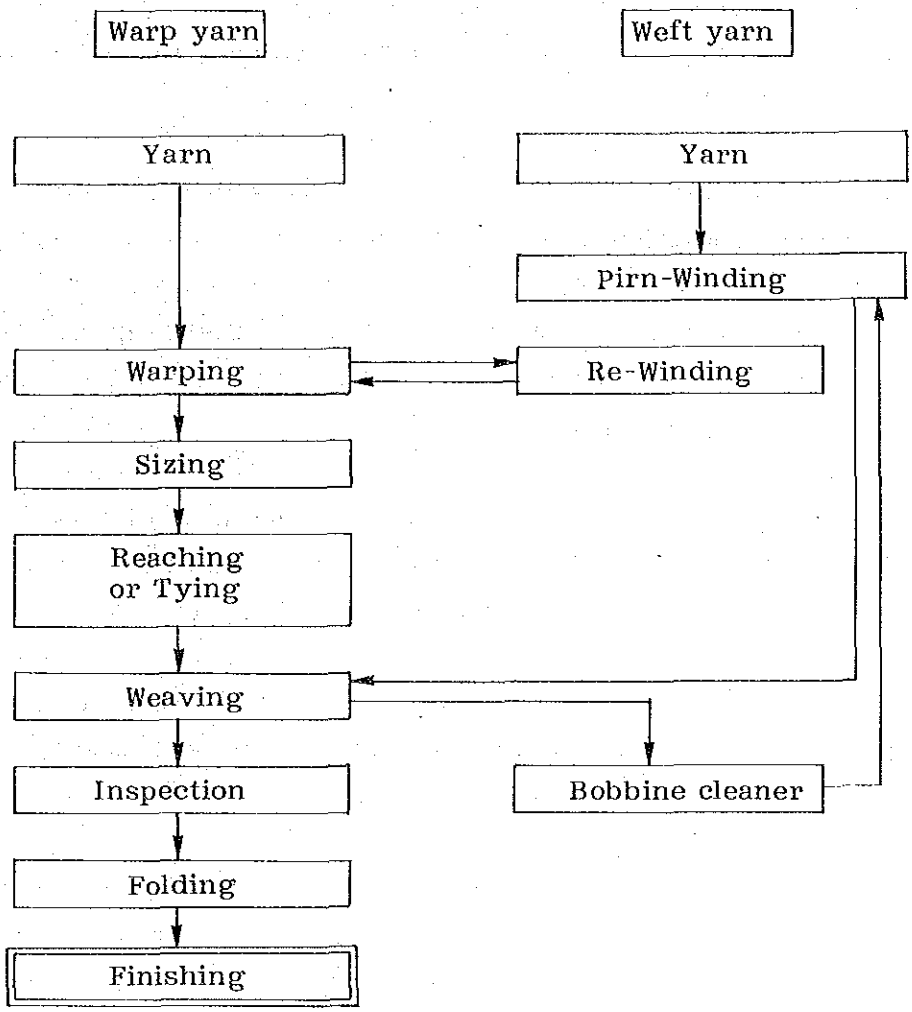
The existing machinery and equipment of weaving process in Medari Mills and weaving flow are as follows:

List of Machines, etc.

(Weaving)

Process	Model	Maker	Year made	Sets	Remarks
Warping		Kawamoto Seiki	1959	2	
Ditto	EZD		1975	1	
Sizing		Baba Sangyo	1959	1	Hot air dryer
Ditto	C-9	Baba Sangyo	1975	1	Cylinder dryer
Ditto	C-7	Baba Sangyo		1	
Sizing Tank		Sucker	1974	2	
Ditto		Baba sangyo	1976	6	2 sets in Bay
Reacking		Baba Sangyo	1959	8	
Tying		Baba Sangyo	1959	1	
Ditto		Knotex	1966	2	
Ditto		Fischer	1977	1	
Pirn winding	Quiller	Ishikawa Seisakusho	1959	3	88 spdl/set
Ditto	110	Murata Kikai	1966	22	4 spdl/set
Ditto	Q.U.	Schärer	1976	16	10 spdl/set
Bobbin Cleaning	TB C	Todo Seisakusho	1977	1	
Ditto	TB C	Todo Seisakusho	1980	1	
Loom	NE-3-52	Howa kogyo	1959	500	Shuttle change
Ditto	CH-8-56	Toyota Loom	1977	408	
Inspection		Kyoto Kikai	1959	3	Cop change
		Kyoto Kikai	1972	2	
	CK-102	Konan Tekko	1977	1	
Folding		Kyoto Kikai	1959	1	
	F-2S	Konan Tekko	1972	1	
Cart		Suehiro	1959	1	Hand lift truck
			1959	10	Beam truck
				17	Cloth truck
Air-cond.		Luwa	1960	1	

Weaving Process Flow



5.1.2.3 Finishing Division

Upkeep of arrangement, order, and floor-cleaning in the finishing mill is in good condition as a factory passing more than 25 years since its start.

Mechanical and technical level of maintenance staff in the Finishing Division regarding protection of machinery and equipment, that is, repairs of machines as a whole are high. For instance, they are practicing a partial remodelling of machines, etc., and making partial attachments of machines by themselves, which are highly appraised.

The two points shown above are the valuable fruit of maintenance staffs' efforts in the Finishing Division. Their workmanship ranks very high among all the finishing mills in Indonesia.

Important is, however, to effect a systematic maintenance control in addition to the above mentioned technical ability for the maintenance of equipment in general.

Besides, performance with only men's technical ability for mechanics is still beyond its smooth maintenance. With highly instrumented technique, the setup of planned, protective maintenance should be made up. We can hardly deny saying that maintenance of the existing Finishing Division is in practice only with technique other than those stated above. It is indispensable to set up much wider control system.

The reason why bleaching equipment, one of the major equipment in the Finishing Division, got obsolete lies partly in insufficient functioning of maintenance control as mentioned above.

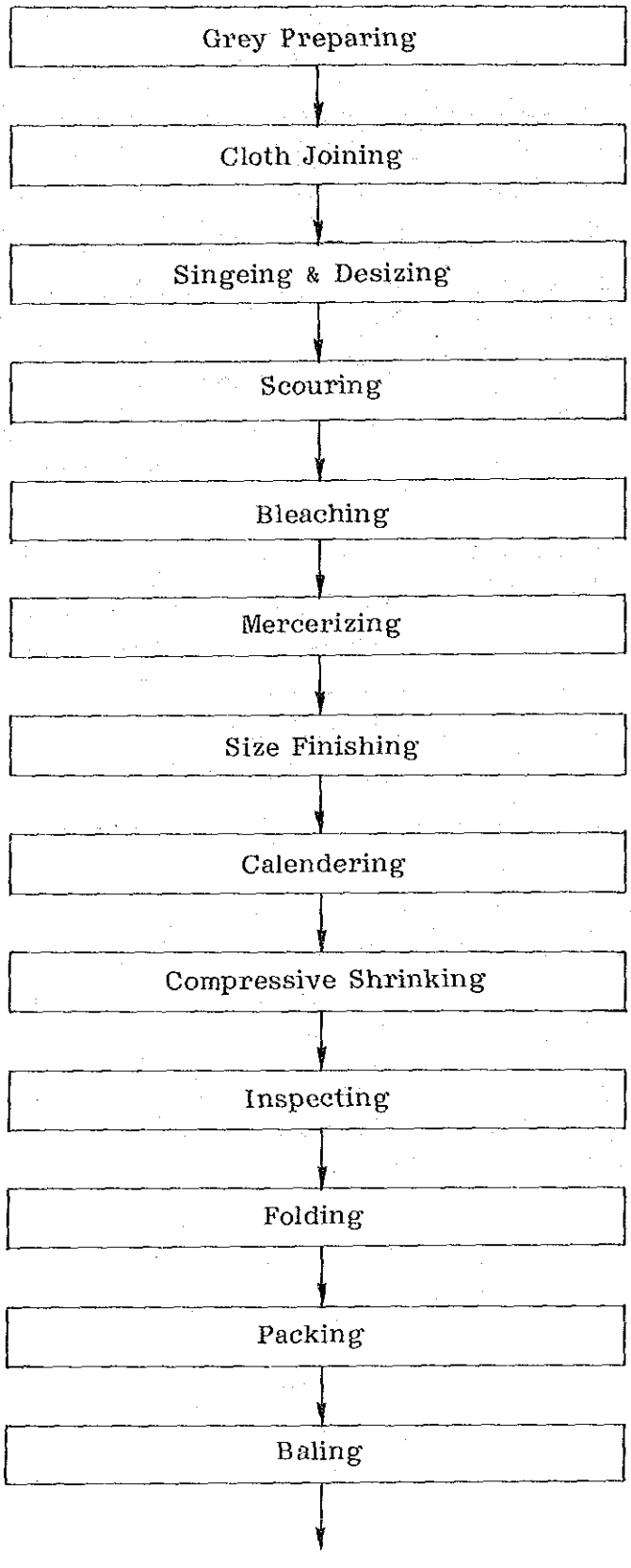
The list of the existing machinery and equipment is as below:

List of Machines, etc.

(Finishing Div.)

Process	Type	Maker	Year made	Sets	Remarks
Singeing/ desizing m/c	4 Burners	Kyoto Kikai	1959	1	100 yards/m with gas producer
Ditto	2 Burners	Santo Tekko	1982	1	120 "
J-Box Range	Du Pont Type	Kyoto Kikai	1959	1	60 "
J-Box Range	Rope Type	Kyoto Kikai			"
Rapid J-Box	Open Type	" "	1972	1	80 "
Scutcher water mangle	3 Bowl	" "	1959	1	60 "
Mercerizing m/c		" "	1972	1	80 "
Cylinder Dryer	16 Cylinders	" "	1959	1	60 "
Starching Tenter			1959	1	60 "
Starching Dryer		" "	1959	1	60 "
Tenter		" "	1959	1	60 "
5 Calenders		" "	1959	1	60 "
7 Calenders		" "	1959	1	60 "
Pre-Shrinking Range		" "	1982	1	100 "
Inspection m/c		" "	1959	3	60 "
Ditto	CK102	Kominami	1976	1	60 "
Folding m/c	F-2S	"	1982	1	60 "
	HAF-3A	" "	1982	1	60 "
Baling Press	30 tons	Kyoto Kikai	1959	1	"
Caustic Soda Recuperative Apparatus	REN1-2	Hisaka	1982	1	2 tons/hr

Finishing Process (Cambric Finish)



5.1.3 Management

5.1.3.1 Labour Lineup

- As often said, "Every enterprise consists of men, thing, and money," if absent in each of them, its operation become infeasible, being far from its progress to be made.

- So far as personnel is concerned, as referred to "An enterprise is men," character-building should preferentially be taken up within its enterprise.

- There is an article of regulations stipulating that any employees will retire the organization after 30-year service to be rendered, or at age of 55 under the age limit in Medari Mill.

- In case of Medari Mills, those who were enrolled there in 1960, the year of its establishment, occupy 80% of the total employees at present. So, those employees mentioned above will be scheduled to resign.

- It is a most point raised in this area where labour turnover is left dormant. At this stage, Study Team concerns that unless any modification of employee-age structure is made, its stable operation will hardly be effected.

- Recently, however, measures for rejuvenation partly in the management have been taken and the fosterage training for staff holding their managerial position has also been carried out. Those attempts should be fruitful by any means.

- Further, the transfer of technique and skill from practical hands to the unskilled should systematically be made from now on. In the broad sense of words, an absence of effective training for successors produces ill-effects on its operation.

5.1.3.2 Number of Employees Enrolled

- The number of employees now under enrollment is shown in Table 5-17, and the number of employees to be enrolled is in Table 5-18.

Table 5-17 Personnel Table at May 1986

Section \ Grade	A	B	C	Total
SPINNING	13	385	42	440
WEAVING	17	466	94	577
FINISHING	6	94	0	100
UTILITIES	12	109	0	121
OFFICE	23	104	0	127
Total	71	1,158	136	1,365

Source: MEDARI

Remarks: A: Manager, In charge, Shift-chief
B: Foreman, Operator, Tender, Office worker
C: Helper

Office A includes Mill Manager

Study Team considers that judging from the present production, the number of employees in Spinning and Weaving Division, other than Finishing Division, is too many.

The main reason seems to lie in smaller sets of machines per head caused by insufficient conditions of machines.

The number of employees working in office is also too many. It seems to be difficult to expedite the rationalization of office work quickly.

Table 5-18 Personnel Table After Renovation

Section	Grade	A	B	C	Total
SPINNING		13	287	67	367
	Case 1	18	395	153	566
WEAVING	Case 2	18	368	143	530
	Case 3	18	371	134	523
FINISHING		8	118	42	168
UTILITIES		12	82	-	94
OFFICE		23	104	-	127
	Case 1	74	986	262	1,322
Total	Case 2	74	959	252	1,285
	Case 3	74	962	243	1,279

Remarks: A: Manager, In charge, Shift-chief
B: Foreman, Operator, Tender, Office worker
C: Helper

Office A includes Mill Manager

Study Team figures out that the decrease rate of employees in payroll as a result of putting the renovation scheme into practice would be 16.5% in the Spinning Division, and 2-9% in the Weaving Division, being different in each case, though.

Study Team finds it possible to increase the productivity to be caused by the improvement of equipment, because the production after the renovation will increase in each of Divisions.

The number of employees in the Finishing Division, will increase inevitably, because operation hours will increase more than now.

Study Team anticipates that the decrease rate of staff members in the Utility Division will be about 22%.

The major reason lies in the decrease of staff by switching from non-utility to PLN.

5.1.3.3. Organization

- The present mill organization is shown in Table 5-19. Study Team fears that due to the wide range of responsibilities shoulded on a person in charge, there could be part beyond his control.

- It is necessary, in principle, to simplify the organization. Study Team, however, consider it inevitable to put any part so far uncontrollable under strict control by increasing persons in charge for the time being.

- In present organization, spinning department, weaving department and finishing department have operation sections and maintenance sections separately. The preparation section of weaving department has operation and maintenance sections undivided, which means that one person in charge will take care both operation and maintenance work and this is not a systematic way.

- Since quality control section is under direction of each production department manager, feedback of quality control matter is not smoothly passed on to other production departments. In order to achieve improvement of quality of final products, it is considered necessary to establish quality control section independently in new organization so that three production departments can cooperatively improve quality of final products as come out from the mill.

- It does not seem that education and training of employees are carried out systematically by professional manner. Improvement of level of skill and technique of mill employees is only accomplished by uninterrupted program of education and training of employees. In carring out management of modern mill operation effectively, education and training should be carried out enthusiastically and the section exclusively

in charge of education and training should be newly provided within technical control section.

- Incorporating points mentioned above, it is advisable to organize the mill organization similar to that shown in Table 5-20.

  . Each production department shall be managed by forming independent section for operation and maintenance.
  . Each department should be throughly controlled by dividing responsibility role.
  . By newly established technical control section, overall quality control shall be pursued.
  . It is also advisable to perform repeated training program by providing education and training section which will be dedicated only for their assigned work.

- Study Team already referred to the necessity of strengthening marketing. This organization should be placed in GKBI's headquarters for the time being and not in the Mills.

- Liaison/coordination to be made between sales activities in GKBI's headquarters and mill production planning will be performed in Products Section belonging to Office Service Division.

Table 5-19 Existing Organization of Medari Mills (1986)

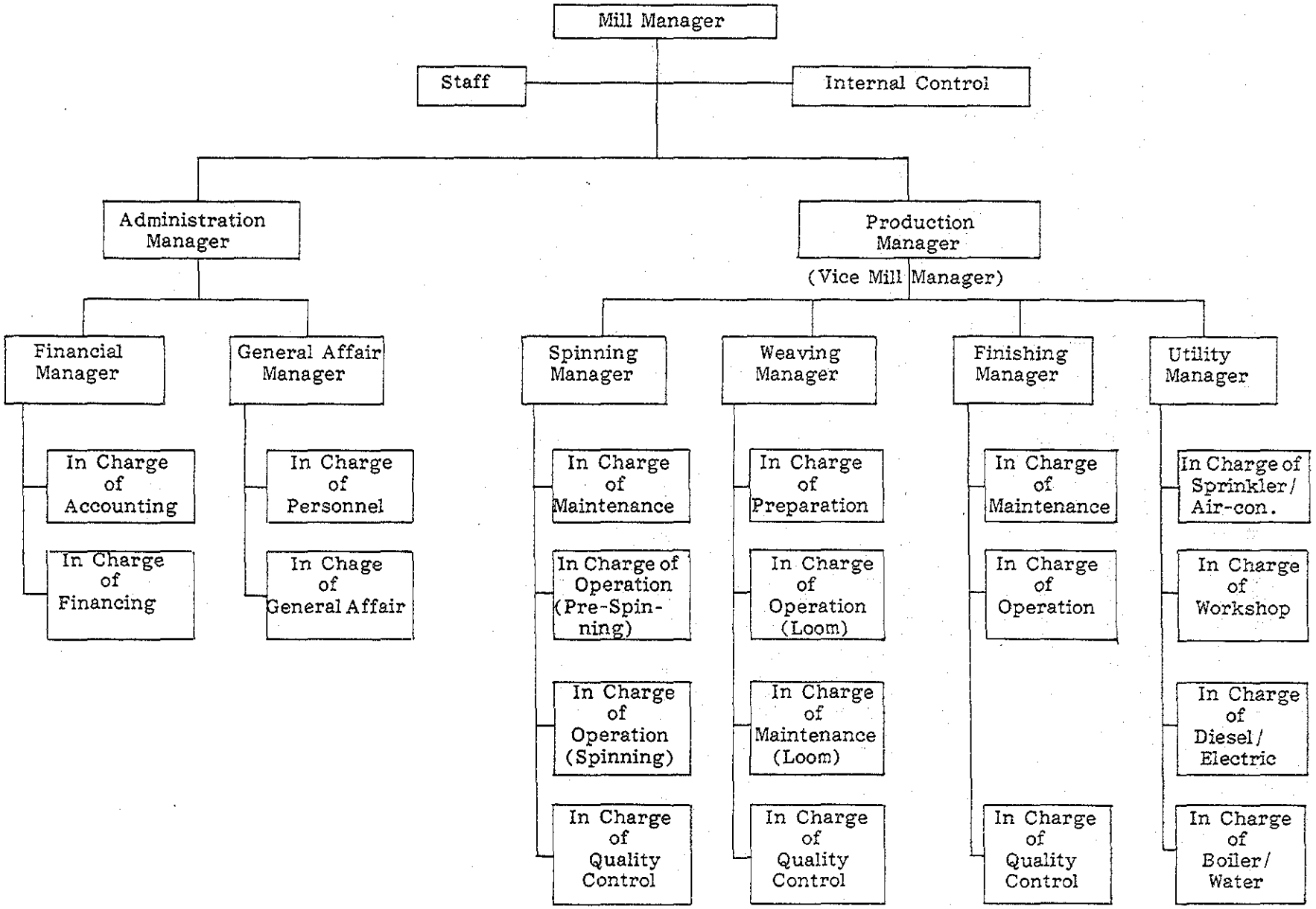
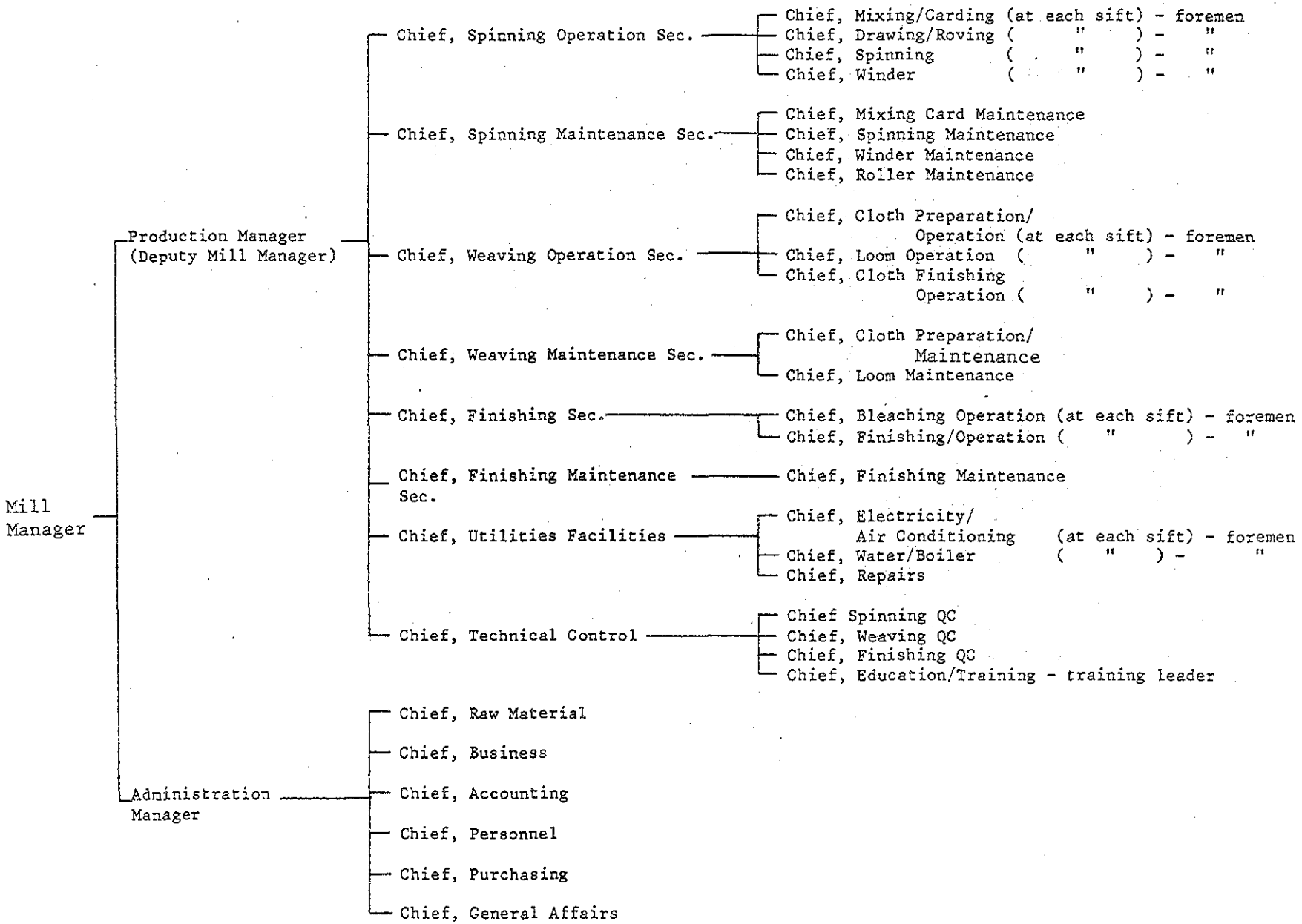


Table 5-20 Draft of Organization



5.1.4 Education and Training

5.1.4.1 Education and Training of Staff

- Study Team thinks it important to practice a consistent training of key staff performing mill control. It is needless to say that the qualitative improvement of those key staff enables all the workers to be fully informed of managerial policies and to be much quality-minded.

- To attain the purpose above, Study Team finds it desirous to conduct on-the-job training of eligible staff in industrialized countries, when necessary.

- Two cases of training can be considered as below:

  (1) Case 1: To dispatch key staff as trainees; their basic learning of technology; their technical exercises at (a) proper textile firm(s); if possible their practical training in manufacturers's shops concerned.

  (2) Case 2: To undergo educational training by competent engineers at the mills in Medari.

- Study Team considers that the training falling under Case 1 will work valuably and effectively for knowing from the heart how to control Mill and how to get their workers to be much work-minded in good environment. Besides, all the trainees will cultivate self-confidence and credit to a great degree stemmed on their learning.

- While in Case 2. each trainee has to be engaged in mill construction, installation of machines, and guidance of workers actually. Accordingly, his technical learning enables him to be much confident in his own abilities.

- Priority for receiving training should preferably be given to the key staff in the Mill. As the case may be, however, general workers could receive such the training.

- Study Team finds it needful for trainers to demonstrate how to handle before any trainees especially in Indonesia. For this, competent engineers should be despatched for trainings, and pays a special attention to increase the educational level of staff as a whole with repeated education/training on the spot, availing of every chance effectively.

a) In case of Training in industrialized countries

	Place	Content	Term
Basic Learning	Textile companies	Basic Technology	6 weeks
Technical Training	Textile Mill	Operation Training Maintenance Training Quality-Control Method Study Mill-Operation Method Study	5 weeks
Technical Training	M/C Makers	Maintenance Training	1 week

b) Spot Education/Training

The following itemized education/training will be made:

Classification	Content
General	Good sense for textile mill (Spinning; Weaving; Dyeing; Finishing)
Spinning	Raw material Function & Purpose of each process equipment Product handling & standard work
Weaving	Function & purpose of each process equipment Product handling & standard work
Bleaching ; Finishing	Water for bleaching & chemicals Function & purpose of each process equipment Product handling & standard work
Quality Control	Cause & countermeasure for product defects Statistic quality control Quality standard
Air-conditioning Dust Collection	Principle of air-conditioning method Actual air-conditioning method Dust collection device
Electricity	Power to be supplied : Generation of electricity Energy-saving
Water Treatment	Quality of water How to treat water Boiler
TWI	How to teach about each job How to handle workers (way of improvement) Proper staff replacement

5.1.4.2 Education and Training of Employees

- Labour population consists largely of farmers, hiring of whom can easily done. Once employed, however, uneasy is to dismiss any of them.

- Study Team thinks it feasible to increase efficiency of labourers with education and training, judging from a proper operation being made by about the same number of workers as in foreign countries at the joint venture.

- Study Team also considers that unless education and training are always offered in repetition, there is no effect on them at all, and that specialists in charge of such should be placed in technical control division, as shown in Table 5-20.

- As most of Indonesians are skillful by nature, they learn quickly how to handle the matter, going by another example. But, they seem quite satisfied with only what they can do, being unaware of why to do and where the main point is. They are lack of consciousness to handle any article very carefully. One happens to have seen one of them handling so carelessly that he would shut his eyes. Anyway, repeated education and training will achieve their effects on all the trainees after all.

- Such is applicable to education and training of maintenance staff. Their firm job-minded approach leads to their much precise duties, and influences effectively on their consciousness improvement as employees, to the unswerving existence of Medari Mills.

5.2 Raw Material

- It was found that GKBI would have no plan to spin into yarn of polyester/cotton blend now and hereafter, and so keep producing cotton yarn only. Therefore, Study Team confines its measures only to raw cotton.

- Types of cotton hitherto used had never been constant. Those had once been changeable in use in a short period. Recently, however, those have tended to be rather fixed in their utilization.

- Study Team deems it obligatory, however, to use Indonesian cotton in the future under the Government's policy. It is considered that Chinese cotton be in use on a long-run basis from a favourable price factor, since the Authorities concerned has been endeavouring to eliminate any troubles with the term of delivery.

- The total stock of cotton is nearly normal, being equivalent to the amount of its consumption for 2.5 months.

- Study Team recommends, however, keeping its total stock for 3 months so as to get evenly blended cotton.

5.2.1 Characteristics of Raw Cotton

Characteristics of cotton now in use and cotton usable are as follows:

Table 5-21 Characteristics of Each Cotton

Kind of cotton	Length (1/32 inch)	Micronaire	Strength (lb/sq. in)
S J V	35 - 36	3.7 - 4.6 (4.13)	71,000 - 85,000
Australia	34 - 35	3.9 - 5.1 (4.56)	71,000 - 80,000
Pakistan	33 - 34	4.5 - 5.0 (4.7)	65,000 - 80,000
Sudan	33 - 34	4.0 - 4.4 (4.2)	70,000 - 80,000
Indonesia	34 - 36	3.5 - 4.9 (4.5)	78,000 - 81,000
East Africa	34 - 35	3.6 - 4.5 (4.2)	64,000 - 76,000

Source: MEDARI

Cotton blending ratio being adopted in Medari Mill is as under:

Table 5-22 Cotton Blending Ratio in Medari

Mixing	Yarn Count (Ne)	Raw Cotton (Blending Ratio)
A	Combed 50's	S.J.V. (USA) (100%)
B	Carded 40's, 44's	S.J.V. (45%) Australia (55%)
C	Carded 30's, 32's, 36's	Pakistan (100%)
D	Carded 20's	Pakistan (90%) Sudan (5%) Waste (5%)

Source: MEDARI

Table 5-23 Fibre Length of Each Cotton

	S J V	Australia	Pakistan	Africa
U.H.M.L.	36	34 - 35	34	35
M.L.	26 - 29	24 - 26	25 - 26	26
Content of short fibre	7 - 18%	21 - 25	13 - 18	15
Uniformity Ratio	85 - 92%	82 - 85	85 - 91	83

Source: MEDARI

U.H.M.L. Upper Half Mean Length (1/32 inch)
M.L. Mean Length (")

Staple Diagram of raw cotton indicated above is shown in APPENDIX (A3 - A7).

5.2.2 Review of Various Types of Raw Cotton

- Based on data shown previously, Study Team finds the adaptability of each type of cotton to be as the following:

- SJV cotton has no problem in its staple length. But, its fibre strength is lower than mean value of SJV cotton of 90,000 lb/sq. inch. Study Team thinks SJV cotton quite suitable for its use to turn out yarn of 40s-50s.

- Of the sampled, cotton with the content ratio of its short fibre being 20% up and with uniformity ratio of 78.79% was found out by lot group. It is much recommendable to use this kind of cotton to be processed for coarse yarn or yarn of 30's.

- The short-fiber content ratio of Australian cotton is generally higher than that of SJV cotton. Judging from its staple length and fineness, it seems advisable to blend with SJV cotton for the class of yarn of 30's and 40's.

- Pakistan cotton of NMH-93 class is now being used. This class of cotton is one of the best cotton among Pakistan cotton. Nevertheless, there is much dispersion in its staple length. So, it is advisable to purchase that cotton of more than 80,000 lb/sq. inch as much as possible.

- Due to difference seen in the operation level of machinery and equipment installed at ginning factories in Pakistan, the impurity-content ratio of cotton varies greatly in each factories where cotton is processed. Its ratio is generally higher than that of American cotton. Therefore, in case of using Pakistan cotton, indispensable is to increase cleaning points in opening and picking machine.

- In regard to Sudan cotton, more problem lies in the ratio of its honeydew content than that in its characteristics. That now in use shows a 0.5%-honeydew content. At this stage, Study Team recommends to utilize Sudan-cotton only for low ratio of mixing, because the high ratio causes such trouble as wrap-up around the roller in the spinning process.

- It is advisable not to use Sudan-cotton hereafter, unless the trouble of honeydew is solved.

- Indonesian cotton is cultivated chiefly in Sulawesi Island. It is supplied to each spinners through Kapa-Indah, the handling corporation. Its production amounts to about 49,000 - 52,000 bales (500 lb/bale), showing 5% of the total cotton demand. Its grade is the class of Strict Middling or Strict Lower Middling. Its characteristics including staple length is in Table 5-21.

- Although its prices are comparatively higher than those of imported cotton of the same kind, Study Team assumes it obligatory for GKBI to use Indonesian cotton in the future in line with the Government's policy for promotion of cotton raising.

- In reference to African cotton, no actual records are available up to now. Judging only from its characteristics, it seems to be usable for medium or coarse yarn. Its weak point lies in lower stable length, however.

5.2.3 Prices of Raw Cotton and Cotton Yarn

- Price of raw cotton once being kept high at 90 - 92 cents/lb (1013 - 1035 Rp/lb), dropped to 60 cents/lb in 1986. The recent production increase of cotton in cotton-producing countries and the entry of Chinese cotton into the market resorted to such the price drop, and its average price lowered drastically at 40 cents/lb, in 1986.

- While, cotton being produced in Indonesia is now on the development. Its price is higher than the international price of similar cotton with little prospect for lowering its price for the time being. A price forecast of raw cotton is hardly to be made, because its price is liable to move speculatively. But, judging from a worldwide natural fiber-oriented approach and an increasing trend of its consumption in cotton-producing countries, Study Team can not help anticipating that its currrent price will hardly be kept and that its price will be on the increase in the future.

- The U.S. Department of Agriculture decided to reimbursed the balance between higher price of American cotton and lower international price of cotton of the same kind, in order to promote sales of American cotton.

- Due to the above measure, exports of American cotton in 1986/87 corresponded about 3 times as large as those of 1985/86, amounting to 6,000,000 bales.

- The current international price of cotton is kept low. After the end of 1986, it will tend to be on the increase.

- It can not be denied to say that cotton prices in other countries will follow the similar trend for the viewpoint of profitability.

- The price trend of cotton in the world indicated in the U.S. Cotton Incorporated is as under: (Medium Staple; cent/lb)

1983/84	Feb.'84	Feb.'85	Mar.'85
87.7	87.4	68.9	67.2

Source: Cotton Summary

- Market prices of cotton yarn are generally affected by those of raw cotton. Market prices of cotton yarn belonging to major yarn counts, obtained by survey chiefly in Japanese trading firms are shown in Table 5-24.

Table 5-24 Prices of Cotton Yarn (1986)

Yarn Count	Price Rp/kg
Carded 20's	2,200 - 2,400
Carded 30's	2,500 - 3,300
Carded 40's	3,200 - 3,600
Combed 40's	3,700 - 4,500
Combed 50's	4,500 - 5,000
Combed 60's	5,000 - 5,500

- Based on those prices indicated above, Study Team fixes prices of cotton yarn to be applied to the financial analysis as the following:

Yarn Count	Price Rp/kg
Carded 20's	2,200
Carded 30's	2,700
Carded 32's	2,700
Carded 36's	3,300
Carded 40's	3,300
Carded 44's	3,300
Combed 40's	3,800
Combed 50's	4,500