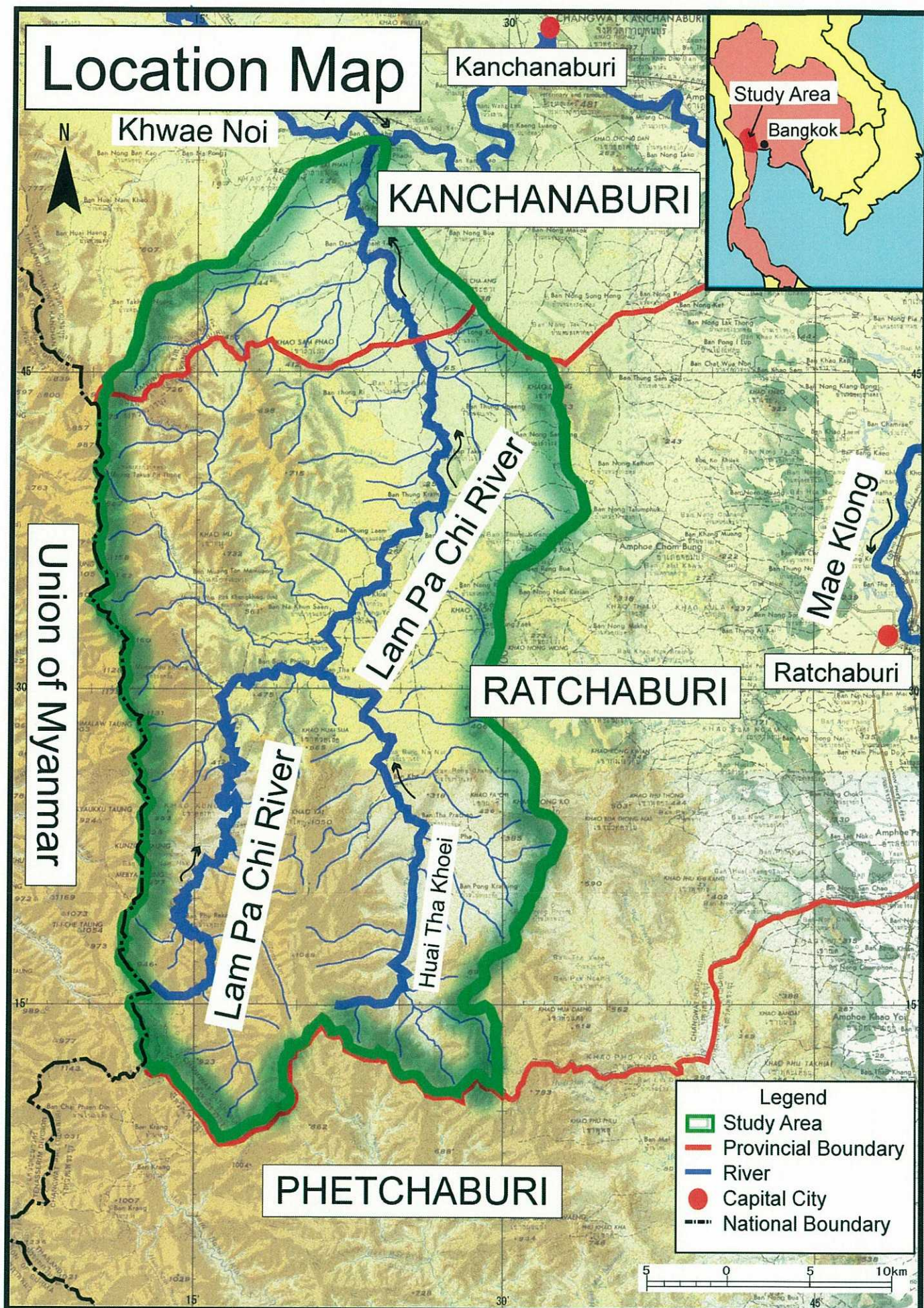


Japan International Cooperation Agency (JICA)
Royal Irrigation Department (RID)

Study on
Application of Participatory Planning
in Rural and Agriculture Development Project
in the Lam Pa Chi River Basin
in
The Kingdom of Thailand

Final Report
APPENDIX

March 2005
Sanyu Consultants Inc.



Contents of Appendix

- 1. Socio Economic**
- 2. Meteorology and Hydrology**
- 3. Surface Water /Irrigation**
- 4. Groundwater**
- 5. Agriculture**
- 6. Environment**
- 7. Presentation Materials of Participatory Development**
- 8. Minutes of Meeting**
- 9. Pilot Project**
- 10. Others**
- 11. Reports**

1. Socio Economic

1. Socio Economic

Contents

List of Tables

Table 1	Kor Chor Chor Data on Tambon Level.....	1-1
Table 2	Kor Chor Chor Data on Tambon Level <Sub-Basin>	1-7
Table 3	Problems and Development Plans of 16 Tambons in the Study Area	1-11

Table 1 Kor Chor Chor Data on Tambon Level

Item	Tambon	Ban Bueng	Ban Kha	Tha Nao Si	Nong Phan Chan	Yang Hak	Suan Phueung	Tha Khoei	Pa Wai	Dan Thap Tako	Rang Bua	Keam On	Boek Phrai	Nong Phai	Dan Makham Tia	Chorakhe Phuek	Klon Do	Total
1. General Condition	(unit)																	
1.1 Villages located within Tambon assembly	(No.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.2 Villages located within Tambon administrative	(No.)	12	12	7	9	7	7	13	9	17	13	15	9	6	10	9	11	166
1.3 Number of Household	(No.)	1,320	1,348	802	1,106	1,404	933	982	821	1,375	1,677	1,835	991	704	1,335	1,921	1,592	20,146
1.3.1 Number of residents	(People)	5,287	5,926	3,692	4,741	5,282	3,457	4,337	3,230	6,168	7,251	7,961	3,790	3,205	6,994	9,488	8,127	88,936
1.4 Number of Male	person	2,749	3,004	1,856	2,351	2,703	1,840	2,078	1,614	3,062	3,603	3,958	1,902	1,555	3,429	4,642	4,087	44,453
1.4 Number of Female	person	2,538	2,922	1,836	2,390	2,579	1,617	2,259	1,616	3,086	3,648	4,003	1,888	1,650	3,565	4,846	4,040	44,483
1.5 Income from local taxation	Baht	358,219	599,945	351,990	230,499	143,028	478,276	170,318	339,222	192,269	412,259	138,257	67,010	180,000	308,900	89,000	188,349	4,247,561
2.1.1 Private dug well	well	24	88	84	31	0	35	55	184	468	34	150	388	113	340	85	225	2,304
Functioning	well	24	86	79	31	0	35	49	183	460	33	150	388	113	332	85	221	2,269
2.1.1 Public dug well	well	37	30	7	22	0	17	34	9	42	31	64	27	16	26	25	24	411
Functioning	well	33	23	4	22	0	17	18	7	36	25	64	27	14	25	24	23	362
2.1.2 Private borehole	well	0	0	8	8	0	1	2	4	156	3	287	32	436	186	63	269	1,455
Functioning	well	0	0	7	8	0	1	2	4	156	2	287	32	435	186	63	269	1,452
2.1.2 Public borehole	well	63	27	7	11	32	6	32	33	62	46	53	43	12	46	40	37	550
Functioning	well	51	24	5	11	27	6	25	16	50	34	52	41	11	42	37	30	462
2.1.2 (1) Borehole constructed by Public Works Dept.	well	4	4	2	4	0	0	1	4	20	16	22	12	2	4	11	9	115
Functioning	well	4	3	2	4	0	0	1	4	16	12	20	11	2	4	11	9	103
2.1.2 (2) Borehole constructed by Mineral Resources	well	19	9	4	3	21	4	4	3	10	12	8	9	8	19	13	16	162
Functioning	well	16	8	2	3	17	4	4	1	10	7	4	9	7	15	11	13	131
2.1.2 (3) Borehole constructed by Health Dept.	well	5	1	0	1	6	0	8	3	10	3	4	2	0	3	3	0	50
Functioning	well	4	1	0	1	6	0	5	3	8	3	3	2	0	3	3	0	42
2.1.2 (4) Borehole constructed by ARD	well	17	13	0	9	4	2	13	20	21	13	13	20	0	19	12	10	186
Functioning	well	12	13	0	6	4	2	9	7	17	10	10	20	0	16	11	7	144
2.1.2 (5) Borehole constructed by Gor. Ror. Por	well	17	1	0	0	0	0	3	3	0	2	3	0	0	0	1	2	31
Functioning	well	14	1	0	0	0	0	2	3	0	2	3	0	0	0	1	1	27
2.1.2 (6) Borehole constructed by Others	well	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Functioning	well	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1.3 Villages without piped-water supply system	village	5	0	0	0	3	0	1	1	4	1	2	1	1	4	1	0	22
2.1.3 Villages with piped-water supply system	village	7	12	7	9	4	7	13	8	13	13	13	8	6	6	8	11	145
2.1.3 Households which use piped water supply system	H/H	558	901	707	961	131	715	703	602	651	1,463	750	639	242	418	1,095	1,144	11,680
2.1.3 Piped-water supply constructed by Public Work D	village	1	0	0	1	0	0	0	0	3	2	4	2	2	1	1	4	21
2.1.4 Don't have surface or ground water sources	village	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	4
2.1.4 Have surface or ground water sources	village	12	12	7	9	8	7	12	9	17	14	9	6	6	10	9	11	158
2.2.1 Have clean drinking water for domestic use	H/H	931	1,270	730	1,022	1,403	766	979	821	1,157	1,677	1,721	991	704	1,395	1,883	1,578	19,028
2.4.1 Insufficient water for second paddy rice	village	0	0	0	0	0	0	1	3	1	2	1	0	1	3	3	3	18
2.4.1 Sufficient water for second paddy rice	village	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
2.4.1 ??	village	12	12	7	9	8	7	12	9	16	12	14	9	3	7	6	7	147
2.4.2 Insufficient water for short-term crops	village	9	10	0	9	4	1	8	3	10	10	8	2	3	8	5	2	91
2.4.2 Sufficient water for short-term crops	village	2	1	1	0	4	1	0	0	7	2	2	5	3	2	4	4	38
2.4.2 ??	village	1	1	6	0	0	6	5	6	0	2	5	2	2	0	0	5	39
2.4.3 Insufficient water for long-term crops	village	9	12	0	9	6	0	13	6	10	10	12	5	3	8	3	6	112
2.4.3 Sufficient water for long-term crops	village	3	0	1	0	2	1	0	3	7	2	1	4	3	1	6	5	39
2.4.3 ??	village	0	0	6	0	0	6	0	0	0	2	2	0	0	1	0	0	17

Table 1 Kor Chor Chor Data on Tambon Level

[2/6]

Item	Tambon	Ban Bueng	Ban Kha	Tha Nao Si	Nong Phan Chan	Yang Hak	Suan Phueung	Tha Khoei	Pa Wai	Dan Thap Tako	Rang Bua	Keem On	Boek Phrai	Nong Phai	Dan Makham Tia	Chorakhe Phuek	Klon Do	Total
2.4.4 Insufficient water for vegetables or fruits	village	8	8	0	8	6	0	12	5	7	7	5	0	1	5	3	2	77
2.4.4 Sufficient water for vegetables or fruits	village	3	2	7	1	2	2	0	3	6	0	2	2	4	3	4	6	47
2.4.4 ?	village	1	2	0	0	0	5	1	1	4	7	8	6	1	2	2	3	43
2.4.5 Insufficient water for fruits	village	10	9	0	8	5	0	12	5	5	6	7	0	0	5	4	2	78
2.4.5 Sufficient water for fruits	village	2	2	4	0	3	1	0	3	5	1	2	0	3	2	3	5	36
2.4.5 ??	village	0	1	3	0	0	6	1	1	7	7	6	8	3	3	2	4	52
3.2 There is no Rice Bank activity	village	12	11	4	9	5	7	11	9	17	11	15	8	6	10	9	11	155
3.2 There is Rice Bank activity	village	0	1	3	0	3	0	2	0	0	3	0	1	1	0	0	0	13
3.3 There is no warehouse for stocking AG. Products	village	11	12	7	9	8	7	12	9	17	13	15	8	6	10	9	11	164
3.3 There is warehouse for stocking AG. Products	village	1	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	4
3.4 There is no Cattle Bank	village	12	12	7	9	8	7	13	9	17	14	15	9	6	10	9	11	168
3.4 There is Cattle Bank	village	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.5 There is no Veterinary clinic or voluntary veterinarian	village	12	9	0	1	0	6	7	5	0	5	1	6	5	9	6	5	77
3.5 There is Veterinary clinic or voluntary veterinarian	village																0	0
3.6 There is no basic community health center	village	1	0	1	1	0	1	2	0	0	1	7	1	0	0	0	0	15
3.6 There is basic community health center	village	10	12	6	8	8	6	11	9	17	13	8	8	6	10	9	11	153
3.7 There is no day care center	village	11	12	7	9	8	7	12	9	17	13	14	9	6	10	9	9	160
3.7 There is day care center	village	2	0	0	0	0	1	1	0	0	1	1	0	0	0	0	2	8
3.8 There is no Rural kindergarden	village	6	6	2	5	0	2	9	4	11	7	6	4	3	2	2	2	71
3.8 There is Rural kindergarden	village	6	6	5	4	8	5	4	5	6	7	9	5	3	8	7	9	97
3.9 There is no Primary school	village	6	2	2	0	0	6	1	3	1	3	1	0	2	1	1	0	31
3.9 There is Primary school	village	6	10	5	9	8	6	5	6	16	11	14	9	4	9	8	11	137
3.10 There is no Secondary school	village	11	11	6	9	8	7	13	8	17	11	11	4	5	10	7	7	145
3.10 There is Secondary school	village	1	1	1	0	0	0	0	1	0	3	4	5	1	0	2	4	23
3.11 There is Adult education center	village	12	12	7	8	8	7	13	9	17	12	15	8	0	1	0	0	129
3.11 There is no Adult education center	village	0	0	0	1	0	0	0	0	0	2	0	1	6	9	9	11	39
3.12 There is no village reading place	village	12	9	3	8	3	0	10	2	13	4	11	2	2	0	0	3	82
3.12 There is village reading place	village																	0
3.16 There is no Occupational training center	village	12	11	1	9	8	5	12	6	17	14	15	8	6	10	9	8	151
3.16 There is Occupational training center	village	0	1	6	0	0	2	1	3	0	0	0	1	0	0	0	3	17
3.18 There is no Recreation Place	village	10	11	5	9	7	2	11	7	17	14	15	9	5	10	8	9	149
3.18 There is Recreation Place	village	2	1	2	0	1	5	2	2	0	0	0	0	1	0	1	2	19
5.1 Without electricity	village	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5.1 With electricity	village	12	11	6	9	5	7	13	9	17	14	15	9	6	10	8	10	161
5.1.1 Households with electricity	H/H	1,201	1,301	731	1,013	1,172	779	938	777	1,259	1,611	1,832	985	702	1,395	1,856	1,446	18,998
6.2.1 Household with Pick-up truck	H/H	377	599	74	375	281	100	271	185	289	356	400	224	199	432	414	286	3,531
6.2.1 No. of Pick-up Truck	car	408	683	76	397	284	107	299	193	305	373	406	233	672	1,101	1,580	1,127	5,095
6.2.2 Households with Motorcycle	H/H	1,056	1,128	293	728	648	645	743	666	928	1,221	1,186	677	700	1,197	1,694	1,261	14,399
6.2.2 No. of motorcycle	car	1,010	1,370	294	774	655	660	869	829	996	1,364	1,254	694	700	1,197	1,694	1,261	15,621
6.2.3 Households with bicycle	H/H																	1,988
6.2.3 No. of bicycle	car	226	461	221	796	222	329	383	302	530	790	625	525	210	483	767	583	7,453
6.2.4 Households with E-tan vehicle	H/H	23	14	2	45	32	2	4	7	16	31	45	30	9	22	38	39	359
6.2.4 No. of E-tan vehicle	car	23	14	2	45	32	2	4	7	16	32	45	30	9	22	38	39	360
6.2.5 Households with another kind of vehicle	H/H	58	192	29	73	24	41	69	45	51	62	91	60	40	72	71	79	1,057
6.2.5 No. of another kind of vehicle	car	80	243	31	81	24	52	88	69	99	68	125	78	63	88	87	127	1,403
6.4.1 Home telephone	H/H	7	11	15	5	1	17	63	41	1	15	34	0	40	40	31	126	447
6.4.2 Mobile telephone	H/H	38	245	54	54	22	31	68	54	18	104	104	58	40	53	75	49	1,067

Table 1 Kor Chor Chor Data on Tambon Level [3/6]

Item	Tambon	Ban Bueng	Ban Kha	Tha Nao Si	Nong Phan Chan	Yang Hak	Suan Phueung	Tha Khoai	Pa Wai	Dan Thap Tako	Rang Bua	Keam On	Boek Phrai	Nong Phai	Dan Makham Tia	Chorakhe Phuek	Klon Do	Total
7.1.2 Shop selling production factors	place	0	9	0	0	0	1	1	0	0	3	1	5	4	4	2	2	32
7.2.1 Central market	place	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7.2.2 Market day	place	5	6	2	0	0	4	0	0	0	2	3	2	0	0	1	0	25
7.2.4 Shop belonging to AG group	place	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7.2.5 Shop for plantation crops	place	0	4	0	1	0	0	1	1	0	0	0	0	0	0	0	1	8
8.1 Household using fuel gas or electricity	village	12	12	1	9	1	7	13	8	17	14	14	9	6	9	9	11	152
8.1 Household using fuel by charcoal or wood	village	0	0	6	0	6	0	0	1	0	0	1	0	0	1	0	0	15
8.2 In case using wood, buy it	village	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0	14
8.2 In case using wood, get it from own sources	village	0	0	6	0	0	0	2	1	0	1	0	0	0	1	0	1	18
9.1 Family member belongs to AG, Cooperative	H/H	506	193	17	47	129	32	45	157	327	103	297	104	230	290	455	392	3,324
9.2 Family member belongs to Occupation group	H/H	600	823	220	537	698	532	601	431	164	981	571	501	331	673	750	1,003	9,416
9.3.1 Saving group for AG	H/H	295	455	262	298	105	198	248	64	105	581	453	70	278	138	122	266	3,938
9.3.2 Cooperative (saving group)	H/H	14	101	8	0	117	8	10	18	25	0	210	0	148	58	0	209	926
9.3.3 Bank for Ag & cooperative (saving group)	H/H	734	793	13	600	250	49	444	321	541	656	1,080	558	158	431	5	368	7,001
9.3.4 Commercial Bank	H/H	0	172	0	12	0	0	22	0	4	256	0	0	63	0	0	16	545
9.3.5 Industrial Investment Co	H/H	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4
9.3.6 Working capital from the Gov.	H/H	177	447	152	342	172	500	452	146	45	359	661	0	123	503	462	283	4,824
9.3.7 Merchant	H/H	150	423	8	30	264	0	104	8	0	21	0	0	6	124	932	43	2,113
9.3.8 Other sources	H/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.4 Number of sawmills	place	32	0	0	0	12	0	0	1	2	8	0	0	0	1	0	6	62
(1) Small-scale <20-HP	set	45	0	0	0	11	0	0	1	2	5	0	0	0	1	30	4	99
(2) Medium-scale 20-50HP	set	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
(3) Large-scale >50HP	set	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
9.5 Household doing agriculture	H/H	648	404	529	452	805	500	546	375	801	633	651	298	258	878	147	452	8,377
9.6 Household doing cultivating occupation	H/H	1,001	1,093	660	961	899	753	753	587	1,006	1,334	1,664	631	576	1,148	542	1,158	14,766
9.7 Household doing integrated agriculture	H/H	19	0	13	0	0	35	1	5	5	42	65	0	16	51	0	25	277
2. Basic Economic Condition																		
10.1 Household having more than 1 occupation	H/H	1,010	920	802	876	1,097	656	615	436	908	1,359	1,498	656	509	1,018	1,573	1,192	15,125
10.1 Income obtained from more than one occupation	Baht/year	783,000	660,000	275,500	1,930,000	398,200	542,600	2,182,806	330,890	500,300	591,000	913,000	341,000	212,000	450,000	333,000	578,000	11,021,296
10.2 Household having only 1 occupation	H/H	310	418	0	230	307	52	372	385	623	318	337	238	195	377	348	400	4,910
10.2 Income obtained from only one occupation	Baht/year	282,773	572,100	0	2,100,000	391,600	129,000	668,189	468,920	380,000	368,500	807,000	210,000	176,500	305,000	269,000	358,000	7,486,582
10.2.1 Planting paddy only	H/H	0	0	0	0	0	0	0	0	0	126	0	0	0	10	32	104	272
Income per household	Baht/year	0	0	0	0	0	0	0	0	0	198,000	0	0	0	55,000	20,000	217,000	490,000
10.2.2 Plantation crop only	H/H	132	194	0	106	227	40	183	139	336	46	204	48	121	262	84	90	2,212
Income per household	Baht/year	125,000	535,000	0	520,000	363,000	75,000	1,198,200	924,540	306,000	170,000	1,017,000	110,000	143,000	227,000	185,000	326,000	6,224,740
10.2.3 Livestock	H/H	5	6	0	1	0	0	6	1	8	13	10	1	1	13	5	4	74
Income per household	Baht/year	170,000	95,000	0	4,000,000	0	0	317,000	50,000	180,000	178,000	135,000	100,000	20,000	70,000	53,000	92,000	5,460,000
10.2.4 Fishery	H/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Income per household	Baht/year	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.2.5 Agriculture	H/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Income per household	Baht/year	0	14	0	5	0	0	18	0	5	1	6	0	0	0	0	0	49
10.2.6 Trading	H/H	8	36	0	17	1	0	16	35	27	24	27	17	12	10	9	64	303
Income per household	Baht/year	116,000	680,000	0	800,000	50,000	0	573,350	637,740	390,000	310,000	400,000	205,000	193,000	129,000	78,000	376,000	4,938,090
10.2.7 Industry	H/H	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Income per household	Baht/year	0	0	0	0	0	0	0	0	0	50,000	0	0	0	0	0	0	50,000
10.2.8 Employment	H/H	93	168	0	101	79	52	168	210	247	113	90	172	62	82	218	164	2,019
Income per household	Baht/year	138,080	324,000	0	830,000	297,500	129,000	331,689	197,420	358,000	240,000	329,000	192,000	151,000	262,000	301,000	328,000	4,408,689

Table 1 Kor Chor Chor Data on Tambon Level

[4/6]

Item	Tambon	Ban Bueng	Ban Kha	Tha Nao Si	Nong Phan Chan	Yang Hak	Suan Phueung	Tha Khoei	Pa Wai	Dan Thap Tako	Rang Bua	Kaem On	Boek Phrai	Nong Phai	Dan Makham Tia	Chorakhe Phuek	Klon Do	Total	
10.2.8 (1) Earning more than 40,000 B/year	H/H village	20	0	0	32	39	31	21	14	6	99	21	0	0	0	25	40	0	348
10.2.8 (2) Employed in factory	H/H village	0	0	0	0	6	0	0	0	0	0	0	0	1	0	3	2	12	2
10.2.8 (2) Employed in subcontractor	H/H village	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
10.2.8 (2) Employed in agriculture	H/H village	6	11	0	7	0	3	5	7	15	5	9	9	3	6	3	7	96	7
10.2.8 (2) Employed in fishery	H/H village	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.2.8 (2) Employed in services	H/H village	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	2
10.2.8 (2) Employed as skilled artisan??	H/H village	0	0	0	0	0	0	0	1	0	1	0	0	1	1	0	0	4	4
10.2.8 (2) Employed in mineral-mining	H/H village	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.2.8 (2) Employed in afforestation	H/H village	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.2.8 (2) Employed in others	H/H village	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	1	0	6
11.1 Total Village farming area	rai	0	0	0	0	0	160	18	477	2,315	36,934	1,330	4,520	465	1,420	1,990	4,720	54,349	
11.2 Farming not more than 5 rai	H/H	0	0	0	0	0	0	3	31	86	18	55	45	26	62	134	97	557	
11.2 (1) Farming (6-10 rai)	H/H	0	0	0	0	0	5	1	18	115	89	96	126	23	69	86	168	796	
11.2 (2) Farming (11-20 rai)	H/H	0	0	0	0	0	1	0	13	68	390	26	130	19	49	84	113	893	
11.2 (3) Farming (21-50 rai)	H/H	0	0	0	0	0	2	0	1	13	381	0	45	0	0	18	38	498	
11.2 (4) Farming more than 50 rai)	H/H	0	0	0	0	0	0	0	0	1	121	0	0	0	0	0	3	125	
11.3 (1) Planting Paddy once a year	H/H	0	0	0	0	0	8	4	60	237	1,003	187	346	60	172	314	300	2,691	
11.3 (2) Planting Paddy twice a year, but not every year	H/H	0	0	0	0	0	0	0	1	44	0	0	0	0	0	3	5	53	
11.3 (3) Planting Paddy twice a year	H/H	0	0	0	0	0	0	0	2	2	0	0	0	0	5	5	109	123	
11.3 (4) Planting Paddy more than twice a year	H/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11.4.2 Selling paddy to Cooperative Group	village	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	4	4
11.4.2 Selling paddy to Tambon sawmill	village	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	2
11.4.2 Selling paddy in advance	village	0	0	0	0	0	0	0	0	3	13	2	9	3	5	3	4	44	14
11.4.2 Selling paddy to recipient merchant	village	0	0	0	0	0	0	1	3	2	0	1	0	2	2	1	3	14	14
11.5 Household using promoted rice species	H/H	0	0	0	0	0	8	0	0	0	525	0	202	2	173	91	228	1,229	1,229
11.6 Household using fertilizers for farming	H/H	0	0	0	0	0	8	4	61	283	953	187	344	40	153	250	401	2,684	2,684
11.6 Average Household expense on fertilizer	Baht/rai	0	0	0	0	0	800	310	1,420	2,000	1,565	1,840	2,100	1,970	3,050	2,150	3,150	20,355	20,355
11.6 Using natural fertilizer by majority	rai	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2	2
11.6 Majority using scientific/ watering fertilizer	rai	0	0	0	0	0	1	0	3	8	1	1	9	5	7	4	5	44	44
11.6 Mostly, both types are used	rai	0	0	0	0	0	0	1	1	1	12	2	0	0	0	2	3	22	22
11.7 Using chemical substance to protect and kill insects	H/H	0	0	0	0	0	8	4	32	283	830	187	344	57	185	250	414	2,594	2,594
11.7 Chemical Expense	Baht/rai	0	0	0	0	0	480	360	420	1,580	2,290	640	1,170	2,250	2,300	2,950	16,690	16,690	16,690
12.1 Area for short-term crop	rai	330	3,390	4,706	977	2,530	5,573	401	647	4,718	514	2,750	1,985	800	1,200	8,555	795	39,871	39,871
12.2 Total short-term crop household	H/H	37	334	572	149	285	423	44	55	301	125	311	145	232	163	445	113	3,734	3,734
12.3 Village area for long-term crop	rai	27,425	34,133	1,499	25,313	2,345	5,786	12,283	10,592	12,975	4,084	27,105	17,335	17,629	26,095	47,470	25,940	298,009	298,009
12.4 Household growing every type of long-term crop	H/H	792	1,102	200	763	103	316	469	232	570	279	1,256	458	562	877	1,038	804	9,821	9,821
13.1 Total area for fruit orchard	rai	1,946	2,500	859	987	3,875	3,124	2,005	1,515	1,504	1,617	440	40	20	150	300	683	21,565	21,565
13.2 Number of fruit orchard household	H/H	92	144	77	165	580	251	151	135	133	100	79	9	4	10	42	69	2,041	2,041
13.3 Using cultivation area	rai	242	174	394	1,925	44	115	179	373	726	217	52	18	5	45	24	30	2,361	2,361
14.1 Total vegetable area	rai	823	1,493	394	1,925	388	404	304	1,124	4,886	1,387	3,150	0	10	2,127	3,120	1,460	22,995	22,995
14.2 Number of household growing vegetable	H/H	135	374	103	225	181	100	71	195	590	75	254	0	3	440	268	242	3,256	3,256
14.3 Total area for vegetable	rai	242	174	77	40	388	115	179	373	726	217	52	18	5	45	24	30	2,705	2,705
15.1 Area for growing flowers and decorative plants	rai	0	74	0	0	0	30	17	6	0	0	0	0	0	3	4	0	91	225
15.2 Households planting flowers,etc for sale	H/H	0	32	0	0	0	11	12	1	0	0	0	0	1	2	0	24	83	83
15.3 Area for growing flowers and decorative plants	rai	0	6	0	0	0	11	4	6	0	0	0	0	3	2	0	45	77	77

Table 1 Kor Chor Chor Data on Tambon Level

[5/6]

Item	Tambon	Ban Bueng	Ban Kha	Tha Nao Si	Nong Phan Chan	Yang Hak	Suan Phuang	Tha Khoei	Pa Wai	Dan Thap Tako	Rang Bua	Kaem On	Boek Phrai	Nong Phai	Dan Makham Ta	Charakhe Phuek	Klon Do	Total
16.1 Total rubber trees area	rai	0	0	0	0	120	0	0	400	0	0	0	0	0	0	0	0	520
16.2 Total households growing rebber trees	H/H	0	0	0	0	6	0	0	1	0	0	0	0	0	0	0	0	7
16.3 Area used per household	rai	0	0	0	0	20	0	0	400	0	0	0	0	0	0	0	0	420
19.1 Villagerares performing dry-season agriculture	rai	433	1,493	361	2,922	278	220	190	797	3,059	1,310	1,850	0	480	355	230	697	14,675
19.2 Using surface/ground water for dry season	village	5	10	3	5	5	5	4	4	8	2	0	0	0	2	3	2	58
19.2 Using surface/ground and reserved water for dry season	village	0	1	4	0	0	1	0	3	5	0	2	0	4	2	0	4	26
19.2	village	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19.3 Household doing dry-season agriculture	village	60	374	99	268	136	65	47	124	426	43	139	0	99	99	63	0	2,042
19.4 Income for production	Baht/year	88,500	525,000	757,000	120,000	135,000	64,000	172,000	526,750	305,000	55,000	120,000	0	47,500	118,000	36,500	65,200	3,135,450
19.5 Household growing short-term crop in dry season	H/H	0	374	0	181	136	33	20	85	446	43	0	0	159	89	63	127	1,756
20.1 There is no grassland area for animals feeding	village	12	11	4	8	7	5	12	8	18	10	15	9	5	7	6	4	141
20.1 There is grassland area for animals feeding	village	0	1	3	1	0	2	1	1	0	4	0	0	0	0	2	3	18
20.1 Grassland area	rai	0	600	620	0	0	385	200	70	0	2,730	0	0	0	0	350	2,750	7,705
20.2 Village do not raise animals for sale	village	1	0	0	0	1	0	0	2	0	11	0	6	1	0	1	2	37
20.2 Village raises animals for sale	village	11	12	7	9	6	7	11	9	7	14	2	3	4	7	7	4	120
20.2.1 Households raising cows for sale	H/H	56	103	131	54	130	98	115	50	22	154	12	67	33	29	63	47	1,164
20.2.1 (2) Total cows raised for sale	No.	795	1,716	2,686	352	1,056	2,223	1,227	952	325	5,780	495	1,240	778	244	2,340	1,472	23,681
20.2.1 (3) Raising promoted cow species	H/H	56	97	131	132	65	98	4	5	0	115	0	60	0	0	8	1	781
20.2.2 Households raising buffaloes for sale	H/H	0	0	3	0	0	0	0	0	0	3	0	0	10	12	8	5	41
20.2.2 (2) Total buffaloes raised for sale	No.	0	0	13	0	0	0	0	0	0	8	0	0	175	57	280	97	630
20.2.2 (3) raising promoted buffaloes species	H/H	0	0	3	0	0	0	0	0	0	3	0	0	0	0	0	1	7
20.2.3 Households raising swines for sale	H/H	29	297	77	13	7	74	39	54	7	35	0	10	9	4	8	18	681
20.2.3 (2) Total swines for sale in the village	No.	513	2,194	684	159	144	824	591	1,238	266	1,357	0	160	85	24	72	113	8,424
20.2.3 (3) raising promoted swines species	H/H	29	297	87	11	5	71	0	5	0	22	0	3	0	0	1	8	539
20.2.4 Households raising fowls for sale	H/H	2	342	399	26	15	499	25	37	3	62	0	10	49	71	20	29	1,589
20.2.4 (2) Total fowls for sale in the village	No.	300	15,600	7,621	10,000	30,130	64,671	173,000	39,620	54,000	51,922	0	7,800	580	3,020	3,000	3,080	464,344
20.2.5 Households raising other animals for sale	H/H	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
20.2.5 (2) Total other animals for sale in the village	No.	0	0	0	0	0	0	2,050	0	0	0	0	0	0	0	0	0	2,050
21.1 There is no sea fishery	village	12	12	7	9	8	7	13	9	18	14	15	9	0	0	1	1	135
21.1 There is sea fishery	village	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
21.1.1 Number of small scale fisherman	H/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21.1.2 Number of medium/large scale fisherman	H/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21.2 Households doing fresh water fishery	H/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23.1 Households doing total industrial occupation	H/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24.1 Private factory in village	H/H	0	33	104	0	40	57	5	0	0	129	0	0	0	16	0	42	426
25.1 Household have their own cow-buffalo for use	No.	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	4
25.2 Household having their own ploughing vehicles	H/H	6	18	0	308	0	0	21	33	43	371	45	31	61	77	213	142	1,369
25.2 (1) Household have to employ small ploughing vehicle	H/H	0	72	0	10	0	0	0	37	561	525	150	229	99	183	504	222	2,592
25.3 Households having big ploughing vehicles	H/H	30	35	8	66	19	17	24	26	49	56	55	30	23	64	64	58	624
25.3 (1) Households having to employ big ploughing vehicle	H/H	915	973	789	592	338	719	698	558	650	580	1,326	583	523	939	1,270	905	12,358
26.1 Households have own land	H/H	1,079	751	802	956	918	629	521	475	1,202	1,152	1,444	597	561	937	1,190	1,236	14,450
26.2 Households rent additional part of land	H/H	216	246	0	90	0	0	233	88	290	216	250	297	103	344	370	311	3,054
26.3 Renting total land	H/H	0	0	0	0	0	0	4	6	6	3	9	1	2	3	0	1	46
27.1 Using > 90% of agricultural land	village	3	0	0	8	0	0	0	2	12	5	6	8	3	7	0	10	81
27.1 Using 75-90 % of agricultural land	village	8	11	0	0	0	0	6	1	0	0	0	0	0	0	4	0	30
27.1 Using < 50% of agricultural land	village	1	1	1	1	8	6	1	1	0	5	0	0	1	0	0	0	0

Table 1 Kor Chor Chor Data on Tambon Level

[6/6]

Item	Tambon	Ban Bueng	Ban Kha	Tha Nao Si	Nong Phan Chan	Yang Hak	Suan Phuang	Tha Khoei	Pa Wai	Dan Thap Tako	Rang Bua	Kaem On	Boek Phrai	Nong Phai	Dan Makham Tia	Chorakhe Phuek	Klon Do	Total
27.3 Problem on shallow soil	village	0	1	0	0	0	0	0	0	0	2	1	0	0	0	0	0	4
27.3 Problem on gravel and sand	village	3	0	3	1	6	0	5	1	8	2	5	2	1	4	5	3	49
27.3 Problem on shale soil	village	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	3	11
27.3 Problem on ???	village	0	0	0	5	0	0	0	2	2	1	5	0	0	0	1	2	18
27.3 Problem on salty soil	village	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
27.3 Problem on sour soil	village	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2	6
27.3 Problem on soil surface being eroded	village	6	11	4	3	1	7	8	4	7	0	1	7	4	1	1	1	66
27.4 Household using natural fertilizer	H/H	54	99	644	84	85	260	77	231	706	940	151	195	18	131	42	136	3,853
27.5 Household using cover crop	H/H	5	0	14	101	0	22	5	4	462	318	0	38	6	86	6	81	1,148
3. Knowledge and education																		
28.1.1 Studying pre-primary		258	311	283	267	276	208	222	148	360	320	445	319	144	379	588	389	4,917
28.1.2 Studying primary 1-6		558	663	414	531	622	452	423	319	857	647	1,087	504	395	690	1,054	700	9,916
28.1.3 Completed primary level previous year		86	137	85	77	88	101	93	75	215	89	158	98	77	129	114	179	1,801
28.1.4 Secondary class 1 currently		83	137	70	75	88	72	88	73	150	84	154	91	73	123	102	165	1,628
28.1.5 Junior high school or equivalent		213	252	129	104	136	108	179	141	205	300	351	128	41	162	304	287	3,040
28.1.6 Completed senior high school or equivalent		111	172	65	56	46	53	139	71	187	214	239	117	25	72	135	120	1,822
28.1.7 Sub academic or equivalent		14	101	14	25	22	19	27	13	150	63	59	89	9	17	45	47	714
28.1.8 B. Sc. Degree or higher		16	68	7	16	9	1	16	15	79	47	54	48	7	12	11	16	422
28.2.1 Completed compulsory education		3,727	3,286	2,221	1,991	3,814	2,112	1,809	1,632	189	4,063	3,782	110	80	32	3,988	5,029	37,865
28.2.2 Completed junior high school		114	155	210	270	134	150	284	201	200	283	879	115	30	11	159	488	3,663
28.2.3 Completed senior high school		43	126	20	117	45	47	159	90	150	157	118	93	13	5	44	211	1,438
28.2.4 Sub academic or equivalent		28	63	22	64	15	22	41	21	155	85	35	80	8	7	21	99	766
28.2.5 B. Sc. Degree or higher		37	40	18	23	7	2	34	41	87	74	40	38	2	8	8	21	480
29.1 Villager reviewing occupational training		218	215	405	50	180	415	105	79	20	230	60	125	96	111	90	165	2,564
29.2 Villager given educational training		343	107	333	5	201	130	168	100	488	34	181	139	121	284	126	147	2,907
4. Health and sanitation																		
31.1 Infant surviving more than 3 ?? Upward		78	80	50	52	59	39	44	43	51	70	93	36	44	77	128	97	1,041
31.1 Infant from 0-1 year, dead		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33.0 (12) Illness from virus-B in liver		0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
33.0 (13) Illness from convulsion		2	0	1	0	5	1	0	0	0	1	0	0	1	0	1	1	13
5. Labor force condition																		
43.1 Family member is migrating for working outside Tambon		68	301	82	169	151	156	60	55	39	432	0	81	70	132	309	245	2,350
43.1 (1) Males lower than 15 years old		0	6	0	6	5	0	0	0	4	5	0	0	0	0	0	0	26
43.1 (1) Females lower than 15 years old		0	8	0	0	5	0	0	0	1	2	0	0	0	0	0	0	16
43.1 (2) Males between 15-18 years old		0	61	19	44	17	13	0	7	8	5	0	0	15	18	57	23	287
43.1 (2) Females between 15-18 years old		3	82	3	46	22	20	0	7	10	5	0	0	0	9	59	26	309
43.1 (3) Males more than 18 years old		82	174	84	47	93	73	63	45	25	278	0	51	49	98	232	211	1,605
43.1 (3) Females more than 18 years old		57	168	29	75	102	65	33	41	14	254	0	38	54	109	224	181	1,444
43.2 Majority working in Industrial factories		3	8	6	5	7	6	4	3	2	6	0	0	2	4	9	6	71
43.2 Majority working in Agricultural sector		1	0	1	2	0	1	0	0	1	1	0	0	1	2	0	2	12
43.2 Majority working in service business		0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
44.1 Laid-off males in the village		0	0	0	0	50	0	39	0	0	176	0	0	48	36	66	75	490
44.1 Laid-off females in the village		0	0	0	0	45	0	36	0	0	176	0	0	27	30	43	62	419

Table 2 Kor Chor Chor Data on Tambon Level <Sub-Basin>

[1/4]

Item	(unit)	Upstream	Upmiddle	Middledown	Donwstream	Total
1. General Condition						
1.1 Villages located within Tambon assembly	(No.)	-	-	-	-	0
1.2 Villages located within Tambon administrative	(No.)	47	29	54	36	166
1.3 Number of Household	(No.)	5,980	2,736	5,878	5,552	20,146
1.3.1 Number of residents	(People)	24,928	11,024	25,170	27,814	88,936
1.4 Number of Male	person	12,663	5,532	12,545	13,713	44,453
1.4 Number of Female	person	12,265	5,492	12,625	14,101	44,483
1.5 Income from local taxation	Baht	1,683,681	987,816	809,815	766,249	4,247,561
2.1.1 Private dug well	well	227	274	1,040	763	2,304
Functioning	well	220	267	1,031	751	2,269
2.1.1 Public dug well	well	96	60	164	91	411
Functioning	well	82	42	152	86	362
2.1.2 Private borehole	well	16	7	478	954	1,455
Functioning	well	15	7	477	953	1,452
2.1.2 Public borehole	well	140	71	204	135	550
Functioning	well	118	47	177	120	462
2.1.2 (1) Borehole constructed by Public Works Dept.	well	14	5	70	26	115
Functioning	well	13	5	59	26	103
2.1.2 (2) Borehole constructed by Mineral Resources Dept.	well	56	11	39	56	162
Functioning	well	46	9	30	46	131
2.1.2 (3) Borehole constructed by Health Dept.	well	14	11	19	6	50
Functioning	well	12	8	16	6	42
2.1.2 (4) Borehole constructed by ARD	well	43	35	67	41	186
Functioning	well	35	18	57	34	144
2.1.2 (5) Borehole constructed by Gor. Ror. Por Glaring	well	18	5	5	3	31
Functioning	well	15	5	5	2	27
2.1.2 (6) Borehole constructed by Others	well	-	-	-	-	0
Functioning	well	-	-	-	-	0
2.1.3 Villages without piped-water supply system	village	8	1	8	5	22
2.1.3 Villages with piped-water supply system	village	39	28	47	31	145
2.1.3 Households which use piped water supply system	H/H	3,258	2,020	3,503	2,899	11,680
2.1.3 Piped-water supply constructed by Public Work Dept.	village	2	-	11	8	21
2.1.4 Don't have surface or ground water sources	village	-	1	9	-	10
2.1.4 Have surface or ground water sources	village	48	28	46	36	158
2.2.1 Have clean drinking water for domestic use	H/H	5,356	2,566	5,546	5,560	19,028
2.4.1 Insufficient water for second paddy rice	village	-	4	4	10	18
2.4.1 Sufficient water for second paddy rice	village	-	-	-	3	3
2.4.1 ??	village	48	25	51	23	147
2.4.2 Insufficient water for short-term crops	village	32	11	30	18	91
2.4.2 Sufficient water for short-term crops	village	8	1	16	13	38
2.4.2 ??	village	8	17	9	5	39
2.4.3 Insufficient water for long-term crops	village	36	19	37	20	112
2.4.3 Sufficient water for long-term crops	village	6	4	14	15	39
2.4.3 ??	village	6	6	4	1	17
2.4.4 Insufficient water for vegetables or fruits	village	30	17	19	11	77
2.4.4 Sufficient water for vegetables or fruits	village	15	5	10	17	47
2.4.4 ??	village	3	7	25	8	43
2.4.5 Insufficient water for fruits	village	32	17	18	11	78
2.4.5 Sufficient water for fruits	village	11	4	8	13	36
2.4.5 ??	village	4	8	28	12	52
3.2 There is no Rice Bank activity	village	41	27	51	36	155
3.2 There is Rice Bank activity	village	7	2	4	-	13
3.3 There is no warehouse for stocking AG. Products	village	47	28	53	36	164
3.3 There is warehouse for stocking AG. Products	village	1	1	2	-	4
3.4 There is no Cattle Bank	village	48	29	55	36	168
3.4 There is Cattle Bank	village	-	-	-	-	0
3.5 There is no Veterinary clinic or voluntary veterinarian	village	22	18	12	25	77
3.5 There is Veterinary clinic or voluntary veterinarian	village	-	-	-	-	0
3.6 There is no basic community health center	village	3	3	9	-	15
3.6 There is basic community health center	village	45	26	46	36	153
3.7 There is no day care center	village	46	27	53	34	160
3.7 There is day care center	village	2	2	2	2	8
3.8 There is no Rural kindergarden	village	19	15	28	9	71
3.8 There is Rural kindergarden	village	29	14	27	27	97
3.9 There is no Primary school	village	10	12	5	4	31
3.9 There is Primary school	village	38	17	50	32	137
3.10 There is no Secondary school	village	45	28	43	29	145
3.10 There is Secondary school	village	3	1	12	7	23
3.11 There is Adult education center	village	47	29	52	1	129
3.11 There is no Adult education center	village	1	-	3	35	39
3.12 There is no village reading place	village	35	12	30	5	82
3.12 There is village reading place	village	-	-	-	-	0
3.16 There is no Occupational traing center	village	41	23	54	33	151
3.16 There is Occupational traing center	village	7	6	1	3	17
3.18 There is no Recreation Place	village	42	20	55	32	149
3.18 There is Recreation Place	village	6	9	-	4	19

Table 2 Kor Chor Chor Data on Tambon Level <Sub-Basin>

[2/4]

Item	(unit)	Upstream	Upmiddle	Middledown	Downstream	Total
5.1 Without electricity	village	1	-	-	-	1
5.1 With electricity	village	43	29	55	34	161
5.1.1 Households with electricity	H/H	5,418	2,494	5,687	5,399	18,998
6.2.1 Household with Pick-up truck	H/H	1,706	556	1,269	-	3,531
6.2.1 No. of Pick-up Truck	car	1,848	599	1,317	1,331	5,095
6.2.2 Households with Motorcycle	H/H	3,853	2,054	4,012	4,480	14,399
6.2.2 No. of motorcycle	car	4,103	2,358	4,308	4,852	15,621
6.2.3 Households with bicycle	H/H	-	-	-	1,988	1,988
6.2.3 No. of bicycle	car	1,926	1,014	2,470	2,043	7,453
6.2.4 Households with E-tan vehicle	H/H	116	13	122	108	359
6.2.4 No. of E-tan vehicle	car	116	13	123	108	360
6.2.5 Households with another kind of vehicle	H/H	376	155	264	262	1,057
6.2.5 No. of another kind of vehicle	car	459	209	370	365	1,403
6.4.1 Home telephone	H/H	39	121	50	237	447
6.4.2 Mobile telephone	H/H	413	153	284	217	1,067
7.1.2 Shop selling production factors	place	9	2	9	12	32
7.2.1 Central market	place	1	-	-	-	1
7.2.2 Market day	place	13	4	7	-	25
7.2.4 Shop belonging to AG group	place	-	-	1	-	1
7.2.5 Shop for plantation crops	place	5	2	-	1	8
8.1 Household using fuel gas or electricity	village	35	28	54	35	152
8.1 Household using fuel by charcoal or wood	village	12	1	1	1	15
8.2 In case using wood, buy it	village	-	14	-	-	14
8.2 In case using wood, get it from own sources	village	12	3	1	2	18
9.1 Family member belongs to AG, Cooperative	H/H	892	234	831	1,367	3,324
9.2 Family member belongs to Occupation group	H/H	2,878	1,564	2,217	2,757	9,416
9.3.1 Saving group for AG	H/H	1,415	510	1,209	804	3,938
9.3.2 Cooperative (saving group)	H/H	240	36	235	415	926
9.3.3 Bank for Ag. & cooperative (saving group)	H/H	2,390	814	2,835	962	7,001
9.3.4 Commercial Bank	H/H	184	22	260	79	545
9.3.5 Industrial Investment Co.	H/H	-	4	-	-	4
9.3.6 Working capital from the Gov.	H/H	1,290	1,098	1,065	1,371	4,824
9.3.7 Merchant	H/H	875	112	21	1,105	2,113
9.3.8 Other sources	H/H	-	-	-	-	0
9.4 Number of sawmills	place	44	1	10	7	62
(1) Small-scale <20HP	set	56	1	7	35	99
(2) Medium-scale 20-50HP	set	-	-	3	-	3
(3) Large-scale >50HP	set	-	-	-	2	2
9.5 Household doing agriculture	H/H	2,838	1,421	2,383	1,735	8,377
9.6 Household doing cultivating occupation	H/H	4,614	2,093	4,635	3,424	14,766
9.7 Household doing integrated agriculture	H/H	32	41	112	92	277
2. Basic Economic Condition						
10.1 Household having more than 1 occupation	H/H	4,705	1,707	4,421	4,292	15,125
10.1 Income obtained from more than one occupation	Baht/year	4,046,700	3,056,296	2,345,300	1,573,000	11,021,296
10.2 Household having only 1 occupation	H/H	1,265	809	1,516	1,320	4,910
10.2 Income obtained from only one occupation	Baht/year	836,618	422,036	441,375	277,125	1,977,155
10.2.1 Planting paddy only	H/H	-	-	126	146	272
Income per household	Baht/year	-	-	198,000	97,333	295,333
10.2.2 Plantation crop only	H/H	659	362	634	557	2,212
Income per household	Baht/year	385,750	732,580	400,750	220,250	1,739,330
10.2.3 Livestock	H/H	12	7	32	23	74
Income per household	Baht/year	1,421,667	183,500	148,250	58,750	1,812,167
10.2.4 Fishery	H/H	-	-	-	-	0
Income per household	Baht/year	-	-	-	-	0
10.2.5 Agriculture	H/H	19	18	12	-	49
Income per household	Baht/year	76,500	80,000	75,000	-	231,500
10.2.6 Trading	H/H	62	51	95	95	303
Income per household	Baht/year	411,500	605,545	326,250	194,000	1,537,295
10.2.7 Industry	H/H	-	-	1	-	1
Income per household	Baht/year	-	-	50,000	-	50,000
10.2.8 Employment	H/H	441	430	622	526	2,019
Income per household	Baht/year	397,395	219,370	279,750	260,500	1,157,015
10.2.8 (1) Earning more than 40,000 B/year	H/H	91	66	126	65	348
10.2.8 (2) Employed in factory	village	6	-	-	6	12
10.2.8 (2) Employed in subcontractor	village	-	-	-	2	2
10.2.8 (2) Employed in agriculture	village	24	15	38	19	96
10.2.8 (2) Employed in fishery	village	-	-	-	-	0
10.2.8 (2) Employed in services	village	1	-	-	1	2
10.2.8 (2) Employed as skilled artisan??	village	-	1	1	2	4
10.2.8 (2) Employed in mineral-mining	village	-	-	-	-	0
10.2.8 (2) Employed in afforestation	village	-	-	-	-	0
10.2.8 (2) Employed in others	village	-	1	1	4	6

Table 2 Kor Chor Chor Data on Tambon Level <Sub-Basin>

[3/4]

Item	(unit)	Upstream	Upmiddle	Middledown	Donwstream	Total
11.1 Total Village farming area	rai	-	655	45,099	8,595	54,349
11.2 Farming not more than 5 rai	H/H	-	34	204	319	557
11.2 (1) Farming (6-10 rai)	H/H	-	24	426	346	796
11.2 (2) Farming (11-20 rai)	H/H	-	14	614	265	893
11.2 (3) Farming (21-50 rai)	H/H	-	3	439	56	498
11.2 (4) Farming more than 50 rai)	H/H	-	-	122	3	125
11.3 (1) Planting Paddy once a year	H/H	-	72	1,773	846	2,691
11.3 (2) Planting Paddy twice a year, but not every year	H/H	-	1	44	8	53
11.3 (3) Planting Paddy twice a year	H/H	-	2	2	119	123
11.3 (4) Planting Paddy more than twice a year	H/H	-	-	-	-	0
11.4.2 Selling paddy to Cooperative Group	village	-	-	1	2	3
11.4.2 Selling paddy to Tambon sawmill	village	-	-	1	3	4
11.4.2 Selling paddy in advance	village	-	-	2	-	2
11.4.2 Selling paddy to receipient merchant	village	-	2	27	15	44
11.4.2 Selling paddy themselves to othe places	village	-	4	3	7	14
11.5 Household using promoted rice species	H/H	-	8	727	494	1,229
11.6 Household using fertilizers for farming	H/H	-	73	1,767	844	2,684
11.6 Average Household expense on fertilizer	Baht/rai	-	2,530	7,505	10,320	6,785
11.6 Using natural fertilizer by majority	rai	-	2	-	-	2
11.6 Majority using scientific/ watering fertilizer	rai	-	4	19	21	44
11.6 Mostly, both types are used	rai	-	2	15	5	22
11.7 Using chemical substance to protect and kill insects	H/H	-	44	1,644	906	2,594
11.7 Chemical Expence	Baht/rai	-	1,260	5,680	9,750	5,563
12.1 Area for short-term crop	rai	11,933	6,621	9,967	11,350	39,871
12.2 Total short-term crop household	H/H	1,377	522	882	953	3,734
12.3 Village area for long-term crop	rai	90,715	28,661	61,499	117,134	298,009
12.4 Household growing every type of long-term crop	H/H	2,960	1,017	2,563	3,281	9,821
13.1 Total area for fruit orchad	rai	10,167	6,644	3,601	1,153	21,565
13.2 Number of fruit orchard household	H/H	1,058	537	321	125	2,041
13.3 Using cultivation area	rai	577	667	1,013	104	2,361
14.1 Total vegetable area	rai	5,023	1,832	9,423	6,717	22,995
14.2 Number of household growing vegetable	H/H	1,018	366	919	953	3,256
14.3 Total area for vegetable	rai	921	667	1,013	104	2,705
15.1 Area for growing flowers and decorative plants	rai	74	53	-	98	225
15.2 Households planting flowers, etc for sale	H/H	32	24	-	27	83
15.3 Area for growing flowers and decorative plants	rai	6	21	-	50	77
16.1 Total rubber trees area	rai	120	400	-	-	520
16.2 Total households growing rebber trees	H/H	6	1	-	-	7
16.3 Area used per household	rai	20	400	-	-	420
19.1 Villagerares performing dry-season agriculture	rai	5,487	1,207	6,219	1,762	14,675
19.2 Using surface/ground water for dry season	village	28	13	10	7	58
19.2 Using surface/ground and reserved water for dry season Ag.	village	5	4	7	10	26
19.2	village	-	-	-	-	0
19.3 Household doing dry-season agriculture	village	937	236	608	261	2,042
19.4 Incom for production	Baht/year	1,625,500	762,750	480,000	267,200	3,135,450
19.5 Household growing short-term crop in dry season	H/H	691	138	489	438	1,756
20.1 There is no grassland area for animals feeding	village	42	25	52	22	141
20.1 There is grassland area for animals feeding	village	5	4	4	5	18
20.1 Grassland area	rai	1,220	655	2,730	3,100	7,705
20.2 Village do not raise animals for sale	village	2	2	29	4	37
20.2 Village raises animals for sale	village	45	27	26	22	120
20.2.1 Households raising cows for sale	H/H	474	263	255	172	1,164
20.2.1 (2) Total cows raised for sale	No.	6,605	4,402	7,840	4,834	23,681
20.2.1 (3) Raising promoted cow species	H/H	481	107	175	18	781
20.2.2 Households raising buffaloes for sale	H/H	3	-	3	35	41
20.2.2 (2) Total buffaloes raised for sale	No.	13	-	8	609	630
20.2.2 (3) raising promoted buffaloes species	H/H	3	-	3	1	7
20.2.3 Households raising swines for sale	H/H	423	167	52	39	681
20.2.3 (2) Total swines for sale in the village	No.	3,694	2,653	1,783	294	8,424
20.2.3 (3) raising promoted swines species	H/H	429	76	25	9	539
20.2.4 Households raising fowls for sale	H/H	784	561	75	169	1,589
20.2.4 (2) Total fowls for sale in the village	No.	63,651	277,291	113,722	9,680	464,344
20.2.5 Households raising other animals for sale	H/H	-	2	-	-	2
20.2.5 (2) Total other animals for sale in the village	No.	-	2,050	-	-	2,050
21.1 There is no sea fishery	village	48	29	56	2	135
21.1 There is sea fishery	village	-	-	-	1	1
21.1.1 Number of small scale fisherman	H/H	-	-	-	-	0
21.1.3 Number of medium/large scale fisherman	H/H	-	-	-	-	0
21.2 Households doing fresh water fishery	H/H	-	-	-	3	3
23.1 Households doing total industrial occupation	H/H	177	62	129	58	426
24.1 Private factory in village	No.	-	-	1	3	4
25.1 Household having their own cow-buffalo for use	H/H	-	-	-	41	41
25.2 Household having their own ploughing vehicles	H/H	332	54	490	493	1,369
25.2 (1) Household have to empty small ploughing vehicles	H/H	82	37	1,465	1,008	2,592
25.3 Households having big ploughing vehicles	H/H	158	67	190	209	624
25.3 (1) Households having to employ big ploughing vehicles	H/H	3,607	1,975	3,139	3,637	12,358

Table 2 Kor Chor Chor Data on Tambon Level <Sub-Basin>

[4/4]

Item	(unit)	Upstream	Upmiddle	Middledown	Downstream	Total
26.1 Households have own land	H/H	4,506	1,625	4,395	3,924	14,450
26.2 Households rent additional part of land	H/H	552	321	1,053	1,128	3,054
26.3 Renting total land	H/H	-	-	-	-	0
27.1 Using > 90% of agricultural land	village	11	10	19	6	46
27.1 Using 75-90 % of agricultural land	village	19	8	31	23	81
27.1 Using < 50% of agricultural land	village	12	8	5	5	30
27.3 Problem on shallow soil	village	1	-	3	-	4
27.3 Problem on gravel and sand	village	13	6	17	13	49
27.3 Problem on shale soil	village	-	-	3	8	11
27.3 Problem on ???	village	5	2	8	3	18
27.3 Problem on salty soil	village	-	-	1	-	1
27.3 Problem on sour soil	village	-	-	2	4	6
27.3 Problem on soil surface being eroded	village	25	19	15	7	66
27.4 Household using natural fertilizer	H/H	966	568	1,992	327	3,853
27.5 Household using cover crop	H/H	120	31	818	179	1,148
3. Knowledge and education						
28.1.1 Studying pre-primary		1,395	578	1,444	1,500	4,917
28.1.2 Studying primary 1-6		2,788	1,194	3,095	2,839	9,916
28.1.3 Completed primary level previous year		473	269	560	499	1,801
28.1.4 Secondary class 1 currently		453	233	479	463	1,628
28.1.5 Junior high school or equivalent		834	428	984	794	3,040
28.1.6 Completed senior high school or equivalent		450	263	757	352	1,822
28.1.7 Sub academic or equivalent		176	59	361	118	714
28.1.8 B. Sc. Degree or higher		116	32	228	46	422
28.2.1 Completed compulsory education		15,039	5,553	8,144	9,129	37,865
28.2.2 Completed junior high school		883	635	1,477	668	3,663
28.2.3 Completed senior high school		351	296	518	273	1,438
28.2.4 Sub academic or equivalent		192	84	355	135	766
28.2.5 B. Sc. Degree or higher		125	77	239	39	480
29.1 Villager receiving occupational training		1,068	599	435	462	2,564
29.2 Villager given educational training		989	398	842	678	2,907
4. Health and sanitation						
31.1 Infant surviving more than 3 ?? Upward		319	126	250	346	1,041
31.1 Infant from 0-1 year, dead		-	-	-	-	0
33.0 (12) Illness from virus-B in liver		2	-	-	-	2
33.0 (13) Illness from convulsion		8	1	1	3	13
5. Labor force condition						
43.1 Family member is migrating for working outside Tambon		771	271	552	756	2,350
43.1 (1) Males lower than 15 years old		17	-	9	-	26
43.1 (1) Females lower than 15 years old		13	-	3	-	16
43.1 (2) Males between 15-18 years old		141	20	13	113	287
43.1 (2) Females between 15-18 years old		156	27	15	111	309
43.1 (3) Males more than 18 years old		480	181	354	590	1,605
43.1 (3) Females more than 18 years old		431	139	306	568	1,444
43.2 Majority working in Industrial factories		29	13	8	21	71
43.2 Majority working in Agricultural sector		4	1	2	5	12
43.2 Majority working in Fishery		1	-	-	1	2
43.2 Majority working in service business		-	39	-	-	39
44.1 Laid-off males in the village		50	39	176	225	490
44.1 Laid-off females in the village		45	36	176	162	419

Table 3 PROBLEMS AND DEVELOPMENT PLANS OF 16 TAMBONS IN THE STUDY AREA

Tambon	Problems	Development Plans on Year 2003
1. Nong Phai	- Low plain area, flood always occur in wet season every year and drought occur in dry season because of swallow condition of streams and ponds - Insufficient water resources for agriculture	- Construct new water supply system as well as extend and improve the existing stations - Dredge natural stream included Lam Pachi and build Lam Pachi levee - Construct concrete weir
2. Klon Do	- Some area are dry and lack of water for consumption and agriculture	- Construct 3 new water supply systems - Dredge natural streams and ponds - Improve feeding canal
3. Chorakhae Phuek	- Some mountainous area are damaged by flash flood from the forests located in the higher hill - No water resources for dry season cropping	- Dredge the streams and build weirs - Dig 5 ponds @ 8,100 cu.m. and 50 ponds @ 1,200 cu.m. - Construct 2 reservoirs @ 100,000 cu.m. - Maintain feeding canals of 4 pumping sta.
4. Dan Makham Tia	- Runoff from Ratchaburi through Huai Si Sied and Lam Pachi make riverbank overflow that cause damage to the houses, road and upland crops about 9,700 rai - Some areas have no rainfall and face with water shortage problems for consumptive and agricultural uses.	- Dredge the public ponds - Dredge Lam Pachi and Huai Si Sied - Construct weir and on farm ditch
5. Boek Phrai	- Insufficient water resources for dry cropping - Insufficient water supply system	- Construct and expand water supply system - Dig new ponds and dredge the existing - Dredge Huai Hin lek fai
6. Rang Bua	- Lack of water for agriculture - Water sources for water supply system are under demand and contaminate - Low drainage capability cause road erosion	- Build drainage ditches - Dredge Lam Huai Phueng and others swallow natural streams - Construct RC. weir - Construct and expand the water supply systems
7. Kaem On	- Frequent flood on left bank of Lam Pachi river - Most area are high plain and no water storage sources in dry season as well as swallow streams condition	- Dig new ponds and dredge the natural streams - Expand the water supply service area
8. Dan Thap Tako	- Low water supply service area - Insufficient water resources for consumptive use and dry season cropping - Lam Pachi River bank erosion occur every year - Some area are flooded in wet season	- Build and expand the water supply system - Dig ponds and deep wells - Construct feeding canal and weir - Dredge natural stream
9. Suan Phueng	- Insufficient standard water supply system - No water resources in dry season - No large water storage source	- Build water supply system - Dig deep and shallow wells - Construct water pipeline system for irrigation - Construct weirs and reservoirs included feeding pipe lines - Dredge ponds and streams
10. Tha Khoei	- Insufficient clean water supply system and service area is not cover all households - No water in public pond in dry season	- Dig storage pond for dry season - Expand water supply area - Dredge natural ponds and streams
11. Pa Wai	- No water resources for agriculture - Insufficient water supply and portable water - Damage storage weir - Shallow water resources	- Expand water supply pipe lines - Construct weir and repair weir - Dig ponds - Dredge natural streams
12. Ta Nao Sri	- Require water resources for agriculture - Require good quality water supply system	- Construct reservoirs and weir - Dig and dredge ponds - Dig deep well - Expand water supply area
13. Nong Phan Chan	- Water shortage for consumptive use and agricultural purposes	- Construct rock weirs - Dig and dredge ponds - Dig deep wells
14. Ban Kha	- Insufficient storage tanks - Insufficient water resources for agriculture	- Construct weirs - Dig storage ponds - Dig deep wells
15. Ban Bueng	- No water sources for agriculture - Insufficient good quality water supply service - Insufficient storage tanks	- Improve water supply system - Dredge weirs and reservoir
16. Yang Hak	- Water shortage for consumptive use and agricultural purposes in dry season every year	- Expand water supply pipe lines - Install water pipe line for agriculture

Sourced by Development Plan in 2003 at each Tambon

2. Meteorology and Hydrology

2. Meteorology and Hydrology

Contents

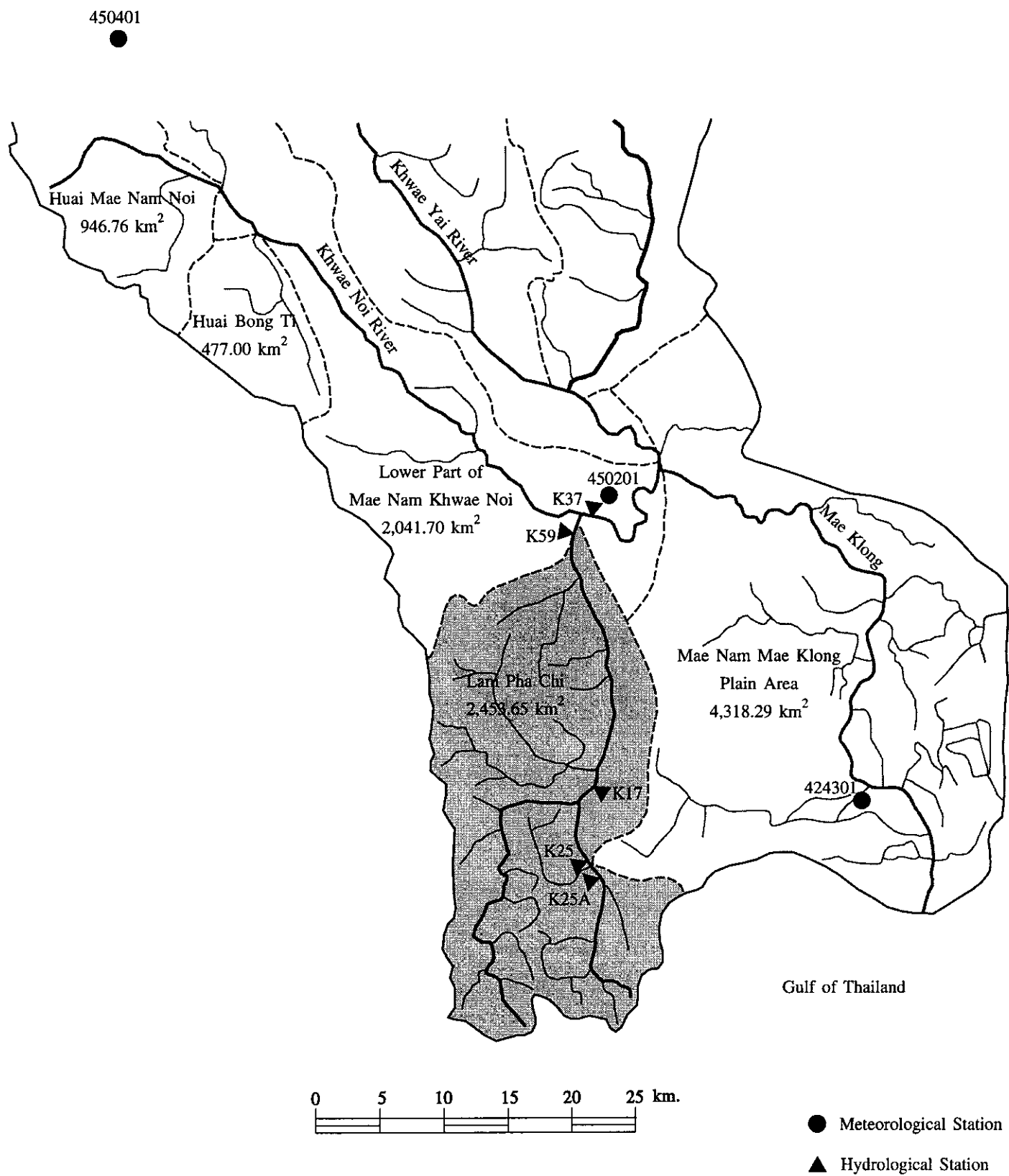
List of Figures

Figure 1	Location Map of Meteorological and Hydrological Station.....	2-1
----------	--	-----

List of Tables

Table 1	Rainfall at 3 Stations	2-3
Table 2	Air Temperatures at Ratchaburi (424301).....	2-4
Table 3	Sunshine Duration at Ratchaburi (424301).....	2-6
Table 4	Evaporation at Ratchaburi (424301)	2-7
Table 5	Wind Speed at Ratchaburi (424301)	2-8
Table 6	Relative Humidity at Ratchaburi (424301)	2-9
Table 7	Rainfall at Ratchaburi (424301).....	2-11
Table 8	Air Temperatures at Kanchanaburi (450201).....	2-12
Table 9	Evaporation at Kanchanaburi (450201)	2-15
Table 10	Wind Speed at Kanchanaburi (450201)	2-16
Table 11	Relative Humidity at Kanchanaburi (450201)	2-17
Table 12	Rainfall at Kanchanaburi (450201).....	2-19
Table 13	Air Temperatures at Thong Pha Phum (45040).....	2-20
Table 14	Evaporation at Thong Pha Phum (450401)	2-23
Table 15	Wind Speed at Thong Pha Phum (450401)	2-24
Table 16	Relative Humidity at Thong Pha Phum (450401).....	2-25
Table 17	Rainfall at Thong Pha Phum (450401).....	2-27
Table 18	River Discharge at K17 (Ban Bo)	2-28
Table 19	River Discharge at K25 (Ban Bueng)	2-29
Table 20	River Discharge at K25A (Ban Kha).....	2-30
Table 21	Monthly Run-Off at K59.....	2-31
Table 22	Annual Stream Flow Data at K17 (Ban Bo).....	2-32
Table 23	Annual Stream Flow Data at (Ban Bueng).....	2-35
Table 24	Annual Stream Flow Data at (Ban Kha)	2-36
Table 25	Annual mean suspended sediment yield	2-37
Table 26	Monthly Rainfall at K25	2-38
Table 27	Monthly Rainfall at 47252	2-39
Table 28	Monthly Rainfall at K17	2-40

Figure 1 Location Map of Meteorological and Hydrological Station



List of Meteorology and Hydrology Stations

Code	Station Name	Tambon / Province	Catchment Area (km ²)	Period	Latitude	Longitude	Remarks
1. Meteorology							
424301	Ratchaburi	Ratchaburi	N/A	1992-present	13 - 30 - 00	99 - 48 - 00	
450201	Kanchanaburi	Kanchanaburi	N/A	1955-present	14 - 01 - 00	99 - 32 - 00	
450401	Thong Pha Phum	Kanchanaburi	N/A	1965-present	14 - 45 - 00	98 - 38 - 00	
2. Hydrology							
K.17	Ban Bo	T. Suan Phueng / Ratchaburi	1355	1966-present	13 - 32 - 41	99 - 21 - 22	
K.25	Ban Bueng	T. Ban Kha / Ratchaburi	482	1982 - 1993	13 - 25 - 42	99 - 24 - 25	
K.25A	Ban Kha	T. Ban Kha / Ratchaburi	250	1994-present	13 - 24 - 07	99 - 25 - 14	
K.59	Chorakhe Phuek	T. Chorakhe Phuek / Kanchanaburi	N/A	2000-present	N/A	N/A	

Table 1 Rainfall at 3 Stations

Sta. Name		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Ratchaburi	Maximum	8.0	16.0	190.1	157.8	297.9	255.9	298.7	197.9	375.4	405.4	348.7	24.5	1,521.5
	Mean	1.2	4.4	40.0	46.8	154.5	137.9	119.4	122.6	248.7	268.0	62.6	5.2	1,180.9
	Minimum	0	0	0	0	21.7	62.9	45.0	31.1	109.6	80.3	0	0	743.6
Kanchanaburi	Maximum	22.3	79.3	101.6	271.7	224.4	169.0	209.5	204.1	469.7	455.8	360.4	44.3	1,496.2
	Mean	2.8	14.2	18.8	75.7	131.0	75.8	98.2	99.4	221.5	223.4	60.1	7.8	1,003.9
	Minimum	0	0	0	2.2	15.6	3.2	40.4	16.9	75.4	85.9	0.2	0	659.4
Thong Pha Phum	Maximum	50.4	60.7	110.2	267.9	394.7	585.0	695.2	599.3	406.1	358.8	137.4	31.9	2,130.6
	Mean	7.0	16.5	41.2	105.9	214.0	276.3	316.8	328.9	238.2	191.2	32.3	4.0	1,748.1
	Minimum	0	0	0	21.0	59.5	147.5	108.3	103.5	127.5	83.4	0	0	1,155.0

Table 2 Air Temperatures at Ratchaburi (424301)

Station 424301 RATCHABURI

Latitude 13.5 N

Longitude 99.8 E

Elevation of station above MSL 5 m.

Height of thermometer above ground m.

Height of wind vane above ground m.

Height of rain gauge m.

YEAR	Data	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1992	Extreme maximum	33.4	35.9	36.9	39.9	39.8	37.4	36.9	34.8	34.4	32.7	32.8	33.6	39.9
	Date	30	16	31	21	7	4	4	28	13	2	19	12	
	Mean maximum	30.8	33.6	35.4	37.4	36.7	33.8	33.7	32.6	32.7	29.6	29.3	31	33.1
	Mean	25	27.2	29.1	31.1	31.2	29.6	29.1	28.7	28.5	26.6	25.3	25.6	28.1
	Mean minimum	19.2	20.7	22.8	24.8	25.7	25.3	24.4	24.8	24.3	23.5	21.2	20.1	23.1
	Extreme minimum	14.3	17	18	20.5	24.7	24.4	23	24	23.2	20.6	17.6	15.6	14.3
	Date	19	17	2	5	19	11	9	11	9	30	30	2	
1993	Extreme maximum	34.5	35.8	38.7	39.7	39.5	36.7	36.8	34.7	34.3	36.2	33.7	33.7	39.7
	Date	26,14	27	27	4	1	6,4	27	27	25,8	4	16	3	
	Mean maximum	32.2	33.3	34.8	36.4	35.7	34.6	34.1	32.7	32.7	30.8	31.4	29.3	33.2
	Mean	26.3	26.6	29.2	30.7	30.5	29.9	29.4	28.7	28.6	27.5	26.8	24.3	28.2
	Mean minimum	20.3	19.8	23.5	25	25.2	25.2	24.7	24.6	24.4	24.1	22.1	19.2	23.2
	Extreme minimum	13.2	15.2	22.1	22.6	24	23.8	23.8	23.4	23	22.4	17.5	12.6	12.6
	Date	31	1	4	14	1	15	11	5	23	31	4	27	
1994	Extreme maximum	34.8	38.9	37.1	38.6	38.6	34.6	35.3	34.6	33.8	33.8	33.7	33.9	38.9
	Date	15	19	10	21,20	5	12	4	13	10	10	27	11	
	Mean maximum	33	35.2	34	36.7	34.8	32.7	31.8	32.1	32.5	31.2	31.3	32.1	33.1
	Mean	26.2	28.5	28.7	30.8	30	28.8	28.2	28.3	28.6	27	26.7	26.3	28.2
	Mean minimum	19.3	21.7	23.4	24.8	25.2	24.9	24.6	24.4	24.6	22.7	22	20.5	23.2
	Extreme minimum	16.5	17.2	21	22.6	23.5	23.2	23.5	23.6	23.5	17.5	19.2	16.4	16.4
	Date	27	22	24	11	19	24	22	10	1	25	5	30	
1995	Extreme maximum	34.8	36.6	37.6	38.7	38.2	35.4	35.4	35.5	33.4	33.7	33.4	33.9	38.7
	Date	25	19	31,2	30	26	23	2	4	7	14	7	17	
	Mean maximum	32.5	33.5	35.2	37	35.5	33.7	32.9	32.8	31.7	31.2	29.9	29.6	33.0
	Mean	26	26.9	29.5	31.3	30.5	29.5	28.8	29	28.3	27.8	26.3	24.4	28.2
	Mean minimum	19.4	20.2	23.7	25.5	25.4	25.3	24.7	25.1	24.8	24.3	22.6	19.1	23.3
	Extreme minimum	12.8	15.5	20.4	23.8	23.8	24.2	23.5	23.6	23.1	22.6	19.4	12.2	12.2
	Date	7	7	3	6	20	27	19	1	12	13	26	31	
1996	Extreme maximum	34.6	36.4	38.7	39.3	37.1	35.5	36.8	35.1	33.5	33	34.4	32.9	39.3
	Date	23	15	31	10	16	7	5	17	25,23	4	11	5	
	Mean maximum	32.4	32.3	35	35.7	34.3	33.4	32.1	32.7	31.3	31.2	30.8	29.6	32.6
	Mean	25.8	26.4	29.2	30.3	29.6	29.2	28.4	28.6	27.9	27.7	27	24.5	27.9
	Mean minimum	19.1	20.5	23.3	24.8	24.9	25	24.6	24.5	24.4	24.1	23.2	19.3	23.1
	Extreme minimum	12.6	17	20.6	23.4	24	23.6	23.5	23	23.2	21.3	21.5	13.6	12.6
	Date	2	9	5	15	11	4	19	24	1	26	22	28	
1997	Extreme maximum	33.9	36.4	37.2	37.9	38.8	39	37	35.4	35.7	35.2	34.9	34.9	39.0
	Date	18	16	24	15	15	3	5	28,14	14	23	30	22	
	Mean maximum	31.8	34.4	35.5	36.3	36.5	36.3	33.6	33.4	33	32.6	31.6	33	34.0
	Mean	24.9	27.9	29.2	30	30.9	30.6	29.4	29.3	28.8	28.5	27.3	27.1	28.7
	Mean minimum	17.9	21.3	22.8	23.7	25.3	24.9	25.1	25.2	24.5	24.3	23	21.2	23.3
	Extreme minimum	15.2	17.5	19.7	22	24	22.1	24.4	23.6	22.4	22.8	20.5	19.5	15.2
	Date	13	8	6	17	22	11	3	4	6	28	5	29	

AGROCLIMATOLOGICAL DATA

Air Temperature (celsius)

Station 424301 RATCHABURI

Latitude 13.5 N

Longitude 99.8 E

Elevation of station above MSL 5 m.

Height of thermometer above ground m.

Height of wind vane above ground m.

Height of rain gauge m.

YEAR	Data	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1998	Extreme maximum	36.6	38.2	38.1	40.9	39.5	37	37	36.2	36.4	35.4	34	34.6	40.9
	Date	18	27	12,10	24	12	17	19	29	1	17	1	3	
	Mean maximum	34.7	35.9	37	38.1	37.4	34.7	34.2	33.8	33.2	32.3	30.5	30.5	34.4
	Mean	27.9	29.6	30.5	31.9	32	30.1	29.6	29.5	29.1	28.4	26.6	25.8	29.3
	Mean minimum	21	23.3	23.9	25.6	26.5	25.4	25	25.1	24.9	24.4	22.7	21.1	24.1
	Extreme minimum	17	20.5	18.5	23.6	24.5	24.2	24	22.8	23.7	22.2	19.9	18.1	17.0
	Date	16	20	9	12	7	21	23	18	21	2	14	14	
1999	Extreme maximum	35.8	36.8	38.4	37.8	34.7	35.3	36	36.1	37	35	34.2	32.7	38.4
	Date	24	2	18,14	3	18	28	19	21	5	9	27	31	
	Mean maximum	31.7	33.1	36.2	34.6	33.1	33.3	33.6	33.2	33.9	31.1	30.5	27.4	32.6
	Mean	26.4	27.2	29.6	29.7	28.8	28.9	29.2	28.9	28.9	27.5	26.6	22.9	27.9
	Mean minimum	21	21.3	23	24.8	24.4	24.5	24.8	24.5	23.9	23.9	22.7	18.3	23.1
	Extreme minimum	16.2	16.3	18.2	21.2	23.2	22.4	23.6	23.5	22.6	22.2	19.6	9.8	9.8
	Date	7	6	9	5	4	22	11	17	15	1	21	25	
2000	Extreme maximum	35.1	37.5	37.3	38.4	36.7	35	36.1	35.8	35.5	34.8	33	34.4	38.4
	Date	12	24	14,7	3	9	7	30	13,2	26	20	30	2	
	Mean maximum	32.9	33.8	34.9	34.7	34.6	33.2	33.8	33.3	33.1	32.2	30.2	31.7	33.2
	Mean	26.8	27.1	28.8	29.7	29.8	29	29.2	29.1	28.8	28.2	26	26.7	28.3
	Mean minimum	20.6	20.3	22.7	24.7	24.9	24.7	24.5	24.8	24.4	24.2	21.8	21.7	23.3
	Extreme minimum	17.4	14.9	17.5	23	23.9	23.5	23	23.3	23.5	22.8	17	16.1	14.9
	Date	29	3	16	13	5	21	22	4	10	3	6	25	
2001	Extreme maximum	36	37	36.7	38.6	36.7	35.6	36.5	35.9	36.1	33.5	33	34.7	38.6
	Date	25,10	20	6	11	7	6	26	25	3	16,15	4,1	19	
	Mean maximum	33.4	34.9	32.8	36.6	34	33.6	33.9	33.2	33.9	31.5	29.9	30.9	33.2
	Mean	27.6	28.2	28.3	31.1	29.4	29.3	29.4	29.1	29.3	28	25.5	26	28.4
	Mean minimum	21.8	21.5	23.8	25.5	24.8	24.9	24.9	24.9	24.6	24.4	21.1	21	23.6
	Extreme minimum	17.5	17	21.9	24.3	23.5	23.9	23.7	24	23.5	22	16.6	15	15.0
	Date	3	25	13	17	26	6	20	2	15	1	23	24	
2002	Extreme maximum	35.1	36.7	37.1	39.2	38.5	35.4	36	34.5	34.1	N/A	N/A	N/A	39.2
	Date	26	28	25	17	5	15	12,11	24,1	30	N/A	N/A	N/A	
	Mean maximum	32.1	34.7	35	37.2	34.5	34	34.2	32.8	32.1	N/A	N/A	N/A	34.1
	Mean	26	28.4	29.5	31	29.8	29.5	29.6	28.8	28.3	N/A	N/A	N/A	29.0
	Mean minimum	19.8	22	24	24.7	25.1	25	25	24.7	24.5	N/A	N/A	N/A	23.9
	Extreme minimum	16.5	19.9	20.1	23.2	23.4	23.6	23.9	23.5	23.4	N/A	N/A	N/A	16.5
	Date	4	2	8	12	21	23	20	21	23	N/A	N/A	N/A	
Extreme maximum		36.6	38.9	38.7	40.9	39.8	39	37	36.2	37	36.2	34.9	34.9	40.9
Mean maximum		32.5	34.1	35.1	36.4	35.2	33.9	33.4	33.0	32.7	31.4	30.5	30.5	33.2
Mean		26.3	27.6	29.2	30.7	30.2	29.5	29.1	28.9	28.6	27.7	26.4	25.4	28.3
Mean minimum		19.9	21.1	23.4	24.9	25.2	25.0	24.8	24.8	24.5	24.0	22.2	20.2	23.3
Extreme minimum		15.4	17.1	19.8	22.7	23.9	23.5	23.6	23.5	23.2	21.6	18.9	14.9	14.9

Table 3 Sunshine Duration at Ratchaburi (424301)

Station 424301 RATCHABURI

Latitude 13.5 N

Longitude 99.8 E

Elevation of station above MSL 5 m.

Height of thermometer above ground m.

Height of wind vane above ground m.

Height of rain gauge m.

YEAR	Data	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1992	Extreme maximum	9.3	10	10	10.6	10.7	10.4	10.9	8.9	8.2	9	9.7	9.9	10.9
	Date	25	17,15	30	27	10	2	20	23	11	22,8	18,11	9	
	Mean	7.6	8.4	9.1	9.3	7.2	4.7	5.3	3.5	5.1	3.5	6.9	7.1	6.5
1993	Extreme maximum	9.9	10.2	10.6	11	10.8	10.6	11	9.5	9.8	10.5	10.3	9.7	11
	Date	26	22	28,26	27	2,1	21	19	7	23	31	1	12	
	Mean	7	8.5	7.9	7.9	6.7	5.3	5.9	3	4.7	3.7	7.8	6.9	6.3
1994	Extreme maximum	10	9.8	10	10.9	10.2	7.7	10.7	11.3	8.4	10.2	9.4	9.9	11.3
	Date	11	25	31	12	23	28	2	13	21	25	10	23	
	Mean	8.2	7.9	6.2	8.8	5.7	3.1	2.7	2.7	4.7	7.3	7.5	8.3	6.1
1995	Extreme maximum	10	10.1	10.2	10.7	10.8	11.6	10.4	8.8	8.2	9.6	10	9.9	11.6
	Date	6	15	15	9	21	23	13	3	27	23	25	23,22	
	Mean	8	9.3	7.9	8.6	6	5.5	5.2	4	3.3	4.6	6.1	8.2	6.4
1996	Extreme maximum	9.5	7.9	10.4	10.3	10.7	11	N/A	N/A	7.3	9.8	10	9.8	11
	Date	2	8	12	20,19	26	7	N/A	N/A	11	19	29,9	14	
	Mean	8	5.8	8.4	7	6.7	5.3	N/A	N/A	2.6	4.3	6	7.7	6.2
1997	Extreme maximum	9.8	10.1	10.1	11	11.5	11.6	8	9.3	9.9	9.7	9.7	9.8	11.6
	Date	24,7	8	24	21,18	18,16	11	7	22	14	18	27,15	23,5	
	Mean	8.3	8.2	8.6	8.8	7.9	7.2	2.4	3.4	4.4	6.5	7.6	9	6.9
1998	Extreme maximum	9.9	10.3	9.9	10.2	11.4	10.9	11	10.8	7.8	9.7	9.6	10.2	11.4
	Date	18	28,15	11	12	7	16	20	28	5	17	5	30	
	Mean	8.5	9.2	8.6	9	7.7	5.6	6.1	5.4	4.3	4.8	5.2	6.5	6.7
1999	Extreme maximum	9.7	9.8	10.3	10.5	9.2	9.7	11.2	10.7	9.7	10.3	9.8	9.9	11.2
	Date	2	6	11	2	14	30	8	22	3	6	30,18	28,2	
	Mean	5.9	7.6	8.2	6.2	4.4	4.3	4.5	4.9	5.2	4.7	5.7	7.3	5.7
2000	Extreme maximum	9.7	10	10.5	10.3	11.4	8.6	10.3	10.1	9.4	10	10.3	9.8	11.4
	Date	24	6,1	17	9	9	13,7	30	12,11	18	20	6,5	19,5	
	Mean	7.8	8.2	7.2	6.5	6.8	4.4	4.3	4.7	4	5.1	7.2	7.3	6.1
2001	Extreme maximum	10	10	10.3	11	11.2	10.2	10.8	9.4	9.2	9.1	9.8	9.8	11.2
	Date	12	26	29	21	31	1	18	23	15	16	20,19	22,10	
	Mean	6.9	8.3	5.6	8.9	5.5	4.1	4.5	3.2	5	3.9	7	6.9	5.8
2002	Extreme maximum	9.6	9.3	9.8	11	10	9.4	11	9.3	9.5	N/A	N/A	N/A	11
	Date	8	23	25	18	2	18	12	24	6	N/A	N/A	N/A	
	Mean	7.5	8.2	7.7	8.7	5.3	5.2	4.4	3.1	4.1	N/A	N/A	N/A	6.0
Extreme maximum		10	10.3	10.6	11	11.5	11.6	11.2	11.3	9.9	10.5	10.3	10.2	11.6
Mean		7.6	8.1	7.8	8.2	6.4	5.0	4.5	3.8	4.3	4.8	6.7	7.5	6.2

Table 4 Evaporation at Ratchaburi (424301)

Station 424301 RATCHABURI

Elevation of station above MSL 5 m.

Latitude 13.5 N

Height of thermometer above ground m.

Longitude 99.8 E

Height of wind vane above ground m.

Height of rain gauge m.

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1992	4.1	5.8	7	7.7	6.7	5	5.1	5.2	5.1	3.5	4.5	4.3	64.0
1993	4.5	5.5	5.7	6.6	6	5.5	5.8	4.2	4.6	3.2	4.3	4.7	60.6
1994	4.4	5.7	5.5	6.6	5.2	4.6	3.9	4.1	4.3	4	4.4	4.4	57.1
1995	4.3	5.5	5.7	6.7	5.8	4.4	4.9	4	3.4	3.6	3.4	4.2	55.9
1996	4.3	4.9	5.4	5.2	4.8	4.5	3.9	4.1	2.9	3.1	3.6	4	50.7
1997	4.1	4.9	5.6	6.3	6.5	6.6	4.7	4.6	4.4	4.1	3.9	4.1	59.8
1998	4.3	5.4	6	6.3	6.2	4.6	4.8	4.2	3.8	3.2	3.4	4.1	56.3
1999	4.1	3.7	5.4	5.1	4.3	4.4	4.8	4.7	4.4	3	3.5	4.7	52.1
2000	4.3	5	5.3	4.7	5.2	4.1	4.8	4.7	4.2	3.9	4.4	4.5	55.1
2001	4.4	4.9	4.4	6	4.9	4.8	4.9	4.8	4.5	3.3	3.9	4	54.8
2002	4.2	4.6	4.9	6.3	4.9	4.7	5	4.2	4.5	N/A	N/A	N/A	43.3
Maximum	4.5	5.8	7.0	7.7	6.7	6.6	5.8	5.2	5.1	4.1	4.5	4.7	64.0
Mean	4.3	5.0	5.4	6.0	5.4	4.8	4.8	4.4	4.1	3.5	3.9	4.3	54.6
Minimum	4.1	3.7	4.4	4.7	4.3	4.1	3.9	4.0	2.9	3.0	3.4	4.0	43.3

Table 5 Wind Speed at Ratchaburi (424301)

Station 424301 RATCHABURI

Latitude 13.5 N

Longitude 99.8 E

Elevation of station above MSL 5 m.

Height of thermometer above ground m.

Height of wind vane above ground m.

Height of rain gauge m.

YEAR	Data	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1992	Mean speed (m/s)	1.2	1.2	1.7	1.3	1.6	1.1	1.3	1.5	1.3	1.4	2	1.3	1.4
	Prevailing direction	NE	SE	SE	SE	SE	W	W	W	W	NW	NW	N	
1993	Mean speed (m/s)	1.2	1.2	1.2	1.2	1.2	0.9	1.1	1	0.7	0.5	0.8	1.3	1.0
	Prevailing direction	SE	SE	SE	SE	SE	W	W	W	W	N	N	N	
1994	Mean speed (m/s)	0.4	0.8	0.9	0.8	0.5	0.8	0.8	0.8	0.7	0.5	0.8	0.7	0.7
	Prevailing direction	SE	SE	SE	SE	N	W	W	W	W	N	N	N	
1995	Mean speed (m/s)	0.8	1.1	1.1	1	1	0.6	0.6	0.4	0.6	1	1.1	1.5	0.9
	Prevailing direction	N	SE	SE	SE	SE	SE,W	W	S	W	N	N	N	
1996	Mean speed (m/s)	0.7	1.7	1.1	0.8	0.5	0.3	0.6	0.7	0.5	0.7	1.3	1.6	0.9
	Prevailing direction	N	N	SE	S	NW	SE	S	W	N,NW	N	N	N	
1997	Mean speed (m/s)	0.6	1	0.9	1	1.6	1.2	0.9	1.4	0.4	0.5	1.1	0.8	1.0
	Prevailing direction	N	SE	SE	SE	SE	W	W	W	S	N	N	N	
1998	Mean speed (m/s)	0.5	1	1.3	1.2	1	0.4	0.3	0.6	0.7	0.5	1.3	1.6	0.9
	Prevailing direction	E	SE	SE	SE	SE	S	S	W	NW	N	N	N	
1999	Mean speed (m/s)	1.1	1.1	0.9	0.8	0.4	0.9	1.1	1	0.6	0.8	1.2	2.7	1.1
	Prevailing direction	N	N	SE	SE	S,SW	W	W	W	NW	NW	N	N	
2000	Mean speed (m/s)	0.9	0.8	1	0.6	0.7	0.7	1	0.8	0.8	0.5	1.6	1.3	0.9
	Prevailing direction	N	SE	SE	SE	W	S,W	W	W	W	NW	N	N	
2001	Mean speed (m/s)	0.7	0.8	0.8	0.6	0.7	1	0.9	1.3	0.7	0.3	1.2	1.2	0.9
	Prevailing direction	N	SE	SE	SE	S	W	W	W	SW,NW	N	N	N	
2002	Mean speed (m/s)	1.1	0.6	0.7	1	1	0.8	1.2	1	0.6	N/A	N/A	N/A	0.9
	Prevailing direction	N	SE	S	SE	S	W	W	W	W	N/A	N/A	N/A	
Maximum		1.2	1.7	1.7	1.3	1.6	1.2	1.3	1.5	1.3	1.4	2	2.7	1.4
Mean		0.8	1.0	1.1	0.9	0.9	0.8	0.9	1.0	0.7	0.7	1.2	1.4	0.9
Minimum		0.4	0.6	0.7	0.6	0.4	0.3	0.3	0.4	0.4	0.3	0.8	0.7	0.7

Table 6 Relative Humidity at Ratchaburi (424301)

Station 424301 RATCHABURI

Latitude 13.5 N

Longitude 99.8 E

Elevation of station above MSL 5 m.

Height of thermometer above ground m.

Height of wind vane above ground m.

Height of rain gauge m.

YEAR	Data	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1992	Extreme maximum	98	98	99	98	100	98	98	100	97	99	98	99	100.0
	Mean maximum	95	95	95	95	94	96	96	95	95	96	95	96	95.3
	Mean	70	66	65	65	69	75	75	76	76	83	76	72	72.3
	Mean minimum	45	36	35	35	44	54	54	56	57	69	56	48	49.1
	Extreme minimum	30	15	19	23	27	41	39	44	46	47	41	37	15.0
	Date	18	16	2	14	7	1	4	9	14	28	14	9	
1993	Extreme maximum	98	99	99	97	95	99	100	98	97	99	96	100	100.0
	Mean maximum	92	94	96	91	90	94	95	95	95	95	95	92	93.7
	Mean	68	66	70	65	67	73	75	76	77	84	74	71	72.2
	Mean minimum	43	38	43	39	44	52	54	57	59	72	52	50	50.3
	Extreme minimum	25	23	25	23	25	41	44	48	51	56	40	39	23.0
	Date	31	22	27	29	1	6	17	19	7	11	4	31	
1994	Extreme maximum	100	96	96	95	99	98	97	98	97	96	98	98	100.0
	Mean maximum	95	92	92	90	91	95	94	94	94	94	96	95	93.5
	Mean	69	63	69	63	72	77	77	77	77	75	75	71	72.1
	Mean minimum	42	34	46	36	52	58	60	59	59	55	54	46	50.1
	Extreme minimum	34	12	30	20	33	50	47	46	50	40	45	30	12.0
	Date	27	24	5	11	5	12	3	14	10	10	27	25	
1995	Extreme maximum	98	97	97	97	95	93	96	98	98	97	98	98	98.0
	Mean maximum	95	90	92	91	91	90	92	95	94	94	94	92	92.5
	Mean	68	64	66	66	70	73	74	77	80	80	77	69	72.0
	Mean minimum	41	37	40	41	48	56	56	58	65	65	59	46	51.0
	Extreme minimum	30	19	10	28	34	48	45	47	53	43	44	33	10.0
	Date	9	19	3	13	23	17	1	4	9	23	7	12	
1996	Extreme maximum	97	97	96	97	96	99	100	98	97	97	96	97	100.0
	Mean maximum	92	89	94	94	93	94	92	94	94	94	93	92	92.9
	Mean	65	66	70	71	74	77	74	78	84	83	79	70	74.3
	Mean minimum	38	42	46	47	55	59	56	62	74	72	64	48	55.3
	Extreme minimum	30	25	27	31	42	48	40	52	60	54	50	25	25.0
	Date	5	8	17	1	16	5	5	1	1	28	29	26	
1997	Extreme maximum	97	96	95	91	92	93	94	98	98	98	98	95	98.0
	Mean maximum	94	92	90	88	87	88	86	90	94	95	92	90	90.5
	Mean	68	66	66	64	66	65	70	73	77	79	76	66	69.7
	Mean minimum	41	40	41	39	45	41	53	55	60	63	60	42	48.3
	Extreme minimum	29	20	23	26	36	36	39	46	42	52	49	25	20.0
	Date	24	8	6	15	2	3	4	9	14	14	25	28	
1998	Extreme maximum	95	96	96	96	94	95	93	94	94	98	98	-	98.0
	Mean maximum	92	93	92	93	90	90	90	91	91	97	95	-	92.2
	Mean	65	64	64	65	65	71	75	73	74	76	77	-	69.9
	Mean minimum	37	35	36	36	40	51	60	55	57	55	58	-	47.3
	Extreme minimum	16	18	13	17	26	42	45	42	45	40	45	-	13.0
	Date	17	27	9	12	1	17	12	27	14	28	15		

AGROCLIMATOLOGICAL DATA

Relative Humidity (%)

Station 424301 RATCHABURI

Latitude 13.5 N

Longitude 99.8 E

Elevation of station above MSL 5 m.

Height of thermometer above ground m.

Height of wind vane above ground m.

Height of rain gauge m.

YEAR	Data	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1999	Extreme maximum	95	94	94	99	98	96	98	96	96	96	98	100	100.0
	Mean maximum	90	91	90	95	94	93	92	92	92	93	95	89	92.2
	Mean	68	67	62	73	76	73	72	73	75	79	77	67	71.8
	Mean minimum	45	42	34	50	58	53	52	54	58	64	58	44	51.0
	Extreme minimum	32	30	10	33	47	41	35	39	40	51	37	27	10.0
	Date	23	10	8	1	19	22	16	13	3	12	27	24	
2000	Extreme maximum	93	97	98	98	95	98	98	96	97	98	95	-	98.0
	Mean maximum	87	91	92	94	92	94	93	94	93	93	93	-	92.4
	Mean	61	63	64	72	70	74	71	73	72	75	67	-	69.3
	Mean minimum	35	35	36	49	48	54	48	51	51	57	41	-	45.9
	Extreme minimum	10	15	10	26	34	44	35	38	36	44	40	-	10.0
	Date	17	5	13	3	8	11	30	2	16	20	1		
2001	Extreme maximum	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mean maximum	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mean	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mean minimum	-	-	-	-	-	-	-	-	-	-	-	-	-
	Extreme minimum	-	-	-	-	-	-	-	-	-	-	-	-	-
	Date													
2002	Extreme maximum	-	-	-	-	-	-	99	96	98	-	-	-	99.0
	Mean maximum	-	-	-	-	-	-	92	93	93	-	-	-	92.7
	Mean	-	-	-	-	-	-	72	74	76	-	-	-	74.0
	Mean minimum	-	-	-	-	-	-	52	54	59	-	-	-	55.0
	Extreme minimum	-	-	-	-	-	-	42	44	46	-	-	-	42.0
	Date							19	13	14				
Extreme maximum		100	99	99	99	100	99	100	100	98	99	98	100	100
Mean maximum		92.4	91.9	92.6	92.3	91.3	92.7	92.2	93.3	93.5	94.6	94.2	92.3	92.8
Mean		66.9	65.0	66.2	67.1	69.9	73.1	73.5	75.0	76.8	79.3	75.3	69.4	71.8
Mean minimum		40.8	37.7	39.7	41.3	48.2	53.1	54.5	56.1	59.9	63.6	55.8	46.3	50.3
Extreme minimum		10	12	10	17	25	36	35	38	36	40	37	25	10

42301

Table 7 Rainfall at Ratchaburi (424301)

Station 424301 RATCHABURI

Latitude 13.5 N

Longitude 99.8 E

Elevation of station above MSL 5 m.

Height of thermometer above ground m.

Height of wind vane above ground m.

Height of rain gauge m.

YEAR	Data	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1992	Total amount	1	3.8	0	0	93.2	99.3	124.5	197.9	114.8	397.5	8.4	1.5	1,041.9
	Number of rainy day	2	1	0	0	10	20	15	15	16	19	4	3	105.0
	Greatest in 24 hr	0.7	3.8	0	0	30	15.3	40.3	91.7	25.2	80.2	3.1	0.9	91.7
	Date	4	26	31,1	30,1	19	20	28	28	29	5	20,7	24	
1993	Total amount	8	0	53.2	11.4	122.1	111.9	59.5	141.8	203.2	243.5	23.6	24.5	1,002.7
	Number of rainy day	2	0	3	2	11	15	13	20	20	23	4	3	116.0
	Greatest in 24 hr	7.1	0	49.1	10.9	24.2	30.4	17.5	36.1	27.7	33.9	13.1	22.3	49.1
	Date	23	28,1	12	22	31	26	6	28	11	12	16	1	
1994	Total amount	0	0	70.3	0	243.1	136.9	84.4	81.2	247.5	80.3	0	9.8	953.5
	Number of rainy day	0	0	8	0	16	16	18	17	20	9	0	1	105.0
	Greatest in 24 hr	0	0	27.8	0	54.5	29.2	20	13.3	60.6	32.3	0	9.8	60.6
	Date	31,1	28,1	27	30,1	19	9	19	7	30	4	30,1	13	
1995	Total amount	0	0	55.9	0	155.7	172.5	203.7	183.6	371.7	221.5	31.6	0	1,396.2
	Number of rainy day	0	0	4	0	14	18	18	21	25	18	6	0	124.0
	Greatest in 24 hr	0	0	44.8	0	61.8	43.5	54.1	24.3	47.8	65.7	17.3	0	65.7
	Date	31,1	28,1	19	30,1	28	17	17	7	11	6	10	31,1	
1996	Total amount	0	12	17.9	139.5	185	187.6	174.5	110.5	375.4	249.9	65.1	4.1	1,521.5
	Number of rainy day	0	1	2	11	17	15	16	14	24	20	9	2	131.0
	Greatest in 24 hr	0	12	10.5	44.1	40.4	62	34.5	27	64.9	65.2	19.3	3.5	65.2
	Date	31,1	19	2	29	8	13	25	17	29	12	1	1	
1997	Total amount	0	0	2	41	21.7	62.9	47.8	86.4	336.1	341.7	348.7	0	1,288.3
	Number of rainy day	0	0	2	4	7	8	18	15	17	18	7	0	96.0
	Greatest in 24 hr	0	0	1.3	34	6.9	27.5	16.8	21.8	59.9	86	304.9	0	304.9
	Date	31,1	28,1	27	25	25	20	20	31	22	3	4	31,1	
1998	Total amount	0	7.8	1.9	1.7	135.3	255.9	298.7	168.5	252.7	165.5	57.4	9	1,354.4
	Number of rainy day	0	1	1	1	13	18	19	17	18	11	10	1	110.0
	Greatest in 24 hr	0	7.8	1.9	1.7	44	37.4	77.7	41.4	54.9	51.6	20.1	9	77.7
	Date	31,1	12	29	21	31	6	14	13	20	2	2	3	
1999	Total amount	1.6	8.8	7	157.8	297.9	121.2	73.7	119.5	174.4	280.3	56.3	1.4	1,299.9
	Number of rainy day	1	4	3	12	18	9	14	16	21	19	8	1	126.0
	Greatest in 24 hr	1.6	4.7	4	46.8	54.9	43.2	31.1	34	56	109.2	14	1.4	109.2
	Date	30	3	22	28	19	15	17	24	30	25	13	5	
2000	Total amount	0.2	16	17.2	152.8	82.4	77.9	53.1	116.8	109.6	405.4	6.5	0	1,037.9
	Number of rainy day	1	1	3	13	19	18	15	14	18	15	3	0	120.0
	Greatest in 24 hr	0.2	16	12.7	36.6	33.5	23.2	19.8	47.2	16.7	114.8	3.5	0	114.8
	Date	19	26	1	14	31	3	29	3	15	16	25	31,1	
2001	Total amount	2.8	0	190.1	7.3	239.3	95.9	148.3	31.1	310.4	294.8	28.4	1.3	1,349.7
	Number of rainy day	1	0	13	3	19	12	13	16	15	27	6	2	127.0
	Greatest in 24 hr	2.8	0	44.9	4.4	48.1	65.3	48.9	8.3	79.1	62.8	17.4	1.2	79.1
	Date	20	28,1	18	30	25	6	9	4	30	2	5	14	
2002	Total amount	0	0	25	3.1	123.6	195.1	45	111.8	240	N/A	N/A	N/A	743.6
	Number of rainy day	0	0	2	4	14	19	9	18	14	N/A	N/A	N/A	80.0
	Greatest in 24 hr	0	0	24.3	1.6	22.4	51	13.5	26.7	97.9	N/A	N/A	N/A	97.9
	Date	31,1	28,1	7	12	20	13	30	3	22	N/A	N/A	N/A	
Maximum rainfall		8	16	190.1	157.8	297.9	255.9	298.7	197.9	375.4	405.4	348.7	24.5	1,521.5
Average rainfall		1.2	4.4	40.0	46.8	154.5	137.9	119.4	122.6	248.7	268.0	62.6	5.2	1,180.9
Minimum rainfall		0	0	0	0	21.7	62.9	45	31.1	109.6	80.3	0	0	743.6

Table 8 Air Temperatures at Kanchanaburi (450201)

STATION : 450201 KANCHANABURI

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	mean	24.8	28.8	30.3	29.9	30.3	28.3	28.2	27.5	27.7	27.2	27.3	22.7	27.8
	mean max.	31.7	35.7	37.7	35.8	35.7	32.6	32.8	31.6	32.4	32.7	33.2	30	33.5
	maximum	33.5	39	40.8	39.5	39.8	35	35	34.7	36.1	34.6	35.5	34.1	40.8
	day	24	25	25	4	13	2	(3)	31	1	8	28	4	25-Mar
	mean min.	16.5	21.2	23	23.9	25.1	24.2	24	23.6	23.5	22.3	21.9	15.6	22.1
	minimum	13.9	17.6	20.4	21.6	21.5	23	23	22.2	22.4	20.7	20	9.2	9.2
	day	21	1	15	16	14	24	28,31	25	9	13	11	29	29-Dec
1983	mean	24.6	28	30	32.3	30.8	29.6	29.1	27.8	27.2	26.7	24	23.6	27.8
	mean max.	32.4	37.1	38.9	41.1	38.1	35.7	35.1	33.2	32.9	31.3	28.5	30.1	34.5
	maximum	36	40	41.8	43.5	41.2	40.5	38.7	35.5	34.9	34.2	32.1	32.8	43.5
	day	8	21	26	14	1	16	9	1	5	7	3	17	14-Apr
	mean min.	17.3	20.2	23	26.4	26.3	25.8	25.5	24.6	24.3	23.9	20.6	18.6	23.0
	minimum	10.5	15.3	20.5	24	22.8	23.8	23.6	23	22.5	22	12.4	12.5	10.5
	day	25	1	4	1	8	29	24	31	24	31	29	2	25-Jan
1984	mean	24.3	27.6	28.9	30.3	29.4	27.7	27.8	28.5	27.6	26.5	26.1	25.1	27.5
	mean max.	31.5	34.9	36.9	37	35.8	32.7	33.5	33.6	33	31.5	31.6	32.1	33.7
	maximum	35.2	38.1	39.8	39.3	37.8	36	35.2	35.6	36.4	34	34.3	35.5	39.8
	day	21	21	17	7	4	2	20	23	7	12	8	18	17-Mar
	mean min.	18.7	22.4	23.2	25.9	25.4	24.7	24.6	25.1	24.1	23	21.9	19.6	23.2
	minimum	11.6	18	19.1	24	23.5	23.2	22.8	24	22.4	19.9	16.6	16.5	11.6
	day	10	9	3	13	8	20	11	15	29	30	27	5,31	10-Jan
1985	mean	25.8	28.4	30	30.8	29.2	27.9	26.9	27.8	27.2	26.6	26.1	23.5	27.5
	mean max.	33.5	36.7	38.1	38.3	35.3	32.3	31.8	32.8	32.7	31.4	31	30.7	33.7
	maximum	35.7	38.9	40.6	40.9	40.5	35.1	35.4	35.9	35.9	33.3	33.3	33.3	40.9
	day	24	27	28	10,14	6	3	11	19	10	20	21	(3)	10,14/04
	mean min.	19.9	22.1	23.9	25.9	25.1	25.1	23.8	24.7	24	23.8	22.4	17.9	23.2
	minimum	16.8	16.8	17.1	23.5	22.1	23.2	22.4	22.3	22.5	22.1	18.7	13.5	13.5
	day	1	7	2	17	9	11	21	20	24	22	24	17,18	17,18/12
1986	mean	23.4	27.2	28.6	30.4	28.8	28.9	27.9	28.4	28.1	27	26.1	24.4	27.4
	mean max.	31.5	35.5	37.5	38.8	34.5	34.4	33.5	33.4	34.1	31.8	31.4	30.8	33.9
	maximum	35.2	38.5	41.6	41.3	38.8	37.7	36.8	37	37.5	35	33.8	34.2	41.6
	day	19	17,18	28	1	2	4	8	30	17	28	13	31	28-Mar
	mean min.	16.9	20.9	22.4	25.4	25.2	25.4	24.7	25.3	24.8	23.9	22.4	19.6	23.1
	minimum	12.6	17	13.9	23	23.2	24.3	23	24	22.7	22.1	18.8	16.2	12.6
	day	7	2	6	7	9	28	28	9	27	30	25	24	7-Jan
1987	mean	25.3	27.3	29.7	31.5	30.2	29.2	29.6	29.4	28	27.8	26.7	22.4	28.1
	mean max.	33.1	35.6	37.9	39.9	37.9	34.8	35.4	35.5	33.6	33.2	31.1	29	34.8
	maximum	36.5	39	41.2	42.2	41.1	36.9	39.7	39.4	36.8	35.6	34.3	34	42.2
	day	3	27	22	13,14	3	25	25	13	4	18	18	29	13,14/04
	mean min.	19.5	21	24	25.9	25.8	25.7	25.7	25.8	24.8	24.3	23.9	17.3	23.6
	minimum	16.3	16.9	21.2	22.3	23.3	23.9	23.5	24	23.4	20.9	23	14.2	14.2
	day	19	5	17	15	27	6	15	25	7	27	3	24	24-Dec
1988	mean	25.7	28.6	30.5	30.6	28.6	28.5	28.8	28.1	27.7	26.7	24.8	23.7	27.7
	mean max.	33.8	36	38.5	38.1	34.3	34	34.9	34.5	33.4	31.7	29.9	31.1	34.2
	maximum	37.6	39	41.4	41.7	37	36.4	37.5	36.5	36.4	34.6	32.2	34	41.7
	day	30	7	17	6	23,24	11	10	10	4	3	27	25	6-Apr
	mean min.	19.7	23.4	25.2	26.1	25.6	25.1	25.4	25	24.6	23.9	21.6	18	23.6
	minimum	15.7	21	22	23.2	23.6	23.7	23.6	23.7	23.3	20.8	17.8	14	14
	day	21	22	9	18,19	13,31	1	5	(3)	17	31	12	14	14-Dec
1989	mean	26.8	27.5	29.2	31.6	29.8	28.5	29	28.3	28	27.1	25.9	23.9	28.0
	mean max.	34.2	35.4	37.4	40	36.8	34.4	35.2	34.4	34.6	32.4	31.7	32.3	34.9
	maximum	36.9	38.3	40	42.7	40.8	37.5	38.5	37.3	37.9	35	33.5	36.4	42.7
	day	20	20	25	19	2	2	8	31	19	27	13,16	29	19-Apr
	mean min.	21.6	21.8	24	26.1	25.8	25.3	25.4	25.2	24.5	23.8	21.8	17.7	23.6
	minimum	18.2	19.2	19.6	22.9	24.2	23.4	24.1	23.1	23	20.9	17.4	14.5	14.5
	day	17	19	10	10	29	29	25	15	14	22	26	4	4-Dec

Monthly Temperature in Celsius

STATION : 450201 KANCHANABURI

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1990	mean	27.2	28.4	29.7	30.9	29.7	29	28.3	29	28.2	27	26.4	25.1	28.2
	mean max.	35	36.9	38.3	38.6	37.4	34.4	34.1	34.9	34.6	32	32.3	31.9	35.0
	maximum	37.2	39	41	41.7	40.5	36.4	37	38	37.3	35	38	35.2	41.7
	day	11	22	31	1	3,14	21	29	1	7	2,	6	21	1-Apr
	mean min.	21.5	22.3	24.3	25.4	25.9	25.7	24.9	25.6	25	23.9	22.5	19.8	23.9
	minimum	18.9	20.4	22.8	21.6	23.8	24.5	22.6	23.9	23.3	22.4	19	15.6	15.6
	day	28	9	(3)	27	24	6,14	19	31	24	-3	29	6	6-Dec
1991	mean	27.4	27.7	30.3	31	30.7	28.7	28.8	27.8	28.4	26.8	25.7	25	28.2
	mean max.	N/A	36.1	38.7	38.7	37.6	34	34.3	33.3	34.6	32.3	32.3	32	34.9
	maximum	N/A	39.7	41	42.4	41	36	38.2	36.8	36.6	35.4	35.2	35.7	42.4
	day	N/A	14	22	14	5	5,30	7	4,	11	1	30	27	-
	mean min.	21.4	21.2	24.9	26.2	26	25.3	25.4	24.9	25.2	23.6	20.8	20.1	23.8
	minimum	18	17.7	22.5	22.5	22.8	23.5	23.4	23.5	23.2	20.5	17.3	17	17
	day	31	1	2	1,	14	19	27	19	16	30	21	21,22	21,22/12
1992	mean	24.6	27.4	29.7	32.6	31.7	29.2	28.6	27.7	28.3	25.7	25.1	25.3	28.0
	mean max.	31.7	35.6	38.5	41.5	40	36.2	35.1	33.3	34.2	30.6	31	32.5	35.0
	maximum	35.5	38	41	43.5	42.8	40.6	39.1	36.3	37.1	34.5	34.1	34.6	43.5
	day	30	14	(3)	14,20	6	2	4	10	24	2	19	29	14,20/04
	mean min.	19.4	21.5	23.5	27	27.3	25.8	25	25	24.8	23.3	21	20	23.6
	minimum	14	19.2	20.4	25.1	25.8	24.3	22.6	23.2	20.2	20.3	17.4	15.1	14
	day	19	14	10	2	5	4	27	3	24	30	30	2	19-Jan
1993	mean	26	26.8	29.5	31	30.1	29.6	29	27.9	27.7	26.9	27	24.4	28.0
	mean max.	33.3	35.6	37	38.4	36.9	35.6	34.9	33.9	33.8	31.9	33.7	31.1	34.7
	maximum	36.2	38.6	40.9	41.1	41.5	38	38.7	36.1	35.7	34.5	35.6	35.6	41.5
	day	23	27	28	5	5	5	4	27	14	17	20	4	5-May
	mean min.	20.7	20.6	24.6	26.2	26.1	26.3	25.7	25	24.4	23.8	22.2	19.7	23.8
	minimum	13	14.1	22.8	23.5	22.1	24.5	24.1	23.2	23	22.6	17.2	13.8	13
	day	31	1	13	23	16	9,13	13	25	23	19,20	4	27	31-Jan
1994	mean	26.5	29.3	28.8	31.3	29.4	28.2	27.3	27.5	28	26.6	27.2	26.7	28.1
	mean max.	34.4	37.3	35.9	38.4	35.6	33.7	31.6	32.3	33.6	32.8	33.3	33.8	34.4
	maximum	36.7	40	39.1	40.4	39.7	36.3	35.9	36	36	35.5	34.7	35.5	40.4
	day	13	19	7	11	2	12	4	12	23	11	29	(3)	11-Apr
	mean min.	20.6	23.8	24	26.3	25.6	25.4	24.7	24.7	24.8	22.3	22.8	21.5	23.9
	minimum	17.5	20.3	21	22.7	22.5	23.7	21.1	23.5	22.8	17	19.1	17	17
	day	27	23	24	15	20	30	11	9	29	25	5	30	25-Oct
1995	mean	26.1	27.4	30.1	31.3	29.9	29.2	28.6	28	27.3	27.4	26.3	24.6	28.0
	mean max.	33.8	35.5	37.6	38.8	36.1	35.2	34.2	33.8	32.4	32.6	31.3	31.2	34.4
	maximum	36.4	38.8	40.7	40.9	40.2	37.1	37.4	37.2	35.3	34.6	34	35.1	40.9
	day	22	19	12	23	27	16,24	23	19	7	21,22	13	18,19	23-Apr
	mean min.	20.5	21.1	24.9	26.5	26	26.1	25.3	25.1	24.6	24.2	22.9	19.6	23.9
	minimum	14	15.9	21.3	23	22.4	24.8	23.7	23.5	22.8	22.5	19.1	13.1	13.1
	day	8	7	2	7	18	10	18	16	11	8	25	31	31-Dec
1996	mean	25.8	26.8	29.8	30.3	29	28.7	28	28	27	27.4	26.8	24.3	27.7
	mean max.	33.8	34.1	37.8	37.2	35.3	34.3	33.3	33.7	32.4	32.8	32.1	31	34.0
	maximum	36.5	39.1	40.8	40.9	37.9	38	38.2	36	34.6	35.5	34.9	34.8	40.9
	day	25	17	18	1	16	1	5	22,29	25	6	11	5	1-Apr
	mean min.	19.9	21.3	24.7	26.1	25.7	25.4	24.8	24.9	24.4	24.2	23.3	19.5	23.7
	minimum	13.1	17.5	21.1	23.5	24.4	23.2	22.8	22.5	22.6	22	20.5	14.1	13.1
	day	1	12	4	3,15	17	21	30	21	7	26	20	28	1-Jan
1997	mean	25	28.2	29.5	30.2	31	31.2	28.8	28.1	28.1	28.3	27.3	27.2	28.6
	mean max.	33.3	36	37.7	37.9	38.1	37.7	33.6	32.8	33.6	33.3	32.5	34	35.0
	maximum	36	38.7	40	40.3	40.4	40.6	37.9	35.4	37.3	35.7	36.1	36.3	40.6
	day	23	17	19	21	5	14	6	12	10	23	26	21	14-Jun
	mean min.	19	22.4	23.9	25.1	26.7	26.9	25.8	25.3	24.8	24.8	23.1	21.9	24.1
	minimum	15.4	18.7	20.4	22.3	23.5	25.2	24.3	23.1	23	23.5	20.3	19.5	15.4
	day	12	9	7	26	10	10,25	23	4	11	27	6,	11	12-Jan

Monthly Temperature in Celsius

STATION : 450201 KANCHANABURI

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1998	mean	27.9	30	31.3	32.3	31.6	30	29.4	29.4	28.3	27.7	26.3	25.8	29.2
	mean max.	35.5	38	39.5	40.6	38.7	36	35.2	35	33.6	32.1	31	31.1	35.5
	maximum	37.6	40.8	42.1	43	41.9	38.1	38.7	37.2	36.6	35.5	34	35.2	43
	day	18	25	18	14,16	2	5,23	21	14	9	17	1	3	14,16/04
	mean min.	22.1	24.2	25.9	26.9	27.3	26.4	26	25.9	25.1	24.5	23	21.7	24.9
	minimum	18.9	22.1	22.5	24.6	25.3	24.2	24.2	24.6	22.9	22.7	20.2	17.2	17.2
	day	16	1	9	2	17,30	29	4	26	12	26	13	14	14-Dec
1999	mean	26.2	27.3	30.5	29.3	28.2	28.4	28.9	28.4	28.4	26.9	26.3	22.7	27.6
	mean max.	32.6	33.9	38.3	35.5	33.7	33.5	34.1	34.1	34.1	31.3	30.9	28.1	33.3
	maximum	36.5	38.6	40.9	40.9	36.2	37	36.4	38.2	36.7	36	34	33.1	40.9
	day	24	2	18	3	18	29	19	22	5	9	13	31	18-Mar
														3-Apr
	mean min.	21.3	22.1	25.2	25.7	25.2	25.4	25.9	25.2	25.2	24.1	22.9	18.5	23.9
	minimum	16.8	17.4	22.5	23.3	23.7	24.3	24.7	23.5	24	22.3	18.8	9.3	9.3
2000	day	7	6	8	28	1	1	3,25	5	6,	1	21	25	25-Dec
	mean	26.4	26.5	28.8	29.1	28.9	28.5	28.4	28.6	27.9	27.7	26	26.5	27.8
	mean max.	33.3	34	35.8	35.1	34.5	34.1	33.6	34.3	33.6	32.6	31.5	32.8	33.8
	maximum	36.3	37.1	38.7	40.8	36.6	36.5	37.4	37.6	37.4	35.1	33.9	35.2	40.8
	day	15	12,14	17,20	5	(3)	8	31	11	26	20	30	30	5-Apr
	mean min.	21.3	21	23.8	25.4	25.5	25.3	25.1	25.3	24.6	24.6	21.7	21.6	23.8
	minimum	17.2	15	20.8	23.3	23.5	23.5	23.8	22.3	22.5	23.3	16.8	17.1	15
2001	day	29	4	9	16	6	24	2	11	18	27	4	25	4-Feb
	mean	27.8	28.7	28.5	32	29.2	29.1	29.1	28.6	28.8	27.3	25	25.9	28.3
	mean max.	34.9	36.4	34	39.6	35.2	34.8	34.5	33.6	35.4	31.5	30.4	31.5	34.3
	maximum	38.4	39.4	39.4	41.9	38.1	38.3	38.1	36.6	39.8	34.1	33.2	34.6	41.9
	day	25	25	6	11	7	6	26	23	18	16	4	6	11-Apr
	mean min.	22.8	23	24.7	27.1	25.9	25.8	25.5	25.7	25.3	24.6	21	21.4	24.4
	minimum	18.2	19.1	21.3	25.4	24.4	23.4	23.6	24.1	23.8	22.3	16.1	15.7	15.7
2002	day	3	17	13	16	2	28	12	6	23	3	22	24	24-Dec
	mean	25.8	28.3	29.9	31.3	29.1	29.2	29.1	28.3	27.6	N/A	N/A	N/A	28.7
	mean max.	32.5	35.3	36.8	38.9	34.3	34.8	34.4	33.8	32.4	N/A	N/A	N/A	34.8
	maximum	36.3	39	40.5	41.1	38.5	37.6	36.6	36.7	35.6	N/A	N/A	N/A	41.1
	day	25	28	15	10	5	8	5,12	24	1	N/A	N/A	N/A	-
	mean min.	20.3	23	25.1	26.1	25.5	25.8	25.6	25.2	24.8	N/A	N/A	N/A	24.6
	minimum	16.9	20.4	21	24.2	23.7	23.7	24.4	23.8	23.7	N/A	N/A	N/A	16.9
	day	4	2	8	28,29	18	11	19	18	23	N/A	N/A	N/A	-
	mean	mean	25.9	27.9	29.7	31	29.8	28.9	28.6	28.2	27.9	27.1	26.1	28.0
	mean	mean max.	33.3	35.8	37.6	38.5	36.3	34.5	34.1	33.7	33.6	32.1	31.5	34.4
	ext.	maximum	38.4	40.8	42.1	43.5	42.8	40.6	39.7	39.4	39.8	36	38	43.5
	mean	mean min.	20	21.9	24.2	26	25.9	25.6	25.2	25.1	24.6	23.8	22.2	23.7
	ext.	minimum	10.5	14.1	13.9	21.6	21.5	23	21.1	22.2	20.2	17	12.4	9.2

Remark : In line day, if the number of days with maximum or minimum temperature greater than 2 days, the number of days is shown in parenthesis, other number(s) showing the day with maximum or minimum temperature in that month.

Table 9 Evaporation at Kanchanaburi (450201)**STATION : 450201 KANCHANABURI**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	138.0	158.1	217.4	199.3	178.9	127.7	157.1	118.9	124.6	139.6	135.2	130.4	1,825.2
1983	140.3	172.9	217.5	228.6	224.3	174.2	188.1	172.8	156.6	115.2	94.1	122.8	2,007.4
1984	112.7	137.6	195.5	182.3	190.0	132.6	170.2	176.1	132.9	126.8	127.9	135.1	1,819.7
1985	131.8	167.4	216.0	219.7	161.7	114.6	145.6	151.0	136.1	119.3	106.2	125.2	1,794.6
1986	125.0	138.2	206.0	198.2	178.7	165.2	159.8	180.0	156.3	127.1	129.9	122.2	1,886.6
1987	152.6	157.9	220.7	239.4	212.2	161.2	197.1	200.1	145.3	135.1	102.2	132.6	2,056.4
1988	151.0	152.5	195.8	184.8	148.3	154.3	161.4	131.4	115.6	108.9	110.4	141.0	1,755.4
1989	131.5	139.3	206.3	258.7	200.0	164.4	181.0	182.8	164.1	133.4	135.7	140.8	2,038.0
1990	138.2	157.4	206.0	214.6	176.1	156.7	157.8	165.6	148.0	133.8	123.7	140.1	1,918.0
1991	152.0	148.4	207.3	207.0	205.9	143.9	158.6	138.7	156.1	119.9	177.5	163.8	1,979.1
1992	122.5	67.4	207.4	240.7	225.0	150.1	165.7	147.9	138.1	101.3	136.6	127.8	1,830.5
1993	133.3	139.6	187.8	210.3	177.5	171.9	168.9	132.7	144.4	100.8	137.3	154.0	1,858.5
1994	154.7	180.5	184.8	248.3	189.3	134.9	126.1	151.9	160.2	174.1	178.0	181.5	2,064.3
1995	164.8	182.9	223.7	262.8	193.7	174.9	160.6	142.6	109.0	84.5	127.9	194.7	2,022.1
1996	158.9	165.8	208.7	192.7	170.3	148.8	126.2	139.1	102.7	115.3	119.6	128.0	1,776.1
1997	139.3	147.8	191.6	209.8	219.4	218.2	142.1	125.9	135.5	137.7	118.3	142.3	1,927.9
1998	143.5	167.3	209.8	210.6	197.7	176.4	163.6	182.9	137.3	99.1	105.0	135.0	1,928.2
1999	130.3	133.6	206.0	156.8	153.1	138.0	157.6	137.1	154.7	102.3	101.6	127.2	1,698.3
2000	132.9	129.6	165.8	152.7	148.1	140.1	138.5	140.3	123.3	122.4	126.4	137.3	1,657.4
2001	135.5	146.9	146.5	217.0	154.3	158.5	150.2	129.6	151.6	99.8	121.2	129.0	1,740.1
2002	137.0	143.4	184.8	227.3	161.3	147.9	146.5	137.2	116.6	N/A	N/A	N/A	1,402.0
Max.	164.8	182.9	223.7	262.8	225.0	218.2	197.1	200.1	164.1	174.1	178.0	194.7	2,064.3
Mean	139.3	149.3	200.3	212.5	184.1	155.0	158.2	151.6	138.5	119.8	125.7	140.5	1,856.5
Min.	112.7	67.4	146.5	152.7	148.1	114.6	126.1	118.9	102.7	84.5	94.1	122.2	1,402.0

Table 10 Wind Speed at Kanchanaburi (450201)

STATION : 450201 KANCHANABURI

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1982	spd.	1.4	2.2	2.4	2.8	3	3	3.3	2.9	2.5	1.6	1.6	2.1
	prev.	NE	SE	E	SW	W	SW	SW	SW	W	W	NE	NE
1983	spd.	1.8	2.3	3	3.2	2.9	2.8	2.6	2.1	1.1	1.4	2	2
	prev.	N	E	E	SW	W	W	W	W	S	SW	N	N
1984	spd.	1.3	2	1.9	2.1	2.5	1.9	2.6	3.7	1.5	1.3	2.2	1.8
	prev.	NE	E	E	W	W	SW	SW	W	SW	W	N	N
1985	spd.	1.8	2.6	3	3.5	2.3	2.6	2.5	3	2.5	1.7	1.6	1.7
	prev.	S	S	S	S	S	S	S	S	S	N	N	N
1986	spd.	1.7	2.1	3	2.5	3.6	2.3	3.1	3.9	2.3	1.6	2.3	1.8
	prev.	NE	W	W	W	W	W	W	W	W	W	NE	NE
1987	spd.	1.9	2.2	3	3.1	2.7	2.1	3.6	3.1	2.1	1.2	1.2	2.1
	prev.	NE	SE	W	W	W	W	W	W	W	W	NE	NE
1988	spd.	1.4	2.1	2.6	2.1	2.2	3	3	1.9	1.2	1.5	2.3	1.7
	prev.	W	SE	W	SE, W	W	W	W	W	SW, W	W	NE	NE
1989	spd.	1	1.2	1.6	2.4	1.1	1.7	2.2	2.6	1.4	0.3	1.5	1
	prev.	NE	SE	SE	W	W	W	W	W	W	NE	NE	NE
1990	spd.	0.7	1.6	1.9	2.4	1.3	1.8	2.1	3.1	1.3	0.9	1.2	0.8
	prev.	SE	SE	SE	SW	S	SW	SW	SW	SW	N	N	N
1991	spd.	0.4	0.6	1.3	1.1	0.9	0.8	1.9	1.4	1.1	0.6	1	1.1
	prev.	E	E	E	E	SW	SW	SW	SW	SW	N	NE	NE
1992	spd.	0.6	1	1.4	2.2	1.8	2.1	2.7	3.3	3	1.1	2.9	1.8
	prev.	NE	W	E	SW	SW	SW	W	W	W	N	N	N
1993	spd.	2	2.2	2.5	3	2.1	2.9	3.2	2.3	1.6	1.2	1.8	2.7
	prev.	W	E	SE	W	SW	W, SW	W	SW	W	N	NE	N
1994	spd.	1.5	2.1	1.9	2.8	2.1	1.6	1.8	2.5	2.8	2.3	2.8	1.7
	prev.	E	SW, E	SE	W	W	W	W	W	W	NE	NE	NE
1995	spd.	1.3	1.7	1.6	1.1	1	1.3	1.1	1.2	0.9	1.5	1.7	2.3
	prev.	E	SE	SE	SE	SW	SW	SW	SW	W	NE	NE	NE
1996	spd.	1	2.2	1.6	1	0.6	0.3	0.4	0.4	0.3	0.9	1.3	1.5
	prev.	SE	NE	SE	S	W	W	SW	W	SW	NE	NE	NE
1997	spd.	0.8	0.9	1.3	0.9	1.3	1.2	0.8	1.1	0.9	0.9	1.1	0.9
	prev.	SE, NE	SE	SE	S	W	W	W	W	W	NE	NE	NE
1998	spd.	0.7	1.1	1.8	1.4	1.6	0.9	0.9	1	0.9	0.5	0.8	1.5
	prev.	SE	SE	SE	SE	SE	SW S	W, S	W	W	NE	NE	NE
1999	spd.	0.9	0.9	1.3	0.8	0.4	0.6	0.9	0.6	0.7	0.5	0.8	1.7
	prev.	NE	NE	SE	SE	W	W	W	W	W	NE	NE	NE
2000	spd.	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.9	0.8	0.5	1.3	1
	prev.	NE	NE	SE	S	SW	SW	W	W	W	NE	NE	NE
2001	spd.	0.8	0.6	0.7	1.1	0.7	0.9	0.7	0.8	0.6	0.3	1.2	1
	prev.	SE	SE	SE	SE	W	W	W	W	W	NE	NE	NE
2002	spd.	0.8	0.7	1.1	1.2	0.6	0.7	0.9	0.8	0.6	-	-	-
	prev.	NE	SE	SE	SE	SW	SW	SW	W	W	-	-	-
Mean Speed		1.2	1.6	1.9	2	1.7	1.7	2	2	1.4	1.1	1.6	1.6
Prev. Wind		NE	SE	SE	W	W	W	W	W	W	NE	NE	NE

- is missing value/incomplete data

Table 11 Relative Humidity at Kanchanaburi (450201)

STATION : 450201 KANCHANABURI

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	Mean	61	58	57	63	66	73	71	74	74	78	74	66	68
	Mean Max.	87	82	83	83	82	88	86	87	87	92	90	88	86
	Mean Min.	38	35	34	34	44	59	56	60	59	59	53	40	48
1983	Mean	61	58	55	55	62	66	69	76	81	82	78	70	68
	Mean Max.	82	82	77	74	79	81	84	88	92	95	91	87	84
	Mean Min.	38	29	29	27	41	46	50	60	63	69	59	46	46
1984	Mean	69	66	60	64	69	74	72	68	76	78	72	65	69
	Mean Max.	88	85	81	81	83	86	85	81	89	91	86	84	85
	Mean Min.	45	42	35	43	50	58	54	52	57	59	52	42	49
1985	Mean	65	56	52	61	75	75	76	72	78	82	79	69	70
	Mean Max.	85	79	76	79	89	87	90	86	91	93	93	90	87
	Mean Min.	40	29	27	45	54	61	58	54	59	65	60	41	49
1986	Mean	64	62	56	64	72	72	73	69	73	82	73	71	69
	Mean Max.	85	84	77	82	84	85	86	82	87	93	87	88	85
	Mean Min.	36	33	29	37	52	55	53	51	52	64	51	46	47
1987	Mean	62	61	58	58	68	74	66	69	78	79	84	68	69
	Mean Max.	82	82	78	76	85	87	81	84	89	92	94	86	85
	Mean Min.	34	33	32	32	42	54	45	49	60	58	67	41	46
1988	Mean	66	67	59	65	78	74	71	77	81	82	68	67	71
	Mean Max.	86	86	79	83	90	86	85	92	93	92	85	87	87
	Mean Min.	40	44	34	42	61	58	52	56	64	65	50	43	51
1989	Mean	67	65	60	56	69	70	70	72	76	81	73	65	69
	Mean Max.	86	86	78	75	85	84	86	85	90	93	89	85	85
	Mean Min.	44	38	37	32	49	53	51	55	56	63	53	40	48
1990	Mean	64	64	61	59	71	70	69	69	74	82	77	68	69
	Mean Max.	83	86	82	79	86	84	84	83	88	94	92	87	86
	Mean Min.	40	36	34	35	49	54	52	53	54	64	57	46	48
1991	Mean	65	58	64	63	68	74	73	78	74	81	70	66	70
	Mean Max.	84	80	84	80	85	89	85	89	86	93	88	84	86
	Mean Min.	41	32	39	39	47	58	58	62	55	62	48	45	49
1992	Mean	69	59	54	50	57	69	70	74	71	83	69	65	66
	Mean Max.	88	80	77	68	74	84	85	86	84	92	85	84	82
	Mean Min.	45	33	27	26	36	49	50	57	53	67	49	41	44
1993	Mean	62	57	62	59	67	67	68	72	75	80	67	62	67
	Mean Max.	82	79	82	76	82	81	81	85	89	91	84	81	83
	Mean Min.	39	30	37	36	46	48	51	53	54	64	44	41	45
1994	Mean	61	56	64	62	72	75	78	76	76	75	65	63	69
	Mean Max.	82	76	82	79	87	87	89	88	88	91	82	83	85
	Mean Min.	36	31	42	41	53	57	64	61	58	53	45	40	48
1995	Mean	60	56	60	61	70	72	73	77	83	80	74	63	69
	Mean Max.	81	78	80	79	85	86	88	91	94	92	89	83	86
	Mean Min.	37	30	35	37	50	55	55	59	66	63	56	41	49

Monthly Relative Humidity (%)

STATION : 450201 KANCHANABURI

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1996	Mean	62	57	62	65	75	76	77	77	83	79	76	67	71
	Mean Max.	83	77	82	82	88	89	90	90	94	92	90	86	87
	Mean Min.	37	36	37	42	55	58	59	59	67	62	57	44	51
1997	Mean	63	62	63	61	61	59	70	75	78	78	74	66	68
	Mean Max.	85	81	84	81	77	75	82	87	91	90	89	86	84
	Mean Min.	37	39	34	36	41	40	54	60	59	60	54	43	46
1998	Mean	64	60	57	60	66	70	73	72	78	80	77	67	69
	Mean Max.	83	82	76	81	83	84	87	85	91	92	91	84	85
	Mean Min.	40	35	32	34	43	52	54	54	60	63	58	47	48
1999	Mean	65	66	57	73	78	72	70	72	73	83	78	64	71
	Mean Max.	83	84	75	86	91	85	84	86	87	93	92	83	86
	Mean Min.	45	43	34	53	58	56	53	53	53	67	60	44	52
2000	Mean	67	66	63	75	76	75	74	72	75	80	69	65	71
	Mean Max.	86	85	81	89	89	89	87	84	89	92	87	84	87
	Mean Min.	43	41	39	54	57	57	56	54	55	62	48	42	51
2001	Mean	65	58	72	62	73	70	71	76	74	84	71	66	70
	Mean Max.	84	78	87	80	87	85	86	87	89	94	88	83	86
	Mean Min.	41	33	54	39	54	51	54	61	53	69	51	46	51
2002	Mean	63	65	63	60	74	72	71	73	79	N/A	N/A	N/A	69
	Mean Max.	83	86	83	80	88	86	86	88	90	N/A	N/A	N/A	86
	Mean Min.	39	39	39	35	57	54	53	53	62	N/A	N/A	N/A	48
Mean		64	61	60	62	70	71	72	73	77	80	73	66	69
Mean Max.		84	82	80	80	85	85	86	86	89	92	89	85	85
Mean Min.		40	35	35	38	49	54	54	56	58	63	54	43	48

Table 12 Rainfall at Kanchanaburi (450201)

STATION : 450201 KANCHANABURI

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	Amt.	0	36.6	34.2	207.2	111	93.8	95.1	51.2	86.7	111	30.5	17.8	875.1
	R-day	0	2	4	9	13	20	15	19	18	13	4	2	119.0
	Max.	0	24	26.5	82.6	36.8	15.2	22.2	10	18.3	37	19.3	15.8	82.6
1983	Amt.	0.4	0	0	4.3	104.1	27.3	144.7	204.1	303.1	255	120.1	3.5	1,166.6
	R-day	1	0	0	1	9	12	18	19	22	24	12	2	120.0
	Max.	0.4	0	0	4.3	42.7	7.7	26	58.8	57.1	67.7	37.8	3.3	67.7
1984	Amt.	3.2	8.8	29.5	49.3	118.5	125.8	126.3	16.9	248.6	204.5	26.7	T	958.1
	R-day	2	1	5	5	12	15	12	6	16	16	2	0	92.0
	Max.	2	8.8	10.1	35.2	41.5	36.7	63.5	8.6	110.5	62.7	25.9	0	110.5
1985	Amt.	0.2	0	1	57.6	142.2	32.1	192.2	78.3	222.2	214.4	79.1	T	1,019.3
	R-day	1	0	1	10	14	16	18	13	20	14	6	0	113.0
	Max.	0.2	0	1	20.4	61.6	14.5	48.8	35.7	54.7	63.6	20	0	63.6
1986	Amt.	0	0.1	1.8	51.8	165.5	66.2	89	63.3	189.2	321.8	4.3	21.1	974.1
	R-day	0	1	1	7	12	15	15	14	14	19	3	3	104.0
	Max.	0	0.1	1.8	33.6	96.9	17.8	36.1	32	67.8	62.9	2.9	14.7	96.9
1987	Amt.	0	T	5.2	12.3	153.4	80.8	40.4	32	275.3	168.6	360.4	0	1,128.4
	R-day	0	0	1	2	13	11	9	14	18	13	18	0	99.0
	Max.	0	T	5.2	11.8	35.8	37.5	18.6	14.7	55.2	99.4	90.5	0	99.4
1988	Amt.	0	33.2	13.2	125.1	156.7	72.1	58.5	174.1	324.3	256.2	1.2	0	1,214.6
	R-day	0	3	1	10	19	14	17	17	19	13	2	0	115.0
	Max.	0	31.6	13.2	59.5	64.1	25.3	29.4	37.5	81.7	93.8	1	0	93.8
1989	Amt.	22.3	12.7	1.1	52.5	90.6	75.8	54.6	86.1	200.5	168.1	44.1	0	808.4
	R-day	4	2	2	3	14	11	12	16	17	16	4	0	101.0
	Max.	11.2	9.6	0.6	48.5	28.7	22	12.2	40.4	54.7	38.3	31.1	0	54.7
1990	Amt.	0	0.5	25.6	81.2	224.4	54.2	68.3	47.5	115.3	299.8	50.6	0	967.4
	R-day	0	1	6	5	12	12	16	9	17	16	7	0	101.0
	Max.	0	0.5	17.8	27.2	79.5	26.8	19.1	15.2	27.9	49.3	24.3	0	79.5
1991	Amt.	0	25.5	14.8	52.3	196.2	78.5	51.2	79.4	165.3	271.4	17.8	44.3	996.7
	R-day	0	2	2	3	8	13	15	15	16	20	1	2	97.0
	Max.	0	20.7	11.7	32.2	68.6	32.6	13.8	28.6	55.8	45.3	17.8	41.8	68.6
1992	Amt.	21.6	9.9	0	T	15.6	64	197.2	140.9	75.4	319.3	T	15.8	859.7
	R-day	3	2	0	0	6	17	13	16	12	19	0	2	90.0
	Max.	13.4	8.5	0	T	4.6	17.1	37.5	30.7	37.7	53.6	T	15.6	53.6
1993	Amt.	T	0	30.1	21.6	124.5	55.5	59.7	74	383	189.4	0.2	17	955.0
	R-day	0	0	4	3	13	12	12	20	21	19	1	2	107.0
	Max.	T	0	25.2	17.9	75.5	14.1	18.1	17	123	38.3	0.2	11.7	123.0
1994	Amt.	0	T	45.1	51.3	195.4	99.5	169.8	105.8	276.3	190.9	2.6	T	1,136.7
	R-day	0	0	6	2	16	18	20	15	16	13	1	0	107.0
	Max.	0	T	16.4	43.4	69.7	28.1	33.6	30.8	100.8	34.3	2.6	T	100.8
1995	Amt.	0	0.3	25.2	64.1	102.6	68.8	95.3	186.8	298.4	96.9	27.2	0	965.6
	R-day	0	1	3	3	11	13	18	22	24	14	6	0	115.0
	Max.	0	0.3	21	26.5	47.1	24.1	32.3	47	84.2	28.6	18.7	0	84.2
1996	Amt.	0	T	18.1	64.9	143.3	169	209.5	181.5	469.7	192.3	47.4	0.5	1,496.2
	R-day	0	0	2	10	16	14	18	14	23	15	7	1	120.0
	Max.	0	T	15.7	37.6	34.9	43.4	44.6	67.4	80.6	58.6	19.2	0.5	80.6
1997	Amt.	0	T	6.3	22.9	24.7	3.2	60.5	135.6	252.8	85.9	78.1	0	670.0
	R-day	0	0	2	2	7	5	16	21	17	10	4	0	84.0
	Max.	0	0	4.6	18.5	10.3	2.3	19.5	46.9	78.3	33.4	63.8	0	78.3
1998	Amt.	0	10.7	0	2.2	96	130.9	123.3	119.6	125.2	455.8	139.6	0	1,203.3
	R-day	0	3	0	1	15	10	16	14	17	12	11	0	99.0
	Max.	0	6.8	0	2.2	39	28.1	45	36.7	25.9	132.4	60.6	0	132.4
1999	Amt.	0.5	23.3	1.1	271.7	190	39.5	69.2	93.8	99.1	305.7	80.9	4.7	1,179.5
	R-day	1	4	3	15	17	15	15	14	17	16	7	3	127.0
	Max.	0.5	20.4	0.5	57.3	37.9	15	43.3	64.1	31.2	111.7	42.1	3.1	111.7
2000	Amt.	3.3	79.3	36.9	267.1	142.4	80.2	48.7	102.9	153.8	139.1	15.7	0	1,069.4
	R-day	2	4	3	14	17	12	16	19	12	17	3	0	119.0
	Max.	2.1	52.9	28.7	89.8	71	20.1	27.8	47.2	48.3	36.7	13.9	0	89.8
2001	Amt.	3.9	0	101.6	4.5	79.7	92.7	49.9	72.6	134.5	222.5	15.7	T	777.6
	R-day	2	0	7	3	14	13	18	14	21	22	2	0	116.0
	Max.	3.7	0	48.7	3.1	34.8	37.2	19	38.3	27.2	39.2	11.2	T	48.7
2002	Amt.	0	0.2	3.6	49.1	174.4	81	57.8	41.4	251.9	N/A	N/A	N/A	659.4
	R-day	0	1	3	5	15	15	12	16	20	N/A	N/A	N/A	87.0
	Max.	0	0.2	2.8	23.6	33.4	20.2	18.6	6.8	71.8	N/A	N/A	N/A	71.8
Maximum		22.3	79.3	101.6	271.7	224.4	169.0	209.5	204.1	469.7	455.8	360.4	44.3	1,496.2
MEAN		2.8	14.2	18.8	75.7	131.0	75.8	98.2	99.4	221.5	223.4	60.1	7.8	1,003.9
Minimum		0.0	0.0	0.0	2.2	15.6	3.2	40.4	16.9	75.4	85.9	0.2	0.0	659.4
MEAN R-Day		0.8	1.3	2.7	5.4	13.0	13.5	15.3	15.6	18.0	16.1	5.1	0.9	106.3

Table 13 Air Temperatures at Thong Pha Phum (45040)

STATION : 450401 THONG PHA PHUM

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	mean	No Data												
	mean max.	31.3	35.2	37.4	35.1	34.2	29.8	29.4	28.3	29.6	32	32.3	29.7	32.0
	maximum	32.6	38.7	39.3	37.2	38	34.4	32.5	30.6	32	33.4	33.5	32.5	39.3
	day	25,31	27	13	30	2	5	20	26	(3)	19	4,18	2	13-Mar
	mean min.	14.1	15.4	18.8	21.4	22.8	22.7	22	21.8	22	22.1	21.6	15.1	20.0
	minimum	11.5	12.6	13.3	18.3	20.4	21.3	20.8	20.7	20.8	20	19.8	8.8	8.8
	day	20	9	1	2	1	22	25	7	15	(3)	11	30	30-Dec
1983	mean	No Data												
	mean max.	31.2	34.9	37.5	39.3	36.9	32.4	31.1	30.2	31.5	30.5	29.6	30.2	32.9
	maximum	33.7	37	39.5	40.8	41.5	38	34	32.8	33.4	33	33.2	32.7	41.5
	day	12	22	29	14	1	18	11	4	22	21	17	20	1-May
	mean min.	16	16.3	19.4	23.5	24.6	24.1	24	23.7	23.9	23.4	19.4	16.2	21.2
	minimum	10.5	11.7	15.4	21.2	21.8	22.3	22.4	22.8	23.2	22.2	9.9	9.5	9.5
	day	27	12	12	10,16	3	29	1	18	15	30	29	2	2-Dec
1984	mean	No Data												
	mean max.	31.4	34.6	35.7	35.6	33.5	29.5	30	29	31	30.8	31.2	31.4	32.0
	maximum	34.5	37.2	38.3	38.5	35.9	32.9	32.1	31	33	33	33.2	33.8	38.5
	day	31	14	20	21	25	3	20	23	26	2	14	21	21-Apr
	mean min.	16.7	21.2	20.6	23.8	23.7	23.6	23.2	23.2	23	22.2	19.7	17.4	21.5
	minimum	10.7	16.4	15.4	22	21.8	22.4	22.3	22.4	21.5	18.5	13.5	15	10.7
	day	10	8	9	2	6	27	23	17	13	27	27	5,31	10-Jan
1985	mean	No Data												
	mean max.	33	34.9	36.5	36.1	34.2	28.8	29.2	29.1	30.4	31.2	31.1	30.4	32.1
	maximum	34.7	37.2	39.4	38.8	37.1	32.4	32.7	32	32.5	33.2	32.8	32.8	39.4
	day	23	27	30	16	6	3	25	18	29	26,28	9	11	30-Mar
	mean min.	18.7	19	21.4	23.9	24.1	23.4	22.6	23	22.8	22.1	20.6	16.1	21.5
	minimum	15.4	13.8	14.5	22	22.2	22.2	21.2	22.1	21.9	19.5	16.5	10.3	10.3
	day	1	7,	3	19	1	19	16	7	18	7	24	25	25-Dec
1986	mean	No Data												
	mean max.	30.8	34.2	35.4	35.7	31.3	30.3	29.3	29.2	31.3	31.7	30.9	30.9	31.8
	maximum	34.4	36	38.4	38.2	36	33	32.5	31.6	33.5	34	33	32.8	38.4
	day	20	24	28	3	3	4	31	31	27,28	21,22	8	27,31	28-Mar
	mean min.	14.6	18	19.4	23.2	23.5	23.7	23.2	23.3	22.8	22.9	19.8	17	21.0
	minimum	10.1	13.6	11.5	21.1	22.6	22	22.1	22.2	20.1	20	16.2	13.5	10.1
	day	9	20	5	5	26	27	29	12,18	23	31	25,30	24	9-Jan
1987	mean	No Data												
	mean max.	32.2	34.3	35.1	36.2	34.5	31.4	30.7	30.6	31.2	32.5	31.2	29.3	32.4
	maximum	34.9	36.5	38.5	38.8	36.4	34.8	33.6	34.7	34	35	33.5	32	38.8
	day	22	20,28	26	14	26	3	25	9	30	19	24	-3	14-Apr
	mean min.	15.7	16.8	20.3	21.9	22.6	22.7	22	21.7	23	23.1	23.4	14.5	20.6
	minimum	13.3	12	16.8	17.7	20.8	21.5	21	20.5	21	18.6	21.5	10.6	10.6
	day	14	13	17	4	15	22	1	8	(3)	28	30	21	21-Dec
1988	mean	-	-	-	-	-	-	-	26.2	27	25.7	23.8	22.1	25.0
	mean max.	33.1	35	36.8	36.6	32.5	29.8	30.9	30.6	32.4	30.2	29.8	30.4	32.3
	maximum	36.1	37	39.8	39.8	35	33.5	33.5	33.2	33.5	33	31.5	33.5	39.8
	day	27	8	17	8	12	11	10	22	10	23	3	21,23	17-Mar
														8-Apr
	mean min.	16.4	20.9	21.7	23.9	24.3	23.2	23.4	23.6	23.4	22.7	18.9	14.7	21.4
	minimum	13.2	18.6	18.5	22.4	22.2	21.6	22.4	22.8	21.9	19.5	15	11	11
1989	day	4,21	22	24	14	31	29	23	22	25	31	6	14	14-Dec
	mean	25.5	25.9	27.4	29.7	27.8	26.1	26.4	25.7	26.2	26.4	24.9	22.3	26.2
	mean max.	33.3	33.9	34.4	36.8	33.6	29.8	30.9	29.9	31	31.9	31.8	31.3	32.4
	maximum	34.8	36.6	37.5	39	37.6	32.7	33.5	32.6	34.5	34.5	34	33.6	39
	day	13	19	27	28	5	1	9,15	31	30	3	13	26	28-Apr
	mean min.	18.5	18	20.1	23.3	23.7	23.5	23.2	22.7	22.7	22.1	18.9	14	20.9
	minimum	14.6	14.6	16.1	18.2	22.5	22.5	22	21.8	21.6	19	14	9.5	9.5
1989	day	17	9	19	3	9,10	22	31	7	24	23	26	16	16-Dec

Monthly Temperature in Celsius

STATION : 450401 THONG PHA PHUM

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1990	mean	25.6	27.3	28.2	29	27.9	26.7	26	26.3	26.3	26.2	-	23.4	26.6
	mean max.	33.5	35.3	35.9	36.3	33.7	31.1	30.4	30.8	31.5	31.7	-	32.1	32.9
	maximum	35.4	37	38	39.2	38.3	34.2	32.2	34	33.5	34.7	-	34.8	39.2
	day	12,13	24	31	3	4	7	14,29	8,	23,28	24	-	14	-
	mean min.	17.7	18.3	19.5	21.3	22.8	24	23.1	23.2	22.5	21.4	-	14.8	20.8
	minimum	13.5	15.6	16.4	19	21.2	22.8	22	22.2	21.5	18.8	-	10.9	10.9
	day	19	27	5	1,	1,	26	8,16	23,27	5,28	14	-	7	-
1991	mean	25.8	26.1	29.9	30.3	29.3	26.4	26.3	25.7	26.9	26.3	24.2	23.4	26.7
	mean max.	34.5	35.3	38.6	38	36.6	30.7	30.4	29.5	32.1	31.8	32	31.6	33.4
	maximum	36.5	37.8	40.2	41.7	38.7	35.5	34.5	33.1	34	33.3	33.9	33.5	41.7
	day	28	28	26	15	12	3,	10	30	17	17	4	26	15-Apr
	mean min.	17.8	17.7	21.6	23.9	23.9	23	22.4	22	22.2	21.7	18.1	17	20.9
	minimum	13.5	14.3	16.6	20.5	22.5	21.5	20.9	21.3	21	18.4	13.5	13.5	13.5
	day	21	10	6	2	22	24	27	(4)	15	30	21	22	21-Jan
1992	mean	23.3	25.1	28.4	30.7	29.2	27.4	26.5	25.8	26.4	25.6	23.7	23.5	26.3
	mean max.	31.6	34	37.4	38.6	35.8	32.4	31.4	30.3	31.2	30.6	31	32.4	33.1
	maximum	34.1	35.9	39.5	41	40	37.5	34.5	33.5	34.5	33.5	34	39.2	41
	day	27	21	25,27	24	4	4	20,21	28	27	(3)	19	31	24-Apr
	mean min.	16.6	16.7	19.1	23.3	24.1	24.2	23.1	23	22.5	21.9	17.2	15.5	20.6
	minimum	11.5	12.	15	19.7	22.9	22	21.5	21.5	21	19.5	12.2	9.8	9.8
	day	18,20	15	1	2	5	30	10	7	18	28	30	2,	2, 3/12
1993	mean	24.1	24.6	28.5	29.3	28.5	27.5	26.6	25.8	26.4	26.3	24.9	22.9	26.3
	mean max.	32.4	34	36.4	36.5	35	32.9	31.1	30.2	32	32.1	33	31.6	33.1
	maximum	34.5	36.3	38.2	38	39	36.3	34.5	34	33.8	34.4	35	35	39
	day	21	28	29	7	13	6	4	27	(3)	9,10	11,12	4,15	13-May
	mean min.	15.8	14.4	19.2	20.3	23.3	23.8	22.8	22.1	21.9	20.4	16.5	13.1	19.5
	minimum	7.4	8.1	16.7	17.7	19.7	22.9	21.6	21.5	20.5	18	12.5	5.2	5.2
	day	31	1	1	11	1	21	14	(6)	5	31	4	27	27-Dec
1994	mean	25.2	27.8	28.3	30.3	28.1	26.4	25.8	25.5	26.5	25.6	24.8	24.6	26.6
	mean max.	34.5	36	36.2	38.3	34	30.3	29.4	29.2	31.6	32.7	32.6	33.2	33.2
	maximum	36.5	37.4	38.7	41	38.5	32.8	34.6	33	34	35	34.5	35	41
	day	18	17	14	13	1	29	4	13	28	10	17	(3)	13-Apr
	mean min.	15.4	20.2	21.2	22.2	24.3	23.4	22.4	22.1	22.5	20.1	17.7	16.5	20.7
	minimum	10.5	16.5	15.6	19.5	22.5	22.2	21.5	21.4	21	13.9	15	12.2	10.5
	day	1	23	6	7	1	22	2	11	2	25	5	30	1-Jan
1995	mean	24.4	25.2	29.2	30.3	28.3	27.2	26.6	26.5	26.7	26.6	25.4	22.9	26.6
	mean max.	33.6	34.9	37.6	38.8	34.4	32.2	31.5	31.5	31.9	32.7	31.9	31.6	33.6
	maximum	36.2	37.7	40.5	40.5	38.7	35.2	34.5	34.5	35.4	34.8	34.7	35.4	40.5
	day	27,28	27	18	17	1	2,18	21	19	29	12,14	14	18	18-Mar
														17-Apr
	mean min.	15.7	15.2	20.3	22.2	23.8	24	23.5	23.3	23.2	22.6	20.4	15.7	20.8
	minimum	9.4	11.7	15.5	19	22.5	22.8	22.5	22.3	22	20	16.2	9.6	9.4
1996	day	8	7	2	7	14	20	18	9	7	25,27	25	31	8-Jan
	mean	23.6	25.8	29.4	29.5	28.1	27.2	26.7	26.7	26.5	26.5	26	23	26.6
	mean max.	33.4	34.5	37.7	36.8	34.2	32.6	31.5	31.9	31.6	32.5	32.3	31.2	33.4
	maximum	36.4	39.2	40.7	39	37.4	36.6	35.5	36.2	34.5	35.2	34.5	34.8	40.7
	day	27	17	23	13	4	1	10	29	6	19	13	5	23-Mar
	mean min.	15.5	17.6	21.9	23.4	23.6	23.2	23	22.8	22.7	21.9	20.8	15.9	21.0
	minimum	9	13.5	19.5	21	22	22.4	21.3	21.5	21.7	19	18.5	10.5	9
1997	day	2	8	10	25	10	4,24	31	5	3	28	29	26	2-Jan
	mean	23.3	26.4	28.7	28.8	29.1	27.9	25.9	26.1	26.8	27.2	26.1	25.5	26.8
	mean max.	32.7	35.6	37.6	36.9	35.8	33.6	29.5	30	32.1	33.3	33.2	34.2	33.7
	maximum	34.7	38	40.4	39.6	41.5	37	33	32.2	35	35.5	36	36.5	41.5
	day	19	18	24	30	13	14	3	25	14,19	23	27	7	13-May
	mean min.	15	17.8	20.6	21.4	23.3	23.1	22.6	22.7	22.2	21.4	20.8	18.3	20.8
	minimum	12	13.4	17.5	19	21.4	21.8	21.8	22	21.5	19	18	15.5	12
1997	day	12,25	11	2,13	10	5	10	13	4,	21,26	29,30	7	29	12,25/01

Monthly Temperature in Celsius

STATION : 450401 THONG PHA PHUM

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1998	mean	25.8	27.7	29.8	31	29.8	27.9	27.7	27.5	27.1	27.3	26.1	24.8	27.7
	mean max.	34.9	36.9	38.6	39.5	36.9	33.3	32.9	33	33	33.4	32.7	32.6	34.8
	maximum	36.8	39.2	40.9	42	41.4	36.2	36.5	35.8	35	35.5	35.2	35.7	42
	day	31	24,25	17,30	16	3	13	18	31	19,20	16	18	3	16-Apr
	mean min.	17.2	18.4	20.2	22.5	23	21.9	20.9	21.3	22.9	22	19.6	17.1	20.6
	minimum	12.5	14.5	15	20	21.5	20	20	19.5	20	19.6	15.6	12.8	12.5
	day	19	15	11	12	29,31	28	1,16	5	12	26	14	14	19-Jan
1999	mean	25.4	26.8	29	28	27.1	26.7	26.7	26.3	26.8	26.5	25.7	21.8	26.4
	mean max.	34.2	35.5	37.7	34.3	32.8	31.4	31.5	31.1	32.5	32.4	32.2	29.7	32.9
	maximum	36.8	38	39.8	39.2	35	35	34.5	35	35.3	35.2	34.5	33.5	39.8
	day	28	24,27	15,22	2	(5)	27	7,	22	27	9	27	31	15,22/03
	mean min.	16.3	17.5	20.4	22.9	22.4	21.9	21.6	20.7	20.4	19.6	17.4	15.9	19.8
	minimum	11.8	12.3	14.5	19	21	21	20	19.7	19.7	18.2	12	6.5	6.5
	day	7	7	8	1	7	22	25	23	18	20	21	26	26-Dec
2000	mean	25.1	25.6	27.7	28.5	27.4	26.9	26.5	26.7	26.5	27.1	24.8	25.3	26.5
	mean max.	33.8	34.7	36.1	35.4	32.9	32.1	31.2	31.8	31.8	33.5	32.3	33.8	33.3
	maximum	35.7	37.6	39.2	38.8	36	35.2	35.3	35.8	34.5	36	35	35.5	39.2
	day	11,13	24	23	9	8	6	4	12	19,20	5	30	2	23-Mar
	mean min.	18.4	18.6	20.7	23.5	23.3	23.1	22.4	22.5	21.9	22.1	18.4	18.6	21.1
	minimum	13.8	12	15.6	22.2	22.5	21.8	21.5	21.5	19.2	21	13.5	12.6	12
	day	29	3	8,	4	(3)	27	(3)	1	18	25	(3)	26	3-Feb
2001	mean	26.4	26.6	28.4	30.8	27.1	27.1	26.8	26.3	27.2	27.3	24	24.9	26.9
	mean max.	34.7	35.7	35.6	39.3	32.5	32.2	31.5	30.7	33.4	33.5	32	32.8	33.7
	maximum	37	37.4	38.2	41.5	35	35.6	35	32.8	35	35.2	34.5	34.5	41.5
	day	28	27	1	11	(4)	1	(3)	5,24	18	15	2,	17	11-Apr
	mean min.	19.5	18.1	21.6	22	23.2	23.9	23.2	22.5	21.9	21.2	15.6	15.6	20.7
	minimum	15.3	14.3	19.5	20.5	20.5	21.5	21.8	20.5	20.5	20	10	10	10
	day	12	21	29	13,26	10	28	24	14	16	21	23,27	26	23,27/11
2002	mean	24.4	27.8	29.1	30.1	27.8	27.4	26.5	26.1	26.3	N/A	N/A	N/A	27.3
	mean max.	33.3	36.1	37.7	38.7	33.3	32.6	30.8	30.9	31.2	N/A	N/A	N/A	33.8
	maximum	35.8	38.3	40.6	41.2	38.2	34.2	34	34.2	34.8	N/A	N/A	N/A	41.2
	day	20	27	17	18,23	3	(3)	5	27	27,30	N/A	N/A	N/A	-
	mean min.	16.4	20.1	20.3	20.8	20.8	20.6	23.8	22.7	22.4	N/A	N/A	N/A	20.9
	minimum	9.4	18	17.5	18.2	19.5	19.5	22.5	20	22	N/A	N/A	N/A	9.4
	day	4	5	1	5	20	4,23	23	10	(7)	N/A	N/A	N/A	-
mean	mean	24.9	26.3	28.7	29.7	28.3	27.1	26.5	26.2	26.6	26.5	25	23.6	26.6
mean	mean max.	33	35	36.8	37.1	34.2	31.4	30.7	30.4	31.6	32.1	31.7	31.5	33.0
ext.	maximum	37	39.2	40.9	42	41.5	38	36.5	36.2	35.4	36	36	39.2	42
mean	mean min.	16.6	17.9	20.4	22.6	23.4	23.2	22.8	22.6	22.5	21.8	19.2	16	20.8
ext.	minimum	7.4	8.1	11.5	17.7	19.5	19.5	20	19.5	19.2	13.9	9.9	5.2	5.2

Remark: In line day, if the number of days with maximum or minimum temperature greater than 2 days, the number of days is shown in parenthesis, other number(s) showing the day with maximum or minimum temperature in that month.

Table 14 Evaporation at Thong Pha Phum (450401)

STATION : 450401 THONG PHA PHUM

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	105.2	129.5	176.0	162.3	138.5	76.1	89.9	76.2	85.3	117.9	108.3	107.3	1,372.5
1983	113.2	137.2	182.7	198.1	172.0	116.5	100.8	104.7	125.0	98.1	93.6	105.4	1,547.3
1984	112.6	127.8	169.4	149.0	135.7	98.7	84.5	61.7	111.9	107.7	105.4	117.4	1,381.8
1985	122.6	152.5	187.6	194.5	147.3	57.2	80.9	72.7	99.1	106.2	106.3	108.5	1,435.4
1986	117.7	147.5	188.7	150.0	112.9	89.1	87.4	72.1	110.2	107.3	102.5	105.0	1,390.4
1987	119.2	142.2	182.9	181.6	152.1	N/A	92.4	N/A	102.0	N/A	90.6	N/A	1,063.0
1988	128.4	137.1	174.2	N/A	120.0	79.2	99.0	N/A	121.9	91.6	98.8	106.3	1,156.5
1989	124.7	130.6	153.8	184.6	134.9	81.3	96.7	82.9	96.8	113.3	112.4	109.9	1,421.9
1990	120.6	141.7	169.6	168.4	128.9	86.8	82.8	89.9	97.7	99.4	N/A	105.9	1,291.7
1991	127.8	138.4	203.0	192.3	177.7	101.9	94.5	85.5	112.1	109.6	107.6	101.4	1,551.8
1992	116.1	157.2	210.6	228.1	161.7	104.6	99.0	78.3	95.2	91.4	104.2	107.1	1,553.5
1993	116.8	140.3	182.8	192.9	161.6	120.1	98.8	84.7	120.4	104.5	112.5	109.6	1,545.0
1994	119.2	150.8	159.4	214.6	128.7	76.7	70.0	66.9	96.6	126.8	108.2	113.5	1,431.4
1995	118.8	148.1	181.2	200.5	144.8	110.6	104.0	98.2	100.0	106.7	101.0	112.1	1,526.0
1996	126.6	143.6	191.2	177.8	135.2	111.7	101.4	105.4	99.3	105.7	101.5	100.9	1,500.3
1997	117.3	137.5	178.4	178.7	174.2	125.3	88.6	85.2	111.2	122.9	108.8	124.8	1,552.9
1998	130.3	175.1	202.6	214.9	155.4	119.0	111.6	128.7	120.6	110.1	95.6	110.0	1,673.9
1999	121.0	120.0	181.3	136.3	125.5	99.4	101.4	107.7	103.4	117.5	93.7	91.9	1,399.1
2000	114.5	116.5	161.1	135.3	110.0	95.1	86.9	92.0	94.9	102.9	99.7	107.9	1,316.8
2001	118.8	127.1	137.1	190.7	96.7	99.8	90.2	72.3	109.5	108.3	96.2	102.2	1,348.9
2002	109.2	129.5	168.5	199.2	113.6	99.0	65.1	75.1	79.4	N/A	N/A	N/A	1,038.6
Max.	130.3	175.1	210.6	228.1	177.7	125.3	111.6	128.7	125.0	126.8	112.5	124.8	1,673.9
Mean	119.1	139.5	178.2	182.5	139.4	97.4	91.7	86.3	104.4	107.8	102.5	107.7	1,404.7
Min.	105.2	116.5	137.1	135.3	96.7	57.2	65.1	61.7	79.4	91.4	90.6	91.9	1,038.6

Table 15 Wind Speed at Thong Pha Phum (450401)

STATION : 450401 THONG PHA PHUM

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1982	NO DATA												
1983	NO DATA												
1984	NO DATA												
1985	NO DATA												
1986	NO DATA												
1987	NO DATA												
1988	spd.	-	-	-	-	-	-	-	0.1	0	0.1	0.5	0.6
	prev.	-	-	-	-	-	-	-	W	N, E, SE	-	SE	SE
1989	spd.	0.1	0	0	0.2	0.1	0	0	0	0.1	0.1	0.5	0.2
	prev.	SE	CALM	CALM	N	S	CALM	CALM	CALM	VAR	SE	SE	SE
1990	spd.	0.1	0.2	0.1	0	0	0	0	0	0	0.1	-	0.5
	prev.	N	NW, S	VAR	CALM	CALM	CALM	CALM	CALM	CALM	VAR	-	S
1991	spd.	0.3	0.3	0.5	0.8	0.9	0.3	0.3	0.1	0.1	0.4	0.7	0.8
	prev.	S, N	S	N	S	NW	N	N	NW	NW	E	SE	SE
1992	spd.	0.4	0.8	0.9	1.6	0.8	0.5	0.1	0.2	0.3	0.4	1.3	0.5
	prev.	SE	N	N	N	N	N	NW	NW	VAR	SE	SE	SE, E
1993	spd.	0.8	1.1	1.6	1.2	1	0.3	0.3	0.2	0.3	0.2	0.5	1.2
	prev.	NW,SE	NW	NW	NW	NW	NW	NW	NW	NW	SE	SE	SE
1994	spd.	0.3	0.5	1.2	1	0.6	0.2	0.1	0.1	0.2	0.8	1.4	0.5
	prev.	SE	NW	SE	NW	NW	N	NW	NW	NW	S	SE	SE
1995	spd.	0.6	0.9	0.8	0.9	0.4	0.3	0.2	0.2	0.3	0.4	1.3	0.9
	prev.	SE	N	NW	NW	NW	VAR	NW	NW	SE	SE	SE	SE
1996	spd.	0.4	1.3	0.9	1.1	0.3	0.2	0.3	0.3	0.2	0.4	0.6	0.9
	prev.	NW	SE	NW	NW	NW	NW	NW	NW	NW	SE	SE	SE
1997	spd.	0.6	0.8	1.4	1.1	1.2	0.8	0.3	0.4	0.4	0.1	0.6	0.4
	prev.	SE	NW	N	N	NW	N	NW	NW	NW	SE	SE	SE
1998	spd.	0.5	1.3	2.1	1.4	0.8	0.3	0.6	0.5	0.4	0.2	0.6	0.9
	prev.	NW	NW	NW	NW	NW	NW	NW	NW	W	W,SE	SE	SE
1999	spd.	1	1	2	0.4	0.5	0.4	0.5	0.6	0.5	0.1	0.3	0.5
	prev.	SE	SE	NW	NW	NW	NW	NW	NW	NW	SE	S	S
2000	spd.	0.6	0.5	1.2	0.6	0.5	0.1	0.5	0.6	0.6	0.3	0.7	0.5
	prev.	SE	VAR	NW	NW	NW	NW	NW	W	W	SE	SE	SE
2001	spd.	0.8	1	1.4	1.3	0.2	0.5	0.5	0.2	0.7	0.5	1.5	1.8
	prev.	SE	NW	SE	NW	N	W	W	W	W	SE	SE	SE
2002	spd.	1	0.8	1.1	1.8	0.3	0.6	0.5	1.3	0.6	-	-	-
	prev.	SE	NW	NW	NW	NW	NW	NW	NW	NW	-	-	-
Mean Speed		0.5	0.8	1.1	1.0	0.5	0.3	0.3	0.3	0.3	0.3	0.8	0.7
Prev. Wind		SE	NW	NW	NW	NW	NW	NW	NW	NW	SE	SE	SE

- is missing value/incomplete data

Table 16 Relative Humidity at Thong Pha Phum (450401)

STATION : 450401 THONG PHA PHUM

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	Mean	70	59	57	66	75	86	88	90	87	82	77	72	76
	Mean Max.	No DATA												
	Mean Min.	No DATA												
1983	Mean	No DATA												
	Mean Max.	No DATA												
	Mean Min.	No DATA												
1984	Mean	No DATA												
	Mean Max.	No DATA												
	Mean Min.	No DATA												
1985	Mean	No DATA												
	Mean Max.	No DATA												
	Mean Min.	No DATA												
1986	Mean	64	58	51	65	79	87	89	90	85	85	81	77	76
	Mean Max.	No DATA												
	Mean Min.	No DATA												
1987	Mean	73	64	67	70	77	87	86	87	87	84	86	75	79
	Mean Max.	No DATA												
	Mean Min.	No DATA												
1988	Mean	72	71	62	71	85	88	87	89	86	88	79	76	80
	Mean Max.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	96	97	97	95	95	96
	Mean Min.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	73	65	71	54	46	62
1989	Mean	74	68	70	65	80	87	86	88	86	85	78	73	78
	Mean Max.	93	90	91	89	93	95	96	96	96	96	95	93	94
	Mean Min.	48	39	44	40	60	73	69	73	68	63	51	41	56
1990	Mean	70	62	62	67	82	87	87	87	87	86	82	77	78
	Mean Max.	90	86	86	87	95	96	96	96	97	96	96	96	93
	Mean Min.	41	34	35	42	61	72	71	71	70	66	58	47	56
1991	Mean	72	71	63	69	76	87	87	89	85	85	79	77	78
	Mean Max.	92	91	85	89	92	96	96	96	96	96	96	94	93
	Mean Min.	44	48	41	45	52	73	73	77	64	65	51	50	57
1992	Mean	74	64	56	66	72	82	85	89	86	87	79	77	76
	Mean Max.	93	88	81	87	90	94	96	96	96	96	95	94	92
	Mean Min.	45	36	30	43	49	64	67	73	69	69	53	48	54
1993	Mean	73	63	67	69	77	82	86	89	86	84	78	74	77
	Mean Max.	92	89	89	89	91	94	95	96	96	96	95	94	93
	Mean Min.	45	33	42	45	55	63	70	75	66	63	51	46	55
1994	Mean	72	68	69	68	84	87	89	89	86	82	76	73	79
	Mean Max.	92	89	88	89	94	95	96	96	95	96	95	93	93
	Mean Min.	44	44	44	43	67	72	77	76	68	58	48	43	57
1995	Mean	69	59	65	68	81	87	87	89	88	85	79	74	78
	Mean Max.	92	87	87	90	94	95	95	97	96	96	95	94	93
	Mean Min.	39	27	40	41	61	72	72	74	72	65	55	43	55

Monthly Relative Humidity (%)

STATION : 450401 THONG PHA PHUM

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1996	Mean	70	65	62	72	81	84	86	86	88	85	81	77	78
	Mean Max.	92	89	86	90	94	95	95	96	96	96	95	95	93
	Mean Min.	39	37	35	48	60	67	69	69	71	63	58	48	55
1997	Mean	71	62	62	66	72	79	90	89	85	83	79	74	76
	Mean Max.	93	86	86	89	90	93	96	96	95	96	95	94	92
	Mean Min.	39	34	34	38	52	60	78	76	66	61	52	44	53
1998	Mean	71	61	54	59	75	83	83	82	85	83	79	73	74
	Mean Max.	92	85	79	83	91	95	95	94	96	95	95	93	91
	Mean Min.	40	33	30	35	53	64	64	61	65	61	54	45	50
1999	Mean	71	67	64	80	84	86	86	86	84	86	84	78	80
	Mean Max.	92	90	87	94	95	95	96	96	95	96	96	95	94
	Mean Min.	41	39	34	58	64	69	71	70	65	66	61	52	58
2000	Mean	74	71	66	77	84	86	87	86	86	85	79	77	80
	Mean Max.	94	92	88	93	95	96	96	95	96	96	95	95	94
	Mean Min.	42	41	37	53	65	68	71	69	68	64	52	47	56
2001	Mean	73	66	73	70	86	84	86	88	84	85	80	75	79
	Mean Max.	92	89	91	91	96	95	95	96	95	96	95	93	94
	Mean Min.	44	36	50	46	69	67	70	73	63	64	52	48	57
2002	Mean	73	66	61	64	83	85	88	87	87	N/A	N/A	N/A	77
	Mean Max.	93	89	85	87	94	95	96	96	96	N/A	N/A	N/A	92
	Mean Min.	42	37	32	34	63	68	74	71	71	N/A	N/A	N/A	55
Mean		71	65	63	68	80	85	87	88	86	85	80	75	78
Mean Max.		92	89	86	89	93	95	96	96	96	96	95	94	93
Mean Min.		42	37	38	44	59	68	71	72	67	64	54	46	55

Table 17 Rainfall at Thong Pha Phum (450401)

STATION : 450401 THONG PHA PHUM

YEAR		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	Amt.	0	3.9	51.6	55.3	149.4	317.9	380.3	563.3	187.7	123	8.1	12.2	1,852.7
	R-day	0	2	3	5	13	28	30	31	21	16	2	1	152.0
	Max.	0	3	22	35.5	44	35.7	54.7	62.7	23.2	53.3	6.1	12.2	62.7
1983	Amt.	18.6	0	0	T	59.5	234.9	108.3	305.8	294.5	358.8	24.1	5.6	1,410.1
	R-day	1	0	0	0	11	23	23	29	26	25	8	3	149.0
	Max.	18.6	0	0	0	12.3	38.8	21.2	46.2	60.6	104.6	10	3.2	104.6
1984	Amt.	1.6	59.7	43.3	166.9	106	498.1	182.4	191.7	236.9	218.2	10.5	T	1,715.3
	R-day	1	4	4	10	12	28	28	30	26	23	4	0	170.0
	Max.	1.6	36.3	30.8	60.9	49	69.5	19.5	18.7	35.1	41.1	8.1	0	69.5
1985	Amt.	0	1.6	32.7	91	123.9	585	270.6	285.5	406.1	149.8	44.7	0	1,990.9
	R-day	0	1	6	7	20	29	27	29	28	18	7	0	172.0
	Max.	0	1.6	14.6	32.4	59.1	68.2	38.2	57.6	80.1	39.8	17	0	80.1
1986	Amt.	0	11.6	0	211.3	266.2	189	275.4	177.6	157.7	105	137.4	T	1,531.2
	R-day	0	2	0	10	22	25	29	30	16	16	5	0	155.0
	Max.	0	7.6	0	65.6	108.3	22.1	60.6	26.4	34.9	31.5	118.9	0	118.9
1987	Amt.	0	12.1	49.1	129.3	102.8	277.7	206.8	305.8	276.5	151.7	70	0	1,581.8
	R-day	0	1	4	8	10	25	24	24	26	11	17	0	150.0
	Max.	0	12.1	30.9	45.9	67.5	44.4	26.5	58.1	74.6	79.6	15.8	0	79.6
1988	Amt.	0	60.7	5.2	114.4	394.7	280.2	196.2	263.4	235.2	238.4	T	0	1,788.4
	R-day	0	3	1	12	25	27	26	30	20	18	0	0	162.0
	Max.	0	43.6	5.2	38.8	80.8	43.8	32	34.7	40.8	54.2	0	0	80.8
1989	Amt.	50.4	58.8	74.4	21	210.2	201.5	343.4	227.3	148.8	195.5	1.7	0	1,533.0
	R-day	5	4	5	3	20	29	26	30	19	15	2	0	158.0
	Max.	42.1	57.7	30.1	12.6	29.2	27.6	80.1	32.5	21.5	67.3	1.3	0	80.1
1990	Amt.	0	T	110.2	126.4	292.1	257.1	232.8	198.9	237.4	273.2	0	0	1,728.1
	R-day	0	0	5	11	20	29	29	24	24	15	0	0	157.0
	Max.	0	0	58.8	55.9	81.6	44.6	36.9	31.2	37	92.7	0	0	92.7
1991	Amt.	3.4	T	4.1	114.9	174.4	566.9	369.7	599.3	127.5	137.5	T	6.1	2,103.8
	R-day	1	0	1	8	14	29	25	29	23	20	0	2	152.0
	Max.	3.4	0	4.1	36.7	49.7	81.4	93	128.9	29.7	37.9	0	4.6	128.9
1992	Amt.	2.8	1.8	0	62.9	82.8	244.7	382	351.3	175.4	151.8	0	31.9	1,487.4
	R-day	1	1	0	2	13	22	24	31	24	21	0	2	141.0
	Max.	2.8	1.8	0	44.6	35.7	29.9	51.4	49.2	45.5	44.2	0	22.9	51.4
1993	Amt.	0	0	91.6	102.5	186.2	175.5	279.1	279.4	262	83.4	T	T	1,459.7
	R-day	0	0	5	6	14	22	29	28	21	12	0	0	137.0
	Max.	0	0	27.2	53.2	22.8	31.3	42.8	51.8	34.7	23.2	T	T	53.2
1994	Amt.	0	24.6	38	21.2	286.3	227	649.1	430.2	197.4	119.3	11.3	1	2,005.4
	R-day	0	2	8	5	18	28	27	29	26	15	3	1	162.0
	Max.	0	24.2	18	11.4	74.9	35.6	61.3	41.2	29.6	18.5	5.6	1	74.9
1995	Amt.	7.7	0	50	47.4	257	259.6	229.8	454.7	277.4	200.9	T	4.8	1,789.3
	R-day	2	0	6	7	17	28	24	28	25	17	0	1	155.0
	Max.	4.5	0	18.7	11.7	47.6	57.2	36.5	94.8	55.5	63.1	T	4.8	94.8
1996	Amt.	0	4.9	16.2	156.8	154.6	253.5	629.1	314.8	346.8	205.9	46.6	0	2,129.2
	R-day	0	2	3	12	17	21	24	23	28	11	6	0	147.0
	Max.	0	2.9	14.6	75.9	32	55.1	131.4	53.4	48.4	47.1	26	0	131.4
1997	Amt.	0	0	42.7	55.9	166.3	203.6	695.2	541.6	245.9	93	13.8	0	2,058.0
	R-day	0	0	3	6	16	13	31	28	20	12	3	0	132.0
	Max.	0	0	36.9	26.2	34.6	60.7	76.4	70.9	82.3	19	11.9	0	82.3
1998	Amt.	0	0	3.9	23.3	293.4	175.8	123.4	103.5	231.4	174.2	20.6	5.5	1,155.0
	R-day	0	0	1	3	15	20	19	20	23	11	5	1	118.0
	Max.	0	0	3.9	19.4	69.8	41.2	18.7	28.5	54.6	75.3	13.2	5.5	75.3
1999	Amt.	29.4	7.6	102.1	267.9	220.6	258.9	243.7	359.6	215.3	348.4	76.8	0.3	2,130.6
	R-day	1	2	5	17	24	21	28	24	21	21	6	1	171.0
	Max.	29.4	6	64.8	55.3	29.3	36.8	44.9	58.2	38	65.2	53	0.3	65.2
2000	Amt.	0	41.3	52.9	145.6	223.1	272.3	192.7	177.2	230.6	286.9	1.4	0	1,624.0
	R-day	0	6	8	15	25	28	25	25	22	18	2	0	174.0
	Max.	0	25.3	27.2	49	35.2	63.4	39.4	25.6	39.5	82.4	1.2	0	82.4
2001	Amt.	32.4	24.6	60.9	54.4	377.6	175.3	279	365.4	152	208.5	50.2	0	1,780.3
	R-day	2	1	10	7	26	27	27	28	20	22	4	0	174.0
	Max.	32	24.6	26.6	21.6	42	21	42.6	59.4	35.8	32.4	33.6	0	59.4
2002	Amt.	0	0	36.4	149.8	367	147.5	383.5	411.2	360.4	N/A	N/A	N/A	1,855.8
	R-day	0	0	3	5	21	27	30	27	26	N/A	N/A	N/A	139.0
	Max.	0	0	23	45	107.8	26.6	48.6	85.6	72	N/A	N/A	N/A	107.8
Maximum		50.4	60.7	110.2	267.9	394.7	585.0	695.2	599.3	406.1	358.8	137.4	31.9	2,130.6
MEAN		7.0	16.5	41.2	105.9	214.0	276.3	316.8	328.9	238.2	191.2	32.3	4.0	1,748.1
Minimum		0.0	0.0	0.0	21.0	59.5	147.5	108.3	103.5	127.5	83.4	0.0	0.0	1,155.0
MEAN R-Day		0.7	1.5	3.9	7.6	17.8	25.2	26.4	27.5	23.1	16.9	3.7	0.6	153.7

Table 18 River Discharge at K17 (Ban Bo)

Station K.17 Ban Bo

T. Suan Phueng, A. Suan Phueng, P. Ratchaburi

Unit : MCM

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
1966	N/A	N/A	N/A	3.18	3.06	5.54	22.76	26.19	10.11	3.74	1.22	0.71	76.5
1967	1.25	3.79	5.00	2.24	15.92	5.77	36.73	10.35	4.31	1.71	1.04	1.24	89.4
1968	1.43	11.60	2.69	1.81	3.55	9.98	147.73	13.52	3.92	2.28	1.30	1.59	201.4
1969	1.80	3.83	3.35	2.74	15.40	10.79	57.57	N/A	9.22	3.83	1.73	0.42	110.7
1970	1.08	1.69	1.64	10.41	4.22	5.05	38.05	27.83	81.89	7.90	2.87	2.61	185.2
1971	1.72	3.18	9.46	12.00	7.92	54.72	77.96	37.47	4.67	2.38	0.66	1.00	213.1
1972	6.58	3.25	4.27	10.34	12.08	17.33	101.94	99.60	58.82	8.61	3.55	2.93	329.3
1973	2.54	3.67	15.11	4.70	7.61	34.39	61.44	145.19	16.77	5.31	2.17	1.79	300.7
1974	6.34	16.42	43.18	7.89	39.06	45.71	220.06	74.30	19.09	11.58	5.46	4.38	493.5
1975	3.33	6.04	6.33	6.06	11.45	14.35	34.13	19.59	5.65	3.43	2.35	2.82	115.5
1976	2.36	8.35	5.95	2.77	4.44	18.29	34.38	89.83	9.23	4.43	2.44	1.95	184.4
1977	3.44	6.48	2.62	2.84	4.00	6.98	19.52	4.64	2.69	2.05	1.51	1.44	58.2
1978	0.79	4.34	5.26	2.73	15.58	9.94	49.65	20.99	4.81	2.20	1.04	0.56	117.9
1979	3.92	3.07	5.32	11.3	13.3	5.33	11.4	1.2	0.5	0.3	0.2	0.2	55.9
1980	1.28	4.54	5.98	1.8	0.8	1.87	33.5	16.0	3.3	1.4	0.6	1.0	72.0
1981	1.63	2.65	36.3	6.61	24.3	13.2	33.4	121.0	20.7	7.1	3.5	2.6	273.0
1982	5.03	7.55	11.4	10.6	24.2	14.1	15.6	14.6	7.1	3.3	1.6	0.9	116.0
1983	0.35	2.4	1.47	1.3	3.47	31.2	66.9	143.0	16.3	5.5	1.8	1.0	274.7
1984	3.28	4.26	29.3	26.1	6.12	12	36.5	8.1	3.7	1.8	0.7	0.5	132.4
1985	3.78	15.8	11.5	31.4	13.7	35.3	175.5	64.9	22.9	13.9	10.5	9.6	408.8
1986	6.87	44.64	6.13	8.1	5.57	6.16	102.23	16.2	7.0	2.9	1.5	1.4	208.6
1987	3.25	6.14	16.95	5.72	4.26	11.84	27.73	89.0	20.6	4.6	3.1	2.4	195.6
1988	2.56	49.78	94.05	14.48	8.53	40.73	161.54	34.0	15.3	10.3	7.5	7.6	446.4
1989	Water Year 1989 - 1992 No Computed												
1990													
1991													
1992													
1993	5.24	8.97	6.45	4.03	6.07	24.33	136.02	28.5	4.6	2.0	0.2	0.4	226.8
1994	1.16	8.29	5.47	21.4	53.37	14.77	26.2	9.2	4.6	2.2	1.5	1.3	149.5
1995	1.6	3.9	8.6	4.2	12.8	33.6	163.4	23.3	7.4	3.8	1.4	0.4	264.4
1996	3.24	16.89	18.3	115.37	58.75	172.02	179.24	102.3	19.3	9.5	6.3	5.7	706.9
1997	7.67	5.93	1.96	8.43	39.9	50.93	76.74	168.5	15.9	5.3	1.9	1.1	384.2
1998	2.84	2.8	2.33	2.33	4.88	41.31	135.04	14.8	6.5	2.3	1.6	1.0	217.6
1999	6.97	39.3	6.66	2.84	13.52	3.48	236.23	104.4	6.6	2.3	1.8	1.5	425.6
2000	20.07	36.77	8.95	12.13	4.02	13.95	60.25	37.4	8.2	5.3	3.2	6.1	216.4
2001	3.62	4.28	4	7.1	7.79	17.87	61.43	19.0	5.9	3.2	1.4	4.2	139.7
MAX	20.07	49.78	94.05	115.37	58.75	172.02	236.23	168.45	22.90	13.90	10.50	9.60	706.9
MEAN	4.44	14.10	14.80	15.54	16.07	28.63	91.52	53.43	10.34	4.57	2.65	2.56	258.6
MIN	0.35	2.40	1.47	1.31	0.82	1.87	11.40	1.16	0.50	0.25	0.20	0.17	55.9

Table 19 River Discharge at K25 (Ban Bueng)

Station K.25 Ban Bueng

T. Ban Kha, K.A. Ban Kha, P. Ratchaburi

Unit: MCM

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
1982	0.51	1.44	3.80	1.77	1.36	1.46	3.36	4.59	1.55	0.59	0.34	0.26	21.02
1983	0.61	1.08	0.26	0.18	0.55	17.25	32.93	80.69	8.21	2.96	1.20	0.57	146.49
1984	0.77	0.50	1.75	6.07	1.35	1.26	6.78	1.89	0.93	0.51	0.28	0.23	22.32
1985	2.36	3.71	0.68	1.25	0.48	9.69	77.99	15.13	4.57	1.82	1.10	0.86	119.63
1986	1.95	10.98	1.04	0.74	0.60	1.19	47.91	6.99	2.46	1.17	0.83	0.78	76.63
1987	1.12	1.77	2.99	1.09	0.75	3.47	8.53	32.65	5.96	1.13	0.53	0.38	60.37
1988	1.92	18.19	28.62	8.63	3.57	27.46	69.10	9.43	2.28	0.99	0.48	0.56	171.23
1989	0.86	1.79	1.07	0.93	0.58	1.73	4.76	1.96	0.72	0.38	0.30	0.28	15.37
1990	0.09	1.02	0.49	0.10	0.26	0.27	2.60	7.07	1.22	0.42	0.19	0.34	14.07
1991	0.98	1.00	0.77	0.72	0.63	1.26	36.09	8.11	1.97	1.38	0.68	0.44	54.01
1992	0.25	0.24	2.11	2.23	3.87	0.77	20.52	35.87	2.13	1.10	0.56	0.88	70.54
1993	0.722	2.239	1.908	1.068	0.81	14.781	75.395	14.265	21.698	4.171	12.665	25.471	175.19
MAX	1.95	18.19	28.62	8.63	3.87	27.46	75.40	35.87	21.70	4.17	12.67	25.47	175.19
MEAN	0.99	4.65	4.87	1.94	1.38	6.37	33.11	14.54	4.80	1.34	2.03	3.64	79.68
MIN	0.09	0.24	0.49	0.10	0.26	0.27	2.60	1.96	0.72	0.38	0.19	0.28	14.07

Table 20 River Discharge at K25A (Ban Kha)

Station K.25A Ban Kha

T. Ban Kha, K.A. Ban Kha, P. Ratchaburi

Unit : MCM

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
1994	0.29	1.95	1.36	0.61	1.91	0.72	5.99	1.27	0.40	0.17	0.07	0.06	14.80
1995	0.10	0.20	1.50	1.50	3.20	13.10	44.00	7.90	1.90	0.80	0.50	0.50	75.20
1996	1.11	4.57	6.95	19.94	10.40	65.99	71.59	36.15	4.96	1.40	0.58	0.41	224.05
1997	0.38	0.33	0.14	0.14	0.57	6.23	14.90	50.73	3.25	1.25	0.73	0.63	79.28
1998	0.52	0.54	0.54	0.68	2.38	18.32	47.55	3.62	2.11	1.15	0.97	1.07	79.45
1999	4.80	20.10	2.72	1.13	1.24	1.34	67.23	44.43	5.20	1.60	0.85	0.67	151.31
2000	2.20	5.13	2.25	1.22	0.70	0.79	11.61	9.25	1.68	0.71	0.57	1.08	37.19
2001	0.56	0.42	0.28	0.25	0.28	2.84	14.01	4.59	1.47	0.79	0.41	0.59	26.49
MAX	4.80	20.10	6.95	19.94	10.40	65.99	71.59	50.73	5.20	1.60	0.97	1.08	224.05
MEAN	1.25	4.16	1.97	3.18	2.59	13.67	34.61	19.74	2.62	0.98	0.59	0.63	85.97
MIN	0.10	0.20	0.14	0.14	0.28	0.72	5.99	1.27	0.40	0.17	0.07	0.06	14.80

Table 21 Monthly Runoff at K59

Station K.59 Ban Chorakhe Phuek

T. Chorakhe Phuek, A. Dan Makham Tia, P. Kanchanaburi

Unit : MCM

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
2000	45.52	71.00	21.15	16.61	7.73	19.66	83.17	66.42	8.33	3.83	1.77	4.95	350.1
2001	3.22	3.72	2.74	5.13	9.12	37.64	101.30	29.58	3.63	0.62	0.00	0.45	197.2
MAX	45.52	71.00	21.15	16.61	9.12	37.64	101.30	66.42	8.33	3.83	1.77	4.95	387.6
MEAN	24.37	37.36	11.95	10.87	8.43	28.65	92.24	48.00	5.98	2.23	0.89	2.70	273.6
MIN	3.22	3.72	2.74	5.13	7.73	19.66	83.17	29.58	3.63	0.62	0.00	0.45	159.7

Table 22 Annual Stream Flow Data at K17 (Ban Bo)																			
Station : Ban Bo , A. Suan Phung , Ratchaburi (K.17)					River System : Mae Klong					Drainage Area : 1,355 Sq.Km.									
Stream : Phachi																			
River : Khwae Noi																			
Water Year	Maximum						Minimum						Annual						
	Momentary			Daily Mean			Momentary			Daily Mean									
	Gage height m. (M.S.L.)	Discharge (CMS.)	Date	Gage height m. (M.S.L.)	Discharge (CMS.)	Date	Gage height m. (M.S.L.)	Discharge (CMS.)	Date	Gage height m. (M.S.L.)	Discharge (CMS.)	Date	Runoff (MCM.)	Mean (CMS.)					
1966	101.17	189.88	Nov20	100.42	90.04	Nov20	*****	*****	*****	*****	*****	*****	*****	*****					
1967	100.21	73.45	Oct 8	100.03	60.54	Oct 8	97.42	0.04	Apr 4	97.42	0.04	Apr 4	89.35	2.83					
1968	104.74	953.60	Oct22	102.20	318.60	Oct23	97.44	0.07	Apr 4	97.44	0.07	Apr 4	201.38	6.39					
1969	101.40	165.52	Oct10	100.87	121.60	Oct10	*****	*****	*****	*****	*****	*****	*****	*****					
1970	103.12	442.00	Dec 1	101.57	208.00	Dec 1	97.41	0.00	Apr22	97.41	0.00	Apr22	185.22	5.87					
1971	101.94	252.40	Oct12	101.33	188.72	Oct12	97.45	0.00	Mar 4	97.45	0.00	Mar 4	213.12	6.74					
1972	101.10	165.00	Oct28	100.25	102.38	Oct29	97.40	0.84	May30	97.40	0.84	May30	329.30	10.44					
1973	103.76	598.00	Nov19	102.48	363.20	Nov20	97.35	0.48	Apr17	97.35	0.48	Apr17	300.70	9.54					
1974	102.46	355.00	Oct16	102.10	295.00	Oct17	97.31	1.12	Mar16	97.31	1.12	Mar16	493.47	15.65					
1975	99.14	37.78	Oct 2	99.02	34.06	Oct 2	97.25	0.66	Mar 1	97.25	0.66	Mar 1	115.52	3.65					
1976	101.24	173.32	Nov 3	100.89	144.80	Nov 3	97.23	0.34	Apr20	97.23	0.34	Apr20	184.42	5.85					
1977	99.41	55.30	Oct12	99.03	36.68	Oct12	97.23	0.28	Mar22	97.23	0.28	Mar22	58.18	1.84					
1978	99.99	62.59	Oct25	99.78	53.82	Oct 3	97.26	0.10	Mar27	97.26	0.10	Mar27	117.90	3.74					
1979	99.22	33.80	Jul 8	99.01	26.95	Jul 8	97.12	0.00	Mar 9	97.12	0.00	Mar 9	56.00	1.77					
1980	99.79	40.48	Oct18	99.56	33.45	Oct18	97.23	0.11	Apr 1	97.23	0.11	Apr 1	72.05	2.28					

Annual Stream Flow Data														
Station : Ban Bo , A. Suan Phung , Ratchaburi (K.17)						River System : Mae Klong								
Stream : Phachi						Drainage Area : 1,355 Sq.Km.								
River : Khwae Noi														
Water Year	Maximum					Minimum					Annual			
	Momentary			Daily Mean		Momentary			Daily Mean		Runoff (MCM.)	Mean (CMS.)		
	Gage height m. (M.S.L.)	Discharge (CMS.)	Date	Gage height m. (M.S.L.)	Discharge (CMS.)	Date	Gage height m. (M.S.L.)	Discharge (CMS.)	Date					
1981	103.70	357.38	Nov 8	102.92	283.96	Nov 8				97.28	0.04	Apr 1	273.45	8.67
1982	99.82	42.40	Aug26	99.62	35.28	Aug26				97.43	0.14	Mar31	115.93	3.68
1983	102.66	271.50	Nov16	102.12	209.60	Nov18				97.40	0.08	Apr14	274.24	8.67
1984	100.31	58.50	Jun29	100.12	52.94	Jun29				97.28	0.04	Mar18	132.28	4.19
1985	107.06	1,484.00	Oct13	103.66	382.00	Oct13				97.27	0.02	Apr16	408.71	12.96
1986	101.61	197.25	May 9	100.96	121.00	May 9				97.60	0.20	Mar24	208.56	6.61
1987	101.09	107.50	Nov28	100.55	73.39	Nov12				97.48	0.28	Mar31	195.61	6.19
1988	104.23	432.10	Oct20	102.86	273.00	Oct20				97.48	0.28	Apr12	446.51	14.16
1989	99.52	*****	Oct21	99.38	*****	Oct21							*****	*****
1990	99.64	*****	Nov11	99.40	*****	Nov11							*****	*****
1991	103.44	*****	Oct28	101.73	*****	Oct28							*****	*****
1992	102.31	*****	Nov1	101.76	*****	Nov 1							*****	*****
1993	102.01	187.00	Oct24	101.72	163.80	Oct24				97.44	0.16	Feb26	223.75	7.09
1994	100.82	103.60	Aug 2	100.58	91.00	Aug 2				97.42	0.12	May 7	149.32	4.74
1995	103.48	374.60	Oct11	102.89	302.60	Oct11				97.49	0.00	Apr24	263.96	8.35

Annual Stream Flow Data												
Station : Ban Bo , A. Suan Phung , Ratchaburi (K.17)			River System : Mae Klong			Drainage Area : 1,355 Sq.Km.						
Stream : Phachi			River : Khwae Noi									
Water Year	Maximum				Minimum				Annual			
	Momentary		Daily Mean		Momentary		Daily Mean		Runoff (MCM.)	Mean (CMS.)	Date	Date
	Gage height m. (M.S.L.)	Discharge (CMS.)	Date	Gage height m. (M.S.L.)	Discharge (CMS.)	Date	Gage height m. (M.S.L.)	Discharge (CMS.)				
1996	105.58		Sep30	103.47		Jul28					Apr 2	
1997	104.54		Nov 5	103.28		Nov 5					Jun20	
1998	101.05	345.00	Oct11	100.40	222.00	Oct12					Mar21	217.55
1999	104.50	1,277.00	Oct 4	102.70	708.00	Oct26					Apr 9	425.59
2000	100.60	187.00	Oct30	100.13	140.00	Oct30					Mar 8	216.45
2001												
2002												
2003												
2004												
2005												

Note: 1. Period of record : 1966 - 1988 , 1993 - Cont'd

2. Gage reading frequency : 24 - time daily readings.

3. Flow computation : computed by annual rating curve.

4. Zero gage at bottom = 97.46 m. (M.S.L.)

Table 23 Annual Stream Flow Data at (Ban Bueng)														
Station : Ban Bung, A.Suan Phung , Ratchaburi (K.25)			River System : Khwae Noi											
Stream : Huai Tha Khoei			Drainage Area : 482 Sq.Km.											
River : Phachi														
Water Year	Maximum						Minimum						Annual	
	Momentary			Daily Mean			Momentary			Daily Mean				
	Gage height m. (A.D.)	Discharge (CMS.)	Date	Gage height m. (A.D.)	Discharge (CMS.)	Date	Gage height m. (A.D.)	Discharge (CMS.)	Date	Gage height m. (A.D.)	Discharge (CMS.)	Date	Runoff (MCM.)	Mean (CMS.)
1982	2.90	16.15	Oct24	2.44	7.40	Oct24				1.34	0.080	Mar26	21.02	0.667
1983	5.41	178.90	Nov16	5.13	154.55	Nov16				1.21	0.060	Jul18	146.49	4.630
1984	3.36	12.96	Jul15	2.90	9.34	Jul15				1.24	0.080	Mar10	22.32	0.708
1985	7.20	558.00	Oct13	5.61	232.03	Oct13				1.23	0.018	Apr12	119.63	3.793
1986	4.98	101.56	Oct17	4.02	46.50	Oct 7				1.41	0.165	Sep 6	76.63	2.430
1987	4.09	36.31	Nov19	3.86	29.90	Nov12				1.33	0.060	Mar31	60.37	1.909
1988	5.45	162.12	May16	4.80	94.20	Oct20				1.15	0.100	Mar29	171.23	5.430
1989	3.30	18.00	Oct21	2.75	12.00	Oct21				1.03	0.060	Mar26	15.37	0.487
1990	3.90	29.70	Nov10	2.87	12.00	Nov10				1.01	0.010	Apr 7	14.07	0.446
1991	5.92	269.40	Oct28	4.89	106.10	Oct28				1.05	0.125	Mar20	54.01	1.708
1992	5.33	178.03	Nov 1	5.16	152.12	Nov 1				1.04	0.040	Apr 9	70.54	2.237
1993	5.15	139.85	Oct24	4.98	119.26	Oct24				1.13	0.160	Apr 9	175.19	5.560

Note :

1. Period of record : 1982 - 1993

2. Zero gage at bottom = 0.00 m. (A.D.)

3. Gage reading frequency : 24-time daily readings.

Note : 1. Period of record : 1982 - 1993

2. Zero gage at bottom = 0.00 m. (A.D.)

3. Gage reading frequency : 24-time daily readings.

Table 24 Annual Stream Flow Data at Ban Kha														
Station : Ban Kha , A. Suan Phung , Ratchaburi (K.25A)					River System : Khwae Noi					Drainage Area : 250 Sq.Km.				
Stream : Huai Tha Khoei														
River : Lam Pha Chi														
Water Year	Maximum						Minimum						Annual	
	Momentary			Daily Mean			Momentary			Daily Mean			Runoff (MCM.)	Mean (CMS.)
	Gage height m. (A.D.)	Discharge (CMS.)	Date	Gage height m. (A.D.)	Discharge (CMS.)	Date	Gage height m. (A.D.)	Discharge (CMS.)	Date	Gage height m. (A.D.)	Discharge (CMS.)	Date		
1994	1.59	11.53	Oct21	1.31	7.24	Oct21				0.12	0.01	Mar 7	14.80	0.47
1995	4.00	97.01	Oct10	3.34	63.25	Oct10				0.11	0.01	May24	75.20	2.38
1996	6.04	456.40	Sep30	4.66	209.40	Sep30				0.31	0.08	Mar26	224.05	7.10
1997	4.70	270.00	Nov 5	4.16	197.12	Nov 5				0.22	0.02	Jul 1	79.28	2.52
1998	3.31	119.75	Oct11	2.99	89.33	Oct11				0.37	0.00	Jun25	79.45	2.52
1999	4.06	163.40	Oct26	3.68	119.74	Oct26				0.20	0.09	Apr 1	151.31	4.80
2000	2.71	42.40	Oct29	2.31	28.80	Oct29				0.21	0.12	Apr 6	37.19	1.18
2001														
2002														
2003														

Note : 1. Period of record : 1994 - Cont'd

2. Gage reading frequency : 5 - time daily readings.

3. Flow computation : computed by annual rating curve.

4. Zero gage at bottom = 0.000 m. (A.D.)

Table 25 Annual mean suspended sediment yield, specific suspended yield and annual mean suspended sediment concentration in 3 watersheds

Watershed	Station	Period	Basin area (km ²)	susp. sedi. annual mean yield (ton)	runoff (mcm)	Specif. susp. sedi. yield (ton/km ² /year)	Aum. susp. soil. conce. (ton/mcm)	Remark
	Code	Fiscal year, Apr. to Mar.						
Khwaee Noi	140801	1969-71-74	2,570	1,110,550		432		3
	140802	1980	308	37,145		121		3
	141101	1973-1994	6,512	1,518,170	5,634	233	224	2
	k9	1963-1973	6,902	4,016,098	6,089	582	597	1
	k10	1965-1991	7,008	766,881	5,856	109	125	1
					Mean	254	244	
Khwaee Yai	140603	1966-1971	5,530	389,772		70		3
	140604	1968-1972	351	73,806		210		3
	140903	1982	67	4,487		67		3
	140403	1979-86,88-9	4,960	615,578	3,007	124	187	2
	140201	1973-1978	5,644	912,795		162		2
	140601	1969-1975	10,500	1,870,306		178		2
	140703	1973-1974	11,352	1,759,922		155		2
	140702	1973-1976	14,037	2,580,189		184		2
	k6	1952-1972	10,001	1,792,826	4,560	179	351	1
	k20	1967-1975	11,184	1,330,359	4,452	119	281	1
	k27	1978-1985	1,921	31,717	125	17	190	1
					Mean	139	273	
Lam Pa Chi	k17	1978-1986	1,355	127,693	191	94		1
	k25	1991-1993	482	44,223	100	92		1
	k25A	1994-1995	250	13,367	46	53		1
					Mean	91	540	
					Mean	182	290	

mcm: million cubic meter

1 Data from Royal Irrigation Department (RID)

2 Data from Electricity Generating Authority of Thailand (EGAT)

3 Data from Department of Energy Development and Promotion (DEDP)

Table 26 Monthly Rainfall at K25

Water Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Annual	Days
1983	0.0	-	-	-	-	-	228.0	205.9	20.8	0.5	4.7	43.9	-	-
1984	120.8	118.1	141.7	138.1	18.5	177.9	160.1	21.5	0.8	11.4	16.5	31.9	957.3	129
1985	158.4	256.2	57.6	127.1	31.4	271.2	370.6	57.8	0.0	0.0	0.0	13.2	1343.5	145
1986	170.6	182.5	17.4	97.3	19.0	174.4	349.3	8.1	24.4	0.0	3.0	48.2	1094.2	118
1987	78.8	132.0	86.5	21.6	46.8	275.1	176.9	345.7	0.0	0.6	24.9	23.4	1212.3	139
1988	55.8	308.0	54.6	173.3	98.8	225.0	317.2	54.3	0.0	13.6	20.0	47.2	1367.8	132
1989	34.0	182.5	26.9	92.1	67.0	136.4	201.8	56.6	0.0	4.4	1.0	54.8	857.5	119
1990	84.5	143.2	30.4	32.9	143.3	109.3	194.0	62.9	0.0	0.0	1.8	66.3	868.6	119
1991	123.8	102.5	45.1	68.7	124.9	102.6	384.3	13.6	45.2	0.0	6.8	2.6	1020.1	123
1992	40.4	58.9	195.8	130.9	112.7	73.3	403.3	5.5	0.5	0.0	0.0	154.0	1175.3	121
1993	99.9	210.2	31.6	56.0	78.0	347.0	364.6	9.1	9.9	0.0	7.8	29.5	1243.6	148
1994	37.0	201.3	75.2	171.3	59.9	184.3	169.6	1.0	1.8	0.9	12.1	95.9	1010.3	113
1995	112.5	82.7	98.3	130.2	131.7	226.1	346.6	27.5	0.3	0.0	8.3	45.4	1209.6	140
1996	133.5	390.5	142.3	265.7	99.0	352.2	307.1	219.3	2.1	2.1	16.6	5.4	1935.8	138
1997	52.4	8.6	28.5	70.9	135.7	298.1	244.1	276.2	0.0	1.4	1.8	1.2	1118.9	108
1998	25.6	75.1	109.1	174.9	89.7	317.6	383.1	62.1	0.0	19.8	11.0	0.0	1268.0	126
1999	149.5	301.3	18.1	27.0	124.1	84.9	619.9	136.8	11.6	0.0	18.3	58.7	1550.2	143
2000	415.1	228.2	38.4	50.4	36.6	122.7	298.2	0.0	0.0	0.0	0.0	162.3	1351.9	137
2001	33.9	54.2	127.1	59.8	91.9	0.0	214.3	12.2	11.5	0.0	19.0	165.9	789.8	104
Average	101.4	168.7	73.6	104.9	83.8	193.2	301.7	83.0	6.8	2.9	9.1	55.3	1184.4	
Rainy Days	9.7	15.5	14.7	16.4	16.4	17.4	19.9	7.9	1.3	0.6	2.4	5.9	128.3	

Table 27 Monthly Rainfall at 47252

Water Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Annual	Days
1982	100.1	242.8	62.7	66.5	153.4	-	232.3	44.6	0.0	0.0	0.0	0.0	-	-
1983	68.4	96.7	75.7	130.8	146.7	164.1	214.7	192.6	0.0	0.0	0.0	0.0	1089.7	65
1985	191.5	119.0	94.1	210.3	64.0	198.5	368.5	200.1	0.0	0.0	0.0	18.7	1464.7	65
1986	78.8	236.9	24.0	68.8	13.7	128.8	357.0	12.3	33.6	0.0	0.0	64.9	1018.8	55
1987	131.2	104.2	101.1	51.4	86.2	188.2	234.4	343.5	0.0	0.0	27.1	38.2	1305.5	71
1988	58.9	326.1	50.5	74.3	95.0	298.0	363.8	0.0	0.0	64.0	2.1	69.9	1402.6	69
1989	62.3	120.5	36.0	84.3	53.0	189.3	202.3	43.7	0.0	0.0	0.0	72.1	863.5	53
1990	44.2	159.8	32.1	38.1	93.7	179.2	325.7	65.0	0.0	0.0	4.3	70.9	1013.0	64
1991	136.6	150.3	70.6	125.2	109.8	115.9	272.7	9.8	47.5	0.0	0.0	0.0	1038.4	70
1992	31.3	114.6	101.5	198.4	50.3	140.8	361.5	2.6	0.0	0.0	0.0	87.5	1088.5	69
1993	96.7	189.3	43.2	86.7	98.3	259.5	475.8	0.0	0.0	0.0	0.0	134.3	1383.8	78
1994	15.9	290.1	102.4	178.6	154.3	116.2	119.6	0.0	0.0	0.0	4.5	0.0	981.6	81
1995	105.6	158.1	146.3	125.2	284.8	300.5	502.9	-	0.0	0.0	18.4	46.3	-	-
1996	136.3	259.6	54.2	228.4	192.5	44.7	351.4	112.6	13.7	0.0	0.0	28.8	1422.2	87
1997	73.9	61.7	28.1	76.7	133.6	180.0	97.8	233.6	0.0	0.0	0.0	0.0	885.4	56
1998	26.0	43.9	62.5	111.0	74.0	246.5	238.6	39.4	21.8	0.0	14.3	32.2	910.2	86
1999	149.4	155.2	39.4	52.3	151.8	105.7	507.3	78.3	0.0	0.0	69.3	84.4	1393.1	107
2000	242.2	244.2	93.3	56.2	91.6	155.9	217.2	17.1	0.0	0.0	0.0	116.1	1233.8	87
2001	17.0	49.4	100.0	50.9	98.7	252.9	188.4	16.7	0.0	0.0	44.8	127.8	946.6	72
Average	93.0	164.3	69.4	106.0	112.9	181.4	296.4	78.4	6.1	3.4	9.7	52.2	1173.2	
Rainy Days	4.6	10.1	6.5	9.1	9.3	11.3	13.7	4.6	0.3	0.1	0.7	3.2	73.5	

Table 28 Monthly Rainfall at K17

Water Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Annual	Days
1966	0.0	-	-	-	76.7	192.0	208.7	88.5	38.4	0.0	0.0	13.7	-	-
1967	58.3	138.6	85.7	88.4	68.1	61.8	293.4	79.8	0.0	0.0	4.4	18.0	896.5	121
1968	181.1	112.5	28.4	81.0	30.1	226.7	195.5	12.2	1.3	2.3	0.0	36.1	907.2	116
1969	59.6	115.1	9.1	41.6	158.2	172.5	298.5	323.6	16.0	1.3	22.3	67.1	1284.9	118
1970	71.6	115.2	44.6	114.0	56.5	181.7	185.4	140.6	37.0	0.0	61.0	23.9	1031.5	138
1971	102.5	88.9	92.9	134.8	187.7	377.7	253.1	85.4	10.6	0.0	0.0	180.5	1514.1	134
1972	91.7	24.3	139.4	98.9	87.9	255.2	430.5	223.8	33.8	0.0	0.0	38.9	1424.4	152
1973	17.7	184.6	149.8	41.4	65.0	188.7	171.0	163.6	1.8	0.0	8.1	25.0	1016.7	120
1974	60.3	258.0	105.1	45.8	179.9	359.4	336.3	132.1	0.0	48.7	5.0	59.7	1590.3	168
1975	55.4	257.0	94.1	95.3	102.2	192.7	330.5	19.2	3.2	0.0	0.4	67.2	1217.2	143
1976	78.1	176.5	21.6	60.9	91.8	184.4	358.2	224.0	13.6	1.4	1.2	26.6	1238.3	131
1977	120.9	232.2	8.5	132.1	58.6	135.6	283.9	10.8	0.0	8.0	79.8	31.7	1102.1	113
1978	85.8	209.9	38.0	103.8	68.7	241.1	200.8	37.1	0.8	0.0	1.8	0.0	987.8	115
1979	43.4	55.1	143.4	147.0	85.6	171.9	101.7	4.1	0.0	0.0	48.3	90.8	891.3	103
1980	98.5	149.4	147.4	35.0	114.0	115.5	198.2	53.0	0.4	0.0	18.1	81.8	1011.3	133
1981	60.7	131.3	154.6	48.2	135.2	150.1	208.2	296.8	2.0	0.0	11.4	38.2	1236.7	136
1982	59.3	238.8	107.9	108.3	154.5	56.0	225.8	64.3	28.7	0.0	0.0	17.0	1060.6	143
1983	38.7	89.3	42.7	142.0	174.3	233.4	240.7	224.0	11.9	1.9	11.1	8.6	1218.6	139
1984	49.4	91.2	134.7	152.7	24.3	187.1	199.4	4.5	1.0	15.6	1.0	85.4	946.3	118
1985	199.3	168.9	87.9	208.5	55.3	189.4	321.4	186.3	0.0	0.0	0.0	30.5	1447.5	134
1986	102.7	232.2	23.9	80.0	15.3	139.8	371.8	7.9	23.0	0.0	1.1	47.7	1045.4	118
1987	89.8	101.9	78.7	48.1	86.2	209.2	227.6	336.0	0.0	0.0	25.0	41.2	1243.7	128
1988	58.5	315.9	64.1	110.4	106.7	316.4	341.1	47.0	0.0	32.3	4.4	36.9	1433.7	128
1989	22.4	95.4	47.6	53.2	63.9	164.5	215.5	48.8	0.0	7.3	2.3	74.7	795.6	111
1990	41.5	85.8	33.1	34.2	81.3	175.6	303.9	69.3	0.0	0.0	4.2	75.6	904.5	118
1991	149.8	157.5	65.6	131.6	96.0	109.8	266.7	10.1	48.7	0.0	40.8	0.0	1076.6	111
1992	15.6	85.4	83.9	197.0	39.2	125.8	347.5	0.9	0.0	1.6	0.0	88.3	985.2	104
1993	95.1	170.1	27.3	68.7	79.9	247.1	427.2	7.7	3.0	4.0	19.6	114.7	1264.4	-9
1994	7.6	301.0	76.3	177.1	119.4	90.8	109.1	2.0	0.7	0.0	4.8	2.8	891.6	105
1995	91.7	154.4	124.2	65.8	172.8	253.7	259.9	11.5	0.0	0.0	10.5	54.3	1198.8	128
1996	98.8	214.6	51.5	257.5	141.3	426.1	303.6	152.5	11.5	0.0	2.2	40.2	1699.8	151
1997	106.9	40.8	-	81.0	143.3	221.5	133.2	234.3	0.0	0.0	0.6	5.8	-	-
1998	26.9	52.1	61.3	104.9	99.5	295.9	273.8	36.7	15.9	14.0	16.8	0.0	997.8	104
1999	142.7	164.9	44.3	48.4	149.0	105.6	507.6	94.7	8.9	7.5	54.7	82.9	1411.2	139
2000	272.1	190.1	75.5	32.8	93.0	127.1	292.1	0.0	0.0	1.8	4.0	144.2	1232.7	129
2001	54.7	51.2	118.9	61.3	108.5	317.0	204.7	16.3	1.2	0.0	58.2	87.0	1079.0	112
Average	80.8	150.0	76.8	98.0	99.2	200.0	267.4	95.8	8.7	4.1	14.5	51.0	1146.4	
Rainy Days	8.0	14.8	14.7	16.2	17.6	19.6	17.6	7.2	1.7	0.9	1.8	4.6	124.6	

3. Surface Water / Irrigation

3. Surface Water Resources / Irrigation

Contents

3.1	Water Resources and Irrigation Development Plan.....	3-1
-----	--	-----

List of Tables

Table 1	Inventory of Water Resources by RID (Small Scale to Medium Scale Dams and Weirs)	3-4
Table 2	Physical Condition of Lam Pa Chi Sub-basin Area	3-7
Table 3	Station for Gauging Run-off and Evaluation Equation in Lam Pa Chi Sub-basin Area..	3-8
Table 4	Comparison on Volume of Rainfall and Run-off in Lam Pa Chi Sub-basin.....	3-9
Table 5	Quality of Surface Water in Lam Pa Chi River	3-10
Table 6	Evaluation on Suspend Volume in Lam Pa Chi Sub-basin.....	3-11
Table 7	Annual Mean Suspended Sediment Yield and annual mean suspended sediment	3-12
Table 8	Suspended Sediment Transportation at K17	3-13
Table 9	Suspended Sediment Transportation at K25	3-14
Table 10	Suspended Sediment Transportation at K25A	3-15
Table 11	Flood Damages	3-16
Table 12.1	List of Natural Water Resources in Ban Bueng TAO.....	3-21
Table 12.2	List of Weirs at TAO Ban Bueng, Amphoe Ban Kha in Ratchaburi Province	3-22
Table 13.1	List of Weirs at TAO Ban Kha, Amphoe Ban Kha in Ratchaburi Province	3-23
Table 13.2	List of Water Resources at Ban Kha TAO, Amphoe Ban Kha in Ratchaburi Province.	3-24
Table 14.1	List of Weirs at TAO Tha Nao Si, Amphoe Suan Phueng in Ratchaburi Province	3-25
Table 14.2	List of Ponds in Tha Nao Si TAO	3-25
Table 15	List of Ponds at TAO Nong Phan Chan, King Amphoe Ban Kha in Ratchaburi Province	3-26
Table 16	List of Small Scale Irrigation Projects at TAO Yang Hak, Amphoe Pak Tao by RID ...	3-26
Table 17.1	List of Weirs at TAO Suan Phueng, Amphoe Suan Phueng in Ratchaburi Province	3-27
Table 17.2	List of Ponds at TAO Suan Phueng, Amphoe Suan Phueng in Ratchaburi Province....	3-27
Table 18	List of Weirs and Reservoirs at TAO Tha Khoei, Amphoe Suan Phuengin Ratchaburi Province	3-28
Table 19.1	List of Weirs at TAO Pa Waii, Amphoe Suan Phueng in Ratchaburi Province	3-29
Table 19.2	List of Ponds at TAO Pa Waii, Amphoe Suan Phueng in Ratchaburi Province	3-30
Table 20.1	Water Sources in Dan Thap Tako TAO	3-31
Table 20.2	List of Ponds in Dan Thap Tako TAO	3-32
Table 21	List of Water Resources at Rang Bua TAO, Amphoe Chom Bueng in Ratchaburi Province	3-32
Table 22	Water Resources in Kaem On TAO, Amphoe Chom Bueng	3-33

Table 23.1	List of Weirs in Boek Phrai TAO, Amphoe Chom Bueng in Ratchaburi Province	3-34
Table 23.2	List of Ponds in Boek Phrai TAO, Amphoe Chom Bueng in Ratchaburi Province.....	3-34
Table 24	Water Sources in Nong Phai TAO, Amphoe Dan Makham Tia in Kanchanaburi Province	3-35
Table 25	List of Weirs and Reservoirs at Dan Makham Tia TAO, Amphoe Dan Makham Tia ...	3-35
Table 26	List of Public Water Resources in Chorakhe Puek, Amphoe Dan Makham Tia	3-36
Table 27	List of Weirs in Kanchanaburi Province	3-37
Table 28.1	Existing Water Resources Development of 16 Tambons in the Study Area.....	3-38
Table 28.2	Number of Existing Ponds at 16 Tambons in the Study Area	3-39
Table 28.3	Existing Weirs at each Tambons in the Study Area.....	3-40
Table 29	List of Hydro-electric Pumping Station until Year 1997 of Lam Pa Chi River Basin...	3-41
Table 30	Irrigation Cost Sharing Target between RID and Farmers	3-42
Table 31	Cost Sharing Implementation Target of Farmers in Other Special Project	3-42
Table 32	Last 5 years Budget for Water Resources and Irrigation Project in RID Provincial and Regional 13 Offices	3-43

3.1 Water Resources and Irrigation Development Plan

3.1 Water Resources and Irrigation Systems Proposed by RID and TAOs

Additional and supplemental data for proposed water resources and irrigation systems have been collected and finalized by the Study Team in cooperation with RID 13 regional office, RID provincial offices in Kanchanaburi and Ratchaburi as well as 16 Tambons in the Study Area. Details of these numbers, implementation schedule, costs in Short Term, Medium Term and Long Term are shown in Chapter 6 Implementation Schedule, Master Plan in Final Report.

1) Water Resources and Irrigation Development Plans in Ratchaburi Province

Table 3.1.2 shows the proposed development plans for water resources and irrigation facilities in short term (3years), medium term (5 years) and long term (12 years). According to the table, total cost is estimated at 3,364million Bt, which consists of 1,124 million Bt in short term, 1,463 million Bt in medium term and 772 million Bt in long term, respectively. Construction cost of weirs is the major component under the plan and the irrigation pump stations are proposed from medium term which will be the first cases introduced to this area. Know How in Ban Tha Phym Weir pilot project for organization of WUG, operation and maintenance as well as collection of electricity fee, etc. will be useful for these facilities. Potentiality for water resources development in Ratchaburi is much bigger than that for Kanchanaburi. Proposed medium size reservoirs and weirs will contribute to not only irrigation purpose but also mitigation of flood damages in the downstream area, and these constructions therefore should be given with the first priority in water resources development plan taking into careful consideration of environmental aspect carefully.

Table 3.1.1 Proposed Water Resources and Irrigation Development Plans in Ratchaburi (Upstream to Middle Downstream Basin)

Unit: Million Bt

Name	Short Term		Medium Term		Long Term		Total	
	No.	Cost	No.	Cost	No.	Cost	No.	Cost
(1) M.S. Reservoirs and Weirs by RID	1	84.1	6	329.4	1	63.0	8	476.5
(2) S.S. Reservoirs and Weirs by RID	4	26.6	1	2.8	0		5	29.4
(3) Weir	10	450.0	30	750.0	8	190.0	48	1,390.0
(4) Pond (Type A)	393	196.5	127	63.5	0		520	260.0
(5) Irrigation System in S.S. Res.& Weir by RID	8	53.5	11	49.5	4	26.0	23	129.0
(6) Irrigation System in M.S. Res.& Weir by RID	2	266.8	0		0		2	266.8
(7) Dredging	12	28.8	47	85.6	46	103.2	105	217.6
(8) Well								
Shallow Well (Type A)Type A	57	4.3	13	1.2			70	5.5
Deep Well	102	13.2	8	0.8			110	14.0
(9) Pump Station	0		14	180.0	32	395.0	46	575.0
Total	589	1,123.8	257	1,462.8	91	777.2	937	3,363.8

Note, 1) M.S: Medium Scale, S.S.: Small Scale, 2) Sourced by RID regional 12, RID provincial office and each TAOs

2) Water Resources and Irrigation Development Plans in Kanchanaburi Province

Total cost is estimated at 643 million Bt, which consists of 317million Bt in short term, 121 million Bt in medium term and 209 million Bt in long term, respectively. Construction cost for weirs is dominant component under the plan similar to Ratchaburi province. Due to the topographic and hydro-geological aspects, reservoir or deep well are rather difficult to develop more in this area as described in the “Chapter 5. 5.3 Water Resources in the Draft Master Plan.” The most important issue in the area is therefore how to use limited water effectively in the future. This area is also suffering damages by flood as caused by Lam Pa Chi and Khwae Noi every year. Groundwater level is high even in the dry season because the area is located close to the rivers. Consequently, shallow wells for irrigation have been developed already. Because of the limited yield for irrigation use and quality of groundwater getting worse due to heavy use of pesticides and insecticides, farmers prefer to use surface water instead of to use groundwater.

Table 3.1.2 Proposed Water Resources and Irrigation Development Plans in Kanchanaburi (Downstream Basin)

Unit: Million Bt

Name	Short Term		Medium Term		Long Term		Total	
	No.	Cost	No.	Cost	No.	Cost	No.	Cost
(1) M.S. Reservoirs and Weirs by RID	1	63.0	0		0		1	63.0
(2) S.S. Reservoirs and Weirs by RID	3	16.0	1	4.0	0		4	20.0
(3) Weir	7	57.0	13	81.0	27	140.0	47	278.0
(4) Pond (Type A)	135	6.8	0		0		135	6.8
(5) Irrigation System in S.S. Res. & Weir by RID	11	7.7	0	0.0	0		11	7.7
(6) Irrigation System in M.S. Res. & Weir by RID	0	0.0	0		0		0	
(7) Dredging	7	24.6	11	36.3	25	68.6	43	129.5
(8) Well								
Shallow Well (Type A)	45	2.3	0		0		45	2.3
Deep Well	0		0		0		0	0.0
(9) Pump Station	8	140.0	0		0		8	140.0
Total	217	317.4	25	121.3	52	208.6	294	647.3

Note, 1) M.S: Medium Scale, S.S.: Small Scale, 2)Sourced by RID regional 12, RID provincial office and each TAOs

3) Water Resources and Irrigation Development Plans in Lam Pa Chi River Basin

Total construction cost is estimated at 4,011 million Bt which consists of 1,441 million Bt in short term, 1,584 million Bt in medium term and 986 million Bt in long term, respectively. Construction cost of the weirs shares the highest, then that of pump stations the second. Because of the momentum generated by public view on environmental issues, it is deemed rather difficult to

construct medium to large-scale dams in the Basin. Reflecting on this matter, small-scale weirs, etc. are proposed and also in order to use water effectively in the existing water resource facilities, pump stations, dredging for the swamp, ponds, canals are proposed. In the study area, erosion on the river banks, sedimentation in the existing water resource facilities and inundation in the downstream basin are caused by flooding every year. As mentioned in the preceding section, in order to mitigate these flood damages, construction of medium to small scale dams and weirs are essential and should be given with the first priority taking into consideration of the flood damage situation as well as the environmental aspects carefully.

Table 3.1.3 Proposed Water Resources and Irrigation development Plans in the Whole Basin

Unit: Million Bt

Name	Short Term		Medium Term		Long Term		Total	
	No.	Cost	No.	Cost	No.	Cost	No.	Cost
(1) M.S. Reservoirs and Weirs by RID	2	147.1	6	329.4	1	63.0	9	539.5
(2) S.S. Reservoirs and Weirs by RID	7	42.6	2	6.8	0	0.0	9	49.4
(3) Weir	17	507.0	43	831.0	35	330.0	95	1,668.0
(4) Pond (Type A)	528	203.3	127	63.5	0	0.0	655	266.8
(5) Irrigation System in S.S. Res.& Weir by RID	19	61.2	11	49.5	4	26.0	34	136.7
(6) Irrigation System in M.S. Res.& Weir by RID	2	266.8	0	0.0	0	0.0	2	266.8
(7) Dredging	19	53.4	58	121.9	71	171.8	148	347.1
(8) Well								
Type A	102	6.6	13	1.2	0	0.0	115	7.8
Deep Well	102	13.2	8	0.8	0	0.0	110	14.0
(9) Pump Station	8	140.0	14	180.0	32	395.0	54	715.0
Total	806	1,441.2	282	1,584.1	143	985.8	1231	4,011.1

Note, 1) M.S: Medium Scale, S.S.: Small Scale, 2) Sourced by RID regional 12, RID provincial office and each TAOs

Table 1 Inventory of Water Resources by RID (Small Scale to Medium Scale Dams and Weirs)

Sr.	Name of Project		Type	Location		Map S=1:50,000 Coordinate	Sheet No.	Nos.	Watershed area (km2)	Storage Capacity (MCM)	Dam/Headwork		Beneficial Area			Built year	Construction Cost (Baht)				
	Amphoe	Tambon		Mu-ban	height (m)						length (m)	Implemented (rai)	Plan (rai)	Total (ha)							
A. Existing Scheme																					
A1. Ratchaburi Province																					
Small Reservoir: Less 10 MCM																					
1.	6) Huai Lum Pa Reservoir	R	Ban Kha	1. Ban Bueng	? Hoop Ta Kian	NQ 494 - 784	4835	31	847.75	11.82	6.50	212.00	6,600	1,056	15,511	2,482	3,538	1981	317,399,700		
2.	9) Pog Kra Ting Bon Reservoir	R	Ban Kha	1. Ban Bueng	? Nong Jork	NQ 525 - 725	4835	I	64.50	0.04	10.00	162.00			600	96		1988	2,147,000		
3.	10) Pu Rond Reservoir	R	Ban Kha	1. Ban Bueng	01. Pong Kra Ting	NQ 486 - 704	4835	I	8.50	0.50	14.50	400.00	350	56	700	112		1989	3,941,000		
4.	11) Pu Ta Kian Reservoir	R	Ban Kha	1. Ban Bueng	04. Pu Nam Rond	NQ 482 - 785	4835	I	3.50	0.30	14.50	400.00						1989	6,181,000		
5.	12) Huai Ma Krud Reservoir	R	Ban Kha	1. Ban Bueng	? Ban Bueng	NQ 505 - 715	4835	I	37.00	0.23	7.00	193.00			1,000	160		1989	4,410,000		
6.	21) Ban Dong Yang Reservoir	R	Ban Kha	1. Ban Bueng	? Ban Bueng	NQ 505 - 715	4835	I	3.00	0.20	15.00	225.00			300	48		1992	5,867,000		
7.	22) Ban Huai Nam Sai Reservoir	R	Ban Kha	1. Ban Bueng	? Huai Phak	NQ 466 - 662	4835	I	9.50	2.74	9.50	270.00			800	128		1993	4,711,000		
8.	70) Pong Krathing Reservoir	R	Ban Kha	1. Ban Bueng	09. Kong Yang	NQ 442 - 771	4835	I	9.50	0.51	15.00	192.00			1,300	208		1993	10,763,000		
9.	71) Ban Rong Charoen Reservoir	R	Ban Kha	1. Ban Bueng	09. Pong Krathing	NQ 506 - 738	4835	I	8.50	0.23	10.00	162.00			700	112		1977	7,957,000		
10.	16) Ban Hu Key Lek Reservoir	R	Ban Kha	1. Tambon Ban Bueng sub-total	03. Rong Charoen	NQ 450 - 752	4835	I	5.50	0.07	17.00	200.00	350	56	6,000	960	1,016	1998	10,543,000		
11.	17) Ban Bueng Tai Reservoir	R	Ban Kha	2. Ban Kha	Nong Jork Bon	NQ 415 - 835	4835	I	149.50	4.82	10.00	165.00			250	40		1987	56,520,000		
12.	18) Ban Bueng Nua Reservoir	R	Ban Kha	2. Ban Kha	09. Pu Key Lek	NQ 418 - 856	4835	I	3.75	0.25	12.50	277.00			200	32		1991	3,208,000		
13.	24) Nong Nam Kum Reservoir	R	Ban Kha	2. Ban Kha	07. Bueng Nua	PNQ 412 - 877	4835	I	2.00	0.15	7.00	180.00			600	96		1992	5,656,700		
14.	23) Huai Sai Reservoir	R	Ban Kha	2. Ban Kha	05. Nong Pong	NQ 440 - 880	4835	I	6.50	0.14	7.00	100.00			1,911	306		1993	14,673,000		
15.	19) Ban Suan Phung Reservoir	R	Ban Kha	2. Ban Kha	? Ban Nong Pong	PNQ 395 - 890	4835	I	530.00	0.70	8.50	100.00			1,911	306		1993	14,673,000		
16.	25) Ban Ta Kian Tong Pumping St	PR	Suan Phung	3. Tha Neo Si	? Tha Neo Si	NQ 348 - 908	4835	I	2.50	0.30	14.50	290.00	0	0	300	48		1993	13,610,000		
17.	73) Huai Khok Mu Reservoir	R	Suan Phung	3. Tha Neo Si sub-total	? Tha Neo Si	NQ 348 - 908	4835	I	544.75	1.54	15.00	230.00	1,500	240		522		1992	41,326,700		
18.	15) Upper Huai Ma-hed Tributary	R	Ban Kha	4. Nong Phan Chan	? Ta Kian Tong	NQ 322 - 861	4835	I	27.50	0.52	11.00	232.00	1,200	192				1993	10,798,000		
19.	8) Lower Huai Ma-hed Tributary	R	Ban Kha	4. Nong Phan Chan	04. Bo Wi	NQ 257 - 863	4835	IV	4.00	0.11	11.00	232.00	750	120				2000	26,472,700		
20.	26) Ban Tung Mu Ploi Reservoir	R	Ban Kha	4. Nong Phan Chan	03. Tung Mu Ploi	NQ 503 - 817	4835	I	9.00	0.19	16.00	176.00	3,450	552	0	0	552				72,024,700
21.	20) Huai Phak Reservoir	R	Ban Kha	4. Nong Phan Chan	? Ban Nong Jok	NQ 485 - 838	4835	I	40.50	0.82	9.50	384.10			800	128		1985	3,726,300		
22.	28) Ban Ta Ko Lang Reservoir	R	Ban Kha	4. Nong Phan Chan	? Nong Jork	NQ 461 - 842	4835	I	7.50	0.35	11.50	384.10			Domestic			1985	2,484,000		
23.	51) Ban Tam Hin Reservoir	R	Ban Kha	4. Nong Phan Chan	03. Tung Mu Ploi	NQ 461 - 842	4835	I	18.50	0.10	9.00	298.00			1,250	200		1995	18,081,300		
24.	52) Ban Huai Sud Reservoir	R	Ban Kha	4. Nong Phan Chan	03. Tung Mu Ploi	NQ 461 - 842	4835	I	7.00	0.56	9.50	374.00			2,050	328		1995	18,081,300		
25.	77) Ban Tako Lang 2 Reservoir	R	Ban Kha	4. Nong Phan Chan	03. Tung Mu Ploi	NQ 461 - 842	4835	I	33.00	1.01	9.50	374.00			2,050	328		1995	18,081,300		
26.	13) Ban Tung Ya Reservoir	R	Suan Phung	6. Suan Phung	? Suan Phung	NQ 272 - 933	4836	II	6.50	0.24	10.50	336.00	400	64				1993	6,426,000		
27.	3) Hual Kra Chai Reservoir	R	Suan Phung	6. Suan Phung	? Hoop Prik	NR 237 - 098	4836	III	12.23	0.15	10.20	194.00	300	48				1995	10,805,000		
28.	5) Ban Tung Sara Reservoir	R	Suan Phung	6. Suan Phung	05. Tam Hin	NR 288 - 123	4836	II	13.43	0.18	14.40	105.00	1,000	160				1996	18,310,000		
29.	27) Hual Allieu Reservoir	R	Suan Phung	6. Suan Phung	? Huai Sud	NR 233 - 067	4836	III	11.75	0.60	15.00	210.00	1,100	176				1998	28,197,000		
30.	32) Rang Kai nao Reservoir	R	Suan Phung	6. Suan Phung	06. Tako Lang	NQ 219 - 088	4836	III	9.50	0.27	19.00	225.00			470	75		1998	20,159,000		
31.	1) Nong Pak Chai Reservoir	R	Suan Phung	6. Suan Phung	? Tako Lang	NQ 219 - 088	4836	III	35.25	1.55	19.00	225.00	2,800	448	470	75	523	1998	83,897,000		
32.	2) Nong Pak Chai Reservoir	R	Suan Phung	7. Tha Khoei	? Huai ma Krud	NQ 410 - 965	4836	II	9.50	0.21	7.00	303.00	0	0	250	40	40	1990	3,329,000		
33.	3) Hual Kra Chai Reservoir	R	Suan Phung	8. Pha Wai	? Rang Sanhac	NQ 468 - 923	4836	I	7.00	0.24	7.50	7.50			1,000	160		1981	2,163,000		
34.	5) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	18.75	1.10	13.00	229.00			1,000	160		1989	7,353,000		
35.	7) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
36.	9) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
37.	11) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
38.	13) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
39.	15) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
40.	17) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
41.	19) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
42.	21) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
43.	23) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
44.	25) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
45.	27) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
46.	29) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
47.	31) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
48.	33) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
49.	35) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
50.	37) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
51.	39) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
52.	41) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
53.	43) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
54.	45) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
55.	47) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
56.	49) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
57.	51) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
58.	53) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
59.	55) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
60.	57) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
61.	59) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
62.	61) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
63.	63) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
64.	65) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
65.	67) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
66.	69) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320	1999	9,516,000		
67.	71) Ban Tung Sara Reservoir	R	Suan Phung	8. Pha Wai	? Tung Sara	NR 382 - 074	4836	II	25.75	1.34	13.00	229.00			2,000	320	320				

Sr.	Name of Project	Type	Amphoe	Tambon	Location	Mu-Ban	Map S=1:50,000	Coordinate	Sheet No.	Nos	Watershed area (km2)	Storage Capacity (MCM)	Dam/Headwork height (m)	Dam/Headwork length (m)	Implemented (rai)	Plan (rai)	Total (ha)	Built year	Construction Cost (Baht)
32.	Small Weir: Less 10 MCM	W	Ban Kha	2. Ban Kha	?	Ban Kha	Small Weir sub-total	NQ 462 - 845	4835 I	6	386.54	2.00	2.00	26.00	3,400	10,255	1,841	1982	35,205,000
33.	74) Hui Ma-Hat Weir	W	Suan Phueng	3. Tha Nao Si	04. Bo Wi	?		NQ 273 - 895	4835 I	1	66.25		n.a.	n.a		400	64		1,150,000
34.	75) Ban Bo Wi Reservoir	W	Suan Phueng	3. Tha Nao Si	04. Bo Wi	?		NQ 303 - 899	4835 I	1	13.50		3.70	40.00	400	355	57		7,072,000
35.	2) Ban Tung Fek Weir	W	Suan Phueng	6. Suan Phueng	?	Tung Fek		NQ 339 - 963	4836 II	1	126.00		3.00	58.20	3,000	4,500	720	1989	5,024,000
36.	4) Tung Sara Weir	W	Suan Phueng	8. Pha Wai	?	Tung Sara		NQ 411 - 056	4836 II	1	33.25		2.50	40.00	3,000	5,000	800	1986	3,876,000
37.	33) Hui Ta Chang Weir	W	Chom Bueng	11. Kaem On	?	Ta Chang			4836 II	1	143.00		2.50	40.00	8,400	11,200	1,792	1996	18,083,000
38.	Medium Reservoir: 10 - 100 MCM	R	Ban Kha	1. Ban Bueng	02. Tha Khoel		Medium Reservoir sub-total	NQ 452 - 687	4835 I	4	211.00	32.65	32.00	436.00	8,400	10,000	1,600	2002	349,842,036
39.	50) Hui Ma Hat Reservoir	R	Suan Phueng	3. Tha Nao Si	?	Ta Kian Tong		NQ 309 - 776	4835 I	1	147.00	23.40	26.50	250.00	2,500	400	1,600	1995	273,900,000
40.	72) Hui Ma Hat Reservoir**1	R	Ban Kha	4. Nong Pan Chan	03. Hui Ma Hat			NQ 501 - 874	4835 I	1	26.00	2.45	14.80	366.00	5,900	944		1987	37,797,000
41.	76) Chat Pa Wai Reservoir	R	Suan Phueng	7. Tha Khoel	07. Chat Pa Wai			482 - 969	4836 II	1	4.00	2.50	12.00	743.00		1,200	192	1983	23,157,059
42.	Medium Weir: 10 - 100 MCM	W/P	Chom Bueng	9. Dan Thap Tako	10. Tong Kra tin			NQ 488 - 093	4836 II	1	1,814.00	0.00	4.45	102.00	10,000	1,800	1,600	1995	14,987,977
43.	A2. Kanchanaburi Province																		41,339,000
44.	Small Reservoir: Less 10 MCM	R	Dan Makham	14. Dan Makham Tia	04. Pong Nok		Small Reservoir sub-total	NR 332 - 221	4836 I	2	34.00	0.74	9.00	331.00		800	128		23,940,000
45.	54) Hui pong Nok Reservoir	R	Dan Makham	15. Chorakhe Phuek	?	Wang Phla		NR 261 - 223	4836 I	1	1.50	0.21	14.50	343.00		500	80	1991	9,086,000
46.	Small Weir: Less 10 MCM	W	Dan Makham	13. Nong Phai sub-tot	?	Ban Tung	Small Weir sub-total	NR 451 - 257	4836 I	13	0.00	0.00	2.00	50.00		5,500	880	1993	14,872,000
47.	65) Ban Ta Payom Weir	W	Dan Makham	14. Dan Makham Tia	?	Wang Phla		NR 388 - 327	4836 IV	1	-	0.00	2.50	46.00		1,000	160	1985	50,919,000
48.	57) Hui Lam Khung 1 Weir	W	Dan Makham	14. Dan Makham Tia	?	Wang Phla		NR 388 - 322	4836 IV	1	-	0.00	2.50	46.00		800	128	1993	2,408,000
49.	58) Hui Lam Khung 2 Weir	W	Dan Makham	14. Dan Makham Tia	?	Wang Phla		NR 381 - 311	4836 IV	1	-	0.00	2.50	46.00		500	80	1993	3,558,000
50.	59) Hui Lam Khung 3 Weir	W	Dan Makham	14. Dan Makham Tia	?	Wang Phla		NR 369 - 305	4836 I	1	-	0.00	2.50	46.00		300	48	1993	3,278,000
51.	60) Hui Lam Khung 4 Weir	W	Dan Makham	14. Dan Makham Tia	?	Wang Phla		NR 360 - 302	4836 I	1	-	0.00	2.50	46.00		200	32	1993	4,220,000
52.	61) Hui Lam Khung 5 Weir	W	Dan Makham	14. Dan Makham Tia	?	Wang Phla		NR 349 - 298	4836 I	1	-	0.00	2.50	46.00		300	48	1993	3,423,000
53.	62) Hui Lam Khung 6 Weir	W	Dan Makham	14. Dan Makham Tia	?	Wang Phla		NR 332 - 292	4836 I	6	-	0.00	2.50	46.00		2,300	368	1993	4,242,000
54.	63) Hui Lam Khung 7 Weir	W	Dan Makham	15. Chorakhe Phuek	?	Wang Phla		NR 325 - 289	4836 I	1	-	0.00	2.50	46.00		300	48	1993	25,073,000
55.	64) Hui Lam Khung 8 Weir	W	Dan Makham	15. Chorakhe Phuek	?	Wang Phla		NR 313 - 277	4836 I	1	-	0.00	2.50	46.00		300	48	1993	3,330,000
56.	65) Hui Lam Khung 9 Weir	W	Dan Makham	15. Chorakhe Phuek	?	Wang Phla		NR 300 - 274	4836 I	1	-	0.00	2.50	46.00		500	80	1995	4,376,000
57.	66) Hui Lam Khung 10 Weir	W	Dan Makham	15. Chorakhe Phuek	?	Wang Phla		NR 276 - 246	4836 I	1	-	0.00	2.50	46.00		300	48	1996	3,704,000
58.	67) Hui Lam Khung 11 Weir	W	Dan Makham	15. Chorakhe Phuek	?	Wang Phla			4836 I	1	-	0.00	2.50	46.00		300	48	1996	4,128,000
59.	68) Hui Lam Khung 12 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1995	4,035,000
60.	69) Hui Lam Khung 13 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	6,273,000
61.	70) Hui Lam Khung 14 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
62.	71) Hui Lam Khung 15 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
63.	72) Hui Lam Khung 16 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
64.	73) Hui Lam Khung 17 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
65.	74) Hui Lam Khung 18 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
66.	75) Hui Lam Khung 19 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
67.	76) Hui Lam Khung 20 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
68.	77) Hui Lam Khung 21 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
69.	78) Hui Lam Khung 22 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
70.	79) Hui Lam Khung 23 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
71.	80) Hui Lam Khung 24 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
72.	81) Hui Lam Khung 25 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
73.	82) Hui Lam Khung 26 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
74.	83) Hui Lam Khung 27 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
75.	84) Hui Lam Khung 28 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
76.	85) Hui Lam Khung 29 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
77.	86) Hui Lam Khung 30 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
78.	87) Hui Lam Khung 31 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
79.	88) Hui Lam Khung 32 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
80.	89) Hui Lam Khung 33 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
81.	90) Hui Lam Khung 34 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
82.	91) Hui Lam Khung 35 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
83.	92) Hui Lam Khung 36 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
84.	93) Hui Lam Khung 37 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
85.	94) Hui Lam Khung 38 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
86.	95) Hui Lam Khung 39 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
87.	96) Hui Lam Khung 40 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
88.	97) Hui Lam Khung 41 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
89.	98) Hui Lam Khung 42 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
90.	99) Hui Lam Khung 43 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
91.	100) Hui Lam Khung 44 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
92.	101) Hui Lam Khung 45 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
93.	102) Hui Lam Khung 46 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
94.	103) Hui Lam Khung 47 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
95.	104) Hui Lam Khung 48 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
96.	105) Hui Lam Khung 49 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
97.	106) Hui Lam Khung 50 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
98.	107) Hui Lam Khung 51 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	500	80	1994	25,846,000
99.	108) Hui Lam Khung 52 Weir	W	Dan Makham	15. Chorakhe Phuek	01. Ta Sedet				4836 I	1	-	0.00	2.50	36.00	0	50			

Sr.	Name of Project	Type	Amphoe	Tambon	Location	Map S=1:50,000	Nos.	Watershed area (km ²)	Storage Capacity (MCM)	Dam/Headwork height (m)	length (m)	Implemented (rai)	Beneficial Area Plan (rai)	Total (ha)	Built year	Construction Cost (Baht)
B. Proposed Project																
B1. Ratchaburi Province																
1.	Small Reservoir: Less 10 MCM	R	Suan Phueng	8. Pa Wai	03. Thong Leem	NQ 460 - 064	Small sub-total	17.66	7.90	3.00	20.00		17,000	2,720		
2.	6) Hui Phu When Reservoir	R	Suan Phueng	8. Pa Wai	? Pa Wai	NQ 377 - 057	4836 II	4.00	0.82	20.00	250.00		4,000	640		
3.	7) Ban Phu Kan Reservoir	R	Suan Phueng	8. Pa Wai		NE 350 - 155	4836 II	7.10	1.33				6,500	1,040		
4.	8) Ban Phu Takian Reservoir	R	Suan Phueng	8. Pa Wai		NE 370 - 196	4836 II	15.10	3.11				14,500	2,320		
5.	9) Ban Nong Pak Dong Reservoir	R	Chom Bueang	11. Kean On		NR 433 - 207	4836 I	2.56	4.79				2,500	400		
6.	Small Weir: Less 10 MCM	W	Chom Bueang	11. Kean On	? Hin Dance			9.50	0.018	3.00	30.00		2,000	320		
7.	10) Hui Hin Dance Weir	W	Chom Bueang	11. Kean On												
Medium Reservoir: 10 - 100 MCM																
8.	1) Lower Hui Tha Khoi Reservoir	R	Ban Kha	1. Ban Bueang		798 - 470	4835 I	2,192.43	127.05				196,160	31,386		
9.	2) Pa Chi Reservoir	R	Suan Phueng	3. Tha Nao Si		710 - 290	4835 IV	370.00	10.00				15,400	2,464		
10.	3) Ban Tun Leem Reservoir	R	Suan Phueng	6. Suan Phueng		442 - 052	4836 II	54.00	26.00				40,150	6,424		
11.	4) Ban Bo Reservoir	R	Suan Phueng	6. Suan Phueng		NE 322 - 965	4836 II	1,500.00	20.00				30,300	4,944		
12.	5) Ban Hui Khalum Reservoir	R	Suan Phueng	6. Suan Phueng		NE 305 - 081	4836 II	104.38	40.29	34	300		62,210	9,954		
13.	6) Ban Nong Phan Chan sub-total	R	6. Tambon Nong Phan Chan sub-total					164.05	30.76				47,500	7,600		
14.	Small Reservoir: Less 10 MCM	R	Dan Makham	14. Dan Makham Tia	? Wang Phla	NR 277 - 217	4836 I	1,768.43	91.05				140,610	22,498		
15.	13) Ban Wang Phla Reservoir	R	Dan Makham	14. Dan Makham Tia		NR 256 - 265	4836 IV	55.00	1.60				5,600	896		
16.	14) Ban Pu Tai Reservoir	R	Dan Makham	15. Chorakhe Phuek		NR 253 - 254	4836 IV	45.00	0.48	3.00	23.00		600	96		
17.	15) Ban Nern Sa Wun Reservoir	R	Dan Makham	15. Chorakhe Phuek	09. Nern Sa Wun			3.00	0.56	18.00	200.00		3,000	480		
18.	Small Weir: Less 10 MCM	W	15. Tambon Chorakhe Phuek sub-total					7.00	0.56	18.00	200.00		2,000	320		
19.	12) Hui Sam Phao Tong Weir	W	Dan Makham	14. Dan Makham Tia		NR 417 - 390	4836 I	10.00	1.12				5,000	800		
20.	Medium Reservoir: 10 - 100 MCM	R	Dan Makham	14. Dan Makham Tia		NE 382 - 274	4836 I	14.00	0.012	3.00	20.00		1,200	192		
21.	11) Hui Lam Si Siat Reservoir	R	Dan Makham	14. Dan Makham Tia				45.10	8.48				12,700	2,032		
A3. Lam Pa Chi Basin Total (Proposed)																
22.	1. Small Scale Reservoir							72.66	9.50				22,600	3,616		
23.	2. Small Scale Weir							23.50	0.03				3,200	512		
24.	3. Medium Scale Reservoir							2,237.53	135.51				208,860	33,418		
25.	Proposed Scheme Ground Total							2,333.69	145.04				234,860	37,546		

Classification of Reservoir

	Construction Cost	Benefitted Area	Remarks
1. Small Scale	Less 10 mil Baht	not fixed	Construction period should be within 1 year
2. Medium Scheme	10 - 20 mil Baht	(about 4,000 rai)	IEE if necessary
3. Large Scheme	Over 20 mil Baht	Less 80,000 rai	EIA is essential
		Over 80,000 rai	EIA is essential

Table 2 Physical Condition of Lam Pa Chi Sub-basin Area

Area	Location	Size of Area (km ²)	Average Slope (%)	Drainage Density	Compactness Coefficient	Form Factor
1. Huai Lam Khlung	N 13°43'36" - 13°52'31" E 99°10'15" - 99°22'53"	124.95	33.91	0.89	1.82	0.17
2. Huai Klum	N 13°33'00" - 13°45'35" E 99°10'05" - 99°22'35"	248.56	30.87	0.82	1.52	0.30
3. Huai Tha Koei	N 13°10'57" - 13°31'21" E 99°19'43" - 99°33'45"	288.19	25.01	2.26	2.13	0.19

Remarks :

Drainage density

<1 mean Poor Drainage

1-5 mean Fair Drainage

>1 mean the shape of area are not a circle

<1 mean the shape of area are an angle

1 mean the shape of area same as the fan

compactness coefficient

Form Factor

Table 3 Station for Gaging Run-off and Evaluation Equation in Lam Pa Chi Sub-basin Area

Code	List of Name	Location	Watershed Area Km ²	Volume of Run-off (MCM)	Period	Equation for Run-off Calculation	
						Equation	R
1141102 (K17)	Ban Bokem A.Suan Phueng C.Ratchaburi	N 13°32'41" E 99°21'22"	1,355	244.49	1966-1996	$Q_m = -663.1964 + 163.36112R$	0.7569**
1141103 (K25)	Ban Phueng A.Suan Phueng C.Ratchaburi	N 13°25'42" E 99°24'25"	482	79.54	1982-1993	$Q_m = -410.8327 + 114.5881R$	0.6402*
1141104 (K25A)	Ban Tha Sompoi A.Suan Phueng C.Ratchaburi	N 13°34'45" E 99°24'19"	232	33.39	1983-1990	$Q_m = 154.9041 + 113.4349R$	0.7007*

Remarks :

Q_m = Monthly Run-off (m³/m²)

R = Monthly Rainfall

r = Ratio Coefficient

** = Confidential 99%

* = Confidential 95%

Table 4 Comparison on Volume of Rainfall and Run-off in Lam Pa Chi Sub-basin

Month	Average Rainfall (mm)	Average Run-off	
		(mm.)	(MCM.)
Apr	86.05	9.61	24.13
May	168.45	18.95	47.60
Jun	87.10	9.73	24.43
Jul	144.38	16.22	40.74
Aug	119.39	13.39	33.62
Sep	262.50	29.62	74.40
Oct	269.50	30.42	76.39
Nov	66.00	7.33	18.41
Dec	8.54	0.81	2.04
Jan	2.24	0.10	0.25
Feb	12.20	1.23	3.09
Mar	44.20	4.86	12.20
Total	1,270.55	142.27	357.30

Remarks : The Equation for Run-off Evaluation are shown as following

$$Q_m = -154.9041 + 113.4349R \quad (r=0.7007^{**})$$

Q_m = Monthly Run-off (m^3/km^2)

R = Monthly Rainfall (mm.)

Table 5 Quality of Surface Water in Lam Pa Chi River

Sample Area	Important Index							
	pH	DO	BOD	Sediment (ppm)	Coliform, Fecal coliform (MPN/100 ml.)	Turbid	Lead (mg./litre)	Year
1. Lam Pa Chi River Bridge	7.2	9.32	-	394	-	-	-	1998
2. Lam Pa Chi River Bridge	7.4	7.64	-	286	-	45	-	1998

Remarks : Standard for Surface Water pH = 5.0-9.0 ; DO $\geq$ 6.0
 Coliform $\leq$ 20,000 ; Fecal coliform $\leq$ 4,000
 Cadmium $\leq$ 0.005 ; Lead $\leq$ 0.05

Source : Land Development Department

Table 6 Evaluation on Suspend Volume in Lam Pa Chi Sub-basin Area (Unit : Ton)

Month	Run-off (MCM)	Sediment (Ton)
April	24.13	13,817.44
May	47.60	29,394.51
June	24.43	14,016.55
July	40.74	24,841.52
August	33.62	20,115.96
September	74.40	47,181.71
October	76.39	48,502.47
November	18.41	10,021.06
December	2.04	-
January	0.25	-
February	3.09	-
March	12.20	5,899.48
Total	357.30	213,790.70

Remark : Sediment Approximately 0.14 Ton/Rai/Year

Table 7 Annual mean suspended sediment yield, specific suspended yield and annual mean suspended sediment concentration in 3 watersheds

Watershed	Station	Period	Basin area (km ²)	annual mean susp. sedi. yield (ton)	Annual mean runoff (mcm)	Specif. susp. sedi. yield (ton/km ² /year)	Annun. susp. soil. conce. (ton/mcm)	Remark
	Code	Fisical year, Apr. to Mar.						
Khwaee Noi	140801	1969-71-74	2,570	1,110,550		432		3
	140802	1980	308	37,145		121		3
	141101	1973-1994	6,512	1,518,170	5,634	233	224	2
	k9	1963-1973	6,902	4,016,098	6,089	582	597	1
	k10	1965-1991	7,008	766,881	5,856	109	125	1
					Mean	254	244	
Khwaee Yai	140603	1966-1971	5,530	389,772		70		3
	140604	1968-1972	351	73,806		210		3
	140903	1982	67	4,487		67		3
	140403	1979-86,88-91	4,960	615,578	3,007	124	187	2
	140201	1973-1978	5,644	912,795		162		2
	140601	1969-1975	10,500	1,870,306		178		2
	140703	1973-1974	11,352	1,759,922		155		2
	140702	1973-1976	14,037	2,580,189		184		2
	k6	1952-1972	10,001	1,792,826	4,560	179	351	1
	k20	1967-1975	11,184	1,330,359	4,452	119	281	1
	k27	1978-1985	1,921	31,717	125	17	190	1
					Mean	139	273	
Lam Pa Chi	k17	1978-1986	1,355	127,693	191	94		1
	k25	1991-1993	482	44,223	100	92		1
	k25A	1994-1995	250	13,367	46	53		1
					Mean	91	540	
					Mean	182	290	

mcm: million cubic meter

1 Data from Royal Irrigation Department (RID)

2 Data from Electricity Generating Authority of Thailand (EGAT)

3 Data from Department of Energy Development and Promotion (DEDP)

Table 8 Suspended Sediment Transportation at K17

Station : Ban Bo Khem, Suan Phueng, Ratchaburi, 8.17
River : Khwae Noi
Drainage Area : 1355 SQ.KM.

6-NOV-2002 11:29:46.20
Royal Irrigation Department
Thailand
Hydrology Division
LQS/LQSEDREP

Sedimentation Investigation Branch

Unit : Tons

Suspended Sediment Transportation

[illegible]

Table 9 Suspended Sediment Transportation at K25

Station : Ban Bung, Suan Phung, Ratchaburi, K.25
 River : Lam Pha Chi
 Drainage Area : 482 SQ.KM.

6-NOV-2002 11:33:39.29
 Royal Irrigation Department
 Thailand LQS/LQSEDRP
 Hydrology Division
 Sedimentation Investigation Branch

Unit : Tons

Suspended Sediment Transportation

No	Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Annual
1	1991	145	129	86	79	66	215	32343	3124	330	200	74	39	36830
2	1992	10	4	233	296	543	28	7158	34016	138	47	17	51	42541
3	1993	49	268	196	81	54	4988	30253	3118	5036	659	2605	5994	53301
Average :		67	133	171	151	221	1743	23251	13419	1834	302	898	2028	44224
Maximum :		145	268	233	296	543	4988	32343	34016	5036	659	2605	5994	53301
Minimum :		10	4	86	79	54	28	7158	3118	138	47	17	39	36830
Sediment Yield :		91.7510 Tons/SQ.KM.												

Table 10 Suspended Sediment Transportation at K25A

Station : Ban Kha, A.Suan Phung, Ratchaburi, ~~K-25A~~
 River : Lam Pha Chi
 Drainage Area : 482 SQ.KM.

6-NOV-2002 11:34:07.52
 Royal Irrigation Department
 Thailand LQS/LQSEPREP
 Hydrology Division
 Sedimentation Investigation Branch

Unit : Tons

Suspended Sediment Transportation

No	Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Annual
1	1994	3	27	16	6	24	7	100	14	4	1	0	0	202
2	1995	0	4	57	47	176	2165	23261	757	46	10	5	4	26532
3	1996	55	590	2076	15002	1692	105832	53663	18031	491	53	13	6	197504
4	1997	4	3	0	0	7	1101	3573	68833	164	27	11	7	73730
Average :		15	156	537	3763	474	27276	20149	21908	176	23	7	4	74492
Maximum :		55	590	2076	15002	1692	105832	53663	68833	491	53	13	7	197504
Minimum :		0	3	0	0	7	7	100	14	4	1	0	0	203
Sediment Yield :		154.5477 Tons/SQ.KM.												

Table 11(1) Flood Damages
Agricultural Crop Damaged by Flood in A. Dan MakhamTia in 2545

Crops	13. T. Nong Phai			14. T. Dan Makham Tia			15. Chorakhe Phuek			16. T. Klon Do			Total		
	Area (rai)	Yield (kg)	Loss ('001Bt.)	Area (rai)	Yield (kg)	Loss ('000Bt.)	Area (rai)	Yield (kg)	Loss ('000Bt.)	Area (rai)	Yield (kg)	Loss ('000Bt.)	Area (rai)	Yield (kg)	Loss ('000Bt.)
1. Sweet corn	685.0	1,370.0	822.00	90.0	180.0	108.00				7.0	14.0	8.40	782.0	1,564.0	938.40
2. Baby corn	354.0	708.0	424.80	39.0	78.0	46.80	4.0	8.0	4.80	309.0	618.0	370.80	706.0	1,412.0	847.20
3. Cowpea	5.0	75.0	2.25	58.0	87.0	26.10				2.0	3.0	0.90	65.0	165.0	29.25
4. Eggplant	18.0	0.9	6.30	18.0	0.9	6.30	5.0	0.3	1.75				41.0	2.1	14.35
5. Long eggplant				19.0	1.0	6.65							19.0	1.0	6.65
6. Luffa				22.0	6.6	29.70							22.0	6.6	29.70
7. Cucumber	7.0	3.5	24.50	13.0	6.5	45.50							20.0	10.0	70.00
8. Mormodica				5.0	1.5	12.00				2.0	0.6	4.80	7.0	2.1	16.80
9. Corn				13.0	26.0	2.08							13.0	26.0	2.08
10. Maize				1.0	1.0	0.08	2.0	2.0	0.16				3.0	3.0	0.24
11. Pumpkin				4.0	0.4	1.60							4.0	0.4	1.60
12. Paddy	69.0	690.0	10.35				30.0	300.0	4.50	200.0	2,000.0	30.00	299.0	2,990.0	44.85
13. Cassava	13.0	4,420.0	8.84							137.0	46,580.0	93.16	150.0	51,000.0	102.00
14. Marigold	4.0	35,200.0	35.20							25.5	224,400.0	224.40	29.5	259,600.0	259.60
15. Turnips										13.0	39.0	7.80	13.0	39.0	7.80
16. Cabbage										9.0	9.0	54.00	9.0	9.0	54.00
17. Chinese mustard	16.0	16.0	8.00										16.0	16.0	8.00
18. White greens	7.0	2.1	9.45										7.0	2.1	9.45
19. Yam bean	6.0	12.0	4.80										6.0	12.0	4.80
20. Chili	36.0	3.6	72.00				8.0	2.4	48.00				44.0	6.0	120.00
21. Soybean	38.0	570.0	57.00										38.0	570.0	57.00
22. Peanut	75.0	1,500.0	97.50										75.0	1,500.0	97.50
23. Spring Onion	10.0	600.0	2.00										10.0	600.0	2.00
24. Coriander	3.0	18.0	4.50				1.0	6.0	1.50				4.0	24.0	6.00
25. Chinese leek	5.0	0.5	1.25										5.0	0.5	1.25
26. Winged bean	1.0	1.0	0.05										1.0	1.0	0.05
27. Asparagus	11.0	1,100.0	28.60										11.0	1,100.0	28.60
28. Taro	4.0	2,000.0	8.00										4.0	2,000.0	8.00
29. Sugarcane	145.0	145,000.0	145.60										145.0	145,000.0	145.60
Total	1,512.0	193,290.6	1,772.99	282.0	388.9	284.81	50.0	318.7	60.71	704.5	273,663.6	794.26	2,548.5	467,661.7	2,912.77

Crops	13. T. Nong Phai			14. T. Dan Makham Tia			15. Chorakhe Phuek			16. T. Klon Do			Total		
	Area (ha)	Yield (kg)	Loss ('001Bt.)	Area (ha)	Yield (kg)	Loss ('000Bt.)	Area (ha)	Yield (kg)	Loss ('000Bt.)	Area (ha)	Yield (kg)	Loss ('000Bt.)	Area (ha)	Yield (kg)	Loss ('000Bt.)
1. Sweet corn	109.6	1,370.0	822.00	14.4	180.0	108.00				1.1	14.0	8.40	125.1	1,564.0	938.40
2. Baby corn	56.6	708.0	424.80	6.2	78.0	46.80	0.6	8.0	4.80	49.4	618.0	370.80	113.0	1,412.0	847.20
3. Cowpea	0.8	75.0	2.25	9.3	87.0	26.10				0.3	3.0	0.90	10.4	165.0	29.25
4. Eggplant	2.9	0.9	6.30	2.9	0.9	6.30	0.8	0.3	1.75				6.6	2.1	14.35
5. Long eggplant				3.0	1.0	6.65							3.0	1.0	6.65
6. Luffa				3.5	6.6	29.70							3.5	6.6	29.70
7. Cucumber	1.1	3.5	24.50	2.1	6.5	45.50							3.2	10.0	70.00
8. Mormodica				0.8	1.5	12.00				0.3	0.6	4.80	1.1	2.1	16.80
9. Corn				2.1	26.0	2.08							2.1	26.0	2.08
10. Maize				0.2	1.0	0.08	0.3	2.0	0.16				0.5	3.0	0.24
11. Pumpkin				0.6	0.4	1.60							0.6	0.4	1.60
12. Paddy	11.0	690.0	10.35				4.8	300.0	4.50	32.0	2,000.0	30.00	47.8	2,990.0	44.85
13. Cassava	2.1	4,420.0	8.84							21.9	46,580.0	93.16	24.0	51,000.0	102.00
14. Marigold	0.6	35,200.0	35.20							4.1	224,400.0	224.40	4.7	259,600.0	259.60
15. Turnips										2.1	39.0	7.80	2.1	39.0	7.80
16. Cabbage										1.4	9.0	54.00	1.4	9.0	54.00
17. Chinese mustard	2.6	16.0	8.00										2.6	16.0	8.00
18. White greens	1.1	2.1	9.45										1.1	2.1	9.45
19. Yam bean	1.0	12.0	4.80										1.0	12.0	4.80
20. Chili	5.8	3.6	72.00				1.3	2.4	48.00				7.0	6.0	120.00
21. Soybean	6.1	570.0	57.00										6.1	570.0	57.00
22. Peanut	12.0	1,500.0	97.50										12.0	1,500.0	97.50
23. Spring Onion	1.6	600.0	2.00										1.6	600.0	2.00
24. Coriander	0.5	18.0	4.50				1.0	6.0	1.50				1.5	24.0	6.00
25. Chinese leek	0.8	0.5	1.25										0.8	0.5	1.25
26. Winged bean	0.2	1.0	0.05										0.2	1.0	0.05
27. Asparagus	1.8	1,100.0	28.60										1.8	1,100.0	28.60
28. Taro	0.6	2,000.0	8.00										0.6	2,000.0	8.00
29. Sugarcane	23.2	145,000.0	145.60										23.2	145,000.0	145.60
Total	241.9	193,290.6	1,772.99	45.1	388.9	284.81	8.8	318.7	60.71	112.7	273,663.6	794.26	408.6	467,661.7	2,912.77

Table 11(2) Flood Damages

Flood Area and Its Damaged Agriculture Areas occurred in 2545 at Nong Phan Tambon in Muban-wise

	Mu-1		Mu-3		Mu-4		Mu-5		Mu-6		Total	
	Flood area (rai)	Damaged area (rai)	Flood area (rai)	Damaged area (rai)	Flood area (rai)	Damaged area (rai)	Flood area (rai)	Damaged area (rai)	Flood area (rai)	Damaged area (rai)	Flood area (rai)	Damaged area (rai)
1. Sugarcane	19	3	35	35	443	107					497	145
2. Soybean			18	18					20	20	38	38
3. Peanut	33	33			16	16	3	3	23	23	75	75
4. Cassava							13	13			13	13
5. Yam bean	4	4			2	2					6	6
6. Taro							4	4			4	4
7. Paddy	2	2	57	57			10	10			69	69
8. Asparagus	1	1	4	4	5	5	1	1			11	11
9. Chili	14	14	7	7	11	11	2	2	2	2	36	36
10. Sweet corn	131	129	172	172	201	183	46	46	135	135	685	665
11. Baby corn	19	19	95	95	195	163	35	30	10	10	354	317
12. Eggplant	4	4	2	2	12	11					18	17
13. Turnips	3	3							10	10	13	13
14. Spring Onion	6	6							4	4	10	10
15. Cabbage	4	4			5	5					9	9
16. Cucumber	1	1			6	6					7	7
17. Cowpea	1	1			4	4					5	5
18. Chinese mustard					15	15					15	15
19. Coriander					3	3					3	3
20. Chinese leek					5	5					5	5
21. White greens					7	7					7	7
22. Winged bean					1	1					1	1
23. Marigold	3	3			1	1					4	4
Total	245	227	390	390	932	545	114	109	204	204	1,885	1,475

	Mu-1		Mu-3		Mu-4		Mu-5		Mu-6		Total	
	Flood area (ha)	Damaged area (ha)	Flood area (ha)	Damaged area (ha)	Flood area (ha)	Damaged area (ha)	Flood area (ha)	Damaged area (ha)	Flood area (ha)	Damaged area (ha)	Flood area (ha)	Damaged area (ha)
1. Sugarcane	3.0	0.5	5.6	5.6	70.9	17.1					79.5	23.2
2. Soybean			2.9	2.9					3.2	3.2	6.1	6.1
3. Peanut	5.3	5.3			2.6	2.6	0.5	0.5	3.7	3.7	12.0	12.0
4. Cassava							2.1	2.1			2.1	2.1
5. Yam bean	0.6	0.6			0.3	0.3					1.0	1.0
6. Taro							0.6	0.6			0.6	0.6
7. Paddy	0.3	0.3	9.1	9.1			1.6	1.6			11.0	11.0
8. Asparagus	0.2	0.2	0.6	0.6	0.8	0.8	0.2	0.2			1.8	1.8
9. Chili	2.2	2.2	1.1	1.1	1.8	1.8	0.3	0.3	0.3	0.3	5.8	5.8
10. Sweet corn	21.0	20.6	27.5	27.5	32.2	29.3	7.4	7.4	21.6	21.6	109.6	106.4
11. Baby corn	3.0	3.0	15.2	15.2	31.2	26.1	5.6	4.8	1.6	1.6	56.6	50.7
12. Eggplant	0.6	0.6	0.3	0.3	1.9	1.8					2.9	2.7
13. Turnips	0.5	0.5							1.6	1.6	2.1	2.1
14. Spring Onion	1.0	1.0							0.6	0.6	1.6	1.6
15. Cabbage	0.6	0.6			0.8	0.8					1.4	1.4
16. Cucumber	0.2	0.2			1.0	1.0					1.1	1.1
17. Cowpea	0.2	0.2			0.6	0.6					0.8	0.8
18. Chinese mustard					2.4	2.4					2.4	2.4
19. Coriander					0.5	0.5					0.5	0.5
20. Chinese leek					0.8	0.8					0.8	0.8
21. White greens					1.1	1.1					1.1	1.1
22. Winged bean					0.2	0.2					0.2	0.2
23. Marigold	0.5	0.5			0.2	0.2					0.6	0.6
Total	39.2	36.3	62.4	62.4	149.1	87.2	18.2	17.4	32.6	32.6	301.6	236.0

Table 11(3) Flood Damages
Livestock Damaged by Flood in A. Chom Bueng in 2540

Tambon	Number of Farmers	Area		Cattle		Buffalo		Swine		Duck		Chicken	
		All (rai)	Damaged (%)	Number	Damaged (%)	Number	Damaged (%)	Number	Damaged (%)	Number	Damaged (%)	Number	Damaged (%)
Dan Thap Tako	700	600.0	50.0	1,418.0	10.0	38.0	-	1,771.0	5.0	250.0	5.0	130,000.0	10.0
Rang Bua	500	700.0	70.0	4,730.0	30.0	-	-	1,386.0	10.0	60.0	20.0	120,000.0	70.0
Kaem On	400	200.0	50.0	994.0	10.0	60.0	-	402.0	10.0	170.0	5.0	60,000.0	10.0
Boek Phrai	150	300.0	30.0	1,066.0	5.0	26.0	-	819.0	5.0	300.0	5.0	200,000.0	10.0
Total	1,750	1,800.0		8,208.0		124.0		4,378.0		780.0		510,000.0	

Tambon	Number of Farmers	Area		Cattle		Buffalo		Swine		Duck		Chicken	
		All (ha)	Damaged (%)	Number	Damaged (%)	Number	Damaged (%)	Number	Damaged (%)	Number	Damaged (%)	Number	Damaged (%)
Dan Thap Tako	700	96.0	50.0	1,418.0	10.0	38.0	-	1,771.0	5.0	250.0	5.0	130,000.0	10.0
Rang Bua	500	112.0	70.0	4,730.0	30.0	-	-	1,386.0	10.0	60.0	20.0	120,000.0	70.0
Kaem On	400	32.0	50.0	994.0	10.0	60.0	-	402.0	10.0	170.0	5.0	60,000.0	10.0
Boek Phrai	150	48.0	30.0	1,066.0	5.0	26.0	-	819.0	5.0	300.0	5.0	200,000.0	10.0
Total	1,750	288.0		8,208.0		124.0		4,378.0		780.0		510,000.0	

Table 11(4) Flood Damages
Agricultural Crop Damaged by Flood in A. Chom Bueng in 2539

Crops	9. T. Dan Thap Tako			10. T. Rang Bua			11. T. Kaem On			12. T. Boek Phrai			Total		
	Area (rai)	Yield (kg)	Loss ('001Bt.)	Area (rai)	Yield (kg)	Loss ('000Bt.)	Area (rai)	Yield (kg)	Loss ('000Bt.)	Area (rai)	Yield (kg)	Loss ('000Bt.)	Area (rai)	Yield (kg)	Loss ('000Bt.)
1. Sweet corn	156.0	156.0	800.00				1,026.0	5,300.00					1,182.0	156.0	6,100.00
2. Cowpea	445.0	890.0	111.00	68.0	136.0		103.0	2,500.00					616.0	1,026.0	2,611.00
3. Eggplant	54.0	5.0	30.00				229.0	5,700.00					283.0	5.0	5,730.00
4. Cucumber							26.0	650.00					26.0	0.0	650.00
5. Corn	37.0	74.0	100.00										37.0	74.0	100.00
6. Maize	504.0	1,008.0	1,500.00	11.0	22.0	30.00							515.0	1,030.0	1,530.00
7. Pumpkin							5.0	120.00					5.0	0.0	120.00
8. Paddy				250.0	2,500.0	500.00				853.0	8,530.0	1,700.00	1,103.0	11,030.0	2,200.00
9. Cassava	251.0	502.0	700.00	521.0	1,042.0	1,560.00	255.0	700.00		1,125.0	2,250.0	3,370.00	2,152.0	3,794.0	6,330.00
10. Chili	246.0	49.2	6.14	34.0	6.8		222.0	5,550.00					502.0	56.0	5,556.14
11. Cabbage				11.0	1.7								11.0	1.7	0.00
12. Soybean							8.0	200.00					8.0	0.0	200.00
13. Spring Onion							12.0	300.00					12.0	0.0	300.00
14. Lemon										8.0	240.0		8.0	240.0	0.00
15. Jujube										6.0	140.0		6.0	140.0	0.00
16. Coconut										4.0	75.0		4.0	75.0	0.00
17. Jackfruit										18.0	225.0		18.0	225.0	0.00
18. Mango										28.0	350.0		28.0	350.0	0.00
19. Water melon										233.0	466.0	690.00	233.0	466.0	690.00
20. Asparagus							32.0	800.00					32.0	0.0	800.00
21. Sugarcane							172.0	600.00					172.0	0.0	600.00
22. Galingale							95.0	2,300.00					95.0	0.0	2,300.00
Total	1,693.0	2,684.2	3,247.14	895.0	3,708.5	2,090.00	2,185.0	0.0	24,720.00	2,275.0	12,276.0	5,760.00	7,048.0	18,668.7	35,817.14

Crops	9. T. Dan Thap Tako			10. T. Rang Bua			11. T. Kaem On			12. T. Boek Phrai			Total		
	Area (ha)	Yield (kg)	Loss ('001Bt.)	Area (ha)	Yield (kg)	Loss ('000Bt.)	Area (ha)	Yield (kg)	Loss ('000Bt.)	Area (ha)	Yield (kg)	Loss ('000Bt.)	Area (ha)	Yield (kg)	Loss ('000Bt.)
1. Sweet corn	25.0	156.0	800.00				164.2	5,300.00					189.1	156.0	6,100.00
2. Cowpea	71.2	890.0	111.00	10.9	136.0		16.5	2,500.00					98.6	1,026.0	2,611.00
3. Eggplant	8.6	5.0	30.00				36.6	5,700.00					45.3	5.0	5,730.00
4. Cucumber							4.2	650.00					4.2	0.0	650.00
5. Corn	5.9	74.0	100.00										5.9	74.0	100.00
6. Maize	80.6	1,008.0	1,500.00	1.8	22.0	30.00							82.4	1,030.0	1,530.00
7. Pumpkin							0.8	120.00					0.8	0.0	120.00
8. Paddy				40.0	2,500.0	500.00				136.5	8,530.0	1,700.00	176.5	11,030.0	2,200.00
9. Cassava	40.2	502.0	700.00	83.4	1,042.0	1,560.00	40.8	700.00		180.0	2,250.0	3,370.00	344.3	3,794.0	6,330.00
10. Chili	39.4	49.2	6.14	5.4	6.8		35.5	5,550.00					80.3	56.0	5,556.14
11. Cabbage				1.8	1.7								1.8	1.7	0.00
12. Soybean							1.3	200.00					1.3	0.0	200.00
13. Spring Onion							1.9	300.00					1.9	0.0	300.00
14. Lemon										1.3	240.0		1.3	240.0	0.00
15. Jujube										1.0	140.0		1.0	140.0	0.00
16. Coconut										0.6	75.0		0.6	75.0	0.00
17. Jackfruit										2.9	225.0		2.9	225.0	0.00
18. Mango										4.5	350.0		4.5	350.0	0.00
19. Water melon										37.3	466.0	690.00	37.3	466.0	690.00
20. Asparagus							5.1	800.00					5.1	0.0	800.00
21. Sugarcane							27.5	600.00					27.5	0.0	600.00
22. Galingale							15.2	2,300.00					15.2	0.0	2,300.00
Total	270.9	2,684.2	3,247.14	143.2	3,708.5	2,090.00	349.6	0.0	24,720.00	364.0	12,276.0	5,760.00	1,127.7	18,668.7	35,817.14

Table 11(5) Flood Damages

Agricultural Crop Damaged by Flood in A. Suan Phueng in 2542

Source: Agriculture Office

Crops	4. T. Tha Nao Si		6. T. Suan Phueng		7. T. Tha Khoei		8. T. Pa Wai		Total	
	Flood area (rai)	Damaged area (rai)	Flood area (rai)	Damaged area (rai)	Flood area (rai)	Damaged area (rai)	Flood area (rai)	Damaged area (rai)	Flood area (rai)	Damaged area (rai)
1. Sweet corn							734.0	734.0	734.0	734.0
2. Baby corn							256.0	156.0	256.0	156.0
3. Cowpea	14.0	14.0	1.0	1.0	31.0	31.0	5.0	5.0	51.0	51.0
4. Eggplant	30.0	30.0					80.0	80.0	110.0	110.0
5. Luffa					25.0	25.0	8.0	8.0	33.0	33.0
6. Cucumber							16.0	16.0	16.0	16.0
7. Mormodica	10.0	10.0					85.0	85.0	95.0	95.0
8. Corn					307.0	269.0			307.0	269.0
9. Maize	96.0	76.0	290.0	290.0			160.0	60.0	546.0	426.0
10. Pumpkin					71.0	49.0	30.0	30.0	101.0	79.0
11. Paddy	60.0	30.0			47.0	46.0			107.0	76.0
12. Bamboo	6.0	6.0							6.0	6.0
13. Lemon	16.0	6.0	3.0	3.0	10.0	5.0	3.0	3.0	32.0	17.0
14. Longan			47.0	47.0	2.0	1.0			49.0	48.0
15. Orange	2.0	2.0							2.0	2.0
16. Pineapple					20.0	15.0			20.0	15.0
17. Rose apple							13.0	13.0	13.0	13.0
18. Mimusops							6.0	6.0	6.0	6.0
19. Guava							4.0	4.0	4.0	4.0
20. Jujube	38.0	18.0							38.0	18.0
21. Coconut	32.0	22.0	33.0	33.0					65.0	55.0
22. Jackfruit	13.0	6.0	73.0	73.0			5.0	5.0	91.0	84.0
23. Mango			27.0	27.0	44.0	22.0	9.0	9.0	80.0	58.0
24. Water melon					99.0	91.0			99.0	91.0
25. Pomelo	10.0	10.0					6.0	6.0	16.0	16.0
26. Papaya					26.0	20.0			26.0	20.0
27. Turnips	99.0	89.0	43.0	43.0	228.0	207.0	58.0	58.0	428.0	397.0
28. Chinese kale					25.0	25.0			25.0	25.0
29. Cassava					3,226.0	1,771.0	790.0	732.0	4,016.0	2,503.0
30. Chili					5.0	4.0	10.0	10.0	15.0	14.0
31. Peanut					49.0	49.0	5.0	5.0	54.0	54.0
32. Coriander					47.0	37.0			47.0	37.0
33. Sugarcane	43.0	13.0					230.0	30.0	273.0	43.0
Total	469.0	332.0	517.0	517.0	4,262.0	2,667.0	2,513.0	2,055.0	7,761.0	5,571.0

Crops	4. T. Tha Nao Si		6. T. Suan Phueng		7. T. Tha Khoei		8. T. Pa Wai		Total	
	Flood area (ha)	Damaged area (ha)	Flood area (ha)	Damaged area (ha)	Flood area (ha)	Damaged area (ha)	Flood area (ha)	Damaged area (ha)	Flood area (ha)	Damaged area (ha)
1. Sweet corn							117.4	117.4	117.4	117.4
2. Baby corn							41.0	25.0	41.0	25.0
3. Cowpea	2.2	2.2	0.2	0.2	5.0	5.0	0.8	0.8	8.2	8.2
4. Eggplant	4.8	4.8					12.8	12.8	17.6	17.6
5. Luffa					4.0	4.0	1.3	1.3	5.3	5.3
6. Cucumber							2.6	2.6	2.6	2.6
7. Mormodica	1.6	1.6					13.6	13.6	15.2	15.2
8. Corn					49.1	43.0			49.1	43.0
9. Maize	15.4	12.2	46.4	46.4			25.6	9.6	87.4	68.2
10. Pumpkin					11.4	7.8	4.8	4.8	16.2	12.6
11. Paddy	9.6	4.8			7.5	7.4			17.1	12.2
12. Bamboo	1.0	1.0							1.0	1.0
13. Lemon	2.6	1.0	0.5	0.5	1.6	0.8	0.5	0.5	5.1	2.7
14. Longan			7.5	7.5	0.3	0.2			7.8	7.7
15. Orange	0.3	0.3							0.3	0.3
16. Pineapple					3.2	2.4			3.2	2.4
17. Rose apple							2.1	2.1	2.1	2.1
18. Mimusops							1.0	1.0	1.0	1.0
19. Guava							0.6	0.6	0.6	0.6
20. Jujube	6.1	2.9							6.1	2.9
21. Coconut	5.1	3.5	5.3	5.3					10.4	8.8
22. Jackfruit	2.1	1.0	11.7	11.7			0.8	0.8	14.6	13.4
23. Mango			4.3	4.3	7.0	3.5	1.4	1.4	12.8	9.3
24. Water melon					15.8	14.6			15.8	14.6
25. Pomelo	1.6	1.6					1.0	1.0	2.6	2.6
26. Papaya					4.2	3.2			4.2	3.2
27. Turnips	15.8	14.2	6.9	6.9	36.5	33.1	9.3	9.3	68.5	63.5
28. Chinese kale					4.0	4.0			4.0	4.0
29. Cassava					516.2	283.4	126.4	117.1	642.6	400.5
30. Chili					0.8	0.6	1.6	1.6	2.4	2.2
31. Peanut					7.8	7.8	0.8	0.8	8.6	8.6
32. Coriander					7.5	5.9			7.5	5.9
33. Sugarcane	6.9	2.1					36.8	4.8	43.7	6.9
Total	75.0	53.1	62.7	62.7	681.9	426.7	402.1	328.8	1,241.8	891.4

Table 12.1 List of Natural Water Resources in Ban Bueng TAO

Type	Name	No.	Muban	Tambon	Size Rai	No	Reserved Area (Rai) Min	Max	Duration of standing water All year	7-6 Month	<6 Month	Storage Cap. (m³)	Construc tion	Year
Pond	Rongcharoen Pond	3	Rongcharoen	Ban Bueng	3	1							RID	1995
Pond	Phubonlang Pond	11	Phubonlang		5	1							-	1995
Pond	Bannobeow Pond	11	Phubonlang		1	1							TAO	1997
Sub-Total					9	3						28,800		
Res.	Rural Development Res.	7	Phutakien		25	1						80,000	ARD	1992
Res.	Thakoei Res.	8	Huai Namsai		10	1						32,000	ARD	1983
Res.	Thakoei Res.	8	Huai Namsai		15	1						48,000	RID	1994
Res.*	Pongkratingbon Res.	1	Pongkratingbon		20	1							RID	1987
Res.*	Phutakien Res.	7	Phutakien		50	1							RID	1990
Res.*	Huai Namsai Res.	8	Huai Namsai		18	1							1.1	1992
Res.*	Huai Makrud Res.	10	Huai Makrud		15	1							RID	1987
Res.*	Pongkratingklang Res.	12	Pongkratingklang		30	1							RID	1977
Sub-Total					25	2						160,000		
Total					34	5						188,800		

H=2m

Sourced by Ban Bueng TAO

Res*: Already listed up at RID's water resources inventory

Storage Capacity is estimated with 2.0m depth of water.

Table 12.2 List of Weirs at TAO Ban Bueng, Amphoe Ban Kha in Ratchaburi Province

River Name	No.	No. of Village	TAO	Amphoe	Weir Dimension			Construction Cost (BT)	Shift to TAO
					L (m)	H (m)	Capacity (m ³)		
Huai Pongkratingbon	1	1	Ban Bueng	Ban Kha	18	1.5	1,500	342,200	2002
Huai Pongkratinglang	2	2			18	1.5	1,000	342,200	2002
Huai Pongkratinglang	3	2			18	1.5	1,800	342,200	2002
Huai Bankareng	4	2			15	1.5	800	440,400	2002
Huai Phubon	5	5			18	1.5	3,600	342,200	2002
Huai Phubon	6	5			18	1.5	1,800	342,200	2002
Huai Phubon	7	5			18	1.5	2,160	342,200	2002
Huai Phubon	8	5			18	1.5	1,000	342,200	2002
Huai Phubon	9	5			18	1.5	3,600	342,200	2002
Huai Makrud	10	10			18	1.5	1,000	342,200	2002
Huai Pongkrating	11	10			18	1.5	1,000	342,200	2002
Huai Pongkrating	12	10			18	1.5	2,160	342,200	2002
Huai Phubon	13	11			20	1.5	4,400	380,000	2002
Huai Phubon	14	11			18	1.5	4,400	342,000	2002
Huai Phubon	15	11			20	2	2,160	342,000	2002
Huai Phubon	16	11			18	1.5	3,600	342,000	2002
Huai Pongkratinglang	17	12			18	2	2,160	551,374	2002
Total	17						38,140	6,161,974	

Sourced by Ban Bueng TAO, Amphoe Ban Kha in Ratchaburi

Table 13.1 List of Weirs at TAO Ban Kha, Amphoe Ban Kha in Ratchaburi Province

No.	No. of Village	TAO	Amphoe	River Name	Weir Dimension				Construction Cost (BT)	Shift to TAO
					L (m)	H (m)	Construction	Capacity (m ³)		
1	1	Ban Kha	Ban Kha		20	1.5	2002	5,600	542,000	2002
2	2				18	1.5	1994	7,000	342,000	2002
3	2				10	2	1997	2,000	240,000	2002
4	2				18	1.5	1996	7,000	342,000	2002
5	2				20	2	1995	16,000	380,000	2002
6	2				18	1.5	1996	7,000	342,000	2002
7	2				18	1.5	1999	7,200	558,000	2002
8	4				20	2	1999		620,000	2002
9	6				18	1.5	1995	7,000	342,000	2002
10	6				18	1.5	1995	7,000	342,000	2002
11	9				15	1.5	1999	7,200	440,200	2002
Total								73,000	4,490,200	2002

Sourced by Ban Kha TAO, Amphoe Ban Kha in Ratchaburi

Table 13.2 List of Water Resources at Ban Kha TAO, Amphoe Ban Kha in Ratchaburi Province

No.	Name	No. of Village	TAO	Amphoe	Dimension				
					L (m)	H (m)	Construction	Capacity (m ³)	Catchment (km ²)
	Pond								
1	Ban Pong-jet	8	Ban Kha	Ban Kha			1996	16,000	
2	Ban Phu-khee-lek	9					1999	20,000	
3	Ban Kha	9					1999	20,000	
4	Ban Muang Huai Sua	7					2000	20,000	
5	Huai Ma Ka	-					1993	28,200	
6	Huai Nong Nam-Khun	2					1997	20,000	
7	Ban Lam-pra	11					2001	25,000	
	Sub Total							149,200	
	Reservoir								
9*	Ban Phu-khee-lek Res.	1			165	10		250,000	3.75
10*	Ban Bueng Tai Res.	7			277	12.5		150,000	2.00
11*	Ban Bueng Nua Res.	6			180.00	7.00		140,000	6.50
12*	Ban Nong Nam-Khun Res.	2			100.00	8.50		700,000	530.00
13*	Ban Huai Sai Res.	5			290.00	14.50		300,000	2.50
14*	Ban Rong Cha-roen Res.	3			96.00	12.70			5.50
	Sub Total							0	
	Total							149,200	

Sourced by Ban Kha TAO, Amphoe Ban Kha in Ratchaburi

Reservoirs from 9 to 14 are listed up in water resources inventory by RID.

Table 14.1 List of Weirs at TAO Tha Nao Si, Amphoe Suan Phueng in Ratchaburi Province

Name	No.	No. of Village	TAO	Amphoe	River Name	Weir Dimension					Serviceable		Construction Cost (BT)	Shift to TAO
						L (m)	H (m)	Construction	Catchment (km ²)	Capacity (MCM)	Yes	No		
Ban Huai Muang weir	1	3	Tha Nao Si	Suan Phueng		50	4.9		353		/			
Weir (Mo Kho 27)	2	4				16	2					/		
Weir (Mo Kho 27)	3	6				20	2.5					/		
Sub-Total	3								353	0				
Ban Suan Phueng res.*	4	1				230	15		0.25	0.52	/			
Ban Pong Hang res.	5	3								0.40	/			
Phachondan res.	6	3									/			
Huai Kokmoo res.	7	4								0.50	/			
Huai Ana res.	8	6				250	26.5		26	2.45	/			
Ban Taktienthong	9	3								4	/			
Sub-Total	6							30		3.35				
Total	9							383		3.35			0	

Sourced by Ban Bueng TAO, Amphoe Ban Kha in Ratchaburi

Ban Suan Phueng res. * is listed up in water resources inventory by RID

Table 14.2 List of Ponds in Tha Nao Si TAO

Muban	No. of village	Tambon	Size Rai	No	Reserved Area (Rai)	Min	Max	Duration of standing water		Storage Cap. (m ³)	No. of H/H	Construction Agency
Khaolukchang	1	Tha Nao Si	5	2	2	2	5	All year	7-6 Month	32,000	80	RID
Huai Muang	3		5	1	2.5	5	5	/		16,000	50	RID
Nongtadung	6		5	1	2	5	5	/		16,000	90	RID
Total				4						64,000		

Table 15 List of Ponds at TAO Nong Phan Chan, King Amphoe Ban Kha in Ratchaburi Province

No.	Muban	Muban	Tambon	Size		Reserved Area (Rai)		Duration of standing water			Storage Cap.(m ³)	Construction Agency
				Rai	No.	Min.	Max.	All year	> 6 months	< 5 months		
1	1	Ban Thung Mali Khro	Nong Phan Chan	0.75	1					○	2,400	
2	2	Ban Nong Ko	Nong Phan Chan	10.5	1			○			33,600	
3	4	Ban Nong Chok Bon	Nong Phan Chan	1	1				○		3,200	
4	5	Ban Nong Chok	Nong Phan Chan	1	1				○		3,200	
5	6	Ban Nong Phan Chan	Nong Phan Chan	1	2				○		6,400	
6	7	Ban Nong Thong	Nong Phan Chan	14.5	1			○			46,400	
Sub-Total					7						95,200	

Sourced by Nong Phan Chan TAO Office

Table 16 List of Small Scale Irrigation Projects at TAO Yang Hak, Amphoe Pak Tao by RID

Type	Muban	Tambon	Amphoe	Name of Project	Dimension of Head Work				Construction Cost (BT)	Shift to TAO
					L (m)	H (m)	Construction	Catchment Area (km ²)		
Res.	4	Yang Hak	Pak Tho	Hin Si Reservoir	218.0	14.0	-	8.75	0.694	
Pond	4	Yang Hak	Pak Tho	Ban Phu Wai	-	-	2000	-	0.02	
Sub-Total									0.714	

Sourced by Yang Hak TAO Office

Table 17.1 List of Weirs at TAO Suan Phueng, Amphoe Suan Phueng in Ratchaburi Province

No.	Muban	TAO	Amphoe	Name of River	Weir Dimension				Construction Cost (BT)	Shift to TAO
					L (m)	H (m)	Construction	Capacity (m ³)		
1	2	Suan Phueng	Suan Phueng	-	20.0	2.0	2001	12,000	620,000	2002
2	3	Suan Phueng	Suan Phueng	Huai Sut	20.0	2.0	1999	12,000	620,000	2002
3	5	Suan Phueng	Suan Phueng	Huai Khlum	18.0	1.5	1997	-	540,000	2002
4	6	Suan Phueng	Suan Phueng	Huai Khlum	20.0	2.0	1999	12,000	620,000	2002
5	7	Suan Phueng	Suan Phueng	Huai Bo Khlueng	20.0	2.0	1999	-	620,000	2002
Sub-Total								36,000	3,020,000	

Sourced by Suan Phueng TAO Office

Table 17.2 List of Ponds at TAO Suan Phueng, Amphoe Suan Phueng in Ratchaburi Province

No.	Muban	Tambon	Size		Reserved Area (Rai)		Duration of standing water			Storage Cap.(m ³)	Construction Agency
			Rai	No.	Min.	Max.	All year	> 6 months	< 6 months		
1	2	Ban Thung Faek*	20	1	10	15	○				RID
2	3	Ban Pha Pok	50	1	30	45	○			144,000	RID
3	5	Ban Tham Hin*	50	1	20	40	○				RID
4	5	Ban Tham Hin*	15	1	10	13	○				RID
5	5	Ban Tham Hin*	15	1	2	4		○			RID
6	7	Ban Huai Phak	30	1	20	25	○			80,000	ARD
7	8	Ban Ta Ko Lang*	50	1	20	45	○				RID
8	8	Ban Ta Ko Lang*	50	1	20	25	○				RID
Sub-Total										224,000	

Sourced by Suan Phueng TAO Office

Ban Tham Hin* etc. are listed up in water resources inventory by RID

Table 18 List of weirs and reservoirs at TAO Tha Khoei, Amphoe Suan Phueng in Ratchaburi Province

No.	Type	No. of Village	TAO	Amphoe	River Name	Weir Dimension				Irrigation area (Rai)	No. of HH	Shift to TAO
						L (m)	H (m)	Constru c-tion	Catchment (km ²)			
1	Weir	2	Tha Khoei	Suan Phueng						2,000		
2	Weir	4								2,500		
	Sub Total									4,500		
3	Thung Hin Si res.	8	Tha Khoei	Suan Phueng					7.5	620,000	1,200	120
4	Ban Thung Ya res.*	10							9.5	210,000	900	150
5	Huai Gra Chai res.	11							7	240,000	1,000	130
	Sub Total								14.5	860,000	2,200	250
Total									14.5	864,500	2,200	250

Sourced by Tha Khoei TAO

No.4 Ban Thung Ya res. is listed up in water resources inventory of RID

Table 19.1 List of Weirs at TAO Pa Wai, Amphoe Suan Phueng in Ratchaburi Province

No.	Muban	TAO	Amphoe	Name of River	Weir Dimension				Construction Cost (BT)	Shift to TAO
					L (m)	H (m)	Construction	Capacity (m ³)		
1	1	Pa Wai	Suan Phueng	Nong Phak Bung	10	20.5	2001	-	-	
2	2	Pa Wai	Suan Phueng	Nong Phai	16	2.0	2001	1,600	180,000	
3	3	Pa Wai	Suan Phueng	Lat Pla Khiao	18	2.5	2001	-		
4	3	Pa Wai	Suan Phueng	Phu Men	18	2.5	-	-		
5	3	Pa Wai	Suan Phueng	Phu Men	18	2.5	-	-		
6	3	Pa Wai	Suan Phueng	Phu Men	18	2.5	-	-		
7	4	Pa Wai	Suan Phueng	Lat Pla Khiao	-	-	1987	-		
8	5	Pa Wai	Suan Phueng	Huai Bong	20	2.0	1994	-		
9	5	Pa Wai	Suan Phueng	Huai Bong	20	2.0	1992	-		
10	5	Pa Wai	Suan Phueng	Huai Bong	20	2.0	1992	-		
11	5	Pa Wai	Suan Phueng	Huai Bong	20	2.0	2001	-		
12	5	Pa Wai	Suan Phueng	Huai Bong	20	2.0	1997	-		
13	7	Pa Wai	Suan Phueng	Lat Pla Khiao	-	-	-	-		
14	7	Pa Wai	Suan Phueng	Lat Pla Khiao	-	-	-	-		
15	7	Pa Wai	Suan Phueng	Lat Pla Khiao	-	-	-	-		
16	7	Pa Wai	Suan Phueng	Lat Pla Khiao	-	-	-	-		
17	8	Pa Wai	Suan Phueng	Lat Pla Khiao	-	-	-	-		
18	9	Pa Wai	Suan Phueng	Nong Kham	-	-	-	-		
Sub-Total								1,600	180,000	

Sourced by Pa Wai TAO Office

Table 19.2 List of Ponds at TAO Pa Wai, Amphoe Suan Phueng in Ratchaburi Province

No.	Muban	Muban	Tambon	Size		Reserved Area (Rai)		Duration of standing water			Storage Cap.(m ³)	Construction Agency
				Rai	No.	Min.	Max.	All year	> 6 months	< 6 months		
1	1	Huai Sai Thong	Pa Wai	1	1			○			3,200	-
2	2	Ban Khuai	Pa Wai	5	2			○			32,000	ARD
3	2	Ban Khuai	Pa Wai	1	1			○			3,200	ARD
4	3	Thung Laem	Pa Wai	5	2			○			32,000	ARD
5	3	Thung Laem	Pa Wai	3	2			○			19,200	ARD
7	5	Nong Mo Khao	Pa Wai	1	4			○			12,800	ARD
8	6	Pong Yo	Pa Wai	2	1			○			6,400	ARD
8	7	Huai Lat Pla Khao	Pa Wai	0.5	1					○	1,600	ARD
9	7	Huai Lat Pla Khao	Pa Wai	3	1			○			9,600	ARD
10	7	Huai Lat Pla Khao	Pa Wai	5	1			○			16,000	ARD
11	8	Nong Ton Sai	Pa Wai	5	2			○			32,000	ARD
12	9	Nong Kham	Pa Wai	5	3			○			48,000	TAO
Sub-Total					21						216,000	

Sourced by Pa Wai TAO Office

Table 20.1 Water sources in Dan Thap Tako TAO

No.	Muban	Type of Water Sources																								Others
		Tap Water			Storage Tank			Shallow Well			Pond			Reservoir			Deep Well			Weir			Stream, Canal			
Nu mb ers	Loca tion	Serv icea ble	No. HH	Nu mb ers	Loca tion	Serv icea ble	No. HH	Nu mb ers	Loca tion	Serv icea ble	No. HH	Nu mb ers	Loca tion	Serv icea ble	No. HH	Nu mb ers	Loca tion	Serv icea ble	No. HH	Nu mb ers	Loca tion	Serv icea ble	No. HH	Nu mb ers		
1	Ban Dan Thap Tako	1	TAO's office	Yes	300	1		Yes	10						No		1									
2	Ban Dan Thap Tako Nai	1		Yes	30	1		Yes	14						Yes	14										
3	Ban Thung Grahun	2	Thung Grahun temple	Yes	50	1		Yes	5						Yes	80	1									
4	Ban Huai Thachang	3	Soi Thaworn	Yes	140	3	Ban Huai Thachang school and village hall	Yes	15	9		Yes	45	10		Yes	30	3								
5	Ban Nongamuan	3		Yes	150	1		Yes	20	1		Yes	5	4		Yes	60	1		No						
6	Ban Huppruk	2	Ban Nong Phai Ban Huppruk school	Yes	15	5		Yes	20				3		Yes	15	2			Yes	10	2	Huai Hupgrahon natural stream	Yes	15	4
7	Ban Thung Heing	1		Yes	31	5		Yes	35				10		Yes	35	1			Yes	15					
8	Ban Grog Singkhon	1		No		7		Yes	10	1		Yes	2	10		Yes	50	5		Yes	20	5	Huai Grogkinghoun	Yes	50	1
9	Ban Kaokaren	1		No		1		Yes	30	2		Yes	10	1		Yes	40	1		Yes	40					
10	Ban Tha Krutuin					2		Yes	12	76		Yes	5			Yes	25			Yes	50					
11	Ban Komasaeng					4		Yes	8	3		Yes	8	3		Yes	10	1		No	1					
12	Ban Lam Saiyai	2		Yes	80	1		Yes	20	4		Yes	2	10	4	Yes	30	3		Yes	10					
13	Ban Tha E Pae	1		Yes	10					5		Yes	2	20	2		1			No						
14	Ban Suangraiban					3		Yes	5	1		No	2													
15	Ban Tha Madue					1		Yes	10	12		Yes	86	1		Yes	1			Yes	1					
16	Ban Nongkan	2		Yes	30	8		Yes	35	5		Yes	30	7		Yes	33	1		No						
17	Ban Prongkae					3		Yes	30	1		No	1			Yes	10	2		Yes	12	2				
18	Ban Hupgrahon	1		Yes	40	1		Yes	10			Yes	20	1		No	4			Yes	60					
19	Ban Nongtrot	2		Yes	42	1		Yes	14	1		Yes	1	6		Yes	30	1		Yes	30	1				
	Total	23				49				259				66			89	20								

Sourced by Dan Thap Tako TAO
 Bang Khanao* is already listed up in water resources inventory by RD
 Storage Capacity
 = (60-12)*1600*2)+385635
 = 558435

Table 20.2 List of ponds in Dan Thap Tako TAO

Muban	No.	No. of village	Tambon	Size			Capacity (m ³)	Shift to TAO
				W (m)	L (m)	H (m)		
Nong Lamsai	1	12	Dan Thap Tako	60	180	3.50	43,876	2002
Nong Kaituen	2			35	104	3.50	16,345	2002
Ban Nongkrok	3	19		80	80	3.50	26,663	2002
Ban Nong Kon	4	16		36	83	3.50	29,106	2002
Ban Huai Thachang	5	4		26	88	3.50	11,144	2002
Tha Madue	6	15		80	134	3.50	43,258	2002
Ban Huppruk	7	6		52	171	3.50	36,926	2002
Ban Thung Hieng	8	7		62	270	3.50	49,869	2002
Ban Huppruk	9	6		111	137	3.50	59,425	2002
Ban Thung Hieng	10	7		32	125	3.50	27,429	2002
Ban Thunggrathin	11	3		44	66	3.50	13,173	2002
Ban Hupgrathon	12	18		60	114	3.50	28,421	2002
Total	12						385,635	

Sourced by ARD and listed up in Table 20.1

Table 21 List of Water Resources at Rang Bua TAO, Amphoe Chom Bueng in Ratchaburi Province

No.	Name	Type	No. of Village	TAO	Amphoe	Dimension			
						L (m)	H (m)	Construction	Capacity (m ³)
1	Ban Sonta pond	Pond		Rang Bua	Chom Bueng			1993	29,000
2	Nong Tabtao pond	Pond	9					1995	16,000
3	Ban Dengratai pond	Pond						1997	20,000
4	Ban Nong Taodam pond	Pond	13					1999	20,000
5	Ban Nong Yanang pond	Pond						2000	20,000
6	Ban Klang pond	Pond	10					2000	20,000
7	Huai Phueng	Pond						1995	20,000
8	Huai Rang Bua	Pond						1996	20,000
9	Huai Khaokwai	Pond						1996	20,000
10	Nong Taodam pond 2	Pond						2001	20,000
11	Ban Nong Buakai Res.*	Weir	2			1,460.00	3.00		182,000
Total									205,000

Sourced by Rang Bua TAO, Amphoe Chom Bueng in Ratchaburi

Ban Nong Buakai Res.* is listed up in water resources inventory by RID

Table 23.1 List of weirs in Boek Phrai TAO, Amphoe Chom Bueng, Ratchaburi Province

No.	Muban	TAO	Amphoe	Name of River	Weir Dimension			Construction Cost (BT)	Shift to TAO
					L (m)	H (m)	Capacity (m ³)		
1	1	Boek Phrai	Chom Bueng	Huai Tha Chang	18	2.0	1,200	288,000	2002
2	1	Boek Phrai	Chom Bueng	Huai Tha Chang	13	1.5	2,000	247,000	2002
3	1	Boek Phrai	Chom Bueng	Huai Hin Lek Fa	15	1.5	1,800	285,000	2002
4	3	Boek Phrai	Chom Bueng	Huai Ta Khian	8	1.5	1,500	152,000	2002
Sub-Total							6,500	972,000	

Sourced by Boek Phrai TAO Office

Table 23.2 List of Ponds in Boek Phrai TAO, Amphoe Chom Bueng

No.	Muban	Tambon	Size		Reserved Area (Rai)		Duration of standing water			Storage Cap. (m ³)	Construction Agency
			Rai	No.	Min.	Max.	All year	> 6 months	< 5 months		
1	1	Boek Phrai	4	1	4	4	○			12,800	DOA
2	1	Boek Phrai	3	1	3	3	○			9,600	ARD
3	1	Boek Phrai	1	16	0.75	0.75		○		38,400	ALRO
4	2	Nong Prue	5	2	5	5	○			32,000	RID
5	2	Nong Prue	1	2	1	1		○		6,400	ARD
6	3	Wang Ta Khian	1	3	1	1		○		9,600	DOF
7	4	Nong Ta Lum Phuk	4	1	2	4	○			12,800	RID
8	5	Nong San Chao	5	3	3	5	○			48,000	RID
9	5	Nong San Chao	2	2	2	2	○			12,800	ARD
10	6	Ban Nai Rai	5	3	4	5	○			48,000	RID
11	6	Ban Nai Rai	3	1	2	3	○			9,600	ARD / TAO
12	7	Ang Hin	5	2	3	5	○			32,000	RID / ARD
13	8	Nong Sam Rong	5	2	3	5	○			32,000	ARD
14	9	Nong Phaeng Phuai	5	1	2	5	○			16,000	ARD
15	10	Nong Yai Chu	5	4	3	5	○			64,000	TAO / ARD / RID
16	11	Ban Thung Pong	5	2	3	5	○			32,000	RID
Sub-Total				46						416,000	

Sourced by Boek Phrai TAO Office

Table 26 List of Public Water Resources in Chorakhe Puek , Dan Makham Tia in Kanchanaburi

Name	No.	Muban	Tambon	Size		Reserved Area (Rai)		Duration of standing water		storage Cap.(m ³)	Construction Agency
				Rai	No	Min	Max	All year	7-6 Month		
	1	Ta Sadet		15	1	2	13	○		41,600	DOF
				5	2	2	4	○		25,600	DOA
	2	Cho		10	1	2	8	○		25,600	ARD
				5	2		4	○		25,600	ARD
				1	10		1	○		32,000	ALRO
	3	Tha Pony		5	3	2	4	○		38,400	ALRO
				1	30	1	2	○		192,000	ALRO
	4	Tha Msfai		10	2	2	8	○		51,200	ARD
				5	1	2	4	○		12,800	ALRO
				1	20	0.25	0.5	○		32,000	ALRO
	5	Sai Thong		130	1	50	100	○		320,000	RID
				5	2	2	4	○		25,600	RID
				1	20	0.25	0.5	○		32,000	ALRO
	6			10	2	2	8	○		51,200	ARD
				5	1	2	4	○		12,800	ALRO
				1	40	0.25	0.5	○		64,000	ALRO
				1	25	0.25	0.5		○	40,000	MOAC
	7	Nong Yapong	Chorakhe Puek	10	1	2	8	○		25,600	ARD
				5	2	2	4	○		25,600	RID
				1	18	0.25	0.5	○		28,800	ALRO
	8			8100	1	1000	6000	○		-	-
				3	1	-	2	○		6,400	ALRO
				1	10	0.25	0.5	○		16,000	ALRO
	9			5	3	2	4	○		38,400	-
				1	20	0.25	0.5	○		32,000	ALRO
	10			5	1	2	4	○		12,800	MOAC
				10	1	2	8	○		25,600	RID
				8	1	2	6	○		19,200	RID
				1	30	0.25	0.5	○		48,000	ALRO
	11			5	1	2	4	○		12,800	ALRO
	56,7			11	1					0	RID
	3			3	1					0	RID
	2,3,4									0	RID
	7,9									0	
	10,6									0	
Total					255					1,313,600	

Sourced by Chrakhe Puek TAO

Table 27 List of weirs in Kanchanaburi Province

No.	Mode	TAO	Amphoe	Name of Weir	Weir Dimension			Capacity (m ³)	Construction Cost (BT)	Shift to TAO
					L (m)	H (m)	Construction			
1	2	Nong Phai	Dam		20	2	1991	-	380,000	2002
2	2		Makham Tia		20	2	1992	5,000	380,000	2002
3	2				20	2	1993	4,720	380,000	2002
4	3				18	2	1993	4,720	380,000	2002
		Sub-Total						14,440	1,520,000	
1	2	Dan Makham Tia			15	2	1999	-	440,727	2002
2	4				20	1.5	2001	-	540,000	2002
3	11				20	2	1994	-	380,000	2002
4	12				20	2	1994	-	380,000	2002
		Sub-Total						0	1,740,727	
1	2	Chorakhe Puek			16	1.5	1992	3,420	288,000	2002
2	2				20	2	1994	1,000	380,000	2002
3	4				20	2.5	1992	5,200	380,000	2002
4	4				29	2	1992	-	380,000	2002
5	5				20	2	1993	-	380,000	2002
6	5				20	2.5	1992	-	380,000	2002
7	5				20	2.5	1992	-	380,000	2002
8	6				18	2.5	1992	-	324,000	2002
9	6				16	2	1996	-	304,000	2002
10	7				18	2.5	1992	-	324,000	2002
11	7				18	2	1992	-	342,000	2002
12	8				20	2	1993	-	380,000	2002
13	9				20	2	1994	-	380,000	2002
14	9				15	2	1999	-	440,727	2002
		Sub-Total						9,620	5,062,727	

Sourced by Kanchanaburi Changwat Office

Table 28.1 Existing Water Resources Development of 16 Tambons in the Study Area

Amphoe	Tambon	Natural Water Resources	Developed Water Resources				Water Supply		
			Shallow Well	Deep Well	Pond	Reservoir	Wier	Station	Beneficiary Houses
Ratchaburi									
	1 Ban Bueng	13 Streams	57	5		8	16		
	2 Ban Kha	5 Streams	109	24	12	3	13	22	
	3 Tha Nao Sri	Lam Pachi, Huai Tha Khoei, Huai Khok Mu, Huai A Na 3 Reservoirs - Ban Suan Phueng, Huai Khok Mu, Huai A na	83	12	9	3	2		
	4 Nong Phan Chan	Lam Pachi	53	19	5		8	3	
	5 Yang Hak	6 Streams	0	27	1			6	
	Sub-Total		302	87	27	14	39	31	
	6 Suan Phueng	1 River, 12 streams	52	7	3	6	8	14	
	7 Tha Khoei	Lam Pachi, Huai Tha Khoei 3 Reservoirs - Chut pa Wai, Thung Hin Sri, Nong Hin	67	27	17	3	10		
	8 Pa Wai	1 River, 8 streams	190	20	75		16	13	
	Sub-Total		309	54	95	9	34	27	
	9 Dan Thap Tako	15 streams	496	206	52	6	10	15	
10 Rang Bua	Huai Samnak Mai Teng, Huai Ban Nong Tao Dum Huai Ban Nong Nok Krarien	58	36			8	20		
11 Kaem On	Lam Pachi and 1 stream	214	339	156	3	13	23		
12 Boek Phrai	3 Streams	415	73	66	6	7	21		
Sub-Total		1,183	654	222	9	28	64		
Kanchanaburi									
13 Nong Phai	Lam Pachi	127	446	62		6	5	719	
14 Dan Makham Tia	4 Huai- Si Sied, Takien, Khlung, Nong Khui 4 Rivers - Lam Rangpong, Nong Wai, Lam Pachi, Nong Sakaeruam 3 Reservoirs - Tha Phayom, Huai Khlung, Pong Nok	347	228	292	3	12	12	832	
15 Chorakhe Puek	Khwac Noi River, Huai Lam Khlung , Lam Sai, Lam Pachi and Lam Phao , 1 reservoir - Huai Yai Thong	109	100	90	1	15	23		
16 Klon Do	3 Streams and pond	244	299			2			
Sub-Total		827	1,073	444	4	35	40		
Total		2,621	1,868	788	36	136	162		

Sourced by each Tambon Development Plan

Well data is used by Kho Cho Chow

Table 28.2 Number of Existing Ponds at 16 Tambons in the Study Area

Amphoe	Watershed	Tambon	Pond		Estimated Available Water (m3)	Irrigable Area	
			No.	Ratio		ha	rai
Ratchaburi							
Ban Kha		Ban Bueng	3	0.3%	7,200		
Ban Kha		Ban Kha	7	0.8%	16,800		
Suan Phueng		Tha Nao Sri	4	0.4%	9,600		
Ban Kha	Upstream Basin	Nong Phan Chan	7	0.8%	16,800		
Pak Tho		Yang Hak	1	0.1%	2,400		
Sub-Total			22	2.5%	52,800	18	110
Suan Phueng		Suan Phueng	8	0.9%	19,200		
Suan Phueng	Upper Middle Basin	Tha Khoei	0	0.0%	0		
Suan Phueng		Pa Wai	21	2.4%	50,400		
Sub-Total			29	3.3%	69,600	23	145
Chom Bueng		Dan Thap Tako	66	7.4%	158,400		
Chom Bueng		Rang Bua	10	1.1%	24,000		
Chom Bueng	Lower Middle Basin	Kaem On	157	17.6%	376,800		
Chom Bueng		Boek Phrai	46	5.2%	110,400		
Sub-Total			279	31.3%	669,600	223	1,395
Kanchanaburi							
Dan Makham Tia		Nong Phai	8	0.9%	19,200		
Dan Makham Tia	Downstream Basin	Dan Makham Tia*	299	33.5%	717,600		
Dan Makham Tia		Chorakhe Puek	255	28.6%	612,000		
Dan Makham Tia		Klon Do	0	0.0%	0		
Sub-Total			562	63.0%	1,348,800	450	2,810
Total			892	100.0%	2,140,800	714	4,460

Sourced by each Tambon Development Plan

Dan Makham Tia data is not available so Tambon Development Plan data is applied.

Available water is estimated as 2,400m3/pond

Irrigable area is estimated as 3,000m3/ha (0.58l/sec/60days)

Table 28.3 Existing Weirs at Each Tambon in the Study Area

Amphoe	Watershed	Tambon	Weir		Storage Capacity (m3)	Irrigable Area	
			No.	Ratio		ha	rai
Ratchaburi							
Ban Kha	Upstream Basin	Ban Bueng	17	14.5%	38,140		
Ban Kha		Ban Kha	11	9.4%	73,000		
Suan Phueng		Tha Nao Sri	3	2.6%	n.a.		
Ban Kha		Nong Phan Chan	0	0.0%	0		
Pak Tho		Yang Hak	0	0.0%	0		
Sub-Total			31	26.5%	111,140	37	232
Suan Phueng	Upper Middle Basin	Suan Phueng	5	4.3%	36,000		
Suan Phueng		Tha Khoei	2	1.7%	4,500		
Suan Phueng		Pa Wai	18	15.4%	n.a.		
Sub-Total			25	21.4%	40,500	14	84
Chom Bueng	Lower Middle Basin	Dan Thap Tako	20	17.1%	n.a.		
Chom Bueng		Rang Bua	0	0.0%	0		
Chom Bueng		Kaem On	13	11.1%	n.a.		
Chom Bueng		Boek Phrai	4	3.4%	6,500		
Sub-Total			37	31.6%	6,500	2	14
Kanchanaburi							
Dan Makham Tia	Downstream Basin	Nong Phai*	4	3.4%	14,440		
Dan Makham Tia		Dan Makham Tia*	6	5.1%	n.a.		
Dan Makham Tia		Chorakhe Puek*	14	12.0%	n.a.		
Dan Makham Tia		Klon Do*	0	0.0%	0		
Sub-Total			24	20.5%	14,440	5	30
Total			117	100.0%	172,580	58	360

Sourced by each TAO

Nong Phai * ; Sourced by Kanchanaburi Changwat Office

Irrigable area is estimated same as farm pond

Table 29 List of Hydro-electric Pumping Station untill Year 1997 of Lam Pa Chi River Basin

No.	Name	No	Tambon	Amphoe	River Source	Established Year	Year Operated	Project area (rai)	Irrigable Area (rai)	Irrigable Area (ha)
Kanchanaburi										
1	Ban Dan Makham Tia	14	Dan Makham Tia	Dan Makham Tia	Lam Pa Chi	1991	1993	1,500	1,500	240.0
2	Ban Chorakhe Phuek (1)	15	Chorakhe Phuek	Dan Makham Tia	Khwae Noi	1982	1984	2,200	1,780	284.8
3	Ban Tha Sadet	15	Chorakhe Phuek	Dan Makham Tia	Khwae Noi	1990	1992	2,300	1,380	220.8
4	Ban Lam Phao	15	Chorakhe Phuek	Dan Makham Tia	Khwae Noi	1992	1995	2,000	1,400	224.0
5	Ban Chorakhe Phuek (2)	15	Chorakhe Phuek	Dan Makham Tia	Khwae Noi	1996	-	1,500	-	0.0
6	Ban Yan Chao - Yang Koh	16	Klon Do	Dan Makham Tia	Khwae Noi	1980	1983	3,000	1,490	238.4
7	Ban Tha Sao Meru	16	Klon Do	Dan Makham Tia	Lam Pa Chi	1981	1984	3,000	1,680	268.8
8	Ban Klon Do	16	Klon Do	Dan Makham Tia	Khwae Noi	1985	1987	4,000	1,410	225.6
9	Ban Laem Thong	16	Klon Do	Dan Makham Tia	Khwae Noi	1987	1989	2,500	2,000	320.0
10	Ban Yan Chao, Moo 7	16	Klon Do	Dan Makham Tia	Khwae Noi	1994	1996	1,500	1,000	160.0
Downstream Basin Total								23,500	13,640	2182.4

Source : Department of Energy Development and Promotion (DEDP)

Note : In case of small location can not put in the map

Table30 Irrigation Cost Sharing Target between RID and Farmers

Medium & Large Scale Irrigation Projects

Medium & Large Scale Irrigation Projects											
Project/System	Irrigation Cost Share (O&M Part)										
	Stage 1				Stage 2		Stage 3				
	Present-2002		2003-2004		2005-2007		2008-2009		2010-		
	Farmer	RID	Farmer	RID	Farmer	RID	Farmer	RID	Farmer	RID	
1. Transfer/O&M Cost											
Pilot Projects (Few MSIPs)											
On-farm	100%	0%									
Sub-Lateral	0%	100%	20%	80%	50%	50%	100%	0%			
Lateral	0%	100%	0%	100%	0%	100%	50%	50%			
Main Canal/ Headwork	0%	100%	0%	100%	0%	100%	0%	100%			
Other All Projects											
On-farm	100%	0%									
Sub-Lateral	0%	100%	0%	100%	20%	80%	50%	50%	100%	0%	
Lateral	0%	100%	0%	100%	0%	100%	0%	100%	50%	50%	
Main Canal/ Headwork	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%	
2. Transfer/On-farm Construction Cost	Study and set up the system		20% of cost share by farmers. - Pilot project start in 2003 - Others in 2004		30% of cost share by farmers. - Pilot project start in 2005 - Others in 2006		50% of cost share by farmers. - Pilot project starts in 2008. - Others in 2008				
3. IRI Fund Implementation	Study and set up the system				Start using Fund in Pilot Project			Using Fund in Others			

Small Scale Projects (both Pilot and Other Projects)

Project/System	Irrigation Cost Share (O&M Part)	
	Present	(Note)
1. Transfer/O&M Cost	Farmer RID	Projects will be handed over to Local Government after construction. WUGs will maintain the projects.
Sub-lateral/ Lateral	100% 0%	
Main canal	200% -100%	
Head work	300% -200%	

Table 31 Cost Sharing Implementation Target of Farmers in Other Special Project

Project	System	Irrigation Cost (O&M Part)							
		Stage-1				Stage-2		Stage-3	
		Present-2003		2004-2005		2006-2007		2008-	
		Farmer	RID	Farmer	RID	Farmer	RID	Farmer	RID
1. Pipe Irrigation Project	Main canal	0%	100%					50%	50%
	Head work	0%	100%						
	Electricity charge	0%	100%	20%	80%	50%	50%	100%	0%
2. Pumping Irrigation Project	Sub-Lateral	0%	100%	20%	80%	50%	50%	100%	0%
	Lateral	0%	100%						
	Main canal	0%	100%						
	Head work	100%	0%						
	Electricity charge	100%	0%						

(Note) In the Special Infrastructure Committee on 12th November 2002 (No. 3/2545), Committee approved the transfer of Item 1 in Table2 to the Local Government within November 2002.

ASPL: Agricultural Sector Project Loan

(Source) O&M Division, RID

Table 32 Last 5years Budget for Water Resources and Irrigation Projects in RID Provincial and Regional 13 Offices
(unit: Bt)

1. Ratchaburi	1,998	1,999	2,000	2,001	2,002	2,003	98-02 Average
For whole budget	15,000,000	←	Varied	→	*150,000,000	40,000,000	
Operation & Management cost	10,000,000	10,000,000	10,000,000	10,000,000	0	0	
For Project Area(Down Basin)							
1.1 Construction of Dams							
Medium Scale							
Small Scale						0	
1.2 Irrigation Distribution System							
Medium Scale					89,000,000		***ASPR
Small Scale	5,000,000	8,000,000	11,000,000	15,000,000	20,000,000		
1.3 Others	15,000,000	23,000,000	27,000,000	36,000,000	50,000,000		
Dredging in natural canals and creeks		2,000,000	5,000,000	6,000,000	7,000,000		
dredging in ponds	8,000,000	10,000,000	12,000,000	14,000,000	15,000,000		
Reparing and maintenance	7,000,000	8,000,000	10,000,000	11,000,000	12,000,000		
Improvement of SSIP		3,000,000		5,000,000	16,000,000		
Total	60,000,000	64,000,000	75,000,000	97,000,000	209,000,000	40,000,000	101,000,000
2. Kanchanaburi	1,998	1,999	2,000	2,001	2,002	2,003	98-02 Average
For whole budget	←		40,000,000 in average	→		20,000,000	
For Project Area(Down Basin)							
2.1 Construction of Dams							
Small Scale	38,801,000	21,351,000	46,131,700	49,193,598	0		
Number	3	1	2	3			
Small Weirs	6,776,000				22,138,000	33,766,200	
Number	4				1	3	
2.2 Irrigation Distribution System							
Pipeline	0	16,898,600	24,524,000	7,725,000	8,098,000		
		3	3	1	1		
2.3 Others							
Pond	Budget(Bt)		170,600	2,146,000	3,977,100		
	Number		1	2	5		
Dredging	Budget(Bt)	992,700	0	1,859,200	722,859		
	Number	1		2	1		
Total	46,569,700	38,249,600	70,826,300	60,923,798	34,935,959		50,301,071
3. RID 13 Regional Office	1,998	1,999	2,000	2,001	2,002	2,003	98-02 Average
1.1 Construction of Dams							
Medium Scale Dams	73,942,000	138,843,000	153,167,100	576,676,080	42,334,000		
Number	4	6	5	5	2		
Medium Scale weirs	25,850,000						
Number	5						
1.2 Irrigation Distribution System							
Pipeline	37,121,400	25,327,000	24,611,000	20,104,200	35,449,200		
Number	3	1	4	3	3		
Open Canal		39,890,600	112,169,200	61,919,900	207,733,666		
Number	0		9	4	6		
1.3 Others							
Total	136,913,400	204,060,600	289,947,300	658,700,180	285,516,866		315,027,669

Note: Sourced by Provincial RID Offices in August, 2003

* Including ASPL project of Huai Mahad Reservoir Pumping Irrigation Budget (60,000,000Bt), Sector Loan by ADB

** Such as dreging, reparing of roads, distribution system for irrigation, employing temporary workes, sodding,etc.

*** ASPL; Agricultural SectorProgrameLoan