





Table 4.4.2 Maintenance &amp; Operation Cost

Unit: 1,000 Bahts

WORKS	YEAR	1980	1981	1982	1983	1984	1985	1986	TOTAL
		LOCAL	586.6	575.6	645.5	730.1	758.2	871.0	894.5
FOREIGN	5.1	4.9	4.8	4.8	4.6	4.6	4.6	33.4	
TOTAL	591.7	580.5	650.3	734.9	762.8	875.6	899.1	5,094.9	
RESIDENT	LOCAL	603.5	592.4	665.1	730.1	758.2	843.9	866.6	5,059.8
FOREIGN	5.2	5.1	4.9	4.8	4.6	4.5	4.5	33.6	
TOTAL	608.7	597.5	670.0	734.9	762.8	848.8	871.1	5,093.4	
SUB-TOTAL	LOCAL	1,190.1	1,168.0	1,310.6	1,460.2	1,516.4	1,714.9	1,761.1	10,121.3
FOREIGN	10.3	10.0	9.7	9.6	9.2	9.1	9.1	67.0	
TOTAL	1,200.4	1,178.0	1,320.3	1,469.8	1,525.6	1,724.0	1,770.2	10,188.3	
TOURING	LOCAL	486.1	524.8	645.5	752.4	852.9	1,007.2	1,034.3	5,303.2
FOREIGN	4.2	4.5	4.8	4.9	5.3	5.4	5.4	34.5	
TOTAL	490.3	529.3	650.3	757.3	858.2	1,012.6	1,039.7	5,337.7	
KO-LAN ISLAND	LOCAL	310.8	310.8	318.5	330.7	339.0	346.0	364.8	2,009.8
FOREIGN	-	-	-	-	-	-	-	-	
TOTAL	310.8	310.8	318.5	330.7	339.0	346.0	364.8	2,009.8	
SUB-TOTAL	LOCAL	486.1	835.6	964.0	1,083.1	1,191.9	1,353.2	1,399.1	7,313.0
FOREIGN	4.2	4.5	4.8	4.9	5.3	5.4	5.4	34.5	
TOTAL	490.3	840.1	968.8	1,088.0	1,197.2	1,358.6	1,404.5	7,347.5	
TOTAL	LOCAL	1,676.2	2,003.6	2,274.6	2,543.3	2,708.3	3,068.1	3,160.2	17,434.3
FOREIGN	14.5	14.5	14.5	14.5	14.5	14.5	14.5	101.5	
TOTAL	1,690.7	2,018.1	2,289.1	2,557.8	2,722.8	3,082.6	3,174.7	17,535.8	



## 4.5 Port Facilities



Table 4.5.1 Construction Cost - (1)  
(Pier & Revetment)

Item	Description	Quantity	Unit	Material		Labor		Equipment	
				Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1. Pier 1-1.	1) Conc. (1:2:4)	415	m <sup>3</sup>	767	318,305	390	161,850		
	2) Form	4,032	m <sup>2</sup>	103	415,296	43	173,376		
	3) Bar	85	t	9,475	805,375	1,320	112,200		
	4) Transport & Handling	168	pc	12.5	2,100	12.5	2,100	85	14,280
	5) Driving by boat	168	pc	181.5	30,492	385	64,680	1,776	298,368
1-2.	1) Conc. (1:2:4)	2,305	m <sup>3</sup>	767	1,767,935	390	898,950		
	2) Bar	470	t	9,475	4,453,250	1,320	620,400		
	3) Form	9,642	m <sup>2</sup>	103	993,101	43	414,606		
2. Revetment [1] Cellular Block Bulkhead	Cellular Block	648	m <sup>3</sup>	767	497,016	390	257,720		
	1) Conc. (1:2:4)	132	t	9,475	1,250,700	1,320	174,240		
	2) Bar	1,769	m <sup>2</sup>	103	182,207	43	76,067		
	3) Form	100	pc	107	10,700	207	20,700	575	57,500
2-2.	1) Conc. (1:3:4)	421	m <sup>3</sup>	607	255,547	310	130,510		
	2) Form	609	m <sup>2</sup>	103	62,727	43	26,187		
2-3.	Mound Stone	6,554	m <sup>3</sup>	208.5	1,366,509	53.5	350,639	80	524,320
2. Revetment [2] Stepped Face Sea Wall	3-1.	348.2	m <sup>3</sup>	607	211,358	310	107,942		
	Conc. Block	1,014	m <sup>2</sup>	103	104,442	43	43,602		
3-2.	1) Conc.	746	m <sup>3</sup>	607	452,822	310	231,260		
	2) Form	676	m <sup>2</sup>	103	69,628	43	29,068		
3-3.	Mound Stone	3,120	m <sup>3</sup>	208.5	650,520	53.5	166,920	80	249,600

Table 4.5.2 Construction Cost - (2)

Description	Quantity	Unit	Unit Cost	Total
<b>1. Pier</b>				
1-1. R.C. Piling	168	pcs	14,257	2,395,092
1-2. R.C. Beam & Slab	2,305	m <sup>3</sup>	3,969	9,148,231
<b>2. Revetment [1] - Cellular Block Bulkhead</b>				
2-1. Cellular Block	107	pcs	23,540	2,518,827
2-2. Retaining Wall	607	m <sup>3</sup>	782	474,971
2-3. Mound stone	200	m <sup>3</sup>	11,207	2,241,468
<b>3. Revetment [2] - Stepped Face Sea Wall</b>				
3-1. Concrete Block	348	m <sup>3</sup>	1,343	467,364
3-2. Cast-in-place Concrete	746	m <sup>3</sup>	1,049	782,554
3-3. Mound Stone	3,120	m <sup>3</sup>	342	1,067,040
3-4. Sand Nourishment	7,075	m <sup>3</sup>	96	679,200
<b>4. Dredging</b>	<b>148,000</b>	<b>m<sup>3</sup></b>	<b>32.6</b>	<b>4,824,800</b>
<b>5. Land Reclamation</b>	<b>148,000</b>	<b>m<sup>3</sup></b>	<b>40.8</b>	<b>6,038,400</b>



Table 4.5.3 Construction Cost (3) Main Port

WORKS		TOTAL						1980						1981						1982					
		CIVIL WORKS	EQUIP. MENT	COST WITHOUT TAX	TAX	COST WITH TAX	U.L.	CIVIL WORKS	EQUIP. MENT	COST WITHOUT TAX	TAX	COST WITH TAX	U.L.	CIVIL WORKS	EQUIP. MENT	COST WITHOUT TAX	TAX	COST WITH TAX	U.L.	CIVIL WORKS	EQUIP. MENT	COST WITHOUT TAX	TAX	COST WITH TAX	U.L.
PIER	LOCAL	11,323	-	-	282	11,605	138	2,831	-	-	78	2,902	35	8,492	-	-	211	8,703	103	-	-	-	-	-	-
	FOREIGN	176	-	-	-	176	-	44	-	-	44	-	132	-	-	-	132	-	-	-	-	-	-	-	
	TOTAL	11,499	-	11,499	282	11,781	138	2,875	-	-	122	2,946	35	8,624	-	-	211	8,835	103	-	-	-	-	-	-
REVEIEMENT (I)	LOCAL	5,126	-	-	123	5,249	33	5,126	-	-	123	5,249	33	-	-	-	-	-	-	-	-	-	-	-	-
	FOREIGN	41	-	-	-	41	-	41	-	-	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOTAL	5,167	-	5,167	123	5,290	33	5,167	-	-	164	5,290	33	-	-	-	-	-	-	-	-	-	-	-	-
REVEIEMENT (II)	LOCAL	2,285	-	-	53	2,338	-	1,143	-	-	27	1,170	-	1,142	-	-	26	1,168	-	-	-	-	-	-	-
	FOREIGN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOTAL	2,285	-	2,285	53	2,338	-	1,143	-	-	27	1,170	-	1,142	-	-	26	1,168	-	-	-	-	-	-	-
ARTIFICIAL BEACH AT MAIN PORT	LOCAL	608	-	-	14	622	71	304	-	-	7	311	36	304	-	-	7	311	35	-	-	-	-	-	-
	FOREIGN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOTAL	608	-	608	14	622	71	304	-	-	7	311	36	304	-	-	7	311	35	-	-	-	-	-	-
DREDGING	LOCAL	888	-	-	457	1,345	-	355	-	-	183	538	-	533	-	-	274	807	-	-	-	-	-	-	-
	FOREIGN	3,552	-	-	-	3,552	-	1,421	-	-	-	1,421	-	2,131	-	-	-	2,131	-	-	-	-	-	-	-
	TOTAL	4,440	-	4,440	457	4,897	-	1,776	-	-	183	1,959	-	2,664	-	-	274	2,938	-	-	-	-	-	-	-
LAND RECLAMATION	LOCAL	5,222	-	-	333	6,105	-	2,309	-	-	133	2,442	-	3,463	-	-	200	3,663	-	-	-	-	-	-	-
	FOREIGN	1,628	-	-	-	1,628	-	651	-	-	-	651	-	977	-	-	-	977	-	-	-	-	-	-	-
	TOTAL	7,400	-	7,400	333	7,733	-	2,960	-	-	133	3,093	-	4,440	-	-	200	4,640	-	-	-	-	-	-	-
NAVIGATION AIDS	LOCAL	14	-	14	201	215	-	-	-	-	-	-	-	14	-	14	201	215	-	-	-	-	-	-	-
	FOREIGN	2	1,628	1,630	-	1,630	-	-	-	-	-	-	-	2	1,628	1,630	-	1,630	-	-	-	-	-	-	-
	TOTAL	16	1,628	1,644	201	1,845	-	-	-	-	-	-	-	16	1,628	1,644	201	1,845	-	-	-	-	-	-	-
ADMINISTRATION OFFICE	LOCAL	2,940	-	-	69	3,009	206	-	-	-	-	-	-	-	-	-	-	-	2,940	-	-	69	3,009	206	-
	FOREIGN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOTAL	2,940	-	2,940	69	3,009	206	-	-	-	-	-	-	-	-	-	-	-	2,940	-	-	69	3,009	206	-
PARK	LOCAL	754	-	-	17	771	53	-	-	-	-	-	-	-	-	-	-	-	754	-	-	17	771	53	-
	FOREIGN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOTAL	754	-	754	17	771	53	-	-	-	-	-	-	-	-	-	-	-	754	-	-	17	771	53	-
ROAD	LOCAL	549	-	-	130	679	38	-	-	-	-	-	-	549	-	-	130	679	38	-	-	-	-	-	-
	FOREIGN	757	-	-	-	757	-	-	-	-	-	-	-	757	-	-	-	757	-	-	-	-	-	-	-
	TOTAL	1,306	-	1,306	130	1,436	38	-	-	-	-	-	-	1,306	-	-	130	1,436	38	-	-	-	-	-	-
LAUNCHING WAY	LOCAL	182	-	-	4	186	-	91	-	-	2	93	-	-	-	-	-	-	91	-	-	2	93	-	-
	FOREIGN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOTAL	182	-	182	4	186	-	91	-	-	2	93	-	-	-	-	-	-	91	-	-	2	93	-	-
TOTAL	LOCAL	30,411	-	-	1,683	32,094	539	12,159	-	-	545	12,705	104	14,477	-	-	1,649	15,546	176	3,785	-	88	3,873	259	-
	FOREIGN	6,156	1,628	-	-	7,784	-	2,157	-	-	-	2,157	-	3,999	1,628	-	-	5,627	-	-	-	-	-	-	-
	TOTAL	36,567	1,628	38,225	1,683	39,908	539	14,316	-	-	545	14,862	104	18,476	1,628	-	20,924	16,449	176	3,785	-	88	3,873	259	-
TOTAL																									



Table 4.5.4 Construction Cost (4) Ko Lan Island

WORKS	TOTAL											
	CIVIL WORKS	EQUIP. MENT	COST WITHOUT TAX	TAX	COST WITH TAX	U.L.	CIVIL WORKS	EQUIP. MENT	COST WITHOUT TAX	TAX	COST WITH TAX	U.L.
EAST PIER	LOCAL	3,591		89	3,680	43	3,591			89	3,680	43
	FOREIGN	55			55		55				55	
	TOTAL	3,646		89	3,735		3,646		3,646	89	3,735	
NORTH PIER	LOCAL	5,985		149	6,134	72	5,985			149	6,134	72
	FOREIGN	92			92		92				92	
	TOTAL	6,077		149	6,226		6,077		6,077	149	6,226	
WEST PIER	LOCAL	3,591		89	3,680	43	3,591			89	3,680	43
	FOREIGN	55			55		55				55	
	TOTAL	3,646		89	3,735		3,646		3,646	89	3,735	
TOTAL	LOCAL	13,167		327	13,494	158	13,167			327	13,494	158
	FOREIGN	202			202		202				202	
	TOTAL	13,369		327	13,696	158	13,369		13,369	327	13,696	158



**ANNEX 7. TOTAL COST (OUT FLOW) AND INVESTMENT TABLE**



## ANNEX 7. TOTAL COST (OUT FLOW) AND INVESTMENT TABLE

### C O N T E N T S

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Table 1 Total Cost (Out Flow): 1  
Tourism and Residential Area

Unit: million Baht

No.	Year	Investment Cost	Maintenance & Operation Cost	Administration Cost	Total	Remarks
1	1977		-	-	-	
2	1978		-	-	-	
3	1979	33.1	-	3.0	36.1	
4	1980	740.9	1.7	3.8	746.4	
5	1981	154.3	8.6	4.9	167.8	
6	1982	70.8	9.6	5.3	85.7	
7	1983	30.1	10.2	↓	45.6	
8	1984	38.3	10.4	↓	54.0	
9	1985	38.5	11.0	↓	54.8	
10	1986	5.0	11.8	5.3	22.1	
11	1987	7.8	13.1	3.0	23.9	
12	1988	6.4	13.3	↓	22.7	
13	1989	↓	13.4	↓	22.8	
14	1990	↓	13.5	↓	22.9	
15	1991	↓	13.6	↓	23.0	
16	1992	↓	13.7	↓	23.1	
17	1993	↓	↓	↓	↓	
18	1994	↓	↓	↓	↓	
19	1995	↓	↓	↓	↓	
20	1996	↓	13.7	↓	23.1	
21	1997	10.3	15.1	↓	28.4	
22	1998	8.3	↓	↓	26.4	
23	1999	↓	↓	↓	↓	
24	2000	↓	↓	↓	↓	
25	2001	↓	↓	↓	↓	
26	2002	↓	↓	↓	↓	
27	2003	↓	↓	↓	↓	
28	2004	↓	↓	↓	↓	
29	2005	↓	↓	↓	↓	
30	2006	8.3	15.1	3.0	26.4	
Total		1,261.4	349.7	98.2	1,709.3	

Table 2 Total Cost (Out Flow): 2. Residential Area

Unit: million Baht

No.	Year	Investment Cost	Maintenance & Operation Cost	Administration Cost	Total	Remarks
1	1977		-	-	-	
2	1978		-	-	-	
3	1979	19.0	-	1.5	20.5	
4	1980	482.8	1.2	1.9	485.9	
5	1981	30.1	5.1	2.5	37.7	
6	1982	41.9	5.5	2.7	50.1	
7	1983	22.2	5.8	↓	30.7	
8	1984	23.4	5.8	↓	31.9	
9	1985	25.3	6.1	↓	34.1	
10	1986	2.8	6.5	2.7	12.0	
11	1987	4.9	7.4	1.5	13.8	
12	1988	3.8	7.5	↓	12.8	
13	1989	↓	7.6	↓	12.9	
14	1990	↓	7.7	↓	13.0	
15	1991	↓	7.8	↓	13.1	
16	1992	↓	↓	↓	↓	
17	1993	↓	↓	↓	↓	
18	1994	↓	↓	↓	↓	
19	1995	↓	↓	↓	↓	
20	1996	↓	7.8	↓	13.1	
21	1997	6.4	8.6	↓	16.5	
22	1998	4.9	↓	↓	15.0	
23	1999	↓	↓	↓	↓	
24	2000	↓	↓	↓	↓	
25	2001	↓	↓	↓	↓	
26	2002	↓	↓	↓	↓	
27	2003	↓	↓	↓	↓	
28	2004	↓	↓	↓	↓	
29	2005	↓	↓	↓	↓	
30	2006	↓	8.6	1.5	15.0	
Total		737.1	199.0	49.4	985.5	

Table 3 Total Cost (Out Flow): 3. Tourism Area

Unit: million Baht

No.	Year	Investment Cost	Maintenance & Operation Cost	Administration Cost	Total	Remarks
1	1977		-	-		
2	1978		-	-		
3	1979	13.9	-	1.5	15.4	
4	1980	257.9	0.5	1.9	260.3	
5	1981	126.1	3.5	2.4	132.0	
6	1982	29.4	4.1	2.6	36.1	
7	1983	8.5	4.4	↓	15.5	
8	1984	14.8	4.6	↓	22.0	
9	1985	13.0	4.8	↓	20.4	
10	1986	2.2	5.2	2.6	10.0	
11	1987	2.9	5.7	1.5	10.1	
12	1988	2.5	↓	↓	9.7	
13	1989	↓	↓	↓	↓	
14	1990	↓	↓	↓	↓	
15	1991	↓	5.8	↓	9.8	
16	1992	↓	↓	↓	↓	
17	1993	↓	↓	↓	↓	
18	1994	↓	↓	↓	↓	
19	1995	↓	↓	↓	↓	
20	1996	↓	5.8	↓	9.8	
21	1997	3.8	6.4	↓	11.7	
22	1998	3.3	↓	↓	11.2	
23	1999	↓	↓	↓	↓	
24	2000	↓	↓	↓	↓	
25	2001	↓	↓	↓	↓	
26	2002	↓	↓	↓	↓	
27	2003	↓	↓	↓	↓	
28	2004	↓	↓	↓	↓	
29	2005	↓	↓	↓	↓	
30	2006	↓	6.4	1.5	↓	
	Total	524.7	148.6	48.8	722.1	

Table 4 Total Cost (Out Flow): 4. Tourism and Residential Area (excluding Water Supply System)

Unit: million Baht

No.	Year	Investment Cost	Maintenance & Operation Cost	Administration Cost	Total	Remarks
1	1977		-	-	-	
2	1978		-	-	-	
3	1979	18.3	-	2.2	20.5	
4	1980	365.2	1.7	2.7	369.6	
5	1981	149.4	4.1	3.4	156.9	
6	1982	65.8	5.0	3.7	74.5	
7	1983	28.3	5.5	↓	37.5	
8	1984	37.1	5.7	↓	46.5	
9	1985	35.7	6.2	↓	45.7	
10	1986	4.4	7.0	3.7	15.1	
11	1987	7.8	8.3	2.2	18.3	
12	1988	6.4	8.5	↓	17.1	
13	1989	↓	8.6	↓	17.2	
14	1990	↓	8.7	↓	17.3	
15	1991	↓	8.8	↓	17.4	
16	1992	↓	8.9	↓	17.5	
17	1993	↓	↓	↓	↓	
18	1994	↓	↓	↓	↓	
19	1995	↓	↓	↓	↓	
20	1996	↓	8.9	↓	17.5	
21	1997	10.3	10.3	↓	22.8	
22	1998	8.3	↓	↓	20.8	
23	1999	↓	↓	↓	↓	
24	2000	↓	↓	↓	↓	
25	2001	↓	↓	↓	↓	
26	2002	↓	↓	↓	↓	
27	2003	↓	↓	↓	↓	
28	2004	↓	↓	↓	↓	
29	2005	↓	↓	↓	↓	
30	2006	↓	10.3	2.2	20.8	
Total		854.6	225.6	70.8	1,151.0	

Table 5 Total Cost (Out Flow): 5. Residential Area  
(excluding Water Supply System)

Unit: million Baht

No.	Year	Investment Cost	Maintenance & Operation Cost	Administration Cost	Total	Remarks
1	1977		-	-	-	
2	1978		-	-	-	
3	1979	8.2	-	0.9	9.1	
4	1980	203.5	1.2	1.1	205.8	
5	1981	28.8	2.3	1.4	32.5	
6	1982	40.0	2.6	1.5	44.1	
7	1983	21.1	2.8	↓	25.4	
8	1984	23.4	2.8	↓	27.7	
9	1985	23.6	3.0	↓	28.1	
10	1986	2.8	3.4	1.5	7.7	
11	1987	4.9	4.3	0.9	10.1	
12	1988	3.8	4.4	↓	9.1	
13	1989	↓	4.5	↓	9.2	
14	1990	↓	4.6	↓	9.3	
15	1991	↓	4.7	↓	9.4	
16	1992	↓	↓	↓	↓	
17	1993	↓	↓	↓	↓	
18	1994	↓	↓	↓	↓	
19	1995	↓	↓	↓	↓	
20	1996	↓	4.7	↓	9.4	
21	1997	6.4	5.5	↓	12.8	
22	1998	4.9	↓	↓	11.3	
23	1999	↓	↓	↓	↓	
24	2000	↓	↓	↓	↓	
25	2001	↓	↓	↓	↓	
26	2002	↓	↓	↓	↓	
27	2003	↓	↓	↓	↓	
28	2004	↓	↓	↓	↓	
29	2005	↓	↓	↓	↓	
30	2006	↓	5.5	0.9	11.3	
Total		441.0	119.1	28.9	589.0	

Table 6 Total Cost (Out Flow): 6. Tourism Area  
(excluding Water Supply System)

Unit: million Baht

No.	Year	Investment Cost	Maintenance & Operation Cost	Administration Cost	Total	Remarks
1	1977		-	-	-	
2	1978		-	-	-	
3	1979	9.9	-	1.3	11.2	
4	1980	161.4	0.5	1.6	163.5	
5	1981	122.2	1.8	2.0	126.0	
6	1982	26.5	2.4	2.2	31.1	
7	1983	7.7	2.7	↓	12.6	
8	1984	13.8	2.9	↓	18.9	
9	1985	12.4	3.1	↓	17.7	
10	1986	1.6	3.5	2.2	7.3	
11	1987	2.9	4.0	1.3	8.2	
12	1988	2.5	↓	↓	7.8	
13	1989	↓	↓	↓	↓	
14	1990	↓	↓	↓	↓	
15	1991	↓	4.0	↓	7.8	
16	1992	↓	4.1	↓	7.9	
17	1993	↓	↓	↓	↓	
18	1994	↓	↓	↓	↓	
19	1995	↓	↓	↓	↓	
20	1996	↓	4.1	↓	7.9	
21	1997	3.8	4.7	↓	9.8	
22	1998	3.3	↓	↓	9.3	
23	1999	↓	↓	↓	↓	
24	2000	↓	↓	↓	↓	
25	2001	↓	↓	↓	↓	
26	2002	↓	↓	↓	↓	
27	2003	↓	↓	↓	↓	
28	2004	↓	↓	↓	↓	
29	2005	↓	↓	↓	↓	
30	2006	↓	4.7	1.3	↓	
Total		414.4	104.4	41.9	560.7	

Table 7 Investment Table: I, Tourism and Residential Area (Road and Street System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	60.0	27.3	15.1	5.1	17.9	3.8	-	-	-	-	-	129.2
(1) Civil Works	-	-	-	60.0	27.3	15.1	5.1	17.9	3.8	-	-	-	-	-	129.2
(2) Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consulting Services (B)	-	-	5.2	2.9	1.3	0.8	0.2	0.9	0.2	-	-	-	-	-	11.5
(1) Design	-	-	5.2	-	-	-	-	-	-	-	-	-	-	-	5.2
(2) Supervision	-	-	-	2.9	1.3	0.8	0.2	0.9	0.2	-	-	-	-	-	6.3
(A) + (B)	-	-	5.2	62.9	28.6	15.9	5.3	18.8	4.0	-	-	-	-	-	140.7
Contingency (15%)	-	-	0.8	9.4	4.3	2.4	0.8	2.8	0.6	-	-	-	-	-	21.1
Sub Total	-	-	6.0	72.3	32.9	18.3	6.1	21.6	4.6	-	-	-	-	-	161.8
Land Acquisition	-	-	-	99.0	46.0	10.4	11.7	13.4	1.9	-	-	-	-	-	182.4
Total	-	-	6.0	171.3	78.9	28.7	17.8	35.0	6.5	-	-	-	-	-	344.2
Tax in Civil Works	-	-	-	2.7	1.3	0.6	1.2	0.8	0.1	-	-	-	-	-	6.7
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax in Construction Cost	-	-	-	2.7	1.3	0.6	1.2	0.8	0.1	-	-	-	-	-	6.7

Table 8 Investment Table: 2, Residential Area (Road and Street System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	23.1	6.5	15.1	4.9	10.2	3.8	-	-	-	-	-	63.6
(1) Civil Works	-	-	-	23.1	6.5	15.1	4.9	10.2	3.8	-	-	-	-	-	63.6
(2) Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consulting Services (B)	-	-	2.5	1.1	0.3	0.8	0.2	0.5	0.2	-	-	-	-	-	5.6
(1) Design	-	-	2.5	-	-	-	-	-	-	-	-	-	-	-	2.5
(2) Supervision	-	-	-	1.1	0.3	0.8	0.2	0.5	0.2	-	-	-	-	-	3.1
(A) + (B)	-	-	2.5	24.2	6.8	15.9	5.1	10.7	4.0	-	-	-	-	-	69.2
Contingency (15%)	-	-	0.4	3.6	1.0	2.4	0.8	1.6	0.6	-	-	-	-	-	10.4
Sub Total	-	-	2.9	27.8	7.8	18.3	5.9	12.3	4.6	-	-	-	-	-	79.6
Land Acquisition	-	-	-	57.7	9.6	10.4	11.7	11.1	1.9	-	-	-	-	-	102.4
Total	-	-	2.9	85.5	17.4	28.7	17.6	23.4	6.5	-	-	-	-	-	182.0
Tax in Civil Works	-	-	0.7	0.2	0.2	0.6	0.2	0.4	0.1	-	-	-	-	-	2.2
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax in Construction Cost	-	-	0.7	0.2	0.2	0.6	0.2	0.4	0.1	-	-	-	-	-	2.2



Table 9 Investment Table: 3, Tourism Area (Road and Street System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	36.9	20.8	0.1	0.2	7.7	0	-					65.7
(1) Civil Works	-	-	-	36.9	20.8	0.1	0.2	7.7	0	-					65.7
(2) Equipment	-	-	-	-	-	-	-	-	-	-					-
Consulting Services (B)	-	-	2.6	1.8	1.0	-	-	0.4	0.9	-					6.7
(1) Design	-	-	2.6	-	-	-	-	-	-	-					2.6
(2) Supervision	-	-	-	1.8	1.0	0	0	0.4	0.9	-					4.1
(A) + (B)	-	-	2.6	38.7	21.8	0.1	0.2	8.1	0.9	-					72.4
Contingency (15%)	-	-	0.4	5.8	3.3	0	0	1.2	0.1	-					10.8
Sub Total	-	-	3.0	44.5	25.1	0.1	0.2	9.3	1.0	-					83.2
Land Acquisition	-	-	-	41.4	36.4	0	0	2.3	0	-					80.1
Total	-	-	3.0	85.9	61.5	0.1	0.2	11.6	1.0	-					163.3
Tax in Civil Works				1.9	1.1	0	0	0.4	0						3.4
Tax in Equipment															
Tax in Construction Cost				1.9	1.1	0	0	0.4	0						3.4

Table 10 Investment Table: 4. Tourism and Residential Area (Sewerage System)

Unit: million Baht

From	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	105.5	13.3	8.1	8.1	1.7	22.5	-	-	-	-	-	159.2
(1) Civil Works	-	-	-	105.5	13.3	8.1	8.1	1.7	22.5	-	-	-	-	-	159.2
(2) Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consulting Services (B)	-	-	6.4	5.7	0.6	0.4	0.4	0.1	1.1	-	-	-	-	-	14.7
(1) Design	-	-	6.4	-	-	-	-	-	-	-	-	-	-	-	6.4
(2) Supervision	-	-	-	5.7	0.6	0.4	0.4	0.1	1.1	-	-	-	-	-	8.3
(A) + (B)	-	-	6.4	111.2	13.9	8.5	8.5	1.8	23.6	-	-	-	-	-	173.9
Contingency (15%)	-	-	1.0	16.7	2.1	1.3	1.2	0.3	3.5	-	-	-	-	-	26.1
Sub-Total	-	-	7.4	127.9	16.0	9.8	9.7	2.1	27.1	-	-	-	-	-	200.0
Land Acquisition	-	-	-	18.1	-	-	-	-	-	-	-	-	-	-	18.1
Total	-	-	7.4	146.0	16.0	9.8	9.8	2.1	27.1	-	-	-	-	-	218.2
Tax in Civil Works	-	-	-	6.5	0.8	0.4	0.3	0	1.0	-	-	-	-	-	9.0
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax in Construction Cost	-	-	6.5	0.8	0.4	0.4	0.3	0	1.0	-	-	-	-	-	9.0

Table II Investment Table: 5. Residential Area (Sewerage System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	78.8	4.2	4.0	2.1	0	13.7	0					102.8
(1) Civil Works	-	-	-	78.8	4.2	4.0	2.1	0	13.7	0					102.8
(2) Equipment	-	-	-	-	-	-	-	-	-	-					-
Consulting Services (B)	-	-	4.1	3.9	0.8	0.5	0.4	0	0	0					9.7
(1) Design	-	-	4.1	-	-	-	-	-	-	-					4.1
(2) Supervision	-	-	-	3.9	0.8	0.5	0.4	0	0	0					5.6
(A) + (B)	-	-	4.1	82.7	5.0	4.5	2.5	0	13.7	0					112.5
Contingency (15%)	-	-	0.6	12.4	0.8	0.7	0.4	0	2.1	0					17.0
Sub Total	-	-	4.7	95.1	5.8	5.2	2.9	0	15.8	0					129.5
Land Acquisition	-	-	-	13.1	-	-	0.1	-	-	-					13.2
Total	-	-	4.7	108.2	5.8	5.2	3.0	0	15.8	0					142.7
Tax in Civil Works				4.8	0.3	0.2	0.1	-	0.6	-					6.0
Tax in Equipment															
Tax in Construction Cost				4.8	0.3	0.2	0.1	-	0.6	-					6.0

Table 12 Investment Table: 6, Tourism Area (Sewerage System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	26.7	9.1	4.2	6.0	1.7	8.8	-	-	-	-	-	56.5
(1) Civil Works	-	-	-	26.7	9.1	4.2	6.0	1.7	8.8	-	-	-	-	-	56.5
(2) Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consulting Services (B)	-	-	2.3	1.3	0.4	0.3	0.3	0.2	0.4	-	-	-	-	-	5.2
(1) Design	-	-	2.3	-	-	-	-	-	-	-	-	-	-	-	2.3
(2) Supervision	-	-	-	1.3	0.4	0.3	0.3	0.2	0.4	-	-	-	-	-	2.9
(A) + (B)	-	-	2.3	28.0	10.3	4.5	6.3	1.9	9.2	-	-	-	-	-	62.5
Contingency (15%)	-	-	0.4	4.2	1.5	0.7	1.0	0.3	1.4	-	-	-	-	-	9.5
Sub Total	-	-	2.7	32.2	11.8	5.2	7.3	2.2	10.6	-	-	-	-	-	72.0
Land Acquisition	-	-	-	5.0	0	-	-	-	-	-	-	-	-	-	5.0
Total	-	-	2.7	37.2	11.8	5.2	7.3	2.2	10.6	-	-	-	-	-	77.0
Tax in Civil Works	-	-	-	1.7	0.5	0.2	0.2	0	0.4	-	-	-	-	-	3.0
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax in Construction Cost	-	-	1.7	0.5	0.2	0.2	0.2	0	0.4	-	-	-	-	-	3.0

Table 13 Investment Table: 7. Tourism and Residential Area (Storm Water Drainage System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	-	10.2	12.7	-	-	-	-	-	-	-	-	22.9
(1) Civil Works	-	-	-	-	10.2	12.7	-	-	-	-	-	-	-	-	22.9
(2) Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consulting Services (B)	-	-	0.8	0.4	0.6	0.6	-	-	-	-	-	-	-	-	2.4
(1) Design	-	-	0.8	0.4	-	-	-	-	-	-	-	-	-	-	1.2
(2) Supervision	-	-	-	-	0.6	0.6	-	-	-	-	-	-	-	-	1.2
(A) + (B)	-	-	0.8	-	11.4	12.3	-	-	-	-	-	-	-	-	24.5
Contingency (15%)	-	-	0.1	0.1	1.7	2.0	-	-	-	-	-	-	-	-	3.9
Sub Total	-	-	0.9	0.5	13.1	15.3	-	-	-	-	-	-	-	-	29.8
Land Acquisition	-	-	-	-	12.0	6.4	-	-	-	-	-	-	-	-	18.4
Total	-	-	0.9	0.5	25.1	21.7	-	-	-	-	-	-	-	-	48.2
Tax in Civil Works	-	-	-	-	0.3	0.4	-	-	-	-	-	-	-	-	0.7
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax in Construction Cost	-	-	-	-	0.3	0.4	-	-	-	-	-	-	-	-	0.7

Table 14 Investment Table: 8, Residential Area (Storm Water Drainage System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	-	3.1	4.4	-	-	-	-	-	-	-	-	7.5
(1) Civil Works	-	-	-	-	3.1	4.4	-	-	-	-	-	-	-	-	7.5
(2) Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consulting Services (B)	-	-	-	0.4	0.2	0.2	-	-	-	-	-	-	-	-	0.8
(1) Design	-	-	-	0.4	-	-	-	-	-	-	-	-	-	-	0.4
(2) Supervision	-	-	-	-	0.2	0.2	-	-	-	-	-	-	-	-	0.4
(A) + (B)	-	-	-	0.4	3.3	4.6	-	-	-	-	-	-	-	-	8.3
Contingency (15%)	-	-	-	0.1	0.5	0.7	-	-	-	-	-	-	-	-	1.3
Sub Total	-	-	-	0.5	3.8	5.3	-	-	-	-	-	-	-	-	9.6
Land Acquisition	-	-	-	-	1.1	0.2	-	-	-	-	-	-	-	-	1.3
Total	-	-	-	0.5	4.9	5.5	-	-	-	-	-	-	-	-	10.9
Tax in Civil Works	-	-	-	-	0.1	0.1	-	-	-	-	-	-	-	-	0.2
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax in Construction Cost	-	-	-	-	0.1	0.1	-	-	-	-	-	-	-	-	0.2

Table 15 Investment Table: 9. Tourism Area (Storm Water Drainage System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	-	7.1	8.3	-	-	-	-	-	-	-	-	15.4
(1) Civil Works	-	-	-	-	7.1	8.3	-	-	-	-	-	-	-	-	15.4
(2) Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consulting Services (B)	-	-	0.8	-	0.4	0.4	-	-	-	-	-	-	-	-	1.6
(1) Design	-	-	0.8	-	-	-	-	-	-	-	-	-	-	-	0.8
(2) Supervision	-	-	-	-	0.4	0.4	-	-	-	-	-	-	-	-	0.8
(A) + (B)	-	-	0.8	-	8.1	8.7	-	-	-	-	-	-	-	-	17.6
Contingency (15%)	-	-	0.1	-	1.2	1.3	-	-	-	-	-	-	-	-	2.6
Sub Total	-	-	0.9	-	9.3	10.0	-	-	-	-	-	-	-	-	20.2
Land Acquisition	-	-	-	-	10.9	6.2	-	-	-	-	-	-	-	-	17.1
Total	-	-	0.9	-	20.2	16.2	-	-	-	-	-	-	-	-	37.3
Tax in Civil Works	-	-	-	-	0.2	0.3	-	-	-	-	-	-	-	-	0.5
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax in Construction Cost	-	-	-	-	0.2	0.3	-	-	-	-	-	-	-	-	0.5

Table 16 Investment Table: 10. Tourism and Residential Area (Solid Waste Disposal System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987 - 1996	1997 - 2006	Total
Construction Cost (A)	-	-	-	10.2	2.7	0.6	0.6	-	1.8	3.8	5.6-5.6	7.2-7.2	147.7
(1) Civil Works	-	-	-	-	-	-	-	-	-	-	-	-	-
(2) Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-
Consulting Services (B)	-	-	0.8	0.5	0.3	0.2	-	-	-	-	0	0	1.8
(1) Design (4%)	-	-	0.8	-	-	-	-	-	-	-	0	0	0.8
(2) Supervision (5%)	-	-	-	0.5	0.3	0.2	-	-	-	-	0	0	1.0
(A) + (B)	-	-	0.8	10.7	3.0	0.8	0.6	-	1.8	3.8	5.6-5.6	7.2-7.2	149.5
Contingency (15%)	-	-	0.1	1.6	0.5	0.1	0.1	-	0.3	0.6	0.8-0.8	1.1-1.1	22.3
Sub Total	-	-	0.9	12.3	3.5	0.9	0.7	-	2.1	4.4	6.4-6.4	8.3-8.3	171.8
Land Acquisition	-	-	-	0.6	-	-	-	-	-	-	1.5	2.0	4.1
Total	-	-	0.9	12.9	3.5	0.9	0.7	-	2.1	4.4	1987 1.5	1997 2.0	175.9
Tax in Civil Works	-	-	-	1.3	0.3	0.1	0.1	0	0.4	0.8	0.8-0.8	1.1-1.1	22.0
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax in Construction Cost	-	-	-	1.3	0.3	0.1	0.1	-	0.4	0.8	0.8-0.8	1.1-1.1	22.0



Table 17 Investment Table: 11, Residential Area (Solid Waste Disposal System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987 - 1996	1997 - 2006	Total
Construction Cost (A)	-	-	-	7.3	0.4	0.4	0.4	-	1.1	2.4	3.3-3.3	4.3-4.3	88.0
(1) Civil Works	-	-	-	-	-	-	-	-	-	-	-	-	-
(2) Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-
Consulting Services (B)	-	-	0.6	0.4	0.2	0.1	-	-	-	-	0	0	1.3
(1) Design	-	-	0.6	-	-	-	-	-	-	-	0	0	0.6
(2) Supervision	-	-	-	0.4	0.2	0.1	0	0	0	0	0	0	0.7
(A) + (B)	-	-	0.6	7.7	0.6	0.5	0.4	-	1.1	2.4	3.3-3.3	4.3-4.3	89.3
Contingency (15%)	-	-	-	1.2	0.1	0.1	0.1	-	0.2	0.4	0.5-0.5	0.6-0.6	13.1
Sub Total	-	-	0.6	8.9	0.7	0.6	0.5	-	1.3	2.8	3.8-3.8	4.9-4.9	102.4
Land Acquisition	-	-	-	0.4	-	-	-	-	-	-	1987 1.1	1997 1.5	3.0
Total	-	-	0.6	9.3	0.7	0.6	0.5	-	1.3	2.8	1987 4.9	1997 6.4	105.4
Tax in Civil Works	-	-	-	0.9	0.1	0.1	0.1	0	0.3	0.5	0.5-0.5	0.7-0.7	14.0
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	1988-1996 3.8-3.8	1997-2006 4.9-4.9	-
Tax in Construction Cost	-	-	-	0.9	0.1	0.1	0.1	0	0.3	0.5	0.5-0.5	0.7-0.7	14.0

Table 18. Investment Table: 12, Tourism Area (Solid Waste Disposal Area).

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987 - 1986	1997 - 2006	Total
Construction Cost (A)	-	-	-	3.0	2.3	0.2	0.2	0	0.7	1.4	2.2-2.2	2.9-2.9	58.8
(1) Civil Works	-	-	-	-	-	-	-	-	-	-	-	-	-
(2) Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-
Consulting Services (B)	-	-	0.2	0.1	0.1	0.1	-	-	-	-	0	0	0.5
(1) Design	-	-	0.2	-	-	-	-	-	-	-	0	0	0.2
(2) Supervision	-	-	-	0.1	0.1	0.1	0	0	0	0	0	0	0.3
(A) + (B)	-	-	0.2	3.1	2.4	0.3	0.2	-	0.7	1.4	2.2-2.2	2.9-2.9	59.3
Contingency (15%)	-	-	-	0.5	0.4	0	0	-	0.1	0.2	0.3-0.3	0.4-0.4	8.2
Sub Total	-	-	0.2	3.6	2.8	0.3	0.2	-	0.8	1.6	2.5-2.5	3.3-3.3	67.5
Land Acquisition	-	-	-	0.2	-	-	-	-	-	-	0.4	0.5	1.1
Total	-	-	0.2	3.8	2.8	0.3	0.2	-	0.8	1.6	1987 2.9	1997 3.8	68.6
Tax in Civil Works	-	-	-	0.4	0.2	0	0	0	0.1	0.3	0.3-0.3	0.4-0.4	8.0
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax in Construction Cost	-	-	-	0.4	0.2	0	0	0	0.1	0.3	0.3-0.3	0.4-0.4	8.0

Table 19 Investment Table: 13, Tourism Area (Port Facilities)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	28.6	21.2	3.9	-	-	-	-	-	-	-	-	53.7
(1) Civil Works	-	-	-	28.6	21.2	3.9	-	-	-	-	-	-	-	-	53.7
(2) Equipment	-	-	-	-	0	-	-	-	-	-	-	-	-	-	0
Consulting Services (B)	-	-	2.7	1.4	1.1	0.2	-	-	-	-	-	-	-	-	5.4
(1) Design	-	-	2.7	-	-	-	-	-	-	-	-	-	-	-	2.7
(2) Supervision	-	-	-	1.4	1.1	0.2	-	-	-	-	-	-	-	-	2.7
(A) + (B)	-	-	2.7	30.0	22.3	4.1	-	-	-	-	-	-	-	-	59.1
Contingency (15%)	-	-	0.4	4.5	3.6	0.6	-	-	-	-	-	-	-	-	9.1
Sub Total	-	-	3.1	34.5	25.9	4.7	-	-	-	-	-	-	-	-	68.2
Land Acquisition	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	3.1	34.5	25.9	4.7	-	-	-	-	-	-	-	-	68.2
Tax in Civil Works	-	-	-	0.9	1.0	0.1	-	-	-	-	-	-	-	-	2.0
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax in Construction Cost	-	-	-	0.9	1.0	0.1	-	-	-	-	-	-	-	-	2.0

Table 20 Investment Table: 14, Tourism and Residential Area (Water Supply System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	309.3	4.0	4.1	1.4	0.8	2.3	0.5					322.4
(1) Civil Works	-	-	-	309.3	4.0	4.1	1.4	0.8	2.3	0.5					322.4
(2) Equipment	-	-	-	-	-	-	-	-	-	-					-
Consulting Services (B)	-	-	12.9	15.5	0.3	0.3	0.2	0.2	0.1	-					29.5
(1) Design	-	-	12.9	-	-	-	-	-	-	-					12.9
(2) Supervision	-	-	-	15.5	0.3	0.3	0.2	0.2	0.1	0					16.6
(A) + (B)	-	-	12.9	324.8	4.3	4.4	1.6	1.0	2.4	0.5					351.9
Contingency (15%)	-	-	1.9	48.7	0.6	0.6	0.2	0.2	0.4	0.1					52.7
Sub Total	-	-	14.8	373.5	4.9	5.0	1.8	1.2	2.8	0.6					404.6
Land Acquisition	-	-	-	2.2	-	-	-	-	-	-					2.2
Total	-	-	14.8	375.7	4.9	5.0	1.8	1.2	2.8	0.6					406.8
Tax in Civil Works															
Tax in Equipment															
Tax in Construction Cost															

Table 21 Investment Table: 15, Residential Area (Water Supply System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	229.9	0.8	1.6	0.8	0	1.7	0					234.8
(1) Civil Works	-	-	-	229.9	0.8	1.6	0.8	0	1.7	0					234.8
(2) Equipment	-	-	-	-	-	-	-	-	-	-					-
Consulting Services (B)	-	-	9.4	11.5	0.3	0.2	0.2	0	0	-					21.6
(1) Design	-	-	9.4	-	-	-	-	-	-	-					9.4
(2) Supervision	-	-	-	11.5	0.3	0.2	0.2	0	0	0					12.2
(A) + (B)	-	-	9.4	241.4	1.1	1.8	1.0	0	1.7	0					256.4
Contingency (15%)	-	-	1.4	36.2	0.2	0.1	0.1	0	0.3	0					38.3
Sub Total	-	-	10.8	277.6	1.3	1.9	1.1	0	1.7	0					294.4
Land Acquisition	-	-	-	1.7	-	-	-	-	-	-					1.7
Total	-	-	10.8	279.3	1.3	1.9	1.1	0	1.7	0					296.1
Tax in Civil Works				23.1	0.1	0.2	0.1	-	0.2	-					23.7
Tax in Equipment															
Tax in Construction Cost				23.1	0.1	0.2	0.1	-	0.2	-					23.7

Table 22 Investment Table: 16, Tourism Area (Water Supply System)

Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	79.5	3.2	2.4	0.6	0.8	0.5	0.5	-	-	-	-	87.5
(1) Civil Works	-	-	-	79.5	3.2	2.4	0.6	0.8	0.5	0.5	-	-	-	-	87.5
(2) Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consulting Services (B)	-	-	3.5	4.0	0.2	0.1	0.1	0.1	-	-	-	-	-	-	8.0
(1) Design	-	-	3.5	-	-	-	-	-	-	-	-	-	-	-	3.5
(2) Supervision	-	-	-	4.0	0.2	0.1	0.1	0.1	0	0	-	-	-	-	4.5
(A) + (B)	-	-	3.5	83.5	3.4	2.5	0.7	0.9	0.5	0.5	-	-	-	-	95.5
Contingency (15%)	-	-	0.5	12.5	0.5	0.4	0.1	0.1	0.1	0.1	-	-	-	-	14.3
Sub Total	-	-	4.0	96.0	3.9	2.9	0.8	1.0	0.6	0.6	-	-	-	-	109.8
Land Acquisition	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	0.5
Total	-	-	4.0	96.5	3.9	2.9	0.8	1.0	0.6	0.6	-	-	-	-	110.3
Tax in Civil Works	-	-	-	8.1	0.4	0.3	0.1	0.1	0.1	0.1	-	-	-	-	9.2
Tax in Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tax in Construction Cost	-	-	8.1	0.4	0.3	0.1	0.1	0.1	0.1	0.1	-	-	-	-	9.2

Table 23 Investment Table: 17, Tourism Area (Amenity Core)

Unit: million Baht

Main Amenity Core, Northern Core, Inland Activity  
Zones and Beach Facility

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	6.2	8.4	26.8	23.8	20.9	21.8	22.1					130.0
(1) Civil Works															13.0
(2) Equipment															6.0
Consulting Services (B)			2.0	2.0	4.0	2.0	1.0	1.0	1.0	0					7.0
(1) Design			2.0	2.0	2.0										
(2) Supervision			0	0	2.0	2.0	1.0	1.0	1.0	0					
(A) + (B)			2.0	8.2	12.4	28.8	24.8	21.9	22.8	22.1					143.0
Contingency (15%)			0.3	1.2	1.9	4.3	3.7	3.3	3.4	3.3					21.4
Sub Total			2.3	9.4	14.3	33.1	28.5	25.2	26.2	25.4					164.4
Land Acquisition			-	15.9	16.1	45.2	45.2	45.2	45.2	45.2					258.0
Total			2.3	26.3	30.4	78.3	72.7	70.4	71.4	70.6					422.4
Tax in Civil Works				0.2	0.3	0.8	0.7	0.6	0.6	0.7					3.9
Tax in Equipment															
Tax in Construction Cost				0.2	0.3	0.8	0.7	0.6	0.6	0.7					3.9

Table 24 Investment Table: 18, Tourism Area (Hotels and Restaurants)  
(Private Investment.)

Unit: million Baht

From	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	2.3	2.4	2.4	125.3	124.7	204.0	43.6	43.6	43.7	3.8					595.8
(1) Civil Works															
(2) Equipment															
Consulting Services (B)			7.0	12.0	15.0	19.0	2.0	2.0	2.0	3.0					62.0
(1) Design			7.0	7.0	7.0	7.0									28.0
(2) Supervision				5.0	8.0	12.0	2.0	2.0	2.0	3.0					34.0
(A) + (B)	2.3	2.4	9.4	137.3	139.7	223.0	45.6	45.6	45.7	7.8					658.8
Contingency (15%)	0.3	0.4	1.4	19.7	30.9	33.4	7.8	6.8	5.9	0					106.6
Sub Total	2.6	2.8	10.8	157.0	170.6	256.4	53.4	52.4	52.6	7.8					766.4
Land Acquisition	19.7	19.7	19.7	57.2	19.8	19.8	19.8	19.8	19.8	19.8					235.1
Total	22.3	22.5	30.5	214.2	190.4	276.2	73.2	72.2	72.4	27.6					1001.5
Tax in Civil Works	0.1	0.1	0.1	10.1	10.1	16.7	3.4	3.4	3.4	0.1					47.5
Tax in Equipment															
Tax in Construction Cost	0.1	0.1	0.1	10.1	10.1	16.7	3.4	3.4	3.4	0.1					47.5



Table 25 Investment Table: 19, Residential Area (Social Infrastructure)  
 School, Community Facilities and Open Space. (Public Investment) Unit: million Baht

Item	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Total
Construction Cost (A)	-	-	-	94.3	106.5	20.1	10.2	1.8	1.2	1.2					235.3
(1) Civil Works															
(2) Equipment															21.0
Consulting Services (B)	-	-	3.0	10.0	5.0	3.0	0	0	0	0					10.0
(1) Design			3.0	7.0											11.0
(2) Supervision				3.0	5.0	3.0	0	-	-	-					
(A) + (B)			3.0	104.3	111.5	23.1	10.2	1.8	1.2	1.2					256.3
Contingency (15%)	-	-	0.5	15.6	16.7	3.5	1.6	0.3	0.2	0.2					38.6
Sub Total	-	-	3.5	119.9	118.2	26.6	11.8	2.1	1.4	1.4					284.9
Land Acquisition	-	-	-	60.9	18.4	14.2	11.5	11.0	12.3	12.3					140.6
Total	-	-	3.5	180.8	136.6	40.8	23.3	13.1	13.7	13.7					425.5
Tax in Civil Works				9.4	10.6	2.0	1.0	0.2	0.1	0.1					23.4
Tax in Equipment															
Tax in Construction Cost				9.4	10.6	2.0	1.0	0.2	0.1	0.1					23.4

Table 26 Investment Cost in Tourism and Residential Area (only for Public Investment)

No.	Year	Unit: Million Baht										Total **	
		Road	Sewerage	Storm Water	Solid Waste	Marine & Port	Water Supply	Amenity Core	Social Infra-structure	Total *	Total **		
1	1977	-	-	-	-	-	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-	-	-	-	-	-
3	1979	6.0	7.4	0.9	0.9	3.1	14.8	2.3	3.5	33.1	38.9	38.9	
4	1980	171.3	146.0	0.5	12.9	34.5	375.7	26.3	180.8	740.9	948.0	948.0	
5	1981	78.9	16.0	25.1	3.5	25.9	4.9	30.4	136.6	154.3	321.3	321.3	
6	1982	28.7	9.8	21.7	0.9	4.7	5.0	78.3	40.8	70.8	189.9	189.9	
7	1983	17.8	9.8	-	0.7	-	1.8	72.7	23.3	30.1	126.1	126.1	
8	1984	35.0	2.1	-	-	-	1.2	70.4	13.1	38.3	121.8	121.8	
9	1985	6.5	27.1	-	2.1	-	2.8	71.4	13.7	38.5	123.6	123.6	
10	1986	-	-	-	4.4	-	0.6	70.6	13.7	5.0	89.3	89.3	
11	1987	-	-	-	7.8	-	-	-	-	7.8	7.8	7.8	
12	1988	-	-	-	6.4	-	-	-	-	6.4	6.4	6.4	
13	1989	-	-	-	-	-	-	-	-	-	-	-	
14	1990	-	-	-	-	-	-	-	-	-	-	-	
15	1991	-	-	-	-	-	-	-	-	-	-	-	
16	1992	-	-	-	-	-	-	-	-	-	-	-	
17	1993	-	-	-	-	-	-	-	-	-	-	-	
18	1994	-	-	-	-	-	-	-	-	-	-	-	
19	1995	-	-	-	-	-	-	-	-	-	-	-	
20	1996	-	-	-	-	-	-	-	-	-	-	-	
21	1997	-	-	-	10.3	-	-	-	-	10.3	10.3	10.3	
22	1998	-	-	-	8.3	-	-	-	-	8.3	8.3	8.3	
23	1999	-	-	-	-	-	-	-	-	-	-	-	
24	2000	-	-	-	-	-	-	-	-	-	-	-	
25	2001	-	-	-	-	-	-	-	-	-	-	-	
26	2002	-	-	-	-	-	-	-	-	-	-	-	
27	2003	-	-	-	-	-	-	-	-	-	-	-	
28	2004	-	-	-	-	-	-	-	-	-	-	-	
29	2005	-	-	-	-	-	-	-	-	-	-	-	
30	2006	-	-	-	-	-	-	-	-	-	-	-	
Total		344.2	218.2	48.2	175.8	68.2	406.8	422.4	425.5	1,261.4	2,109.3	2,109.3	

Note: \* For Financial Evaluation, \*\* For Economic Evaluation excluding Investment Cost of Private Sector.

Table 27 Investment Cost in Residential Area  
(only for Public Investment)

Unit: million Baht

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Water Supply	Social Infrastructure	Total	Total
1	1977	-	-	-	-	-	-	-	-
2	1978	-	-	-	-	10.8	3.5	22.5	(19.0)*
3	1979	2.9	4.7	-	0.6	279.3	180.8	663.6	(482.8)
4	1980	85.5	108.2	0.5	9.3	1.3	136.6	166.7	(30.1)
5	1981	17.4	5.8	4.9	0.7	1.9	40.8	82.7	(41.9)
6	1982	28.7	5.2	5.5	0.6	1.1	23.3	45.5	(22.2)
7	1983	17.6	3.0	-	0.5	0	13.1	36.5	(23.4)
8	1984	23.4	0	-	-	1.7	13.7	39.0	(25.3)
9	1985	6.5	15.8	-	1.3	0	13.7	16.5	(2.8)
10	1986	-	0	-	2.8	0	-	-	-
11	1987	-	-	-	4.9	-	-	4.9	(4.9)
12	1988	-	-	-	3.8	-	-	3.8	(3.8)
13	1989	-	-	-	-	-	-	-	-
14	1990	-	-	-	-	-	-	-	-
15	1991	-	-	-	-	-	-	-	-
16	1992	-	-	-	-	-	-	-	-
17	1993	-	-	-	-	-	-	-	-
18	1994	-	-	-	-	-	-	-	-
19	1995	-	-	-	-	-	-	-	-
20	1996	-	-	-	-	-	-	-	-
21	1997	-	-	-	6.4	-	-	6.4	(6.4)
22	1998	-	-	-	4.9	-	-	4.9	(4.9)
23	1999	-	-	-	-	-	-	-	-
24	2000	-	-	-	-	-	-	-	-
25	2001	-	-	-	-	-	-	-	-
26	2002	-	-	-	-	-	-	-	-
27	2003	-	-	-	-	-	-	-	-
28	2004	-	-	-	-	-	-	-	-
29	2005	-	-	-	-	-	-	-	-
30	2006	-	-	-	-	-	-	-	-
	Total	182.0	142.7	10.9	105.4	296.1	425.5	1,162.6	(737.1)

Note: \* Excluding School & Hospital.

Table 28. Investment Cost in Tourism Area  
(only for Public Investment)

Unit: million Baht

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Marine & Port	Water Supply	Amenity Core	Total	Total *
1	1977	-	-	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-	-	-
3	1979	3.0	2.7	0.9	0.2	3.1	4.0	2.3	16.2	13.9
4	1980	85.9	37.2	-	3.8	34.5	96.5	26.3	284.2	257.9
5	1981	61.5	11.8	20.2	2.8	25.9	3.9	30.4	156.5	126.1
6	1982	0.1	5.2	16.2	0.3	4.7	2.9	78.3	107.7	29.4
7	1983	0.2	7.3	-	0.2	-	0.8	72.7	81.2	8.5
8	1984	11.6	2.2	-	-	-	1.0	70.4	85.2	14.8
9	1985	1.0	10.6	-	0.8	-	0.6	71.4	84.4	13.0
10	1986	-	-	-	1.6	-	0.6	70.6	72.8	2.2
11	1987				2.9				2.9	2.9
12	1988				2.5				2.5	2.5
13	1989									
14	1990									
15	1991									
16	1992									
17	1993									
18	1994									
19	1995									
20	1996									
21	1997				3.8				3.8	3.8
22	1998				3.3				3.3	3.3
23	1999									
24	2000									
25	2001									
26	2002									
27	2003									
28	2004									
29	2005									
30	2006									
Total		163.3	77.0	37.3	68.6	68.2	110.3	422.4	947.1	524.7

Note: \* Excluding Amenity Core.

**ANNEX 8. TAX, UNSKILLED LABOR PORTION AND  
ADMINISTRATION COST**



**ANNEX 8. TAX, UNSKILLED LABOR PORTION AND  
ADMINISTRATION COST**

**C O N T E N T S**

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Table 1. Tax in Investment Cost: Tourism and Residential Area

Unit: Million Baht

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Marine & Port	Water Supply	Amenity*2 Core Infrastructure	Social*1	Private*3	Total
1	1977	-	-	-	-	-	-	-	-	0.1	0.1
2	1978	-	-	-	-	-	-	-	-	0.1	0.1
3	1979	-	-	-	-	-	-	-	-	0.1	0.1
4	1980	2.7	6.5	-	1.3	0.9	31.3	0.2	9.4	10.1	62.4
5	1981	1.3	0.8	0.3	0.3	1.0	0.5	0.3	10.6	10.1	25.2
6	1982	0.6	0.4	0.4	0.1	0.1	0.5	0.8	2.0	16.7	21.6
7	1983	0.2	0.3	-	0.1	0	0.2	0.7	1.0	3.4	5.9
8	1984	0.8	0	-	0	0	0.1	0.6	0.2	3.4	5.1
9	1985	0.1	1.0	-	0.4	0	0.3	0.6	0.1	3.4	5.9
10	1986	0	0	-	0.8	0	0.1	0.7	0.1	0.1	1.8
11	1987	0	0	0	0.8	0	0	0	0	0	0.8
12	1988										
13	1989										
14	1990										
15	1991										
16	1992										
17	1993										
18	1994										
19	1995										
20	1996										
21	1997										
22	1998										
23	1999										
24	2000										
25	2001										
26	2002										
27	2003										
28	2004										
29	2005										
30	2006	0	0	0	1.1	0	0	0	0	0	1.1
	Total	5.7	9.0	0.7	22.0	2.0	33.0	3.9	23.4	47.5	147.2

Note  
 \*1. Social Infrastructure, refer to Annex 6, Table 3.7 which include school, Community Facilities and Open Space.  
 \*2. Amenity Core, refer to Annex 6, Table 3.12 to 3.15 which include, Main Amenity Core, Northern Core, Inland Activity Zones and Beach Facilities.  
 \*3. Private Sector, refer to Annex 6, Table 3.16 to 3.18 which include Private Hotels and Restaurants.

Table 2. Tax in Investment Cost : Residential Area  
(only for Public Investment)

Unit: million Baht

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Water Supply	Social Infrastructure	Total
1	1977	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-
3	1979	-	-	-	-	-	-	-
4	1980	0.8	4.8	-	0.9	23.1	9.4	39.0
5	1981	0.2	0.3	0.1	0.1	0.1	10.6	11.4
6	1982	0.6	0.2	0.1	0.1	0.2	2.0	3.2
7	1983	0.2	0.1	-	0.1	0.1	1.0	1.5
8	1984	0.4	-	-	0	0	0.2	0.6
9	1985	0.1	0.6	-	0.3	0.2	0.1	1.3
10	1986	-	0	-	0.5	0	0.1	0.6
11	1987				0.5			0.5
12	1988							
13	1989							
14	1990							
15	1991							
16	1992							
17	1993							
18	1994							
19	1995							
20	1996							0.5
21	1997				0.7			0.7
22	1998							
23	1999							
24	2000							
25	2001							
26	2002							
27	2003							
28	2004							
29	2005							
30	2006							0.7
	Total	2.3	6.0	0.2	14.0	23.7	23.4	69.6

Table 3. Tax in Investment Cost: Tourism Area  
(only for Public Investment) Unit: million Baht

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Marine & Port	Water Supply	Amenity Core	Total
1	1977	-	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-	-
3	1979	-	-	-	-	-	-	-	-
4	1980	1.9	1.7	-	0.4	0.9	8.1	0.2	13.2
5	1981	1.1	0.5	0.2	0.2	1.0	0.4	0.3	3.7
6	1982	0	0.2	0.3	0	0.1	0.3	0.8	1.7
7	1983	0	0.2	-	0	-	0.1	0.7	1.0
8	1984	0.4	0	-	0	-	0.1	0.6	1.1
9	1985	0	0.4	-	0.1	-	0.1	0.6	1.2
10	1986	0	0	-	0.3	-	0.1	0.7	1.1
11	1987				0.3				0.3
12	1988								
13	1989								
14	1990								
15	1991								
16	1992								
17	1993								
18	1994								
19	1995								
20	1996				0.3				0.3
21	1997				0.4				0.4
22	1998								
23	1999								
24	2000								
25	2001								
26	2002								
27	2003								
28	2004								
29	2005								
30	2006				0.4				0.4
Total		3.4	3.0	0.5	8.0	2.0	9.2	3.9	30.6

Table 4. Unskilled Labor Portion: Tourism and Residential Area

Unit: million Baht

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Marine & Port	Water Supply	Amenity Core	Social Infrastructure	Private Sector	Total
1	1977	-	-	-	-	-	-	-	-	0.1	0.1
2	1978	-	-	-	-	-	-	-	-	0.1	0.1
3	1979	-	-	-	-	-	-	-	-	0.1	0.1
4	1980	5.4	5.9	0	0.3	-	6.8	0.8	4.7	6.8	30.7
5	1981	2.1	1.0	0.4	0.1	0.3	0.3	0.9	5.3	6.7	17.1
6	1982	1.4	0.5	0.4	0.1	0.2	0.3	2.2	1.0	11.0	17.1
7	1983	0.4	0.4	0	0	0.3	0.1	1.6	0.5	2.4	5.7
8	1984	2.3	0	0	0	-	0	1.4	0.1	2.4	6.2
9	1985	0.3	1.3	0	0	-	0.1	1.4	0.1	2.4	5.6
10	1986	0	-	0	0	-	0	1.4	0.1	0.2	1.7
11	1987	0	0	0	0.2	0	0	0	0	0	0.2
12	1988										
13	1989										
14	1990										
15	1991										
16	1992										
17	1993										
18	1994										
19	1995										
20	1996				0.2						0.2
21	1997				0.2						0.2
22	1998										
23	1999										
24	2000										
25	2001										
26	2002										
27	2003										
28	2004										
29	2005										
30	2006				0.2						0.2
	Total	11.9	9.1	0.8	4.5	0.8	7.6	9.7	11.8	31.8	88.4

Table 5. Unskilled Labor Portion: Residential Area

Unit: million Baht

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Water Supply	Social Infrastructure	Total
1	1977	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-
3	1979	-	-	-	-	-	-	-
4	1980	1.7	4.4	0	0.2	4.9	4.7	15.9
5	1981	0.5	0.4	0.1	-	0	5.3	6.3
6	1982	1.4	0.3	0.2	0	0.1	1.0	3.0
7	1983	0.3	0.1	0	0	0	0.5	0.9
8	1984	1.2	-	-	0	0	0.1	1.3
9	1985	0.3	0.7	-	0	0.1	0.1	1.2
10	1986	0	-	-	0	0	0.1	0.1
11	1987	0	0	-	0.1	0	-	0.1
12	1988	-	-	-	-	-	-	-
13	1989	-	-	-	-	-	-	-
14	1990	-	-	-	-	-	-	-
15	1991	-	-	-	-	-	-	-
16	1992	-	-	-	-	-	-	-
17	1993	-	-	-	-	-	-	-
18	1994	-	-	-	-	-	-	-
19	1995	-	-	-	-	-	-	-
20	1996	-	-	-	-	-	-	-
21	1997	-	-	-	-	-	-	-
22	1998	-	-	-	-	-	-	-
23	1999	-	-	-	-	-	-	-
24	2000	-	-	-	-	-	-	-
25	2001	-	-	-	-	-	-	-
26	2002	-	-	-	-	-	-	-
27	2003	-	-	-	-	-	-	-
28	2004	-	-	-	-	-	-	-
29	2005	↓	↓	↓	↓	↓	↓	↓
30	2006	0	0	0	0.1	0	0.1	0.1
Total		5.4	5.9	0.3	2.2	5.1	11.8	30.7

Table 6. Unskilled Labor Portion: Tourism Area

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Marine & Port	Water Supply	Amenity Core	Total
1	1977	-	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-	-
3	1979	-	-	-	-	-	-	-	-
4	1980	3.6	1.5	-	0.1	-	1.8	0.9	7.9
5	1981	1.7	0.6	0.3	0.1	0.3	0.3	1.1	4.4
6	1982	0.1	0.2	0.3	0.1	0.2	0.2	2.2	3.3
7	1983	0	0.3	0	0	0.3	0	1.6	2.2
8	1984	1.1	0	0	0	-	0	1.4	2.5
9	1985	0	0.6	0	0	-	0	1.5	2.1
10	1986	0	-	0	0	-	0	1.5	1.5
11	1987	0	0	0	0.1	0	0	0	0.1
12	1988	-	-	-	-	-	-	-	-
13	1989	-	-	-	-	-	-	-	-
14	1990	-	-	-	-	-	-	-	-
15	1991	-	-	-	-	-	-	-	-
16	1992	-	-	-	-	-	-	-	-
17	1993	-	-	-	-	-	-	-	-
18	1994	-	-	-	-	-	-	-	-
19	1995	-	-	-	-	-	-	-	-
20	1996	-	-	-	-	-	-	-	-
21	1997	-	-	-	-	-	-	-	-
22	1998	-	-	-	-	-	-	-	-
23	1999	-	-	-	-	-	-	-	-
24	2000	-	-	-	-	-	-	-	-
25	2001	-	-	-	-	-	-	-	-
26	2002	-	-	-	-	-	-	-	-
27	2003	-	-	-	-	-	-	-	-
28	2004	-	-	-	-	-	-	-	-
29	2005	-	-	-	-	-	-	-	-
30	2006	-	-	-	-	-	-	-	-
Total		6.5	3.2	0.6	2.3	0.8	2.3	10.2	25.9

Unit: million Baht

Table 7. Administration Cost (1) Tourism and Residential Area

Unit: million Baht

No.	Year	(1) Road	(2) Sewerage	(3) Storm Water	(4) Solid Waste	(5) Marine & Port	(6) Water Supply	(7) Amenity Core	(8-1-6) Total *2 for FA	(9-1-7) Total for EA *3
1	1977	-	-	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-	-	-
3	1979	0.8	0.6	0.2	0.4	0.2	0.8	0.9	3.0 (2.2) *1	3.9 (3.1) *1
4	1980	1.0	0.8	0.2	0.5	0.2	1.1	1.3	3.8 (2.7)	5.1 (4.0)
5	1981	1.2	1.0	0.2	0.7	0.3	1.5	1.6	4.9 (3.4)	6.5 (5.0)
6	1982	1.4	1.1	0.2	0.7	0.3	1.6	1.8	5.3 (3.7)	7.1 (5.5)
7	1983	↓	↓	↓	↓	↓	↓	↓	↓	↓
8	1984	↓	↓	↓	↓	↓	↓	↓	↓	↓
9	1985	↓	↓	↓	↓	↓	↓	↓	↓	↓
10	1986	1.4	1.1	0.2	0.7	0.3	1.6	1.8	5.3 (3.7)	7.1 (5.5)
11	1987	0.8	0.6	0.2	0.4	0.2	0.8	0.9	3.0 (2.2)	3.9 (3.1)
12	1988	↓	↓	↓	↓	↓	↓	↓	↓	↓
13	1989	↓	↓	↓	↓	↓	↓	↓	↓	↓
14	1990	↓	↓	↓	↓	↓	↓	↓	↓	↓
15	1991	↓	↓	↓	↓	↓	↓	↓	↓	↓
16	1992	↓	↓	↓	↓	↓	↓	↓	↓	↓
17	1993	↓	↓	↓	↓	↓	↓	↓	↓	↓
18	1994	↓	↓	↓	↓	↓	↓	↓	↓	↓
19	1995	↓	↓	↓	↓	↓	↓	↓	↓	↓
20	1996	↓	↓	↓	↓	↓	↓	↓	↓	↓
21	1997	↓	↓	↓	↓	↓	↓	↓	↓	↓
22	1998	↓	↓	↓	↓	↓	↓	↓	↓	↓
23	1999	↓	↓	↓	↓	↓	↓	↓	↓	↓
24	2000	↓	↓	↓	↓	↓	↓	↓	↓	↓
25	2001	↓	↓	↓	↓	↓	↓	↓	↓	↓
26	2002	↓	↓	↓	↓	↓	↓	↓	↓	↓
27	2003	↓	↓	↓	↓	↓	↓	↓	↓	↓
28	2004	↓	↓	↓	↓	↓	↓	↓	↓	↓
29	2005	0.8	0.6	0.2	0.4	0.2	0.8	0.9	3.0 (2.2)	3.9 (3.1)
30	2006	↓	↓	↓	↓	↓	↓	↓	↓	↓
Total		26.0	19.9	5.6	13.1	6.2	27.4	30.8	98.2 (70.8)	129.0 (101.6)

Note: \*1 Figures in the parenthesis show the cost excluding cost of water supply system.  
 \*2, FA: Cost for Financial Analysis      \*3, EA: Cost for Economic Analysis

Table 8. Administration Cost(2) Residential Area

Unit: million Baht

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Water Supply	Total for PA	Total for EA
1	1977	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-
3	1979	0.4	0.2	0.1	0.2	0.6	1.5 (0.9)	1.5 (0.9)
4	1980	0.5	0.3	0.1	0.2	0.8	1.9 (1.1)	1.9 (1.1)
5	1981	0.6	0.4	0.1	0.3	1.1	2.5 (1.4)	2.5 (1.4)
6	1982	0.7	0.4	0.1	0.3	1.2	2.7 (1.5)	2.7 (1.5)
7	1983	↓	↓	↓	↓	↓	↓	↓
8	1984	↓	↓	↓	↓	↓	↓	↓
9	1985	↓	↓	↓	↓	↓	↓	↓
10	1986	0.7	0.4	0.1	0.3	1.2	2.7 (1.5)	2.7 (1.5)
11	1987	0.4	0.2	0.1	0.2	0.6	1.5 (0.9)	1.5 (0.9)
12	1988	↓	↓	↓	↓	↓	↓	↓
13	1989	↓	↓	↓	↓	↓	↓	↓
14	1990	↓	↓	↓	↓	↓	↓	↓
15	1991	↓	↓	↓	↓	↓	↓	↓
16	1992	↓	↓	↓	↓	↓	↓	↓
17	1993	↓	↓	↓	↓	↓	↓	↓
18	1994	↓	↓	↓	↓	↓	↓	↓
19	1995	↓	↓	↓	↓	↓	↓	↓
20	1996	↓	↓	↓	↓	↓	↓	↓
21	1997	↓	↓	↓	↓	↓	↓	↓
22	1998	↓	↓	↓	↓	↓	↓	↓
23	1999	↓	↓	↓	↓	↓	↓	↓
24	2000	↓	↓	↓	↓	↓	↓	↓
25	2001	↓	↓	↓	↓	↓	↓	↓
26	2002	↓	↓	↓	↓	↓	↓	↓
27	2003	↓	↓	↓	↓	↓	↓	↓
28	2004	↓	↓	↓	↓	↓	↓	↓
29	2005	0.4	0.2	0.1	0.2	0.6	1.5 (0.9)	1.5 (0.9)
30	2006	↓	↓	↓	↓	↓	↓	↓
	Total	13.0	6.9	2.8	6.2	20.5	49.4 (28.9)	49.4 (28.9)

Note: \* Figures in the parenthesis show the cost excluding cost of water supply system.



Table 9. Administration Cost of Tourism Area

No.	Year	Unit: million Baht							Total for EA	
		(1) Road	(2) Sewerage	(3) Storm Water	(4) Solid Waste	(5) Marine & Port	(6) Water Supply	(7) Amenity Core		(8-1-6) Total for FA
1	1977	-	-	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-	-	-
3	1979	0.4	0.4	0.1	0.2	0.2	0.2	0.9	1.5 (1.3)	2.4 (2.2)
4	1980	0.5	0.5	0.1	0.3	0.2	0.3	1.3	1.9 (1.6)	3.2 (2.9)
5	1981	0.6	0.6	0.1	0.4	0.3	0.4	1.6	2.4 (2.0)	4.0 (3.6)
6	1982	0.7	0.7	0.1	0.4	0.3	0.4	1.8	2.6 (2.2)	4.4 (4.0)
7	1983	↓	↓	↓	↓	↓	↓	↓	↓	↓
8	1984	↓	↓	↓	↓	↓	↓	↓	↓	↓
9	1985	↓	↓	↓	↓	↓	↓	↓	↓	↓
10	1986	0.7	0.7	0.1	0.4	0.3	0.4	1.8	2.6 (2.2)	4.4 (4.0)
11	1987	0.4	0.4	0.1	0.2	0.2	0.2	0.9	1.5 (1.3)	2.4 (2.2)
12	1988	↓	↓	↓	↓	↓	↓	↓	↓	↓
13	1989	↓	↓	↓	↓	↓	↓	↓	↓	↓
14	1990	↓	↓	↓	↓	↓	↓	↓	↓	↓
15	1991	↓	↓	↓	↓	↓	↓	↓	↓	↓
16	1992	↓	↓	↓	↓	↓	↓	↓	↓	↓
17	1993	↓	↓	↓	↓	↓	↓	↓	↓	↓
18	1994	↓	↓	↓	↓	↓	↓	↓	↓	↓
19	1995	↓	↓	↓	↓	↓	↓	↓	↓	↓
20	1996	↓	↓	↓	↓	↓	↓	↓	↓	↓
21	1997	↓	↓	↓	↓	↓	↓	↓	↓	↓
22	1998	↓	↓	↓	↓	↓	↓	↓	↓	↓
23	1999	↓	↓	↓	↓	↓	↓	↓	↓	↓
24	2000	↓	↓	↓	↓	↓	↓	↓	↓	↓
25	2001	↓	↓	↓	↓	↓	↓	↓	↓	↓
26	2002	↓	↓	↓	↓	↓	↓	↓	↓	↓
27	2003	↓	↓	↓	↓	↓	↓	↓	↓	↓
28	2004	↓	↓	↓	↓	↓	↓	↓	↓	↓
29	2005	0.4	0.4	0.1	0.2	0.2	0.2	0.9	1.5 (1.3)	2.4 (2.2)
30	2006	↓	↓	↓	↓	↓	↓	↓	↓	↓
Total		13.0	13.0	2.8	6.9	6.2	6.9	30.8	48.8 (41.9)	79.6 (72.7)

Note: \* Figures in the parenthesis show the cost excluding cost of water supply system.

Table 10. Tax and Unskilled Labor Portion in Other Facilities

Category B

Unit: million Baht

No.	Year	Social Infrastructure		Amenity Cores		Activity Zones and Beach Facilities		Hotels		Restaurants		Total	
		Tax	U.L	Tax	U.L	Tax	U.L	Tax	U.L	Tax	U.L	Tax	U.L
1	1977	-	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1
2	1978	-	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1
3	1979	-	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1
4	1980	9.4	4.7	0.2	0.8	-	-	10.0	6.6	0.1	0.2	19.7	12.3
5	1981	10.6	5.3	0.2	0.7	0.1	0.2	10.0	6.5	0.1	0.2	21.0	12.9
6	1982	2.0	1.0	0.2	0.9	0.6	1.4	16.6	10.8	0.1	0.2	19.5	14.2
7	1983	1.0	0.5	0.1	0.2	0.6	1.4	3.3	2.2	0.1	0.2	5.1	4.5
8	1984	0.2	0.1	0.1	0.2	0.5	1.2	3.3	2.2	0.1	0.2	4.2	3.9
9	1985	0.1	0.1	0.1	0.2	0.5	1.2	3.3	2.2	0.1	0.2	4.1	3.9
10	1986	0.1	0.1	0.1	0.2	0.6	1.2	-	-	0.1	0.2	0.9	1.7
Total		23.4	11.8	1.0	3.1	2.9	6.6	46.5	30.5	1.0	1.7	74.8	53.7

Note: U.L shows unskilled laborer's wages in construction cost.

**ANNEX 9 REVENUE BY INFRASTRUCTURE AND  
PROFIT AND LOSS STATEMENT**



## ANNEX 9 REVENUE BY INFRASTRUCTURE AND PROFIT AND LOSS STATEMENT

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## 2. Profit and Loss Statement

Table 2.1 Profit and Loss Statement for Infrastructure:

		<b>Residential and Tourism Area ...</b>	<b>9-25</b>
2.2	do	:	
		<b>Residential and Tourism Area ...</b>	<b>9-26</b>
		<b>(Excluding Water Supply System)</b>	
2.3	do	:	
		<b>Tourism Area .....</b>	<b>9-27</b>
2.4	do	:	
		<b>Tourism Area .....</b>	<b>9-28</b>
		<b>(Excluding Water Supply System)</b>	
2.5	do	:	
		<b>Residential Area .....</b>	<b>9-29</b>
2.6	do	:	
		<b>Residential Area .....</b>	<b>9-30</b>
		<b>(Excluding Water Supply System)</b>	

Table 1-a Total Revenue (1) Residential and Tourism Area

unit: x 10<sup>3</sup> Baht

No. Year	Road and Street Sewerage Storm Water Drainage Solid Waste Disposal Port Facilities (A)			Water Supply (B)			Road and Steet Sewerage, Storm Water Drainage, Solid Waste Disposal, Water Supply Port Facilities (A+B)		
	A.C	S.C	S.T	A.C	S.C	S.T	A.C	S.C	S.T
4 1980	1,422	2,198	3,620	-	-	-	1,422	2,198	3,620
5 1	2,125	11,215	13,340	309	13,016	13,325	2,434	24,231	26,665
6 2	7,943	15,942	23,885	1,874	20,194	22,068	9,817	36,136	45,953
7 3	14,043	16,303	30,346	4,052	22,190	26,242	18,095	38,493	56,588
8 4	23,845	17,703	41,548	4,236	23,651	27,887	28,081	41,354	69,435
9 5	30,858	19,407	50,265	4,236	24,340	28,576	35,094	43,749	78,841
10 6	46,267	21,495	67,762	4,992	27,059	32,051	51,259	48,554	99,813
11 7									
12 8									
13 9									
14 90									
15 1									
16 2									
17 3									
18 4									
19 5									
20 6									
21 7									
22 8									
23 9									
24 2000									
25 1									
26 2									
27 3									
28 4									
29 5									
30 6	46,267	21,495	67,762	4,992	27,059	32,051	51,259	48,554	99,813
Total	1,051,843	534,163	1,586,006	119,539	671,630	791,169	1,171,382	1,205,793	2,377,175

Notes: A.C : Annual charge S.C : Service charge S.T : Sub-total

Table 1-b Total Revenue (2) Residential and Tourism Area, by Type of Charges

unit: x 103 Baht

No.	Year	Road and Street		Sewerage		Storm Water Drainage		Solid Waste Disposal		Port Medication		Water Supply		Grand Total	
		R	T <sup>1</sup>	R <sup>2</sup>	T <sup>3</sup>	R	T	R	T <sup>3</sup>	T (S.T)	AC&SC	R <sup>2</sup>	T <sup>3</sup>		
		AC	AC&SC	NC	AC&SC	AC	AC	NC	AC&SC	AC&SC	AC&SC	NC	AC&SC		
4	1980	-	-	-	-	-	-	1,092	2,568	3,620	-	-	-	3,620	
5	1	-	2,300	3,387	1,088	-	-	1,141	3,112	4,253	2,312	10,190	3,135	13,325	
6	2	-	2,800	3,692	5,942	-	-	1,141	4,598	5,739	5,604	10,800	11,268	23,068	
7	3	-	3,300	4,085	7,745	-	-	1,361	7,344	8,705	6,501	11,869	14,373	26,242	
8	4	4,416	6,520	4,335	8,141	1,250	1,802	1,481	8,213	9,694	6,621	12,843	15,044	27,887	
9	5	7,056	10,270	4,471	8,139	1,883	2,824	1,603	9,211	10,814	6,621	13,503	15,073	28,576	
10	6	9,984	18,676	4,620	9,773	4,557	5,805	1,731	10,036	11,767	7,137	14,302	17,749	32,051	
11	7	-	-	-	-	-	-	-	-	-	-	-	-	-	
12	8	-	-	-	-	-	-	-	-	-	-	-	-	-	
13	9	-	-	-	-	-	-	-	-	-	-	-	-	-	
14	90	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	2	-	-	-	-	-	-	-	-	-	-	-	-	-	
17	3	-	-	-	-	-	-	-	-	-	-	-	-	-	
18	4	-	-	-	-	-	-	-	-	-	-	-	-	-	
19	5	-	-	-	-	-	-	-	-	-	-	-	-	-	
20	6	-	-	-	-	-	-	-	-	-	-	-	-	-	
21	7	-	-	-	-	-	-	-	-	-	-	-	-	-	
22	8	-	-	-	-	-	-	-	-	-	-	-	-	-	
23	9	-	-	-	-	-	-	-	-	-	-	-	-	-	
24	2000	9,984	18,676	4,620	9,773	4,557	5,805	1,731	10,036	11,767	7,137	14,302	17,749	32,051	
25	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
26	2	-	-	-	-	-	-	-	-	-	-	-	-	-	
27	3	-	-	-	-	-	-	-	-	-	-	-	-	-	
28	4	-	-	-	-	-	-	-	-	-	-	-	-	-	
29	5	-	-	-	-	-	-	-	-	-	-	-	-	-	
30	6	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total		221,136	417,386	698,522	1,017,010	296,308	353,318	27,701	98,830	126,531	44,238	245,802	290,940	177,536	1,585,947

Notes: R.: for Residents T.: for Tourism industries S.C.: Service Charge  
 S.T.: Sub total A.C.: Annual charge

w1: including revenue from parking and concession on Baht-Bus.  
 w2: including revenue from other industries such as Tapioca factories.  
 w3: including revenue from residents in Kolan Island.



Table 2. Total Revenue (3) Tourism Area

unit: x 10<sup>3</sup> Baht

No. Year	Road and Street Sewerage Storm Water Drainage Solid Waste Disposal Port Facilities (A)			Water Supply (B)			Road and Street Sewerage Storm Water Drainage, Solid Waste Disposal, Water Supply Port Facilities (A+B)		
	A.C	S.C	S.T	A.C	S.C	S.T	A.C	S.C	S.T
4 1980	1,422	1,146	2,568	-	-	-	1,422	1,146	2,568
5 1	2,125	6,687	8,812	309	2,826	3,135	2,434	9,513	11,947
6 2	7,943	11,001	18,944	1,874	9,394	11,268	9,817	20,395	30,212
7 3	14,043	10,857	24,900	4,052	10,321	14,373	18,095	21,178	39,273
8 4	18,877	11,867	30,744	4,236	10,808	15,044	23,113	22,675	45,788
9 5	22,861	13,333	36,194	4,236	10,837	15,073	27,097	24,170	51,267
10 6	35,035	15,144	50,179	4,992	12,757	17,749	40,027	27,901	67,928
11 7									
12 8									
13 9									
14 90									
15 1									
16 2									
17 3									
18 4									
19 5									
20 6									
21 7									
22 8									
23 9									
24 2000									
25 1									
26 2									
27 3									
28 4									
29 5									
30 6	35,035	15,144	50,179	4,992	12,757	17,749	40,027	27,901	67,928
Total	803,006	372,915	1,175,921	119,539	312,083	431,622	922,545	684,998	1,607,543

Notes: A.C : Annual charge S.C : Service charge S.T : Sub-total

Table 3. Total Revenue (4) Residential Area

unit:  $\times 10^3$  Baht

No.	Year	Road and Street Sewerage Storm Water Drainage Solid Waste Disposal (A)			Water Supply (B)	Road and Street Sewerage Storm Water Drainage, Solid Waste Disposal, Water Supply (A+B)		
		A.C	S.C	S.T		A.C	S.C	S.T
4	1980	-	1,052	1,052	-	-	1,052	1,052
5	1	-	4,528	4,528	10,190	-	14,718	14,718
6	2	-	4,941	4,941	10,800	-	15,741	15,741
7	3	-	5,446	5,446	11,869	-	17,315	17,315
8	4	4,968	5,836	10,804	12,843	4,968	18,679	23,647
9	5	7,997	6,074	14,071	13,503	7,997	19,577	27,574
10	6	11,232	6,351	17,583	14,302	11,232	20,653	31,885
11	7							
12	8							
13	9							
14	90							
15	1							
16	2							
17	3							
18	4							
19	5							
20	6							
21	7							
22	8							
23	9							
24	2000							
25	1							
26	2							
27	3							
28	4							
29	5							
30	6	11,232	6,351	17,583	14,302	11,232	20,653	31,885
Total		248,837	161,248	410,085	359,547	248,837	520,795	769,632

Notes: A.C : Annual charge S.C : Service charge S.T : Sub-total

Table 4 Revenue Generating from Residential Area  
Service and Annual Charges for Infrastructure

unit: x10<sup>3</sup> Rahr

No. Year	1		2		3		4		5		6		7		8		9		10		11		12		13		14				
	Road		Sewerage		Storm Water Drainage		Solid Waste Disposal		Water Supply		Leakage		Allocation by Users		Others																
	Residents	A.C.	Residents	S.C	Residents	A.C	Residents	S.C	Residents	S.C	Residents	S.C	Residents	S.C	Residents	S.C	Residents	S.C	Residents	S.C	Residents	S.C	Residents	S.C	Residents	S.C	Residents	S.C	Residents	S.C	
4 1980																															
5 81			825	2,562	3,387	1,052	1,141	1,630	8,340	10,190	1,052	1,141	1,630	8,340	10,190	1,052	1,141	1,630	8,340	10,190	1,052	1,141	1,630	8,340	10,190	1,052	1,141	1,630	8,340	10,190	
6 82			1,130	2,562	3,692	1,249	1,249	2,260	8,340	10,800	14,718	1,249	1,249	2,260	8,340	10,800	14,718	1,249	1,249	2,260	8,340	10,800	14,718	1,249	1,249	2,260	8,340	10,800	14,718	1,249	1,249
7 83			1,523	2,562	4,085	1,361	1,361	3,331	8,340	11,869	15,741	1,361	1,361	3,331	8,340	11,869	15,741	1,361	1,361	3,331	8,340	11,869	15,741	1,361	1,361	3,331	8,340	11,869	15,741	1,361	1,361
8 84			1,793	2,562	4,355	1,481	1,481	4,303	8,340	12,843	17,337	1,481	1,481	4,303	8,340	12,843	17,337	1,481	1,481	4,303	8,340	12,843	17,337	1,481	1,481	4,303	8,340	12,843	17,337	1,481	1,481
9 85			1,909	2,562	4,471	1,603	1,603	4,963	8,340	13,503	19,047	1,603	1,603	4,963	8,340	13,503	19,047	1,603	1,603	4,963	8,340	13,503	19,047	1,603	1,603	4,963	8,340	13,503	19,047	1,603	1,603
10 86			2,034	2,562	4,590	1,731	1,731	5,742	8,340	14,302	21,374	1,731	1,731	5,742	8,340	14,302	21,374	1,731	1,731	5,742	8,340	14,302	21,374	1,731	1,731	5,742	8,340	14,302	21,374	1,731	1,731
11 87																															
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24 2000																															
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26 2																															
27 3																															
28 4																															
29 5																															
30 6	9,984		2,054	2,562	6,620	1,768	1,768	3,762	8,340	14,302	21,885	1,768	1,768	3,762	8,340	14,302	21,885	1,768	1,768	3,762	8,340	14,302	21,885	1,768	1,768	3,762	8,340	14,302	21,885	1,768	1,768
Total	457,136		50,598	66,612	117,010	27,701	27,701	66,274	227,040	319,347	749,634	66,274	66,274	132,529	227,040	319,347	749,634	66,274	66,274	132,529	227,040	319,347	749,634	66,274	66,274	132,529	227,040	319,347	749,634	66,274	66,274



Table 6 Revenue Generating (Tourism-1)

S.C: Service charge  
A.C: Annual charge  
Baht-bus: Concession on Baht-bus

Tourism Area: Road and Street System

No.	Year	Consumption				Parking Lots		Hotel		Restaurant		Baht-bus		Total x10 <sup>8</sup>
		Parking Lot	Hotel Room	Rest-aurant	Baht-bus unit	S.C. <sup>#1</sup>	x10 <sup>3</sup> B	A.C	x10 <sup>3</sup> B	A.C.	x10 <sup>3</sup> B	S.C. <sup>#2</sup>	x10 <sup>3</sup> B	
1	1977													
2	78													
3	79													
4	80													
5	81	350			200	2,000	700					B/year		
6	82	400			200	2,000	800					8,000	1,600	2,300
7	83	450			220	2,000	900					10,000	2,000	2,800
8	84	500	2,050	100	230	2,000	1,000	2,200	2,450	600	60	11,000	2,400	3,300
9	85	600	2,050	125	250	2,000	1,200	2,400	4,920	1,200	150	13,000	3,000	6,520
10	86	700	2,050	155	250	2,000	1,400	4,800	11,904	2,400	372	17,000	4,000	10,270
11	87													
12	88													
13	89													
14	90													
15	91													
16	92													
17	93													
18	94													
19	95													
20	96													
21	97													
22	98													
23	99													
24	2000													
25	1													
26	2													
27	3													
28	4													
29	5													
30	6	700	2,450	155	250	2,000	1,400	4,800	11,904	2,400	372	20,000	5,000	10,676
Total		17,000	56,180	3,450	6,340	-	34,000	-	257,364	-	4,022	-	118,000	417,386

Note: #1. Parking charge = 90¢ x 365 days x 3 Baht x 2 times = 2,000 Baht/lot.year

#2. Concession on Baht-bus = 35¢ x 365 days x 25 Baht = 8,000 Baht/bus.year (1981)  
= 85¢ x 365 days x 65 Baht = 20,000 Baht/bus.year (1986)

Table 7 Revenue Generating (Tourism-2)

S.C : Service charge  
A.C : Annual charge

Tourism Area: Sewerage System

Year	Consumption (unit: $10^3 m^3$ )			Hotel				Restaurant				Kolan Island			Breakdown				
	Hotel	Res- taur- ant	Sub- Total	Kolan Island	S.C B/m <sup>3</sup>	A.C B/m <sup>3</sup>	Sub- Total $10^3 B$	S.C B/m <sup>3</sup>	A.C B/m <sup>3</sup>	Sub- Total $10^3 B$	S.C B/m <sup>3</sup>	A.C B/m <sup>3</sup>	Total $10^3 B$	S.C $10^3 B$	A.C $10^3 B$				
1977																			
78																			
79																			
80																			
81	74	14	88	78	10	740	1	74	814	10	140	4	56	196	1	78	1,088	880	208
82	472	14	486	82	10	4,720	2	944	7,664	10	140	4	56	196	1	82	5,942	4,860	1,082
83	512	30	542	87	10	5,170	4	2,068	7,238	10	300	4	120	420	1	87	7,745	5,470	2,275
84	544	31	575	91	10	5,440	4	2,176	7,616	10	310	4	124	434	1	91	8,141	5,570	2,571
85	544	32	576	95	10	5,440	4	2,176	7,616	10	320	4	128	448	1	95	8,159	5,760	2,399
86	658	33	691	99	10	6,580	4	2,632	9,212	10	330	4	132	462	1	99	9,773	6,910	2,863
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5																			
6																			
Total	15,969	814	16,783	2,512	-	159,690	-	62,710	221,400	-	8,140	-	3,256	11,396	-	2,512	236,308	167,830	68,478

Note: \*1. Annual Fixed Charge as = 1 B/m<sup>3</sup> x 365 days x 0.85 m<sup>3</sup>/day = 310 Bahr/room-year. (1982)

Table 8. Revenue Generating (Tourism-3)

S.C: Service charge  
A.C: Annual charge

Tourism Area: Storm Water Drainage System

Year		Consumption		Hotel		Restaurant		Total X10 <sup>3</sup> B
		Hotel Rooms	Restau- rant	A.C B/room	X10 <sup>3</sup> B	A.C B/shop	X10 <sup>3</sup> B	
1	1977							
2	78							
3	79							
4	80							
5	81							
6	82							
7	83							
8	84	2,050	100	600	1,230	200	20	1,250
9	85	2,050	125	900	1,845	300	38	1,883
10	86	2,480	155	1,800	4,464	600	93	4,557
11	87							
12	88							
13	89							
14	90							
15	91							
16	92							
17	93							
18	94							
19	95							
20	96							
21	97							
22	98							
23	99							
24	2000							
25	1							
26	2							
27	3							
28	4							
29	5							
30	6	2,480	155	1,800	4,464	600	93	4,557
Total		56,180	3,480	-	96,819	-	20.11	98,830

Table 9 Revenue Generating (Tourism-4)

Tourism Area: Solid Waste Collection and Disposal System

S.C: Service charge  
A.C: Annual charge

Year	Consumption (unit: t/y)		Hotel			Restaurant			Korean Islands			Barracks	
	Hotel	Sub-Total	S.C B/kg	A.C B/kg	Sub-Total X10 <sup>3</sup>	S.C B/kg	A.C B/kg	Sub-Total X10 <sup>3</sup>	S.C B/kg	A.C B/kg	Sub-Total X10 <sup>3</sup>	S.C B/kg	A.C B/kg
1 1977													
2 78													
3 79													
4 80	3,360	3,820	0.30	1,008	2,016	0.30	138	0.9	416	0.1	52	2,568	1,246
5 81	6,060	4,560	0.30	1,228	2,436	0.30	136	0.9	468	0.1	52	3,112	1,426
6 82	4,750	5,370	0.30	1,426	3,400	0.30	186	0.9	558	0.1	54	4,598	2,933
7 83	5,360	6,070	0.30	1,614	4,862	0.30	207	0.9	621	0.1	60	7,344	3,603
8 84	6,050	6,790	0.30	1,809	5,427	0.30	228	0.9	684	0.1	64	8,213	4,111
9 85	6,760	7,620	0.30	2,028	6,084	0.30	248	0.9	774	0.1	67	9,211	4,858
10 86	7,380	8,300	0.30	2,216	6,642	0.30	276	0.9	828	0.1	76	10,036	5,266
11 87													
12 88													
13 89													
14 90													
15 91													
16 92													
17 93													
18 94													
19 95													
20 96													
21 97													
22 98													
23 99													
24 2000													
25 1													
26 2													
27 3													
28 4													
29 5													
30 6													
Total	185,320	23,230	206,550	18,930	35,397	160,436	716,033	6,969	20,007	27,876	1,893	243,802	64,439

Note: \*1. Annual fixed charge = 0.3 B/kg x 365 x 365 x 2.6 kg/room.day = 133 B/kg/room.year (1980)



Table 10. Revenue Generating (Tourism-5)

Tourism Area : Port Facilities

S.C: Service charge  
A.C: Annual charge

Year	Consumption			Hire of pier *1		Rental *2 Charge		Hotel		Total X10 <sup>3</sup> B	
	Boats	Rental Area (m <sup>3</sup> )	Hotel Rooms	S.C X10 <sup>3</sup> B/B	X10 <sup>3</sup> B	S.C B/m <sup>2</sup>	X10 <sup>3</sup> B	A.C B/room	X10 <sup>3</sup> B		
1	1977										
2	78										
3	79										
4	80										
5	81	100	3,500	-	16.68	1,668	184	644	-	-	2,312
6	82	150	5,250	1,780	16.68	2,502	184	966	1,200	2,136	5,604
7	83	180	6,300	1,950	16.68	3,002	184	1,159	1,200	2,340	6,501
8	84	180	6,300	2,050	16.68	3,002	184	1,159	1,200	2,460	6,621
9	85	180	6,300	2,050	16.68	3,002	184	1,159	1,200	2,460	6,621
10	86	180	6,300	2,480	16.68	3,002	184	1,159	1,200	2,976	7,137
11	87										
12	88										
13	89										
14	90										
15	91										
16	92										
17	93										
18	94										
19	95										
20	96										
21	97										
22	98										
23	99										
24	2000										
25	1										
26	2										
27	3										
28	4										
29	5										
30	6	180	6,300	2,480	16.68	3,002	184	1,159	1,200	2,976	7,137
Total		4,570	159,950	59,910	-	76,218	-	29,426	1,200	71,892	177,536

Notes: \*1 : Hire of pier ----- 16,680 Baht/boat.year.  
\*2 : Rental charge of land ----- 184 Baht/m<sup>2</sup>.year

Table 11 Revenue Generating (Tourism-6)

S.C: Service charge  
A.C: Annual charge

Tourism Area: Water Supply System

Year	Consumption (unit: 10 <sup>3</sup> m <sup>3</sup> )			Hotel			Restaurant			Kolan Island			Total X10 <sup>3</sup> B			
	Hotel	Sub- Total	Kolan	S.C B/m <sup>3</sup>	A.C B/m <sup>3</sup>	Sub- Total X10 <sup>3</sup> B	S.C B/m <sup>3</sup>	A.C B/m <sup>3</sup>	Sub- Total X10 <sup>3</sup> B	S.C B/m <sup>3</sup>	A.C B/m <sup>3</sup>	Sub- Total X10 <sup>3</sup> B				
1 1977																
2 78																
3 79																
4 80																
5 81	253	267	78	10	2,530	253	10	240	4	56	196	2	156	3,135	2,826	309
6 82	909	923	82	10	9,090	1,818	10	140	4	56	196	2	164	11,268	9,394	1,874
7 83	983	1,013	87	10	9,830	3,932	10	300	4	120	420	2.4	191	14,373	10,321	4,052
8 84	1,027	1,059	91	10	10,270	4,108	10	310	4	128	448	2.4	218	15,044	10,808	4,236
9 85	1,027	1,059	95	10	10,270	4,108	10	310	4	128	448	2.6	247	15,073	10,837	4,236
10 86	1,215	1,248	99	10	12,150	4,860	10	330	4	132	462	2.8	277	17,749	12,757	4,992
11 87																
12 88																
13 89																
14 90																
15 91																
16 92																
17 93																
18 94																
19 95																
20 96																
21 97																
22 98																
23 99																
24 2000																
25 1																
26 2																
27 3																
28 4																
29 5																
30 6																
Total	29,714	815	30,529	2,512	297,140	116,279	413,419	8,150	-	3,260	11,416	-	1,793	431,622	312,083	119,539

Note: \* Annual fixed charge as = 1.0 Baht/m<sup>3</sup> x 365 days x 1.40 m<sup>3</sup>/room.day = 511 Baht/room Year

Table 12. Revenue Generating (Residential-1)

Residential Area: Road and Street System

A.C: Annual charge

Year	Consumption		A.C Baht/year a household	X103 B	
	Population	Household			
1	1977				
2	78				
3	79				
4	80				
5	81				
6	82				
7	83				
8	84	46,000	9,200	480	4,416
9	85	49,000	9,800	720	7,056
10	86	52,000	10,400	960	9,984
11	87				
12	88				
13	89				
14	90				
15	91				
16	92				
17	93				
18	94				
19	95				
20	96				
21	97				
22	98				
23	99				
24	2000				
25	1				
26	2				
27	3				
28	4				
29	5				
30	6	52,000	10,400	960	9,984
Total		1,187,000	237,400	-	221,136

Table 13. Revenue Generating (Residential-2)

Residential Area: Sewerage System

S.C: Service charge

Year	Consumption (unit: $\times 10^3 \text{ m}^3$ )				Residents		Industry		Total $\times 10^3 \text{ B}$	
	Pattaya	Na Klua	Sub-Total	Industry *	S.C B/m <sup>3</sup>	$\times 10^3 \text{ B}$	S.C B/m <sup>3</sup>	$\times 10^3 \text{ B}$		
1	1977									
2	78									
3	79									
4	80									
5	81	255	570	825	854	1	825	3	2,562	3,387
6	82	412	718	1,130	854	1	1,130	3	2,562	3,692
7	83	655	818	1,473	854	1	1,523	3	2,562	4,085
8	84	810	983	1,793	854	1	1,793	3	2,562	4,355
9	85	891	1,018	1,909	854	1	1,909	3	2,562	4,471
10	86	1,005	1,053	2,058	854	1	2,058	3	2,562	4,620
11	87									
12	88									
13	89									
14	90									
15	91									
16	92									
17	93									
18	94									
19	95									
20	96									
21	97									
22	98									
23	99									
24	2000									
25	1									
26	2									
27	3									
28	4									
29	5									
30	6									
<b>Total</b>		<b>24,128</b>	<b>26,220</b>	<b>50,348</b>	<b>22,204</b>	<b>-</b>	<b>50,398</b>	<b>-</b>	<b>66,612</b>	<b>117,010</b>

Note: \* Mainly from tapioca factories (only second grade factories)

Table 14. Revenue Generating (Residential-3)

Residential Area: Storm Water Drainage System

A.C: Service charge

Year	Consumption		A.C B/year a household	X10 <sup>3</sup> B	
	Population	Households			
1	1977				
2	78				
3	79				
4	80				
5	81				
6	82				
7	83				
8	84	46,000	9,200	60	552
9	85	49,000	9,800	96	941
10	86	52,000	10,400	120	1,248
11	87				
12	88				
13	89				
14	90				
15	91				
16	92				
17	93				
18	94				
19	95				
20	96				
21	97				
22	98				
23	99				
24	2000				
25	1				
26	2				
27	3				
28	4				
29	5				
30	6	52,200	10,400	120	1,248
Total		1,187,000	237,400	-	27,701

Table 15. Revenue Generating (Residential-4)

S.C: Service charge

Residential Area: Solid Waste Disposal System

Year	Consumption (unit: t/y)			S.C B/kg	X10 <sup>3</sup> B	
	Pattaya	Na Klua	Sub- total			
1	1977					
2	78					
3	79					
4	80	5,340	5,180	10,520	0.1	1,052
5	81	5,780	5,630	11,410	0.1	1,141
6	82	6,340	6,150	12,490	0.1	1,249
7	83	6,900	6,710	13,610	0.1	1,361
8	84	7,510	7,300	14,810	0.1	1,481
9	85	8,130	7,300	16,030	0.1	1,603
10	86	8,780	8,530	17,310	0.1	1,731
11	87					
12	88					
13	89					
14	90					
15	91					
16	92					
17	93					
18	94					
19	95					
20	96					
21	97					
22	98					
23	99					
24	2000					
25	1					
26	2					
27	3					
28	4					
29	5					
30	6					
<b>Total</b>		<b>224,380</b>	<b>218,000</b>	<b>442,380</b>		<b>44,238</b>

Table 16 Revenue Generating (Residential-5)

Residential Area: Water Supply System

S.C: Service charge

Year	Consumption (unit: $\times 10^3 \text{ m}^3$ )				Pattaya/Sa Kua			Industry			Total $\times 10^3 \text{ B}$	
	Pattaya	Sa Kua	Sub-Total	Industry	S.C $\text{B/m}^3$	$\times 10^3 \text{ B}$	Sub-Total $\times 10^3 \text{ B}$	S.C $\text{B/m}^3$	$\times 10^3 \text{ B}$	Sub-Total $\times 10^3 \text{ B}$		
1	1977											
2	78											
3	79											
4	80											
5	81	255	570	825	854	2	1,650	1,650	10	8,540	8,540	10,190
6	82	412	718	1,130	854	2	2,260	2,260	10	8,540	8,540	10,800
7	83	655	868	1,523	854	2.2	3,351	3,329	10	8,540	8,540	11,869
8	84	810	983	1,793	854	2.4	4,303.2	4,303	10	8,540	8,540	12,843
9	85	890	1,018	1,909	854	2.6	4,963.4	4,963	10	8,540	8,540	13,503
10	86	1,005	1,053	2,058	854	2.8	5,762	5,762	10	8,540	8,540	14,302
11	87											
12	88											
13	89											
14	90											
15	91											
16	92											
17	93											
18	94											
19	95											
20	96											
21	97											
22	98											
23	99											
24	2000											
25	1											
26	2											
27	3											
28	4											
29	5											
30	6	24,128	26,270	50,398	22,204	-	13,752.9	137,507	-	222,040	222,040	359,547

Table 17 Annual Consumption Table (Tourism-1) Road and Street System

No.	Year	Parking Area						Concession on Bahf-bus												
		Basic Figure lot	% in planning	Unit demand	Quantity in planning	Efficiency in %	Chargable consumption %	Basic Figure unit	% in planning	Unit demand	Quantity in planning	Efficiency in %	Chargable consumption unit	Basic Figure	% in planning	Unit demand	Quantity in planning	Efficiency in %	Chargable consumption	
4	1980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	1981	700	-	-	-	50	350	295	-	-	68	200	-	-	-	-	-	68	200	-
6	1982	700	-	-	-	60	400	295	-	-	68	200	-	-	-	-	-	68	200	-
7	1983	700	-	-	-	65	450	295	-	-	75	220	-	-	-	-	-	75	220	-
8	1 84	700	-	-	-	70	500	295	-	-	79	230	-	-	-	-	-	79	230	-
9	1985	700	-	-	-	85	600	295	-	-	81	240	-	-	-	-	-	81	240	-
10	1986	700	-	-	-	100	700	295	-	-	85	250	-	-	-	-	-	85	250	-
Sub total *1		4,200	-	-	-	71	3,000	1,770	-	-	75	1,340	-	-	-	-	-	75	1,340	-
11. 30 *2 1987-2006		14,000	-	-	-	100	14,000	5,900	-	-	85	5,000	-	-	-	-	-	85	5,000	-
Total		18,200	-	-	-	93	17,000	7,670	-	-	83	6,340	-	-	-	-	-	83	6,340	-

NOTES: \*1. Sub total shows total consumption upto 1986 (phase-1).

\*2. \*2 shows total consumption from 1987 to 2006 (phase-2).

\*3. Quantity in planning = Basic Figure x % in planning x Unit demand

\*4. Chargable consumption = Quantity in planning x Efficiency



Table 18 Annual Consumption Table, Tourism (2) Sewerage System

No. Year	Hotel					Restaurants					Ko Lan Island							
	Basic Figure Room	% in planning	Daily unit demand m <sup>3</sup> /room	Quantity in planning m <sup>3</sup> /year	Efficiency in %	Chargeable consumption m <sup>3</sup> /year	Basic Figure visitor	% in planning	Unit demand m <sup>3</sup> /visitor	Quantity in planning m <sup>3</sup> /year	Efficiency in %	Chargeable consumption m <sup>3</sup> /year	Basic Figure capita	% in planning	Unit demand m <sup>3</sup> /capita	Quantity in planning m <sup>3</sup> /year	Efficiency in %	Chargeable consumption m <sup>3</sup> /year
4 1980				$\times 10^3$ 83	90	$\times 10^3$ 74				$\times 10^3$ 15	90	$\times 10^3$ 14				$\times 10^3$ 104	75	$\times 10^3$ 78
5 1981	280	95	0.85	525		472	2,090	100	0.02	16		14	2,080	100	0.137	110		82
6 1982	1,780			575		517	2,180			33		30	2,168		0.139	116		87
7 1983	1,950			604		544	4,530			34		31	2,256		0.141	121		91
8 1984	2,050			604		544	4,710			36		32	2,344		0.141	127		95
9 1985	2,050			731		658	4,890			37		33	2,432		0.141	132		99
10 1986	2,480			3,122		2,809	5,060			171		154	2,520		0.144	710		532
Sub total #1	10,590			14,620		13,160	23,460			740		660	13,800		-	2,640		1,980
11-30 #2 1987-2006	49,600			17,742		15,968	101,200			911		814	50,400		-	3,350		2,522
Total	60,190						124,660						64,200					

Note: #1. Sub total shows total consumption upto 1986 (phase-1).

#2. #2 shows total consumption from 1987 to 2006 (phase-2).  
where #2 = 20 x figure at 1986.

#3. Quantity in planning = Basic Figure x % in planning x Unit demand.

#4. Chargeable consumption = Quantity in planning x Efficiency.

#5. This figure is not included demand by restaurants in Ko Lan Island.

Table 19: Annual Consumption Table, Tourism (3) Solid Waste Disposal System

No.	Year	Hotel						Restaurant						K'o Lan Island					
		Basic figure	% in planning	Unit demand	Quantity in planning ton/year #1	Efficiency in %	Chargeable consumption ton/year #4	Basic figure	% in planning	Unit demand	Quantity in planning ton/year	Efficiency in %	Chargeable consumption ton/year	Basic figure	% in planning	Unit demand	Quantity in planning ton/year	Efficiency in %	Chargeable consumption ton/year
4	1980				3,540	95	3,360				510	90	460				-	-	-
5	1981				4,270		4,060				580		520				648	80	520
6	1982				5,000		4,750				690		620				693	78	540
7	1983				5,660		5,380				770		690				772	70	600
8	1984				6,350		6,030				840		760				818	78	640
9	1985				7,120		6,760				950		860				859	78	670
10	1986				7,770		7,380				1,020		920				973	78	760
	Sub total #1				39,710		37,720				5,360		4,830				4,763	78	3,730
	#2				155,400		147,600				20,400		18,400				19,460	78	15,200
	1987-2006				195,110		185,320				25,760		23,230				24,223	78	18,930
	Total																		

NOTES: #1. Sub total shows total consumption upto 1986 (phase-1).

#2. #2 shows total consumption from 1987 to 2006 (phase-2). where #2 = 20 x Figure at 1986.

#3. Quantity in planning = Basic Figure x % in planning x Unit demand

#4. Chargeable consumption = Quantity in planning x Efficiency

Table 20 Annual Consumption Table, Tourism (4) Water Supply System

No.	Year	Hotel							Restaurant							No. Lan Island						
		Basic figure room	% in planning	Daily Unit demand m <sup>3</sup> /room	Quantity in planning m <sup>3</sup> /year <sup>3</sup>	Efficiency in %	Chargeable consumption m <sup>3</sup> /year <sup>4</sup>	Basic figure visitor	% in planning	Unit demand m <sup>3</sup> /visitor	Quantity in planning m <sup>3</sup> /year	Efficiency in %	Chargeable consumption m <sup>3</sup> /year	Basic figure Capita	% in planning	Daily Unit demand m <sup>3</sup> /capita	Quantity in planning m <sup>3</sup> /year	Efficiency in %	Chargeable consumption m <sup>3</sup> /year			
4	1980				x10 <sup>3</sup>																	
5	1981	580	95	1.40	282	90	253	2,090	100	0.02	15	90	14	2,080	100	0.137	104	75	78			
6	1982	2,080			1,010		909	2,180			16		14	2,168		0.139	110		82			
7	1983	2,250			1,092		983	4,530			33		30	2,256		0.142	116		97			
8	1984	2,350			1,141		1,027	4,710			34		31	2,344		0.142	121		91			
9	1985	2,350			1,141		1,027	4,890			36		32	2,432		0.143	127		95			
10	1986	2,780			1,350		1,215	5,060			37		33	2,520		0.144	132		99			
	Sub total <sup>#1</sup>	12,390			6,016		5,414	23,460			171		154	13,800		-	710		532			
	11 ~ 30 <sup>#2</sup> 1987~2006	55,600			27,000		24,300	101,200			740		660	50,400		-	2,640		1,980			
	Total	67,990			33,016		29,714	124,660			911		814	64,200		-	3,350		2,512			

NOTES: #1. Sub total shows total consumption upto 1986 (phase-1).

#2. #2 shows total consumption from 1987 to 2006 (phase-2). where #2 = 20 x Figure at 1986.

#3. Quantity in planning = Basic Figure x % in planning x Unit demand

#4. Chargeable consumption = Quantity in planning x Efficiency

Table 21. Annual Consumption Table, Residential Area (1) Sewerage System

No.	Year	Pattaya						Na Klua						Industries						
		Basic figure Capita	% in planning	Daily unit demand: m <sup>3</sup> /capita	Quantity in planning (m <sup>3</sup> /year <sup>3</sup> )	Efficiency in %	Chargeable consumption: m <sup>3</sup> /year <sup>4</sup>	Basic figure Capita	% in planning	Daily unit demand: m <sup>3</sup> /capita	Quantity in planning a year	Efficiency in %	Chargeable consumption: m <sup>3</sup> /year	Basic figure m <sup>3</sup> /day	% in planning	Unit demand m <sup>3</sup> /day	Quantity in planning m <sup>3</sup> /year	Efficiency in %	Chargeable consumption: m <sup>3</sup> /year	
4	1980				x10 <sup>3</sup>															
5	1981	6,810	100	0.137	341	75	15,200	100	0.137	760	75	570	5,000	52	2,600	949	90	854		
6	1982	10,830		0.139	549		18,860		0.139	957		718	5,000		2,600	949		854		
7	1983	16,980		0.141	874		22,480		0.141	1,157		868	5,000		2,600	949		854		
8	1984	20,840		0.142	1,080		25,300		0.142	1,311		983	5,000		2,600	949		854		
9	1985	22,760		0.143	1,188		26,000		0.143	1,357		1,018	5,000		2,600	949		854		
10	1986	22,500		0.144	1,340		26,700		0.144	1,603		1,053	5,000		2,600	949		854		
	Sub total *1	100,720		-	5,372		134,540		-	6,945		5,210	30,000		-	5,694		5,124		
	11 ~ 30 *2 1987-2006	450,000		-	26,800		534,000		-	28,060		21,060	100,000		-	18,980		17,080		
	Total	550,720		-	32,172		668,540		-	35,005		26,270	130,000		-	24,674		22,204		

- NOTES: \*1. Sub total shows total consumption upto 1986 (phase-1).  
 \*2. \*2 shows total consumption from 1987 to 2006 (phase-2), where \*2 = 20 x Figure at row.  
 \*3. Quantity in planning - Basic Figure x % in planning x Unit demand  
 \*4. Chargeable consumption = Quantity in planning x Efficiency  
 \*5. Excluding demand by First grade tapoca factories.

Table 22. Annual Consumption Table, Residents Area: Solid Waste Disposal System

No.	Year	Pattaya										Na Klua									
		Basic Figure Capita	% in planning	Daily unit demand kg/capita	Quantity in planning ton/year	Efficiency in %	Chargeable consumption ton/year	Basic Figure capita	% in planning	Unit demand kg/capita	Quantity in planning ton/year	Efficiency in %	Chargeable consumption ton/year	Basic Figure	% in planning	Unit demand	Quantity in planning	Efficiency in %	Chargeable consumption		
4	1980	21,360	100	0.76	5,930	0.90	5,340	20,780	100	0.76	5,760	0.90	5,180								
5	1981	22,000		0.80	6,420		5,780	21,400		0.80	6,250		5,630								
6	1982	22,950		0.84	7,040		6,340	22,310		0.84	6,830		6,150								
7	1983	23,890		0.88	7,670		6,900	23,230		0.88	7,460		6,710								
8	1984	24,830		0.92	8,340		7,510	24,150		0.92	8,110		7,300								
9	1985	25,780		0.96	9,030		8,130	25,060		0.96	8,780		7,900								
10	1986	26,720		1.00	9,750		8,780	25,980		1.00	9,480		8,530								
	Sub total #1	167,530		-	54,180		48,780	162,910		-	52,670		47,400								
	#2 1987-2006	534,400		-	195,000		175,600	519,600		-	189,600		170,600								
	Total	701,930		-	249,180		224,380	682,510		-	242,270		218,000								

NOTES: #1. Sub total shows total consumption upto 1986 (phase-1).

#2. #2 shows total consumption from 1987 to 2006 (phase-2). where #2 = 20 x figure at 1986.

#3. Quantity in planning = Basic Figure x % in planning x Unit demand

#4. Chargeable consumption = Quantity in planning x Efficiency

Table 23. Annual Consumption Table, (Residential -3) Water Supply System

No.	Year	Paccaya						No. Klua						Industry					
		Basic Figure	% in planning	Daily Unit demand	Quantity in planning #3	Efficiency in %	Chargeable consumption #4	Unit Figure	% in planning	Daily Unit demand	Quantity in planning	Efficiency in %	Chargeable consumption	Basic Figure	% in planning	Unit demand	Quantity in planning	Efficiency in %	Chargeable consumption
4	1980				x10 <sup>3</sup>														
5	1981	6,810	100	0.137	341	75	255	15,200	100	0.137	760	75	570	5,000	100	5,000	1,825	47	1,643
6	1982	10,830		0.139	549		412	18,860		0.139	957		718	5,000		5,000	1,825		1,643
7	1983	16,980		0.141	874		655	22,480		0.141	1,157		868	5,000		5,000	1,825		1,643
8	1984	20,840		0.142	1,080		810	25,300		0.142	1,311		983	5,000		5,000	1,825		1,643
9	1985	22,760		0.143	1,188		891	26,000		0.143	1,357		1,018	5,000		5,000	1,825		1,643
10	1986	25,500		0.144	1,340		1,005	26,700		0.144	1,403		1,053	5,000		5,000	1,825		1,643
	Sub-total #1	103,720		-	5,372		4,028	134,540		-	6,945		5,210	30,000		-	10,950		9,858
	11 ~ 30 #2	510,000		-	26,800		20,100	534,000		-	28,060		21,060	100,000		-	36,500		32,860
	1987~2006			-			24,128	668,540		-	35,005		26,270	130,000		-	47,450		42,718
	Total	613,720		-	32,172		24,128	668,540		-	35,005		26,270	130,000		-	47,450		42,718

NOTES: #1. Sub total shows total consumption upto 1986 (phase-1).

#2. #2 shows total consumption from 1987 to 2006 (phase-2) where #2 = 20 x Figure at 1986.

#3. Quantity in planning = Basic Figure x % in planning x Unit demand

#4. Chargeable consumption = Quantity in planning x Efficiency

#5. Efficiency = 0.52 x 0.90 = 0.47, see annual consumption table of Water Supply on Industries.

Table 2.1 Profit and Loss Statement for Infrastructure:

Unit: million Baht

No.	Year	Revenue			Expenditure		Gross Operating Profit (A) - (B)
		Service Charge	Annual Charge	Total (A)	M.&O. Cost	Administration Cost	
1	1977	-	-	-	-	-	-
2	1978	-	-	-	-	-	-
3	1979	-	-	-	-	3.0	-3.0
4	1980	2.2	1.4	3.6	1.7	3.8	-1.9
5	1981	24.2	2.4	26.6	8.6	4.9	13.1
6	1982	36.1	9.8	45.9	9.6	5.3	31.0
7	1983	38.5	18.1	56.6	10.2	-	41.1
8	1984	41.4	28.1	69.5	10.4	-	53.8
9	1985	43.7	35.1	78.8	11.0	↓	62.5
10	1986	48.6	51.3	99.9	11.8	5.3	82.8
11	1987				13.1	3.0	83.8
12	1988				13.3	-	83.6
13	1989				13.4	-	83.5
14	1990				13.5	-	83.4
15	1991				13.6	-	83.3
16	1992				13.7	-	83.2
17	1993				↓	-	↓
18	1994				13.7	-	↓
19	1995				↓	-	↓
20	1996				13.7	-	83.2
21	1997				15.1	-	81.8
22	1998				↓	-	↓
23	1999				↓	-	↓
24	2000				↓	-	↓
25	2001				↓	-	↓
26	2002				↓	-	↓
27	2003				↓	-	↓
28	2004				↓	-	↓
29	2005	↓	↓	↓	↓	↓	↓
30	2006	48.6	51.3	99.9	15.1	3.0	81.8
Total		1,206.7	1,172.2	2,378.9	349.7	98.2	1,931.0

Table 2.2 Profit and Loss Statement for Infrastructure:  
(excluding Water Supply System)

Unit: million Beht

No.	Year	Revenue		Expenditure			Gross Operation Profit (A) - (B)
		Service Charge	Annual Charge	Total (A)	M.&O. Cost	Administration Cost	
1	1977	-	-	-	-	-	-
2	1978	-	-	-	-	-	-
3	1979	-	-	-	-	-	-
4	1980	2.2	1.4	3.6	1.7	2.2	-2.2
5	1981	11.2	2.1	13.3	4.1	2.7	-0.8
6	1982	15.9	7.9	23.8	5.0	3.4	5.8
7	1983	16.3	14.0	30.3	5.5	3.7	15.1
8	1984	17.7	23.8	41.5	5.7	-	21.1
9	1985	19.4	30.9	50.3	6.2	9.9	32.1
10	1986	21.5	46.3	67.8	7.0	3.7	40.4
11	1987	-	-	-	8.3	2.2	57.3
12	1988	-	-	-	8.5	-	57.1
13	1989	-	-	-	8.6	-	57.0
14	1990	-	-	-	8.7	-	56.9
15	1991	-	-	-	8.8	-	56.8
16	1992	-	-	-	8.9	-	56.7
17	1993	-	-	-	-	-	-
18	1994	-	-	-	-	-	-
19	1995	-	-	-	-	-	-
20	1996	-	-	-	8.9	-	56.7
21	1997	-	-	-	10.3	-	55.3
22	1998	-	-	-	-	-	-
23	1999	-	-	-	-	-	-
24	2000	-	-	-	-	-	-
25	2001	-	-	-	-	-	-
26	2002	-	-	-	-	-	-
27	2003	-	-	-	-	-	-
28	2004	-	-	-	-	-	-
29	2005	21.5	46.3	67.8	10.3	2.2	55.3
30	2006	-	-	-	-	-	-
Total		534.2	1,052.4	1,586.6	225.6	70.8	1,290.2



Table 2.3 Profit and Loss Statement for Infrastructure: Tourism Area

Unit: million Baht

No.	Year	Revenue			Expenditure			Gross Operating Profit (A) - (B)
		Service Charge	Annual Charge	Total (A)	M.&O. Cost	Administration Cost	Total (B)	
1	1977	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-
3	1979	-	-	-	-	1.5	1.5	-1.5
4	1980	1.1	1.4	2.5	0.5	1.9	2.4	0.1
5	1981	9.5	2.4	11.9	3.5	2.4	5.9	6.0
6	1982	20.4	9.8	30.2	4.1	2.6	6.7	23.5
7	1983	21.2	18.0	39.2	4.4	-	7.0	32.2
8	1984	22.7	23.1	45.8	4.6	-	7.2	38.6
9	1985	24.2	27.1	51.3	4.8	-	7.4	43.9
10	1986	27.9	40.0	67.9	5.2	2.6	7.8	60.1
11	1987	-	-	-	5.7	1.5	7.2	60.7
12	1988	-	-	-	-	-	-	-
13	1989	-	-	-	-	-	-	-
14	1990	-	-	-	5.7	-	7.2	60.7
15	1991	-	-	-	5.8	-	7.3	60.6
16	1992	-	-	-	-	-	-	-
17	1993	-	-	-	-	-	-	-
18	1994	-	-	-	-	-	-	-
19	1995	-	-	-	5.8	-	7.3	60.6
20	1996	-	-	-	6.4	-	7.9	60.0
21	1997	-	-	-	-	-	-	-
22	1998	-	-	-	-	-	-	-
23	1999	-	-	-	-	-	-	-
24	2000	-	-	-	-	-	-	-
25	2001	-	-	-	-	-	-	-
26	2002	-	-	-	-	-	-	-
27	2003	-	-	-	-	-	-	-
28	2004	-	-	-	-	-	-	-
29	2005	27.9	40.0	67.9	6.4	1.5	7.9	60.0
30	2006	-	-	-	-	-	-	-
Total		685.0	921.8	1,606.8	148.6	48.8	197.4	1,409.4

Table 2.4 Profit and Loss Statement for Infrastructure: Tourism Area  
(excluding Water Supply System)

Unit: million Baht

No.	Year	Revenue			Expenditure		Total (B)	Gross Operation Profit (A) - (B)
		Service Charge	Annual Charge	Total (A)	M.&O. Cost	Administration Cost		
1	1977	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-
3	1979	-	-	-	-	1.3	1.3	-1.3
4	1980	1.1	1.4	2.5	0.5	1.6	2.1	0.4
5	1981	6.7	2.1	8.8	1.8	2.0	3.8	5.0
6	1982	11.0	8.0	19.0	2.4	2.2	4.6	14.4
7	1983	10.9	14.0	24.9	2.7	-	4.9	20.0
8	1984	11.9	18.3	30.7	2.9	-	5.1	25.6
9	1985	13.3	22.9	36.2	3.1	-	5.3	30.9
10	1986	15.1	35.0	50.1	3.5	2.2	5.7	44.4
11	1987	-	-	-	4.0	1.3	5.3	44.8
12	1988	-	-	-	-	-	-	-
13	1989	-	-	-	-	-	-	-
14	1990	-	-	-	4.0	-	5.3	44.8
15	1991	-	-	-	4.1	-	5.4	44.7
16	1992	-	-	-	-	-	-	-
17	1993	-	-	-	-	-	-	-
18	1994	-	-	-	-	-	-	-
19	1995	-	-	-	4.1	-	5.4	44.7
20	1996	-	-	-	4.7	-	6.0	44.1
21	1997	-	-	-	-	-	-	-
22	1998	-	-	-	-	-	-	-
23	1999	-	-	-	-	-	-	-
24	2000	-	-	-	-	-	-	-
25	2001	-	-	-	-	-	-	-
26	2002	-	-	-	-	-	-	-
27	2003	-	-	-	-	-	-	-
28	2004	-	-	-	-	-	-	-
29	2005	15.1	35.0	50.1	4.7	1.3	6.0	44.1
30	2006	-	-	-	-	-	-	-
Total		372.0	802.2	1,174.2	104.4	41.9	146.3	1,027.9

Table 2.5 Profit and Loss Statement for Infrastructure: Residential Area

No.	Year	Revenue			Expenditure		Gross Operating Profit (A) - (B)	
		Service Charge	Annual Charge	Total (A)	M.&O. Cost	Administration Cost		Total (B)
1	1977	-	-	-	-	-	-	
2	1978	-	-	-	-	-	-	
3	1979	-	-	-	-	1.5	-1.5	
4	1980	1.1	-	1.1	1.2	1.9	-2.0	
5	1981	14.7	-	14.7	5.1	2.5	7.1	
6	1982	15.7	-	15.7	5.5	2.7	7.5	
7	1983	17.3	-	17.3	5.8	-	8.8	
8	1984	18.7	5.0	23.7	5.8	-	15.2	
9	1985	19.6	8.0	27.6	6.1	↓	18.8	
10	1986	20.7	11.2	31.9	6.5	2.7	22.7	
11	1987	-	-	-	7.4	1.5	23.0	
12	1988	-	-	-	7.5	-	22.9	
13	1989	-	-	-	7.6	-	22.8	
14	1990	-	-	-	7.7	-	22.7	
15	1991	-	-	-	7.8	-	22.6	
16	1992	-	-	-	↓	-	↓	
17	1993	-	-	-	↓	-	↓	
18	1994	-	-	-	↓	-	↓	
19	1995	-	-	-	7.8	-	22.6	
20	1996	-	-	-	8.6	-	21.8	
21	1997	-	-	-	8.6	-	21.8	
22	1998	-	-	-	↓	-	↓	
23	1999	-	-	-	↓	-	↓	
24	2000	-	-	-	↓	-	↓	
25	2001	-	-	-	↓	-	↓	
26	2002	-	-	-	↓	-	↓	
27	2003	-	-	-	↓	-	↓	
28	2004	-	-	-	↓	-	↓	
29	2005	20.7	↓	↓	8.6	1.5	21.8	
30	2006	20.7	11.2	31.9	8.6	1.5	21.8	
Total		521.8	248.2	770.0	199.0	49.4	521.6	

Table 2.6 Profit and Loss Statement of Residential Area  
excluding Water Supply System

Unit: million Baht

No.	Year	Revenue		Expenditure			Gross Operating Profit (A) - (B)
		Service Charge	Annual Charge	Total (A)	M.&O. Cost	Administration Cost	
1	1977	-	-	-	-	-	-
2	1978	-	-	-	-	-	-
3	1979	-	-	-	-	0.9	-0.9
4	1980	1.1	-	1.1	1.2	1.1	-1.2
5	1981	4.5	-	4.5	2.3	1.4	0.8
6	1982	4.9	-	4.9	2.6	1.5	0.8
7	1983	5.4	-	5.4	2.8	-	1.1
8	1984	5.8	5.0	10.8	2.8	-	6.5
9	1985	6.1	8.0	14.1	3.0	-	9.6
10	1986	6.4	11.2	17.6	3.4	1.5	12.7
11	1987	-	-	-	4.3	0.9	12.4
12	1988	-	-	-	4.4	-	12.3
13	1989	-	-	-	4.5	-	12.2
14	1990	-	-	-	4.6	-	12.1
15	1991	-	-	-	4.7	-	12.0
16	1992	-	-	-	-	-	-
17	1993	-	-	-	-	-	-
18	1994	-	-	-	-	-	-
19	1995	-	-	-	-	-	-
20	1996	-	-	-	4.7	-	12.0
21	1997	-	-	-	5.5	-	11.2
22	1998	-	-	-	-	-	-
23	1999	-	-	-	-	-	-
24	2000	-	-	-	-	-	-
25	2001	-	-	-	-	-	-
26	2002	-	-	-	-	-	-
27	2003	-	-	-	-	-	-
28	2004	-	-	-	-	-	-
29	2005	6.4	11.2	17.6	5.5	0.9	11.2
30	2006	-	-	-	-	-	-
Total		162.2	248.2	410.4	119.1	28.9	262.4
							148.0

**ANNEX 10. EXPENDITURE BY HOUSEHOLDS AND HOTEL  
INDUSTRY FOR UTILITY CHARGES**



**ANNEX 10. EXPENDITURE BY HOUSEHOLDS AND HOTEL  
INDUSTRY FOR UTILITY CHARGES**

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Table 1. Annual Expenditure : a hotel room

Annual and Service Charge (for a Room Occupied)

Unit: Baht

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Marine & Port	Water Supply	Total	Expenditure a day	
1	1977									
2	1978									
3	1979									(US\$)
4	1980				1,534			1,534	4.2	(0.2)
5	1981		5,621		1,534		5,621	12,776	35.0	(1.7)
6	1982		6,132		2,045	1,200	6,132	15,509	42.5	(2.1)
7	1983		7,154		3,067		7,154	18,575	50.9	(2.5)
8	1984	1,200		600				20,375	55.8	(2.8)
9	1985	2,400		900				21,875	59.9	(3.0)
10	1986	4,800		1,800				25,175	69.0	(3.4)
11	1987									
12	1988									
13	1989									
14	1990									
15	1991									
16	1992									
17	1993									
18	1994									
19	1995									
20	1996									
21	1997									
22	1998									
23	1999									
24	2000									
25	2001									
26	2002									
27	2003									
28	2004									
29	2005									
30	2006									
Total		104,400	183,449	41,400	78,721	30,000	183,449	619,319	-	(-)

**Table 2. Annual Expenditure : a Hotel Room**  
**Service Charge (for a Room Occupied)**

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Marine & Port	Water Supply	Total	Unit: Baht	
									Expenditure a day	
1	1977									
2	1978									
3	1979									(US\$)
4	1980				767			767	2.1	(0.1)
5	1981		5,110				5,110	10,987	30.1	(1.5)
6	1982					0				
7	1983									
8	1984	0		0						
9	1985									
10	1986									
11	1987									
12	1988									
13	1989									
14	1990									
15	1991									
16	1992									
17	1993									
18	1994									
19	1995									
20	1996									
21	1997									
22	1998									
23	1999									
24	2000									
25	2001									
26	2002									
27	2003									
28	2004									
29	2005									
30	2006									
<b>Total</b>		<b>0</b>	<b>132,860</b>	<b>0</b>	<b>20,709</b>	<b>0</b>	<b>132,860</b>	<b>286,429</b>	<b>-</b>	<b>(-)</b>

Table 3. Annual Expenditure: a Hotel Room

Annual Charge

Unit: Baht

No.	Year	Road	Sewerage	Storm Water	Solid Waste	Marine & Port	Water Supply	Total	Expenditure a day
1	1977								(US\$)
2	1978								
3	1979								
4	1980				767			767	2.1 (0.1)
5	1981		511		767		511	1,789	4.9 (0.2)
6	1982		1,022		1,278	1,200	1,022	4,522	12.4 (0.6)
7	1983		2,044		2,300		2,044	7,588	20.8 (1.0)
8	1984	1,200		600				9,388	25.7 (1.3)
9	1985	2,400		900				10,888	29.8 (1.5)
10	1986	4,800		1,800				14,188	38.9 (1.9)
11	1987								
12	1988								
13	1989								
14	1990								
15	1991								
16	1992								
17	1993								
18	1994								
19	1995								
20	1996								
21	1997								
22	1998								
23	1999								
24	2000								
25	2001								
26	2002								
27	2003								
28	2004								
29	2005								
30	2006								
Total		104,400	50,589	41,400	58,012	30,000	50,589	332,890	- (-)

Table 4. Annual Average Expenditure in a Household  
a Household: 5 persons

Unit: Baht

No.	Year	Road A.C	Sew- erage S.C	Storm Water A.C	Solid Waste S.C	Marine & Port	Water Supply S.C	Total			
								Annual		Monthly	
								Baht	US\$	Baht	US\$
1	1977	-	-	-	-	-	-	-	-	-	-
2	1978	-	-	-	-	-	-	-	-	-	-
3	1979	-	-	-	-	-	-	-	-	-	-
4	1980	-	-	-	139	-	-	139	6.7	11.6	0.6
5	1981	-	250	-	146	-	500	896	44.8	74.7	3.7
6	1982	-	254	-	154	-	507	915	45.8	76.3	3.8
7	1983	-	257	-	161	-	566	984	49.2	82.0	4.1
8	1984	480	259	60	168	-	623	1,590	79.5	132.5	6.6
9	1985	720	261	96	176	-	679	1,932	96.6	161.0	8.1
10	1986	960	263	120	183	-	736	2,262	113.1	188.5	9.4
11	1987	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
12	1988	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
13	1989	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
14	1990	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
15	1991	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
16	1992	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
17	1993	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
18	1994	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
19	1995	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
20	1996	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
21	1997	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
22	1998	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
23	1999	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
24	2000	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
25	2001	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
26	2002	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
27	2003	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
28	2004	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
29	2005	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
30	2006	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Total		21,360	6,804	2,676	4,787	0	18,331	53,958	2,697.7	4,496.6	224.3

Table 5. Monthly Expenditure for Food, Goods and Services by a Household in Thailand

from 1971 to 1973

unit: Baht

No.	Item	In Municipal Area						In Non-Municipal Area				
		1 Northeast Region 1971	2 Bangkok Thon Buri 1972	3 Northern Region 1972	4 Central Region 1973	5 Southern Region 1973	6 Northeast Region 1971	Bangkok Region 1972	7 Northern Region 1972	8 Central Region 1973	9 Southern Region 1973	
	Total	2,248.26	2,580.34	1,638.04	2,252.56	1,921.20	652.66	-	972.86	1,395.66	1,065.12	
1	All food and Beverages	862.51	1,144.56	722.37	981.76	809.43	259.00	-	398.08	657.39	466.09	
2	Food prepared at home	689.42	717.59	582.94	734.16	647.83	236.37	-	353.96	528.55	385.51	
3	Rice	130.28	99.35	106.66	177.92	(157.17)	136.01	-	145.76	(219.12)	189.16	
4	Food away from home	172.28	426.97	138.43	247.60	161.60	22.63	-	44.12	128.84	80.58	
5	Housing, furnishing and household operations	395.62	381.04	257.45	323.99	346.08	117.35	-	129.03	159.12	143.71	
6	Clothing and materials	177.75	198.56	143.72	184.90	346.08	72.64	-	123.25	133.31	151.77	
7	Transportations expenses	214.92	209.11	118.28	154.08	152.80	33.34	-	68.95	82.90	73.20	
8	Recreation expenses	67.62	71.49	58.45	68.64	49.25	9.74	-	17.16	22.57	17.18	
9	Education expenses	73.28	117.11	50.73	91.15	68.47	9.27	-	9.86	29.98	19.52	
10	Reading expenses	15.75	18.48	14.78	13.29	13.71	0.63	-	1.37	2.14	0.99	
11	Medical and personal care	131.66	140.25	97.06	131.39	113.14	47.89	-	76.73	89.03	80.08	
12	Tobacco and alcoholic expenses	110.89	133.12	76.09	109.05	78.18	34.56	-	40.95	67.21	44.43	
13	Taxes, gifts and contributions and miscellaneous expenses	198.26	166.62	99.11	194.31	156.89	48.24	-	107.48	152.01	68.15	



## ANNEX 11. ABILITY TO PAY UTILITY CHARGES

### C O N T E N T S

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## ANNEX 11. ABILITY TO PAY UTILITY CHARGES

No matter how useful the systems and facilities may be, if the charges are beyond the paying ability of the users, no-one can expect them to use the facilities.

### 11.1 By Residents

The ability to pay charges has been found in the recent records of the Thai National Census (Statistical Yearbook Number 31, 1974-1975), and the study team uses the figures in this analysis. The census covers the 5 main regions of Thailand during 1971 to 1973.

The state of expenditure is expressed in 5 regions above, and also in 2 categories, namely, Municipal Area, and Non-municipal Area, according to the size of local public entities as shown in Table-1.

In Municipal Area, the Bangkok Region showed the highest expenditure, which was approximately 2,500 Baht a month (1973). The lowest was about 1,650 Baht of Northern Region. In Non-municipal Area, the highest was approximately 1,400 Baht of the Central Region, and the lowest was 650 Baht of Northeast Region (1971).

From these figures it can be said that one household in the Municipal Area spend almost double as much as those who in Non-municipal Area in average.

Pattaya Area falls under the Central Region in the Non-municipal Area before the establishment of Pattaya Township. In this region, the average expenditure on both categories was 1,800 Baht/month. As the consumer price index at present is approximately 6.5%, average expenditure in Pattaya Area is estimated to be about 2,300 Baht (1977).

In the total expenditure, amount payable to the charges (for infrastructure including water supply, sewerage, solid waste disposal, etc.) is different in Municipal and Non-municipal Areas.

That is, in the breakdown of expenditure, item 5 "housing, furnishing, and household operations", comprized 14.3% and 11.4% of the total expenditure in Municipal Area, and in Non-municipal Area respectively.

These are shown in Fig. 1. The figures indicate that there is a gap of average 7.5% in total expenditure if it takes the same expenditure group and compares the item 5 expenditure (Table 1) of a household of Municipal Area and Non-municipal Area. The gap seems to be arisen from the different living environment and standard of life.

Therefore, the upper limit of the new utility charges (service charge and annual charge) should be less than 7.5% of the household expenditure.

The annual increase in expenditure and estimated charges is shown below:

**Table 2 Annual Increase in Expenditure and Estimated Charges for a household**

Year	(A)	(B)		(C)		
	Monthly Expenditure *1	Upper Limit *2	B/A	Estimate *3	C/A	C/B
1977	2,300	170	7.5%	-	-	-
78	2,420	180	7.5%	-	-	-
79	2,540	190	7.5%	-	-	-
80	2,660	200	7.5%	12	0.5%	6%
81	2,800	210	7.5%	75	2.7%	36%
82	2,940	220	7.5%	76	2.6%	34%
83	3,080	230	7.5%	82	2.7%	35%
84	3,240	240	7.5%	133	4.1%	55%
85	3,400	260	7.5%	161	4.7%	63%
86	3,570	270	7.5%	189	5.3%	71%

\*1 Monthly expenditure after 1977 is assumed to increase at a rate of 5% a year.

\*2 Charges here do not include charges for existing facilities (infrastructure i.e. solid waste disposal, water supply etc.)

\*3 Refer to Annex 9 and Annex 10.

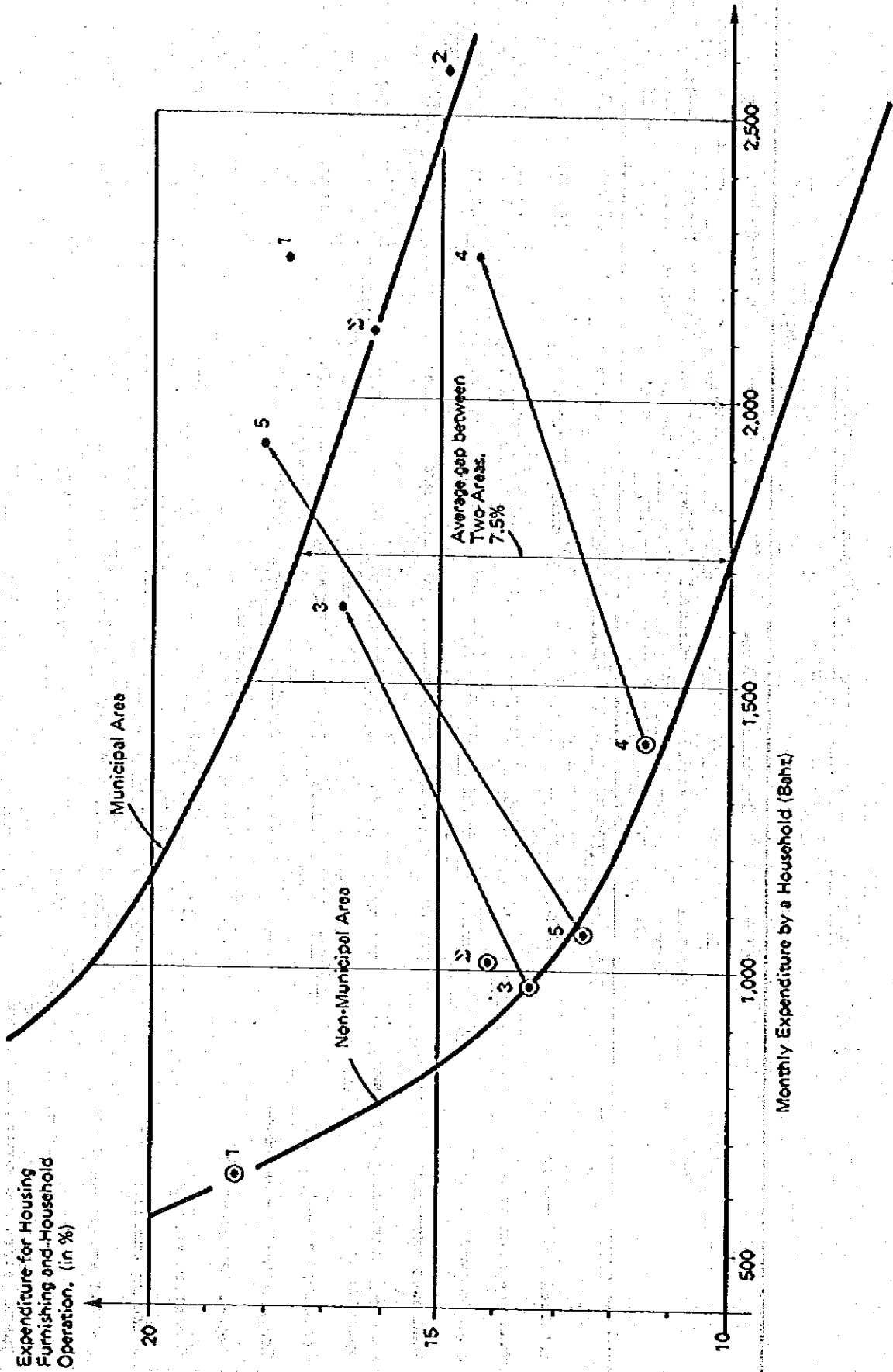
Most of the infrastructures will start operating after 1980, and monthly charges per household will rise from 0.5% (12 Baht) to approximately 5% (189 Baht) of monthly expenditure in 1986.

Percentage of the amount of charges to the monthly expenditure will increase year after year, however the public charge expenditure in 1986, when it is the peak, will be 189 Baht/month, which is equivalent to 5.3% of the total expenditure (3,570 Baht/month). This rate being lower than the estimated maximum allowable percentage of 7.5%, it is expected for the residents to accept the infrastructure with the proposed utility charges.

Table 1 Monthly Expenditure for Food, Goods and Services  
by a Household

No.	Item	In Municipal Area					In Non-Municipal Area			
		1 Northeast Region 1971	2 Bangkok Thon Buri 1972	3 Northern Region 1972	4 Central Region 1973	5 Southern Region 1973	6 Northeast Region 1971	Bangkok Region	7 Northern Region 1972	8 Central Region 1973
	Total	2,248.26	2,580.34	2,638.04	2,232.56	1,921.20	632.66	972.86	1,395.66	1,065.12
1	All food and Beverages (2+4)	862.51	1,144.56	722.37	981.76	809.43	259.00	398.08	657.39	466.09
2	Food prepared at home	689.42	717.59	583.94	734.16	647.83	236.37	353.96	528.55	385.51
3	Rice (in item 2.)	130.28	99.35	106.66	177.92	(157.17)	136.01	145.76	(219.12)	189.16
4	Food away from home	173.28	426.97	138.43	247.60	161.60	22.63	44.12	128.84	80.58
5	Housing, furnishing and household operations	395.62	381.04	257.45	323.99	346.08	117.35	129.03	159.12	143.71
6	Clothing and materials	177.75	198.56	143.72	184.90	346.08	72.64	123.25	133.31	151.77
7	Transportations expenses	214.92	209.11	118.28	154.08	152.80	33.34	68.95	82.90	73.20
8	Recreation expenses	67.62	71.49	58.45	68.64	49.25	9.74	17.16	22.57	17.18
9	Education expenses	73.28	117.11	50.73	91.15	68.47	9.27	9.86	29.98	19.52
10	Reading expenses	15.75	18.48	14.78	13.29	13.71	0.63	1.37	2.14	0.99
11	Medical and personal care	131.66	140.25	97.06	131.39	113.14	47.89	76.73	89.03	80.08
12	Tobacco and alcoholic expenses	110.89	133.12	76.09	109.05	78.18	34.56	40.95	67.21	44.43
13	Taxes, gifts and contributions and miscellaneous expenses	198.26	166.62	99.11	194.31	156.89	48.24	107.48	152.01	68.15

Fig. 1 Monthly Expenditure by a Household (1971 ~ 1973)



## 11.2 By the Tourism Industries

The ability to pay utility charge by the tourism industry was evaluated by the affects of the industry made by higher charges such as lowering the gross operating profit for their business. At first, the charges are estimated based on the financial feasibility of the project considering a relatively low ability to pay charge by the residents. Secondly, the proposed charges were evaluated by the capability of paying charges by the tourism industry.

As shown on Annex 9, profit and Loss Statement, unit price of utility charges for the industry are proposed as "service charge" and "annual charge" for each utility provided.

For the hotel industry, these utility charges are estimated as shown in Annex 10, Table 1. The fixed annual charge is 14.2 thousand Baht a year and a variable service charge is 11 thousand Baht a year under the condition of full room occupancy through a year.

Table 3 Cost and Expense per Room, Year \*3

R: Room Occupancy Rate		Unit: thousand Baht	
Item	With Development	Without Development	Increase of Profit
Total Sales	253.1R	253.1R	
Cost and Expense *2	63.6 + 85.6R	63.6 + 85.6R	
New Utilities Charges *1	14.2 + 11.0R	-	
Total Cost and Expenses	77.8 + 96.6R	63.6 + 85.6R	
Gross Operating Profit	156.5R - 77.8	167.5R - 63.6	
	+ 47.4	- 10.0	= 57.4
	(when R = 80%)	(when R = 32%)	

Note: \*1 Refer to Annex 10, Table 1.

\*2 Including cost and expense for existing utility expenses such as raw water buying cost, well operation cost, private sewerage treatment cost, public solid waste collection cost.

\*3 Refer to Annex 4.

Breakeven points to maintain the present profit level:

$$156.5R - 77.8 = -10.0$$

$$R = 0.43$$

At the end of phase 1, 1986, new utility charge will become 23 thousand Baht/room year and the gross operating profit will 47.7 thousand Baht/room year. On the other hand, the current low gross operating profit as 10 thousands Baht/room year in deficit will continue if the project will not be implemented.

Therefore incremental profit by the project is estimated 57.4 thousands Baht/a room year as a differential amount of both cases.

In other words, the hotel industry will gain the incremental profit of about 2.5 times of an amount of the utility charge.

When the room occupancy rate is lower than the rate of break even point of profit the hotel industry is not able to pay an utility charge. The proper breakeven point will maintained by about 50% of the room occupancy rate. Annual increase of the utility charge will be as follows:

Table 4 Incremental Utility Charges  
for Hotel Industry

Year	Room Occupancy Rate (R)	Charges			unit: thousand Baht/room year			
		Annual Fixed	Service Variable	Total (A)	Total Sales 253.1R	% in Charge in Sales	Utility Cost in Sales*	Incremental Utility Cost in Sales
1977	31.2%	-	-	-	79.0	-	5.2%	-
1978	34.0	-	-	-	86.1	-	5.4	-
1979	40.0	-	-	-	101.2	-	5.6	-
1980	45.4	0.7	0.3	1.0	114.9	0.9%	5.8	-
1981	50.3	1.8	5.5	7.3	127.3	5.7	6.0	1.3
1982	55.3	4.5	6.1	10.6	140.0	7.6	6.2	4.4
1983	58.3	7.6	6.4	14.0	147.6	9.5	6.3	7.7
1984	65.7	9.4	7.2	16.6	166.3	10.0	6.6	10.0
1985	72.6	10.9	8.0	18.9	183.8	10.3	6.9	12.0
1986	80.0	14.2	8.8	23.0	202.5	11.4	7.2	15.8

Notes 1) Current utility charge: assured about 3% of sales as follows

- average expenditure : 433 Baht/guest night = 673 Baht/room night.
- current utility cost: Water Supply, 10 Baht/a room night
- Sewerage, 10 Baht/a room night
- Solid waste, etc. 2 Baht/a room night

---

Total 22 Baht/a room night

- Rate:  $22 \div 693 = 0.03 = 3\%$  (1.5% of fixed, 1.5% of variable with (R))

2) Incremental utility charge/a room day.

New charge : US\$2.7 room day

Current charge : 1.1

---

Incremental US\$1.6 room day

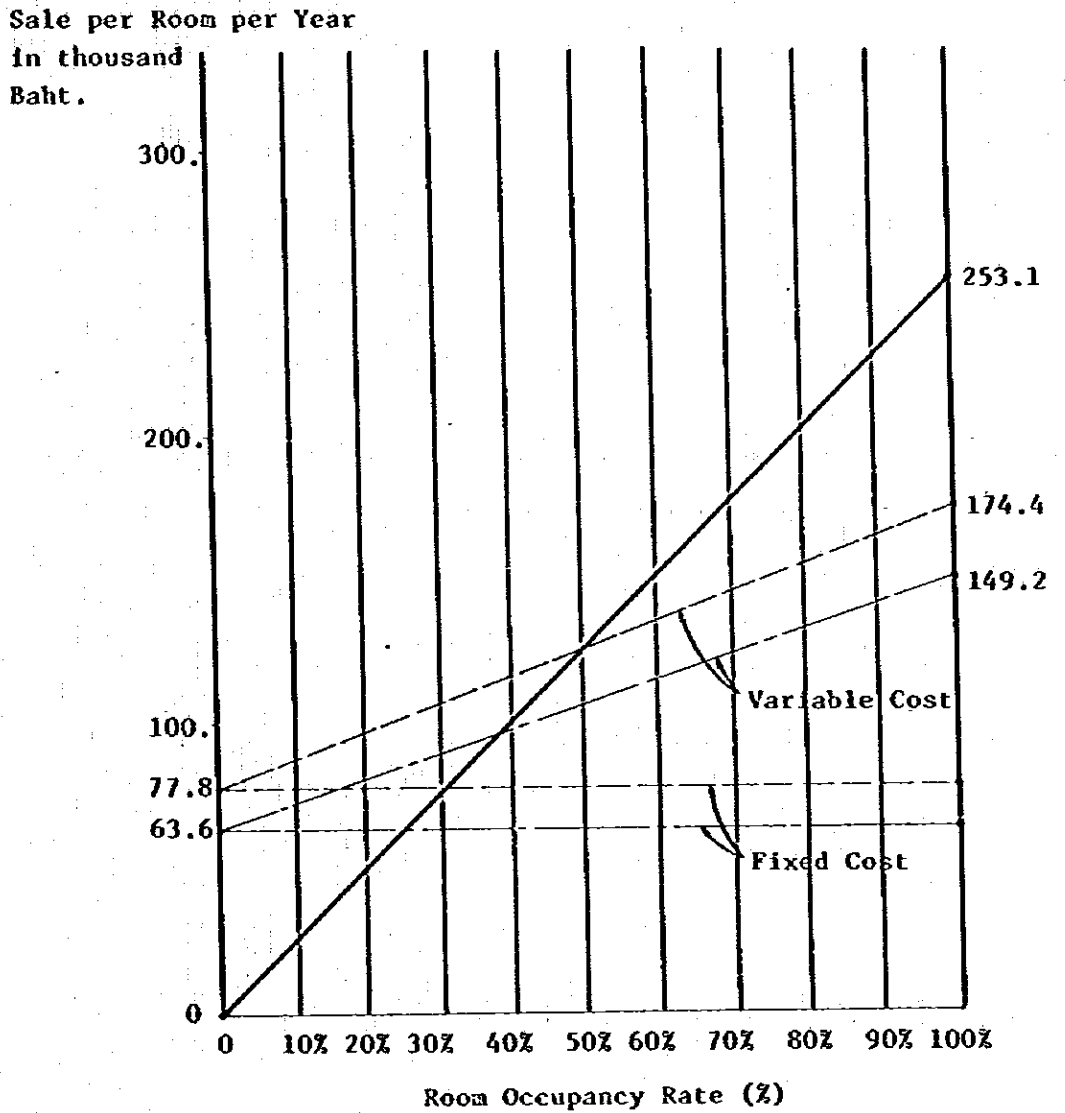
when: Room Occupancy rate is 50%

For the other tourism related industries utility charges are proposed as shown on Annex 9. A same rate of charge for the hotel industry will be levied to the other industry such as shops, restaurants and etc.

The rate of net profits before tax will be 18.7% and 3.4% in 1986 for the hotel industry and for the other tourism industries respectively. Without the project the rate of net profits for the hotel industry will be at lower level such as minus 30%. The details are shown on Annex 12, Profit and Loss Statement of Tourism Industries.

From the fact mentioned above, it can be concluded that the tourism industries are able to afford to pay utility charges.

Fig. 2. Operating Costs and Sales of Hotel Industry per Room per Year



Legends: ——— Sale  
 - - - - - With Development  
 . . . . . Without Development





## ANNEX 12 PROFIT AND LOSS STATEMENT OF TOURISM INDUSTRIES

### C O N T E N T S

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Table 1 Expenditure and Receipt with Development

Year	Expenditure and Receipt with Development																			
	Visitors (Persons) Phase I					Expenditure (Baht)					Receipt (million Baht)									
	Foreign Tourists		Domestic Tourists		Total	Average Length of Stay (nights)		Foreign Tourists		Domestic Tourists		One-day Visitors		Foreign Tourists		Domestic Tourists		One-day Visitors		Total
1977	233,020	200,380	233,020	200,380	433,600	1.7	1.3	890	631	124,400	324,400	356.2	169.8	42.2	356.2	169.8	42.2	568.2	568.2	
1978	238,642	211,610	238,642	211,610	470,022	1.7	1.3	890	631	357,800	357,800	391.0	179.1	46.5	391.0	179.1	46.5	616.6	616.6	
1979	286,414	223,090	286,414	223,090	509,504	1.8	1.4	860	644	391,200	391,200	433.7	201.1	50.9	433.7	201.1	50.9	705.7	705.7	
1980	317,290	235,012	317,290	235,012	522,302	1.9	1.5	870	637	424,600	424,600	524.5	224.6	55.2	524.5	224.6	55.2	804.3	804.3	
1981	352,000	248,000	352,000	248,000	600,000	2.0	1.6	860	630	458,000	458,000	605.4	230.0	59.3	605.4	230.0	59.3	914.9	914.9	
1982	377,720	257,680	377,720	257,680	635,400	2.2	1.6	850	630	491,400	491,400	706.3	239.7	63.9	706.3	239.7	63.9	1,029.9	1,029.9	
1983	405,170	267,719	405,170	267,719	672,889	2.4	1.6	840	630	524,800	524,800	816.8	269.9	68.2	816.8	269.9	68.2	1,154.9	1,154.9	
1984	434,640	277,949	434,640	277,949	712,589	2.6	1.7	830	623	538,200	538,200	938.0	294.4	72.6	938.0	294.4	72.6	1,305.0	1,305.0	
1985	466,110	288,522	466,110	288,522	754,632	2.8	1.7	820	623	591,600	591,600	1,070.2	305.6	76.9	1,070.2	305.6	76.9	1,452.7	1,452.7	
1986	500,000	300,000	500,000	300,000	800,000	3.0	1.7	810	623	623,000	623,000	1,215.0	317.7	81.3	1,215.0	317.7	81.3	1,614.0	1,614.0	
1987	516,300	320,500	516,300	320,500	836,800	3.2	1.7	800	623	623,000	623,000	1,200.0	299.0	81.3	1,200.0	299.0	81.3	1,599.3	1,599.3	
1988	533,010	342,203	533,010	342,203	875,293	3.4	1.8	800	616	707,837	707,837	1,200.0	295.7	81.3	1,200.0	295.7	81.3	1,577.0	1,577.0	
1989	550,120	365,436	550,120	365,436	915,556	3.6	1.8	790	616	790,000	790,000	1,185.0	295.7	81.3	1,185.0	295.7	81.3	1,562.0	1,562.0	
1990	567,630	390,042	567,630	390,042	957,672	3.8	1.8	780	616	861,404	861,404	1,170.0	295.7	81.3	1,170.0	295.7	81.3	1,547.0	1,547.0	
1991	588,000	412,000	588,000	412,000	1,000,000	4.0	1.9	780	609	927,632	927,632	1,170.0	292.3	81.3	1,170.0	292.3	81.3	1,543.6	1,543.6	
1992	601,730	435,270	601,730	435,270	1,037,000	4.1	1.9	770	609	1,037,000	1,037,000	1,155.0	292.3	81.3	1,155.0	292.3	81.3	1,528.6	1,528.6	
1993	615,630	459,719	615,630	459,719	1,075,369	4.2	1.9	770	609	1,075,369	1,075,369	1,155.0	292.3	81.3	1,155.0	292.3	81.3	1,528.6	1,528.6	
1994	629,760	485,398	629,760	485,398	1,115,158	4.3	1.9	770	609	1,115,158	1,115,158	1,155.0	292.3	81.3	1,155.0	292.3	81.3	1,528.6	1,528.6	
1995	644,040	512,379	644,040	512,379	1,156,419	4.4	2.0	770	602	1,156,419	1,156,419	1,155.0	297.6	81.3	1,155.0	297.6	81.3	1,533.9	1,533.9	
1996	660,000	540,000	660,000	540,000	1,200,000	4.5	2.0	760	602	1,200,000	1,200,000	1,140.0	297.6	81.3	1,140.0	297.6	81.3	1,528.9	1,528.9	
1997																				
1998																				
1999																				
2000																				
2001																				
2002																				
2003																				
2004																				
2005																				
2006																				
Total	16,137,026	12,173,189	16,137,026	12,173,189	28,380,205	4.5	2.0	760	602	18,299,550	18,299,550	30,142.1	8,398.4	2,243.2	30,142.1	8,398.4	2,243.2	40,803.7	40,803.7	
Share	57%	43%	57%	43%	100%							74%	22%	5%	74%	22%	5%	100%	100%	

Table 2 Expenditure and Receipt without Development

Year	Expenditure and Receipt without Development																	
	Visitors (Persons)				(nights)				Expenditure (Bshc)				Receipt (million Bshc)					
	Foreign Tourists	Domestic Tourists	Total	One-day Visitors	Average Length of Stay	Foreign Tourists	Domestic Tourists	Total	Foreign Tourists	Domestic Tourists	Total	Foreign Tourists	Domestic Tourists	Total	Foreign Tourists	Domestic Tourists	Total	
1977	210,000	190,000	400,000	324,400	1.7	1.3	890	651.0	130.0	781.0	317.7	160.8	478.5	317.7	160.8	478.5	520.7	
1978																		
1979																		
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2006	210,000	190,000	400,000	324,400	1.7	1.3	890	651.0	130.0	781.0	317.7	160.8	478.5	317.7	160.8	478.5	520.7	
Total	6,300,000	5,700,000	12,000,000	9,732,000	--	--	--	--	--	--	9,531.0	4,824.0	14,355.0	9,531.0	4,824.0	14,355.0	15,621.0	
Share	53%	47%	100%								61%	31%	8%	61%	31%	8%	100%	

Table 3 Breakdown of Expenditure by Tourism Industries: With Development

Unit: million Baht

No. Year	Allocation in Hotel			Expenditure in Hotel			Expenditure for Other Tourism Industries			Total
	Foreign Tourists	Domestic Tourists	%	Foreign Tourists	Domestic Tourists	Total	Foreign Tourists	Domestic Tourists	One-day Visitors	
1 1977	57.5%	55.5%		204.8	94.2	299.0	151.4	75.6	42.2	269.2
2 78	57.5	55.5		224.8	99.4	324.2	166.2	79.7	46.5	292.4
3 79	58.0	56.0		263.2	112.6	375.8	190.5	88.5	50.9	329.9
4 80	58.5	56.5		306.8	126.9	433.7	217.7	97.7	55.2	370.6
5 81	59.0	57.0		357.2	142.5	499.7	248.2	107.5	59.5	415.2
6 82	59.5	57.0		420.3	148.0	568.3	286.0	111.7	63.9	461.6
7 83	60.0	57.0		490.1	153.8	643.9	326.7	116.1	68.2	511.0
8 84	60.5	57.5		567.5	169.3	736.8	370.5	125.1	72.6	568.2
9 85	61.0	57.5		562.8	175.7	738.5	417.4	129.9	76.9	624.2
10 86	61.5	57.5		747.2 (4,234.7)	182.7 (1,405.1)	929.9	467.8 (2,842.4)	135.0 (1,066.8)	81.3	684.1
11 87	61.7	57.5		740.4	171.9	912.3	459.6	127.1		668.0
12 88	62.0	58.0		744.0	171.5	915.5	456.0	124.2		661.5
13 89	62.5	58.0		740.6	171.5	912.1	444.4	124.2		649.9
14 90	62.7	58.0		733.6	171.5	905.1	436.4	124.2		641.9
15 91	62.9	58.5		735.9	171.0	906.9	434.1	121.3		636.7
16 92	63.0	58.5		727.7	171.0	898.7	427.3	121.3		629.9
17 93	63.2	58.5		730.0	171.0	901.0	425.0	121.3		627.6
18 94	63.3	58.5		731.1	171.0	902.1	423.9	121.3		626.5
19 95	63.4	59.0		732.3	170.5	902.8	422.7	118.5		622.5
20 96	63.5	59.0		723.9 (7,339.5)	170.5 (1,711.4)	894.4	416.1 (4,345.5)	118.5 (1,221.9)		615.9
30 2006				18,813.2	4,821.5	23,634.7	11,348.9	3,473.7	2,243.2	17,065.8 (40,700.5)
Total				79.6%	20.4%	100.0%	66.5%	20.4%	13.1%	100.0%
Share				46.2%	11.9%	(58.1%)	27.9%	8.5%	5.5%	(41.9%)