

8.2.2 Spinning Division

- Conversion of cards and spinning frames needs the long period of engineering work. Study Team finds it necessary, however, to complete such the work as short as possible, because shortening of remodelling work can be made as being much accustomed to such the work.
- Winders will be scheduled to be replaced with new ones across the board. Study Team finds it to be a must to install the existing R.T. winders temporarily for maintaining production, and plans tentatively to have those temporary installation placed at No.1 Weaving Mill.

8.2.3 Finishing Division

- Due to most of the machines consisting of one-set machine in each, any stoppage of one-set machine will have a great effect on production. Therefore, Study Team advises paying a special attention to practicing related work, for instance, smooth combination between wire connection of electricity and steam piping.

8.2.4 Utility Division

- (1) Study Team understood that necessary wiring work from high tension wire line to the new power receiving room would be done by PLN. It is needful to discuss about the sufficient plan in connection with the installation program of machines in the mill.
- (2) The excavation work of underground duct for air-conditioning depends greatly on setting up the work schedule and procurement of adequate construction machines, due to the part of rock-bed type in geological features.

(3) It is advisable to have a sufficient time to work in the rainy season, because the construction of power receiving room and necessary basic work have to be done outdoors.

(4) Study Team made up the construction work schedule based on the date of arrival of machines.

Schedule for Renovation Work (Weaving Division)

	Nos of Sets		1987							1988							1989					Days of Construction	Remarks				
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			1	2	3	4
Contract Award																											
Machine Arrival at Site							▼																				
Warper (Removal)																											10
" (Installation)																											20
" (Transfer)																											20
Sizing m/c (Removal)																											20
" (Installation)																											40
Reaching m/c																											10
Pirn Winder (Removal)																											10
" (Installation)																											15
" (") 2 (")																											6
" (") 1 (")																											3
" (Transfer) Murata 22																											10
Looms (Removal)																											60
" (Installation) 216(New)																											150
" (") 122(")																											100
" (") 100(")																											100
Inspection m/c																											15
Folding m/c																											6

Schedule for Renovation Work (Utility Division - Electric Wiring)

Nos of Sets	1987				1988				1989					Days of Construction	Remarks		
	4	5	6	7	8	9	10	11	12	1	2	3	4			5	
Contract Award																	
m/c Arrival at Site																	
PLN Power Connection																60	(estimation)
Wiring of Receiving Equipment																60	
Main Line Work																90	
Lighting																60	
Secondary Wiring																	
Spinning																270	
Weaving																270	
Air-Conditioning																30	
Boiler																30	
Water Treatment																30	

Schedule for Renovation Work (Utility Division - Equipment)

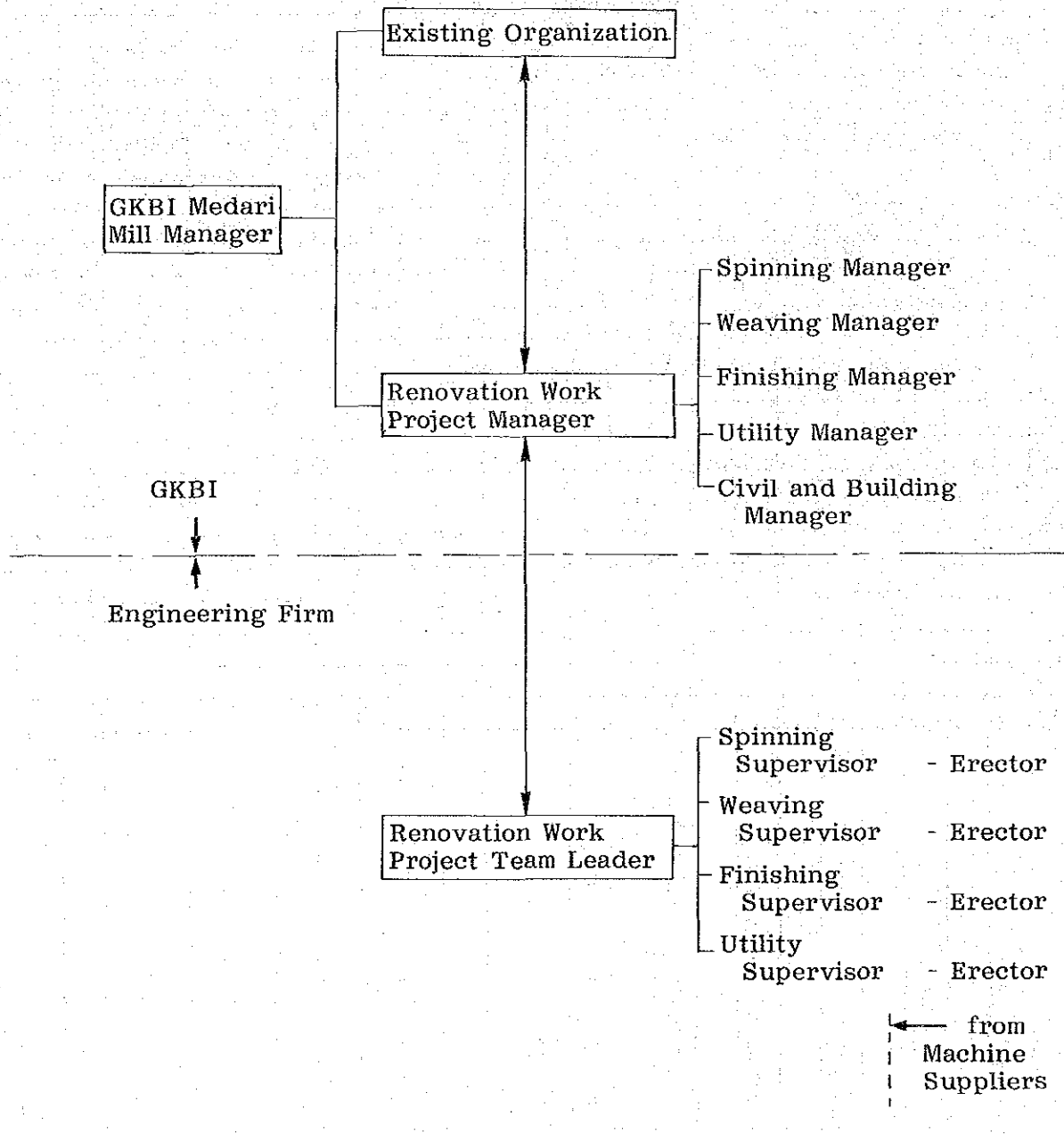
Nos of Sets	1987					1988					1989					Days of Construction	Remarks																				
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6			7	8	9	10	11	12	1	2	3	4	5									
Contract Award																																					
m/c Arrival at Site																																					
Air Conditioning																																				240	
Boiler (Installation)																																				30	
Chiller (Installation)																																				30	
Water-Treatment Equipment (Installation)																																				30	

Schedule for Renovation Work (Utility Division-Piping)

Nos of Sets	1987					1988					1989					Days of Construction	Remarks											
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6			7	8	9	10	11	12	1	2	3	4	5
Contract Award																												
m/c Arrival at Site																												
No. 2 Weaving Mill																												
Water Treatment Foundation																												
Piping (Air-Conditioning/Steam)																												
Air Piping for Air-jet loom																												
Case 2																												
Case 3																												
Electric Hoist																												

8.3 Project Team

Project Team to execute actual Renovation work will be as shown in the following organization.



Renovation Work will be executed by cooperative efforts by Project Team composed of an engineering group concerned, an erection guidance team belonging to manufacturers, and an Indonesia Renovation Project Team.

Close communications between the Project Chief Supervisor and the Project Manager, who are both in charge of each team, will be made in order to acquire information on the production with the existing machines of Medari Mills, planning and promoting the erection plan.

In working out the renovation scheme, Survey Team considers it necessary to employ I.E. technique and to keep the production to be made with the existing machines in the minimum decrease.

After completing the renovation work, the Project Team will be dissolved. Of the Engineering Group, however, the Project Chief Supervisor and Supervisors of each Divisions will stay at Medari Mills for a certain period for the purpose of its operation and maintenance guidance.

Each Job Descriptions during the erection term are as below:

Jobs	Contents
Renovation Work Project Manager (GKBI)	<ul style="list-style-type: none"> - Overall responsibility of Renovation Project Execution - In cooperation with the Project Chief Supervisor guidance and supervision of planning of the renovation practice scheme and on-the-spot erectors. - Production planning and coordination of the renovation scheme - Coordination with on-the-spot workshop
Managers of each section (GKBI)	<ul style="list-style-type: none"> - Practice and promotion of the renovation scheme in accordance with engineering group's supervisor - With thorough understanding of instructions to be made by manufacturers' erectors, instruction will be made to spot erectors.
Renovation Work Project Team Leader (Engineering Firm)	<ul style="list-style-type: none"> - Supervision of working out the renovation practice scheme and its promotion. - Guidance and supervision of on-the-spot Project Team. - Report of renovation activities to Project Manager. - Instruction to and supervision of Engineering Group concerned regarding their duties. - Instruction to and coordination of manufacturers' erectors regarding their duties. - Production planning and coordination of the renovation scheme in Medari Mills. - Coordination of jobs with on-the-spot Project Manager
Supervisors of each section (Engineering Firm)	<ul style="list-style-type: none"> - Guidance and supervision regarding confirmation and making up of machine erection layout and machine foundation. - Guidance/supervision of on-the-spot leaders. - Instruction to and coordination of manufacturers' erectors regarding their duties. - Duties for the smooth promotion of Chief supervisor's instructions.
Erectors (Supervisor from Machine Suppliers)	<ul style="list-style-type: none"> - Guidance and supervision of machine erection. - Guidance of machine operation. - Guidance of the method of machine maintenance.

CHAPTER 9 TOTAL CAPITAL REQUIREMENT AND FINANCING PLAN

9.1 Total Capital Requirement

9.1.1 Premises

Based on estimated costs required for plant renovation as described in CHAPTER 7, Pre-Operational Cost, Contingency and Interest during Construction are calculated and thus a total required capital is estimated. In order to estimate the total required capital, the following sets of conditions and premises are applied.

(1) Currency exchange rate

Since it is quite difficult to forecast future exchange rates of currencies, the exchange rate being prevailed at the time of the field survey conducted in July 1986, was adopted for the entire period when the capital is required.

The rate applied is:

1.00 US Dollar = 1,125 Indonesian Rupiah = 160 Japanese Yen

(2) Basis of cost

All costs and expenses are estimated and calculated based on 1986 values and each cost item is escalated according to the year when those costs and expenses are required. Thus calculated cost figures are used as the basis of computing the total capital requirement. It is assumed that machineries and mill facilities will be contracted in 1987 on lump sum basis according to implementation program of the project and this lump sum cost at the time of contract is used for the study.

(3) Price escalation

Materials and labors locally procured in Indonesia are escalated at the rate of 6.5% per annum and those procured outside Indonesia are escalated at the rate of 2% per annum.

(4) Tax

It is assumed that imported items required for execution of renovation program are exempted from import duty.

9.1.2 Total Required Capital

Total required capital for Case-1, -2 and -3 of project scheme are summarized in Table 9-1. Foreign currency portion is shown by Japanese Yen and Indonesian local portion and total of foreign portion and local portion are shown in Rupiah using a conversion rate mentioned in 9.1.1.(1). Because sources of funds are not determined yet at this time, the following conditions are tentatively introduced for calculating interest during construction, namely, the local currency portion of the total required capital is to be financed by equity capital and foreign currency portion is to be financed by loan. Interest is assumed at 6.5% per annum. A case of 13% per annum interest is also studied as a reference case.

Table 9-1 Total Capital Requirement

Project Scheme	Case-1		Case-2		Case-3	
	Foreign (Yen)	Local (Rupiah)	Foreign (Yen)	Local (Rupiah)	Foreign (Yen)	Local (Rupiah)
Plant Investment	3,325.9	1,978.0	3,196.5	2,054.0	3,374.8	2,163.0
Pre-operation Cost	101.0	-	101.0	-	101.0	-
Physical Contingency	84.9	163.6	82.3	172.7	85.9	181.7
Interest During Construction	65.2	-	62.6	-	66.1	-
Total Capital Requirement	3,577.0	2,141.6	3,442.4	2,226.7	3,627.8	2,344.8
		<u>27,292.6</u>		<u>26,430.8</u>		<u>27,853.0</u>

(Unit : million)

Note : US\$1 = Rp.1,125 = ¥160

Interest rate = 6.5% p.a.

9.1.3 Basis of Estimation of Required Capital

Total capital requirement shown in Table 9-1 is estimated as follows:

1) Plant investment

(1) Cost of machineries and equipment

Cost of machineries and equipment required for renovation of spinning mill, weaving mill, finishing mill and utility shop and cost of spare parts required for operation of two years are included.

(2) Ocean freight and transportation insurance

All machineries and equipment for the mill are assumed to be purchased from outside of Indonesia and assumed to be transported from Japan to Jakarta port. Ocean freight cost and transportation insurance premium are estimated and included in Plant Investment.

(3) Unloading and inland transportation cost

Unloading and loading at the port of Jakarta, inland transportation to Medari mill, and unloading at the mill are estimated as 2% of the cost of machineries and equipment.

(4) Cost for civil work and building

Materials and labor cost required for foundation work of textile machines and utility equipment are estimated as well as cost necessary for modification of buildings.

(5) Installation cost

Dismantle and disassembly work of existing machines and installation work of newly purchased machines and equipment and piping and electric work are estimated and included in Plant Investment.

(6) Engineering cost

Design work for machineries and equipment and engineering work are estimated as engineering cost. Escalation is not applied to the engineering cost.

(7) Supervising cost

As cost for supervisors during construction, 36 man-month of expatriate supervisors are estimated. Escalation is not applied.

2) Pre-operation cost

Costs for technical assistance and for education and training required or performed during construction period, prior to normal operation, are appropriated as pre-operation cost. Cost and expenses for 54 man-month of expatriate trainers staying in Medari mill are estimated. Also cost and expenses for 18 man-month of Indonesian trainees staying in a foreign country for the purpose of training are estimated and are added to pre-operation cost. Escalation is not applied.

3) Contingency

Contingency is appropriated for provision of any increase in cost for modification of design, revision of specification or for any unknown factors which are not conceived during field

survey. Amount of contingency is calculated by the following manner:

- Because machineries and equipment to be used for the project are all technically proven and established, changes in specification and design are not anticipated to the extent which will affect estimated cost largely. Contingency is calculated at 2% of cost of machineries and equipment and their ocean freight cost.
- Contingency for all other cost items such as inland transportation, erection work, civil and building, and pre-operation cost are appropriated at 10% of each cost item. Tables 9-2, 9-3 and 9-4 summarize cost for plant investment and pre-operation for three (3) cases of project scheme.

Table 9-2 Plant Investment and Pre-Operation Cost (1)

Year	-----1987-----		-----1988-----		-----TOTAL-----	
	Foreign (1,000Yen)	Local (1,000Rp.)	Foreign (1,000Yen)	Local (1,000Rp.)	Foreign (1,000Yen)	Local (1,000Rp.)
< Plant Investment >						
Machinery & Equipment	894,245	-	2,086,572	-	2,980,817	-
Ocean Freight & Insurance	53,379	-	124,552	-	177,931	-
Inland Transportation & Unloading	-	-	-	419,177	-	419,177
Civil & Building	-	-	-	377,000	-	377,000
Erection	-	-	-	990,000	-	990,000
Engineering	15,000	-	35,000	-	50,000	-
Supervising	-	-	54,000	-	54,000	-
< Pre-operation Cost >						
Technical Assistance & Training	-	-	101,000	-	101,000	-
< Price Escalation >	18,952	-	44,222	191,869	63,175	191,869
< Contingency >	20,832	-	64,107	163,600	84,938	163,600
TOTAL	1,002,408	-	2,509,453	2,141,646	3,511,861	2,141,646
						26,834,422

Note : US\$1 = Rp.1,125 = ¥160

Table 9-3 Plant Investment and Pre-Operation Cost (2)

Project Scheme Case-2

Year	1987		1988		TOTAL	
	Foreign (1,000Yen)	Local (1,000Rp.)	Foreign (1,000Yen)	Local (1,000Rp.)	Foreign (1,000Yen)	Local (1,000Rp.)
< Plant Investment >						
Machinery & Equipment	856,209	-	1,997,820	-	2,854,029	-
Ocean Freight & Insurance	53,331	-	124,438	-	177,769	-
Inland Transportation & Unloading	-	-	-	401,348	-	401,348
Civil & Building	-	-	-	440,000	-	440,000
Erection	-	-	-	1,010,000	-	1,010,000
Engineering	15,000	-	35,000	-	50,000	-
Supervising	-	-	54,000	-	54,000	-
< Pre-operation Cost >						
Technical Assistance & Training	-	-	101,000	-	101,000	-
< Price Escalation >	18,191	-	42,445	202,653	60,636	202,653
< Contingency >	20,055	-	62,294	172,650	82,349	172,650
TOTAL	962,785	-	2,416,998	2,226,651	3,379,783	2,226,651
						25,990,748

Note : US\$1 = Rp.1,125 = ¥160

Table 9-4 Plant Investment and Pre-Operation Cost (3)

Project Scheme Case-3	Year	1987		1988		TOTAL	
		Foreign (1,000Yen)	Local (1,000Rp.)	Foreign (1,000Yen)	Local (1,000Rp.)	Foreign (1,000Yen)	Local (1,000Rp.)
< Plant Investment >							
Machinery & Equipment		903,863	-	2,109,246	-	3,013,209	21,186,622
Ocean Freight & Insurance		58,036	-	135,416	-	193,452	1,360,209
Inland Transportation & Unloading		-	-	-	423,732	-	423,732
Civil & Building		-	-	-	501,000	-	501,000
Erection		-	-	-	1,025,000	-	1,025,000
Engineering		15,000	-	35,000	-	50,000	351,563
Supervising		-	-	54,000	-	54,000	379,688
< Pre-operation Cost >							
Technical Assistance & Training		-	-	101,000	-	101,000	710,156
< Price Escalation >		19,240	-	44,893	213,302	64,133	664,239
< Contingency >		21,125	-	64,791	181,727	85,916	785,823
TOTAL		1,017,363	-	2,544,347	2,344,761	3,561,710	27,388,032

Note : US\$1 = Rp.1,125 = ¥160

9.2 Financing Plan

9.2.1 Financing Plan

It is assumed that local cost portion of total capital requirement will be financed by GKBI Medari's own equity capital and foreign cost portion including interest during construction will be financed by long term loan, in accordance with the discussion during field survey.

Financing conditions of loan is set as follows:

	<u>Base Case</u>	<u>Reference Case</u>
i) Interest rate	: 6.5% p.a.	13% p.a.
ii) Repayment period	: 13 years including grace period for two cases	
iii) Grace period	: 3 years counted from the initial year of construction period for two cases	
iv) Repayment method	: 10 year installment of equal principal for two cases	
v) Interest calculation method	: Borrowing at the end of each year and settling account at the end of the following year for two cases	

9.2.2 Interest During Construction

Interests accrued during construction are calculated based on financing plan described in 9.2.1 for total capital requirements of three (3) cases of project scheme listed in Tables 9-2, 9-3 and 9-4.

Table 9-5 summarizes total capital requirements including interest during construction calculated based on financing conditions for Base Case and Reference Case.

Table 9-5 Financing Schedule of Capital Investment

Sources of Fund	Case 1		Case 2		Case 3	
	1987	1988	1987	1988	1987	1988
<u>Equity</u>						
(million Rupiah)	-	2,141.6	-	2,226.7	-	2,344.8
		2,141.6		2,226.7		2,344.8
<u>Debt</u>						
(million Yen)	1,002.4	2,509.5	962.8	2,417.0	1,017.4	2,544.3
		3,511.9		3,380.0		3,561.7
[IDC]						
6.5% p.a.	-	65.2	-	62.6	-	66.1
Interest		65.2		62.6		66.1
13.0% p.a.	-	130.3	-	125.2	-	132.3
Interest		130.3		125.2		132.3
<u>Total</u>						
(million Rupiah)						
6.5% p.a.	7,048.2	20,244.4	6,769.6	19,661.2	7,153.3	20,699.7
Interest		27,292.6		26,430.8		27,853.0
13.0% p.a.	20,702.5	27,750.7	20,101.2	26,870.8	21,164.6	28,318.0
Interest		27,750.7		26,870.8		28,318.0

Note : US\$1 = Rp.1,125 = #160

CHAPTER 10 FINANCIAL ANALYSIS

10.1 Financial Evaluation

10.1.1 Method of Financial Evaluation

In case that renovation program is implemented for an existing mill while the mill is operated and its financial effects are evaluated, effect of old investment portion and that of newly invested portion are superimposed and it is difficult to evaluate precisely the effect of newly invested portion only, after commencement of operation of a renovated mill. In view of the above, the financial analysis in this feasibility study will follow a method mentioned below.

- (1) Financial conditions of the existing mill without executing renovation are examined in terms of profit and loss of mill operation, year by year basis. However, technical diagnosis of the mill leads to reach a conclusion that if the mill were continuously operated as it is, it will become difficult to continue its operation in the near future. Therefore in order to make a fair comparison between renovation case and non-renovation case, a small scale repair work of finishing mill shall hypothetically be carried out to make consecutive operation of the mill positive and since investment cost for the small scale repair work is negligibly minor in comparison with that of renovation program of the entire mill, this small scale repair work for the finishing mill is considered as a requisite condition for the non-renovation case.
- (2) Financial conditions of the renovated mill are prepared in terms of profit and loss of renovated mill operation on year by year basis and are compared with those for non-renovation case.

- (3) In order to make a segregated effect of renovation work clear difference between year-by-year cash flows of renovation case and year-by-year cash flows of non-renovation case are considered as financial effect brought about by the investment for the renovation work and Internal Rates of Return: IRR are computed.

10.1.2 Basis of Cost

In conducting financial analysis of the renovation program, all the costs and prices are fixed at 1986 value. However, renovation work is to be implemented in the very near future of 1987 to 1988 according to implementation schedule, total capital requirement are set at the value of the time of implementation as calculated in CHAPTER 9 Total Capital Requirement and Financing Plan. All prices of products and production cost elements are fixed at prices and costs of the year of 1986.

10.2 Present State of Medari Mills

10.2.1 Production

Production record of GKBI Medari mill for the past several years are shown in Table 10-1. It is obvious that production of Medari mill has been gradually declining for those period.

Table 10-1 Production Record

Medari Mill	1981	1982	1983	1984	1985	1986 (Jan-June)
Yarn (kg)	2,760,501	2,457,391	1,617,969	1,460,750	574,228	778,250
40's equivalent	3,341,466	2,651,118	1,501,249	847,036	398,199	698,955
Grey (yard)	19,191,525	16,164,825	14,273,326	11,763,791	5,840,187	5,148,425
Prima equivalent	18,505,338	16,235,792	14,130,724	11,089,096	5,618,003	5,052,348
Cambric (yard)	29,598,885	28,963,042	23,666,691	12,590,362	8,748,246	6,434,845

Low profile of production in the years of 1984 and 1985 was caused chiefly by financial difficulty of GKBI which was so bad in shortage of cash in hand to enforce purchase of raw cotton impossible, rather than deterioration of textile machines in the mill. Since the end of 1985, the Government made clear its stance to assist GKBI not only giving support by human resources in top management level but also providing financial assistance. This overall support by the Government altered mill performance gradually from the beginning of 1986 and by July 1986, the mill production recovered to 60% of high production age of several years ago. Production of yarn in spinning mill for six (6) months from January 1986 to June 1986 was 1.76 times of yarn production of whole one year of 1986. Grey production during same 6 months reached 90% production of one year period of 1985 and Cambric produced during same 6 months were 74% of 12-month-production of 1985.

10.2.2 Sales Revenue and Production Cost

Sales revenue and production cost for past few years are shown in Table 10-2. Production costs exceeded sales revenues for last three years, resulting financial loss of operation for three consecutive years. Up until 1981, Medari mill made profit continuously, however from 1982 the mill suffered from loss constantly for 4 years. This constant loss for 4 years were mainly due to decrease of total revenue by downward trend of market price and decline of production volume partly by deterioration of machineries and equipment and partly by worsening financial conditions. Profit/Loss table is also prepared for 1986 and is included in Table 10-2. Because of drop of cost of raw material and decrease of interest payment by loan of lower interest rate financed by GKBI head office, the anticipated amount of loss will be largely reduced in 1986.

Table 10-2 Profit/Loss Table

Unit : million Rp.

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u> (Forecast)
<u>Sales Revenue</u>	18,252	15,924	6,907	8,287.5
Yarn	4,408	4,299	1,805	2,528.0
Grey	6,454	7,280	3,957	1,497.5
Cambric	7,390	4,345	1,145	4,262.0
 <u>Cost</u>	 19,156	 16,285	 9,677	 9,023.0
Raw Materials	14,285	11,572	4,905	4,436.2
Utilities	1,906	1,915	1,374	1,317.0
Labour Cost	963	1,112	963	1,070.0
Plant Overhead	180	142	116	341.0
Maintenance	205	167	145	397.0
Insurance	21	45	42	25.0
Interest	792	576	1,302	550.7
Depreciation	804	756	830	872.1
Selling Expenses	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>14.0</u>
Profit/Loss	(904)	(361)	(2,770)	(735.5)
 Loss Carry Over	 -	 (1,265)	 (4,035)	

10.3 Analysis for Non-Renovation Case

10.3.1 Condition to Continue Operation

As described in CHAPTER 7 Renovation Plan, small scale modification work for finishing mill is judged inevitable in order to continue operation of the existing mill if renovation program is not implemented. It is recommendable to carry out this small scale modification in 1988 and investment amount for the modification is estimated at 20 million yen. As a requisite condition for non-renovation case, 20 million yen (140.6 million Rupia) is assumed expended to the finishing mill in 1988 as a small scale investment and fund for the modification is assumed to be allocated from own equity of Medari mill.

10.3.2 Production

Production forecasts for non-renovation case from 1986 to the year of 2003 are shown in Tables 10-3, 10-4 and 10-5 for spinning mill, weaving mill and finishing mill respectively. Currently, in No.2 weaving mill and in finishing mill, commission processing works, namely, commission weaving and commission finishing are carried out. However from 1987 onward, it is assumed that commission finishing only is to be carried out. It is considered that spinning mill and weaving mill will achieve maximum production in 1987 and will decrease gradually afterward. Finishing mill will maintain operation of annual production of 24 million yards after 1989, however, grey cloth supplied from weaving mill will decrease gradually, thus commissioning finishing will increase inversely proportionally.

Table 10-3 Production Forecast of Spinning Mill

(Unit : ton)

Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Count-20's	185	200	185	185	130	130	73	73	70	70	70	70	0	0	0	0	0	0
30's	110	162	110	110	100	80	80	80	30	110	73	28	57	77	79	113	79	56
32's	390	468	390	250	270	270	270	270	270	279	270	270	270	270	230	210	210	200
36's	345	415	345	242	230	240	240	240	240	250	250	250	250	210	210	200	200	200
40's	245	344	245	215	120	120	120	120	120	120	120	120	120	100	100	80	80	80
44's	230	276	230	130	110	110	110	100	100	100	100	100	100	100	100	80	80	80
CM50's	335	335	335	335	260	190	190	146	147	0	0	0	0	0	0	0	0	0
TOTAL	1840	2200	1840	1467	1200	1140	1083	1029	977	929	883	838	797	757	719	683	649	616
Count-20's	180	151	139	124	101	84	63	51	38	0	0	0	0	0	0	0	0	0
30's	107	90	82	73	60	50	38	30	23	0	0	0	0	0	0	0	0	0
32's	387	322	274	230	244	255	261	265	265	275	263	251	239	227	218	209	203	197
36's	340	282	240	202	214	224	230	233	233	241	230	220	210	199	191	184	178	172
40's	92	187	151	115	112	107	106	103	100	105	99	93	96	80	73	68	62	56
44's	87	176	142	108	106	103	100	96	94	99	93	87	81	76	70	64	58	53
CM50's	0	266	235	202	160	118	86	54	33	0	0	0	0	0	0	0	0	0
TOTAL	1193	1474	1263	1054	997	941	884	832	786	720	685	651	626	582	552	525	501	478
Count-20's	5	49	46	61	29	46	10	22	32	70	70	70	0	0	0	0	0	0
30's	3	72	28	37	40	30	42	50	7	110	73	28	57	77	79	113	79	56
32's	3	146	116	20	6	15	9	5	5	4	7	19	31	43	12	1	7	3
36's	5	133	105	40	16	16	10	7	7	9	20	30	40	11	19	16	22	28
40's	153	157	94	100	8	13	14	17	20	15	21	27	24	20	27	12	18	24
44's	143	100	88	22	4	7	10	4	6	1	7	13	19	24	30	16	22	27
CM50's	335	69	100	133	100	72	104	92	114	0	0	0	0	0	0	0	0	0
TOTAL	647	726	577	413	203	199	199	197	191	209	198	187	171	175	167	158	148	138

Table 10-4 Production Forecast of Weaving Mill

(Unit : 1,000yards)

Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
(MILL-1)BIRU(3)	2176	1554	777	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRIMA	1498	1070	535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(MILL-2)BIRU(3)	3012	3834	3803	3860	4080	4270	4380	4440	4440	4600	4400	4200	4000	3800	3650	3500	3400	3300
PRIMA	1612	1966	1917	1860	1820	1770	1720	1660	1610	1700	1600	1500	1400	1300	1200	1100	1000	900
PRIMISSIONA	2502	2500	2200	1900	1500	1100	800	500	300	0	0	0	0	0	0	0	0	0
BUFFING	1148	1200	1100	980	800	660	500	400	300	0	0	0	0	0	0	0	0	0
TOTAL	11948	12124	10332	8600	8200	7800	7400	7000	6650	6300	6000	5700	5400	5100	4850	4600	4400	4200
(MILL-1)BIRU(3)	2176	1554	777	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRIMA	1498	1070	535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(MILL-2)BIRU(3)	3012	3834	3803	3860	4080	4270	4380	4440	4440	4600	4400	4200	4000	3800	3650	3500	3400	3300
PRIMA	0	1966	1917	1860	1820	1770	1720	1660	1610	1700	1600	1500	1400	1300	1200	1100	1000	900
PRIMISSIONA	0	0	2200	1900	1500	1100	800	500	300	0	0	0	0	0	0	0	0	0
BUFFING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	6686	8424	9232	7620	7400	7140	6900	6600	6350	6300	6000	5700	5400	5100	4850	4600	4400	4200
(MILL-1)BIRU(3)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRIMA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(MILL-2)BIRU(3)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRIMA(#)	1612	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRIMISSIONA(#)	2502	2500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BUFFING	1148	1200	1100	980	800	660	500	400	300	0	0	0	0	0	0	0	0	0
TOTAL	5262	3700	1100	980	800	660	500	400	300	0	0	0	0	0	0	0	0	0

(# : Commission weaving in 1986)

Table 10-5 Production Forecast of Finishing Mill

(Unit : 1,000yards)

Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
BIRU	5188	5388	4580	3860	4080	4270	4380	4440	4440	4600	4400	4200	4000	3800	3650	3500	3400	3300	
PRIMA	1498	3036	2452	1860	1820	1770	1720	1660	1610	1700	1600	1500	1400	1300	1200	1100	1000	900	
PRINTISSIMA	0	0	2200	1900	1500	1100	800	500	300	0	0	0	0	0	0	0	0	0	
(SUB-TOTAL)	6886	8424	9232	7620	7400	7140	6900	6600	6350	6300	6000	5700	5400	5100	4850	4600	4400	4200	
COMMISSION	8114	1776	5868	16380	16600	16860	17100	17400	17650	17700	18000	18300	18600	18900	19150	19400	19600	19800	
TOTAL	14800	10200	15100	24000	24000	24900	24000	24000	24000	24000	24000	24000	24000	24000	24000	24000	24000	24000	24000

Table 10-6 Products Sales Prices

<u>Products</u>	<u>Prices</u>
[Yarn]	(Rp./kg)
Count-20's	2,200
30's	2,700
32's	2,700
36's	3,300
40's	3,300
44's	3,300
CM 50's	4,500
[Grey]	(Rp./yard)
Primissima	660
Buffing Cloth	770
[Cambric]	(Rp./yard)
Biru	540
Prima	650
Primissima	720
[Commission Weaving]	(Rp./yard)
Prima	140
Primissima	155
[Commission Finishing]	(Rp./yard)
	60

10.3.3 Product Price

Sales price of products are set as shown in Table 10-6 according to prices investigated during field survey.

It is assumed that Buffing Cloth is to be exported and all other products are sold in domestic market.

10.3.4 Cost Elements

(1) Raw material cost

Price of cotton of main raw material is set as 750 Rupiah per pound (1,653 Rupiah per kg).

(2) Variable operating cost

As variable cost other than raw material cost, costs of utilities, sub-material, consumables and packing are appropriated based on data obtained during field survey.

(3) Fixed operating cost

Labour cost as of July 1986 is adopted and number of labourers are adjusted in proportion to decrease of production.

Plant overhead is set as 30% of direct labour cost and 20 million Rupiah is added as land rental charge.

Maintenance cost is estimated considering degree of deterioration of machines and equipment of the mill.

Same amount of current insurance premium is used for the entire project life.

(4) Depreciation and amortization

Depreciation and amortization are appropriated considering present depreciation amount and non-depreciated amount of existing mill, adding depreciation amount for investment used for small scale modification of 140.6 million Rupiah which is depreciated at 25% annually for 7 years.

(5) Interest payment

Long term loan outstanding at the time of account settlement of 1985 is assumed to be replaced all by the loan from GKBI Head Office in 1986.

Production volume and production cost forecast from 1986 to 2003 are shown in Table A-1 in Appendix.

10.3.5 Inventory and Working Capital

Based on results of diagnosis of the mill and discussion with persons concerned, adequate amount of raw material inventory and product inventory and working capital is set as shown in Table 10-7.

Table 10-7 Inventory and Working Capital

<u>Inventory</u>	<u>Requirement</u>
Raw Material	three (3) months
Sub Material	one (1) months
Consumables	one (1) months
 <u>Working Capital</u>	
Account Receivable	one (1) month's sales revenue
Account Payable	one (1) month's variable operating cost
Cash	59.9 million Rupiah

According to Balance Sheet of 1985 obtained during field survey, 59.9 million Rupiah of cash in hand is counted in current asset and this amount is allocated as cash in working capital.

The inventory and working capital mentioned above are calculated based on figures in the year of 1985 and are applied from 1986 and the amount is adjusted. Corresponding to production amount and sales revenue in respective year.

Surplus cash of each year is added to cash in working capital and is carried over to following year. In case that shortage of cash is taken place, amount of shortage is assumed financed from GKBI Head Office at interest rate of 6.5% per annum, without demolishing working capital.

10.3.6 Forecast of Financial Conditions

Financial conditions are anticipated for the case that the mill is not to be renovated. Project life is assumed to be until the year of 2003 and the mill is supposed to be operated by the conditions mentioned in section 10.2.2. Should shortage of funds happen in any financial year, it is assumed that the shortage is to be financed by loan from GKBI Head Office. For any loan from GKBI Head Office, interest at the rate of 6.5% per annum will be paid. If any surplus cash is counted in any year, the surplus money will predominantly be used as a fund for repayment to GKBI Head Office for a loan currently outstanding in 1986 and for the loan borrowed as short term loan in operation afterward.

Tables A-2- thru A-5 in Appendix are Profit and Loss Statement, Cash Flow Table, Fund Flow Table and Balance Sheet for non-renovation case. From 1987 to 1977 and a year of 1994, 20 million Rupiah to 613 million Rupiah of profit after tax are anticipated. However in 1993 and posterior to 1995, production cost will exceed sales revenue, thus the mill will suffer from financial loss. Since depreciation will be appropriated until 1995, surplus in cash flow will occur, making repayment of loan from GKBI possible until 1994, however the mill will face with shortage of funds afterward and will have to borrow funds from GKBI Head Office. Incidentally in the year of 1986, the mill is performing commissioning works because of shortage of supply of raw cotton, resulting reduction of sales revenue and consequently loss will be anticipated at the end of the year and a fund shortage is also anticipated as the working capital of the year is to be adjusted.

As the result of 18-year-operation from 1986 to 2003, should the mill be able to operate for those years, out of a loan amount of 10,177 million Rupiah from GKBI outstanding in the year of 1986 the amount of 5,790 million Rupiah is to be paid back. However at the end of the project life in the year of 2003, a loan amount of

6,831 million Rupiah will remain unpaid, including loans caused by shortage of funds in the year of 1986 and that of the years posterior to 1995.

It is concluded that, in case that the mill is not renovated, the mill will make profit by its operation until 1994, and repayment of GKBI loan can be made partially. However, annual sales revenue will gradually decrease after 1987, the year of maximum sales revenue and loss will be counted from 1993, amount of which will increase year by year. Therefore if the mill continues its operation without renovation, it is possible to make profits and to restore its financial conditions temporarily, but it is impossible to make complete repayment of debts and after operation of several years, the mill will not be able to make profit by its operation.

10.4 Analysis of Renovation Case

10.4.1 Production Scheme

Production scheme is prepared based on renovation program as shown in Tables 10-8 thru 10-10. Operation factors for 1989 and 1990, the first and second years after commencement of operation of a renovated mill, are set of 80% and 90% respectively and from 1991 to the end of the project life is assumed operated at 100% capacity.

10.4.2 Stoppage of Production during Renovation Work

Production will unavoidably be reduced during construction period, however it is planned and scheduled that the mill will achieve optimum production even during renovation work.

Table 10-8-(1) Production Plan for Spinning Mill

PROJECT SCHEME CASE-1		(Unit : ton)					
Year		1986	1987	1988	1989	1990	1991-
PRODUCTION	Count-20's	185	200	230	190	200	209
	30's	110	162	230	569	688	909
	32's	390	468	538	550	620	621
	36's	345	415	477	480	540	561
	40's	245	344	484	847	953	1059
	44's	230	276	150	120	135	149
	CM40's	0	0	80	270	315	351
	CM50's	335	335	335	335	335	348
	TOTAL	1840	2200	2524	3361	3786	4207
to WEAVING	Count-20's	180	151	180	180	180	180
	30's	107	90	158	312	337	363
	32's	387	322	264	399	420	442
	36's	340	282	231	350	369	388
	40's	92	187	172	315	339	363
	44's	87	176	117	117	117	117
	CM40's	0	0	54	213	240	266
	CM50's	0	266	333	333	333	333
	TOTAL	1193	1474	1509	2219	2335	2452
to SALES	Count-20's	5	49	50	10	20	29
	30's	3	72	72	257	351	546
	32's	3	146	274	151	200	179
	36's	5	133	246	130	171	173
	40's	153	157	312	532	614	696
	44's	143	100	33	3	18	32
	CM40's	0	0	26	57	75	85
	CM50's	335	69	2	2	2	15
	TOTAL	647	726	1015	1142	1451	1755

Table 10-8-(2) Production Plan for Spinning Mill

PROJECT SCHEME CASE-2		(Unit : ton)						
Year		1986	1987	1988	1989	1990	1991	1992-
PRODUCTION	Count-20's	185	200	230	190	200	209	209
	30's	110	162	230	569	688	909	909
	32's	390	468	538	550	620	621	621
	36's	345	415	477	480	540	561	561
	40's	245	344	484	847	953	1059	1059
	44's	230	276	150	120	135	149	149
	CM40's	0	0	80	270	315	351	351
	CM50's	335	335	335	335	335	348	348
	TOTAL	1840	2200	2524	3361	3786	4207	4207
to WEAVING	Count-20's	180	151	176	180	180	180	180
	30's	107	90	174	387	422	457	387
	32's	387	322	265	407	430	453	448
	36's	340	282	233	357	377	397	393
	40's	92	187	171	324	349	374	319
	44's	87	176	114	117	117	117	117
	CM40's	0	0	57	226	254	282	323
	CM50's	0	266	325	333	333	333	333
	TOTAL	1193	1474	1515	2331	2462	2593	2500
to SALES	Count-20's	5	49	54	10	20	29	29
	30's	3	72	56	182	266	452	522
	32's	3	146	273	143	190	168	173
	36's	5	133	244	123	163	164	168
	40's	153	157	313	523	604	685	740
	44's	143	100	36	3	18	32	32
	CM40's	0	0	23	44	61	69	28
	CM50's	335	69	10	2	2	15	15
	TOTAL	647	726	1009	1030	1324	1614	1707

Table 10-8-(3) Production Plan for Spinning Mill

PROJECT SCHEME CASE-3		(Unit : ton)					
Year		1986	1987	1988	1989	1990	1991-
PRODUCTION	Count-20's	185	200	230	190	200	209
	30's	110	162	230	569	688	909
	32's	390	468	538	550	620	621
	36's	345	415	477	480	540	561
	40's	245	344	484	847	953	1059
	44's	230	276	150	120	135	149
	CM40's	0	0	80	270	315	351
	CM50's	335	335	335	335	335	348
	TOTAL	1840	2200	2524	3361	3786	4207
to WEAVING	Count-20's	180	151	180	180	180	180
	30's	107	90	192	448	491	533
	32's	387	322	301	528	566	604
	36's	340	282	264	464	497	529
	40's	92	187	189	385	417	449
	44's	87	176	117	117	117	117
	CM40's	0	0	65	258	290	323
	CM50's	0	266	333	333	333	333
	TOTAL	1193	1474	1641	2713	2891	3068
to SALES	Count-20's	5	49	50	10	20	29
	30's	3	72	38	121	197	376
	32's	3	146	237	22	54	17
	36's	5	133	213	16	43	32
	40's	153	157	295	462	536	610
	44's	143	100	33	3	18	32
	CM40's	0	0	15	12	25	28
	CM50's	335	69	2	2	2	15
	TOTAL	647	726	883	648	895	1139

Table 10-9-(1) Production Plan for Weaving Mill

PROJECT SCHEME CASE-1			(Unit : 1,000yards)						
Year			1986	1987	1988	1989	1990	1991	
PRODUCTION	NO.1 MILL	BIRU(1)	0	0	281	1125	1266	1406	
		BIRU(2)	0	0	281	1125	1266	1406	
		BIRU(3)	2176	1554	0	0	0	0	
		PRIMA	1498	1070	0	0	0	0	
		POPLIN(1)	0	0	269	1077	1212	1347	
		POPLIN(2)	0	0	269	1077	1212	1347	
		TWILL	0	0	116	464	522	580	
		SATIN	0	0	102	409	460	511	
	NO.2 MILL	BIRU(3)	3012	3834	3674	3766	3766	3766	
		PRIMA	1612	1966	1966	2015	2015	2015	
		PRIMISSIMA	2502	2500	3051	3127	3127	3127	
		BUFFING	1148	1200	1400	1435	1435	1435	
	TOTAL			11948	12124	11410	15621	16280	16940
	to FINISHING	NO.1 MILL	BIRU(1)	0	0	0	0	0	0
BIRU(2)			0	0	0	0	0	0	
		BIRU(3)	2176	1554	0	0	0	0	
		PRIMA	1498	1070	0	0	0	0	
		POPLIN(1)	0	0	0	0	0	0	
		POPLIN(2)	0	0	0	0	0	0	
		TWILL	0	0	0	0	0	0	
		SATIN	0	0	0	0	0	0	
NO.2 MILL		BIRU(3)	3012	3834	3674	3766	3766	3766	
		PRIMA	0	1966	1966	2015	2015	2015	
		PRIMISSIMA	0	0	3051	3127	3127	3127	
		BUFFING	0	0	0	0	0	0	
TOTAL			6686	8424	8691	8908	8908	8908	
to SALES		NO.1 MILL	BIRU(1)	0	0	281	1125	1266	1406
	BIRU(2)		0	0	281	1125	1266	1406	
		BIRU(3)	0	0	0	0	0	0	
		PRIMA	0	0	0	0	0	0	
		POPLIN(1)	0	0	269	1077	1212	1347	
		POPLIN(2)	0	0	269	1077	1212	1347	
		TWILL	0	0	116	464	522	580	
		SATIN	0	0	102	409	460	511	
	NO.2 MILL	BIRU(3)	0	0	0	0	0	0	
		PRIMA(*)	1612	0	0	0	0	0	
		PRIMISSIMA(*)	2502	2500	0	0	0	0	
		BUFFING	1148	1200	1400	1435	1435	1435	
	TOTAL			5262	3700	2719	6712	7372	8032

(* : Commission weaving in 1986)

Table 10-9-(2) Production Plan for Weaving Mill

PROJECT SCHEME CASE-2			(Unit : 1,000yards)						
Year			1986	1987	1988	1989	1990	1991	1992-
PRODUCTION	NO.1	BIRU(1)	0	0	277	1108	1246	1385	1704
	MILL	BIRU(2)	0	0	315	1261	1419	1576	1150
		BIRU(3)	2176	1554	0	0	0	0	0
		PRIMA	1498	1070	0	0	0	0	0
		POPLIN(1)	0	0	286	1143	1286	1428	1632
		POPLIN(2)	0	0	282	1126	1267	1408	1102
		TWILL	0	0	169	676	761	845	966
		SATIN	0	0	128	511	575	639	710
	NO.2	BIRU(3)	3012	3834	3674	3766	3766	3766	3766
	MILL	PRIMA	1612	1966	1966	2015	2015	2015	2015
		PRIMISSIMA	2502	2500	3051	3127	3127	3127	3127
	BUFFING	1148	1200	1400	1435	1435	1435	1435	
	TOTAL	11948	12124	11547	16168	16896	17624	17608	
to FINISHING	NO.1	BIRU(1)	0	0	0	0	0	0	0
	MILL	BIRU(2)	0	0	0	0	0	0	0
		BIRU(3)	2176	1554	0	0	0	0	0
		PRIMA	1498	1070	0	0	0	0	0
		POPLIN(1)	0	0	0	0	0	0	0
		POPLIN(2)	0	0	0	0	0	0	0
		TWILL	0	0	0	0	0	0	0
		SATIN	0	0	0	0	0	0	0
	NO.2	BIRU(3)	3012	3834	3674	3766	3766	3766	3766
	MILL	PRIMA	0	1966	1966	2015	2015	2015	2015
		PRIMISSIMA	0	0	3051	3127	3127	3127	3127
	BUFFING	0	0	0	0	0	0	0	
	TOTAL	6686	8424	8691	8908	8908	8908	8908	
to SALES	NO.1	BIRU(1)	0	0	277	1108	1246	1385	1704
	MILL	BIRU(2)	0	0	315	1261	1419	1576	1150
		BIRU(3)	0	0	0	0	0	0	0
		PRIMA	0	0	0	0	0	0	0
		POPLIN(1)	0	0	286	1143	1286	1428	1632
		POPLIN(2)	0	0	282	1126	1267	1408	1102
		TWILL	0	0	169	676	761	845	966
		SATIN	0	0	128	511	575	639	710
	NO.2	BIRU(3)	0	0	0	0	0	0	0
	MILL	PRIMA(*)	1612	0	0	0	0	0	0
		PRIMISSIMA(*)	2502	2500	0	0	0	0	0
	BUFFING	1148	1200	1400	1435	1435	1435	1435	
	TOTAL	5262	3700	2856	7260	7988	8716	8700	

(* : Commission weaving in 1986)

Table 10-9-(3) Production Plan for Weaving Mill

PROJECT SCHEME CASE-3 (Unit : 1,000yards)

Year			1986	1987	1988	1989	1990	1991
PRODUCTION	NO. 1	BIRU(1)	0	0	511	2045	2301	2556
		MILL BIRU(2)	0	0	469	1875	2109	2343
	MILL	BIRU(3)	2176	1554	0	0	0	0
		PRIMA	1498	1070	0	0	0	0
		POPLIN(1)	0	0	326	1306	1469	1632
		POPLIN(2)	0	0	367	1469	1653	1837
		TWILL	0	0	193	773	869	966
		SATIN	0	0	170	682	767	852
		NO. 2	BIRU(3)	3012	3834	3674	3766	3766
	MILL	PRIMA	1612	1966	1966	2015	2015	2015
		PRIMISSIONA	2502	2500	3051	3127	3127	3127
		BUFFING	1148	1200	1400	1435	1435	1435
		TOTAL	11948	12124	12128	18493	19511	20530
to FINISHING	NO. 1	BIRU(1)	0	0	0	0	0	0
		MILL BIRU(2)	0	0	0	0	0	0
	MILL	BIRU(3)	2176	1554	0	0	0	0
		PRIMA	1498	1070	0	0	0	0
		POPLIN(1)	0	0	0	0	0	0
		POPLIN(2)	0	0	0	0	0	0
		TWILL	0	0	0	0	0	0
		SATIN	0	0	0	0	0	0
		NO. 2	BIRU(3)	3012	3834	3674	3766	3766
	MILL	PRIMA	0	1966	1966	2015	2015	2015
		PRIMISSIONA	0	0	3051	3127	3127	3127
		BUFFING	0	0	0	0	0	0
		TOTAL	6686	8424	8691	8908	8908	8908
to SALES	NO. 1	BIRU(1)	0	0	511	2045	2301	2556
		MILL BIRU(2)	0	0	469	1875	2109	2343
	MILL	BIRU(3)	0	0	0	0	0	0
		PRIMA	0	0	0	0	0	0
		POPLIN(1)	0	0	326	1306	1469	1632
		POPLIN(2)	0	0	367	1469	1653	1837
		TWILL	0	0	193	773	869	966
		SATIN	0	0	170	682	767	852
		NO. 2	BIRU(3)	0	0	0	0	0
	MILL	PRIMA(*)	1612	0	0	0	0	0
		PRIMISSIONA(*)	2502	2500	0	0	0	0
		BUFFING	1148	1200	1400	1435	1435	1435
		TOTAL	5262	3700	3437	9584	10603	11622

(* : Commission weaving in 1986)

Table 10-10 Production Plan for Finishing Mill

PROJECT SCHEME CASE-1		(Unit : 1,000yards)					
Year		1986	1987	1988	1989	1990	1991-
PRODUCTION	BIRU	5188	5388	3674	3766	3766	3766
	PRIMA	1498	3036	1966	2015	2015	2015
	PRIMISSIMA	0	0	3051	3127	3127	3127
	(SUB-TOTAL)	6686	8424	8691	8908	8908	8908
	COMMISSION	8114	1776	8534	20192	20192	20192
	TOTAL	14800	10200	17225	29100	29100	29100

PROJECT SCHEME CASE-2		(Unit : 1,000yards)						
Year		1986	1987	1988	1989	1990	1991	1992-
PRODUCTION	BIRU	5188	5388	3674	3766	3766	3766	3766
	PRIMA	1498	3036	1966	2015	2015	2015	2015
	PRIMISSIMA	0	0	3051	3127	3127	3127	3127
	(SUB-TOTAL)	6686	8424	8691	8908	8908	8908	8908
	COMMISSION	8114	1776	8534	20192	20192	20192	20192
	TOTAL	14800	10200	17225	29100	29100	29100	29100

PROJECT SCHEME CASE-3		(Unit : 1,000yards)					
Year		1986	1987	1988	1989	1990	1991-
PRODUCTION	BIRU	5188	5388	3674	3766	3766	3766
	PRIMA	1498	3036	1966	2015	2015	2015
	PRIMISSIMA	0	0	3051	3127	3127	3127
	(SUB-TOTAL)	6686	8424	8691	8908	8908	8908
	COMMISSION	8114	1776	8534	20192	20192	20192
	TOTAL	14800	10200	17225	29100	29100	29100

10.4.3 Sales Prices

Sales prices of product and compensation for commissioning weaving and commissioning finishing are set as those shown in Table 10-11.

It is assumed that Biru (1), Poplin (1), Twill, Satin and Buffing Cloth are to be exported and all other products are sold in domestic market, and prices are set based on this assumption.

10.4.4 Cost Elements

(1) Raw material cost

The price of cotton purchased by the mill is set as 750 Rupia per pound (1,653 Rupia per kg), which is the same as the raw cotton price for non-renovation case.

(2) Variable cost

Costs for utilities, sub-materials, consumables and packaging are set based on data prevailing at the time of field survey.

Table 10-11 Products Sales Prices

<u>Products</u>	<u>Prices</u>
[Yarn]	(Rp./kg)
Count-20's	2,200
30's	2,700
32's	2,700
36's	3,300
40's	3,300
44's	3,300
CM 40's	3,800
CM 50's	4,500
[Grey]	(Rp./yard)
Biru (1)	800
(2)	650
(3)	500
Prima	600
Poplin (1)	1,000
(2)	850
Twill	1,100
Satin	1,300
Primissima	660
Buffing Cloth	770
[Cambric]	(Rp./yard)
Biru (3)	540
Prima	650
Primissima	720
[Commission Weaving]	(Rp./yard)
Prima	140
Primissima	155
[Commission Finishing]	(Rp./yard)
-	60

(3) Fixed cost

Fixed cost is calculated based on data obtained and prevailed during field survey. Direct labour cost is calculated based on an assumption that number of employee will be reduced due to decrease of operation factor of No.1 weaving mill during renovation work. After completion of renovation work, productivity per employee will be improved because high efficiency looms will be installed and the mill will be able to be operated by reduced number of employee. Therefore, direct labour cost is reduced compared with the cost prior to renovation.

Plant overhead is set as 30% of direct labour cost plus 20 million Rupiah of land rental charge.

Maintenance cost is calculated considering physical conditions of mill facilities and production volume.

As insurance cost, insurance premium levied for the existing mill is used prior to completion of renovation work and 0.5% of cost of machinery, equipment and building is appropriated posterior to completion of renovation work.

(4) Depreciation and amortization

Depreciation for existing facilities is set based on current depreciation amount and non-depreciated amount remained as book value. Depreciation and amortization of newly invested facilities for renovation purpose are calculated in accordance with the following depreciation method.

<u>Items</u>	<u>Depreciation method</u>
Machineries and Equipment	Constant rate of 25% per annum for less than 8 years
Building	Constant amount over 20 years
Interest during construction	Constant amount over 5 years

(5) Interest

Amount of interest to be paid is calculated in accordance with financing plan for renovation as described in CHAPTER 9 and according to the following premises.

- 1) It is assumed that all debt outstanding at the time of account settlement of financial year of 1985 are replaced by the loan from GKBI Head Office. Full amount of short term loan listed in 1985 Balance Sheet is paid in 1986.
- 2) First priority is placed for repayment of GKBI loan by allocating all surplus cash in hand in respective financial year for the purpose of repaying debt to GKBI.
- 3) It is assumed that if there is any shortage of fund encountered in any financial year short term loan is supposed to be introduced.
- 4) Conditions for a long term loan borrowed for renovation purpose, a loan from GKBI Head Office and short term loan are assumed as follows:

Long term loan

Interest rate:	Base case	6.5% p.a.
	Reference case	13.0% p.a.
Repayment period:	10 years	
Grace period:	3 years from 1987	

Payment method: Annual equal installment of principle

GKBI loan

Interest rate: 6.5% p.a.

Repayment: Annual surplus cash counted in each accounting year

Short term loan

Interest rate: 15.0% p.a.

Repayment: 1 year (To be repaid in next year)

All calculation are made based on a condition that all loans will be borrowed at the end of each financial year and will be returned or calculated at the end of next financial year. Production Cost Account Tables are calculated and attached in Appendix.

10.4.5 Working Capital

Conditions to have settled the working capital required for non-renovation case are also applied for renovation case, namely, amounting inventory and working capital as described in Table 10-7 are used.

10.4.6 Tax

It is assumed that corporate tax will be imposed by the following rates:

<u>Profit before tax</u> (Million Rupiah)	<u>Tax rate (%)</u>
Upto 10	15
Over 10 to 50	25
Beyond 50	30

In case that loss is counted, the loss can be carried over for 3 years.

10.4.7 Project Life

In accordance with implementation schedule, the period required for renovation work is planned for 2 years from 1987 to 1988 and project life is set for 15 years from 1989 after commencement of operation of the renovated mill.

10.5 Results of Financial Analysis

10.5.1 Internal Rate of Return

Each annual cash flow to be anticipated after renovation of the mill is calculated. Differences between the cash flow of renovation case and a cash flow already calculated for non-renovation case are obtained year by year basis. The difference of cash flow of two cases are used as a basis for determining Financial Internal Rate of Return (FIRR). Internal Rate of Return on Investment abbreviated as IRROI or ROI and Internal Rate of Return on Equity abbreviated as IRROE or ROE are calculated for Profit before tax and for Profit after tax. Return on Equity is calculated for the base case of 6.5% interest rate and also for 13.0% interest rate as reference case. The results of calculation are shown in Table 10-12. Cash flow tables which are used for calculating Internal Rate of Return are shown in the tables B-6 thru G-6 and G-7 attached in Appendix.

Table 10-12 Internal Rate of Return

Project Scheme		CASE-1	CASE-2	CASE-3
ROI (%)	Before Tax	16.60	18.93	19.80
	After Tax	13.11	15.00	15.65
<u>Base Case</u>				
ROE (%)	Before Tax	37.45	44.94	49.79
	Interest Rate 6.5 %p.a.			
	After Tax	30.69	38.24	42.65
	<u>Reference Case</u>			
	Before Tax	24.64	30.39	32.89
	Interest Rate 13.0 %p.a.			
	After Tax	16.92	23.14	25.88

10.5.2 Profit and Loss

When the mill is operated, after completion of renovation program, in accordance with production schedule, anticipated profits and losses are analyzed and summarized for each project scheme. Profit/Loss Statement, Fund Flow Table and Balance Sheet are shown in Tables from B-2 thru -5 to G-2 thru G-5.

(1) Project scheme Case-1

After completion of renovation work of Case-1, initial 2 years of 1989 and 1990 when operation ratios are set at 80% and 90% respectively will be suffered from financial loss. However, in 1991 when operation ratio is reached to 100%, profit can be counted and after the years of 2000 when repayment of long term loan is completed annual profit after tax will be 4,050 million Rupiah.

Surplus cash will be generated in 1987, the first year of construction, and repayment of loan to GKBI Head Office will be made possible. Repayment of GKBI loan will be completed in 1993, remaining further surplus cash of 2,033 million Rupiah in this year. Surplus cash in the year of 2003 when project life is closed in terms of financial analysis will be accumulated in the amount of 29,842 million Rupiah.

(2) Project scheme Case-2

First 2 years after completion of renovation work will face financial loss, but profit will be raised in 1991. Profit after tax after the year of 2000 will be 4,474 million Rupiah on annual basis. Repayment of GKBI loan will be commenced from 1987 and will be completed in 1992. Cash surplus accumulated by the year of 2003 will reach to 37,202 million Rupiah.

(3) Project scheme Case-3

Loss will be counted for 2 years after completion of renovation work and profit after tax will be 4,757 million Rupia in the year of 2003. Repayment for GKBI loan will be started from 1987 and completed in 1991. Cash surplus by the end of the year 2003 will amount to 41,021 million Rupia.

In all three cases, it will not be necessary to borrow short term loan because of shortage of funds in case that interest of long term loan is 6.5% p.a. and by the year 2000 all the loan will be completely paid.

In case that interest of long term loan is 13.0% p.a., shortage of fund will be taken place for a period of 1 to 4 years, depending on project schemes, from 1991 when repayment of long term loan is commenced. Total sums for short term loan which is necessitated by the shortage of fund mentioned above are 3,205 million Rupiah for project scheme Case-1, 719 million Rupiah for project scheme Case-2 and 79 million Rupiah for project scheme Case-3. The years when repayment of GKBI loan will be completed will be the years of 1995 and 1994 for project scheme Case-2 and Case-3, respectively. However, for project scheme Case-1, repayment of GKBI loan will not be completed by the year 2000.

As mentioned above, if interest rate is changed from 6.5% per annum to 13.0% per annum, repayment of accrued interest will become a large financial burden and cash shortage will be remarkable in the case of project scheme Case-1.

10.5.3 Payout Period

Payout period to recover investment cost are calculated and shown in Table 10-13. In order to determine payout period, it is assumed that all the investment costs are to be financed by own capital and cash flow without counting interest and depreciation is to be used to recover investment capital, namely, total investment cost is divided by total accumulated cash flow as defined above to arrive at payout period.

Table 10-13 Payout Period

Project scheme	Payout (years after renovation)	
	Before tax	After tax
Case-1	4.1	4.5
Case-2	3.8	4.2
Case-3	3.6	4.0

10.5.4 Major Financial Indicators

Major financial indicators are calculated in order to review and evaluate financial nature of the project and are shown in Tables 10-14, 10-15 and 10-16. Individual financial indicators are obtained by the following formula.

- Profit after Tax on Sales Revenue
= Profit after Tax/Sales Revenue x 100

- Debt Service Coverage Ratio
= (Profit after Tax + Depreciation + Interest + Increase in Account Payable - Increase in Account Receivable - Increase of Inventories)/(Interest + Depreciation and Amortization)

- Profit Break Even Point

$$= \frac{\text{Production cost} - (\text{Sales Revenue} - \text{Raw Material Cost} - \text{Variable Cost})}{\text{Sales Revenue} - \text{Raw Material Cost} - \text{Variable Cost}} \times 100$$

- Cash Break Even Point

$$= \frac{(\text{Production Cost} - \text{Depreciation and Amortization})}{(\text{Sales Revenue} - \text{Raw Material Cost} - \text{Variable Cost})} \times 100$$

(1) Profit after Tax on Sales Revenue

This indicator represents Profit after Tax on Sales Revenue, or ratio of net profit over sales revenue. For all three renovation cases, until 1995 while depreciation of machineries and equipment for renovation are appropriated, profit ratio against sales revenue are low in its figure. However posterior to 1996 when newly invested facilities have been depreciated, Profit after Tax on Sales Revenue will be 19.0% to 21.2% for Project Schme Case-1, 20.5% to 22.6% for Project Scheme Case-2 and 21.2% to 23.4% for Project Scheme Case-3.

(2) Debt Service Coverage Ratio

This indicator shows indication of capability of repayment for loan by defining amount of funds made available for payment of interest and repayment. For all three project cases, the indicators show figures of not less than 1.0 and this means that funds generated by operation will be enough to cover payment of interest and repayment of loans. For a period of 2 to 4 years after completion of renovation work, variable to Cases-1, -2 and -3, this indicator shows 1.0. This is because all surplus cash generated by operation of the renovated mill are to be allocated and used solely for the purpose of repayment of GKBI loan. Speaking in general, it is said that Debt Service Coverage will be sound if figure exceeds 1.5.

Table 10-14 Major Financial Indicators

PROJECT SCHEME CASE-1

Year	Profit after Tax on Sales Revenue %	Debt Service Coverage Ratio	Profit B.E.P. %	Cash B.E.P. %
1989	-24.02	1.00	155.74	56.28
1990	-8.58	1.00	120.11	50.32
1991	2.63	1.00	93.78	44.23
1992	8.91	1.00	78.91	40.90
1993	11.24	1.52	69.26	37.06
1994	12.68	1.42	53.94	34.87
1995	2.92	1.79	89.47	32.85
1996	18.95	1.36	31.12	30.83
1997	19.51	1.41	29.10	28.81
1998	20.06	1.47	27.08	26.79
1999	20.62	1.54	25.05	24.76
2000	21.17	-	23.03	22.74
2001	21.17	-	23.03	22.74
2002	21.17	-	23.03	22.74
2003	21.17	-	23.03	22.74
Average	15.56	1.32	57.71	33.25

B.E.P. = Break Even Point

Table 10-15 Major Financial Indicators

PROJECT SCHEME CASE-2

Year	Profit after Tax on Sales Revenue %	Debt Service Coverage Ratio	Profit B.E.P. %	Cash B.E.P. %
1989	-20.53	1.00	147.03	53.41
1990	-5.66	1.00	113.09	47.44
1991	5.18	1.00	87.93	41.34
1992	13.08	1.38	70.29	36.13
1993	12.14	1.71	62.47	33.42
1994	14.70	1.59	48.72	31.61
1995	5.60	1.97	80.51	29.81
1996	20.53	1.55	28.31	28.00
1997	21.05	1.61	26.51	26.19
1998	21.57	1.69	24.70	24.39
1999	22.08	1.77	22.90	22.58
2000	22.60	-	21.09	20.77
2001	22.60	-	21.09	20.77
2002	22.60	-	21.09	20.77
2003	22.60	-	21.09	20.77
Average	17.41	1.48	53.12	30.49

B.E.P. = Break Even Point

Table 10-16 Major Financial Indicators

PROJECT SCHEME CASE-3

Year	Profit after Tax on Sales Revenue %	Debt Service Coverage Ratio	Profit B.E.P. %	Cash B.E.P. %
1989	-18.34	1.00	140.29	50.15
1990	-3.16	1.00	106.99	44.00
1991	8.00	1.08	82.17	37.66
1992	12.86	1.82	68.39	34.24
1993	11.31	1.85	61.33	32.43
1994	15.26	1.60	47.81	30.61
1995	5.95	1.98	79.70	28.80
1996	21.24	1.56	27.33	26.99
1997	21.77	1.63	25.52	25.18
1998	22.30	1.70	23.70	23.36
1999	22.82	1.78	21.89	21.55
2000	23.35	-	20.08	19.74
2001	23.35	-	20.08	19.74
2002	23.35	-	20.08	19.74
2003	23.35	-	20.08	19.74
Average	18.07	1.53	51.03	28.93

B.E.P. = Break Even Point

(3) Profit Break Even Point

This financial indicator means operating ratio at which level profit or loss is divided, or above this operation ratio the mill will make profit and operation ratio becomes lower than this figure, the mill will suffer from financial loss.

For all three cases, the mill will not make profit for a period of initial two years, even if 100% operation ratio is achieved or maintained. However from the third operating year after completion of renovation work, figures of profit break even point will decrease and from the year 2000 when repayment of loans is completed, it is shown that profit will be generated at the low operation level of 20% to 23% operation ratio.

(4) Cash Break Even Point

This figure is an indicator which shows status of cash flow. If operation ratio is higher than figures of Cash Break Even Point, cash is made available enough for funds to be used for various financial services. For all three cases, available fund will be sound from the first year after renovation.

10.5.5 Sensitivity Analysis

Sensitivity analyses for Internal Rate of Return have been carried out by changing the following 5 cost elements.

- Total capital requirement
- Product sales prices
- Raw material cost
- Variable operating cost excluding raw material cost
- Fixed operating cost excluding depreciation and interest

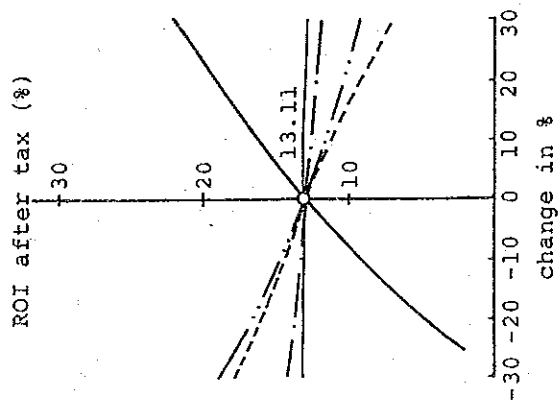
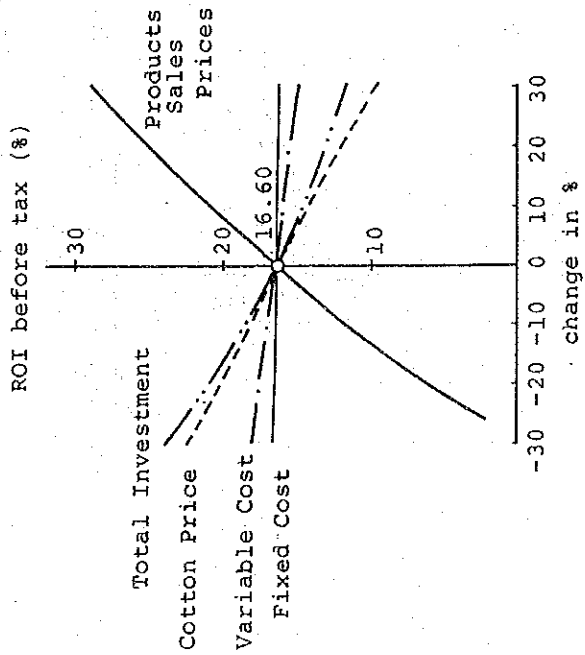
Variation of figures for ROI and ROE, before tax and after tax,

by increasing and decreasing the above 5 elements by 30% independently, are illustrated in Figures 10-1 and 10.2.

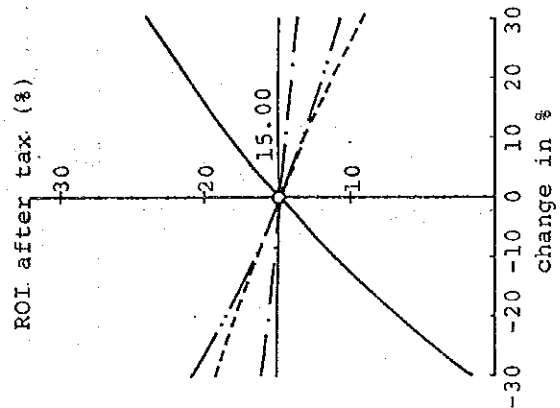
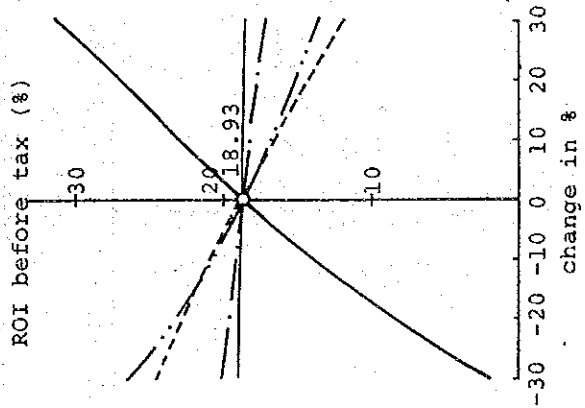
Regarding the reference case of 13% p.a. interest rate, sensitivity of ROE is analyzed by changing these five elements and the results are shown in Figure 10-3.

Of these 5 elements, percentage change of product prices in the most influential factor on International Rate of Return. Increase of raw material cost is the second most influential factor on Internal Rate of Return.

Case-1



Case-2



Case-3

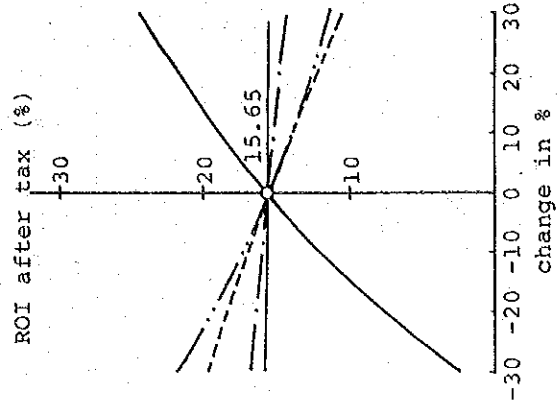
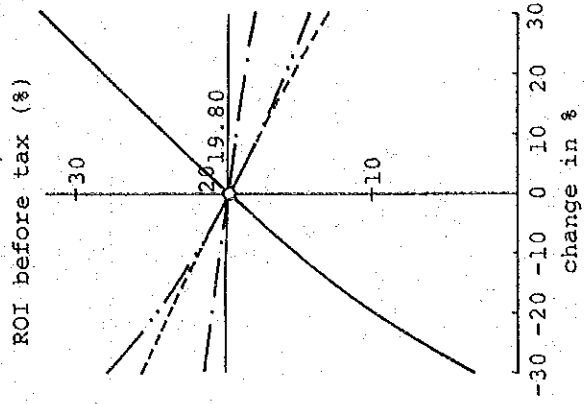


Figure 10-1 Sensitivity of ROI

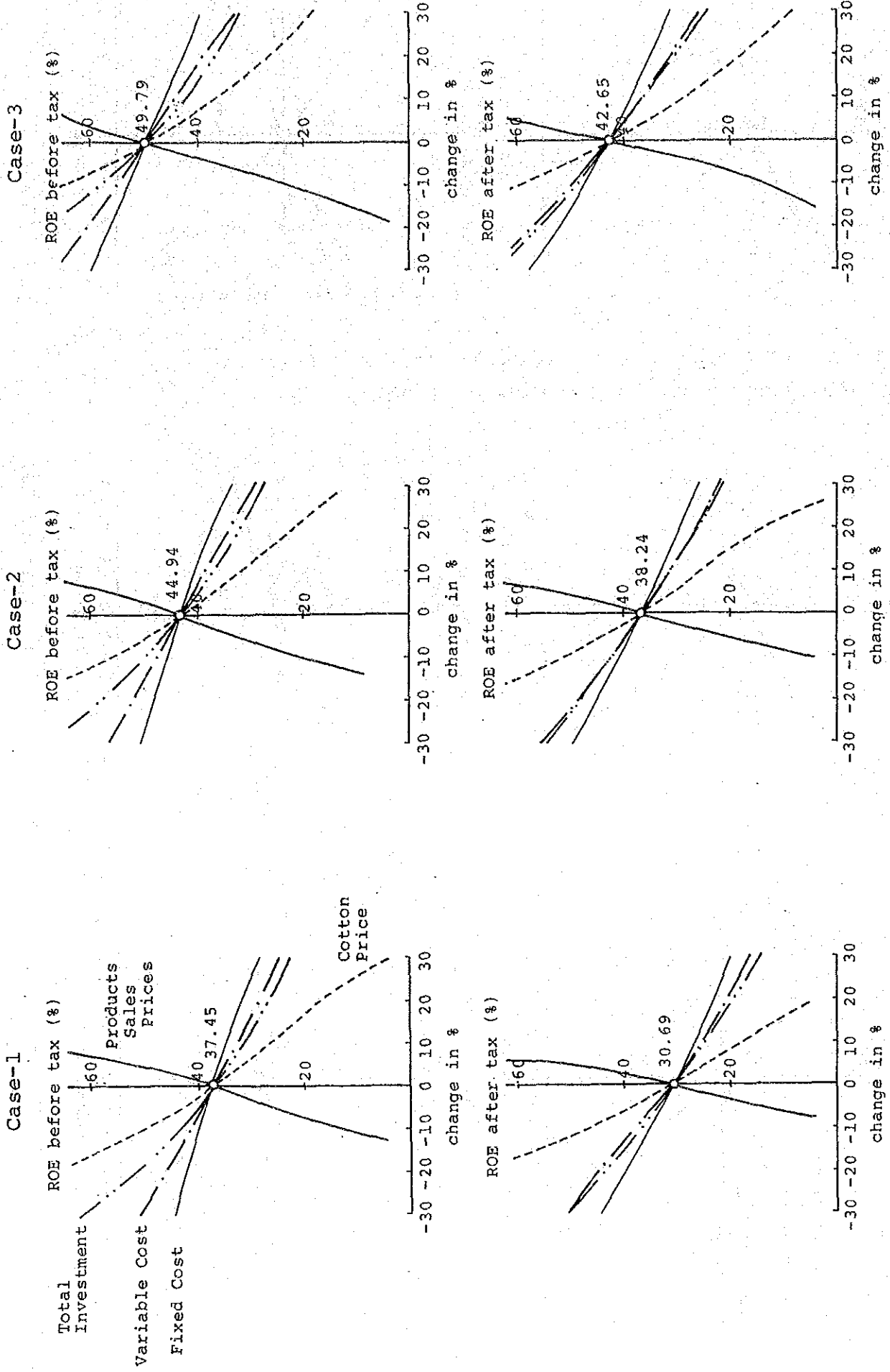
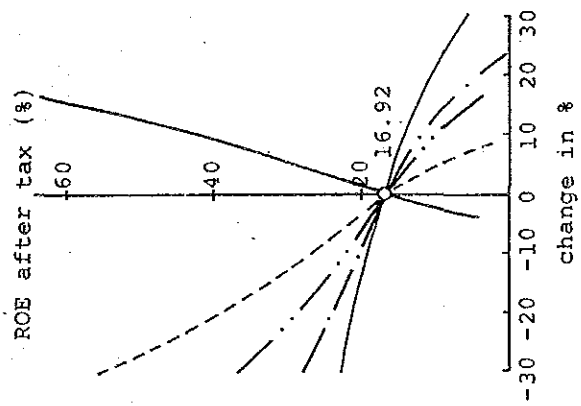
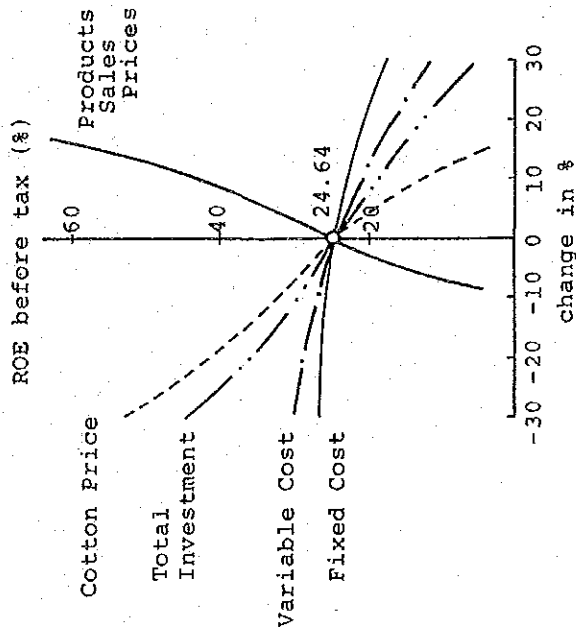
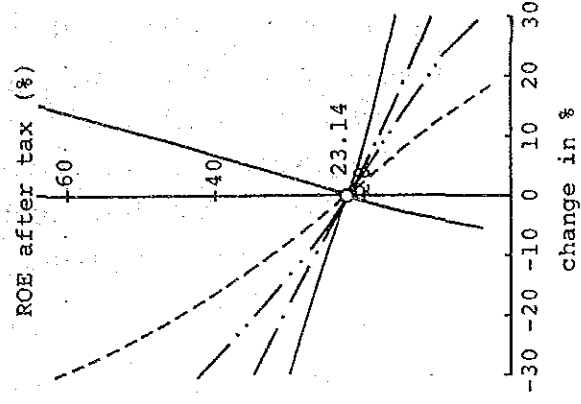
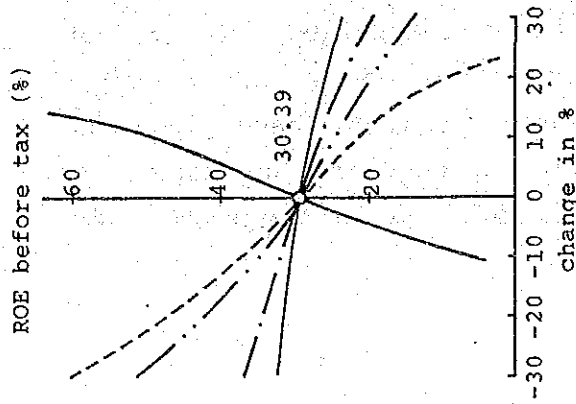


Figure 10-2 Sensitivity of ROE (Base Case)
Interest Rate = 6.5% p.a.

Case-1



Case-2



Case-3

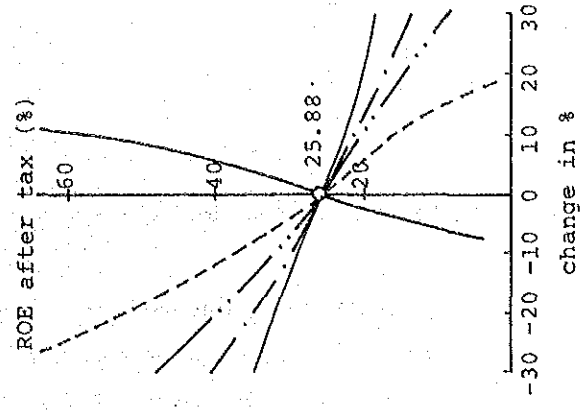
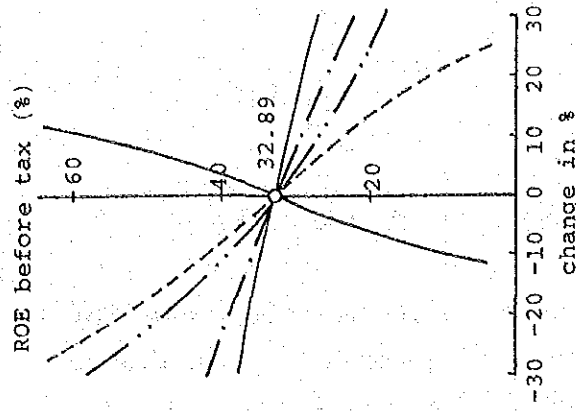


Figure 10-3 Sensitivity of ROE (Reference Case)
Interest Rate = 13.0% p.a.

10.6 Influence by Change of Foreign Currency Exchange Rate

The financial analyses in this study have been conducted by using a foreign currency exchange rate prevailed at the time of field survey in July, 1986. However in September 1986, the currency of Indonesian Rupia was devalued to a considerable extent, to the extent that the exchange rate and cost figures used in the study are causing some difference from currently prevailing figures. Therefore, in order to examine the influence of change of foreign currency exchange rates onto the results of financial analyses being discussed and reported so far, an additional study has been conducted by adopting an exchange rate and costs which are considered similar to those prevailing currently. Taking a new currency exchange rate announced on 12th September 1986 into consideration, the exchange rate and cost elements are revised as follows:

<u>Base rate</u>	<u>Reference rate</u>
1.00 US Dollar	1.00 US Dollar
= 1,125 Indonesia Rupiah	= 1,644 Indonesia Rupiah
= 160 Japanese Yen	= 155 Japanese Yen

<u>Cost Elements</u>	<u>Reference Costs & Prices</u>
Investment Cost	
Foreign currency portion	+51%
Domestic currency portion	+10%
Cotton Price	+46%
Product Prices	
For export	+46%
For domestic	+18%
Variable Operating Cost	
Foreign currency portion	+46%
Domestic currency portion	0
Fixed Operating Cost	
Foreign currency portion	+46%
Domestic currency portion	0

Financial analyses using a new currency rate and cost elements are summarized hereunder.

- (1) In case that renovation work is not carried out, profits will be obtained in the years of 1987, 1989 thru 1992 and 1994. In those years, it is possible to make repayments to GKBI Head Office in the amount of 219 million Rupiah to 1,351 million Rupiah, depending upon financial conditions of each year. However, from the year of 1995 onward, annual losses from 213 million Rupiah to 705 million Rupiah will be counted and shortage of cash will be taken place, thus necessitating loan from GKBI Head Office every year. The amount of loan from GKBI Head Office is 10,020 million Rupiah in 1986, of which 6,130 million Rupiah will be returned, but total of 6,443 million Rupiah, including newly borrowed 2,554 million Rupiah from GKBI Head Office after 1995, will be remained as outstanding long term loan in the year of 2003, the term of financial analysis for this study.

- (2) In case of Project Scheme Case-1, the first three years after completion of renovation work and the year of 1995 will show financial losses. Repayment of GKBI loan will be made during 1987 to 1989 and after 1993 and will be completed by the year of 2000. Short term loan will be introduced from 1990 to 1992 with annual amounts of 39 million Rupiah to 750 million Rupiah.
- (3) In case of Project Scheme Case-2, the first three years after completion of renovation work show some losses. However there will be no shortage of cash throughout project life. Repayment of GKBI loan will be completed by 1993. Surplus cash will be accumulated to the amount of 35,677 million Rupiah by 2003.
- (4) In case of Project Scheme Case-3, the first two years after completion of renovation work will show financial losses. Shortage of cash will not be taken place and repayment of GKBI loan will be completed by 1992. Outstanding surplus cash in 2003 will be 48,162 million Rupiah.
- (5) In case that interest rate for long term loan is 13% per annum, financial losses will take place for 7 years after completion of renovation work until 1995, except the year of 1994 for the case of Project Scheme Case-2 and the years of 1993 and 1994 for the case of Project Scheme Case-3. In case of Project Scheme Case-1, short term loan will have to be introduced from the first year after completion of renovation work to the year of 2003 and repayment of GKBI loan will only be possible in the years of 1987 and 1988, amounting to 3,065 million Rupiah. In case of Project Scheme Case-2, short term loan will be required from the first year after completion of renovation work to the year of 1999 and repayment of GKBI loan will be completed in the year of 2001. Surplus cash will be generated in the years of 2002

and 2003, amounting to 13,179 million Rupiah. In case of Project Scheme Case-3, short term loan will be required from the second year after completion of renovation work to the year of 1994 and repayment of GKBI loan will be completed by the year 2000. Accumulated surplus cash in the year of 2003 will be amounted to 25,701 million Rupiah.

- (6) Internal Rate of Return based on difference of annual cash flow between non-renovation case and renovation cases are shown in Table 10-17.

Financial indicators for reference foreign exchange rate are shown in Tables H thru N of Appendix.

Table 10-17 Internal Rate of Return
(Reference Exchange Rate)

Project Scheme		CASE-1	CASE-2	CASE-3
ROI (%)	Before Tax	11.76	14.83	16.29
	After Tax	9.14	11.69	12.85
<u>Base Case</u>				
ROE (%)	Interest Rate 6.5 %p.a.			
	Before Tax	24.77	35.58	43.21
	After Tax	17.29	29.81	37.90
	<u>Reference Case</u>			
Interest Rate 13.0 %p.a.	Before Tax	5.20	20.92	25.64
	After Tax	-	12.17	18.38

CHAPTER 11 . ECONOMIC ANALYSIS

Project has been financially analyzed in CHAPTER 10 and in CHAPTER 11, economic analysis is carried out to evaluate how the project will affect economical aspects of the country. Economic Internal Rate of Return (EIRR) which will be brought forth by implementing the project plan has also been calculated. Further, foreign exchange balance are also calculated, which will be resulted by executing the planned project.

11.1 Economic Benefits and Costs

11.1.1 Economic Benefits

(1) Direct benefits

Direct economic benefits created by implementing the project are economic values of yarns and woven fabrics to be produced in the Medari mill. The products which are made by renovated mill upon implementation of the project will be supplied to domestic and international markets. Sales prices of the products to be sold in Indonesian domestic market shall be set based on domestic sales prices determined on competitive basis, thus the domestic prices so determined can be considered to reflect economic value of products, namely, real value of products. Export prices of products will be determined by international selling prices of similar products in international markets. Therefore, sales revenue obtained by selling products is considered as the direct economic benefits of the project.

(2) Indirect benefits

Following indirect benefits are considered to be obtained by executing the planned project.

1) Prevention of loss of employment opportunity

Should the existing mill continue its operation without executing renovation work, deterioration of mill facilities will be accelerated and production capacity will be decreased. Naturally, production volume will decrease. As production volume decreases, number of employees who are required to operate the mill will also be decreased. Furthermore, should the existing mill discontinue its operation due to serious financial loss of the mill, 1,386 employees working in the mill as of May 1986 will lose their jobs. Should the mill be renovated in accordance with a schedule set forth for the project, permanent employment will be secured for 1,279 to 1,322 employees although number of employees will be reduced by 64 to 107 depending on project scheme cases. During renovation work for the mill, a number of skilled and non-skilled laborers will be employed for various construction works.

2) Secondary effects

By implementation of the renovation project, volume of production will be increased and a variety of products will be produced. Materials and labors for supplying consumables and sub-materials to Medari mill will be increased, and demands for transportation and packaging will increase, which can be considered as secondary effects.

The fact that approximately 1,300 persons continue to be employed in Medari mill means that there will be miscellaneous kinds of jobs which will be generated or maintained in and around Medari by daily activities of these employees and their family members.

3) Effect of technical transfer

Cotton yarn and cotton fabric production is one of matured industries among textile industries. Machineries and facilities in Medari mill which have been deteriorated and obsolete by now are inferior to modern production facilities and technology of industrialized countries. Therefore, by introducing new up-to-date facilities and technology from foreign country, improvement of technical level can be expected and demand may be newly cultivated.

11.1.2 Economic Costs

(1) Initial cost required for implementation of project

The cost required for implementation of the project will be cost for renovation work of the mill and pre-operation cost. The amount for these costs is considered to be equal to total capital cost used in the financial analysis.

(2) Raw material cost

Cotton which is raw material for the mill will be imported from abroad. Price of imported cotton corresponds to international market price and import duty is exempted. Raw material cost used for the financial analysis is considered to be economic cost of raw material.

(3) Cost of labor resources

Some degree of skillness will be required for labor resources being employed in the mill. Therefore, labor cost used in the financial analysis is considered as economic cost of labor resources.

(4) Other production cost

Production costs other than raw material cost and labor resources cost are utility costs, sub-material cost, consumable costs and packaging cost are variable production cost and plant overhead, land rental and maintenance costs are considered as fixed production cost. Import duty and corporate tax imposed by Indonesian law are considered as transfer cost items in economic analysis and are excluded from economic cost. Imported costs shared in variable production cost and fixed production cost are 80% of sub-material, 30% of consumables and 50% of maintenance cost. Of those imported costs, import duty portion within these imported costs are 20%, 20% and 30% respectively. Amounts of other production cost in which the import duties are deducted are considered to be the economic cost of other production cost.

11.2 Economic Internal Rate of Return

Basing on economic benefits and economic costs described in the previous section, Economic Internal Rate of Return (EIRR) has been calculated for the case that the renovation project is implemented.

Deference between annual economic benefits and costs for the renovation case and annual economic benefits and costs for the non-renovation case is calculated for the entire period of the project. Based on these calculations, EIRR is computed and the results are shown in Table 11-1.

Table 11-1 Economic Internal Rate of Return

<u>Project Scheme</u>	<u>EIRR (%)</u>
Case-1	17.1
Case-2	19.3
Case-3	20.3

The calculated EIRR figures are higher than those for ROI before tax in the financial analysis. The calculation result that EIRR is higher than financial ROI before tax implies that implementation of the renovation project will have higher economical significance to the country of Indonesia than mere renovation or restoration work of the mill of a single enterprise and it is judged that the renovation work will contribute to Indonesian economy.

Economic benefits and economic costs for each year which are used as bases of calculating EIRR are shown in Tables 11-2, 11-3 and 11-4.

Table 11-2 Economic Benefit and Cost (1)

(Unit : million Rp.)

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
< Economic Benefit >	0	2,580	8,301	10,828	12,696	12,919	13,237	13,454	13,934	14,105	14,276	14,432	14,583	14,733	14,907	15,030	15,154	205,179
Products	0	2,580	8,301	10,828	12,696	12,919	13,237	13,454	13,934	14,105	14,276	14,432	14,583	14,733	14,907	15,030	15,154	205,179
< Economic Cost >	7,048	21,739	5,712	6,588	7,543	7,286	7,469	7,576	7,801	7,864	7,992	8,088	8,187	8,275	8,370	8,442	7,021	143,001
Capital Investment	7,048	19,646	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26,694
Variable Operating Cost	0	1,500	4,416	5,952	7,046	7,191	7,330	7,455	7,607	7,720	7,828	7,928	8,027	8,119	8,209	8,290	8,368	112,983
Fixed Operating Cost	0	-33	5	14	43	43	70	70	96	103	122	122	122	122	122	122	122	1,270
Selling Expense	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Working Capital Increase	0	626	1,282	621	451	52	69	50	97	41	41	37	38	34	39	30	-1,469	2,049
Balance	-7,048	-19,159	2,589	4,240	5,153	5,633	5,768	5,878	6,133	6,241	6,285	6,344	6,406	6,457	6,537	6,589	8,133	62,178

Economic Internal Rate of Return (EIRR) = 17.1 %

Table 11-3 Economic Benefit and Cost (2)

PROJECT SCHEME CASE-2

(Unit : million Rp.)

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
< Economic Benefit >	0	2,711	8,523	11,075	12,970	13,583	13,901	14,118	14,598	14,769	14,940	15,096	15,257	15,397	15,571	15,694	15,818	214,020
Products	0	2,711	8,523	11,075	12,970	13,583	13,901	14,118	14,598	14,769	14,940	15,096	15,257	15,397	15,571	15,694	15,818	214,020
< Economic Cost >	6,770	21,202	5,730	6,598	7,557	7,361	7,476	7,586	7,811	7,874	8,002	8,098	8,197	8,295	8,380	8,452	6,924	142,305
Capital Investment	6,770	19,081	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25,850
Variable Operating Cost	0	1,507	4,448	5,966	7,084	7,227	7,366	7,491	7,614	7,756	7,864	7,964	8,063	8,156	8,245	8,326	8,404	113,591
Fixed Operating Cost	0	-33	-23	-14	17	17	44	44	70	77	96	96	96	96	96	96	96	874
Selling Expense	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Working Capital Increase	0	648	1,305	626	456	117	69	50	97	41	41	37	38	34	39	30	-1,576	-2,050
Balance	-6,770	-18,491	2,793	4,477	5,413	6,222	6,422	6,582	6,787	6,895	6,939	6,998	7,060	7,111	7,191	7,243	8,895	71,715

Economic Internal Rate of Return (EIRR) = 19.4 %

Table 11-4 Economic Benefit and Cost (3)

(Unit : million Rp.)

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
< Economic Benefit >	0	2,801	9,287	11,937	13,937	14,160	14,478	14,695	15,175	15,346	15,517	15,673	15,834	15,974	16,148	16,271	16,395	223,527
Producte	0	2,801	9,287	11,937	13,937	14,160	14,478	14,695	15,175	15,346	15,517	15,673	15,834	15,974	16,148	16,271	16,395	223,527
< Economic Cost >	7,153	22,250	5,948	6,731	7,696	7,418	7,601	7,708	7,933	7,996	8,124	8,229	8,319	8,408	8,502	8,574	8,661	145,543
Capital Investment	7,153	20,094	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27,247
Variable Operating Cost	0	1527.23	4553.17	6105.35	7216.62	7359.76	7498.43	7623.69	7776.01	7888.74	7986.76	8096.84	8195.15	8287.95	8377.21	8458.06	8536.02	115,497
Fixed Operating Cost	0	-33.2	-17.85	-15.3	6.7	6.7	34	34	60	66.5	66	66	66	66	66	66	66	744
Selling Expense	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Working Capital Increase	0	662	1,413	641	472	52	69	50	97	41	41	37	38	34	39	30	-1,661	2,055
Balance	-7,153	-19,449	3,339	5,206	6,241	6,742	6,877	6,987	7,241	7,350	7,394	7,453	7,515	7,566	7,646	7,697	9,434	76,084

Economic Internal Rate of Return (EIRR) = 20.3 %

11.3 Effects on National Revenue

Effects on national treasury revenue by implementation of the renovation project are studied by defining amounts of corporate tax and import duty.

Corporate income tax and import duty during entire project life have been calculated for the cases of without-renovation, renovation schemes Case-1, Case-2 and Case-3 are shown in Table 11-5.

Table 11-5 Income Tax and Import Duty

(Unit: million Rp)

Project scheme	Without Renovation	Case-1	Case-2	Case-3
Income Tax	304	18,725	21,594	23,650
Import Duty	2,080	2,710	2,758	2,877
Total	2,384	21,435	24,352	26,526

By implementing renovation project, inflow to the national treasury revenue in form of tax and duty will be increased by the amount of 19,051 million Rupiah to 24,142 million Rupiah, compared with the case of non-renovation. If these increased national revenues are utilized for public investment as an example, it is expected that the implementation of the renovation project will contribute to further development of national economy of Indonesia.

11.4 Balance of Foreign Exchange

Effect on balance of foreign currency expenditure and revenue is evaluated by the following premises and conditions:

- (1) Financing method of foreign currency portion in total capital requirement is considered to be the same as the method set for the base case of the financial analysis as specified in financing plan of CHAPTER 9.

(2) Foreign currency revenue is considered to be a revenue obtained by exporting some of products from the mill and the amount of revenue of exported products is defined as foreign currency income. Products sold in domestic market will not be replacement of imported products, therefore revenue arising from sales in domestic market will not contribute to foreign currency revenue.

(3) Expenditure of foreign currency will be originated in the following items:

- Repayment of principal of long term loan and repayment of interest accrued therefrom.
- Items in operation cost, and their foreign currency portion ratio will be as follows:

<u>Items</u>	<u>Ratio of foreign currency portion</u>
Raw material cotton	100%
Sub-materials	64% [0.8 x (1-0.2)]
Consumables	24% [0.3 x (1-0.2)]
Maintenance	35% [0.5 x (1-0.3)]

Calculation results on balance of foreign currency expenditure and revenue for the non-renovation case and for renovation project schemes Case-1, Case-2 and Case-3 are shown in Tables 11-6 thru 11-9, Negative figures in these tables mean outflow of foreign currency. During entire span of the project, outflow of foreign currency for the case of non-renovation will be 35,701 million Rupiah. For renovation case, outflow of foreign currency will amount to 66,133 million Rupiah to 95,878 million Rupiah, varying from project scheme cases. This means that, if the renovation project is implemented, outflow of foreign currency will be increased by the amount of approximately 30,000 million Rupiah to 60 million Rupiah. Import of raw material cotton will share 73%

to 83% of total outflow of foreign currency. Therefore in the event that cotton locally cultivated in Indonesia are used more in the mills, outflow of foreign currency will be decreased, corresponding to the amount of local cotton used in the mill. However, in case that renovation project is not carried out, and even if cotton required in the mill are totally supplied domestically from Indonesian cotton market, outflow of foreign exchange will become 2,242 million Rupiah. On the contrary, in case that renovation project is executed, and if 76% of cotton requirement is replaced with local supplied cotton for project scheme Case-1, outflow of foreign currency will become zero. Similarly for project scheme Case-2, if 63% of cotton requirement is replaced with locally harvested cotton, the foreign currency outflow will become zero, and for project scheme Case-3, 53% ratio of required cotton will suffice.

Table 11-6 Balance of Foreign Exchange (1)

(Unit : million Rp.)

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
EXISTING PLANT WITHOUT RENOVATION																		
< Foreign Exchange Inflow >																		
Products Export	924	847	755	616	508	385	308	231	0	0	0	0	0	0	0	0	0	4,574
- Total Inflow -	924	847	755	616	508	385	308	231	0	0	0	0	0	0	0	0	0	4,574
< Foreign Exchange Outflow >																		
Repayment of Long-Term Loan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest on Long-Term Loan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Raw Material Import	4,153	3,484	2,793	2,282	2,155	2,050	1,941	1,844	1,725	1,639	1,556	1,480	1,406	1,335	1,268	1,205	1,144	33,459
Sub Materials Import	194	211	275	272	269	266	262	259	256	253	250	246	243	240	237	234	230	4,187
Consumables Import	34	34	33	32	30	30	29	29	29	29	29	29	29	29	29	29	29	512
Maintenance Cost	141	134	125	124	122	122	122	122	122	122	122	122	122	122	122	122	122	2,107
- Total Outflow -	4,522	3,863	3,225	2,710	2,575	2,467	2,355	2,254	2,132	2,043	1,956	1,877	1,800	1,726	1,656	1,590	1,525	40,275
< Net Foreign Exchange Flow >																		
	-3,598	-3,016	-2,470	-2,094	-2,067	-2,082	-2,047	-2,023	-2,132	-2,043	-1,956	-1,877	-1,800	-1,726	-1,656	-1,590	-1,525	-35,701

Table 11-7 Balance of Foreign Exchange (2)

(Unit : million Rp.)

PROJECT SCHEME CASE-1

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1998	2000	2001	2002	2003	Total
< Foreign Exchange Inflow >																		
Products Export	924	1,833	4,124	4,501	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	74,809
- Total Inflow -	924	1,833	4,124	4,501	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	4,879	74,809
< Foreign Exchange Outflow >																		
Repayment of Long-Term Loan	0	0	0	2,515	2,515	2,515	2,515	2,515	2,515	2,515	2,515	2,515	2,515	0	0	0	0	25,151
Interest on Long-Term Loan	0	0	1,835	1,635	1,471	1,308	1,144	981	817	654	490	327	163	0	0	0	0	10,826
Raw Material Import	4,153	4,764	6,356	7,153	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	125,688
Sub Materials Import	194	236	385	393	401	401	401	401	401	401	401	401	401	401	401	401	401	6,417
Consumables Import	34	30	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	540
Maintenance Cost	141	112	129	132	135	135	135	135	135	135	135	135	135	135	135	135	135	2,286
- Total Outflow -	4,522	5,142	8,536	11,859	12,497	12,333	12,170	12,006	11,843	11,679	11,516	11,352	11,189	8,510	8,510	8,510	8,510	170,687
< Net Foreign Exchange Flow >																		
	-3,598	-3,309	-4,412	-7,358	-7,618	-7,454	-7,281	-7,127	-6,964	-6,800	-6,637	-6,473	-6,310	-3,631	-3,631	-3,631	-3,631	-95,878

Table 11-8 Balance of Foreign Exchange (3)

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
< Foreign Exchange Inflow >																		
Products Export	924	1,937	4,542	4,972	5,401	6,086	6,086	6,086	6,086	6,086	6,086	6,086	6,086	6,086	6,086	6,086	6,086	90,808
- Total Inflow -	924	1,937	4,542	4,972	5,401	6,086	6,086	6,086	6,086	6,086	6,086	6,086	6,086	6,086	6,086	6,086	6,086	90,808
< Foreign Exchange Outflow >																		
Repayment of Long-Term Loan	0	0	0	2,420	2,420	2,420	2,420	2,420	2,420	2,420	2,420	2,420	2,420	0	0	0	0	24,204
Interest on Long-Term Loan	0	0	1,573	1,573	1,416	1,259	1,101	944	787	629	472	315	157	0	0	0	0	10,226
Raw Material Import	4,153	4,764	6,356	7,153	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	125,688
Sub Materials Import	194	239	392	399	408	408	408	408	408	408	408	408	408	408	408	408	408	6,524
Consumables Import	34	30	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	547
Maintenance Cost	141	112	132	134	138	138	138	138	138	138	138	138	138	138	138	138	138	2,311
- Total Outflow -	4,522	5,145	8,484	11,712	12,357	12,200	12,043	11,885	11,728	11,571	11,413	11,256	11,099	8,521	8,521	8,521	8,521	169,500
< Net Foreign Exchange Flow >																		
	-3,598	-3,208	-3,942	-6,740	-6,956	-6,114	-5,957	-5,799	-5,642	-5,485	-5,327	-5,170	-5,013	-2,435	-2,435	-2,435	-2,435	-78,692

Table 11-9 Balance of Foreign Exchange (4)

(Unit : million Rp.)

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total	
< Foreign Exchange Inflow >																			
Products Export	824	2,247	5,763	6,368	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	105,711
- Total Inflow -	824	2,247	5,763	6,368	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	6,953	105,711
< Foreign Exchange Outflow >																			
Repayment of Long-Term Loan	0	0	0	2,551	2,551	2,551	2,551	2,551	2,551	2,551	2,551	2,551	2,551	0	0	0	0	0	25,508
Interest on Long-Term Loan	0	0	1,658	1,558	1,492	1,326	1,161	995	829	663	497	332	166	0	0	0	0	0	10,777
Raw Material Import	4,153	4,764	6,356	7,153	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	7,943	125,688
Sub Materials Import	194	244	418	430	442	442	442	442	442	442	442	442	442	442	442	442	442	442	7,027
Consumables Import	34	30	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	554
Maintenance Cost	141	112	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	2,290
- Total Outflow -	4,522	5,151	8,600	11,960	12,596	12,431	12,265	12,099	11,933	11,767	11,602	11,436	11,270	8,553	8,553	8,553	8,553	8,553	171,844
< Net Foreign Exchange Flow >																			
	-3,598	-2,904	-2,817	-5,592	-5,643	-5,478	-5,312	-5,146	-4,980	-4,814	-4,649	-4,483	-4,317	-1,600	-1,600	-1,600	-1,600	-1,600	-66,133

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1. MEMBERS OF FIELD SURVEY TEAM

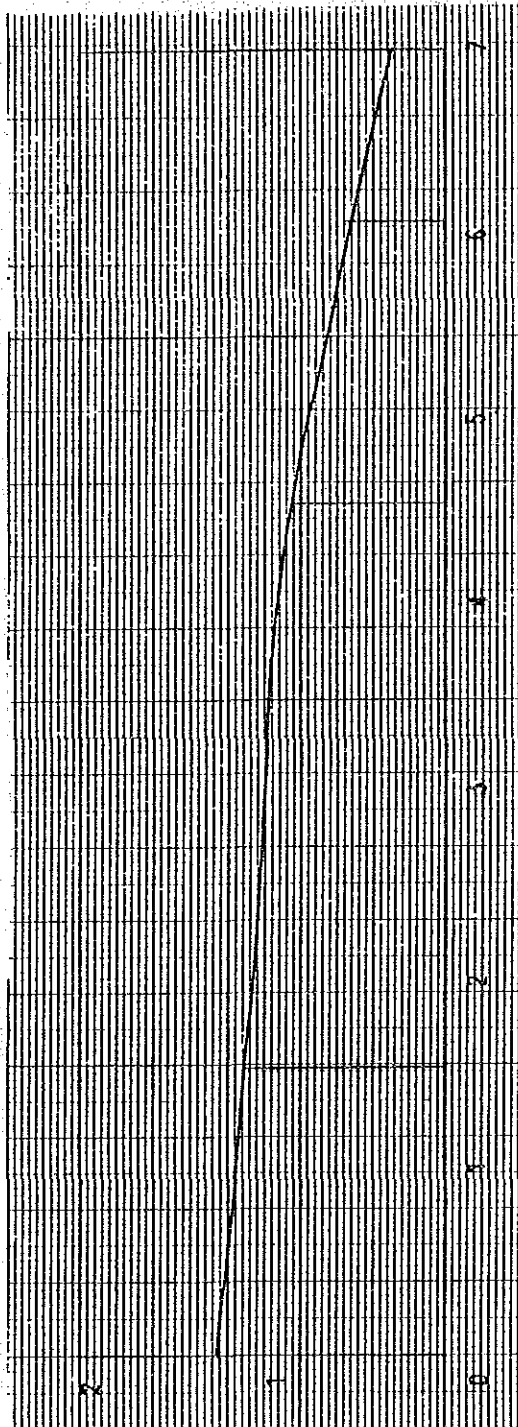
The members of the field survey team, and their assignments and expertise are as follows :

<u>Name</u>	<u>Assignment and Expertise</u>
Akira SUGETA	Team leader Raw Material, Spinning Technology
Kenji KUNUGI	Textile Policy and Production Management
Ryoichi TAKEHANA	Market and Sales Engineer
Koji MATSUDA	Weaving Technology, Quality Control Engineer
Kazumi MUKAI	Engineer for Finishing, Utilities, Air-conditioning Civil and Building
Nobuo ISHII	Cost estimation, Financial and Economic Analyses

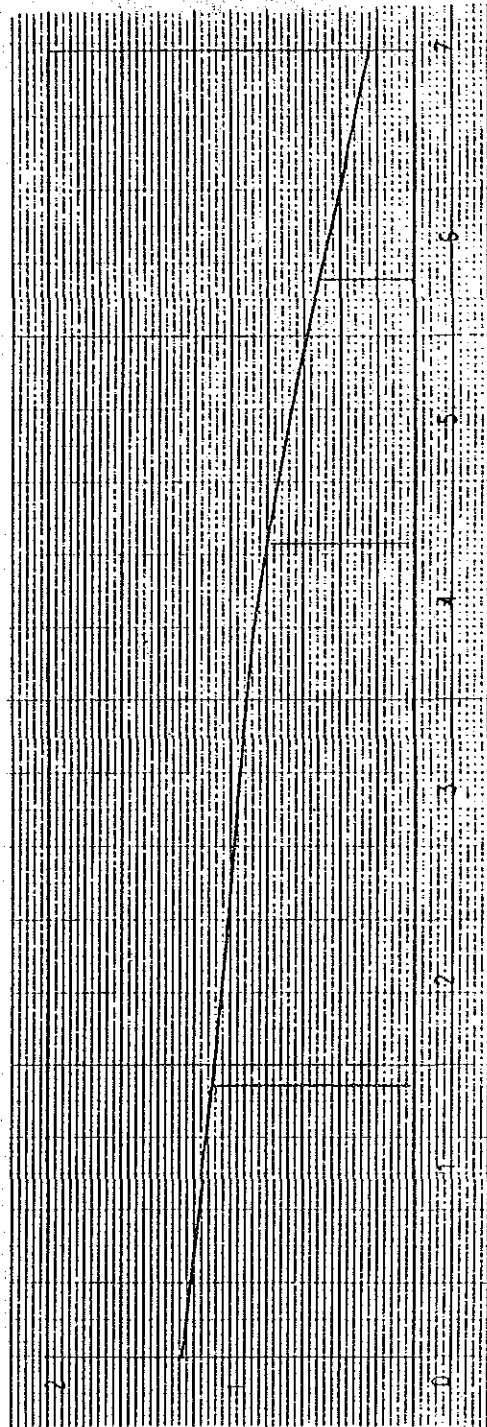
Field Survey Schedule

Ser. No.	Date	
1	July 2 (Wed)	Japan/JKT -
2	3 (Thu)	JICA/Embassy of Japan/JETRO, MOI/MOC/GKBI -
3	4 (Fri)	Discussion and presentation of Inception Report with MOI, MOC and GKBI -
4	5 (Sat)	Visit to GKBI Head Office for data collection and visit to Textile Museum. Utility Group
5	6 (Sun)	Internal Meeting (Survey Team) Japan/JKT
<u>Technical Group</u>		
6	7 (Mon)	GKBI Head Office Commercial Group GKBI Head Office, JETRO Office GKBI Head Office
7	8 (Tue)	MOI/MOC (Policy Discussion), JKT/YOG MOI/MOC (Policy Discussion) PLN, JKT/YOG
8	9 (Wed)	GKBI Medari mill (Technical Diagnosis) API/BPS/Textile Wholesalers GKBI Medari Factory
9	10 (Thu)	" " Textile Related Companies "
10	11 (Fri)	" " JKT/YOG, GKBI Medari Factory "
11	12 (Sat)	" " GKBI Medari Factory, Distribution Survey Power supply Survey
12	13 (Sun)	Internal Meeting Internal Meeting
13	14 (Mon)	Survey of Batik Factories, YOG/JKT Survey of Batik Factories, Distribution Survey, YOG/JKT Same as T/G (Technical Group)
14	15 (Tue)	GKBI Head office, Report to JICA JKT Office Same as T/G
15	16 (Wed)	MOI/MOC Same as T/G
16	17 (Thu)	GKBI, Progress Report World Bank, Progress Report JKT/Japan
17	18 (Fri)	MOI/MOC (Discussion on progress report and preparation of Minutes of Meeting
18	19 (Sat)	Preparation and type up of Minutes of Meeting
19	20 (Sun)	Internal Meeting
20	21 (Mon)	MOI/MOC (Sign of M/M), JICA/BOJ
21	22 (Tue)	JKT/Japan

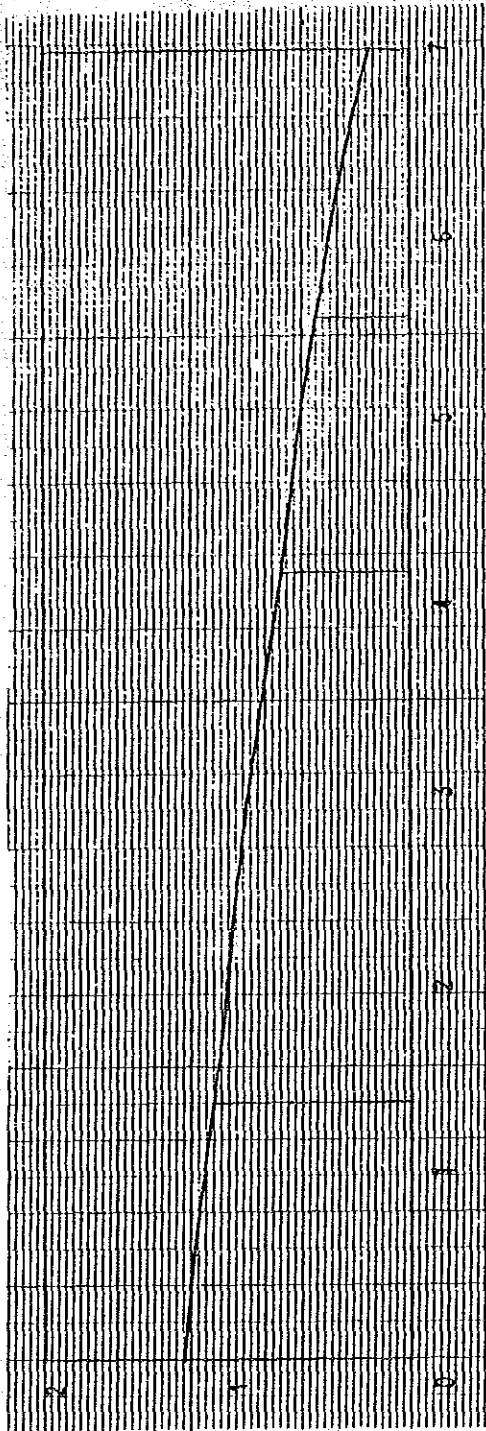
Kind of Cotton SJV
 Effective Staple Length 36
 Contents of Short Fibre 13.39
 Uniformity Ratio 91.43



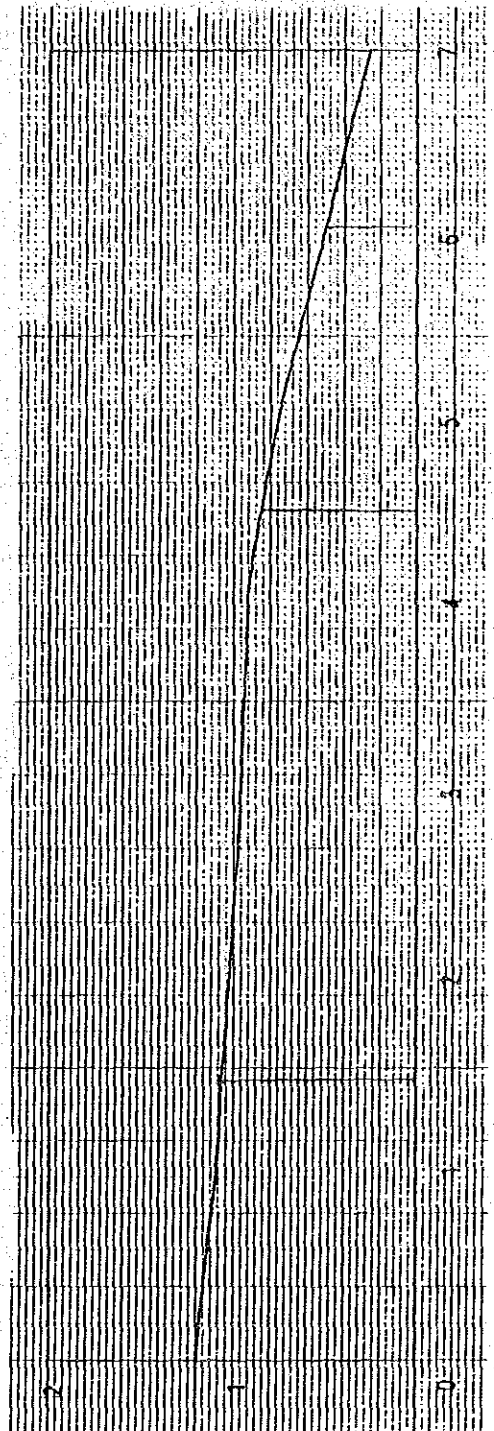
Kind of Cotton SJV
 Effective Staple Length 36
 Contents of Short Fibre 17.86
 Uniformity Ratio 85.71



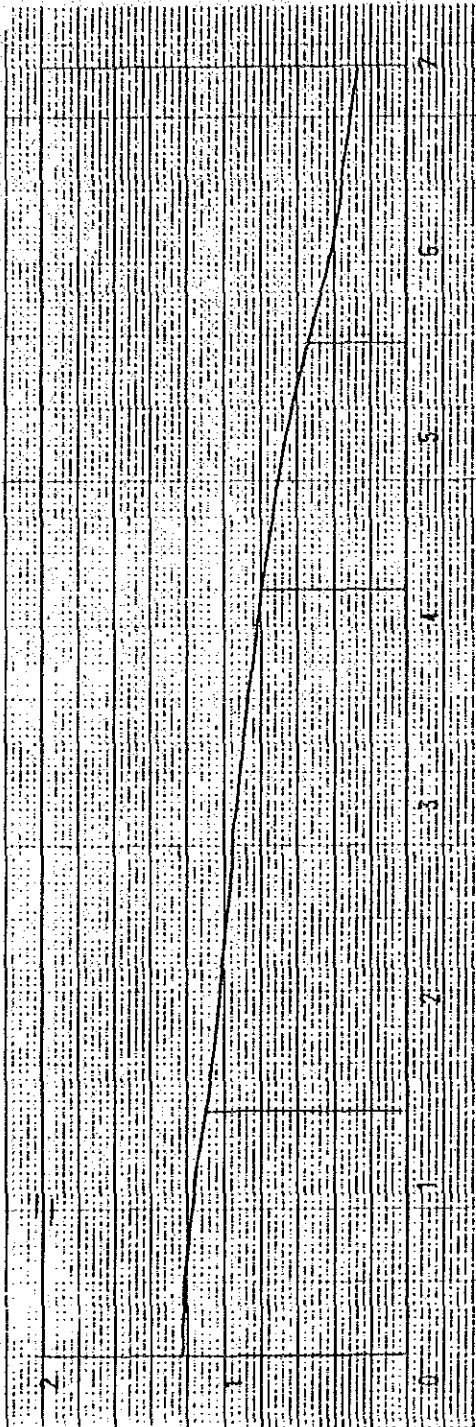
Kind of Cotton SJV
 Effective Staple Length 35
 Contents of Short Fibre 20.54
 Uniformity Ratio 78.79



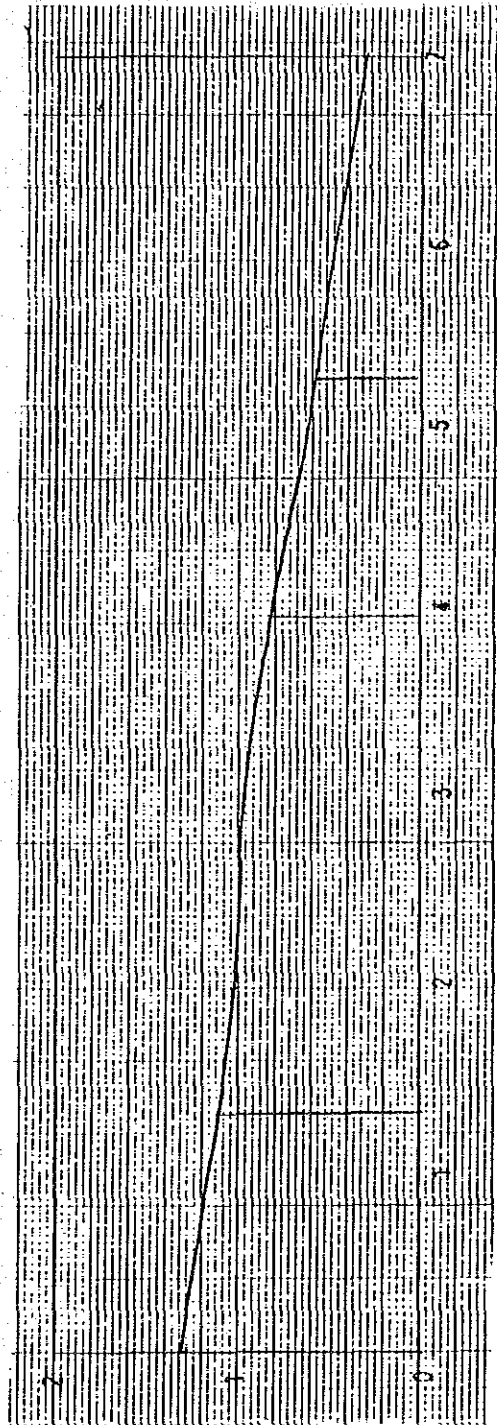
Kind of Cotton SJV
 Effective Staple Length 35
 Contents of Short Fibre 13.39
 Uniformity Ratio 94.12



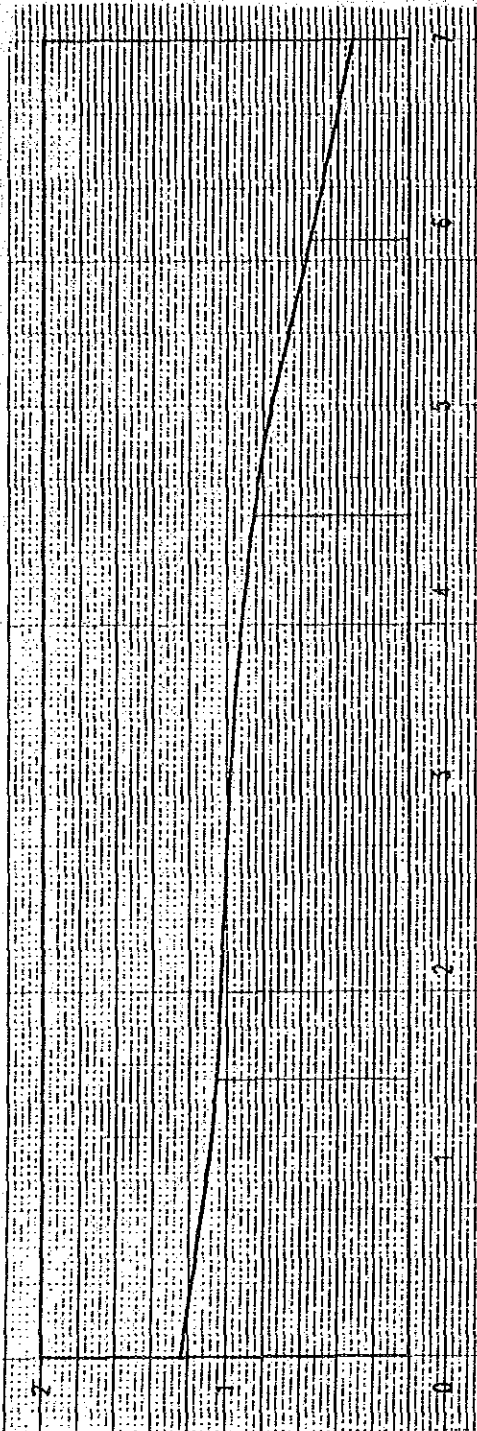
Kind of Cotton Australia
 Effective Staple Length 34
 Contents of Short Fibre 21.43
 Uniformity Ratio 81.82



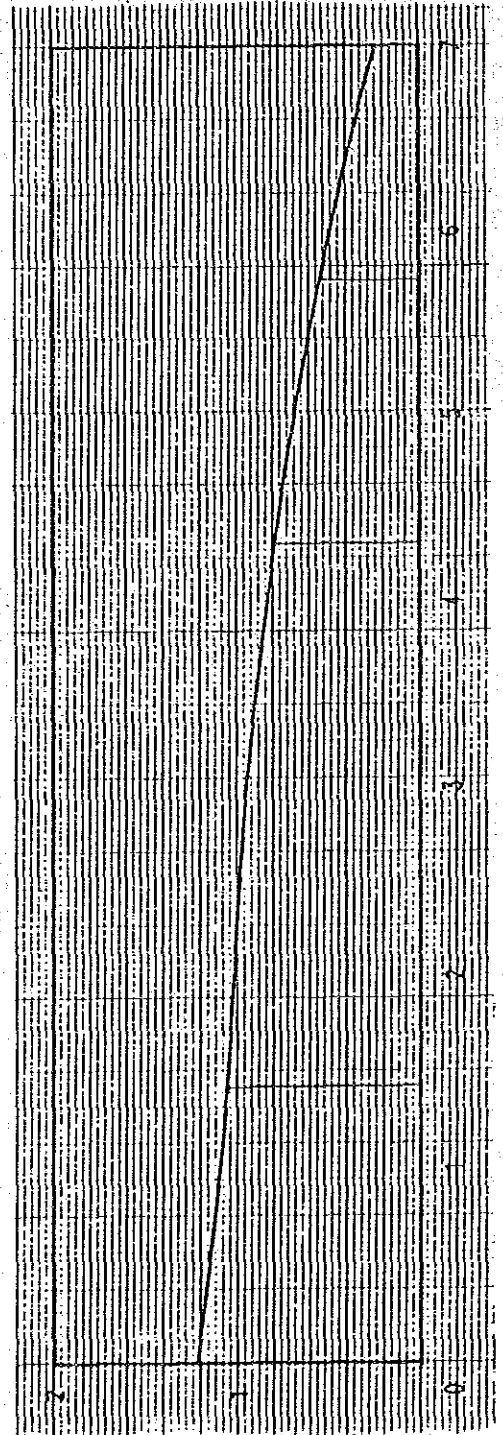
Kind of Cotton Australia
 Effective Staple Length 35
 Contents of Short Fibre 25.00
 Uniformity Ratio 84.85



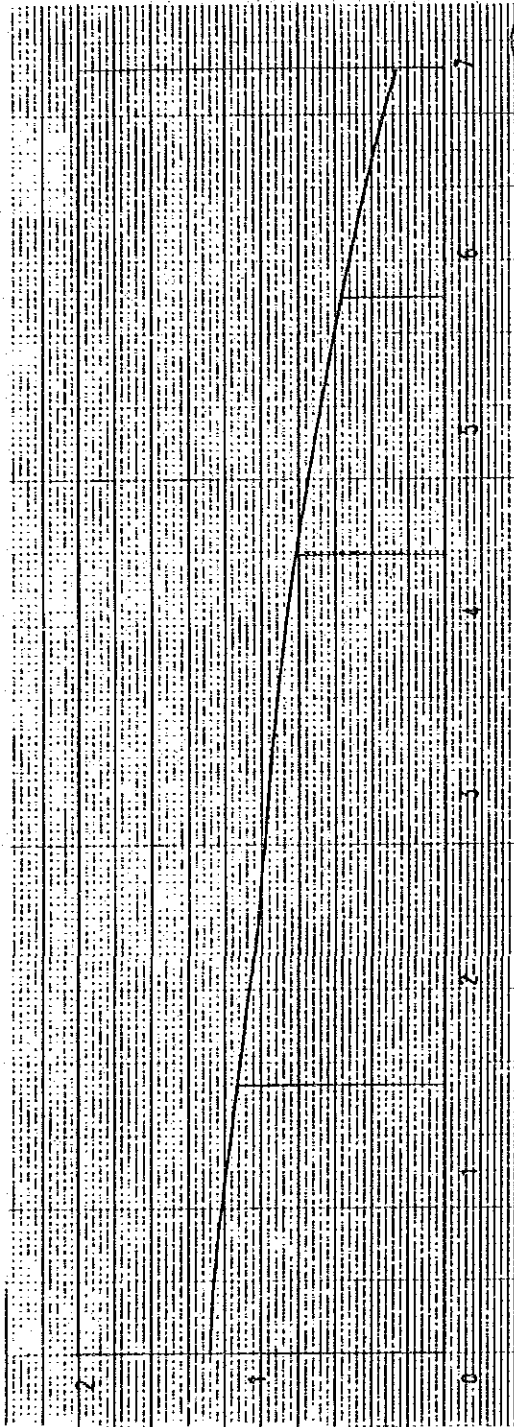
Kind of Cotton Pakistan
Effective Staple Length 34
Contents of Short Fibre 15.18
Uniformity Ratio 90.91



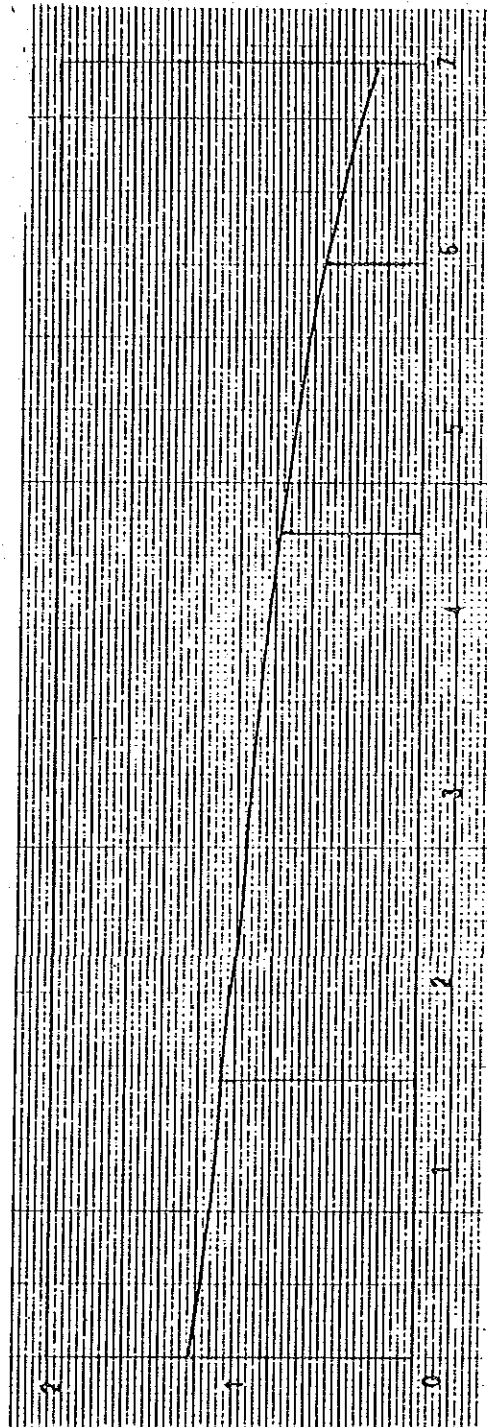
Kind of Cotton Pakistan
Effective Staple Length 34
Contents of Short Fibre 17.86
Uniformity Ratio 84.85



Kind of Cotton Africa
Effective Staple Length 35
Contents of Short Fibre 17.86
Uniformity Ratio 85.29



Kind of Cotton Africa
Effective Staple Length 35
Contents of Short Fibre 15.18
Uniformity Ratio 82.61



4. Renovation Scheme Base Data

Base data for production volume, operating conditions and number of required machines are shown in this section

4-1 Weaving Section

4-2 Spinning Section

4-3 Finishing Section

Production Program (Weaving)

	Case 1				Case 2				Case 3			
	Loom	R/M	No. of set	yd/day	Loom	R/M	No. of set	yd/day	Loom	R/M	No. of set	yd/day
No.1 Mill												
Biru (1)	shuttle	180	44	4,100	Air Jet	600	13	4,037	Air Jet	600	24	7,454
Poplin (1)	ditto	ditto	44	3,927	ditto	ditto	14	4,165	ditto	ditto	16	4,760
Twill	ditto	ditto	16	1,690	ditto	ditto	7	2,464	ditto	ditto	8	2,816
Satin	ditto	ditto	24	1,491	ditto	ditto	9	1,864	ditto	ditto	12	2,485
Biru (2)	ditto	ditto	44	4,100	ditto	ditto	4	1,242	ditto	ditto	22	6,833
Poplin (2)	ditto	ditto	44	3,927	ditto	ditto	3	892	ditto	ditto	18	5,355
Biru (2)	-	-	-	-	shuttle	180	36	3,354	-	-	-	-
Poplin (2)	-	-	-	-	ditto	ditto	36	3,213	-	-	-	-
Sub total			216	19,235			122	21,231			100	29,703
No.2 Mill												
Biru (3)	shuttle	180	122	10,980	shuttle	180	122	10,980	shuttle	180	122	10,980
Prima	ditto	ditto	82	5,876	ditto	ditto	82	5,876	ditto	ditto	82	5,876
Primissima	ditto	ditto	142	9,119	ditto	ditto	142	9,119	ditto	ditto	142	9,119
Buffing Cloth	ditto	ditto	62	4,185	ditto	ditto	62	4,185	ditto	ditto	62	4,185
Sub total			408	30,160			408	30,160			408	30,160
Total			624	49,395			530	51,391			508	59,863
Production (Month)				1,411,709yd				1,468,755yd				1,710,885yd
Production (Annual)				16,940,000yd				17,624,000yd				20,530,000yd

Required Quantity of Yarn (lb/Day Weaving (1))

Mill No.	Fabric	Count	Case 1	Case 2	Case 3	
No.1 Mill	Biru (1)	Warp 32's	738	727	1,342	
		Weft 36	648	638	1,178	
	Poplin (1)	Wp CM40	1,147	1,217	1,390	
		Wt ditto	558	592	676	
	Twill	Wp 30	638	929	1,062	
		Wt ditto	269	392	448	
	Satin	Wp ditto	315	392	525	
		Wt ditto	424	530	706	
	Biru (2)	Wp 32	656	736	1,094	
		Wt 36	574	644	957	
Poplin (2)	Wp 40	1,029	1,076	1,403		
	Wt ditto	503	526	686		
No.2 Mill	Biru (3)	Wp 32	1,439	1,439	1,439	
		Wt 36	1,263	1,263	1,263	
	Prima	Wp 40	794	794	794	
		Wt 44	767	767	767	
	Primissima	Wp CM50	1,140	1,140	1,140	
		Wt ditto	994	994	994	
	Buffing Cloth	Wp 20	1,155	1,155	1,155	
		Wt 30	683	683	683	
	(Total)			15,734	16,636	19,702

Required Quantity of Yarn (lb/day) Weaving (2)

Count		Case 1	Case 2	Case 3
Carded	20's	1,155	1,155	1,155
"	30	2,329	2,928	3,424
"	32	2,833	2,902	3,875
"	36	2,485	2,545	3,398
"	40	2,326	2,396	2,883
"	44	767	767	767
Combed	40	1,705	1,809	2,066
"	50	2,134	2,134	2,134
Total		15,734	16,636	19,702

(WEAVING)

Required Number of Machine Except Loom

Name of Machine	mill No	Production 1 set / day	Required Quantity to be fed			No. of Machine			Spare
			Case 1	Case 2	Case 3	Case 1	Case 2	Case 3	
1 Warper	1	315,000yd	218,286yd	242,939yd	324,949yd	0.7/1	0.8/1	0.9/1	Speed-up
2 Sizer	2	170,100 "	242,277 "	242,277 "	242,277 "	1.5/2	1.5/2	1.5/2	
3 Reaching Machine	1	34,560 "	20,927 "	23,062 "	32,106 "	0.6/1	0.7/1	0.93/1	
	2	30,240 "	31,965 "	31,965 "	31,965 "	1.1/2	1.1/2	1.1/2	
	1	5,600ends	27,203ends	26,674ends	31,342ends	4.9/5	4.8/5	5.6/6	40% of total ends
4 Tying Machine	2	5,600 "	21,365 "	21,365 "	21,365 "	3.9/4	3.9/4	3.9/4	
	1	75,600 "	68,007 "	66,683 "	78,333 "	0.9/1	0.9/1	1.1/2	
	2	75,600 "	53,412 "	53,412 "	53,412 "	0.7/1	0.7/1	0.7/1	
5 Pirm Winder	1		5	2	1	5	2	1	36spls. 10spls
	2		16	16		16	16	16	
6 Bobbin Cleaner	1	79,380pcs	56,134pcs	16,393pcs	2,300pcs	0.7/1	0.3/1	0.08/1	
	2	79,380 "	67,562 "	67,562 "	67,562 "	0.9/1	0.9/1	0.9/1	
7 Inspecting Machine	1	6,300yd	30,443yd	33,761yd	47,218yd	4.9/5	5.4/6	7.5/8	
	2	6,300 "	30,160 "	30,160 "	30,160 "	4.8/5	4.8/5	4.8/5	
8 Folding Machine	1	25,200 "	30,443 "	33,761 "	47,218 "	1.2/2	1.4/2	1.9/2	Spare : case 1 only
	2	25,200 "	30,160 "	30,160 "	30,160 "	1.2/2	1.2/2	1.9/2	
9 Leasing Machine	1	75,600ends	-	47,187ends	78,333ends	-	0.6/1	0.98/1	Speed-up

Required Number of Machine (Spinning)

Mixing	D		C		B		A		Total	No. of setting machine
	Count	CE	Count	CE	Count	CE	Count	CE		
Carded or Combed	20	CE	30	CE	40	CE	40	CE	50	CM
Blow Room	0.14		0.61	0.42	0.32	0.39	0.28	0.09	0.27	3 L x 4 P
Card	1.91		8.26	1.41	4.36	0.8	3.71	1.31	0.55	50
Pre-Draw	-		-	5.71	-	5.35	-	-	7.39	1
Lap-Former	-		-	9.12	-	1.02	0.38	-	0.37	1
Comber	-		-	-	-	-	0.32	-	0.32	6
Post - Draw	0.18		0.8	0.63	0.48	0.59	0.41	0.14	0.40	D 800F 2
Fly-Frame	0.85		4.21	2.89	1.5	New(2)	New(1)	0.46	1.16	New 4
Ring - Frame	3		21	16	15	RM100 (4)	9	5	13	RMS 4, RM5 2,
Winder	0.36		2.37	1.73	1.62	1.99	1.19	0.56	1.45	RM100 8, New 3
	1		5	5	5	5	3	3	116	116
									13.04	14

1200 SPLS. SPINNING MILL

Material	C	C	C	C	C	C	C	C	C	C
CB 100 / 0 20 's										
Process	Opening	Carding	Drawing	2nd Draw	Roving	Spinning	Winding			
Model	D800F	D800F	D800F	HARA	HARA	HARA	HARA	3F		
Maker	HARA	HARA	HARA	HARA	HARA	HARA	HARA			
Required quantity lbs/hr	61	58	58	58	58	57	56			
Waste %	4	5	0.5	0.5	0.5	1.5	1			
Counts Ne								20		20
Draft		1.34	1	1						
Fed grain gr/yds		14oz/1	380/6	380/6	380/6	275/30	50/120			
Produced grain gr/yds		14oz/1	380/6	380/6	275/30	50/120	50/120			
Twist T/in					1.192	18.11				
Twistmultiplier					1.25	4.05				
Speed /min		11.5R	20R	180m	180m	10000R	900m			
Calculated production lbs/hr		498	34.9	106.9	106.9	1.172	0.055	3.513		
Efficiency %		90	90	75	75	88	90			
Actual production lbs/hr		448.2	31.41	80.17	80.17	0.879	0.049	3.161		
Calculated No. of sps		0.14	1.85	0.72	0.72	65.98	1165	17.71		
Stoppage %		3	3	3	3	3	3	3		
Total No. of sps		0.14	1.91	0.74	0.74	67.96	1200	18.24		
No. of Del./machine		1	1	4	4	80	400	50		
Calculated No. of M/C		0.14	1.91	0.18	0.18	0.85	3	0.36		
No. of setting M/C		1	2	1	1	1	3	1		

8400 SPLS. SPINNING MILL

OB 100 / 0 30 's

Material C C C C C C C C C C C

Process Opening Carding Drawing 2nd Draw Roving Spinning Winding

Model D800F D800F RMS SF

Maker HARA HARA HOWA HOWA

Required quantity lbs/hr 265 252 251 250 249 245 243

Waste % 4 5 0.5 0.5 0.5 1.5 1

Counts Ne

Draft 1.34 1 1

Fed grain gr/yds 14oz/1 380/6 380/6 380/6 380/6 250/30 33.33/120

Produced grain gr/yds 14oz/1 380/6 380/6 380/6 250/30 33.33/120 33.33/120

Twist T/in 1.25 22.18

Twistmultiplier 1.25 4.05

Speed /min 11.5R 20R 180m 180m 640R 11000R 900m

Calculated production lbs/hr 498 34.9 106.9 106.9 1.016 0.033 2.342

Efficiency % 90 90 75 75 75 90 90

Actual production lbs/hr 448.2 31.41 80.17 80.17 0.762 0.03 2.107

Calculated No. of sps 0.59 8.02 3.13 3.12 326.7 8155 115.2

Stoppage % 3 3 3 3 3 3 3

Total No. of sps 0.61 8.26 3.22 3.21 336.5 8400 118.7

No. of Del./machine 1 1 4 4 80 400 50

Calculated No. of M/C 0.61 8.26 0.8 0.8 4.21 21 2.37

No. of setting M/C 1 9 1 1 5 21 3

6400 SPLS. SPINNING MILE

OE	100 / 0	32 / s												
Material			C	C	C	C	C	C	C	C	C	C	C	C
Process			Opening	Carding	Drawing	2nd Draw	Roving	Spinning	Winding					
Model							RMS	SF						
Maker							HOMWA	HOMWA						
Required quantity	lbs/hr		183	174	173	172	171	168	166					
Waste	%		4	5	0.5	0.5	0.5	1.5	1					
Counts	Ne						32	32	32					
Draft				1.34										
Fed grain	gr/yds		14oz/1	380/6	380/6	380/6	380/6	250/30	31.25/120					
Produced grain	gr/yds		14oz/1	380/6	380/6	380/6	250/30	31.25/120	31.25/120					
Twist	T/in						1.25	22.91						
Twistmultiplier							1.25	4.05						
Speed	/min		11.5R	20R	280m	280m	640R	11000R	900m					
Calculated production	lbs/hr		498	34.9	166.2	166.2	1.016	0.030	2.196					
Efficiency	%		90	90	85	85	75	90	90					
Actual production	lbs/hr		448.2	31.41	141.2	141.2	0.762	0.027	1.976					
Calculated No. of sps			0.41	5.54	1.22	1.22	224.4	6214	83.99					
Stoppage	%		3	3	3	3	3	3	3					
Total No. of sps			0.42	5.71	1.26	1.26	231.1	6400	86.51					
No. of Del./machine			1	1	2	2	60	400	50					
Calculated No. of M/C			0.42	5.71	0.63	0.63	2.89	16	1.73					
No. of setting M/C			1	6	1	1	3	16	2					

4800 SPLS. SPINNING MILL

CS 100 / 0 36 / s

Material	C	C	C	C	C	C	C	C	C
Process	Opening	Carding	Drawing	2nd Draw	Roving	Spinning	Winding		
Model					RM100	SF			
Maker					HDMA	HDMA			
Required quantity	165	157	156	155	154	152	150		
Waste	%	4	5	0.5	0.5	1.5	1		
Counts	Ne					36	36		
Draft		1.34							
Fed grain	gr/yds	14oz/1	380/6	380/6	380/6	250/30	27.78/120		
Produced grain	gr/yds	14oz/1	380/6	380/6	380/6	250/30	27.78/120	27.78/120	
Twist	T/in				1.25	24.3			
Twistmultiplier					1.25	4.05			
Speed	/min	11.5R	20R	280m	280m	830R	11000R	900m	
Calculated production	lbs/hr	498	34.9	166.2	166.2	1.317	0.025	1.952	
Efficiency	%	90	90	85	85	80	90	90	
Actual production	lbs/hr	448.2	31.41	141.2	141.2	1.053	0.023	1.756	
Calculated No. of sps		0.37	5	1.1	1.1	146.1	6602	85.38	
Stoppage	%	3	3	3	3	3	3	3	
Total No. of sps		0.38	5.15	1.13	1.13	150.5	6800	87.94	
No. of Del./machine		1	1	2	2	96	400	50	
Calculated No. of M/C		0.38	5.15	0.56	0.56	1.57	17	1.76	
No. of setting M/C		1	6	1	1	2	17	2	

4000 SPLS. SPINNING MILL

OB	100 / 0	40 / s																		
Material	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Process	Opening	Carding	Drawing	2nd Draw	Roving	Spinning	Winding													
Model					RM100	SF														
Maker					HOWA	HOWA														
Required quantity	140	133	132	131	130	128	127													
Waste	4	5	0.5	0.5	0.5	1.5	1													
Counts																				
Draft			1.34				40													
Fed grain		14oz/1	380/6	380/6	380/6	380/6	25/120													
Produced grain	14oz/1	380/6	390/6	380/6	250/30	25/120	25/120													
Twist					1.303	25.61														
Twistmultiplier					1.25	4.05														
Speed	11.5R	20R	280m	280m	830R	12000R	900m													
Calculated production	498	34.2	166.2	166.2	1.163	0.023	1.757													
Efficiency	90	90	85	85	80	92														
Actual production	445.2	31.41	141.2	141.2	0.930	0.022	1.616													
Calculated No. of spls	0.31	4.23	0.93	0.93	139.7	5825	76.57													
Stoppage	3	3	3	3	3	3														
Total No. of spls	0.32	4.36	0.96	0.96	143.9	6000	80.93													
No. of Del./machine	1	1	2	2	96	400	50													
Calculated No. of M/C	0.32	4.36	0.48	0.48	1.5	15	1.62													
No. of setting M/C	1	5	1	1	2	15	2													

7344 SPLS. SPINNING MILL

OE	100 / 0	40	's																	
Material				C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Process				Opening	Carding	Drawing	2nd Draw	Roving	Spinning	Winding										
Model								RM100	UA27E											
Maker								HOWA	HOWA											
Required quantity		lbs/hr		171	169	162	161	160	158	156										
Waste		%		4	5	0.5	0.5	0.5	1	1										
Counts		Ne																		
Draft																				
Feed grain		gr/yds			14oz/1	380/6	380/6	380/6	230/30	25/120										
Produced grain		gr/yds		14oz/1	380/6	380/6	350/6	230/30	25/120	25/120										
Twist		T/in						1.303	25.61											
Twistmultiplier								1.25	4.05											
Speed		/min		11.5R	20R	280m	280m	830R	12000R	900m										
Calculated production		lbs/hr		498	34.9	166.2	166.2	1.163	0.023	1.757										
Efficiency		%		90	90	85	85	80	92	92										
Actual production		lbs/hr		448.2	31.41	141.2	141.2	0.930	0.022	1.616										
Calculated No.of spls				0.38	5.19	1.15	1.14	171.9	7200	96.51										
Stoppage		%		3	3	3	3	3	2	3										
Total No. of spls				0.39	5.35	1.18	1.17	177.1	7344	99.41										
NO.of Del./machine				1	1	2	2	96	432	50										
Calculated No.of M/C				0.39	5.35	0.59	0.58	1.85	17	1.99										
No.of setting M/C				1	6	1	1	2	17	2										

2160 SPLS. SPINNING MILL

03 100 / 0 44 's

Material	C	C	C	C	C	C	C	C
Process	Opening	Carding	Drawing	2nd Draw	Roving	Spinning	Winding	
Model					RM100	UA27E		
Maker					HDWA	HDWA		
Required quantity	42	40	40	40	40	40	40	40
Waste %	4	5	0.5	0.5	0.5	1	1	1
Counts						44		44
Draft		1.34						
Fed grain		14oz/1	380/6	380/6	380/6	230/30	22.73/120	
Produced grain	14oz/1	380/6	380/6	380/6	230/30	22.73/120	22.73/120	
Twist					1.303	26.86		
Twistmultiplier					1.25	4.05		
Speed	11.5R	20R	280m	280m	830R	12000R	900m	
Calculated production	498	34.9	166.2	166.2	1.163	0.020	1.597	
Efficiency %	90	90	85	85	80	92	92	
Actual production	448.2	31.41	141.2	141.2	0.930	0.019	1.469	
Calculated No.of spls	0.09	1.27	0.28	0.28	42.99	2118	27.23	
Stoppage %	3	3	3	3	3	2	3	
Total No. of spls	0.09	1.31	0.29	0.29	44.28	2160	28.05	
No.of Del./machine	1	1	2	2	96	432	50	
Calculated No.of M/C	0.09	1.31	0.14	0.14	0.46	5	0.56	
No.of setting M/C	1	2	1	1	1	5	1	

3888 SPLS. SPINNING MILL

OM 100 / 0 40 's

Material	C	C	C	C	C	C	C	C	C	C	C	C
Process	Opening	Carding	Predrawl	Lap Form	Coming	Postdraw	Roving	Spinning	Winding			
Model	D800F	DY-S	DARTO	UA27E								
Maker	HARA	HOWA	HOWA	HOWA								
Required quantity	119	113	112	111	96	96	96	94				
Waste	4	5	0.5	1	16	0.5	0.5	1	1			
Counts								40	40			
Draft		1.34	1		0.22							
Fed grain		14oz/1	380/6	360/6	750/1	360/6	360/6	195/30	25/120			
Produced grain	14oz/1	380/6	360/6	750/1	360/6	360/6	195/30	25/120	25/120			
Twist							1.415	24.67				
Twistmultiplier							1.25	3.9				
Speed	11.5R	20R	180m	60m	180N	250m	1000R	13000R	900m			
Calculated production	498	34.9	101.2	421.8	23.76	140.6	1.094	0.026	1.757			
Efficiency	90	90	75	85	80	85	80	93	93			
Actual production	448.2	31.41	75.9	358.5	19.00	119.5	0.875	0.025	1.434			
Calculated No.of spls	0.27	3.6	1.48	0.31	5.05	0.8	109.6	3812	57.53			
Stoppage	3	3	3	3	3	3	3	2	3			
Total No. of spls	0.28	3.71	1.52	0.32	5.2	0.82	112.9	3888	59.26			
NO.of Del./machine	1	1	4	1	2	2	96	432	50			
Calculated No.of M/C	0.28	3.71	0.38	0.32	2.6	0.41	1.18	9	1.12			
No.of setting M/C	1	4	1	1	3	1	2	9	2			

5418 SPLS. SPINNING MILL

CM 100 / 0 50 's

Material	C	C	C	C	C	C	C	C	C	C	C	C
Opening	118	112	111	110	95	95	95	94	93			
Carding	4	5	0.5	1	16	0.5	0.5	1	1			
Predraw			D800F	DI-5	CARTO			UA27E				
Predraw			HARA	HOWA	HOWA							
Form												
Coming												
Postdraw												
Roving												
Spinning												
Winding												
Required quantity	lbs/hr											
Waste	%											
Counts	Ne											
Draft		1.34			0.22							
Fed grain	gr/yds	14oz/1	380/6	360/6	750/1	360/6	360/6	195/30	20/120			
Produced grain	gr/yds	14oz/1	380/6	750/1	360/6	360/6	360/6	195/30	20/120			
Twist	T/in							1.415	27.58			
Twistmultiplier								1.25	3.9			
Speed	/min	11.5R	20R	180m	60m	180N	250m	1000R	12500R			900m
Calculated production	lbs/hr	498	34.9	101.2	421.8	23.76	140.6	1.094	0.018			1.405
Efficiency	%	90	90	75	85	80	85	80	94			94
Actual production	lbs/hr	448.2	31.41	75.9	359.5	19.00	119.5	0.875	0.017			1.920
Calculated No. of sps		0.26	3.57	1.46	0.31	5	0.79	108.5	5506			70.42
Stoppage	%	3	3	3	3	3	3	3	2			3
Total No. of sps		0.27	3.68	1.5	0.32	5.15	0.81	111.8	5616			72.53
No. of Del./machine		1	1	4	1	2	2	96	432			50
Calculated No. of M/C		0.27	3.68	0.37	0.32	2.57	0.4	1.16	13			1.45
No. of setting M/C		1	4	1	1	3	1	2	13			2