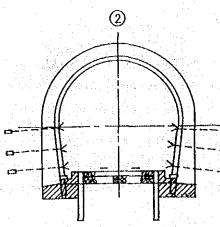


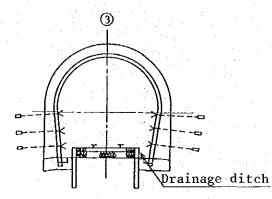
Appendix 9-3-1 Roadbed Lowering Method for the Sasaksaat Tunnel

1.

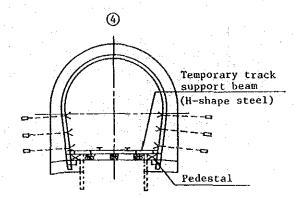
- Placement of protective centers (H-shape steel - 125 v 125) with rock anchors.
   (Protective centers should be reused for construction works consecutively conducted for the span of 60 m.)
- 2. Driving trench timber.



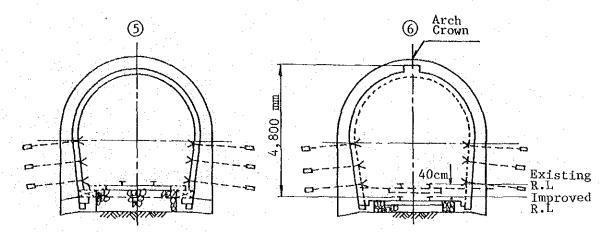
- Pit excavation under side walls and drainage ditches (excavation should be performed alternately on both sides the pitch of 4.5 m).
- Extension of centers for fixing their studs.



 Construction of side wall base and new drainage ditches on both sides.



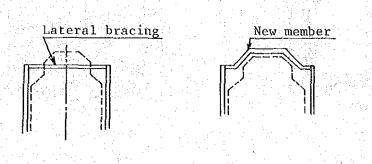
- Placement of pedestals for temporary track support beam (H-shape steel) and removal of trench timber.
- Installation of H-shape steel for temporary track support.



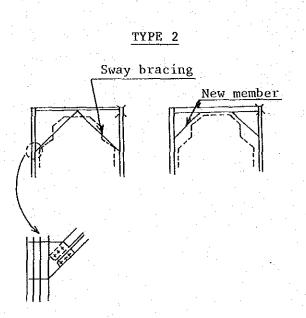
- 1. Disposal of ballast material.
- Excavating roadbed to 40 cm depth.
- 3. Placing of ballast and tamping.
- Removal of H-shape steel and pedestals.
- Cutting-off concrete at the arch crown for electrification.
- 2. Removal of protective centers.
- 3. Lowering rail level (40 cm).
- Overall tamping, surfacing and lining.

#### Appendix 9-3-2 Improvement of Railway Bridge





Existing lateral bracings and struts should be replaced with new members.



Existing lateral and sway bracing should be replaced with new members.

# Appendix 9-3-3 Positioning of Block Signals

Block signals in an automatic block section are positioned so as to permit the following train to keep running while the driver observes the proceed signals ahead of him. In the "2 section clear" system, the signals are installed at such positions to satisfy the required operation time between each pair of block signals.

As a first step, their tentative positions are determined with reference to the time-distance curves. Positions are then determined in consideration of the operating performance of the various train types (different speed, acceleration, deceleration, etc.) operated on the line. In addition, to save the construction costs final adjustments are made for single-track section so that positions of the block signals for up and down traffics coincide, ensuring the desired operation headway.

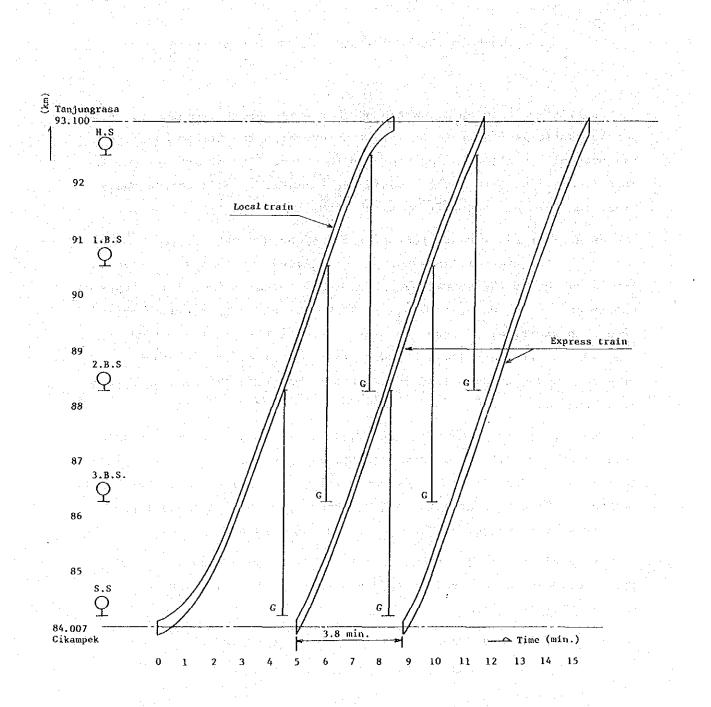
The signal arrangement in Fig. 9.3.3.1 is designed to permit an express train to follow with 5-minute headway after a local train. The approximately 9-km distance between stations is divided into four block sections. With this arrangement, the headway between express trains, successively operated, can be reduced to 3.8 minutes.

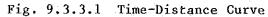
It should be noted, however, that this arrangement does not take into consideration curves, grades, visibility of signals, or other topographical conditions.

Fig. 9.3.3.1 was drawn with the following conditions;

Max. train speed	:	100 km/h
Acceleration	:	1.0 km/h/sec
Deceleration	:	1.5 km/h/sec
Train length	:	240 m

Train operation speed in station yard Express train : 70 km/h Local train : 35 km/h





- 160 -

# Appendix 9-3-4 Plan for Improving Communications System by Introducing Fiber Optics

The plan to improve the communications system of the Section by using fiber optics is described in the following.

1. Improvement

(1) Communications circuit capacity expansion

With the further railway modernization after electrification, such as, introduction of Reservation system, the existing UHF radio link (max. 72CH) will fall short of communication capacity. Hence, fiber optics of 8 MB/S (equivalent to 120CH) will be installed along the rail.

(2) Improving communication circuit reliability

The communications circuits reliability will be improved by duplexing the most important circuits through the introduction of the aforementioned fiber optics system in addition to the existing UHF system.

(3) Introducing digital communications

A digital communications system will enable high-speed and distortionless transmission, besides facilitating data communication by means of computers, digital exchanges, etc.

(4) Eliminating induced noise, voltage, etc.

Fiber optics is not subject to the adverse effects of induced noise and voltage, surge voltage caused by lightning, radio interference, etc.

(5) Simplifying the construction work

Fiber optics is convenient to use in the form of composite cables, to install on electrification poles, because it is lightweight, has high flexibility. (6) Easy maintenance

Problems such as deformation of the transmitted waveform, mixture of noise, imperfect insulation, electrolytic corrosion, pilferage, etc., that occur in connection with the maintenance of overhead bare wires, metallic cables, radio facilities, are eliminated.

- 2. System Outline
- Sections in which the fiber optics system will be introduced Bekasi - Cirebon

Cikampek - Kiarakondong

- (2) Basic concept
  - a. Four fiber optics systems meeting specified communications needs will be provided separately.
  - b. The trunk circuits between main stations will be duplexed by means of the fiber optics system (8M system) and the existing UHF links.
  - c. The existing bare overhead wires (PJKA and PERMTEL) will be replaced with independent fiber optics systems as follows.
  - (a) Between main and way stations (PJKA):
    - 2M system
  - (b) Between way stations (PJKA): Analog system
  - (c) PERUMTEL: 2M system
  - d. Fiber optic systems (a) and (b) will be tied together in a composite cable and will be installed on the electrification poles together with (c).

- 162 -

e. The VHF dispatcher telephone circuit will be replaced with fiber optics (a).

(3) System outline

The outline of the communications circuits is shown in Fig. 9.3.4.1.

a. Between main stations

(a) Composition

Fiber optics: 8M system (120CH) 4 cores

(b) Channels to be accommodated

o Existing channels accommodated in the UHF radio links

max. 48CH

- o Additional channels max. 60CH
  - . Exchange telephone tie lines
  - Teletype
  - . Direct telephone
  - Dispatcher telephone

o New channels max. 4CH

- CTC
- . Substation control

Total max. 112CH

b. Between main and way stations

(a) Composition

Fiber optics 2M system (30CH) 2 cores

(b) Channels to be accommodated

Approach circuits to the way stations, substations, etc., such as CTC, dispatcher telephone, substation control telephone, and exchange telephone.

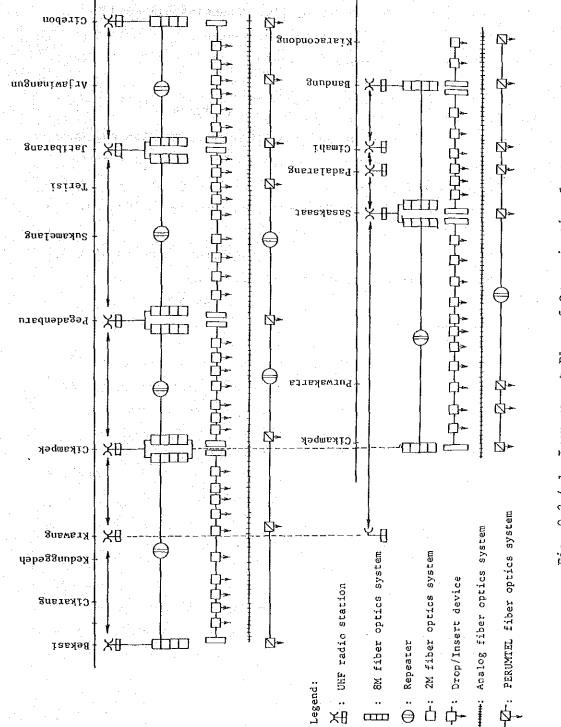
- c. Between way stations
- (a) Composition Fiber optics

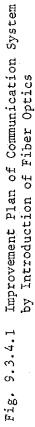
- Analog system 2 cores
- (b) Channels to be accommodated Between stations: Between stations and intermediate points:

Block circuit, block telephone

Wayside telephone, railroad crossing communications telephone, and track circuit control (single line).

- d. PERUMTEL circuit
- (a) Composition
   Fiber optics
   Drop/Insert points
- 2M system (30CH) Bandung/Cimahi/Padalarang Cikubang/Purwakarta/Sadang Cikampek/Krawang Pegadenbaru/Trisi/Jatibarang Arjawinangun/Cirebon
- (b) Channels to be accommodated Telephone and telegraph circuits.





- 165 -

Appendix 12-1-1 Estimation of Passenger Time Value

Passenger time value = Monthly per capita income of passengers/ Monthly average working time x Non-working time adjustment factor

where:
Monthly per capita income of passengers: 43,714 Rp.
The sector of the population using public transportation and traveling middle/long distances is determined by monthly per capita income, from the results of the cost of living surveys conducted in three major cities, Jakarta, Surabaya, and Bandung in 1977/78.

	(Estimated value as of 1984)
- Monthly average income per family	198,602 Rp.
- Average family size	4.6 persons
- Monthly average per capita income	43,714 Rp.

Estimated value as of 1984 was determined from data obtained from the above mentioned cost of living surveys implemented in 1977/78, and the consumer's price indices of each year for Jakarta.

- Monthly average working time =

160 hours

Data from Statistical Yearbook of Indonesia, 1983

- Nonworking time adjustment factor = 0.58

The period of daily activity is assumed to be 12 hours, and the time value of the nonworking hour is assumed to be 1/4 that of the working hour.

### Appendix 12-1-2 Estimation of Freight Time Value

Freight in the process of being transported is regarded as capital; therefore, shortening the transport time translates to a cost saving of capital (i.e., interest saving).

Freight time value = Average freight value per ton

x Interest rate per hour

Average freight value per ton: 231 thousand Rp.

Weighted mean of the five major freight items. The share as of 1983 and the price as of March 1984 of each freight item are used.

#### Price Per Ton of Main Freight Items

	Price (thousand Rp.)	Share (%)
Fertilizer	88	24.8
Cement	127	11.3
Stee1	363	3.2
Petroleum	301	37.1
Sugar	590	4.7
Others		18.9

Interest rate per hour: The annual average interest rate of interbank call money in the Jakarta money market in 1983, 17.56% p.a. is used to obtain the interest rate per hour. In this study, the average freight transport time per week is assumed to be 37.5 hours.

# Appendix 12-1-3 Economic Analysis

	Apj	pendix	12-1-	-3 Ec	onomi	e Anal	ysis					e e	i.	•	• •		· • .								• •					
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INVESTMENT DIFF	10053	10738 =====	20522	70612	28756 =====	3305	-6234	-3322	-3638	-2854	-6682	-7616	-7972		-49780	-8174	-7284	-7932	-7971		-8136	-8237	-7355	-8301						38409
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ELECTRIFICATION SIGNALS & TELECON	0	0	0	0 2377	0 2194	0	0 0	0	9 0	0 0	0	0 0	9 9	9	0 875	9	0	0	0	0	0	. <del>0</del>	0 • 0 • 0	0	6958 6958	9 0 8	0 0 0	0 0 0	0 0	0 0 0
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								24470	<b>0</b> 4004	-25228	-25438	-25595	-25753*	~25912	-26953	-26221	-26415	-26611	-26808	-26788	-27017	-27068	-27118	-27168	-27219					-27473
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TRUCK OPERATING COST DIFF	9 	6 0		9 9	-2617	-2666	-2716	-2767	-2819 -14348	-2872	-14843	-14934	-15025	-15117	-15192		-15408	-15518	-15628	-15719	-15747	-15775	-15803	-15832			15917 -		-15974	-16002 -
PERSONNEL COST		0			-4561	-4768	-4860	-5016	-5178	-5266	-5294	-5322	-5351	-5379	-5389	-5425	-5462	-5498	-5536	-5549	-5558	-5568	-5577	-5587	-5596		-5615 	-5625	-5634 	-5644 -  666
RAILWAY BUS	 0	 0	 0 0	0 0	542 -2567	542 -2667	542 -2770	542 -2877	542 -2988	622 -3104	622 -3123	622 -31 43	622 -3163	622 -3183	642 -3203	642 -3228	642 -3253	642 -3279	642 -3305 -2872	666 -3331 -2884	666 -3338 -2897	666 -3345 -2890	-3351 -2892	666 -3358 -2895	666 -3364 -2898		-3378 -2984	-3384 -2997	-3391 -2969	-3398
TRUCK	0	e	0	. 0	-2536	-2584	-2632	-2682	-2732	- <u>2</u> 784 -9487	-2793	-2801	-2810	-2819	-2828	-2837 -7874	-2850 -9947	-2861	-10093	-10170	-10189	-10207	-10226	-10245	-10264	-10283 -	10392	-10321	-10340	-10359 -
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# (Unit : million Rp.)

- 169 -

# (2) Sensitivity analysis

#### 20% traffic demand reduction

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INVESTMENT DIFF	10053	10738	20522	70612	30045	4923	-4588	-1766	-2074	~1281	-5346	-6093	-6378	~5053	-48167	-6539	-5828	-6345	-6377	-2275	-6508	-6590	~5884	-6641	14123	-6477	-6616	-6647	~5936	-41043
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ROAD	0	0	0	. 0	5152	6154	6188	6222	6259	6298	5346	6093	6378	6414	6452	6539	5828	6345	6377	6669	6508	6590	5884	6641	6442	6477	6616	6647	5936	-10535
BU2	 0	 0	. 0	 0	3214	3961	3989	4019	4051	4082	3361	4108	41 3 B	4169	4199	4272	3553	4301	4333	4367	4249	. 4322	3602	4351	4383	4417	. 4299	4372	3653	4402
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HAINT & OPE COST DIFF	9 252225	0	9	0 *******	-16019	-17510	-18035	-18689	-19365	-19534	-19713	-19839	-19965	-20092	-20201	-20330	-20486	-20643	-20801 -	-20939	-20959	-20999	-21039	-21080`	-21120 =====	-21160	=====		======	-21323
FACILITY HAINT COST DIFF	<b>e</b>	G	9	9	-6320	-7469	-7641	-7931	-8232	-8093	-8199	-8252	-8366	-8359	-8413	-8456	-8524	-8593	-8663	-8734	-8731	-8748	-8766	-8784	-6862	-8820		-8855	-8873	-8891
RAILWAY	0	θ	0	9	1753	875	984	984	984	1435	1381	1381	1381	1381	1381	1407	(407	1407	1407	1407	\$ 427	1427	1427	1427		1427	1427	1427	1427	1427
ELECTRIFICATION SIGNALS & TELECON	Ð	9	0	9 9	612 470	612 470	612 470	612 470	612 470	612 470	613 487	613 487	613 487	613 487	613 487	613 536	613 536	613 536	613 536	613 536	613 536	613 536	613	613 536	613 536	613 536	613 536	613 536	613 536	613 536
CIVIL WORK WORK SHOP	· ě	9	0		97	97	97	97 0	97	97 451	99 451	99 451	- 99 451	97 451	451	100 451	100	100 451	100 451	100 451	100 451	100 451	100	100 451	100 451	100 451	100 451	100 451	100 451	100 451
ROLLING STOCKS	, e	0	0	0	574	-304	-195	-195	-195	-195	-268	-268	-268	-268	-268	-293	-293	-293	-293	-293	-272	-272	-272	-272	-272	-272	-272	-272	-272	-272
ROAD	0	9	0	Ð	~8073	8344	~8624	+8715	-9216	-7528	9581	-9634	9687	-9740	-9794	-9862	-9931	-10000	-10069	-10140	-10158	-10176	-10193				~10265	-10283	-10300	-10318
BUS TRUCK	0	9	9		-5980 -2093	-6211 -2133	-6452	-6701	-6961	-7230 -2298	-7276 -2305	-7321	-7368 -2319	-7414 -2327	-7460 -2334	-7519 -2343	-7578 -2352	-7438 -2362	-7699 -2371	-7760 -2380	-7775 -2383	-7791 -2385	-7806 -2387	-7821 -2390	-7837 -2392	-7852 -2394	-7868 -2397	-7883 -2399	-7899 -2401	-7915 -2404
OPERATING COST DIFF	···· ·			9	-9699	-10041	-10394	-10758	-11133	-11442	-11514	-11586	-11660	-11733	-11788	-11875	-11962	-12050	-12138	-12206	-12228	-12250					<b>~12364</b>	-12387	-12409	-12432
PERSONNEL COST					-3540	-3658	-3779	-3905	-4034	-4688	-4111	-4133	-4156	-4179	-4183	-4212	-4241	-4270	~4300	-4306	-4313	-4321	-4329	-4336	-4344	-4351	-4359	-4366	-4374	-4382
							542		542	622	622	622	622	622	642	642	642	642	642	666	666	666	. 999	666	666	666	666	666	666	664
RAILWAY Bus Tougu		0		0	-2054	-2133	-2218	-2302	-2391	-2483	-2499	-2514 -2241	-2530 -2248	-2546 -2255	-2562 -2262	-2582 -2271	-2603 -2280	-2623 -2289	-2644 -2298	-2665 -2307	-2670 -2309	-2676 -2312	-2681 -2314	-2686 -2316	-2692 -2318	-2697 -2321	-2702 -2323	-2707 -2325	-2713 -2328	-2718 -2330
TRUCK		. 9	9	•	-6159	-6383	-6615	-6853	-7099	-7353	-7403	-7453	-7503	÷7554	-7606	-7663	-7721	-7779	-7838	-7900	-7915	-7930	-7945	-7960	-7975	-7990	-8005	-8020	-8035	-8051
FUEL COST						1915	1932	1949	1968	1988	1984	1981	1977	1973	1969	1971	1973	1975	1977	1978	1978	1979	1979	1979	1980	1980	1981	1981 ~5856	1981 ~5867	1982 -5879
RAILWAY Bus	0 0	0 0	9	0 0	1900 -4442	-4614	-4792	-4978 -3825	-5171	-5370	-5404 -3983	~5438 -3995	-5473 -4008	-5507 -4020	-5541 -4033	-5585 -4049	-5629 -4065	-5674 -4081	-5718	-5764 -4113	-5776 -4117	-5787 -4121	-5798 -4125	-5810 -4129	-5821 -4133	-5833 -4137	<u>-1141</u> -1141	-4145	-4149	-4153
TRUCK	θ	G	9	0	-3617	-3982	-3754	-3823	-3071		0,111				-												7500	7600	7/07	3607
TIKE SAVING BENEFIT	0	Ð	• •		2829	2923	3018	3116	3216	3314	3337	3360	3383	3405	3433	3458	3483	3508	3532	3550	3556	3562	3560 =====	3574 =====	3580		3592 ⊐≂==≠≖	3598	3603 *****	3807 ====== 3796
PASSENGER	===== 0	====== 0	====== 0	====== 0	===== 3220	3304	3390	3478	3568	3657 -342	3668 -331	3680 ~320	3691 -309	3702 -297	3719	3731	3742 -259	3753	3765 -232	3769	3772 -216	3774 -213	3777 -210	3780 -206	3783 -203	3785 -200	3788 -196	3791 -193	-198	-187
FREIGHT	0	0	• • •	0	-391	-381	-372	-362	-352	-242	100	320	347							-									30000	15031
CASHFLOW FOR EIRR	-10053	-10738	-20522	-70612		15509	25740	23571	24655	24130	28396	29292 16.80	29726	28550 16.80	71802 16.80	30328 16.80	29796	30496 16.80	30710 16.89	26763 16.80	31023 16.80	31150 16.80	30491 16.80	31294 16.80	10577 16.80	31223 16.80		31486 16.80	30822 16.80	65976 16.80
EIRR Z	16.80		16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	10.00	10.00																	
and the second					1. A.									• • • •																

### (Unit : million Rp.)

### (3) Sensitivity analysis

20% cost overrun

		÷		an a		· .	· · ·					1917					1. N. 1					1.1			(ou.			u vbv)		
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
INVESTMENT DIFF	12064	12886	24627	84734	34508	4062	-7481	-3986	-4366	-3427	-8018	-9139			~59736	~9809	-8741	-9518	-9566	-4730	-9763	-7885	-6827	-9962	15015	-9715	-9924	-9970		-46091
WITH	12064	15166	26907	87661	44944	13292		 5348	5022	13645				1633	15068	a≂==== 0			******* 0	6799	0	0	0	ò	33027	0	0	0	6 -	-85134
ELECTRIFICATION SIGNALS & TELECOM	339	1132	17009	20361	8754	0	0	ō	0	30	 0			0	0 5389	9	 0 0	 0 9	 0 0	0	 0	0 0	0 0	0	15251	0 0	0 0	0 0	0	0 0
CIVIL WORK	11147 578	0528 4991	3329 4362	3191 3495	5354	0	0	0	0	748	0	0	0	311	144	Ğ	ě	0	0	0	0	0	0	0. 0	0	0	0 0	<del>0</del>	0	8 15430
WORK SHOP Rolling Stocks	0	515	2207 0	538 60076	0 30338	0 13292	1800	534B 0	5022 0	0 12769	0	0	0	0	9535		0	0	0	6799		0	0 0	0	0	0	9 0	0	0	0 100563
-SALVAGE VALUE	0	• •	0	0	Ð	e e e e e e e e e e e e e e e e e e e	0	0	0	0	•	0	0		74894	9809	8741	9518	9566	11529	9763	7885	8827	9962	18012	9715 -	9924	9970	8903	-39043
WITHOUT	<del></del>	2280	2280	2927	10436	9231	9281	¥334	9388	17072	8018	9139	9567	9621				0		1525			0		8349		9			-23241
RAILWAY	0	2280	2280	2927	2707			0		7625		·	0		65126						 0		 0		<del>.</del>	е	9	9	0	0
ELECTRIFICATION Signals & Telecon	0 6	0 2206	0 2206	0 2853	0 2633	0	0	0 0	0 0	0	0		0		1074	0	ě	Ŭ,	. 0	0	. 0 0	0 0	0 0	0	8347 0	0 0	6	0	Ö	0
CIVIL WORK Work Shop	0 0	74	74	74 Q	. 74	0	0	0	0	0	0	0	0	0	9	· . 0	0	9		0 1525	9	e 0	9 9	0	9 9	0 0	.0	9	. 0	7625
ROLLING STOCKS -Salvage Value	0 0	0 0	0 0	0	0 0	0	0	0 0	0	7625 0	0	0	0	0 0	64053 9	0	. 0	0	9	0	Ő	θ	•	0	θ	0	0	0 9970	9 8993	30866 -15802
ROAD	. Đ	0	·. 0		7729	9231	9281	9334	9388	9447	8018	9139	9567	9521	9678	9869	8741	9518	9566	10004	9763	9685	8827	9962	9662	9715	9924  6448	6558	5479	6602
208	θ		0	9	4821	5941	5984	6029	6076	6123	5042 2977	6163 2977	6207 3360	6254 3367	6299 3379	6409 3400	5329 3412	6452 3066	6499 3066	6551 3453	6373 3390	6483 3402	5403 3423	6527 3435	6574 3088	3089	3476	3412	3425	3446 25850
TRUCK -SALVAGE VALUE	0	0 0	0	0	2707 9	3290 0	3297 0	3304	3312 0	3323 0	0	0	0	0	6	0	9	9	9	•	0	9		9		v			-	
		i ng sa										2574.0	-25476	-25435	-25777	-25739	-26134	-26330	-26527	-26707	-26732	-26782		-26883		-26984		-27086		-27188
HAINT & OPE COST DIFF	0 =======	0 REPERT		<del></del>	-20543 =====	~22362	-23024 =====	-23842	=====	+24941 ======	-25161		342222		±######	-10640		-10812	-10879	-10788	-10985	-11007	-11829	-11051	-11073	-11096			-11163	-11185
FACILITY HAINT COST DIFF	0	<del>9</del>	<del>0</del>	. 0	-7988	-9380	-9600	-9963	-10339	-10188	-10318	-10384	~10451			1688	1688	1688	1488	1688	1713	1713	1713	1713	1713	1713	1713	1713	1713	1753
RAILWAY	9	0	θ	<del>9</del>	2104	1050	1181	1181	1181	1722	1658	1658	1658	1658	1658				735	735	735	735	735	735	735	735	735	735	735	735
ELECTRIFICATION SIGNALS & TELECOM	. 0	9	9	9	735	735	735	735 564	735 564	735 564	735 584	735 584	735 584	775	.735 584	735	- 735	735 643 120	643 120	643 120	643 120	643 120	643 120	643 120	643 120	643 120	643 120	643 129	643 120 542	643 120 542
CIVIL WORK	6	ê e	é	0	117	117	117	117	117	117 542	119 542	119 542	119 542	1.19 542	119	120 542	120 542	542	-542	542 -351	542 -326	542 ~326	542 -326	542 -326	542 -326	542 ~326	542 -326	542 -326	-326	-326
ROLLING STOCKS	ě	9	ē	.0	689	-365	-235	-235	-235	-235	-322	-322	-322	-322	-322	-351	-351	-351	-351		-12698	-12720	-12742	-12764	-12786	-12807	-12831		-12876	-12898
ROAD	. 0	9	0	0	-19092	-10430	-10781	-11144	-11520	-11910	-11976	-12042	-12109	-12176	-12243	-12328			-12587	-12676	-9719	-9738	-9758		-9796	-9816	-9835	-9854	~9874	-9893
BUS	9	Ð	G	8	-7475	-7764	-8065 -2716	-8377 -2767	-8791	~9038 -2872	-9094 -2801	-9152 -2890	-9209	-9267 -2908	-9325 -2918	-9399 -2929	-9473	-9548 -2952	-9623	-9700 -2976	-2978	-2981	-2784	-2987	-2990	-2993	-2996	-2999	-3002	-3005
TRUCK	A	v		Ū.	-12555	-12983	-13424	-13876	-14348	-14753	-14843	-14934	~15025	-15117	-15192	-15299	-15408	-15518		-15719	-15747	~15775	-15803	-15832	-15860	-15888	-15917		-15974	-16002  -5644
OPERATING COST DIFF				<u>-</u>		-4708	-4869	-5016	~5178	-5266	-5294	-5322	· ·	-5379	-5389	-5425	-5462	-5498	-5536	-5549	-5558	-5568	-5577	-5587	-5596	-5606	-5615	-5625		
PERSONNEL COST	e 			• 	-4561				542	622	622	622	622	622	642	642	642	642	642	666	666	666	666	666 -3358	666 -3364	666 -3371	666 -3378	666 -3384	666 -3391	-3398
RAILWAY Bus	0 0	0	. <b>0</b>	0 0	542 2567	542 -2667	-2770	-2877	-2988	-3104	-3123	-3143 -2801		-3183	-3203 -2828	-3228 -2839	-3253 -2850	-3279 -2861	-3305	-3331 -2884	-3338 -2887	-3345 -2890	-3351 -2892	-2895	-2898	-2901	-2904	-2907	-2909	-2912
TRUCK	θ	•• <b>0</b>	. 6	•	-2536	-2584	-2632	-2682	-2732		-9549	-9612	111		9803	-9874	-9947	-10019	-10093	-10170	-10189	-10207	-10226	-10245	-10264	-10283	-10302		-10340	-10359
FUEL COST	<del>.</del>	<del></del>		9	-7994	-8275	-8564		-9170	-9487	2185	2180	2176	2171	2165	2168	2171	2174	2176	2177	2177	2178	2178	2179 -7262	2179 -7277	2180 -7291	2180 -7305	2181 -7320	2181 -7334	2182 ~7349
RAILWAY Bus	9	e e	0	0	2079	2077 -5767	-2119 -5991	2141 -6222	2164 -6463	2189 -6713	-6755	-6798	~6841	-6894 -5025	-6927	-6981 -5061	-7036 -5081	-7092 -5101	-7148	-7205 -5141	-7219 -5146	-7234 -5151	-7248 -5157	-5162		-5172	-5177	-5182	~5187	-5192
TRUCK	0	Ģ	. 0	Ð	-4521	-4696	-4693	-4781	-4871	-4963	-4979	-4994	~5009	-3023	-3042	500.										4482	4489	4497	4504	4512
TIHE SAVING BENEFIT	G	 0	. 0	. 0	3536	3653	3773	3895	4020	4143	4172	4200	4228	4256	4291	4323	4354	4385	* 4415 ======	4437 =====	4444 ======	4452 ======	4459 =====	4467	4474	4462		4738	4742	4745
	FFFFF	as≓tite A	******	=======	===== 4025	4130	4237	×==×== 4347	4460	4571	4586	4600	4614	4627	4649	4663		4692 307	4706 -291	4711 -274	4715 -270		4721 -262	4725 -258	4728 -254	-250	~		-237	-233
PASSENGER FREIGHT	6 0		e	· 0	-488	-476	-465	-453	-440	-428	-414	-400	-386	-372	-357	-341	-324			-							41448	41553	40544	77790
			24422		-10428	21954	34277	31722	33073	32510	37351	38658		37879		40071								41312 18.37					18.37	18.37
CASHFLOW FOR EIRR Eirr X	-12064 18.37	-12886 18.37	-24627	-94734 18.37	18.37	18.37	18.37	18.37	18.37	18.37	18.37	18.37	18.37	18.37	18.37	18.37	18.37	18.37	10.31	10.01						-				
																		•												

(Unit	•	million	Rp.)

### (4) Sensitivity analysis

20% traffic demand reduction plus 20% cost overrun

			1.15.56							1. 1. 1. 1. 1. 1. 1. 1.	e segu				ta in part e		,		e a le aj		1.1		· · · ·	1994 - 199 1997 - 199	(UII	ць и	ILTITO	m Kp.,		÷ .
	1980	1 1989	1990	1991	1992	1993	1994	1995	1976	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007	2010	2011	364.5		7014			-
INVESTMENT DIFF	12084	12006	24627	84734	36053								2000			2003	2004	2005	2000	1001	2008	2.401	2010	2011	2012	2013	2014	2015	2016	2017
WITH	**===	******		AUNERA.		5908	~5625	-2119	-2488	-1537	-6415	-7312	-7654	-6064	-57801	-7847	-6993	~7614	-7652	-2730	-7810	-7908	-7061	-7969	16948	-7772	-7939	-7976	~7123	~49252
	12064			87661	44944	13292	1800	5348	5022	13645			=======	1633	12098	=======================================	*******	******	222322 0	 6799	222222 A	===== 0	nunun A	**====	33927		a≍≠≾ana` 6	******		******
ELECTRIFICATION	339		17009	20361	0764							·	·												33627				0	-85134
SIGNALS & TELECON	11147	8528	3327	3191	8754 5354	0	0	0	0	30 748	0	0	0	0	9	0	0	0	0	Ð	0	0	0	0	15251	0	0	θ.	0	0.
CIVIL WORK WORK SHOP	578		4362	3495	499	, o	ŏ	0	0		0	0	0	1321	5389	· 0 ·	0	Ө. Д.	0	0	0	0 0.	· 0··	0	17776	. 0 .	. 0	0	0	0
ROLLING STOCKS	0		2207	538	0	0	1800	5348	5022	0	0	Ŏ	. ĕ	. 0	0	ŏ	. õ	ŏ	Ö	ě	ő	õ	· · · ·	Ö	6	. 0	ē	e e	6	15430
-SALVAGE VALUE	ő	•	0	60076	30338	13292	. 0.	0	0	12769	0	0	0	θ	9535	0	0	θ	9	6799	θ	0	θ.	0	<b>0</b> '	0	θ	. 0	e	0
UITHOUT						•		•	0	0	0	0	0	O O	θ	0.	0	0	e e	0	0	0	0	θ	e	Ð	0	θ	6	100563
	· · · · · · · · · · · · · · · · · · ·		2280	2927	8870	7385	7425	7467	7510	15183	6415	7312	7654	7697	72869	7847	6993	7614	7652	9528	7810	7908	7061	7969	16079	7772	7939	7976	7123	-35882
RAILWAY	. 0	2280	2280	2927	2707		·					· ·		÷															*	
ELECTRIFICATION				بتيتنيدها		·		· • • • • • • • • • • • • • • • • • • •		7625	0	0	0 	9	65126	0	0	0	0	1525	0	0	0	0	8349	Ð	0		0	-23241
SIGNALS & TELECON	0	0 2206	0 2206	0	0	0	Ð	0	. 0	<b>o</b>	0	. 0	0			. 0	0	θ		6.	0	θ	. 0	0	θ	0	. 0	0		
CIVIL WORK	ŏ		74	2853 74	2633	0	0	0	0	0:	0	0	0	. 0	1074	0	. 0	0	0	0	0	6	<del>0</del> :	0	8349	Ð	θ	0	Ð	0
NORK SHOP Rolling Stocks	0	0	· 0	Ð	0	ŏ	ŏ		0. 0.	. 0	0	U O	. · · · · ·		- <del>19</del> -	9 A	- 0 A	Ө.	9 A		. <del>0</del>	. 9	- 0 - A	0 A	. 0	0	9	8	3	G
-SALVAGE VALUE	· 0	0	. 0	0	0	0	0	G	0	7625	0	0	õ	8	64053	ō		Đ	. 0	1525	0	e	. 0	· ě	õ	ě	· ŏ	6	9 0	7625
		U	U .	0	0	0	0	0	0	0	0	θ	Ð	0	0	θ	•	9	e	e	Ð	0	6	··· 01	. <del>0</del>	. 9	, O	0	ě	30866
ROAD	• • •	θ	0	0	6183	7385	7425	7467	7510	7557	6415	7312	7654	7697	7742	7847	6993	761.4	7652	8003	7810	7968	7061	7969	7730	7772	7939	7976		1.0.4.0
208																											1434			-12642
TRUCK			0	0	3857	4753	4787	4823	4861	4899	4033	4930	4966	2003	5039	5127	4263	5162	5199	5241	5098	5186	4323	5221	5259	5301	5158	5246	4383	5282
-SALVAGE VALUE		ě	6	ŏ	2326	2632	2638	2644	2650	2659	2381	2381	2688 0	2694	2703	2720 A	2730	2453	2453	2762	2712	2721	2738	2748	2471 0	2471	. 2780	2730	2740	2757
						in gestallt		Ť			· · ·	· · · · ·	· •		•	•	. •							. •		0	0	0	. 0	20680
HAINT & OPE COST DIFF	0 *=====	0	θ	0	-15669	-17335	- 1 7838	-18492		-19247	-19437	-19562		-19816	-19925	-20049	20205	-20361	-20519	-20658		-20714	-20754	-20794	-20835	-20875 -	20916	-20956	-20997	~21038
FACILITY HAINT COST DIFF	0	6	===== A	A	-5970	-7294	-7444	-7734	~8035	-7806	-7923	-7976		S=*4xx		-6174	-8243	-8312		-8452	-8445	-8463	-8481	-8498	======					
RAILWAY													-8029	-8683			-6243	~031Z	-8381	-0432		-0403			-8516		-8552	-8570	-8588	-8606
RAILWAI	9	6	θ	Ð	2104	1050	1181	1181	1181	1722	1658	1658	1658	1458	1658	1688	1688	1388	1688	1688	1713	1713	1713	1713	1713	1713	1713	1713	1713	1713
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	- ta - 14	5	. <b>*</b> -			-462		-622			-344	-322	-322	- 311	-342	-351	-351	-331	-351	301	-326	-320	-320	-320	-326	-320	-326	-326	-326	-326
ROAD	9	e	θ	• <del>0</del>	-8073	-8344	-8624	-8915	-9216	-9528	-9581	-9634	~9687	-9740	-9794	-9862	-9931		-10069	-10140	-10158	-10176	-10193	-10211	-10229	-10247 -	10265	-10283	-10300	-10318
BUS	9	<u>-</u>		A	-5980	-6211	~6452	-6701	-6961	-7230	-7276	-7321		-7414	-7460	-7519	-7578	7638			-7775				2072	-7852				
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OF CRAITING COST DIFF		•			-9699	-10041	-10394			-11442	-11514	-11586		-11733	-11768		10 A				+12228			-12296	-12318	-12341 -				-12432
PERSONNEL COST	Ð	6	<b>e</b>	Ð	-3540	-3658	-3779	-3905	-4034	-4088	~4111	-4133	-4156	-4179	-4183	~4212	-4241	-4270	-4300	-4306	-4313	-4321	~4329	-4336	-4344		-4359	~4366	-4374	-4382
RAILWAY																														
BUS	9	9	<u>θ</u> .	<del>0</del>	542	542	542	542	542	622	622	622	622	422	642	642 →2582	642	642	642	656	666	566	666	666 -2686	666 -2692	666 -2697	- 666	.666	666	666
TRUCK	e		<del>0</del>	9	-2054 -2029	-2133 -2047	-2216	-2302	-2391 -2186	-2483 -2227	-2499 -2234	-2514	~2530 : ~2248	-2546	-2562 -2262	-2271	-2403 -2280	-2623 -2289	-2644 -2298	-2465 -2307	-2670 -2309	-2676 -	-2681 -2314	-2316	-2318		-2702 -2323	-2707 -2325	-2713 -2328	-2718 -2330
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RAILWAY				6	1980	1915	1932	1949	1968	1988	1984	1781	1977	1973	1969	1971	1973	1975	1977	1778	1978	1979	1979	1979	1980	1980	1781	1981	1981	1982
805	. 0	, e	G	ě	-4442	-4614	-4792	-4978	-5171	-5370	-5404	-5438	~5473	-5507	-5541	-5585	-5629	-5674	~571B	-5764	-5776	-5787	-5798	-5810	-5821		-5844	-5856	-5867	-5879
TRUCK	: 6	Ð	0	0	-3617	-3682	-3754	-3825	-3897	-3971	-3983	-3995	~4008	-4020	-4033	-4649	-4065	-4081	-4097	-4113	-4117	-4121	-4125	-4129	-4133	-4137	-4141	-4145	-4149	-4153
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1.054401	÷. ÷	9	. 0		-221	-381	-372	-362	-432	-344	- 221	-320	-307	-271	100	-212		10	-236	417	410	213	210	200	205	200		-173		101
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CASHFLOW FOR EIRR	-12064			-84734	-17556	14350	26481	23727	24873	24099	27187	30234	30725	29285	81159	31354	30681	31483	31704	26937	32039	32183 14.57	31383 14.57	32337 14,57	7467 14.57		32446	32530	31723	73899 14.57
EIRR Z	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14,57	14.57	14.57	14.57	14.57	14.57	14.27	19.27	14,37	14.57	14.57	14.37	14,57	14.57	17.37
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(Unit : million Rp.)

# Appendix 12-2-1 Financial Analysis

(1) Financing plan 1

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-1 -	n sen in suite ann an t-stain sen an t- a <u>n 22 a staine an</u> t-staine an t-staine	1908	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2005	2004	2005	2006	2007	2008	2007	2010	2011	2012	2013	2014	2015	2016	2017
·	NET INCOME	******		0	0 ******	21399	21040	21353 *******	22212	23062	22726	23038	23417		24290	24831	27532	27996	28466	28944	29312	29430	29731	30033	30335	30638	30942				32161
	REVENUE	6		0	0	32942	33861	34867	35781		37812	38163	38517	38876	39239	39613	39861	40111	40363	40617	40877	40741	41006	41070	41135	41200	41265	41330		41461	41526
	OPERATING COST	0	0	.0	0	7681	8524	9053		0447		10777		아이동	e e statione La substatione	40701	64 E 7	0450		8171	8197	8350	8351	8353	8354	8356	8357				
	WORKING COST		******			4734	3865	4028	9084	9117	10356	10373	10373			10391	8153	8159	8145	4677	4705		4729	4731	.4732	4734		8357	8360		8343
:	NAINTENANCE COST Personnel Cost	0	0	0	ŏ	1813	936 542	1050	4059	4091	4669	4617	4617	4617	4617	4635	4659	4665	1479	1479	1479	4728 1501	1501	1501	1501	1501	1501	4736	4738	4739 1501	4741 1501
	FUEL COST DEPRECIATION	0	0	Ō	Ŏ	2379	2407	2436 5025	542 2467	542 2499	622 2533	422 2533	622 2533	622 2533	622 2533	642 2532	642 2538	642 2544	642 2550	2555	2559	666 2561	2562 3622	2564 3622	2565 3622	666 2567 3622	666 2560 3622	666 2569	666 2571 3622	666 2572	666 2574
2	INTEREST	6		0	0	en Maria est	4638		5025	5025	5686	5756	5756	5756	5756	5756	3494	3494	3494	1997 - 1997 -		3622	2923	2385	2445			3622	1487	3622	3622
·						3862	4297	4401	4485	4605	4731	4752	4728	4683	4576	4391	4176	3956	3732	3502	3366	3161				2206	1966	1726		1247	1002
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1.1	NET CASHFLOW	*====		0	0	24346	25676	26379	27237	28087	28412	28395	28393	28136	25568	66621	24796	25184	25520	25812	26003	26249	24550	26852	27109	6164		28019	28323	28626	82858
1994 - J.	CASH IN	10651		22794	75319	60768	37284	27878	31948	32337	33647	28794	29173	29576	31482	30777	31026	31490	31960	32438	37290	33052	33353	33655	33957	34260	34564	34867	35171	35474	96738
A A	NET INCOME DEPRECIATION	0	0	0 0	e o	21399	21040 4638	21353 5025	22212 5025	23062 5025	22726	52038	23417	23821	24290	24831	27532	27996	28466 3494	28944 3494	29312 3494	29430 3622	29731 3622	30033 3622	30335 3622	30638 3622	30942 3622	31245	31549 3622	31852 3622	32161 3622
	BORROWING -SALVAGE VALUE	10651	11739	22794	75319	36422	11606	1500	4711	4250	5486 5235 0	5756	5756	5756	5756	5756	3494 0	3494	0	0	4484	0	0	0	0	0	0	3622	0	0	0 60955
	CASH OUT	10651	11739	22794	75319	36422	11606	1500	4711	4250	5235	0		1441	5915	0 -35844		6305	6440	6626	11287	6803	6803	6803	6848	28097	6848	6848	6848	6848	13880
	INVESTHENT	10441			72716	36422		and the second second		and the state of the second		399			1436	-41707	6230 0				4484	0			0	21249					
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6	CASHFLOW (ROI)	-10445	-11240	-71901			40740	20220	27044	20447	0	399	780	1441	4479	1	6230		35692	35940	31687	36213	36276	36339	36403	15217	36530	36594	36657	36721	70879
1	FIRR X	-10441 18.46		-21901	-72716	-8214 18.46	18369	29278 18.46	27011	28443	27908	33546	33900 18,46		33187	76685	35202	35446 18.46	18.46	18.46	18.46		19.46	18.46	18.46	18.46		18.46	18.46		18.46
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с. 4	FOREIGN TOTAL Local Total	7772	7133	12324	58162 14554	27679 8743	- 7353	1500	2700	3703 547	3548	0	0	0	900 536	-42084 377	0	0	0	0	3822 662	0	0	0	. 0	17384	0 0	0 0	0	0	4132 2709
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	FOREIGN CURRENCY	7562	3982	1061	205	1797	• •	0	0	. 0	515 129	0	0	0	700 238	2973 745	0	0	0	6	0	0	0	0	0	6524 1600	. Đ Đ	. 0	0 0	0 0	0
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	BORROWING	10651	11739	22794	75319	36422	11696	1500	4711	4250	5235 0	0 399	780	0 1441	1436 4479	190 5863	6230	6305	6440	6626	4484 6803	6803	6603	6603	6846	6848	0 6848	- 6848 - 6848	6848 00207	6848	7039
	REPAYHENT BALANCE	10651	22390	45183	120503	156925	148531 4297	170031 4401	174742 4485	178992 4605	184227 4731	183828 4752	183048 4728	181608 4683	178565 4576	172892 4391	166662	160356 3956	3732	147290 3502	144971 3366	138168	131365 2923	124563 2685	117715 2445	2206	104019 1966	97171	90323 1487	83475 1247	76436 1002
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	BALANCE INTEREST	7982	15594	20010	0	3862	4297	4401	4485	4605	4731	4752	4728	4683	4576	4391	4176	3956	3132	3502	3366	3161	2723	2003	2443	2200	1700		101	1247	1002
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#### (Unit : million Rp.)

# (2) Financing plan 4

No.         No.        No.         No. <t< th=""><th></th><th></th><th>(2)</th><th>Financ</th><th>ing p</th><th>lan 4</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>•</th><th></th><th></th><th></th><th>· · ·</th><th>(Un:</th><th>it : m</th><th>illion</th><th>Rp.)</th><th></th><th></th></t<>			(2)	Financ	ing p	lan 4															•				· · ·	(Un:	it : m	illion	Rp.)		
		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2098	2009	2010	2011	2012	2013	2014	2015	2016	2017
			0 *****	9 415844						and a second second			and the second																		
	REVENUE		0	0	0	32942	33861	34807	35781	36784	37812	38163	· · · · · · · · · · · · · · · · · · ·	38876	39239	39813	37861	40111	40363	40617	40877	40941	41006	41070	41135	41200	41265	41330	41395	41461	41526
	OPERATING COST	0	0	Ó	0	7681	8524	<b>2023</b>	7084	9117	10356	10373	10373				igi e na t		6165	8171	8177	8350				8336	8357	8359	0360	8361	8363
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MAXEMPLY         MAX         MAX        MAX         MAX         MAX			ö		•0	والمستحربة				المعتمين	المتحربة جراجم					24735	an she an a she had a she		31011	31815	31981	31921	32086	32231	32373	32492	32604	32715	32827	32933	33030
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Internation       The set of the set	그는 지원 물건을 많은 것이 있는 것이 같이 많이 있다.						** ** ** ** ** **	المحمد بالمتركيت	ا سجىخىد.	- Andrewski - A									the straight t		·		 A				1 A. A. A.				
Control         Control <t< td=""><td>INT, DURING CONST.</td><td></td><td>1899</td><td>3973</td><td></td><td>G</td><td>.0</td><td>0</td><td>0</td><td>θ</td><td>Ó</td><td>0 0</td><td>. 0</td><td>0 0 15777</td><td>0</td><td>0</td><td></td><td>0</td><td>1. N. T. 1.</td><td>0 4509</td><td>0</td><td>0</td><td>1047</td><td>0 802</td><td>0 823</td><td>484</td><td>-</td><td>0 484</td><td>0 484</td><td>0 403</td><td>0</td></t<>	INT, DURING CONST.		1899	3973		G	.0	0	0	θ	Ó	0 0	. 0	0 0 15777	0	0		0	1. N. T. 1.	0 4509	0	0	1047	0 802	0 823	484	-	0 484	0 484	0 403	0
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Production (unknown)       Topology       Topology <td></td> <td></td> <td>an an an Arga</td> <td></td> <td>e e state</td> <td>1 - C - C - C - C - C - C - C - C - C -</td> <td>0</td> <td></td> <td>0</td> <td>Θ</td> <td>644</td> <td>θ</td> <td>0</td> <td>9</td> <td>1138</td> <td>3718</td> <td>. <b>Ó</b></td> <td>. 0</td> <td>Ð</td> <td>Ð</td> <td>0</td> <td>Ø.</td> <td>Ð</td> <td>0</td> <td>θ</td> <td>8124</td> <td>. 0</td> <td>9</td> <td></td> <td>0</td> <td>0</td>			an an an Arga		e e state	1 - C - C - C - C - C - C - C - C - C -	0		0	Θ	644	θ	0	9	1138	3718	. <b>Ó</b>	. 0	Ð	Ð	0	Ø.	Ð	0	θ	8124	. 0	9		0	0
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FIGURATE FORCEAN       0       0       0       4737       0       0       0       742       0       7437       0       0       7437       0       0       7437       0       0       7437       0       0       7437       0       0       7437       0       0       7437       0       0       7437       0       0       7437       0       0       0       0       0       7437       0		0				0	0 0	1500			0 0	0	. 0) . 0)	0 ·	6	6	9		0	<del>.</del>	· õ	Ø	0	0	9	0	Ð	9	0	0	2839
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DBORGUING         11192         13159         2597         622747         34422         11426         12267         12315         12414         1192         1926         1995 <td>FINANCE TOTAL</td> <td></td> <td></td> <td></td> <td>•</td> <td>and the second</td> <td></td> <td></td> <td>,</td> <td>. •</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>· · ·</td> <td></td> <td></td> <td>· ·</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	FINANCE TOTAL				•	and the second			,	. •									· · ·			· ·									
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BORROWING         1335         2064         4789         7277         4372         2127         0         1006         274         844         0         0         0         268         95         0	INTEREST	0	θ	6	0	10552	11551	11287	11145	10472	// 1/ .	0.07	1027		3303		5100	2000	1102	201	971	37		120	3.77			2.20			135
BURKOWING       1333       2084       100       10 <td></td> <td></td> <td>2014</td> <td>4700</td> <td>7777</td> <td>4377</td> <td>2127</td> <td>0</td> <td>1006</td> <td>274</td> <td>844</td> <td>-</td> <td>0</td> <td></td> <td></td> <td>95</td> <td>0</td> <td>6</td> <td>0</td> <td>9</td> <td>331</td> <td>0</td> <td>0</td> <td>9</td> <td>θ</td> <td>0</td> <td>0</td> <td>0</td> <td>•</td> <td>0</td> <td>0</td>			2014	4700	7777	4377	2127	0	1006	274	844	-	0			95	0	6	0	9	331	0	0	9	θ	0	0	0	•	0	0
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BORROWING       -       1523       2642       6249       10266       4372       2127       0       1006       274       844       0       0       0       268       95       0       0       0       331       0 </td <td></td> <td>335</td> <td>. 0</td> <td>0</td> <td>Ģ</td> <td>0</td> <td>0</td> <td>•</td> <td>0</td> <td>0</td> <td>. 8</td> <td>0</td> <td>0</td> <td>Ð</td> <td>0</td> <td>0</td> <td>. 0</td> <td>9</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>G</td> <td>. 0</td> <td>6</td> <td>A</td> <td>4</td> <td>Q</td> <td>0</td> <td>0</td> <td>0</td>		335	. 0	0	Ģ	0	0	•	0	0	. 8	0	0	Ð	0	0	. 0	9	0	0	0	0	G	. 0	6	A	4	Q	0	0	0
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- 179 -	BALANCE	1523 0		10414 0																		80	70				30	20		2	ŏ
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(Unit : million Rp.)

# (3) Sensitivity analysis

20% revenue reduction plus 20% cost overrun

		ang Salatan S	(Based	l on fi	inanci	ng plan	n 4)					· ·	e de la	1997 - 19		· · .									(Uni	lt : mi	illion	Rp.)	1	
	1988	1989	1990	1991	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1993	1994	1795	1996	1997	1978	1999	2000	2001	2002	2003	2004	2005	2006	2097	2008	2009	2010	2011	2012		-	2015	2016	2017
NET INCOME	0 446224	0 1111243		0 *=====			-1015	721 ******	2782	3980	6268		10987		14741			21980		22747									23961	23952
REVENUE	<del>0</del>	0	0	0	26353	27088		28625	29427	30250	30530	30814	31101 -	31392	31671	31889	32089	32290	32493	32701	32753	32804	32856	32900	32960	33012	33064	33116	33168	33221
OPERATING COST	9	8	Û	0	8394	9394	10018	10042	10058	11525	11546	11546	11546	1940 - M	11565	8876	8881	8886	8871	8918	9099	9100	9101	9102	9103	9104	9106	9107	91,08	9109
WORKING COST Haintenance Cost	0	Ð			4857	3828	3987	4012	4038	4702	4639	4639	4639	4639	4658	4684	4689	4693	4698	4726	4752	4753	4755	4756	4757	4758	4759	4760	4761	4762
PERSONNEL COST FUEL COST	0	0	0 0	0	2175	1123	1260	1260	1260	1817 622	1754 622 2263	1754 622 2263	1754 622 2263	1754	1754	1775	1775	642	1775 642 2281	646 1775	1801 666 2285	1801 666 2286	1801 666 2287	1801 666 2289	1801 666 2290	1801	1801 666 2292	1801 666 2293	1801 666 2294	1801 666 2295
DEPRECIATION	÷.	Ø	0	O O	2140 3536	2162 5566	2165 6030	2216 6030	2236 6030	2263 6824	6907	6907	6907	2263 6907	2262 6907	2266	2271 4193	2278 4193	4193	2284 4193	4347	4347	4347	4347	4347	2291	4347	4347	4347	4347
INTEREST	0	0	<b>0</b>	0	17368	10903	18842	17861			12716	10578	8568	6718	5384	3953	2618	(425	758	836	- 604	682	583	489	422	365	~	250	200	159
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NET CASHFLOU	0	0	0	o	2914	1613		-7971	-9604	-9041	-4520	-4074	-986		55417	8078	10531	13589	21627	24917		26113	26556	26676			x=== x		27,724	
CU2H IN	13430	15791	31049	99560	47835	18205	6815	12405	14113	17085	.13175	15597	17894	21558	21877	23252	24782	26172	27030	32520	27196									23952
NET INCOME DEPRECIATION	0	0	0 0	0	592 3536	-1289 5568	-1015 6030	721 6030	2982 6030	3980 6824	6268 6907	8690 6907	10787 6707	12928	14741	19059	20589	21980	22845	22947 4193 5381	22850 4347	23022 4347 0	23172 4347 0	23317 4347 0	4347	4347	23651 4347 0	23759 4347 0	4347	4347 0
BORROWING -SALVAGE VALUE	13430 0	15791 0	31049 0	99560 : 0	43706	13927	1800 0	5653 0	5100	6282 0	0	0	0 . 0	1723	228 0	0	0	, Ö	Ö	0	0	0	0	0	0	0	9	9	9	731.46
CV2X ONL	13430	15791	31049	99560	44920	16592	7333	20376	23717	26126	19703	19671	19880	19105	-33541	15173	14251	12583	5410	7603	-1420		962	987		. 581	581	581	493	8626
INVESTMENT INT. DURING CONST.	12529	13512	26281 4767	87259 12301	43706	13927	1800	5653	5100	6282 0	0	0	0 0	0	-50048 0	0	0	0	0 0	5381	0	0 0 1256	0 0 962	· 0 987	25499 0 581	0 581	0 0 581	9 581	0 483	8209 0 417
REPAYHENT	o	0	0	0	1214	2664	5533	14723	18617	19844	19703	19671	18880	17382	14508	15173	14251	12583	5410 27795	2222	1420	28051	28102	28152	2704			28356		93395
CASHFLOW (ROI) FIRR X	-12529	-13512 12.13	-26281 12.13	-87259 12.13	-22210 12.13	9334 12.13	22058 12.13	18959	20289	19266	25891	26175	26462 12.13	25029 12.13	77001	27205			12.13	12.13	12.13	12,13	12.13	12.13	12.13			12.13	12.13	12.13
											111						•						0	0	25499	0	٩	A	A	8209
INVESTMENT	12529	13512	26281	87259	43706	13927	1800	5653	5100	6282 ======	0	0 ======	0 			0	0 ======	0 ======= 0	0 ======	5381	==================	===== 0						====== 0	====== 0	4958
FOREIGN TOTAL Local Total	9326 3203	8560 4952	14789 11492	69794 17465	33215 10492	8824 5104	1800 0	3240 2413	4444 656	4258 2024	0	0 0	0 9	1080	-50501 452	0	ů.	, õ	0	794	Ð	Ō	Ð	0	4638	Ð	0	0	0	3251
ELECTRIFICATION	348	1182	18248	21709	9397	0	0	0	0	34	0	0	0	<del>.</del> <del>0</del>	0	0	. 0	0	• •	<del>0</del>	<del>.</del>		÷		15750	0  A		0 		0
FOREIGN CURRENCY LOCAL CURRENCY	252 96	768 414	10334 7914	13320 8389	5278 4120	0- 0	0	0	0	10 24	. Ó 0	0 0	, <del>0</del>	0	0	0 0	0 0	0	6	0	6	9	. 0	õ	2718	Ð	Ð	ő	ê	Ō
SIGNALS & TELECOM	11514	6592	1874	369	2822	0	0	Ð	0	773	 Ø	0	. 0	1366	4462	0	0	9	8	0 .	<del>9</del>	0	<del>0</del>	θ	9749	<del></del>	θ	<del>0</del>	•	
FOREIGN CURRENCY	9074	4778	1273	246	2156	0	0 0	 0 0	0	618 155	0	9	0	1080 286	3568 894	0 0	0	0 0	0 0	9 8	0 0	0 0	0 0	0	7829 1920	9	6 6	0	0	ŏ
LOCAL CURRENCY CIVIL WORK	2449	1813 5224	4670	3752	456	Ð	e	Ð	θ	105	θ	9	6	358	163	0	<del>0</del>	6		0	0	0	0	θ	θ	<del></del>	θ	0	e 	
FOREIGN CURRENCY	 0	2478	1201	848	150	0	9	e	9	49	÷ ÷	. 0		9 358	0 163	0 0	÷.	9 9	9 0	9 9	0 0	0 0	6 0	0 0	0 0	0 8	0 0	0 0	0 0	0
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FOREIGN CURRENCY		515	1989	480	<del>-</del> 0	 0	1800	3240	4444	θ		0	0	0	0	0	0	9	0 9	0 9	0 0	0 0	0 0	0 9	. 0 0	0 0	9 9	0	Ф	12458 3407
LOCAL CURRENCY	<b>9</b> ·		269	68,	0	0	0	2413	656	5178		0	. 0		-54673-	. 6	9	Ð	Ð	5381	9	e	Ð	0	0	<del>.</del>	0	0	0	-7656
ROLLING STOCKS		.0	 0	40887  54881	25631	8824	 0	 0	 0	3581	0	 0	0	0	-54068	0	9		0	4586 794	0 0	0	0 Đ	0	9 9	9 0	9 6	0 0	0 0	-7500 -156
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FINANCE PROGRAM				·		•	н 1 н											_		5764	A	ò	.0	θ	Ø.	θ		А		G
FINANCE TOTAL BORROWING	13430	15791	31049	99560	43706	13927	1800	5653	5100 18617		0 19703	10174	0 10080	17382	228 16508	9 15173		12583 41504	5410 36094	5381 2222 39252	1420 37832	1256 36576	962 35614	.987 34627	581 34045	581 33464	581 32883	581 32301	483 31818	417 31401
REPATHENT BALANCE	0 13430	0	0 60270	0 159830	1214 202323	2664 213586	5533 209853 18842	14723 200783 17861	187265	173704	154001 12716	134330 10578	115450 8568	99791 6918	83512 5384	60338 3953	54087 2618		758	836	804	682	583	489	422	365	368	250	200	159
INTEREST	0	0	0	0	17368	18983	,0072				1. 1. a.			•								~	~	A	0	0	9	•	8	G
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BORROWING REPAYHENT	10002 0 10002	0	Ģ	116459	909 148764		3450	146759	137596	127445	112873	98006	82735	68157	52499	37750 3729			644B 697	0885 745	7537 709	598	512	431	376	- 329	283	237	197	159
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