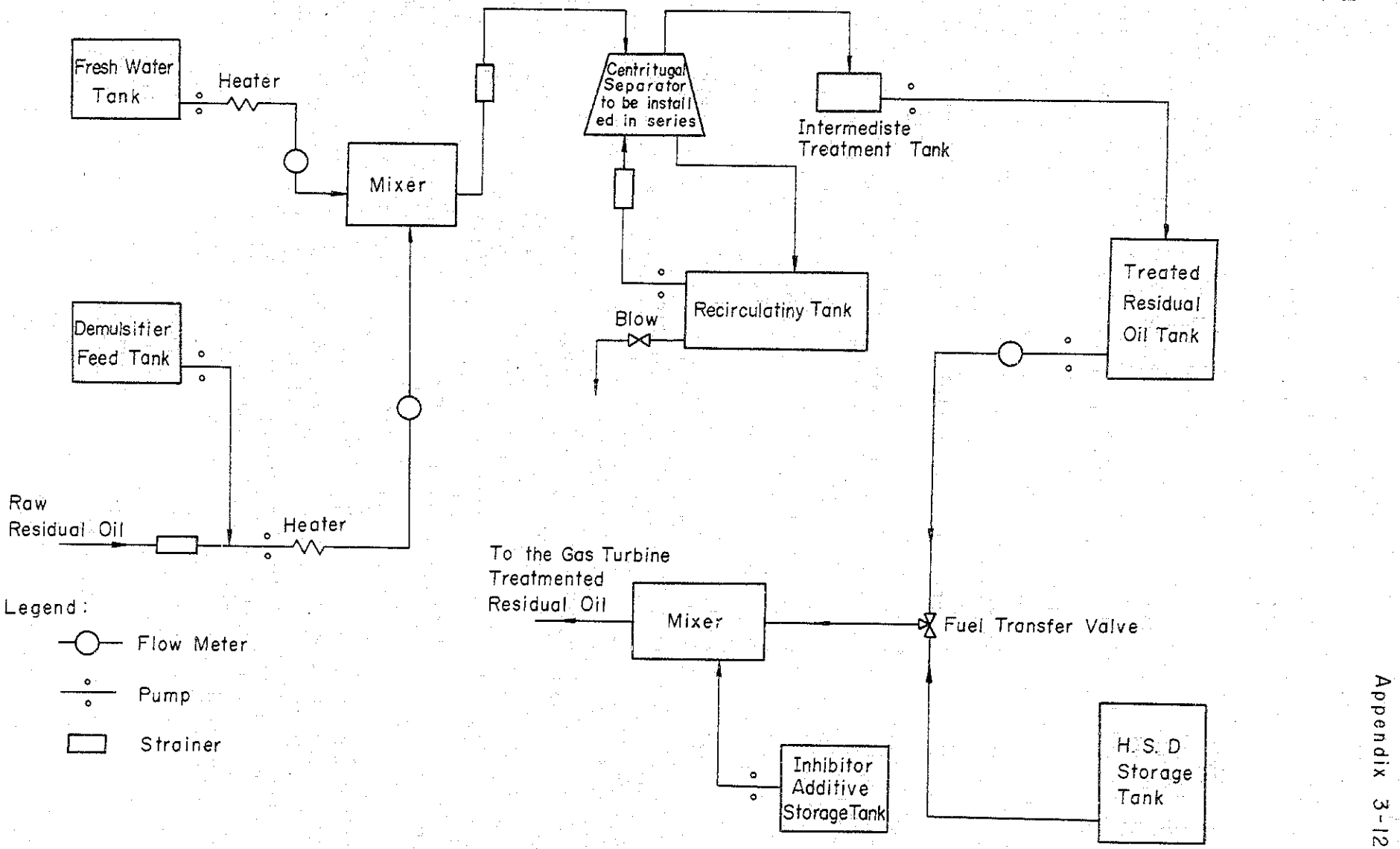
Residual Oil Treatment System Diagram for Semarang Gas Turbine revised to Residual Oil Firing



CALCULATION OF THE REPAIR COST IN THE ECONOMICAL COMPARISON FOR SEMARANG GAS TURBINE

1. REPAIR COST

How to handle about the repair cost which was applied to the comparison with the power generation cost according to the classification of fuel is illustrated in Table 5.

In general, an annual repair cost of a gas turbine, however, varies due to the classification of fuel, the operational conditions of a power generating station, the number of years after the commercial operation, etc., we hereon omitted the checking item on the number of years after the commercial operation because a short time had elapsed only.

Such being the case, in this economical comparison, the following formula was estimated making reference with actual results in Japan and foreign countries. As its result, the modification was made by taking the difference of fuel and the utilization factor for the unit into consideration in order to calculate the repair cost per KWH.

(1) Annual repair cost in case of firing HSD

$$\text{Construction cost} \times 1\% \times \frac{1 + LF}{2}$$

where, LF means the annual utilization factor of power generating station being expressed by a decimal fraction.

(2) Annual repair cost in case of firing IDO

$$\text{Construction cost} \times 1.5\% \times \frac{1 + LF}{2}$$

(3) Annual repair cost in case of firing residual oil

$$\text{Construction cost} \times 2.0\% \times \frac{1 + LF}{2}$$

(4) Actual example of calculation on the repair cost per KWH in case of firing IDO

In the case of the utilization factor of 70%,

$$\text{Construction cost} \times 0.015 = 690{,}000 \times 10^3\,\text{RP} \times 0.015 = 10{,}350 \times 10^3\,\text{RP}$$
$$= 10{,}350 \times 10^3\,\text{RP} \quad \text{(Basic repair cost)}$$

$$\text{Modification of utilization factor} = \frac{1 + LF}{2} = \frac{1 + 0.70}{2} = 0.85$$

$$\text{Annual repair cost} = 10{,}350 \times 10^3\,RP \times 0.85 = 8{,}796 \times 10^3\,RP$$

$$\text{Power generatign energy} = 12 \times 10^3\,KW \times 8{,}760H \times 10^3 \times 0.7$$
$$= 73{,}584 \times 10^3\,KWH$$

$$\text{Repair cost per KWH} = 8{,}798/73{,}584 = 0.12RP/KWH$$

In the case of the utilization factor of 50%,
in the same way,

$$\text{Annual repair cost} = 10{,}350 \times 10^3\,RP \times \left(\frac{1 + 0.50}{2}\right) = 7{,}763 \times 10^3\,RP$$

$$\text{Annual power generating energy} = 12 \times 10^3\,KW \times 8{,}760H \times 0.5$$
$$= 52{,}560 \times 10^3\,KWH$$

$$\text{Repair cost per KWH} = 7{,}763 \times 10^3\,RP/52{,}560 \times 10^3\,KWH$$
$$= 0.15RP/KWH$$

In the case of the utilization factor of 30%,
in the same way,

$$\text{Annual repair cost} = 10{,}350 \times 10^3\,RP \times \left(\frac{1 + 0.30}{2}\right) = 6{,}728 \times 10^3\,RP$$

$$\text{Annual power generating energy} = 12 \times 10^3\,KW \times 8{,}760H \times 0.3$$
$$= 31{,}536 \times 10^3\,KWH$$

$$\text{Repair cost per KWH} = 6{,}728 \times 10^3\,RP/31{,}536 \times 10^3\,KWH$$
$$= 0.21\ RP/KWH$$

In the case of the utilization factor of 10%,
in the same way,

$$\text{Annual repair cost} = 10{,}350 \times 10^3\,RP \times \left(\frac{1 + 0.1}{2}\right)$$
$$= 5{,}693 \times 10^3\,RP$$

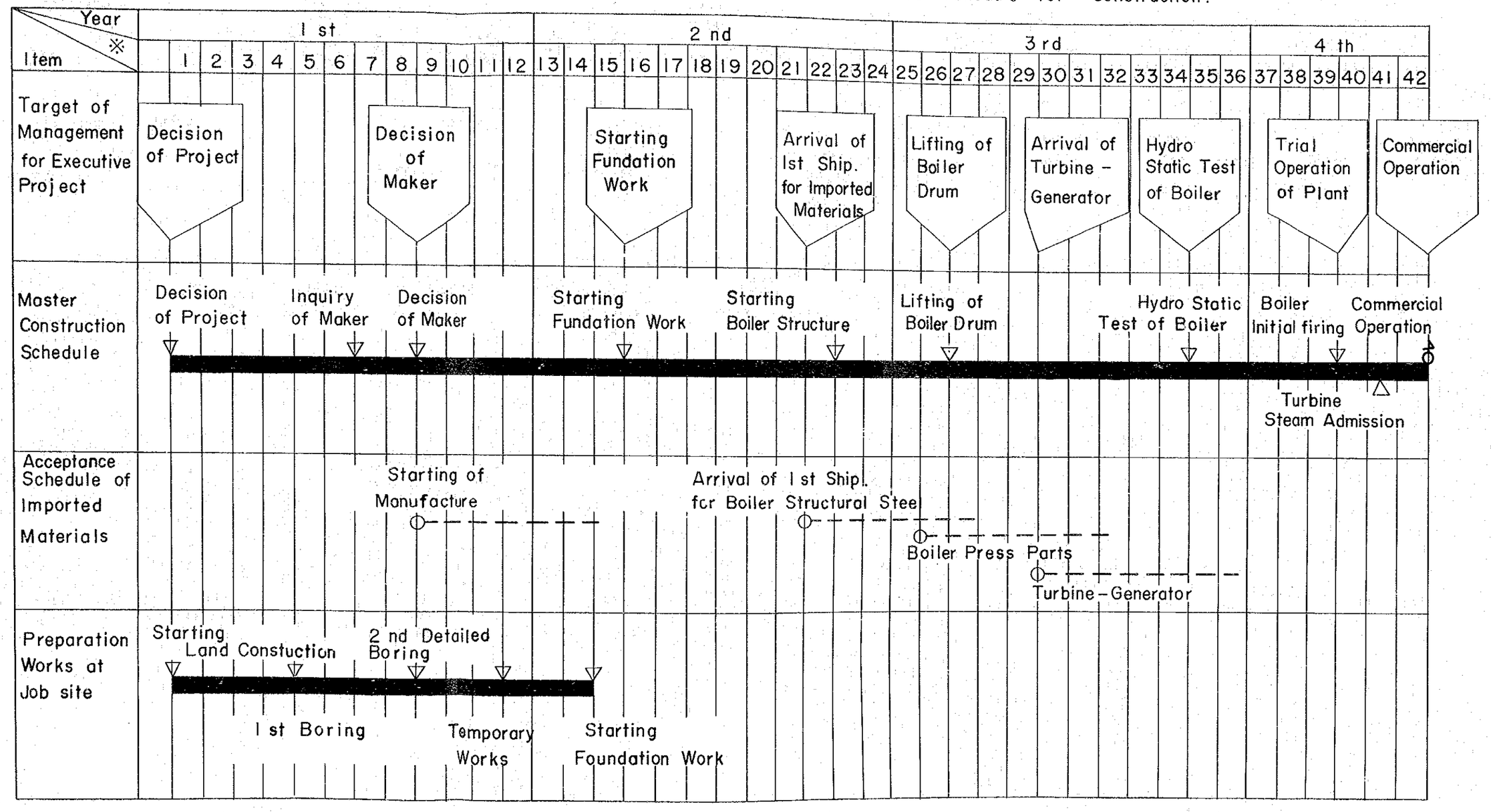
$$\text{Annual power generating energy} = 12 \times 10^3\,KW \times 8{,}760H \times 0.1$$
$$= 10{,}512 \times 10^3\,KWH$$

$$\text{Repair cost per KWH} = 5{,}693 \times 10^3\,RP/10{,}512 = 0.54RP/KWH$$

Master Construction Schedule of Major Project (In case of Imported Steam Power Project)

Remarks : This schedule shows fundamental principle of master construction schedule for imported steam power project and not an exctutive schedule for construction.

※ Months after decision of the project



METHODS OF COST ALLOCATION

1. GENERAL PRINCIPLES OF COST ALLOCATION

There are various methods and theories of cost allocation. But the essentials of cost allocation may be summarized in the following general principles.

(1) Each undertaking for one specific purpose should bear all the direct costs involved.

(2) Any undertaking should not be burdened with the costs more than the most economical alternative costs or the most suitable investment costs to attain its purpose.

(3) The common costs should be allocated to any undertaking without consideration to its capability to bear the costs.

2. ORDINARY METHODS FOR ALLOCATION

The direct cost and common costs used in the following methods are defined as follows:

Direct cost: the construction cost for the facilities which are used for one only.

Common costs: the construction cost for the facilities which are used commonly for two or more purposes and which cannot be allocated to only one undertaking.

(1) Benefit method

The total construction costs of the comprehensive development project is divided in proportion to the net profits which are obtained by deducting the expenditures required to realize each benefit from the benefit of each undertaking.

From the said proportion, the direct cost of each undertaking is deducted in order to obtain the respective share of the common costs.

This method is not reasonable, for, even if the benefit of the same amount may be obtained more cheaply by any other suitable undertakings, no consideration is made.

(2) Justifiable expenditure method

The net profit is calculated in each undertaking, and is converted to the capitalized amount, which is the limit amount of profitable investment. The common costs are divided in proportion to the ratio of the residues obtained by deducting the direct cost from the above-calculated amount.

This method is thought to be more reasonable than the benefit method.

(3) Alternative expenditure method

The common costs are divided in proportion to the ratio of the residues calculated by deducting the direct cost from the economical and practical alternative construction cost in the case of constructing a facility for one specific purpose which is thought to bring about the same economic effect as in a comprehensive development project.

As to the calculation of the alternative construction cost, a study is not made so much in details as in the case of actual construction, that the accuracy of cost calculation is apt to be low.

(4) Alternative justifiable expenditure method

The common costs are allocated in proportion to the ratio of the residues calculated by deducting the direct cost from the alternative expenditure or the justifiable expenditure, whichever is smaller. This method is said to represent a reasonable value close to the actual one, and in Japan, allocation was done, as a rule, in this method.

A very important merit of this method is that any undertaking is never burdened with the expenditure more than the profit.

(5) The separable cost remaining benefit method

This method was recommended to the Federal Government of the United States of America by the Joint Committee for River Basin Development in 1946, and is thought to be the most theoretical method.

This method is similar to the alternative justifiable expenditure method.

a) Separable cost:

The cost which is separable for each undertaking is the difference between the total expenses for the comprehensive development project and the expenses obtained by eliminating the said undertaking.

b) Common cost:

The common cost is the difference between the total expenses for the comprehensive development project and the sum of the separable costs for all the undertakings.

c) Allocation of the common costs:

The common costs are allocated according to the ratio of the so-called remaining benefits which are obtained by deducting the separable cost for each purpose from the alternative expenditure or the justifiable investment for each purpose, whichever is smaller.

3. METHOD OF COST ALLOCATION IN JAPAN

In Japan, the alternative justifiable expenditure method had been employed as a standard method since it was legislated in 1952. However, this method had a defect that an increased cost of the common facilities caused by the addition of an undertaking for one purpose was not borne by the said undertaking, but by other undertakings, excessively. Thus, this method was revised in 1967.

(1) Methodology

a) The separable cost for each purpose in the total cost of the common facilities is to be borne by each undertaking for one purpose.

b) The residual costs for the common facilities (the costs for the common facilities minus the sum of the separable costs) are allocated as follows:

First, from the alternative expenditure or the justifiable investment for one purpose, whichever is smaller, the exclusive investment cost for one purpose and the above-mentioned separable cost are subtracted.

Then, according to the ratio of the amount thus obtained to the sum of all the amounts obtained similarly, the residual costs for the common facilities are allocated to each purpose.

c) For each purpose, the shares are summed up in the above method, (a) and (b), and the ratio of the above sum to the costs for the common facilities is to be the allocation ratio for each purpose.

(2) Alternative construction cost

a) The alternative construction cost is the cost required to construct a facility which has the same utility as the sum of the common facilities and the exclusive facility, instead of constructing both common and exclusive facilities, in an undertaking of electric power generation or a related undertaking.

b) In principle, the calculation is done by assuming that a facility which has the same value as the sum of common and exclusive facilities in the same place, is constructed.

(3) Justifiable investment

a) The justifiable investment for the flood control, irrigation, and electric power generation is as follows:-

$$\frac{\text{annual utility} - \text{annual expenditure}}{\text{capital recovery rate}}$$

The utility of power generation is calculated based on the cost of power generation, which is used for the determination of the electric rates.

b) The justifiable investment for drinking and industrial water supply facilities is determined by considering the expenditures required to construct the alternative facilities.

(4) Separable cost

The separable cost for each purpose in a multi-purpose project is the difference between the cost required for the construction of the common facilities and the cost required for the construction of facilities excluding the said purpose.

(5) An example of calculation for the cost allocation of a dam

Common cost US$18 x 10^6 (Unit = US10^6)

	Flood Control	Drinking Water	Industrial Water	Electric Power	Total
a. Alternative Expenditure	8	6	16	10	
b. Justifiable Investment	13	3	15	9	
c. a or b, whichever is smaller	8	3	15	9	
d. Cost for Exclusive Facility	–	–	–	5	
e. c - d	8	3	15	4	
f. Separable Cost	3	0.7	9	0.5	13.2
g. Residual Benefit (e - f)	5	2.3	6	3.5	16.8
h. Residual (%)	29.8	13.6	35.8	20.8	100
i. Allocation of the Residual Common Cost	1.4	0.6	1.7	1.1	4.8
j. Share (f + i)	4.4	1.3	10.7	1.6	18
k. Percentage of Share (%)	24.5	7.2	59.5	8.8	100

The Output of the Djatiluhur Hydro-Power Station (in the case of operating four units)

	Indispensable Discharge from Reservoir 1 m^3/s	Possible Discharge from the Reservoir in the Case of Operating the Re-regulating Pond of 2.5 x 10^6 m^3 1 +69.5 2 m^3/s	Water Level of Reservoir 3 m	Peak Output (10 hours) 4 MW	Discharge for Power Generation during the Peak Period 5 m^3/s	Discharge Stored in the Re-regulating Pond during the Peak Period 5 - 1 = Q 6 m^3/s	Possible Discharge from the Re-regulating Pond to the Downstream during the Off Peak Period $\frac{10 \times Q}{14}$ 7 m^3/s	Discharge for Power Generation during the Off Peak Period 1 - 7 8 m^3/s	Off-Peak Output (14 hours) 9 MW
SEPT.	124	193.5	91.40	21 x 4 = 84	163.6	39.6	28.3	95.7	12 x 4 = 48
	128	197.5	90.00	21 x 4 = 84	166.8	38.8	27.7	100.3	12 x 4 = 48
OCT.	132	201.5	88.10	20 x 4 = 80	164.8	32.8	23.4	108.6	12 x 4 = 48
	136	205.5	86.90	19 x 4 = 76	159.6	23.6	16.8	119.2	14 x 4 = 56
NOV.	138	207.5	85.00	18 x 4 = 72	157.2	19.2	13.7	124.3	14 x 4 = 56
	149	218.5	85.00	18 x 4 = 72	157.2	8.2	5.8	143.2	16 x 4 = 64
DEC.	138	207.5	85.60	18 x 4 = 72	157.2	19.2	13.7	124.3	14 x 4 = 56
	135	204.5	88.10	20 x 4 = 80	164.8	29.8	21.3	113.7	13 x 4 = 52
JAN.	131	200.5	89.40	20 x 4 = 80	161.6	30.6	21.9	109.1	13 x 4 = 52
	128	197.5	90.10	21 x 4 = 84	166.8	38.8	27.7	100.3	12 x 4 = 48
FEB.	128	197.5	91.90	22 x 4 = 88	168.8	38.8	27.7	100.3	12 x 4 = 48
	124	193.5	93.10	22 x 4 = 88	166.0	42.0	30.0	94.0	12 x 4 = 48
MAR.	121	190.5	95.00	23 x 4 = 92	168.0	47.0	33.5	87.5	11 x 4 = 44
	117	186.5	97.80	24 x 4 = 96	169.6	52.6	37.5	79.5	14 x 3 = 42
APR.	111	180.5	100.00	26 x 4 = 104	174.4	63.4	45.3	65.7	12 x 3 = 36
	109	178.5	102.80	27 x 4 = 108	175.2	66.2	47.2	61.8	12 x 3 = 36
MAY	121	190.5	104.70	28 x 4 = 112	177.2	56.2	40.1	80.9	16 x 3 = 48
	173	242.5	106.00	29 x 4 = 116	179.6	6.6	4.7	168.3	27 x 4 = 108
JUNE	248	317.5	106.00	29 x 4 = 116	179.6	△ 68.4 *	0	179.6 **	29 x 4 = 116
	256	325.5	104.10	28 x 4 = 112	177.2	△ 78.8 *	0	177.2 **	28 x 4 = 112
JULY	240	309.5	101.90	27 x 4 = 108	175.2	△ 64.8 *	0	175.2 **	27 x 4 = 108
	228	297.5	99.40	25 x 4 = 100	170.8	△ 57.2 *	0	170.8 **	25 x 4 = 100
AUG.	187	256.5	96.40	24 x 4 = 96	172.8	△ 14.2 *	0	172.8 **	24 x 4 = 96
	151	220.5	93.90	23 x 4 = 92	170.8	19.8	14.2	136.8 **	18 x 4 = 72
Average				92					64

* Ineffective discharge

** The same discharge with the case of peak period

The Estimated Transition of Irrigable Areas and Crops After the Construction of Dam

Year	Irrigable Area (Ha,) in the Dry Season	Crop per Hectare (Tons of Paddy)	Crop (Tons of Paddy)	
before 1962	25,000	2.5	62,500	* Though the estimated crop per hectare is 4 tons of paddy after 1969, with the improved variety of rice, we assumed the estimated crop of 2.8 tons of paddy, for our purpose is to evaluate the effect of the construction of the dam.
1962	45,000	2.5	113,000	
1963	45,000	2.5	113,000	
1964	50,000	2.5	125,000	
1965	60,000	2.5	150,000	
1966	75,000	2.8	210,000	
1967	90,000	2.8	252,000	
1968	177,000	2.8	495,000	
1969	180,000	2.8	505,000	
1970	190,000	2.8	530,000	
1971	210,000	2.8	590,000	
1972	220,000	2.8	615,000	
1977	240,000	2.8	670,000	

The Present Worth of Crops in 1967 (Base Year)

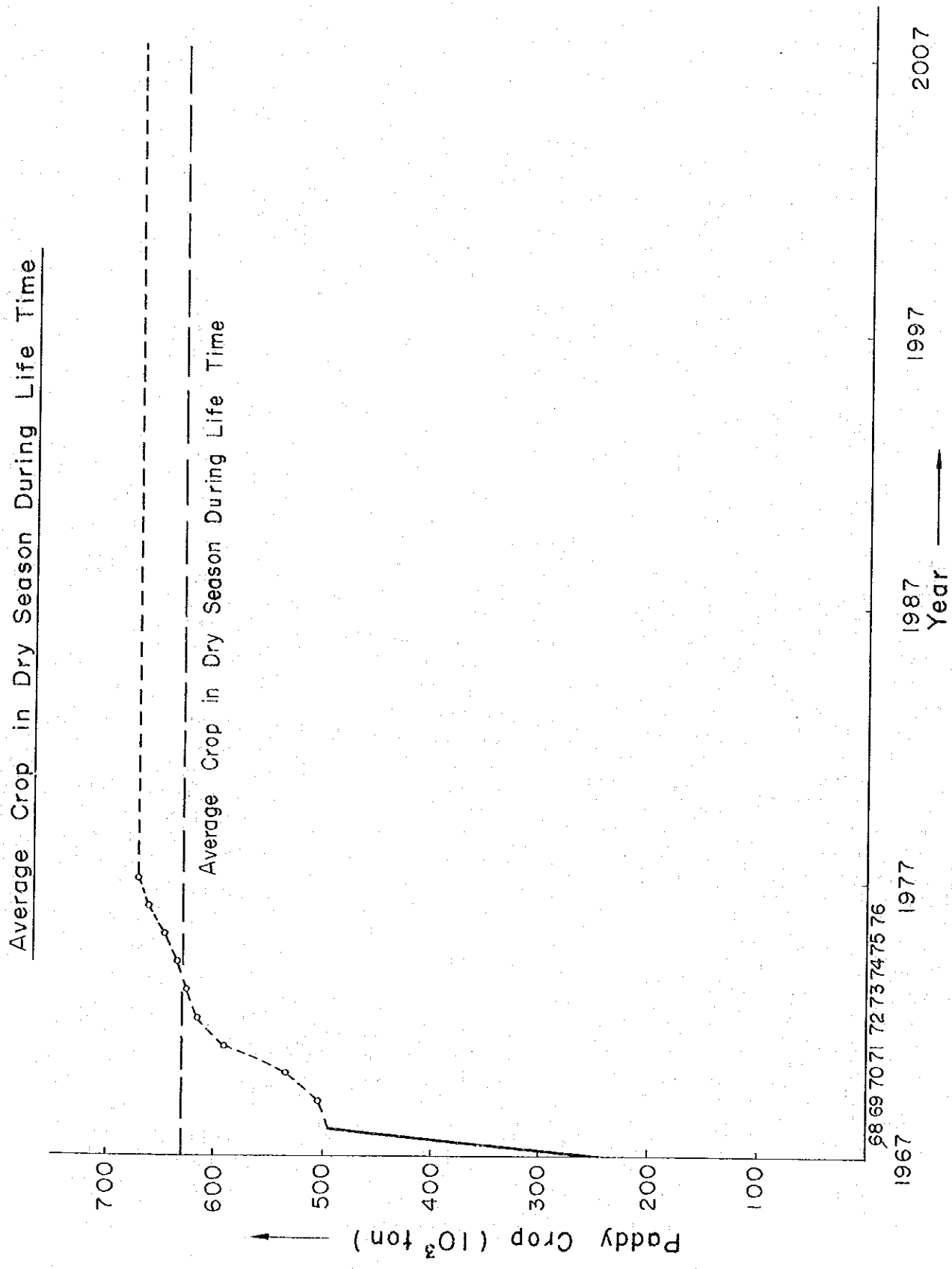
(Dry Season)

Year	Crop (Tons of Paddy)	Present Worth Factor **	Present Worth (Tons of Paddy)
1968	495,000	0.95	470,000
1969	505,000	0.91	460,000
1970	530,000	0.86	456,000
1971	590,000	0.82	484,000
1972	615,000	0.78	480,000
1973	625,000	0.75	469,000
1974	635,000	0.71	450,000
1975	645,000	0.68	438,000
1976	657,000	0.64	420,000
1977	670,000*	0.61	409,000

* We assumed that, after 1978, the crop will remain constant with 670,000 tons of paddy during the life time.

** Present Worth Factor based on the year 1967.

Appendix 3-19



Record of Maintenance Cost (P.N. Djatiluhur 1968)

		1968 Record Rp 10^6	Estimated Amount Rp 10^6 *	
1	Salaries, Wages and Bonuses	102	98	1,768 staff members excepting for tourism Rp. 83,000 per person per year
2	Rice	50	48	
3	Payment to Foreign Contractor	35	0	The remainder of the construction works will be completed in the future
4	Necessaries for Workers (Clothes, Shoes, Helmets, etc.)	14	14	
5	Fuel	10	10	
6	Lubricant	13	13	
7	Cement	5	5	
8	Materials (Wood, Iron, Electrical materials, Chemicals, Tools, etc.)	50	50	
9	Transportation (Labor, Functionary, Materials, etc.)	29	20	As the construction works are finished, it will decrease in the near future
10	Contracting (Indonesian contractor)	45	28	If the remainder of the construction works are finished, only the repair works remain
11	Others (Land purchases, Bank commission and others)	18	14	As the construction work is finished, there is no purchase of land
	Total	371	300	

* *The average for the life time*

Table of Total Cost

Rp x 10^3

	1969	1970	Total
Personnel Expenses	2,846,814	3,334,040	6,180,854
Fuel Expenses	2,917,050	3,233,417	6,150,467
Lubricating Oil Expenses	247,500	269,033	516,533
Repair Expenses	2,469,024	2,671,368	5,140,392
Expenditure for Purchased Power	552,900	818,400	1,371,300
Conveyance Operations Expenses	300,000	310,000	610,000
Office Expenses	260,578	273,607	534,185
Miscellaneous Expenses	307,960	323,359	631,319
Depreciation	1,067,757	1,305,160	2,372,917
Interest	1,456,303	1,726,705	3,183,008
Total	12,425,886	14,265,089	26,690,975
Miscellaneous Operating Revenue	(-) 46,157	(-) 49,075	(-) 95,232
Net Total Cost	12,379,729	14,216,014	26,595,743
Electric Charges by Existing Rates	10,452,896	11,299,484	21,752,380
Balance	(-) 1,926,833	(-) 2,916,530	(-) 4,843,363
Ratio of Rising (%)	18.4	25.8	22.3
Electric Energy Sales (MWh)	1,440,900	1,574,500	3,015,400

Calculation Base for Total Cost

Rp x 10^3

	1969		1970	
	Amount of Money	Foundation for Calculation	Amount of Money	Foundation for Calculation
Salaries and Wages	1,412,882	Basic Salaries Number of Staff Members 18,500 Average Basic Salaries per Month per Person Rp 1,732 Basic Salaries Rp 384,560 x 10^3 Allowance on Basic Salaries (Basic salaries x 52.1%) Rp 200,356 x 10^3 Overtime Payment Rp 233,966 x 10^3 Working Compensation Allowance Rp 522,000 x 10^3 Position Compensation Allowance Rp 72,000 x 10^3 Total Rp 1,412,882 x 10^3	1,736,864	Basic Salaries Number of Staff Members 18,500 Average Basic Salaries per Month per Person Rp 1,999 Basic Salaries Rp 443,723 x 10^3 Allowance on Basic Salaries (Basic salaries x 52.1%) Rp 231,180 x 10^3 Overtime Payment Rp 269,961 x 10^3 Working Compensation Allowance Rp 696,000 x 10^3 Position Compensation Allowance Rp 96,000 x 10^3 Total Rp 1,736,864 x 10^3
Rice and Sugar Allowance	593,850	Rice (50 kg/month) Rp 555,000 x 10^3 Sugar (2.5 kg/month) Rp 38,850 x 10^3 Total Rp 593,850 x 10^3	593,850	Rice (50 kg/month) Rp 555,000 x 10^3 Sugar (2.5 kg/month) Rp 38,850 x 10^3 Total Rp 593,850 x 10^3

	1969		1970	
	Amount of Money	Foundation for Calculation	Amount of Money	Foundation for Calculation
Income Tax	164,558	7.64% (Salaries, Overtime, Rice & Sugar, Leave Allowance and Bonus)	244,442	9.81% (Salaries, Overtime, Rice & Sugar, Leave Allowance and Bonus)
Miscellaneous Labor Expenses	675,524	Service Dress Rp 55,500 x 10^3 Service Shoes Rp 10,000 x 10^3 Medical Expenses Rp 283,050 x 10^3 Leave Allowance Rp 48,743 x 10^3 Bonus Rp 98,231 x 10^3 Miscellaneous Rp 180,000 x 10^3 Total Rp 675,524 x 10^3	758,984	Service Dress Rp 55,500 x 10^3 Service Shoes Rp 10,000 x 10^3 Medical Expenses Rp 333,000 x 10^3 Leave Allowance Rp 56,242 x 10^3 Bonus Rp 105,729 x 10^3 Mescellaneous Rp 198,413 x 10^3 Total Rp 758,884 x 10^3
Fuel Oil Expenses	2,917,050	Quantity of Consumption H.S.D. 120,400 t I.D.O. 27,200 t Fuel Oil 115,500 t Price per Ton H.S.D. Rp 12,500 I.D.O. Rp 6,500 F. O. Rp 5,000 Transportation Cost per ton Rp 2,500 Fuel Oil Expenses H.S.D. Rp 1,505,000 x 10^3	3,233,417	Quantity of Consumption H.S.D. 138,113 t I.D.O. 31,351 t Fuel Oil 117,275 t Price per Ton H.S.D. Rp 12,500 I.D.O. Rp 6,500 F. O. Rp 5,000 Transportation Cost per ton Rp 2,500 Fuel Oil Expenses H.S.D. Rp 1,726,413 x 10^3

	1969		1970	
	Amount of Money	Foundation for Calculation	Amount of Money	Foundation for Calculation
Fuel Oil Expenses (cont'd.)		I.D.O. Rp 176,800 x 10^3 F. O. Rp 577,500 x 10^3 Sub total Rp 2,259,300 x 10^3 Transportation Cost Rp 657,750 x 10^3		I.D.O Rp 203,781 x 10^3 F. O. Rp 586,375 x 10^3 Sub total Rp 2,516,569 x 10^3 Transportation Cost Rp 716,848 x 10^3
		Total Rp 2,919,050 x 10^3		Total Rp 3,233,417 x 10^3
Lubricating Oil Expenses	247,500	Quantity of Consumption 2,000 t Price per ton Rp 117,750 Transportation Cost per ton Rp 6,000 Lubricating Oil Expenses Rp 247,500 x 10^3	269,033	Quantity of Consumption 2,174 t Price per ton Rp 117,750 Transportation Cost per ton Rp 6,000 Lubricating Oil Expenses Rp 269,033 x 10^3
Repair Expenses	2,469,024	Replacement Cost Rp 102,876 x 10^6 Ratio of Repair Expenses 2.4%	2,671,368	Replacement Cost Rp 111,307 x 10^6 Ratio of Repair Expenses 2.4%
Expenditure for Purchased Power	552,900	Djatiluhur Purchased Power 498,000 MWH Price per kwh Rp 1.15 Expenditure Rp 522,900 x 10^3 Others Purchased Power 6,000 MWH Price per kwh Rp 5.00 Expenditure Rp 30,000 x 10^3 Total Rp 552,900 x 10^3	818,400	Djatiluhur Purchased Power 584,000 MWH Price per kwh Rp 1.35 Expenditure Rp 788,400 x 10^3 Others Purchased Power 6,000 MWH Price per kwh Rp 5.00 Expenditure Rp 30,000 x 10^3 Total Rp 818,400 x 10^3

	1969		1970	
	Amount of Money	Foundation for Calculation	Amount of Money	Foundation for Calculation
Conveyance Operations Expenses	300,000	1,000 cars	310,000	1,000 cars
Office Expenses	260,578	Office & Printed Matters Rp 123,408 x 10^3 Maintenance for Residences Rp 52,500 x 10^3 Telephone and Telegram Rp 43,000 x 10^3 Others Rp 41,670 x 10^3 Total Rp 260,578 x 10^3	273,607	Office and Printed Matters Rp 129,578 x 10^3 Maintenance for Residences Rp 55,125 x 10^3 Telephone and Telegram Rp 45,150 x 10^3 Others Rp 43,754 x 10^3 Total Rp 273,607 x 10^3
Miscellaneous Expenses	307,960	Tours Expenses Rp 76,230 x 10^3 Taxes Rp 35,000 x 10^3 Insurances Rp 2,000 x 10^3 Others Rp 194,730 x 10^3 Total Rp 307,960 x 10^3	323,359	Tours Expenses Rp 80,042 x 10^3 Taxes Rp 36,750 x 10^3 Insurances Rp 2,100 x 10^3 Others Rp 204,467 x 10^3 Total Rp 323,359 x 10^3
Depreciation	1,067,757	Fixed Instalment Method Average Life Time 25 years Scrap Value 10% Acquisition Cost Rp 29,660 x 10^6	1,305,160	Fixed Instalment Method Average Life Time 25 years Scrap Value 10% Acquisition Cost Rp 36,254 x 10^6
Interest	1,456,303	Interest Rate 5% per year Amount of Loans Rp 29,126 x 10^6	1,726,705	Interest Rate 5% per year Amount of Loans Rp 34,534 x 10^6
Miscellaneous Operating Revenues	46,157	Calculation based on the Past Trend	49,075	Calculation based on the Past Trend

Result of the Allocation of Total Cost

Rp. x 10^3

	Allocated Cost			Electric charges by Existing Rates		Electric charges by Revised Rates	
	Fixed cost	Variable cost	Total A	Electric charges B	A/B (%)	Electric charges C	A/C (%)
Residential	9,987,837	5,017,554	15,005,391	7,985,077	187.9	12,918,955	116.2
Street lighting	311,461	140,153	451,614	105,000	430.1	315,000	143.4
Commercial	4,689,938	2,814,911	7,504,849	9,540,984	78.7	9,654,355	77.7
Industrial	2,011,917	1,621,972	3,633,889	4,121,319	88.2	3,707,433	98.0
Total	17,001,153	9,594,590	26,595,743	21,752,830	122.3	26,595,743	100

Account Statement of Revenue

Rp x 10^3

Categories			Contract Capacity (KVA)	Energy Sale (MWh)	Electric Charges by Existing Rates				Electric Charges by Revised Rates				Ratio of Increase B/A(%)
Demand Categories	Contract Categories				Demand Charges	Energy Charges	Total	Unit Price A(Rp)	Demand Charges	Energy Charges	Total	Unit Price B(Rp)	
Residential	A_1	(S_1)	2,259,600	1,129,800	3,253,824	–	3,253,824	2,880	6,552,840	–	6,552,840	5,800	201.4
	A_2	(R_1)	3,221,400	477,900	1,352,988	2,628,450	3,981,438	8,331	1,610,700	3,899,664	5,510,364	11,530	138.4
		(R_2)	620,400	64,700	272,976	476,839	749,815	11,589	310,200	545,551	855,751	13,226	114.1
Total			6,101,400	1,672,400	4,879,788	3,105,289	7,985,077	4,775	8,473,740	4,445,215	12,918,955	7,725	161.8
Street Lighting	B	(U_1)	96,000	42,000	–	105,000	105,000	2,500	–	315,000	315,000	7,500	300.0
Commercial	C_1	(S_2)	648,600	127,200	110,262	342,168	452,430	3,557	324,300	601,020	925,320	7,275	204.5
	C_2	(K_1)	905,400	156,600	796,752	1,483,002	2,279,754	14,558	543,240	1,623,942	2,167,182	13,839	95.1
	C_3	(K_2)	1,150,800	128,400	1,288,896	1,296,840	2,585,736	20,138	920,640	1,200,540	2,121,180	16,520	82.0
		(K_3)	85,800	28,500	–	570,000	570,000	20,000	–	502,288	502,288	17,624	88.1
	C_4	(U_2)	1,150,800	314,100	552,384	2,512,800	3,065,184	9,759	690,480	2,591,327	3,281,805	10,448	107.1
		(U_3)	354,000	67,300	184,080	403,800	587,880	8,735	212,400	444,180	656,580	9,756	119.6
Total			4,295,400	822,100	2,932,374	6,608,610	9,540,984	11,606	2,691,060	6,963,295	9,654,355	11,744	101.2
Industrial	D_1	(P)	4,994,400	478,900	1,348,488	2,772,831	4,121,319	8,606	1,997,760	1,709,673	3,707,433	7,742	90.0
	D_2												
Total			15,487,200	3,015,400	9,160,650	12,591,730	21,752,380	7,214	13,162,560	13,433,183	26,595,743	8,820	122.3

Appendix 4–5

Table of Power Demand and Supply

(MWh)

	1969	1970	Total
P. L. N.			
Diesel	312,820	370,000	682,820
Steam	325,000	330,000	655,000
Gas	70,000	70,000	140,000
Hydro	593,580	597,500	1,191,080
Sub-total	1,301,400	1,367,500	2,668,900
Purchased Power; Djatiluhur	498,000	584,000	1,082,000
Others	6,000	6,000	12,000
Sub-total	504,000	590,000	1,094,000
Total of Supply	1,805,400	1,957,500	3,762,900
Total of Demand	1,440,900	1,574,500	3,015,400
Loss (%)	20.2	19.6	19.9