

Table 26 BREAKDOWN OF ANNUAL ECONOMIC COST (1/2)

Unit: Million Rp

Item	Year in order															Total
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	
CDR-1																
1. Direct construction	-	-	29,875	29,875	29,877	-	-	-	-	-	-	-	-	-	-	89,627
2. Land acquisition/house compensation	6,860	6,860	-	-	-	-	-	-	-	-	-	-	-	-	-	20,580
3. Administration	343	343	1,837	1,494	1,493	-	-	-	-	-	-	-	-	-	-	5,510
4. Engineering services	9,397	1,644	1,644	1,644	1,646	-	-	-	-	-	-	-	-	-	-	15,975
5. Physical contingency	1,660	885	4,022	3,301	3,301	-	-	-	-	-	-	-	-	-	-	13,169
Total	18,260	9,732	44,238	36,314	36,317	-	-	-	-	-	-	-	-	-	-	144,861
CMC-1																
1. Direct construction	-	-	14,060	14,061	-	-	-	-	-	-	-	-	-	-	-	28,121
2. Land acquisition/house compensation	4,620	4,620	-	-	-	-	-	-	-	-	-	-	-	-	-	13,862
3. Administration	231	231	934	703	-	-	-	-	-	-	-	-	-	-	-	2,099
4. Engineering services	2,969	692	692	694	-	-	-	-	-	-	-	-	-	-	-	5,047
5. Physical contingency	782	554	2,031	1,546	-	-	-	-	-	-	-	-	-	-	-	4,913
Total	8,602	6,097	22,339	17,004	-	-	-	-	-	-	-	-	-	-	-	54,042
CRB-1																
1. Direct construction	-	-	9,296	-	-	-	-	-	-	-	-	-	-	-	-	9,296
2. Land acquisition/house compensation	2,765	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,765
3. Administration	138	0	465	-	-	-	-	-	-	-	-	-	-	-	-	603
4. Engineering services	985	344	345	-	-	-	-	-	-	-	-	-	-	-	-	1,674
5. Physical contingency	389	34	1,011	-	-	-	-	-	-	-	-	-	-	-	-	1,434
Total	4,277	378	11,117	-	-	-	-	-	-	-	-	-	-	-	-	15,772
CSD-1																
1. Direct construction	-	-	-	26,790	26,790	26,790	26,793	-	-	-	-	-	-	-	-	107,163
2. Land acquisition/house compensation	5,416	5,416	5,416	5,418	-	-	-	-	-	-	-	-	-	-	-	27,082
3. Administration	271	271	271	1,610	1,610	1,340	1,339	-	-	-	-	-	-	-	-	6,712
4. Engineering services	5,615	5,615	1,572	1,572	1,572	1,572	1,572	-	-	-	-	-	-	-	-	19,090
5. Physical contingency	1,130	1,130	726	3,539	3,539	2,970	2,971	-	-	-	-	-	-	-	-	16,005
Total	12,432	12,432	7,985	38,927	38,929	32,672	32,675	-	-	-	-	-	-	-	-	176,052
CCR-1																
1. Direct construction	-	-	-	27,213	27,213	27,214	-	-	-	-	-	-	-	-	-	81,640
2. Land acquisition/house compensation	5,403	5,403	5,403	5,403	-	-	-	-	-	-	-	-	-	-	-	27,015
3. Administration	270	270	1,631	1,631	1,361	-	-	-	-	-	-	-	-	-	-	5,433
4. Engineering services	4,316	4,316	1,510	1,510	1,513	-	-	-	-	-	-	-	-	-	-	14,675
5. Physical contingency	999	999	718	3,576	3,576	3,008	-	-	-	-	-	-	-	-	-	12,876
Total	10,988	10,988	7,901	39,333	39,333	33,096	-	-	-	-	-	-	-	-	-	141,639
CCR-2																
1. Direct construction	-	-	-	42,550	42,550	42,550	42,550	42,550	42,550	42,550	42,550	42,550	42,552	-	-	425,502
2. Land acquisition/house compensation	6,066	6,066	6,066	6,066	6,067	-	-	-	-	-	-	-	-	-	-	30,331
3. Administration	303	303	303	2,431	2,431	2,128	2,128	2,128	2,128	2,128	2,128	2,128	2,125	-	-	22,792
4. Engineering services	14,885	8,590	1,894	2,841	2,841	10,284	17,726	2,841	2,841	2,841	2,841	2,841	2,847	-	-	75,912
5. Physical contingency	2,125	1,476	826	5,389	5,389	5,496	6,240	4,752	4,752	4,752	4,752	4,752	4,753	-	-	55,454
Total	23,379	16,235	9,089	59,277	59,278	68,448	88,444	52,271	52,271	52,271	52,271	52,271	52,277	-	-	609,991
CCR-3																
1. Direct construction	-	-	-	36,764	36,764	36,764	36,764	36,764	36,764	36,764	36,764	36,764	36,767	-	-	367,643
2. Land acquisition/house compensation	6,823	6,823	-	-	-	-	-	-	-	-	-	-	-	-	-	20,470
3. Administration	341	341	341	1,838	1,838	1,838	1,838	1,838	1,838	1,838	1,838	1,838	1,841	-	-	19,406
4. Engineering services	12,855	7,246	1,636	2,454	2,454	8,892	15,309	2,454	2,454	2,454	2,454	2,454	2,456	-	-	65,561
5. Physical contingency	2,002	1,441	880	4,106	4,106	4,748	5,391	4,106	4,106	4,106	4,106	4,106	4,104	-	-	47,308
Total	22,021	15,851	9,681	45,162	45,162	52,272	59,302	45,162	45,162	45,162	45,162	45,162	45,168	-	-	520,388

Table 26 BREAKDOWN OF ANNUAL ECONOMIC COST (2/2)

Item	Year in order																			Total
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	
CSR-4																				
1. Direct construction	-	-	-	70,242	70,242	70,242	70,242	70,242	70,242	70,242	70,242	70,242	70,242	70,242	70,242	70,242	70,242	70,242	70,242	702,424
2. Land acquisition/house compensation	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	5,722	56,510
3. Administration	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286	2,860
4. Engineering services	24,533	13,828	3,122	4,683	4,683	16,950	29,216	4,683	4,683	4,683	4,683	4,683	4,683	4,683	4,683	4,683	4,683	4,683	4,683	125,118
5. Physical contingency	3,054	1,984	913	8,445	8,445	9,070	10,297	7,844	7,844	7,844	7,844	7,844	7,844	7,844	7,844	7,844	7,844	7,844	7,844	89,270
Total	33,595	21,820	10,043	92,890	92,890	99,774	113,267	86,281	86,281	86,281	86,281	86,281	86,281	86,281	86,281	86,281	86,281	86,281	86,281	981,974
WBC-1 + CSB-1																				
1. Direct construction	-	-	-	19,386	19,386	19,386	19,386	19,386	19,386	19,386	19,386	19,386	19,386	19,386	19,386	19,386	19,386	19,386	19,386	155,094
2. Land acquisition/house compensation	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	7,260	65,341
3. Administration	363	363	363	363	363	363	363	363	363	363	363	363	363	363	363	363	363	363	363	3,630
4. Engineering services	8,129	8,129	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264	11,022
5. Physical contingency	1,575	1,575	889	2,924	2,924	2,924	2,924	2,924	2,924	2,924	2,924	2,924	2,924	2,924	2,924	2,924	2,924	2,924	2,924	27,640
Total	12,327	17,327	9,776	32,166	32,166	32,166	32,166	32,166	32,166	32,166	32,166	32,166	32,166	32,166	32,166	32,166	32,166	32,166	32,166	285,007
WBC-3 + CSB-1																				
1. Direct construction	-	-	-	29,506	29,506	29,506	29,506	29,506	29,506	29,506	29,506	29,506	29,506	29,506	29,506	29,506	29,506	29,506	29,506	235,063
2. Land acquisition/house compensation	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	5,004	50,043
3. Administration	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	2,500
4. Engineering services	10,291	5,800	1,309	1,964	1,964	7,110	12,235	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	1,964	17,255
5. Physical contingency	1,555	1,105	656	3,820	3,820	4,335	4,849	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	41,485
Total	17,100	12,159	7,219	42,020	42,020	47,681	53,340	42,020	42,020	42,020	42,020	42,020	42,020	42,020	42,020	42,020	42,020	42,020	42,020	456,332
EBG-1-1																				
1. Direct construction	-	-	-	170,384	170,384	170,384	170,384	170,384	170,384	170,384	170,384	170,384	170,384	170,384	170,384	170,384	170,384	170,384	170,384	1,703,842
2. Land acquisition/house compensation	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	9,775	97,751
3. Administration	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	4,890
4. Engineering services	59,668	33,631	7,594	11,391	11,391	41,225	71,059	11,391	11,391	11,391	11,391	11,391	11,391	11,391	11,391	11,391	11,391	11,391	11,391	304,307
5. Physical contingency	6,993	4,390	1,786	20,056	20,056	23,039	26,023	20,056	20,056	20,056	20,056	20,056	20,056	20,056	20,056	20,056	20,056	20,056	20,056	219,598
Total	76,925	48,285	19,644	220,614	220,614	253,431	286,249	220,614	220,614	220,614	220,614	220,614	220,614	220,614	220,614	220,614	220,614	220,614	220,614	2,415,578
EBG-1-2																				
1. Direct construction	-	-	-	59,606	59,606	59,606	59,606	59,606	59,606	59,606	59,606	59,606	59,606	59,606	59,606	59,606	59,606	59,606	59,606	596,067
2. Land acquisition/house compensation	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	9,601	96,012
3. Administration	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	4,800
4. Engineering services	20,926	11,795	2,663	3,995	3,995	14,458	24,921	3,995	3,995	3,995	3,995	3,995	3,995	3,995	3,995	3,995	3,995	3,995	3,995	106,723
5. Physical contingency	3,101	2,188	1,274	7,666	7,666	8,713	9,759	7,666	7,666	7,666	7,666	7,666	7,666	7,666	7,666	7,666	7,666	7,666	7,666	83,341
Total	34,108	24,064	14,018	84,328	84,328	95,838	107,347	84,328	84,328	84,328	84,328	84,328	84,328	84,328	84,328	84,328	84,328	84,328	84,328	916,747
EBG-1-3																				
1. Direct construction	-	-	-	28,717	28,717	28,717	28,717	28,717	28,717	28,717	28,717	28,717	28,717	28,717	28,717	28,717	28,717	28,717	28,717	287,171
2. Land acquisition/house compensation	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	10,818	108,181
3. Administration	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	5,410
4. Engineering services	10,152	5,722	1,292	1,938	1,938	7,014	12,090	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	19,381
5. Physical contingency	2,151	1,708	1,265	4,345	4,345	4,853	5,360	4,345	4,345	4,345	4,345	4,345	4,345	4,345	4,345	4,345	4,345	4,345	4,345	46,690
Total	23,662	18,789	13,916	47,795	47,795	53,379	58,962	47,795	47,795	47,795	47,795	47,795	47,795	47,795	47,795	47,795	47,795	47,795	47,795	513,591
CBU-1																				
1. Direct construction	-	-	-	28,212	28,212	28,212	28,212	28,212	28,212	28,212	28,212	28,212	28,212	28,212	28,212	28,212	28,212	28,212	28,212	282,121
2. Land acquisition/house compensation	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	5,156	51,561
3. Administration	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	258	2,580
4. Engineering services	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	44,444
5. Physical contingency	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986	9,860
Total	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	108,444

Table 27

ECONOMIC REPLACEMENT COST (1/2)

Work Item	F.C. (Million Yen)		L.C. (Million Rp)		Total economic cost (Million Rp)
	Financial cost	Economic cost	Financial cost	Economic cost	
CDR-1					
Direct construction	11	11	160	147	397
Administration	0	0	20	20	20
Engineering services	2	2	27	27	72
Sub-total	13	13	207	194	489
Physical contingency	1	1	21	19	42
Total cost	14	14	228	213	531
CMC-1					
Direct construction	10	10	154	142	369
Administration	0	0	19	18	18
Engineering services	2	2	26	26	71
Sub-total	12	12	199	186	458
Physical contingency	1	1	20	19	42
Total cost	13	13	219	205	500
CRB-1					
Direct construction	7	7	99	91	250
Administration	0	0	13	12	12
Engineering services	1	1	17	17	40
Sub-total	8	8	129	120	302
Physical contingency	1	1	13	12	35
Total cost	9	9	142	132	337
CSD-1					
Direct construction	287	278	2,800	2,576	8,887
Administration	0	0	466	444	444
Engineering services	49	49	476	476	1,588
Sub-total	336	327	3,742	3,496	10,919
Physical contingency	34	33	374	350	1,099
Total cost	370	360	4,116	3,846	12,018
CKR-1					
Direct construction	9	9	132	121	325
Administration	0	0	17	16	16
Engineering services	2	2	22	22	67
Sub-total	11	11	171	159	408
Physical contingency	1	1	17	16	39
Total cost	12	12	188	175	447
CKR-2					
Direct construction	9	9	132	121	325
Administration	0	0	17	16	16
Engineering services	2	2	22	22	67
Sub-total	11	11	171	159	408
Physical contingency	1	1	17	16	39
Total cost	12	12	188	175	447
CKR-3					
Direct construction	9	9	132	121	325
Administration	0	0	17	16	16
Engineering services	2	2	22	22	67
Sub-total	11	11	171	159	408
Physical contingency	1	1	17	16	39
Total cost	12	12	188	175	447

Table 27

ECONOMIC REPLACEMENT COST (2/2)

Work Item	F.C. (Million Yen)		L.C. (Million Rp)		Total economic cost (Million Rp)
	Financial cost	Economic cost	Financial cost	Economic cost	
CKR-4					
Direct construction	9	9	132	121	325
Administration	0	0	17	16	16
Engineering services	2	2	22	22	67
Sub-total	11	11	171	159	408
Physical contingency	1	1	17	16	39
Total cost	12	12	188	175	447
WBC-1+CSD-1					
Direct construction	291	282	2,849	2,621	9,022
Administration	0	0	473	451	451
Engineering services	49	49	484	484	1,596
Sub-total	340	331	3,806	3,556	11,069
Physical contingency	34	33	381	356	1,105
Total cost	374	364	4,187	3,912	12,174
WBC-2+CSD-1'					
Direct construction	291	282	2,849	2,621	9,022
Administration	0	0	473	451	451
Engineering services	49	49	484	484	1,596
Sub-total	340	331	3,806	3,556	11,069
Physical contingency	34	33	381	356	1,105
Total cost	374	364	4,187	3,912	12,174
EBC-1-1					
Direct construction	25	24	666	613	1,158
Administration	0	0	62	58	58
Engineering services	4	4	113	113	204
Sub-total	29	28	841	784	1,420
Physical contingency	3	3	84	78	146
Total cost	32	31	925	862	1,566
EBC-1-2					
Direct construction	25	24	666	613	1,158
Administration	0	0	62	58	58
Engineering services	4	4	113	113	204
Sub-total	29	28	841	784	1,420
Physical contingency	3	3	84	78	146
Total cost	32	31	925	862	1,566
EBC-1-3					
Direct construction	25	24	666	613	1,158
Administration	0	0	62	58	58
Engineering services	4	4	113	113	204
Sub-total	29	28	841	784	1,420
Physical contingency	3	3	84	78	146
Total cost	32	31	925	862	1,566
CBL-1					
Direct construction	19	18	275	253	662
Administration	0	0	35	33	33
Engineering services	3	3	47	47	115
Sub-total	22	21	357	333	810
Physical contingency	2	2	36	33	78
Total cost	24	23	393	366	888

Table 28 BENEFIT/COST ANALYSIS (1/14)

CDR-1 Year in order	Year	Benefit	144,861			Unit: Million Rp	
			Construction	OM	Over Replacement	Total	Net Cash Flow
1	1995	0	18,260	0	0	18,260	-18,260
2	1996	0	9,732	0	0	9,732	-9,732
3	1997	0	44,238	0	0	44,238	-44,238
4	1998	3,001	36,314	190	0	36,464	-33,463
5	1999	5,148	36,317	299	0	36,616	-31,468
6	2000	7,295		448	0	448	6,847
7	2001	7,295		448	0	448	6,847
8	2002	7,295		448	0	448	6,847
9	2003	7,295		448	0	448	6,847
10	2004	7,295		448	0	448	6,847
11	2005	7,295		448	0	448	6,847
12	2006	7,295		448	0	448	6,847
13	2007	7,295		448	0	448	6,847
14	2008	7,295		448	0	448	6,847
15	2009	7,295		448	0	448	6,847
16	2010	7,295		448	0	448	6,847
17	2011	7,295		448	0	448	6,847
18	2012	7,295		448	0	448	6,847
19	2013	7,295		448	0	448	6,847
20	2014	7,295		448	0	448	6,847
21	2015	7,295		448	0	448	6,847
22	2016	7,295		448	0	448	6,847
23	2017	7,295		448	0	448	6,847
24	2018	7,295		448	0	448	6,847
25	2019	7,295		448	0	448	6,847
26	2020	7,295		448	0	448	6,847
27	2021	7,295		448	0	448	6,847
28	2022	7,295		448	0	448	6,847
29	2023	7,295		448	0	448	6,847
30	2024	7,295		448	0	448	6,316
31	2025	7,295		448	0	448	6,847
32	2026	7,295		448	0	448	6,847
33	2027	7,295		448	0	448	6,847
34	2028	7,295		448	0	448	6,847
35	2029	7,295		448	0	448	6,847
36	2030	7,295		448	0	448	6,847
37	2031	7,295		448	0	448	6,847
38	2032	7,295		448	0	448	6,847
39	2033	7,295		448	0	448	6,847
40	2034	7,295		448	0	448	6,847
41	2035	7,295		448	0	448	6,847
42	2036	7,295		448	0	448	6,847
43	2037	7,295		448	0	448	6,847
44	2038	7,295		448	0	448	6,847
45	2039	7,295		448	0	448	6,847
46	2040	7,295		448	0	448	6,847
47	2041	7,295		448	0	448	6,847
48	2042	7,295		448	0	448	6,847
49	2043	7,295		448	0	448	6,847
50	2044	7,295		448	0	448	6,847

IRR = 3.8%
B/C = 0.38 (at discount rate 12 %)
NPV = -82,510 (at discount rate 12 %)

Table 28 BENEFIT/COST ANALYSIS (2/14)

CMC-1 Year in order	Year	Benefit	54,042			Unit: Million Rp	
			Construction	OM	Over Replacement	Total	Net Cash Flow
1	1995	0	8,602	0	0	8,602	-8,602
2	1996	0	6,097	0	0	6,097	-6,097
3	1997	403	22,339	0	0	22,339	-21,934
4	1998	668	17,004	70	0	17,074	-16,406
5	1999	931		141	0	141	790
6	2000	931		141	0	141	790
7	2001	931		141	0	141	790
8	2002	931		141	0	141	790
9	2003	931		141	0	141	790
10	2004	931		141	0	141	790
11	2005	931		141	0	141	790
12	2006	931		141	0	141	790
13	2007	931		141	0	141	790
14	2008	931		141	0	141	790
15	2009	931		141	0	141	790
16	2010	931		141	0	141	790
17	2011	931		141	0	141	790
18	2012	931		141	0	141	790
19	2013	931		141	0	141	790
20	2014	931		141	0	141	790
21	2015	931		141	0	141	790
22	2016	931		141	0	141	790
23	2017	931		141	0	141	790
24	2018	931		141	0	141	790
25	2019	931		141	0	141	790
26	2020	931		141	0	141	790
27	2021	931		141	0	141	790
28	2022	931		141	0	141	790
29	2023	931		141	500	641	290
30	2024	931		141	0	141	790
31	2025	931		141	0	141	790
32	2026	931		141	0	141	790
33	2027	931		141	0	141	790
34	2028	931		141	0	141	790
35	2029	931		141	0	141	790
36	2030	931		141	0	141	790
37	2031	931		141	0	141	790
38	2032	931		141	0	141	790
39	2033	931		141	0	141	790
40	2034	931		141	0	141	790
41	2035	931		141	0	141	790
42	2036	931		141	0	141	790
43	2037	931		141	0	141	790
44	2038	931		141	0	141	790
45	2039	931		141	0	141	790
46	2040	931		141	0	141	790
47	2041	931		141	0	141	790
48	2042	931		141	0	141	790
49	2043	931		141	0	141	790
50	2044	931		141	0	141	790

IRR = 0.14 (at discount rate 12 %)
B/C = 0.14 (at discount rate 12 %)
NPV = -34,437 (at discount rate 12 %)

Table 28 BENEFIT/COST ANALYSIS (3/14)

CRB-1 Year in order	Year	Benefit	15.772			Unit: Million Ro	Net Cash Flow
			Construction	OM	Replacement		
1	1995	0	4,277	0	0	4,277	-4,277
2	1996	0	378	0	0	378	-378
3	1997	0	11,117	0	0	11,117	-11,117
4	1998	2,098	46	46	46	46	2,052
5	1999	2,098	46	46	46	46	2,052
6	2000	2,098	46	46	46	46	2,052
7	2001	2,098	46	46	46	46	2,052
8	2002	2,098	46	46	46	46	2,052
9	2003	2,098	46	46	46	46	2,052
10	2004	2,098	46	46	46	46	2,052
11	2005	2,098	46	46	46	46	2,052
12	2006	2,098	46	46	46	46	2,052
13	2007	2,098	46	46	46	46	2,052
14	2008	2,098	46	46	46	46	2,052
15	2009	2,098	46	46	46	46	2,052
16	2010	2,098	46	46	46	46	2,052
17	2011	2,098	46	46	46	46	2,052
18	2012	2,098	46	46	46	46	2,052
19	2013	2,098	46	46	46	46	2,052
20	2014	2,098	46	46	46	46	2,052
21	2015	2,098	46	46	46	46	2,052
22	2016	2,098	46	46	46	46	2,052
23	2017	2,098	46	46	46	46	2,052
24	2018	2,098	46	46	46	46	2,052
25	2019	2,098	46	46	46	46	2,052
26	2020	2,098	46	46	46	46	2,052
27	2021	2,098	46	46	46	46	2,052
28	2022	2,098	46	46	46	383	1,715
29	2023	2,098	46	46	46	46	2,052
30	2024	2,098	46	46	46	46	2,052
31	2025	2,098	46	46	46	46	2,052
32	2026	2,098	46	46	46	46	2,052
33	2027	2,098	46	46	46	46	2,052
34	2028	2,098	46	46	46	46	2,052
35	2029	2,098	46	46	46	46	2,052
36	2030	2,098	46	46	46	46	2,052
37	2031	2,098	46	46	46	46	2,052
38	2032	2,098	46	46	46	46	2,052
39	2033	2,098	46	46	46	46	2,052
40	2034	2,098	46	46	46	46	2,052
41	2035	2,098	46	46	46	46	2,052
42	2036	2,098	46	46	46	46	2,052
43	2037	2,098	46	46	46	46	2,052
44	2038	2,098	46	46	46	46	2,052
45	2039	2,098	46	46	46	46	2,052
46	2040	2,098	46	46	46	46	2,052
47	2041	2,098	46	46	46	46	2,052
48	2042	2,098	46	46	46	46	2,052
49	2043	2,098	46	46	46	46	2,052
50	2044	2,098	46	46	46	46	2,052

IRR = 12.1%

B/C = 1.01 (at discount rate: 12 %)

NPV = 65 (at discount rate: 12 %)

Table 28 BENEFIT/COST ANALYSIS (4/14)

CRB-1 Year in order	Year	Benefit	176.032			Unit: Million Ro	Net Cash Flow
			Construction	OM	Replacement		
1	1995	0	12,432	0	0	12,432	-12,432
2	1996	0	12,432	0	0	12,432	-12,432
3	1997	0	7,983	0	0	7,983	-7,983
4	1998	0	38,927	0	0	38,927	-38,927
5	1999	3,038	38,929	134	0	39,063	-36,025
6	2000	4,845	32,672	268	0	32,940	-28,095
7	2001	6,632	32,675	402	0	33,077	-26,445
8	2002	8,419	536	536	536	7,883	7,883
9	2003	8,419	536	536	536	7,883	7,883
10	2004	8,419	536	536	536	7,883	7,883
11	2005	8,419	536	536	536	7,883	7,883
12	2006	8,419	536	536	536	7,883	7,883
13	2007	8,419	536	536	536	7,883	7,883
14	2008	8,419	536	536	536	7,883	7,883
15	2009	8,419	536	536	536	7,883	7,883
16	2010	8,419	536	536	536	7,883	7,883
17	2011	8,419	536	536	536	7,883	7,883
18	2012	8,419	536	536	536	7,883	7,883
19	2013	8,419	536	536	536	7,883	7,883
20	2014	8,419	536	536	536	7,883	7,883
21	2015	8,419	536	536	536	7,883	7,883
22	2016	8,419	536	536	536	7,883	7,883
23	2017	8,419	536	536	536	7,883	7,883
24	2018	8,419	536	536	536	7,883	7,883
25	2019	8,419	536	536	536	7,883	7,883
26	2020	8,419	536	536	536	7,883	7,883
27	2021	8,419	536	536	536	7,883	7,883
28	2022	8,419	536	536	536	7,883	7,883
29	2023	8,419	536	536	536	7,883	7,883
30	2024	8,419	536	536	536	7,883	7,883
31	2025	8,419	536	536	536	7,883	7,883
32	2026	8,419	536	536	536	7,883	7,883
33	2027	8,419	536	536	536	7,883	7,883
34	2028	8,419	536	536	536	7,883	7,883
35	2029	8,419	536	536	536	7,883	7,883
36	2030	8,419	536	536	536	7,883	7,883
37	2031	8,419	536	536	536	7,883	7,883
38	2032	8,419	536	536	536	7,883	7,883
39	2033	8,419	536	536	536	7,883	7,883
40	2034	8,419	536	536	536	7,883	7,883
41	2035	8,419	536	536	536	7,883	7,883
42	2036	8,419	536	536	536	7,883	7,883
43	2037	8,419	536	536	536	7,883	7,883
44	2038	8,419	536	536	536	7,883	7,883
45	2039	8,419	536	536	536	7,883	7,883
46	2040	8,419	536	536	536	7,883	7,883
47	2041	8,419	536	536	536	7,883	7,883
48	2042	8,419	536	536	536	7,883	7,883
49	2043	8,419	536	536	536	7,883	7,883
50	2044	8,419	536	536	536	7,883	7,883

IRR = 3.3%

B/C = 0.36 (at discount rate: 12 %)

NPV = -68,881 (at discount rate: 12 %)

Table 28 BENEFIT/COST ANALYSIS (\$/14)

CNR-1	Year in order	Year	Benefit	Unit Million Rp		
				Construction	Cost	Net Cash Flow
					Replacement	Total
1	1995	0	10,988	0	0	-10,988
2	1996	0	10,988	0	0	-10,988
3	1997	0	7,901	0	0	-7,901
4	1998	0	39,333	0	0	-39,333
5	1999	29,264	39,333	136	0	-10,205
6	2000	58,528	33,368	272	0	25,160
7	2001	87,792	408	408	408	87,384
8	2002	87,792	408	408	408	87,384
9	2003	87,792	408	408	408	87,384
10	2004	87,792	408	408	408	87,384
11	2005	87,792	408	408	408	87,384
12	2006	87,792	408	408	408	87,384
13	2007	87,792	408	408	408	87,384
14	2008	87,792	408	408	408	87,384
15	2009	87,792	408	408	408	87,384
16	2010	87,792	408	408	408	87,384
17	2011	87,792	408	408	408	87,384
18	2012	87,792	408	408	408	87,384
19	2013	87,792	408	408	408	87,384
20	2014	87,792	408	408	408	87,384
21	2015	87,792	408	408	408	87,384
22	2016	87,792	408	408	408	87,384
23	2017	87,792	408	408	408	87,384
24	2018	87,792	408	408	408	87,384
25	2019	87,792	408	408	408	87,384
26	2020	87,792	408	408	408	87,384
27	2021	87,792	408	408	408	87,384
28	2022	87,792	408	408	408	87,384
29	2023	87,792	408	408	408	87,384
30	2024	87,792	408	408	408	87,384
31	2025	87,792	408	408	408	87,384
32	2026	87,792	408	408	408	87,384
33	2027	87,792	408	408	408	87,384
34	2028	87,792	408	408	408	87,384
35	2029	87,792	408	408	408	87,384
36	2030	87,792	408	408	408	87,384
37	2031	87,792	408	408	408	87,384
38	2032	87,792	408	408	408	87,384
39	2033	87,792	408	408	408	87,384
40	2034	87,792	408	408	408	87,384
41	2035	87,792	408	408	408	87,384
42	2036	87,792	408	408	408	87,384
43	2037	87,792	408	408	408	87,384
44	2038	87,792	408	408	408	87,384
45	2039	87,792	408	408	408	87,384
46	2040	87,792	408	408	408	87,384
47	2041	87,792	408	408	408	87,384
48	2042	87,792	408	408	408	87,384
49	2043	87,792	408	408	408	87,384
50	2044	87,792	408	408	408	87,384
IRR = 47.9% B/C = 4.59 (at discount rate: 12 %) NPV = 324.161 (at discount rate: 12 %)						

Table 28 BENEFIT/COST ANALYSIS (\$/14)

CNR-2	Year in order	Year	Benefit	Unit Million Rp		
				Construction	Cost	Net Cash Flow
					Replacement	Total
1	1995	0	23,379	0	0	-23,379
2	1996	0	16,235	0	0	-16,235
3	1997	0	9,089	0	0	-9,089
4	1998	0	59,277	0	0	-59,277
5	1999	8,791	59,278	211	0	-50,708
6	2000	17,500	60,458	424	0	-43,322
7	2001	26,339	68,644	637	0	-42,942
8	2002	35,118	52,271	850	0	-18,003
9	2003	43,897	52,271	1,063	0	-9,437
10	2004	52,676	52,271	1,276	0	-871
11	2005	61,455	52,271	1,489	0	7,695
12	2006	70,234	52,271	1,702	0	16,261
13	2007	79,013	52,271	1,915	0	24,822
14	2008	87,792	52,271	2,128	0	33,664
15	2009	87,792	52,271	2,128	0	42,506
16	2010	87,792	52,271	2,128	0	51,348
17	2011	87,792	52,271	2,128	0	60,190
18	2012	87,792	52,271	2,128	0	69,032
19	2013	87,792	52,271	2,128	0	77,874
20	2014	87,792	52,271	2,128	0	86,716
21	2015	87,792	52,271	2,128	0	95,558
22	2016	87,792	52,271	2,128	0	104,400
23	2017	87,792	52,271	2,128	0	113,242
24	2018	87,792	52,271	2,128	0	122,084
25	2019	87,792	52,271	2,128	0	130,926
26	2020	87,792	52,271	2,128	0	139,768
27	2021	87,792	52,271	2,128	0	148,610
28	2022	87,792	52,271	2,128	0	157,452
29	2023	87,792	52,271	2,128	0	166,294
30	2024	87,792	52,271	2,128	0	175,136
31	2025	87,792	52,271	2,128	0	183,978
32	2026	87,792	52,271	2,128	0	192,820
33	2027	87,792	52,271	2,128	0	201,662
34	2028	87,792	52,271	2,128	0	210,504
35	2029	87,792	52,271	2,128	0	219,346
36	2030	87,792	52,271	2,128	0	228,188
37	2031	87,792	52,271	2,128	0	237,030
38	2032	87,792	52,271	2,128	0	245,872
39	2033	87,792	52,271	2,128	0	254,714
40	2034	87,792	52,271	2,128	0	263,556
41	2035	87,792	52,271	2,128	0	272,398
42	2036	87,792	52,271	2,128	0	281,240
43	2037	87,792	52,271	2,128	0	290,082
44	2038	87,792	52,271	2,128	0	298,924
45	2039	87,792	52,271	2,128	0	307,766
46	2040	87,792	52,271	2,128	0	316,608
47	2041	87,792	52,271	2,128	0	325,450
48	2042	87,792	52,271	2,128	0	334,292
49	2043	87,792	52,271	2,128	0	343,134
50	2044	87,792	52,271	2,128	0	351,976
IRR = 12.6% B/C = 1.05 (at discount rate: 12 %) NPV = 14,137 (at discount rate: 12 %)						

Table 28 BENEFIT/COST ANALYSIS (7/14)

CRR-3	Year in order	Year	Unit: Million Rp			Net Cash Flow
			Benefit	Construction	OM	Replacement
1	1993	0	22,021	0	0	22,021
2	1996	0	15,851	0	0	15,851
3	1997	0	9,681	0	0	9,681
4	1998	0	45,162	0	0	45,162
5	1999	8,781	45,162	182	0	45,344
6	2000	17,560	52,232	366	0	52,598
7	2001	26,339	59,302	550	0	59,852
8	2002	35,118	45,162	734	0	45,896
9	2003	43,897	45,162	918	0	46,800
10	2004	52,676	45,162	1,102	0	46,264
11	2005	61,455	45,162	1,286	0	46,448
12	2006	70,234	45,162	1,470	0	46,632
13	2007	79,013	45,162	1,654	0	46,816
14	2008	87,792	45,162	1,838	0	46,999
15	2009	87,792	45,162	1,838	0	46,999
16	2010	87,792	45,162	1,838	0	46,999
17	2011	87,792	45,162	1,838	0	46,999
18	2012	87,792	45,162	1,838	0	46,999
19	2013	87,792	45,162	1,838	0	46,999
20	2014	87,792	45,162	1,838	0	46,999
21	2015	87,792	45,162	1,838	0	46,999
22	2016	87,792	45,162	1,838	0	46,999
23	2017	87,792	45,162	1,838	0	46,999
24	2018	87,792	45,162	1,838	0	46,999
25	2019	87,792	45,162	1,838	0	46,999
26	2020	87,792	45,162	1,838	0	46,999
27	2021	87,792	45,162	1,838	0	46,999
28	2022	87,792	45,162	1,838	0	46,999
29	2023	87,792	45,162	1,838	0	46,999
30	2024	87,792	45,162	1,838	0	46,999
31	2025	87,792	45,162	1,838	0	46,999
32	2026	87,792	45,162	1,838	0	46,999
33	2027	87,792	45,162	1,838	0	46,999
34	2028	87,792	45,162	1,838	0	46,999
35	2029	87,792	45,162	1,838	0	46,999
36	2030	87,792	45,162	1,838	0	46,999
37	2031	87,792	45,162	1,838	0	46,999
38	2032	87,792	45,162	1,838	0	46,999
39	2033	87,792	45,162	1,838	0	46,999
40	2034	87,792	45,162	1,838	0	46,999
41	2035	87,792	45,162	1,838	0	46,999
42	2036	87,792	45,162	1,838	0	46,999
43	2037	87,792	45,162	1,838	0	46,999
44	2038	87,792	45,162	1,838	0	46,999
45	2039	87,792	45,162	1,838	0	46,999
46	2040	87,792	45,162	1,838	0	46,999
47	2041	87,792	45,162	1,838	0	46,999
48	2042	87,792	45,162	1,838	0	46,999
49	2043	87,792	45,162	1,838	0	46,999
50	2044	87,792	45,162	1,838	0	46,999
IRR = 14.0%						
B/C = 1.23 (at discount rate 12 %)						
NPV = 54,793 (at discount rate 12 %)						

Table 28 BENEFIT/COST ANALYSIS (8/14)

CRR-4	Year in order	Year	Unit: Million Rp			Net Cash Flow
			Benefit	Construction	OM	Replacement
1	1993	0	33,395	0	0	33,395
2	1996	0	21,820	0	0	21,820
3	1997	0	10,043	0	0	10,043
4	1998	0	92,890	0	0	92,890
5	1999	8,781	92,890	358	0	93,243
6	2000	17,560	99,774	704	0	100,478
7	2001	26,339	113,267	1,053	0	114,322
8	2002	35,118	86,281	1,406	0	87,687
9	2003	43,897	86,281	1,757	0	88,038
10	2004	52,676	86,281	2,108	0	88,389
11	2005	61,455	86,281	2,459	0	88,740
12	2006	70,234	86,281	2,810	0	89,091
13	2007	79,013	86,281	3,161	0	89,451
14	2008	87,792	86,281	3,512	0	89,809
15	2009	87,792	86,281	3,512	0	89,809
16	2010	87,792	86,281	3,512	0	89,809
17	2011	87,792	86,281	3,512	0	89,809
18	2012	87,792	86,281	3,512	0	89,809
19	2013	87,792	86,281	3,512	0	89,809
20	2014	87,792	86,281	3,512	0	89,809
21	2015	87,792	86,281	3,512	0	89,809
22	2016	87,792	86,281	3,512	0	89,809
23	2017	87,792	86,281	3,512	0	89,809
24	2018	87,792	86,281	3,512	0	89,809
25	2019	87,792	86,281	3,512	0	89,809
26	2020	87,792	86,281	3,512	0	89,809
27	2021	87,792	86,281	3,512	0	89,809
28	2022	87,792	86,281	3,512	0	89,809
29	2023	87,792	86,281	3,512	0	89,809
30	2024	87,792	86,281	3,512	0	89,809
31	2025	87,792	86,281	3,512	0	89,809
32	2026	87,792	86,281	3,512	0	89,809
33	2027	87,792	86,281	3,512	0	89,809
34	2028	87,792	86,281	3,512	0	89,809
35	2029	87,792	86,281	3,512	0	89,809
36	2030	87,792	86,281	3,512	0	89,809
37	2031	87,792	86,281	3,512	0	89,809
38	2032	87,792	86,281	3,512	0	89,809
39	2033	87,792	86,281	3,512	0	89,809
40	2034	87,792	86,281	3,512	0	89,809
41	2035	87,792	86,281	3,512	0	89,809
42	2036	87,792	86,281	3,512	0	89,809
43	2037	87,792	86,281	3,512	0	89,809
44	2038	87,792	86,281	3,512	0	89,809
45	2039	87,792	86,281	3,512	0	89,809
46	2040	87,792	86,281	3,512	0	89,809
47	2041	87,792	86,281	3,512	0	89,809
48	2042	87,792	86,281	3,512	0	89,809
49	2043	87,792	86,281	3,512	0	89,809
50	2044	87,792	86,281	3,512	0	89,809
IRR = 7.8%						
B/C = 0.66 (at discount rate 12 %)						
NPV = -148,512 (at discount rate 12 %)						

Table 28 BENEFIT/COST ANALYSIS (9/14)

WBC-1 + CND-1		285,007		Unit Million Rp			
Year in order	Year	Benefit	Cost	Net Cash Flow			
			Construction	OM	Replacement	Total	
1	1995	0	17,327	0	0	17,327	-17,327
2	1996	0	17,327	0	0	17,327	-17,327
3	1997	0	9,776	0	0	9,776	-9,776
4	1998	0	32,166	0	0	32,166	-32,166
5	1999	10,726	32,166	96	0	32,262	-21,536
6	2000	21,453	32,166	193	0	32,359	-10,906
7	2001	32,180	32,166	290	0	32,456	-276
8	2002	42,907	32,166	387	0	32,553	10,354
9	2003	53,634	32,167	484	0	32,651	20,983
10	2004	64,361	23,781	581	0	24,362	39,999
11	2005	75,088	23,799	678	0	24,477	50,611
12	2006	85,815	775	775	775	775	85,040
13	2007	85,815	775	775	775	775	85,040
14	2008	85,815	775	775	775	775	85,040
15	2009	85,815	775	775	775	775	85,040
16	2010	85,815	775	775	775	775	85,040
17	2011	85,815	775	775	775	775	85,040
18	2012	85,815	775	775	775	775	85,040
19	2013	85,815	775	775	775	775	85,040
20	2014	85,815	775	775	775	775	85,040
21	2015	85,815	775	775	775	775	85,040
22	2016	85,815	775	775	775	775	85,040
23	2017	85,815	775	775	775	775	85,040
24	2018	85,815	775	775	775	775	85,040
25	2019	85,815	775	775	775	775	85,040
26	2020	85,815	775	775	775	775	85,040
27	2021	85,815	775	775	775	775	85,040
28	2022	85,815	775	775	775	775	85,040
29	2023	85,815	775	775	775	775	85,040
30	2024	85,815	775	775	775	775	85,040
31	2025	85,815	775	775	775	775	85,040
32	2026	85,815	775	775	775	775	85,040
33	2027	85,815	775	775	775	775	85,040
34	2028	85,815	775	775	775	775	85,040
35	2029	85,815	775	775	775	775	85,040
36	2030	85,815	775	775	775	775	85,040
37	2031	85,815	775	775	775	775	85,040
38	2032	85,815	775	775	775	775	85,040
39	2033	85,815	775	775	775	775	85,040
40	2034	85,815	775	775	775	775	85,040
41	2035	85,815	775	775	775	775	85,040
42	2036	85,815	775	775	775	775	85,040
43	2037	85,815	775	775	775	775	85,040
44	2038	85,815	775	775	775	775	85,040
45	2039	85,815	775	775	775	775	85,040
46	2040	85,815	775	775	775	775	85,040
47	2041	85,815	775	775	775	775	85,040
48	2042	85,815	775	775	775	775	85,040
49	2043	85,815	775	775	775	775	85,040
50	2044	85,815	775	775	775	775	85,040
IRR =		22.5%					
B/C =		2.12 (at discount rate: 12 %)					
NPV =		165,664 (at discount rate: 12 %)					

Table 28 BENEFIT/COST ANALYSIS (10/14)

WBC-3 + CND-1		456,332		Unit: Million Rp			
Year in order	Year	Benefit	Construction	O/M	Cost Replacement	Total	Net Cash Flow
1	1995	0	17,100		0	17,100	-17,100
2	1996	0	12,159		0	12,159	-12,159
3	1997	0	7,219		0	7,219	-7,219
4	1998	0	42,020		0	42,020	-42,020
5	1999	8,577	42,020	143		42,163	-33,586
6	2000	17,159	42,020	291		42,311	-25,161
7	2001	25,741	53,340	439		53,779	-28,038
8	2002	34,323	42,020	587		42,607	-8,284
9	2003	42,905	42,020	735		42,753	150
10	2004	51,487	42,020	883		42,903	8,584
11	2005	60,069	36,240	1,031		37,271	22,798
12	2006	68,651	36,240	1,179		37,419	31,220
13	2007	77,233	36,253	1,327		37,580	39,653
14	2008	85,815		1,475		1,475	84,340
15	2009	85,815		1,475		1,475	84,340
16	2010	85,815		1,475		1,475	84,340
17	2011	85,815		1,475		1,475	84,340
18	2012	85,815		1,475		1,475	84,340
19	2013	85,815		1,475		1,475	84,340
20	2014	85,815		1,475		1,475	84,340
21	2015	85,815		1,475		1,475	84,340
22	2016	85,815		1,475		1,475	84,340
23	2017	85,815		1,475		1,475	84,340
24	2018	85,815		1,475		1,475	84,340
25	2019	85,815		1,475		1,475	84,340
26	2020	85,815		1,475		1,475	84,340
27	2021	85,815		1,475		1,475	84,340
28	2022	85,815		1,475		1,475	84,340
29	2023	85,815		1,475		1,475	84,340
30	2024	85,815		1,475		1,475	84,340
31	2025	85,815		1,475		1,475	84,340
32	2026	85,815		1,475		1,475	84,340
33	2027	85,815		1,475		1,475	84,340
34	2028	85,815		1,475		1,475	84,340
35	2029	85,815		1,475		1,475	84,340
36	2030	85,815		1,475		1,475	84,340
37	2031	85,815		1,475		1,475	84,340
38	2032	85,815		1,475		1,475	84,340
39	2033	85,815		1,475		1,475	84,340
40	2034	85,815		1,475		1,475	84,340
41	2035	85,815		1,475		1,475	84,340
42	2036	85,815		1,475		1,475	84,340
43	2037	85,815		1,475		1,475	84,340
44	2038	85,815		1,475		1,475	84,340
45	2039	85,815		1,475		1,475	84,340
46	2040	85,815		1,475		1,475	84,340
47	2041	85,815		1,475		1,475	84,340
48	2042	85,815		1,475		1,475	84,340
49	2043	85,815		1,475		1,475	84,340
50	2044	85,815		1,475		1,475	84,340
IRR =		16.1%					
B/C =		1.37 (at discount rate: 12 %)					
NPV =		77,304 (at discount rate: 12 %)					

Table 28 BENEFIT/COST ANALYSIS (11/14)

EBC-1-1		2,415,578				Unit: Million Rp	
Year in order	Year	Benefit	Construction	OM	Replacement	Total	Net Cash Flow
1	1993	0	76,925	0	0	76,925	-76,925
2	1996	0	48,265	0	0	48,265	-48,265
3	1997	0	19,644	0	0	19,644	-19,644
4	1998	0	220,614	0	0	220,614	-220,614
5	1999	22,878	220,614	851	0	221,465	-198,587
6	2000	45,758	253,431	1,703	0	255,134	-209,376
7	2001	68,638	286,249	2,555	0	288,804	-220,166
8	2002	91,518	220,614	3,407	0	224,021	-132,503
9	2003	114,398	220,614	4,259	0	224,873	-110,475
10	2004	137,278	220,615	5,111	0	225,726	-88,448
11	2005	160,158	209,323	5,963	0	215,286	-55,128
12	2006	183,038	209,323	6,815	0	216,138	-33,100
13	2007	205,918	209,327	7,667	0	216,994	-11,076
14	2008	228,798	0	8,519	0	8,519	220,279
15	2009	228,798	0	8,519	0	8,519	220,279
16	2010	228,798	0	8,519	0	8,519	220,279
17	2011	228,798	0	8,519	0	8,519	220,279
18	2012	228,798	0	8,519	0	8,519	220,279
19	2013	228,798	0	8,519	0	8,519	220,279
20	2014	228,798	0	8,519	0	8,519	220,279
21	2015	228,798	0	8,519	0	8,519	220,279
22	2016	228,798	0	8,519	0	8,519	220,279
23	2017	228,798	0	8,519	0	8,519	220,279
24	2018	228,798	0	8,519	0	8,519	220,279
25	2019	228,798	0	8,519	0	8,519	220,279
26	2020	228,798	0	8,519	0	8,519	220,279
27	2021	228,798	0	8,519	0	8,519	220,279
28	2022	228,798	0	8,519	0	8,519	220,279
29	2023	228,798	0	8,519	0	8,519	220,279
30	2024	228,798	0	8,519	0	8,519	220,279
31	2025	228,798	0	8,519	0	8,519	220,279
32	2026	228,798	0	8,519	0	8,519	220,279
33	2027	228,798	0	8,519	0	8,519	220,279
34	2028	228,798	0	8,519	0	8,519	220,279
35	2029	228,798	0	8,519	0	8,519	220,279
36	2030	228,798	0	8,519	0	8,519	220,279
37	2031	228,798	0	8,519	0	8,519	220,279
38	2032	228,798	0	8,519	0	8,519	220,279
39	2033	228,798	0	8,519	0	8,519	220,279
40	2034	228,798	0	8,519	0	8,519	220,279
41	2035	228,798	0	8,519	0	8,519	220,279
42	2036	228,798	0	8,519	0	8,519	220,279
43	2037	228,798	0	8,519	0	8,519	220,279
44	2038	228,798	0	8,519	0	8,519	220,279
45	2039	228,798	0	8,519	0	8,519	220,279
46	2040	228,798	0	8,519	0	8,519	220,279
47	2041	228,798	0	8,519	0	8,519	220,279
48	2042	228,798	0	8,519	0	8,519	220,279
49	2043	228,798	0	8,519	0	8,519	220,279
50	2044	228,798	0	8,519	0	8,519	220,279
IRR =		8.4%					
B/C =		0.71 (at discount rate: 12 %)					
NPV =		-314,124 (at discount rate: 12 %)					

Table 28 BENEFIT/COST ANALYSIS (12/14)

EBC-1-2		916,747				Unit: Million Rp	
Year in order	Year	Benefit	Construction	OM	Replacement	Total	Net Cash Flow
1	1993	0	34,108	0	0	34,108	-34,108
2	1996	0	24,064	0	0	24,064	-24,064
3	1997	0	14,018	0	0	14,018	-14,018
4	1998	0	84,328	0	0	84,328	-84,328
5	1999	22,878	84,328	298	0	84,626	-61,748
6	2000	45,758	95,838	596	0	96,434	-50,676
7	2001	68,638	107,347	894	0	108,241	-39,603
8	2002	91,518	84,328	1,192	0	85,520	5,998
9	2003	114,398	84,328	1,490	0	85,818	28,580
10	2004	137,278	84,330	1,788	0	86,118	51,160
11	2005	160,158	73,239	2,086	0	75,325	84,833
12	2006	183,038	73,239	2,384	0	75,623	107,415
13	2007	205,918	73,232	2,682	0	75,934	129,984
14	2008	228,798	0	2,980	0	2,980	225,818
15	2009	228,798	0	2,980	0	2,980	225,818
16	2010	228,798	0	2,980	0	2,980	225,818
17	2011	228,798	0	2,980	0	2,980	225,818
18	2012	228,798	0	2,980	0	2,980	225,818
19	2013	228,798	0	2,980	0	2,980	225,818
20	2014	228,798	0	2,980	0	2,980	225,818
21	2015	228,798	0	2,980	0	2,980	225,818
22	2016	228,798	0	2,980	0	2,980	225,818
23	2017	228,798	0	2,980	0	2,980	225,818
24	2018	228,798	0	2,980	0	2,980	225,818
25	2019	228,798	0	2,980	0	2,980	225,818
26	2020	228,798	0	2,980	0	2,980	225,818
27	2021	228,798	0	2,980	0	2,980	225,818
28	2022	228,798	0	2,980	0	2,980	225,818
29	2023	228,798	0	2,980	0	2,980	225,818
30	2024	228,798	0	2,980	0	2,980	225,818
31	2025	228,798	0	2,980	0	2,980	225,818
32	2026	228,798	0	2,980	0	2,980	225,818
33	2027	228,798	0	2,980	0	2,980	225,818
34	2028	228,798	0	2,980	0	2,980	225,818
35	2029	228,798	0	2,980	0	2,980	225,818
36	2030	228,798	0	2,980	0	2,980	225,818
37	2031	228,798	0	2,980	0	2,980	225,818
38	2032	228,798	0	2,980	0	2,980	225,818
39	2033	228,798	0	2,980	0	2,980	225,818
40	2034	228,798	0	2,980	0	2,980	225,818
41	2035	228,798	0	2,980	0	2,980	225,818
42	2036	228,798	0	2,980	0	2,980	225,818
43	2037	228,798	0	2,980	0	2,980	225,818
44	2038	228,798	0	2,980	0	2,980	225,818
45	2039	228,798	0	2,980	0	2,980	225,818
46	2040	228,798	0	2,980	0	2,980	225,818
47	2041	228,798	0	2,980	0	2,980	225,818
48	2042	228,798	0	2,980	0	2,980	225,818
49	2043	228,798	0	2,980	0	2,980	225,818
50	2044	228,798	0	2,980	0	2,980	225,818
IRR =		20.6%					
B/C =		1.83 (at discount rate: 12 %)					
NPV =		343,836 (at discount rate: 12 %)					

Table 28 BENEFIT/COST ANALYSIS (13/14)

FRC-13		Year		Benefit		13/14		Unit Million Rp	
Year in order	Year	Benefit	Construction	Operation	Cost	Replacement	Total	Net Cash	Flow
1	1995	0	23,062	0	0	23,062	-23,062		
2	1996	0	18,789	0	0	18,789	-18,789		
3	1997	0	13,916	0	0	13,916	-13,916		
4	1998	0	47,795	0	0	47,795	-47,795		
5	1999	22,878	47,795	140	0	47,935	-25,057		
6	2000	45,758	53,379	264	0	53,663	-7,905		
7	2001	68,638	58,962	426	0	59,390	9,248		
8	2002	91,518	47,795	572	0	48,367	43,151		
9	2003	114,398	47,795	716	0	48,511	65,887		
10	2004	137,278	47,803	860	0	48,663	88,615		
11	2005	160,158	35,300	1,004	0	36,304	123,854		
12	2006	185,038	35,300	1,148	0	36,448	148,590		
13	2007	205,918	1,292	1,292	0	36,592	169,326		
14	2008	228,798	1,436	1,436	0	1,436	227,362		
15	2009	228,798	1,436	1,436	0	1,436	227,362		
16	2010	228,798	1,436	1,436	0	1,436	227,362		
17	2011	228,798	1,436	1,436	0	1,436	227,362		
18	2012	228,798	1,436	1,436	0	1,436	227,362		
19	2013	228,798	1,436	1,436	0	1,436	227,362		
20	2014	228,798	1,436	1,436	0	1,436	227,362		
21	2015	228,798	1,436	1,436	0	1,436	227,362		
22	2016	228,798	1,436	1,436	0	1,436	227,362		
23	2017	228,798	1,436	1,436	0	1,436	227,362		
24	2018	228,798	1,436	1,436	0	1,436	227,362		
25	2019	228,798	1,436	1,436	0	1,436	227,362		
26	2020	228,798	1,436	1,436	0	1,436	227,362		
27	2021	228,798	1,436	1,436	0	1,436	227,362		
28	2022	228,798	1,436	1,436	0	1,436	227,362		
29	2023	228,798	1,436	1,436	0	1,436	227,362		
30	2024	228,798	1,436	1,436	0	1,436	227,362		
31	2025	228,798	1,436	1,436	0	1,436	227,362		
32	2026	228,798	1,436	1,436	0	1,436	227,362		
33	2027	228,798	1,436	1,436	0	1,436	227,362		
34	2028	228,798	1,436	1,436	0	1,436	227,362		
35	2029	228,798	1,436	1,436	0	1,436	227,362		
36	2030	228,798	1,436	1,436	0	1,436	227,362		
37	2031	228,798	1,436	1,436	0	1,436	227,362		
38	2032	228,798	1,436	1,436	0	1,436	227,362		
39	2033	228,798	1,436	1,436	0	1,436	227,362		
40	2034	228,798	1,436	1,436	0	1,436	227,362		
41	2035	228,798	1,436	1,436	0	1,436	227,362		
42	2036	228,798	1,436	1,436	0	1,436	227,362		
43	2037	228,798	1,436	1,436	0	1,436	227,362		
44	2038	228,798	1,436	1,436	0	1,436	227,362		
45	2039	228,798	1,436	1,436	0	1,436	227,362		
46	2040	228,798	1,436	1,436	0	1,436	227,362		
47	2041	228,798	1,436	1,436	0	1,436	227,362		
48	2042	228,798	1,436	1,436	0	1,436	227,362		
49	2043	228,798	1,436	1,436	0	1,436	227,362		
50	2044	228,798	1,436	1,436	0	1,436	227,362		
IRK = 30.5%									
B/C = 3.15 (at discount rate: 12 %)									
NPV = 518,938 (at discount rate: 12 %)									

Table 28 BENEFIT/COST ANALYSIS (14/14)

CBL-1 Year in order	Year	Benefit	13/200		Cost	Replacement	Total	Unit: Million Rp	
			Construction	OM				Net Cash	Flow
1	1995	0	10,844	0		10,844	-10,844		
2	1996	0	10,844	0			-10,844		
3	1997	0	7,666	0			-7,666		
4	1998	0	40,255	0			-40,255		
5	1999	3,330	34,296	141			-31,107		
6	2000	6,659	34,295	282			-27,918		
7	2001	9,988		423			9,565		
8	2002	9,988		423			9,565		
9	2003	9,988		423			9,565		
10	2004	9,988		423			9,565		
11	2005	9,988		423			9,565		
12	2006	9,988		423			9,565		
13	2007	9,988		423			9,565		
14	2008	9,988		423			9,565		
15	2009	9,988		423			9,565		
16	2010	9,988		423			9,565		
17	2011	9,988		423			9,565		
18	2012	9,988		423			9,565		
19	2013	9,988		423			9,565		
20	2014	9,988		423			9,565		
21	2015	9,988		423			9,565		
22	2016	9,988		423			9,565		
23	2017	9,988		423			9,565		
24	2018	9,988		423			9,565		
25	2019	9,988		423			9,565		
26	2020	9,988		423			9,565		
27	2021	9,988		423			9,565		
28	2022	9,988		423			9,565		
29	2023	9,988		423			9,565		
30	2024	9,988		423			9,565		
31	2025	9,988		423		888	1,311		
32	2026	9,988		423			9,565		
33	2027	9,988		423			9,565		
34	2028	9,988		423			9,565		
35	2029	9,988		423			9,565		
36	2030	9,988		423			9,565		
37	2031	9,988		423			9,565		
38	2032	9,988		423			9,565		
39	2033	9,988		423			9,565		
40	2034	9,988		423			9,565		
41	2035	9,988		423			9,565		
42	2036	9,988		423			9,565		
43	2037	9,988		423			9,565		
44	2038	9,988		423			9,565		
45	2039	9,988		423			9,565		
46	2040	9,988		423			9,565		
47	2041	9,988		423			9,565		
48	2042	9,988		423			9,565		
49	2043	9,988		423			9,565		
50	2044	9,988		423			9,565		
IRK = 6.2%									
B/C = 0.53 (at discount rate: 12 %)									
NPV = -41,081 (at discount rate: 12 %)									

Table 29 EVALUATION OF FLOOD CONTROL ALTERNATIVES

River System	No.	1				2		3		
		Cengkareng Floodway				Western Banjir Canal		Eastern Banjir		
Alternative		CKR-1	CKR-2	CKR-3	CKR-3	WBC-1+CSID-1	WBC-3+CSID-1*	EBC-1-1	EBC-1-2	EBC-1-3
Outline of Plan		River Imp.	River Imp. & Limb Dam	River Imp. & Angke Fldw.	River Imp. & Angke Fldw. & Limb Dam	River Imp.	River Imp. & Ciliwung Fldw.	Box culvert	PC-sheet Pile	Double-cross-section
Financial Project Cost (Rp.billion)		585	1,317	858	1,647	757	767	3,416	1,931	1,666
Point		2	1	2	0	2	2	0	0	0
Financial land acquisition/house compensation cost (Rp billion)		406	621	295	571	466	305	878	943	1,088
Point		6	4	8	6	6	8	2	2	0
EIRR (%)		42.9	12.6	14.6	7.8	22.5	16.1	8.4	20.6	30.5
Point		6	6	6	2	6	6	2	6	6
Technical Evaluation		Ordinary	Complicated	Complicated	Complicated	Ordinary	Complicated	Ordinary	Ordinary	Ordinary
Point		2	1	1	1	2	1	2	2	2
Environmental Impact		might affect	might affect	might affect	might affect	not affect	not affect	might affect	might affect	might affect
Point		0	0	0	0	2	2	0	0	0
Overall Point		16	12	17	9	18	19	6	10	8
Selection for Optimum				*			*		*	
Evaluation Criteria	Financial Cost	Land Acquisition etc.			EIRR		Technical Evaluation		Environmental Impact	
		0 : 1,500<X	1 : 1,000<X<1,500	2 : 500<X<1,000	3 : X<500	0 : X<5	1 : Complicated	2 : Ordinary	0 : might affect	2 : not affect
		0 : 1,000<X	2 : 800<X<1,000	4 : 600<X<800	8 : 400<X<600	0 : X<5	1 : Complicated	2 : Ordinary	0 : might affect	2 : not affect
		10 : X<200				2 : 5<X<10				
						4 : 10<X<12				
						6 : 12<X				

*1) River Imp : River Improvement
*2) EIRR : Economic Internal Rate of Return

Table 30 FLOOD CONTROL MASTER PLAN

Rever System	1	2	3	4	5	6	7	8
	Cidrian	Cimaneun	Cinamb	Cigilang Floodway	Western Banjar Canal + Closure	Eastern Banjar Canal	CEB Floodway	Non-structural Measures
Outline of Plan	River Improvement	River Improvement	River Improvement	River Improvement and Angke Floodway	River Improvement and Cijuwang Floodway	River Improvement and Eastern Banjar Canal	River Improvement	Flood forecasting and warning system
(Improvement Length)	32km	22km	17km	22km	38km	57km	50km	
Implementation Program (year)	2014-2023	2022-2025	2013-2016	2013-2025	1997-2008/2004-2011	2005-2017	2014-2019	
Beneficial Population in 2025 (1000 people)	495	605	144	2,505	1,865	4,119	1,607	
Beneficial Area (km ²)	140	240	70	120	220	210	570	
Land Use in 2025	Agriculture	Agriculture	Agriculture	Residential Area	Gov. Ind. & Comm.	Res. & Industrial	Agri. & Residential	
Return Period of Design Flood (year)	25	25	25	100	100 and 50	100	50	
Financial Project Cost (Rp. billion)	227	108	27	858	767	1,931	220	
Financial Land/House Cost (Rp. billion)	87	59	12	295	305	943	88	
EBDR (%)	3.8	-	12.1	14.6	16.1	20.6	6.2	
Technical Evaluation	Ordinary	Ordinary	Ordinary	Complicated	Complicated	Ordinary	Ordinary	
Social Beneficial Impact	small	small	small	big	very big	big	muddle	
Environmental Impact	not affect	might affect	not affect	not affect	not affect	not affect	might affect	
Project Status	F/S: not available	F/S: not available	F/S: not available	D/D: partly available	D/D: partly available	Partly implemented	N/S: not available	
Overall Point	20	20	26	34	40	31	28	
Priority Projects for F/S								

Evaluation Criteria

Land Use	Financial Project Cost	Land & house cost	EBDR	Beneficial Population	Technical Evaluation	Social Beneficial Impact	Environmental Impact
1: Agriculture	0: 1,500<X	0: 1,000<X	0: X<5	1: X<500	1: Complicated	1: small	0: might affect
3: Agri. & residential	1: 1,000<X<1,500	2: 800<X<1,000	2: 5<X<10	3: 500<X<1,000	2: Ordinary	3: medium	2: not affect
5: Residential	2: 500<X<1,000	4: 600<X<800	4: 10<X<12	5: 1000<X<3000		5: big	
7: Resid. & Industrial	3: X<500	6: 400<X<600	6: 12<X	7: 3000<X		7: very big	
9: Gov. Ind. & Comm.		8: 200<X<400					
		10: X<200					

*1) IF: Implementation Program, Gov : Governmental Office Area, Comm: Commercial Area, Ind.: Industrial Area, Agri: Agricultural Area, Land/house Cost: Land acquisition/house compensation cost

*2) The project costs here are all those estimated on the master plan level.

Table 31 ECONOMIC PROJECT COST

Cost item	F.C. (Million Yen)		L.C. (Million Rp)		Total economic cost (Million Rp)	
	Financial cost	Economic cost	Financial cost	Economic cost	Financial cost	Economic cost
Alt. 1						
Direct construction	9,762	9,469	87,084	80,117	308,681	295,063
Land acquisition/house compensatio	0	0	305,364	50,043	305,364	50,043
Administration	0	0	30,702	17,255	30,702	17,255
Engineering services	1,660	1,660	14,804	14,804	52,486	52,486
Sub-total	11,422	11,129	437,954	162,219	697,233	414,847
Physical contingency	1,142	1,113	43,795	16,222	69,723	41,485
Total cost	12,564	12,242	481,749	178,441	766,956	456,332
Alt. 2						
Direct construction	7,587	7,359	67,300	61,916	239,525	228,965
Land acquisition/house compensatio	0	0	303,886	48,746	303,886	48,746
Administration	0	0	27,171	13,886	27,171	13,886
Engineering services	1,290	1,290	11,441	11,441	40,724	40,724
Sub-total	8,877	8,649	409,798	135,989	611,306	332,321
Physical contingency	888	865	40,980	13,599	61,131	33,232
Total cost	9,765	9,514	450,778	149,588	672,437	365,553
Alt. 2'						
Direct construction	8,472	8,218	78,396	72,124	270,710	258,673
Land acquisition/house compensatio	0	0	303,886	48,746	303,886	48,746
Administration	0	0	28,730	15,371	28,730	15,371
Engineering services	1,440	1,440	13,327	13,327	46,015	46,015
Sub-total	9,912	9,658	424,339	149,568	649,341	368,805
Physical contingency	991	966	42,434	14,957	64,934	36,881
Total cost	10,903	10,624	466,773	164,525	714,275	405,686
Alt. 3						
Direct construction	6,521	6,325	60,492	55,653	208,519	199,231
Land acquisition/house compensatio	0	0	273,454	47,245	273,454	47,245
Administration	0	0	24,099	12,324	24,099	12,324
Engineering services	1,109	1,109	10,284	10,284	35,458	35,458
Sub-total	7,630	7,434	368,329	125,506	541,530	294,258
Physical contingency	763	743	36,833	12,551	54,153	29,426
Total cost	8,393	8,177	405,162	138,057	595,683	323,684

Table 32 BENEFIT/COST ANALYSIS (1/4)

Alt. 1	Year in order	Year	Benefit	456,332			Unit: Million Rp
				Construction	OM	Replacement	Net Cash Flow
1	1995			0	17,100	0	-17,100
2	1996		0	12,159	0	0	-12,159
3	1997		0	7,219	0	0	-7,219
4	1998		0	42,020	0	0	-42,020
5	1999		8,577	42,020	143	0	-33,586
6	2000		17,159	47,641	291	0	-30,813
7	2001		25,741	53,340	439	0	-28,038
8	2002		34,323	42,020	587	0	-8,294
9	2003		42,905	42,020	735	0	150
10	2004		51,487	42,023	883	0	8,581
11	2005		60,069	36,240	1,031	0	22,798
12	2006		68,651	36,240	1,179	0	31,232
13	2007		77,233	36,250	1,327	0	39,656
14	2008		85,815	1,475	1,475	0	84,340
15	2009		85,815	1,475	1,475	0	84,340
16	2010		85,815	1,475	1,475	0	84,340
17	2011		85,815	1,475	1,475	0	84,340
18	2012		85,815	1,475	1,475	0	84,340
19	2013		85,815	1,475	1,475	0	84,340
20	2014		85,815	1,475	1,475	0	84,340
21	2015		85,815	1,475	1,475	0	84,340
22	2016		85,815	1,475	1,475	0	84,340
23	2017		85,815	1,475	1,475	0	84,340
24	2018		85,815	1,475	1,475	0	84,340
25	2019		85,815	1,475	1,475	0	84,340
26	2020		85,815	1,475	1,475	0	84,340
27	2021		85,815	1,475	1,475	0	84,340
28	2022		85,815	1,475	1,475	0	84,340
29	2023		85,815	1,475	1,475	0	84,340
30	2024		85,815	1,475	1,475	0	84,340
31	2025		85,815	1,475	1,475	0	84,340
32	2026		85,815	1,475	1,475	0	84,340
33	2027		85,815	1,475	1,475	0	84,340
34	2028		85,815	1,475	1,475	0	84,340
35	2029		85,815	1,475	1,475	0	84,340
36	2030		85,815	1,475	1,475	0	84,340
37	2031		85,815	1,475	1,475	0	84,340
38	2032		85,815	1,475	1,475	0	84,340
39	2033		85,815	1,475	1,475	0	84,340
40	2034		85,815	1,475	1,475	0	84,340
41	2035		85,815	1,475	1,475	0	84,340
42	2036		85,815	1,475	1,475	0	84,340
43	2037		85,815	1,475	1,475	0	84,340
44	2038		85,815	1,475	1,475	0	84,340
45	2039		85,815	1,475	1,475	0	84,340
46	2040		85,815	1,475	1,475	0	84,340
47	2041		85,815	1,475	1,475	0	84,340
48	2042		85,815	1,475	1,475	0	84,340
49	2043		85,815	1,475	1,475	0	84,340
50	2044		85,815	1,475	1,475	0	84,340
IRR = 16.1%							
B/C = 1.37 (at discount rate: 12 %)							
NPV = 77,383 (at discount rate: 12 %)							

Table 32 BENEFIT/COST ANALYSIS (2/4)

Alt. 2	Year in order	Year	Benefit	365,553			Unit: Million Rp
				Construction	OM	Replacement	Net Cash Flow
1	1995			0	15,039	0	-15,039
2	1996		0	11,207	0	0	-11,207
3	1997		0	7,373	0	0	-7,373
4	1998		0	37,315	0	0	-37,315
5	1999		8,796	41,708	129	0	-33,041
6	2000		17,596	46,099	256	0	-28,759
7	2001		26,396	38,992	383	0	-12,979
8	2002		35,196	37,315	510	0	-2,629
9	2003		43,996	37,318	637	0	6,041
10	2004		52,796	31,060	764	0	20,972
11	2005		61,596	31,060	891	0	29,645
12	2006		70,396	31,067	1,018	0	38,311
13	2007		79,196	79,196	1,145	0	78,051
14	2008		79,196	79,196	1,145	0	78,051
15	2009		79,196	79,196	1,145	0	78,051
16	2010		79,196	79,196	1,145	0	78,051
17	2011		79,196	79,196	1,145	0	78,051
18	2012		79,196	79,196	1,145	0	78,051
19	2013		79,196	79,196	1,145	0	78,051
20	2014		79,196	79,196	1,145	0	78,051
21	2015		79,196	79,196	1,145	0	78,051
22	2016		79,196	79,196	1,145	0	78,051
23	2017		79,196	79,196	1,145	0	78,051
24	2018		79,196	79,196	1,145	0	78,051
25	2019		79,196	79,196	1,145	0	78,051
26	2020		79,196	79,196	1,145	0	78,051
27	2021		79,196	79,196	1,145	0	78,051
28	2022		79,196	79,196	1,145	0	78,051
29	2023		79,196	79,196	1,145	0	78,051
30	2024		79,196	79,196	1,145	0	78,051
31	2025		79,196	79,196	1,145	0	78,051
32	2026		79,196	79,196	1,145	0	78,051
33	2027		79,196	79,196	1,145	0	78,051
34	2028		79,196	79,196	1,145	0	78,051
35	2029		79,196	79,196	1,145	0	78,051
36	2030		79,196	79,196	1,145	0	78,051
37	2031		79,196	79,196	1,145	0	78,051
38	2032		79,196	79,196	1,145	0	78,051
39	2033		79,196	79,196	1,145	0	78,051
40	2034		79,196	79,196	1,145	0	78,051
41	2035		79,196	79,196	1,145	0	78,051
42	2036		79,196	79,196	1,145	0	78,051
43	2037		79,196	79,196	1,145	0	78,051
44	2038		79,196	79,196	1,145	0	78,051
45	2039		79,196	79,196	1,145	0	78,051
46	2040		79,196	79,196	1,145	0	78,051
47	2041		79,196	79,196	1,145	0	78,051
48	2042		79,196	79,196	1,145	0	78,051
49	2043		79,196	79,196	1,145	0	78,051
50	2044		79,196	79,196	1,145	0	78,051
IRR = 15.0%							
B/C = 1.57 (at discount rate: 12 %)							
NPV = 100,178 (at discount rate: 12 %)							

Table 32. BENEFIT/COST ANALYSIS (3/4)

Alt. 2'	Year in order	Year	Benefit	Cost			Net Cash Flow
				Construction	O/M	Replacement	
				405,686			Unit: Million Rp
1	1995		0	16,181	0	0	-16,181
2	1996		0	11,797	0	0	-11,797
3	1997		0	7,413	0	0	-7,413
4	1998		0	37,868	0	0	-37,868
5	1999		7,916	37,868	132	0	-30,084
6	2000		13,836	42,831	261	0	-27,256
7	2001		23,756	47,793	390	0	-24,427
8	2002		31,676	39,603	519	0	-8,446
9	2003		39,596	37,870	648	0	1,078
10	2004		47,516	31,612	777	0	15,127
11	2005		55,436	31,612	906	0	22,918
12	2006		63,356	31,612	1,035	0	30,709
13	2007		71,276	31,626	1,164	0	38,486
14	2008		79,196	1,293	1,293	0	77,903
15	2009		79,196	1,293	1,293	0	77,903
16	2010		79,196	1,293	1,293	0	77,903
17	2011		79,196	1,293	1,293	0	77,903
18	2012		79,196	1,293	1,293	0	77,903
19	2013		79,196	1,293	1,293	0	77,903
20	2014		79,196	1,293	1,293	0	77,903
21	2015		79,196	1,293	1,293	0	77,903
22	2016		79,196	1,293	1,293	0	77,903
23	2017		79,196	1,293	1,293	0	77,903
24	2018		79,196	1,293	1,293	0	77,903
25	2019		79,196	1,293	1,293	0	77,903
26	2020		79,196	1,293	1,293	0	77,903
27	2021		79,196	1,293	1,293	0	77,903
28	2022		79,196	1,293	1,293	0	77,903
29	2023		79,196	1,293	1,293	0	77,903
30	2024		79,196	1,293	1,293	0	77,903
31	2025		79,196	1,293	1,293	0	77,903
32	2026		79,196	1,293	1,293	0	77,903
33	2027		79,196	1,293	1,293	0	77,903
34	2028		79,196	1,293	1,293	0	77,903
35	2029		79,196	1,293	1,293	0	77,903
36	2030		79,196	1,293	1,293	0	77,903
37	2031		79,196	1,293	1,293	0	77,903
38	2032		79,196	1,293	1,293	0	77,903
39	2033		79,196	1,293	1,293	0	77,903
40	2034		79,196	1,293	1,293	0	77,903
41	2035		79,196	1,293	1,293	0	77,903
42	2036		79,196	1,293	1,293	0	77,903
43	2037		79,196	1,293	1,293	0	77,903
44	2038		79,196	1,293	1,293	0	77,903
45	2039		79,196	1,293	1,293	0	77,903
46	2040		79,196	1,293	1,293	0	77,903
47	2041		79,196	1,293	1,293	0	77,903
48	2042		79,196	1,293	1,293	0	77,903
49	2043		79,196	1,293	1,293	0	77,903
50	2044		79,196	1,293	1,293	0	77,903
IRR = 16.4%							
B/C = 1.41 (at discount rate: 12 %)							
NPV = 76,317 (at discount rate: 12 %)							

Table 32. BENEFIT/COST ANALYSIS (4/4)

Alt. 3	Year in order	Year	Benefit	Cost			Net Cash Flow
				Construction	O/M	Replacement	
				323,684			Unit: Million Rp
1	1995		0	14,468	0	0	-14,468
2	1996		0	11,179	0	0	-11,179
3	1997		0	7,890	0	0	-7,890
4	1998		0	37,188	0	0	-37,188
5	1999		8,600	41,012	121	0	-32,533
6	2000		17,200	44,836	246	0	-27,882
7	2001		25,800	38,793	371	0	-13,364
8	2002		34,400	37,194	496	0	-3,250
9	2003		43,000	30,368	621	0	12,011
10	2004		51,600	30,368	746	0	20,466
11	2005		60,200	30,368	871	0	28,941
12	2006		68,800	30,368	996	0	37,466
13	2007		68,800	30,368	996	0	37,466
14	2008		68,800	30,368	996	0	37,466
15	2009		68,800	30,368	996	0	37,466
16	2010		68,800	30,368	996	0	37,466
17	2011		68,800	30,368	996	0	37,466
18	2012		68,800	30,368	996	0	37,466
19	2013		68,800	30,368	996	0	37,466
20	2014		68,800	30,368	996	0	37,466
21	2015		68,800	30,368	996	0	37,466
22	2016		68,800	30,368	996	0	37,466
23	2017		68,800	30,368	996	0	37,466
24	2018		68,800	30,368	996	0	37,466
25	2019		68,800	30,368	996	0	37,466
26	2020		68,800	30,368	996	0	37,466
27	2021		68,800	30,368	996	0	37,466
28	2022		68,800	30,368	996	0	37,466
29	2023		68,800	30,368	996	0	37,466
30	2024		68,800	30,368	996	0	37,466
31	2025		68,800	30,368	996	0	37,466
32	2026		68,800	30,368	996	0	37,466
33	2027		68,800	30,368	996	0	37,466
34	2028		68,800	30,368	996	0	37,466
35	2029		68,800	30,368	996	0	37,466
36	2030		68,800	30,368	996	0	37,466
37	2031		68,800	30,368	996	0	37,466
38	2032		68,800	30,368	996	0	37,466
39	2033		68,800	30,368	996	0	37,466
40	2034		68,800	30,368	996	0	37,466
41	2035		68,800	30,368	996	0	37,466
42	2036		68,800	30,368	996	0	37,466
43	2037		68,800	30,368	996	0	37,466
44	2038		68,800	30,368	996	0	37,466
45	2039		68,800	30,368	996	0	37,466
46	2040		68,800	30,368	996	0	37,466
47	2041		68,800	30,368	996	0	37,466
48	2042		68,800	30,368	996	0	37,466
49	2043		68,800	30,368	996	0	37,466
50	2044		68,800	30,368	996	0	37,466
IRR = 17.8%							
B/C = 1.54 (at discount rate: 12 %)							
NPV = 88,456 (at discount rate: 12 %)							

Table 33 PROBABLE FLOOD DAMAGE

The Priority Projects													Unit: Million Rp									
Alternatives	Return Period (Year)	General Asset											Crops (Paddy)	Total of Direct Damage	Indirect Damage	Infra-structure	Other Damage	Total of Probable Damage	Flood (*) Damage to be Remain	Probable Flood Reduction Benefit		
		Household Effects					Commercial Sector					Public Office									War-house	Factory
		House	Household	Effects	Comm-	Office	Office	Factory														
Cisadane River System																						
	2	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0		
	5	1,369	1,679	60	0	14	1	145	85	3,353	196	1,006	911	5,466	0	5,466	0	5,466	0	5,466		
	10	7,724	11,340	239	0	473	4	735	394	20,910	1,231	6,273	5,683	34,096	0	34,096	0	34,096	0	34,096		
	25	18,324	30,328	529	0	1,363	10	1,702	857	53,114	3,135	15,934	14,437	86,620	0	86,620	0	86,620	0	86,620		
	50	23,692	40,586	600	0	1,380	13	2,136	1,048	69,454	4,104	20,836	18,879	113,274	0	113,274	0	113,274	0	113,274		
Western Banjir Canal Syste																						
	2	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0		
	5	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0		
	10	48,800	102,999	21,696	9,675	20,695	10,556	7,396	0	221,817	133,090	66,545	84,290	505,742	0	505,742	0	505,742	0	505,742		
	25	97,756	206,074	31,992	13,807	69,129	15,522	12,443	0	446,723	268,034	134,017	169,755	1,018,529	0	1,018,529	0	1,018,529	0	1,018,529		
	50	121,081	273,973	37,621	15,764	98,511	18,849	14,853	0	580,652	348,391	174,196	220,648	1,323,886	223,033	1,100,853	223,033	1,100,853	1,100,853	1,100,853		
	100	127,377	293,907	40,575	17,096	106,016	19,424	15,550	0	619,946	371,968	185,984	235,580	1,413,477	621,706	791,771	621,706	791,771	791,771	791,771		

Note (*): As a result of the flood simulation analysis, in case of heavy rainfall of 1/50 years or 1/100 years, flood inundation will be occurred under the condition of Urgent Flood Control Project (1st Stage).

Therefore, flood damage to be remain under the condition of the Urgent Flood Control Project (1st Stage) is deducted from the flood reduction benefit of Master Plan scale.

Table 34 ANNUAL MEAN FLOOD DAMAGE

The Priority Projects

Alternatives	Return Period	Exceedance	Difference of Exceedance	Damage (Million Rp)		Annual Damage (Million Rp)	
				Amount	Mean	Segment	Cumulative
Cisadane River System	-	1.00					
	2	0.50	0.50	-	-	-	-
	5	0.20	0.30	5,466	2,733	820	820
	10	0.10	0.10	34,096	19,781	1,978	2,798
	25	0.04	0.06	86,620	60,358	3,621	6,420
	50	0.02	0.02	113,274	99,947	1,999	8,419
Western Banjir Canal System	-	1.00					
	2	0.50	0.50	-	-	-	-
	5	0.20	0.30	-	-	-	-
	10	0.10	0.10	505,742	252,871	25,287	25,287
	25	0.04	0.06	1,018,529	762,136	45,728	71,015
	50	0.02	0.02	1,323,886	1,171,208	23,424	94,439
	100	0.01	0.01	1,413,477	1,368,682	13,687	108,126

Urgent Flood Control Project (1st Stage)

Alternatives	Return Period	Exceedance	Difference of Exceedance	Damage (Million Rp)		Annual Damage (Million Rp)	
				Amount	Mean	Segment	Cumulative
Cisadane River System	-	1.00					
	2	0.50	0.50	-	-	-	-
	5	0.20	0.30	5,466	2,733	820	820
	10	0.10	0.10	34,096	19,781	1,978	2,798
	25	0.04	0.06	86,620	60,358	3,621	6,420
Western Banjir Canal System	-	1.00					
	2	0.50	0.50	-	-	-	-
	5	0.20	0.30	-	-	-	-
	10	0.10	0.10	505,742	252,871	25,287	25,287
	25	0.04	0.06	1,018,529	762,136	45,728	71,015
	50	0.02	0.02	1,100,853	1,059,691	21,194	92,209
	100	0.01	0.01	791,771	946,312	9,463	101,672

Table 35 PROJECT COST (1/2)

The Priority Projects (Whole)		F.C. (Million Yen)		L.C. (Million Rp)		Exchange rate: ¥1=		Rp 22.70	
Cost Item		Financial cost	Economic cost	Financial cost	Economic cost	Total financial cost (Million Rp)	Total economic cost (Million Rp)		
I.	Direct Construction Cost	15,945	15,466	170,200	156,585	532,159	507,664		
I.	1st Stage	15,010	14,559	159,110	146,382	499,844	476,872		
(1)	1st Phase	12,557	12,180	123,579	113,693	408,619	390,180		
	1) Cisadane River	1,119	1,085	13,925	12,811	39,327	37,441		
	2) Ciliwung Floodway	11,438	11,095	109,654	100,882	369,292	352,739		
(2)	2nd Phase	2,453	2,379	35,531	32,689	91,225	86,692		
	1) Western Banjir Canal	2,453	2,379	35,531	32,689	91,225	86,692		
2.	2nd Stage	935	907	11,090	10,203	32,315	30,792		
	1) Cisadane River Improvement	933	905	11,027	10,145	32,206	30,689		
	2) Related Structures	2	2	63	58	108	103		
II.	Land Acquisition and House Compensation	0	0	85,494	26,879	85,494	26,879		
I.	1st Stage	0	0	81,702	25,064	81,702	25,064		
(1)	1st Phase	0	0	61,455	22,426	61,455	22,426		
(2)	2nd Phase	0	0	20,247	2,638	20,247	2,638		
2.	2nd Stage	0	0	3,792	1,815	3,792	1,815		
III.	Sub-total (1+2)	15,945	15,466	255,694	183,464	617,653	534,543		
IV.	Engineering Services Cost (15 % of I.)	2,392	2,392	25,531	25,531	79,824	79,824		
V.	Government Administration Cost (5 % of III.)	0	0	30,882	26,727	30,882	26,727		
VI.	Sub-total (III+IV+V)	18,337	17,858	312,107	235,722	728,360	641,094		
VII.	Physical Contingency (10 % of VI.)	1,834	1,786	31,211	23,572	72,836	64,109		
VIII.	Sub-total (VI+VII)	20,171	19,644	343,318	259,294	801,196	705,203		
IX.	Price Contingency	5,224	0	249,345	0	367,930	0		
X.	Total (VIII+IX)	25,395	19,644	592,663	259,294	1,169,126	705,203		

Table 35 PROJECT COST (2/2)

Urgent Flood Control Project (1st Stage)				Exchange rate: ¥1= Rp.22.70		
Cost Item	F.C. (Million Yen)		L.C. (Million Rp)		Total financial cost (Million Rp)	Total economic cost (Million Rp)
	Financial cost	Economic cost	Financial cost	Economic cost		
1. Direct Construction Cost	15,010	14,559	159,110	146,382	499,844	476,872
(1) 1st Phase	12,557	12,180	123,579	113,693	408,619	390,180
1) Cisadane River	1,119	1,085	13,925	12,811	39,327	37,441
2) Ciliwung Floodway	11,438	11,095	109,654	100,882	369,292	352,739
(2) 2nd Phase	2,453	2,379	35,531	32,689	91,225	86,692
1) Western Banjir Canal	2,453	2,379	35,531	32,689	91,225	86,692
2. Land Acquisition and House Compensation	0	0	81,702	25,064	81,702	25,064
(1) 1st Phase	0	0	61,455	22,426	61,455	22,426
(2) 2nd Phase	0	0	20,247	2,638	20,247	2,638
3. Sub-total (1+2)	15,010	14,559	240,812	171,446	581,546	501,936
4. Engineering Services Cost (15 % of 1.)	2,252	2,252	23,867	23,867	74,977	74,977
5. Government Administration Cost (5 % of 3.)	0	0	29,077	25,097	29,077	25,097
6. Sub-total (3+4+5)	17,262	16,811	293,756	220,410	685,601	602,010
7. Physical Contingency (10 % of 6.)	1,726	1,681	29,376	22,041	68,560	60,201
8. Sub-total (6+7)	18,988	18,492	323,132	242,451	754,161	662,211
9. Price Contingency	4,544	0	237,834	0	340,983	0
10. Total (8+9)	23,532	18,492	560,966	242,451	1,095,144	662,211

Table 36 ANNUAL ECONOMIC COST (1/2)

The Priority Projects (Whole)																Unit: Million Rp.	
	Description	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	Total
I.	Direct construction cost	0	0	0	58,444	115,026	115,211	80,163	25,642	22,457	22,493	22,493	14,943	0	15,342	15,450	507,664
1.	1st Stage	0	0	0	58,444	115,026	115,211	80,163	25,642	22,457	22,493	22,493	14,943	0	0	0	476,872
(1)	1st Phase	0	0	0	58,444	115,026	115,211	80,163	21,336	0	0	0	0	0	0	0	390,180
(2)	2nd Phase	0	0	0	0	0	0	0	4,306	22,457	22,493	22,493	14,943	0	0	0	86,692
2.	2nd Stage	0	0	0	0	0	0	0	0	0	0	0	0	0	15,342	15,450	30,792
II.	Land acquisition/house	0	0	7,298	7,298	7,830	0	1,303	1,335	0	0	0	0	574	622	619	26,879
1.	1st Stage	0	0	7,298	7,298	7,830	0	1,303	1,335	0	0	0	0	0	0	0	25,064
(1)	1st Phase	0	0	7,298	7,298	7,830	0	0	0	0	0	0	0	0	0	0	22,426
(2)	2nd Phase	0	0	0	0	0	0	1,303	1,335	0	0	0	0	0	0	0	2,638
2.	2nd Stage	0	0	0	0	0	0	0	0	0	0	0	0	574	622	619	1,815
III.	Sub-total (1+2)	0	0	7,298	65,742	122,856	115,211	81,466	26,977	22,457	22,493	22,493	14,943	574	15,964	16,069	534,543
1.	1st Stage	0	0	7,298	65,742	122,856	115,211	81,466	26,977	22,457	22,493	22,493	14,943	0	0	0	501,936
(1)	1st Phase	0	0	7,298	65,742	122,856	115,211	80,163	21,336	0	0	0	0	0	0	0	412,606
(2)	2nd Phase	0	0	0	0	0	0	1,303	5,641	22,457	22,493	22,493	14,943	0	0	0	89,330
2.	2nd Stage	0	0	0	0	0	0	0	0	0	0	0	0	574	15,964	16,069	32,607
IV.	Administration	508	508	3,212	3,212	3,212	3,333	3,333	4,126	914	914	914	1,074	356	570	571	26,727
V.	Engineering Services	10,219	10,219	6,805	6,805	6,805	9,101	9,101	8,628	1,823	1,823	1,823	3,448	654	1,285	1,285	79,824
VI.	Sub-total (3+4+5)	10,727	10,727	17,315	75,759	132,873	127,645	93,900	39,731	25,194	25,230	25,230	19,465	1,554	17,819	17,925	641,094
VII.	Physical contingency	948	948	2,681	8,055	13,386	11,733	9,388	4,437	2,328	2,331	2,331	1,800	202	1,766	1,775	64,109
VIII.	Total (6+7)	11,675	11,675	19,996	83,814	146,259	139,378	103,288	44,168	27,522	27,561	27,561	21,265	1,756	19,585	19,700	705,203

Table 36 ANNUAL ECONOMIC COST (2/2)

Urgent Flood Control Project (1st Stage)														Unit: Million Rp.	
Description	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	Total		
1. Direct construction cost	0	0	0	58,444	115,026	115,211	80,163	25,642	22,457	22,493	22,493	14,943	476,872		
(1) 1st Phase	0	0	0	58,444	115,026	115,211	80,163	21,336	0	0	0	0	390,180		
(2) 2nd Phase	0	0	0	0	0	0	0	4,306	22,457	22,493	22,493	14,943	86,692		
2. Land acquisition/house	0	0	7,298	7,298	7,830	0	1,303	1,335	0	0	0	0	25,064		
(1) 1st Phase	0	0	7,298	7,298	7,830	0	0	0	0	0	0	0	22,426		
(2) 2nd Phase	0	0	0	0	0	0	1,303	1,335	0	0	0	0	2,638		
3. Sub-total (1+2)	0	0	7,298	65,742	122,856	115,211	81,466	26,977	22,457	22,493	22,493	14,943	501,936		
(1) 1st Phase	0	0	7,298	65,742	122,856	115,211	80,163	21,336	0	0	0	0	412,606		
(2) 2nd Phase	0	0	0	0	0	0	1,303	5,641	22,457	22,493	22,493	14,943	89,330		
4. Administration	508	508	3,212	3,212	3,212	3,333	3,333	4,126	914	914	914	911	25,097		
5. Engineering Services	10,219	10,219	6,805	6,805	6,805	9,101	9,101	8,628	1,823	1,823	1,823	1,825	74,977		
6. Sub-total (3+4+5)	10,727	10,727	17,315	75,759	132,873	127,645	93,900	39,731	25,194	25,230	25,230	17,679	602,010		
7. Physical contingency	948	948	2,681	8,055	13,386	11,733	9,388	4,437	2,328	2,331	2,331	1,635	60,201		
8. Total (6+7)	11,675	11,675	19,996	83,814	146,259	139,378	103,288	44,168	27,522	27,561	27,561	19,314	662,211		

Table 37 REPLACEMENT COST

The Priority Projects		Exchange rate: ¥1 = Rp 22.70				
Cost Item	F.C. (Million Yen)		L.C. (Million Rp)		Total financial cost (Million Rp)	Total economic cost (Million Rp)
	Financial cost	Economic cost	Financial cost	Economic cost		
Urgent Flood Control Project (1st Stage)						
Phase-1 Total						
Direct construction	1	1	54	50	77	73
Land acquisition/house	0	0	0	0	0	0
Administration	0	0	4	4	4	4
Engineering services	0	0	9	9	9	9
Sub-total	1	1	67	63	90	86
Physical contingency	0	0	7	6	9	9
Total cost	1	1	74	69	99	95
Phase-1 Cilinung floodway						
Direct construction		0		0	0	0
Land acquisition/house	0	0	0	0	0	0
Administration	0	0	0	0	0	0
Engineering services	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0
Physical contingency	0	0	0	0	0	0
Total cost	0	0	0	0	0	0
Phase-1 Cisadane river						
Direct construction	1	1	54	50	77	73
Land acquisition/house	0	0	0	0	0	0
Administration	0	0	4	4	4	4
Engineering services	0	0	9	9	9	9
Sub-total	1	1	67	63	90	86
Physical contingency	0	0	7	6	9	9
Total cost	1	1	74	69	99	95
Phase-2 WBC						
Direct construction	51	49	751	691	1,909	1,803
Land acquisition/house	0	0	0	0	0	0
Administration	0	0	95	90	95	90
Engineering services	9	9	128	128	332	332
Sub-total	60	58	974	909	2,336	2,225
Physical contingency	6	6	97	91	234	223
Total cost	66	64	1,071	1,000	2,570	2,448
Total of 1st Stage						
Direct construction	52	50	805	741	1,985	1,876
Land acquisition/house	0	0	0	0	0	0
Administration	0	0	99	94	99	94
Engineering services	9	9	137	137	341	341
Sub-total	61	59	1,041	972	2,425	2,311
Physical contingency	6	6	104	97	243	231
Total cost	67	65	1,145	1,069	2,668	2,542
2nd Stage Cisadane						
Direct construction	0.44	0.43	24	22	34	32
Land acquisition/house	0.00	0.00	0	0	0	0
Administration	0.00	0.00	2	2	2	2
Engineering services	0.07	0.07	4	4	6	6
Sub-total	0.51	0.50	30	28	42	40
Physical contingency	0.05	0.05	3	3	4	4
Total of 2nd Stage	0.56	0.55	33	31	46	44

Table 38 BENEFIT/COST ANALYSIS (1/2)

Urgent Flood Control of Project (1st Stage)							662,211	Unit: Million Rp	
order	Year in	Year	Benefit	Cost			Total	Net Cash	Flow
				Construction	OM	Replacement			
1	1997/98		0	11,675	0		11,675	-11,675	
2	1998/99		0	11,675	0		11,675	-11,675	
3	1999/00		0	19,996	0		19,996	-19,996	
4	2000/01		0	83,814	0		83,814	-83,814	
5	2001/02		3,058	146,259	401		146,660	-143,602	
6	2002/03		4,845	139,378	799		140,177	-135,332	
7	2003/04		6,632	103,288	1,199		104,487	-97,855	
8	2004/05		72,530	44,168	1,600		45,768	26,762	
9	2005/06		89,176	27,522	1,967		29,489	59,687	
10	2006/07		93,932	27,561	2,072		29,633	64,299	
11	2007/08		96,580	21,561	2,174		23,735	68,844	
12	2008/09		103,336	19,314	2,279		21,593	81,743	
13	2009/10		106,092		2,384		2,384	105,708	
14	2010/11		106,092		2,384		2,384	105,708	
15	2011/12		106,092		2,384		2,384	105,708	
16	2012/13		106,092		2,384		2,384	105,708	
17	2013/14		106,092		2,384		2,384	105,708	
18	2014/15		106,092		2,384		2,384	105,708	
19	2015/16		106,092		2,384		2,384	105,708	
20	2016/17		106,092		2,384		2,384	105,708	
21	2017/18		106,092		2,384		2,384	105,708	
22	2018/19		106,092		2,384		2,384	105,708	
23	2019/20		106,092		2,384		2,384	105,708	
24	2020/21		106,092		2,384		2,384	105,708	
25	2021/22		106,092		2,384		2,384	105,708	
26	2022/23		106,092		2,384		2,384	105,708	
27	2023/24		106,092		2,384		2,384	105,708	
28	2024/25		106,092		2,384		2,384	105,708	
29	2025/26		106,092		2,384		2,384	105,708	
30	2026/27		106,092		2,384		2,384	105,708	
31	2027/28		106,092		2,384		2,384	105,708	
32	2028/29		106,092		2,384		2,384	105,708	
33	2029/30		106,092		2,384		2,384	105,708	
34	2030/31		106,092		2,384		2,384	105,708	
35	2031/32		106,092		2,384		2,384	105,708	
36	2032/33		106,092		2,384		2,384	105,708	
37	2033/34		106,092		2,384		2,384	105,708	
38	2034/35		106,092		2,384		2,384	105,708	
39	2035/36		106,092		2,384		2,384	105,708	
40	2036/37		106,092		2,384		2,384	105,708	
41	2037/38		106,092		2,384		2,384	105,708	
42	2038/39		106,092		2,384		2,384	105,708	
43	2039/40		106,092		2,384		2,384	105,708	
44	2040/41		106,092		2,384		2,384	105,708	
45	2041/42		106,092		2,384		2,384	105,708	
46	2042/43		106,092		2,384		2,384	105,708	
47	2043/44		106,092		2,384		2,384	105,708	
48	2044/45		106,092		2,384		2,384	105,708	
49	2045/46		106,092		2,384		2,384	105,708	
50	2046/47		106,092		2,384		2,384	105,708	
B/C = 13.1%									
E/C = 1.10 (at discount rate 12 %)									
NPV = 35,281 (at discount rate 12 %)									

Table 38 BENEFIT/COST ANALYSIS (1/2)

The Priority Projects (Whole)						705,203	Unit: Million Rp	
Year in order	Year	Benefit	Cost			Net Cash Flow	Total	
			Construction	OM	Replacement			
1	1997/98	0	11,675	0	0	-11,675	-11,675	
2	1998/99	0	11,675	0	0	-11,675	-11,675	
3	1999/00	0	19,996	0	0	-19,996	-19,996	
4	2000/01	0	83,814	0	0	-83,814	-83,814	
5	2001/02	3,058	146,259	401	0	-143,602	-143,602	
6	2002/03	4,845	139,378	799	0	-135,332	-135,332	
7	2003/04	6,632	103,288	1,199	0	-97,855	-97,855	
8	2004/05	72,530	44,168	1,600	0	26,762	26,762	
9	2005/06	89,176	27,522	1,967	0	59,687	59,687	
10	2006/07	93,932	27,561	2,072	0	64,299	64,299	
11	2007/08	98,580	27,561	2,174	0	68,845	68,845	
12	2008/09	103,336	21,265	2,279	0	79,792	79,792	
13	2009/10	106,092	17,56	2,384	0	86,123	86,123	
14	2010/11	108,092	19,585	2,384	0	86,123	86,123	
15	2011/12	108,092	19,700	2,384	0	86,008	86,008	
16	2012/13	116,545	19,700	2,538	0	86,308	86,308	
17	2013/14	116,545	19,700	2,538	0	86,308	86,308	
18	2014/15	116,545	19,700	2,538	0	86,308	86,308	
19	2015/16	116,545	19,700	2,538	0	86,308	86,308	
20	2016/17	116,545	19,700	2,538	0	86,308	86,308	
21	2017/18	116,545	19,700	2,538	0	86,308	86,308	
22	2018/19	116,545	19,700	2,538	0	86,308	86,308	
23	2019/20	116,545	19,700	2,538	0	86,308	86,308	
24	2020/21	116,545	19,700	2,538	0	86,308	86,308	
25	2021/22	116,545	19,700	2,538	0	86,308	86,308	
26	2022/23	116,545	19,700	2,538	0	86,308	86,308	
27	2023/24	116,545	19,700	2,538	0	86,308	86,308	
28	2024/25	116,545	19,700	2,538	0	86,308	86,308	
29	2025/26	116,545	19,700	2,538	0	86,308	86,308	
30	2026/27	116,545	19,700	2,538	0	86,308	86,308	
31	2027/28	116,545	19,700	2,538	0	86,308	86,308	
32	2028/29	116,545	19,700	2,538	0	86,308	86,308	
33	2029/30	116,545	19,700	2,538	0	86,308	86,308	
34	2030/31	116,545	19,700	2,538	0	86,308	86,308	
35	2031/32	116,545	19,700	2,538	0	86,308	86,308	
36	2032/33	116,545	19,700	2,538	0	86,308	86,308	
37	2033/34	116,545	19,700	2,538	0	86,308	86,308	
38	2034/35	116,545	19,700	2,538	0	86,308	86,308	
39	2035/36	116,545	19,700	2,538	0	86,308	86,308	
40	2036/37	116,545	19,700	2,538	0	86,308	86,308	
41	2037/38	116,545	19,700	2,538	0	86,308	86,308	
42	2038/39	116,545	19,700	2,538	0	86,308	86,308	
43	2039/40	116,545	19,700	2,538	0	86,308	86,308	
44	2040/41	116,545	19,700	2,538	0	86,308	86,308	
45	2041/42	116,545	19,700	2,538	0	86,308	86,308	
46	2042/43	116,545	19,700	2,538	0	86,308	86,308	
47	2043/44	116,545	19,700	2,538	0	86,308	86,308	
48	2044/45	116,545	19,700	2,538	0	86,308	86,308	
49	2045/46	116,545	19,700	2,538	0	86,308	86,308	
50	2046/47	116,545	19,700	2,538	0	86,308	86,308	
51	2047/48	116,545	19,700	2,538	0	86,308	86,308	
52	2048/49	116,545	19,700	2,538	0	86,308	86,308	
53	2049/50	116,545	19,700	2,538	0	86,308	86,308	
54	2050/51	116,545	19,700	2,538	0	86,308	86,308	
55	2051/52	116,545	19,700	2,538	0	86,308	86,308	
56	2052/53	116,545	19,700	2,538	0	86,308	86,308	
57	2053/54	116,545	19,700	2,538	0	86,308	86,308	
58	2054/55	116,545	19,700	2,538	0	86,308	86,308	
59	2055/56	116,545	19,700	2,538	0	86,308	86,308	
60	2056/57	116,545	19,700	2,538	0	86,308	86,308	
61	2057/58	116,545	19,700	2,538	0	86,308	86,308	
62	2058/59	116,545	19,700	2,538	0	86,308	86,308	
63	2059/60	116,545	19,700	2,538	0	86,308	86,308	
64	2060/61	116,545	19,700	2,538	0	86,308	86,308	
65	2061/62	116,545	19,700	2,538	0	86,308	86,308	
66	2062/63	116,545	19,700	2,538	0	86,308	86,308	
67	2063/64	116,545	19,700	2,538	0	86,308	86,308	
68	2064/65	116,545	19,700	2,538	0	86,308	86,308	
69	2065/66	116,545	19,700	2,538	0	86,308	86,308	
70	2066/67	116,545	19,700	2,538	0	86,308	86,308	
71	2067/68	116,545	19,700	2,538	0	86,308	86,308	
72	2068/69	116,545	19,700	2,538	0	86,308	86,308	
73	2069/70	116,545	19,700	2,538	0	86,308	86,308	
74	2070/71	116,545	19,700	2,538	0	86,308	86,308	
75	2071/72	116,545	19,700	2,538	0	86,308	86,308	
76	2072/73	116,545	19,700	2,538	0	86,308	86,308	
77	2073/74	116,545	19,700	2,538	0	86,308	86,308	
78	2074/75	116,545	19,700	2,538	0	86,308	86,308	
79	2075/76	116,545	19,700	2,538	0	86,308	86,308	
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82	2078/79	116,545	19,700	2,538	0	86,308	86,308	
83	2079/80	116,545	19,700	2,538	0	86,308	86,308	
84	2080/81	116,545	19,700	2,538	0	86,308	86,308	
85	2081/82	116,545	19,700	2,538	0	86,308	86,308	
86	2082/83	116,545	19,700	2,538	0	86,308	86,308	
87	2083/84	116,545	19,700	2,538	0	86,308	86,308	
88	2084/85	116,545	19,700	2,538	0	86,308	86,308	
89	2085/86	116,545	19,700	2,538	0	86,308	86,308	
90	2086/87	116,545	19,700	2,538	0	86,308	86,308	
91	2087/88	116,545	19,700	2,538	0	86,308	86,308	
92	2088/89	116,545	19,700	2,538	0	86,308	86,308	
93	2089/90	116,545	19,700	2,538	0	86,308	86,308	
94	2090/91	116,545	19,700	2,538	0	86,308	86,308	
95	2091/92	116,545	19,700	2,538	0	86,308	86,308	
96	2092/93	116,545	19,700	2,538	0	86,308	86,308	
97	2093/94	116,545	19,700	2,538	0	86,308	86,308	
98	2094/95	116,545	19,700	2,538	0	86,308	86,308	
99	2095/96	116,545	19,700	2,538	0	86,308	86,308	
100	2096/97	116,545	19,700	2,538	0	86,308	86,308	
101	2097/98	116,545	19,700	2,538	0	86,308	86,308	
102	2098/99	116,545	19,700	2,538	0	86,308	86,308	
103	2099/00	116,545	19,700	2,538	0	86,308	86,308	
104	2100/01	116,545	19,700	2,538	0	86,308	86,308	
105	2101/02	116,545	19,700	2,538	0	86,308	86,308	
106	2102/03	116,545	19,700	2,538	0	86,308	86,308	
107	2103/04	116,545	19,700	2,538	0	86,308	86,308	
108	2104/05	116,545	19,700	2,538	0	86,308	86,308	
109	2105/06	116,545	19,700	2,538	0	86,308	86,308	
110	2106/07	116,545	19,700	2,538	0	86,308	86,308	
111	2107/08	116,545	19,700	2,538	0	86,308	86,308	
112	2108/09	116,545	19,700	2,538	0	86,308	86,308	
113	2109/10	116,545	19,700	2,538	0	86,308	86,308	
114	2110/11	116,545	19,700	2,538	0	86,308	86,308	
115	2111/12	116,545	19,700	2,538	0	86,308	86,308	
116	2112/13	116,545	19,700	2,538	0	86,308	86,308	
117	2113/14	116,545	19,700	2,538	0	86,308	86,308	
118	2114/15	116,545	19,700	2,538	0	86,308	86,308	
119	2115/16	116,545	19,700	2,538	0	86,308	86,308	
120	2116/17	116,545	19,700	2,538	0	86,308	86,308	
121	2117/18	116,545	19,700	2,538	0	86,308	86,308	
122	2118/19	116,545	19,700	2,538	0	86,308	86,308	
123	2119/20	116,545	19,700	2,538	0	86,308	86,308	
124	2120/21	116,545	19,700	2,538	0	86,308	86,308	
125	2121/22	116,545	19,700	2,538	0	86,308	86,308	
126	2122/23	116,545	19,700	2,538	0	86,308	86,308	
127	2123/24	116,545	19,700	2,538	0	86,308	86,308	
128	2124/25	116,545	19,700	2,538	0	86,308	86,308	
129	2125/26	116,545	19,700	2,538	0	86,308	86,308	
130	2126/27	116,545	19,700	2,538	0	86,308	86,308	
131	2127/28	116,545	19,700	2,538	0	86,308	86,308	
132	2128/29	116,545	19,700	2,538	0	86,308	86,308	
133	2129/30	116,545	19,700	2,538	0	86,308	86,308	
134	2130/31	116,545	19,700	2,538	0	86,308	86,308	
135	2131/32	116,545	19,700	2,538	0	86,308	86,308	
136	2132/33	116,545	19,700	2,538	0	86,308	86,308	
137	2133/34	116,545	19,700	2,538	0	86,308	86,308	
138	2134/35	116,545	19,700	2,538	0	86,308	86,308	
139	2135/36	116,545	19,700	2,538	0	86,308	86,308	
140	2136/37	116,545	19,700	2,538	0	86,308	86,308	
141	2137/38	116,545	19,700	2,538	0	86,308	86,308	
142	2138/39	116,545	19,700	2,538	0	86,308	86,308	
143	2139/40	116,545	19,700	2,538	0	86,308	86,308	
144	2140/41	116,545	19,700	2,538	0	86,308	86,308	
145	2141/42	116,545	19,700	2,538	0	86,308	86,308	
146	2142/43	116,545	19,700	2,538	0	86,308	86,308	

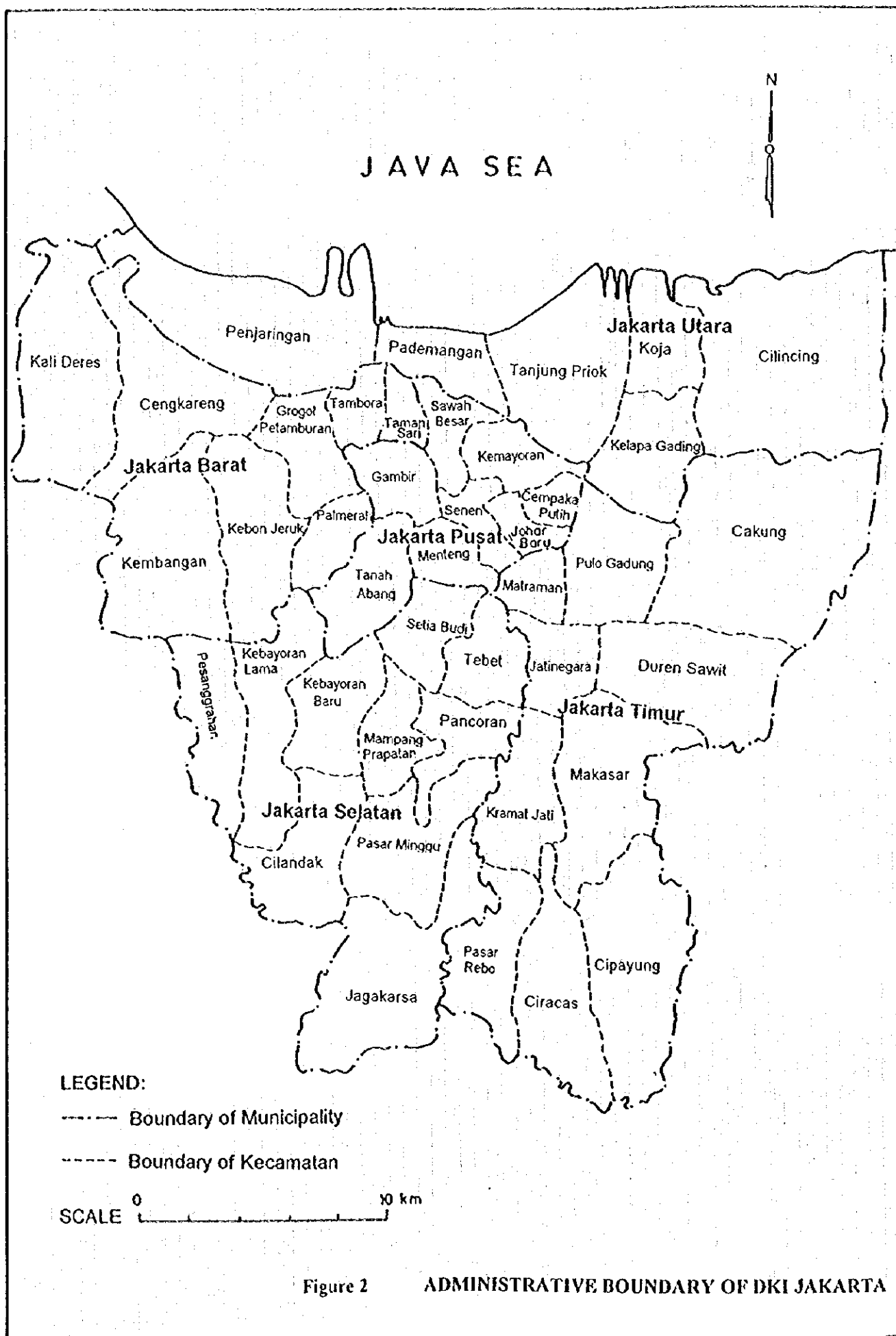
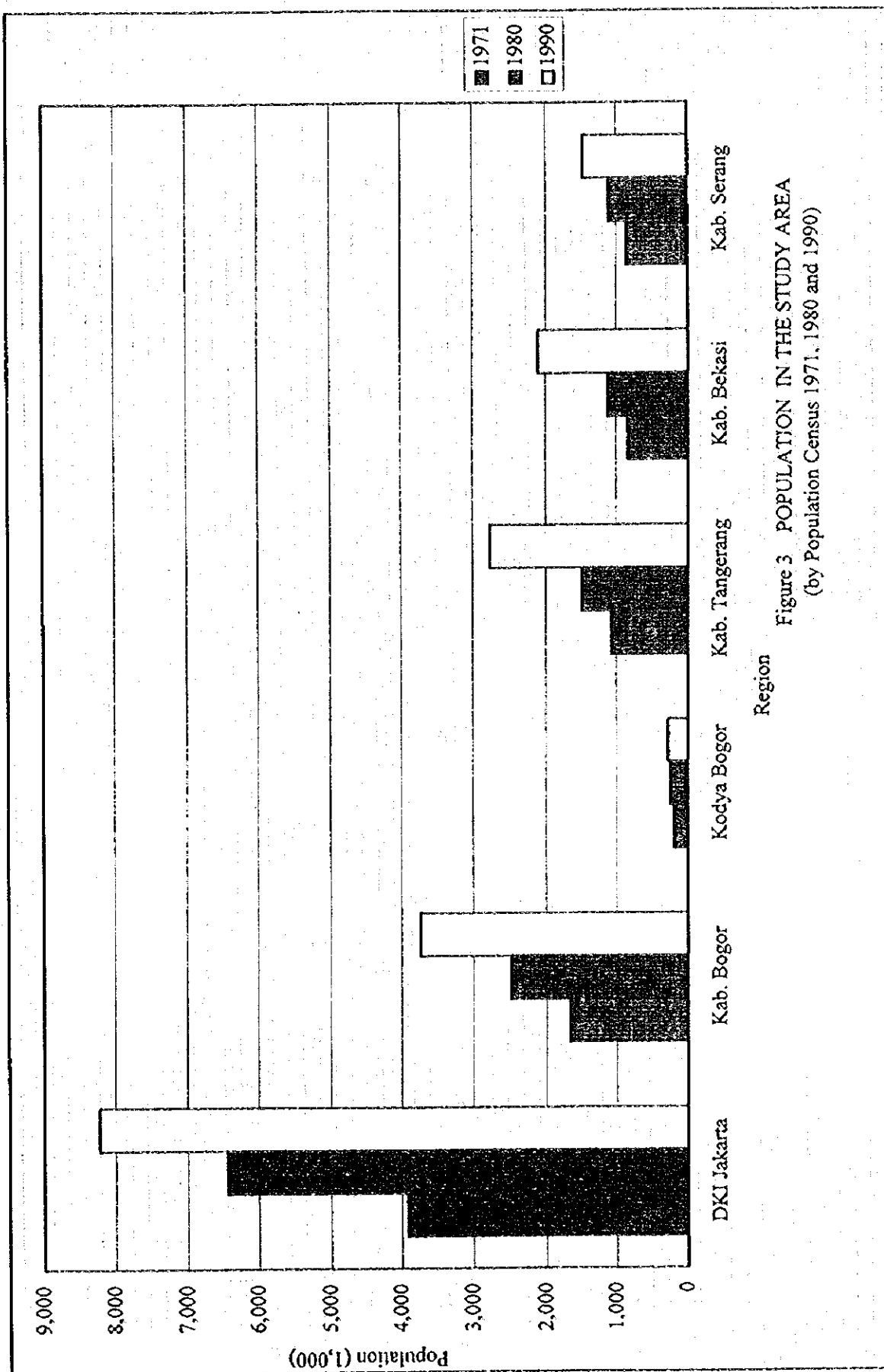


Figure 2 ADMINISTRATIVE BOUNDARY OF DKI JAKARTA



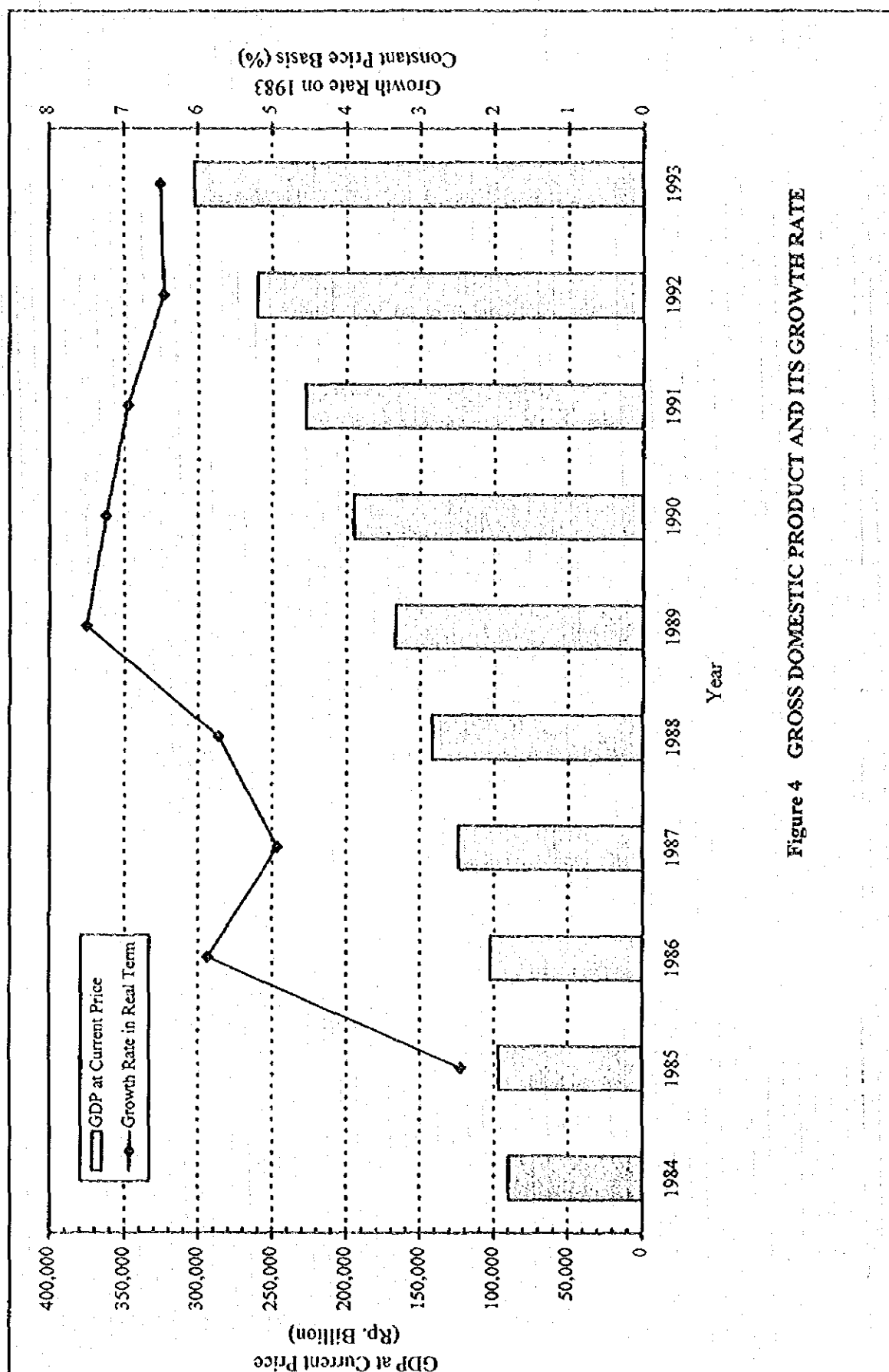
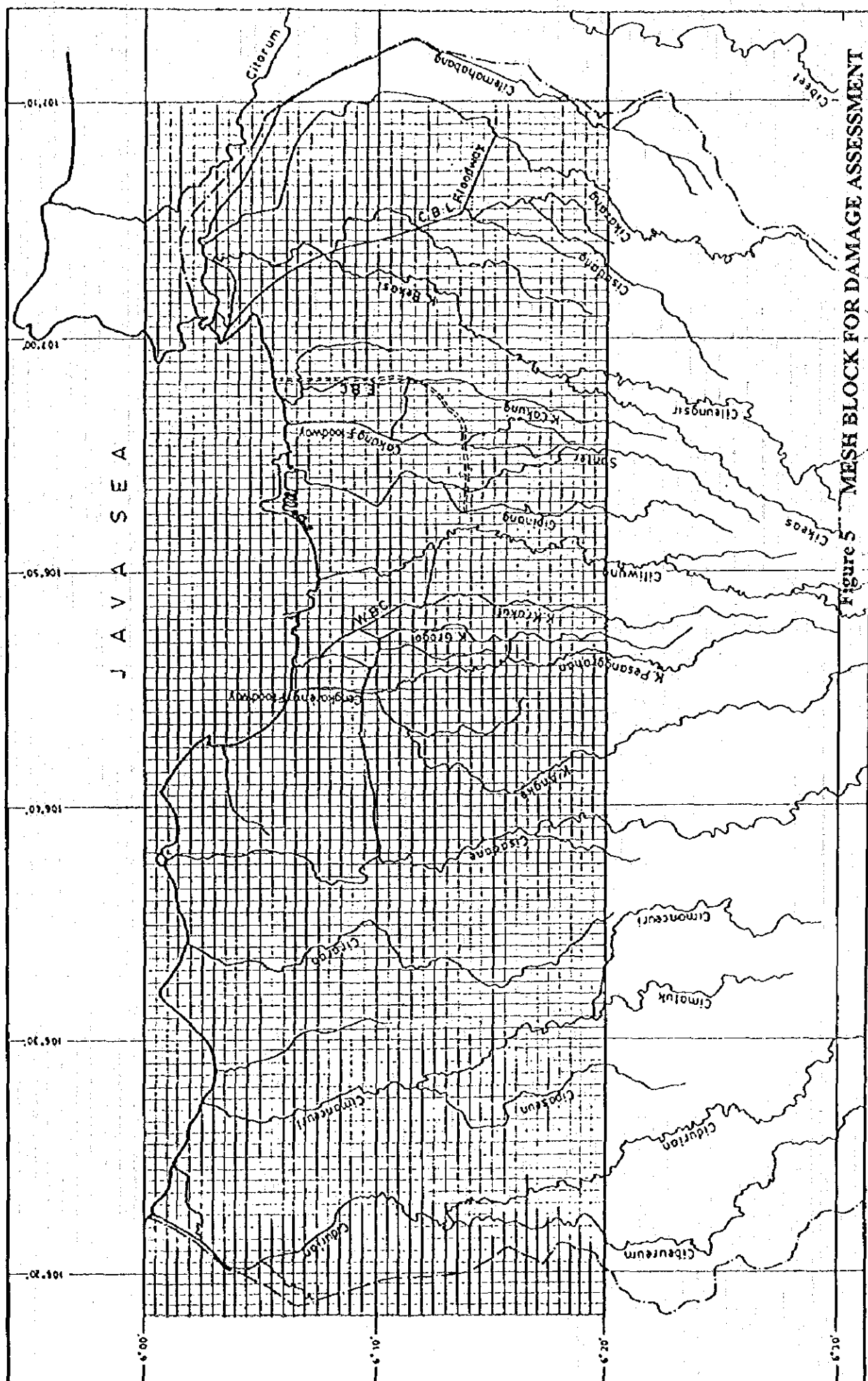


Figure 4 GROSS DOMESTIC PRODUCT AND ITS GROWTH RATE



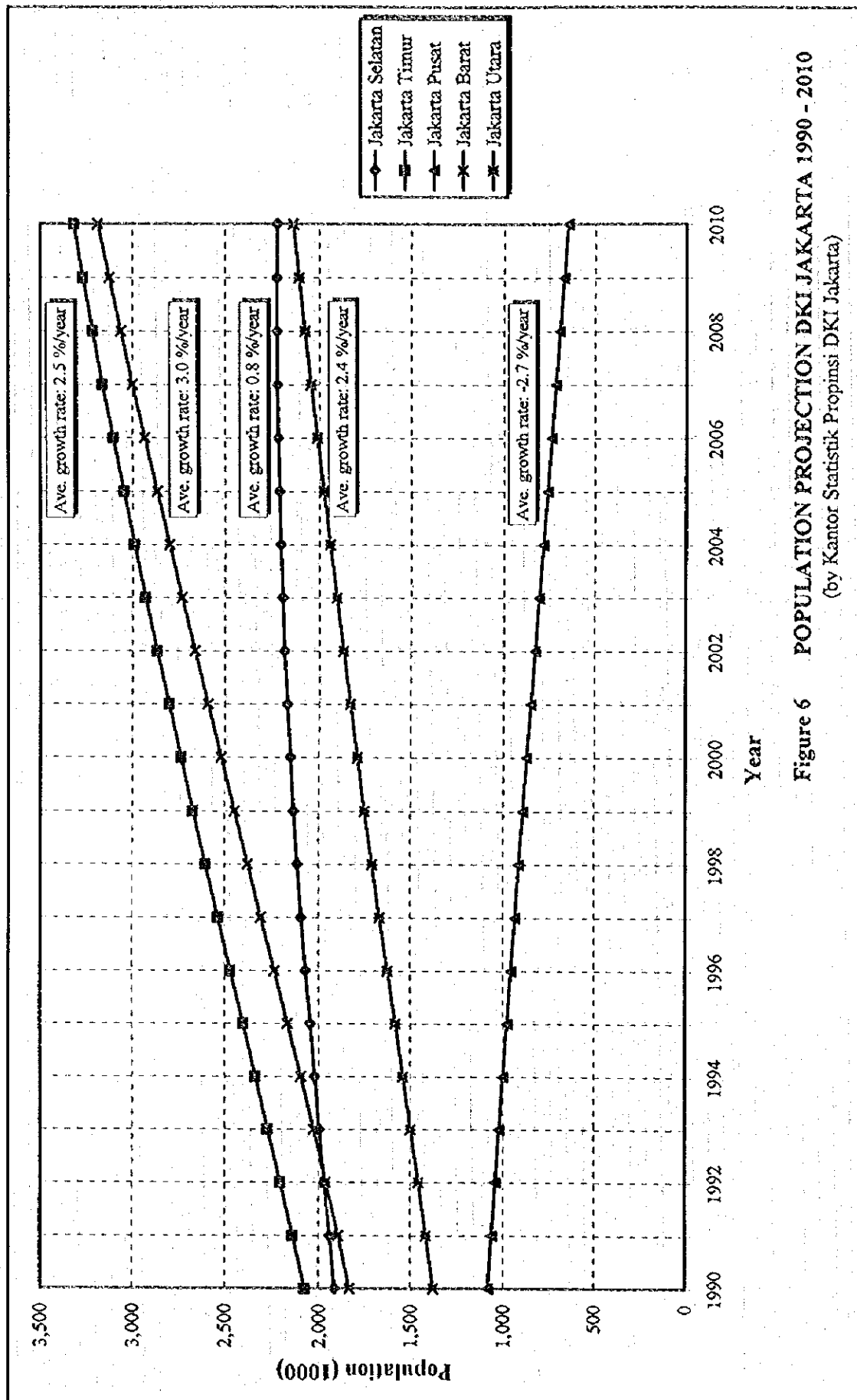


Figure 6 POPULATION PROJECTION DKI JAKARTA 1990 - 2010
(by Kantor Statistik Propinsi DKI Jakarta)

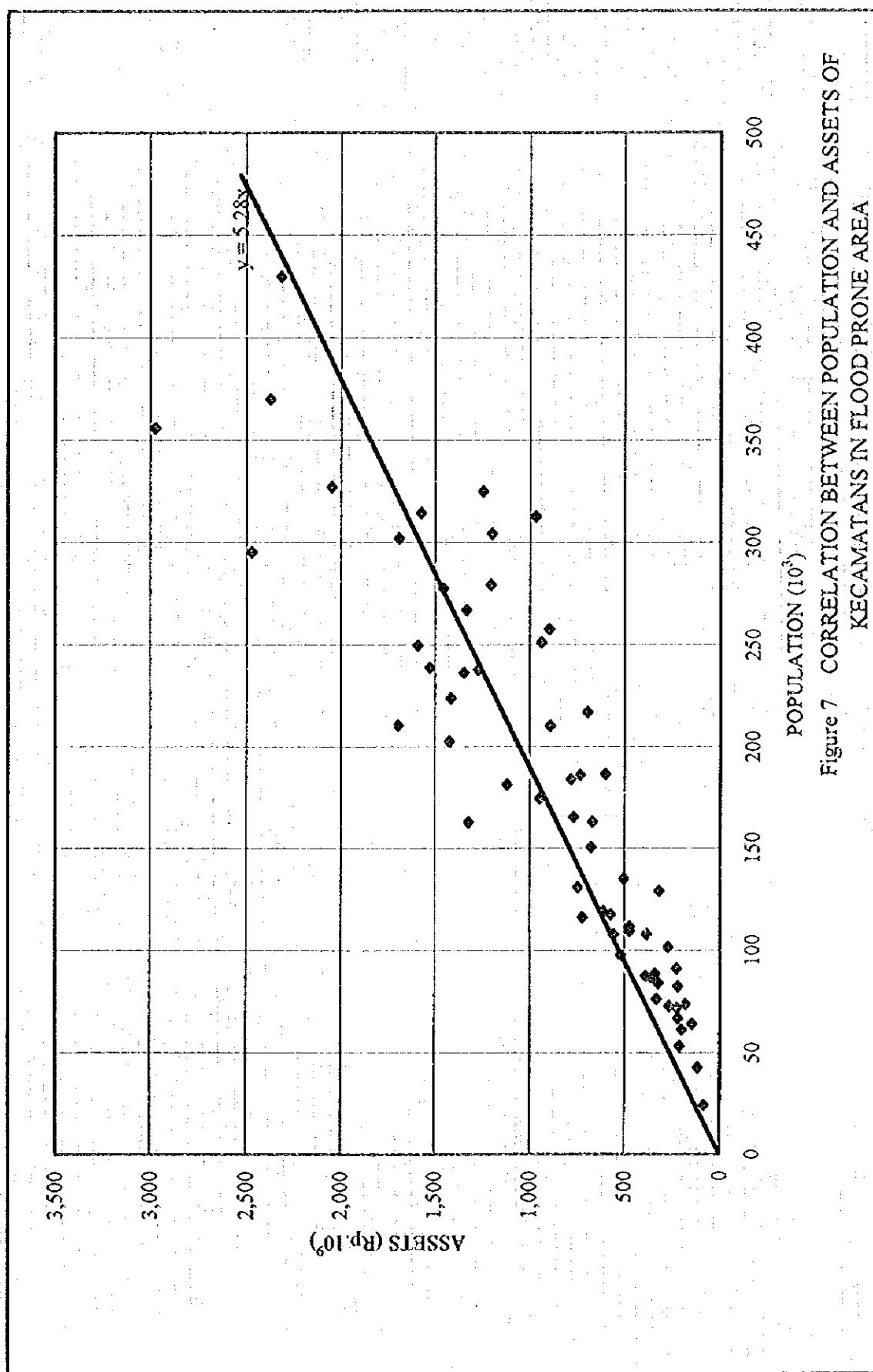


Figure 7 CORRELATION BETWEEN POPULATION AND ASSETS OF
KECAMATANS IN FLOOD PRONE AREA

