

7-4 Financial Analysis:

7-4-1 Prerequisite Condition and Appraisal Standard of Economization:

The financial calculation was made under the following major conditions;

- Life for Financial Calculation : 11 years
- Capacity Utilization :

1st year	87%
2nd and later years	100%
- Equity/Debt Ratio :

Case 1	0/100
Case 2	0/100
Case 3	30/ 70
- Interest (annually) :

Case 1 in foreign currency	8%
in local currency	18%
Case 2 in foreign currency	6%
in local currency	18%
Case 3 in foreign currency	10%
in local currency	18%
- Payment Condition : 12 years (including grace period of maximum 2 years)
20 times equal semi-annual installment
- Selling Price of the Products :

Cotton Combed Yarn	30's	Rp.757,000/bale
Cotton Combed Yarn	40's	Rp.771,000/bale
Cotton Combed Yarn	60's	Rp.990,000/bale
Polyester/Cotton 65/35 Blended Yarn	45's	Rp.690,000/bale
Polyester/Cotton 48/52 Blended Yarn	45's	Rp.815,000/bale
- Selling Price of the Wastes :

Comber Noil	Rp.650/kg
Flat Strip	Rp.650/kg
Dropping	Rp. 50/kg
- Corporation Income Tax : Applicable Tax Rate—Progressive taxation of maximum
35%

In the income/cost statement and the financial statement, the time value for the fund is not taken into consideration in any way. Where discount calculation is required, the following is applicable as the standard;

In this renovation, the period from the commencement of the construction to the completion of CP-1 Mill including the detailed design stage requires 13 months. An 11 month period from the month in which the Engineering Contract was put into effect is set as 1 for the present value.

The operation commencement at CP-2 Mill will be from the 12th month, and the required yearly fund is produced by the present value coefficient $\frac{1}{(1+i)^n}$. The reason why the life for financial calculation is set at 11 years is as follows.

The 11th year of the operation is the year when 10 years repayment period for the long term debt will be terminated after its grace period of 2 years having elapsed.

The invested fund is retrieved and the profit is to be earned by selling products while operating mills through the renovation period and further ensuing years therefrom.

In this connection, at appraisal on economization of the renovation accompanying influx of fund for such a long period as this, in addition to a simple comparison between the nominal amount of fund, the appraisal should be made by means of the DCF method taking the time difference during 12 ydars including investments made in the initial year and the 1st year into consideration.

In the following, we indicate the results according to the concrete appraisal standard, where, depending on which standard is taken as the standard for the judgement, sometimes quite opposite result (such as reversal of the internal profit rate before and after tax deduction) may come out.

In this study, the problem of which case of the investment is to be ultimately choiced belongs to the decision of Sandang II and the following various kinds of appraisal standards on the economization are to be used as the criterion for Sandang II's decision as above. The DCF method itself is calculated based on the estimated values for turnover and expense amounts, which is namely the standard in an unsure condition. The various kinds of the calculated results are shown below;

7-4-2 Net Present Value:

The accumulated DCF or net present value (net real value) is the cash flow in each year discounted by a proper interest rate. This net present value represents the value of the investment directly, which bears the most importance in the appraisal indices for the economization, together with the profit rate which will be refered to later. Judgements on whether an investment proposal shall be adopted or discarded should be that when the net present value is plus, the proposal is to be taken up and when it is minus, it is to be discarded. The net present value depends on the interest rate adopted. Although the discount rate is not particularly fixed, the following interest rate exceeding the interest rate for the capital (interest rate to be levied on the raised capital) is adopted (Refer to Table 27-1 to 3 and 29-1 to 3).

Discount Rate	Case 1	Case 2	Case 3
13% (Before tax) :	1,036.5mill.Rp	1,234.0mill.Rp	1,266.3mill.Rp
12% (After tax) :	638.8mill.Rp	166.0mill.Rp	89.5mill.Rp

When the net real value is minus or the discount rate is less than the interest rate on the capital, the net present value can be said to be without the economizability.

As the net real value is plus as the result, it means that all amount invested can be retrieved. Additionally, as a profit is left when deducted even by 12% after tax, it means that the project is fasible.

7-4-3 Benefit/Cost Ratio:

The amount of profit by various investment plans is dependent on the net present value. However, when the profitability is wished to be known by means of a ratio against the invested amount, only with the net present value is not sufficient.

In this respect, the benefit/cost ratio was obtained to supplement the aforesaid present value. The benefit/cost ratio is a coefficient obtained by dividing the present value of the benefit obtained throughout 12 years of the project life by the present value of the cost. Results of the benefit/cost ratio obtained by means of the discount rate used for the internal rate of return are indicated below (refer to Table 29-1 to 3). All indicates are more then 1, which indicates that the project is feasible.

After Tax Deduction	Case 1	Case 2	Case 3
Discount Rate 12%	1.023	1.006	1.003
Without Discount	1.94	1.91	1.91

7-4-4 Internal Rate of Return and Return on Equity:

1) Internal Rate of Return:

The internal rate of return is said to be the most important index in analysis of the economizability, which is in other words the expected efficiency value for the project and the interest rate with which the project can bear without falling into loss. When this internal rate of return exceeds the interest rate on the capital of the opportunity cost comprising of interest bearing for the debt and equity fund, the profit is expectable. Tables 28-1 to 3 and 30-1 to 3 are the calculated statements of the internal rate of return before and after tax deduction respectively.

Item	Case 1	Case 2	Case 3
IRR before tax	13.82%	13.98%	14.01%
IRR after tax	12.52%	12.14%	12.07%

When the result is analysed, it indicates that the IRR before tax is increasing in the order of the cases 1, 2 and 3. This is to the order of the advantageousness in the financing conditions, which is the matter of course.

On the other hand, IRR after tax is increasing adversely in the order of the cases 3, 2 and 1, which is the reverse to the above, the reason being due to the different conditions among the cases, where differences in (a) depreciation amounts, (b) interest amounts and (c) pay-back year for the corporation tax and pay-back amounts caused the reversal (Refer to Table 26-1 to 3).

Further analysis into the detail indicates that the cause for the above (a) is the interest to be accrued during construction period (preoperational expenses is to be depreciated in 5 years) and (b) is caused by the varied amount of the interest accrued due to differences in the debt amounts, leading together to the result of the order of the cases 1, 2 and 3 as above.

Consequently, the tax for the above (c) varies as follows: The beginning year of the operation will be in sequence of the cases 1, 2 and 3, representing 5th, 3rd and 2nd years since the operation. The total paying amounts for 11 years are 4.7019 billion Rp., 5.8775 billion Rp and 6.0577 billion Rp, however, amounts of the tax represent the amounts of profit as well.

Of course, from overall point of view, the order of the cases 3, 2 and 1 in respect of the advantageousness does not change.

Table 27-1 NET CASH FLOW BEFORE TAX (CASE-1)

(Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Income After Tax		-1,094.1	-21.2	192.7	451.2	745.5	1,396.5	1,708.8	2,021.3	2,297.5	2,574.0	3,281.6
B. Depreciation		2,217.7	2,217.4	2,217.4	2,217.4	2,217.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Interest		2,763.6	2,697.3	2,484.9	2,226.4	1,932.1	1,661.1	1,348.8	1,036.3	760.1	483.6	207.3
D. Operating Cash Flow (A + B + C)		3,887.2	4,893.5	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0
Accumulative Total of Operating Cash Flow			8,780.7	13,675.7	18,570.7	23,465.7	28,360.7					
E. Fixed Capital	23,538.8	61.9										
F. Net Working Capital & Addition		4,035.4	567.7									
G. Closing Value												1,920.3
H. Revulsion of Working Capital												4,603.1
I. Net Cash Flow (D-E-F+G+H)	-23,538.8	-210.1	4,325.8	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	11,418.4

Pay Back Period: The year when the Total Investment (Total Capital) will be paid-out by accumulated total return, from the begin of operation.

Table 28-1 I.R.R. BEFORE TAX (CASE-1)

(Unit: RP. 1,000,000)

Year	(a)	(b)	(a) × (b)	(c)	(a) × (c)
	Net Cash Flow	Present Worth Factor P ₁ = 13%	Discounted Cash Flow (DCF)	Present Worth Factor P ₂ = 14%	Discounted Cash Flow (DCF)
0	-23,538.8	1.0000	-23,538.8	1.0000	-23,538.8
1	-210.1	0.8850	-185.9	0.8772	-184.3
2	4,325.8	0.7831	3,387.5	0.7695	3,328.7
3	4,895.0	0.6931	3,392.7	0.6750	3,304.1
4	4,895.0	0.6133	3,002.1	0.5921	2,898.3
5	4,895.0	0.5428	2,657.0	0.5194	2,542.5
6	4,895.0	0.4803	2,351.1	0.4556	2,230.2
7	4,895.0	0.4251	2,080.9	0.3996	1,956.0
8	4,895.0	0.3762	1,841.5	0.3506	1,716.2
9	4,895.0	0.3329	1,629.5	0.3075	1,505.2
10	4,895.0	0.2946	1,442.1	0.2697	1,320.2
11	11,418.4	0.2607	2,976.8	0.2366	2,701.6
			NPV ₁ = 1,036.5	NPV ₂ = -220.1	

$$\begin{aligned}
 \text{IRR} &= P_1 + (P_2 - P_1) \frac{\text{NPV}_1}{\text{NPV}_1 - \text{NPV}_2} \\
 &= 13 + (14 - 13) \frac{1,036.5}{1,036.5 - (-220.1)} \\
 &= 13.82\%
 \end{aligned}$$

Pay Back Period:

$$\text{Fixed Capital} + \text{W/C} = 27,636.1$$

$$5 + \frac{27,636.1 - 23,465.7}{28,360.7 - 23,465.7} = 5.95 \text{ Year}$$

Table 27-2 NET CASH FLOW BEFORE TAX (CASE-2)

(Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Income After Tax		-595.8	468.4	700.3	930.9	1,161.3	1,732.2	1,962.6	2,193.2	2,423.7	2,654.2	3,316.0
B. Depreciation		2,178.2	2,177.9	2,177.9	2,177.9	2,177.9	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Interest		2,304.8	2,247.2	2,016.8	1,786.2	1,555.8	1,325.4	1,095.0	864.4	633.9	403.4	172.9
D. Operating Cash Flow (A + B + C)		3,887.2	4,893.5	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0
Accumulative Total of Operating Cash Flow			8,780.7	13,675.7	18,570.7	23,465.7	28,360.7					
E. Fixed Capital	23,341.3	61.9										
F. Net Working Capital & Addition		4,035.4	567.7									
G. Closing Value												1,920.3
H. Revulsion of Working Capital												4,603.1
I. Net Cash Flow (D-E-F+G+H)	-23,341.3	-210.1	4,325.8	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	11,418.4

Pay Back Period: The year when the Total Investment (Total Capital) will be paid-out by accumulated total return, from the begin of operation.

Table 28-2 I.R.R. BEFORE TAX (CASE-2)

(Unit: RP. 1,000,000)

Year	(a)	(b)	(a) × (b)	(c)	(a) × (c)
	Net Cash Flow	Present Worth Factor $P_1 = 13\%$	Discounted Cash Flow (DCF)	Present Worth Factor $P_2 = 14\%$	Discounted Cash Flow (DCF)
0	-23,341.3	1.0000	-23,341.3	1.0000	-23,341.3
1	-210.1	0.8850	-185.9	0.8772	-184.3
2	4,325.8	0.7831	3,387.5	0.7695	3,328.7
3	4,895.0	0.6931	3,392.7	0.6750	3,304.1
4	4,895.0	0.6133	3,002.1	0.5921	2,898.3
5	4,895.0	0.5428	2,657.0	0.5194	2,542.5
6	4,895.0	0.4803	2,351.1	0.4556	2,230.2
7	4,895.0	0.4251	2,080.9	0.3996	1,956.0
8	4,895.0	0.3762	1,841.5	0.3506	1,716.2
9	4,895.0	0.3329	1,629.5	0.3075	1,505.2
10	4,895.0	0.2946	1,442.1	0.2697	1,320.2
11	11,418.4	0.2607	2,976.8	0.2366	2,701.6
			$NPV_1 = 1,234.0$	$NPV_2 = -22.6$	

$$IRR = P_1 + (P_2 - P_1) \frac{NPV_1}{NPV_1 - NPV_2}$$

$$= 13 + (14 - 13) \frac{1,234.0}{1,234.0 - (-22.6)}$$

$$= 13.98\%$$

Pay Back Period:
Fixed Capital ÷ W/C = 27,438.6

$$5 + \frac{27,438.6 - 23,465.7}{28,360.7 - 23,465.7} = 5.81 \text{ Year}$$

Table 27-3 NET CASH FLOW BEFORE TAX (CASE-3)

(Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Income After Tax		-510.1	552.4	776.4	999.0	1,221.5	1,778.1	2,000.6	2,223.1	2,445.6	2,668.2	3,322.0
B. Depreciation		2,171.9	2,171.4	2,171.4	2,171.4	2,171.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Interest		2,225.4	2,169.7	1,947.2	1,724.6	1,502.1	1,279.5	1,057.0	834.5	612.0	389.4	166.9
D. Operating Cash Flow (A + B + C)		3,887.2	4,893.5	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0
Accumulative Total of Operating Cash Flow			8,780.7	13,675.7	18,570.7	23,465.7	28,360.7					
E. Fixed Capital	23,309.0	61.9										
F. Net Working Capital & Addition		4,035.4	567.7									
G. Closing Value												1,920.3
H. Revulsion of Working Capital												4,603.1
I. Net Cash Flow (D-E-F+G+H)	-23,309.0	-210.1	4,325.8	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	11,418.4

Pay Back Period: The year when the Total Investment (Total Capital) will be paid-out by accumulated total return, from the begin of operation.

Table 28-3 I.R.R. BEFORE TAX (CASE-3)

(Unit: RP. 1,000,000)

Year	(a)	(b)	(a) × (b)	(c)	(a) × (c)
	Net Cash Flow	Present Worth Factor $P_1 = 14\%$	Discounted Cash Flow (DCF)	Present Worth Factor $P_2 = 15\%$	Discounted Cash Flow (DCF)
0	-23,309.0	1.0000	-23,309.0	1.0000	-23,309.0
1	-210.1	0.8772	-184.3	0.8696	-182.7
2	4,325.8	0.7695	3,328.7	0.7561	3,270.7
3	4,895.0	0.6750	3,304.1	0.6757	3,218.5
4	4,895.0	0.5921	2,898.3	0.5718	2,799.0
5	4,895.0	0.5194	2,542.5	0.4972	2,433.8
6	4,895.0	0.4556	2,230.2	0.4323	2,116.1
7	4,895.0	0.3996	1,956.0	0.3759	1,840.0
8	4,895.0	0.3506	1,716.2	0.3269	1,600.2
9	4,895.0	0.3075	1,505.2	0.2843	1,391.6
10	4,895.0	0.2697	1,320.2	0.2472	1,210.0
11	11,418.4	0.2366	2,701.6	0.2149	2,453.8
			$NPV_1 = 9.7$	$NPV_2 = -1,158.0$	

$$\begin{aligned}
 IRR &= P_1 + (P_2 - P_1) \frac{NPV_1}{NPV_1 - NPV_2} \\
 &= 14 + (15 - 14) \frac{9.7}{9.7 - (-1,158.0)} \\
 &= 14.01\%
 \end{aligned}$$

Pay Back Period:

$$\text{Fixed Capital} + W/C = 27,406.3$$

$$5 + \frac{27,406.3 - 23,465.7}{28,360.7 - 23,465.7} = 5.81 \text{ Year}$$

Net Present Value = 1,266.3

(Discount Rate : 13%)

Table 29-1 NET CASH FLOW AFTER TAX (CASE-1)

(Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Income Before Tax		-1,094.1	-21.2	192.7	451.2	655.6	913.7	1,116.7	1,319.8	1,499.4	1,679.1	2,139.0
B. Depreciation		2,217.7	2,217.4	2,217.4	2,217.4	2,217.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Interest		2,763.6	2,697.3	2,484.9	2,226.4	1,932.1	1,661.1	1,348.8	1,036.3	760.1	483.6	207.3
D. Operating Cash Flow		3,887.2	4,893.5	4,895.0	4,895.0	4,805.1	4,412.2	4,302.9	4,193.5	4,096.9	4,000.1	3,752.4
(A + B + C)												
E. Fixed Capital	23,538.8	61.9										
F. Net Working Capital & Addition		4,035.4	567.7									
G. Closing Value												1,920.3
H. Revulsion of Working Capital												4,603.1
I. Net Cash Flow (D-E-F+G+H)	-23,538.8	-210.1	4,325.8	4,895.0	4,895.0	4,805.1	4,412.2	4,302.9	4,193.5	4,096.9	4,000.1	10,275.8

Pay Back Period: The year when the Total Investment (Total Capital) will be paid-out by accumulated total return, from the begin of operation.

Table 30-1 I.R.R. AFTER TAX (CASE-1)

(Unit: RP. 1,000,000)

Year	(a) Net Cash Flow	(b) Present Worth Factor $P_1 = 12\%$	(a) × (b) Discounted Cash Flow (DCF)	(c) Present Worth Factor $P_2 = 13\%$	(a) × (c) Discounted Cash Flow (DCF)
0	-23,538.8	1.0000	-23,538.8	1.0000	-23,538.8
1	-210.1	0.8929	-187.6	0.8850	-185.9
2	4,325.8	0.7972	3,448.5	0.7831	3,387.5
3	4,895.0	0.7118	3,484.3	0.6931	3,392.7
4	4,895.0	0.6355	3,110.8	0.6133	3,002.1
5	4,805.1	0.5674	2,726.4	0.5428	2,608.2
6	4,412.2	0.5066	2,235.2	0.4803	2,119.2
7	4,302.9	0.4524	1,946.6	0.4251	1,829.2
8	4,193.5	0.4039	1,693.8	0.3762	1,577.6
9	4,096.9	0.3606	1,477.3	0.3329	1,363.9
10	4,000.1	0.3220	1,288.0	0.2946	1,178.4
11	10,275.8	0.2875	2,954.3	0.2607	2,678.9
			NPV ₁ = 638.8		
				NPV ₂ = -587.0	

B/C: Benefit - Cost Ratio

$$\frac{54,657.2}{28,203.8} = 1.94$$

(Discount Rate 12%) $\frac{28,288.7}{27,649.9} = 1.023$

$$\begin{aligned} \text{IRR} &= P_1 + (P_2 - P_1) \frac{\text{NPV}_1}{\text{NPV}_1 - \text{NPV}_2} \\ &= 12 + (13 - 12) \frac{638.8}{638.8 - (-587.0)} \\ &= 12.52\% \end{aligned}$$

Pay Back Period:

$$\text{Fixed Capital} + \text{W/C} = 27,636.1$$

$$5 + \frac{27,636.1 - 23,375.8}{27,788.0 - 23,375.8} = 5.97 \text{ Year}$$

Table 29-2 NET CASH FLOW AFTER TAX (CASE-2)

(Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Income Before Tax		-595.8	468.4	505.8	611.1	760.8	1,131.9	1,281.7	1,431.6	1,581.4	1,731.2	2,161.4
B. Depreciation		2,178.2	2,177.9	2,177.9	2,177.9	2,177.9	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Interest		2,304.8	2,247.2	2,016.8	1,786.2	1,555.8	1,325.4	1,095.0	864.4	633.9	403.4	172.9
D. Operating Cash Flow		3,887.2	4,893.5	4,700.5	4,575.2	4,494.5	4,294.7	4,214.1	4,133.4	4,052.7	3,972.0	3,740.4
(A + B + C)												
E. Fixed Capital	23,341.3	61.9										
F. Net Working Capital & Addition		4,035.4	567.7									
G. Closing Value												1,920.3
H. Revulsion of Working Capital												4,603.1
I. Net Cash Flow (D-E-F+G+H)	-23,341.3	-210.1	4,325.8	4,700.5	4,575.2	4,494.5	4,294.7	4,214.1	4,133.4	4,052.7	3,972.0	10,263.8

Pay Back Period: The year when the Total Investment (Total Capital) will be paid-out by accumulated total return, from the begin of operation.

Table 30-2 I.R.R. AFTER TAX (CASE-2)

(Unit: RP. 1,000,000)

Year	(a)	(b)	(a) × (b)	(c)	(a) × (c)
	Net Cash Flow	Present Worth Factor $P_1 = 12\%$	Discounted Cash Flow (DCF)	Present Worth Factor $P_2 = 13\%$	Discounted Cash Flow (DCF)
0	-23,341.3	1.0000	-23,341.3	1.0000	-23,341.3
1	-210.1	0.8929	-187.6	0.8850	-185.9
2	4,325.8	0.7972	3,448.5	0.7831	3,387.5
3	4,700.5	0.7118	3,345.8	0.6931	3,257.9
4	4,575.2	0.6355	2,907.5	0.6133	2,806.0
5	4,494.5	0.5674	2,550.2	0.5428	2,439.6
6	4,294.7	0.5066	2,175.7	0.4803	2,062.7
7	4,214.1	0.4524	1,906.5	0.4251	1,791.4
8	4,133.4	0.4039	1,669.5	0.3762	1,555.0
9	4,052.7	0.3606	1,461.4	0.3329	1,349.1
10	3,972.0	0.3220	1,279.0	0.2946	1,170.2
11	10,263.8	0.2875	2,950.8	0.2607	2,675.8
			NPV ₁ = 166.0	NPV ₂ = -1,032.0	

B/C: Benefit - Cost Ratio

$$\frac{53,481.6}{28,006.3} = 1.91$$

(Discount Rate 12%) $\frac{27,618.4}{28,452.4} = 1.006$

$$\begin{aligned} \text{IRR} &= P_1 + (P_2 - P_1) \frac{\text{NPV}_1}{\text{NPV}_1 - \text{NPV}_2} \\ &= 12 + (13 - 12) \frac{166.0}{166.0 - (-1,032.0)} \\ &= 12.14\% \end{aligned}$$

Pay Back Period:

Fixed Capital + W/C = 27,438.6

$$6 + \frac{27,438.6 - 26,845.6}{31,059.7 - 26,845.6} = 6.14 \text{ Year}$$

Table 29-3 NET CASH FLOW AFTER TAX (CASE-3)

(Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Income Before Tax		-510.1	542.8	510.7	655.3	800.0	1,161.8	1,306.4	1,451.0	1,595.6	1,740.3	2,165.3
B. Depreciation		2,171.9	2,171.4	2,171.4	2,171.4	2,171.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Interest		2,225.4	2,169.7	1,947.2	1,724.6	1,502.1	1,279.5	1,057.0	834.5	612.0	389.4	166.9
D. Operating Cash Flow		3,887.2	4,883.9	4,629.3	4,551.3	4,473.5	4,278.7	4,200.8	4,122.9	4,045.0	3,967.1	3,738.3
(A + B + C)												
E. Fixed Capital	23,309.0	61.9										
F. Net Working Capital & Addition		4,035.4	567.7									
G. Closing Value												1,920.3
H. Revulsion of Working Capital												4,603.1
I. Net Cash Flow (D-E-F+G+H)	-23,309.0	-210.1	4,316.2	4,629.3	4,551.3	4,473.5	4,278.7	4,200.8	4,122.9	4,045.0	3,967.1	10,261.7

Pay Back Period: The year when the Total Investment (Total Capital) will be paid-out by accumulated total return, from the begin of operation.

Table 30-3 I.R.R. AFTER TAX (CASE-3)

(Unit: RP. 1,000,000)

Year	(a)	(b)	(a) × (b)	(c)	(a) × (c)
	Net Cash Flow	Present Worth Factor $P_1 = 12\%$	Discounted Cash Flow (DCF)	Present Worth Factor $P_2 = 13\%$	Discounted Cash Flow (DCF)
0	-23,309.0	1.0000	-23,309.0	1.0000	-23,309.0
1	-210.1	0.8929	-187.6	0.8850	-185.9
2	4,316.2	0.7972	3,440.9	0.7831	3,380.0
3	4,629.3	0.7118	3,295.1	0.6931	3,208.6
4	4,551.3	0.6355	2,892.4	0.6133	2,791.3
5	4,473.5	0.5674	2,538.3	0.5428	2,428.2
6	4,278.7	0.5066	2,167.6	0.4803	2,055.1
7	4,200.8	0.4524	1,900.4	0.4251	1,785.8
8	4,122.9	0.4039	1,665.2	0.3762	1,551.0
9	4,045.0	0.3606	1,458.6	0.3329	1,346.6
10	3,967.1	0.3220	1,277.4	0.2946	1,168.7
11	10,261.7	0.2875	2,950.2	0.2607	2,675.2
			$NPV_1 = 89.5$	$NPV_2 = -1,104.4$	

B/C: Benefit - Cost Ratio

$$\frac{53,301.4}{27,974.0} = 1.91$$

$$\text{(Discount Rate 12\%)} \quad \frac{27,509.6}{27,420.1} = 1.003$$

$$\begin{aligned} \text{IRR} &= P_1 + (P_2 - P_1) \frac{NPV_1}{NPV_1 - NPV_2} \\ &= 12 + (13 - 12) \frac{89.5}{89.5 - (-1,104.4)} \\ &= 12.07\% \end{aligned}$$

Pay Back Period:

$$\text{Fixed Capital} + \text{W/C} = 27,406.3$$

$$6 + \frac{27,406.3 - 26,703.9}{30,904.7 - 26,703.9} = 6.17 \text{ Year}$$

2) Internal Rate of Return on Equity Capital (R.O.E.):

As the case 3 is the case with 30% equity capital, Table 31 indicates the average return on the paid-up capital when the stock dividend is assumed to be paid. For the more detailed calculations, Table 32 shows returns before tax and Table 33 indicates the return after tax.

According to these tables, the profit accrues from the 2nd year of the operation, which sums up to about 17.48 billion Rp for the income before tax and to 11.42 billion Rp of the income after tax over 11 years.

The average profit over 11 years is 1.59 billion Rp for the income before tax and 1.04 billion Rp for the income after tax.

As the amount of the paid-up capital is about 8.22 billion Rp, the average return on the capital will be 19.3% and 12.6% by simple average before and after tax respectively, and R.O.E., when discounted, is 14.2% and 10.1% before and after tax respectively.

Table 31 AVERAGE RETURN ON PAID-UP CAPITAL (CASE-3)

(Unit: RP. 1,000,000)

Year	Income Before Tax	Corporation Tax	Income After Tax
1	-510.1	0	-510.1
2	552.4	9.6	542.8
3	776.4	265.7	510.7
4	999.0	343.7	655.3
5	1,221.5	421.5	800.0
6	1,778.1	616.3	1,161.8
7	2,000.6	694.2	1,306.4
8	2,223.1	772.1	1,451.0
9	2,445.6	850.0	1,595.6
10	2,668.2	927.9	1,740.3
11	3,322.0	1,156.7	2,165.3
Total	17,476.8	6,057.7	11,419.1
A. Average over 11 years	1,588.8		1,038.1
B. Paid-up Capital	8,221.9		8,221.9
C. Average Return on Paid-up Capital (A/B)	19.3%		12.6%
D. Discounted Return on Paid-up Capital	14.2%		10.1%

Table 32 RATE OF RETURN ON PAID-UP CAPITAL (CASE-3)

(Income Before Tax)

(Unit: RP. 1,000,000)

Year	Equity	Income Before Tax	Cash Flow	14%		15%	
				Discount Factor	NPV of Cash Flow	Discount Factor	NPV of Cash Flow
0	-8,221.9		-8,221.9	1.0000	-8,221.9	1.0000	-8,221.9
1		-510.1	-510.1	0.8772	-447.5	0.8696	-443.6
2		552.4	552.4	0.7695	425.1	0.7561	417.7
3		776.4	776.4	0.6750	524.1	0.6575	510.5
4		999.0	999.0	0.5921	591.5	0.5718	571.2
5		1,221.5	1,221.5	0.5194	634.4	0.4972	607.3
6		1,778.1	1,778.1	0.4556	810.1	0.4323	768.7
7		2,000.6	2,000.6	0.3996	799.4	0.3759	752.0
8		2,223.1	2,223.1	0.3506	779.4	0.3269	726.7
9		2,445.6	2,445.6	0.3075	752.0	0.2843	695.3
10		2,668.2	2,668.2	0.2697	719.6	0.2472	659.6
11	8,221.9	3,322.0	11,543.9	0.2366	2,731.3	0.2149	2,480.8
Total	Nil	17,476.8	17,476.8		97.5		-475.7

$$\text{Return on Equity} = 14 + \frac{97.5}{97.5 + 475.7} = 14.2\%$$

(R.O.E.)

Table 33 RATE OF RETURN ON PAID-UP CAPITAL (CASE-3)

(Income After Tax)

(Unit: RP. 1,000,000)

Year	Equity	Income After Tax	Cash Flow	10%		11%	
				Discount Factor	NPV of Cash Flow	Discount Factor	NPV of Cash Flow
0	-8,221.9		-8,221.9	1.0000	-8,221.9	1.0000	-8,221.9
1		-510.1	-510.1	0.9091	-463.7	0.9009	-459.5
2		542.8	542.8	0.8265	448.6	0.8116	440.5
3		510.7	510.7	0.7513	383.7	0.7312	373.4
4		655.3	655.3	0.6830	447.6	0.6587	431.6
5		800.0	800.0	0.6209	496.7	0.5935	474.8
6		1,161.8	1,161.8	0.5645	655.8	0.5346	621.1
7		1,306.4	1,306.4	0.5132	670.4	0.4817	629.3
8		1,451.0	1,451.0	0.4665	676.9	0.4339	629.6
9		1,595.6	1,595.6	0.4241	676.7	0.3909	623.7
10		1,740.3	1,740.3	0.3855	670.9	0.3522	612.9
11	8,221.9	2,165.3	10,387.2	0.3505	3,640.7	0.3173	3,295.9
Total	Nil	11,419.1	11,419.1		82.4		-548.6

$$\text{Return on Equity} = 10 + \frac{82.4}{82.4 + 548.6} = 10.1\%$$

(R.O.E.)

7-4-5 Pay-back Period:

This indicates a period in which the amount of the initial investment can be paid out with the yearly profit (accumulated cash flow) in consideration of uncertainty in future or financing situations (refer to Table 27-1 to 3 and Table 29-1 to 3). The amount of the initial investment is the total amount of total fixed asset in the initial and 1st years of the operation and the net working capital in the 1st year of the operation, which does not include any remaining value. The amounts are 27.6361 billion Rp for the case 1, 27.4386 billion Rp for the case 2, and 27.4063 billion Rp for the case 3. Further, as the prerequisite for the calculation, the profit is assumed to be before depreciation and deducting interest amount.

The shorter pay-back period the better for the case, however, the advantageous order of the cases is found to be reversed for cases before tax and after tax. Therefore, if judged by these indices only, the result may be wrong sometimes.

Pay-back Period	Case 1	Case 2	Case 3
Before Tax	5 years & 11 months (5.95 years)	5 years & 10 months (5.81 years)	5 years & 10 months (5.81 years)
After Tax	5 years & 11 months (5.97 years)	6 years & 2 months (6.14 years)	6 years & 2 months (6.17 years)

As the principle, the method of pay-back period is an idea to select the way to retrieve the paid money as soon as possible in preparation of a possibility of the initial forecast going against expectation, and not the method by which selecting the most profitable case is aimed at.

It is dangerous to judge that the case 1 is more advantageous because the pay-back period after tax is shorter for the case 1, but in respect of the profitability, the case 3 is better than the case 1.

For reference, the total profit over 11 years is shown below;

Item	Case 1	Case 2	Case 3
Profit before tax	13.55 bill. Rp	16.95 bill. Rp	17.48 bill. Rp
Profit after tax	8.85 bill. Rp	11.07 bill. Rp	11.42 bill. Rp

Consequently, the scale called pay-back period shall be deemed as the auxiliary judging criterion with a recognition that it is not to be used as an independent index.

7-4-6 Analysis of Break-even Point:

The 4th year was picked up as a stabilized operating year, where the turnover amount equals with the corresponding expense amount (break-even sales) and the break-even capacity were obtained. Particulars are indicated in Table 34-1 to 3, however, they are briefed into the following;

Item	Case 1	Case 2	Case 3
Sales Revenue	24.66 bill. Rp	24.66 bill. Rp	24.66 bill. Rp
Contribution Margin	7.05 bill. Rp	7.05 bill. Rp	7.05 bill. Rp
Contribution Margine Ratio	28.6%	28.6%	28.6%
Break-even Sales	23.08 Rp	21.4 Rp	20.94 Rp
Break-even Capacity	93.6%	86.8%	84.9%

From the above, it is clear that in common for all cases, the contribution margin (fixed cost + margin) is 7.05 billion Rp and the contribution margin ratio is 28.6%.

In the cases 1 ~ 3, marginal profit = fixed cost (profit is 0 at break-even point) is decreasing as 6.6 billion Rp, 6.12 billion Rp and 6.05 billion Rp in the order of the cases 3, 2 and 1 (refer to Tables 34-1 to 3).

It is desirable to have lower marginal profit as it brings on the other hand increment in the profit. However, in the 4th year of the operation, the burden of depreciation cost and interest is found to be on a increasing trend and that the break-even capacity for each case is worsened to be more than 80%. Another factor is that the raw material cost and power charge share over 70% in the variable cost in the total cost of sales.

Item	Case 1	Case 2	Case 3
Raw Material Cost :	14.79 billion Rp (61.1%)	14.79 billion Rp (62.3%)	14.79 billion Rp (62.5%)
Power Charge :	2.51 billion Rp (10.4%)	2.51 billion Rp (10.6%)	2.51 billion Rp (10.6%)
Total cost of Sales :	24.21 billion Rp	23.73 billion Rp	23.66 billion Rp

Where the variable cost is found to be high, it means that the break-even point is raised in respect of the production proportionate cost.

Next, Table 2 indicates how the break-even capacity varies over 11 years life on which the financial particulars are calculated.

In the 1st year of the operation, the break-even capacity is exceeding 100% for all cases, which however begin to decrease from the 2nd year (except for the case 1, which is remained same also in the 2nd year) and result in 75% (80% for the case 1 only) in the 6th year, being followed by 60% in the 9th and later years. The cause for this decreasing tendency is alleviation of interest burden due to loan repayment, as well as decrease in the required depreciation cost, and as the result, the break-even capacity is as stable as 53% in the 11th year. Further, the average break-even capacity throughout the period is 82.2%, 77.8% and 77.1% in the order of the cases 1, 2 and 3, and its simple average for 10 years excluding the 1st year is found to be 79.2%, 75.1% and 74.5% in the same order, which shows that the advantage in the order of the cases 3, 2 and 1 is unchanged.

Table 34-1 BREAKEVEN ANALYSIS AT FULL CAPACITY (4th YEAR)
(CASE-1)

(Unit: RP. 1,000,000)

Item	Fixed Costs	Variable Costs
Raw-Materials		14,790.4
Packing Materials		306.3
Power Charge		2,510.3
Maintenance Expenses	533.1	
Labour Expenses (Direct)	765.2	
Labour Expenses (Indirect)	287.2	
Other Expenses	193.5	
Depreciation	2,217.4	
Head Office Expenditures	377.6	
Financial Charges	2,226.4	
Total	6,600.4	17,607.0

A. Sales Revenue	24,658.6
B. Total Variable Costs	17,607.0
C. Contribution Margin (A-B)	7,051.6
D. Total Fixed Costs	6,600.4
E. Contribution Margin Ratio	$= \frac{C}{A} \times 100 = \frac{7,051.6}{24,658.6} \times 100 = 28.6\%$
F. Breakeven Sales	$= \frac{D}{E} = \frac{6,600.4}{28.6\%} = 23,078.3$
G. Breakeven Capacity	$= \frac{F}{A} \times 100 = \frac{23,078.3}{24,658.6} \times 100 = 93.6\%$

Table 34-2 BREAKEVEN ANALYSIS AT FULL CAPACITY (4th YEAR)
(CASE-2)

(Unit: RP. 1,000,000)

Item	Fixed Costs	Variable Costs
Raw-Materials		14,790.4
Packing Materials		306.3
Power Charge		2,510.3
Maintenance Expenses	533.1	
Labour Expenses (Direct)	765.2	
Labour Expenses (Indirect)	287.2	
Other Expenses	193.5	
Depreciation	2,177.9	
Head Office Expenditures	377.6	
Financial Charges	1,786.2	
Total	6,120.7	17,607.0

A. Sales Revenue	24,658.6
B. Total Variable Costs	17,607.0
C. Contribution Margin (A-B)	7,051.6
D. Total Fixed Costs	6,120.7
E. Contribution Margin Ratio	$= \frac{C}{A} \times 100 = \frac{7,051.6}{24,658.6} \times 100 = 28.6\%$
F. Breakeven Sales	$= \frac{D}{E} = \frac{6,120.7}{28.6\%} = 21,401.0$
G. Breakeven Capacity	$= \frac{F}{A} \times 100 = \frac{21,401.0}{24,658.6} \times 100 = 86.8\%$

Table 34-3 BREAKEVEN ANALYSIS AT FULL CAPACITY (4th YEAR)
(CASE-3)

(Unit: RP. 1,000,000)

Item	Fixed Costs	Variable Costs
Raw-Materials		14,790.4
Packing Materials		306.3
Power Charge		2,510.3
Maintenance Expenses	533.1	
Labour Expenses (Direct)	765.2	
Labour Expenses (Indirect)	287.2	
Other Expenses	193.5	
Depreciation	2,171.4	
Head Office Expenditures	377.6	
Financial Charges	1,724.6	
Total	6,052.6	17,607.0

A. Sales Revenue 24,658.6

B. Total Variable Costs 17,607.0

C. Contribution Margin (A-B) 7,051.6

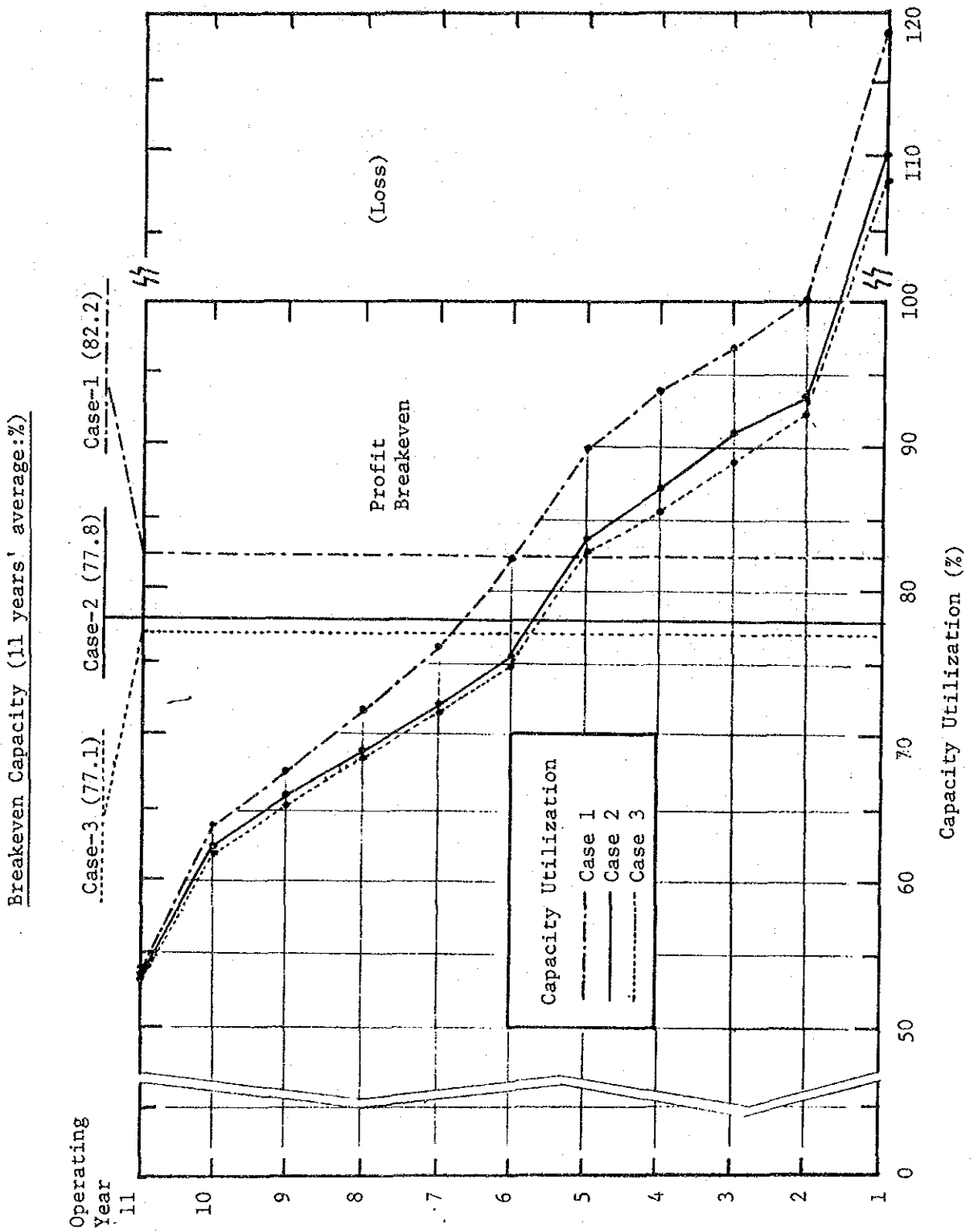
D. Total Fixed Costs 6,052.6

E. Contribution Margin Ratio $= \frac{C}{A} \times 100 = \frac{7,051.6}{24,658.6} \times 100 = 28.6\%$

F. Breakeven Sales $= \frac{D}{E} = \frac{6,052.6}{28.6\%} = 20,943.3$

G. Breakeven Capacity $= \frac{F}{A} \times 100 = \frac{20,943.3}{24,658.6} \times 100 = 84.9\%$

Fig. 2 BREAKEVEN ANALYSIS



Operating Year	Case		
	(1)	(2)	(3)
11	53.5	53.0	52.9
10	63.5	62.4	62.2
9	67.4	65.6	65.3
8	71.3	68.9	68.5
7	75.8	72.2	71.6
6	80.2	75.4	74.8
5	89.4	83.5	82.7
4	93.6	86.8	84.9
3	96.5	90.1	89.0
2	100.3	93.3	92.2
1	118.1	109.9	108.5

7-4-7 Debt Service Coverage Ratio (D.S.R.):

When the ratio indicating debt service coverage = (depreciation cost + income before tax + paid interest) ÷ (principal repayment + paid interest) is calculated on the basis of the simple average over 11 years, it is found to be 1.18, 1.31 and 1.67 in the order of the cases 1, 2 and 3.

When the above ratio is then calculated based on the average over 10 years excluding the 1st year which is the grace period for the loan repayment, they are 1.16, 1.28 and 1.66 in the same order, which differ not much from the above average over 11 years. Generally speaking, the D.S.R. in case of the manufacturing industry is desirably to be more than 1.5.

In the item U of the Table 35-1 to 3 the yearly results are shown, where the results for the major years are as follows;

Case/Year	1	2	3	4	5	8	10
1.	1.41	0.90	0.93	0.91	0.95	1.22	1.51
2.	1.69	0.98	1.03	1.08	1.41	1.36	1.56
3.	1.75	1.20	1.27	1.34	1.43	1.78	2.12

1) D.S.R. in Case 1:

The 1st year poses no problem as it shows a value of 1.41, however, it drops under 1.0 in years 2nd to 5th, which indicates that this case does not hold D.S.R. for 100%. For this situation, whatever financing measure is required, on which description is given in the item 7-4-8, (b).

In years from 6th to 7th, D.S.R. values are indicated to be 1.02 and 1.08 which are more than 1.0, however, the situation need to be attended as it indicates that the fund available for the repayment in this case is not sufficient. In years from 8th to 9th, it is observed to be slightly low (1.22 and 1.39), while in years from 10th to 11th, the values are shown as 1.51 and 1.65 which are over 1.5.

2) D.S.R. in Case 2:

In the 1st year, the value is indicated to be 1.69 due to better influence from the grace period for repayment, which shows that in this period the case has reserve in the available fund. Though the 2nd year shows 0.98, this can be compensated by the value in the 1st year, in which respect the average over these 2 years produces 1.2, which makes no problem.

In years from the 3rd to 5th, it is found to be holding D.S.R. though somewhat insufficient, while in years from 6th to 9th, it indicates up-trend year by year as 1.20, 1.28 and 1.45, in years later than the 10th, it is shown as stables as 1.56 and 1.68.

3) D.S.R. in Case 3:

For all cases, the 1st year shows the most big value of 1.75. Then the ratio, having the lowest of 1.20 in the 2nd year and the highest of 2.35 in 11th year of the operation, is increasing proportionately.

In particular, from the 6th year the value indicates to be more than 1.5, which shows a satisfactory situation where ample funds are available.

7-4-8 Funds Flow Statement:

Here, to see how the fund is raised and used in each year, the financing condition is estimated.

1) Fund Flow Statement for Case 1:

Table 35-1 indicates the fund flow statement for each year in the case 1.

- (a) The cash surplus balance in the 1st year of the operation will be 1,123.6 million Rp. Though there accrues the net loss before tax for 1,094.1 million Rp (refer to Table 21-1), the problem will be settled by the following factors;
- The depreciation cost accompanying no cash payment will become the source of funds.
 - Long term debt is obtainable in the grace period for the principal repayment, which results in the cash surplus.

- (b) In years from the 2nd to 7th of the operation, the net funds will fall short as a result of the estimation, mainly by the following 2 factors;
- From the 2nd year, the grace period for repayment of the long term debt will be over and the repayment will commence.
 - From the 2nd year, the amount of sales will increase due to the operation in full capacity. Due to this, the additional amount of the net working capital, 567.7 million Rp (Asset, 857.4 million Rp – Liability, 289.7 million Rp) will be required. For the above reason, it should be required that more funds are to be raised on an annual basis of the shortcoming net funds.

For 6 years from the 2nd to 7th of the operation, the required fund will be appropriated by the short term debt, where in these 6 years, because the annual interest amount required will be deducted from the amount for the net income, which will result in a minus income amount, the amount of fund equivalent to $\frac{1}{1-i}$ (i: interest rate = 18%) will be required to be brought in. In the 2nd year, the required amount of the short term debt (condition: to be repayable in 1 year) will be 15 million Rp.

However, in the 3rd year, the borrowing is required for 370 million Rp and the required amount for the fund will influence as late as to the 7th year, therefore, this case could be the one with problems in the fund flow management, against which whatever measure is deemed required as the case will not be able to make the surplus reserve as it is.

- (c) After the debt is finished for repayment at the 8th year of the operation, there will be no further requirement for the borrowing.
Further, in all cases, for the cash-in in the 11th year no revision is made for the balance value of the fixed asset, as well as for revulsion of the working capital.

2) Fund Flow Statement for Case 2:

Table 35-2 indicates the fund flow statement for each year in the case 2, where the financing condition is observed healthy, posing no problem in particular.

- (a) The net loss before tax in the 1st year of the operation shows 595.8 million Rp., which is less by 45.5% than in the case 1 (Income before tax, 1,709.0 million Rp. — Interest, 2,304.8 million Rp).
However, similar to the case 1, because the fund is to be raised from the depreciation and long term loan, the balance will be 1,582.4 million Rp., which poses no problem.
- (b) In the 2nd year of the operation, similar to the above case 1, an additional fund for the net working capital as a result of increment in the sales amount, 567.7 million Rp will accrue.

In addition, a big amount of fund, 2,742.6 million Rp is required for the initial repayment of the long term loan.

As the result, the cash surplus balance will fall short by 664.0 million Rp on a yearly basis, however, the shortage can be compensated by carry-over from the preceding year. From a point that there is no need for borrowing short term fund, the case could be healthier than the case 1 as well.

- (c) Also in the 3rd year of the operation, the cash surplus balance will fall short by 60.3 million Rp., however, this shortage can also be compensated by a carry-over from the preceding year and even a surplus reserve could be produced.
- (d) The fund flow in years later than the 4th of the operation is observed to be carried on smoothly and the accumulated cash surplus at the 11th year from the operation amounts to 4,546.1 million Rp.

3) Cash Flow Statement for Case 3:

Table 35-3 indicates the cash flow statement for each year in the case 3. In the case, no shortage in the fund results in each year, which represents the best case among 3.

- (a) Even the net loss before tax, 510.1 million Rp. accrued in the 1st year of the operation will be compensated by the depreciation cost etc.
- (b) The accumulated cash surplus will be produced from 1,661.8 million Rp in the 1st year of the operation, which taking a smooth course of increment, reaches to 2.1 times in the 4th year, 3.4 times in the 6th, 5 times in the 8th and 7.9 times or 13,117.6 million Rp in the 11th, which is quite satisfactory results.

Table 35-1 PROJECTED FOUNDS FLOW STATEMENT (CASE-1)

(Unit: RP. 1,000,000)

<u>SOURCES OF FUNDS</u>	Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Operating Profit (Before Interest & Tax)			1,669.5	2,676.1	2,677.6	2,677.6	2,677.6	3,057.6	3,057.6	3,057.6	3,057.6	3,057.6	3,488.9
B. Depreciation			2,217.7	2,217.4	2,217.4	2,217.4	2,217.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Operating Cash Flow (A + B)			3,887.2	4,893.5	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0
D. Share Capital													
E. Long-term Loans:													
Foreign Loan		22,108.8											
Local Loan		1,430.0	4,097.3										
Total Loans (E)		23,538.8	4,097.3										
F. Short-term Borrowing				15.0	370.0	470.0	370.0	400.0	200.0				
G. Trade Accounts Payable (Creditors)			1,516.8	289.7									
H. Total Source of Fund (ΣC ~ G)		23,538.8	9,501.3	5,198.2	5,265.0	5,365.0	5,265.0	5,295.0	5,095.0	4,895.0	4,895.0	4,895.0	4,895.0
<u>APPLICATIONS OF FUNDS</u>													
I. Fixed Capital		23,538.8	61.9										
J. Working Capital (Debtors)			5,552.2	857.4									
K. Financial Charges:													
(i) Interest on L-T Debt (Foreign 8%)			1,768.7	1,724.5	1,547.6	1,370.7	1,193.8	1,017.0	840.1	663.2	486.4	309.5	132.6
(ii) Interest on L-T Debt (Local 18%)			994.9	970.1	870.7	771.1	671.7	572.1	472.7	373.1	273.7	174.1	74.7
(iii) Interest on S-T Debt (Local 18%)				2.7	66.6	84.6	66.6	72.0	36.0				
Total Financial Charges (K)			2,763.6	2,697.3	2,484.9	2,226.4	1,932.1	1,661.1	1,348.8	1,036.3	760.1	483.6	207.3
L. Loan Repayments:													
Foreign Long-term Loan				2,211.6	2,210.8	2,210.8	2,210.8	2,210.8	2,210.8	2,210.8	2,210.8	2,210.8	2,210.8
Local Long-term Loan				552.1	552.8	552.8	552.8	552.8	552.8	552.8	552.8	552.8	552.8
Local Short-term Borrowing					15.0	370.0	470.0	370.0	400.0	200.0			
Total Repayments (L)				2,763.7	2,778.6	3,133.6	3,233.6	3,133.6	3,163.6	2,963.6	2,763.6	2,763.6	2,763.6
M. Total Debt Services (K + L)			2,763.6	5,461.0	5,263.5	5,360.0	5,165.7	4,794.7	4,512.4	3,999.9	3,523.7	3,247.2	2,970.9
N. Corporation Tax							89.9	482.8	592.1	701.5	798.1	894.9	1,142.6
O. Dividends													
P. Gratification to Employees & Workers													
Q. Donation													
R. Total Application of Funds (Σ I, J, M ~ Q)		23,538.8	8,377.7	6,318.4	5,263.5	5,360.0	5,255.6	5,277.5	5,104.5	4,701.4	4,321.8	4,142.1	4,113.5
S. Yearly Cash Surplus Balance (H-R)		0	1,123.6	-1,120.2	1.5	5.0	9.4	17.5	-9.5	193.6	573.2	752.9	781.5
T. Accumulated Cash Surplus		0	1,123.6	3.4	4.9	9.9	19.3	36.8	27.3	220.9	794.1	1,547.0	2,328.5
U. Ratio													
Debt Service Coverage (C/M)		-	1.41	0.90	0.93	0.91	0.95	1.02	1.08	1.22	1.39	1.51	1.65

Table 35-2 PROJECTED FOUNDS FLOW STATEMENT (CASE-2)

(Unit: RP. 1,000,000)

SOURCES OF FUNDS	Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Operating Profit (Before Interest & Tax)			1,709.0	2,715.6	2,717.1	2,717.1	2,717.1	3,057.6	3,057.6	3,057.6	3,057.6	3,057.6	3,488.9
B. Depreciation			2,178.2	2,177.9	2,177.9	2,177.9	2,177.9	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Operating Cash Flow (A + B)			3,887.2	4,893.5	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0
D. Share Capital													
E. Long-term Loans:													
Foreign Loan		21,950.8											
Local Loan		1,390.5	4,097.3										
Total Loans (E)		23,341.3	4,097.3										
F. Short-term Borrowing													
G. Trade Accounts Payable (Creditors)			1,516.8	289.7									
H. Total Source of Fund (Σ C ~ G)		23,341.3	9,501.3	5,183.2	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0
APPLICATIONS OF FUNDS													
I. Fixed Capital		23,341.3	61.9										
J. Working Capital (Debtors)			5,552.2	857.4									
K. Financial Charges:													
(i) Interest on L-T Debt (Foreign 6%)			1,317.0	1,284.1	1,152.5	1,020.7	889.1	757.3	625.7	493.9	362.2	230.5	98.8
(ii) Interest on L-T Debt (Local 18%)			987.8	963.1	864.3	765.5	666.7	568.1	469.3	370.5	271.7	172.9	74.1
(iii) Interest on S-T Debt (Local 18%)													
Total Financial Charges (K)			2,304.8	2,247.2	2,016.8	1,786.2	1,555.8	1,325.4	1,095.0	864.4	633.9	403.4	172.9
L. Loan Repayments:													
Foreign Long-term Loan				2,194.0	2,195.2	2,195.2	2,195.2	2,195.2	2,195.2	2,195.2	2,195.2	2,195.2	2,195.2
Local Long-term Loan				548.6	548.8	548.8	548.8	548.8	548.8	548.8	548.8	548.8	548.8
Local Short-term Borrowing													
Total Repayments (L)				2,742.6	2,744.0	2,744.0	2,744.0	2,744.0	2,744.0	2,744.0	2,744.0	2,744.0	2,744.0
M. Total Debt Services (K + L)			2,304.8	4,989.8	4,760.8	4,530.2	4,299.8	4,069.4	3,839.0	3,608.4	3,377.9	3,147.4	2,916.9
N. Corporation Tax					194.5	319.8	400.5	600.3	680.9	761.6	842.3	923.0	1,154.6
O. Dividends													
P. Gratification to Employees & Workers													
Q. Donation													
R. Total Application of Funds (Σ I, J, M ~ Q)		23,341.3	7,918.9	5,847.2	4,955.3	4,850.0	4,700.3	4,669.7	4,519.9	4,370.0	4,220.2	4,070.4	4,071.5
S. Yearly Cash Surplus Balance (H-R)		0	1,582.4	-664.0	-60.3	45.0	194.7	225.3	375.1	525.0	674.8	824.6	823.5
T. Accumulated Cash Surplus		0	1,582.4	918.4	858.1	903.1	1,097.8	1,323.1	1,698.2	2,223.2	2,898.0	3,722.6	4,546.1
U. Ratio													
Debt Service Coverage (C/M)		-	1.69	0.98	1.03	1.08	1.14	1.20	1.28	1.36	1.45	1.56	1.68

Table 35-3 PROJECTED FUNDS FLOW STATEMENT (CASE-3)

(Unit: RP. 1,000,000)

<u>SOURCES OF FUNDS</u>	Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Operating Profit (Before Interest & Tax)			1,715.3	2,722.1	2,723.6	2,723.6	2,723.6	3,057.6	3,057.6	3,057.6	3,057.6	3,057.6	3,488.9
B. Depreciation			2,171.9	2,171.4	2,171.4	2,171.4	2,171.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Operating Cash Flow (A + B)			3,887.2	4,893.5	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0
D. Share Capital		8,221.9											
E. Long-term Loans:													
Foreign Loan		15,087.1	260.4										
Local Loan			3,836.9										
Total Loans (E)		15,087.1	4,097.3										
F. Short-term Borrowing													
G. Trade Accounts Payable (Creditors)			1,516.8	289.7									
H. Total Source of Fund (Σ C ~ G)		23,309.0	9,501.3	5,183.2	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0	4,895.0
<u>APPLICATIONS OF FUNDS</u>													
I. Fixed Capital		23,309.0	61.9										
J. Working Capital (Debtors)			5,552.2	857.4									
K. Financial Charges:													
(i) Interest on L-T Debt (Foreign 10%)			1,534.8	1,496.4	1,343.0	1,189.5	1,036.0	882.5	729.0	575.6	422.1	268.6	115.1
(ii) Interest on L-T Debt (Local 18%)			690.6	673.3	604.2	535.1	466.1	397.0	328.0	258.9	189.9	120.8	51.8
(iii) Interest on S-T Debt (Local 18%)													
Total Financial Charges (K)			2,225.4	2,169.7	1,947.2	1,724.6	1,502.1	1,279.5	1,057.0	834.5	612.0	389.4	166.9
L. Loan Repayments:													
Foreign Long-term Loan				1,534.3	1,534.8	1,534.8	1,534.8	1,534.8	1,534.8	1,534.8	1,534.8	1,534.8	1,534.8
Local Long-term Loan				384.5	383.6	383.6	383.6	383.6	383.6	383.6	383.6	383.6	383.6
Local Short-term Borrowing													
Total Repayments (L)				1,918.8	1,918.4	1,918.4	1,918.4	1,918.4	1,918.4	1,918.4	1,918.4	1,918.4	1,918.4
M. Total Debt Services (K + L)			2,225.4	4,088.5	3,865.6	3,643.0	3,420.5	3,197.9	2,975.4	2,752.9	2,530.4	2,307.8	2,085.3
N. Corporation Tax				9.6	265.7	343.7	421.5	616.3	694.2	772.1	850.0	927.9	1,156.7
O. Dividends													
P. Gratification to Employees & Workers													
Q. Donation													
R. Total Application of Funds (Σ I, J, K, L, M, N, O, P, Q)		23,309.0	7,839.5	4,955.5	4,131.3	3,986.7	3,842.0	3,814.2	3,669.6	3,525.0	3,380.4	3,235.7	3,242.0
S. Yearly Cash Surplus Balance (H-R)		0	1,661.8	227.7	763.7	908.3	1,053.0	1,080.8	1,225.4	1,370.0	1,514.6	1,659.3	1,653.0
T. Accumulated Cash Surplus		0	1,661.8	1,889.5	2,653.2	3,561.5	4,614.5	5,695.3	6,920.7	8,290.7	9,805.3	11,464.6	13,117.6
U. Ratio													
Debt Service Coverage (C/M)		-	1.75	1.20	1.27	1.34	1.43	1.53	1.65	1.78	1.93	2.12	2.35

7-5 Sensitivity Analysis and Comprehensive Appraisal

7-5-1 Sensitivity Analysis:

In the following, the result of financial analysis made in the preceding chapter in respect of each case is described;

In the case 2 and case 3, the indices in respect of both profitability and financing (debt service coverage) are indicated appropriately. However, in the case 1, the condition is considered to be difficult to assure the operation of this project in respect of profitability and financing (required amount of funds and debt service coverage). Therefore, leaving the borrowing condition (interest: 8% for foreign currencies and 18% for local currency) for the case 1 as it is, the sensitivity is then analysed with only the following conditions changed in the existing prerequisites. This case is called the case 4.

Change in Condition:

Turnover: Increased by 1%

Variable Cost (packing charge and power cost): Increased by 1%

The content of the above change is the strict operation control over fall rate of the raw material in the whole processes, with which the fall rate is to be saved by 1%. As the result, with the raw material cost unchanged, the output is to increase by 1%. The calculated results are mainly as follows;

1) Net Present Value (Case 4)

Discount Rate 14% (before tax) : 943.7 million Rp

Discount Rate 13% (after tax) : 191.6 million Rp

This project is feasible.

2) Internal Rate of Return (Case 4)

IRR before tax : 14.78%

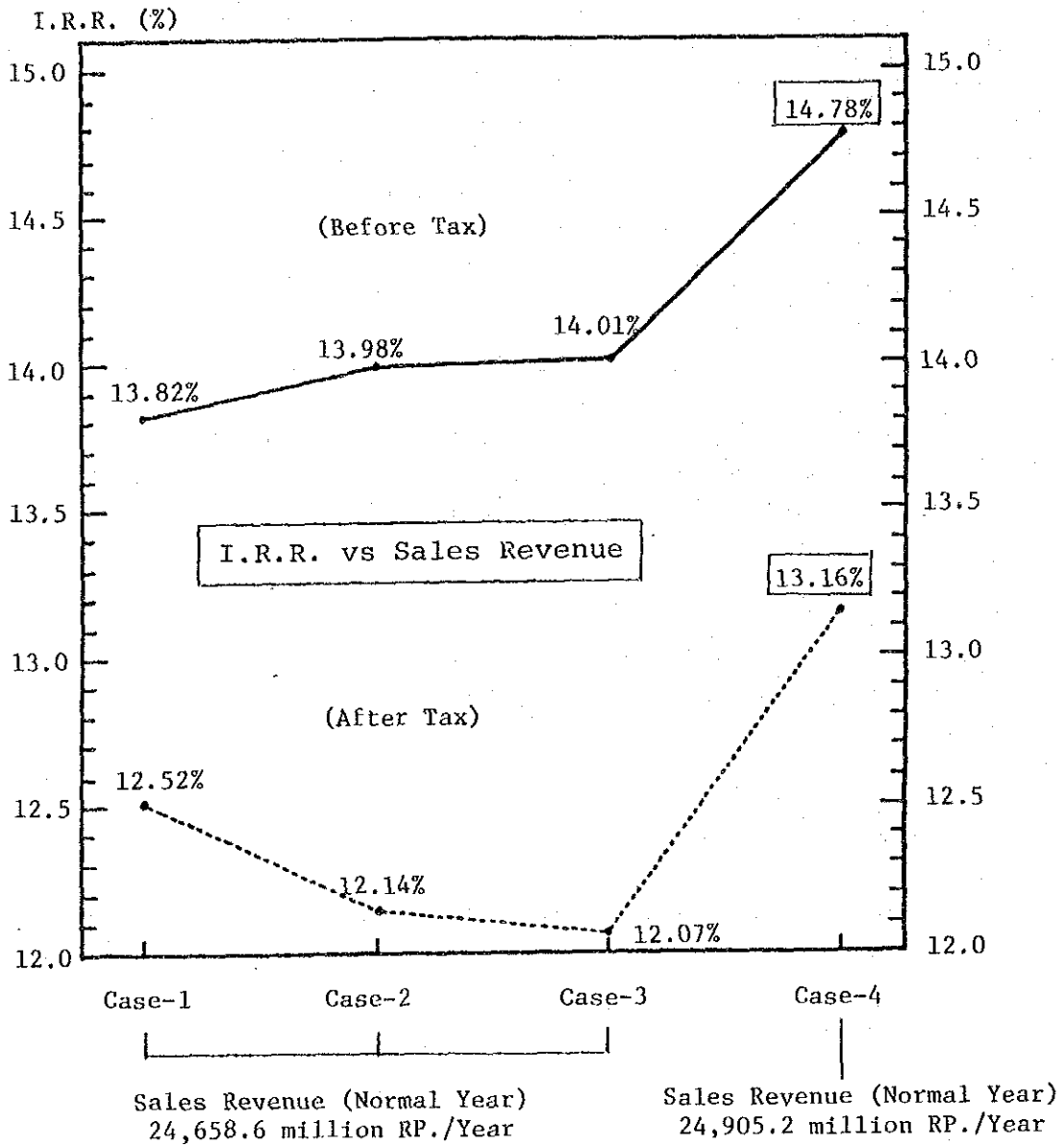
IRR after tax : 13.16%

As compared with the case 1, the internal rate of return has improved by 0.96% for before tax and by 0.64% for after tax. Figure 3 indicates a comparison table for the internal rate of return.

Fig. 3

SENSITIVITY ANALYSIS ON SALES REVENUE

(CASE-4): Sales Revenue 1% up, Variable Costs 1% up
(Excluding Raw Materials)



3) Analysis of Break-even Point for Case 4:

The break-even capacity in the 4th year of the operation is 89.6%, which is improved by 4% from 93.6% in the case 1. Incidentally, the sales amount at the break-even point will be 22.31 billion Rp.

When the major years in respect of the break-even capacity (%) is selected and compared with those in the case 1, it is observed that the 2nd year is particularly improving undercutting 100%.

Case/year	1	2	3	5	6	8	11	Average
1.	118.1	100.3	96.5	89.4	80.2	71.3	53.5	82.2
4.	114.5	97.2	93.4	85.8	76.8	69.2	51.8	79.3

4) Fund Flow Statement for Case 4:

The need for the short term borrowing is now over for the required funds and the problem as in the case 1 can be solved.

However, as a result of the maximum amount of the borrowing as in the case of 1, and a big amount of interest (about 900 million Rp) being required during construction period, those factors no doubt press the financing situation, therefore, studies must be made for this situation to reduce the interest rate.

The interest over 3 years after the operation is as high as about 10 ~ 12% of the total cost of sales.

5) Debt Service Coverage Ratio for Case 4:

D.S.R. values for the 2nd and 3rd years of the operation are 0.94 and 0.99 which are under 1.0. Therefore, apparently the cash surplus balance in these years are falling short of, however, they are compensated sufficiently by carry-over from the preceding years. The D.S.R. on a simple average over 11 years is 1.28, which is slightly improved from 1.18 in the case 1.

6) Profitability for Case 4:

In the following, the comparison of the total profitability over 11 years for the financial calculations in the case 4 is made with the case 1.

Item	Case 1	Case 4	Profit Increase
Total Operating Profit % of Sales Average	31.16 bil. Rp 11.6%	33.53 bil. Rp 12.4%	2.37 bil. Rp -
Total Income before tax % of Sales Average	13.55 bil. Rp 5.1%	16.25 bil. Rp 6.0%	2.7 bil. Rp -
Total Income after tax % of Sales Average	8.85 bil. Rp 3.3%	10.61 bil. Rp 3.9%	1.76 bil. Rp -

In the above, you will note that every total income and % of sales average in the case 4 are improved.

Then, as indicated in Table 36, the profitability in the 4th year of the operation is indicated by 1% of increment in the revenue, which means 67% increment against the profit shown in the case 1.

1% increment in the variable cost excluding the raw material cost is equivalent to 0.1% of the manufacturing cost, which could be negligible.

Further, 4% decrease in the interest takes place in the case 1, which represents interest difference for the short term borrowing.

Table 36 Income and Total Cost

(Unit: billions Rp)

Case	Income (A)	Total cost (of sales)			Income before tax (A) - (B)
		Manufacturing Cost	Interest	Total (B)	
1	24.66	21.98	2.23	24.21	0.45
4	24.91	22.01	2.14	24.15	0.75
Comparison	+1%	+0.1%	-4%	-0.2%	+67%

In addition, the composite share of the total cost in the 4th year of the operation is shown in Table 37, where as far as the variable cost is concerned, the influence by the total cost of sales remains unchanged, and the interest representing the financial charges for the fixed cost also does not change from 9% of its ratio. However, in the amount, there is a decrease of 100 million Rp is noted, which plus factor shall not be looked over.

Table 37 Composite Shares in Total Cost

(Unit: billions Rp)

Cost	Item Share	Case-1		Case-4	
		Amount	%	Amount	%
Raw-materials		15.1	63	15.1	63
Power Charge		2.5	10	2.5	10
(Total variable cost)		(17.6)	(73)	(17.6)	(73)
Maintenance Expenses		0.5	2	0.5	2
Labour Expenses		1.1	5	1.1	5
Depreciation		2.2	9	2.2	9
Fixed Cost		0.6	2	0.6	2
Interest		2.2	9	2.1	9
(Total Fixed Cost)		(6.6)	(27)	(6.5)	(27)
Total Cost		24.2	100	24.1	100

7) Financial Statements for Case 4:

In the following the financial statement for the case 4 which were used for the sensitivity analysis are shown:

(a) For Profit, Cost and Financial Concerns:

Table 38 Projected Income/cost Statements (Case 4)

Table 39 Projected Balance Sheet (Case 4)

Table 40 Projected Statement of Profit and Loss (Case 4)

Table 41 Net Cash Flow before Tax (Case 4)

Table 42 I.R.R. before Tax (Case 4)

Table 43 Net Cash Flow after Tax (Case 4)

Table 44 I.R.R. after Tax (Case 4)

Table 45 Break-even Analysis at Full Capacity in the 4th Year (Case 4)

(b) Financing Concerns:

Table 46 Summary of Source and Applications of Funds (Case 4)

Table 47 Projected Funds Flow Statement (Case 4)

Table 38 PROJECTED INCOME STATEMENTS (CASE- 4)

(Unit : RP. 1,000,000)

Item / Year	1	2	3	4	5	6	7	8	9	10	11	Total
Production (Bale/Year)	28,133	32,461	32,461	32,461	32,461	32,461	32,461	32,461	32,461	32,461	32,461	352,743
Capacity Utilization (%)	87	100	100	100	100	100	100	100	100	100	100	-
A. <u>Sales Revenue</u>	21,522.9	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2	270,574.9
B. <u>Variable Costs :</u>												
Raw-Materials	12,685.1	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	14,790.4	160,589.1
Packing Materials	268.2	309.4	309.4	309.4	309.4	309.4	309.4	309.4	309.4	309.4	309.4	3,362.2
Power Charge	2,327.3	2,535.4	2,535.4	2,535.4	2,535.4	2,535.4	2,535.4	2,535.4	2,535.4	2,535.4	2,535.4	27,681.3
Total Variable Costs (B)	15,280.6	17,635.2	17,635.2	17,635.2	17,635.2	17,635.2	17,635.2	17,635.2	17,635.2	17,635.2	17,635.2	191,632.6
C. <u>Fixed Costs :</u>												
Maintenance Expenses	157.9	333.0	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	5,288.8
Labour Expenses (Direct)	762.1	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	765.2	8,414.1
Labour Expenses (Indirect)	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	287.2	3,159.2
Other Expenses	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	2,128.5
Technical Assistance Fee	439.7	201.6	0	0	0	0	0	0	0	0	0	641.3
Depreciation	2,217.7	2,217.4	2,217.4	2,217.4	2,217.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1	21,680.4
Head Office Expenditures	327.3	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	4,103.3
Total Fixed Costs (C)	4,385.4	4,375.5	4,374.0	4,374.0	4,374.0	3,994.0	3,994.0	3,994.0	3,994.0	3,994.0	3,562.7	45,415.6
D. <u>Manufacturing Cost (B+C)</u>	19,666.0	22,010.7	22,009.2	22,009.2	22,009.2	21,629.2	21,629.2	21,629.2	21,629.2	21,629.2	21,197.9	237,048.2
E. <u>Operating Profit (A-D)</u>	1,856.9	2,894.5	2,896.0	2,896.0	2,896.0	3,276.0	3,276.0	3,276.0	3,276.0	3,276.0	3,707.3	33,526.7
F. <u>Financial Charges :</u>												
(i) Interest on L-T Debt (Foreign 8%)	1,768.7	1,724.5	1,547.6	1,370.7	1,193.8	1,017.0	840.1	663.2	486.4	309.5	132.6	11,054.1
(ii) Interest on L-T Debt (Local 18%)	994.9	970.1	870.7	771.1	671.7	572.1	472.7	373.1	273.7	174.1	74.7	6,218.9
(iii) Interest on S-T Debt (Local 18%)	0	0	0	0	0	0	0	0	0	0	0	0
Total Financial Charges (F)	2,763.6	2,694.6	2,418.3	2,141.8	1,865.5	1,589.1	1,312.8	1,036.3	760.1	483.6	207.3	17,273.0
G. <u>Total Cost of Sales (D+F)</u>	22,429.6	24,705.3	24,427.5	24,151.0	23,874.7	23,218.3	22,942.0	22,665.5	22,389.3	22,112.8	21,405.2	254,321.2
H. <u>Income Before Tax (E-F)</u>	-906.7	199.9	477.7	754.2	1,030.5	1,686.9	1,963.2	2,239.7	2,515.9	2,792.4	3,500.0	16,253.7
I. <u>Corporation Tax (Max. 35%)</u>	0	0	0	177.8	354.7	584.4	681.1	777.9	874.6	971.3	1,219.0	5,640.8
J. <u>Net Income (H-I)</u>	-906.7	199.9	477.7	576.4	675.8	1,102.5	1,282.1	1,461.8	1,641.3	1,821.1	2,281.0	10,612.9
K. <u>Accumulated Income</u>	-906.7	-706.8	-229.1	347.3	1,023.1	2,125.6	3,407.7	4,869.5	6,510.8	8,331.9	10,612.9	-
L. <u>Ratios :</u>												
Operating Profit as % of Sales	8.6	11.6	11.6	11.6	11.6	13.2	13.2	13.2	13.2	13.2	14.9	12.4
Income before Tax as % of Sales	-4.2	0.8	1.9	3.0	4.1	6.8	7.9	9.0	10.1	11.2	14.1	6.0
Income after Tax as % of Sales	-4.2	0.8	1.9	2.3	2.7	4.4	5.1	5.9	6.6	7.3	9.2	3.9

Table 39 PROJECTED BALANCE SHEET (CASE- 4)

(Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Current Assets:												
Cash } (A1)		710.4	822.0	822.0	822.0	822.0	822.0	822.0	822.0	822.0	822.0	822.0
Receivables }		887.9	1,027.4	1,027.4	1,027.4	1,027.4	1,027.4	1,027.4	1,027.4	1,027.4	1,027.4	1,027.4
Inventory		3,953.9	4,560.2	4,560.2	4,560.2	4,560.2	4,560.2	4,560.2	4,560.2	4,560.2	4,560.2	4,560.2
Total Current Assets (A)		5,552.2	6,409.6	6,409.6	6,409.6	6,409.6	6,409.6	6,409.6	6,409.6	6,409.6	6,409.6	6,409.6
B. Accum. Cash Surplus	0	1,311.0	396.9	328.4	358.6	488.2	664.5	1,020.4	1,556.0	2,271.1	3,166.0	4,089.5
C. Fixed Assets:												
Buildings	1,285.2	1,220.8	1,156.5	1,092.2	1,027.9	963.6	899.4	835.2	771.0	706.8	642.6	578.4
Structures	19.0	17.1	15.2	13.3	11.4	9.5	7.6	5.7	3.8	1.9		
Machinery & Equipment	16,067.4	14,760.9	13,419.0	12,077.1	10,735.2	9,393.3	8,051.4	6,709.5	5,367.6	4,025.7	2,683.8	1,341.9
Utility Equipment	4,267.7	3,864.6	3,435.2	3,005.8	2,576.4	2,147.0	1,717.6	1,288.2	858.8	429.4		
Preoperational Expenses	1,899.5	1,519.6	1,139.7	759.8	379.9							
Net Fixed Assets (C)	23,538.8	21,383.0	19,165.6	16,948.2	14,730.8	12,513.4	10,676.0	8,838.6	7,001.2	5,163.8	3,326.4	1,920.3
D. Deferred Assets		906.7	706.8	229.1								
E. Total Assets (ΣA ~ D)	23,538.8	29,152.9	26,678.9	23,915.3	21,499.0	19,411.2	17,750.1	16,268.6	14,966.8	13,844.5	12,902.0	12,419.4
F. Current Liabilities:												
Trade Accounts Payable		1,516.8	1,806.5	1,806.5	1,806.5	1,806.5	1,806.5	1,806.5	1,806.5	1,806.5	1,806.5	1,806.5
Short-term Borrowing												
Current L-T Debt		2,763.7	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6
Total Current Liabilities (F)		4,280.5	4,570.1	4,570.1	4,570.1	4,570.1	4,570.1	4,570.1	4,570.1	4,570.1	4,570.1	1,806.5
G. Long Term Debt:												
Foreign Loan	22,108.8	22,108.8	19,897.2	17,686.4	15,475.6	13,264.8	11,054.0	8,843.2	6,632.4	4,421.6	2,210.8	
Local Loan	1,430.0	5,527.3	4,975.2	4,422.4	3,869.6	3,316.8	2,764.0	2,211.2	1,658.4	1,105.6	552.8	
Less Current L-T Debt		2,763.7	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	
Net L-T Debt (G)	23,538.8	24,872.4	22,108.8	19,345.2	16,581.6	13,818.0	11,054.4	8,290.8	5,527.2	2,763.6	0	
H. Total Liabilities (F + G)	23,538.8	29,152.9	26,678.9	23,915.3	21,151.7	18,388.1	15,624.5	12,860.9	10,097.3	7,333.7	4,570.1	1,806.5
I. Equity:												
Share Capital												
Retained Earnings	0	0	0	0	347.3	1,023.1	2,125.6	3,407.7	4,869.5	6,510.8	8,331.9	10,612.9
Total Equity (I)	0	0	0	0	347.3	1,023.1	2,125.6	3,407.7	4,869.5	6,510.8	8,331.9	10,612.9
J. Total Liabilities & Equity (H + I)	23,538.8	29,152.9	26,678.9	23,915.3	21,499.0	19,411.2	17,750.1	16,268.6	14,966.8	13,844.5	12,902.0	12,419.4
K. Ratios:												
Current Ratio (A/F)	-	1.30	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	3.55
Quick Ratio (A1/F)	-	0.37	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	1.02
Debt/Equity Ratio (H/J:I/J)	100/0	100/0	100/0	100/0	98/2	95/5	88/12	79/21	67/33	53/47	35/65	15/85

Table 40 PROJECTED STATEMENT OF PROFIT AND LOSS (CASE-4)

(Unit: RP. 1,000,000)

Item/Year	1	2	3	4	5	6	7	8	9	10	11
A. Revenues:											
Net Sales	21,307.3	24,655.9	24,655.9	24,655.9	24,655.9	24,655.9	24,655.9	24,655.9	24,655.9	24,655.9	24,655.9
Interest	215.6	249.3	249.3	249.3	249.3	249.3	249.3	249.3	249.3	249.3	249.3
Total Revenues (A)	21,522.9	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2	24,905.2
B. Cost and Expenses:											
Manufacturing Cost (included selling, general and Administrative Expenses)	19,666.0	22,010.7	22,009.2	22,009.2	22,009.2	21,629.2	21,629.2	21,629.2	21,629.2	21,629.2	21,197.9
Financial Charges (Interest)	2,763.6	2,694.6	2,418.3	2,141.8	1,865.5	1,589.1	1,312.8	1,036.3	760.1	483.6	207.3
Total Cost of Sales (B)	22,429.6	24,705.3	24,427.5	24,151.0	23,874.7	23,218.3	22,942.0	22,665.5	22,389.3	22,112.8	21,405.2
C. Gross Income (A - B)	-906.7	199.9	477.7	754.2	1,030.5	1,686.9	1,963.2	2,239.7	2,515.9	2,792.4	3,500.0
D. Amortization	-	199.9	477.7	229.1	-	-	-	-	-	-	-
E. Income Before Tax (C - D)	-	-	-	525.1	1,030.5	1,686.9	1,963.2	2,239.7	2,515.9	2,792.4	3,500.0
F. Corporation Tax	-	-	-	177.8	354.7	584.4	681.1	777.9	874.6	971.3	1,219.0
G. Net Income (E - F)	-906.7	-	-	347.3	675.8	1,102.5	1,282.1	1,461.8	1,641.3	1,821.1	2,281.0

Table 41 NET CASH FLOW BEFORE TAX (CASE-4)

(Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Income After Tax		-906.7	199.9	477.7	754.2	1,030.5	1,686.9	1,963.2	2,239.7	2,515.9	2,792.4	3,500.0
B. Depreciation		2,217.7	2,217.4	2,217.4	2,217.4	2,217.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Interest		2,763.6	2,694.6	2,418.3	2,141.8	1,865.5	1,589.1	1,312.8	1,036.3	760.1	483.6	207.3
D. Operating Cash Flow		4,074.6	5,111.9	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4
(A + B + C)												
E. Fixed Capital	23,538.8	61.9										
F. Net Working Capital & Addition		4,035.4	567.7									
G. Closing Value												1,920.3
H. Revulsion of Working Capital												4,603.1
I. Net Cash Flow (D-E-F+G+H)	-23,538.8	-22.7	4,544.2	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	11,636.8

Table 42 I.R.R. BEFORE TAX (CASE-4)

(Unit: RP. 1,000,000)

Year	(a)	(b)	(a) × (b)	(c)	(a) × (c)
	Net Cash Flow	Present Worth Factor $P_1 = 14\%$	Discounted Cash Flow (DCF)	Present Worth Factor $P_2 = 15\%$	Discounted Cash Flow (DCF)
0	-23,538.8	1.0000	-23,538.8	1.0000	-23,538.8
1	-22.7	0.8772	-19.9	0.8696	-19.7
2	4,544.2	0.7695	3,496.8	0.7561	3,435.9
3	5,113.4	0.6750	3,451.5	0.6575	3,362.1
4	5,113.4	0.5921	3,027.6	0.5718	2,923.8
5	5,113.4	0.5194	2,655.9	0.4972	2,542.4
6	5,113.4	0.4556	2,329.7	0.4323	2,210.5
7	5,113.4	0.3956	2,043.3	0.3759	1,922.1
8	5,113.4	0.3506	1,792.8	0.3269	1,671.6
9	5,113.4	0.3075	1,572.4	0.2843	1,453.7
10	5,113.4	0.2697	1,379.1	0.2472	1,264.0
11	11,636.8	0.2366	2,753.3	0.2149	2,500.7
			$NPV_1 = 943.7$	$NPV_2 = -271.7$	

(Note)

$$\begin{aligned}
 IRR &= P_1 + (P_2 - P_1) \frac{NPV_1}{NPV_1 - NPV_2} \\
 &= 14 + (15 - 14) \frac{943.7}{943.7 - (-271.7)} \\
 &= 14.78\%
 \end{aligned}$$

Table 43 NET CASH FLOW AFTER TAX (CASE-4)

(Unit: RP. 1,000,000)

Item/Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Income Before Tax		-906.7	199.9	477.7	576.4	675.8	1,102.5	1,282.1	1,461.8	1,641.3	1,821.1	2,281.0
B. Depreciation		2,217.7	2,217.4	2,217.4	2,217.4	2,217.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Interest		2,763.6	2,694.6	2,418.3	2,141.8	1,865.5	1,589.1	1,312.8	1,036.3	760.1	483.6	207.3
D. Operating Cash Flow		4,074.6	5,111.9	5,113.4	4,935.6	4,758.7	4,529.0	4,432.3	4,335.5	4,238.8	4,142.1	3,894.4
(A + B + C)												
E. Fixed Capital	23,538.8	61.9										
F. Net Working Capital & Addition		4,035.4	567.7									
G. Closing Value												1,920.3
H. Revulsion of Working Capital												4,603.1
I. Net Cash Flow (D-E-F+G+H)	-23,538.8	-22.7	4,544.2	5,113.4	4,935.6	4,758.7	4,529.0	4,432.3	4,335.5	4,238.8	4,142.1	10,417.8

Table 44 I.R.R. AFTER TAX (CASE-4)

(Unit: RP. 1,000,000)

Year	(a)	(b)	(a) × (b)	(c)	(a) × (c)
	Net Cash Flow	Present Worth Factor $P_1 = 13\%$	Discounted Cash Flow (DCF)	Present Worth Factor $P_2 = 14\%$	Discounted Cash Flow (DCF)
0	-23,538.8	1.0000	-23,538.8	1.0000	-23,538.8
1	-22.7	0.8850	-20.1	0.8772	-19.9
2	4,544.2	0.7831	3,558.6	0.7695	3,496.8
3	5,113.4	0.6931	3,544.1	0.6750	3,451.5
4	4,935.6	0.6133	3,027.0	0.5921	2,922.4
5	4,758.7	0.5428	2,583.0	0.5194	2,471.7
6	4,529.0	0.4803	2,175.3	0.4556	2,063.4
7	4,432.3	0.4251	1,884.2	0.3996	1,771.1
8	4,335.5	0.3762	1,631.0	0.3506	1,520.0
9	4,238.8	0.3329	1,411.1	0.3075	1,303.4
10	4,142.1	0.2946	1,220.3	0.2697	1,117.1
11	10,417.8	0.2607	2,715.9	0.2366	2,464.9
			$NPV_1 = 191.6$	$NPV_2 = -976.4$	

(Note)

$$\begin{aligned}
 IRR &= P_1 + (P_2 - P_1) \frac{NPV_1}{NPV_1 - NPV_2} \\
 &= 13 + (14 - 13) \frac{191.6}{191.6 - (-976.4)} \\
 &= 13.16\%
 \end{aligned}$$

Table 45 BREAKEVEN ANALYSIS AT FULL CAPACITY (4th YEAR)
(CASE-4)

(Unit: RP. 1,000,000)

Item	Fixed Costs	Variable Costs
Raw-Materials		14,790.4
Packing Materials		309.4
Power Charge		2,535.4
Maintenance Expenses	533.1	
Labour Expenses (Direct)	765.2	
Labour Expenses (Indirect)	287.2	
Other Expenses	193.5	
Depreciation	2,217.4	
Head Office Expenditures	377.6	
Financial Charges	2,141.8	
Total	6,515.8	17,635.2

A. Sales Revenue 24,905.2

B. Total Variable Costs 17,635.2

C. Contribution Margin (A-B) 7,270.0

D. Total Fixed Costs 6,515.8

E. Contribution Margin Ratio $= \frac{C}{A} \times 100 = \frac{7,270.0}{24,905.2} \times 100 = 29.2\%$

F. Breakeven Sales $= \frac{D}{E} = \frac{6,515.8}{29.2\%} = 22,314.4$

G. Breakeven Capacity $= \frac{F}{A} \times 100 = \frac{22,314.4}{24,905.2} \times 100 = 89.6\%$

Table 46 SOURCES AND APPLICATIONS OF FUNDS (CASE-4)

(Unit: RP.1,000,000)

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

Table 47 PROJECTED FOUNDS FLOW STATEMENT (CASE-4)

(Unit: RP. 1,000,000)

<u>SOURCES OF FUNDS</u>	Year	0	1	2	3	4	5	6	7	8	9	10	11
A. Operating Profit (Before Interest & Tax)			1,856.9	2,894.5	2,896.0	2,896.0	2,896.0	3,276.0	3,276.0	3,276.0	3,276.0	3,276.0	3,707.3
B. Depreciation			2,217.7	2,217.4	2,217.4	2,217.4	2,217.4	1,837.4	1,837.4	1,837.4	1,837.4	1,837.4	1,406.1
C. Operating Cash Flow (A + B)			4,074.6	5,111.9	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4
D. Share Capital													
E. Long-term Loans:													
Foreign Loan		22,108.8											
Local Loan		1,430.0	4,097.3										
Total Loans (E)		23,538.8	4,097.3										
F. Short-term Borrowing													
G. Trade Accounts Payable (Creditors)			1,516.8	289.7									
H. Total Source of Fund (Σ C ~ G)		23,538.8	9,688.7	5,401.6	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4	5,113.4
<u>APPLICATIONS OF FUNDS</u>													
I. Fixed Capital		23,538.8	61.9										
J. Working Capital (Debtors)			5,552.2	857.4									
K. Financial Charges:													
(i) Interest on L-T Debt (Foreign 8%)			1,768.7	1,724.5	1,547.6	1,370.7	1,193.8	1,017.0	840.1	663.2	486.4	309.5	132.6
(ii) Interest on L-T Debt (Local 18%)			994.9	970.1	870.7	771.1	671.7	572.1	472.7	373.1	273.7	174.1	74.7
(iii) Interest on S-T Debt (Local 18%)													
Total Financial Charges (K)			2,763.6	2,694.6	2,418.3	2,141.8	1,865.5	1,589.1	1,312.8	1,036.3	760.1	483.6	207.3
L. Loan Repayments:													
Foreign Long-term Loan				2,211.6	2,210.8	2,210.8	2,210.8	2,210.8	2,210.8	2,210.8	2,210.8	2,210.8	2,210.8
Local Long-term Loan				552.1	552.8	552.8	552.8	552.8	552.8	552.8	552.8	552.8	552.8
Local Short-term Borrowing													
Total Repayments (L)				2,763.7	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6	2,763.6
M. Total Debt Services (K + L)			2,763.6	5,458.3	5,181.9	4,905.4	4,629.1	4,352.7	4,076.4	3,799.9	3,523.7	3,247.2	2,970.9
N. Corporation Tax						177.8	354.7	584.4	681.1	777.9	874.6	971.3	1,219.0
O. Dividends													
P. Gratification to Employees & Workers													
Q. Donation													
R. Total Application of Funds (Σ I, J, M ~ Q)		23,538.8	8,377.7	6,315.7	5,181.9	5,083.2	4,983.8	4,937.1	4,757.5	4,577.8	4,398.3	4,218.5	4,189.9
S. Yearly Cash Surplus Balance (H-R)		0	1,311.0	-914.1	-68.5	30.2	129.6	176.3	355.9	535.6	715.1	894.9	923.5
T. Accumulated Cash Surplus		0	1,311.0	396.9	328.4	358.6	488.2	664.5	1,020.4	1,556.0	2,271.1	3,166.0	4,089.5
U. Ratio													
Debt Service Coverage (C/M)		-	1.47	0.94	0.99	1.04	1.10	1.17	1.25	1.35	1.45	1.57	1.72

7-5-2 Comprehensive Appraisal;

The appraisal is made in the order of the superiority in results of the financial analysis, and the case 4, which was made in the sensitivity analysis, is appraised at the last.

1) Case 3:

For this case, equity 30% and debt 70% are estimated, which is the best desirable case in respect of all conceivable financial indices. In particular, this case has remarkable superiority over other cases in terms of its profitability and financing conditions as well. As the result, a period of 3 years from the operation commencement is observed to be comparatively stable.

2) Case 2:

For this case, the total borrowing (Foreign currencies shares 80% and local currency 20% in the long term debt. Interest is 6% for foreign currencies and 18% for local currency) is estimated. From viewpoint of the profitability, this case can secure operability, and financing conditions are observed to be in a good condition as well.

3) Case 1:

This case is different from the prerequisite for the case 2 in that the interest for this case for the foreign currencies is assessed at 8%. Among cases 1, 2 and 3, the profitability is the lowest for this case, the major cause being in interest on debt for this case. In respect of the financing condition as well, this case is making cash flow by short term borrowing.

4) Case 4:

This case is a modified version of the case 1 in respect of the sensitivity analysis, where the financing problem as involved in the case 1 can be solved, and operability can be secured though some problem is involved in interest on borrowed funds.

From the viewpoint of overall appraisal, in respect of profitability, operability and financing conditions, the superiority order can be said to be case 3, case 2 and case 4.

