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APPENDIX 11.1-1 UNIT PRICE ANALYSIS FOR CONCRETE SPRAYING (1)

NAME OF PROJECT : THE FEASIBILITY STUDY OF PHILIPPINE ROAD DISASTER PREVENTION PROJECT

ITEM NO. 303 NAME OF ITEM:

CONCRETE SPRAYING THICKNESS 15 cm.

Quantity ; 100 sq. M.

Unit Price ; 440.00 ₱/sq. M.

DESCRIPTION	Quantity/ No. of days	Unit	Unit Rate/ Daily Rate	COMPONENTS			Financial Cost
				Foreign	Local	Tax	
1) Materials	Quantity	Unit	Unit Rate				
Concrete Class "A"	18	Cu. M.	1020.00	10,098	5,508	2,754	18,360
P.V.C. Pipe	5.25	Li. M.	30.00	95	38	25	158
Wire Net Ø2.0mm-50mmx50mm (JIS 3552)	140	Sq. M.	32.00	3,181	538	761	4,480
Anchor Bolt Ø 16mm - 400mm	30	ea.	10.00	213	36	51	300
Steel Reinforcement	418	Kg.	8.97	2,625	450	675	3,750
Sub-total				16,212	6,570	4,266	27,048
2) Equipment	No. of days	Unit	Daily Rate				
Air Compressor 10.5m3	2.7	day	1960.00	3,546	1,058	688	5,292
Hard Hammer 15 kg	0.5	day	72.00	24	7	5	36
Dynamo-electric Machine 7.5 kvA	1.7	day	215.00	245	73	48	366
Belt Conveyor 7 (m)	5.1	day	160.50	549	164	106	819

UNIT PRICE ANALYSIS FOR CONCRETE SPRAYING (2)

NAME OF PROJECT : THE FEASIBILITY STUDY OF PHILIPPINE ROAD DISASTER PREVENTION PROJECT

ITEM NO. 303 NAME OF ITEM:

CONCRETE SPRAYING THICKNESS 15 cm.

Quantity ; 100 sq. M.

Unit Price ; 440.00 ₱/sq. M.

DESCRIPTION	Quantity/ No. of days	Unit	Unit Rate/ Daily Rate	COMPONENTS			Financial Cost
				Foreign	Local	Tax	
Concrete Spraying Machine							
$0.8 \sim 1.2 m^3$ /hour	11.6	hour	256.00	1,990	594	386	2,970
Water Pump Ø50mm	3.4	day	44.00	98	33	19	150
Sub-total				6,452	1,929	1,252	9,633
3) Labor	No. of days	Unit	Daily Rate				
Foreman	5.0	day	76.32		382		382
Assistant Foreman	10	day	71.60		716		716
Skilled Labor	50	day	56.00		2,800		2,800
Unskilled Labor	30	day	49.20		1,476		1,476
Technical Expert	2	day	1000.00	2,000			2,000
				2,000	5,374		7,374
Direct Cost				24,664	13,873	5,518	44,055
Unit Cost Per Sq. M.				(56%)	(31%)	(13%)	440.6
						Say	440.00

APPENDIX 11.1-2 UNIT PRICE ANALYSIS FOR SPRAYED CONCRETE CRIB (1)

NAME OF PROJECT : THE FEASIBILITY STUDY OF PHILIPPINE ROAD DISASTER PREVENTION PROJECT

ITEM NO. 305 NAME OF ITEM:

SPRAYED CONCRETE CRIB

Quantity ; 1021.2 m^2

Unit Price ; 792.00 ₱/sq. M.

DESCRIPTION	Quantity/ No. of days	Unit	Unit Rate/ Daily Rate	COMPONENTS			Financial Cost
				Foreign	Local	Tax	
1) Material							
Unit Type Form	1,767	Li. M.	228.00	290,070	48,345	64,461	402,876
Steel Reinforcement	4,302	Kg.	8.97	27,012	4,630	6,947	38,589
Concrete Class "A"	84	Cu. M.	1020.00	47,124	25,704	12,852	85,680
Anchor Bar Ø16mm l=750	1,029	ea.	19.00	13,881	2,346	3,324	19,551
				378,087	81,025	87,584	546,695
2) Equipment							
Air Compressor 10.5m^3	50	day	1960.00	65,660	19,600	12,740	98,000
Hard Hammer 15 kg	22	day	72.00	1,061	317	206	1,584
Concrete Spraying Machine 0.8～1.2m^3/hour	90	hour	256.00	15,437	4,608	2,995	23,040
Water Pump Ø50mm	17	day	44.00	486	165	97	748
Belt Conveyor 7m	34	day	160.50	3,657	1,091	709	5,457
Dynamo-electric Machine 7.5 kVA	32	day	215.00	4,610	1,376	894	6,880
				90,911	27,157	17,641	135,709

UNIT PRICE ANALYSIS FOR SPRAYED CONCRETE CRIB (2)

NAME OF PROJECT : THE FEASIBILITY STUDY OF PHILIPPINE ROAD DISASTER PREVENTION PROJECT

ITEM NO. 305 NAME OF ITEM:

SPRAYED CONCRETE CRIB

Quantity ; 1021.2 m^2

Unit Price ; 792.00 ₱/sq. M.

DESCRIPTION	Quantity/ No. of days	Unit	Unit Rate/ Daily Rate	COMPONENTS			Financial Cost
				Foreign	Local	Tax	
3) Labor							
Foreman	50	day	76.32		3,816		3,816
Assistant Foreman	100	day	91.60		7,160		7,160
Skilled Labor	700	day	56.00		39,200		39,200
Unskilled Labor	350	day	49,20		17,220		17,220
Technical Expert	30	day	1000.00	30,000			30,000
				30,000	64,396		97,396
Direct Cost				498,998	175,578	105,225	779,801
Unit Cost Per Sq. M.				(64%)	(23%)	(13%)	763.60
						(Say)	764.00
4) Vegetation	0.83	Sq. M.	34.00				28.00
							792.00

APPENDIX 11.1-3 UNIT PRICE ANALYSIS FOR ANCHOR WIRE NET (1)

NAME OF PROJECT : THE FEASIBILITY STUDY OF PHILIPPINE ROAD DISASTER PREVENTION PROJECT

ITEM NO. 402 NAME OF ITEM: ANCHOR WIRE NET

Quantity ; 640 sq. M.

Unit Price ; 290.00 ₱/sq. M.

DESCRIPTION	Quantity/ No. of days	Unit	Unit Rate/ Daily Rate	COMPONENTS			Financial Cost
				Foreign	Local	Tax	
1) Materials	Quantity	Unit	Unit Rate				
Wire Net (Ø4.0mm-50mmx50mm) (JIS 3552)	690	Sq. M.	139.00	68,096	11,509	16,305	95,910
Wire Rope Ø16 (JIS 3525)	363	Li. M.	33.00	8,625	1,437	1,917	11,979
Wire Rope Ø12 (JIS 3525)	234	Li. M.	23.00	3,875	646	861	5,382
Cross Clip (Ø16)	74	ea.	61.50	3,277	546	728	4,551
Cross Clip (Ø12)	18	ea.	57.00	739	123	164	1,026
Wire Connection Clip	48	ea.	34.00	1,175	196	261	1,632
Connection Coil	232	ea.	27.00	4,510	752	1,002	6,264
Rock Anchor	17	ea.	488.00	5,973	996	1,327	8,296
				96,270	16,205	22,565	135,040

UNIT PRICE ANALYSIS FOR ANCHOR WIRE NET (2)

NAME OF PROJECT : THE FEASIBILITY STUDY OF PHILIPPINE ROAD DISASTER PREVENTION PROJECT

ITEM NO. 402 NAME OF ITEM: ANCHOR WIRE NET

Quantity ; 640 sq. M.

Unit Price ; 290.00 ₱/sq. M.

DESCRIPTION	Quantity/ No. of days	Unit	Unit Rate/ Daily Rate	COMPONENTS			Financial Cost
				Foreign	Local	Tax	
2) Equipment	No. of days	Unit	Daily/hourly rate				
Truck Crane 20-22 tone	16.2	hour	1260.00	13,676	4,082	2,654	20,412
Winch 1.0 ton 10 PS	10.4	day	300.00	2,090	624	406	3,120
				15,766	4,706	3,060	23,532
3) Labor	No. of days	Unit	Daily Rate				
Foreman	10	day	76.32		763		763
Assistant Foreman	30	day	71.60		2,148		2,148
Skilled Labor	200	day	56.00		11,200		11,200
Unskilled Labor	100	day	49.20		4,320		4,920
Technical Expert	8	day	1000.00	8,000			8,000
				8,000	19,031		27,031
Direct Cost				120,036	39,942	25,625	185,603
Unit Cost Per Sq. M.				(65%)	(22%)	(13%)	290.00
						Say	290.00

APPENDIX 11.2-1 CONSTRUCTION COST - October 1983 Price -

a) Dalton Pass Section

Unit Pesos

Description	Unit	Quantity	Construction Cost	Component		
				Foreign	Local	Tax
. Earth Work			27,439,670	17,016,324	6,986,573	3,436,773
. Removal	Cu.M.	11,500	1,654,350	986,108	431,089	237,153
. Re-cutting	Cu.M.	43,780	3,633,380	2,187,517	928,283	517,580
. Excavation	Cu.M.	22,460	1,190,380	726,132	297,595	166,653
. Re-filling	Cu.M.	43,210	4,148,160	2,613,341	1,037,040	497,779
. Forming of slope	Sq.M.	130,670	16,813,400	10,503,226	4,292,556	2,017,608
. Drainage Work			17,130,433	9,196,293	5,692,367	2,241,773
. Surface drain	Li.M.	10,138	15,506,410	8,347,798	5,142,779	2,015,833
. Subsurface drain	Li.M.	-	-	-	-	-
. Pipe culvert	Li.M.	42	172,046	93,467	55,916	22,663
. Box culvert	Li.M.	92	1,451,977	755,028	493,672	203,277
. Slope Protection Work			76,622,364	45,889,351	20,772,106	9,960,907
. Vegetation	Sq.M.	67,490	2,294,660	1,239,116	757,238	298,306
. Concrete spraying	Sq.M.	68,880	28,713,600	16,079,616	8,901,216	3,732,768
. Sprayed concrete Crib	Sq.M.	35,070	32,918,040	21,067,546	7,571,149	4,279,345
. Cast-in-place concrete crib	Sq.M.	14,080	9,011,200	5,586,944	2,252,800	1,171,456
. Stone pitching	Li.M.	1,810	3,684,864	1,916,129	1,289,703	479,032
. Catch Work			1,986,500	1,291,225	437,030	258,245
. Catch fence	Li.M.	-	-	-	-	-
. Anchor wire net	Sq.M.	6,850	1,986,500	1,291,225	437,030	258,245
. Structural Work			4,931,860	2,836,407	1,509,929	585,524
. Stone masonry	Li.M.	743	1,118,202	603,828	380,190	134,184
. Gravity type retaining wall	Li.M.	309	2,276,904	1,252,297	751,378	273,229
. Supported type retaining wall	Li.M.	56	906,754	507,782	290,161	108,881
. Gabion retaining wall	Cu.M.	900	630,000	472,500	88,200	69,300
. Anchoring	Li.M.	-	-	-	-	-
. River and Torrent Work			13,307,553	8,321,652	3,429,331	1,556,570
. Other Work			1,695,380	945,392	497,560	252,428
TOTAL			143,113,760	85,496,644	39,324,896	18,292,220
				(59.7%)	(27.5%)	(12.8%)

* Physical contingency is not included.

APPENDIX 11.2-2 CONSTRUCTION COST - October 1983 Price -

b) Mahaplag-Sogod Section

Unit Pesos

Description	Unit	Quantity	Construction Cost	Component		
				Foreign	Local	Tax
. Earth Work			33,846,774	21,318,088	7,953,173	4,575,513
. Removal	Cu.M.	2,200	279,000	165,120	73,967	39,913
. Re-cutting	Cu.M.	174,062	19,666,434	12,400,530	4,398,719	2,867,185
. Excavation	Cu.M.	240	12,720	7,759	3,180	1,781
. Re-filling	Cu.M.	119,470	11,469,120	7,225,546	2,867,280	1,376,294
. Forming of slope	Sq.M.	23,070	2,419,500	1,519,133	610,027	290,340
. Drainage Work			12,465,719	6,744,368	4,065,538	1,655,813
. Surface drain	Li.M.	7,933	10,396,230	5,595,743	3,448,978	1,351,509
. Subsurface drain	Li.M.	2,305	1,986,065	1,104,039	588,798	293,228
. Pipe culvert	Li.M.	27	83,424	44,586	27,762	11,076
. Box culvert	Li.M.	-	-	-	-	-
. Slope Protection Work			20,200,838	11,881,224	5,693,506	2,626,108
. Vegetation	Sq.M.	94,194	3,202,596	1,729,402	1,056,857	416,337
. Concrete spraying	Sq.M.	19,020	7,916,800	4,433,408	2,454,208	1,029,184
. Sprayed concrete crib	Sq.M.	6,190	5,623,200	3,598,848	1,293,336	731,016
. Cast-in-place concrete crib	Sq.M.	5,020	3,212,800	1,991,936	803,200	417,664
. Stone pitching	Li.M.	261	245,442	127,630	85,905	31,907
. Catch Work			1,191,900	774,735	262,218	154,947
. Catch fence	Li.M.	-	-	-	-	-
. Anchor wire net	Sq.M.	4,110	1,191,900	774,735	262,218	154,947
. Structural Work			4,976,835	3,555,712	860,206	560,917
. Stone masonry	Li.M.	165	491,625	265,478	167,153	58,994
. Gravity type retaining wall	Li.M.	45	172,170	94,694	56,816	20,660
. Supported type retaining wall	Li.M.	30	230,340	128,990	73,709	27,641
. Gabion retaining wall	Cu.M.	5,186	3,630,200	2,722,650	508,228	399,322
. Anchoring	Li.M.	250	452,500	343,900	54,300	54,300
. River and Torrent Work			81,400	60,236	12,210	8,954
. Other Work			1,052,500	571,960	327,025	153,515
T O T A L			73,815,966	44,906,323 (60.8%)	19,173,876 (26.0%)	9,735,767 (13.2%)

* Physical contingency is not included.

APPENDIX 11.2-3 CONSTRUCTION COST - October 1983 Price -

c) Kennon Road

Unit Pesos

Description	Unit	Quantity	Construction Cost	Component		
				Foreign	Local	Tax
. Earth Work			15,704,314	10,187,108	3,251,300	2,265,906
. Removal	Cu.M.	5,250	993,450	600,439	248,570	144,441
. Re-cutting	Cu.M.	48,050	10,655,500	7,033,566	1,988,826	1,633,108
. Excavation	Cu.M.	202	42,824	27,835	8,137	6,852
. Re-filling	Cu.M.	7,290	699,840	440,899	174,960	83,981
. Forming of slope	Sq.M.	27,760	3,312,700	2,084,369	830,807	397,524
. Drainage Work			782,774	424,554	249,316	108,904
. Surface drain	Li.M.	985	353,760	189,888	117,875	45,987
. Subsurface drain	Li.M.	288	345,600	190,080	103,680	51,840
. Pipe culvert	Li.M.	27	83,424	44,586	27,761	11,077
. Box culvert	Li.M.	-	-	-	-	-
. Slope Protection Work			33,817,300	20,956,517	8,464,534	4,396,249
. Vegetation	Sq.M.	1,200	40,800	22,032	13,464	5,304
. Concrete spraying	Sq.M.	18,630	7,277,200	4,075,232	2,255,932	946,036
. Sprayed concrete crib	Sq.M.	26,130	23,047,200	14,750,208	5,300,856	2,996,136
. Cast-in-place concrete crib	Sq.M.	2,580	3,452,100	2,109,045	894,282	448,773
. Stone pitching	Li.M.	-	-	-	-	-
. Catch Work			10,781,750	7,008,138	2,371,985	1,401,627
. Catch fence	Li.M.	205	518,650	337,123	114,103	67,424
. Anchor wire net	Sq.M.	35,390	10,263,100	6,671,015	2,257,882	1,334,203
. Structural Work			7,002,912	4,558,527	1,612,996	831,389
. Stone masonry	Li.M.	72	169,611	91,590	57,668	20,353
. Gravity type retaining wall	Li.M.	255	887,150	487,933	292,759	106,458
. Supported type retaining wall	Li.M.	308	2,655,551	1,487,108	849,777	318,666
. Gabion retaining wall	Cu.M.	1,280	896,000	672,000	125,440	98,560
. Anchoring	Li.M.	1,140	2,394,600	1,819,896	287,352	287,352
. River and Torrent Work			407,000	301,180	61,050	44,770
. Other Work			7,933,250	4,742,620	2,156,762	1,033,868
T O T A L			76,429,300	48,178,644	18,167,943	10,082,713
				(63.0%)	(23.8%)	(13.2%)

* Physical contingency is not included.

APPENDIX 11.3 PROJECT COST

- October 1983 Price -

Unit : P x Million

Work Item	Dalton Pass Section				Mahaplag - Sogod Section				Kennon Road				Total			
	Construction Financial Cost	Component (%) F	L	T	Construction Financial Cost	Component (%) F	L	T	Construction Financial Cost	Component (%) F	L	T	Construction (%) Financial Cost	Component (%) F	L	T
100 Earth Work	27.44	62.0	25.5	12.5	33.85	63.0	23.5	13.5	15.71	64.9	20.7	14.4	77.00			
200 Drainage Work	17.13	53.7	33.2	13.1	12.49	54.1	32.6	13.3	0.78	54.2	31.9	13.9	30.38			
300 Slope Protection Work	76.62	59.9	27.1	13.0	20.20	58.8	28.2	13.0	33.82	62.0	25.0	13.0	130.64			
400 Catch Work	1.99	65.0	22.0	13.0	1.19	65.0	22.0	13.0	10.78	65.0	22.0	13.0	13.96			
500 Structure Work	4.93	57.5	30.6	11.9	4.98	71.4	17.3	11.3	7.00	65.1	23.0	11.9	16.91			
600 River or Torrent Work	13.31	62.5	25.8	11.7	0.08	74.0	15.0	11.0	0.41	74.0	15.0	11.0	13.80			
700 Other Work	1.69	55.8	29.3	14.9	1.05	54.3	31.1	14.6	7.93	59.8	27.2	13.0	10.67			
Total	143.11	59.7	27.5	12.8	73.82	60.8	26.0	13.2	76.43	63.0	23.8	13.2	293.36	60.8	26.2	13.0
Physical Contingency (10%)	14.31	59.7	27.5	12.8	7.38	60.8	26.0	13.2	7.64	63.0	23.8	13.2	29.33	60.8	26.2	13.0
Total Construction Cost	157.42	59.7	27.5	12.8	81.20	60.8	26.0	13.2	84.07	63.0	23.8	13.2	322.69	60.8	26.2	13.0
Detailed Engineering (7%)	11.02	65.0	30.0	5.0	5.68	65.0	30.0	5.0	5.88	65.0	30.0	5.0	22.58	65.0	30.0	5.0
Construction Supervision (7%)	11.02	65.0	30.0	5.0	5.68	65.0	30.0	5.0	5.88	65.0	30.0	5.0	22.58	65.0	30.0	5.0
Total Cost	179.46	60.3	27.8	11.9	92.56	61.3	26.5	12.2	95.83	63.2	24.6	12.2	367.85	61.4	26.6	12.0

APPENDIX 11.4 CASH FLOW (1)

Price Level : As of Oct. 1983
Exchange Rate : ₱14.00 = US$ 1.00 = ¥ 243.3
Unit : Million ₱

Description \ Year		1984	1985	1986	1987	1988	1989	1990
. Detailed Engineering			(10%)	(90%)				
. Construction Supervision and Construction					(5%)	(35%)	(40%)	(20%)
Dalton Pass Section	Foreign		0.72	6.44	5.06	35.40	40.47	20.21
	Local/Tax		0.38	3.48	3.35	23.56	26.92	13.47
	T o t a l		1.10	9.92	8.41	58.96	67.39	33.68
Mahaplag - Sogod Section	Foreign		0.37	3.32	2.66	18.57	21.23	10.60
	Local/Tax		0.20	1.79	1.69	11.84	13.52	6.77
	T o t a l		0.57	5.11	4.35	30.41	34.75	17.37
Kennon Road	Foreign		0.38	3.44	2.84	19.88	22.73	11.35
	Local/Tax		0.21	1.85	1.66	11.60	13.25	6.64
	T o t a l		0.59	5.29	4.50	31.48	35.98	17.99
T O T A L	Foreign		1.47	13.20	10.56	73.85	84.43	42.17
	Local/Tax		0.79	7.12	6.70	46.00	53.69	26.87
	T o t a l		2.26	20.32	17.26	120.85	138.12	69.04

APPENDIX 11.4 CASH FLOW (2)
(PRICES ESCALATED)

Unit : Million ₱

Description	Year	1984	1985	1986	1987	1988	1989	1990
. Detailed Engineering			(10%)	(90%)				
. Construction Supervision and Construction					(5%)	(35%)	(40%)	(20%)
Dalton Pass Section	Foreign		0.83	7.85	6.54	48.51	58.77	31.12
	Local/Tax		0.51	5.15	5.30	39.86	48.76	26.08
	T o t a l		1.34	13.00	11.84	88.37	107.53	57.20
Mahaplag-Sogod Section	Foreign		0.43	4.05	3.44	25.44	30.83	16.33
	Local/Tax		0.27	2.64	2.67	20.04	24.49	13.10
	T o t a l		0.70	6.69	6.11	45.48	55.32	29.42
Kennon Road	Foreign		0.44	4.19	3.71	27.23	33.01	17.47
	Local/Tax		0.28	2.73	2.62	19.64	25.80	12.86
	T o t a l		0.72	6.92	6.33	46.87	57.01	30.33
T O T A L	Foreign		1.70	16.09	13.69	101.18	122.61	64.92
	Local/Tax		1.06	10.52	10.59	79.54	97.25	52.04
	T o t a l		2.76	26.61	24.28	180.72	219.86	116.96

Escalation Rate*	Foreign	7.5%	7.0%	6.0%	6.0%	6.0%	6.0%	6.0%
	Local	20.0%	12.0%	10.0%	7.0%	7.0%	7.0%	7.0%

Note: * ; Data Source NEDA

Exchange rate ₱14.00 = US$ 1.00 = ¥ 234.3

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Appendix 12-1 Basic Vehicle Operating Cost (BVOC)

12.1.1 General

The Basic Vehicle Operating Costs (BVOC) are expressed in November 1983 price levels. The manual on Basic Traffic Cost procedures,1/ prepared by MPWH was the main reference for the study with some minor modifications to be consistent with the findings of the Study Team.

12.1.2 Representative Vehicles

The following representative vehicles were selected in this study:

Appendix 12.1.1 PRICE OF REPRESENTATIVE VEHICLES NOVEMBER 1983

	Weighted Retail Price (₱)	
	IT	ET
1. Light Cars	108214	82242
2. Jeepney - Ford Fiera	94900	80665
3. Large Bus	423783	379468
4. Truck - 2 Axle	364494	312565

12.1.3 Basic Running Costs

Running costs are defined as part of vehicle operating costs which vary in proportion to the operating distance run by vehicles and comprise the following component:

a) Fuel Cost

Fuel cost was estimated by multiplying fuel consumption (liter/km.) for each representative vehicle by fuel price (pesos/liter).

APPENDIX 12.1.2 PRICE OF FUEL AND OIL AS OF NOVEMBER 1983

Unit: Pesos/Liter

	Including Tax	Custom Duty	Specific Tax	Energy Development Impost	Sales Tax	Excluding Tax
F u e l						
Premium Gasoline	6.47	0.66	1.5425	0.625	-	3.6425
Regular Gasoline	6.27	0.66	1.5025	0.681	-	3.4265
Diesel Fuel	4.43	0.66	0.1900	-	-	3.5800

1/ Basic Road Traffic Cost, Highway Planning Manual, Vol. 4 (May 1982 prices updated to November 1983).

Unit: Pesos/Liter

	Including Tax	Custom Duty	Specific Tax	Energy Development Import	Sales Tax	Excluding Tax
Engine Oil						
Petron Motor Oil 10	19.90	0.66	0.80	0.653	0.1183	17.6687
Caltex SAE 40 (RPM Delo)	19.50	0.66	0.80	0.653	0.1183	17.2687
Mobil HD90 (Super)	22.65	0.66	0.80	0.653	0.1183	20.4187

Source: Board of Energy

Appendix 12.1.3 FUEL AND OIL CONSUMPTION

Vehicle Type	Fuel Type	Consumption Fuel (liters/km)	Consumption Oil (liters/1000 kms)
1. Light Car	Premium Gasoline	0.10	0.70
2. Jeepney Fiera Type	D i e s e l	0.09	0.90
3. Large Bus	D i e s e l	0.24	3.00
4. Truck- 2 Axle	D i e s e l	0.28	3.50

b) Tire Cost

Tire cost was estimated by dividing the price of a set of tires by tire life expressed in kilometers. For commercial vehicles the following assumptions were made:

1) The tire life will be extended by 50% of the original life at 85% use.
2) The cost of recapping will be 30% of the brand new price.
3) Recapping will be done once per original tire on average for commercial vehicles.

Appendix 12.1.4 PRICES AND LIFE OF TIRES
November 1983

	No. of Tires	Tire Size	Average Tire Set Price IT	Average Tire Set Price ET	Tire Life[1/] (000 kms.) New	Tire Life[1/] (000 kms.) Recapped
1. Car	4	5.60-13,4, PRT	1850.33	1682.12	35	-
2. Jeepney-Ford Fiera	4	6.50-13,4 PR	1905.44	1732.22	30	40
3. Large Bus	6	10.00-20,14 PR	19711.26	17919.33	60	81
4. Truck- 2 Axle	6	10.00-20,14 PR	19711.26	17919.33	60	81

c) Maintenance and Repair Cost

The maintenance and repair cost per kilometer are calculated as follows:

Cost of Parts: Percent of retail price reduced by cost of tire set divided by the annual operating distance.

Cost of Labor: Retail labor rate times annual number of labor hours divided by the annual operating distance.

Appendix 12.1.5 MAINTENANCE AND REPAIR COSTS

Vehicle Type	Spare Parts Requirement (%)	No. of Labor Hours Required/Year	Unit Cost[1/] Labor ₱/Km. IT	ET
C a r	2.5	60	0.08	0.08
Jeepney	10.0	200	0.07	0.06
Large Bus	8.0	300	0.07	0.07
Heavy Truck 2-Axle	7.0	300	0.12	0.11

d) Distance-Related Depreciation Cost

The distance related depreciation costs per kilometer are calculated as the distance related share in percent of the retail vehicle price, reduced by the cost of the tire set in use, divided by the life time kilometrage. The split of the capital costs into distance and time related cost is shown in Appendix 12.1.6.

Appendix 12.1.6 OPERATING CHARACTERISTICS

Vehicle Type	Vehicle Type Years	Vehicle Type 1000 Kms.	Annual Operating Distance (1000 kms.)	Annual Operating Hours	Split Ratio of Depreciation Costs Distance Related (%)	Time-Related (%)
Light Car	10	150	15	2,000	50	50
Jeepney-Fiera Type	5	300	60	3,000	85	15
Large Bus	8	640	80	3,000	85	15
Truck-2-Axle	12	600	50	3,000	65	35

1/ Labor rate (₱/hour) = ₱19.62
Minimum Wage (₱/day) = ₱41.85

Appendix 12.1.7 BASIC RUNNING COST/VEHICLE-KILOMETER IN PESOS, NOVEMBER 1983

	Light Car		Jeepney Fiera Type		Large Bus		Heavy Truck	2-Axle
	IT	ET	IT	ET	IT	ET	IT	ET
Fuel	0.65	0.36	0.40	0.32	1.06	0.86	1.24	1.00
Oil	0.01	0.01	0.02	0.02	0.06	0.05	0.07	0.06
Tires	0.05	0.04	0.06	0.05	0.31	0.28	0.31	0.28
Maintenance:								
Parts	0.18	0.13	0.16	0.13	0.41	0.36	0.48	0.41
Labor	0.08	0.08	0.07	0.07	0.08	0.07	0.12	0.12
Depre-ciation	0.35	0.27	0.26	0.22	0.55	0.48	0.37	0.32
Total	1.32	0.90	0.97	0.81	2.47	2.10	2.59	2.19

12.1.4 Basic Fixed Costs

Defined as the part of vehicle operating costs which vary directly with operating time (running and waiting time), this cost component is composed of the following cost items:

a) Time-Related Depreciation Costs

The time dependent depreciation costs are calculated as the time dependent share in percent of the vehicle retail price, reduced by the tire set costs, and divided by the product of vehicle life in years and annual operating hours. The calculations method was based on the straight line depreciation and no salvage value was assumed. Refer to Appendix 12.1.6.

b) Opportunity Cost of Capital

The average capital employed over a vehicle's lifetime is assumed to be half the initial purchasing costs in the absence of any salvage value. Using 15%, which is the estimated annual opportunity cost of capital for the country, this cost component is calculated by the following equation:

$$\text{Opportunity Cost of Capital} = \frac{\text{Vehicle Price Including Tire} \times 0.50 \times 0.15}{\text{Annual Operating Hours}}$$

c) Crew Cost

The estimated costs per hour including salary, allowance, social benefits and commission and the crew sizes are as follows:

Vehicle Type	Driver	Conductor	Helper
Car			
Jeepney	1 at ₱7.32		
Bus	1 at ₱7.32	1 at ₱4.20	
Truck	1 at ₱7.32		2 at ₱4.20 = ₱8.40

d) Overheads, Licenses, Motor Vehicle Fees

The assumed overhead cost figures as of November 1983 are as follows:

	₱/Hour
Jeepney	3.90
Large Bus	10.40
Heavy Truck	10.40

Registration Fees

		Total
Light Car	300.00/Vehicle	300.00
Jeepney	15.00/100 kg.	315.00
Bus	15.00/100 kg.	2100.00
Truck	15.00/100 kg.	2325.00

e) Insurance Cost

The insurance cost per vehicle per hour could be calculated as the annual premiums over the annual operating hours. The cost of insurance is quoted from June 1983 prices.

f) Basic Fixed Cost Reduction Factors

Based on the MPWH Highway Planning Manual, only 30% of light and medium cars are considered to be in commercial use.

The fleet reduction factors are supposed to express the degree at which time saving due to road improvement can lead to productivity gain in the form of fleet reduction. Fleet reduction factors will vary with the type of vehicle, type of operation and area.

The utilization of saved time will probably be highest for vehicle characterized by traditionally short and frequent trips such as jeepney and commercial cars, while large vehicles would not be utilized effectively because they were subject to extensive repair and re-scheduling trips over longer distances.

Basic fixed cost reduction factors comprising commercial use and fleet reduction factors were assumed as follows:

Appendix 12.1.8 REDUCTION FACTOR

Vehicle Type	Reduction Factor Commercial Use	Fleet Use
Light Car	0.30	1.00
Jeepney-Fiera Type	1.00	0.90
Large Bus	1.00	0.70
Heavy Truck (2-Axle)	1.00	0.75

Appendix 12.1.9 SUMMARY ON BASIC FIXED COST/ Vehicle-Hour in Pesos

	Light Car		Jeepney		Large Bus		Heavy Truck	
	IT	ET	IT	ET	IT	ET	IT	ET
Depreciation	2.66	2.01	0.93	0.79	2.58	2.26	3.35	2.86
Opportunity Cost of Capital	4.06	3.08	2.37	2.02	10.82	9.49	9.11	7,81
Crew Cost	.00	.00	7.32	7.32	11.51	11.51	15.69	15.69
Overhead, Taxes and Licenses	0.15	.00	4.00	3.90	11.10	10.40	11.18	10.40
Insurance 1/	1.24	1.20	1.93	1.87	2.66	2.58	1.69	1.64
FIXED COST	8.11	6.30	16.56	15.90	38.67	36.24	41.02	38.41
Reduction Factor:								
Commercial Use	0.30	0.30	1.00	1.00	1.00	1.00	1.00	1.00
Fleet Use	1.00	1.00	0.90	0.90	0.70	0.70	0.75	0.75
BASIC FIXED COST	2.43	1.89	14.90	14.31	27.07	25.37	30.77	28.82

1/ as of June 1983

12.1.5 Time Cost

In general, time cost is defined as a possible benefit which drivers and passengers could produce had they allocated their in-vehicle time for other economic activities resulting from running on the improved road system.

Time cost was allocated a monetary value for those "at work" and "to/from work", while no time cost was assumed for travels with other purposes. The updated hourly rate value of time is shown below:

	Unit Time Value in Pesos Per Hour Per Person		
	In Work	To/From Work	Leisure
Car	19.00	9.50	0
Driver, otherwise and passenger	7.20	3.60	0
Jeepney Passenger	3.30	1.65	0
Bus Passenger	3.90	1.95	0

Based on the survey conducted by the Study Team, the average passenger occupancy was 3.3 for cars, 9.0 for jeepneys and 25.9 for bus (Refer to Appendix 12.1.10).

Appendix 12.1.10 VEHICLE OCCUPANCY RATES BY STATION

	Dalton (2)	Kennon (5)	Leyte (8)	Total
C a r				
Passenger	1924	2931	199	5054
Vehicle	588	874	69	1531
Passenger Occupancy Rate	3.3	3.4	2.9	3.3
J e e p n e y				
Passenger	1634	1506	723	3863
Vehicle	212	169	47	428
Passenger Occupancy Rate	7.7	8.9	15.4	9.0
B u s				
Passenger	6752	12270	1129	20151
Vehicle	261	464	52	777
Passenger Occupancy Rate	25.9	26.4	21.7	25.9

Appendix 12.1.11 shows the survey result on the number of passengers by trip purpose distribution.

Appendix 12.1.11

Vehicle Type	No. of Passenger Per Vehicle by Trip Purpose				Trip Purpose Distribution(%)		
	In Work	To/From Work	Leisure	TOTAL	In Work	To/From Work	Leisure
Car	2112	135	2677	4924	43	3	54
Jeepneys and Buses	4180	2313	15806	22299	19	10	71

Note:
Refer to Appendix. 12.1.12 and 12.1.13 for detailed information.

Using the survey result in Appendix 12.1.10 and 12.1.11, the passenger time value per hour per vehicle and the assumption that driver-owners are 80% and 20% are employed drivers, the time value by vehicle type are calculated as follows:

Vehicle: Car

Trip Purpose:
43% In Work
3% To/From Work
54% Leisure

Persons Per Car: 3.3

Total Time Cost

Owner Driver	80%
Driver, not owner	20%

In Work

₱19.00 x .80 + 7.20 x .20 = ₱16.64

To/From Work

₱9.50 x .80 + 3.60 x .20 = ₱8.32

Total Cost/Car-Hour

₱16.64 x 1.0 x .43	=	7.16
₱ 7.20 x 2.3 x .43	=	7.12
₱ 8.32 x 1.0 x .03	=	0.25
₱ 3.60 x 2.3 x .03	=	0.25

Total Weighted Average = ₱14.78 per car-hour

Vehicle: Jeepney

At Work :	₱3.30 x 9.0 x .19	=	5.64
To/From Work:	₱1.65 x 9.0 x .10	=	1.49

Total Weighted Average Jeepney-Hour = ₱7.13

Vehicle: Bus

At Work :	₱3.90 x 25.9 x .19	= ₱19.19
To/From Work:	₱1.95 x 25.9 x .10	= 5.05

Total Weighted Average Bus-Hour = ₱24.24

Appendix 12.1.12 TRIP PURPOSE DISTRIBUTION BY STATION-CAR

Purpose	Stations			Total
	Dalton (2)	Kennon (5)	Leyte (8)	
1) To/From Work	92 (5)	34 (1)	9 (10)	135 (3)
2) To/From School	39 (2)	44 (2)	0 (0)	83 (2)
3) At Work/Business	949 (49)	1123 (38)	40 (55)	2112 (43)
4) Shopping	52 (3)	94 (3)	12 (15)	158 (3)
5) Medical/Dental	39 (2)	20 (1)	3 (5)	62 (5)
6) Social/Recreation	72 (4)	171 (6)	3 (5)	246 (5)
7) Visit Relatives	321 (17)	241 (8)	9 (10)	571 (12)
8) Tourism	39 (2)	94 (3)	0 (0)	133 (2)
9) Others	314 (16)	1110 (38)	0 (0)	1424 (29)
TOTAL	1917 (100)	2931 (100)	76 (100)	4924 (100)

Appendix 12.1.13 PURPOSE DISTRIBUTION BY STATION
JEEPNEYS AND BUS

Purpose	Stations			Total
	Dalton (2)	Kennon (5)	Leyte (8)	
1) To/From Work	964 (11)	1320 (10)	29 (21)	2313 (10)
2) To/From School	601 (7)	870 (6)	5 (4)	1476 (7)
3) At Work/Business	1500 (18)	2646 (19)	34 (25)	4180 (19)
4) Shopping	584 (7)	666 (5)	29 (21)	1279 (6)
5) Medical/Dental	191 (2)	286 (2)	3 (2)	480 (2)
6) Social/Recreation	315 (4)	1047 (8)	6 (4)	1368 (6)
7) Visit Relatives	2711 (32)	4220 (31)	27 (20)	6958 (31)
8) Tourism	104 (1)	1073 (8)	0 (0)	1177 (5)
9) Others	1414 (17)	1638 (12)	4 (3)	3056 (14)
TOTAL	8386 (100)	13776 (100)	137 (100)	22299 (100)

APPENDIX 12.2 NO. OF TROPICAL CYCLONES PASSED THROUGH OR APPROACHED TO RESPECTIVE ZONES

Year	DALTON PASS/KENNON ZONE		MAHAPLAG - SOGOD ZONE	
	Typhoon	T. Storm T. Depression	Typhoon	T. Storm T. Depression
1965	Miling Unding			
1966	Klaring Loleng	T.D. Heling T.S. Gading T.S. Titang T.S. Uding	Klaring Loleng Aning	T.D. Yoling
1967	Karing Gening Rosing Trining Welming	T.D. Oniang T.S. Pepang	Bebeng Welming Yayang	
1968	Huaning Nitang Toyang	T.S. Gloring	Reming Seniang	
1969	Elang		Atring	T.D. Kuring
1970	Pitang Sening Yoling	T.S. Emang T.S. Heling		T.S. Deling T.S. Uding
1971	Luding Uring	T.D. Oniang T.S. Ading T.S. Krising T.S. Dadang	Herming Mameng Neneng Pepang Barang Goying	T.S. Diding T.S. Etang T.D. Oniang
1972	Konsing Edeng Gloring	T.S. Nitang T.D. Seniang	Konsing Asiang Toyang	
1973	Luming Narsing	T.D. Atring T.S. Ibiang		T.S. Openg
1974	Bising Iliang Susang Tering Wening Aning Bidang			T.S. Yaning T.D. Kading T.D. Delang
1975	Herming	T.S. Neneng T.S. Pepang	Auring	

APPENDIX 12.2 (Cont'd.)

Year	DALTON PASS/KENNON ZONE		MAHAPLAG - SOGOD ZONE	
	Typhoon	T. Storm T. Depression	Typhoon	T. Storm T. Depression
1976	Didang Huaning	T.S. Paring	Huaning	T.S. Aring T.D. Kayang
1977	Openg Unding	T.S. Elang T.S. Luming	Kuring	T.D. Atring T.S. Elang T.D. Tasing T.S. Yeyeng
1978	Kading Yaning	T.S. Miding T.D. Subang	Atang Weling	T.D. Deling T.D. Garding
1979	Mameng Yayang	T.D. Karing T.S. Pepang T.D. Sisang T.S. Krising	Bebeng	T.D. Karing T.S. Krising
1980	Ditang Nitang Osang Aring	T.S. Gloring T.D. Isang T.D. Maring T.D. Paring T.S. Yoning		T.D. Asiang T.D. Biring T.S. Huaning T.D. Seniang T.D. Basing
1981	Anding Rubing	T.S. Elang	Dinang	T.D. Saling T.S. Unsing
1982	Norming Weling	T.S. Emang T.S. Ruping T.S. Bidang	Bising Norming Aning	T.S. Bidang
Total	47	37	28	29
Average per year	2.6	2.1	1.6	1.6

APPENDIX 12.3-1 CLASSIFICATION OF TYPHOON
SCALE : DALTON PASS/KENNON ZONE

Year	Typhoon	Max. 24-Hour Rainfall (mm)	Damages (Million P)	Casualties (Dead + Missing)	Classification (S : Small, L : Large)
1965	Miling	368	20	46	S
	Unding	212	-	0	S
1966	Klaring	286	4	77	S
	Loleng	133		0	S
1967	Karing	157	-	3	S
	Gening	510	1	8	L
	Rosing	266	-	0	S
	Trining	979	17	244	L
	Welming	227	8	13	S
1968	Huaning	364	3	0	S
	Nitang	650	2	2	L
	Toyang	273	-	0	S
1969	Elang	512	5	20	L
1970	Pitang	138	9	95	S
	Sening	235	460	768	L
	Yoling	205	116	611	L
1971	Luding	207	-	5	S
	Uring	145	-	0	S
1972	Konsing	237	100	131	S
	Edeng	131	-	214	L
	Gloring	480	Billion	-	L
1973	Luming	380	39	1	S
	Narsing	311	204	162	L
1974	Bising	494	34	105	L
	Iliang	142	39	67	S
	Susang	781	55	29	L
	Tering	228	68	13	S
	Wening	679	126	23	L
	Aning	410	29	3	L
	Bidang	301	42	1	S
1975	Herming	174	-	0	S
1976	Didang	605	625	347	L
	Huaning	334	28	16	S
1977	Openg	359	21	65	S
	Unding	321	457	40	S

APPENDIX 12.3-1 (Cont'd.)

Year	Typhoon	Max. 24-Hour Rainfall (mm)	Damages (Million ₱)	Casualties (Dead + Missing)	Classification (S : Small L : Large)
1978	Kading	304	1,000	724	L
	Yaning	275	88	53	S
1979	Mameng	398	48	27	S
	Yayang	235	5	6	S
1980	Ditang	730	2	0	L
	Nitang	165	-	-	S
	Osang	536	101	91	L
	Aring	699	1,300	128	L
1981	Rubing	467	106	5	L
	Anding	287	576	375	L
1982	Norming	147	82	52	S
	Weling	123	626	126	L

APPENDIX 12.3-2 CLASSIFICATION OF TYPHOON SCALE :
HAHAPLAG - SOGOD ZONE

Year	Typhoon	Max. 24-Hour Rainfall (mm)	Damages (Million ₱)	Casualties (Dead + Missing)	Classification (S : Small L : Large)
1965	-	-	-	-	-
1966	Klaring	286	4	77	L
	Loleng	133	-	0	S
	Aning	264	2	20	L
1967	Bebeng	94	-	1	S
	Welming	227	8	13	L
	Yayang	145	1	2	S
1968	Reming	565	39	56	L
	Seniang	377	55	365	L
1969	Atring	169	-	24	S
1970	-	-	-	-	-
1971	Herming	121	4	27	S
	Mameng	190	7	1	S
	Neneng	139	-	1	S
	Pepang	180	-	0	S
	Barang	106	-	0	S
	Goying	86	5	8	S
1972	Konsing	237	100	131	L
	Asiang	189	145	209	L
	Toyang	234	5	9	L
1973	-	-	-	-	-
1974	-	-	-	-	-
1975	Auring	102	16	47	S
1976	Huaning	334	28	16	L
1977	Kuring	44	-	0	S
1978	Atang	222	245	111	L
	Weling	276	64	48	L
1979	Bebeng	291	267	93	L
1980	-	-	-	-	-
1981	Dinang	179	592	342	L
1982	Bising	176	587	203	L
	Norming	147	82	52	S
	Aning	122	-	0	S

APPENDIX 12.4-1 ESTIMATE OF RESTORATION COST DUE TO SUPER-LARGE TYPHOON

- DALTON PASS SECTION -

Type of Disaster	No. of Spot	Total Length (m)	Kind and Quantity of Restoration Work		Unit Price (₱)	Estimated Cost (Million ₱)
C-SF/DF			Removal of Slides			
(H)	12	1,170	92^{m2} x $1,170^{m}$ =	$107,600^{m3}$		
(M)	27	2,200	25 x $2,200^{m}$ =	55,000		
Total	39	3,370		163,000	35	5.71
E-D.F						
	13	1,520	Stone Masonry	$9,700^{m3}$	350	3.40
			Re-filling	42,000	60	2.52
						5.92
C-F			Removal of Rocks			
(H)	1	160	25 x 160 =	$4,000^{m3}$		
(M)	5	700	12.5 x 700 =	8,800		
Total				12,800	70	0.90
D-F			Removal of Slides			
(H)	2	130	1/2 (12+18)x2.0^{m}x130=	$3,900^{m3}$		
(M)	12	330	12.0 x 1.0 x 330 =	3,960		
Total				7,900	35	0.28

Total - - ₱ 12.81 Million

Excluding E-D.F ₱ 6.89 Million

APPENDIX 12.4-2 ESTIMATE OF RESTORATION COST DUE TO CONTINUOUS HEAVY RAIN

- MAHAPLAG - SOGOD SECTION -

Type of Disaster	No. of Spot	Total Length (m)	Kind and Quantity of Restoration Work		Unit Price (₱)	Estimated Cost (Million ₱)
C-SF/DF			Removal of Slides			
(H)	3	430	92 x 430 x 1.5 =	59,300^{m3}		
(M)	16	1,030	25 x1030 x 1.5 =	38,600		
Total		1,460		98,000	35	3.43
E-DF						
	13	443	Stone Masonry	4,200^{m3}	350	1.47
			Re-filling	24,100^{m3}	60	1.45
			Re-pavement	2,470^{m2}	250	0.62
						3.54
C-F			Removal of Rocks			
(M)	2	110	12.5 x 100 x 1.5 =	2,060	70	0.14
L.S.			Removal of Slides			
(H)	1	120	1/2 (12+18)x1.0x120 =	1,800		
(M)	2	400	12 x 0.8 x 400 =	3,800		
Total				5,600	35	0.20

Total - - ₱ 7.31 Million

Excluding E-D.F ₱ 3.77 Million

APPENDIX 12.4-3 ESTIMATE OF RESTORATION COST DUE TO SUPER-LARGE TYPHOON

- KENNON ROAD -

Type of Disaster	No. of Spot	Length (m)	Kind and Quantity of Restoration Work		Unit Price (₱)	Estimated Cost (Million ₱)
C-SF/DF			Removal of Slides			
(H)	1	100	30 x 100	= 3,000 m^3		
(M)	4	310	7 x 310	= 2,200		
Total	5	410		5,200	35	0.18
E-D.F						
	9	560	Stone Masonry	= 6,200 m^3	350	2.17
			Re-filling	= 6,800 m^3	60	0.41
						2.58
C-F			Removal of Rocks			
(H)	10	1,235	30 x 1,235	= 37,100		
(M)	21	1,580	7 x 1,580	= 11,100		
Total	31	2,815		48,200	70	3.37
L.S.						
(H)	1	150	Overlay 20 cm			
			150 m x0.30x6.5 m x2.3	= 670	1,000	0.67

Total - - ₱ 6.80 Million

Excluding E-D.F ₱ 4.22 Million

APPENDIX 12.5 CONTINGENT FUND

Unit : Million ₱

	1980	1981	1982
Appropriation By Geneneral Appropriations Act	189.2	241.6	278.0
Amount Released For Repair/Restoration Improvememt of National Roads[1/]	55.5	43.3	12.4
- Region I	10.6	2.3	0.9
- Region II	5.6	0.1	2.2
- Region II & III	-	13.5[2/]	-
- Region III	3.9	1.3	-
- Region VIII	3.0	0.9	1.7
- Other Regions	32.4	25.2	7.6
Estimated Amount Released for Repair/Restoration of the Subject Section[1/]			
- Dalton Pass Section (Region II and III)	1.6	13.5	-
- Mahaplag-Sogod Section (Region VIII)	0.3	0.1	-
- Kennon Road (Region I)	6.5	-	-

Note:

[1/] Refer to Appendix

[2/] For repair/restoration and damages by Typhoon Aring

Source: Bureau of Maintenance, MPWH

APPENDIX 12.6-1 CALAMITY FUND

Unit : In Million ₱

Year	Amount Requested	Amount Released
1977	181.4	92.3
1978	110.5	110.5
1979	38.9	15.3
1980	36.8	33.5
1981	Not Available	24.5
1982	44.9	Not Available

Source: Bureau of Maintenance, MPWH

APPENDIX 12.6-2 ESTIMATED CALAMITY FUND RELEASED TO SUBJECT SECTIONS

Unit : In Million ₱

	1980	1981	1982
Dalton Pass Section	0.4	-	1.1
Mahaplag - Sogod Section	0.3	0.1	-
Kennon Road	0.2	-	0.4

Note: Refer to Appendix

Source: Bureau of Maintenance, MPWH

APPENDIX 12.7 ESTIMATED EXPENDITURE FOR REPAIR/RESTORATION OF THE SUBJECT SECTIONS

Source of Fund	1980			1981			1982		
	Min.	Max.	Average	Min.	Max.	Average	Min.	Max.	Average
DALTON PASS SECTION									
- Discretional Fund (20-40%)	0.7	1.4	1.1	0.7	1.5	1.1	0.7	1.4	1.1
- Maintenance Fund (20-30%)	0.4	1.0	0.7	0.5	1.2	0.9	0.5	1.1	0.8
- Contingent Fund	1.6	1.6	1.6	13.5	13.5	13.5	-	-	-
- Calamity Fund	0.4	0.4	0.4	-	-	-	1.1	1.1	1.1
Total	3.1	4.4	3.8	14.7	16.2	15.5	2.3	3.6	3.0
MAHAPLAG - SOGOD SECTION									
- Discretional Fund (20-40%)	0.4	0.8	0.6	0.4	0.8	0.6	0.3	0.7	0.5
- Maintenance Fund (30-50%)	0.6	1.9	1.3	0.5	1.6	1.1	0.5	1.6	1.1
- Contingent Fund	0.3	0.3	0.3	0.1	0.1	0.1	-	-	-
- Calamity Fund	0.3	0.3	0.3	0.1	0.1	0.1	-	-	-
Total	1.6	3.3	2.5	1.1	2.6	1.9	0.8	2.3	1.6
KENNON ROAD									
- Discretional Fund (20-40%)	0.4	0.8	0.6	0.4	0.7	0.6	0.4	0.7	0.6
- Maintenance Fund (20-30%)	0.2	0.5	0.4	0.2	0.5	0.4	0.2	0.5	0.4
- Contingent Fund	6.5	6.5	6.5	-	-	-	-	-	-
- Calamity Fund	0.2	0.2	0.2	-	-	-	0.4	0.4	0.4
- BBKN Fund	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total	7.8	8.5	8.2	1.1	1.7	1.5	1.5	2.1	1.9

(1) APPENDIX 12.8-1 Summary of Survey Results on Inconviniences/Losses Directly or Indirectly Caused by Unreliability of the Project Roads

SECTOR \ ROAD SECTION	DALTON	KENNON	LEYTE
A. Transportation			
1. Detour	1. Patapat Road and Aritao-Kayapa-Baguio Road	1. Naguilian Road and Marcos Highway[1/]	1. Baybay-Bato-Sogod Road
2. While Commuting	2.1 Longer travel time due to transferring to other vehicle (walking & waiting time) and additional travel expenses.	2.1 It takes 1-3 hours delay due to detour	2.1 Distance and hour travelled are longer;
		2.2 Additional travel fare (Additional P10-12)	2.2 Higher risks due to increased unreliability of the road
	2.2 Trip schedule is altered		
	2.3 Scarcity of transportation via Aritao-Baguio		
	2.4 No feasible location for detour hence transportation has to wait until road block/road cuts are removed		
3. Cargo Transport	3.1 Cargoes to/from Manila are either delayed or suspended	3.1 Delay/suspension of cargo flow using Kennon	3.1 Delay and expensive cargo handling
	3.2 Increased transport cost due to porterage either thru carabao-drawn cart or carried by persons.	3.2 Heavy cargo trucks don't use Kennon because of the road's weak pavement and narrow carriageway width	
	3.3 Spoilage of some commodities and rampant looting	3.3 Production sales for consumer goods is affected by 5-10%	
	3.4 Traffic jam occurs and hard to control because the road was so narrow and no cargo transport can enter	3.4 Loss of 40% water for fresh (leafy) vegetable in case of delay	
	3.5 Transport of prime commodities is delayed causing artificial shortage.	3.5 Contracted truckers by the government (FTI-KADIWA) refused to take detour because there is no price adjustment in case of additional detour expenses	
		3.6 Truckers wait for half-a-day for road block clearance or just wait longer if there is no gas allowance for detour.	
B. Economic Activities			
1. Slack/Slow Period of Business Activities	1.1 Artificial shortage in consumer's food construction materials, feeds for poultry and livestock due to stoppage cargo shipment from Manila	1.1 Slight increase in price of perishable stuffs, particularly those coming from low-land areas	1.1 Artificial shortage and price increase
	1.2 Increase in prices of food and construction materials	1.2 In terms of permanent residents, no effect because the city is highly urbanized and there are still alternative roads	1.2 Inter-provincial road traffic is conspicuously reduced. Food commodity flow in and out of the province through the Sogod-Mahaplag corridor is stopped

[1/] When disaster happens at the Hospital side, the detour is made so that vehicle will take the Loakan Road, as access to the city. However, in cases where disaster happens before the Kennon Road - Loakan Road Intersection, the detour have to be made either through Marcos or Naguilian.

(2)

SECTOR \ ROAD SECTION	DALTON	KENNON	LEYTE
B. Economic Activities			
1. Slack/Slow Period of Business Activities	1.3 Perishable goods are entirely lost 1.4 Temporary isolation; no market produce from other places due to disaster and there are no trucks and buses from the south section of the Dalton Pass. 1.5 Vehicular traffic is paralyzed.	1.3 If delay is beyond regular office hours, additional expense in terms of man-hour is incurred. If the cargoes delay are scheduled for immediate processing, losses will be incurred (man-hour salary expenses and cancellation of order	1.3 The eastern (Pacific) towns of South Leyte suffer considerably from economic slump during disaster period. 1.4 Small farmers are forced to sell their products to middlemen at lower prices 1.5 Fish production from Sogod area can't go to orth anymore
C. Community Life			
1. Community Life	1.1 Food shortage and sudden artificial price increase, sanitation, peace and order deterioration during prolonged period of disaster 1.2 Commerce among the citizenry is at stand still 1.3 Low supply of food items and higher prices of food arrivals taking other routes 1.4 Panic buying 1.5 Hampering students in travelling to Manila	1.1 Everybody near mountain side are always on alert against landslides 1.2 1-2 days delay in business and office transaction 1.3 Sustenance for this function and services come from within the city. A disaster that occurs along Kennon Road whibh usually occurs within a short period of time do not affect them (Baguio Residents)	1.1 Mobility is hampered due to lack of transportation 1.2 Delay in travel time and the risk involved in transferring passengers and cargoes over the road block 1.3 Residents along Sogod-Mahaplag route get their supplies from Sogod. In case of disaster, they have to travel to Abuyog for supplies which already is too far and too expensive. 1.4 Increase in passengers' transport fare
2. Medical Services	2.1 Supply of medicines runs out of stock 2.2 The transfer of patients who need intensive medication in Manila are delayed 2.3 Slow distribution of medicines to remote areas like National Authority's Kaluzugan sa Bagong Lipunan Program 2.4 Treatment of patients are not attended immediately and sickness became prevalent especially among the poor	2.1 No effect	2.1 Delay in medical extension services 2.2 Patients in interior barangays needing immediate attention cannot be brought to the nearest hospital which is in Sogod
3. Administrative Function	3.1 Due to higher travelling expenses, travel of employeed are suspended 3.2 Supervision of projects in the province by central office personnel are affected as well as delay in submission of reports by field personnel to Central Office.	3.1 The city disaster coordinating center is activated during disaster period. 2/ 3.2 Minimal effect in the city, however, the medical services of Ministry of Health as well as its instrumentalities are in alert whenever accident occurred in Kennon.	3.1 Proximity is the primary consideration. Communication and relief services are disturbed and delayed 3.2 Delay in making affected road passable due to lack of suitable equipment and lack of fund

2/ Composed of CHPC, Police, Baguio General Hospital

(3)

SECTOR \ ROAD SECTION	DALTON	KENNON	LEYTE
C. Community Life			
3. Administrative Function	3.3 Suspension of both physical and non-physical government project operations 3.4 Normal transmission or transfer of administrative function are very difficult due to lack of transportation	3.3 Delayed operation from 1-2 days in the mining activities	
4. Security	4.1 Rampant looting of stranded cargoes 4.2 High incidence of crime on stranded travellers	4.1 No problem due to existence of mutual agreement between provinces to converge to disaster area for assistance	4.1 Risk for travelling public due to the presence of known insurgents in the area 4.2 Leftist tend to surface and take advantage of the situation, thus making the area "critical." 4.3 Considerable effect on military logistic operation
D. Tourism	1. Delayed/cancellation of tourists arrival and tourist-related activities (e.g. seminars etc.) 2. Slack period in tourist-oriented-establishments (e.g. hotels, lodging house, etc.) 3. Transportation is disrupted 4. Organized tours bypass the region due to inconveniences brought about by the closing of Dalton Pass	1. Slack period in tourist flow 2. Significant effect on tourist-generated income and tourist-oriented establishments activities 3. Cancellation of tourist-related activities and organized tours	1. Tourist flow to Maasin, Leyte is affected 2. Tourists do not take detour just to see the place because of longer distance
E. Other Problems	1. High incidence of crimes	1. Delay in remittance of toll gate share to City Government 2. The vans used in EPZA (Baguio City Export Processing Zone) is higher than the cables of 2 telephone companies in Baguio City	1. The alternative route via Baybay is longer and in poor gravel condition adding to inconvenience of commuters 2. The alternatives route through Mahaplag-Baybay has several timber bridges which has a tendency to be destroyed during the season when landslides occurs; thus, the passengers were stranded 3. The development and security of the eastern towns (pacific) of south Leyte is dependent on the project road, any disturbance will directly affect these people.

(4)

SECTOR \ ROAD SECTION	DALTON	KENNON	LEYTE
F. Suggestions/ Comments	1. Suitable equipment should be permanently stationed within the section for immediate use 2. Widening and improvement of Aritao-Kayapa-Baguio Road 3. The Kayapa-Baguio Road should be converted into First-Class road as an alternative route to Manila 4. Improvement of Dalton Pass against landslides and widening and road shoulder improvement through vegetative and structural stabilizing measures 5. Important road signs should be place in strategic areas 6. Construction of another detour route, the Imugan-San Nicolas, Pangasinan Road, going to Manila	1. Widening of Kennon Road and proper maintenance 2. Proposal for tunneling to protect the natural contour 3. Investigate the mining activities in the area as maybe the cause for soil instability 4. Installation of 24-hours disaster monitoring patrol group and provision of permanent maintenance equipment for Kennon 5. To lessen the occurence of landslides, critical sections of Kennon Road should be covered by wire mesh and poured with concrete 6. Provision of a warning device to warn the cargo trucks/vans beforehand in case of disaster occurence 7. Provision of adequate traffic warning-signs	1. Reduce degree and slopes thus reducing the possibility of landslides improve lateral and cross drainage

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