

Table 3.2.7 Harvested Area and Production of Vegetable 1996/97 (3)

Basin & Province	Area Rate (%)	Cucumber						Chilli						Baby Corn/Sweet Corn					
		Provincial Level			Basin Level			Provincial Level			Basin Level			Provincial Level			Basin Level		
		Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)
1. Upper Chao Phraya																			
1.1 Nan Basin (21,460)																			
(1) Upper Nan (8,110)																			
Nan	94	1.5	3.0	1,980	1.4	2.8		0.7	0.4	500	0.7	0.4		0.1	0.1	1,180	0.1	0.1	
Uttaradit	28	0.5	0.7	1,410	0.1	0.2													
Sub-total					1.6	3.0					0.7	0.4					0.1	0.1	
(2) Lower Nan (13,350)																			
Uttaradit	72	0.5	0.7	1,410	0.4	0.5													
Phitsanulok	88	7.2	11.0	1,520	6.3	9.7		1.7	1.6	900	1.5	1.4							
Phichit	57	0.8	1.4	1,820	0.5	0.8		0.2	0.1	570	0.1	0.1							
Phetchabun	17	2.0	3.9	1,990	0.3	0.7		8.1	12.5	1,530	1.4	2.1		0.5	0.8	1,770	0.1	0.1	
Nakhon Sawan	15													2.0	4.0	2,020	0.3	0.6	
Sub-total					7.5	11.6					3.0	3.6					0.4	0.6	
Total					9.0	14.7					3.6	4.0					0.5	0.7	
1.2 Yom Basin (14,760)																			
Nan	6	1.5	3.0	1,980	0.1	0.2		0.7	0.4	500	0.0	0.0		0.1	0.1	1,180	0.0	0.0	
Phayao	42							0.4	0.5	1,130	0.2	0.2							
Lampang	21																		
Phrae	100	0.2	0.3	1,760	0.2	0.3		2.5	1.8	700	2.5	1.8							
Sukho Thai	100	2.3	4.8	2,050	2.3	4.8													
Phitsanulok	12	7.2	11.0	1,520	0.9	1.3		1.7	1.6	900	0.2	0.2							
Phichit	43	0.8	1.4	1,820	0.3	0.6		0.2	0.1	570	0.1	0.0							
Kamphaeng Phet	15	0.9	1.8	1,200	0.1	0.3		1.4	1.5	1,130	0.2	0.2		7.4	8.7	1,180	1.1	1.3	
Total					3.9	7.5					3.2	2.5					1.1	1.3	
1.3 Wang Basin (6,740)																			
Lampang	79																		
Tak	6							0.9	0.7	850	0.1	0.0							
Total											0.1	0.0							
1.4 Ping Basin (21,190)																			
Chiang Mai	77	2.7	6.0	2,220	2.1	4.6								8.7	7.0	800	6.7	5.4	
Lamphun	100	0.3	0.5	1,670	0.3	0.5		4.6	7.2	1,570	4.6	7.2		3.9	2.3	590			
Tak	46							0.9	0.7	850	0.4	0.3							
Kamphaeng Phet	70	0.9	1.8	1,200	0.6	1.3		1.4	1.5	1,130	1.0	1.1		7.4	8.7	1,180			
Nakhon Sawan	4													2.0	4.0	2,020	0.1	0.2	
Total					3.0	6.4					6.0	8.6					6.8	5.6	
1.5 Sakae Krang (3,240)																			
Kamphaeng Phet	8	0.9	1.8	1,200	0.1	0.1		1.4	1.5	1,130	0.1	0.1		7.4	8.7	1,180	0.6	0.7	
Nakhon Sawan	24													2.0	4.0	2,020	0.5	1.0	
Uthai Thani	33	1.5	1.9	1,290	0.5	0.6		0.2	0.1	780	0.1	0.0							
Total					0.6	0.8					0.2	0.2					1.1	1.7	

Table 3.2.7 Harvested Area and Production of Vegetable 1996/97 (4)

Basin & Province	Area Rate (%)	Cucumber				Chilli				Baby Corn/Sweet Corn			
		Provincial Level		Basin Level		Provincial Level		Basin Level		Provincial Level		Basin Level	
		Area	Product	Yield (kg/Rai)	Area	Area	Product	Yield (kg/Rai)	Area	Area	Product	Yield (kg/Rai)	Area
1.6 Pasak Basin (10,180)													
Loei	10	0.6	2.8	4,660	0.1	0.3	7.3	7.7	1,050	0.7	0.8	-	-
Phetchabun	72	2.0	3.9	1,990	1.4	2.8	8.1	12.5	1,530	5.8	0.5	0.8	1,770
Lopburi	50	0.3	0.2	620	0.2	0.1	6.7	5.0	750	-	0.7	2.8	3,900
Saraburi	77	1.9	2.5	1,320	1.5	1.9	0.7	0.6	800	0.5	0.7	0.8	1,050
Ayutthaya	7	0.6	1.0	1,710	0.0	0.1	0.7	1.1	1,630	0.0	-	-	-
Total	-	-	-	-	3.2	5.2	-	-	-	7.2	-	-	1.2
Grand Total	-	-	-	-	19.7	34.5	-	-	-	20.2	-	-	10.7
2. Lower Chao Phraya (21,120)													
Kamphaeng Phet	7	0.9	1.8	1,200	0.1	0.1	3.6	4.6	1,270	0.3	0.3	8.7	1,180
Nakhon Sawan	57	-	-	-	-	-	-	-	-	-	-	4.0	2,020
Uthai Thani	34	1.5	1.9	1,290	0.5	0.6	0.2	0.1	780	0.1	0.0	0.6	900
Chainat	100	0.4	0.5	1,300	0.4	0.5	-	-	-	-	-	0.8	1,770
Phetchabun	3	2.0	3.9	1,990	0.1	0.1	8.1	12.5	1,530	0.2	0.4	0.5	0.8
Lopburi	50	0.3	0.2	620	0.2	0.1	6.7	5.0	750	-	0.7	2.4	1,000
Saraburi	23	0.9	2.5	1,320	0.2	0.6	0.7	0.6	800	0.2	0.1	0.8	1,050
Singburi	100	0.1	0.2	1,810	0.1	0.2	-	-	-	-	0.5	0.5	930
Ang Tong	100	0.8	1.0	1,300	0.8	1.0	0.3	0.4	1,300	0.3	0.4	-	-
Suphanburi	89	4.4	7.4	1,690	3.9	6.6	3.7	3.3	900	3.3	2.9	11.2	1,150
Ayutthaya	93	0.6	1.0	1,710	0.6	0.9	0.7	1.1	1,630	0.7	1.0	3.0	1,580
Pathum Thani	100	1.5	3.0	2,050	1.5	3.0	-	-	-	-	0.4	0.4	1,010
Nakhon Pathom	92	3.4	5.6	1,670	3.1	5.2	0.9	1.0	1,150	0.8	0.9	5.4	1,230
Nonthaburi	100	-	-	-	-	-	-	-	-	-	-	-	-
Bangkok	100	2.2	2.6	1,200	2.2	2.6	-	-	-	-	-	-	-
Samut Prakan	100	-	-	-	-	-	-	-	-	-	-	-	-
Samut Sakhon	83	2.4	2.9	1,200	2.0	2.4	1.3	1.7	1,300	1.1	1.4	0.4	950
Chachoengsao	6	1.3	1.8	1,380	0.1	0.1	0.3	0.3	910	0.0	0.0	-	-
Kanchanaburi	10	0.6	0.8	1,450	0.1	0.1	49.1	13.2	270	4.9	1.3	12.4	17.9
Total	-	-	-	-	15.7	24.1	-	-	-	11.8	8.9	-	20.7
Grand Total	-	-	-	-	-	-	-	-	-	-	-	-	25.6
3. Kok & Ing (9,390)													
3.1 Kok (4,940)													
Chiang Mai	10	2.7	6.0	2,220	0.3	0.6	13.8	33.4	2,420	1.4	3.3	8.7	7.0
Chiang Rai	50	1.1	2.3	2,090	0.6	1.2	3.3	6.8	2,080	1.7	3.4	7.5	23.2
Total	-	-	-	-	0.8	1.8	-	-	-	3.0	6.7	-	-
3.2 Ing (4,450)													
Chiang Rai	30	1.1	2.3	2,090	0.3	0.7	3.3	6.8	2,080	1.0	2.0	7.5	23.2
Phayao	58	-	-	-	-	-	0.4	0.5	1,130	0.2	0.3	-	-
Total	-	-	-	-	0.3	0.7	-	-	-	1.2	2.3	-	-
Grand Total	-	-	-	-	1.2	2.4	-	-	-	4.3	9.1	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-
Grand Total	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.2.7 Harvested Area and Production of Vegetable 1996/97 (5)

Basin & Province	Area Rate (%)	Bean						Chinese Kale						Cabbage/Chinese Cabbage					
		Provincial Level			Basin Level			Provincial Level			Basin Level			Provincial Level			Basin Level		
		Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)
1. Upper Chao Phraya																			
1.1 Nan Basin (21,460)																			
(1) Upper Nan (8,110)	94	0.6	0.9	1,400	0.6	0.8		0.1	0.1	1,180	0.1	0.1		5.0	14.8	2,960	4.7	13.9	
Uttaradit	28	-	-	-	-	-	-	1.2	1.5	1,200	0.3	0.4		0.1	0.1	1,980	0.0	0.0	
Sub-total	-	-	-	-	0.6	0.8	-	-	-	-	0.3	0.4	-	-	-	-	4.7	13.9	
(2) Lower Nan (13,350)																			
Uttaradit	72	-	-	-	-	-	-	1.2	1.5	1,200	0.9	1.1		0.1	0.1	1,980	0.0	0.1	
Phitsanulok	88	4.5	4.7	1,050	4.0	4.1		6.3	12.6	2,000	5.5	11.1		1.2	1.5	1,300	1.1	1.3	
Phichit	57	0.2	0.2	1,080	0.1	0.1		-	-	-	-	-		-	-	-	-	-	
Phetchabun	17	1.3	1.6	1,230	0.2	0.3		-	-	-	-	-		4.7	14.2	3,020	0.8	2.4	
Nakhon Sawan	15	-	-	-	-	-	-	1.1	2.1	1,950	0.2	0.3		0.3	0.5	1,610	0.0	0.1	
Sub-total	-	-	-	-	4.3	4.5	-	-	-	-	6.6	12.5	-	-	-	-	0.8	3.9	
Total	-	-	-	-	4.9	5.4	-	-	-	-	6.9	12.9	-	-	-	-	5.6	17.8	
1.2 Yom Basin (14,760)																			
Nan	6	0.6	0.9	1,400	0.0	0.1		0.1	0.1	1,180	0.0	0.0		5.0	14.8	2,960	0.3	0.9	
Phayao	42	-	-	-	-	-	-	1.4	1.7	1,230	0.6	0.7		4.3	7.5	1,740	1.8	3.2	
Lampang	21	1.1	1.2	1,090	0.2	0.3		-	-	-	-	-		0.1	0.4	3,650	0.0	0.1	
Phrae	100	0.1	0.2	1,780	0.1	0.2		-	-	-	-	-		-	-	-	-	-	
Sukho Thai	100	1.4	1.3	920	1.4	1.3		-	-	-	-	-		0.1	0.2	2,350	0.1	0.2	
Phitsanulok	12	4.5	4.7	1,050	0.5	0.6		6.3	12.6	2,000	0.8	1.5		1.2	1.5	1,300	0.1	0.2	
Phichit	43	0.2	0.2	1,080	0.1	0.1		-	-	-	-	-		-	-	-	-	-	
Kamphaeng Phet	15	0.3	0.4	1,480	0.0	0.1		2.7	5.7	2,100	0.4	0.9		-	-	-	-	-	
Total	-	-	-	-	2.2	2.5	-	-	-	-	1.8	3.1	-	-	-	-	2.4	4.5	
1.3 Wang Basin (6,740)																			
Lampang	79	1.1	1.2	1,090	0.9	0.9		-	-	-	-	-		0.1	0.4	3,650	0.1	0.3	
Tak	6	-	-	-	-	-	-	0.1	0.2	2,300	0.0	0.0		3.9	19.3	4,950	0.2	1.2	
Total	-	-	-	-	0.9	0.9	-	-	-	-	0.0	0.0	-	-	-	-	0.3	1.5	
1.4 Ping Basin (21,190)																			
Chiang Mai	77	4.1	6.6	1,610	3.2	5.1		-	-	-	-	-		40.8	110.2	2,700	31.4	84.9	
Lamphun	100	0.2	0.2	800	0.2	0.2		3.8	6.0	1,560	3.8	6.0		7.4	14.8	2,000	7.4	14.8	
Tak	46	-	-	-	-	-	-	0.1	0.2	2,300	0.0	0.1		3.9	19.3	4,950	1.8	8.9	
Kamphaeng Phet	70	0.3	0.4	1,480	0.2	0.3		2.7	5.7	2,100	1.9	4.0		-	-	-	-	-	
Nakhon Sawan	4	-	-	-	-	-	-	1.1	2.1	1,950	0.0	0.1		0.3	0.5	1,610	0.0	0.0	
Total	-	-	-	-	3.6	5.6	-	-	-	-	5.8	10.2	-	-	-	-	40.6	108.6	
1.5 Sakae Krang (3,240)																			
Kamphaeng Phet	8	0.3	0.4	1,480	0.0	0.0		2.7	5.7	2,100	0.2	0.5		-	-	-	-	-	
Nakhon Sawan	24	-	-	-	-	-	-	1.1	2.1	1,950	0.3	0.5		0.3	0.5	1,610	0.1	0.1	
Uthai Thani	33	1.0	1.2	1,240	0.3	0.4		1.3	3.3	2,610	0.4	1.1		0.4	0.7	1,750	0.1	0.2	
Total	-	-	-	-	0.4	0.4	-	-	-	-	0.9	2.0	-	-	-	-	0.2	0.4	

Table 3.2.7 Harvested Area and Production of Vegetable 1996/97 (6)

Basin & Province	Area Rate (%)	Bean						Chinese Kale						Cabbage/Chinese Cabbage					
		Provincial Level			Basin Level			Provincial Level			Basin Level			Provincial Level			Basin Level		
		Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)	Area	Product	Yield (kg/Rai)
1.6 Pasak Basin (10,180)																			
Loei	10	0.6	0.7	1,290	0.1	0.1		0.2	0.3	1,620	0.0	0.0							
Phetchabun	72	1.3	1.6	1,230	0.9	1.2								4.7	14.2	3,020	3.4	10.2	
Lopburi	50	1.0	0.8	850	0.5	0.4		0.6	0.5	980	0.3	0.3		4.8	14.1	2,940	2.4	7.1	
Saraburi	77	4.9	13.4	2,700	3.8	10.3		0.7	1.3	1,780	0.5	1.0							
Ayutthaya	7	0.6	1.4	2,200	0.0	0.1		0.3	0.7	2,410	0.0	0.0							
Total	-	-	-	-	5.3	12.0		-	-	-	0.9	1.3		-	-	-	5.8	17.3	
Grand Total	-	-	-	-	17.1	26.9		-	-	-	16.2	29.5		-	-	-	54.9	150.0	
2. Lower Chao Phraya (21,120)																			
Kamphaeng Phet	7	0.3	0.4	1,480	0.0	0.0		2.7	5.7	2,100	0.2	0.4							
Nakhon Sawan	57	-	-	-	-	-		1.1	2.1	1,950	0.6	1.2		0.3	0.5	1,610	0.2	0.3	
Uthai Thani	34	1.0	1.2	1,240	0.3	0.4		1.3	3.3	2,610	0.4	1.1		0.4	0.7	1,750	0.1	0.2	
Chaiwat	100	0.5	0.4	800	0.5	0.4		0.2	0.2	900	0.2	0.2							
Phetchabun	3	1.3	1.6	1,230	0.0	0.0		0.2	0.3	1,620	0.0	0.0							
Lopburi	50	1.0	0.8	850	0.5	0.4		0.6	0.5	980	0.3	0.3		4.8	14.1	2,940	0.1	0.4	
Saraburi	23	4.9	13.4	2,700	1.1	3.1		0.7	1.3	1,780	0.2	0.3							
Singburi	100	0.4	0.4	1,210	0.4	0.4		0.1	0.1	1,220	0.1	0.1							
Ang Tong	100	1.1	1.3	1,200	1.1	1.3		0.4	0.9	2,080	0.4	0.9							
Suphanburi	89	6.5	8.2	1,250	5.8	7.3		3.2	4.3	1,320	2.8	3.8		1.2	1.8	1,430	1.1	1.6	
Ayutthaya	93	0.6	1.4	2,200	0.6	1.3		0.3	0.7	2,410	0.3	0.7							
Pathum Thani	100	2.9	3.8	1,290	2.9	3.8		8.5	21.9	2,570	8.5	21.9							
Nakhon Pathom	92	4.4	7.1	1,610	4.0	6.5		4.0	6.8	1,710	3.7	6.3		3.3	5.2	1,580	3.0	4.8	
Nonthaburi	100	-	-	-	-	-		2.1	4.2	1,930	2.1	4.2		2.0	2.9	1,450	2.0	2.9	
Bangkok	100	-	-	-	-	-		0.8	1.1	1,400	0.8	1.1							
Samut Prakan	100	-	-	-	-	-		0.2	0.3	1,130	0.2	0.3							
Samut Sakhon	83	3.2	4.2	1,300	2.7	3.5		8.9	17.8	2,000	7.4	14.8							
Chachoengsao	6	0.9	1.4	1,440	0.1	0.1		3.6	7.7	2,150	0.2	0.5							
Kanchanaburi	10	3.0	2.4	800	0.3	0.2		1.0	1.1	1,110	0.1	0.1		0.7	0.5	730	0.1	0.1	
Grand Total	-	-	-	-	20.3	28.8		-	-	-	28.5	58.1		-	-	-	6.6	10.3	
3. Kok & Ing (9,390)																			
3.1 Kok (4,940)																			
Chiang Mai	10	4.1	6.6	1,610	0.4	0.7		2.8	3.6	1,300	0.3	0.4		40.8	110.2	2,700	4.1	11.0	
Chiang Rai	50	2.0	2.5	1,270	1.0	1.3		0.4	0.7	1,500	0.2	0.4		7.5	23.2	3,090	3.8	11.6	
Total	-	-	-	-	1.4	1.9		-	-	-	0.5	0.7		-	-	-	7.8	22.6	
3.2 Ing (4,450)																			
Chiang Rai	30	2.0	2.5	1,270	0.6	0.8		0.4	0.7	1,770	0.1	0.2		7.5	23.2	3,090	2.3	7.0	
Phayao	58	-	-	-	-	-		1.4	1.7	1,230	0.8	1.0		4.3	7.5	1,740	2.5	4.4	
Total	-	-	-	-	0.6	0.8		-	-	-	0.9	1.2		-	-	-	4.7	11.3	
Grand Total	-	-	-	-	2.0	2.7		-	-	-	1.4	1.9		-	-	-	12.6	33.9	

Table 3.2.8 Crop Budget of Agricultural Products for Chao Phraya Upper West Delta in Financial Terms (Present Condition) (1) (1)

Item	Unit	Paddy				Field Crops				Other Field Crops				Vegetables			
		Dry Season		Wet Season		Sugarcane		Mungbean		Soybean		Sweet Corn		Water Melon		Average	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output																	
(1) Yield	kg/rai	753		9,470				160		200		1,950		2,430		1,300	
(2) Unit Price	Baht/kg	4.5		0.475				8.0		11.7		4.8		6.0		4.0	
(3) Production Value	Baht/rai		3,389		4,498				1,280		2,340		9,360		14,580		6,890
Total	Baht/rai		3,389		4,498				1,280		2,340		9,360		14,580		6,890
Input Costs																	
(1) Seeds	Baht/rai	23kg	159		536		83	24kg	83	24kg	240	3kg	120	0.15kg	1,377	455	3kg
(2) Fertilizer	Baht/rai	46kg	228		45kg		179	10kg	47	6kg	30	48kg	300	231kg	1,313	423	112kg
(3) Agro-chemicals	Baht/rai		173		95		76		76		84		240		1,307	427	700
(4) Land Preparation*	Baht/rai		587		450		167		220		220		250		221	215	500
(5) Labour	Baht/rai	9.1md	998		26.8md		2,942	5.8md	636	5.5md	605	7.1md	780	19.1md	2,100	1,030	18.2md
(6) Others	Baht/rai		87		72		76		35		35		190		77	95	300
Total	Baht/rai		2,232		4,274		1,085		1,214		1,880		6,395		2,645		4,409
Net Value	Baht/rai		1,157		224		195		1126		7,480		8,185		4,245		791

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.8. Crop Budget of Agricultural Products for Chao Phraya Upper West Delta in Financial Terms (Future Without Project Case) (2) (1)

Item	Unit	Paddy				Field Crops				Other Field Crops				Vegetables			
		Dry Season		Wet Season		Sugarcane		Mungbean		Soybean		Sweet Corn		Water Melon		Average	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output																	
(1) Yield	kg/rai	753		9,470				160		200		1,950		2,430		1,300	
(2) Unit Price	Baht/kg	4.2		0.835				10.4		13.6		5.3		7.4		5.1	
(3) Production Value	Baht/rai		3,163		7,907				1,664		2,720		10,335		17,982		8,175
Total	Baht/rai		3,163		7,907				1,664		2,720		10,335		17,982		8,175
Input Costs																	
(1) Seeds	Baht/rai	23kg	174		563		87	24kg	87	24kg	252	3kg	126	0.15kg	1,446	478	3kg
(2) Fertilizer	Baht/rai	46kg	229		45kg		188	10kg	50	6kg	32	48kg	315	231kg	1,379	444	112kg
(3) Agro-chemicals	Baht/rai		170		100		80		80		88		252		1,372	448	735
(4) Land Preparation*	Baht/rai		550		473		176		231		263		263		232	226	525
(5) Labour	Baht/rai	9.1md	1,024		26.8md		2,989	5.8md	668	5.5md	635	7.1md	819	19.1md	2,205	1,082	18.2md
(6) Others	Baht/rai		109		76		80		37		37		200		81	100	315
Total	Baht/rai		2,256		4,389		1,141		1,275		1,975		8,360		11,267		4,630
Net Value	Baht/rai		907		3,518		523		1,445		8,360		11,267		5,397		2,000

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 2.3 Crop Budget of Agricultural Products for Chao Phraya Upper West Delta in Financial Terms (Future With Project Case) (3.4)

Item	Unit	Paddy				Field Crops				Other Field Crops						Vegetables	
		Dry Season		Amount	Sugarcane		Mungbean		Soybeans		Sweet Corn		Water Melon		Average		
		Amount	Value		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	
Value of Output																	
(1) Yield	kg/rai	850		10,580		200		300		2,300		2,780			1,490		
(2) Unit Price	Baht/kg	4.2		0.835		10.4		13.6		5.3		7.4			5.1		
(3) Production Value	Baht/rai	3,570	8,834		2,080		4,080		12,190		20,572		9,731		7,599		
Total	Baht/rai	3,570	8,834		2,080		4,080		12,190		20,572		9,731		7,599		
Input Costs																	
(1) Seeds	Baht/rai	25kg	175	550	6kg	150	10kg	5kg	200	0.16kg	1,425	468	4kg	280			
(2) Fertilizer	Baht/rai	52kg	260	218	10kg	114	15kg	90kg	562	260kg	1,407	533	120kg	748			
(3) Agro-chemicals	Baht/rai		160	85	40	80			250		1,297	417		735			
(4) Land Preparation*	Baht/rai		490	450	155	170			260		210	199		525			
(5) Labour	Baht/rai	9.4md	1,032	27.8md	705	6.1md	669	7.8md	855	20.6md	2,230	1,115	19.4md	2,130			
(6) Others	Baht/rai		125	80	47	50			200		78	94		315			
Total	Baht/rai		2,242	4,439	1,092	1,233	2,327		6,647			2,826		4,733			
Net Value	Baht/rai		1,328	4,395	988	2,847	9,863		13,925		6,905			2,866			

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.9 Crop Budget of Agricultural Products for Chao Phraya Upper East Delta in Financial Terms (Present Condition) (1)

Item	Unit	Paddy				Field Crops				Other Field Crops				Vegetables			
		Dry Season		Wet Season		Sugarcane		Mungbean		Soybean		Sweet Corn		Water Melon		Average	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output:																	
(1) Yield	kg/rai	800		10,020				130		200		1,950		2,430		1,300	
(2) Unit Price	Baht/kg	4.5		0.475				8.0		11.7		4.8		6.0		4.0	
(3) Production Value	Baht/rai	3,600		4,760				1,040		2,340		9,360		14,580		6,830	
Total	Baht/rai	3,600		4,760				1,040		2,340		9,360		14,580		6,830	
Input Costs																	
(1) Seeds	Baht/rai	20kg	140		560		4kg	64	24kg	240	3kg	120	0.15kg	1,377		450	3kg
(2) Fertilizer	Baht/rai	32kg	160	20kg	125	7kg	34	6kg	30	48kg	300	231kg	1,313		419	112kg	699
(3) Agro-chemicals	Baht/rai		117		75		25	160	220	84	240	250	221		213	500	700
(4) Land Preparation*	Baht/rai		454		540		5.8md	640	5.5md	605	7.1md	780	19.1md	2,100		1,031	18.2md
(5) Labour	Baht/rai	8.5md	930	26.4md	2,907	5.8md	70	25	35	190	77	190	77		82	300	2,000
(6) Others	Baht/rai		70		70												
Total	Baht/rai	1,871		4,277			948		1,214		1,880		6,395		2,609		4,409
Net Value	Baht/rai	1,729		483			92		1,126		7,480		8,185		4,221		791

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.9 Crop Budget of Agricultural Products for Chao Phraya Upper East Delta in Financial Terms (Future Without Project Case) (2)

Item	Unit	Paddy				Field Crops				Other Field Crops				Vegetables			
		Dry Season		Wet Season		Sugarcane		Mungbean		Soybean		Sweet Corn		Water Melon		Average	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output:																	
(1) Yield	kg/rai	800		10,020				130		200		1,950		2,430		1,300	
(2) Unit Price	Baht/kg	4.2		0.835				10.4		13.6		5.3		7.4		5.1	
(3) Production Value	Baht/rai	3,360		8,367				1,352		2,720		10,335		17,982		8,097	
Total	Baht/rai	3,360		8,367				1,352		2,720		10,335		17,982		8,097	
Input Costs																	
(1) Seeds	Baht/rai	20kg	147		588		4kg	67	24kg	252	3kg	126	0.15kg	1,446		473	3kg
(2) Fertilizer	Baht/rai	32kg	168	20kg	131	7kg	36	6kg	32	48kg	315	231kg	1,379		441	112kg	734
(3) Agro-chemicals	Baht/rai		123		79		26	168	231	88	252	263	232		224	525	735
(4) Land Preparation*	Baht/rai		477		567		5.8md	672	5.5md	635	7.1md	819	19.1md	2,205		1,083	18.2md
(5) Labour	Baht/rai	8.5md	977	26.4md	2,953	5.8md	74	26	37	200	81	200	81		86	315	2,100
(6) Others	Baht/rai		74		74												
Total	Baht/rai	1,966		4,392			995		1,275		1,975		6,715		2,742		4,630
Net Value	Baht/rai	1,394		3,975			357		1,445		8,360		11,267		5,355		2,000

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.9 Crop Budget of Agricultural Products for Chao Phraya Upper East Delta in Financial Terms (Future With Project Case) (B.)

Item	Unit	Paddy		Field Crops		Other Field Crops				Vegetables			
		Dry Season		Sugarcane		Mungbean		Soybean		Water Melon			
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value		
Value of Output													
(1) Yield	kg/rai	850		10,580		200		300		2,780		1,490	
(2) Unit Price	Baht/kg	4.2		0.835		10.4		13.6		7.4		5.1	
(3) Production Value	Baht/rai	3,570	8,834			2,080	4,080		12,190	20,572	9,731	7,599	
Total	Baht/rai	3,570	8,834			2,080	4,080		12,190	20,572	9,731	7,599	
Input Costs													
(1) Seeds	Baht/rai	25kg	175	550	6kg	96	150	5kg	200	0.16kg	1,425	468	280
(2) Fertilizer	Baht/rai	52kg	260	35kg	10kg	49	114	90kg	562	260kg	1,407	533	748
(3) Agro-chemicals	Baht/rai		160	85	40	40	80		250		1,297	417	735
(4) Land Preparation *	Baht/rai		490	450		155	170		260		210	199	525
(5) Labour	Baht/rai	9.4md	1,030	27.7md	6.3md	693	644	7.8md	858	20.6md	2,224	1,105	2,112
(6) Others	Baht/rai		125	80		47	50		200		78	94	315
Total	Baht/rai	2,240	4,425			1,080	1,208		2,330	6,641	2,816	4,715	
Net Value	Baht/rai	1,330	4,409			1,000	2,872		9,860	13,931	6,915	2,884	

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.10 Crop Budget of Agricultural Products for Chao Phraya Lower West Delta in Financial Terms (Present Condition) (1):

Item	Unit	Paddy				Field Crops				Other Field Crops				Vegetables			
		Dry Season		Wet Season		Sugarcane		Mungbean		Soybean		Sweet Corn		Water Melon		Average	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output																	
(1) Yield	kg/rai	753		9,470				160		200		1,950		2,430		1,300	
(2) Unit Price	Baht/kg	4.5		0.475				8.0		11.7		4.8		6.0		4.0	
(3) Production Value	Baht/rai		3,389		4,498				1,280		2,340		9,360		14,580		6,890
Total	Baht/rai		3,389		4,498				1,280		2,340		9,360		14,580		6,890
Input Costs																	
(1) Seeds	Baht/rai	23kg	159		536			5kg	83		24kg	240	3kg	120	0.15kg	1,377	455
(2) Fertilizer	Baht/rai	46kg	228		45kg			10kg	47		6kg	30	48kg	300	231kg	1,313	423
(3) Agro-chemicals	Baht/rai		173		95				76		84	240			1,307	427	700
(4) Land Preparation*	Baht/rai		587		450				167		220	250			221	215	500
(5) Labour	Baht/rai	9.1md	998		26.8md			5.8md	636		5.5md	605	7.1md	780	19.1md	2,100	1,030
(6) Others	Baht/rai		87		72				76		35	190			77	95	300
Total	Baht/rai		2,232		4,274				1,085		1,214	1,880			6,395	2,645	4,409
Net Value	Baht/rai		1,157		224				195		1,126	7,480			8,185	4,245	791

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.10 Crop Budget of Agricultural Products for Chao Phraya Lower West Delta in Financial Terms (Future Without Project Case) (2):

Item	Unit	Paddy				Field Crops				Other Field Crops				Vegetables			
		Dry Season		Wet Season		Sugarcane		Mungbean		Soybeans		Sweet Corn		Water Melon		Average	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output																	
(1) Yield	kg/rai	753		9,470				160		200		1,950		2,430		1,300	
(2) Unit Price	Baht/kg	4.2		0.838				10.5		13.7		5.4		7.4		5.2	
(3) Production Value	Baht/rai		3,163		7,936				1,680		2,740		10,530		17,982		8,233
Total	Baht/rai		3,163		7,936				1,680		2,740		10,530		17,982		8,233
Input Costs																	
(1) Seeds	Baht/rai	23kg	174		563			5kg	87		24kg	252	3kg	126	0.15kg	1,446	478
(2) Fertilizer	Baht/rai	46kg	229		45kg			10kg	50		6kg	32	48kg	315	231kg	1,379	444
(3) Agro-chemicals	Baht/rai		170		100				80		88	252			1,372	448	735
(4) Land Preparation*	Baht/rai		550		473				176		231	263			232	226	525
(5) Labour	Baht/rai	9.1md	1,024		26.8md			5.8md	668		5.5md	819	7.1md	819	19.1md	2,205	1,082
(6) Others	Baht/rai		109		76				80		37	200			81	100	315
Total	Baht/rai		2,256		4,389				1,141		1,275	1,975			6,715	2,778	4,630
Net Value	Baht/rai		907		3,547				539		1,465	8,555			11,267	5,455	2,130

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.210 Crop Budget of Agricultural Products for Chao Phraya Lower West Delta in Financial Terms (Future With Project Case) (฿)1)

Item	Unit	Paddy		Field Crops		Other Field Crops								Vegetables	
		Dry Season	Amount	Value	Sugarcane	Mungbean	Soybeans	Sweet Corn	Water Melon	Average	Amount	Value	Amount	Value	
Value of Output															
(1) Yield	kg/rai	850		10,580	200	300	2,300	2,780					1,490		
(2) Unit Price	Baht/kg	4.2		0.838	10.5	13.7	5.4	7.4					5.2		
(3) Production Value	Baht/rai	3,570		8,866	2,100	4,110	12,420	20,572			9,801	7,748			
Total	Baht/rai	3,570		8,866	2,100	4,110	12,420	20,572			9,801	7,748			
Input Costs															
(1) Seeds	Baht/rai	25kg	175	550	6kg	150	5kg	200	0.16kg	1,425	468	4kg	280		
(2) Fertilizer	Baht/rai	52kg	260	218	10kg	114	90kg	562	260kg	1,407	533	120kg	748		
(3) Agro-chemicals	Baht/rai		160	85		80		250		1,297	417		735		
(4) Land Preparation*	Baht/rai		490	450		170		260		210	199		525		
(5) Labour	Baht/rai	9.4md	1,032	3,056	6.4md	669	7.8md	855	20.6md	2,230	1,115	19.4md	2,130		
(6) Others	Baht/rai		125	80	47	50		200		78	94		315		
Total	Baht/rai		2,242	4,439	1,092	1,233	2,327	6,647			2,826	4,733			
Net Value	Baht/rai		1,328	4,427	1,008	2,877	10,093	13,925			6,975	3,015			

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.11 Crop Budget of Agricultural Products for Chao Phraya Lower East Delta in Financial Terms (Present Condition) (1)

Item	Unit	Paddy		Field Crops		Other Field Crops						Vegetables	
		Dry Season		Sugarcane	Mungbean	Soybean	Sweet Corn		Water Melon	Average	Vegetables		
		Amount	Value				Amount	Value				Amount	Value
Value of Output													
(1) Yield	kg/rai	800	10,020	130	200	1,950	2,430					1,300	
(2) Unit Price	Baht/kg	4.5	0.475	8.0	11.7	4.8	6.0					4.0	
(3) Production Value	Baht/rai	3,600	4,760	1,040	2,340	9,360	14,580					6,830	5,200
Total	Baht/rai	3,600	4,760	1,040	2,340	9,360	14,580					6,830	5,200
Input Costs													
(1) Seeds	Baht/rai	20kg	140	560	4kg	64	24kg	240	3kg	120	0.15kg	1,377	450
(2) Fertilizer	Baht/rai	32kg	160	20kg	125	7kg	34	6kg	30	48kg	300	231kg	1,313
(3) Agro-chemicals	Baht/rai		117	75	454	25	84	240	84	240	240	1,307	414
(4) Land Preparation *	Baht/rai		454	540	160	160	220	220	220	250	250	221	213
(5) Labour	Baht/rai	8.5md	930	26.4md	2,907	5.8md	640	5.5md	605	7.1md	780	19.1md	2,100
(6) Others	Baht/rai		70	70	25	25	35	35	35	190	77	82	300
Total	Baht/rai		1,871	4,277	948	1,214	1,880	6,395	2,609	4,409	4,409	4,409	4,409
Net Value	Baht/rai		1,729	483	92	1,126	7,480	8,185	4,221	791			

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.11 Crop Budget of Agricultural Products for Chao Phraya Lower East Delta in Financial Terms (Future Without Project Case) (2) (1)

Item	Unit	Paddy		Field Crops		Other Field Crops						Vegetables		
		Dry Season		Sugarcane	Mungbean	Soybean	Sweet Corn	Water Melon	Average	Vegetables				
		Amount	Value								Amount	Value	Amount	Value
Value of Output														
(1) Yield	kg/rai	800	10,020	130	200	1,950	2,430			1,300				
(2) Unit Price	Baht/kg	4.2	0.838	10.5	13.7	5.4	7.4			5.2				
(3) Production Value	Baht/rai	3,360	8,397	1,365	2,740	10,530	17,982			8,154			6,760	
Total	Baht/rai	3,360	8,397	1,365	2,740	10,530	17,982			8,154			6,760	
Input Costs														
(1) Seeds	Baht/rai	20kg	147	588	67	24kg	252	3kg	126	0.15kg	1,446	473	3kg	221
(2) Fertilizer	Baht/rai	32kg	168	20kg	131	7kg	36	6kg	32	48kg	315	231kg	1,379	734
(3) Agro-chemicals	Baht/rai		123	79	26	26	88	252	1,372	735	435	735		735
(4) Land Preparation *	Baht/rai		477	567	168	231	231	263	232	224	224	224		525
(5) Labour	Baht/rai	8.5md	977	26.4md	2,953	5.8md	672	5.5md	635	7.1md	819	19.1md	2,205	2,100
(6) Others	Baht/rai		74	74	26	26	37	37	200	81	86	315		315
Total	Baht/rai		1,966	4,392	995	1,275	1,465	1,975	6,715	2,742	4,630	4,630		4,630
Net Value	Baht/rai		1,394	4,005	370	1,465	8,555	11,267	5,412	2,130				2,130

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.11 Crop Budget of Agricultural Products for Chao Phraya Lower East Delta in Financial Terms (Future With Project Case) (3)

Item	Unit	Paddy		Field Crops		Other Field Crops						Vegetables			
		Dry Season		Sugarcane		Mungbean		Soybean		Sweet Corn		Water Melon		Average	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output															
(1) Yield	kg/rai	850		10,580		200		300		2,300		2,780		1,490	
(2) Unit Price	Baht/kg	4.2		0.838		10.5		13.7		5.4		7.4		5.2	
(3) Production Value	Baht/rai	3,570		8,866		2,100		4,110		12,420		20,572		9,801	
Total	Baht/rai	3,570		8,866		2,100		4,110		12,420		20,572		9,801	
Input Costs															
(1) Seeds	Baht/rai	25kg	175	550	6kg	96	10kg	150	5kg	200	0.16kg	1,425	468	4kg	280
(2) Fertilizer	Baht/rai	52kg	260	218	10kg	49	15kg	114	90kg	562	260kg	1,407	533	120kg	748
(3) Agro-chemicals	Baht/rai		160	85		40		80		250		1,297	417		735
(4) Land Preparation*	Baht/rai		490	450		155		170		260		210	199		525
(5) Labour	Baht/rai	9.4md	1,030	3,042	6.3md	693	5.9md	644	7.8md	858	20.6md	2,224	1,105	19.2md	2,112
(6) Others	Baht/rai		125	80		47		50		200		78	94		315
Total	Baht/rai	2,240		4,425		1,080		1,208		2,330		6,641	2,816		4,715
Net Value	Baht/rai		1,330	4,441		1,020		2,902		10,090		13,931	6,985		3,033

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.12: Crop Budget of Agricultural Products for Whole Chao Phraya Delta in Financial Terms (Present Conditions) (Q1)

Item	Unit	Paddy				Field Crops				Other Field Crops				Vegetables			
		Dry Season		Wet Season		Sugarcane		Mungbean		Soybean		Sweet Corn		Water Melon		Average	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output																	
(1) Yield	kg/rai	777	9,745					145	548	200	1,950	240	3kg	2,430	453	3kg	210
(2) Unit Price	Baht/kg	4.5	0.475					8.0	152	11.7	4.8	300	112kg	6.0	421	112kg	699
(3) Production Value	Baht/rai	3,497	4,629					1,160	85	2,340	9360	240	421	14,580	214	500	5,200
Total	Baht/rai	3,497	4,629					1,160	495	2,340	9,360	240	500	14,580	214	500	5,200
Input Costs																	
(1) Seeds	Baht/rai	22kg	150	548	5kg	74	24kg	41	6kg	92	220	250	780	19.1md	2,100	1,031	18.2md
(2) Fertilizer	Baht/rai	39kg	194	33kg	145	85	51	164	220	155	7.1md	190	77	88	300	300	300
(3) Agro-chemicals	Baht/rai																
(4) Land Preparation*	Baht/rai																
(5) Labour	Baht/rai	8.8md	964	26.6md	2,925	5.8md	638	5.5md	380	45	1,880	6,395	2,628	4,409	791		
(6) Others	Baht/rai																
Total	Baht/rai		2,053	4,276			1,019		45	2,295	7,480	8,185	4,232				
Net Value	Baht/rai		1,444	353			141										

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.12 Crop Budget of Agricultural Products for Whole Chao Phraya Delta in Financial Terms (Future Without Project Case) (Q1)

Item	Unit	Paddy				Field Crops				Other Field Crops				Vegetables			
		Dry Season		Wet Season		Sugarcane		Mungbean		Soybean		Sweet Corn		Water Melon		Average	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output																	
(1) Yield	kg/rai	777	9,745					145	576	200	1,950	240	3kg	2,430	475	3kg	221
(2) Unit Price	Baht/kg	4.2	0.837					10.4	160	13.7	5.4	315	112kg	7.4	442	112kg	734
(3) Production Value	Baht/rai	3,263	8,157					1,508	90	2,740	10,530	240	735	17,982	225	525	2,100
Total	Baht/rai	3,263	8,157					1,508	520	2,740	10,530	240	735	17,982	225	525	2,100
Input Costs																	
(1) Seeds	Baht/rai	22kg	161	576	5kg	77	24kg	43	6kg	88	231	263	819	19.1md	2,205	1,082	18.2md
(2) Fertilizer	Baht/rai	39kg	199	33kg	147	51	164	220	155	7.1md	190	77	81	93	315	315	315
(3) Agro-chemicals	Baht/rai																
(4) Land Preparation*	Baht/rai																
(5) Labour	Baht/rai	8.8md	1,001	26.6md	2,971	5.8md	670	5.5md	37	45	1,975	6,715	2,758	4,630	791		
(6) Others	Baht/rai																
Total	Baht/rai		2,114	4,392			1,068			1,465	8,555	11,267	5,432				
Net Value	Baht/rai		1,149	3,765			440										

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.12 Crop Budget of Agricultural Products for Whole Chao Phraya Delta in Financial Terms (Future With Project Case) (3)

Item	Unit	Paddy		Field Crops		Other Field Crops						Vegetables					
		Dry Season	Amount	Sugarcane	Amount	Mungbean	Amount	Soybean	Amount	Sweet Corn	Amount	Water Melon	Amount	Average	Amount	Value	
Value of Output																	
(1) Yield	kg/rai	850		10,580		200		300		2,300		2,780			1,490		
(2) Unit Price	Baht/kg	4.2		0.837		10.4		13.7		5.4		7.4			5.1		
(3) Production Value	Baht/rai	3,570		8,855		2,080		4,110		12,420		20,572			9,796	7,599	
Total	Baht/rai	3,570		8,855		2,080		4,110		12,420		20,572			9,796	7,599	
Input Costs																	
(1) Seeds	Baht/rai	25kg	175	550	6kg	96	10kg	150	5kg	200	0.16kg	1,425	468	4kg	280		
(2) Fertilizer	Baht/rai	52kg	260	218	10kg	49	15kg	116	90kg	562	260kg	1,407	533	120kg	748		
(3) Agro-chemicals	Baht/rai		160	85		40		92		250		1,297	417		735		
(4) Land Preparation*	Baht/rai		490	450		155		170		260		210	199		525		
(5) Labour	Baht/rai	9.4md	1,032	27.8md	6.4md	699	6.0md	155	7.8md	857	20.6md	2,227	1,110	19.3md	2,121		
(6) Others	Baht/rai		125	80		47		380		200		78	94		315		
Total	Baht/rai		2,242	4,432		1,086		45		2,329		6,644	2,821		4,724		
Net Value	Baht/rai		1,328	4,423		994		4,065		10,091		13,928	6,975		2,875		

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.13 Crop Budget of Agricultural Products for Phisanulok Irrigation Project and DEDP Pumping Scheme in Financial Terms (Present Condition) (1f)

Item	Unit	Paddy			Field Crops			Other Field Crops			Vegetables		
		Dry Season	Amount	Value	Sugarcane	Amount	Value	Mungbean	Amount	Value	Soybean	Amount	Value
Value of Output													
(1) Yield	kg/rai	765	9,608	153									
(2) Unit Price	Baht/kg	4.5	0.475	8.0									
(3) Production Value	Baht/rai	3,443	4,564	1,224									
Total	Baht/rai												
Input Costs													
(1) Seeds	Baht/rai	22kg	154	542	5kg	78	24kg	240	3kg	120	0.15kg	1,377	454
(2) Fertilizer	Baht/rai	42kg	211	39kg	166	9kg	44	6kg	30	48kg	300	231kg	422
(3) Agro-chemicals	Baht/rai		159	90		63		84		240		1,307	424
(4) Land Preparation*	Baht/rai		554	473		166		220		250		221	214
(5) Labour	Baht/rai	8.9md	981	26.7md	2,933	5.8md	637	5.5md	605	7.1md	780	19.1md	2,100
(6) Others	Baht/rai		83	71		85		35		190		77	97
Total	Baht/rai		2,142	4,275		1,073		1,214		1,880		6,395	2,642
Net Value	Baht/rai		1,301	289		151		1,126		7,480		8,185	4,234

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.13 Crop Budget of Agricultural Products for Phisanulok Irrigation Project and DEDP Pumping Scheme in Financial Terms (Future Without Project Case) (2f)

Item	Unit	Paddy			Field Crops			Other Field Crops			Vegetables		
		Dry Season	Amount	Value	Sugarcane	Amount	Value	Mungbean	Amount	Value	Soybean	Amount	Value
Value of Output													
(1) Yield	kg/rai	765	9,608	153									
(2) Unit Price	Baht/kg	4.2	0.828	10.3									
(3) Production Value	Baht/rai	3,213	7,955	1,576									
Total	Baht/rai												
Input Costs													
(1) Seeds	Baht/rai	22kg	167	569	5kg	82	24kg	252	3kg	126	0.15kg	1,446	477
(2) Fertilizer	Baht/rai	42kg	214	39kg	174	9kg	46	6kg	32	48kg	315	231kg	443
(3) Agro-chemicals	Baht/rai		159	95		67		88		252		1,372	445
(4) Land Preparation*	Baht/rai		532	497		174		231		263		232	225
(5) Labour	Baht/rai	8.9md	1,012	26.7md	2,980	5.8md	669	5.5md	635	7.1md	819	19.1md	2,205
(6) Others	Baht/rai		100	75		67		37		200		81	96
Total	Baht/rai		2,184	4,390		1,105		1,275		1,975		6,715	2,768
Net Value	Baht/rai		1,029	3,565		471		1,445		8,360		11,024	5,325

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.13 Crop Budget of Agricultural Products for Phisanulok Irrigation Project and DEDP Pumping Scheme in Financial Terms (Future With Project Case) (33)

Item	Unit	Paddy		Field Crops		Other Field Crops						Vegetables			
		Dry Season		Sugarcane		Mungbean		Soybean		Sweet Corn		Water Melon		Average	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output															
(1) Yield	kg/rai	850		10,580		200		300		2,300		2,780		1,490	
(2) Unit Price	Baht/kg	4.2		0.828		10.3		13.6		5.3		7.3		5.0	
(3) Production Value	Baht/rai	3,570		8,760		2,060		4,080		12,190		20,294		9,656	
Total	Baht/rai	3,570		8,760		2,060		4,080		12,190		20,294		9,656	
Input Costs															
(1) Seeds	Baht/rai	25kg	175	550	6kg	96	10kg	150	5kg	200	0.16kg	1,425	468	4kg	280
(2) Fertilizer	Baht/rai	52kg	260	218	10kg	49	15kg	114	90kg	562	260kg	1,407	533	120kg	748
(3) Agro-chemicals	Baht/rai		160	85		40		80		250		1,297	417		735
(4) Land Preparation*	Baht/rai		490	450		155		170		260		210	199		525
(5) Labour	Baht/rai	9.4md	1,032	3,053	6.4md	702	6.0md	663	7.8md	856	20.6md	2,228	1,112	19.3md	2,125
(6) Others	Baht/rai		125	80		47		50		200		78	94		315
Total	Baht/rai		2,242	4,436		1,089		1,227		2,328		6,645	2,823		4,728
Net Value	Baht/rai		1,328	4,324		971		2,853		9,862		13,649	6,833		2,722

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.14 Crop Budget of Agricultural Products for Associate Irrigation Projects in Financial Terms (Present Condition) (1)

Item	Unit	Field Crops						Vegetables	
		Mungbean		Soybean		Average		Vegetables	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output									
(1) Yield	kg/rai	170		200				1,300	
(2) Unit Price	Baht/kg	7.9		8.6				4.0	
(3) Production Value	Baht/rai		1,343		1,720		1,532		5,200
Total	Baht/rai		1,343		1,720		1,532		5,200
Input Costs									
(1) Seeds	Baht/rai	5kg	82	24kg	240		161	3kg	210
(2) Fertilizer	Baht/rai	8kg	38	6kg	30		34	112kg	699
(3) Agro-chemicals	Baht/rai		57		84		71		700
(4) Land Preparation*	Baht/rai		155		220		188		500
(5) Labour	Baht/rai	5.8md	642	5.5md	605		624	18.2md	2,000
(6) Others	Baht/rai		61		35		48		300
Total	Baht/rai		1,035		1,214		1,126		4,409
Net Value	Baht/rai		308		506		406		791

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.2.14 Crop Budget of Agricultural Products for Associate Irrigation Projects in Financial Terms (Future Without Project Case) (2)

Item	Unit	Field Crops						Vegetables	
		Mungbean		Soybean		Average		Vegetables	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output				1.05					
(1) Yield	kg/rai	170		200				1,300	
(2) Unit Price	Baht/kg	10.2		13.5				4.9	
(3) Production Value	Baht/rai		1,734		2,700		2,217		6,370
Total	Baht/rai		1,734		2,700		2,217		6,370
Input Costs									
(1) Seeds	Baht/rai	5kg	86	24kg	252		169	3kg	221
(2) Fertilizer	Baht/rai	8kg	40	6kg	32		36	112kg	734
(3) Agro-chemicals	Baht/rai		60		88		74		735
(4) Land Preparation*	Baht/rai		163		231		197		525
(5) Labour	Baht/rai	5.8md	673	5.5md	635		654	18.2md	2,100
(6) Others	Baht/rai		64		37		51		315
Total	Baht/rai		1,086		1,275		1,181		4,630
Net Value	Baht/rai		648		1,425		1,036		1,740

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

**Table 3.2:14 Crop Budget of Agricultural Products for Associate Irrigation Projects
in Financial Terms (Future With Project Case) (3)**

Item	Unit	Paddy		Field Crops				Vegetables			
		Dry Season		Mungbean		Soybean		Average		Vegetables	
		Amount	Value	Amount	Value	Amount	Value	Amount	Value	Amount	Value
Value of Output											
(1) Yield	kg/rai	850		200		300				1,490	
(2) Unit Price	Baht/kg	4.1		10.2		13.5				4.9	
(3) Production Value	Baht/rai		3,485		2,040		4,050		3,045		7,301
Total	Baht/rai		3,485		2,040		4,050		3,045		7,301
Input Costs											
(1) Seeds	Baht/rai	25kg	175	6kg	96	10kg	150		123	4kg	280
(2) Fertilizer	Baht/rai	52kg	260	10kg	49	15kg	114		82	120kg	748
(3) Agro-chemicals	Baht/rai		160		40		80		60		735
(4) Land Preparation*	Baht/rai		490		155		170		163		525
(5) Labour	Baht/rai	9.4md	1,032	6.4md	701	6.2md	678		690	19.3md	2,125
(6) Others	Baht/rai		125		47		50		49		315
Total	Baht/rai		2,242		1,088		1,242		1,167		4,728
Net Value	Baht/rai		1,243		952		2,808		1,878		2,573

Note: 1) * indicates dependence on mechanization, including fuel cost.

2) Vegetables include cucumber, long beans, etc.

Source: Farm household survey.

Table 3.213 Crop Budget of Fruit Trees for Whole Benefit Area in Financial Terms (฿)

Item	Unit	Present Condition		Future Without Project		Future With Project	
		Mango*		Mango*		Mango**	
		Amount	Value	Amount	Value	Amount	Value
Value of Output							
(1) Yield	kg/rai	1,084		1084		884	
(2) Unit Price	Baht/kg	10.0		10.0		19.4	
(3) Production Value	Baht/rai		10,840		10,840		17,150
Total	Baht/rai		10,840		10,840		17,150
Input Costs							
(1) Initial Investment Cos	Baht/rai						
(a) Pump	Baht/rai		1,200		1,260		1,440
(b) Sprinkler	Baht/rai		320		336		384
(c) Sprayer	Baht/rai		260		273		312
(d) Others	Baht/rai		191		200		173
(2) Operation Cost	Baht/rai						
(a) Fertilizer	Baht/rai	247kg	1,400	247kg	1,470	139kg	830
(b) Agro-chemicals	Baht/rai		900		945		426
(c) Labour	Baht/rai	7.5md	823	7.5md	864	9.1md	1,050
(d) Others	Baht/rai		312		328		696
Total	Baht/rai		5,406		5,676		5,311
Net Value	Baht/rai		5,434		5,164		11,839

Note : * indicates local varieties.

** indicates an export-type variety.

Source: Farm household survey.

Table 3.2.15 Crop Budget of Mango* for Whole Benefit Area in Financial Terms (Present Condition) (2)

Item	Unit	1	2	3	4	5	6	7	8	9	10-25
Value of Output											
(1) Yield	kg/rai	0	0	150	300	500	750	750	1,000	1,250	1,400
(2) Unit Price	Baht/kg	0	0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
(3) Production Value	Baht/rai	0	0	1,500	3,000	5,000	7,500	7,500	10,000	12,500	14,000
Total	Baht/rai	0	0	1,500	3,000	5,000	7,500	7,500	10,000	12,500	14,000
Input Costs											
(1) Initial Investment Cost											
(a) Pump	Baht/rai	30,000	0	0	0	0	0	0	0	0	0
(b) Sprinkler	Baht/rai	8,000	0	0	0	0	0	0	0	0	0
(c) Sprayer	Baht/rai	6,500	0	0	0	0	0	0	0	0	0
(d) Others	Baht/rai	2,849	1,914	0	0	0	0	0	0	0	0
(2) Operation Cost											
(a) Fertilizer	Baht/rai	0	0	900	900	1,200	1,600	1,600	1,600	1,600	1,600
(b) Agro-chemicals	Baht/rai	0	0	500	1,000	1,000	1,000	1,000	1,000	1,000	1,000
(c) Labour	Baht/rai	0	0	550	550	700	700	875	875	960	960
(d) Others	Baht/rai	0	0	195	245	290	330	348	348	356	356
Total	Baht/rai	47,349	1,914	2,145	2,695	3,190	3,630	3,823	3,823	3,916	3,916
Net Value	Baht/rai	-47,349	-1,914	-645	-305	-1,810	-3,870	-3,677	-6,177	-8,584	-10,084

Note : * indicates local varieties.
Source: Farm household survey.

Table 3.2.16 Crop Budget of Mango* for Whole Benefit Area in Financial Terms (Future Without Project Case) (3)

Item	Unit	1	2	3	4	5	6	7	8	9	10-25
Value of Output											
(1) Yield	kg/rai	0	0	150	300	500	750	750	1,000	1,250	1,400
(2) Unit Price	Baht/kg	0	0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
(3) Production Value	Baht/rai	0	0	1,500	3,000	5,000	7,500	7,500	10,000	12,500	14,000
Total	Baht/rai	0	0	1,500	3,000	5,000	7,500	7,500	10,000	12,500	14,000
Input Costs											
(1) Initial Investment Cost											
(a) Pump	Baht/rai	31,500	0	0	0	0	0	0	0	0	0
(b) Sprinkler	Baht/rai	8,400	0	0	0	0	0	0	0	0	0
(c) Sprayer	Baht/rai	6,825	0	0	0	0	0	0	0	0	0
(d) Others	Baht/rai	2,991	2,010	0	0	0	0	0	0	0	0
(2) Operation Cost											
(a) Fertilizer	Baht/rai	0	0	945	945	1,260	1,680	1,680	1,680	1,680	1,680
(b) Agro-chemicals	Baht/rai	0	0	525	1,050	1,050	1,050	1,050	1,050	1,050	1,050
(c) Labour	Baht/rai	0	0	578	578	735	735	919	919	1,008	1,008
(d) Others	Baht/rai	0	0	205	257	305	347	365	365	374	374
Total	Baht/rai	49,716	2,010	2,253	2,830	3,350	3,812	4,014	4,014	4,112	4,112
Net Value	Baht/rai	-49,716	-2,010	-753	-170	-1,650	-3,688	-3,486	-5,986	-8,388	-9,888

Note : * indicates local varieties.
Source: Farm household survey.

Table 3.2/15 Crop Budget of Mango* for Whole Benefit Area in Financial Terms (Future Without Project) (4)

Item	Unit	1	2	3	4	5	6	7	8	9	10-25
Value of Output											
(1) Yield	kg/rai	0	0	100	200	375	550	750	1,000	1,125	1,125
(2) Unit Price	Baht/kg	0	0	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4
(3) Production Value	Baht/rai	0	0	1,940	3,880	7,275	10,670	14,550	19,400	21,825	21,825
Total	Baht/rai	0	0	1,940	3,880	7,275	10,670	14,550	19,400	21,825	21,825
Input Costs											
(1) Initial Investment Cost											
(a) Pump	Baht/rai	36,000	0	0	0	0	0	0	0	0	0
(b) Sprinkler	Baht/rai	9,600	0	0	0	0	0	0	0	0	0
(c) Sprayer	Baht/rai	7,800	0	0	0	0	0	0	0	0	0
(d) Others	Baht/rai	2,849	1,485	0	0	0	0	0	0	0	0
(2) Operation Cost											
(a) Fertilizer	Baht/rai	0	0	550	600	800	800	900	950	950	950
(b) Agro-chemicals	Baht/rai	0	0	250	300	300	300	500	500	500	500
(c) Labour	Baht/rai	0	0	520	570	685	775	875	1,150	1,210	1,275
(d) Others	Baht/rai	0	0	352	477	508	627	667	810	816	822
Total	Baht/rai	56,249	1,485	1,672	1,947	2,293	2,502	2,942	3,410	3,476	3,547
Net Value	Baht/rai	-56,249	-1,485	268	1,933	4,982	8,168	11,608	15,990	18,349	18,278

Note : * indicates an export-type variety.

Source: Farm household survey.

Table 3.2.16 Fish Culture Budget for Whole Benefit Area in Financial Terms

Item	Unit	Present	Future Without Project	Future With Project
Value of Output				
(1) Yield	t/rai	0.37	0.37	1.33
(2) Unit Price	Baht/t	12,504	15,150	15,150
(3) Production Value	Baht/rai	4,626	5,606	20,150
Total	Baht/rai	4,626	5,606	20,150
Input Costs				
(1) Initial Investment Cost				
(a) Pond Digging*	Baht/rai	13,800	13,800	13,800
(b) Pump Cost**	Baht/rai	5,460	5,460	5,460
(2) Operation Cost				
(a) Flingerlings	Baht/rai	311	342	705
(b) Labour	Baht/rai	1,310	1,441	550
(c) Feed	Baht/rai	36	39	2,444
(d) Limestone	Baht/rai	122	134	2,577
(e) Fuel	Baht/rai	117	129	338
(f) Others	Baht/rai	2,145	2,360	0
Total	Baht/rai	4,041	4,445	6,614
Net Value	Baht/rai	585	1,161	13,536

Note: 1) * indicates negligible value due to semi-permanent utilization of the digged pond.

2) ** indicates negligible value due to multifarious utilization of a pump.

Source: Farm household survey.

Table 3.2.17 Number of Livestock in Chao Phraya and Kok-Ing Basin (1)

Basin and Province	Area Rate (%)	Provincial Level (2)						Basin Level (3) (2)(3)(1)					
		Buffalo		Cattle		Swine		Buffalo		Cattle		Swine	
		1986	1995	1986	1995	1986	1995	1986	1995	1986	1995	1986	1995
1. Upper Chao Phraya Basin 1.1 Nan Basin (21,460) (1) Upper Nan (6,110)													
Nan	94	80	42.5	46	61.1	66	68.1	75	40	43	57	64	1,089
Uthumphu	28	43	20.3	59	85.6	43	55.0	12	6	15	24	12	185
Subtotal	-	-	-	-	-	-	-	87	46	58	81	76	1,273
(2) Lower Nan (13,350)													
Uthumphu	72	43	20.5	53	85.6	43	55.0	31	15	38	62	31	475
Phitsanulok	48	56	28.8	65	109.0	82	74.0	49	25	57	56	72	65
Phichit	57	67	31.9	18	67.9	55	52.7	38	7	10	39	33	407
Phetchabun	17	68	43.7	125	196.2	82	121.2	12	7	21	33	14	12
Nakhon Sawan	15	55	37.8	156	186.8	38	63.1	8	6	23	28	6	293
Subtotal	-	-	-	-	-	-	-	138	60	150	258	154	1,600
Total	-	-	-	-	-	-	-	225	106	208	339	228	3,822
1.2 Yom Basin (14,760)													
Nan	6	80	42.5	46	61.1	66	68.1	5	3	3	4	4	69
Phayao	42	63	37.0	85	91.6	59	51.6	26	16	36	38	25	439
Laosang	21	108	62.8	111	150.6	87	75.8	20	11	23	32	18	226
Phrae	100	62	33.7	46	68.5	78	69.3	62	34	46	69	78	69
Subtotal	-	-	-	-	-	-	-	112	60	133	122	106	1,227
Phitsanulok	12	56	28.8	65	109.0	82	74.0	7	3	8	13	10	134
Phichit	43	67	31.9	18	67.9	55	52.7	29	5	8	29	24	307
Kamphaeng Phet	15	30	16.8	16	86.1	61	60.9	5	3	2	13	9	139
Total	-	-	-	-	-	-	-	188	89	187	320	214	3,422
1.3 Wang Basin (6,740)													
Laosang	79	106	62.8	111	150.6	87	75.8	85	50	88	119	69	851
Tak	6	38	21.6	100	155.5	29	34.5	2	1	6	9	2	37
Total	-	-	-	-	-	-	-	88	51	94	128	70	887
1.4 Ping Basin (21,190)													
Chiang Mai	77	132	69.7	112	161.1	164	246.4	102	54	86	124	126	2,726
Laosang	100	28	12.9	48	44.9	33	56.0	28	13	48	45	33	58
Tak	46	30	21.6	100	155.5	29	34.5	17	10	46	72	13	18
Kamphaeng Phet	70	30	16.8	16	86.1	61	60.9	21	12	11	60	43	650
Nakhon Sawan	4	55	37.8	156	186.8	38	63.1	2	2	6	7	2	78
Total	-	-	-	-	-	-	-	170	90	198	308	217	5,016
1.5 Sakae Krung Basin (3,240)													
Kamphaeng Phet	8	30	16.8	16	86.1	61	60.9	2	1	1	7	5	74
Nakhon Sawan	24	55	37.8	156	186.8	38	63.1	13	9	37	45	9	469
Uthumphu	33	54	34.6	19	62.1	48	44.7	18	13	6	20	16	15
Total	-	-	-	-	-	-	-	33	23	45	72	30	584
1.6 Paak Basin (10,180)													
Loei	10	85	53.8	33	102.1	26	32.4	9	5	3	10	3	47
Phetchabun	72	68	43.7	125	196	82	71.2	49	31	90	141	59	1,159
Lopburi	50	40	13.8	157	180.3	82	85.9	20	7	79	90	41	43
Saraburi	77	42	16.4	63	66.3	54	91.0	32	13	49	51	42	70
Ayutthaya	7	32	16.7	33	40.3	26	40.2	2	1	2	3	2	40
Total	-	-	-	-	-	-	-	112	58	223	295	146	2,191

(unit: 10³ Head)

Table 3.2.17 Number of Livestock in Chao Phraya and Kok-Jag Basins (2)

Basin and Province	Area Rate (%)	Provincial Level (2)						Basin Level (3)=(2)×(1)						(unit: 10 ³ Head)																	
		Buffalo			Cattle			Swine			Chicken					Buffalo			Cattle			Swine			Chicken						
		1986			1995			1986			1995			1986			1995			1986			1995			1986			1995		
		1986	1995	1986	1995	1986	1995	1986	1995	1986	1995	1986	1995	1986	1995	1986	1995	1986	1995	1986	1995	1986	1995	1986	1995	1986	1995				
2. Lower Chao Phraya Basin (21,120)		7	30	16.8	16	86.1	61	60.9	929	753	2	1	1	6	4	65	53														
Kamphaeng Phet	57	55	37.8	156	186.8	38	63.1	1,955	3,107	31	22	89	106	22	36	1,134	1,771														
Nakhon Sawan	34	54	39	19	62	48	45	122	1,076	18	13	6	21	16	15	41	376														
Uthai Thani	100	22	10.1	50	84.9	38	40.9	494	544	22	10	50	85	38	41	494	544														
Chaiwat	3	68	43.7	125	196.2	82	71.2	1,610	1,964	2	1	4	6	2	2	48	59														
Phichit	50	40	13.8	137	180.3	82	85.9	869	3,360	20	7	79	90	41	43	435	1,630														
Lopburi	23	42	16.4	63	66.3	54	91.0	662	2,943	10	4	14	15	12	21	152	677														
Saraburi	100	7	2.8	17	24.0	40	34.6	270	582	7	3	17	24	40	35	270	582														
Singburi	100	12	4.5	33	40.1	29	33.1	431	1,721	12	5	33	40	29	33	431	1,721														
Ang Thong	89	44	19.3	120	160.7	148	157.0	1,235	3,099	39	17	107	143	132	140	1,099	2,758														
Suphanburi	93	32	16.7	33	40.3	26	40.2	577	4,083	30	16	31	37	24	37	537	3,797														
Ayutthaya	100	4	3.1	5	7.8	3	15.4	300	1,133	4	4	5	8	3	15	300	1,133														
Pathum Thani	92	8	1.8	38	41.9	224	456.6	989	3,504	7	2	35	39	206	420	910	3,040														
Nakhon Pathom	100	1	0.6	3	3.2	2	2.4	210	73	1	1	3	6	10	7	403	679														
Northaburi	100	2	0.8	3	6.0	10	7.1	403	679	2	1	3	6	10	7	403	679														
Bangkok	100	1	1.1	1	1.1	4	4.5	657	407	-	-	1	1	4	9	657	407														
Saraburi	83	22	17.1	27	52.4	2	4.9	331	207	-	-	1	1	2	2	275	172														
Saraburi	6	40	16.9	178	246.3	138	205.9	4,705	13,156	1	1	2	3	8	12	282	789														
Chachoengsao	10	40	16.9	178	246.3	43	35.0	1,164	749	4	2	18	25	4	4	116	75														
Kanchanaburi	10	40	16.9	178	246.3	43	35.0	1,164	749	4	2	18	25	4	4	116	75														
Grandtotal	-	-	-	-	-	-	-	-	-	-	213	107	498	660	600	881	2,840	20,336													
3. Kok and Ing Basins (9,390)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-													
3.1. Kok Basin (4,940)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-													
Chiang Mai	10	132	69.7	112	161.1	164	246.4	3,540	5,534	13	7	11	16	16	25	354	553														
Chiang Mai	50	137	64.9	69	102.4	144	132.0	2,199	3,488	69	32	35	51	72	66	1,100	1,944														
Chiang Rai	-	-	-	-	-	-	-	-	-	82	39	46	67	88	91	1,454	2,497														
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
3.2. Ing Basin (4,450)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
Chiang Rai	30	137	64.9	69	102.4	144	132.0	2,199	3,488	41	19	21	31	43	40	660	1,166														
Phayao	58	63	37.0	85	91.6	59	51.6	1,084	1,314	37	21	49	53	34	30	635	762														
Total	-	-	-	-	-	-	-	-	-	78	41	70	84	77	70	1,294	1,929														
Grandtotal	-	-	-	-	-	-	-	-	-	159	80	116	151	166	160	2,748	4,426														

Table 3.2.18 Freshwater Fish Condition in 1995 (2)

Basin and Province	Area Rate (%)	Provincial Area Level			Basin Area Level					
		No. of Household (10 ³)	No. of Ponds (10 ³)	Area (10 ³ Rai)	Product (Tons)	No. of Household (10 ³)	No. of Ponds (10 ³)	Area (10 ³ Rai)	Product (Tons)	Yield (Kg/Rai)
2. Lower Chao Phraya Basin (21,120)										
Kamphaeng Phet	7	1.7	2.3	1.6	1,192.5	0.1	0.2	0.1	83	745
Nakhon Sawan	57	3.7	8.0	7.2	5,478.0	2.1	4.6	4.1	3,122	761
Uthai Thani	34	2.2	2.6	1.3	360.3	0.7	0.9	0.4	123	277
Chalant	100	2.6	3.1	2.2	1,574.0	2.6	3.1	2.2	1,574	715
Phetchabun	3	9.1	11.5	10.3	4,188.2	0.3	0.3	0.3	126	407
Lopburi	50	1.9	2.8	4.1	3,316.8	1.0	1.4	2.1	1,658	899
Samut Prakan	23	2.6	2.6	5.7	1,684.2	0.6	0.6	1.3	382	295
Singburi	100	1.4	2.6	1.6	409.6	2.6	2.6	1.6	410	256
Ang Thong	100	3.4	6.7	4.3	1,341.9	3.4	6.7	4.3	1,342	312
Suphanburi	89	6.7	-	51.1	53,553.7	6.0	-	45.5	47,663	1,048
Ayutthaya	93	6.4	8.7	23.9	5,313.3	6.0	8.1	22.2	4,941	222
Pathum Thani	100	2.4	3.3	9.7	3,875.8	2.4	3.3	9.7	3,876	400
Nakhon Pathom	92	2.5	6.2	23.7	20,670.6	2.3	5.7	21.8	19,017	872
Nonthaburi	100	0.6	0.9	1.1	8,274.8	0.6	0.9	1.1	8,275	7,523
Bangkok	100	0.2	0.5	3.4	22,891.0	0.2	0.5	3.4	22,891	6,733
Samut Prakan	100	5.7	-	153.0	31,388.8	5.7	-	153.0	31,389	205
Samut Sakhon	83	2.1	2.6	41.0	12,738.7	1.7	2.2	34.0	10,573	311
Chachoengsao	6	1.8	2.9	34.6	8,444.6	0.1	0.2	2.1	507	244
Kanchanaburi	10	3.7	2.6	4.1	730.1	0.4	0.3	0.4	73	178
Grandtotal	-	-	-	-	-	37.5	41.4	309.7	158,029.7	510
3. Kok and Ing Basin (9,300)										
3.1 Kok Basin (4,940)										
Chiang Mai	10	4.7	5.6	3.4	3,858.0	0.5	0.6	0.3	386	1,135
Chiang Rai	50	9.0	13.4	10.1	2,253.5	4.5	6.7	5.1	1,127	223
Total	-	-	-	-	-	5.0	7.3	5.4	1,513	281
3.2 Ing Basin (4,450)										
Chiang Rai	30	9.0	13.4	10.1	2,253.5	2.7	4.0	3.0	676	223
Phayao	58	5.3	6.4	4.4	1,565.1	3.1	3.7	2.6	908	356
Total	-	-	-	-	-	5.8	7.7	5.6	1,584	284
Grandtotal	-	-	-	-	-	10.7	15.0	11.0	3,096	282

Remark : * = Data are derived from statistical report of 1996 (Ayutthaya, Kanchanaburi)



CHAPTER 4.

***WATER RESOURCES DEVELOPMENT AND MANAGEMENT
IN THE UPPER CHAO PHRAYA BASIN***

Table 4.1.1 Potential Surface Water Resources in River Basins of Thailand

River Basin	Catchment Area (Km ²) ①	Annual Average Rainfall (mm)	Annual Average Runoff		Annual Runoff Yield Yield(mm) ②/①	Existing Reservoir Capacity (MCM)	Existing Irrigation Area (10 ³ rai)
			Original (MCM)	Review (MCM) ②			
1. Chao Phraya Basin							
Mae Nam Nan	34,330	1,240	9,160	11,550	336	9,619	1,843
Mae Nam Yom	23,620	1,120	2,960	3,610	153	98	1,074
Mae Nam Wang	10,790	1,050	1,100	1,140	106	198	476
Mae Nam Ping	33,900	1,060	7,970	7,260	214	14,107	2,043
Mae Nam Sakae Krang	5,190	1,240	1,300	1,300	251	162	576
Mae Nam Pasak	16,290	1,160	2,980	2,980	183	116	757
Mae Nam Tha Chin	13,680	1,200	2,500	2,500	183	15	2,385
Chao Phraya Delta	21,130	1,200	2,000	2,000	99	33	7,989
Subtotal	157,930		29,970	32,340	205	24,348	17,143
2. Northeast Basin							
Mae Nam Chi	49,480	1,200	11,190	-	226	4,271	2,086
Mae Nam Man	69,700	1,200	21,090	-	303	4,271	1,877
Subtotal	119,180	-	32,280	32,280	271	8,542	3,963
3. Mekong & Salween Basin							
Mae Nam Khong	57,420	1,500	19,360	-	337	1,528	1,452
Mae Nam Kok	7,900	11,460	5,280	-	668	30	545
Mae Nam Salween	17,900	1,330	8,570	-	479	24	177
Subtotal	8,320	-	33,210	33,210	399	1,582	2,174
4. West Coast Basin							
Mae Nam Mae Khlong	30,840	1,150	10,820	-	351	26,781	3,196
Mae Nam Phetchaburi	5,600	1,100	1,500	-	268	750	407
West Coast	4,750	1,080	1,410	-	209	525	377
Subtotal	43,190	-	13,730	13,730	318	28,056	3,980
5. East Coast Basin							
Mae Nam Prachinburi	10,480	1,700	5,270	-	503	39	621
Mae Nam Bang Pakong	7,980	1,360	3,710	-	465	74	1,353
Tonele Sap	4,150	1,190	6,270	-	1,511	96	119
Eastern Coast	13,830	1,980	11,110	-	803	565	427
Subtotal	36,440	-	26,360	26,360	723	774	2,520
5. Southern Basin							
South-East Coast	26,350	2,250	23,270	-	883	5	1,774
Mae Nam Tapi	12,230	1,550	17,380	-	1,421	5,643	271
Songkhla Lake	8,500	1,820	4,900	-	577	26	874
Mae Nam Pattani	3,860	1,800	2,740	-	710	1,144	273
South West Coast	21,170	2,580	25,540	-	1,206	40	462
Subtotal	72,110	-	73,830	73,830	1,024	6,858	3,654
Total	512,070	-	209,380	211,750	414	70,160	33,434

* Based on Water Resources Development Study for 25 River Basins by NESDB and its Review.

Table 4.1.2. Area, Population, Land Use, Water Resources, Irrigation and GBP in the Study Area

Item	Upper Chao Phraya							Lower Chao	Kok-Ing
	Nam	Ping	Wang	Yom	Sakae Kran	Pasak	Total	Phraya	
1. Total Area (Km ²)	34,330	33,900	10,790	23,620	5,190	16,290	124,120	33,810	15,000
2. Population (10 ³)									
1994	2,344	2,376	661	1,995	435	1,665	9,476	12,328	1,454
1996	2,370	2,430	670	2,000	440	1,680	9,590	12,540	1,500
2006	2,710	3,070	740	2,160	490	1,870	11,040	13,200	2,170
2016	3,080	3,870	820	2,330	540	2,080	12,720	13,890	3,120
3. Land Use in 1993 (10 ³ rai)									
Forest land	6,404	12,699	4,451	5,216	748	1,436	30,954	2,063	3,804
Farm land	6,843	4,135	955	4,801	1,628	5,448	23,810	12,283	2,434
Other land	8,200	4,381	1,398	4,766	882	3,301	22,928	6,776	3,154
Total	21,447	21,215	6,804	14,783	3,258	10,185	77,692	21,122	9,392
4. Water Resources (MCM)									
Average for 1974~84	11,550	7,260	1,140	3,610	1,300	2,980	27,840	4,500	8,250
Average for 1985~96	7,850	6,380	890	3,260	1,100	2,530	22,010	4,000	7,590
5. Irrigation									
Wet Season Area(10 ³ rai)	2,100	1,880	530	970	580	560	6,620	7,500	1,040
Intensity (%)	31	45	56	20	36	19	28	63	43
Dry Season Area(10 ³ rai)	710	420	80	190	80	60	1,540	3,200	0
Intensity (%)	10	10	8	4	5	1	6	26	0
6. GBP (10 ⁹ Baht)									
1994	43.0	70.2	18.5	36.6	9.6	59.6	237.5	1.505	25.3
1996	47.0	80.2	26.6	39.9	10.9	65.1	263.7	1.720	28.2
2006	73.0	156.4	35.3	62.0	20.6	101.0	448.2	3.352	48.4
2016	113.3	304.8	60.4	96.3	38.8	156.7	770.5	6.532	83.0
7. Per Capita GBP (10 ³ Baht)									
1994	18.4	29.6	27.9	18.3	22.1	35.8	25.1	122.1	17.4
1996	19.8	33.0	30.7	20.0	24.8	38.7	27.5	137.1	18.8
2006	26.9	50.9	47.6	28.7	42.0	54.0	40.6	253.9	22.3
2016	36.8	78.8	73.7	41.3	71.8	75.4	60.6	470.3	26.6

Table 4.1.3 Outline of Bhumibol and Sirikit Dams

Dimension	Unit	Bhumibol Dam	Sirikit Dam
Reservoir			
Chatchment Area	km ²	26,100	13,130
Average Annual Rainfall	mm	1,100	1,200
Average Annual Inflow	MCM	5,250	5,120
Maximum Annual Inflow	MCM	8,707	8,574
Minimum Annual Inflow	MCM	2,276	3,119
High Water Level	m	260	166
Full Water Level	m	260	162
Low Water Level	m	213	123
Storage Capacity at HWL	MCM	13,462	10,503
Storage Capacity at FWL	MCM	13,462	9,510
Storage Capacity at LWL	MCM	3,800	2,850
Active Capacity	MCM	9,660	6,660
Reservoir Surface Area	km ²	318	260
Structure			
Dam Type		Arch	Earth Fill
Dam Crest Elevation	m, MSL	261	169
Dam Height	m	154	113.6
Dam Length	m	486	800
Spillway Capacity	m ³ /sec	6,000	3,250
Average Outflow for Power	m ³ /sec	616	500
Effective Power Head	m	100	85
Power Plant Capacity	MW	700×6+115=535	125×4=500
Produced Annual Energy	GWh	1,560	1,200

Table 4.1.4 Summary of Existing and Future Irrigation Area

(Unit: 10³ rai)

Basin	Existing			Future			Increase		
	Wet	Dry	Total	Wet	Dry	Total	Wet	Dry	Total
1. Upper Nan									
L/M	69.0	17.2	86.2	256.1	93.3	349.4	187.1	76.1	263.2
SSIP	170.1	23.3	193.4	229.3	29.2	258.5	59.2	5.9	65.1
Pump	66.0	7.1	73.1	131.6	26.2	157.8	65.6	19.1	84.7
Total	305.1	47.6	352.7	617.0	148.7	765.7	311.9	101.1	413.0
2. Lower Nan									
L/M	1,257.1	525.7	1,782.8	2,455.1	1,049.6	3,504.7	1,198.0	523.9	1,721.9
SSIP	148.3	14.9	163.2	386.0	38.7	424.7	237.7	23.8	261.5
Pump	391.6	122.4	514.0	685.6	342.8	1,028.4	294.0	220.4	514.4
Total	1,797.0	663.0	2,460.0	3,526.7	1,431.1	4,957.8	1,729.7	768.1	2,497.8
3. Upper Ping									
L/M	755.2	222.5	977.7	887.7	310.9	1,198.6	132.5	88.4	220.9
SSIP	348.9	34.9	383.8	980.4	98.1	1,078.5	631.5	63.2	694.7
Pump	46.0	4.6	50.6	58.8	11.7	70.5	12.8	7.1	19.9
Total	1,150.1	262.0	1,412.1	1,926.9	420.7	2,347.6	776.8	158.7	935.5
4. Lower Ping									
L/M	544.5	140.4	684.9	941.2	282.5	1,223.7	396.7	142.1	538.8
SSIP	79.3	8.1	87.4	167.8	16.9	184.7	88.5	8.8	97.3
Pump	104.5	10.4	114.9	154.3	77.2	231.5	49.8	66.8	116.6
Total	728.3	158.9	887.2	1,263.3	376.6	1,639.9	535.0	217.7	752.7
5. Yom									
L/M	692.5	160.8	853.3	1,028.4	353.7	1,382.1	335.9	192.9	528.8
SSIP	200.6	20.2	220.8	728.6	73.0	801.6	528.0	52.8	580.8
Pump	76.3	7.7	84.0	110.8	51.9	162.7	34.5	44.2	78.7
Total	969.4	188.7	1,158.1	1,867.8	478.6	2,346.4	898.4	289.9	1,188.3
6. Wang									
L/M	304.2	60.8	365.0	474.9	94.9	569.8	170.7	34.1	204.8
SSIP	175.3	17.7	193.0	327.3	32.9	360.2	152.0	15.2	167.2
Pump	54.3	5.5	59.8	77.7	15.6	93.3	23.4	10.1	33.5
Total	533.8	84.0	617.8	879.9	143.4	1,023.3	346.1	59.4	405.5
7. Sakae Krang									
L/M	277.2	54.0	331.2	408.3	102.0	510.3	131.1	48.0	179.1
SSIP	293.8	29.4	323.2	413.8	41.4	455.2	120.0	12.0	132.0
Pump	7.0	1.4	8.4	13.5	2.8	16.3	6.5	1.4	7.9
Total	578.0	84.8	662.8	835.6	146.2	981.8	257.6	61.4	319.0
8. Total (1~7)									
L/M	3,962.0	1,193.9	5,155.9	6,514.0	2,299.4	8,813.4	2,552.0	1,105.5	3,657.5
SSIP	1,354.0	136.0	1,490.0	3,170.9	317.7	3,488.6	1,816.9	181.7	1,998.6
Pump	745.7	159.1	904.8	1,232.3	528.2	1,760.5	486.6	369.1	855.7
Total	6,061.7	1,489.0	7,550.7	10,917.2	3,145.3	14,062.5	4,855.5	1,656.3	6,511.8
9. Pasak									
L/M	359.9	40.8	400.7	723.8	114.2	838.0	363.9	73.4	437.3
SSIP	156.1	15.7	171.8	396.1	39.7	435.8	240.0	24.0	264.0
Pump	40.4	4.0	44.4	64.4	12.8	77.2	24.0	8.8	32.8
Total	556.4	60.5	616.9	1,184.3	166.7	1,351.0	627.9	106.2	734.1
10. Grand total									
L/M	4,259.6	1,222.2	5,481.8	7,199.5	2,407.5	9,607.0	2,939.9	1,185.3	4,125.2
SSIP	1,572.4	164.2	1,736.6	3,629.3	369.9	3,999.2	2,056.9	205.7	2,262.6
Pump	786.1	163.1	949.2	1,272.7	534.6	1,807.3	486.6	371.5	858.1
Total	6,618.1	1,549.5	8,167.6	12,101.5	3,312	15,413.5	5,483.4	1,762.5	7,245.9

The existing and future irrigation area is classified into the large/medium and small scale projects as well as pumping projects in each basin and summarized as shown in the following Table.

The existing total irrigation area in the upper Chao Phraya including the Pasak basin is 6.6 million rai in wet season and 1.5 million rai in dry season which will largely increase in future to 12.1 million rai and 3.3 million rai respectively.

The dry season irrigation intensity is estimated by the following assumption:

- 30 to 50% in the large scale due to sufficient available dry season water in the large reservoir and river
- 20 to 30% in the medium scale due to moderate available dry season water in the reservoir and river
- 10% in the small scale due to limited river and reservoir water
- 30 to 50% for pumping project due to sufficient available water in mainstream by the large reservoirs in the Sirikit, Bhumibol and other large dams

Improved Irrigation Intensity in Future

(Unit Area 10³ rai, Intensity %)

Item	Nam			Ping			Yom	Wang	Sakae Krang	Total	Pasak	Grand Total
	Upper	Lower	Sub-total	Upper	Lower	Sub-total						
(1) Farm Area	1,120	5,720	6,840	2,000	2,100	4,100	4,800	950	1,630	18,360	5,450	23,810
(2) Existing Irrigation												
Area in Wet	305	1,797	2,102	1,150	728	1,878	969	534	578	6,062	556	6,618
Area in Dry	48	663	711	262	159	421	189	84	85	1,489	61	1,550
Intensity in Wet	27	31	31	58	35	46	20	56	35	33	10	28
Intensity in Dry	4	12	10	13	8	10	4	9	5	8	1	7
(3) Future Irrigation												
Area in Wet	617	3,527	4,144	1,927	1,263	3,190	1,868	880	836	10,918	1,184	12,102
Area in Dry	149	1,431	1,580	421	377	798	479	143	146	3,145	167	3,312
Intensity in Wet	55	62	61	96	60	78	39	93	51	59	22	51
Intensity in Dry	13	25	23	21	18	19	10	15	9	17	3	14

Table 4.1.5 Existing and Future Irrigation Projects in Nan Basin (1)

Irrigation Project	Drainage Area (sq.km)	Average Runoff (MCM)			Reservoir Capacity (MCM)	Existing Irrigation Area (10 ³ rai)			Future Irrigation Area (10 ³ rai)		
		Wet	Dry	Total		Wet	Dry	Total	Wet	Dry	Total
1. Upper Nan Basin											
1.1 Upper Nan Sub-basin											
(1) Upper Nan Dam	1,200.0	510.0	170.0	680.0	100.0	0.0	0.0	0.0	30.0	15.0	45.0
(2) Nam Kon Weir	140.0	66.2	14.7	80.9	0.0	3.0	0.9	3.9	3.0	0.9	3.9
(3) Nam Pua Weir	150.0	70.4	15.7	86.1	0.0	11.2	3.4	14.6	11.2	3.4	14.6
(4) Nam Khwang Dam	89.0	64.0	16.0	80.0	7.1	0.0	0.0	0.0	5.5	2.2	7.7
(5) Chao Weir	-	-	-	-	0.0	5.0	1.5	6.5	5.0	1.5	6.5
(6) Huai Nam Bue Weir	-	-	-	-	0.0	4.0	1.2	5.2	4.0	1.2	5.2
(7) SSIP	-	-	-	-	0.0	28.5	2.9	31.4	42.5	4.3	46.8
(8) Pump Irrigation	-	-	-	-	0.0	9.2	1.8	11.0	15.2	3.0	18.2
Sub-total	2,220.0	1,051.0	234.0	1,285.0	107.1	60.9	11.7	72.6	116.4	31.5	147.9
1.2 Nam Yao 1 Sub-basin											
(1) Nam Yao Dam (KIN)	370.0	145.0	25.0	170.0	30.0	0.0	0.0	0.0	30.0	15.0	45.0
(2) Tha Wang Pha Weir (KIN)	770.0	320.0	50.0	370.0	0.0	0.0	0.0	0.0	6.0	3.0	9.0
(3) SSIP	-	-	-	-	0.0	3.9	0.4	4.3	3.9	0.4	4.3
(4) Pump Irrigation	-	-	-	-	0.0	1.0	0.2	1.2	7.7	1.5	9.2
Sub-total	784.5	323.0	57.0	380.0	30.0	4.9	0.6	5.5	47.6	19.9	67.5
1.3 Nam Part 2 Sub-basin											
(1) Huai Head Dam	40.0	4.6	1.3	5.9	4.1	7.7	1.5	9.2	7.7	2.3	10.0
(2) Nam Rim	75.0	-	-	-	0.0	0.0	0.0	0.0	4.5	1.8	6.3
(3) Thong Noi Weir	5,385.0	-	-	2,984.0	9.6	0.0	0.0	0.0	22.8	9.1	31.9
(4) Nong Nok Weir	8,834.0	-	-	5,203.0	6.9	0.0	0.0	0.0	23.9	9.6	33.5
(5) Nam Kaen Dam	-	-	-	-	0.0	4.0	1.2	5.2	4.0	1.2	5.2
(6) Nam Pa Klang Dam	-	-	-	-	0.0	3.5	1.1	4.6	3.5	1.1	4.6
(7) Water Economic Project (SSIP)	-	-	-	-	0.0	62.3	12.5	74.8	62.3	12.5	74.8
(8) SSIP	-	-	-	-	0.0	34.3	3.4	37.7	34.3	3.4	37.7
(9) Pump Irrigation	-	-	-	-	0.0	35.5	1.0	36.5	41.5	8.3	49.8
Sub-total	1,570.0	519.0	52.0	571.0	20.6	147.3	20.7	168.0	204.5	49.2	253.7
1.4 Nam Yao 2 Sub-basin											
(1) Nam Yao Dam (W.S)	385.0	-	-	-	15.3	0.0	0.0	0.0	0.0	0.0	0.0
(2) Nam Muab Dam	-	-	-	-	0.6	3.6	1.1	4.7	3.6	1.1	4.7
(3) SSIP	-	-	-	-	0.0	10.8	1.1	11.9	24.3	2.4	26.7
(4) Pump Irrigation	-	-	-	-	0.0	0.0	0.0	0.0	2.7	0.5	3.2
Sub-total	619.0	496.0	44.0	540.0	15.9	14.4	2.2	16.6	30.6	4.1	34.7
1.5 Nam Samun, Nam Sa Sub-basin											
(1) Nam Samun Weir	180.0	25.8	7.4	33.2	13.5	10.0	2.0	12.0	10.0	2.0	12.0
(2) Nam Samua Dam	180.0	-	-	155.0	13.5	0.0	0.0	0.0	12.0	3.6	15.6
(3) Mae Khaning Dam	229.0	26.4	7.6	34.0	62.0	0.0	0.0	0.0	13.5	4.1	17.6
(4) Mae Hi Reservoir	37.1	4.3	1.2	5.5	15.0	0.0	0.0	0.0	2.1	0.6	2.7
(5) Nam Sa Weir	474.0	54.7	15.7	70.4	0.0	11.0	2.2	13.2	11.0	2.2	13.2
(6) Nam Sa Dam	689.0	55.9	14.8	70.7	417.8	0.0	0.0	0.0	29.8	8.9	38.7
(7) SSIP	-	-	-	-	0.0	2.5	0.3	2.8	4.6	0.5	5.1
(8) Pump Irrigation	-	-	-	-	0.0	1.3	0.3	1.6	4.5	0.9	5.4
Sub-total	1,350.0	156.0	45.0	201.0	521.8	24.8	4.7	29.5	87.5	22.8	110.3
1.6 Nam Wa Sub-basin											
(1) Upper Nam Wa Dam (LHP)	951.0	478.0	95.0	573.0	430.8	0.0	0.0	0.0	0.0	0.0	0.0
(2) Nam Wa Dam (LHP)	2,058.0	1,352.5	207.0	1,559.5	52.0	0.0	0.0	0.0	0.0	0.0	0.0
(3) SSIP	-	-	-	-	0.0	19.4	1.9	21.3	27.4	2.7	30.1
(4) Pump Irrigation	-	-	-	-	0.0	15.5	3.1	18.6	24.5	4.9	29.4
Sub-total	2,180.0	1,400.0	222.0	1,622.0	482.8	34.9	5.0	39.9	51.9	7.6	59.5
1.7 Nam Haeng Sub-basin											
(1) Nam Haeng Dam	277.0	28.0	6.4	34.4	10.2	6.0	1.2	7.2	6.0	1.2	7.2
(2) SSIP	-	-	-	-	0.0	8.0	0.8	8.8	15.0	1.5	16.5
(3) Pump Irrigation	-	-	-	-	0.0	1.5	0.3	1.8	16.5	3.3	19.8
Sub-total	1,050.0	102.0	15.0	117.0	10.2	15.5	2.3	17.8	37.5	6.0	43.5
1.8 Nam Part 3 Sub-basin											
(1) Huai Lod Reservoir	28.1	3.3	0.9	4.2	12.0	0.0	0.0	0.0	1.6	0.6	2.2
(2) Nam Muab Reservoir	56.0	14.0	0.3	17.0	6.0	0.0	0.0	0.0	5.4	1.6	7.0
(3) SSIP	-	-	-	-	0.0	0.4	0.0	0.4	15.0	1.5	16.5
(4) Pump Irrigation	-	-	-	-	0.0	2.0	0.4	2.4	19.0	3.8	22.8
Sub-total	3,370.0	970.0	128.0	1,098.0	18.0	2.4	0.4	2.8	41.0	7.6	48.6
Upper Nan Total (1.1~1.8)	13,143.5	5,017.0	797.0	5,814.0	1,206.4	305.1	47.6	352.7	617.0	148.7	765.7

Table 4.1.5 Existing and Future Irrigation Projects in Nan Basin (2)

Irrigation Project	Drainage Area (sq.km)	Average Runoff (MCM)			Reservoir Capacity (MCM)	Existing Irrigation Area (10 ³ rai)			Future Irrigation Area (10 ³ rai)		
		Wet	Dry	Total		Wet	Dry	Total	Wet	Dry	Total
2. Lower Nan Basin											
2.1 Nam Pat Sub-basin											
(1) Nam Pat Weir	680.0	97.5	32.4	129.9	0.0	0.0	0.0	0.0	2.7	1.4	4.1
(2) SSIP	-	-	-	-	0.0	19.2	1.9	21.1	31.8	3.2	35.0
(3) Pump Irrigation	-	-	-	-	0.0	13.0	4.3	17.3	31.5	15.7	47.2
Sub-total	1,960.0	195.0	25.0	220.0	0.0	32.2	6.2	38.4	66.0	20.3	86.3
2.2 Nan 4 Sub-basin											
(1) Mae Choei Dam	17.9	5.5	1.3	6.8	4.3	0.0	0.0	0.0	3.3	1.3	4.6
(2) Naresuan Dam (Phitsanulok)	-	-	-	-	0.0	94.7	56.8	151.5	94.7	56.8	151.5
(3) Phlai Chum Phon (- do -)	-	-	-	-	0.0	218.0	130.8	348.8	218.0	130.8	348.8
(4) Tha Bua (- do -)	-	-	-	-	0.0	168.4	101.0	269.4	168.4	101.0	269.4
(5) Dong Setti (- do -)	-	-	-	-	0.0	186.0	111.6	297.6	186.0	111.6	297.6
(6) Nam Rit	-	-	-	-	0.0	39.0	11.7	50.7	39.0	11.7	50.7
(7) Bung Maa	-	-	-	-	0.0	20.0	6.0	26.0	20.0	6.0	26.0
(8) MSIP Package (8)	-	-	-	-	0.0	134.0	26.8	160.8	134.0	26.8	160.8
(9) SSIP	-	-	-	-	0.0	16.7	1.7	18.4	83.7	8.4	92.1
(10) Pump Irrigation	-	-	-	-	0.0	228.8	68.6	297.4	251.8	125.9	377.7
Sub-total	3,230.0	990.0	230.0	1,220.0	4.3	1,105.6	515.0	1,620.6	1,198.9	580.3	1,779.2
2.3 Nam Phak Sub-basin											
(1) Huai Lhek Dam	16.4	1.6	0.2	1.8	3.4	0.0	0.0	0.0	2.5	0.8	3.3
(2) SSIP	-	-	-	-	0.0	0.0	0.0	0.0	1.5	0.2	1.7
(3) Pump Irrigation	-	-	-	-	0.0	2.5	0.8	3.3	11.0	5.5	16.5
Sub-total	1,000.0	323.0	64.0	387.0	3.4	2.5	0.8	3.3	15.0	6.5	21.5
2.4 Khlong Tron Sub-basin											
(1) Khlong Tron Dam	265.0	32.1	5.9	38.0	52.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) SSIP	-	-	-	-	0.0	4.5	0.5	5.0	6.1	0.6	6.7
(3) Pump Irrigation	-	-	-	-	0.0	9.1	3.0	12.1	11.0	5.5	16.5
Sub-total	1,270.0	133.0	24.0	157.0	52.0	13.6	3.5	17.1	17.1	6.1	23.2
2.5 Khwae Noi Sub-basin											
(1) Khwae Noi Dam	4,254.0	1,319.0	297.0	1,616.0	769.0	0.0	0.0	0.0	343.0	171.5	514.5
(2) Huai Nam Khlung Dam	148.2	-	-	37.0	12.4	0.0	0.0	0.0	24.5	7.4	31.9
(3) Khlong Chomphu Dam	364.3	-	-	119.0	43.0	0.0	0.0	0.0	37.0	11.1	48.1
(4) Huai Aom Sin Weir	146.8	51.6	7.0	58.6	0.0	0.0	0.0	0.0	10.0	5.0	15.0
(5) MSIP Package (8)	-	-	-	-	0.0	88.4	17.7	106.1	88.4	17.7	106.1
(6) SSIP	-	-	-	-	0.0	28.5	2.9	31.4	61.1	6.1	67.2
(7) Pump Irrigation	-	-	-	-	0.0	41.7	13.8	55.5	51.2	25.6	76.8
Sub-total	4,680.0	1,172.0	159.0	1,331.0	824.4	158.6	34.4	193.0	615.2	244.4	859.6
2.6 Wang Thong Sub-basin											
(1) Nam Khek Dam	854.0	-	-	489.0	0.0	0.0	0.0	0.0	67.7	33.9	101.6
(2) Nam Chuang	186.5	54.6	13.6	68.2	345.6	0.0	0.0	0.0	5.3	1.1	6.4
(3) Khlong Wang Sai	-	-	-	-	* 56.8	10.0	3.0	13.0	10.0	3.0	13.0
(4) Wang Cha Nang Weir	-	-	-	-	0.0	6.0	1.8	7.8	6.0	1.8	7.8
(5) SSIP	-	-	-	-	0.0	20.2	2.0	22.2	20.2	2.0	22.2
(6) Pump Irrigation	-	-	-	-	0.0	14.1	4.7	18.8	29.4	14.7	44.1
Sub-total	2,300.0	725.0	67.0	792.0	402.4	50.3	11.5	61.8	138.6	56.5	195.1
2.7 Lower Nan Sub-basin											
(1) MSIP Package (41)	-	-	-	-	0.0	292.6	58.5	351.1	494.6	98.9	593.5
(2) SSIP	-	-	-	-	0.0	59.2	5.9	65.1	181.6	18.2	199.8
(3) Pump Irrigation	-	-	-	-	0.0	82.4	27.2	109.6	99.7	49.9	793.3
Sub-total	6,920.0	673.0	519.0	1,192.0	0.0	434.2	91.6	525.8	775.9	167.0	942.9
Lower Nan Total (2.1~2.7)	21,360.0	4,211.0	1,088.0	5,299.0	1,286.5	1,797.0	663.0	2,460.0	2,826.7	1,081.1	3,907.8
3. Along Nan Main River											
3.1 Naresuan Weir, Left Bank	25,300.0	2,235.0	2,412.0	4,647.0	0.0	0.0	0.0	0.0	500.0	250.0	750.0
3.2 DEDP Pump Project	-	-	-	-	0.0	0.0	0.0	0.0	200.0	100.0	300.0
Nan Main River Total (3.1, 3.2)	25,300.0	2,235.0	2,412.0	4,647.0	0.0	0.0	0.0	0.0	700.0	350.0	1,050.0
Grand Total 1+2+3	59,803.5	11,463.0	4,297.0	15,760.0	2,492.9	2,102.1	710.6	2,812.7	4,143.7	1,579.8	5,723.5

Remark: (1) * ... Existing reservoir capacity

(2) Total reservoir capacity of the upper Nan is 28.4 MCM in the existing and 1,206.4 MCM in future.

(3) Total reservoir capacity of the lower Nan is 56.8 MCM in the existing and 1,286.5 MCM in future.

Table 4.1.6 Existing and Future Irrigation Projects in Ping Basin (1)

Project	Reservoir Capacity (MCM)	Existing Irrigation Area (10 ³ rai)			Future Irrigation Area (10 ³ rai)		
		Wet	Dry	Total	Wet	Dry	Total
1. Upper Ping Basin							
1.1 Upper Ping							
(1) Mae Fack Weir	0.0	70.0	24.5	94.5	70.0	24.5	94.5
(2) Ban Pang Kwang Dam	4.4	0.0	0.0	0.0	4.0	1.4	5.4
(3) Mae Roem Dam	5.2	0.0	0.0	0.0	4.0	1.4	5.4
(4) MSIP	0.0	25.8	5.2	31.0	25.8	9.0	34.8
(5) SSIP	* 1.7	25.9	2.6	28.5	60.4	6.0	66.4
(6) Pump	0.0	3.5	0.4	3.9	3.5	0.7	4.2
Sub-total	11.3	125.2	32.7	157.9	167.7	43.0	210.7
1.2 Mae Tang Basin							
(1) Mae Tang Weir 1	0.0	100.0	35.0	135.0	100.0	35.0	135.0
(2) Mae Tang Weir 2	0.0	48.0	16.8	64.8	48.0	16.8	64.8
(3) MSIP	0.0	16.0	3.2	19.2	16.0	5.6	21.6
(4) SSIP	* 4.8	10.0	1.0	11.0	32.5	3.3	35.8
(5) Pump	0.0	1.0	0.1	1.1	1.0	0.2	1.2
Sub-total	4.8	175.0	56.1	231.1	197.5	60.9	258.4
1.3 Mae Ngad Basin							
(1) Mae Ngad Dam	* 265.0	30.0	10.5	40.5	30.0	10.5	40.5
(2) Mae Sa-Laum	12.0	0.0	0.0	0.0	5.0	1.8	6.8
(3) Mae Oon	14.0	0.0	0.0	0.0	6.0	2.1	8.1
(4) Mae Wan Dam	10.0	0.0	0.0	0.0	10.0	3.5	13.5
(5) MSIP	0.0	12.5	2.5	15.0	12.5	4.4	16.9
(6) SSIP	* 1.8	30.2	3.0	33.2	69.2	6.9	76.1
(7) Pump	0.0	0.0	0.0	0.0	0.7	0.1	0.8
Sub-total	302.8	72.7	16.0	88.7	133.4	29.3	162.7
1.4 Mae Rim Basin							
(1) Mae Rim 2 Dam	66.0	0.0	0.0	0.0	8.0	2.8	10.8
(2) MSIP	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(3) SSIP	* 0.6	12.2	1.2	13.4	24.2	2.4	26.6
(4) Pump	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-total	66.6	12.2	1.2	13.4	32.2	5.2	37.4
1.5 Ping Basin Part 2							
(1) Mae Ping Kao Weir	0.0	44.9	15.7	60.6	44.9	15.7	60.6
(2) MSIP	* 1.2	46.3	9.3	55.6	46.3	16.2	62.5
(3) SSIP	* 5.9	16.8	1.7	18.5	67.8	6.8	74.6
(4) Pump	0.0	3.0	0.3	3.3	3.0	0.6	3.6
Sub-total	7.1	111.0	27.0	138.0	162.0	39.3	201.3
1.6 Mae Kuang Basin							
(1) Mae Kuang Dam	* 263.0	175.0	61.3	236.3	175.0	61.3	236.3
(2) Mae Sa-Paud Dam	7.0	0.0	0.0	0.0	3.5	1.2	4.7
(3) MSIP	* 19.3	54.3	10.9	65.2	54.3	19.0	73.3
(4) SSIP	* 22.9	114.4	11.4	125.8	298.9	29.9	328.8
(5) Pump	0.0	5.7	0.6	6.3	6.9	1.4	8.3
Sub-total	312.2	349.4	84.2	433.6	538.6	112.8	651.4
1.7 Mae Tang Basin							
(1) Mae Cham Weir	0.0	0.0	0.0	0.0	16.0	5.6	21.6
(2) MSIP	0.0	5.0	1.0	6.0	5.0	1.8	6.8
(3) SSIP	* 3.3	32.2	3.2	35.4	83.2	8.3	91.5
(4) Pump	0.0	4.5	0.5	5.0	4.5	0.9	5.4
Sub-total	3.3	41.7	4.7	46.4	108.7	16.6	125.3
1.8 Mae Khan Basin							
(1) Mae Khan Dam	74.8	0.0	0.0	0.0	25.0	8.8	33.8
(2) MSIP	0.0	62.1	12.4	74.5	62.1	21.7	83.8
(3) SSIP	* 5.6	50.0	5.0	55.0	134.0	13.4	147.4
(4) Pump	0.0	5.5	0.5	6.0	5.5	1.1	6.6
Sub-total	80.4	117.6	17.9	135.5	226.6	45.0	271.6
1.9 Mae Klang Basin							
(1) Mae Hoi Dam	9.5	0.0	0.0	0.0	6.5	2.3	8.8
(2) MSIP	0.0	22.0	4.4	26.4	22.0	7.7	29.7
(3) SSIP	0.0	7.6	0.8	8.4	22.6	2.3	24.9
(4) Pump	0.0	6.1	0.6	6.7	6.1	1.2	7.3
Sub-total	9.5	35.7	5.8	41.5	57.2	13.5	70.7
1.10 Ping Basin Part 3							
(1) Mae Soi Dam	3.2	0.0	0.0	0.0	1.1	0.4	1.5
(2) Mae Tan Dam	4.0	0.0	0.0	0.0	2.4	0.8	3.2
(3) Mae Hod Dam	4.4	0.0	0.0	0.0	8.0	2.8	10.8
(4) Mae Had Weir	0.0	0.0	0.0	0.0	5.0	1.8	6.8
(5) Huai Ja-ka Dam	4.0	0.0	0.0	0.0	2.5	0.9	3.4
(6) MSIP	0.0	7.3	2.6	9.9	7.3	2.6	9.9
(7) SSIP	* 1.3	13.3	1.3	14.6	97.3	9.7	107.0
(8) Pump	0.0	12.4	1.2	13.6	16.2	3.2	19.4
Sub-total	16.9	33.0	5.1	38.1	139.8	22.2	162.0

Table 4.1.6 Existing and Future Irrigation Projects in Ping Basin (2)

Project	Reservoir Capacity (MCM)	Existing Irrigation Area (10 ³ rai)			Future Irrigation Area (10 ³ rai)		
		Wet	Dry	Total	Wet	Dry	Total
1.11 Mae Tun Basin							
(1) Huai Tang	34.0	0.0	0.0	0.0	15.0	5.3	20.3
(2) Mae Lob Weir	0.0	0.0	0.0	0.0	8.5	3.0	11.5
(3) Mae Chan Hao Dam	6.5	0.0	0.0	0.0	0.4	0.1	0.5
(4) Huai Mae La Dam	1.9	0.0	0.0	0.0	1.6	0.5	2.1
(5) MSIP	* 39.0	36.0	7.2	43.2	36.0	12.6	48.6
(6) SSIP	* 4.6	25.7	2.6	28.3	64.7	6.5	71.2
(7) Pump	0.0	2.3	0.2	2.5	9.4	1.9	11.3
Sub-total	86.0	64.0	10.0	74.0	135.6	29.9	165.5
1.12 Mae Tun Basin							
(1) MSIP	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) SSIP	0.0	10.6	1.1	11.7	25.6	2.6	28.2
(3) Pump	0.0	2.0	0.2	2.2	2.0	0.4	2.4
Sub-total	0.0	12.6	1.3	13.9	27.6	3.0	30.6
Total	900.9	1,150.1	262.0	1,412.1	1,926.9	420.7	2,347.6
2. Lower Basin							
2.1 Ping Basin Part 4							
(1) Huai Mae Tho	30.7	0.0	0.0	0.0	14.0	4.2	18.2
(2) Huai Chalom Dam	15.2	0.0	0.0	0.0	8.4	2.5	10.9
(3) Huai Tak Dam	16.0	0.0	0.0	0.0	8.7	2.6	11.3
(4) Ban Ha Bot Dam	13.5	0.0	0.0	0.0	16.0	4.8	20.8
(5) Huai Mai Ngam Dam	8.1	0.0	0.0	0.0	3.5	1.1	4.6
(6) MSIP	0.0	37.0	7.4	44.4	37.0	11.1	48.1
(7) SSIP	* 1.6	22.6	2.3	24.9	34.6	3.5	38.1
(8) Pump	0.0	11.8	1.2	13.0	14.6	7.3	21.9
Sub-total	85.1	71.4	10.9	82.3	136.8	37.1	173.9
2.2 Khlong Mae Ra-Ka Basin							
(1) MSIP	0.0	22.0	4.4	26.4	22.0	6.6	28.6
(2) SSIP	* 1.7	17.6	1.8	19.4	32.6	3.3	35.9
(3) Pump	0.0	3.2	0.3	3.5	3.2	1.6	4.8
Sub-total	1.7	42.8	6.5	49.3	57.8	11.5	69.3
2.3 Khlong Saun Mak Basin							
(1) Khlong Wang Chao Dam	295.1	0.0	0.0	0.0	26.3	7.9	34.2
(2) Khlong Phrai Dam	1.1	0.0	0.0	0.0	3.0	0.9	3.9
(3) Khlong Khayang Dam	4.6	0.0	0.0	0.0	2.6	0.8	3.4
(4) Khlong Maung Dam	3.0	0.0	0.0	0.0	1.7	0.5	2.2
(5) Khlong Saun Mak Dam	0.0	0.0	0.0	0.0	37.0	11.1	48.1
(6) MSIP	0.0	15.0	3.0	18.0	15.0	4.5	19.5
(7) SSIP	0.0	5.5	0.6	6.1	14.5	1.5	16.0
(8) Pump	0.0	2.3	0.2	2.5	2.3	1.2	3.5
Sub-total	303.8	22.8	3.8	26.6	102.4	28.4	130.8
2.4 Lower Ping Basin							
(1) Wang Bua Weir	0.0	115.0	34.5	149.5	270.0	81.0	351.0
(2) Khlong Wang Yang Weir	0.0	75.0	22.5	97.5	100.0	30.0	130.0
(3) Khlong Nong Khwan	0.0	50.0	15.0	65.0	75.0	22.5	97.5
(4) Khlong Kra Thin	0.0	75.0	22.5	97.5	100.0	30.0	130.0
(5) Khlong Nam Lai Dam	15.0	0.0	0.0	0.0	9.8	2.9	12.7
(6) Khlong Khlung Dam	18.0	0.0	0.0	0.0	11.0	3.3	14.3
(7) Khlong Wang Chom Dam	3.9	0.0	0.0	0.0	1.8	0.5	2.3
(8) Phet Cha Kho Dam	2.9	0.0	0.0	0.0	1.4	0.4	1.8
(9) Upper Khlong Lan Dam	6.8	0.0	0.0	0.0	6.2	1.9	8.1
(10) Khlong Lan Dam	2.8	0.0	0.0	0.0	1.2	0.4	1.6
(11) Khlong Nam Khao Dam	3.7	0.0	0.0	0.0	1.6	0.5	2.1
(12) Khlong Pla Soi Dam	6.0	0.0	0.0	0.0	3.5	1.1	4.6
(13) Khlong Wang Sai Weir	0.0	0.0	0.0	0.0	9.0	2.7	11.7
(14) MSIP	0.0	155.5	31.1	186.6	155.5	46.7	202.2
(15) SSIP	* 0.4	33.6	3.4	37.0	86.1	8.6	94.7
(16) Pump	0.0	87.2	8.7	95.9	134.2	67.1	201.3
Sub-Total	59.5	591.3	137.7	729.0	966.3	299.6	1,265.9
Total	450.1	728.3	158.9	887.2	1,263.3	376.6	1,639.9
Grand Total Upper + Lower	1,351.0	1,878.4	420.9	2,299.3	3,190.2	797.3	3,987.5

Remark; (1) * ... Existing reservoir capacity

(2) Reservoir capacity of the upper Ping is 640 MCM in the existing and 900.9 MCM in future.

(3) Reservoir capacity of the lower Ping is 3.7 MCM in the existing and 450.1 MCM in future.

Table 4.1.7 Existing and Future Irrigation Projects in Yom Basin (1)

Project	Reservoir Capacity (MCM)	Existing Irrigation Area (10 ³ rai)			Future Irrigation Area (10 ³ rai)		
		Wet	Dry	Total	Wet	Dry	Total
1. Upper Yom Basin							
(1) Kaeng Sua Ten Dam	1,175.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Huai Han Dam	2.6	0.0	0.0	0.0	1.5	0.5	2.0
(3) MSIP	0.0	3.0	0.6	3.6	3.0	0.9	3.9
(4) SSIP	* 5.6	13.0	1.3	14.3	30.6	3.1	33.7
(5) Pump	0.0	2.8	0.3	3.1	7.3	1.5	8.8
Sub-total	1,183.2	18.8	2.2	21.0	42.4	6.0	48.4
2. Kaum Basin							
(1) MSIP	0.0	3.5	0.7	4.2	3.5	1.1	4.6
(2) SSIP	* 2.1	5.9	0.6	6.5	23.5	2.4	25.9
(3) Pump	0.0	0.0	0.0	0.0	1.5	0.3	1.8
Sub-total	2.1	9.4	1.3	10.7	28.5	3.8	32.3
3. Pi Basin							
(1) Lam Nam Pi Dam	30.0	0.0	0.0	0.0	25.0	7.5	32.5
(2) MSIP	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(3) SSIP	* 2.3	11.6	1.2	12.8	38.0	3.8	41.8
(4) Pump	0.0	0.0	0.0	0.0	1.5	0.3	1.8
Sub-total	32.3	11.6	1.2	12.8	64.5	11.6	76.1
4. Ngao Basin							
(1) Wang Daeng Dam	12.0	0.0	0.0	0.0	10.0	3.0	13.0
(2) MSIP	0.0	5.0	1.0	6.0	5.0	1.5	6.5
(3) SSIP	* 3.7	3.5	0.4	3.9	12.3	1.2	13.5
(4) Pump	0.0	0.5	0.1	0.6	2.0	0.4	2.4
Sub-total	15.7	9.0	1.5	10.5	29.3	6.1	35.4
5. Middle Yom Basin							
(1) Mae Yom Weir	0.0	224.0	67.2	291.2	224.0	112.0	336.0
(2) Mae Song Dam	67.0	0.0	0.0	0.0	32.0	9.6	41.6
(3) Mae Thang Dam	30.6	0.0	0.0	0.0	20.0	6.0	26.0
(4) Mae Sai Dam	24.3	0.0	0.0	0.0	18.0	5.4	23.4
(5) Huai Mae Kham Dam	9.6	0.0	0.0	0.0	6.2	1.9	8.1
(6) MSIP	* 35.8	101.5	20.3	121.8	101.5	30.4	131.9
(7) SSIP	* 7.7	44.5	4.4	48.9	167.7	16.8	184.5
(8) Pump	0.0	6.4	0.6	7.0	10.9	5.5	16.4
Sub-total	175.0	376.4	92.5	468.9	580.3	187.6	767.9
6. Mae Khan Mi Basin							
(1) MSIP	* 2.6	9.5	1.9	11.4	9.5	2.9	12.4
(2) SSIP	* 0.2	3.9	0.4	4.3	12.7	1.3	14.0
(3) Pump	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-total	2.8	13.4	2.3	15.7	22.2	4.2	26.4

Table 4.1.7 Existing and Future Irrigation Projects in Yom Basin (2)

Project	Reservoir Capacity (MCM)	Existing Irrigation Area (10 ³ rai)			Future Irrigation Area (10 ³ rai)		
		Wet	Dry	Total	Wet	Dry	Total
7. Mae Ta Basin							
(1) Mae Lang Dam	16.8	0.0	0.0	0.0	8.5	2.6	11.1
(2) MSIP	0.0	3.2	0.6	3.8	3.2	1.0	4.2
(3) SSIP	* 1.6	5.3	0.5	5.8	14.1	1.4	15.5
(4) Pump	0.0	1.0	0.1	1.1	2.5	1.3	3.8
Sub-total	18.4	9.5	1.2	10.7	28.3	6.3	34.6
8. Huai Mae Sin Basin							
(1) MSIP	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) SSIP	0.0	0.0	0.0	0.0	8.8	0.9	9.7
(3) Pump	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-total	0.0	0.0	0.0	0.0	8.8	0.9	9.7
9. Mae Mok Basin							
(1) Huai Tha Phae Dam	58.0	0.0	0.0	0.0	20.0	6.0	26.0
(2) Mae Mok Dam	96.0	0.0	0.0	0.0	44.0	13.2	57.2
(3) Huai Mae So-Lam Dam	11.3	0.0	0.0	0.0	5.5	1.7	7.2
(4) Pong Daeng Dam	4.2	0.0	0.0	0.0	2.0	0.6	2.6
(5) Huai Bung Bon Dam	5.0	0.0	0.0	0.0	3.0	0.9	3.9
(6) MSIP	0.0	34.6	6.9	41.5	34.6	10.4	45.0
(7) SSIP	0.7	21.7	2.2	23.9	65.7	6.6	72.3
(8) Pump	0.0	0.0	0.0	0.0	7.5	3.8	11.3
Sub-total	175.2	56.3	9.1	65.4	182.3	43.2	225.5
10. Huai Mae Ram Phan Basin							
(1) Huai Mae Kong Khai Dam	7.8	0.0	0.0	0.0	4.5	1.4	5.9
(2) Huai Mae Ram Phan Dam	8.0	0.0	0.0	0.0	5.3	1.6	6.9
(3) MSIP	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(4) SSIP	* 0.4	10.5	1.1	11.6	28.1	2.8	30.9
(5) Pump	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-total	16.2	10.5	1.1	11.6	37.9	5.8	43.7
11. Lower Yom Basin							
(1) Huai Saung Dam	8.0	0.0	0.0	0.0	10.0	3.0	13.0
(2) Ban Tha Chang Regulator	5.0	0.0	0.0	0.0	30.0	9.0	39.0
(3) Khlong Kra Chong Reg	4.5	0.0	0.0	0.0	40.0	12.0	52.0
(4) Ban Had Saphan Chan	4.0	0.0	0.0	0.0	45.0	13.5	58.5
(5) Huai Pak Khu Dam	4.0	0.0	0.0	0.0	2.0	0.6	2.6
(6) Huai Mae Sam Dam	4.5	0.0	0.0	0.0	1.2	0.4	1.6
(7) Huai Rai Dam	3.0	0.0	0.0	0.0	2.0	0.6	2.6
(8) MSIP	* 18.7	308.2	61.6	369.8	308.2	92.5	400.7
(9) SSIP	* 51.8	80.7	8.1	88.8	327.1	32.7	359.8
(10) Pump	0.0	65.6	6.6	72.2	77.6	38.8	116.4
Sub-total	103.5	454.5	76.3	530.8	843.1	203.1	1,046.2
Total	1,724.4	969.4	188.7	1,158.1	1,867.6	478.6	2,346.2

Remark; (1) * ... Existing reservoir capacity

(2) Reservoir capacity of the Yom is 72.5 MCM in the existing and 1,724.4 MCM in future.

Table 4.1.8 Existing and Future Irrigation Projects in Wang Basin

Project	Reservoir Capacity (MCM)	Existing Irrigation Area (10 ³ rai)			Future Irrigation Area (10 ³ rai)		
		Wet	Dry	Total	Wet	Dry	Total
1. Upper Wang Basin							
(1) Kiu Kho Ma Dam	141.0	0.0	0.0	0.0	61.7	12.3	74.0
(2) Huai Mae Fa Dam	23.5	0.0	0.0	0.0	15.0	3.0	18.0
(3) MSIP	* 1.7	14.0	2.8	16.8	14.0	2.8	16.8
(4) SSIP	* 2.6	53.3	5.3	58.6	55.3	5.5	60.8
(5) Pump	0.0	1.5	0.2	1.7	5.4	1.1	6.5
Sub-total	168.8	68.8	8.3	77.1	151.4	24.7	176.1
2. Mae Suai Basin							
(1) Mae Suai Dam	47.0	0.0	0.0	0.0	24.0	4.8	28.8
(2) MSIP	0.0	7.0	1.4	8.4	7.0	1.4	8.4
(3) SSIP	* 0.2	2.6	0.3	2.9	8.6	0.9	9.5
(4) Pump	0.0	0.0	0.0	0.0	1.3	0.3	1.6
Sub-total	47.2	9.6	1.7	11.3	40.9	7.4	48.3
3. Mae Tui Basin							
(1) Mae Nung Dam	9.5	0.0	0.0	0.0	5.0	1.0	6.0
(2) Mae Khum Dam	4.0	0.0	0.0	0.0	3.0	0.6	3.6
(3) Mae Suk Dam	4.0	0.0	0.0	0.0	3.0	0.6	3.6
(4) MSIP	* 3.3	12.0	2.4	14.4	12.0	2.4	14.4
(5) SSIP	* 3.7	10.5	1.1	11.6	22.5	2.3	24.8
(6) Pump	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-total	24.5	22.5	3.5	26.0	45.5	6.9	52.4
4. Middle Wan Basin							
(1) Mae Wang Kiu Lom Dam	* 112.0	130.0	26.0	156.0	130.0	26.0	156.0
(2) MSIP	* 10.1	72.5	14.5	87.0	72.5	14.5	87.0
(3) SSIP	* 3.0	29.5	3.0	32.5	71.5	7.2	78.7
(4) Pump	0.0	18.0	1.8	19.8	25.8	5.2	31.0
Sub-total	125.1	250.0	45.3	295.3	299.8	52.9	352.7
5. Mae Chang Basin							
(1) Mae Chang Dam (W)	108.5	0.0	0.0	0.0	0.0	0.0	0.0
(2) Mae Chang Dam (Irr.)	24.4	0.0	0.0	0.0	16.0	3.2	19.2
(3) MSIP	* 10.5	25.5	5.1	30.6	25.5	5.1	30.6
(4) SSIP	* 10.5	24.0	2.4	26.4	54.0	5.4	59.4
(5) Pump	0.0	8.8	0.9	9.7	10.1	2.0	12.1
Sub-total	153.9	58.3	8.4	66.7	105.6	15.7	121.3
6. Mae Tam Basin							
(1) Mae Rieng Phatthana	6.8	0.0	0.0	0.0	3.0	0.6	3.6
(2) Upper Mae Tam Dam	6.0	0.0	0.0	0.0	5.0	1.0	6.0
(3) Huai Mae Phung Dam	3.0	0.0	0.0	0.0	3.0	0.6	3.6
(4) MSIP	* 0.7	5.0	1.0	6.0	5.0	1.0	6.0
(5) SSIP	* 4.3	18.5	1.9	20.4	36.5	3.7	40.2
(6) Pump	0.0	2.2	0.2	2.4	3.5	0.7	4.2
Sub-total	20.8	25.7	3.1	28.8	56.0	7.6	63.6
7. Mae Cham Basin							
(1) Mae Prik Dam	40.0	0.0	0.0	0.0	20.0	4.0	24.0
(2) Mae Salid Dam	20.0	0.0	0.0	0.0	12.0	2.4	14.4
(3) MSIP	* 25.5	38.2	7.6	45.8	38.2	7.6	45.8
(4) SSIP	* 8.0	36.9	3.7	40.6	78.9	7.9	86.8
(5) Pump	0.0	23.8	2.4	26.2	31.6	6.3	37.9
Sub-total	93.5	98.9	13.7	112.6	180.7	28.2	208.9
Total	633.8	533.8	84.0	617.8	879.9	143.4	1,023.3

Remark: (1) * ... Existing reservoir capacity

(2) Reservoir capacity of the Wang is 196.1 MCM in the existing and 633.8 MCM in future.

Table 4.1.9 Existing and Future Irrigation Projects in Sakae Krang Basin

Project	Reservoir Capacity (MCM)	Existing Irrigation Area (10 ³ rai)			Future Irrigation Area (10 ³ rai)		
		Wet	Dry	Total	Wet	Dry	Total
1. Mae Wong Basin							
(1) Thung Nong Kae Lai Weir	0.0	3.0	0.1	3.1	3.0	0.6	3.6
(2) Ban Sadao Sai Weir	0.0	6.0	0.2	6.2	6.0	1.2	7.2
(3) Mae Wong Dam	250.0	0.0	0.0	0.0	61.0	18.3	79.3
(4) SSIP	0.0	236.5	23.7	260.2	244.5	24.5	269.0
(5) Pump	0.0	0.0	0.0	0.0	1.3	0.3	1.6
Sub-total	250.0	245.5	24.0	269.5	315.8	44.9	360.7
2. Khlong Pho Basin							
(1) Khlong Pho Dam	67.5	0.0	0.0	0.0	70.0	14.0	84.0
(2) Thung Mon Weir	0.0	5.0	1.0	6.0	5.0	1.0	6.0
(3) Huai Yai Hem Weir	0.0	6.0	1.2	7.2	6.0	1.2	7.2
(4) Khlong Pho Regulator	0.0	4.0	0.8	4.8	4.0	0.8	4.8
(5) Ban Hua Khao Daeng Weir	0.0	4.0	0.8	4.8	4.0	0.8	4.8
(6) Map Kae Weir	0.0	6.0	1.2	7.2	6.0	1.2	7.2
(7) Khlong Pho Weir	0.0	4.0	0.8	4.8	4.0	0.8	4.8
(8) Ban Khlong Khoi Dam	0.0	4.3	0.9	5.2	4.3	0.9	5.2
(9) Nong Wan Koob Weir	0.0	10.0	2.0	12.0	10.0	2.0	12.0
(10) Nong Ya Plong Weir	0.0	3.0	0.6	3.6	3.0	0.6	3.6
(11) Nong Yai Da Weir	0.0	8.0	1.6	9.6	8.0	1.6	9.6
(12) SSIP	0.5	33.4	3.3	36.7	85.4	8.5	93.9
(13) Pump	0.0	0.0	0.0	0.0	1.3	0.3	1.6
Sub-total	68.0	87.7	14.2	101.9	211.0	33.7	244.7
3. Tab Salao Basin							
(1) Tab Salao Dam	* 160.0	143.5	28.7	172.2	143.5	43.1	186.6
(2) Huai Nam Wing Regulator	0.0	3.0	0.6	3.6	3.0	0.6	3.6
(3) SSIP	* 1.8	8.2	0.8	9.0	28.2	2.8	31.0
(4) Pump	0.0	0.0	0.0	0.0	1.3	0.3	1.6
Sub-total	161.8	154.7	30.1	184.8	176.0	46.8	222.8
4. Lower Sakae Krang Basin							
(1) Khao Lao Ruang Dam	* 0.7	5.0	1.0	6.0	5.0	1.0	6.0
(2) Khao Laung Dam	0.0	20.0	4.0	24.0	20.0	4.0	24.0
(3) Nong Luang Weir	0.0	4.0	0.8	4.8	4.0	0.8	4.8
(4) Don Kloi Weir	0.0	5.0	1.0	6.0	5.0	1.0	6.0
(5) Pong Khoi Weir	0.0	6.0	1.2	7.2	6.0	1.2	7.2
(6) Wang Khwai Weir	0.0	4.0	0.8	4.8	4.0	0.8	4.8
(7) Wang Rom Klao	0.0	12.5	2.5	15.0	12.5	2.5	15.0
(8) Nong Phang Kha Weir	0.0	5.0	1.0	6.0	5.0	1.0	6.0
(9) Huai Phra Chan Weir	0.0	3.0	0.6	3.6	3.0	0.6	3.6
(10) Hong Ban Weir	0.0	3.0	0.6	3.6	3.0	0.6	3.6
(11) SSIP	0.0	15.7	1.6	17.3	55.7	5.6	61.3
(12) Pump	0.0	7.0	1.4	8.4	9.6	1.9	11.5
Sub-total	0.7	90.2	16.5	106.7	132.8	21.0	153.8
Total	480.5	578.1	84.8	662.9	835.6	146.4	982.0

Remark; (1) * ... Existing reservoir capacity

(2) Reservoir capacity of the Sakae Krang is 162.5 MCM in the existing and 480.5 MCM in future.

Table 4.1.10 Existing and Future Irrigation Projects in Pasak Basin (1)

Project	Reservoir Capacity (MCM)	Existing Irrigation Area (10 ³ rai)			Future Irrigation Area (10 ³ rai)		
		Wet	Dry	Total	Wet	Dry	Total
1. Upper Pasak Basin							
(1) Kuai Khon Kaen	* 32.2	31.8	3.2	35.0	31.8	3.2	35.0
(2) Huai Sadaung Yai	15.0	0.0	0.0	0.0	2.7	0.5	3.2
(3) Left Side of Pasak River	0.0	32.0	3.2	35.2	32.0	3.2	35.2
(4) Huai Si Chan	0.0	6.0	0.6	6.6	6.0	0.6	6.6
(5) SSIP	* 0.1	6.5	0.7	7.2	14.5	1.5	16.0
(6) Pump	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-total	47.3	76.3	7.7	84.0	87.0	9.0	96.0
2. Huai Nam Phung Basin							
(1) Khlong Koy System	0.0	3.5	0.4	3.9	3.5	0.4	3.9
(2) Kud Man Regulator	0.0	10.0	1.0	11.0	10.0	1.0	11.0
(3) Na Saeng Regulator	0.0	10.0	1.0	11.0	10.0	1.0	11.0
(4) Klong Weir	0.0	8.0	0.8	8.8	8.0	0.8	8.8
(5) SSIP	* 0.4	8.2	0.8	9.0	16.2	1.6	17.8
(6) Pump	0.0	0.0	0.0	0.0	1.5	0.3	1.8
Sub-total	0.4	39.7	4.0	43.7	49.2	5.1	54.3
3. Pasak Basin Part II							
(1) Saen Nga Weir	0.0	3.0	0.9	3.9	3.0	0.9	3.9
(2) Ban Rai Weir	0.0	10.0	3.0	13.0	10.0	3.0	13.0
(3) SSIP	* 0.3	5.4	0.5	5.9	13.4	1.3	14.7
(4) Pump	0.0	0.0	0.0	0.0	1.5	0.3	1.8
Sub-total	0.3	18.4	4.4	22.8	27.9	5.5	33.4
4. Pasak Basin Part III							
(1) Huai Sai Dam	* 0.3	3.0	0.9	3.9	3.0	0.9	3.9
(2) Wang Chan Regulator	0.0	3.0	0.9	3.9	3.0	0.9	3.9
(3) Tha Kok Tan Culvert	* 0.5	4.0	1.2	5.2	4.0	1.2	5.2
(4) Tha Kok Tan Weir	0.0	6.0	1.8	7.8	6.0	1.8	7.8
(5) Khlong Tabock Regulator	0.0	3.0	0.9	3.9	3.0	0.9	3.9
(6) Tha Phon Weir	0.0	3.0	0.9	3.9	3.0	0.9	3.9
(7) Huai Pa Daeng Dam	* 18.7	13.6	4.1	17.7	13.6	4.1	17.7
(8) Hong Wan Regulator	0.0	5.0	1.5	6.5	5.0	1.5	6.5
(9) Huai Leng Dam	18.0	0.0	0.0	0.0	4.5	1.4	5.9
(10) Huai Nam Chang Dam	3.8	0.0	0.0	0.0	8.0	1.6	9.6
(11) Huai Na Dam	5.7	0.0	0.0	0.0	3.3	0.7	4.0
(12) Sub Manao Dam	0.9	0.0	0.0	0.0	5.0	1.0	6.0
(13) Nong Phai Taek	0.0	0.0	0.0	0.0	3.5	0.7	4.2
(14) Huai Hin Khao	0.0	0.0	0.0	0.0	8.7	1.7	10.4
(15) SSIP	* 0.8	9.2	0.9	10.1	25.2	2.5	27.7
(16) Pump	0.0	0.0	0.0	0.0	4.5	0.9	5.4
Sub-total	48.7	49.8	13.1	62.9	103.3	22.7	126.0
5. Kong Basin							
(1) Khlong Lam Kong Dam	50.6	0.0	0.0	0.0	50.0	10.0	60.0
(2) SSIP	0.0	0.0	0.0	0.0	4.0	0.4	4.4
(3) Pump	0.0	0.0	0.0	0.0	1.5	0.3	1.8
Sub-total	50.6	0.0	0.0	0.0	55.5	10.7	66.2
6. Mac Khan Mi Basin							
(1) Khlong Si Thep Weir	0.0	3.0	0.9	3.9	3.0	0.9	3.9
(2) Khlong Kraud Regulator	0.0	4.0	1.2	5.2	4.0	1.2	5.2
(3) Huai Yai Dam	13.3	0.0	0.0	0.0	6.0	1.2	7.2
(4) Nong Kan Jem	0.0	0.0	0.0	0.0	2.3	0.5	2.8
(5) Bung Kra Chang	0.0	0.0	0.0	0.0	2.0	0.4	2.4
(6) SSIP	* 1.6	10.7	1.1	11.8	26.7	2.7	29.4
(7) Pump	0.0	0.0	0.0	0.0	1.5	0.3	1.8
Sub-total	14.9	17.7	3.2	20.9	45.5	7.2	52.7

Table 4.1.10 Existing and Future Irrigation Projects in Pasak Basin (2)

Project	Reservoir Capacity (MCM)	Existing Irrigation Area (10 ³ rai)			Future Irrigation Area (10 ³ rai)		
		Wet	Dry	Total	Wet	Dry	Total
7. Mae Ta Basin							
(1) Kho Luak Weir	0.0	5.0	1.5	6.5	5.0	1.5	6.5
(2) Bang Doe Weir	0.0	5.0	1.5	6.5	5.0	1.5	6.5
(3) Huai Bong Dam	2.2	0.0	0.0	0.0	2.0	0.4	2.4
(4) Huai Yang Dam	2.4	0.0	0.0	0.0	3.5	0.7	4.2
(5) SSIP	* 0.2	5.0	0.5	5.5	13.0	1.3	14.3
(6) Pump	0.0	5.2	0.5	5.7	9.7	1.9	11.6
Sub-total	4.8	20.2	4.0	24.2	38.2	7.3	45.5
8. Huai Koh Kaew Basin							
(1) Huai Cha-Aim Dam	3.5	0.0	0.0	0.0	4.5	0.9	5.4
(2) SSIP	* 0.1	7.0	0.7	7.7	11.0	1.1	12.1
(3) Pump	0.0	6.2	0.6	6.8	6.2	1.2	7.4
Sub-total	3.6	13.2	1.3	14.5	21.7	3.2	24.9
9. Son Thi Basin							
(1) Lam Son-Thi Regulator	0.0	25.0	2.5	27.5	25.0	2.5	27.5
(2) Ban Khao Nom Nang Weir	0.0	3.7	0.4	4.1	3.7	0.4	4.1
(3) Kud Ta Phet Dam	32.0	0.0	0.0	0.0	0.0	0.0	0.0
(4) Lam Phaya Klang Regulator	0.0	0.0	0.0	0.0	7.0	1.4	8.4
(5) SSIP	* 3.4	12.5	1.3	13.8	36.5	3.7	40.2
(6) Pump	0.0	0.0	0.0	0.0	1.5	0.3	1.8
Sub-total	35.4	41.2	4.2	45.4	73.7	8.3	82.0
10. Pasak Basin Part IV							
(1) Lam Phak Kard Weir	0.0	4.0	0.4	4.4	4.0	0.4	4.4
(2) Wang Ta Inn Dam	0.3	3.0	0.3	3.3	3.0	0.3	3.3
(3) Huai Som Dam	* 12.5	9.0	0.9	9.9	9.0	0.9	9.9
(4) Pasak Dam	* 785.0	0.0	0.0	0.0	0.0	0.0	0.0
(5) Phatthana Nikhom	0.0	0.0	0.0	0.0	55.0	11.0	66.0
(6) Kaeng Khoi-Ban Moh	0.0	0.0	0.0	0.0	80.0	16.0	96.0
(7) Huai Hin Dam	2.3	0.0	0.0	0.0	1.4	0.3	1.7
(8) Lam Phaya Mai Regulator	0.0	0.0	0.0	0.0	3.7	0.7	4.4
(9) Khlong Saun Madua Regulator	0.0	0.0	0.0	0.0	15.0	3.0	18.0
(10) Lopburi Water Provision	0.0	0.0	0.0	0.0	30.0	6.0	36.0
(11) Ban Tha Din Dam	0.0	0.0	0.0	0.0	6.6	1.3	7.9
(12) Ban Tha Kraud	0.0	0.0	0.0	0.0	10.2	2.1	12.3
(13) Ban Tha Ta-Go	0.0	0.0	0.0	0.0	2.7	0.6	3.3
(14) SSIP	* 17.8	66.0	6.6	72.6	162.0	16.2	178.2
(15) Pump	0.0	8.1	0.8	8.9	12.6	2.5	15.1
Sub-total	817.9	90.1	9.0	99.1	395.2	61.3	456.5
11. Huai Mauk Lek Basin							
(1) Ban Wang Yang Weir	0.0	3.0	0.3	3.3	3.0	0.3	3.3
(2) Huai Muak Lek Dam	54.0	0.0	0.0	0.0	30.0	6.0	36.0
(3) SSIP	* 2.5	4.5	0.5	5.0	24.5	2.5	27.0
(4) Pump	0.0	0.0	0.0	0.0	1.5	0.3	1.8
Sub-total	56.5	7.5	0.8	8.3	59.0	9.1	68.1
12. Lower Pasak Basin							
(1) Khlong Preow-Sao Hai	0.0	135.3	4.1	139.4	135.3	4.1	139.4
(2) Khlong Song Khon	0.0	5.0	0.5	5.5	5.0	0.5	5.5
(3) Ban Dong Dam	10.0	0.0	0.0	0.0	10.0	2.0	12.0
(4) Ban Lahan	0.0	0.0	0.0	0.0	6.3	1.3	7.6
(5) SSIP	* 2.8	21.1	2.1	23.2	49.1	4.9	54.0
(6) Pump	0.0	20.9	2.1	23.0	22.4	4.5	26.9
Sub-total	12.8	182.3	8.8	191.1	228.1	17.3	245.4
Total	1,093.2	556.4	60.5	616.9	1,184.3	166.7	1,351.0

Remark: (1) * ... Existing reservoir capacity

(2) Reservoir capacity of the Pasak is 879.2 MCM in the existing and 1,093.2 MCM in future.

Table 4.1.11 Irrigation Area and Water Demand of Existing and Future Project in Upper Chao Phraya

(Unit: Area 10³rai Water MCM)

Item Rever Basin & Project Type	Unit Demand cu.m/rai		Existing Irrigation Project				Future Irrigation Project				Increase			
			Area		Water Demand		Area		Water Demand		Area		Water Demand	
	Wet ①	Dry ②	Wet ③	Dry ④	Wet ⑤=①×③	Dry ⑥=②×④	Wet ⑦	Dry ⑧	Wet ⑨=①×⑦	Dry ⑩=②×⑧	Wet ⑪=③-⑦	Dry ⑫=④-⑧	Wet ⑬=⑤-⑨	Dry ⑭=⑥-⑩
1. Upper Nan Basin														
(1) At N1 Station														
L/M/S	1,200	1,800	181.8	32.2	218.2	58.0	332.0	91.4	398.4	164.5	150.2	59.2	180.2	106.6
Pump	1,000	1,600	45.7	3.0	45.7	4.8	67.1	13.3	67.1	21.3	21.4	10.3	21.4	16.5
Total	-	-	227.5	35.2	263.9	62.8	399.1	104.7	465.5	185.8	171.6	69.5	201.6	123.0
(2) At Sinkit Site (End of Upper Nan)														
L/M/S	1,200	1,800	239.1	40.5	286.9	72.9	485.4	122.5	582.5	220.5	246.3	82.0	295.6	147.6
Pump	1,000	1,600	66.0	7.1	66.0	11.4	131.6	26.2	131.6	41.9	65.6	19.1	65.6	30.6
Total, Upper Nan	-	-	305.1	47.6	352.9	84.3	617.0	148.7	714.1	262.4	311.9	101.1	361.2	178.2
2. Lower Nan Basin														
(1) At Naresuan Barrage														
Phitsamulok (1), L/M/S	1,200	1,800	667.1	400.2	800.5	720.4	667.1	400.2	800.5	720.4	0.0	0.0	0.0	0.0
Phitsamulok (2), L/M/S	1,200	1,800	0.0	0.0	0.0	0.0	500.0	250.0	600.0	450.0	500.0	250.0	600.0	450.0
L/M/S	1,200	1,800	233.4	48.6	280.1	87.5	324.6	60.4	389.5	108.7	91.2	11.8	109.4	21.2
Existing Pump	1,000	1,600	253.4	76.7	253.4	122.7	305.3	152.6	305.3	244.2	51.9	75.9	51.9	121.5
DEDP New Pump	1,000	1,600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	-	-	1,153.9	525.5	1,334.0	930.6	1,797.0	863.2	2,095.3	1,523.3	643.1	337.7	761.3	592.7
(2) Total Lower Nan														
Phitsamulok (1), L/M/S	1,200	1,800	667.1	400.2	800.5	720.4	667.1	400.2	800.5	720.4	0.0	0.0	0.0	0.0
Phitsamulok (2), L/M/S	1,200	1,800	0.0	0.0	0.0	0.0	500.0	250.0	600.0	450.0	500.0	250.0	600.0	450.0
L/M/S	1,200	1,800	738.3	140.4	886.0	252.7	1,674.0	438.1	2,008.8	788.6	935.7	297.7	1,122.8	535.9
Existing Pump	1,000	1,600	391.6	122.4	391.6	195.8	485.6	242.8	485.6	388.5	94.0	120.4	94.0	192.6
DEDP New Pump	1,000	1,600	0.0	0.0	0.0	0.0	200.0	100.0	200.0	160.0	200.0	100.0	200.0	160.0
Total	-	-	1,797.0	663.0	2,078.1	1,168.9	3,526.7	1,431.1	4,094.9	2,807.4	1,729.7	768.1	2,016.8	1,338.5
3. Ping Basin														
(1) Upper Ping at Bhumibol dam														
L/M/S	1,200	1,800	1,104.1	257.4	1,324.9	463.3	1,868.1	409.0	2,241.7	736.2	764.0	151.6	916.8	272.9
Pump	1,000	1,600	46.0	4.6	46.0	7.4	58.8	11.7	58.8	18.7	12.8	7.1	12.8	11.4
Total	-	-	1,150.1	262.0	1,370.9	470.7	1,926.9	420.7	2,300.5	754.9	776.8	158.7	929.6	284.2
(2) Total Lower Ping														
L/M/S	1,200	1,800	623.8	148.5	748.6	267.3	1,109.0	299.4	1,330.8	538.9	485.2	150.9	582.2	271.6
Pump	1,000	1,600	104.5	10.4	104.5	16.6	154.3	77.2	154.3	123.5	49.8	66.8	49.8	106.9
Total	-	-	728.3	158.9	853.1	283.9	1,263.3	376.6	1,485.1	662.4	535.0	217.7	632.0	378.5
4. Yom Basin														
L/M/S	1,200	1,800	893.1	181.0	1,071.7	325.8	1,757.0	426.7	2,108.4	768.1	865.9	245.7	1,036.7	442.3
Pump	1,000	1,600	76.3	7.7	76.3	12.3	110.8	51.9	110.8	83.0	34.5	44.2	34.5	70.7
Total	-	-	969.4	188.7	1,148.0	338.1	1,867.8	478.6	2,219.2	851.1	898.4	289.9	1,071.2	513.0
5. Wang Basin														
L/M/S	1,200	1,800	479.5	78.5	575.4	141.3	802.2	127.8	962.6	230.0	322.7	49.3	387.2	88.7
Pump	1,000	1,600	54.3	5.5	54.3	8.8	77.7	15.6	77.7	25.0	23.4	10.1	23.4	16.2
Total	-	-	533.8	84.0	629.7	150.1	879.9	143.4	1,040.3	255.0	346.1	59.4	410.6	104.9
6. Sakae Krang Basin														
L/M/S	1,200	1,800	571.0	83.4	685.2	150.1	822.1	143.4	986.5	258.1	251.1	60.0	301.3	108.0
Pump	1,000	1,600	7.0	1.4	7.0	2.2	13.5	2.8	13.5	4.5	6.5	1.4	6.5	2.2
Total	-	-	578.0	84.8	692.2	152.4	835.6	146.2	1,000.0	262.6	257.6	61.4	307.8	110.2
L/M/S	-	-	5,316.0	1,329.9	6,379.2	2,493.8	9,684.9	2,617.1	11,621.9	4,710.8	4,368.9	1,287.2	5,242.7	2,317.0
Pump	-	-	745.7	159.1	745.7	254.6	1,232.3	328.2	1,232.3	845.1	486.6	369.1	486.6	590.6
Grand Total	-	-	6,061.7	1,489.0	7,124.9	2,648.4	10,917.2	3,145.3	12,854.2	5,555.9	4,855.5	1,656.3	5,729.3	2,907.5
7. Pasak Basin														
L/M/S	1,200	1,800	516.0	56.5	619.2	101.7	1,119.9	153.9	1,343.9	277.0	603.9	97.4	724.7	175.3
Pump	1,000	1,600	40.4	4.0	40.4	6.4	64.4	12.8	64.4	20.5	24.0	8.8	24.0	14.1
Total	-	-	556.4	60.5	659.6	108.1	1,184.3	166.7	1,408.3	297.5	627.9	106.2	748.7	189.4

Remarks, L/M/S; Large, Medium and Small scale Projects.

Table 4.1.12 Staged Development in the Upper Nan Basin

Year	Type of Irrigation Project (Area in rai)				River Runoff (MCM)	
	Large/Medium	Small Scale	DEDP Pump	Others	N1 Station	Sirikit Inflow
1936	0	0	0	0		
1937	0	0	0	0		
1938	0	0	0	0		
1939	0	0	0	0		
1940	0	0	0	0		
1941	0	0	0	0		
1942	0	0	0	0		
1943	0	0	0	0		
1944	0	0	0	0		
1945	0	0	0	0		
1946	0	0	0	0		
1947	0	0	0	0		
1948	0	0	0	0		
1949	0	0	0	0		
1950	0	0	0	0		
1951	0	0	0	0	3,558.9	
1952	0	0	0	0	4,574.3	
1953	0	0	0	0	2,757.6	
1954	0	0	0	0	1,909.5	
1955	0	0	0	0	3,506.6	
1956	0	0	0	0	3,161.2	
1957	0	0	0	0	2,465.1	
1958	0	0	0	0	1,386.3	
1959	0	0	0	0	3,025.8	
1960	0	0	0	0	2,877.8	
1961	0	0	0	0	2,898.1	
1962	0	0	0	0	2,165.2	
1963	0	0	0	0	3,631.3	
1964	0	0	0	0	2,493.2	
1965	0	0	0	0	1,760.9	
1966	11,000	0	0	0	2,626.0	
1967	21,000	1,650	0	0	2,023.3	
1968	21,000	1,650	0	0		
1969	21,000	1,650	0	0	1,958.5	
1970	21,000	1,650	0	0	4,747.7	9,535.0
1971	83,300	1,650	0	0	2,876.0	6,438.0
1972	83,300	1,650	0	0	1,888.4	4,804.0
1973	83,300	1,650	0	0	2,494.7	6,698.8
1974	83,300	1,650	0	0	1,341.7	4,419.7
1975	94,500	1,650	0	0	2,951.5	8,529.5
1976	94,500	1,650	0	0	1,978.9	6,281.2
1977	98,000	19,820	0	0	1,437.0	4,229.5
1978	98,000	25,400	0	0	2,141.6	6,460.0
1979	98,000	30,750	0	0	1,850.0	3,684.2
1980	98,000	48,400	0	0	4,043.6	6,301.8
1981	110,700	53,650	0	0	3,933.9	7,828.3
1982	110,700	58,350	3,780	0	3,004.7	5,236.6
1983	113,700	63,900	10,010	0	3,412.6	5,441.6
1984	113,700	66,950	22,620	0	4,204.4	6,446.4
1985	113,700	79,750	25,120	0	2,906.5	5,364.8
1986	113,700	84,021	25,120	0	2,072.5	4,559.1
1987	113,700	88,021	30,230	0	1,344.0	2,986.2
1988	113,700	90,521	31,230	0	2,116.7	4,559.8
1989	113,700	92,321	31,230	200	2,218.2	3,959.0
1990	117,700	94,721	31,230	200	2,205.0	4,022.0
1991	131,300	95,971	36,900	200	2,084.4	3,455.8
1992	131,300	98,471	45,680	250	1,776.8	3,026.3
1993	131,300	102,971	51,680	250	2,016.7	3,236.4
1994	131,300	105,771	51,680	1,150	4,917.5	7,837.6
1995	131,300	105,771	52,680	1,550	5,325.5	9,235.8
1996	131,300	106,171	58,861	1,550	3,205.8	5,954.0
1997						

Table 4.1.13 Staged Development in the Lower Nan Basin

Year	Type of Irrigation Project (Area in rai)				River Runoff (MCM)	
	Large/Medium	Small Scale	DEDP Pump	Others	N24 Station	N7 Station
1936	0	0	0	0		
1937	0	0	0	0		
1938	0	0	0	0		
1939	0	0	0	0		
1940	0	0	0	0		
1941	0	0	0	0		
1942	0	0	0	0		
1943	0	0	0	0		
1944	0	0	0	0		
1945	0	0	0	0		
1946	0	0	0	0		
1947	0	0	0	0		
1948	0	0	0	0		
1949	0	0	0	0		
1950	0	0	0	0		
1951	4,500	3,000	0	0		15,274.0
1952	4,500	3,500	0	0		12,919.0
1953	57,500	4,000	0	0		11,983.0
1954	62,500	4,000	0	0		8,102.0
1955	62,500	5,000	0	0		9,692.0
1956	62,500	5,000	0	0		11,789.0
1957	62,500	5,000	0	0		8,026.0
1958	62,500	5,000	0	0		6,153.0
1959	62,500	5,000	0	0		9,684.0
1960	62,500	5,000	0	0		8,791.0
1961	92,500	5,000	0	0		13,288.0
1962	102,500	5,000	0	0		8,638.0
1963	102,500	5,000	0	0		11,773.0
1964	102,500	5,000	0	0		10,025.0
1965	102,500	5,000	0	0	627.3	6,450.0
1966	102,500	5,000	0	0	780.8	8,605.0
1967	112,500	7,250	0	0	386.4	6,873.0
1968	161,500	7,350	0	0	643.4	6,129.0
1969	206,500	7,350	0	0	661.9	7,631.0
1970	221,500	7,350	0	0	858.8	13,901.0
1971	226,500	7,350	0	0	529.5	7,645.0
1972	236,500	7,350	0	0	393.9	5,113.0
1973	279,500	7,350	0	0	541.4	5,389.0
1974	294,500	7,350	0	0	447.5	8,280.0
1975	294,500	7,350	0	0	931.7	14,288.0
1976	294,500	7,350	0	0	1,060.8	13,221.0
1977	360,500	9,870	0	0	643.7	9,756.0
1978	395,000	12,620	0	0	1,131.8	12,500.0
1979	421,400	25,142	7,010	0	655.3	8,464.0
1980	430,400	32,742	14,360	0	1,101.5	11,664.0
1981	443,400	38,102	31,400	0	798.4	13,037.0
1982	448,400	46,152	49,060	0	774.7	9,472.0
1983	468,400	51,602	79,540	600	828.3	8,864.0
1984	489,500	57,152	111,990	600	1,167.9	10,030.0
1985	1,167,127	77,152	116,640	600	1,157.8	10,475.0
1986	1,196,127	86,282	120,050	600	734.7	8,654.0
1987	1,200,127	96,282	148,980	600	621.1	6,275.0
1988	1,205,127	102,982	161,990	600	694.2	4,561.0
1989	1,220,127	109,032	172,670	1,300	524.3	5,471.0
1990	1,252,527	114,632	183,570	1,300	909.9	8,338.0
1991	1,261,527	122,765	232,460	1,700	911.9	5,558.0
1992	1,265,527	125,365	268,680	1,700	506.4	
1993	1,274,527	137,275	283,380	1,700	447.2	5,350.9
1994	1,274,527	138,675	300,830	1,700	1,314.0	11,772.0
1995	1,274,527	140,475	340,330	1,700	1,012.5	17,272.6
1996	1,280,527	146,615	354,030	1,700	1,306.8	16,540.4
1997	1,280,527	146,615	366,630	1,700	604.2	8,769.1

Table 4.1.14 Staged Development in the Ping Basin

Year	Type of Irrigation Project (Area in rai)				River Runoff (MCM)		
	Large/Medium	Small Scale	DEDP Pump	Others	P12 Station	P2A Station	Bhumbol
1936	70,000	0	0	0	6,617		
1937	70,000	0	0	0	9,001		
1938	70,000	0	0	0	11,206		
1939	70,000	0	0	0	12,295		
1940	70,000	0	0	0	14,590		
1941	114,900	0	0	0	7,660		
1942	114,900	0	0	0	15,451		
1943	114,900	0	0	0	7,945		
1944	114,900	0	0	0	6,901		
1945	114,900	0	0	0	9,167		
1946	114,900	0	0	0	9,465		
1947	114,900	0	0	0	10,380		
1948	114,900	0	0	0	10,922		
1949	114,900	0	0	0	11,398		
1950	116,900	0	0	0	10,165		
1951	116,900	0	0	0	11,932		
1952	139,400	0	0	0	6,562	9,945	
1953	139,400	0	0	0	8,760	12,753	
1954	214,150	0	0	0	4,787	6,620	
1955	214,150	0	0	0	5,476	7,314	
1956	219,650	0	0	0	7,247	9,979	
1957	219,650	0	0	0	3,809	4,744	
1958	219,650	0	0	0	3,187	3,792	
1959	219,650	0	0	0	6,632	8,397	
1960	219,650	0	0	0	5,509	6,878	
1961	219,650	0	0	0	8,582	10,480	
1962	226,650	0	0	0	7,105	7,507	6,126
1963	226,650	0	0	0	7,338	3,240	7,308
1964	226,650	0	0	0	3,229	5,977	7,360
1965	226,650	0	0	0	5,331	6,789	5,356
1966	226,650	0	0	0	5,204	6,558	5,177
1967	226,650	0	0	0	6,328	7,119	5,051
1968	226,650	0	0	0	5,765	5,407	3,712
1969	226,650	0	0	0	5,130	6,045	7,470
1970	250,150	0	0	0	6,859	9,193	8,221
1971	304,250	0	0	1,200	8,265	10,443	8,404
1972	462,650	0	0	1,200	5,896	7,387	5,103
1973	463,650	0	0	1,200	7,919	11,607	8,988
1974	465,950	0	0	1,200	5,424	8,578	6,885
1975	475,350	0	0	1,850	7,518	11,123	8,707
1976	475,350	0	0	6,086	7,271	8,885	4,964
1977	562,350	6,100	0	6,913	6,736	8,671	5,572
1978	609,800	26,000	0	7,503	5,681	7,363	6,851
1979	631,800	49,550	0	14,371	6,317	8,078	2,999
1980	662,500	71,700	0	17,371	2,420	4,495	6,350
1981	806,950	91,470	0	23,054	4,241	6,417	5,367
1982	867,650	112,764	0	27,154	5,340	6,652	5,410
1983	876,150	150,683	11,420	33,854	3,695	5,511	5,178
1984	902,650	191,079	15,140	36,854	3,743	5,524	4,035
1985	1,056,381	230,176	15,140	37,314	3,154	5,231	6,079
1986	1,065,881	256,844	24,410	37,314	5,216	8,399	3,791
1987	1,112,781	274,814	25,900	43,703	4,194	7,302	4,673
1988	1,125,681	291,917	35,910	48,203	3,700	6,471	6,372
1989	1,135,981	311,702	39,010	48,603	4,958	8,165	4,285
1990	1,139,981	332,959	46,110	51,603	4,191	7,141	3,910
1991	1,270,231	348,466	67,520	52,957	2,541	4,607	4,300
1992	1,270,231	362,916	79,730	54,567	4,551	2,935	4,217
1993	1,270,231	362,916		54,767	4,184	3,194	2,276
1994					5,941		8,053
1995					6,961		6,808
1996	1,335,580	433,700	150,290	54,767	9,907		6,866
1997							

Table 4.1.15 Staged Development in the Wang Basin

Year	Type of Irrigation Project (Area in rai)				Runoff
	Large/Medium	Small Scale	DEDP Pump	Others	W3A Station
1936	0	0	0	0	
1937	0	0	0	0	
1938	0	0	0	0	
1939	0	0	0	0	
1940	0	0	0	0	
1941	0	0	0	0	
1942	0	0	0	0	
1943	0	0	0	0	
1944	0	0	0	0	
1945	0	0	0	0	
1946	0	0	0	0	
1947	0	0	0	0	
1948	0	0	0	0	
1949	97,000	0	0	0	
1950	97,000	0	0	0	
1951	97,000	0	0	0	
1952	97,000	0	0	0	
1953	97,000	0	0	0	
1954	97,000	0	0	0	
1955	97,000	0	0	0	1,283
1956	97,000	0	0	0	1,502
1957	97,000	0	0	0	936
1958	97,000	0	0	0	490
1959	97,000	0	0	0	1,471
1960	97,000	0	0	0	1,485
1961	97,000	0	0	0	2,716
1962	97,000	0	0	0	1,361
1963	97,000	0	0	0	1,556
1964	97,000	0	0	0	1,682
1965	97,000	0	0	0	611
1966	97,000	0	0	0	979
1967	97,000	0	0	0	1,432
1968	97,000	0	0	0	714
1969	97,000	0	0	0	1,513
1970	97,000	0	0	0	2,509
1971	100,000	0	0	0	2,408
1972	153,000	0	0	0	930
1973	153,000	0	0	0	2,899
1974	153,000	0	0	0	2,009
1975	153,000	0	0	0	2,007
1976	155,500	0	0	0	1,176
1977	155,500	1,500	0	0	1,273
1978	155,500	10,400	0	0	1,929
1979	155,500	25,900	0	0	680
1980	155,500	45,700	0	0	942
1981	155,500	64,500	0	0	1,578
1982	155,500	77,600	0	0	515
1983	155,500	93,600	11,420	4,000	762
1984	157,700	107,350	14,130	4,000	604
1985	161,700	139,550	19,140	4,000	847
1986	161,700	178,550	25,580	4,000	693
1987	161,700	199,350	28,360	4,000	1,003
1988	161,700	207,150	28,960	4,000	1,354
1989	161,700	221,000	31,260	4,000	944
1990	167,700	239,800	35,610	5,500	617
1991	167,700	245,350	43,010	7,000	461
1992	171,590	255,450	45,310	7,000	592
1993	171,590	255,450	50,335	7,000	399
1994					2,244
1995					1,318
1996	191,990	280,450	54,360	7,000	1,308
1997					

Table 4.1.16 Staged Development in the Yom Basin

Year	Type of Irrigation Project (Area in rai)				Runoff Y6 Station
	Large/Medium	Small Scale	DEDP Pump	Others	
1936	0	0	0	0	
1937	0	0	0	0	
1938	0	0	0	0	
1939	0	0	0	0	
1940	0	0	0	0	
1941	0	0	0	0	
1942	0	0	0	0	
1943	0	0	0	0	
1944	0	0	0	0	
1945	0	0	0	0	
1946	0	0	0	0	
1947	0	0	0	0	
1948	0	0	0	0	
1949	0	0	0	0	
1950	0	0	0	0	
1951	0	0	0	0	
1952	0	0	0	0	
1953	0	0	0	0	
1954	0	0	0	0	1,813
1955	0	0	0	0	2,303
1956	0	0	0	0	3,298
1957	0	0	0	0	2,715
1958	0	0	0	0	914
1959	12,000	0	0	0	2,705
1960	12,000	0	0	0	2,596
1961	12,000	0	0	0	5,318
1962	12,000	0	0	0	1,555
1963	12,000	0	0	0	2,978
1964	12,000	0	0	0	2,084
1965	12,000	0	0	0	1,141
1966	12,000	0	0	0	1,709
1967	12,000	0	0	0	2,004
1968	12,000	0	0	0	1,262
1969	12,000	0	0	0	1,585
1970	27,000	0	0	0	4,895
1971	27,000	0	0	0	3,886
1972	27,000	0	0	0	1,760
1973	251,000	0	0	0	4,938
1974	255,000	0	0	0	3,073
1975	255,000	0	0	0	4,209
1976	264,500	0	0	0	2,831
1977	288,500	2,500	0	350	2,215
1978	298,100	2,500	0	350	4,120
1979	305,100	11,400	0	750	1,132
1980	317,100	27,910	0	4,750	2,897
1981	335,700	42,730	0	5,750	4,095
1982	345,700	57,130	3,820	5,750	1,423
1983	384,700	86,530	19,340	7,512	2,490
1984	401,700	114,370	19,340	7,512	2,264
1985	446,200	145,970	19,340	7,599	2,222
1986	451,200	163,070	23,030	7,599	1,949
1987	481,200	180,770	28,210	7,599	2,257
1988	511,700	209,190	29,710	8,599	2,546
1989	529,300	232,290	29,710	8,599	2,207
1990	548,300	240,490	31,710	10,774	1,689
1991	610,765	248,590	38,110	12,474	1,708
1992	624,645	250,090	41,770	13,674	1,473
1993	624,645	251,090	55,945	13,674	955
1994					4,912
1995					4,571
1996	745,425	251,090	76,270	13,674	2,577
1997					