Table A4-1 Estimated High Season Daily Number of Tourists

Cluster - Clusters

unit:PCU/day

Tourism Clusters	Overnight Tourists				Day Trip Tourists				Total			
	1994-95	2001	2006	2011	1994-96	2001	2006	2011	1994-96	2001	2006	2011
1. Muang Petchaburi	356	406	492	541	0	0	0	0	356	406	492	541
2. Petchaburi Coast	309	671	901	991	0	0	0	0	309	671	901	991
3. Cha-am	1,908	2,384	2,949	3,244	648	681	749	824	2,556	3,065	3,698	4,068
4. Hua Hin	925	1,177	1,475	1,622	492	517	568	625	1,417	1,694	2,043	2,247
5. Pranburi	538	936	1,401	1,541	0	0	0	0	538	936	1,401	1,541
6. Prachuap Khirikhan	239	471	737	811	0	0	0	0	239	471	737	811
7. Bang Sapan	75	111	246	270	0	0	0	0	75	111	246	270
Total	4,350	6,156	8,201	9,020	1,140	1,198	1,317	1,449	5,490	7,354	9,518	10,469

Bangkok Clusters

unit : PCU/day

Tourism Clusters	Overnight Tourists				Day Trip Tourists				Total			
	1994-95	2001	2006	2011	1994-96	2001	2006	2011	1994-96	2001	2006	2011
1. Muang Petchaburi	237	271	328	360	0	0	0	0	237	271	328	360
2. Petchaburi Coast	206	447	601	661	0	0	0	0	206	447	601	661
3. Cha-am	1,272	1,590	1,966	2,163	864	908	998	1,098	2,136	2,498	2,964	3,261
4. Hua Hin	616	785	983	1,081	656	689	758	833	1,272	1,474	1,741	1,914
5. Pranburi	359	624	934	1,027	0	0	0	0	359	624	934	1,027
6. Prachuap Khirikhan	159	314	491	541	0	0	0	0	159	314	491	541
7. Bang Sapan	50	74	164	180	0	0	0	0	50	74	164	180
Total	2,899	4,105	5,467	6,013	1,520	1,597	1,756	1,931	4,419	5,702	7,223	7,944

Table A4-2 OD Matrix of Tourists

1996

unit/PCU/day

Origin	Destination							
	1	2	3	4	5	6	7	Total
1. Muang Petchaburi	0	11	89	49	19	8	3	179
2. Petchaburi Coast	11	0	76	42	16	7	2	154
3. Cha-am	155	135	0	517	234	104	33	1,278
4. Hua Hin	62	54	445	0	94	42	13	710
5. Pranburi	10	17	139	77	0	13	4	269
6. Prachuap Khirikhan	8	7	58	32	12	0	2	119
7. Bang Sapan	2	2	18	10	4	2	0	38
Total	257	226	825	827	379	176	57	2,747

2001

Origin	Destination							
	1	2	3	4	5	6	7	Total
1. Muang Petchaburi	0	20	90	49	27	14	3	203
2. Petchaburi Coast	20	0	154	85	47	24	6	336
3. Cha-am	145	240	0	605	335	168	40	1,533
4. Hua Hin	61	100	459	0	140	70	17	847
5. Pranburi	30	49	223	124	0	34	8	468
6. Prachuap Khirikhan	14	23	105	58	32	0	4	236
7. Bang Sapan	3	5	24	13	7	4	0	56
Total	273	437	1,055	934	588	314	78	3,679

2006

Origin	Destination							
	1	2	3	4	5	6	7	Total
1. Muang Petchaburi	0	25	101	56	38	20	7	247
2. Petchaburi Coast	26	0	194	107	73	39	13	452
3. Cha-am	156	286	0	640	445	234	78	1,848
4. Hua Hin	67	123	506	0	192	101	34	1,023
5. Pranburi	42	78	319	176	0	64	21	700
6. Prachuap Khirikhan	21	38	155	86	59	0	10	369
7. Bang Sapan	7	12	49	27	19	10	0	124
Total	319	562	1,324	1,101	826	468	163	4,763

2011

Origin	Destination							
	1	2	3	4	5	6	7	Total
1. Muang Petchaburi	0	27	111	61	42	22	7	270
2. Petchaburi Coast	28	0	213	118	81	42	14	496
3. Cha-am	172	315	0	714	490	258	86	2,035
4. Hua Hin	74	135	550	0	213	111	37	1,124
5. Pranburi	47	86	351	194	0	70	23	771
6. Prachuap Khirikhan	23	42	171	94	65	0	11	406
7. Bang Sapan	7	13	54	30	20	11	0	135
Total	351	618	1,456	1,211	909	514	178	5,237

Figure A4-8 Estimated High Season Daily Number of Tourists

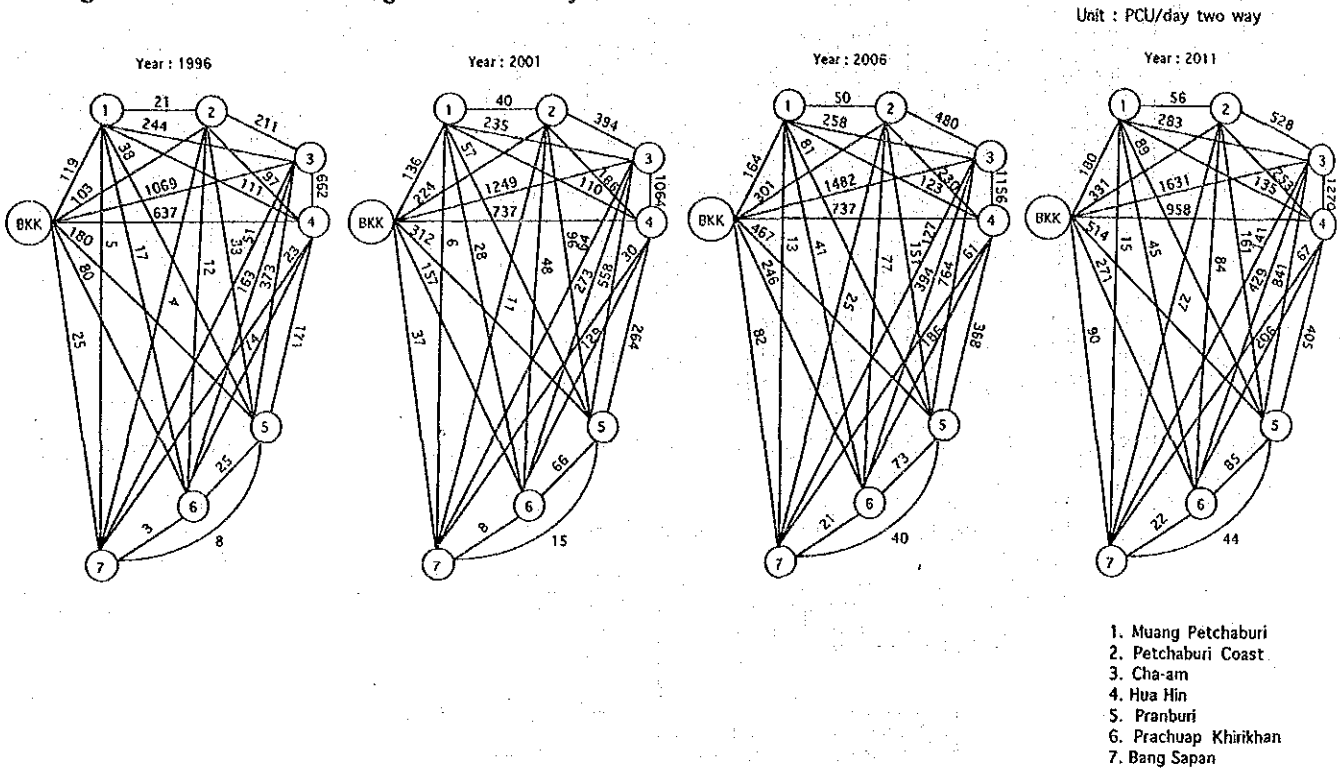


Figure A4-9 Overlay Pavement

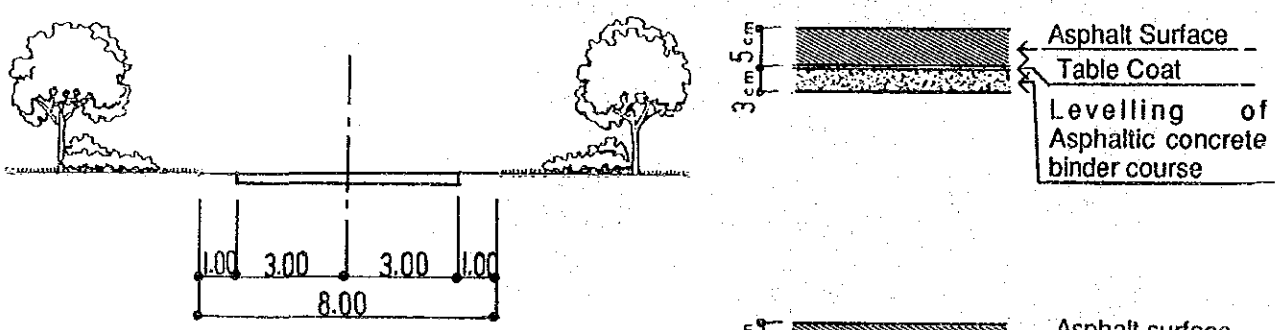
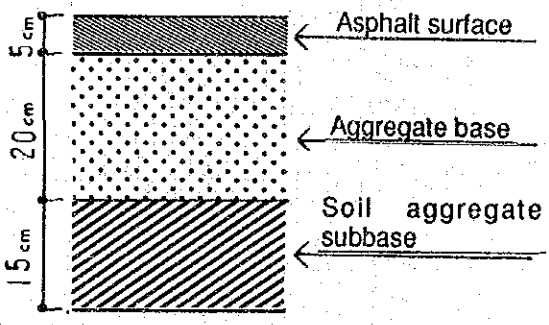


Figure A4-10 Surface Pavement



5. CASH FLOW TABLES

Table A5-1 Cash Flow of the Cultural and Recreational Center in Cha-Am (LDC)

(Unit:Thousand Baht)

Public Sector	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Price Index	112.4%	119.1%	126.2%	133.8%	141.9%	150.4%	159.4%	168.9%	179.1%	189.8%	201.2%	213.3%	226.1%	239.7%	254.0%	269.3%	285.4%	302.6%	320.7%	340.0%	360.4%	382.0%	404.9%	429.2%
1. Cost																								
- Investment Cost	597	12,722	12,722	14,442	71,789	71,789	35,214	32,086	33,598	21,276	21,276	21,276	18,218	18,218										
- Land Acquisition					36,575	36,575																		
- Land Dev. & Utilities		742	742		3,128	3,128	3,128			3,058	3,058	3,058												
- Construction Cost		9,942	9,942	9,942	26,627	26,627	26,627	25,627	26,627	15,119	15,119	15,119	15,119	15,119										
- Preparation 2%	597			2,463					1,512															
- Promotion 2%		199	199	199	533	533	533	533	533	302	302	302	302	302										
- Design & Supervion 3%		298	298	298	799	799	799	799	799	454	454	454	454	454										
- Contingency 10%		994	994	994	2,663	2,663	2,663	2,663	2,663	1,512	1,512	1,512	1,512	1,512										
- Infrastructure		547	547	547	1,465	1,465	1,465	1,465	1,465	832	832	832	832	832										
- Residual Value in 2016					38,040	38,504	4,394	5,858	7,323	4,989	5,821	6,652	7,484	8,315										
(A) Total Project Cost	670	15,152	16,061	19,327	101,834	107,944	55,126	54,209	60,189	40,389	42,812	45,381	41,190	43,661										
(Construction Cost)		13,025	13,806	14,635	41,549	44,042	46,684	49,485	52,454	31,570	33,465	35,473	37,601	39,857										
(Infrastructure)		651	690	732	2,077	2,202	2,334	2,474	2,623	1,579	1,673	1,774	1,880	1,993										
(B) Maintenance Cost 2.5%			362	768	1,222	2,451	3,824	5,352	7,050	8,932	10,347	11,899	13,600	15,462	17,499	18,549	19,662	20,841	22,092	23,417	24,822	26,312	27,890	29,564
(C) Residual Value																								
- Residual Value					53,960	59,399	7,003	9,897	13,114	9,471	11,713	14,189	16,920	19,928										
- Residual Value in 2016																								-215,594
== Grand Total Cost ==	670	15,152	16,423	20,096	103,056	110,395	59,949	59,561	67,219	49,321	53,159	57,280	54,790	59,123	17,499	18,549	19,662	20,841	22,092	23,417	24,822	26,312	27,890	-186,030
2. Revenues																								
(A) Down Payment 30%	201	4,545	4,818	5,798	30,550	32,383	16,838	16,263	18,051	12,117	12,844	13,614	12,357	13,098										
(B) Land Rental Fee(13%,t=25)																								
- Phase-1					3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866
- Phase-2										23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347
- Phase-3															9,575	9,575	9,575	9,575	9,575	9,575	9,575	9,575	9,575	9,575
- Total Land Rental Fee					5,088	6,317	7,689	9,218	10,916	36,145	37,560	39,112	40,813	42,675	54,287	55,337	56,450	57,630	58,880	60,206	61,611	63,100	64,679	66,352
(C) Facility Rental Fee 2%																								
- Construction Cost																								
:Exhibition Hall(P-1)		1,742	1,846	1,957																				
:Stadium(P-2)					1,427	1,513	1,604	1,700	1,802															
:Science Museum(P-2)					1,618	1,715	1,818	1,927	2,043															
:Amphi Theater(P-2)					1,095	1,161	1,231	1,305	1,383															
:Total Cost		1,742	1,846	1,957	4,141	4,389	4,653	4,932	5,228															
- Facility Rental Fee					111	114	117	119	122	592	607	622	638	654	670	687	704	722	740	758	777	797	817	837
== Grand Total Revenues ==	201	4,545	4,818	5,798	35,749	38,814	24,644	25,600	29,089	48,854	51,011	53,348	53,808	56,427	54,957	56,024	57,154	58,351	59,620	60,964	62,388	63,897	65,495	67,189
Net Cash Flow = (2) - (1)	-469	-10,606	-11,605	-14,297	-67,307	-71,581	-35,306	-33,961	-38,130	-467	-2,148	-3,931	-982	-2,696	37,458	37,475	37,492	37,510	37,528	37,546	37,565	37,585	37,605	253,219
NPV(24 Years,15%)	-91,565																							
FIRR(24 Years)	4.90%																							

Table A5-2 Cash Flow of the Cultural and Recreational Center in Cha-Am (PSD)

(Unit:Thousand Baht)

Private Sector	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Price Index	112.4%	119.1%	126.2%	133.8%	141.9%	150.4%	159.4%	168.9%	179.1%	189.8%	201.2%	213.3%	226.1%	239.7%	254.0%	269.3%	285.4%	302.6%	320.7%	340.0%	360.4%	382.0%	404.9%	429.2%
1. Cost																								
- Investment Cost	400	7,667	7,667	8,919	14,407	14,407	14,407	14,407	16,813	27,669	27,669	27,669	27,669	27,669										
- Construction Cost		6,667	6,667	6,667	12,526	12,526	12,526	12,526	12,526	24,060	24,060	24,060	24,060	24,060										
- Preparation 2%	400			1,253					2,405															
- Promotion 2%		133	133	133	251	251	251	251	251	481	481	481	481	481										
- Design & Supervion 3%		200	200	200	376	376	376	376	376	722	722	722	722	722										
- Contingency 10%		667	667	667	1,253	1,253	1,253	1,253	1,253	2,406	2,406	2,406	2,406	2,406										
- Residual Value in 2016					689	1,378	2,067	2,756	3,445	7,940	9,263	10,586	11,910	13,233										
(A) Total Project Cost	449	9,131	9,679	11,936	20,437	21,663	22,963	24,341	30,110	52,524	55,675	59,015	62,557	66,310										
(Construction Cost)		8,734	9,258	9,814	19,549	20,722	21,965	23,283	24,680	50,240	53,255	56,450	59,837	63,427										
(B) Down Payment	201	4,545	4,818	5,798	30,550	32,383	16,838	16,263	18,051	12,117	12,844	13,614	12,357	13,098										
(C) Land Rental Fee					5,086	6,317	7,689	9,218	10,915	36,145	37,560	39,112	40,813	42,675	54,267	55,337	56,450	57,630	58,860	60,206	61,611	63,100	64,679	66,352
(D) Variable Cost																								
- Maintenance Cost 2.5%			231	491	780	1,345	1,975	2,675	3,453	4,314	5,904	7,670	9,626	11,789	14,177	15,028	15,930	16,686	17,899	18,973	20,111	21,318	22,597	23,952
- Operating Cost:																								
Revenue x 60%					122,727	131,441	140,773	150,768	161,473	285,661	303,029	321,454	340,998	361,731	455,548	478,598	502,815	528,298	554,988	657,834	691,120	726,091	762,831	801,430
- Total			231	491	123,508	132,786	142,748	153,444	164,926	289,975	308,934	329,124	350,624	373,520	469,725	493,626	518,745	545,143	572,886	676,807	711,231	747,408	785,428	825,383
(E) Residual Value																								
- Residual Value					977	2,072	3,295	4,657	6,170	15,072	18,639	22,560	26,927	31,714										
- Residual Value in 2016																								-132,102
== Grand Total Cost ==	651	13,677	14,729	18,225	179,583	193,150	190,239	203,265	224,003	390,762	415,013	440,866	466,351	495,604	524,012	548,963	575,195	602,773	631,766	737,012	772,842	810,508	850,106	759,632
2. Revenues																								
- No. of Visitors (x1000)																								
Total					519	530	540	551	562	957	976	995	1,015	1,035	1,266	1,291	1,317	1,343	1,370	1,577	1,608	1,641	1,673	1,707
- Expenditure (Baht/Psn)																								
Total					394	413	434	456	479	498	518	538	560	582	600	618	636	655	675	695	716	738	760	783
- Revenue from Restaurant, Shop & Entertainment					204,546	219,068	234,622	251,280	269,121	476,102	505,049	535,756	568,330	602,885	759,246	797,664	838,025	880,429	924,979	1,096,390	1,151,867	1,210,151	1,271,385	1,335,717
3. Taxes and Depreciation																								
3.1 Business Tax: Rev x 3.85%					7,875	8,434	9,033	9,674	10,361	18,330	19,444	20,627	21,881	23,211	29,231	30,710	32,264	33,897	35,612	42,211	44,347	46,591	48,948	51,425
3.2 Depreciation																								
: Straight Line 20 Years					1,390	1,390	1,390	1,390	1,390	6,900	6,900	6,900	6,900	6,900	21,061	21,061	21,061	21,061	21,061	21,061	21,061	21,061	21,061	21,061
3.3 Down Payment																								
: Straight Line 20 Years					766	2,296	3,915	4,757	5,570	6,472	7,078	7,720	8,401	9,019	9,674	9,674	9,674	9,674	9,674	9,674	9,674	9,674	9,674	9,674
3.4 Income Tax:																								
(Rev.-(3.1)-(3.2)-(1.C)-(1.D)) x 35%					23,071	23,746	24,446	25,479	26,585	41,398	43,796	46,296	48,899	51,646	61,344	65,540	69,941	74,559	79,403	100,251	106,380	112,811	119,559	126,638
3.5 Total Taxes					30,946	32,180	33,479	35,153	36,947	59,728	63,241	66,922	70,780	74,857	90,575	96,250	102,205	108,456	115,015	142,462	150,727	159,402	168,507	178,063
Net Cash Flow = (2)-(1)-(3)	-651	-13,677	-14,729	-18,225	-5,983	-6,261	10,904	12,862	8,172	25,613	26,795	27,968	31,200	32,424	144,659	152,451	160,625	169,201	178,198	216,916	228,298	240,241	252,772	398,022
NPV(24 Years,15%)	136,636																							
FIRR(24 Years)	29.89%																							

Table A5-3 Cash Flow of the Circulation Roads Improvement Project

Table 5.3-7 Cost and Benefit Flow of Circulation Road Improvement (1,000 Baht)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Circulation Road (RID)	20.5 km																
1.Cost																	
(A) Investment Cost	1,593	31,869															
(B) Maintenance Cost 5%			1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593
(C) Total Cost	1,593	31,869	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593
2.Benefit																	
- Traffic Demand (pcu/day)			752	776	800	824	847	871	895	933	971	1,010	1,048	1,086	1,121	1,155	1,190
(A) Vehicle Operation Benefit			3,147	3,246	3,344	3,442	3,541	3,639	3,737	3,895	4,053	4,211	4,369	4,526	4,669	4,811	4,953
(B) Travel Time Benefit			2,349	2,543	2,724	2,911	3,104	3,303	3,508	3,777	4,057	4,346	4,645	4,954	5,255	5,566	5,885
(C) Total Benefit			5,496	5,789	6,068	6,353	6,644	6,941	7,245	7,672	8,110	8,557	9,013	9,480	9,924	10,377	10,839
Net Benefit = (2) - (1)	-1,593	-31,869	3,903	4,196	4,475	4,760	5,051	5,348	5,651	6,079	6,516	6,963	7,420	7,888	8,331	8,784	9,245
Circulation Road (OARD)	14.0 km																
1.Cost																	
(A) Investment Cost		1,253	25,059														
(B) Maintenance Cost 5%				1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253
(C) Total Cost		1,253	25,059	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253
2.Benefit																	
- Traffic Demand (pcu/day)				519	539	558	578	597	617	646	676	705	735	764	792	820	848
(A) Vehicle Operation Benefit				8,061	8,367	8,673	8,979	9,285	9,592	10,051	10,510	10,968	11,428	11,868	12,326	12,764	13,202
(B) Travel Time Benefit				2,614	2,819	3,031	3,252	3,480	3,716	4,020	4,337	4,664	5,004	5,355	5,707	6,071	6,445
(C) Total Benefit				10,675	11,186	11,704	12,231	12,765	13,308	14,071	14,846	15,633	16,432	17,243	18,033	18,835	19,647
Net Benefit = (2) - (1)		-1,253	-25,059	9,422	9,933	10,451	10,978	11,512	12,055	12,818	13,593	14,380	15,179	15,990	16,780	17,582	18,395
Circulation Road Total	34.5 km																
1.Cost																	
(A) Investment Cost	1,593	33,122	25,059														
(B) Maintenance Cost 5%			1,593	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846
(C) Total Cost	1,593	33,122	26,652	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846
2.Benefit																	
(A) Vehicle Operation Benefit			3,147	11,307	11,711	12,115	12,520	12,924	13,329	13,946	14,563	15,180	15,797	16,414	16,994	17,575	18,155
(B) Travel Time Benefit			2,349	5,157	5,543	5,942	6,355	6,783	7,224	7,798	8,393	9,010	9,649	10,308	10,963	11,637	12,331
(C) Total Benefit			5,496	16,464	17,254	18,057	18,875	19,707	20,552	21,743	22,956	24,190	25,445	26,722	27,957	29,212	30,486
Net Benefit = (2) - (1)	-1,593	-33,122	-21,156	13,617	14,407	15,211	16,029	16,860	17,706	18,897	20,110	21,344	22,599	23,876	25,111	26,365	27,640
EIRR	24.10%																

Table A5-4 Cash Flow of the Coastal Road Improvement Project

(1,000 Baht)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Coastal Road -1	18.9 km																
1.Cost																	
(A) Investment Cost	1,471	29,424															
(B) Maintenance Cost 5%			1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471
(C) Total Cost	1,471	29,424	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471
2.Benefit																	
- Traffic Demand (pcu/day)			521	607	693	778	864	949	1,035	1,095	1,154	1,214	1,273	1,333	1,367	1,401	1,435
(A) Vehicle Operation Benefit			3,953	4,602	5,249	5,897	6,543	7,190	7,836	8,285	8,734	9,182	9,631	10,078	10,333	10,587	10,841
(B) Travel Time Benefit			3,378	4,127	4,893	5,705	6,563	7,466	8,415	9,191	9,999	10,838	11,710	12,613	13,299	14,003	14,725
(C) Total Benefit			7,332	8,729	10,143	11,602	13,108	14,656	16,251	17,476	18,733	20,021	21,340	22,691	23,631	24,589	25,565
Net Benefit = (2) - (1)	-1,471	-29,424	5,861	7,257	8,671	10,131	11,635	13,185	14,780	16,005	17,261	18,549	19,869	21,220	22,160	23,118	24,094
Coastal Road -2	13.7 km																
1.Cost																	
(A) Investment Cost	1,066		21,329														
(B) Maintenance Cost 5%				1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066
(C) Total Cost	1,066	0	21,329	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066
2.Benefit																	
- Traffic Demand (pcu/day)				374	412	450	488	526	564	595	627	658	690	721	744	767	791
(A) Vehicle Operation Benefit				2,055	2,264	2,472	2,680	2,888	3,095	3,267	3,438	3,609	3,780	3,951	4,078	4,203	4,329
(B) Travel Time Benefit				1,843	2,110	2,391	2,688	2,998	3,324	3,624	3,936	4,260	4,597	4,945	5,248	5,560	5,880
(C) Total Benefit				3,898	4,373	4,863	5,367	5,886	6,419	6,891	7,374	7,870	8,377	8,897	9,325	9,763	10,210
Net Benefit = (2) - (1)	-1,066	0	-21,329	2,832	3,307	3,797	4,301	4,819	5,353	5,824	6,308	6,803	7,311	7,830	8,259	8,697	9,143
Coastal Road Total	32.6 km																
1.Cost																	
(A) Investment Cost	2,538	29,424	21,329														
(B) Maintenance Cost 5%			1,471	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538
(C) Total Cost	2,538	29,424	22,800	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538
2.Benefit																	
(A) Vehicle Operation Benefit			3,953	6,657	7,513	8,368	9,223	10,077	10,931	11,552	12,172	12,792	13,411	14,030	14,410	14,790	15,170
(B) Travel Time Benefit			3,378	5,970	7,003	8,096	9,250	10,464	11,739	12,815	13,935	15,099	16,306	17,558	18,547	19,562	20,605
(C) Total Benefit			7,332	12,627	14,516	16,465	18,473	20,542	22,670	24,366	26,107	27,890	29,717	31,588	32,957	34,353	35,775
Net Benefit = (2) - (1)	-2,538	-29,424	-15,468	10,089	11,978	13,927	15,936	18,004	20,132	21,829	23,569	25,352	27,180	29,050	30,419	31,815	33,237
EIRR	26.95%																

Table A5-5 Cash Flow of the Municipal Water Supply Development Projects for Cha-Am and Hua Hin

Table 5.3-12 Cash Flow of Water Distribution System Improvement Projects for Cha-am and Hua Hin Municipalities (Unit: Thousand Baht)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Price Index	119.1%	126.2%																
CHA-AM																		
1.Cost																		
(A) Project Preparation	1,787																	
(B) Construction Cost		17,422																
(C) Maintenance Cost 2%			369	392	415	440	466	494	524	555	589	624	661	701	743	788	835	885
(D) Total Cost	1,787	17,422	369	392	415	440	466	494	524	555	589	624	661	701	743	788	835	885
2.Revenue			2,195	2,493	2,790	3,087	3,384	3,681	4,021	4,361	4,701	5,041	5,381	5,489	5,599	5,711	5,825	5,941
Net Cash Flow = (2) - (1)	-1,787	-17,422	1,826	2,101	2,375	2,647	2,918	3,187	3,497	3,806	4,113	4,417	4,720	4,788	4,856	4,923	4,990	5,056
FIRR	14.15%																	
HUA HIN																		
1.Cost																		
(A) Project Preparation	2,382																	
(B) Construction Cost		27,396																
(C) Maintenance Cost 2%			581	616	653	692	733	777	824	873	926	981	1,040	1,103	1,169	1,239	1,313	1,392
(D) Total Cost	2,382	27,396	581	616	653	692	733	777	824	873	926	981	1,040	1,103	1,169	1,239	1,313	1,392
2.Revenue			1,062	1,214	1,367	1,519	1,671	1,823	2,001	2,178	2,356	2,533	2,710	2,765	2,820	2,876	2,934	2,993
Net Cash Flow = (2) - (1)	-2,382	-27,396	482	599	714	827	938	1,046	1,177	1,305	1,430	1,552	1,670	1,662	1,651	1,638	1,621	1,601
FIRR	-3.82%																	
Total																		
1.Cost																		
(A) Project Preparation	4,169																	
(B) Construction Cost		44,818																
(C) Maintenance Cost 2%			950	1,007	1,068	1,132	1,200	1,272	1,348	1,429	1,514	1,605	1,702	1,804	1,912	2,027	2,148	2,277
(D) Total Cost	4,169	44,818	950	1,007	1,068	1,132	1,200	1,272	1,348	1,429	1,514	1,605	1,702	1,804	1,912	2,027	2,148	2,277
2.Revenue			3,258	3,707	4,156	4,606	5,055	5,504	6,022	6,539	7,057	7,574	8,092	8,254	8,419	8,587	8,759	8,934
Net Cash Flow = (2) - (1)	-4,169	-44,818	2,308	2,700	3,089	3,474	3,856	4,233	4,674	5,111	5,542	5,969	6,390	6,450	6,507	6,560	6,611	6,657
FIRR	5.35%																	

Table A5-6 Cash Flow of the Municipal Sewerage System Development Project for Cha-Am

(Unit: Thousand Baht)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Price Index	118.1%	126.2%	133.8%															
1.Cost																		
(A) Project Preparation	23,820																	
(B) Construction Cost		73,729	70,658															
(C) Maintenance Cost 3%				4,732	5,016	5,317	5,636	5,974	6,333	6,713	7,115	7,542	7,995	8,475	8,983	9,522	10,093	10,699
(D) Total Cost	23,820	73,729	70,658	4,732	5,016	5,317	5,636	5,974	6,333	6,713	7,115	7,542	7,995	8,475	8,983	9,522	10,093	10,699
2.Revenue																		
(A) Domestic			4,522	5,036	5,551	6,066	6,581	7,096	7,658	8,220	8,781	9,343	9,905	9,905	9,905	9,905	9,905	9,905
(B) Hotels			4,116	4,674	5,231	5,788	6,345	6,902	7,540	8,177	8,815	9,452	10,090	10,090	10,090	10,090	10,090	10,090
(C) Total Revenue			8,638	9,710	10,782	11,854	12,926	13,999	15,198	16,397	17,596	18,795	19,995	19,995	19,995	19,995	19,995	19,995
Net Cash Flow = (2) - (1)	-23,820	-73,729	-70,658	4,978	5,766	6,537	7,290	8,024	8,865	9,684	10,481	11,253	12,000	11,520	11,012	10,473	9,901	9,296
FIRR	-2.09%																	

6. EXPERIENCES WITH RULES AND REGULATIONS FOR TOURISM DEVELOPMENT

6.1 Master Plan and Its Inconsistencies

There are dozens of high rise buildings at intervals of 500 ~ 100 m along the coast line of Hua-Hin and Cha-am. This scenery is said to be different from the one imaged in the master plan completed by Thailand Institute of Scientific and Technological Research, 1987.

Hua Hin and Cha-am areas should have unique characteristics to accommodate tourists who are looking for specific opportunities. The whole area of Hua Hin Cha-am shall have its theme as one town that can offer unique services and environment to attract more tourists and to avoid chaotic developments. For this purpose, developments shall be in accordance with the master plan.

The master plan was prepared in 1987, and the development as a coastal area was authorized in 1988. Relationships between the master plan and building permits shall be studied. The development process with the master plan should be reconsidered for orderly town planning in both cities. Also, they have to be consistent with the general plan and the specific plan.

As references herewith a few examples are introduced in order to develop a resort with observance of a master plan.

6.2 Cases in Japan and France

There are many resorts in Japan and supervisors of all of them are making effort to create/maintain the individuality of their resorts. Among off them Yasima resort, famous one from old days, in Hiroshima prefecture is caring unique policies into effect i.e., the municipal government of Yasima town in charge of developing/maintaining its resort town is checking every development plan including renovation of roofs of hotels, color of buildings, fences of houses etc. based on its ordinances. Even in the election term tourists do not find any posters of candidates for the legislators of the town etc. Urban design scheme is in practice in the Yashima resort.

Local governments additional regulations to the ones by the central government are some times discussed if they are legal against the law or not. But especially related to the environmental conservation many additional regulations are made by the local governments in order to create a comfortable environment in their towns.

As another example, the development by the third sector, which usually makes a plan, conduct it and manage a resort, is prevailing in Japan. The private sector which is called the second sector can provide better services for it's guests than the public sector which is called the first sector, but has the tendency to generate disordered developments because it is going to seek after profits. Meanwhile the public sector is not good at taking carefully thought out services, but can consider the matters related to the whole town. Expecting that a third sector collects superior characteristics of both sector and can conduct a desirable development, it is established in many development areas, not only for a resort development but also for industrial one. It is said that around 20 years ago TAT tried to set up Phuket Tourism Development Cooperation. The system seems to be able to contribute to the creation of orderly development in common with the third sector system. Therefore, it is expectable that reflecting the reason why the cooperation could not be established, the possibility of the system of the third sector, the cooperation system etc. will be studied.

As further another example of the master plan practice is in Languedoc-Roussillon. It is said that the total length of 180 km coast line of Languedoc-Roussillon is divided into around scores of parts and the each divided coast has an assigned architect who is responsible to create the coastal resort of individuality. Since 1963 Languedoc-Roussillon has been developed in accordance with the original plan which had been designated as one of national projects in France.

6.3 Master plan implementation process

To form specific shapes of a town, the master plan and the zoning regulation must be consistent. The master plan is a long term and comprehensive which guides the future growth of a town; however zoning and building regulations are the specific tools to control shapes cityscape. Zoning specifies use, bulk, and density; however, use, bulk and density regulations are not enough to achiever coherent development. Design guideline which specifies materials styles, color of buildings is necessary as in Yashima town in Japan. Landscaping also is controlled. Sign regulations controls types and shapes of signs.

6.4 Legal issues

Fundamentally, all private developments could be controlled for the purpose of orderly developments, but it has limitations. The argument is private enterprises' freedom to utilize their own private property and the government intervention to free enterprise activities. Therefore, how much to regulate and how much not to regulate are always controversial. Local governments ordinances are sometimes challenged by developers and land owners.

7. PARTICIPANTS OF THE STUDY

Participant of the Study are: (1) Thai members of the Steering Committee, (2) Japanese Advisory Committee members, (3) JICA Study Team and (4) Thai Counterparts to the JICA Study Team.

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