ANNEX-H Agricultural/Rural Infrastructure

Agricultural / Rural Infrastructure

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	District Unit Km2 Rm2 nos. nos. nos. nos. nos. nos. nos. nos.	Thapabath 1.212 32 19,424 3 850	Borikhan	Paksan	Pakkading	Grand total
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	Km2 nos. ps. ps. ps. ps. nos. nos. nos. nos. ha ha ha k ha k ha k ha k ha k ha k ha	1,212 32 19,424 3 850				
	nos. ps. ps. ps. ps. ps. nos. nos. nos. nos. nos. nos. nos. no	32 19,424 3.850	1.803	654	2.410	6.070
	ps. ha nos. nos. nos. nos. ha ha ha k ha	19,424 3.850	50	75	57	214
	ha ha nos. nos. nos. nos. ha ha ha	3.850	16,625	34,693	31,440	102.182
	ha ha nos. nos. nos. nos. ha ha k ha k ha k ha k ha k ha k ha k	3,850				
	ha 1008. 1008. 1008. 1008. 1008. 1008. 1008. 1008.		1,384	6,789	5,568	17,591
	nos. nos. nos. nos. ha ha %	544	115	1,200	734	2,593
	nos. nos. ha ha %	10	48	35	47	148
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sources	%				107	01060
sources						-
	8					
	%					c
b) % of villages relying on traditional sources	%					
						2
	nos.					-
b) No. of classrooms for secondary education nos.	nos.				ä	
hool	%					
llages with lower secondary school	%					
						5
a) No. of a parmanent health center (Hospital)	nos.	1				
	nos.	e	- 6	4	4 67	+ 5
c) % of villages with a permanent health center	%		I	-	י נ י	10
(11) % of villages with a common source of electricity	2%	-				
	nos.	б	60	62	53	178
b) % of villages with a rice mill	%		2	1	C ¹	1/0
c) No. of market	nos.					
(13) Port, along the Mekong River with a immigration office a) Name of the city or the villoce			(no port)	2		
and (terrational)		B.Pakthoay-Noy	(inland)	Paksan	Pakkading	
	.sou		0,0		0.	1
d) Name of the river a tributary of the Melvong Piver			0	0	1	7
e) Classification of access road to a nort from national road No 13		mouth of Nam Thoay		no river	Nam Kading	
f) Lengh of access road above Km	Km	1 UIAI IOAU		province road	rural road	0
ove		no good		o ond	C.U boon	4
Source : Data offered from Borikamxav Province Office. DCTPC				0	5004	

Data offered from DAFSO and PAFSO . The length of road was about presumed from data above and road map . Blank : no exact data

Existing Infrastructure Condition of District in Study Area, Province Borkhamxai

ItemItemDistrictThe patholityBoritkinaPaskandingGrand total1. The grand frame f	H-1-1-(2) : Exsiting Infrastructure Condition of District in Study Area	in Study A	rea	Province Borikhamxai	hamxai		(2/2)
Unit Unit Image I	Item	District	Thapabath	Borikhan	Paksan	Pakkading	Grand total
Km 103 75 137 1173 Km 65 75 55 173 173 Km 73 75 55 110 110 Km 75 70 56 110 110 Km 75 70 56 110 110 Km 75 75 23 110 114 159 Km 25 70 5 70 53 23 110 Km 25 70 75 23 114 55 110 Km 25 70 114 0 55 75 75 23 114 55 75	B. Existing Road Condition	Unit					
Kim 05 5 70 50 110 Kim 29 70 50 110 33 31 3	(1) Length of road (total length of three type of road as below)	Km V	103	75	137	173	488
Kim 29 70 50 30 Kim 9 0 114 159 30 Kim 9 0 114 159 30 Kim 25 75 33 210 30 Isbelow) Kim 25 75 31 22 Kim 25 75 19 8 22 Kim 25 70 9 9 9 Kim 25 70 9 9 9 9 Kim 25 70 9 9 9 9 9 Kim 25 70 10 10 10 10 9 8 14 10	b) Length of brovince road	Km Km	ς0 Ο	04	50 31	110	225
Is below) Km 78 0 114 159 Km 65 0 33 22 12 Km 25 70 33 22 14 159 Km 25 70 33 22 23 14 159 Km 25 70 19 85 100 13 22 23 14 159 Km 25 70 19 8 9 2 14 22 23 14 8 2 14 100 14 6 8 110 100 13 22 73 23 14 100 14 6 73 23 21 23 23 23 23 23 23 23 23 21 24 25 73 25 73 25 73 25 73 25 73 25 73 25 73 26 100 10	c) Length of rural road	Km	29	02	50	رد 10	84 170
Km 65 0 50 110 Km 9 0 33 27 23 14 Km 25 75 23 14 27 27 23 27 Km 25 76 10 88 9 9 9 27 Km 25 76 19 8 76 9 9 27 Km 25 70 100 100 100 14 8 14 9 9 9 9 9 9 9 27 14 9<	(2) Length of all year round road (total length of three type of road as below)	Km	78	0	114	159	351
Kin 9 0 33 27 as below) Kin 2.5 7.5 2.3 2.3 Kin 2.5 7.5 2.3 1.4 0 Kin 2.5 7.6 2.3 1.4 0 Kin 2.5 7.0 1.9 0 0 Kin 2.5 7.0 1.9 0 0 Kin 2.5 7.0 1.9 0 0.0 Kin 0 0 0 0 0 0.0 Set 2.4 100 100 0.7 0.8 0.8 R 0.0 0.0 0.0 0.0 0.0 0.8 R 0.6 0.0 0.0 0.0 0.8 0.8 R 0.6 0.0 0.0 0.0 0.8 0.8 0.8 0.8 R 0.8 0.0 <td< td=""><td>a) Length of national road with pavement</td><td>Km</td><td>65</td><td>0</td><td>50</td><td>110</td><td>225</td></td<>	a) Length of national road with pavement	Km	65	0	50	110	225
as below) Km 23 75 23 14 22 Km 25 75 23 14 23 23 14 23 Km 25 76 0 83 92 92 92 Km 25 70 100 100 100 100 92 73 π 114 0 62 73 73 73 π 100 100 100 100 100 12 π π 0 100 100 10 12 73 π π 0 100	b) Length of province road	Km 7	6,4	0 0	33	27	69
Titad) Km 0 </td <td></td> <td></td> <td>4</td> <td>0 22</td> <td>31</td> <td>22</td> <td>57</td>			4	0 22	31	22	57
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Itoad) ∞ 76 0 83 92 π 100 0 0 83 92 π 100 0 0 83 92 π 100 0 0 80 73 π 0 14 0 62 73 π π 0 100 17 8 π π 0 100 11 21 130 π	c) Length of rural road	Km	25	70	19	, ~	122
Rithon of road) R 100 8 8 100 1	(4) I raincaptinty for all year round (average of each classification of road)	%	76	0	83	92	72
attion of road) attinuity 0 630	b) % of whole length of province road	8 6	100	00	100	100	100
cation of road) % 24 100 17 % % % 0 0 0 0 0 0 13 14 10	c) % of whole length of rural road	° %	14		89 69	82	\$2
88 0	(5) Untrafficability of dry season only road (average of each classification of road)	%	24	100	17	C/ &	7C
% 0 100 11 18 % % % 100 38 27 % % % % 100 38 27 % % % % % % % % % % % % % % % % % % % % % nos. nos. nos. % % % % % % % % % % % % % % access Kin %	a) % of whole length of national road with pavement	%	0	0	0	• •	°i ⊂
% 86 100 38 27 % % % % % 27 % % % % % % % % % % % % % % nos. nos. nos. nos. % % % nos. nos. nos. % % % % % %	b) % of whole length of province road	%	0	100	11	18	18
% %	c) % OI Whole length of rural road	%	86	100	38	27	68
% % % % nos. nos. nin nin nin nin nin nin notity se problem	(0) Road access a) % of villones with all vane cound cond	ţ					
% % nos. nos. nin nin nin nin nin nin notity nos	b) % of villages with dry season only road	%					0
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nos. nos. access Kin nos. nos. nos. nos. % %	(7) Bridges (total of three)	nos.					
Inos. Inos. access Kin nos. Kin access Kin % %	a) Number of bridges of national road with pavement	nos.					
nos. nos. access Km model % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % min min % min % % % % % % % %	b) Number of bridges of province road	nos.					
access Km access	c) Number of bridges of rural road	nos.					
% % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % % %	o road for villages without all year round road	Km					0
% % % % % % % % min % % %	a) % of villages with all year round transnort services	10					
% min min min min min min min sproblem % sproblem % sproblem %	b) % of villages with dry season only transport services	% %					0
min min min min min min solution %	c) % of villages with no transport services	2°%					0 0
min min min unit s problem % Priority	(10) Travel time						0
min min min unit 0 ss problem % priority %	a) Average travel time to district center (dry season)	min					
min min unit whit ss problem %	b) Average travel time to district center (wet season)	min					00
unit unit ss problem % priority %	c) Average travel time to 1st market	min) C
ss problem % % model in the second seco	C. Access Problem and Priority for Existing Road	unit					
priority %	(1) % of villages with the rural road access problem as the main access problem	%					
	(2) $\%$ of villages with improving rural road access as the first access priority	%					
	Solutce • Data offered from Borikemyer Drowinge Office, DOTDO						>

Data offered from DAFSO and PAFSO. The length of road was about presumed from data above and road map. Blank : no exact data

Existing Infrastructure Condition of District in Study Area, Province Borikhamxai

2

Thakhek 918 918 918 139 139 70,364 70,364 756 75 1	Item				-		
(is are in the second of the secon		District	Hinboun	Thakhek	Nongbok	Xehanofai	Grand total
Rest 3(11 9(3 3(21 9(6 1(32 Milligas 10(1	A. General	Unit			0	C	
Othlages 106 139 77 90 ady field hs 53.83 0.0364 38.90 21.132 ady field hs 53.84 6586 10.275 4058 ady field hs 53.44 556 10.275 4058 ady field hs 14.175864 12.00 82.84 4058 4058 ady field hs 14.1600 82.84 4058 55 55 ady field hs 14.00 82.84 100 82.8 55 ady field hs 14.00 82.8 100 82.8 55 ady field hs 14.10 100	(1) Administrative area	Km2	3,011	918	321	066	5716
dry field dry field $33,39$ $70,364$ $33,39$ $21,12$	(2) Number of villages	nos.	166	139		40	0176
addy feld base 5.24 6.950 10.275 4.056 1.203 5.56 1.230 5.56 1.230 5.56 1.230 5.56 5.56 1.230 5.56 1.230 5.56 1.230 5.56 1.230 5.56 1.230 5.56 1.230 5.56	(3) Population	ps.	53,829	70,364	38.949	21.142	420
and ridd max side 52d 53d 10.275 40.38 cilly found of the detein and th	(4) Land use						107(101
Calify (rule) Table $\frac{933}{20}$ 756 $1,303$ $\frac{955}{20}$	a) Kalilled Faddy Deld h) Terionted Doddy fold	EQ.	8,264	6,950	10,275	4,058	29.547
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	0) IIIIBateu Fauty IIBlu (5) Trrinstion fanility (totol of four holory)	ha	593	756	1,303	595	3.247
Chan 20 17 21 5 (a) with discipation factors ass 3 1 0 4 (1) might during dry season ass 3 1 0 1 3 (1) might during dry season bin 1,400 825 4,200 1,655 4 (1) might dry season bin 1,400 82 4,200 1,655 5 (1) might dry season bin 1,400 82 4,200 1,655 5 (1) might dry season 8 2,00 84 4,200 1,655 5 (2) propie (ref season) 8 100 84 4,1 5 5 (2) propie (ref season) 8 100 84 4,1 1	() IIIIgation facture (10141 of 1000 Denow)	nos.	52	28	28	22	130
And untracted protect Des. 20 1 7 4 1 Chan 1, irrigated under irrigation facility above 0 1, 1 0 0 1, 1 Chan 1, irrigated under irrigation facility above 0 1, 1 0 0 1, 1 Chan 1, irrigated under irrigation facility above 0 1, 1 0 0 1, 1 Chan 1, irrigated during dry season 0 0 1, 10 0 1, 455 ges using inproved vace sources 5 100 822 4, 200 1, 165 5 ges using pape (out raditional sources 5 100 822 4, 130 5 5 ges using pape (out raditional sources 5 100 84 405 5 5 5 ges with counces drop advactor 5 3 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4) I utility statuon with electric motor power	nos.	20	17	21	ŝ	63
	b) r units station with diesel power Δ with r	nos.	29	6	0	13	51
d_1 interded under irrigation facility aboveno.0100 d_1 integret dunder irrigation facility abovein2,3806654,2001655533get trigging proved water sourcesin2,490842,200165553get trigging inproved water sourcesin2,00842,200165553get trigging inproved water sourcesin2,00844,200165553get trigging inproved water sourcesin0100845150get trigging inproved water sourcesinin2,308441100get trigging inproved water sourcesinin1008441100get trigging inproved water sourcesinin100123335get trigging inproved water sourcesinin100123530get trigging inproved water sourcesinin100123535get trigging inproved water sourcesinin100123535get trigging inproved water sourcesininin123535get trigging inproved water sourcesinininin3535get trigging inproved water sourcesinininin3535get trigging inproved water sourcesinininin3535get trigging inproved water sourcesininin	d) Reservoir (Dam)	nos.	ന	1	. 7	4	15
It interact instructionIn $2,880$ 665 $4,200$ $1,655$ If intigeted during ert searchInIn $1,400$ 822 $4,200$ $1,655$ Set strigtered during ert searchInIn $2,800$ 665 $4,200$ $1,655$ Set strigtered during ert searchInIn $2,800$ 84 57 57 Set strigting on tradicional sourcesInIn $2,800$ 84 57 57 Set strigting inproved water sourcesInIn $2,900$ 84 57 57 Set strigting inproved water sourcesInIn $2,900$ 84 57 57 Set strigting inproved water sourcesInIn $2,900$ 84 57 57 Set strigting inproved water sourcesInIn $2,900$ $3,100$ $4,1000$ Set strigting on tradicional sourcesInIn $2,200$ $3,200$ $5,57$ Set vith lower secondary schoolInIn $2,200$ $3,57$ $3,500$ Set vith lower secondary schoolInIn $2,5200$ $3,500$ $3,57$ $3,57$ Set vith lower secondary schoolInInIn $3,500$ $3,57$ $3,57$ $3,57$ Set vith lower secondary schoolInInIn $3,57$ $3,57$ $3,57$ $3,57$ Set vith lower secondary schoolInInIn $3,57$ $3,57$ $3,57$ $3,57$ $3,57$ Set vith lower secondary schoolInIn <td>(6) Area of field irritated under irritation facility about</td> <td>nos.</td> <td>0</td> <td>-</td> <td>0</td> <td>0</td> <td></td>	(6) Area of field irritated under irritation facility about	nos.	0	-	0	0	
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y for people (dry seasen) 0.2 1.400 0.2 0.2 0.2 ges relying on traditional sources 7 2 84 57 58 ges relying on traditional sources 7 9 <td>b) area of field, irrigated during dry season</td> <td>an d</td> <td>2,000</td> <td>C00 CC8</td> <td>4,200</td> <td>1,655</td> <td>9,400</td>	b) area of field, irrigated during dry season	an d	2,000	C00 CC8	4,200	1,655	9,400
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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	(8) Water supply for people (wet season)			5		10	80
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seriorns for secondary education seriorns for secondary school ges with a complete elematary school ges with a complete elematary school manuent health center (Hospita) manuent health center (Hospita) manuent health center (Hospita) moss 15 ges with a common source of electricity set in the Mekong River with a immigration office the Mekong River with a immigration office e rivy of the Village for only people for only people e rivy a tributary of the Mekong River mouth of Hinboun river province road function of a coses road above for cond for cond above for cond above for cond for c	a) No. of classrooms for primary education	nos.	318	405		41	ryL
sex with a complete elemitary school % 25 30 35 35 sex with a complete elemitary school % 59 91 65 35 rimanent health center (Hospital) nos. 15 16 15 55 alth post % 22 47 16 16 sex with a permanent health center % 22 47 16 16 sex with a common source of electricity % 22 47 16 16 sex with a common source of electricity % 22 47 16 16 sex with a rice mill nos. 340 84 211 25 16 16 sex with a rice mill nos. 1 0 1 26 16 17 26 16 sex with a rice mill nos. 340 84 211 21 25 26 16 25 sex with a rice mill nos. 0 0 0 0 0 0 set or the village nos. 1 0 1 0 0 0 for only people and sover 1 0 1 0 0 0 for only people	b) No. of classrooms for secondary education	nos.	10	12		Ŧ	\$ \$
ges with lower secondary school % 59 91 65 rmanent health center (Hospital) nos. 15 15 16 15 alth post is swith a permanent health center % 54 47 16 15 set with a permanent health center % 22 47 16 16 set with a roomon source of electricity % 22 47 16 16 set with a rice mill ket % 78 84 211 131 25 ket nos. 78 84 211 131 25 the Mekong River with a immigration office nos. 1 0 0 0 for only people and cargo (trucking) nos. 1 1 131 25 for only people and cargo (trucking) nos. 1 0 0 0 for only people and cargo (trucking) nos. 1 0 0 0 for only people and cargo (trucking) nos. 1 0 0 0 for only people at ributary of the Mekong River nos. 1 0 0 0 for only people at notinear road above no notiver no notiver 1 0	c) % of villages with a complete eleminary school	%	25	30		35	77
rrmanent health center (Hospital)nos.1211alth postalth post15162201596ges with a permanent health center7878471616ges with a common source of electricity783408421113125ges with a rice mill78788421113125ges with a rice mill7878842112525ges with a rice mill78788421125ges with a rice mill78788421113125ges with a rice mill7878842112526ges with a rice mill7878842112526ges with a rice mill788421125260ges with a rice mill78788421125ges with a rice mill78788421125for both people and cargo (trucking)00000for only people100100for only people100100for only people100100for only people101000for only people100100for only people100000for scass road ab	d) % of villages with lower secondary school	%	59	16		2 Y	0° 6
runmanent health center (Hospital)nos.1211alth postas with a permanent health center $nos.$ 151622015ses with a permanent health center $nos.$ 340 84 22 47 16 16 ses with a common source of electricity $nos.$ 340 84 211 131 131 ses with a rice mill $nos.$ 340 84 211 131 25 ses with a rice mill $nos.$ $nos.$ 340 84 211 131 ses with a rice mill $nos.$ $nos.$ $nos.$ $nos.$ $nos.$ $nos.$ 10 00 for both people and cargo (trucking) $nos.$ $nos.$ 1 $noth of Hinboun-Tai1100for only peoplenos.1001000for only peoplenos.100100for only peoplenos.100000for only people0000000for only people0000000for only people0000000for only people000000for only people00000for only people0$	(10) Health					6	71
alth post alth post es with a permanent health center	a) No. of a parmanent health center (Hospital)	nos.	1	~	,	Ŧ	
ges with a permanent health center x 54 43 x y ges with a rice mill ges with a rice mill	b) No. of a health post	nos.	15	167	- 6	1 15	0.5
s ses with a rice mill ses with a rice mill set action of the Mekong River with a immigration of fice the Mekong River with a immigration of fice nos. the Mekong River nos. the Nos. th	c) $\%$ of villages with a permanent health center	26	54	43	3	сі У	212
s set with a rice mill set with a rice mil	(11) % of villages with a common source of electricity	%	22	54			5
nos.34084211131%7884211131%nos.8421125nos.0100nos.1010nos.1010nos.1010nos.1noth of Hinboun tivernotiver1No.13Km78100No.13Km1001wide, but no goodvery good10No.04Nongoodvery good1	(12) Marketing		3	Ì	-	OT	28
% 78 84 25 nos. nos. B.Pak-Hinboun-Tai Thakhek B.Pakxebangfai (no port) nos. 0 1 0 0 0 nos. 1 0 1 0 0 nos. 1 0 1 0 0 nos. nouth of Hinboun river nor river Xe-Bangfai (inland) No.13 Km very road Noribe 0 Km wide, but no good very road 1 0	a) No. of mills	nos.	340		211	131	607
nos. nos. B.Pak-Hinboun-Tai Thakhek B.Pakzebangfai (no port) nos. 0 1 0 0 0 nos. 1 0 1 0 0 nouth of Hinboun river no river Xe-Bangfai 0 0 Km Yery good 2 1 0 0 wide, but no good very good no node no node 1	b) % of villages with a rice mill	%	78	84	117		780
B.Pak-Hinboun-Tai Thakhek B.Pakxebangfai (no port) nos. 0 1 0 0 nos. 1 0 1 0 nos. 1 0 0 0 nos. 1 0 0 0 nos. 1 0 0 0 nouth of Hinboun river no river Xe-Bangfai 0 Km Yery good 2 18 wide, but no good very good no nord	c) No. of market	TIOS.		5		3	70
use B.Pak-Hinboun-Tai Thakhek B.Pakxebangfai (inland) and cargo (trucking) nos. 0 1 0 (inland) ty of the Mekong River nos. 1 0 1 0 0 ty of the Mekong River nos. 1 0 1 0 0 it to a port from national road No.13 Km 9 2 1 0 ove very good very good very good nond 18	(13) Port, along the Mekong River with a immigration office					(10 001)	5
and cargo (trucking) nos. 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	a) Name of the city of the village		B.Pak-Hinboun-Tai	Thakhek	B Pakvehandai	(inlead)	
ry of the Mekong River no. nos. nouth of Hinboun river no river Xe-Bangfai 0 it to a port from national road No.13 Km vide, but no good very good no.00 18 Nongbok	b) No. of port for both people and cargo (trucking)	nos.	0	1			
ry of the Mekong River To river To river To river Xe-Bangtai 1 to a port from national road No.13 Km 9 2 18 ove very good very good no	c) No. of port for only people	nos.	1	0	, <u>-</u>		c
1 to a port from national road No.13 province road national road No.12 province road hrough Nongbok 9 2 18 very 2004	d) Name of the river, a tributary of the Mekong River		mouth of Hinboun river	no river	Xe-Banofai	0	۷
Km 9 2 18 ove 2 18 18	e) Classification of access road to a port from national road No.13		province road	national road No.12		Nonshat	
wide, but no good very good no and	I) Lengh of access road above	Km	6	2	_	TUNKUN	ç
	g) Condition of access road above		wide, but no good	very good	no good	•	67

ssibility Planning in LAO P.D.R. (IRAP), MCTPC/UNDP/ILO (in 1998 and 1999) Data offered from Khammouane Province Office, DCTPC. Data offered from DAFSO anFAFSO.

Existing Infrastructure Condition of District in Study Area, Province Khammouan

Item Item B. Existing Road Condition (1) Length of road (total length of three type of road as below) a) Length of rational road with pavement b) Length of province road	District	Uinhann				
three type of road as below) pavement		unoauru	Thakhek	Nongbok	Xebanefai	Grand total
 (1) Length of road (total length of three type of road as below) a) Length of national road with pavement b) Length of province road 	Unit			C	0	
a) Length of national road with pavement b) Length of province road	Km	570	270	147	222	1 200
b) Length of province road	Km	95	65	C	5	185
	Km	92	24	72	11	205
	Km	383	181	75	180	819
(2) Length of all year round road (total length of three type of road as below)	Km	230	133	66	48	477
a) Length of national road with pavement	Km	95	65	0	25	185
b) Length of province road	Km	92	24	60) e	170
c) Length of rural road	Km	43	44	Q	, c	113
(3) Length of dry season only road (total length of three type of road as below)	Km	340	137	81	174	CTT
a) Length of national road with pavement	Km	0	0	50		76/
b) Length of province road	Km	- 0	Ċ	- 5	> -	- 2
c) Length of rural road	Km	340	137	102	140 140	202
(4) Trafficability for all year round (average of each classification of road)	9%	40	40	45	100	00/
a) % of whole length of national road with pavement	%	100	100	}	100	ور 100
b) % of whole length of province road	24	100	100	82	100	TUU
c) % of whole length of rural road	8	11	24	00 ×	9 F	2/2
(5) Untrafficability of dry season only road (average of each classification of road)	dh	90	51	22	11	14
a) % of whole length of national road with pavement	. %			cc	<u>ه</u> د	01 ~
b) % of whole length of province road	e B			1	o ;	0
c) % of whole length of rural road	e b	08	25	1	82	13
(6) Road access	<u>مر</u>	60	0/	76	89	86
a) % of villages with all year round road	, ti	76	ŝ	:		
b) % of villages with dry season only road	% E	ያ የ	00	60	41	49
	% ¥	9 <u>5</u>	39	30	41	42
	%	9	1	10	18	6
(/) Druges (total of three)	nos.	39	20	26	26	111
a) Number of bridges of national road with pavement	nos.	11	11	0	×	30
b) Number of bridges of province road	nos.	19	4		c	55
c) Number of bridges of rural road	nos.	6	- 2 2	23	- 1-1	à v
(8) Average distance to road for villages without all year round road access	Km	40	40	45	, t c	40
(9) Transport services				2	77	<u>vc</u>
a) % of villages with all year round transport services	.%	67	67	60	67	22
b) % of villages with dry season only transport services	%	27	30	30	10	35
c) % of villages with no transport services	%	9	6	10	2	25
(10) Travel time			,	70	17	71
a) Average travel time to district center (dry season)	min	172	54		200	106
b) Average travel time to district center (wet season)	min	213	60		010	100
c) Average travel time to 1st market	min	172	56	-	105	106
C. Access Problem and Priority for Existing Road	unit					001
000 4	E					
	9%	04	18		76	40
(2) % of villages with improving rural road access as the first access priority	%	12	18		43	18

:: District Accessibility Profile, and Road Network Analysis in Khammouane Province , Integrated Rural Accessibility Planning in LAO P.D.R. (IRAP) , MCTPC/UNDP/ILO (in 1998 and 1999) Data offered from Khammouane Province Office, DCTPC .

Data offered from DAFSO and PAFSO.

Blank : no exact data, under examination

Existing Infrastructure Condition of District in Study Area , Province Khammouan

2

H-1-3-(1) : Exsiting Infrastructure Condition of District in Study Area	in Study Ar	ea	Province Savannakhet			(1/2)
Item	District	Xaibourly	Khanthabouly	Xavphouthong	Songkhone	Grand total
A. General	Unit				0	
(1) Administrative area	Km2	1,110	521	512	1 373	3 616
(2) Number of villages	nos.	89	94	48	165	306
(3) Population	bs.	45,025	93.927	31 704	81 475	121 121
(4) Land use				10/172	C/1-5TD	101,202
a) Rainfed Paddy field	ha	7,214	5.515	8 045	18 617	30.301
b) Irrigated Paddy field	ha	4,066	399	43	1 7/12	196,46
(5) Irrigation facility (total of four below)	nos.	24	11	<u>-</u> «	34	107'0
a) Pump station with electric motor power	nos.	23	9	, v	16	202
b) Pump station with diesel power	nos.	- -	0	0	2 o	00
c) Weir	nos.	0	ŝ		~ -	11
d) Keservoir (Dam)	nos.	0	0	- 6	. (4
(6) Area of field, irrigated under irrigation facility above					1	
a) area of field, irrigated during wet season	ha	6,040	1.160	1.872	6 600	15,672
b) area of field, irrigated during dry season	ha	4,377	662	628	3,370	0 0/04
(1) Water supply for people (dry season)					22.2	0101
a) % of villages using improved water sources	%	17	51	29	74	30
b) % of villages relying on traditional sources	2%	34	12	ì	t -	00
(8) Water supply for people (wet season)					17	10
a) % of villages using improved water sources	20	17	51	15	ć	, i
b) % of villages relying on traditional sources	%	34	12	5 ¥	17	07
(9) Education			N	77	TT	10
a) No. of classrooms for primary education	nos.	312	515	200	l	
b) No. of classrooms for secondary education	10S	43	165	502 11	2 1 5	1,605
c) % of villages with a complete elemntary school	200	49	201	++ cy	60.6	321
d) % of villages with lower secondary school	<i>%</i>	10	00	70	5	47
(10) Health		4	27	17	12	16
a) No. of a parmanent health center (Hospital)	SOL		, ,	Ţ		
b) No. of a health post		- <u>-</u>	4	1	;	5
c) % of villages with a permanent health center	20	2 4	1T 1 K	n ç	10	36
(11) % of villages with a common converse of alcovinite.	2 2	3	07	10	10	12
(11) Warketing	%	31	72	44	S	38
a) No. of mills					-	
b) % of villages with a rice mill	uso.	00	207	189	206	602
c) No. of market	<i>9/</i>	0%	68	06	84	83
(13) Port along the Mekong River with a immigration office	TION	(nour no nee)	(this office for more a later -			0
a) Name of the city or the village	-	B.kenøka Ban	(I'WO ULLICES IOI PEOPLE/CATEO)	(no port)	Ē	
b) No. of port for both people and cargo (trucking)	nos.	1		~	B.I hadua-Gnai	
c) No. of port for only people	nos.	(port for armv)	- + C			- 1-
d) Name of the river, a tributary of the Mekong River		no river	no river	0		
e) Classification of access road to a port from national road No.13		rural road	national road No. 9		new new new	
1) Lengh of access road above	Km	22	28			Ĩ
g) Condition of access road above	-	wide, but no good	very good	-	wide hut no mod	7/
					wide, vut no good	
Blank : no exact data . under examination						

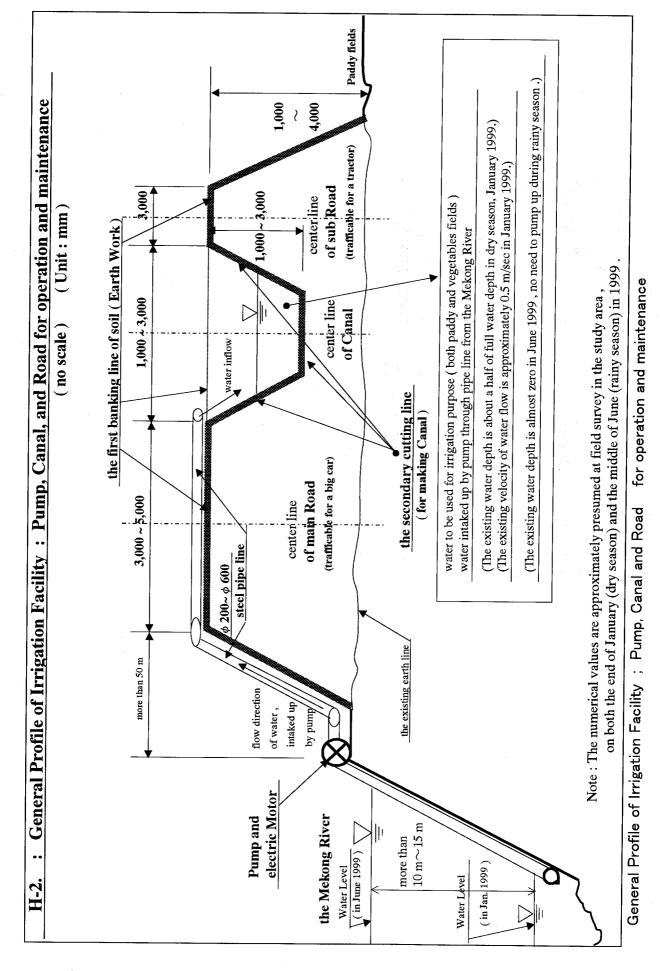
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Existing Infrastructure Condition of District in Study Area , Province Savannakhet

B. Existing Road Condition Unit (1) Length of road (total length of three type of road as below) Km (1) Length of national road with pavement Km (1) Length of province road Km (1) Length of province road Km (1) Length of province road Km (2) Length of all year round road (total length of three type of road as below) Km (2) Length of national road with pavement b) Length of road as below) Km (2) Length of road road Km Km		Xaibourly	Khanthabouly	Xavphouthong	Songkhone	Grand total
	Unit			6	G	
	Km	338				338
	u Ku	49 161				49
	Kn	128				161
	Km	148				148
	Km	49				49
	Km V	55				55
only road (total length of three type of road as helow)	Km	190				44
	Km	0				190
oad	Km	106				106
	Km	84				100 84
assification of road)	%	44				44
a) $\%$ of whole length of national road with pavement by $\%$ of whole length of accelerations and $\%$	1 ⁶ 1	100				100
	% %	34				34
v road (average of each classification of road)	04	54				34
	e 16	00				56
	2%	66				0 \
length of rural road	%	66				00 66
	1					00
h m were the second of the sec	% E	44	87	69	32	58
	e 1	ی در د	۰ و	27	64	38
	nos.	12	+	t	4	4
inational road with pavement	nos.	ε				12
oad	nos.	e				0 9
	nos.	9				00
road for villages without all year round road access	Km	15	ę	e	6	×
(2) 114115poit Services a) % of villages with all vear round transnort services						
	e 16	00	88	12	44	65
c) $\%$ of villages with no transport services $\%$	° 12		<i>د</i> بر بر	3 -	44	- - - - - - - - - - - - - - - - - - -
	-			+	17	\ \
	min	125	31	67	108	83
b) Average travel time to district center (wet season)	min	140	38	86	122	67
		104	31	108	90	83
	unit					
(1) % of villages with the rural road access problem as the main access problem $%$	%	30	30	19	43	31
(2) $\%$ of villages with improving rural road access as the first access priority $\%$	%	29	90	17	2 5	TC
1-1-1-					42	67

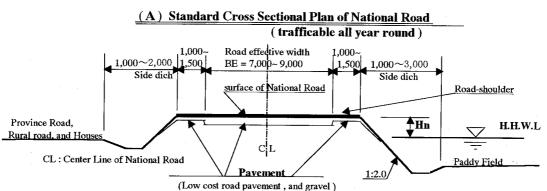
Existing Infrastructure Condition of District in Study Area , Province Savannakhet

2



H-7

H-3. Standard Cross Sectional Plan of Roads : National, Province & Rural Road (no scale)



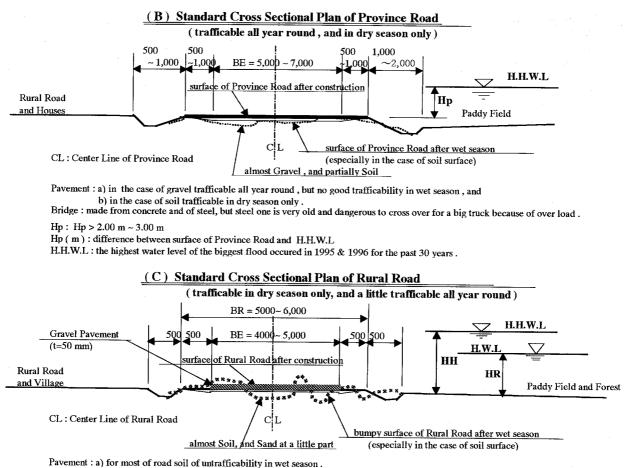
(unit of numerical values : mm)

Pavement : Low-cost road pavement for route No.13, but for the others almost gravel of no good trafficability particularly in wet season . Guard-rail : at the road-shoulder , where road-surface is about more than 2 m heigh apart from the earth .

Side dich, water way : almost made of soil , at a little place made from concrete .

Bridge : made from concrete and of steel, but steel one is very old and dangerous to cross over for a big truck because of over load . Hn : Hn < (-) 1.50 at a bridge , Hn < (-) 1.00 m at the other place exept a bridge , then road surface is higher than H.H.W.L . Hn (m): difference between surface of National Road and H.H.W.L

H.H.W.L : the highest water level of the biggest flood occured in 1995 & 1996 for the past 30 years .



b) trafficable in dry season only, and a little trafficable all year round

Bridge : made of both steel and several logs, very old and dangerous , and no bridge (going on the river bed) .

HH : HH > Hp , HH is more than Hp ($2.00 \text{ m} \sim 3.00 \text{ m}$). $HR = 0.50 \sim 1.00 \text{ m}$

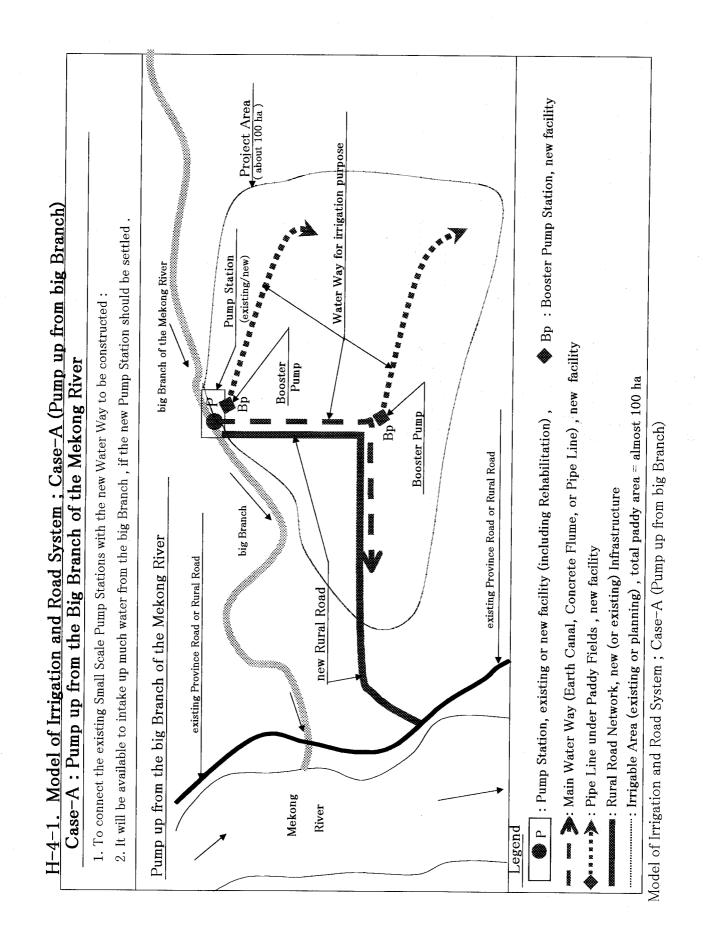
HR(m): difference between surface of Rural Road and H.W.L

HH (m): difference between surface of Rural Road and H.H.W.L,

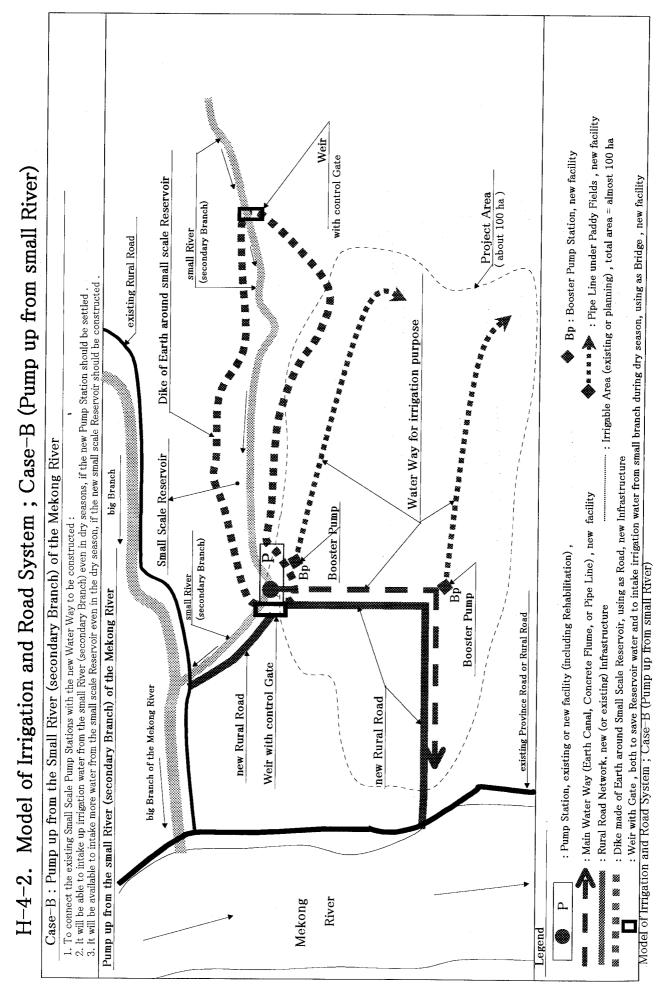
H.W.L : the annualy highest water level every year .

H.H.W.L : the highest water level of the biggest flood occured in 1995 & 1996 for the past 30 years .

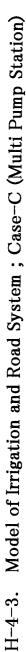
Note : The numerical values are about presumed when field survey in Jan. , June , Nov. and Dec. 1999 .

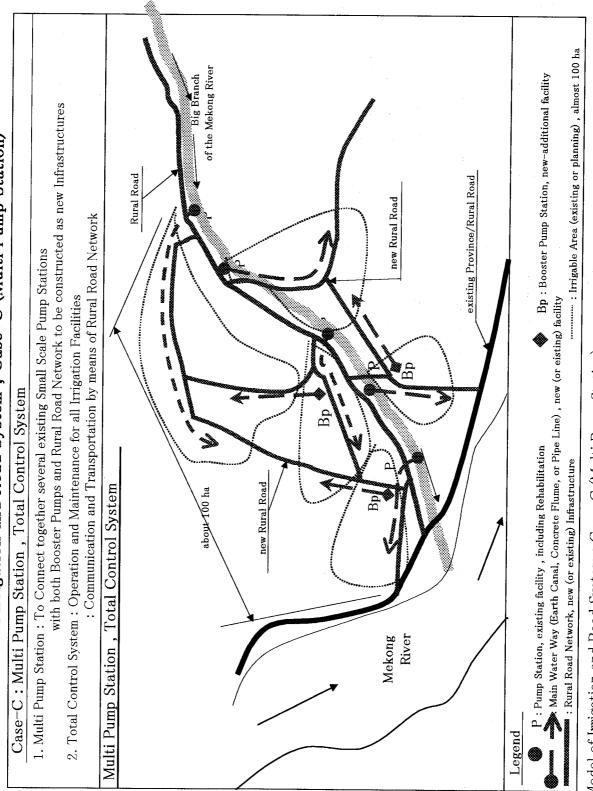


H-9

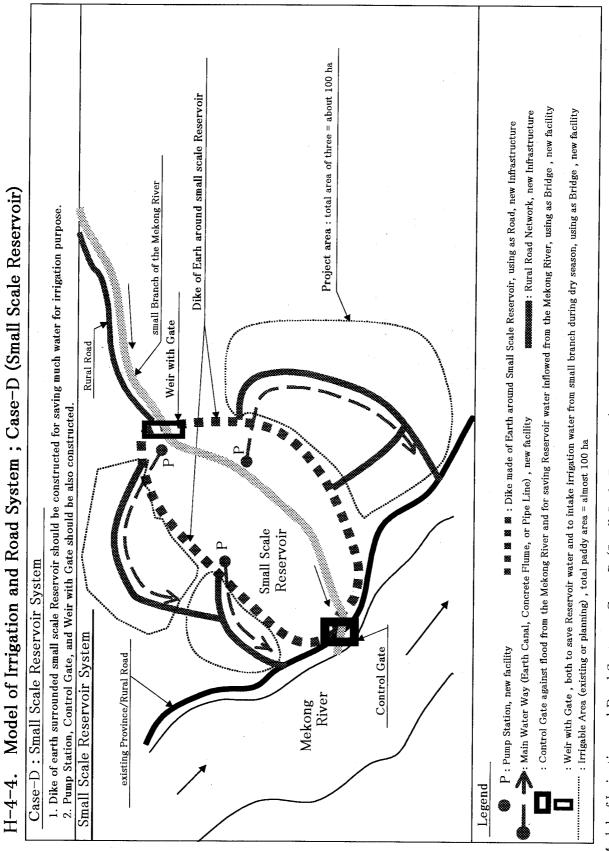


H-10

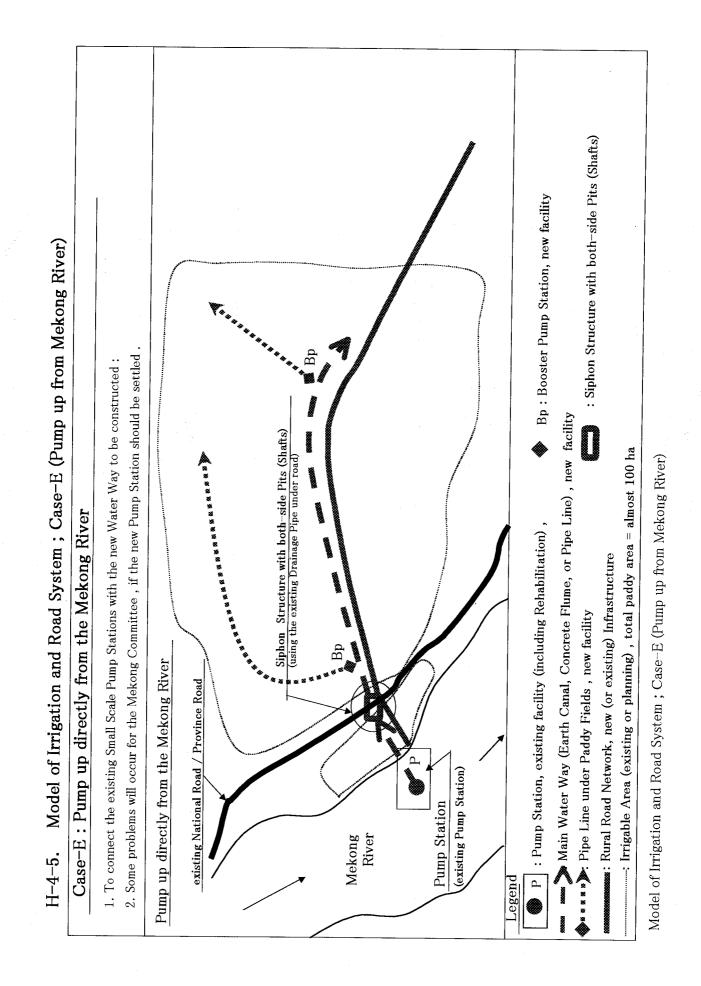


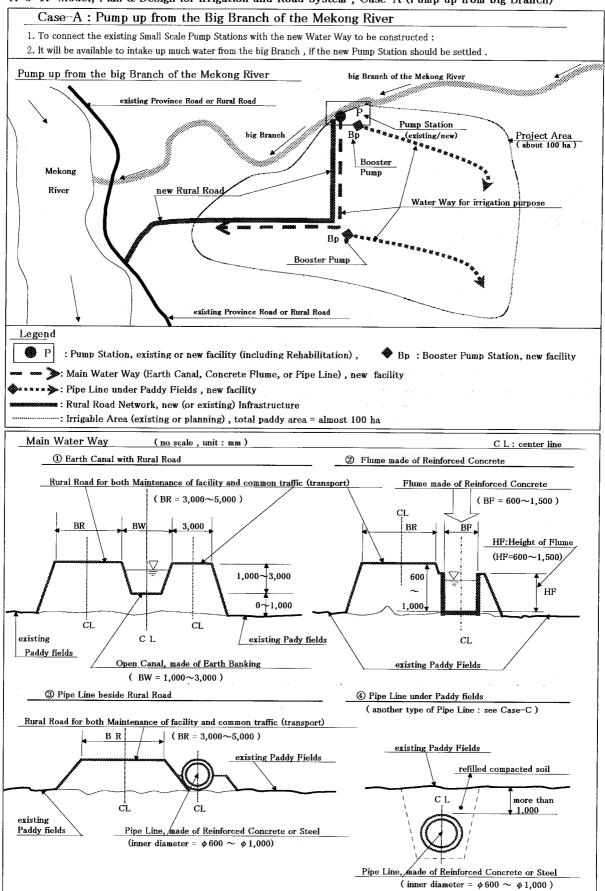


Model of Irrigation and Road System ; Case-C (Multi Pump Station)



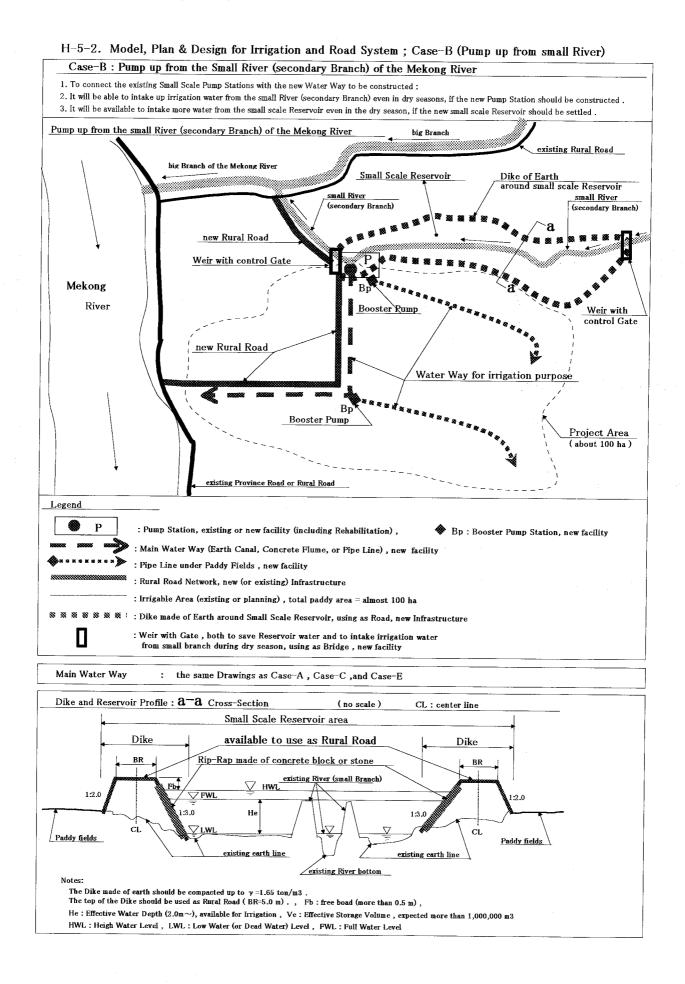
Model of Irrigation and Road System ; Case-D (Small Scale Reservoir)



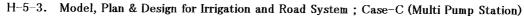


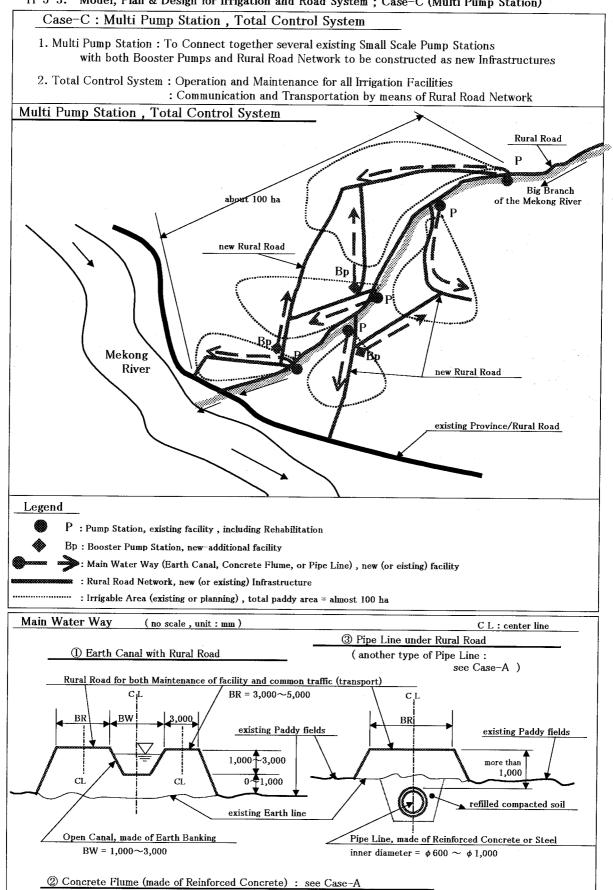
H-5-1. Model, Plan & Design for Irrigation and Road System ; Case-A (Pump up from big Branch)

Model, Plan & Design for Irrigation and Road System ; Case-A (Pump up from big Branch)

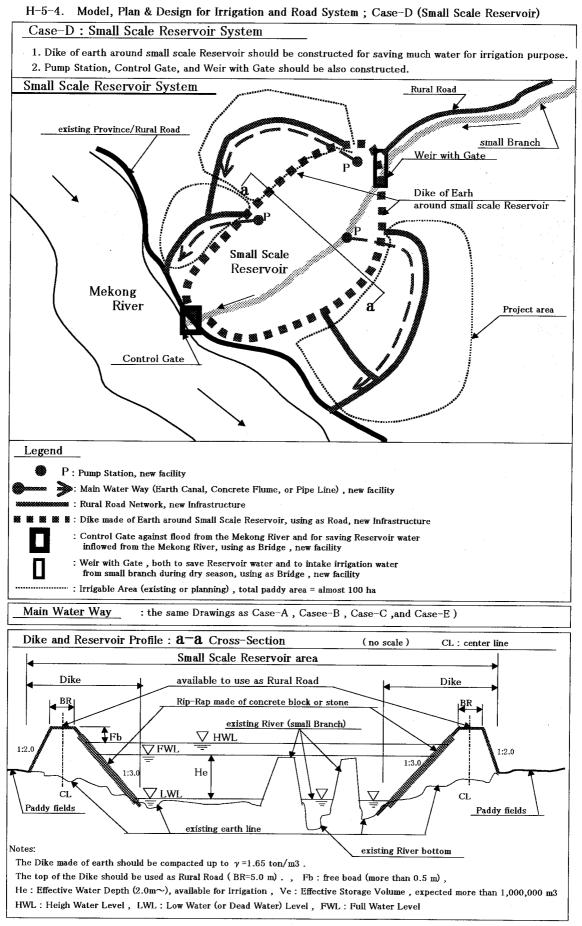


Model, Plan & Design for Irrigation and Road System ; Case-B (Pump up from small River)

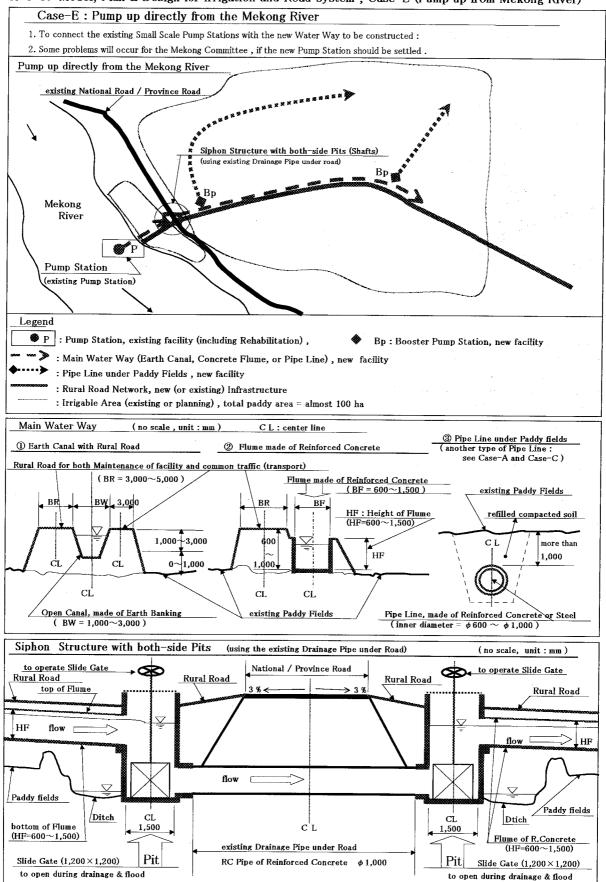




Model, Plan & Design for Irrigation and Road System ; Case-C (Multi Pump Station)

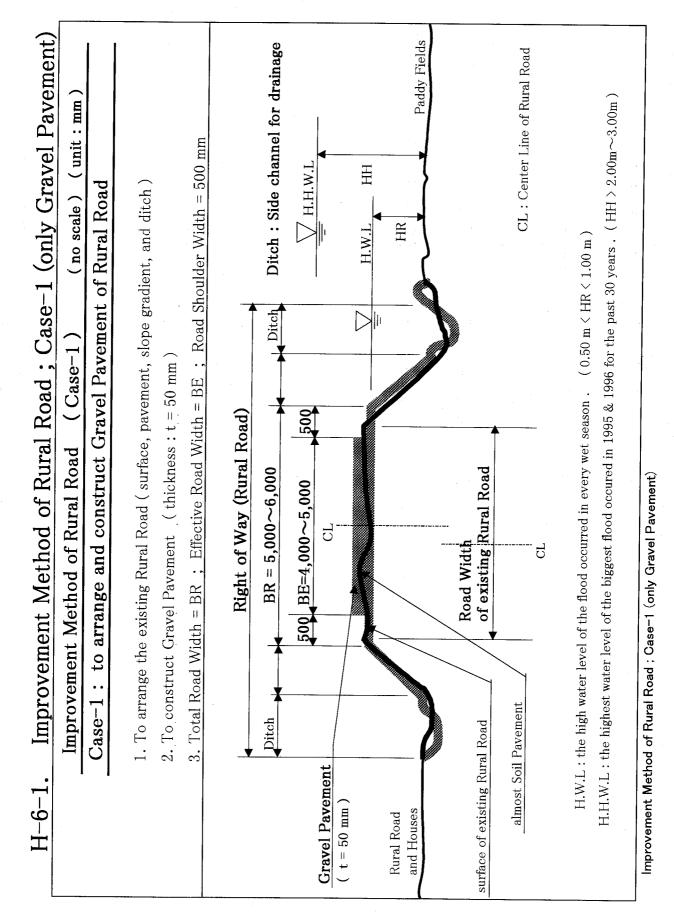


Model, Plan & Design for Irrigation and Road System ; Case-D (Small Scale Reservoir)

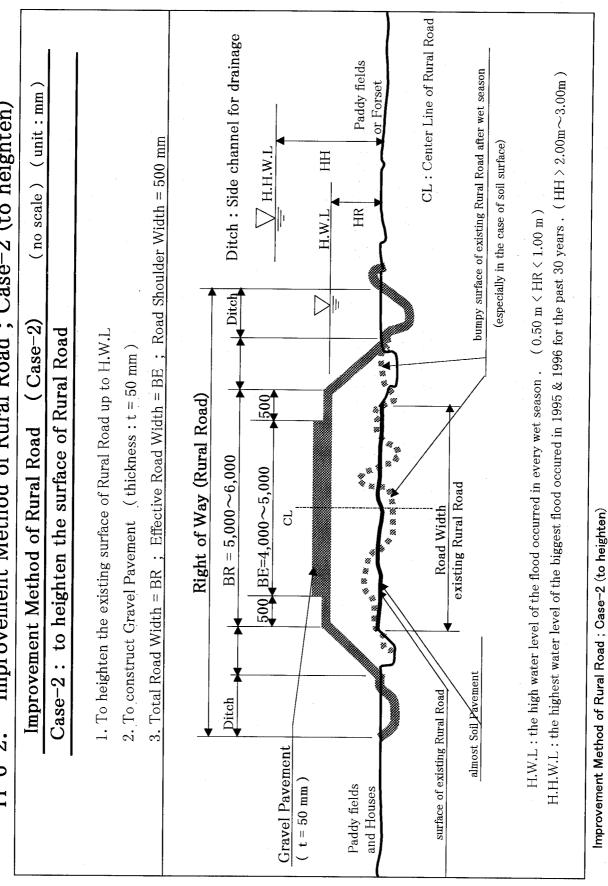


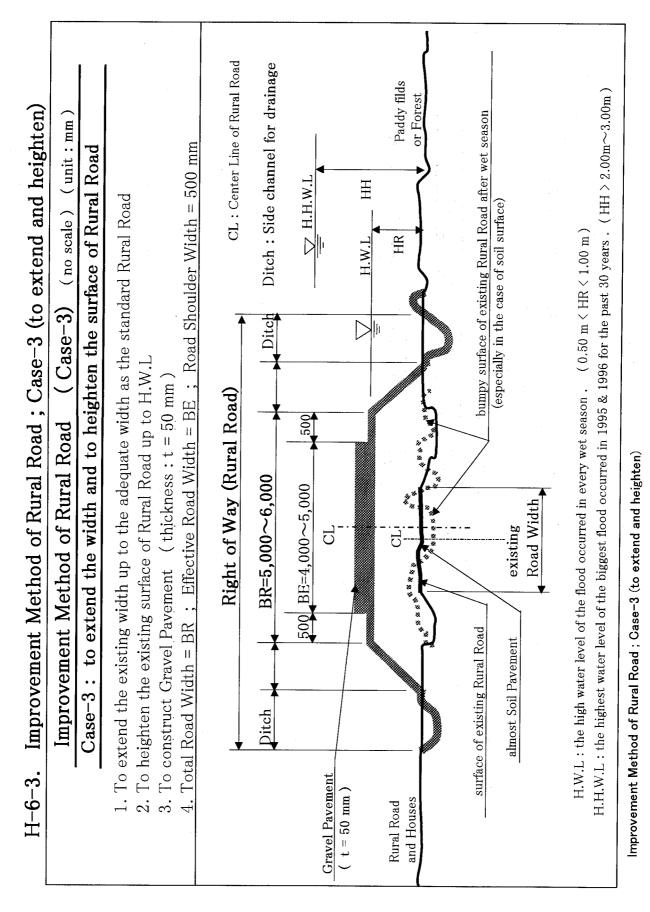
H-5-5. Model, Plan & Design for Irrigation and Road System ; Case-E (Pump up from Mekong River)

Model, Plan & Design for Irrigation and Road System ; Case-E (Pump up from Mekong River)



Improvement Method of Rural Road; Case-2 (to heighten) H-6-2.





H-21