

APPENDIX - 4

APPENDIX--4

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Table 4.1-1 NUMBER OF CURRENT MONITORING ITEMS

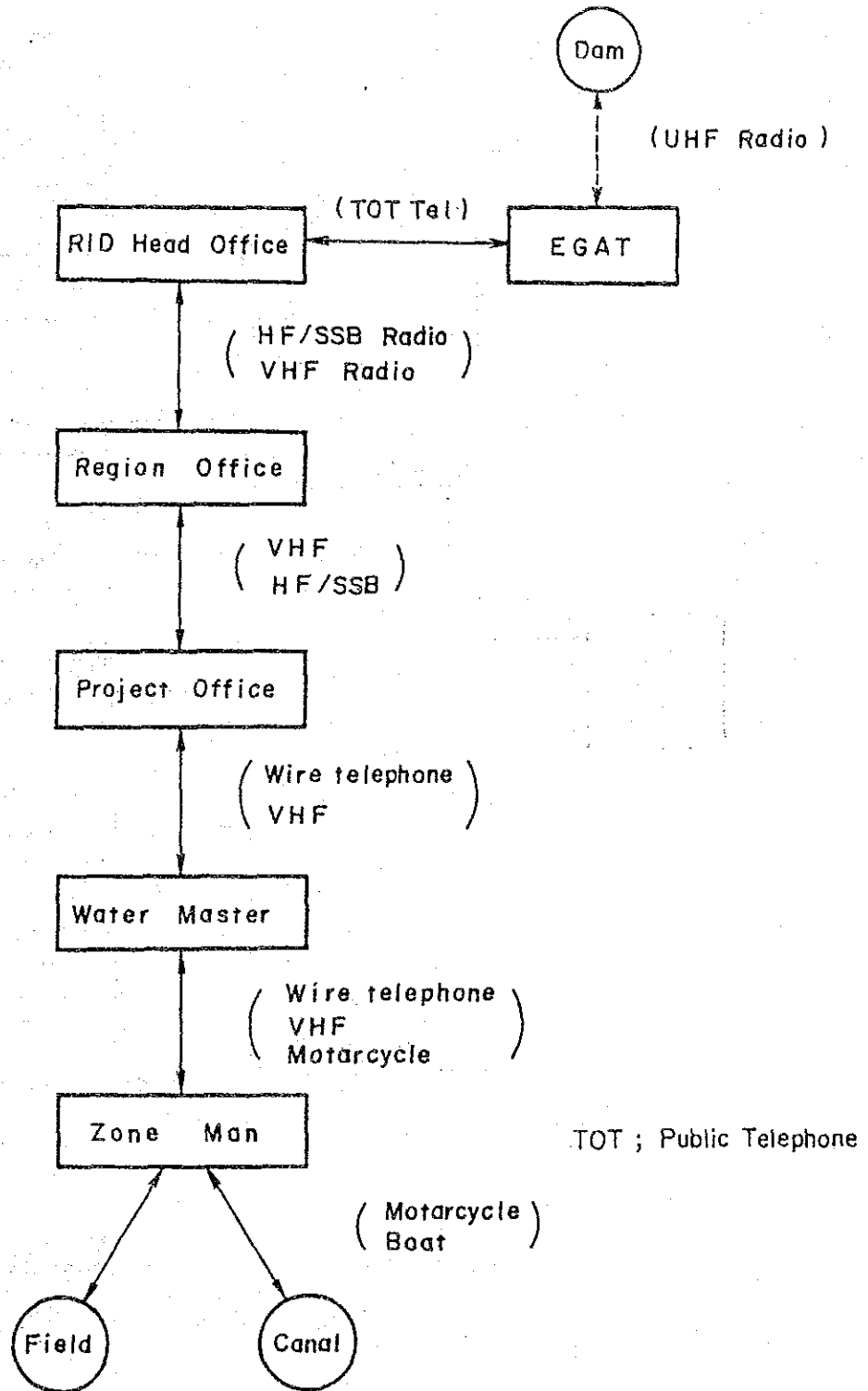
Number of Current Monitoring Items (1)

Project Name	Number of Reporting Stations		Number of Station Used in WMS	
	Rainfall	Regulator	Rainfall	Regulator
Ponlathep	9	7	9	7
Boromthat	7	4	5	4
Sam Chook	15	6	14	4
Donjedee	3	17	1	5*
Thabote	10	13	9	6
Chao Phraya	9	19	6	5*
Chanasutr	8	6	7	2
Yangmanee	12	6	9	3
Phak Hai	3	9	2	3
Chao Ched Bang Yeehon	7	14	-	4
Bangbal	1	-	-	-
Phrayabanlue	10	9	5	-
Phrapimol	7	9	7	-
Pasicharoen	4	3	2	1
Monorom	12	14	10	5*
Chong Kae	11	12	10	6*
Maharat	18	24	11	5
Khok Katiem	12	8	11	5
Roeng Rang	15	5	12	3
Pasak Tai	5	16	4	5*
Khlong Priew	-	-	-	-
Nakhon Luang	13	16	10	1
Rangsit Nua	15	22	13	1
Rangsit Tai	12	21	8	-
Khlong Dam	8	6	4	-
Nakhon Nayok	-	-	-	-
Phra Ong Chai Ya Nuchit	10	8	9	-

Number of Current Monitoring Items (2)

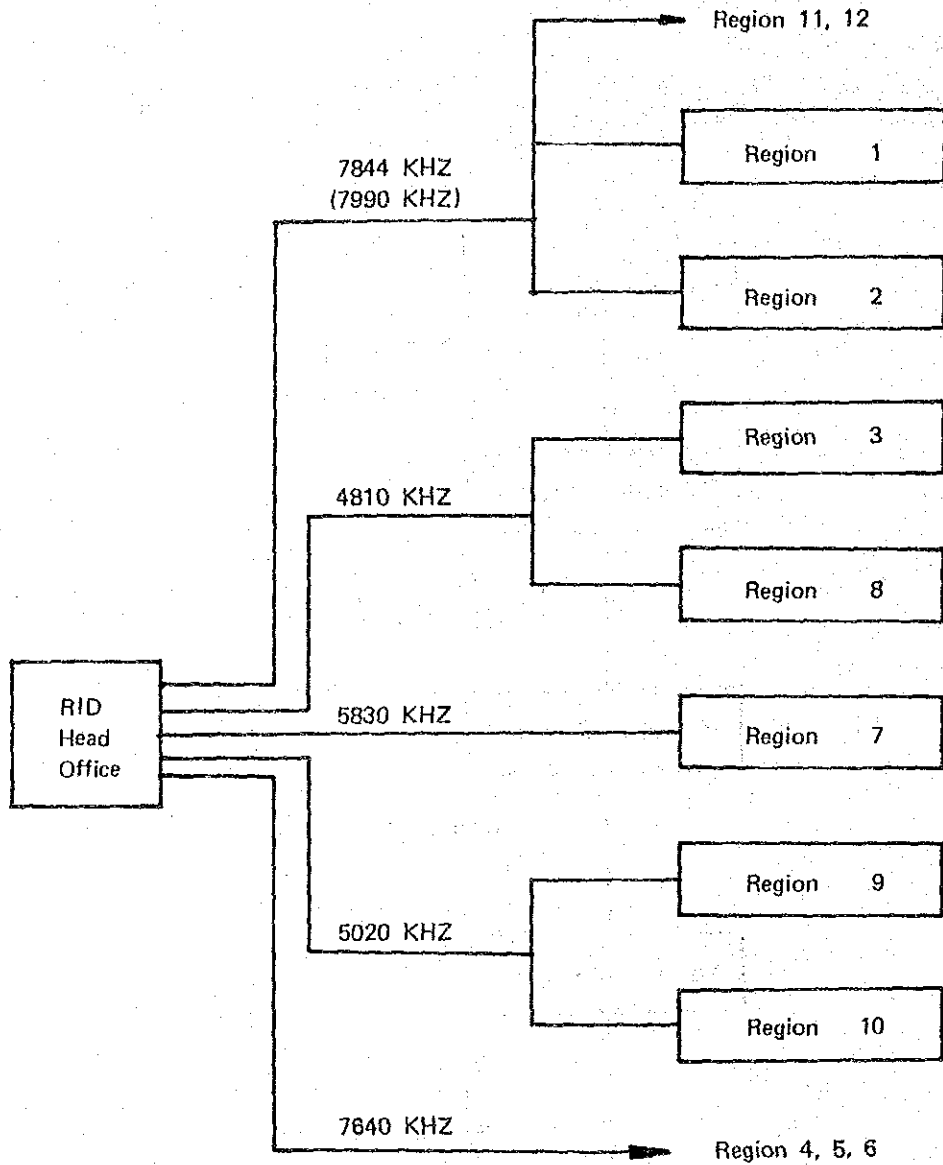
Project Name	Number of Reporting Stations		Number of Station Used in WMS	
	Rainfall	Regulator	Rainfall	Regulator
Song Pee Nong	-	-	-	-
Phanomthuan	-	-	-	-
Kamphaengsaen	4	7	-	5
Nakhon Phathom	7	12	-	6
Nakhonchom	1	7	-	5*
Thamaga	2	2	-	2
Samut Song Khram	-	-	-	-
Ratchaburi (left bank)	10	3	-	3
Ratchaburi (right bank)	-	-	-	-
Damnoen Saduak	3	2	-	2*
Vajiralongkorn Dam	-	2	-	2
Tha Los	2	-	-	-
(Rain fall Station)				
Upper Chao Phraya Basin	37	-	37	-
(Water Level Gauging Station)				
Ping River	-	6	-	3
Wang River	-	4	-	4
Yom River	-	4	-	4
Nan River	-	8	-	8
Chao Phraya River	-	9	-	2
Nae Klong River	-	7	-	3

Note: * ... Including group of regulators



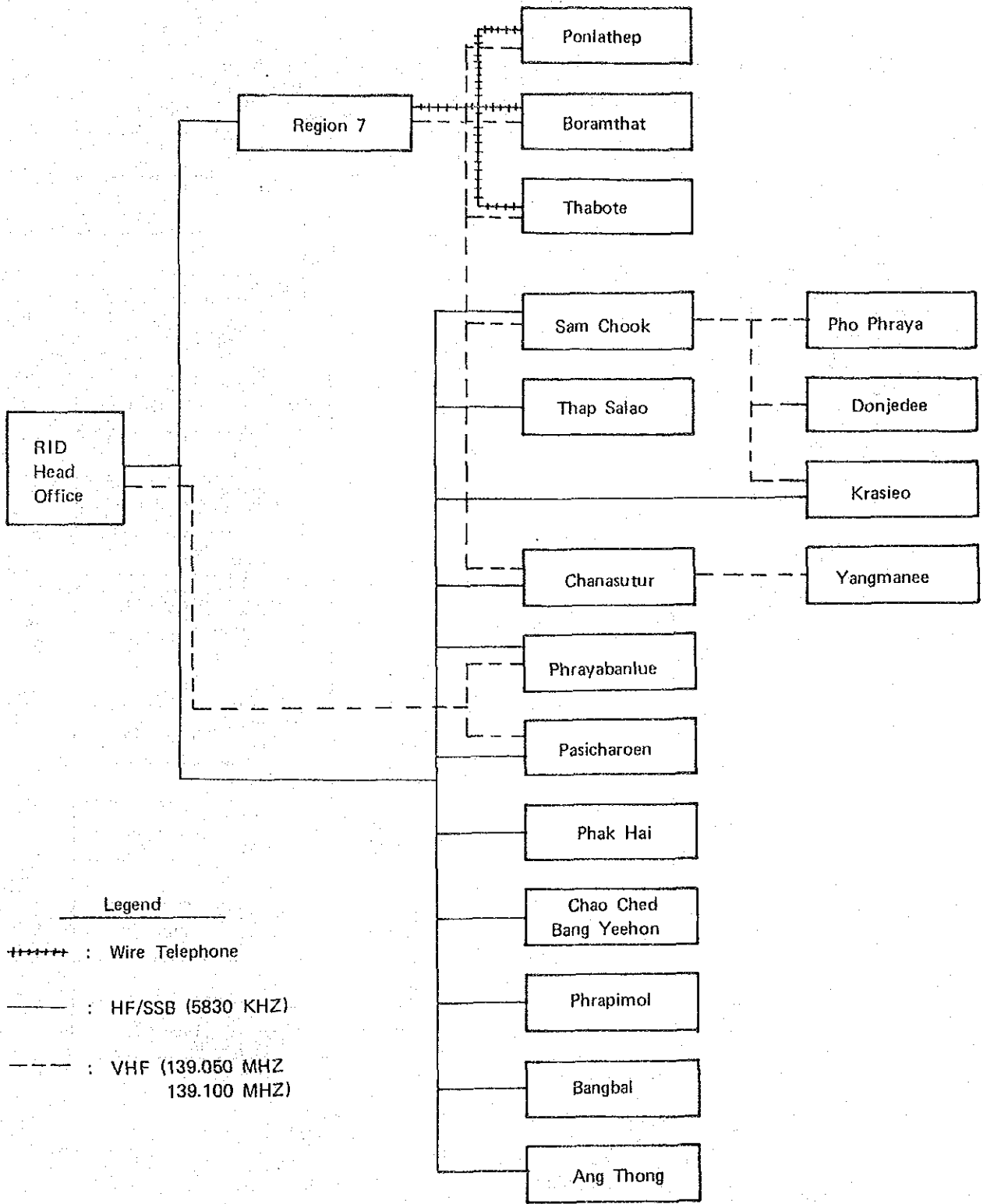
Current Monitoring / Communication System

Figure 4.1-1 CURRENT COMMUNICATION NETWORK



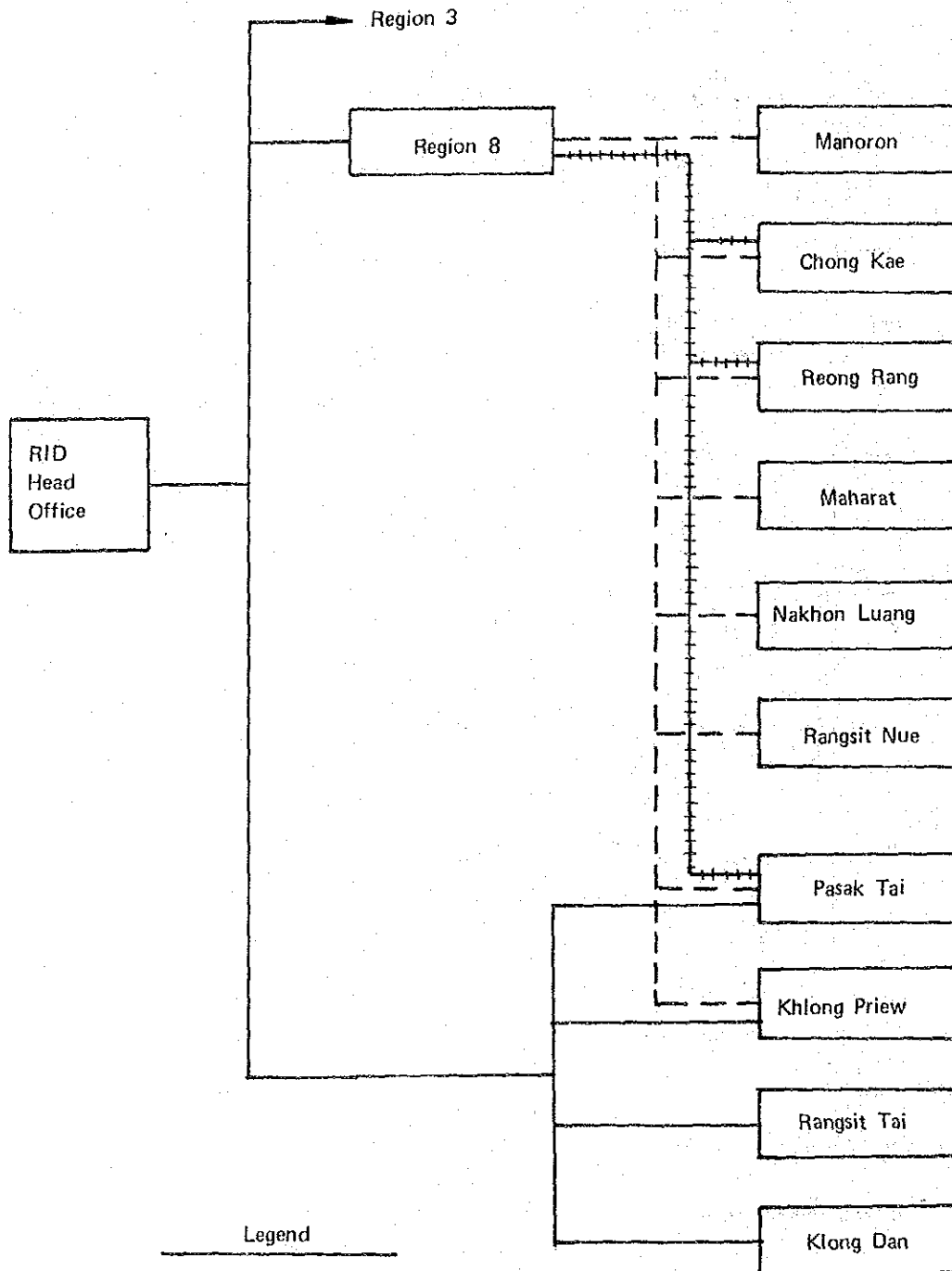
Current Communication Network in Chao Phraya River Basin (HF/SSB)

Current Communication Network (Region 7)



- Legend**
- +++++ : Wire Telephone
 - : HF/SSB (5830 KHZ)
 - - - : VHF (139.050 MHZ
139.100 MHZ)

Current Communication Network (Region 8)



Legend

- : Wire Telephone
- : HF/SSB (4810 KHZ)
- . - . - : VHF (139.100 MHZ
141.100 MHZ)

Table 4.1.1-2 COMMUNICATION WORK UNDER IRRIGATION OFFICE

Communication Work Under Irrigation Office (1)

Project Name	HF/SSB Radio Equipment	VHF/FM Radio Equipment		Automatic Telephone Exchange			Magnetophone Switchboard			Telephone Set		Telephone Line (km)	
		Base	Mobile	8x60	5x20	3+9/12	50 CH	20 CH	CH	Automatic	Magnetophone	Length	
(Region-1)	4	1	1	1	1	1				100	10	179.22	
1. Mae Kluang												72.265	
2. Nam Yuam	1										12	26.68	
3. Mae Ngad	1	1	3	2							29	32.500	
4. Mae Lao	1										16	15.00	
5. Mae EaeK				2							23	119.80	
6. Nong Krathing Tank		1		2									
7. Huai Muang Tank				1									
8. Huai Hong Krai	1			4									
9. Mae Hong Son	1			3				10CH	2		10	4.20	
10. Mae Taeng									3		28	145.253	
11. Mae Ping Kao									1		9	63.05	
12. RID Office Lam Phun									1		16	62.205	
13. Chom Thong													
14. Mae Teep	1			1							26	3.39	
15. Mae Teep	1			1									
16. Mae Lan													
17. Mae On		1	1	6									
18. Mae Ngad	1	1	3	2							25	32.50	
19. Mae Kwang	2	1	5	4					1		27	75.445	
20. Wad Chan	1												
21. Cong Tong Barrage	1										6	11.45	
22. Telephone Office	1			13						1	15	47.50	
Chom Taeng													
Sub-Total	17	8	13	48	1	1	1	1	1	1	135	890.458	
								20CH	12		273		
								1	10CH	2			

Source: RID Communication Division

Communication Work Under Irrigation Office (2)

Project Name	HF/SSB Radio Equipment		VHF/FM Radio Equipment		Automatic Telephone Exchange		Magnetophone Switchboard		Telephone Set		Telephone Line (km)	
	Equipment	Base	Mobile	Portable	8x60	5x20	3+9/12	50 CH	20 CH	Autmatic	Magneto	Length
(Region-2)	3	1	6	8				3		31	31	
1. Mae Wang-Kuw Lom	2	1	1					4			55	176.985
2. Mae Lao	1	1		1				2			38	198.710
3. Mae Lai	1	1		3				1			10	3.205
4. Mae Yom	1	1		1				4		21	25	202.012
5. Lamun Barrage	1	1	1	5				1		5	8	15.79
6. Nak Miang	1											
7. Cha Yao	1	1		1								
8. Chiang Rai	1	1	1	1								
9. Mae Man		2		9								
10. Mae Long	1											
11. Huai Chang		1										
12. RID Office Chrae Province	1											
13. Dong Mada	1											
14. High Way	1											
Construction & Maintenance II												
15. Nam Ngae	2	1										
16. Mae Tam	1		1	5								
17. Den Chai	1	2		1								
18. Security Development												
Phayao Province	1			1								
19. Mae Phrai	1											
20. Wang Chan Barraget				1								
21. Ban Pao				1								
Sub-Total	22	13	12	37	-	-	-	15	-	57	267	596.702

Source: RID Communication Division

Communication Work Under Irrigation Office (3)

Project Name	HF/SSB Radio Equipment	VHF/FM Radio		Automatic Telephone Exchange		Magneto Switchboard		Telephone Set		Telephone Line(km) Length
		Base	Mobile	8x60	5x20	3+9/12	50 CH	20 CH	Automatic	
(Region-3)	4	1	2	6	1	2	2	50	30	30.00
1. Klong Wang Bua	1			5					2	10.00
2. Sukhothai	1		1	6			1		7	8.00
3. Nam Pad	1									
4. Nam Pid	1			2			1		21	136.962
5. Huai Pa Daeng	1	1		2			1		10	7.12
6. RID Office Tak	1	1	1	2			1	1	30	235.40
7. Mae Sod	1	1					1		13	25.00
8. Wang Yang	1	1								
9. Underground Water Development	1	1	5	2			3	3	91	72.00
10. Kamphaengphet (Copper Pipe)	1	1	1	1			1			15.00
11. Wang Si Scoop	1			1						
12. Phetehaboon	1									
13. Klong Tron	2									
14. Klong Wang Sai	1						1			
15. Huai Nam Dard	1									
16. Sriehan Barrage	1									
17. Sirikit Dam (Down)	1	1								
18. Chrom Piram	1	1	4	7	1	1	2	1	78	319.13
19. Pho Thale	1	1			1	1			1	
20. Phichit	1	1	4	1	1	1		42	3	6.30
21. Ban Rai	1		4	7			1	8	34	20.50
22. Klong chang	1			2						
23. Sai Naam	1									
<u>Sub-Total</u>	<u>25</u>	<u>11</u>	<u>22</u>	<u>42</u>	<u>4</u>	<u>7</u>	<u>11</u>	<u>105</u>	<u>325</u>	<u>885.412</u>

Source: RID Communication Division

Communication Work Under Irrigation Office (4)

Project Name	HF/SSB Radio Equipment		VHF/FM Radio Base		Radio Equipment		Automatic Telephone Exchange			Magneto Switchboard			Telephone Set		Telephone Line (km)	
	3	1	1	1	8x60	5x20	3+9/12	50	CH	20	CH	Automatic	Magneto	Length		
(Region-7)	3	1	1	1	8	1	1	1	1	1	1	94	13	185.50		
1. Yangmanee					1								65	300.00		
2. Chanasutur	1				1								124	350.00		
3. Sam Chook	1				1								96	249.00		
4. Kra Syo	1											5	52	90.00		
5. Chao Ched	1												47	135.80		
Bang Yechon																
6. Thabote					1								70	177.835		
7. Bangbal	1												31			
8. Ponlathep					4								6	133.80		
9. Phrapimol	1												38	160.00		
10. Boramthat					1								30	165.00		
11. Phrayabanlue					1								26	200.00		
12. Phak Hai	1												37	139.26		
13. Pasicharoen	1												10	45.00		
14. Donjedee	1												5			
(land forming)																
15. Bang Lane					1											
16. Bang Rachan					1											
17. Dredge 1					1											
18. Pho Phraya					1											
19. Donjedee																
20. Teb Salao					2											
21. Small Construction	2				20											
7 (Chainat)					18											
22. Ang Thong	1															
23. High Way Construction 8 (Suphan Buri)																
Sub-Total	15	8	8	8	56	1	35	99	875	2,769.543						

Source: RID Communication Division

Communication Work Under Irrigation Office (5)

Project Name	HF/SSB		VHF/FM Radio		Automatic		Magneto		Telephone		Telephone Line (km)	
	Equipment	Base	Mobile	Portable	8x60	5x20	3+9/12	50 CH	20 CH	Set		Magneto
(Region-8)	2	2	1				1			2	29	15.723
1. Rangsit Tai	1			1							39	285.00
2. Klong chryo	1	1	1								14	64.00
3. Khlong Dan	1	1	1								20	45.00
4. Pasak Tai	1			1							27	300.00
5. Roeng Rang				1					2		55	165.00
6. Maharat				1				1	4		85	399.00
7. Nakhon Luang				1					1		45	150.00
8. Manoron				1					4		60	223.28
9. Chong Kae				1					2		55	468.59
10. Rangsit Nue				1					3	1	44	160.00
11. Bang Sai				1								
12. Khok Katiem				1								
13. Small Constru- ction 8			2									
14. RID Office Sara Buri			1									
15. RID Office Lop Buri			1									
16. RID Office Samut Prakan			1									
17. Sab Takian (Downstream)		2										
<u>Sub-Total</u>	<u>6</u>	<u>6</u>	<u>8</u>	<u>10</u>	<u>1</u>	<u>1</u>	<u>24</u>	<u>3</u>	<u>76</u>	<u>3</u>	<u>549</u>	<u>2,777.703</u>

Source: RID Communication Division

Communication Work Under Irrigation Office (6)

Project Name	HF/SSB Radio Equipment	VHF/FM Base	FM Mobile	Radio Equipmnet Portable	Automatic Telephone Exchange			Magnetophone Switchboard		Telephone Set Automatic	Telephone Line(km)	
					8x60	5x20	3+9/12	50 CH	20 CH		Magneto	Length
(Region-9)	1	1	2	4				3			52	
1. Huai Sub	1							1			6	10.50
2. Khac Lan	1											
3. Bangpakong	1			1								
4. Mab Prachan	1											
5. Klong Khwang	1							1			12	44.00
6. Thalad	1							1			12	16.50
7. Laem Sing	1							1			7	10.00
8. Saithong	1											
9. -	1											
10. Ban Na	1											
11. Nakhon Nayok	1	2	1	15							40	187.00
12. Nam Jon	1											
13. Nong Khor	1							1			9	8.00
14. Wang Tanod	1			4								
15. Klong Prong	1											
16. Bang Pluang	1			10							17	62.58
17. Tha Hae	1							1			11	52.00
18. Phra Ong Chaiyanuchit	1		1					2			30	64.50
19. Rayong	1										5	20.00
20. Wang Krajae Field	1							1			24	35.00
21. Phanthong (New)	1										14	29.00
22. Huai Krai	1										12	15.00
23. Bang Phra Ban Bung	1							3			52	25.50
24. Ban Kai	1										9	75.36

Communication Work Under Irrigation Office (7)

Project Name	HF/SSB Radio Equipment	VHF/FM Base	Radio Mobile	Radio Equipment	Automatic		Magneto		Telephone		Telephone Line (km)	
					8x60	5x20	50 CH	20 CH	Automatic	Set		Magneto
25. Khok Krai												
26. RID Office Prachin Buri	2	2	1	10				1			8	33.80
27. " Chon Buri			1									
28. " Chaeoengsao			1									
29. " Trad			1									
30. " Rayong			1									
31. " Nakhon Nayok			1									
32. High Way Construction 10 Chachoengsao				1								
<u>Sub-Total</u>	<u>25</u>	<u>5</u>	<u>10</u>	<u>44</u>				<u>21</u>			<u>320</u>	<u>688.74</u>

Table 4.3-1 CONSTRUCTION COST OF TRUNK LINE BY RID

Construction Cost of Trunk Line by RID (1/3)

Description	Quantity	Amount (1000 Yen)
I Equipment		
1. RID Head office (Terminal)		<u>21,060</u>
UHF Digital T/R 1, 1 standby 2MB/sec × 2	1set	5,100
PCM Multiplex Equipment 30 ch × 2	1set	2,800
UHF Antenna φ 3m Grid Parabolic	1set	800
Coaxial Feeder & Connector	1set	360
DC power Supply DC 48 V	1set	2,000
AC Power Plant	1set	6,400
Remote Supervisory Master	1set	3,600
2. Rangsit Nua (Relay)		<u>26,220</u>
UHF Digital T/R 1, 1 Standby 2MB/sec × 2	2sets	10,200
PCM Multiplex Equipment Brand 6ch	1set	3,000
UHF Antenna φ 3m Parabolic	2sets	1,600
Coaxial Feeder & Connector	2sets	720
DC Power Supply DC 48 V	1set	2,500
AC Power Plant	1set	6,400
Remote Supervisory Slave	1set	1,800
3. Pasak Tai (Relay)		
(Same as Ranghit Nue)	1set	<u>26,220</u>
4. Region 8 (Relay)		<u>26,320</u>
UHF Digital T/R 1, 1 standby 2MB/sec × 2	2sets	10,200
PCM Multiplex Equipment Branch 24 ch	1set	3,100
UHF Antenna φ 3m Grid Parabolic	2sets	1,600
Coaxial Feeder & Connector	2sets	720
DC Power Supply DC 48 V	1set	2,500
AC Power Plant	1set	6,400
Remote Supervisory Slave	1set	1,800

Construction Cost of Trunk Line by RID (2/3)

Description	Quantity	Amount (1000 Yen)
5. Region 7 (Relay) (same as Region 8)	1set	<u>26,300</u>
6. Relay Station (1)		<u>24,820</u>
UHF Digital T/R 1, 1 standby 2MB/sec × 2	2sets	10,200
PCM Multiplex Equipment	1set	1,600
UHF Antenna φ 3m Grid Parabolic	2sets	1,600
Coaxial Feeder & Connector	2sets	720
DC Power Supply DC 48 V	1set	2,500
AC Power Plant	1set	6,400
Remote Supervisory Slave	1set	1,800
7. Nakhon Sawan (Relay)		<u>26,220</u>
UHF Digital T/R 1, 1 standby 2MB/sec × 2	2sets	10,200
PCM Multiplex Equipment Branch 9ch	1set	3,000
UHF Antenna φ 3m Grid Parabolic	2sets	1,600
Coaxial Feeder & Connector	2sets	720
DC Power Supply DC - 48V	1set	2,500
AC Power Plant	1set	6,400
Remote Supervisory Slave	1set	1,800
8. Relay station (2) (Same as Relay station (1))		<u>24,820</u>
9. Phichit (Relay) (Same as Rangsit Nue)		<u>26,220</u>

Construction Cost of Trunk Line by RID (3/3)

Description	Quantity	Amount (1000 Yen)
10. Region 3 (Terminal)		<u>19,260</u>
UHF Digital T/R 1, 1 standby 2MB/sec × 2	1set	5,100
PCM Multiplex Equipment 30 ch × 2	1set	2,800
UHF Antenna φ 3m Grid Parabolic	1set	800
Coaxial Feeder & Connector	1set	360
DC Power Supply DC - 48 V	1set	2,000
AC Power Plant	1set	6,400
Remote Supervisory Slave	1set	1,800
I Equipment Total		<u>247,480</u>
II Test Equipment		<u>8,300</u>
III Spares, Installation materials, Hand Book, Manual, Maintenance Tools.	1Lot	<u>32,360</u>
IV Installation Fee	1Lot	<u>58,800</u>
V Antenna Tower	1Lot	<u>171,600</u>
VI Building	10Lot	<u>40,000</u>
VII Miscellaneous		<u>34,460</u>
VIII Freight, Insurance		<u>37,000</u>
Grand total		<u>630,000</u>

Table 4.3-2. CONSTRUCTION COST OF TRUNK LINE BY RID AND TOT

Construction Cost of Trunk Line by RID and TOT (1/2)

Description	Quantity	Amount (1000 Yen)
I. Equipment		
1. RID Head office		<u>33,200</u>
UHF Digital T/R 2MB/sec×2, 1 standby	1Lot	10,200
PCM Multiplex Equipment	2sets	5,600
UHF Antenna φ 2m Parabolic	2sets	1,400
Coaxial Feeder & Connector	2sets	600
DC Power Supply DC - 48 V	2sets	4,000
AC Power Plant	1set	6,400
Remote Supervisory	1set	5,000
2. Rangsit Nua		<u>32,600</u>
UHF Digital T/R 2MB/sec, 1 standby	1Lot	10,200
PCM Multiplex Equipment	2sets	5,000
UHF Antenna φ 2m Parabolic	2sets	1,400
Coaxial Feeder & Connector	2sets	600
DC Power Supply DC - 48 V	2sets	4,000
AC Power Plant	1set	6,400
Remote Supervisory	1set	5,000
3. Pasak Tai		<u>32,600</u>
(Same as Rangsit Nue)		
4. Region 8		<u>33,000</u>
UHF Digital T/R 2MB/sec, 1 standby	1Lot	10,200
PCM Multiplex Equipment	2sets	5,400
UHF Antenna φ 2m Parabolic	2sets	1,400
Coaxial Feeder & Connector	2sets	600
DC Power Supply DC - 48 V	2sets	4,000
AC Power Plant	1set	6,400
Remote Supervisory	1set	5,000

Construction Cost of Trunk Line by RID and TOT (2/2)

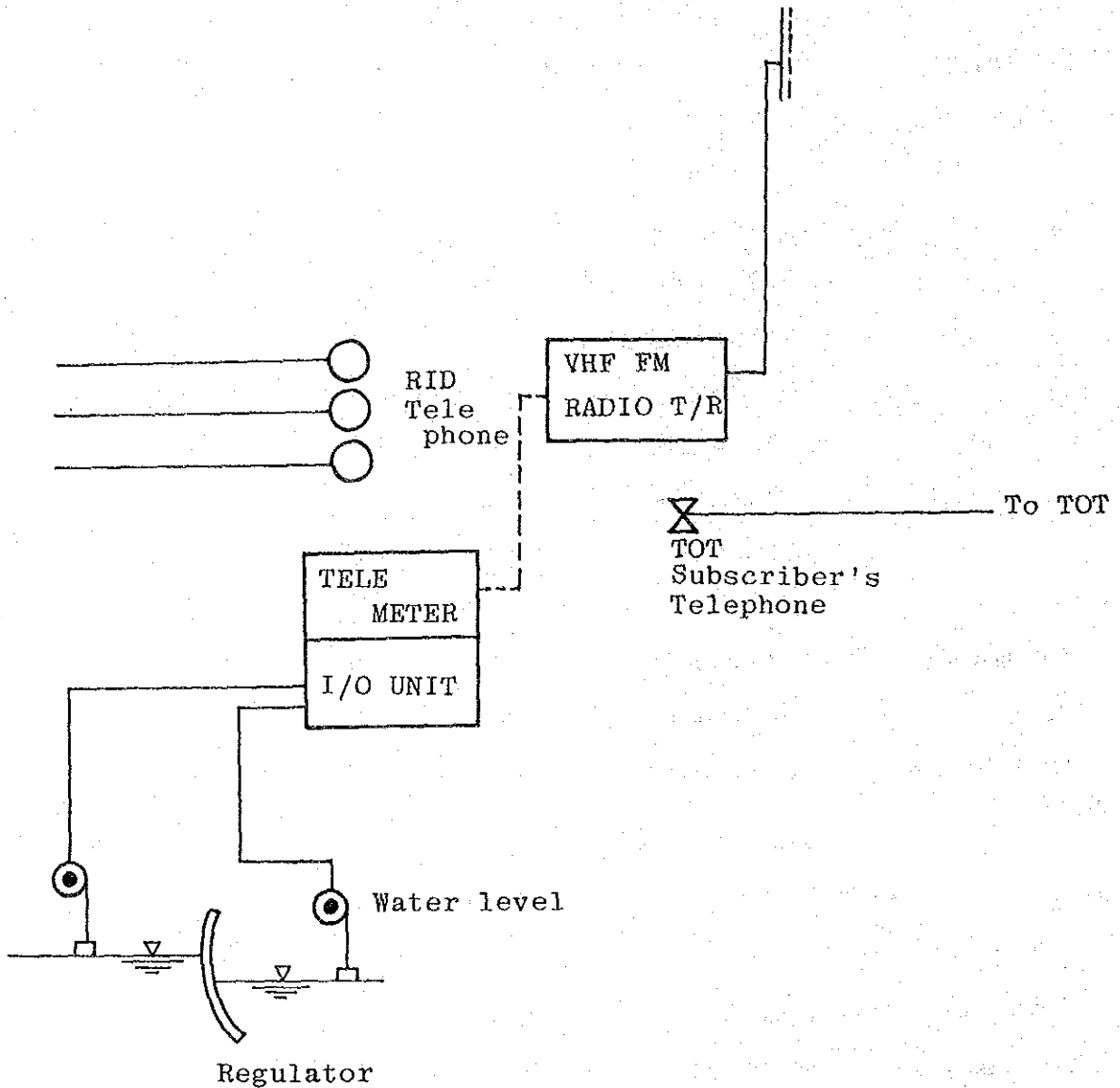
Description	Quantity	Amount (1000 Yen)
5. Region 7 (Same as Region 8)		<u>33,000</u>
6. Nakhon Sawan (Same as Rangsit nue)		<u>32,600</u>
7. Plichit (Same as Rangsit Nue)		<u>32,600</u>
8. Region 3 (Same as Region 8)		<u>33,000</u>
I Equipment total		<u>262,600</u>
II Test Equipment		<u>8,300</u>
III Spares, Installation materials, Mannaal, Maintenance Tools,		<u>25,900</u>
IV Installation Fee		<u>65,540</u>
Antenna Tower		<u>26,800</u>
VI Building		<u>48,000</u>
VII Miscellaneous		<u>43,180</u>
VIII Freight, Insurance		<u>29,680</u>
Grand Total		<u>560,000</u>

Table 4.3-3 LENTAL FEE FROM COMMUNICATION SYSTEM BY TOT

Lental Change from communication line by TOT

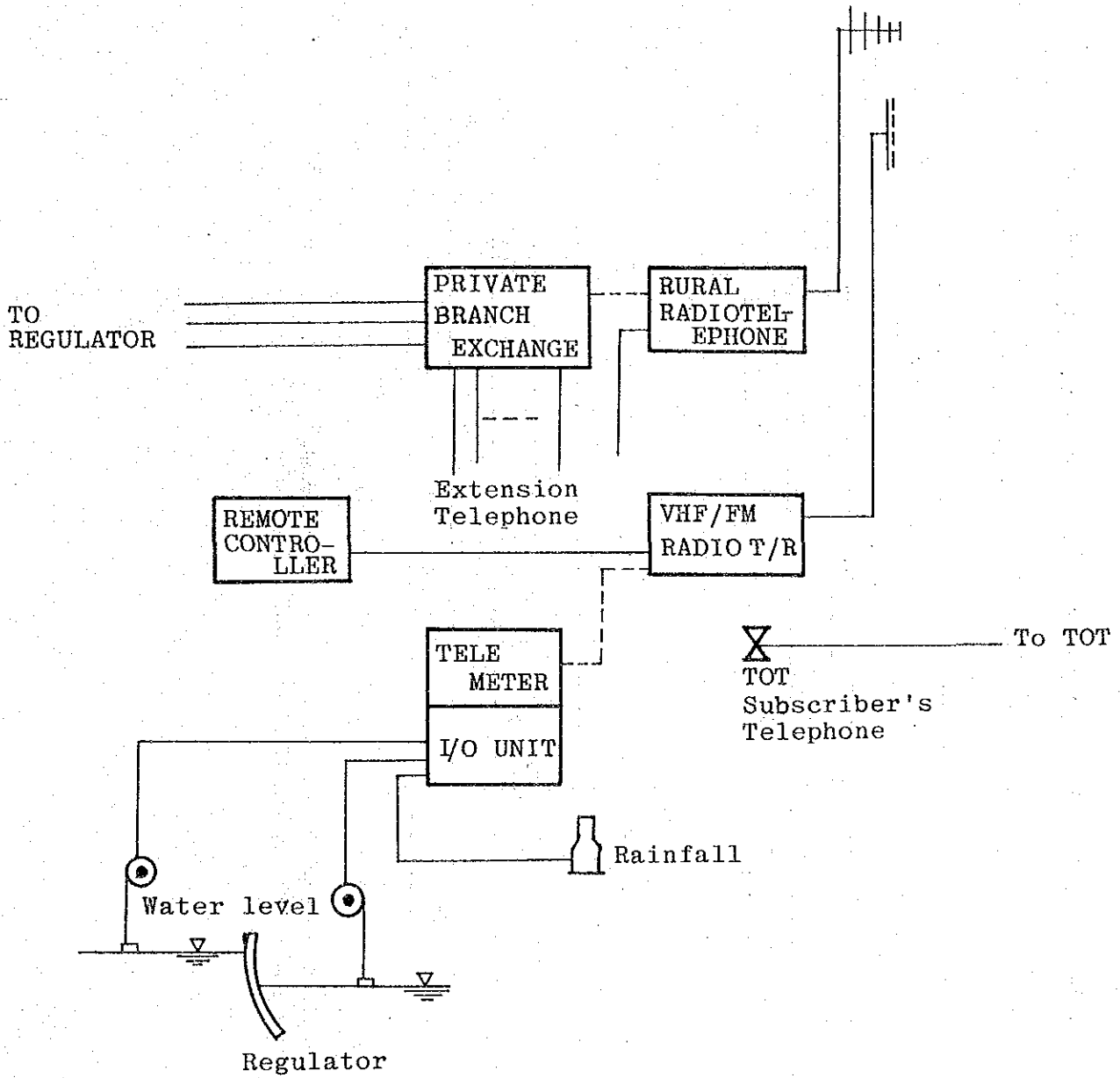
Communication Section		Number of Channel	Distance (km)	Rate * (Baht/ch.km.Y)	Amount (Baht/Year)
1. Trunk Route					
TOT Bangkok	- TOT Chainat	12	163	170	332,520
	- TOT Lop Buri	12	115	170	234,600
	- TOT Ayutthaya	3	96	170	48,960
	- TOT Saraburi	3	80	170	40,800
	- TOT Nakhon Sawan	3	220	170	112,200
	- TOT Phichit	3	300	170	153,000
	- TOT Phitsanulok	6	350	170	357,000
TOT Lop Buri	- TOT Ayutthaya	3	40	170	20,400
	- TOT Saraburi	3	100	170	51,000
	- TOT Chainat	6	48	170	48,960
TOT Chainat	- TOT Nakhon Sawan	3	55	170	28,050
	- TOT Phitsanulok	3	185	170	94,350
TOT Phisanulok	- TOT Nakhon Sawan	3	130	170	66,300
	- TOT Phichit	3	50	170	25,500
Sub-total					1,613,640
2. Local Line				(B/ch - km)	
TOT Bangkok	- Head office	42	-	1,000	504,000
TOT Ayutthaya	- Rangsit Nua	6	-	2,000	144,000
TOT Saraburi	- Pasak Tai	6	-	1,000	72,000
TOT Lop Buri	- Regional 8	24	-	2,000	576,000
TOT Chainat	- Regional 7	24	-	1,000	288,000
TOT Nakhon Sawan	- Nakhon SawanP.	9	-	1,000	108,000
TOT Phichit	- Phichit P.	6	-	1,000	72,000
TOT Phisanulok	- Regional 3	15	-	1,000	180,000
Sub-total					1,944,000
Grand Total					3,557,640 (3,600,000)

Appendix 4.4 IMPROVEMENT PLAN OF LOCAL CIRCUIT



COMMUNICATION SYSTEM DIAGRAM

Figure 4.4-1 COMMUNICATION SYSTEM DIAGRAM IN PROJECT OFFICE



COMMUNICATION SYSTEM DIAGRAM

Table 4.4-1 NUMBER OF VHF/FM RADIO STATION TO BE INTRODUCED IN DELTA

Number of VHF Station to be Introduced in Delta

Area	Base Station				Project Name				Total	Remarks
	Project office	Water Master office	Others	Sub-total	Land mobil	Portable	Sub-total	Total		
Region 7	15	34	11	60	15	231	246	306		
	(18)	(40)	(11)	(69)	(18)	(258)	(276)	(345)		
Region 8	11	23	6	40	11	151	162	202		
	(11)	(23)	(6)	(40)	(11)	(151)	(162)	(202)		
Region 9	1	3	-	4	1	19	24	28		
	(5)	(11)	-	(16)	(5)	(55)	(76)	(92)		
Region 10	-	-	-	-	-	-	-	-		
	(9)	(12)	-	(21)	(9)	(63)	(72)	(93)		
Total	27	60	17	104	27	401	432	536		
	(43)	(86)	(17)	(146)	(43)	(527)	(586)	(732)		

Note: *1 Number of mobil station are estimated as follows.

- One unit by one project office be introduced.

- Three units of portable wireless telephone be introduced at project office and water master office, respectively.

() Indicates in case of including surrounding project areas, Regional 9 and 10 in Chao Phraya Delta.

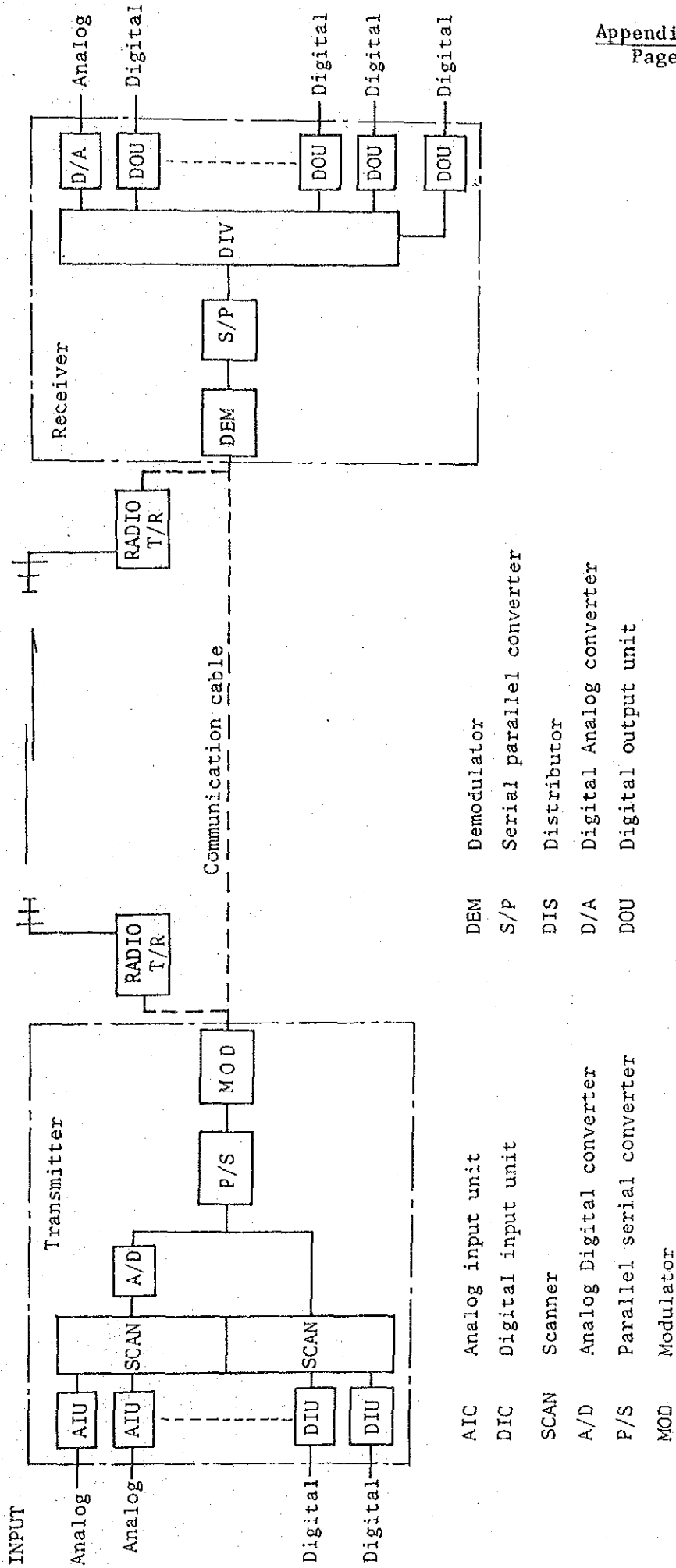


Figure 4.4-2 BLOCK DIAGRAM OF TELEMETRY SYSTEM

Appendix 4.5 IMPROVEMENT PLAN OF FIELD CIRCUIT

Table 4.5-1 COMPARISON OF COMMUNICATION CABLE

Comparison of Communication Cable

Items	Loss in 1KHz (dB/km)		Resistance (Ohm/km - loop)	Loss in 30km (dB)	Loop Resistance in 30 km (Ohm)
	Fine weather	Rainy weather			
Open wire ϕ 2 mm	0.063	0.07	13.0	1.9	390
Toll cable ϕ 1.4mm	0.48	0.48	22.6	14.4	678
Toll PEF - P cable ϕ 1.2 mm	0.49	0.49	31.0	14.7	930
CPEV cable ϕ 1.2 mm	0.60	0.60	31.0	18.0	930

Table 4.5-2 NUMBER OF IMPROVEMENT EQUIPMENT FOR FIELD CIRCUIT

Number of Improvement Equipments for Field Circuit (1)

Project Name	Telephone Set			Number of Station	Telephone Set			VHF/FM mobilization			
	*1 Replacement	*2 New Installation	*3 Replacement in Project off		Total	*4 Installation by local circuit	*5 Installation by Telemeter	*6 Removal	*7 New Introduction	*8 Land*9 mobil	*10 Portable Telephone
Region 7	-	-	-	-	-	-	-	-	-	-	-
Chao Phraya Dam	-	-	-	-	-	-	-	-	-	-	3
Phonlathep	9	4	20	33	1	-	1	-	1	1	9
Thabote	27	8	20	55	1	-	1	1	1	1	9
Samchook	15	10	20	45	1	-	1	1	3	1	18
Don Chedi	25	4	20	49	2	-	1	1	-	1	9
Pho Phraya	22	16	20	58	5	-	1	1	3	1	19
Boremathat	20	10	20	50	5	-	1	1	3	1	22
Chanasutr	33	20	20	73	7	-	1	1	5	1	30
Yang Manee	29	8	20	57	3	-	1	1	1	1	14
Fakhai	18	8	20	46	3	-	1	1	1	1	9
Bang Ban	-	-	20	20	1	-	1	-	-	1	15
Chaochet-Bang Yihon	18	4	20	42	3	-	1	1	1	1	14
Phraya Banlu	10	12	20	42	5	-	1	1	3	1	19
Phra Fimon	6	4	20	30	2	-	1	-	-	1	11
Phasi Charoen	-	-	20	20	3	-	1	1	1	1	15
Kra Sico	0	-	20	20	2	-	1	1	-	1	15
Others	-	-	-	-	9	-	-	9	-	-	-
Sub-total	232	108	300	640	60	12	15	11	22	15	231

- Note:
- *1= Replacement outside project office.
 - *2= Additional installation outside project office.
 - *3= Replacement or new introduction inside project office.
 - *4= Project office and water master office have one set, respectively.
 - *5= Radio to be introduced by improvement plan of local circuit.
 - *6= Radio to be introduced by telemetering system.
 - *7= After introduction by local circuit, that in project office be replace to water master office.
 - *8= Numbers to be introduced as improvement plan of field circuit.
 - *9= Project office have one land mobil.
 - *10= Project office and water master office have three sets, respectively. But, project area without wire communication system have five sets, respectively.

Number of Improvement Equipments for Field Circuit (2)

Project Name	Telephone Set			VHF/FM fixed station				VHF/FM mobil station			
	*1 Replacement	*2 New Installation	*3 Replacement*3 in Project off	Total	Number of Station	*4 Installation*4 by local circuit	*5 Installation*5 by Telemeter	*6 Installation*6 by Telemeter	*7 New Introduction	*8 Land*9 mobil	*10 Portable Telephone
Region 8, 9	-	-	-	-	-	-	-	-	-	-	-
Manorom	29	8	20	57	3	1	-	-	1	1	12
Chong Kae	11	4	20	35	2	1	-	-	1	1	9
Koke Kathiem	31	8	20	59	3	1	-	-	2	1	9
Reong Rang	10	4	20	34	2	1	-	-	1	1	11
Maharaj	35	14	20	69	6	1	1	1	3	1	28
Pasak Tai	11	4	20	35	2	1	1	-	-	1	9
Rangsit Nua	14	8	20	42	3	1	-	-	1	1	12
Nakhon Luang	15	8	20	43	3	1	-	-	1	1	12
Rangsit Tai	5	12	20	37	5	1	1	1	2	1	20
Klong Darn	-	-	20	20	4	1	-	-	1	1	20
Klong Prieu	10	4	20	34	2	1	-	-	1	1	9
Phra Ong Chaiyanichit	8	12	-	40	4	1	-	-	1	1	19
Others	-	-	240	-	5	-	5	-	-	-	-
Sub-total	179	86	540	505	44	12	8	14	10	12	170
Total	411	194	-	1,145	104	27	20	36	21	27	401

- Note:
- *1= Replacement outside project office.
 - *2= Additional installation outside project office.
 - *3= Replacement or new introduction inside project office.
 - *4= Project office and water master office have one set, respectively.
 - *5= Radio to be introduced by improvement plan of local circuit.
 - *6= Radio to be introduced by telemetering system.
 - *7= After introduction by local circuit, that in project office be replace to water master office.
 - *8= Numbers to be introduced as improvement plan of field circuit.
 - *9= Project office have one land mobil.
 - *10= Project office and water master office have three sets, respectively. But, project area without wire communication system have five sets, respectively.

APPENDIX 4.6 IMPROVEMENT PLAN OF MONITORING SYSTEM

Table 4.6-1 NUMBER OF REGULATOR STATION BY LEVEL

Appendix 4.6

Page 1

Project	Canal type	Length (km)	Number of Regu.	Number of FT0	Number of station by level				
					Type	L-1	L-2	L-3	L-4
Phonlathep	AA	-	2	-	(1)	2	2	2	2
	A	31.32	3	40	(2)	-	3	3	3
	B	56.87	18	53	(3)	-	-	46	46
	C	38.59	28	57	(4)	-	-	-	150
	Total	126.78	51	150	Total	2	5	51	201
Borommathat	AA	-	1	-	(1)	1	1	1	1
	A	131.30	24	335	(2)	-	24	24	24
	B	81.13	24	157	(3)	-	-	75	75
	C	95.31	51	203	(4)	-	-	-	695
	Total	307.74	100	695	Total	1	25	100	795
Sam Chuk	AA	-	1	-	(1)	1	1	1	1
	A	60.40	11	196	(2)	-	11	11	11
	B	112.90	27	273	(3)	-	-	42	42
	C	38.72	15	98	(4)	-	-	-	567
	Total	212.02	54	567	Total	1	12	54	621
Don Chedi	AA	-	-	-	(1)	-	-	-	-
	A	50.13	3	56	(2)	-	3	3	3
	B	30.02	19	63	(3)	-	-	57	57
	C	55.58	38	83	(4)	-	-	-	202
	Total	135.73	60	202	Total	1	3	60	262
Thabote	AA	-	1	-	(1)	1	1	1	1
	A	33.28	2	38	(2)	-	2	2	2
	B	78.22	17	108	(3)	-	-	61	61
	C	68.77	44	103	(4)	-	-	-	249
	Total	180.27	64	249	Total	1	3	64	313
Pho Phraya	AA	-	3	-	(1)	3	3	3	3
	A	79.74	9	212	(2)	-	9	9	9
	B	91.62	15	176	(3)	-	-	33	33
	C	36.66	18	82	(4)	-	-	-	470
	Total	208.02	45	470	Total	3	12	45	515

Project	Canal type	Length (km)	Number of Regu.	Number of FTO	Number of station by level				
					Type	L-1	L-2	L-3	L-4
Chanasutr	AA	-	1	-	(1)	1	1	1	1
	A	79.59	9	99	(2)	-	9	9	9
	B	218.98	72	489	(3)	-	-	138	138
	C	114.06	66	162	(4)	-	-	-	750
	Total	412.63	148	750	Total	1	10	148	898
Yangmaanee	AA	-	1	-	(1)	1	1	1	1
	A	81.69	14	120	(2)	-	14	14	14
	B	100.60	33	158	(3)	-	-	45	45
	C	15.74	12	21	(4)	-	-	-	299
	Total	198.03	60	299	Total	1	15	60	359
Phak Hai	AA	-	3	-	(1)	3	3	3	3
	A	15.05	-	8	(2)	-	-	-	-
	B	23.52	4	35	(3)	-	-	6	6
	C	4.22	2	8	(4)	-	-	-	51
	Total	42.79	9	51	Total	3	3	9	60
Bang Ban	AA	-	-	-	(1)	-	-	-	-
	A	-	-	-	(2)	-	-	-	-
	B	52.38	12	95	(3)	-	-	40	40
	C	70.41	28	113	(4)	-	-	-	208
	Total	122.79	40	208	Total	-	-	40	248
Chao Ched Bang Yihon	AA	-	2	-	(1)	1	1	1	1
	A	-	-	-	(2)	-	-	-	-
	B	989.30	88	-	(3)	-	-	89	89
	C	-	-	-	(4)	-	-	-	-
	Total	989.30	90	-	Total	1	1	90	90
Phraya Ban Lu	AA	-	1	-	(1)	1	1	1	1
	A	-	-	-	(2)	-	-	-	-
	B	834.10	54	-	(3)	-	-	54	54
	C	-	-	-	(4)	-	-	-	-
	Total	834.10	55	-	Total	1	1	55	55

Project	Canal type	Length (km)	Number of Regu.	Number of FTO	Number of station by level				
					Type	L-1	L-2	L-3	L-4
Phra Pimon	AA	-	3	-	(1)	3	3	3	3
	A				(2)				
	B	422.30	20	-	(3)	-	-	20	20
	C				(4)				
	Total	422.30	23	-	Total	3	3	23	23
Phasi Charoen	AA	-	-	-	(1)	-	-	-	-
	A				(2)				
	B	1094.00	32	-	(3)	-	-	32	32
	C				(4)				
	Total	1094.00	32	-	Total	-	-	32	32
Manorom	AA	45.60	1	18	(1)	1	1	1	1
	A	-	-	-	(2)	-	-	-	-
	B	145.21	55	148	(3)	-	-	83	83
	C	31.70	28	118	(4)	-	-	-	284
	Total	222.51	84	284	Total	1	1	84	368
Chong Kae	AA	39.65	1	14	(1)	1	1	1	1
	A	18.20	3	33	(2)	-	3	3	3
	B	80.47	36	126	(3)	-	-	69	69
	C	74.15	33	94	(4)	-	-	-	267
	Total	212.47	73	267	Total	1	4	73	340
Maharaj	AA	-	1	-	(1)	1	1	1	1
	A	154.41	11	252	(2)	-	11	11	11
	B	160.64	52	360	(3)	-	-	85	85
	C	49.20	33	118	(4)	-	-	-	730
	Total	364.25	97	730	Total	1	12	97	827
Khok Kathiem	AA	36.65	1	18	(1)	1	1	1	1
	A	38.20	3	52	(2)	-	3	3	3
	B	81.10	31	132	(3)	-	-	72	72
	C	49.76	41	73	(4)	-	-	-	275
	Total	205.71	76	275	Total	1	4	76	351

Project	Canal type	Length (km)	Number of Regu.	Number of FTO	Number of station by level				
					Type	L-1	L-2	L-3	L-4
Roeng Rang	AA	12.88	1	3	(1)	1	1	1	1
	A	44.50	2	64	(2)	-	2	2	2
	B	41.18	13	62	(3)	-	-	31	31
	C	41.24	18	57	(4)	-	-	-	186
	Total	139.80	34	186	Total	1	3	34	220
Pasak Tai	AA	-	4	-	(1)	4	4	4	4
	A	32.00	-	-	(2)	-	-	-	-
	B	72.39	26	239	(3)	-	-	71	71
	C	81.78	45	212	(4)	-	-	-	451
	Total	186.17	75	451	Total	4	4	75	526
Nakhon Luang	AA	-	-	-	(1)	-	-	-	-
	A	55.90	3	71	(2)	-	3	3	3
	B	91.84	22	148	(3)	-	-	46	46
	C	53.68	24	85	(4)	-	-	-	304
	Total	201.42	49	304	Total	-	3	49	353
Rangsit Nua	AA	-	1	-	(1)	2	2	2	2
	A	-	-	-	(2)	-	-	-	-
	B	536.90	50	227	(3)	-	-	49	49
	C	-	-	-	(4)	-	-	-	227
	Total	536.90	51	227	Total	2	2	51	279
Rangsit Tai	AA	-	1	-	(1)	1	1	1	1
	A	-	-	-	(2)	-	-	-	-
	B	597.30	52	-	(3)	-	-	52	52
	C	-	-	-	(4)	-	-	-	-
	Total	597.30	53	-	Total	1	1	53	53
Khlong Dan	AA	-	1	-	(1)	1	1	1	1
	A	-	-	-	(2)	-	-	-	-
	B	497.00	19	-	(3)	-	-	19	19
	C	-	-	-	(4)	-	-	-	-
	Total	497.00	20	-	Total	1	1	20	20

Project	Canal type	Length (km)	Number of Regu.	Number of FTO	Number of station by level				
					Type	L-1	L-2	L-3	L-4
Phra-Ong Chaiya- nuchit	AA	-	-	-	(1)	-	-	-	-
	A				(2)				
	B	452.20	64	-	(3)	-	-	64	64
	C				(4)				
	Total	452.20	64	-	Total	-	-	64	64
G-Total					32	128	1507	7872	

Note AA ; Major regulator

A ; Main regulator of which capacity is more than 10.0 m³/s.

B ; Regulator of capacity from 1.0 m³/s to 10.0 m³/s.

C ; Regulator of which capacity is less than 1.0 m³/s.

(1) ; Major regulator of AA.

(2) ; Main regulator of A.

(3) ; Other regulator of B and C.

(4) ; FTO.

Table 4.6-2. NUMBER OF WATER LEVEL OBSERVATION STATION BY PROJECT OFFICE

Borommathat Project		Length Number of		Level 2		Level 3		Level 4		
Canal name	(m)	Barrage	Aut	Tele	Aut	Tele	Aut	Tele	Aut	Tele
IL	62,722	12	1	-	2	-	1	1	1	1(I)
1R-1L	7,400	3	-	-	-	-	1	-	-	-
2R-1L	2,800	2	-	-	-	-	-	-	-	-
3R-1L	5,850	3	-	-	-	-	-	-	-	-
4R-1L	4,500	2	-	-	-	-	-	-	-	-
2L	28,400	5	1	-	2	-	1	1	1	1(I)
1L-2L	19,000	5	-	-	-	-	1	-	-	-
1L-1L-2L	2,410	2	-	-	-	-	-	-	-	-
1R-1L-2L	4,510	2	-	-	-	-	-	-	-	-
2L-2L	4,100	2	-	-	-	-	-	-	-	-
3L-2L	5,434	3	-	-	-	-	-	-	-	-
4L-2L	6,700	2	-	-	-	-	-	-	-	-
1R	40,180	7	1	-	2	-	1	1	1	1(I)
1R-1R	5,817	4	-	-	-	-	-	-	-	-
2R-1R	5,800	4	-	-	-	-	-	-	-	-
3R-1R	23,700	4	-	-	-	-	1	-	-	-
4R-1R	8,720	4	-	-	-	-	1	-	-	-
1L-4R-1R	2,710	3	-	-	-	-	-	-	-	-
5R-1R	3,845	4	-	-	-	-	-	-	-	-
6R-1R	15,667	5	-	-	-	-	-	1	-	-
7R-1R	3,800	2	-	-	-	-	-	-	-	-
8R-1R	6,640	3	-	-	-	-	1	-	-	-
1L-1R	20,470	6	-	-	-	-	-	-	-	-
2L-1R	4,660	4	-	-	-	-	-	-	-	-
3L-1R	4,700	4	-	-	-	-	-	-	-	-
4L-1R	7,500	2	-	-	-	-	-	-	-	-
Major Regulator										
Borommathat		1	1	-	1	-	1	1	1	1(IV)
Total	307,735	100	4	6	1	1	9	3	9	3(II)
										1(IV)

Note : Aut ; Automatic water level gauge

Tele ; Automatic gauge with telemeter. () is type of telemeter.

Sam Chuk Project

Canal name	Length (m)	Number of		Level 2		Level 3		Level 4	
		Barrage	Aut	Aut	Tele	Aut	Tele	Aut	Tele
1L	25,000	5	1	3	-	-	-	2	1(II)
1R-1L	7,500	3	-	-	-	-	-	1	-
2R-1L	31,600	7	-	-	-	-	-	1	-
1L-2R-1L	5,600	3	-	-	-	-	-	-	-
2L-2R-1L	7,500	2	-	-	-	-	-	-	-
3R-1L	6,200	2	-	-	-	-	-	-	-
4R-1L	8,500	3	-	-	-	-	-	1	-
1R	35,400	6	1	2	-	-	-	1	1(II)
1R-1R	7,000	3	-	-	-	-	-	-	-
1L-1R	7,400	3	-	-	-	-	-	-	-
2L-1R	9,000	3	-	-	-	-	-	1	-
3L-1R	7,000	3	-	-	-	-	-	1	-
2R	49,300	8	-	1	-	-	-	-	1(II)
1L-2R	5,020	2	-	-	-	-	-	-	-
Major Regulator									
Sam Chuk		1	1	-	-	1(IV)	-	-	1(IV)
Total	212,020	54	3	6	-	1(IV)	8	3(II)	1(IV)

Don Chedi Project

Canal name	Length (m)	Number of		Level 2		Level 3		Level 4	
		Barrage	Aut	Aut	Tele	Aut	Tele	Aut	Tele
Klong Makamthao-									
Uthong	50,125	3	-	2	-	-	-	2	-
9L	4,200	3	-	-	-	-	-	-	-
10L	2,620	2	-	-	-	-	-	-	-
11L	4,100	3	-	-	-	-	-	-	-
12L	4,440	3	-	-	-	-	-	-	-
13L	3,600	3	-	-	-	-	-	-	-
14L	3,800	3	-	-	-	-	-	-	-
15L	4,000	3	-	-	-	-	-	-	-
16L	3,620	4	-	-	-	-	-	-	-
17L	4,200	4	-	-	-	-	-	-	-
18L	6,020	4	-	-	-	-	-	-	1
1L-18L	3,020	2	-	-	-	-	-	-	-
1R-18L	3,400	2	-	-	-	-	-	-	-
19L	6,300	6	-	-	-	-	-	-	1
20L	6,800	4	-	-	-	-	-	-	1
21L	4,920	2	-	-	-	-	-	-	-
22L	4,800	2	-	-	-	-	-	-	-
23L	10,900	5	-	-	-	-	-	-	1
24L	4,855	2	-	-	-	-	-	-	-
Total	135,721	60	2	2	-	-	-	2	6

Thabote Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
Klong Makamthao-								
Uthong	33,280	2	1	2	-	1	1	1 (II)
2L	3,300	2	-	-	-	-	-	-
2L-1	2,520	2	-	-	-	-	-	-
3L	25,620	4	-	-	-	1	-	-
1R-3L	3,700	2	-	-	-	-	-	-
2R-3L	1,720	2	-	-	-	-	-	-
4L	7,000	2	-	-	-	1	-	-
5L	3,520	2	-	-	-	-	-	-
6L	5,600	2	-	-	-	-	-	-
7L	7,300	4	-	-	-	1	-	-
8L	5,300	2	-	-	-	-	-	-
Klong Thabote 1R								
1L	38,300	7	1	2	-	1	1	1 (II)
1L-1L	4,400	2	-	-	-	-	-	-
2L-1L	1,210	2	-	-	-	-	-	-
3L-1L	3,100	3	-	-	-	-	-	-
4L-1L	2,620	3	-	-	-	-	-	-
5L-1L	5,360	4	-	-	-	-	-	-
6L-1L	3,020	3	-	-	-	-	-	-
7L-1L	3,860	3	-	-	-	-	-	-
1R-7L-1L	2,850	2	-	-	-	-	-	-
8L-1L	4,190	3	-	-	-	-	-	-
1R-1L	3,700	2	-	-	-	-	-	-
Major Regulator								
Thabote		1	1	-	-	1 (IV)	-	1 (IV)
Total	180,270	64	3	4	1 (IV)	5	2 (II)	1 (IV)

Pho Phraya Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
1R	13,075	3	1	2	-	-	1	1 (II)
1L-1R	5,100	3	-	-	-	-	-	-
2L-1R	30,500	4	-	-	-	-	1	-
1R-2L-1R	10,460	2	-	-	-	-	1	-
1R-1R-2L-1R	6,023	2	-	-	-	-	-	-
1R-1R	18,215	3	1	2	-	-	1	1 (II)
1L-1R-1R	18,700	2	-	-	-	-	1	-
1L-1R-1R(1)	6,460	2	-	-	-	-	-	-
3L-1R	29,350	3	1	2	-	-	1	1 (II)
1L-3L-1R	9,320	2	-	-	-	-	1	-
1R-3L-1R	7,280	2	-	-	-	-	-	-
1L	19,100	3	1	2	-	-	1	1 (II)
1L-1L	12,800	3	-	-	-	-	1	-
2L-1L	4,500	4	-	-	-	-	-	-
1R-1L	7,300	4	-	-	-	-	-	-
1R-1L-1L	9,842	2	-	-	-	-	1	-
Major Regulator								
Pho Phraya		1	-	-	-	1 (IV)	-	1 (IV)
Phokoi			1	-	-	1 (II)	-	1 (II)
Bang Yithon			1	-	-	1 (II)	-	1 (II)
Total		45	6	8	2 (II)	10	6 (II)	1 (IV)

Chanasutr Project(1/2)

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
1L	7,820	5	-	-	-	-	1	-
1L-1L	6,098	3	-	-	-	-	1	-
1R-1L	17,310	5	-	-	-	-	1	-
1L-1R-1L	5,804	3	-	-	-	-	-	-
2L	14,973	5	-	-	-	-	1	-
1R	79,592	9	1	4	-	-	2	2(II)
1L-1R	29,720	7	-	-	-	-	1	-
1R-1L-1R	5,000	2	-	-	-	-	-	-
2R-1L-1R	16,910	5	-	-	-	-	-	-
1R-2R-1L-1R	1,800	2	-	-	-	-	-	-
2L-1R	12,600	5	-	-	-	-	1	-
1R-2L-1R	4,100	3	-	-	-	-	-	-
3L-1R	24,462	6	-	-	-	-	1	-
1L-3L-1R	4,000	2	-	-	-	-	1	-
2L-3L-1R	3,220	2	-	-	-	-	-	-
1R-3L-1R	5,600	4	-	-	-	-	-	-
1R-1R	13,600	3	-	-	-	-	1	-
1R-1R-1R	5,170	3	-	-	-	-	-	-
2R-1R	8,738	5	-	-	-	-	1	-
4L-1R	12,200	3	-	-	-	-	1	-
5L-1R	16,480	4	-	-	-	-	1	-
1L-5L-1R	1,480	3	-	-	-	-	-	-
2L-5L-1R	4,133	3	-	-	-	-	-	-
3L-5L-1R	4,800	3	-	-	-	-	1	-
1L-3L-5L-1R	3,680	3	-	-	-	-	-	-
1R-5L-1R	3,700	3	-	-	-	-	-	-
2R-5L-1R	5,060	3	-	-	-	-	-	-
3R-5L-1R	5,680	2	-	-	-	-	-	-
6L-1R	7,840	2	-	-	-	-	-	-
7L-1R	4,348	2	-	-	-	-	1	-
1R-7L-1R	6,356	3	-	-	-	-	-	-

Chanasutr Project(2/2)

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
8L-1R	4,440	2	-	-	-	-	-	-
9L-1R	4,200	3	-	-	-	-	-	-
3R-1R	14,810	4	-	-	-	-	1	-
1R-3R-1R	3,432	2	-	-	-	-	1	-
4R-1R	14,940	3	-	-	-	-	1	-
5R-1R	3,670	2	-	-	-	-	-	-
6R-1R	8,650	5	-	-	-	-	1	-
1R(Left bank)	3,366	1	-	-	-	-	-	-
1R-1(Right bank)	5,450	2	-	-	-	-	-	-
1R-1R-1	1,500	2	-	-	-	-	-	-
1R-2(Left)	5,800	2	-	-	-	-	-	-
Major Regulator								
Chanasutr		1	1	-	-	1(W)	-	1(W)
Total	412,628	148	2	4	1(W)	20	2(H)	1(W)

Yangmancee Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
1L	11,074	3	-	-	-	-	1	-
1L-1L	8,039	4	-	-	-	-	1	-
2L	4,160	3	-	-	-	-	-	-
3L	38,990	6	1	3	-	-	1	1 (II)
1L-3L	20,218	3	-	-	-	-	1	-
2L-3L	2,200	2	-	-	-	-	-	-
3L-3L	12,670	3	-	-	-	-	1	-
1R-3L-3L	5,200	3	-	-	-	-	-	-
1R-3L	12,400	5	-	-	-	-	1	-
2R-3L	21,000	6	-	-	-	-	1	-
3R-3L	1,567	2	-	-	-	-	-	-
1R	42,700	8	1	3	-	-	2	1 (II)
1R-1R	2,610	2	-	-	-	-	-	-
2R-2R	15,200	9	-	-	-	-	1	-
Major Regulator Yangmancee		1	1	-	-	1 (IV)	-	1 (IV)
Total	198,028	60	3	6	1 (IV)	10	2 (II)	1 (IV)

Phak Hai Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
Phak Hai Project								
1L	14,400	3	-	-	-	-	1	-
2L	4,200	2	-	-	-	-	-	-
3L	9,120	3	-	-	-	-	1	-
Area between k. Latchado and K. Chaochet								
Klong Pakhai-Chaochet	15,050	1	1	-	-	-	1	-
Major Regulator Phakai		1	-	-	-	-	1 (IV)	1 (IV)
Chaochet		1	1	-	-	-	1 (IV)	1 (IV)
Phakai-Chaochet		1	-	-	-	-	1 (II)	1 (II)
Total	42,790	9	3	1	1 (II)	3	1 (II)	2 (IV)

Bang Ban Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
1R No.1	8,420	2	-	-	-	-	-	-
1L No.1	11,137	2	-	1	-	1	-	-
1R No.2	1,420	2	-	-	-	-	-	-
1L No.2	3,400	2	-	-	-	-	-	-
No.3	4,220	2	-	-	-	-	-	-
No.4	5,420	2	-	-	-	-	-	-
1R No.5	7,320	3	-	-	-	-	1	-
1L No.5	5,400	2	-	-	-	-	-	-
1R No.6	6,100	2	-	-	-	-	1	-
1L No.6	5,420	2	-	-	-	-	-	-
No.7	9,300	1	-	1	-	1	-	-
1R No.7	1,900	2	-	-	-	-	-	-
2R No.7	3,520	2	-	-	-	-	-	-
No.8	9,420	1	-	-	-	-	1	-
1R No.8	8,100	2	-	-	-	-	-	-
1R No.9	4,650	2	-	-	-	-	-	-
2R No.9	4,700	2	-	-	-	-	-	-
1L No.9	3,200	2	-	1	-	1	-	-
No.10	4,420	1	-	-	-	-	-	-
1R No.10	4,500	2	-	-	-	-	-	-
No.11	4,920	1	-	-	-	-	-	-
No.12	5,900	1	-	-	-	-	1	-
Total	122,737	40	-	3	-	3	7	-

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
<u>Chaochet-Bang Yinon Project</u>								
Canal	989,300	90	-	-	-	-	-	-
Major Regulator								
Singhanat			1	-	1(II)	-	1(II)	-
Phraya Ban Lu			1	-	1(IV)	-	1(IV)	-
Total	989,300	90	2	-	1(II)	-	1(II)	-
								1(IV)
<u>Phraya Ban Lu Project</u>								
Canal	834,100	55	-	-	-	-	-	-
Major Regulator								
Bang Buathong			1	-	1(II)	-	1(II)	-
Total	834,100	55	1	-	1(II)	-	1(II)	-
<u>Phra Pimon Project</u>								
Canal	422,300	23	-	-	-	-	-	-
Major Regulator								
Phra Pimon			1	-	1(IV)	-	1(IV)	-
Maha Sawat			1	-	1(IV)	-	1(IV)	-
Chimphli			1	-	1(II)	-	1(II)	-
Total	422,300	23	3	-	1(II)	-	1(II)	-
								2(IV)
<u>Phasi Charoen Project</u>								
Canal	1,094,000	32	-	-	-	-	-	-
Total	1,094,000	32	-	-	-	-	-	-

Manorom Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
Klong Ban Lek	10,600	4	-	-	-	-	1	-
1R	6,400	3	-	-	-	-	-	-
1L	4,900	4	-	-	-	-	-	-
Klong Chainat-Pasak	45,600	1	-	-	-	-	1	-
1R	4,800	5	-	-	-	-	-	-
1L-1R	2,600	4	-	-	-	-	-	-
2L-1R	3,600	3	-	-	-	-	-	-
2R	7,200	3	-	-	-	-	1	-
1L-2R	3,700	4	-	-	-	-	-	-
3R-1	2,400	3	-	-	-	-	-	-
3R-2	2,500	3	-	-	-	-	-	-
3R	9,360	5	-	-	-	-	1	-
4R	7,100	4	-	-	-	-	1	-
5R	9,600	5	-	-	-	-	1	-
6R	13,700	5	-	-	-	-	1	-
7R	6,500	4	-	-	-	-	1	-
8R	10,200	3	-	-	-	-	1	-
Klong Thamamun	15,350	5	-	-	-	-	1	-
Klong Ban Kram	5,600	4	-	-	-	-	-	-
Klong Kao Kaew	24,200	5	-	-	-	-	1	-
1R	8,800	3	-	-	-	-	1	-
2R	7,800	2	-	-	-	-	1	-
1L	10,000	2	-	-	-	-	1	-
Major Regulator Manorom			-	-	-	-	1(IV)	1(IV)
Total	222,510	109	-	-	-	-	14	1(IV)

Chong Kae Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
Klong Chainat-Pasak	39,650	1	-	-	-	-	-	-
9R	18,200	3	1	-	2	-	1	1(II)
1R-9R	8,000	4	-	-	-	-	1	-
2R-9R	5,000	3	-	-	-	-	1	-
3R-9R	6,670	3	-	-	-	-	1	-
1L-9R	5,550	2	-	-	-	-	-	-
2L-9R	13,600	4	-	-	-	-	1	-
10R	3,700	3	-	-	-	-	-	-
11R	3,000	3	-	-	-	-	-	-
12R	4,400	3	-	-	-	-	-	-
13R	4,700	3	-	-	-	-	1	-
14R	9,400	5	-	-	-	-	1	-
15R	3,700	4	-	-	-	-	-	-
16R	15,900	7	1	-	2	-	1	1(II)
1R-16R	9,100	4	-	-	-	-	-	-
2R-16R	8,000	5	-	-	-	-	1	-
3R-16R	5,100	4	-	-	-	-	-	-
1L-16R	13,200	2	-	-	-	-	-	-
17R	9,200	2	-	-	-	-	1	-
1L	3,400	2	-	-	-	-	-	-
2L	7,000	2	-	-	-	-	-	-
3L	5,000	2	-	-	-	-	-	-
3L-9R	11,000	2	-	-	-	-	-	-
Major Regulator Chong Kae			1	-	-	-	1(IV)	1(IV)
Total	212,470	73	3	-	4	-	10	2(II)

1(IV)

Koke Kathiem Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
Klong Chainat-								
Pasak	36,650	1	-	-	-	-	-	-
18R	7,400	5	-	-	-	-	1	-
19R	6,400	6	-	-	-	-	1	-
1L-19R	6,000	4	-	-	-	-	1	-
1L-1L-19R	2,400	2	-	-	-	-	-	-
20R	1,200	2	-	-	-	-	-	-
21R	38,200	3	1	3	-	-	2	1(II)
1R-21R	20,600	4	-	-	-	-	1	-
1R-1R-21R	5,840	3	-	-	-	-	-	-
2R-1R-21R	14,200	6	-	-	-	-	1	-
1L-21R	3,400	3	-	-	-	-	-	-
2L-21R	6,600	4	-	-	-	-	-	-
3L-21R	14,000	12	-	-	-	-	1	-
1R-3L-21R	5,000	5	-	-	-	-	-	-
2R-3L-21R	3,500	3	-	-	-	-	-	-
4L-21R	5,800	2	-	-	-	-	-	-
22R	12,500	4	-	-	1	-	1	1(II)
1R-22R	3,300	3	-	-	-	-	-	-
1L-1R-22R	2,500	3	-	-	-	-	-	-
2R-22R	3,700	3	-	-	-	-	-	-
3R-22R	2,920	3	-	-	-	-	-	-
4R-22R	3,600	5	-	-	-	-	-	-
Major Regulator								
Koke Kathiem			-	-	-	-	1(IV)	1(IV)
Total	205,710	76	1	4	1(IV)	9	2(II)	1(IV)

Maharaj Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
Klong Chainat-								
Ayuthaya	120,390	6	1	3	-	-	1	2(II)
1L	3,200	2	-	-	-	-	-	-
2L	9,100	4	-	-	-	-	1	-
3L	24,300	6	-	-	-	-	1	-
4L	8,700	4	-	-	-	-	1	-
5L	2,600	2	-	-	-	-	-	-
6L	3,800	2	-	-	-	-	-	-
7L	19,520	3	-	-	-	-	1	-
1L-7L	11,100	3	-	-	-	-	1	-
8L	34,020	6	1	2	-	-	1	1(II)
1L-8L	10,680	3	-	-	-	-	1	-
1L-1L-8L	2,200	2	-	-	-	-	-	-
2L-8L	27,800	12	-	-	-	-	1	-
1R-8L	9,820	4	-	-	-	-	1	-
9L	4,740	3	-	-	-	-	-	-
10L	4,793	3	-	-	-	-	-	-
11L	2,040	2	-	-	-	-	-	-
12L	5,820	6	-	-	-	-	1	-
1L-12L	1,420	2	-	-	-	-	-	-
13L	11,760	6	-	-	-	-	-	-
1R	25,000	2	-	-	-	-	1	-
1L-1R	5,340	3	-	-	-	-	-	-
2R	7,300	6	-	-	-	-	-	-
14L	8,800	5	-	-	-	-	1	-
Major Regulator								
Maharaj			-	-	-	-	1(I)	1(I)
Total	364,247	97	2	5	1(I)	13	1(I)	3(II)

Pasak Tai Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
Klong Raphiph-								
atana	32,000	2	1	2	-	-	1	-
1R	4,600	2	-	-	-	-	1	-
2R	10,500	3	-	-	-	-	1	-
3R	10,892	4	-	-	-	-	1	-
4R	1,712	2	-	-	-	-	-	-
5R	12,800	5	-	-	-	-	1	-
6R	3,600	3	-	-	-	-	-	-
7R	11,950	4	-	-	-	-	1	-
8R	17,450	6	-	-	-	-	1	-
9R	4,200	2	-	-	-	-	-	-
10R	1,600	3	-	-	-	-	-	-
11R	4,200	2	-	-	-	-	1	-
Area in Klong 6-10								
Area in upper side								
Klong Hokwa								
1L-3R	4,800	4	-	-	-	-	-	-
2L-3R	4,000	3	-	-	-	-	-	-
3L-3R	7,200	4	-	-	-	-	-	-
1L-5R	3,300	2	-	-	-	-	-	-
2L-5R	2,850	2	-	-	-	-	-	-
1R-7R	2,450	3	-	-	-	-	-	-
2R-7R	4,600	3	-	-	-	-	-	-
1L-7R	3,020	1	-	-	-	-	-	-
2L-7R	4,500	4	-	-	-	-	-	-
1R-8R	6,100	3	-	-	-	-	-	-
2R-8R	5,800	3	-	-	-	-	-	-
1L-8R	3,650	4	-	-	-	-	-	-
K. Raphiptatana								
West Branch	12,000	-	-	-	-	-	-	-
South Branch	6,400	-	-	-	-	-	-	-
Major Regulator								
Rama VI	-	-	-	-	-	-	1(IV)	1(IV)
Phra Narai	-	-	-	-	-	-	1(I)	1(I)
Phra Sri Sawa	-	-	-	-	-	-	1(II)	1(II)
Phra Sri Sril	-	-	-	-	-	-	1(I)	1(I)
Total	186,174	74	1	2	4	2	4	8

Roeng Rang Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
Klong Chainat-								
Pasak								
23R	17,800	3	-	1	-	1	1(II)	-
1R-23R	5,000	3	-	-	-	-	-	-
2R-23R	6,800	4	-	-	-	-	1	-
3R-23R	5,000	2	-	-	-	-	-	-
4R-23R	3,700	2	-	-	-	-	-	-
24R	44,500	2	1	2	-	1	1(II)	-
1R-24R	9,180	3	-	-	-	-	1	-
2R-24R	7,400	3	-	-	-	-	1	-
3R-24R	2,000	2	-	-	-	-	-	-
4R-24R	5,200	3	-	-	-	-	-	-
5R-24R	2,600	2	-	-	-	-	-	-
1L-24R	5,600	3	-	-	-	-	-	-
25R	12,144	1	-	-	-	-	-	-
Major Regulator								
Roeng Rang								
Total	139,803	34	1	3	1(IV)	5	2(II)	1(IV)

Nakhon Luang Project

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
Klong Nakhon-								
Luang	55,900	3	1	3	-	-	2	-
1R	18,214	4	-	-	-	-	1	-
1L-1R	6,000	2	-	-	-	-	1	-
2R	6,100	3	-	-	-	-	1	-
1L-2R	5,900	2	-	-	-	-	-	-
3R	17,900	4	-	-	-	-	1	-
1L-3R	4,000	2	-	-	-	-	-	-
2L-3R	7,000	2	-	-	-	-	-	-
3L-3R	7,000	4	-	-	-	-	-	-
4R	15,571	2	-	-	-	-	1	-
5R	17,000	2	-	-	-	-	1	-
1R-5R	6,000	2	-	-	-	-	-	-
6R	4,800	2	-	-	-	-	-	-
1L	11,054	5	-	-	-	-	1	-
1R-1L	3,480	4	-	-	-	-	-	-
2R-1L	3,200	2	-	-	-	-	-	-
3R-1L	1,200	2	-	-	-	-	-	-
7R	7,000	2	-	-	-	-	-	-
Klong Nakhon								
Luang (new)	4,100	1	-	-	-	-	-	-
Total	201,419	49	1	8	-	-	9	-

Canal name	Length (m)	Number of Barrage	Level 2		Level 3		Level 4	
			Aut	Tele	Aut	Tele	Aut	Tele
Rangsit Nua Project								
Total	536,900	51	-	-	-	-	-	-
Major Regulator								
2E canal	-	-	-	-	-	-	1 (IV)	1 (IV)
Klong Rangsit	-	-	-	-	-	-	1 (I)	2 (I)
Total	536,900	51	-	-	-	-	1 (I)	2 (I)
Rangsit Tai Project								
Total	597,300	53	-	-	-	-	-	-
Major Regulator								
Klong 13	-	-	1	1	1	1	1 (IV)	2 (IV)
Total	597,300	53	1	1	1	1	1 (IV)	2 (IV)
Klong Dan Project								
Total	497,000	20	-	-	-	-	-	-
Major Regulator								
Klong Dan	-	-	1	1	1	1	1 (IV)	3 (IV)
Total	497,000	20	1	1	1	1	1 (IV)	3 (IV)
Phra-Ong Chaiyanuchit Project								
Total	452,200	64	-	-	-	-	1	3

Appendix 4.7 IMPROVEMENT PLAN IN THE UPPER AND MIDDLE BASINS

Table 4.7-1. REQUIRED COMMUNICATION FACILITIES BY REGION

REQUIRED COMMUNICATION FACILITIES IN UPPER AND MIDDLE BASINS

Required Facility	Unit	Level-1			Level-2			Level-3			Level-4		
		Region			Region			Region			Region		
		1	2	3	1	2	3	1	2	3	1	2	3
HF/SSB radio system	set	6	8	6	6	8	6	6	8	6	6	8	6
VHF/FM radio system													
- New installation	"	3	8	9	3	8	9	3	8	9	3	8	9
- Replacement of radio equipment	"	14	9	10	14	9	10	14	9	10	14	9	10
Private wire telephone													
- Telephone cable	km	-	-	-	182	206	175	182	206	175	182	206	175
- Telephone set	set	-	-	-	146	127	155	146	127	155	146	127	155
Rural radiotelephone													
- Main station(1)	"	-	-	-	1	1	1	1	1	1	1	1	1
- Main station(2)	"	-	-	-	-	-	1	-	-	1	-	-	1
- Sub station	"	-	-	-	6	3	6	6	3	6	6	3	6
Low capacity multiplex radio	"	-	-	-	-	-	2	-	-	2	-	-	2
Private automatic branch exchange	"	-	-	-	6	3	7	6	3	7	6	3	7
VHF/FM radio system in project area													
- Radio equipment	"	-	-	-	34	34	38	34	34	38	34	34	38
- Land mobil	"	-	-	-	17	17	19	17	17	19	17	17	19
- Portable wireless telephone	"	-	-	-	153	153	171	153	153	171	153	153	171

Table 4.7-2 REQUIRED MONITORING FACILITIES BY REGION

REQUIRED MONITORING FACILITIES IN UPPER AND MIDDLE BASINS

Facilities	Unit	Level-1			Level-2			Level-3			Level-4		
		Region			Region			Region			Region		
		1	2	3	1	2	3	1	2	3	1	2	3
<u>Observation Facilities</u>													
<u>in project area</u>													
Staff gauge	set	47	25	77	-	-	-	-	-	-	-	-	
Automatic water level gauge	"	-	-	-	16	8	25	22	11	35	52	27	85
Reserving rainfall gauge	"	3	2	5	-	-	-	-	-	-	-	-	-
Automatic rainfall gauge	"	-	-	-	4	2	6	4	2	6	4	2	6
Waterlevel/Rainfall with telemeter	"	-	-	-	-	-	-	-	-	-	5	3	8
Water quality meter	"	-	-	-	-	-	-	-	-	-	-	-	-
Soil moisture meter	"	-	-	-	-	-	-	4	2	6	8	4	12
Ground water gauge	"	-	-	-	-	-	-	-	-	-	4	2	6
Water flow meter	"	-	-	-	-	-	-	4	2	6	8	4	12
<u>Monitoring Facilities</u>													
<u>in office</u>													
Display panel(offline)	"	-	-	-	-	-	-	-	-	1	-	-	-
Telemeter equipment	site	-	-	-	-	-	-	-	-	-	1	1	1
Operating room	"	-	-	-	-	-	-	-	-	1	9	9	11
<u>Monitoring Vehicle in project</u>													
Motorcycle	unit	-	-	-	12	6	20	15	8	26	25	13	41
Patrol car	"	-	-	-	8	8	9	8	8	9	18	18	20
Maintenance car	"	-	-	-	-	-	-	-	-	-	1	1	1

Table 4.8-1 REQUIRED COMMUNICATION FACILITIES BY LEVEL

Required Communication Facilities by Level (Regional 8 office)		Required Communication Facilities by Level (Regional 7 office)			
Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	1	1
Rural radiotelephone					
- Main station (1)	"	-	-	1	1
- Main station (2)	"	-	1	-	-
- Sub station	"	-	-	-	-
Private automatic branch Exchange	"	-	-	-	-
Antenna Tower Guyed 30m	"	-	-	-	-
" Guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	-	-	-
- Telephone set	set	-	-	-	-
VHF/FM radio system					
- New installation	"	-	-	-	-
- Removal	"	-	-	-	-
- Land mobil	"	-	-	-	-
- Portable wireless telephone	"	-	-	-	-

Required Communication Facilities by Level (Phonlathep)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	1	1	1	1
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	14.0	14.0	14.0
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	-	-	-
Private automatic branch Exchange	"	-	1	1	1
Antenna Tower Guyed 30m	"	-	-	-	-
" Guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	38	38	38
- Telephone set	set	-	33	33	33
VHF/FM radio system					
- New installation	"	-	-	-	-
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	9	9	9

Required Communication Facilities by Level (Chao Phraya Dam Office)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	1.5	1.5	1.5
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	-	-	-
Private automatic branch Exchange	"	-	-	-	-
Antenna Tower Guyed 30m	"	-	-	-	-
" Guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	-	-	-
- Telephone set	set	-	-	-	-
VHF/FM radio system					
- New installation	"	-	-	-	-
- Removal	"	-	-	-	-
- Land mobil	"	-	-	-	-
- Portable wireless telephone	"	-	3	3	3

Required Communication Facilities by Level (Sam Chuk)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	1	1	1
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	1	1	1
- Sub station	"	-	-	-	-
Private automatic branch Exchange	"	-	1	1	1
Antenna Tower Guyed 30m	"	-	1	1	1
" Guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	70	70	70
- Telephone set	set	-	45	45	45
VHF/FM radio system					
- New installation	"	-	3	3	3
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	18	18	18

Required Communication Facilities by Level (Chanasutr)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	"	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	86	86	86
- Telephone set	set	-	73	73	73
VHF/FM radio system					
- New installation	"	-	5	5	5
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	30	30	30

Required Communication Facilities by Level (Don Chedi)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch Exchange	"	-	1	1	1
Antenna Tower Guyed 30m	"	-	-	-	-
" Guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	50	50	50
- Telephone set	set	-	49	49	49
VHF/FM radio system					
- New installation	"	-	-	-	-
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	9	9	9

Required Communication Facilities by Level (Borommathat)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	1	1	1	1
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	4.2	4.2	4.2
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	-	-	-
Private automatic branch Exchange	"	-	1	1	1
Antenna Tower Guyed 30m	"	-	-	-	-
" Guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	79	79	79
- Telephone set	set	-	50	50	50
VHF/FM radio system					
- New installation	"	-	3	3	3
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	22	22	22

Required Communication Facilities by Level (Thabote)

Required Facilities Communication Facilities of	Unit	Level-1	Level-2	Level-3	Level-4
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	1	1	1	1
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch Exchange	"	-	1	1	1
Antenna Tower Guyed 30m	"	-	-	-	-
" Guyed 20m	"	-	-	-	-
<u>Communication Facilities of Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	70	70	70
- Telephone set	set	-	55	55	55
VHF/FM radio system					
- New installation	"	-	1	1	1
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	9	9	9

Required Communication Facilities by Level (Pho Phraya)

Required Facilities Communication Facilities of	Unit	Level-1	Level-2	Level-3	Level-4
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	2	2	2	2
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch Exchange	"	-	1	1	1
Antenna Tower Guyed 30m	"	-	-	-	-
" Guyed 20m	"	-	-	-	-
<u>Communication Facilities of Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	89	89	89
- Telephone set	set	-	58	58	58
VHF/FM radio system					
- New installation	"	-	3	3	3
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	19	19	19

Required Communication Facilities by Level (Phak hai)

Required Communication Facilities by Level (Yangmanee)

Required Facilities of Communication Facilities of	Unit	Level-1	Level-2	Level-3	Level-4
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	1	1	1	1
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	2	2	2	2
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Praivate automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	"	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	53	53	53
- Telephone set	set	-	46	46	46
<u>VHF/FM radio system</u>					
- New installation	"	-	1	1	1
- Removal	"	-	-	-	-
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	9	9	9

Required Facilities of Communication Facilities of	Unit	Level-1	Level-2	Level-3	Level-4
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Praivate automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	"	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	76	76	76
- Telephone set	set	-	57	57	57
<u>VHF/FM radio system</u>					
- New installation	"	-	1	1	1
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	14	14	14

Required Communication Facilities by Level (Chao Chet Bang Yihon)

Required Facilities Communication Facilities of	Unit	Level-1	Level-2	Level-3	Level-4
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	1	1	1	1
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	1	1	1	1
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	"	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	52	52	52
- Telephone set	set	-	42	42	42
VHF/FM radio system					
- New installation	"	-	1	1	1
- Removal	"	-	-	-	-
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	14	14	14

Required Communication Facilities by Level (Bang Ban)

Required Facilities Communication Facilities of	Unit	Level-1	Level-2	Level-3	Level-4
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	1	1	1	1
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	1	1	1	1
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	1	1	1
- Sub station	"	-	-	-	-
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	"	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	-	-	-
- Telephone set	set	-	20	20	20
VHF/FM radio system					
- New installation	"	-	-	-	-
- Removal	"	-	-	-	-
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	15	15	15

Required Communication Facilities by Level (Phra Pimon)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	1	1	1	1
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	2	2	2	2
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	-	-	-
Praivate automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	"	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	25	25	25
- Telephone set	set	-	30	30	30
<u>VHF/FM radio system</u>					
- New installation	"	-	-	-	-
- Removal	"	-	-	-	-
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	11	11	11

Required Communication Facilities by Level (Phraya Bar Lu)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	-	-	-
Praivate automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	"	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	75	75	75
- Telephone set	set	-	42	42	42
<u>VHF/FM radio system</u>					
- New installation	"	-	3	3	3
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	19	19	19

Required Communication Facilities by Level (Phasi Chaoren)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	1	1	1	1
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	-	-	-
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	"	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	20	20	20
- Telephone set	set	-	-	-	-
<u>VHF/FM radio system</u>					
- New installation	"	-	1	1	1
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	15	15	15

Required Communication Facilities by Level (Kra-siao)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	set	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	20	20	20
- Telephone set	set	-	-	-	-
<u>VHF/FM radio system</u>					
- New installation	set	-	-	-	-
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	15	15	15

Required Communication Facilities by Level (Manorom)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	"	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	83	83	83
- Telephone set	set	-	57	57	57
<u>VHF/FM radio system</u>					
- New installation	"	-	1	1	1
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	12	12	12

Required Communication Facilities by Level (Chong Kae)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	set	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	58	58	58
- Telephone set	set	-	35	35	35
<u>VHF/FM radio system</u>					
- New installation	"	-	-	-	-
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	9	9	9

Required Communication Facilities by Level (Maharaj)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	set	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	118	118	118
- Telephone set	set	-	69	69	69
<u>VHF/FM radio system</u>					
- New installation	"	-	3	3	3
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	28	28	28

Required Communication Facilities by Level (Khok Kathiem)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	1	1	1	1
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	0.6	0.6	0.6
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	-	-	-
Private automatic branch exchange	"	-	-	-	-
Antenna tower guyed 30m	set	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	78	78	78
- Telephone set	set	-	59	59	59
<u>VHF/FM radio system</u>					
- New installation	"	-	2	2	2
- Removal	"	-	-	-	-
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	9	9	9

Required Communication Facilities by Level (Roeng Rang)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	1	1	1	1
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	set	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	36	36	36
- Telephone set	set	-	34	34	34
VHF/FM radio system					
- New installation	"	-	-	-	-
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	11	11	11

Required Communication Facilities by Level (Pasak Tai)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	1	1	1	1
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	2	2	2	2
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	set	-	-	-	-
" guyed 20m	"	-	1	1	1
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	42	42	42
- Telephone set	set	-	35	35	35
VHF/FM radio system					
- New installation	"	-	-	-	-
- Removal	"	-	-	-	-
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	9	9	9

Required Communication Facilities by Level (Nakhon Luang)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	set	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	60	60	60
- Telephone set	set	-	43	43	43
<u>VHF/FM radio system</u>					
- New installation	"	-	1	1	1
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	12	12	12

Required Communication Facilities by Level (Rangsit Nua)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	2	2	2	2
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
<u>Rural radiotelephone</u>					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	1	1	1
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	set	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	40	40	40
- Telephone set	set	-	42	42	42
<u>VHF/FM radio system</u>					
- New installation	"	-	1	1	1
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	12	12	12

Required Communication Facilities by Level (Rangsit Tai)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	1	1	1	1
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	-	-	-	-
- New installation at major regulator site	"	1	1	1	1
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	-	-	-
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	set	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	58	58	58
- Telephone set	set	-	37	37	37
VHF/FM radio system					
- New installation	"	-	2	2	2
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	20	20	20

Required Communication Facilities by Level (Khlong Dan)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	-	-	-
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	set	-	-	-	-
" guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	-	-	-
- Telephone set	set	-	20	20	20
VHF/FM radio system					
- New installation	"	-	2	2	2
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	20	20	20

Required Communication Facilities by Level (Phra ong Chaiyanuchit)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	-	-	-
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	set	-	-	-	-
" " guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	33	33	33
- Telephone set	set	-	40	40	40
VHF/FM radio system					
- New installation	set	-	2	2	2
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	19	19	19

Required Communication Facilities by Level (Khlong Prieu)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Communication Facilities of</u>					
<u>Local Circuit</u>					
VHF/FM radio system					
- New installation	set	-	-	-	-
- Replacement of radio equipment and antenna	"	-	-	-	-
- Replacement of radio equipment	"	1	1	1	1
- New installation at major regulator site	"	-	-	-	-
Private wire telephone cable	km	-	-	-	-
Low capacity multiplex radio	set	-	-	-	-
Rural radiotelephone					
- Main station (1)	"	-	-	-	-
- Main station (2)	"	-	-	-	-
- Sub station	"	-	-	-	-
Private automatic branch exchange	"	-	1	1	1
Antenna tower guyed 30m	set	-	-	-	-
" " guyed 20m	"	-	-	-	-
<u>Communication Facilities of</u>					
<u>Field Circuit</u>					
Private wire telephone					
- Communication cable	km	-	44	44	44
- Telephone set	set	-	34	34	34
VHF/FM radio system					
- New installation	set	-	-	-	-
- Removal	"	-	1	1	1
- Land mobil	"	-	1	1	1
- Portable wireless telephone	"	-	9	9	9

Table 4.8-2 REQUIRED MONITORING FACILITIES BY LEVEL

Appendix 4.8

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Required Monitoring Facilities by Level (Phonlathep)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	9	-	-	-
Automatic water level gauge	"	-	6	8	12
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	2
Telemetering type (1)	"	-	-	1	1
" (2)	"	-	-	1	3
" (3)	"	-	-	-	-
" (4)	"	-	-	-	-
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	3
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	1
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	2	3	4
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Borommathat)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	20	-	-	-
Automatic water level gauge	"	-	8	12	18
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	4
Telemetering type (1)	"	-	-	-	-
" (2)	"	-	-	-	3
" (3)	"	-	-	-	-
" (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	5
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	1
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	4	5	8
Patrol car	"	-	1	1	1

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
Observation Facilities in Project area					
Staff gauge	set	16	-	-	-
Automatic water level gauge	"	-	6	12	16
Reserving rainfall gauge	"	2	-	-	-
Automatic rainfall gauge	"	-	1	1	4
Telemetering type (1)	"	-	-	-	-
" (2)	"	-	-	-	3
" (3)	"	-	-	-	-
" (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	5
Monitoring Facilities in office					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	1
Operating room (floor area)	m ²	-	-	10	300
Monitoring Vehicle in Project					
Motorcycle	unit	-	4	5	8
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Donjedee)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
Observation Facilities in Project area					
Staff gauge	set	24	-	-	-
Automatic water level gauge	"	-	4	4	12
Reserving rainfall gauge	"	-	-	-	-
Automatic rainfall gauge	"	-	1	1	2
Telemetering type (1)	"	-	-	-	-
" (2)	"	-	-	-	-
" (3)	"	-	-	-	-
" (4)	"	-	-	-	-
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	3
Monitoring Facilities in office					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
Monitoring Vehicle in Project					
Motorcycle	unit	-	2	3	4
Patrol car	"	-	1	1	1

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	11	-	-	-
Automatic water level gauge	"	-	12	16	20
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	4
Telemetering type (1)	"	-	-	-	-
" (2)	"	-	-	2	6
" (3)	"	-	-	-	-
" (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	5
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	4	5	8
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Thabote)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	8	-	-	-
Automatic water level gauge	"	-	6	8	10
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	2
Telemetering type (1)	"	-	-	-	-
" (2)	"	-	-	-	2
" (3)	"	-	-	-	-
" (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	3
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	2	3	4
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Chanasutr)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	33	-	-	-
Automatic water level gauge	"	-	4	8	40
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	7
Telemetering type (1)	"	-	-	-	-
" (2)	"	-	-	-	2
" (3)	"	-	-	-	-
" (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	8
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	7	8	14
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Yangmanee)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	20	-	-	-
Automatic water level gauge	"	-	6	12	20
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	3
Telemetering type (1)	"	-	-	-	-
" (2)	"	-	-	-	2
" (3)	"	-	-	-	-
" (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	4
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	1
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	3	4	6
Patrol car	"	-	1	1	1

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
Observation Facilities in Project area					
Staff gauge	set	3	-	-	-
Automatic water level gauge	"	-	6	4	6
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	2
Telemetering type (1)	"	-	-	-	-
" (2)	"	-	-	1	1
" (3)	"	-	-	-	-
" (4)	"	-	-	2	2
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	3
Monitoring Facilities in office					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
Monitoring Vehicle in Project					
Motorcycle	unit	-	2	3	4
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Bang Ban)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
Observation Facilities in Project area					
Staff gauge	set	5	-	-	-
Automatic water level gauge	"	-	-	6	14
Reserving rainfall gauge	"	-	-	-	-
Automatic rainfall gauge	"	-	1	1	2
Telemetering type (1)	"	-	-	-	-
" (2)	"	-	-	-	-
" (3)	"	-	-	-	-
" (4)	"	-	-	-	-
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	3
Monitoring Facilities in office					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	1
Operating room (floor area)	m ²	-	-	10	300
Monitoring Vehicle in Project					
Motorcycle	unit	-	2	3	4
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Chao Chet-Bang Yihon)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	9	-	-	-
Automatic water level gauge	"	-	4	-	-
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	3
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	1	1
" type (3)	"	-	-	-	-
" type (4)	"	-	-	-	-
Water quality meter (portable)	"	-	1	1	3
" (fixed)	"	-	-	-	1
Soil moisture meter	"	-	-	3	6
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	4
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	1
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	3	4	6
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Phraya Ban Lu)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	6	-	-	-
Automatic water level gauge	"	-	2	-	-
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	5
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	1	1
" type (3)	"	-	-	-	-
" type (4)	"	-	-	1	1
Water quality meter (portable)	"	-	1	1	5
" (fixed)	"	-	-	1	1
Soil moisture meter	"	-	-	5	10
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	6
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	5	6	10
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Phasi Charoen)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	4	-	-	-
Automatic water level gauge	"	-	-	4	4
Reserving rainfall gauge	"	-	-	-	-
Automatic rainfall gauge	"	-	1	1	2
Telemetry type (1)	"	-	-	-	-
" type (2)	"	-	-	-	-
" type (3)	"	-	-	-	-
" type (4)	"	-	-	-	-
Water quality meter (portable)	"	-	1	1	2
" (fixed)	"	-	-	1	2
Soil moisture meter	"	-	-	2	4
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	3
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetry equipment	unit	-	-	-	1
Operating room (floor area)	m ²	-	-	10	300
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	2	3	4
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Phra Pimon)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	3	-	-	-
Automatic water level gauge	"	-	6	-	-
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	2
Telemetry type (1)	"	-	-	-	-
" type (2)	"	-	-	1	1
" type (3)	"	-	-	-	-
" type (4)	"	-	-	2	2
Water quality meter (portable)	"	-	1	1	2
" (fixed)	"	-	-	1	2
Soil moisture meter	"	-	-	2	4
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	3
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetry equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	2	3	4
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Manorom)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	23	-	-	-
Automatic water level gauge	"	-	-	-	28
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	3
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	-	-
" type (3)	"	-	-	-	-
" type (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	4
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	1
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	3	4	6
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Chong Kae)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	16	-	-	-
Automatic water level gauge	"	-	6	8	20
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	2
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	-	2
" type (3)	"	-	-	-	-
" type (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	3
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	2	3	4
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Maharaj)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	28	-	-	-
Automatic water level gauge	"	-	4	10	26
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	6
Telemetering type (1)	"	-	-	1	1
" type (2)	"	-	-	-	3
" type (3)	"	-	-	-	-
" type (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	7
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	1
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	6	7	12
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Khok Kathiem)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	14	-	-	-
Automatic water level gauge	"	-	2	8	18
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	2
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	-	2
" type (3)	"	-	-	-	-
" type (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	3
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	1
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	6	7	12
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Roeng Rang)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	7	-	-	-
Automatic water level gauge	"	-	2	6	10
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	2
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	-	2
" type (3)	"	-	-	-	-
" type (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	3
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	1
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	2	3	4
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Pasak Tai)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	12	-	-	-
Automatic water level gauge	"	-	2	4	16
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	2
Telemetering type (1)	"	-	-	2	2
" type (2)	"	-	-	1	1
" type (3)	"	-	-	-	-
" type (4)	"	-	-	1	1
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	2	4
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	3
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	1
Operating room (floor area)	m ²	-	-	10	300
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	2	3	4
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Nakhon Luang)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	10	-	-	-
Automatic water level gauge	"	-	2	6	18
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	3
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	-	-
" type (3)	"	-	-	-	-
" type (4)	"	-	-	-	-
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	3	6
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	4
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	3	4	6
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Rangsit Nua)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	5	-	-	-
Automatic water level gauge	"	-	-	2	4
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	3
Telemetering type (1)	"	-	-	1	1
" type (2)	"	-	-	-	-
" type (3)	"	-	-	-	-
" type (4)	"	-	-	1	1
Water quality meter (portable)	"	-	1	1	3
" (fixed)	"	-	-	-	1
Soil moisture meter	"	-	-	3	6
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	4
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	3	4	6
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Rangsit Tai)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	5	-	-	-
Automatic water level gauge	"	-	2	2	4
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	5
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	-	-
" type (3)	"	-	-	-	-
" type (4)	"	-	-	1	1
Water quality meter (portable)	"	-	1	1	5
" (fixed)	"	-	-	1	1
Soil moisture meter	"	-	-	5	10
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	6
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	1
Operating room (floor area)	m ²	-	-	10	300
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	5	6	10
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Klong Dan)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	2	-	-	-
Automatic water level gauge	"	-	2	2	6
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	3
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	-	-
" type (3)	"	-	-	-	-
" type (4)	"	-	-	1	1
Water quality meter (portable)	"	-	1	1	3
" (fixed)	"	-	-	1	2
Soil moisture meter	"	-	-	3	6
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	4
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	3	4	6
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Phra Ong Chaiyanuchit)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	6	-	-	-
Automatic water level gauge	"	-	-	2	6
Reserving rainfall gauge	"	1	-	-	-
Automatic rainfall gauge	"	-	1	1	4
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	-	-
" type (3)	"	-	-	-	-
" type (4)	"	-	-	-	-
Water quality meter (portable)	"	-	1	1	4
" (fixed)	"	-	-	1	2
Soil moisture meter	"	-	-	4	8
Ground water level gauge	"	-	-	-	2
Water flow meter (portable)	"	-	-	1	5
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	-	-
Operating room (floor area)	m ²	-	-	10	40
<u>Monitoring Vehicle in Project</u>					
Motorcycle	unit	-	4	5	8
Patrol car	"	-	1	1	1

Required Monitoring Facilities by Level (Regional 7 office)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	-	-	-	-
Automatic water level gauge	"	-	-	-	-
Reserving rainfall gauge	"	-	-	-	-
Automatic rainfall gauge	"	-	-	-	-
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	-	-
" type (3)	"	-	-	-	-
" type (4)	"	-	-	-	-
Water quality meter (portable)	"	-	-	2	4
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	-
Water flow meter (portable)	"	-	-	-	-
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	1	1	-
Telemetering equipment	unit	-	-	-	1
Operating room (floor area)	m ²	-	-	400	800
<u>Monitoring Vehicle in office</u>					
Motorcycle	unit	-	-	-	-
Patrol car	"	-	1	1	1
Maintenance car	"	-	-	-	1

Required Monitoring Facilities by Level (Head office)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	-	-	-	-
Automatic water level gauge	"	-	-	-	-
Reserving rainfall gauge	"	-	-	-	-
Automatic rainfall gauge	"	-	-	-	-
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	-	-
" type (3)	"	-	-	-	-
" type (4)	"	-	-	-	-
Water quality meter (portable)	"	-	-	-	-
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	-
Water flow meter (portable)	"	-	-	-	-
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	-	-	-
Telemetering equipment	unit	-	-	1	1
Operating room (floor area)	m ²	-	-	1000	1500
<u>Monitoring Vehicle in office</u>					
Motorcycle	unit	-	-	-	-
Patrol car	"	-	-	-	-
Maintenance car	"	-	-	1	1

Required Monitoring Facilities by Level (Regional 8 office)

Required Facilities	Unit	Level-1	Level-2	Level-3	Level-4
<u>Observation Facilities in Project area</u>					
Staff gauge	set	-	-	-	-
Automatic water level gauge	"	-	-	-	-
Reserving rainfall gauge	"	-	-	-	-
Automatic rainfall gauge	"	-	-	-	-
Telemetering type (1)	"	-	-	-	-
" type (2)	"	-	-	-	-
" type (3)	"	-	-	-	-
" type (4)	"	-	-	-	-
Water quality meter (portable)	"	-	-	2	4
" (fixed)	"	-	-	-	-
Soil moisture meter	"	-	-	-	-
Ground water level gauge	"	-	-	-	-
Water flow meter (portable)	"	-	-	-	-
<u>Monitoring Facilities in office</u>					
Display panel (off-line)	set	-	1	1	-
Telemetering equipment	unit	-	-	-	1
Operating room (floor area)	m ²	-	-	400	800
<u>Monitoring Vehicle in office</u>					
Motorcycle	unit	-	-	-	-
Patrol car	"	-	1	1	1
Maintenance car	"	-	-	-	1

Table 4.8-3 UNIT CONSTRUCTION COST

UNIT CONSTRUCTION COST OF COMMUNICATION FACILITIES

Description	Unit Cost (1000 Yen)
1. VHF/FM Radio Station (Local circuit)	
- New installation	2,780
- Replacement of radio equipment and antenna	2,470
- Replacement of radio equipment	1,810
- New installation at major regulator site	2,210
2. Low Capacity Multiplex Radio Link	20,650
3. Rural Radiotelephone	
- Main station (1)	21,000
- Main station (2)	40,800
- Sub station	3,700
4. Private Automatic Branch Exchange	3,600
5. Antenna Tower Guyed 30 m	420
6. Antenna Tower Guyed 20 m	270
7. Private Wire Telephone	
- Communication cable (km)	846
- Telephone set	20
8. VHF/FM Radio Station (Field circuit)	
- New installation	2,120
- Removal	950
- Land mobil	288
- Portable wireless telephone	170
9. HF/SSB Radio Equipment	709

UNIT CONSTRUCTION COST OF MONITORING FACILITIES (1/2)

Description	Unit Cost (1000 Yen)
1. Water Level Staff Gauge	220
2. Automatic Water Level Gauge	1,350
3. Reserving Rain Gauge	85
4. Automatic Rainfall Gauge	1,350
5. Water Level Gauge with Telemeter (Type-1)	10,360
6. Water Level Gauge (2 sites) with Telemeter (Type-2)	12,220
7. Water Level/Rainfall Gauges with Telemeter (type-3)	11,400
8. Water Level (2 sites)/Rainfall Gauges with Telemeter (Type-4)	13,800
9. Rainfall Gauge with Telemeter	8,900
10. Water Quality Meter (Portable type)	800
11. Automatic Water Quality Meter (Fixed type)	4,130
12. Soil Moisture Meter	4,130
13. Water Flow Meter	900
14. Ground Water Level Gauge	1,350
15. Monitoring Facilities at Project Office	35,600
16. Monitoring Facilities at Reginal Office (Level-3)	78,200
17. Monitoring Facilities at Reginal Office (Level-4)	83,600
18. Monitoring Facilities at Head Office (Level-3)	169,700
19. Monitoring Facilities at Head Office (Level-4)	215,400
20. Display Panel (manual input type)	23,500
21. Operating room at Project Office (Level-3)	400
22. Operating room at Project Office (Level-4)	1,600
23. Operating room at Regional Office (Level-3)	16,000
24. Operating room at Regional Office (Level-4)	32,000

UNIT CONSTRUCTION COST OF MONITORING FACILITIES (2/2)

Description	Unit Cost (1000 Yen)
25. Operating room at Head Office (Level-3)	40,000
26. Operating room at Head Office (Level-4)	60,000
27. Radio Facilities with Housing	3,249
28. Automatic Water Level Gauge with Radio Facilities	4,599
29. Automatic Water Level/Rainfall Gauge with Radio Facilities	5,949
30. Automatic Water Quality/Water Flow Meter in River	20,000

Appendix 4.9-1 QUESTIONNAIRE ON DATA MANAGEMENT

This questionnaire survey were carried out in October, 1987.

Actual questionnaire was written in Thai.

Project Offices which cooperated kindly are listed in
Table 4.9-1.

QUESTIONNAIRE ON DATA MANAGEMENT

1. Name of Project Office : _____
2. What kinds of data do you collect? Please check ().
Also, please put Duration of Observation (in years) at column "Term".

Surveyed Items	D	W	BW	M	S	A	O	Term
1. Water Level								
2. Rainfall								
3. Gate/Pump Operation Record								
4. Planned Cultivation Area								
5. Planted Area								
6. Harvested Area								
7. Underground Water Level								
8. Underground Water Quality								
9. Construction/Repair Progress								
10. Water Quality								
11. Condition of Facilities								
12. Repair History of each of facilities								
13. Damaged Area (by flood/drought)								
14. (Average or Sample) Yield of Rice								
15. (Average or Sample) Yield of Others								
16. Population/No. of Families of Farmers								
17. Average Income of Farmers								
18. _____ (please specify, if any)								
19. _____ (please specify, if any)								

D: daily W: weekly BW: bi-weekly or half-monthly M: monthly
S: seasonal A: annual O: occasional

3. How do your staff survey farming areas?
- interview to farmers measure by eyes estimation
 various methods (depending on surveyer/condition)

4. Do you have any problem in data survey/collection?

Yes No

If yes, please enumerate the problems.

- 1.
- 2.
- 3.

5. Please enumerate your ideas to eliminate the above problem(s), if any.

- 1.
- 2.
- 3.

6. How do you keep data in your office?

Files for each year/category Others (specify) _____

7. What is the condition of stored data sheets?

Complete Some lost

Some damaged by _____ (please specify, Ex. humidity, worms, torn-out)

8. Can you easily retrieve (find) data in your office?

Yes No

9. If "No" on the above question, what are the obstacles to easy retrieval?

(Plural items can be chosen)

Inadequate assortment Insufficient data index

Too many data Scattered data

Insufficient job transfer from predecessor(s)

Others (please specify) _____

10. Do you think what are needed to eliminate the above obstacle(s)?
Please enumerate needed measures.

- 1.
- 2.
- 3.
- 4.

11. What media is used to send/receive data to/from other offices (Ex. Head Office, Regional Office, Project Office)? Please check ().
(Plural media for one case can be chosen)

Case	Media	Radio			
			RID Telephone		
				Mail	
					Others*
Urgent and Small amount of data					
Urgent and Much amount of data					
Non-urgent and Small amount of data					
Non-urgent and Much amount of data					
Graph/Map					

* Please specify:

or _____

12. If you can use some equipment, such as computer, for data storage and information retrieval, do you think it benefits you?

- Yes No

13. If computer is introduced into your office, what can be merits and demerits for you? (Plural items can be chosen)

M E R I T S

D E M E R I T S

- | | |
|---|--|
| <input type="checkbox"/> Capacity of data storage | <input type="checkbox"/> Need of training for computer use |
| <input type="checkbox"/> Easiness of making copies | <input type="checkbox"/> Need of running/maintenance cost |
| <input type="checkbox"/> Ability of data assortment | <input type="checkbox"/> Need of manpower |
| <input type="checkbox"/> Ability of quick calculation | |
| <input type="checkbox"/> Ability of inter-office data communication | |
| <input type="checkbox"/> Ability of quick/correct calculation | |
| <input type="checkbox"/> (specify) _____ | <input type="checkbox"/> (specify) _____ |

■ Thank you very much for your kind cooperation.

Table 4.9-1 LIST OF PROJECT OFFICES

No	Project Office Name	Answer	Irrigation	Region	Notes
1	Phonlathep	✓	Gravity	7	Pump Irrigation
2	Borommathat	✓	- do -		
3	Thabote	✓	- do -		
4	Kra Sieo	✓	- do -		
5	Chanasutr	✓	- do -		
6	Samchook	✓	- do -		
7	Yang Manee	✓	- do -		
8	Don Chedi	✓	- do -		
9	Pho Phraya	✓	- do -		
10	Pakhai	✓	- do -		
11	Bang Ban	✓	- do -		
12	Chaochet Bang Yihon	✓	W. Conservation		
13	Phraya Banlu	✓	- do -		
14	Phra Pimon	✓	- do -		
15	Phasi Charoen	✓	- do -		
16	Manorom	✓	Gravity	8	
17	Chong Kae	✓	- do -		
18	Maharaj	✓	- do -		
19	Koke Kathiem	✓	- do -		
20	Reong Rang	✓	- do -		
21	Klong Prieu	✓	- do -		
22	Nakhon Luang	✓	- do -		
23	Pasak Tai	✓	- do -		
24	Rangsit Nua	✓	W. Conservation		
25	Rangsit Tai	✓	- do -		
26	Klong Darn	✓	- do -		
27	Phra Ong Chaiyanuchit	✓	W. Conservation	9	
28	Naresuan Dam	✓	Gravity	3	} Phitsanulok Project (Stage 1)
29	Phlai Chumphon	✓	- do -		
30	Dong Setthi	✓	- do -		
31	Tha Bua	✓	- do -		

All of Project Offices sent their answers to RID Head Office.

Table 4.9-2 DATA ITEMS COLLECTED BY PROJECT OFFICE

(Answers from Questionnaire)

Data Item	REGION 7										REGION 8										REGION 3									
	Gravity Irrigation Area										Gravity Irrigation Area										W. Conserv. A.			W. Conserv. A.						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1. Water Level *2	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
2. Rainfall	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
3. Gate/Pump Operation Record*2	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
4. Planned Cultivation Area	S	W	S	S	S	W	W	S	S	S	W	W	A	A4	W	S	S	S	A	S	W	S	W	A	S	A	W	S	S	
5. Planted Area *3	S	W	W	S	W	S	W	W	S	S	W	W	W	A4	W	W	S	S	A	S	W	S	W	A	W	W	W	S	S	
6. Harvested Area *3	S	W	W	S	W	S	W	W	S	S	W	W	W	A3	A	W	S	S	A	S	S	S	W	S	W	W	W	S	S	
7. Underground Water Level	M	O	10	M	10	M	M	B4	M	10	M	M	M	M	M	10	O	M3				O	O	O						
8. Underground Water Quality	M	O	M	M	M	M	M	B4	M	M	M	M	M	M	M	M	M	O	O			O	O	O						
9. Construction/Repair Record	M	M	M	A	M	M	M	M	O	M	W	M	O	O	M	M	W	M	O	M	W	O	M	M	M	M	M	M	M	
10. Water Quality	O	O	O	O	O	O	M	M	O	M	O	M	O	M	O	M	O	O	O	O	O	O	O	O	W	O	O	S		
11. Condition of Facilities	A	A	A	A	A	O	M	O	O	M	O	O	O	O	O	A	O	O	O	A	A	D	A	D	O	A	D	O	A	
12. Repair History of Facilities	O	A	A	O	A	A	M	O	O	M	O	O	O	O	O	O	O	O	O	O	O	O	O	O	A	M	A	M	W	
13. Damaged Area *3	S	D	W	O	W	O	W	S	W	W	W	W	O	O	O	O	W	O	O	O	O	O	O	O	O	W	W	S	O	
14. (Ave./Sample) Yield of Rice	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S	A	S	S	O	S	S	A	S	S	M	A	S	S	A	
15. (Ave./Sample) Y. of Others	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	O	S	S	O	S	S	A	S	A	O	S	S	S	A	
16. Population of Farmers	O	O	O	O	O	O	O	A	O	O	O	O	A	O	O	O	O	O	O	O	O	O	O	O	A	O	O	A	O	
17. Average Income of Farmers	O	S	S	O	O	O	A	O	O	O	O	S	O	O	O	O	A	O	O	O	O	O	O	O	O	O	O	O	A	
18. Prawn-Fish Pond								A						A																
19. Canal Cross Section									A																					
20. Condition of F70 etc.									A																					
21. Project Efficiency																														A
22. Drainage																														S
23. (Unspecified)																														A

D : Daily W : Weekly BW : Bi-weekly 10 : Once a ten days M : Monthly S : Seasonally A : Annually O : Occasionally

A4 : 4 times a year A3 : 3 times a year M3 : 3 times a month

*1 List of Project Offices is shown in Table 4.9-1.

*2 Water level and Gate operation activity are recorded more than one time a day

*3 These farming activities are reported once a week to RID Head Office, and once a month to RID Regional Office, from each Project Office. Moreover, Project Offices prepare seasonal/annual report to RID Regional/Head Office.

The answers from some Project Offices might have confusion about survey period and reporting period.

Table 4.9-4 WAYS TO OVERCOME DIFFICULTIES/PROBLEMS IN DATA COLLECTION AT PROJECT OFFICE
(From Answers to Questionnaire)

Project Office*1	REGION 7										REGION 8						REGION 3														
	Gravity Irrigation Area										Gravity Irrigation Area						Gravity Irr. A.														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
May to Overcome Difficulties	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1. Increase of number of staff	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Training/Education to staff	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Education/Information to farmers	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Map shall be attached to survey sheet for check	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Cross-check of surveyed data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Unification of survey by authorities concerned	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Increase of number of survey vehicles/equipment	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Assignment of an engineer for communication equipment	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Establishment of a meeting center to contact farmers	-	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10. Increase of survey budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11. Clarification and Announcement of survey purposes for farmers/officials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Modernization of communication equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13. Announcement of results or summary of analysis from the RID Center to Project	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14. Maintenance of survey equip.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15. Calibration of facilities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16. No way to solve the problem of far dwellings of farmers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*1 List of Project Offices is shown in Table 4.9-1. Mark at each column : "✓" for way to overcome which Project Office enumerated, "-" for item which Project Office didn't list up. Answers from each Project Office correspond Table 4.9-3.

Table 4.9-5 CONDITION OF DATA SHEETS AT PROJECT OFFICE
(From Answers to Questionnaire)

Project Office*	REGION 7										REGION 8										REGION 3										
	Gravity Irrigation Area					H. Conserv. A.					Gravity Irrigation Area					H. Conserv. A.					WC	Gravity Irr. A.									
Condition of Data Sheets	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Complete	-	-	-	-	✓	-	-	✓	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Some Lost	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Damaged by Termite	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Torn-out (Superannuated)	-	✓	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Damaged by Humidity or Flood	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scattered or kept but apart	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Business of Data Retrieval	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N	Y	Y	N	N	N	N	Y	N	Y	Y	Y	Y	N	Y	N	Y	N	Y	N
----------------------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Y: Easy N: Difficult
39% (12/31) of Project Offices feel difficulty in data retrieval. This shows it is hard to search data even for persons in close charge.

Table 4.9-6 DIFFICULTIES/PROBLEMS IN DATA RETRIEVAL AT PROJECT OFFICE
(From Answers to Questionnaire)

Difficulties	Project Office*																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1. Inadequate Assortment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	✓	-	-	-	✓	-	-	-	-	✓	-	-	-	-
2. Too many/much Data	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-
3. Insufficient Data Index	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-
4. Scattered Data	-	-	-	-	-	✓	✓	-	-	-	-	✓	-	-	✓	✓	✓	-	-	-	-	✓	-	-	✓	-	-	-	-	-	-
5. Insufficient Job Transfer from Predecessor(s)	-	-	-	-	-	✓	✓	-	-	-	-	✓	-	-	-	-	✓	-	-	-	-	-	✓	-	-	-	-	-	-	-	-
6. Insufficient Storing Space	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Shortage of Custodian	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Unsteady Data Reporting	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-
9. Wrong Inquiry	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* List of Project Offices is shown in Table 4.9-1. Mark at each column: "✓" for difficulty/problem which Project Office enumerated. "-" for item which Project Office didn't list up as difficulty. Answers from each Project Office correspond Table 4.9-7.

Table 4.9-7 WAYS TO OVERCOME DIFFICULTIES/PROBLEMS IN DATA RETRIEVAL AT PROJECT OFFICE

(From Answers to Questionnaire)

Project Office*	REGION 7										REGION 8										REGION 3										
	Gravity Irrigation Area					W. Conserv. A.					Gravity Irrigation Area					W. Cons. A.					Gravity Irr. A.										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1. Assignment of Custodian	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Training w/Unified Guidelines to Officials in charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Introduction of appropriate Index/Search System	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Introduction of effective Data Custody System, such as cabinet room, Computer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Introduction of Copy Machine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Introduction of Humidity/Thermo-control System	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Introduction of Static Analyzation System for stored data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Improvement of Tele-Communication System	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Establishment of a committee to respond activities of P.O.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10. Reservey of some kinds of Lost Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* List of Project Offices is shown in Table 4.9-1. Mark at each column : "√" for way to overcome which Project Office enumerated, "-" for item which Project Office didn't list up. Answers from each Project Office correspond Table 4.9-6 and 4.9-6.

Table 4.9-9 MEDIA OF DATA TRANSFER (From Answers to Questionnaire)

Project Office*	REGION 7										REGION 8										REGION 3										
	Gravity Irrigation Area					W. Conserv. A.					Gravity Irrigation Area					W. Conserv. A.					Gravity Irr. A.										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Media to use by Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Urgent and Small Amount of data																															
1. Radio	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. RID Telephone	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3. Mail	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4. Officials/Vehicles to carry	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Urgent and Much Amount of data																															
1. Radio	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. RID Telephone	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3. Mail	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4. Officials/Vehicles to carry	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Not Urgent and Small Amount data																															
1. Radio	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. RID Telephone	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3. Mail	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4. Officials/Vehicles to carry	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Not Urgent but Much Amount data																															
1. Radio	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. RID Telephone	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3. Mail	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4. Officials/Vehicles to carry	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Graph or Map																															
1. Radio	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. RID Telephone	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3. Mail	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4. Officials/Vehicles to carry	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

*1 List of Project Offices is shown in Table 4.9-1.

Appendix 4.9-2 QUESTIONNAIRE ON NECESSARY INFORMATION FOR DIVISIONS CONCERNED

Questionnaire on Necessary Information for Divisions Concerned

Divisions Which cooperated kindly are:

Hydrology Division

Operation and Maintenance Division

Programs and Budget Division

Project Planning Division

(Alphabetical Order)

Questionnaire on Necessary Information for Divisions Concerned

Q1. Name of Your Division : _____
 Name of Your Section/Branch : _____

Q2. Please check (☑) in the Right square (☐), if Your Division/Section needs the information/data. Please check in the Left square, if Your Division/Section is currently collecting the data. More than one item can be selected.

(1) Project Location

- RID Regional Office No.
 Changwat Name/Code
 Amphoe Name/Code
 Tambol Name/Code
 Basin Name/Code
 Others (Please specify) _____,
 Others (Please specify) _____,

(2) Construction Record

- Completion Year
 Construction Period
 Construction Cost
 Constructor
 Supervisor
 Volume/Unit Cost of Excavation
 Volume/Unit Cost of Earth Move
 Volume/Unit Cost of Concrete
 Volume/Unit Cost of Gravel
 Volume/Unit Cost of Sand
 Volume/Unit Cost of Steel Work
 Volume/Unit Cost of Masonry
 Manpower
 Others (Please specify) _____,
 Others (Please specify) _____,

(3) Planning/Design Record

- Design Irrigable Area in wet season
 Design Irrigable Area in dry season
 Design Watershed Area
 Design Runoff and Return Period

- Design Rainfall (height) and Return Period
- Design Flood height, Return Period and Flood Area
- No. of beneficiaries
- Drawing Sheet No.
- Purpose of the Project
- Project Initiator
- Others (Please specify) _____, _____
- Others (Please specify) _____, _____

(4) Repair/Rehabilitation Record

- Reported Year/Season
- Budget Requisition No.
- Reported Necessary Part of Repair/Rehabilitation
- Reason of Repair/Rehabilitation
- Estimated Cost
- Rank of Priority set by Head/Regional Office
- Approval No.
- Allocated Budget Amount
- Drawing Sheet No.
- Completion Year
- Construction Period
- Construction Cost
- Constructor
- Supervisor
- Volume/Unit Cost of Excavation
- Volume/Unit Cost of Earth Move
- Volume/Unit Cost of Concrete
- Volume/Unit Cost of Gravel
- Volume/Unit Cost of Sand
- Volume/Unit Cost of Steel Work
- Volume/Unit Cost of Masonry
- Manpower
- Others (Please specify) _____, _____
- Others (Please specify) _____, _____

(5) Socio/Agro Economic Data

- Population in the Project Area
- Farm Acreage
- Irrigated Area
- Acreage of Fish/Prawn Pond in the Project Area

- Crops and Acreage of each growing stage in wet/dry season
- Harvested Area of each crop
- Damaged Area and Cause of Damage
- Average/Sample Yield of crop
- Average/Sample Farmyard Unit Price of crop/fish/prawn
- Average/Sample Market Unit Price of crop/fish/prawn
- Average/Sample Agricultural Income of Farmers
- Average/Sample Total Income of Farmers
- Major Sources of Income
- Average/Sample Farm Cost
- Distance to Market
- Source of Domestic Water
- Source of Livestock Water
- No. of Livestock
- Others (Please specify) _____, _____
- Others (Please specify) _____, _____

(6) Operation Log of Facilities

- Upstream Water Level of Regulator
- Downstream Water Level of Regulator
- Calibration Curve/Formulae of Regulator/Pump
- Flow at Regulator
- Pumped Water Amount
- Pump Operation Hours
- Operative Instructions from Senior Office
- Release from Reservoir
- Water Storage of Reservoir
- Water Height (Depth) at Reservoir
- Others (Please specify) _____, _____
- Others (Please specify) _____, _____

(7) Hydrological/Meteorological Data

- Rainfall
- Flow/Water Level of River
- Temperature
- Humidity
- Sunshine
- Wind Velocity
- Flood Height
- Water Quality
- Ground Water Table
- Ground Water Quality
- Others (Please specify) _____, _____
- Others (Please specify) _____, _____

(8) Structural Data

- Type of Main Structure
- RID Standard Type No. of Main Structure
- Dimension/Capacity of Main Structure
- Elevation of Specific parts of Main Structure
- Location of Main Structure
- Calibration Curve/Formulae of Main Structure
- Type and No. of Appurtenant Structure
- Dimension/Capacity of Canal/Ditch
- Elevation/Slope of Canal/Ditch
- Dimension/Capacity of Appurtenant Structure
- Elevation of Specific parts of Appurtenant Structure
- Location of Appurtenant Structure
- Calibration Curve/Formulae of Appurtenant Structure
- Others (Please specify) _____, _____
- Others (Please specify) _____, _____

(9) Others

- Location, Type and No. of Tele-communication Facilities
- Initial Cost of Tele-communication Facilities
- Operation Cost of Tele-communication Facilities
- Quality of Transmission/Reception
- Condition of Tele-communication Facilities
- Repair History of Tele-communication Facilities
- Location, Type and No. of Data Processing Facilities
- Initial Cost of Data Processing Facilities
- Operation Cost of Data Processing Facilities
- Frequency/Amount of Data Processing
- Condition of Data Processing Facilities
- Repair History of Data Processing Facilities
- Others (Please specify) _____, _____
- Others (Please specify) _____, _____

Table 4.9-10 NECESSARY DATA/INFORMATION FOR DIVISIONS

Hydrology Division																
Operation & Maintenance Div. Improvement & Maintenance Programming Branch																
Engineering Service Branch																
Programs & Budget Div. Program Branch																
Budget Branch																
Data & Information System Branch																
Project Planning Div. Branch No.1																
DATA/INFORMATION ITEM	Ow n	Ne ed	Ow n	Ne ed	Ow n	Ne ed	Ow n	Ne ed	Ow n	Ne ed	Ow n	Ne ed	Ow n	Ne ed	Ow n	Ne ed
(1) Project Location																
RID Regional Office No.			✓	✓	✓	✓							✓	✓		
Changwat Name/Code			✓	✓	✓	✓							✓	✓		
Amphoe Name/Code			✓	✓	✓	✓							✓	✓		
Tambol Name/Code			✓	✓	✓	✓							✓	✓		
Basin Name/Code			✓	✓	✓	✓							✓	✓		
Planning Analyses	✓	✓														
Any Other Information on Project Location	✓	✓	✓	✓												
(2) Construction Record																
Completion Year			✓	✓	✓	✓							✓	✓		
Construction Period			✓	✓	✓	✓							✓	✓		
Construction Cost			✓	✓	✓	✓							✓	✓		
Constructor			✓	✓									✓	✓		
Supervisor			✓	✓									✓	✓		
Volume/Unit Cost of Excavation			✓	✓									✓	✓		
Volume/Unit Cost of Earth Work			✓	✓									✓	✓		
Volume/Unit Cost of Concrete			✓	✓									✓	✓		
Volume/Unit Cost of Gravel			✓	✓									✓	✓		
Volume/Unit Cost of Sand			✓	✓									✓	✓		
Volume/Unit Cost of Steel Work			✓	✓									✓	✓		
Volume/Unit Cost of Masonry			✓	✓									✓	✓		
Manpower			✓	✓									✓	✓		
Problems/Constraint in Construction														✓		
Any Other Information on Construction			✓	✓												
(3) Planning/Design Record																
Design Irrigable Area in wet season	✓	✓	✓	✓	✓				✓			✓	✓	✓		✓
Design Irrigable Area in dry season	✓	✓	✓	✓	✓				✓			✓	✓	✓		✓
Design Watershed Area	✓	✓	✓	✓					✓			✓	✓	✓		✓
Design Runoff and Return Period	✓	✓	✓	✓					✓			✓	✓	✓		✓
Design Rainfall (in height) and Return Period	✓	✓	✓	✓					✓			✓	✓	✓		✓
Design Flood in height, Return Period and Flood Area	✓	✓	✓	✓					✓			✓	✓	✓		✓
No. of Beneficiaries	✓	✓	✓	✓					✓			✓	✓	✓		✓
Drawing Sheet No.			✓	✓									✓	✓		
Purposes of Project	✓	✓	✓	✓					✓			✓	✓	✓		
Project Initiator	✓	✓	✓	✓									✓	✓		
Water Use Simulation														✓		
Design Rule Curve of Reservoir Operation																✓
Any Other Information on Planning/Design	✓	✓	✓	✓												
(4) Repair/Rehabilitation Record																
Reported Year/Season			✓	✓	✓				✓			✓	✓	✓		✓
Budget Requisition No.			✓	✓	✓								✓	✓		
Reported Necessary Part of Repair/Rehabilitation			✓	✓	✓				✓			✓	✓	✓		✓
Reason of Repair/Rehabilitation					✓				✓			✓	✓	✓		✓
Estimated Cost			✓	✓	✓				✓			✓	✓	✓		
Rank of Priority set by Head/Regional Office			✓	✓	✓				✓			✓	✓	✓		
Approval No.					✓				✓				✓	✓		
Allocated Budget Amount			✓	✓	✓				✓				✓	✓		
Drawing Sheet No.			✓	✓									✓	✓		
Completion Year			✓	✓									✓	✓		✓
Construction Period			✓	✓									✓	✓		✓
Construction Cost			✓	✓									✓	✓		✓
Constructor			✓	✓									✓	✓		✓

Hydrology Div.															
Operation & Maintenance Div. Improvement & Maintenance Programming Branch															
Engineering Branch															
Programs & Budget Div. Program Branch															
Budget Branch															
Data & Information System Branch															
Project Planning Div. Branch No.1															
DATA/INFORMATION ITEM	Ow n	Ne ed	Ow n	Ne ed	Ow n	Ne ed	Ow n	Ne ed	Ow n	Ne ed	Ow n	Ne ed	Ow n	Ne ed	
(4) Repair/Rehabilitation Record (cont'd)															
Supervisor			✓	✓									✓		
Volume/Unit Cost of Excavation			✓	✓						✓			✓		
Volume/Unit Cost of Earth Work			✓	✓						✓			✓		
Volume/Unit Cost of Concrete			✓	✓						✓			✓		
Volume/Unit Cost of Gravel			✓	✓						✓			✓		
Volume/Unit Cost of Sand			✓	✓						✓			✓		
Volume/Unit Cost of Steel Work			✓	✓						✓			✓		
Volume/Unit Cost of Masonry			✓	✓						✓			✓		
Manpower			✓	✓						✓			✓		
Total Cost													✓		
Dimension of Each Work													✓	✓	
Any Other Informations on Repair/Rehabilitation			✓	✓											
(5) Socio/Agro Economic Data															
Population in the Project Area	✓	✓	✓	✓				✓		✓			✓		
Farm Acreage	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Irrigated Area	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Acreage of Fish/Prawn Pond in the Project Area	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Crops and Acreage of each growing stage in season	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Harvested Area of each crop	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Damaged Area and Cause of Damage	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Average/Sample Yield of crop	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Average/Sample Farmyard Unit Price of Products	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Average/Sample Market Unit Price of Crop/Fish/Prawn	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Average/Sample Agricultural Income of Farmers	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Average/Sample Total Income of Farmers	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Major Source of Income	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Average/Sample Farming Cost	✓	✓	✓	✓				✓		✓	✓	✓	✓		
Distance to Market	✓	✓	✓	✓									✓		
Source of Domestic Water	✓	✓								✓			✓		
Source of Livestock Water	✓	✓								✓			✓		
No. of Livestock	✓	✓								✓			✓		
Average Number of Farm Labours													✓		
Labour Movement in Agricultural Sector													✓		
Farming Technology													✓		
Any Other Information on Socio/Agro Economic Aspects	✓	✓													
(6) Operation Log of Facilities															
Upstream Water Level of Regulator													✓	✓	✓
Downstream Water Level of Regulator													✓	✓	✓
Calibration Curve/Formulae of Regulator/Pump										✓			✓	✓	✓
Flow at Regulator										✓			✓	✓	✓
Pumped Water Amount													✓	✓	✓
Pump Operation Hours													✓	✓	✓
Operative Instructions from Senior Office													✓	✓	✓
Release from Reservoir			✓	✓									✓	✓	✓
Water Storage of Reservoir			✓	✓	✓								✓	✓	✓
Water Height (Depth) at Reservoir			✓	✓									✓	✓	✓
Conveyance Time													✓		
Discharge Contribution													✓		
Reservoir Evaporation															✓
Any Other Information on Operation Log of Facilities			✓	✓									✓		

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