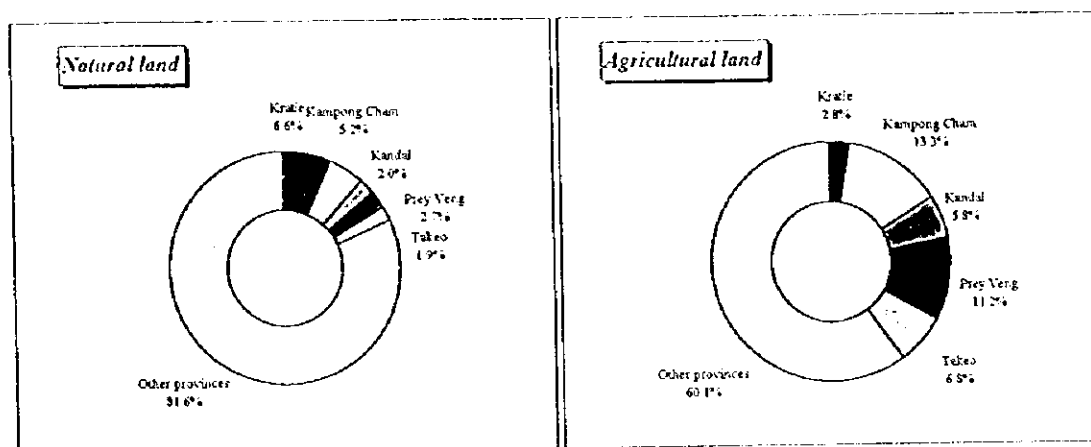


## TABLES AND FIGURES

Table E.1.1 Land Data of Kratie, Kampong Cham, Kandal, Prey Veng and Takeo

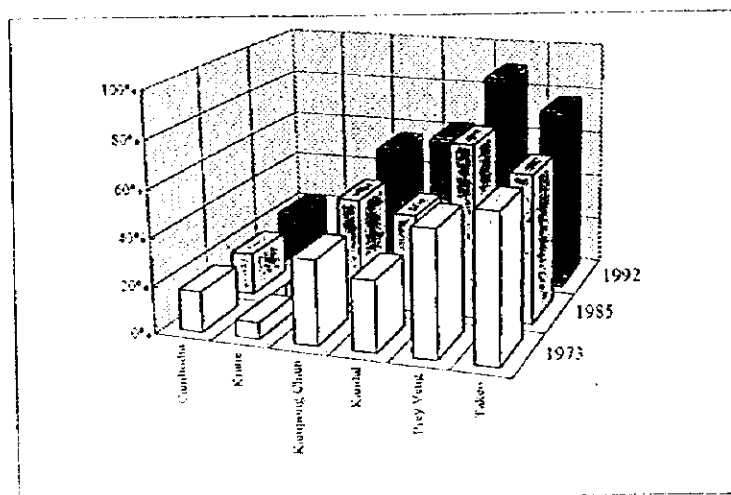
Items	Year	Kratie	Kampong Cham	Kandal	Prey Veng	Takeo	Other provinces	Cambodia
<b>Actual Figures</b>								
Natural land (km <sup>2</sup> )	1992	12,061	9,358	3,663	4,847	3,430	148,176	181,535
Agricultural land (km <sup>2</sup> )	1973	821	3,324	1,086	2,552	2,113	21,134	31,030
	1985	735	4,306	1,526	3,547	2,150	19,756	32,020
	1992	1,096	5,218	2,276	4,390	2,644	23,520	39,144
<b>Distribution</b>								
Natural land	1992	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Agricultural land	1973	6.8%	35.5%	29.6%	52.7%	61.6%	14.3%	17.1%
	1985	6.1%	46.0%	41.7%	73.2%	62.7%	13.3%	17.6%
	1992	9.1%	55.8%	62.1%	90.6%	77.1%	15.9%	21.6%

Source: The Cambodia Land Cover Atlas 1985/87 - 1992/93, Mekong Secretariat and LUMO, MAFF



Source Table E.1.1.

Figure E.1.1 Natural and Agricultural Land Distribution of the five provinces



Source Table E.1.1.

Figure E.1.2 Ratio of Agricultural Land by Province

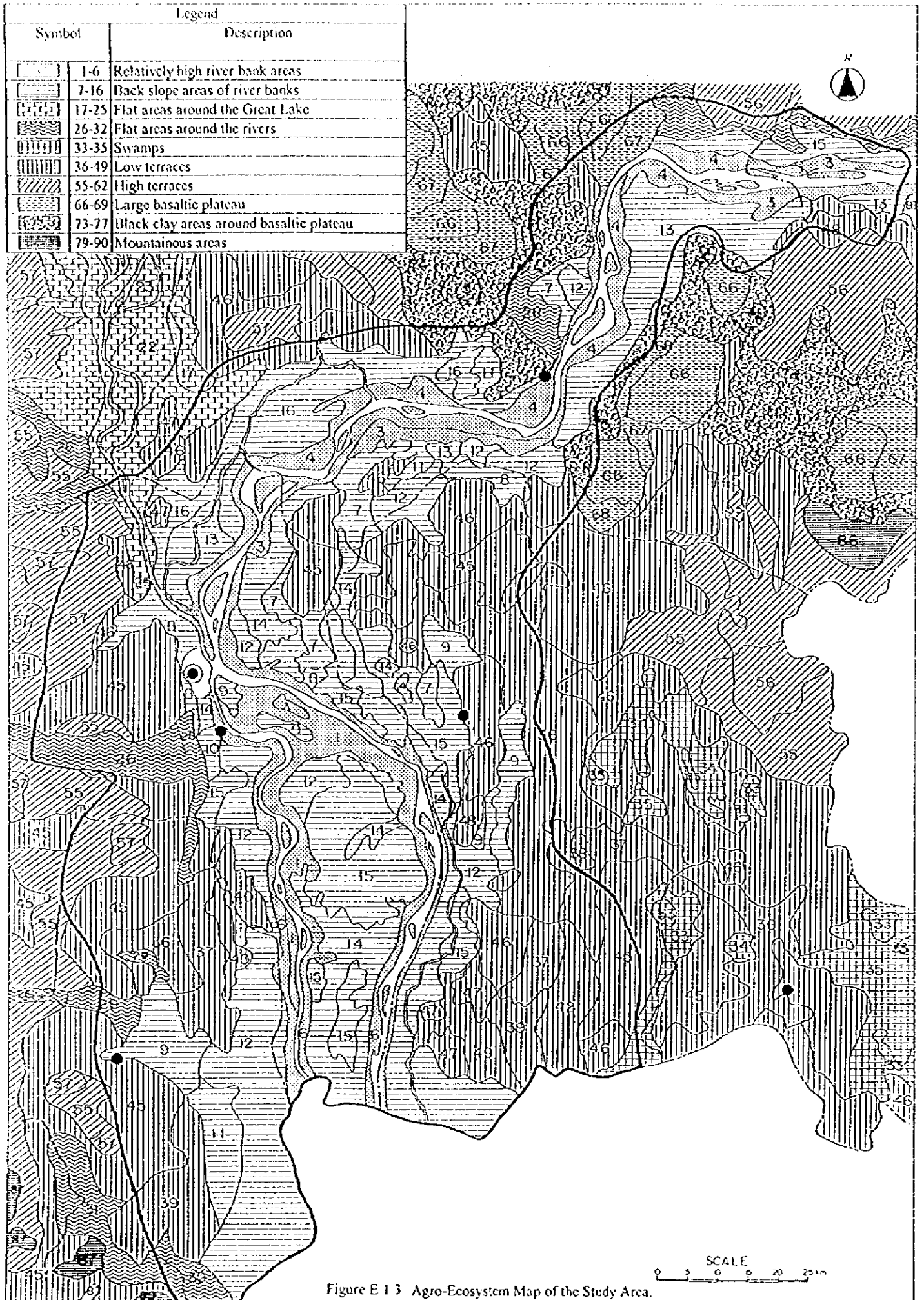
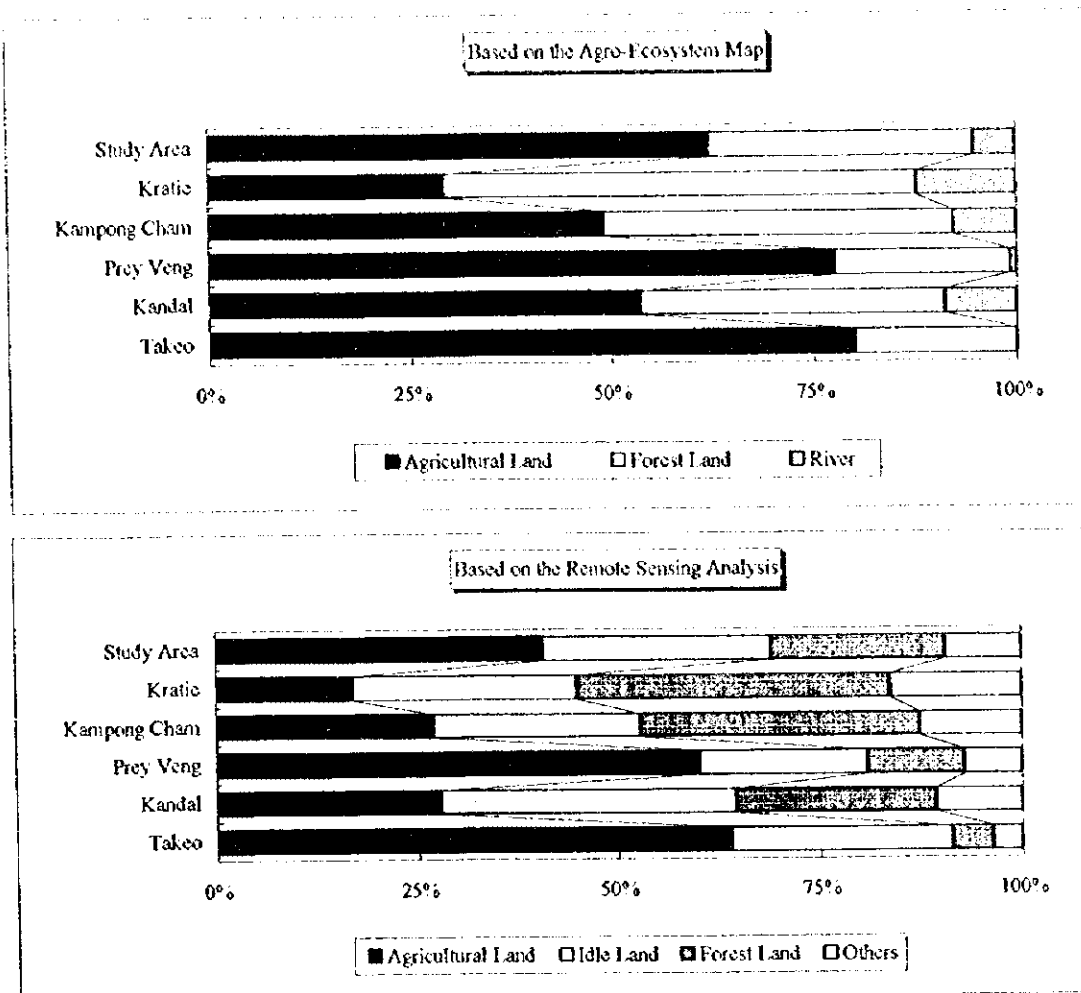


Figure E 13 Agro-Ecosystem Map of the Study Area.







Source: Agro-Ecosystem Map, LUMO, MAFF,  
Remote Sensing Analysis Data, JICA Study Team  
Note: Idle Land is consisted of waste land, grassland and swamp

Figure E.1.4 Land Use Distribution of the Study Area

Table E.1.4 Agricultural Land Use Distribution in the Study Area

(Unit : ha)

Province	Agricultural Land					Idle Land				Total (B)
	Dry Season Paddy	Wet Season Paddy	Upland Crops	Plantation	Sub Total (A)	Waste land	Grassland	Swamp	Sub Total	
Kratie	3,400	1,600	0	0	5,000	900	200	7,100	8,200	13,200
Kampong Cham	27,600	39,000	200	10,500	77,300	1,900	5,600	66,200	73,700	151,000
Prey Veng	132,700	50,000	400	100	183,200	1,600	7,900	53,900	63,400	246,600
Kandal	29,600	79,300	1,900	1,300	112,100	800	19,600	121,100	141,500	253,600
Takeo	12,700	85,500	0	0	98,200	2,800	18,000	21,200	42,000	140,200
<b>Total</b>	<b>206,000</b>	<b>255,400</b>	<b>2,500</b>	<b>11,900</b>	<b>475,800</b>	<b>8,000</b>	<b>51,300</b>	<b>269,500</b>	<b>328,800</b>	<b>804,600</b>

Source: Remote Sensing Analysis, JICA Study Team

(Unit : ha)

Province	Major Vegetation							Ratio of (A)(C)	Ratio of (B)(C)
	Dry Season Paddy	Wet Season Paddy	Floating rice	Rice and cereals	Cereals annual crops	Rubber	Total (C)		
Kratie	0	6,800	0	0	2,500	0	9,300	54%	142%
Kampong Cham	0	69,600	19,300	7,500	46,600	3,500	146,500	53%	103%
Prey Veng	15,700	216,700	23,200	0	0	0	255,600	72%	96%
Kandal	2,800	129,200	5,600	0	57,300	0	194,900	58%	130%
Takeo	14,400	102,400	15,900	0	300	0	133,000	74%	105%
<b>Total</b>	<b>32,900</b>	<b>524,700</b>	<b>64,000</b>	<b>7,500</b>	<b>106,700</b>	<b>3,500</b>	<b>739,300</b>	<b>64%</b>	<b>109%</b>

Source: Agro-Ecosystem Map, LUMO, MAFF

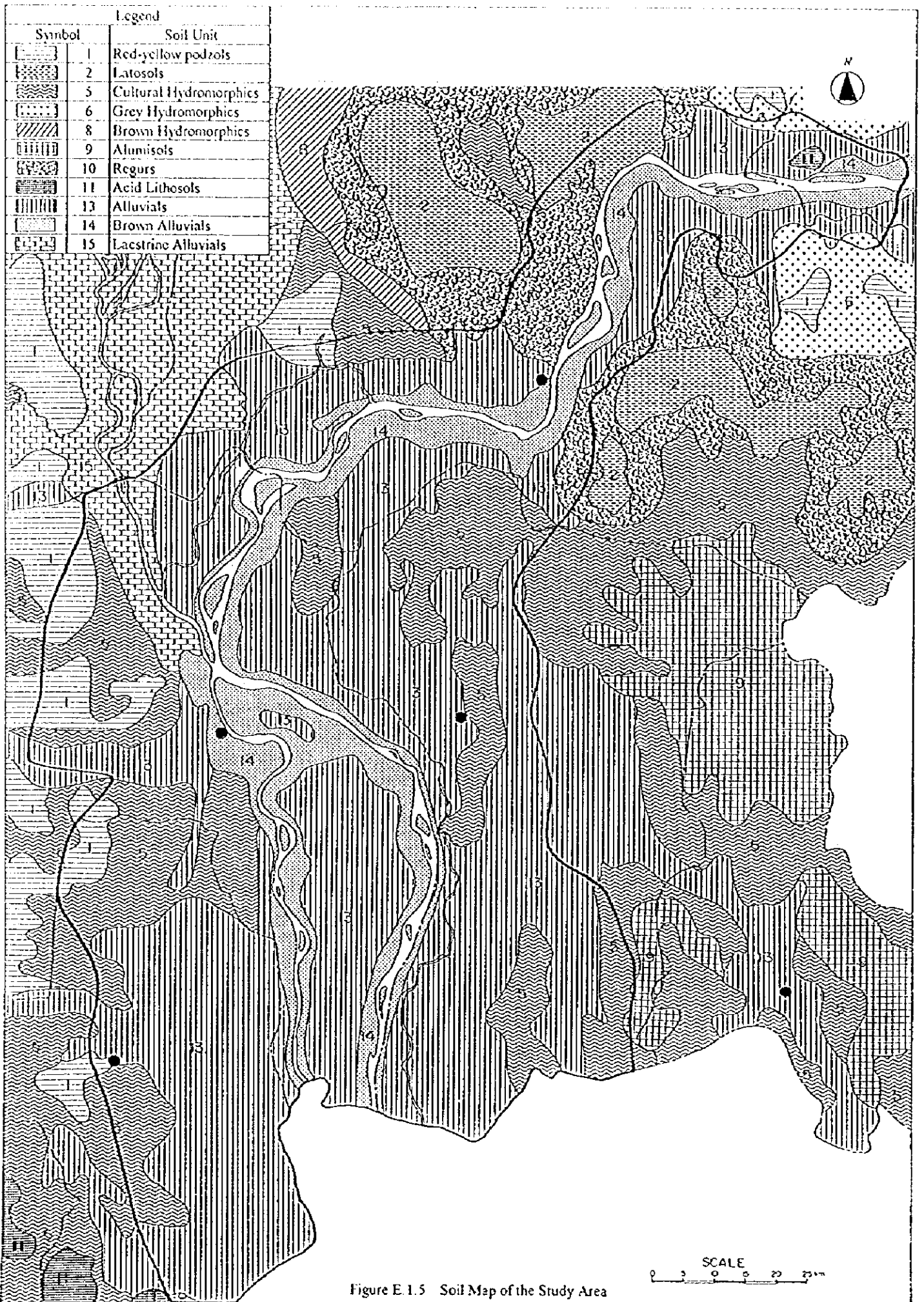


Figure E.1.5 Soil Map of the Study Area

Table E.1.5 Soil Distribution in the Study Area by Soil Map

(Unit : km<sup>2</sup>)

Soil Unit	Red-yellow podzols	Latosols	Cultural Hydromorphics	Grey Hydromorphics	Brown Hydromorphics	Alumsols	Regurs	Acid Latosols	Alluvials	Brown Alluvials	Lassane Alluvials	River	Total
Symbol	1	2	5	6	8	9	10	11	13	14	15		
Kratie	0	0	0	24	0	0	0	15	144	73	0	38	294
Kampong Cham	64	110	185	37	9	0	511	0	1,271	554	71	206	3,018
O Reang Ov	0	6	18	0	0	0	59	0	21	0	0	0	104
Koh Sotin	0	0	5	0	0	0	0	0	67	61	0	0	133
Srey Santhel	0	0	60	0	0	0	0	0	179	122	0	0	361
Kang Meas	0	0	0	0	0	0	0	0	194	78	0	54	326
Kroch Chhmar	0	0	0	10	0	0	17	0	230	125	0	8	390
Tbong Khmum	0	26	0	0	0	0	115	0	54	35	0	3	233
Stung Trang	0	78	0	21	0	0	142	0	110	40	0	64	455
Kampong Seim	0	0	0	0	0	0	149	0	106	93	0	60	408
Prey Chhor	10	0	97	0	9	0	29	0	76	0	0	5	226
Cheung Prey	54	0	5	0	0	0	0	0	84	0	0	7	150
Batheay	0	0	0	0	0	0	0	0	131	0	71	5	207
Dambe	0	0	0	6	0	0	0	0	19	0	0	0	25
Prey Veng	0	0	1,080	0	0	102	0	0	2,271	54	0	19	3,526
Peam Ro	0	0	70	0	0	0	0	0	85	12	0	4	171
Peam Chor	0	0	0	0	0	0	0	0	352	42	0	15	409
Kanh Chreach	0	0	27	0	0	0	0	0	12	0	0	0	39
Sithor Kandal	0	0	248	0	0	0	0	0	52	0	0	0	300
Peareang	0	0	154	0	0	0	0	0	399	0	0	0	553
Kampong Leav	0	0	75	0	0	0	0	0	169	0	0	0	244
Prey Veng	0	0	95	0	0	6	0	0	353	0	0	0	454
Ba Phnom	0	0	11	0	0	0	0	0	310	0	0	0	321
Kamehay Mear	0	0	24	0	0	14	0	0	16	0	0	0	54
Kampong Travek	0	0	190	0	0	82	0	0	137	0	0	0	409
Prea Sdech	0	0	151	0	0	0	0	0	310	0	0	0	461
Measang	0	0	35	0	0	0	0	0	76	0	0	0	111
Kandal	204	0	499	0	0	0	0	0	1,528	784	160	288	3,463
Ksach Kandal	0	0	66	0	0	0	0	0	125	80	0	13	284
Muk Kampoul	0	0	0	0	0	0	0	0	167	35	0	63	265
Lvea Em	0	0	0	0	0	0	0	0	233	70	0	0	303
Kean Svay	0	0	0	0	0	0	0	0	107	215	0	71	393
Saang	0	0	121	0	0	0	0	0	264	130	0	30	545
Leuk Dek	0	0	0	0	0	0	0	0	201	106	0	69	376
Koh Thom	0	0	0	0	0	0	0	0	203	107	0	27	337
Ponhea Leu	48	0	85	0	0	0	0	0	39	0	160	15	347
Ang Snoul	142	0	108	0	0	0	0	0	0	0	0	0	250
Kandal Stung	14	0	119	0	0	0	0	0	189	41	0	0	363
Takeo	60	0	478	0	0	0	0	0	1,046	0	0	0	1,584
Bali	54	0	254	0	0	0	0	0	31	0	0	0	339
Prey Kabass	0	0	11	0	0	0	0	0	244	0	0	0	255
Angkor Borey	0	0	0	0	0	0	0	0	294	0	0	0	294
Borey Cholaso	0	0	0	0	0	0	0	0	173	0	0	0	173
Trecang	0	0	124	0	0	0	0	0	105	0	0	0	229
Trankok	6	0	28	0	0	0	0	0	82	0	0	0	116
Santong	0	0	61	0	0	0	0	0	117	0	0	0	178
<b>TOTAL</b>	<b>328</b>	<b>110</b>	<b>2,242</b>	<b>61</b>	<b>9</b>	<b>102</b>	<b>511</b>	<b>15</b>	<b>6,260</b>	<b>1,465</b>	<b>231</b>	<b>551</b>	<b>11,885</b>
Distribution (%)	2.8	0.9	18.9	0.5	0.1	0.9	4.3	0.1	52.7	12.3	1.9	4.6	100.0

Source : Soil Map, IUMO, MAFF





Table E.1.6 Results of Soil Analysis of 14 Samples by Portable Analyzer

Site	Symbol	pH		NH <sub>4</sub> -N (Ammonia Nitrogen) (mg/100g soil)	NO <sub>3</sub> -N (Nitrate Nitrogen) (mg/100g soil)	P <sub>2</sub> O <sub>5</sub> (Available Phosphorus) (mg/100g soil)	K <sub>2</sub> O (Exchangeable Potassium) (mg/100g soil)	CaO (Exchangeable Calcium) (mg/100g soil)	MgO (Exchangeable Magnesium) (mg/100g soil)	Fe (Available Iron) (ppm)	Mn (Exchangeable Manganese) (ppm)	NaCl (Salts) (%)	EC (Electric Conductivity) ( $\mu$ S/cm)	Color
		(KCl)	(H <sub>2</sub> O)											
Away from Mekong River	1 L F	6.8	7	<1	7	8	100	75	<5	<5	<5	0.01	72.1	7.5YR2/3
	1 R F	6.0	4.7	<1	5	10	60	10	<5	<5	5	0.010	1.0	10YR3/3
	2 L F	4.3	5.3	<1	<5	5	<50	1	20	20	<5	<0.005	14.5	10YR5/6
	2 R F	4.2	5.0	<1	<5	5	70	6	85	10	15	0.005	68.2	7.5YR3/3
	3 L F	4.5	5.0	<1	<5	15	<50	1	20	20	<5	<0.005	32.2	7.5YR5/6
	3 R F	5.5	6.2	<1	5	15	65	25	30	30	<5	0.01	201.9	7.5YR3/4
	Max.	6.8	7	-	7	15	100	75	85	15	15	0.010	201.9	-
	Min.	4.2	4.7	-	5	5	60	1	20	5	5	0.005	1	-
	Avg.	5.2	5.5	-	5.7	9.7**	73.8	19.7	38.8	10.0	10.0	0.009	65.0	-
Along Mekong River	1 L N	6.5	7	<1	<5	15	75	15	7	7	<5	<0.005	110.5	7.5YR3/4
	1 R N	5.3	6.1	<1	<5	20	70	10	100	100	<5	0.005	84.9	7.5YR3/4
	2 L N	4.2	5.1	<1	<5	25	70	10	60	60	<5	<0.005	24.3	7.5YR3/3
	2 R N	7.0	7.5	<1	<5	20	150	10	10	10	<5	<0.005	112.2	2.5Y4/2
	3 L N	5.7	4.4	<1	5	10	<50	1	10	10	5	0.010	16.2	7.5YR5/6
	3 R N	7.7	7.2	<1	10	20	100	10	<5	<5	5	0.01	99.0	7.5YR3/3
	Max.	7.7	7.5	-	10	25	150	15	100	100	5	0.010	112.2	-
	Min.	4.2	4.4	-	5	10	70	1	7	7	5	0.005	16.2	-
	Avg.	6.1	6.2	-	7.5	18.3**	93.0	9.3	37.4	5.0	5.0	0.008	74.5	-
Control	C 1	7.5	>7.5	<1	<5	20	150	15	13	13	<5	<0.005	81.1	7.5YR3/3
	C 2	7.5	7	<1	7	15	100	5	12	12	7	0.010	80.5	10YR3/4

Note: \*\* means statistically significant at 5% level.

Location and Land Use		Location		Land Use		
Site	Symbol	Location	Location	Land Use	Land Use	
Away from Mekong River	1 L F	Kampong Cham	Thom Khamum	Toul Pres Hia	Ehro	Wet Paddy
	1 R F	Kampong Cham	Prey Chhor	Trapaing Kpa	Trapaing Kpa	Wet Paddy
	2 L F	Prey Veng	Prey Veng	Mebon	Mebon	Wet Paddy
	2 R F	Phnom Peth	Rusa Kev	Kmounth	Kmounth	Wet Paddy
	3 L F	Prey Veng	Prea Sdech	Romehak	Chong Roas	Wet Paddy
3 R F	Kandal	Koh Thom	Svay Ta Mek	Prek Daung	Dry Paddy	
Along Mekong River	1 L N	Kampong Cham	Thong Khamum	Tonle Boe	Donmao Kraum	Upland Field (upland paddy)
	1 R N	Kampong Cham	Kampong Seum	Koh Roka	Tameang	Dry paddy
	2 L N	Kandal	Ksach Kandal	Prea Tamea	Kompong Komtal	Wet Paddy
	2 R N	Kandal	Nuk Kamppoul	Bak Keng	Bak Keng	Upland Field (maize)
	3 L N	Prey Veng	Peam Ro	Babaung	Chouksbey	Wet Paddy
3 R N	Kandal	Leuk Dek	Prek Ton Leap	Spean Dek	Upland Field (preparation)	
Control	C 1	Kandal	Kien Svay	Bonca Dek	Prek Pol	Colmatage Canal
	C 2	Kandal	Leuk Dek	Kampong Phum Krau	River Bank	River Bank

Table E.1.7 Results of soil analysis of 14 samples by Soil Laboratory, DOA

Site	Symbol	Soil Moisture (%)	Particle Size Distribution					T-C (Total Carbon) (%)	T-N (Total Nitrogen) (%)	C:N (Carbon: Nitrogen Ratio)	CEC (Cation Exchange Capacity) (meq/100g soil)	Ca <sup>2+</sup> (Exchangeable Calcium) (meq/100g soil)	Mg <sup>2+</sup> (Exchangeable Magnesium) (meq/100g soil)	K <sup>+</sup> (Exchangeable Potassium) (meq/100g soil)	Na <sup>+</sup> (Exchangeable Sodium) (meq/100g soil)	Base Saturation (%)	T-P <sub>2</sub> O <sub>5</sub> (Total Phosphorus) (%)	A-P <sub>2</sub> O <sub>5</sub> (Available Phosphorus) (ppm)	pH	
			Clay (%)	Fine Silt (%)	Silt (%)	Fine Sand (%)	Sand (%)												(H <sub>2</sub> O)	(NaCl)
Away from Mekong River	1 L F	5.5	47.5	20.6	8.1	6.8	7.9	17.44	1.61	10.82	24.60	11.60	4.50	2.93	0.42	79.1%	0.800	195	5.8	4.9
	1 R F	0.5	12.5	19.0	19.5	15.1	32.0	7.87	0.62	12.75	7.95	1.75	2.25	0.72	0.13	61.0%	0.107	24	5.1	4.3
	2 L F	1.5	7.8	38.2	25.5	24.3	2.6	4.09	0.34	11.92	5.60	0.75	1.25	0.73	0.20	52.3%	0.061	7	4.8	4.1
	2 R F	2.0	49.4	25.1	8.9	6.9	3.7	25.16	2.74	9.17	24.70	5.16	4.25	2.50	1.37	53.8%	0.235	55	4.6	3.6
	3 L F	2.0	10.8	27.1	21.2	34.7	4.1	10.18	0.72	14.14	5.60	1.75	1.00	1.17	0.17	73.0%	0.063	12	5.3	4.7
	3 R F	3.0	34.6	49.7	9.2	3.1	0.5	15.64	1.10	14.25	19.62	7.75	3.00	4.37	0.18	78.0%	0.970	169	5.5	5.3
	Max.	5.5	49.4	49.7	25.5	34.7	32.0	25.16	2.74	14.25	24.70	11.60	4.50	4.37	1.37	79.1%	0.970	195	5.8	5.3
	Min.	0.5	7.8	19.0	8.1	3.1	0.5	4.09	0.34	9.17	5.60	0.75	1.00	0.72	0.13	52.3%	0.061	7	4.6	3.6
	Avg.	2.4	27.1	29.9	15.4	15.2	8.4	13.40	1.19	12.17	14.68	4.79	2.71	2.07	0.41	66.2%	0.373	77	5.2	4.5
Along Mekong River	1 L N	1.5	16.6	25.3	30.3	25.9	0.2	8.27	0.69	12.05	10.70	4.25	2.00	2.34	0.25	82.6%	0.480	47	5.6	4.9
	1 R N	1.0	40.7	42.1	11.5	2.6	0.2	22.67	2.68	8.47	19.40	6.10	3.50	3.90	0.66	73.0%	0.750	180	5.2	4.5
	2 L N	2.0	17.4	31.1	18.5	30.1	0.5	6.85	0.65	10.52	9.50	3.25	1.25	2.44	0.27	75.9%	0.362	150	5.5	4.7
	2 R N	1.0	18.3	22.8	27.0	30.3	0.4	9.11	0.58	15.63	10.70	3.50	2.75	2.60	1.34	95.2%	0.395	90	7.0	6.5
	3 L N	1.0	8.4	21.8	25.6	33.8	10.1	6.94	0.58	11.91	6.12	1.00	1.00	1.16	0.17	54.4%	0.900	10	5.0	4.4
	3 R N	2.0	23.4	30.0	26.2	16.2	0.4	7.68	0.75	10.18	11.97	3.75	2.25	4.15	0.38	88.0%	1.000	151	6.2	6.1
	Max.	2.0	40.7	42.1	30.3	33.8	10.1	22.67	2.68	15.63	19.40	6.10	3.50	4.15	1.34	95.2%	1.000	180	7.0	6.5
	Min.	1.0	8.4	21.8	11.5	2.6	0.2	6.85	0.58	8.47	6.12	1.00	1.00	1.16	0.17	54.4%	0.362	10	5.0	4.4
	Avg.	1.4	20.8	28.8	25.2	23.2	2.0	10.25	0.99	11.46	11.40	3.64	2.13	2.77	0.51	78.2%	0.648	105	5.8	5.2
Control	C 1	1.5	16.6	21.4	23.8	34.4	1.4	9.90	0.72	13.74	10.20	3.75	2.50	2.44	0.12	86.4%	1.170	165	6.6	6.2
	C 2	4.5	11.3	8.9	11.4	64.4	1.5	3.53	0.27	12.89	8.43	3.50	1.75	1.74	0.18	85.1%	0.430	62	6.3	6.2

Note: Analysis is conducted by Soil Laboratory, Department of Agronomy, MAFF.

Table E.1.8 Estimation of Food Production by Province, 1992/93, 1993/94 and 1995/96

Item	Paddy production (ton)	Remaining paddy for consumption(1) (ton)	Additional food crops (ton)	Food available for consumption(2) (ton)	Population (person)	Balance of food's rice(3) (ton)
<b>1992/93</b>						
Kandal	171,430	145,730	24,000	114,350	886,770	29,300
Kampong Cham	242,000	205,700	20,000	147,530	1,441,700	-86,020
Prey Veng	264,450	224,800	8,000	147,380	942,800	-5,360
Takeo	297,400	252,790	11,000	167,730	694,700	55,180
Kratie	47,090	40,030	6,000	30,820	228,000	-6,110
Other Provinces	1,186,610	1,008,730	30,000	655,410	4,494,430	-131,290
Total	2,221,000	1,888,000	100,000	1,270,560	9,430,000	-257,100
<b>1993/94</b>						
Kandal	166,635	141,640	23,675	111,491	889,050	-32,535
Kampong Cham	283,645	241,099	20,100	169,581	1,412,300	-59,211
Prey Veng	272,007	231,206	7,600	150,948	925,525	1,015
Takeo	309,455	263,037	11,800	174,883	626,910	73,323
Kratie	42,279	35,937	5,800	28,081	231,000	-9,341
Other Provinces	1,299,104	1,104,237	30,770	715,445	4,505,455	-14,489
Total	2,383,350	2,025,847	99,975	1,356,047	9,500,000	-183,000
<b>1995/96</b>						
	Paddy production (ton)	Remaining paddy for consumption(1) (ton)	Converted into milled rice(2) (ton)	Population (person)	Food requirement per year(4) (ton)	Balance (ton)
Kandal	249,125	211,756	131,289	984,400	148,841	-17,552
Kampong Cham	325,000	276,250	171,275	1,513,500	228,841	-57,566
Prey Veng	549,625	467,181	289,652	990,300	149,733	139,919
Takeo	437,312	371,715	230,463	753,300	113,899	116,564
Kratie	44,350	37,698	23,373	228,500	34,549	-11,176
Other Provinces	1,826,605	1,552,614	962,621	5,174,570	782,395	180,226
Total	3,447,827	2,930,653	1,817,005	10,500,000	1,587,600	229,405

Note : (1)-Totally 15% deduction (8% for seed, 2% for animal feeds, 5% for post-harvest loss)

(2)-Conversion rate from paddy to rice : 62%

(3)-Average annual consumption of milled rice : 162 kg/person

(4)-Average annual consumption of milled rice : 151.2 kg/person

Source : Bulletin of Agricultural Statistics and Studies, Dep't of Planning and Statistics, MAFF, Agricultural Statistics 1995, Dep't of Planning and Statistics, MAFF.

Table E.19 Cultivated Harvested Area, Production and Yield of Paddy by Province from 1980/81 to 1995/96

PADDY	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96
<b>Cultivated Area (1000ha)</b>																
Dry season																
Phnom Penh	0.3	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.8	0.6	1.3	1.3
Kandal	25.0	34.0	32.0	28.5	30.0	30.0	30.0	32.0	37.0	36.0	36.0	38.0	34.0	39.1	38.8	44.1
Kompong Cham	10.0	17.0	16.0	15.0	16.0	14.5	12.0	15.0	19.0	20.0	21.0	19.0	19.0	19.5	20.4	23.6
Prey Veng	15.0	31.0	29.0	22.5	23.0	20.0	25.0	22.0	26.0	25.0	27.0	27.0	27.0	30.0	31.6	56.7
Takeo	23.5	38.0	26.0	33.0	31.0	32.0	30.0	33.0	36.0	39.0	39.0	40.0	40.0	42.0	42.6	52.7
Kratie	3.5	5.0	4.0	4.0	4.0	5.0	6.0	6.0	6.0	5.0	5.0	6.0	5.0	5.5	5.5	5.4
Other Provinces	17.7	24.5	20.5	12.5	14.0	14.5	18.0	20.0	19.0	19.0	21.0	18.0	17.2	18.3	26.9	32.1
Cambodia	95.0	150.0	128.0	116.0	119.0	117.0	122.0	129.0	144.0	145.0	150.0	149.0	143.0	155.0	170.0	216.0
Rainy season																
Phnom Penh	2.1	1.5	1.5	2.5	2.0	2.0	9.0	9.0	12.0	12.0	12.0	12.0	8.9	8.1	8.6	8.6
Kandal	55.0	52.0	54.0	52.5	46.0	48.0	37.0	32.0	45.0	61.0	57.0	57.0	47.3	45.2	45.0	48.5
Kompong Cham	137.0	135.0	139.0	145.0	130.0	120.5	142.0	110.0	143.0	159.0	157.0	160.0	160.8	161.9	170.0	167.5
Prey Veng	174.0	175.0	207.0	210.5	197.0	197.0	209.0	186.0	225.0	242.0	238.0	227.0	227.0	198.7	195.7	229.3
Takeo	144.5	90.0	127.0	135.0	105.0	110.0	153.0	121.0	179.0	180.0	172.0	181.0	176.3	174.2	185.2	184.9
Kratie	14.5	13.0	15.0	16.0	21.0	18.0	19.0	18.0	23.0	24.0	24.0	23.0	22.2	22.3	26.3	21.3
Other Provinces	818.9	876.5	1,002.5	1,062.5	798.0	849.5	844.0	773.0	1,108.0	1,109.0	1,080.0	1,101.0	1,058.6	1,091.1	1,123.2	1,209.9
Cambodia	1,346.0	1,343.0	1,546.0	1,624.0	1,299.0	1,345.0	1,313.0	1,249.0	1,735.0	1,787.0	1,740.0	1,761.0	1,701.0	1,701.6	1,754.0	1,870.0
<b>Harvested Area (1000ha)</b>																
Phnom Penh	3.0	2.0	2.0	3.0	3.0	3.0	10.0	10.0	12.0	12.0	12.0	9.0	8.4	8.7	7.3	8.3
Kandal	80.0	65.0	84.0	75.0	52.0	77.0	66.0	63.0	69.0	91.0	90.0	92.0	74.0	81.1	66.0	87.8
Kompong Cham	147.0	140.0	150.0	155.0	86.0	135.0	154.0	124.0	157.0	177.0	175.0	175.0	179.3	181.1	141.4	191.1
Prey Veng	189.0	170.0	228.0	226.0	97.0	216.0	232.0	207.0	249.0	261.0	260.0	218.0	221.3	228.2	177.6	261.7
Takeo	167.7	106.0	148.0	163.0	89.0	142.0	182.0	154.0	213.0	212.0	210.0	185.0	203.4	207.4	189.1	229.9
Kratie	18.0	16.0	17.0	19.0	17.0	22.0	24.0	24.0	29.0	28.0	28.0	27.0	26.9	27.1	25.5	26.0
Other Provinces	835.3	818.0	986.0	971.0	634.0	855.0	852.0	788.0	1,096.0	1,080.0	1,080.0	1,013.0	971.8	1,090.1	887.1	1,119.2
Cambodia	1,449.0	1,317.0	1,615.0	1,612.0	978.0	1,450.0	1,520.0	1,370.0	1,825.0	1,861.0	1,855.0	1,719.0	1,685.0	1,823.6	1,494.0	1,924.0
<b>Production (1000ton)</b>																
Phnom Penh	3.3	3.0	4.0	6.0	6.0	4.0	13.0	16.0	19.0	23.0	19.0	19.0	12.0	10.2	12.3	15.8
Kandal	97.0	125.0	163.0	151.0	108.0	143.0	140.0	142.0	125.0	179.0	124.0	177.0	171.4	166.6	210.2	249.1
Kompong Cham	195.0	210.6	214.0	251.8	118.0	200.0	234.0	186.0	214.0	253.0	215.0	257.0	242.0	283.6	220.0	325.0
Prey Veng	201.0	185.0	267.0	280.0	154.0	228.0	320.0	240.0	310.0	357.0	310.0	275.0	264.5	272.0	205.3	549.6
Takeo	166.0	118.0	154.0	204.0	120.0	187.0	268.0	225.0	314.0	331.0	314.0	293.0	297.4	309.5	242.1	437.3
Kratie	28.0	24.0	26.0	28.0	23.0	29.0	42.0	41.0	51.0	49.0	52.0	44.0	47.1	42.3	40.4	44.4
Other Provinces	1,026.7	823.4	1,121.0	1,118.2	731.0	1,021.0	1,076.0	965.0	1,467.0	1,480.0	1,466.0	1,335.0	1,186.6	1,299.1	1,292.7	1,826.6
Cambodia	1,717.0	1,490.0	1,949.0	2,039.0	1,260.0	1,812.0	2,093.0	1,815.0	2,500.0	2,672.0	2,500.0	2,400.0	2,221.0	2,383.4	2,223.0	3,447.8
<b>Yield (ton/ha)</b>																
Phnom Penh	1.10	1.50	2.00	2.00	2.00	1.33	1.30	1.60	1.58	1.92	1.58	2.11	1.43	1.18	1.68	1.90
Kandal	1.21	1.92	1.94	2.01	2.08	1.86	2.12	2.25	1.81	1.97	1.38	1.92	2.32	2.06	3.18	2.84
Kompong Cham	1.33	1.50	1.43	1.62	1.37	1.48	1.52	1.50	1.36	1.43	1.23	1.47	1.35	1.57	1.56	1.70
Prey Veng	1.06	1.09	1.17	1.24	1.59	1.06	1.38	1.16	1.24	1.37	1.19	1.26	1.19	1.19	1.16	2.10
Takeo	0.99	1.11	1.04	1.25	1.35	1.32	1.47	1.46	1.47	1.56	1.50	1.58	1.46	1.49	1.28	1.90
Kratie	1.56	1.50	1.53	1.47	1.35	1.32	1.75	1.71	1.76	1.75	1.86	1.63	1.75	1.56	1.59	1.71
Other Provinces	1.23	1.01	1.14	1.15	1.15	1.19	1.26	1.22	1.34	1.37	1.36	1.32	1.22	1.19	1.46	1.63
Cambodia	1.19	1.13	1.21	1.26	1.29	1.25	1.38	1.32	1.37	1.44	1.35	1.40	1.32	1.31	1.49	1.79

Source : Bulletin of Agricultural Statistics and Studies, Dept of Planning Statistics, MAFF.

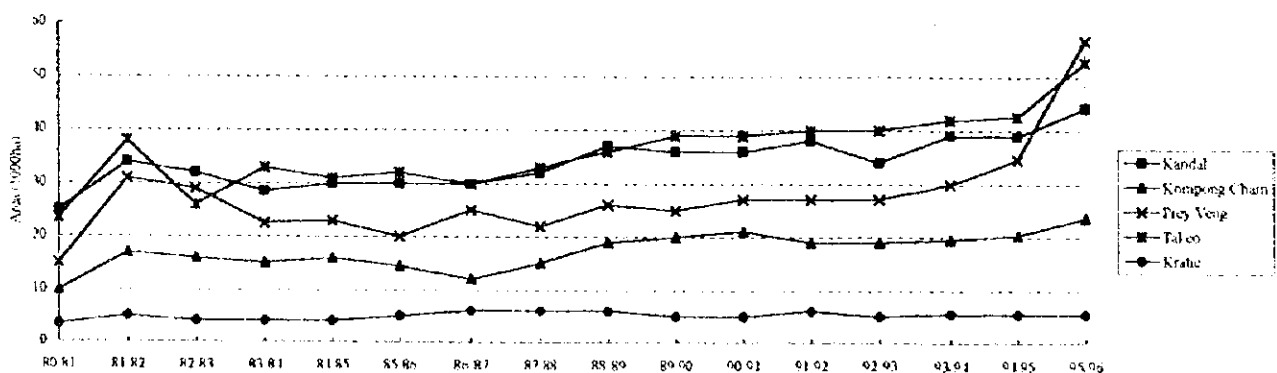


Figure E.1.7 Paddy Cultivated Area in Dry Season by Province

Table E.1.10 Cultivated Harvested Area, Production and Yield of Maize by Province from 1980/81 to 1995/96

MAIZE	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96
<b>Cultivated Area (ha)</b>																
<b>Dry season</b>																
Phnom Penh	100	60	60	70	60	20	100	50	40	50	50	50	40	60	240	158
Kandal	6,000	5,100	5,300	2,030	3,000	1,800	3,500	2,800	1,500	1,200	1,200	1,800	1,500	1,510	3,000	1,640
Kompong Cham	5,000	3,700	1,900	5,000	1,850	1,900	1,800	1,900	360	100	110	850	800	300	340	466
Prey Veng	4,000	1,100	1,200	1,500	900	1,800	1,000	1,200	750	600	600	0	0	550	2,600	2,875
Takeo	0	900	600	500	250	300	250	150	50	90	20	150	140	0	250	35
Kratie	500	500	500	1,000	180	300	750	500	0	40	0	0	0	5	0	20
Other Provinces	4,400	6,640	6,440	4,900	2,760	3,880	2,100	1,600	1,400	920	1,020	550	520	912	1,570	1,386
<b>Total</b>	<b>20,000</b>	<b>18,000</b>	<b>16,000</b>	<b>15,000</b>	<b>9,000</b>	<b>10,000</b>	<b>9,500</b>	<b>8,200</b>	<b>4,100</b>	<b>3,000</b>	<b>3,000</b>	<b>3,400</b>	<b>3,000</b>	<b>3,337</b>	<b>8,000</b>	<b>6,580</b>
<b>Rainy season</b>																
Phnom Penh	100	140	140	130	190	180	200	350	260	150	160	200	160	230	220	365
Kandal	9,000	9,400	20,000	8,570	10,800	13,000	11,000	11,000	15,400	15,400	14,260	17,450	17,040	15,500	15,700	15,490
Kompong Cham	40,000	40,300	28,100	16,400	11,500	11,600	10,200	10,000	11,640	11,900	10,390	13,300	12,800	9,840	10,260	11,175
Prey Veng	3,000	4,900	3,300	3,000	4,500	3,600	4,600	2,800	3,550	4,350	5,780	4,700	4,250	3,640	5,700	4,300
Takeo	2,000	1,100	1,000	1,100	500	800	750	650	950	900	570	510	510	700	452	340
Kratie	3,500	2,500	2,500	1,200	1,920	2,000	1,850	2,000	3,000	4,460	4,340	4,250	4,200	2,205	2,100	2,375
Other Provinces	24,400	20,660	14,960	14,600	10,190	9,520	8,000	8,200	13,400	10,840	8,500	8,190	8,040	7,854	9,568	10,955
<b>Total</b>	<b>82,000</b>	<b>79,000</b>	<b>70,000</b>	<b>45,000</b>	<b>39,600</b>	<b>40,700</b>	<b>36,600</b>	<b>35,000</b>	<b>48,200</b>	<b>48,000</b>	<b>44,000</b>	<b>48,600</b>	<b>47,000</b>	<b>39,969</b>	<b>44,000</b>	<b>45,000</b>
<b>Harvested Area (ha)</b>																
Phnom Penh	200	200	200	150	200	200	300	350	300	200	210	250	200	280	460	513
Kandal	15,000	13,000	20,100	9,000	10,100	14,000	13,800	12,970	16,750	15,970	14,370	18,400	17,640	17,000	15,200	14,700
Kompong Cham	44,500	42,500	21,000	18,200	12,900	13,000	11,900	11,300	14,900	11,520	10,010	13,360	12,770	10,100	2,930	9,126
Prey Veng	6,500	5,900	3,100	4,000	5,000	5,200	5,200	3,740	4,200	4,710	6,280	4,500	4,200	4,190	6,200	6,300
Takeo	2,000	1,800	800	950	700	1,040	800	700	750	970	580	650	640	700	700	375
Kratie	4,000	2,800	2,400	1,850	1,850	2,100	2,500	2,200	2,800	4,300	4,290	4,200	4,150	2,210	1,012	2,020
Other Provinces	28,800	18,800	13,400	14,850	12,250	10,460	8,500	8,740	10,300	11,330	9,260	8,640	8,400	8,433	10,498	12,001
<b>Total</b>	<b>101,000</b>	<b>85,000</b>	<b>61,000</b>	<b>49,000</b>	<b>43,000</b>	<b>46,000</b>	<b>43,000</b>	<b>40,000</b>	<b>50,000</b>	<b>49,000</b>	<b>45,000</b>	<b>50,000</b>	<b>48,000</b>	<b>42,913</b>	<b>37,000</b>	<b>45,035</b>
<b>Production (ton)</b>																
Phnom Penh	200	200	200	150	250	200	350	300	280	200	400	290	250	290	460	524
Kandal	15,000	12,900	16,350	8,600	12,000	12,700	16,350	12,900	12,300	15,900	28,400	22,260	22,250	17,500	22,900	22,718
Kompong Cham	44,000	42,000	14,850	15,050	12,100	10,600	13,500	10,300	14,600	13,800	19,700	16,100	16,000	11,050	2,800	10,951
Prey Veng	7,000	5,000	3,100	3,500	7,500	4,900	7,250	3,700	3,250	4,700	12,120	5,300	5,170	4,625	6,400	6,540
Takeo	2,000	2,000	800	760	800	1,570	700	500	670	970	1,110	760	790	630	682	404
Kratie	4,000	2,800	2,540	1,840	2,000	2,100	2,900	2,200	2,500	5,700	8,430	5,050	5,200	2,435	1,100	2,218
Other Provinces	28,800	20,100	13,160	13,100	13,350	9,930	9,950	8,100	7,400	12,730	17,840	10,240	10,340	8,885	10,658	11,545
<b>Total</b>	<b>101,000</b>	<b>85,000</b>	<b>51,000</b>	<b>43,000</b>	<b>48,000</b>	<b>42,000</b>	<b>51,000</b>	<b>38,000</b>	<b>41,000</b>	<b>54,000</b>	<b>88,000</b>	<b>60,000</b>	<b>60,000</b>	<b>45,415</b>	<b>45,000</b>	<b>54,900</b>
<b>Yield (ton/ha)</b>																
Phnom Penh	1.00	1.00	1.00	1.00	1.25	1.00	1.17	0.85	0.93	1.00	1.90	1.16	1.25	1.04	1.00	1.02
Kandal	1.00	0.99	0.81	0.96	1.19	0.91	1.18	0.99	0.73	1.00	1.98	1.21	1.26	1.03	1.51	1.55
Kompong Cham	0.99	0.99	0.71	0.83	0.94	0.82	1.13	0.91	0.98	1.20	1.97	1.21	1.25	1.09	0.96	1.20
Prey Veng	1.08	0.85	1.00	0.88	1.50	0.94	1.39	0.99	0.77	1.00	1.93	1.18	1.23	1.10	1.03	1.04
Takeo	1.00	1.11	1.00	0.80	1.14	1.51	0.88	0.71	0.89	1.00	1.91	1.17	1.23	0.90	0.97	1.08
Kratie	1.00	1.00	1.06	0.99	1.08	1.00	1.16	1.00	0.89	1.33	1.97	1.20	1.25	1.10	1.09	1.10
Other Provinces	1.00	1.07	0.98	0.88	1.09	0.95	1.17	0.93	0.72	1.12	1.93	1.19	1.23	1.05	1.02	0.96
<b>Cambodia</b>	<b>1.00</b>	<b>1.00</b>	<b>0.84</b>	<b>0.88</b>	<b>1.12</b>	<b>0.91</b>	<b>1.19</b>	<b>0.95</b>	<b>0.82</b>	<b>1.10</b>	<b>1.96</b>	<b>1.20</b>	<b>1.25</b>	<b>1.06</b>	<b>1.22</b>	<b>1.22</b>

Source : Bulletin of Agricultural Statistics and Studies, Dept of Planning Statistics, MAFF.

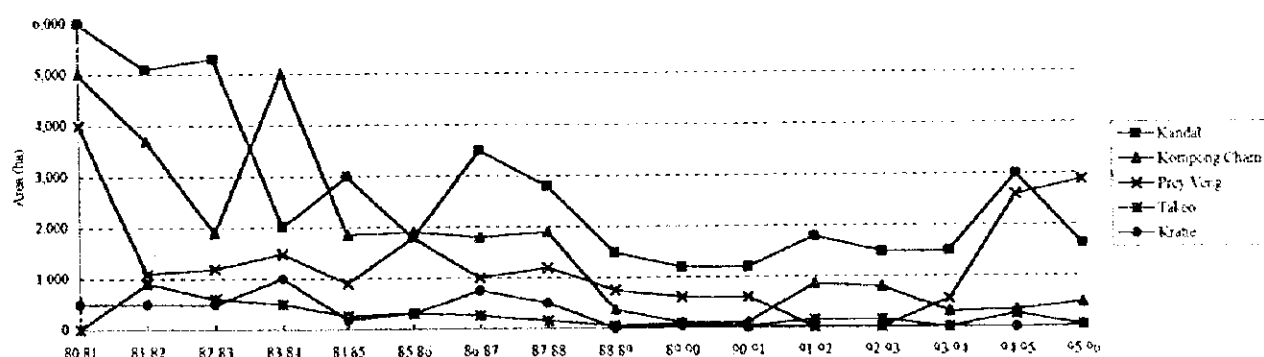


Figure E.1.8 Maize Cultivated Area in Dry Season by Province







Table E.1.13 Statistics of Paddy in 1995/96 by Province

Province	Wet Season														Yield (ton/ha)
	Cultivated Area by Kind (ha)							Harvested Area (ha)			Damaged Area (ha)			Production (ton)	
	Early		Medium		Late		Floating	Upland	Total	Flood	Drought	Insect	Total		
	IR	Others	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total		
Kandal	5.664	2.553	8.217	17.418	17.494	3.682	1.736	48.547	44.361	3.888	298	0	4.186	98.925	2.23
Kampong Cham	4.419	24.073	28.492	55.081	74.936	864	8.127	167.500	167.500	0	0	0	0	268.000	1.60
Prey Veng	21.933	26.380	48.313	87.302	92.775	941	0	229.331	205.025	22.087	0	2.219	24.306	348.425	1.70
Takeo	60.293	18.166	78.459	74.034	25.069	7.303	0	184.865	177.159	7.706	0	0	7.706	292.312	1.65
Kratie	307	1.498	1.805	15.736	4.982	0	745	21.266	20.532	734	0	0	734	32.850	1.60
Sub Total	92.616	72.670	165.286	247.571	215.256	12.790	10.606	651.509	614.577	34.415	298	2.219	36.932	1,040.512	1.69
Cambodia	99.965	254.333	354.298	721.388	672.517	83.889	37.889	1,869.981	1,709.041	147.235	8.774	4.941	160.950	2,802.827	1.64

Province	Dry Season										Yield (ton/ha)
	Cultivated Area (ha)					Production (ton)					
	Area	Harvested	Damaged	Yield	Total	Area	Harvested	Damaged	Production	Total	
Kandal	44.147	43.476	671	150.200	3.45	92.694	87.837	4.857	249.125	2.84	
Kampong Cham	23.640	23.640	0	57.000	2.41	191.140	191.140	0	325.000	1.70	
Prey Veng	56.720	56.720	0	201.200	3.55	286.051	261.745	24.306	549.625	2.10	
Takeo	52.712	52.712	0	145.000	2.75	237.577	229.871	7.706	437.312	1.90	
Kratie	5.430	5.430	0	11.500	2.12	26.696	25.962	734	44.350	1.71	
Sub Total	182.649	181.978	671	564.900	3.10	834.158	796.555	37.603	1,605.412	2.02	
Cambodia	216.000	215.000	1.000	645.000	3.00	2,085.981	1,924.041	161.940	3,447.827	1.79	

Province	Planted Area										Harvested Area			Production	
	Wet Season					Dry Season					Wet Season	Dry Season	Wet Season	Dry Season	
	Early		Medium		Late	Upland		Upland		Upland		Wet Season	Dry Season	Wet Season	Dry Season
	IR	Others	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
Kandal	6.1%	2.8%	18.8%	18.9%	4.0%	1.9%	47.6%	50.5%	49.5%	39.7%	60.3%	39.7%	60.3%		
Kampong Cham	2.3%	12.6%	28.8%	39.2%	0.5%	4.3%	12.4%	87.6%	12.4%	82.5%	17.5%	82.5%	17.5%		
Prey Veng	7.7%	9.2%	30.5%	32.4%	0.3%	0.0%	19.8%	78.3%	21.7%	63.4%	36.6%	63.4%	36.6%		
Takeo	25.4%	7.6%	31.2%	10.6%	3.1%	0.0%	22.2%	77.1%	22.9%	66.8%	33.2%	66.8%	33.2%		
Kratie	1.1%	5.6%	51.5%	18.7%	0.0%	2.8%	20.3%	79.1%	20.9%	74.1%	25.9%	74.1%	25.9%		
Sub Total	11.1%	8.7%	29.7%	25.8%	1.5%	1.3%	21.9%	77.2%	22.8%	64.8%	35.2%	64.8%	35.2%		
Cambodia	4.8%	12.2%	34.6%	32.2%	4.0%	1.8%	10.4%	88.8%	11.2%	81.3%	18.7%	81.3%	18.7%		

Source: Agricultural Statistics 1995, Department of Planning and Statistics, MAFF



Table E-116 Basic Agricultural Statistics of Paddy and Other Five Major Crops by District, Kampong Cham

Kampong Cham		Year 1995																	
No	District	Paddy									Maize								
		Planted area (ha)			Production (ton)			Yield (ton/ha)			Planted area (ha)			Production (ton)			Yield (ton/ha)		
		Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season
1	O Reang Ov	19,369	18,956	913	31,502	29,219	2,283	1,626	1,583	2,501	754	754	0	905	905	0	1,200	1,200	0
2	Koh Sotin	1,435	519	915	2,686	816	1,870	1,859	1,600	2,000	1,650	1,600	50	1,695	1,660	35	1,027	1,038	0.700
3	Srey Santhel	11,003	8,466	2,537	19,141	12,545	6,596	1,740	1,482	2,600	1,332	1,297	35	1,325	1,297	28	0.995	1,000	0.800
4	Kang Meas	5,363	2,500	2,863	10,748	3,572	7,176	2,001	1,429	2,506	1,063	1,050	13	1,470	1,457	13	1,383	1,388	1,000
5	Kampong Cham	175	130	45	319	202	117	1,823	1,554	2,600	3	0	3	3	0	3	1,000	-	1,000
6	Kroeh Chhunar	5,550	2,900	2,650	11,390	5,030	6,360	2,052	1,734	2,400	3,175	3,175	0	4,718	4,718	0	1,486	1,486	-
7	Tbong Khnum	23,050	21,500	1,550	41,333	37,148	4,185	1,793	1,728	2,700	1,046	1,046	0	1,307	1,307	0	1,250	1,250	-
8	Stung Trang	8,226	6,771	1,452	14,005	10,375	3,630	1,703	1,532	2,500	758	758	0	616	616	0	0.813	0.813	-
9	Kampong Seum	8,372	6,320	2,052	15,445	10,520	4,925	1,845	1,665	2,400	415	400	15	540	520	20	1,301	1,300	1,333
10	Prey Chhor	20,000	18,500	1,500	33,250	30,500	3,750	1,650	1,642	2,500	5	5	0	7	7	0	1,400	1,400	-
11	Cheung Prey	13,793	12,144	1,651	24,432	20,304	4,128	1,711	1,672	2,500	5	5	0	6	6	0	1,200	1,200	-
12	Batheay	22,072	16,800	5,272	41,329	27,622	13,707	1,872	1,644	2,600	8	8	0	10	10	0	1,250	1,250	-
13	Dambe	11,629	11,509	120	18,769	18,457	312	1,615	1,605	2,600	416	416	0	513	513	0	1,233	1,233	-
14	Memot	13,600	13,500	100	22,440	22,170	270	1,650	1,642	2,700	405	405	0	403	403	0	0.995	0.995	-
15	Ponnea Krek	20,500	20,500	0	33,130	33,130	0	1,616	1,616	-	163	163	0	211	211	0	1,294	1,294	-
16	Chamkar Leu	7,000	7,000	0	11,415	11,415	0	1,631	1,631	-	95	95	0	133	133	0	1,400	1,400	-
	Total	191,140	167,500	23,640	332,334	273,025	59,309	1,739	1,630	2,509	11,293	11,171	116	13,862	13,763	99	1,227	1,231	0.853

No	District	Mungbean									Sesame								
		Planted area (ha)			Production (ton)			Yield (ton/ha)			Planted area (ha)			Production (ton)			Yield (ton/ha)		
		Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season
1	O Reang Ov	0	0	0	0	0	0	0	0	0	150	150	0	14	14	0	0.093	0.093	-
2	Koh Sotin	80	0	80	28	0	28	0.350	-	0.350	900	900	0	270	270	0	0.300	0.300	-
3	Srey Santhel	219	21	198	75	6	69	0.341	0.305	0.348	141	141	0	49	49	0	0.348	0.348	-
4	Kang Meas	94	17	77	33	6	27	0.347	0.329	0.351	130	130	0	40	40	0	0.308	0.308	-
5	Kampong Cham	0	0	0	0	0	0	-	-	-	0	0	0	0	0	0	-	-	-
6	Kroeh Chhunar	525	525	0	82	82	0	0.156	0.156	-	620	620	0	267	267	0	0.431	0.431	-
7	Tbong Khnum	669	669	0	335	335	0	0.501	0.501	-	1,106	1,106	0	442	442	0	0.400	0.400	-
8	Stung Trang	602	552	50	272	254	18	0.452	0.459	0.360	757	757	0	341	341	0	0.450	0.450	-
9	Kampong Seum	83	83	0	28	28	0	0.337	0.337	-	170	170	0	73	73	0	0.429	0.429	-
10	Prey Chhor	750	750	0	95	95	0	0.126	0.126	-	5	5	0	2	2	0	0.400	0.400	-
11	Cheung Prey	0	0	0	0	0	0	-	-	-	0	0	0	0	0	0	-	-	-
12	Batheay	0	0	0	0	0	0	-	-	-	0	0	0	0	0	0	-	-	-
13	Dambe	179	179	0	57	57	0	0.318	0.318	-	285	285	0	100	100	0	0.351	0.351	-
14	Memot	300	300	0	126	126	0	0.420	0.420	-	185	185	0	70	70	0	0.378	0.378	-
15	Ponnea Krek	289	289	0	145	145	0	0.502	0.502	-	555	555	0	141	141	0	0.254	0.254	-
16	Chamkar Leu	5,537	5,537	0	235	235	0	0.042	0.042	-	613	613	0	0	0	0	0.000	0.000	-
	Total	9,327	8,922	405	1,511	1,369	142	0.162	0.153	0.351	5,617	5,617	0	1,809	1,809	0	0.322	0.322	-

No	District	Soybean									Tobacco								
		Planted area (ha)			Production (ton)			Yield (ton/ha)			Planted area (ha)			Production (ton)			Yield (ton/ha)		
		Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season
1	O Reang Ov	0	0	0	0	0	0	-	-	-	0	0	0	0	0	0	-	-	-
2	Koh Sotin	80	80	0	80	80	0	1,000	1,000	-	1,740	0	1,740	745	0	745	0.428	-	0.428
3	Srey Santhel	0	0	0	0	0	0	-	-	-	582	0	582	266	0	266	0.457	-	0.457
4	Kang Meas	0	0	0	0	0	0	-	-	-	703	0	703	341	0	341	0.485	-	0.485
5	Kampong Cham	0	0	0	0	0	0	-	-	-	0	0	0	0	0	0	-	-	-
6	Kroeh Chhunar	525	525	0	1,050	1,050	0	2,000	2,000	-	4,260	0	4,260	2,434	0	2,434	0.571	-	0.571
7	Tbong Khnum	2,652	2,652	0	2,652	2,652	0	1,000	1,000	-	1,480	0	1,480	719	0	719	0.486	-	0.486
8	Stung Trang	1,800	1,800	0	2,520	2,520	0	1,400	1,400	-	805	0	805	368	0	368	0.457	-	0.457
9	Kampong Seum	123	123	0	123	123	0	1,000	1,000	-	1,542	0	1,542	661	0	661	0.429	-	0.429
10	Prey Chhor	950	950	0	1,045	1,045	0	1,100	1,100	-	0	0	0	0	0	0	-	-	-
11	Cheung Prey	0	0	0	0	0	0	-	-	-	0	0	0	0	0	0	-	-	-
12	Batheay	0	0	0	0	0	0	-	-	-	0	0	0	0	0	0	-	-	-
13	Dambe	633	633	0	1,266	1,266	0	2,000	2,000	-	0	0	0	0	0	0	-	-	-
14	Memot	385	385	0	385	385	0	1,000	1,000	-	0	0	0	0	0	0	-	-	-
15	Ponnea Krek	0	0	0	0	0	0	-	-	-	0	0	0	0	0	0	-	-	-
16	Chamkar Leu	7,420	7,420	0	8,904	8,904	0	1,200	1,200	-	0	0	0	0	0	0	-	-	-
	Total	14,568	14,568	0	18,025	18,025	0	1,237	1,237	-	11,112	0	11,112	5,534	0	5,534	0.498	-	0.498

Source: Provincial Agricultural Office

Table E.1.17 Basic Agricultural Statistics of Paddy and Other Five Major Crops by District, Kandal

Year 1995

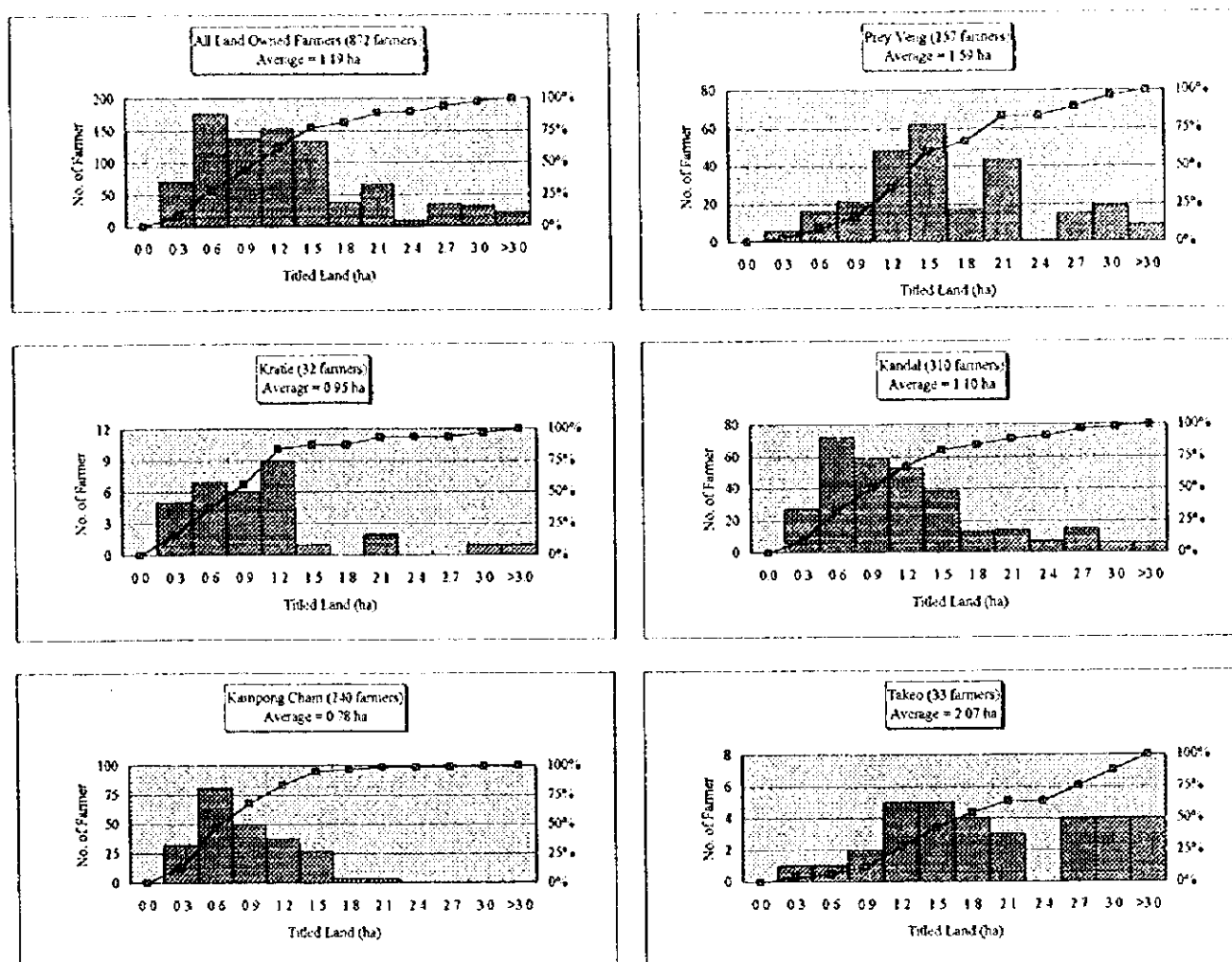
No	District	Paddy									Maize								
		Planted area (ha)			Production (ton)			Yield (ton/ha)			Planted area (ha)			Production (ton)			Yield (ton/ha)		
		Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season
1	Ksach Kandal	12,251	7,254	5,000	38,185	19,997	18,189	3,116	2,751	3,638	514	504	10	783	711	12	1,523	1,530	1,200
2	Muk Kampoul	3,168	419	2,749	9,900	1,045	8,855	3,125	2,494	3,221	308	274	34	589	548	41	1,912	2,000	1,206
3	Lvea Em	4,162	185	3,977	16,495	634	15,771	3,942	3,427	3,966	1,832	1,184	648	3,698	2,960	738	2,019	2,500	1,139
4	Kean Svay	5,440	1,468	3,972	20,822	4,537	16,285	3,828	3,091	4,100	1,684	1,645	69	2,630	2,547	83	1,562	1,577	1,203
5	Saang	14,693	7,243	7,450	38,897	13,853	25,034	2,647	1,914	3,360	3,440	2,803	637	4,445	3,439	1,006	1,292	1,227	1,579
6	Leuk Dek	2,681	281	2,400	12,882	642	12,240	4,805	2,285	5,100	4,590	4,400	190	7,649	7,505	144	1,666	1,706	0,758
7	Koh Thom	11,650	4,065	7,585	31,546	7,400	30,146	3,223	1,820	3,924	4,550	4,434	116	7,074	6,935	139	1,555	1,561	1,198
8	Ponhea Leu	8,914	4,414	4,500	25,243	8,593	16,650	2,832	1,917	3,700	50	50		75	75		1,500	1,500	
9	Ang Snoul	11,064	11,069	55	22,192	22,080	102	2,005	2,006	1,855	0	0		0	0				
10	Kandal Stung	13,046	12,395	651	25,104	23,731	1,367	1,924	1,915	2,100	62	47	15	57	39	18	0,919	0,830	1,200
11	Takhmau	704	499	205	962	275	687	1,366	0,551	1,351	204	182	22	231	200	31	1,132	1,099	1,469
	Total	87,776	49,232	38,544	248,128	102,801	145,325	2,827	2,088	3,770	17,234	15,493	1,741	27,231	25,019	2,212	1,580	1,615	1,271

No	District	Mungbean									Vegetables								
		Planted area (ha)			Production (ton)			Yield (ton/ha)			Planted area (ha)			Production (ton)			Yield (ton/ha)		
		Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season
1	Ksach Kandal	197	27	170	115	5	110	0,584	0,185	0,617	638	228	410	3,050	1,000	2,050	4,781	4,386	5,000
2	Muk Kampoul	0			0						978	85	893	4,440	420	4,020	4,540	4,941	4,502
3	Lvea Em	896		896	582		582	0,650		0,650	271	153	118	1,296	765	531	4,782	5,000	4,500
4	Kean Svay	65		65	42		42	0,646		0,646	304	192	112	1,464	960	504	4,816	5,000	4,500
5	Saang	398	45	353	242	13	229	0,608	0,289	0,649	2,919	1,031	1,888	15,535	5,155	10,380	5,322	5,000	5,498
6	Leuk Dek	554		554	342		342	0,617		0,617	217	25	192	979	125	854	4,512	5,000	4,448
7	Koh Thom	1,470		1,470	1,412		1,400	0,961		0,952	2,080	120	1,960	8,260	420	7,840	3,971	3,500	4,000
8	Ponhea Leu	10	10		5	5		0,500	0,500		204	200	4	820	800	20	4,020	4,000	5,000
9	Ang Snoul	0			0						105	78	27	522	400	122	4,921	5,128	4,519
10	Kandal Stung	86	78	8	21	16	5	0,244	0,205	0,625	321	178	143	956	712	244	2,978	4,000	1,706
11	Takhmau	24		24	18	3	15	0,750		0,625	141	20	121	731	189	545	5,206	9,450	4,504
	Total	3,700	160	3,540	2,779	51	2,225	0,751	0,338	0,770	8,178	2,310	5,868	38,056	10,946	27,110	4,663	4,739	4,620

No	District	Sweet Potato									Peanut								
		Planted area (ha)			Production (ton)			Yield (ton/ha)			Planted area (ha)			Production (ton)			Yield (ton/ha)		
		Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season	Total	Wet season	Dry season
1	Ksach Kandal	92	46	46	437	184	253	4,750	4,000	5,500	140	70	70	90	13	77	0,613	0,186	1,100
2	Muk Kampoul	4		4	20		20	5,000		5,000	39		39	47		47	1,205		1,205
3	Lvea Em	7	2	5	33	8	30	5,429	4,000	6,000	2	1	1	2	1	1	1,000	1,000	1,000
4	Kean Svay	18		18	108		108	6,000		6,000	30		30	34		34	1,133		1,133
5	Saang	189	11	178	1,018	39	979	5,386	3,545	5,500	1,240	51	1,189	1,458	31	1,427	1,176	0,608	1,200
6	Leuk Dek	205		205	1,205		1,205	5,878		5,878	5	5		5	5		1,000	1,000	
7	Koh Thom	348		348	2,088		2,088	6,000		6,000	131	4	127	103	2	101	0,786	0,500	0,793
8	Ponhea Leu	0			0						0			0					
9	Ang Snoul	5	2	3	24	6	18	4,800	3,000	6,000	0			0					
10	Kandal Stung	32	18	14	138	54	84	4,313	3,000	6,000	0			0					
11	Takhmau	0			0						52		52	60		60	1,154		1,154
	Total	900	79	821	5,076	291	4,785	5,640	3,684	5,828	1,639	131	1,508	1,795	52	1,747	1,095	0,397	1,158

Source: Provincial Agricultural Office





Source Rural Socio-Economic Survey, JICA Study Team

Figure E.1.11 Histograms of Number of Farmers by Titled Land Area by Province

Table E.1.20 Classification of Interviewed Farmers in the Study Area

Province	Classification							TOTAL	Distribution (%)
	Land Owned Farmer (872)			Tenant Farmer (25)			Unknown		
	Paddy Practicing Farmer (855)			Dry Paddy Practicing Farmer	Not Paddy Practicing Farmer				
Wet Season Paddy	Dry Season Paddy	Dry and Wet Season Paddy	Not Paddy Practicing Farmer	Dry Paddy Practicing Farmer	Not Paddy Practicing Farmer	Unknown	TOTAL	Distribution (%)	
Kratie	6	18	8	0	0	2	0	34	3.8%
Kampong Cham	90	64	77	9	1	8	0	249	27.7%
Prey Veng	87	81	89	0	0	1	0	258	28.7%
Kandal	48	159	95	8	1	12	3	326	36.2%
Takeo	1	4	28	0	0	0	0	33	3.7%
<b>TOTAL</b>	<b>232</b>	<b>326</b>	<b>297</b>	<b>17</b>	<b>2</b>	<b>23</b>	<b>3</b>	<b>900</b>	<b>100.0%</b>
<b>Distribution (%)</b>	<b>25.8%</b>	<b>36.2%</b>	<b>33.0%</b>	<b>1.9%</b>	<b>0.2%</b>	<b>2.6%</b>	<b>0.3%</b>	<b>100.0%</b>	<b>-</b>

Source : Rural Socio-Economic Survey, JICA Study Team

Table E.1.21 Number of Upland Crops Practicing Farmers in the Study Area

Farmer Type / Province (No. of Farmers)		Number of Upland Crops Practicing Farmers							Upland Crops Introducing Ratio (%)	
		Number of Practicing Upland Crops								
		1	2	3	4	5	6	7		
Wet Season Paddy Practicing Farmer	Kratié (6)	2	2							33.3
	Kampong Cham (90)	41	10	17	5	8		1		45.6
	Prey Veng (87)	33	9	6	13	4			1	37.9
	Kandal (48)	7	3	2	2					14.6
	Takeo (1)	0								0.0
	<b>TOTAL (232)</b>	<b>83</b>	<b>24</b>	<b>25</b>	<b>20</b>	<b>12</b>		<b>1</b>	<b>1</b>	<b>35.8</b>
Dry Season Paddy Practicing Farmer	Kratié (18)	10	3	3	3	1				55.6
	Kampong Cham (64)	49	5	19	19	5		1		76.6
	Prey Veng (81)	51	35	8	7	1				63.0
	Kandal (159)	109	48	45	9	7				68.6
	Takeo (4)	0								0.0
	<b>TOTAL (326)</b>	<b>219</b>	<b>91</b>	<b>75</b>	<b>38</b>	<b>14</b>		<b>1</b>		<b>67.2</b>
Wet and Dry Season Paddy Practicing Farmer	Kratié (8)	2	1	1						25.0
	Kampong Cham (77)	20	7	10	2	1				26.0
	Prey Veng (89)	38	17	9	9	3				42.7
	Kandal (95)	65	27	34	3	1				68.4
	Takeo (28)	8	3	2	3					28.6
	<b>TOTAL (297)</b>	<b>133</b>	<b>55</b>	<b>56</b>	<b>17</b>	<b>5</b>				<b>44.8</b>
Not Paddy Practicing Farmer	Kampong Cham (9)	9		3	3	3				100.0
	Kandal (8)	8	2	3	1	2				100.0
	<b>TOTAL (17)</b>	<b>17</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>5</b>				<b>100.0</b>
<b>TOTAL</b>	Kratié (32)	14	6	4	3	1				43.8
	Kampong Cham (240)	119	22	49	29	17		2		49.6
	Prey Veng (257)	122	61	23	29	8			1	47.5
	Kandal (310)	189	80	84	15	10				61.0
	Takeo (33)	8	3	2	3					24.2
	<b>TOTAL (872)</b>	<b>452</b>	<b>172</b>	<b>162</b>	<b>79</b>	<b>36</b>		<b>2</b>	<b>1</b>	<b>51.8</b>

Source: Rural Socio-Economic Survey, JICA Study Team

Note: Following 36 crops are practiced in the Study Area.

Vegetables: Fruit-bottle gourd, chili, cucumber, eggplant, melon, pumpkin, tomato, watermelon, wax gourd

Leaf and Stem-cabbage, chinese kale, lettuce, onion

Root-cassava, radish, ginger, lotus, sweet potato, taro, yambean

Legume: longbean, mungbean, peanut, soybean

Industrial Crop: mat grass, sesame, tobacco

Fruit tree: banana, cashewnut, coconut, jack fruit, lime, mango, papaya

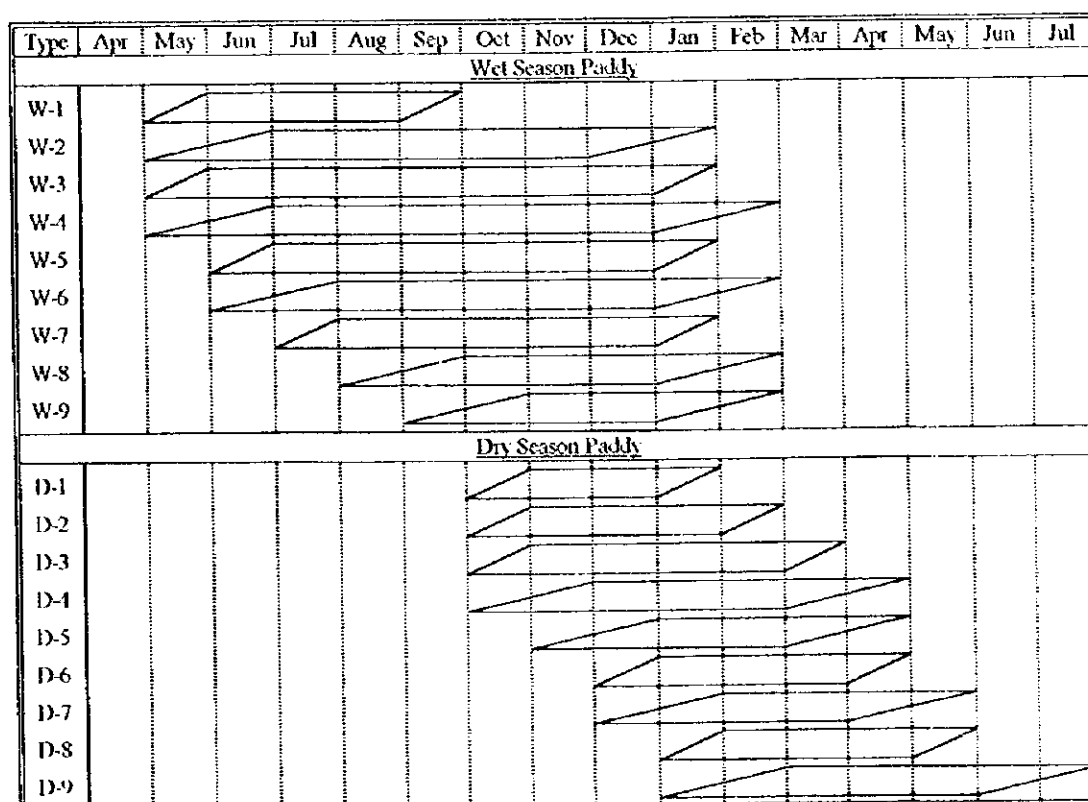
Others: maize, sugarcane

Table E.1.22 Number of Upland Crops Practicing Farmers by Crop in the Study Area

Farmer Type / Province		Maize	Cucum-ber	Mung bean	Tobacco	Sesame	Chili	Peanut	Sweet Potato	Egg plant	Cabbage	Others	Total	AVG. No. of Crops / Farmer
Wet Paddy Practicing Farmer	Kratie (2)	2	0	0	0	0	0	0	0	0	0	0	2	1.00
	Kampong Cham (41)	24	7	10	13	12	2	4	3	2	0	20	97	2.37
	Prey Veng (33)	6	17	2	0	2	0	0	3	10	4	39	83	2.52
	Kandal (7)	3	0	4	0	0	0	0	0	0	1	5	13	1.86
	Takeo (0)	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL (83)</b>	<b>35</b>	<b>24</b>	<b>16</b>	<b>13</b>	<b>14</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>12</b>	<b>5</b>	<b>64</b>	<b>195</b>	<b>2.35</b>	
Dry Paddy Practicing Farmer	Kratie (10)	3	1	0	5	6	0	1	1	0	0	5	22	2.20
	Kampong Cham (49)	40	9	4	32	22	4	3	1	2	1	8	126	2.57
	Prey Veng (51)	45	6	3	2	7	0	11	0	0	1	1	76	1.49
	Kandal (109)	68	16	27	4	2	20	2	8	0	4	42	193	1.77
	Takeo (0)	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL (219)</b>	<b>156</b>	<b>32</b>	<b>34</b>	<b>43</b>	<b>37</b>	<b>24</b>	<b>17</b>	<b>10</b>	<b>2</b>	<b>6</b>	<b>56</b>	<b>417</b>	<b>1.90</b>	
Wet and Dry Paddy Practicing Farmer	Kratie (2)	0	0	0	1	0	0	0	0	0	0	2	3	1.50
	Kampong Cham (20)	12	2	3	9	4	1	0	1	0	1	4	37	1.85
	Prey Veng (38)	4	15	3	0	4	0	2	3	5	3	35	71	1.95
	Kandal (65)	42	4	17	4	6	6	2	1	0	5	21	108	1.66
	Takeo (8)	2	2	4	0	0	0	0	0	1	0	7	16	2.00
<b>TOTAL (133)</b>	<b>60</b>	<b>23</b>	<b>27</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>9</b>	<b>69</b>	<b>238</b>	<b>1.79</b>	
Not Paddy Practicing Farmer	Kampong Cham (9)	7	0	1	9	5	0	0	0	2	0	3	27	3.00
	Kandal (8)	6	1	2	0	2	2	1	0	1	0	4	19	2.38
	<b>TOTAL (17)</b>	<b>13</b>	<b>1</b>	<b>3</b>	<b>9</b>	<b>7</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>7</b>	<b>46</b>	<b>2.71</b>
<b>TOTAL</b>	Kratie (14)	5	1	0	6	6	0	1	1	0	0	7	27	1.93
	Kampong Cham (119)	83	18	18	63	43	7	7	5	6	2	35	287	2.41
	Prey Veng (122)	55	38	8	2	13	0	13	6	15	8	75	233	1.91
	Kandal (189)	119	21	50	8	10	28	5	9	1	10	72	333	1.76
	Takeo (8)	2	2	4	0	0	0	0	0	1	0	7	16	2.00
	<b>TOTAL (452)</b>	<b>264</b>	<b>80</b>	<b>80</b>	<b>79</b>	<b>72</b>	<b>35</b>	<b>26</b>	<b>21</b>	<b>23</b>	<b>20</b>	<b>196</b>	<b>896</b>	<b>1.98</b>
<b>Ratio (%)</b>	<b>58%</b>	<b>18%</b>	<b>18%</b>	<b>17%</b>	<b>16%</b>	<b>8%</b>	<b>6%</b>	<b>5%</b>	<b>5%</b>	<b>4%</b>	<b>43%</b>	-	-	

Source: Rural Socio-Economic Survey, JICA Study Team

Note: Data are plural answers.



Source: Rural Socio-Economic Survey, JICA Study Team

Note: W-2, 3, 5 and 6 are dominant in wet season.

D-3, 5, 6 and 8 are dominant in dry season.

Figure E.1.12 Cropping Patterns of Paddy in the Study Area



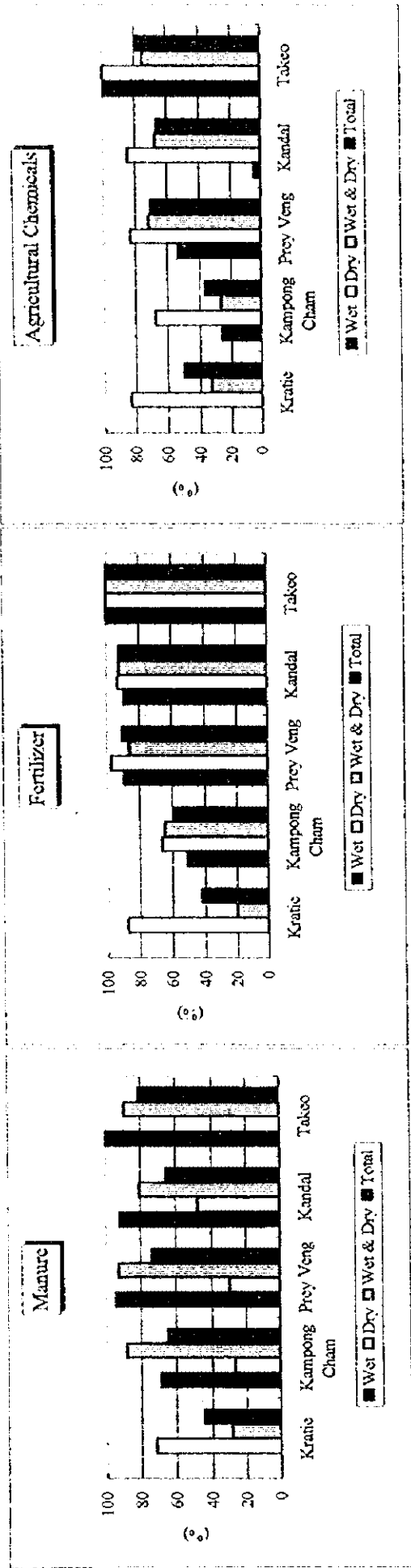


Figure E.1.13 Ratio of Manure, Fertilizer and Agricultural Chemicals Using Farmer in the Study Area. Source: Rural Socio-Economic Survey, JICA Study Team

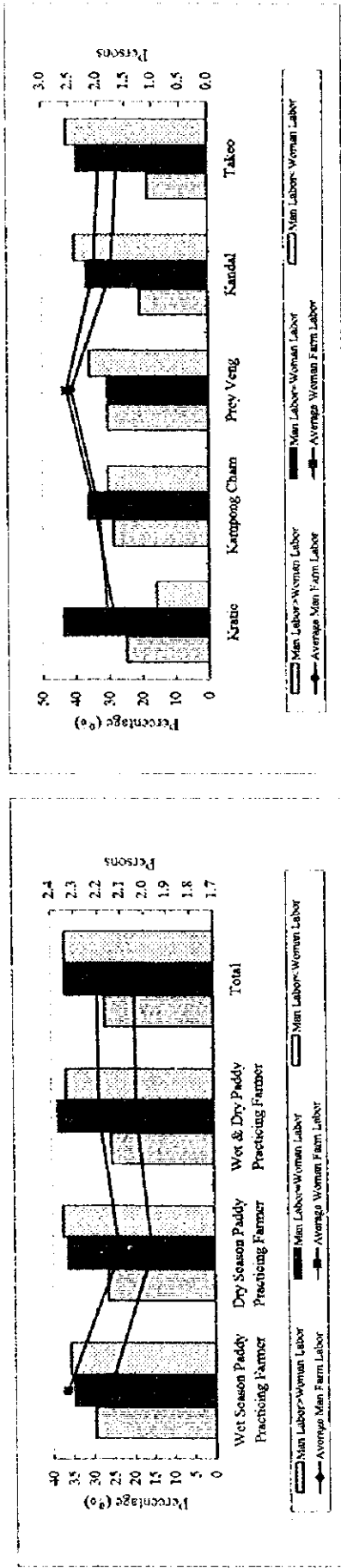


Figure E.1.14 Ratios of Farmers who Have Equal Number of both Man and Woman Labor or not and Agricultural Labor per Household by Sex, Paddy Cropping Type, Province. Source: Rural Socio-Economic Survey, JICA Study Team

Table E.1.23 Paddy Varieties Cultivated in the Study Area

Dry Season Paddy			Wet Season Paddy						
1	IR36	IR-I	1	IR36	IR-I	41	neang ouy	I.	
2	IR42		2	IR42		42	neang reus		
3	IR64		3	IR66		43	neang youn		
4	IR66		4	IR64		IR-U	44		phka ampil
5	IR72		5	IR92		45	phka daung		
6	IR105	IR-U	6	bonla pdau	M	46	phka knhey	U	
7	IR43		7	chantors pluk		47	phka sla		
8	IR46		8	chhna lact		48	prech		
9	IR504		9	chomreun ple		49	sar		
10	IR54		10	chong bonla		50	angpaong		
11	IR57		11	kngok pung		51	beykontom		
12	IR58		12	krohoni		52	bromolple		
13	IR62		13	kul phaar		53	chang ray phdau		
14	IR92		14	neang koy		54	ehhma sar		
15	chomreun ple		M	15		neang meas	55		chomreus
16	chonteasplok			16		neang nu	56		khmau
17	thnot			17		neang ouk	57		kong kakdek
18	neang sor			18		neang sor	58		nea sorkonla
19	kloeng			19		phdau pen	59		phka phdau
20	mhos	I.	20	phnom roun	60	sailveng			
21	phka sla		21	pi rom	61	sar krangnol			
22	phngea prum		22	rech					
23	popoy		23	sambok angkrang					
24	pram nuoy kuor		24	smang moan					
25	prech		25	smocu					
26	rech		26	srau sar					
27	054		U	27	thnot				
28	1.5			28	tong chhouk				
29	B.11			29	chhma prom	I.			
30	bromolple			30	chhmar chang kom				
31	kapalhoh	31		kloeng					
32	khmau	32		kong neam					
33	kong kakdek	33		kong plok					
34	kromoun sar	34		koun kranh					
35	M.T.I.	35		crochok chab					
36	thai seed	36		mat sary					
		37	mhos						
		38	mohaple						
		39	neang chen						
		40	neang minh						

Note: IR-I Identified IR Varieties, IR-U: Unidentified IR Varieties

M: Medium Duration Paddy (120-150 days), I: Late Duration Paddy (>150 days)

U: Unidentified Varieties

Source: Rural Socio-Economic Survey, JICA Study Team

Table E.1.24 Number of Farmers who Used Fertilizer in the Study Area

Agricultural Chemicals Name	Farmer Type by Practicing Paddy			Total	Remark
	Dry Paddy	Dry & Wet Paddy	Wet Paddy		
Urea	256	230	129	615	
16-20-0	103	79	81	263	Japan -2KR
18-46-0	2	20	29	51	
15-15-15	15	6	3	24	Mainly for Upland Fields
16-16-8+13s	0	2	2	4	

Note: Data are plural answers.

Source: Rural Socio-Economic Survey, JICA Study Team

Table E.1.25 Number of Farmers who Used Agricultural Chemicals in the Study Area

Agricultural Chemicals Name	Farmer Type by Practicing Paddy			Total	WHO Class
	Dry Paddy	Dry & Wet Paddy	Wet Paddy		
Methyl Parathion (insecticide)	89	48	10	147	Ia
Monocrotophos (insecticide)	71	27	5	103	Ib
Endrin (insecticide)	25	18	13	56	Ib
Mevinphos (insecticide)	15	3	2	20	Ia
DDT (insecticide)	5	7	5	17	II
Diazinon (insecticide)	7	4	0	11	II
Zinc Phosphide (rodenticide)	2	7	0	9	Ib
2,4D (herbicide)	2	5	0	7	II
Methamidophos (insecticide)	2	0	0	2	Ib
Fenobucarb (insecticide)	1	0	0	1	II
Endosulfan (insecticide)	1	0	0	1	II
Unidentified	25	8	10	43	-

Note: Data are plural answers.

WHO Class Ia:Extremely hazardous, Ib:Highly hazardous, II: Moderately hazardous

Source: Rural Socio-Economic Survey, JICA Study Team

Table E.1.26 Research Institutes under the Department of Agronomy, MAFF

Type	Location		Crop	Established Year	Number of Staff			Expenditure in 1995 (Riel)	Concerned Organization	
					Professional	Technician 1st grade 2nd grade	Others			
Research Station	Kampong Speu	Prey Pdlau	Rice	1981	3	1	2	12	9,685,241	-
	Kandal	Toul Krasing	Rice	1986	0	3	0	12	16,761,100	-
	Kandal	Dey Pith <sup>1)</sup>	Rice	1967	2	7	6	14	3,618,000	-
	Kandal	Banteay Dek	Maize	1989	0	5	0	12	7,423,500	-
	Kandal	Kbal Koh	Vegetable	1985	1	8	2	0	10,149,610	-
	Svay Rieng	Kouk Trob	Rice	1985	2	2	4	0	12,966,125	-
Agricultural Development Center	Svay Rieng	Ta Saang	Rice	1987	3	1	0	1	10,453,750	-
	Takeo	Tonle Bati	Rice	1986	1	5	3	8	6,930,000	-
	Kandal	Sre Ampil <sup>2)</sup>	Rice	-	-	-	-	-	12,141,085	-
	Takeo	Kabal Po	Rice & Veg.	1989	0	1	0	0	350,000	-
	Svay Rieng	Po Lors	Rice & Veg.	1989	1	4	1	1	9,646,600	-
Rural Development Center	Kampong Speu	Veal Pong	Rice	1984	2	0	0	0	N/A	World Vision
	Kandal	Kandal Stung	Rice	1984	1	0	0	0	N/A	World Vision
	Kandal	Kop Srau	Rice	1987	1	4	1	0	3,420,950	-
State Farm	Kampong Cham	Chamkar Loeu	Cotton	1982	2	4	3	39	20,515,560	-
	Kamrot	Kampong Som	Black Pepper	1981	0	0	4	27	19,240,560	-
	Battambang	Toul Samrong <sup>3)</sup>	Rice	1979/82	2	2	6	59	N/A	-
	Kandal	Kop Srau	Rice	1986	1	4	3	9	N/A	HFKS
National Cattle Breeding Station	Takeo	Tamau <sup>4)</sup>	Cattle	1982	2	3		25	N/A	VVS

Source: Administration Section, Department of Agronomy, MAFF.

Note: 1)-United with Sre Ampil Agricultural Development Center.

2)-United with Dry Fish Vegetable Research Station.

3)-From 1979 to 1982, under provincial gov't management.

4)-Managed by Department of Animal Production, MAFF.

Table E.1.27 Activity Descriptions of Research Institutes under the Management of DOA

<b>Name</b>	<b>Po Lora Agricultural Development Center, Frey Veng</b>
<b>Cooperation with NGOs</b>	Established in 1987 by World Council of Churches
<b>Main Aim</b>	The support ended in 1989.
<b>Main Objectives</b>	To increase paddy production by obtaining higher yields from improved technology To undertake farmer training by helping key farmers to help each other To upgrade technical skills of the staff To improve soil fertility
<b>Main Activities</b>	Eight demonstration farms Provision of rural credit scheme Fertilizer distribution Training farmers
<b>Remarks</b>	The center has a full range of farm machinery, including 4-wheel tractor, but most of them is not currently functional.
<b>Name</b>	<b>Sre Ampol Research and Agricultural Development Station, Kandal</b>
<b>Cooperation with NGOs</b>	Re-established in 1985 with the assistance of Maniense (an Italian NGO).
<b>Key Features</b>	The station includes an agricultural development center which also has a function as research station. The formation of a Farm Water Users Association is one of activities. The objective of the association is to encourage farmers to manage and maintain the infrastructure of their irrigation system without reliance on government.
<b>Main Activities</b>	Nine extension officers have dual responsibilities for water management and extension of paddy production technology.
<b>Remarks</b>	The irrigation scheme supported by the station covers an area of 3000 ha and supports greater than 7000 families.
<b>Name</b>	<b>Kandal Srung Agricultural Development Center, Kandal</b>
<b>Cooperation with NGOs</b>	Established in 1989 by DOA in collaboration with ACR.
<b>Main Aim</b>	To increase socio-economic status by increasing agricultural productivity
<b>Main Objectives</b>	To be an efficient and functional training center for farmers To conduct higher level experimentation in cooperation with IRRI, FAO and others To conduct locally designed research and seed replication in response to local farmer priorities and physical conditions To facilitate the delivery of services and agricultural inputs to farmers To train farmers in community organization with emphasis on irrigation scheme management To link with other government departments and other organizations for the purpose of maximizing efficiency of human, physical and financial resources
<b>Main Activities</b>	Research on paddy Farmer and government staff training On-farm demonstration Extension
<b>Remarks</b>	Activities are directed almost exclusively at farmers in the 3 surrounding communes.
<b>Name</b>	<b>Kop Srau Skate Farm, Kandal</b>
<b>Cooperation with NGOs</b>	Re-established in 1985 by Russian assistance and managed by DOA in 1988
<b>Main Aim</b>	Paddy seed multiplication and distribution
<b>Remarks</b>	There is severe bird damage due to earlier maturity of HYV paddy than local varieties grown by adjoining farmers. Since 1993, sales to farmers and ADCs have been nil due to low quality and quantity.
<b>Name</b>	<b>Kabal Po Agricultural Development Center, Takeo</b>
<b>Cooperation with NGOs</b>	Established in 1989 by DOA in collaboration with ACR.
<b>Main Aim</b>	To increase socio-economic status by increasing agricultural productivity
<b>Main Objectives</b>	To be an efficient and functional training center for farmers To conduct higher level experimentation in cooperation with IRRI, FAO and others To conduct locally designed research and seed replication in response to local farmer priorities and physical conditions To conduct farmer field trials and demonstrations To facilitate the delivery of services and agricultural inputs to farmers To train farmers in community organization with emphasis on irrigation scheme management To link with other government departments and other organizations for the purpose of maximizing efficiency of human, physical and financial resources
<b>Main Activities</b>	Research on paddy Farmer and government staff training On-farm demonstration Extension
<b>Remarks</b>	Activities are directed almost exclusively at farmers in the 3 surrounding communes.
<b>Name</b>	<b>Po Lora Agricultural Development Center, Frey Veng</b>
<b>Cooperation with NGOs</b>	Established in 1987 by World Council of Churches
<b>Main Aim</b>	The support ended in 1989.
<b>Main Objectives</b>	To increase paddy production by obtaining higher yields from improved technology To undertake farmer training by helping key farmers to help each other To upgrade technical skills of the staff To improve soil fertility
<b>Main Activities</b>	Eight demonstration farms Provision of rural credit scheme Fertilizer distribution Training farmers
<b>Remarks</b>	The center has a full range of farm machinery, including 4-wheel tractor, but most of them is not currently functional.
<b>Name</b>	<b>Kandal Srung Agricultural Development Center, Kandal</b>
<b>Cooperation with NGOs</b>	Established in 1989 by DOA in collaboration with ACR.
<b>Main Aim</b>	To increase socio-economic status by increasing agricultural productivity
<b>Main Objectives</b>	To be an efficient and functional training center for farmers To conduct higher level experimentation in cooperation with IRRI, FAO and others To conduct locally designed research and seed replication in response to local farmer priorities and physical conditions To facilitate the delivery of services and agricultural inputs to farmers To train farmers in community organization with emphasis on irrigation scheme management To link with other government departments and other organizations for the purpose of maximizing efficiency of human, physical and financial resources
<b>Main Activities</b>	Research on paddy Farmer and government staff training On-farm demonstration Extension
<b>Remarks</b>	Activities are directed almost exclusively at farmers in the 3 surrounding communes.

Table E.1.28 Number of Trainee and Graduate in Royal University of Agriculture (former Cham Car Daung Agricultural Institute), 1985-1992.

Faculty	Number of Trainee	Graduate
Agronomy	250	138
Veterinary	192	85
Forestry	234	120
Fishery	189	82
Mechanics	110	89
First Year for all Faculties	179	-
Total	1154	514

Source : Bulletin of Agricultural Statistics and Studies, MAFF.

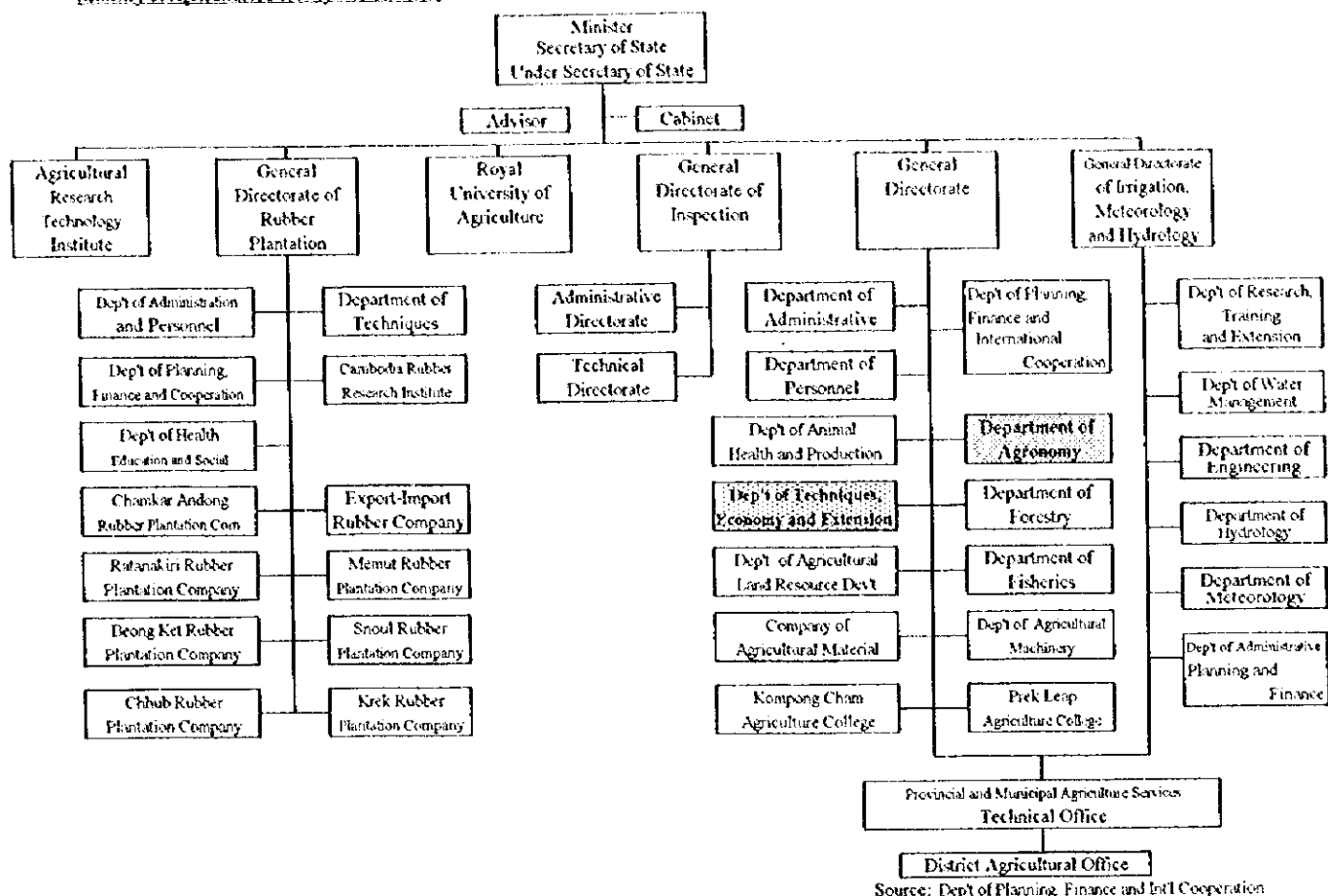
Table E.1.27 Continued

Name	Kouk Trob Research Station, Svay Rieng
Cooperation with NGOs	-
Main Aim	To select the best paddy varieties under appropriate technology in the local low fertility, acidic soils which are characterized by two main crops - sandy soils and black soils.
Main Objectives	Research on both paddy Improvement of soil fertility using sustainable technology Demonstration of new and improved paddy varieties and fertilizer usage Multiplication and certification of high yielding paddy varieties
Main Activities	Sustainable agricultural research, especially on paddy production - Cropping system research - Integrated nutrient management - Varietal improvement trials
Remarks	Most research is carried out in collaboration with IRRI.

Name	Prey Peam Research Station, Kampong Speu
Cooperation with NGOs	Re-established in 1986 with the assistance of PADEN.
Main Aim	The support ended in 1994. Research into varietal testing and selection Develop appropriate technology in rice production
Main Objectives	Research on both paddy and other crops Improvement of soil fertility Extension of improved varieties and appropriate technology to researchers, extension workers and farmers
Main Activities	Selection of high yielding varieties Multiplication of certified seed Conservation of traditional varieties for use in future breeding programmes Development of appropriate technology, including cropping systems technology Extension to local farmers
Remarks	Nowadays, most research is conducted on behalf of other organizations such as IRRI, FAO and JICA. Main achievements in recent years - Collection of 3000 varieties for germ plasm storage - Release of IR 64, IR50, IR72, B 198 and B 66 to farmers - Purification of 6 traditional varieties

Name	Ta Saeng Agricultural Development Center, Svay Rieng
Cooperation with NGOs	Established in 1988 by the NGO CIDSE.
Main Aim	The support ended in 1993. To extend appropriate technology in paddy production To upgrade knowledge and skill of center technical staff
Main Objectives	To improve the very poor soils by introduction of integrated Nutrient Management and by way of introduction of integrated cropping systems To distribute farm inputs To extend technology to farmers by way of field demonstration, field days, training Main activities are now cooperated with IRRI, FAO and JICA (farm trials into insect incidence, fertilizer trials, varietal trials)
Remarks	

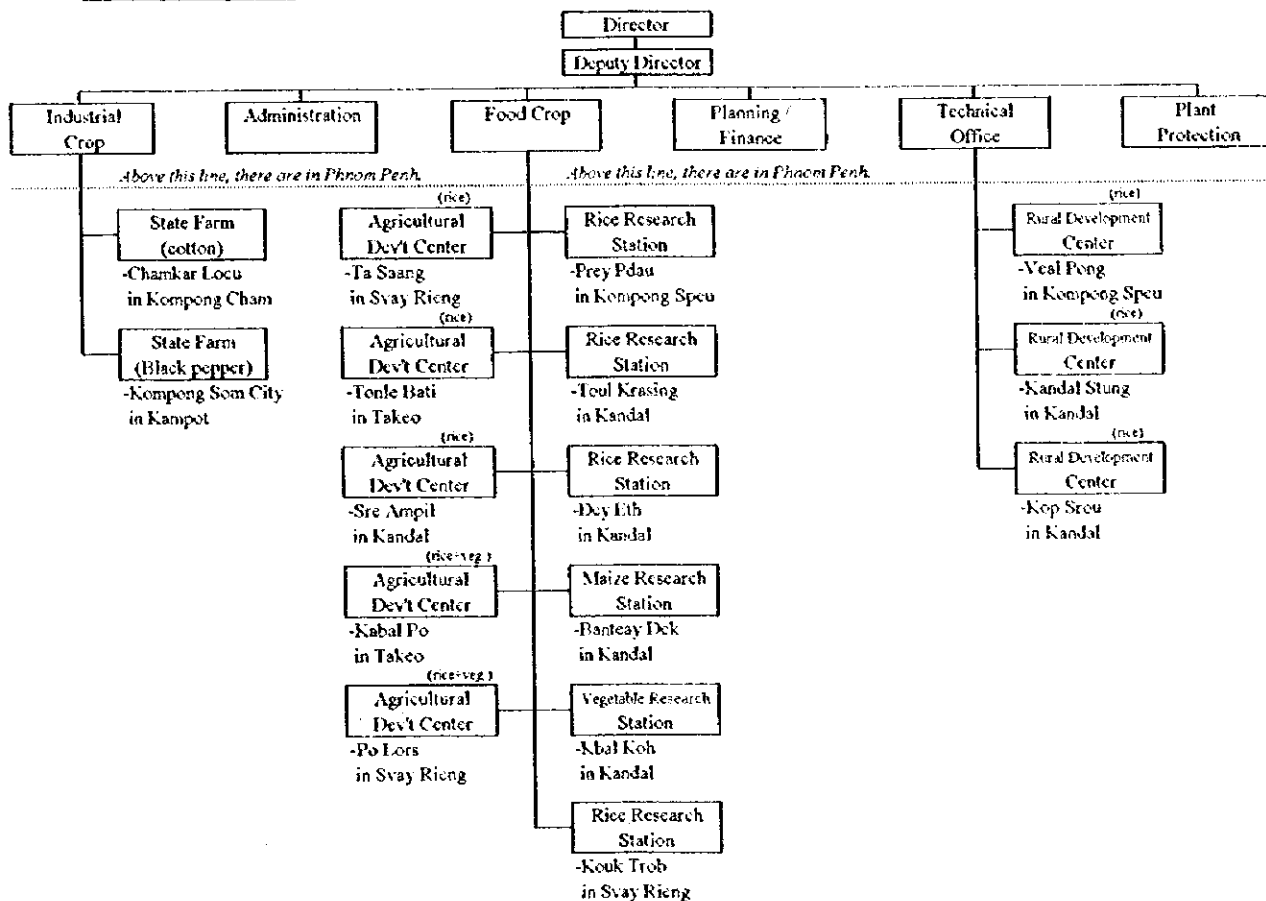
Source: "A Strategic Review and 5 year Funding Proposal", October, 1995, DOA, MAFF



Source: Dept of Planning, Finance and Int'l Cooperation

Figure E.1.15 Organizational Chart of Ministry of Agriculture, Forestry and Fisheries

**Department of Agronomy**



Source: Dept of Planning, Finance and Int'l Cooperation

Figure E.1.16 Organizational Chart of Department of Agronomy, MAFF

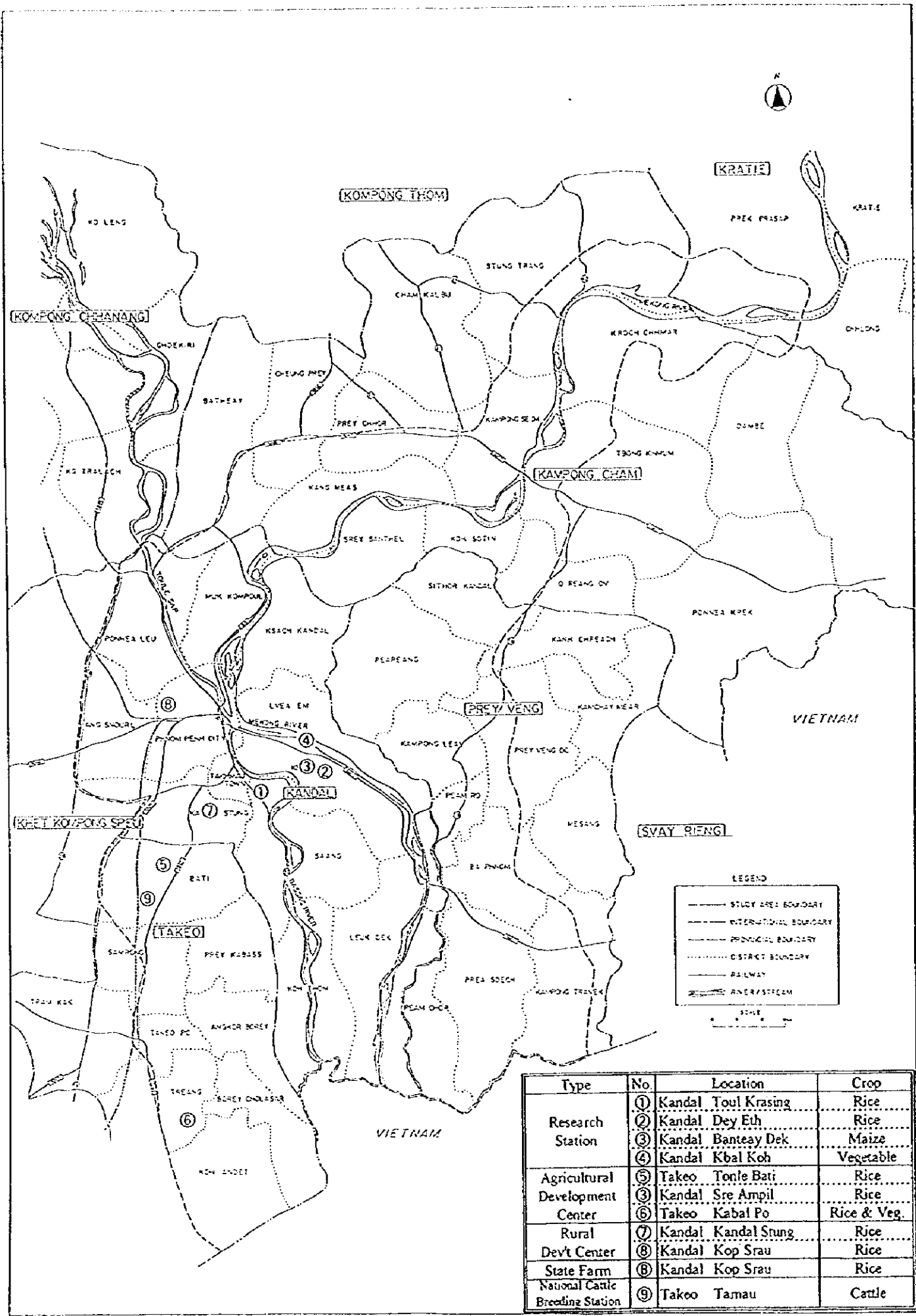
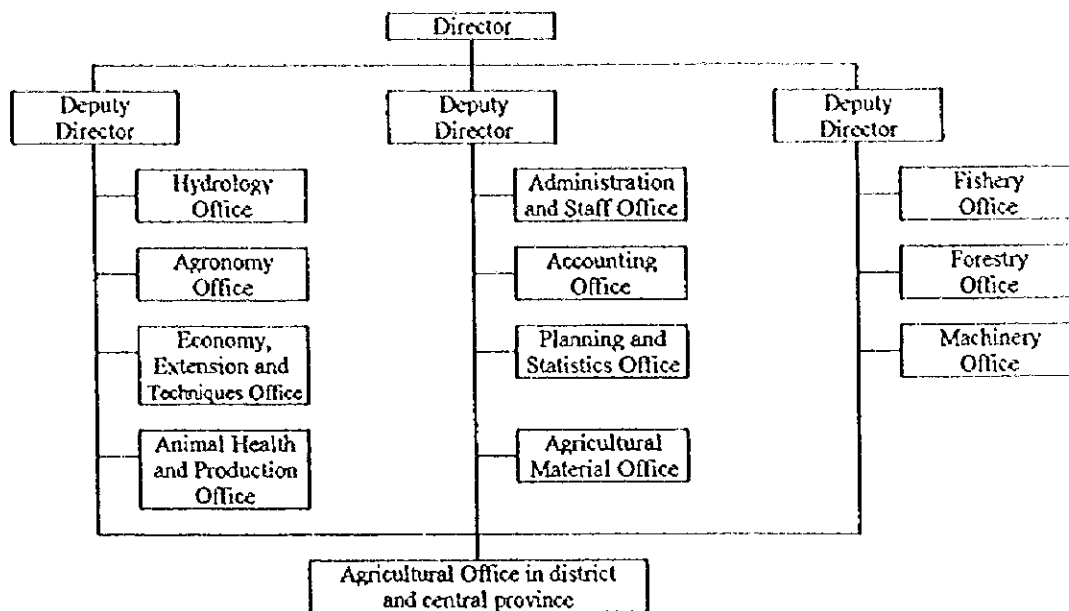


Figure E.1.17 Research Institutes Existing in the Study Area  
E-66

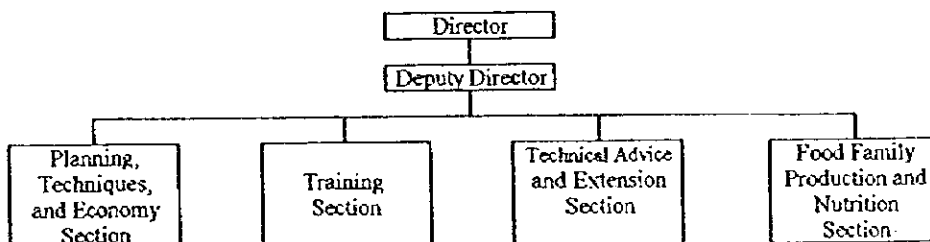


**Number of Staff**

Section	Kandal	K.Cham	Prey Veng	Takeo
Hydrology Office	39	38	76	81
Agronomy Office	9	24	41	6
Economy, Extension and Techniques Office	19	16	40	39
Animal Health and Production Office	37	35	43	27
Administration and Staff Office	19	46	21	23
Accounting Office	8		13	6
Planning and Statistics Office	8	12	11	3
Agricultural Material Office	13	10	14	16
Fishery Office	100	37	67	31
Forestry Office	44	64	43	26
Machinery Office	24	18	30	14
Agricultural Office in district and central province	148	115	176	121
<b>Total</b>	<b>468</b>	<b>415</b>	<b>575</b>	<b>393</b>

Source: Provincial Agricultural Office

Figure E.1.18 Organizational Chart of Provincial Agricultural Office



**Number of Staff**

Section	Kandal	K.Cham	Prey Veng	Takeo
Director	1	-	1	1
Deputy Director	1	-	2	1
Planning, Techniques and Economy Section	3	-	10	5
Training Section	2	-	4	3
Technical Advice and Extension Section	10	-	10	24
Food Family Production and Nutrition Section	2	-	6	5
<b>Total</b>	<b>19</b>	<b>16</b>	<b>33</b>	<b>39</b>

Note: In Kompong Cham Province, this office is under preparation. Source: Provincial Agricultural Office

Figure E.1.19 Organizational Chart of Economy, Extension and Techniques Office in Provincial Agricultural Office



Table E.1.29 Outline of Cambodia Australia Agricultural Extension Project (CAAEP)

Project Development	1994,2	Project Design Mission
	1994,9	Project Design Document (PDD)
	1994,11	Appraisal Mission
	1995,8	Appointed Managing Consultants
	1995,11	Project Inception Phase
	1996,3	Project Implementation Document (PID)
	1996,5	Project Implementation Phase
	2000,11	Project Completion
Project Cost	Australian Government	Aust\$: 10,116,000
	Cambodian Government	Aust\$: 123,000
Project Strategies	<ul style="list-style-type: none"> <li>-Strengthen the institutional capacity of DTTEE to implement an effective national extension service</li> <li>-Achieve a target of 484 trained Agricultural Extension Workers (AEW) operating in 968 communes in 21 provinces - 1 AEW per 2 communes</li> <li>-Identify a key village within each commune to be the initial focus for extension activities</li> <li>-Conduct participatory extension planning and training needs analysis to produce village, commune, district and provincial extension plans</li> <li>-Link with other organizations involved with rural community development to provide a coordinated approach to extension</li> <li>-Decentralize short course training and emphasize on-the-job training in 12 provinces</li> <li>-Provide a higher level of on-the-job training support to 3 target provinces; Kampong Cham, Svay Rieng, Battambang</li> <li>-Establish a media unit to reinforce and complement the extension effort</li> <li>-Provide transport to extension workers to enable them to access their target groups and villages</li> <li>-Provide credit to facilitate community and micro enterprises derived from the implemented extension process</li> </ul>	
Project Goal	To contribute to the achievement of food security in selected communities of Cambodia through the development, delivery and utilization of a national agricultural extension system	
Project Components	Component 1	Agricultural Extension Organization and Development
	Purpose	To establish an operational national agricultural extension system in MAFF implemented through the DTTEE
	Component 2	Agricultural Education Strengthening
	Purpose	Strengthen agricultural education at Prek Leap Agricultural College to enhance long term technical capability of MAFF and other agencies with an extension role
	Component 3	Joint Community/MAFF Participation for Agricultural Development
Purpose	Enhance village capability on selected communities to improve agricultural productivity, food security and income through the extension system	
Component 4	Project Management	
Purpose	Establish a monitoring and evaluation system applicable to management of the national agricultural extension system which enables adequate project reporting	

Source: "CAAEP Launch Seminar" brochure, 8 may 1996

Table E.1.30 Distribution plan of agricultural material by district.

Kandal Province, 1994																	
District	Fertilizer								Flooded Area Supporting		Agricultural Material						
	Dry Season Project				Wet Season Project				Seed Rice (t)	Urea (ton)	Pesticide			Hand Sprayer (set)	Machine Sprayer (set)	Threshing Machine (set)	Hoe (set)
	15-45-0 (ton)	Origin	Urea (ton)	Origin	16-20-0 (ton)	Origin	Urea (ton)	Origin			Diazinon (l)	Sumichlor (l)	Sumichlor (l)				
1 Ksach Kandal	200	FAO	197	Japan					10	5	35	5	5	5	5	2	50
2 Muk Kampoul	202	FAO	190	Japan										5			50
3 Lvea Em	80	FAO	129	FAO							270	80	40	5			50
4 Kean Sray	5	FAO	8	ADB			8	FAO			37		5				24
5 Saang	80	FAO	50	Japan			22	FAO			270	80		5	2		50
6 Leuk Dek	181	FAO	22	ADB			20	FAO						5	2		50
7 Koh Thom	246	FAO	20	Japan			10	FAO						5	2		50
8 Ponhea Leu	249	ADB	110	ADB							20			5			50
9 Ang Soourt	91	FAO	25.3	FAO			56.497	FAO	25	5	90	20	10	3			50
10 Kandal Stung	417	FAO	135	FAO			42.25	FAO	56	10				8			250
11 Takhmau	27	FAO	25	ADB					3		1,000			3			50
12 Other Areas	160.95	ADB	158.35	ADB	76.25	Japan	40.25	FAO			70			1	2	1	63
Total	1938.95		1069.85		76.25		198.997		94	20	1,792	185	62	50	10	1	787

Source: Agricultural Material Office, Kandal Province

Kampong Cham Province															
District	Paddy Projected Area (ha)	Rainy Season 1994/95						Dry Season 1995/96							
		Fertilizer			Agricultural Material			Fertilizer			Agricultural Material				
		18-46-0 (ton)	Urea (ton)	16-20-0 (ton)	Diazinon (l)	Sumichlor (l)	Sumichlor (l)	Hand Sprayer (set)	Machine Sprayer (set)	Rice Mill (set)	Hoe (set)	15-15-15 (ton)	Urea (ton)	16-20-0 (ton)	
1 O Reang Ov	18,590	124	165.45	25.65	200	50	35	3	1		70	600		22	23
2 Koh Sotin	1,048	7	9.35	1.45	50	20	10	2			20	750	5	27	28
3 Srey Santhel	7,040	42	62.65	9.7	100	30	15	3			30	2,880	5	105	110
4 Kang Meas	2,821	18.5	25.1	3.85	100	20	10	2			20	2,900	5	106	110
5 Kampong Cham	130	1.7	4.35	1.55	50	10	5	1			10	30	2	2	2
6 Krooch Chhmar	3,052	20.5	27.15	4.2	210	50	30	3			70	2,800	5	102	106
7 Thong Khnum	21,717	390	193.25	29.95	250	80	35	3	1		80	1,700	5	62	65
8 Stung Trang	7,021	42.5	62.45	9.65	100	30	15	3			30	1,800	5	66	68
9 Kampong Seim	6,530	43.5	58.1	9	190	30	15	3			30	1,600	8	60	61
10 Prey Chhor	18,793	126	167.25	25.9	200	80	40	3	1		80	1,600		59	61
11 Cheung Pny	12,975	160	115.45	17.9	160	50	25	3	1		50	1,500		55	57
12 Batheay	16,498	110	142.8	22.75	200	50	30	3	1		60	2,500		91	95
13 Dambe	11,554	30	50		200	55	35	3			45	120		4	6
14 Measot	13,645	28.45	50		140	55	25	3			45				
15 Ponnea Krek	20,758	186.8	184.75	20.65	200	80	35	4	1		80				
16 Chamkar Leu	7,128	47.5	63.45	9.8	100	30	15	3	1		30	200		7	7
17 Agri. Material Office		60	100	29		80	25	10	3		20		10	62	61
18 Reservation		30	100	20.5				5			30				
Total	169,300	1468.45	1581.55	241.5	2450	800	400	60	10	1	800	21,000	50	830	860

Source: Agricultural Material Office, Kampong Cham Province

## Takeo Province, 1995

District	Fertilizer			Pesticide (l)	Hand Sprayer (set)	Machine Sprayer (set)	Hoe (set)	Seed Rice (ton)
	15-15-15 (ton)	18-46-0 (ton)	Urea (ton)					
1 Bati		211	230					20
2 Prey Kabass		194	256					25
3 Angkor Borey		100	175.5					40
4 Samrong		135	48					20
5 Takeo PC		20	62					0
6 Tran Kak		205	314					0
7 Borey Cholasar		85	0					35
8 Treang		145	125					20
9 Koh Andet		115	298.5					60
10 Kiri Vong		130	101.35					60
11 Sange Storehouse		133	170.65					0
12 Ochombok Storehouse		40	1397	949	100	70	10	800
Total		40	2870	2730	100	70	10	800

Source: Agricultural Material Office, Takeo Province

Table E.2.1 Data Used for Correlation Analysis between Paddy Production and Hydro-Meteorological Data

Data	Place	Period	No. of Data	Symbol	Remarks
Paddy Production	Kratie	1981 - 1995	15	A	
	K.Cham	1981 - 1995	15	B	
	P.Veng	1981 - 1995	15	C	
	Kandal	1981 - 1995	15	D	
	Takeo	1981 - 1995	15	E	
Rainfall	Kratie	1981 - 1994	11	R1	Lack of data for 1989-1991
	K.Cham	1981 - 1995	14	R2	Lack of data for 1990
	P.Veng	1984 - 1995	12	R3	
	Pochentong	1981 - 1995	15	R4	
	Takeo	1985 - 1995	11	R5	
High Water Level	Phnom Penh	1981 - 1995	15	WL	(Chaktonuk)

Source: Production Data-Bulletin of Agricultural Statistics and Studies, MAFF  
Hydro-Meteorological Data-Same as Annex C "Hydrology"

Table E.2.2 Results of Correlation Analysis between Paddy Production and Hydro-Meteorological Data

**Paddy Production and High Water Level**

Y-Axis	X-Axis	Coefficient of Correlation
A	WL	$r=-0.60^*$
B	WL	$r=-0.20$
C	WL	$r=-0.23$
D	WL	$r=0.11$
E	WL	$r=-0.41$
C <sup>1)</sup>	WL	$r=-0.64^*$

**Paddy Production and Annual Rainfall**

Y-Axis	X-Axis	Coefficient of Correlation
A	R1	$r=-0.09$
B	R2	$r=0.37$
C	R3	$r=0.49$
D	R4	$r=0.18$
E	R5	$r=0.43$

**Paddy Production and Rainfall during July and August**

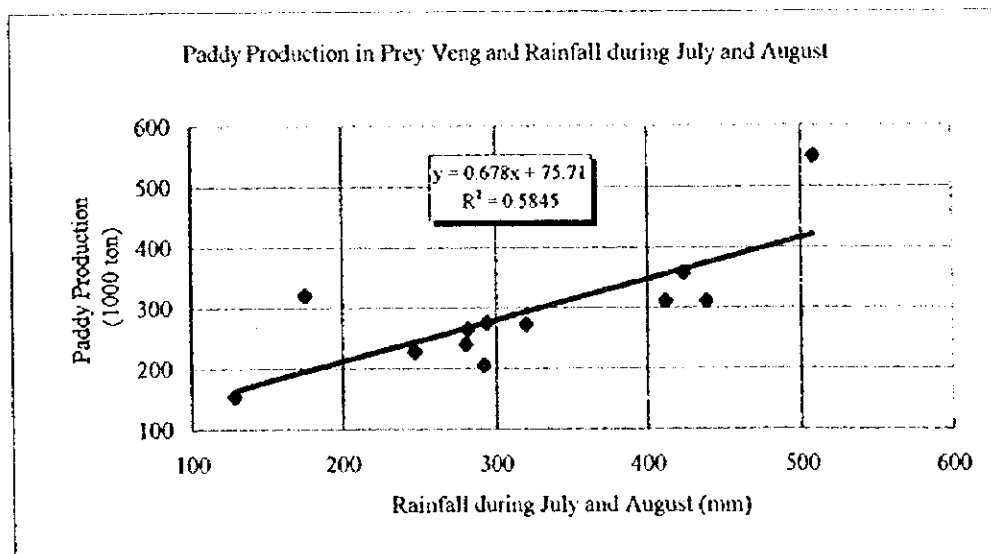
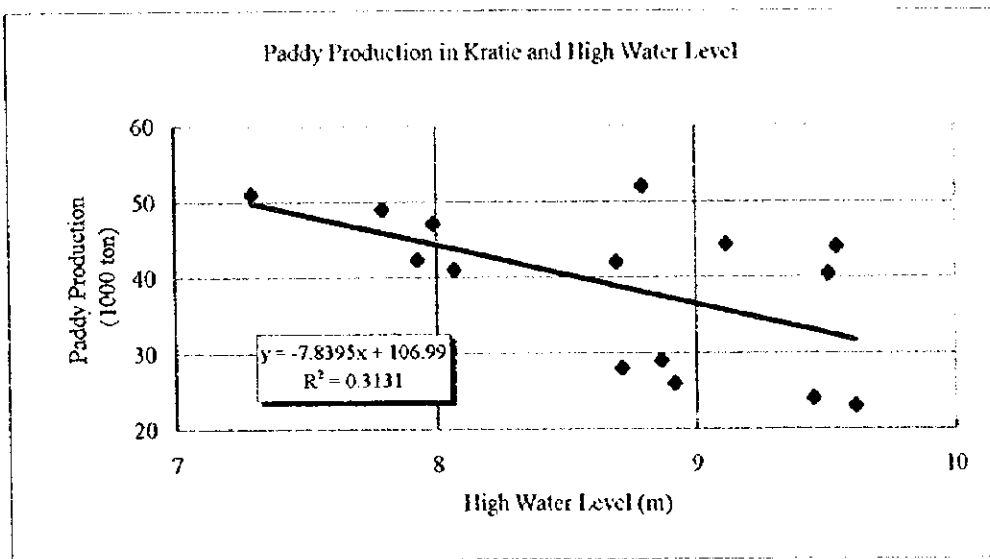
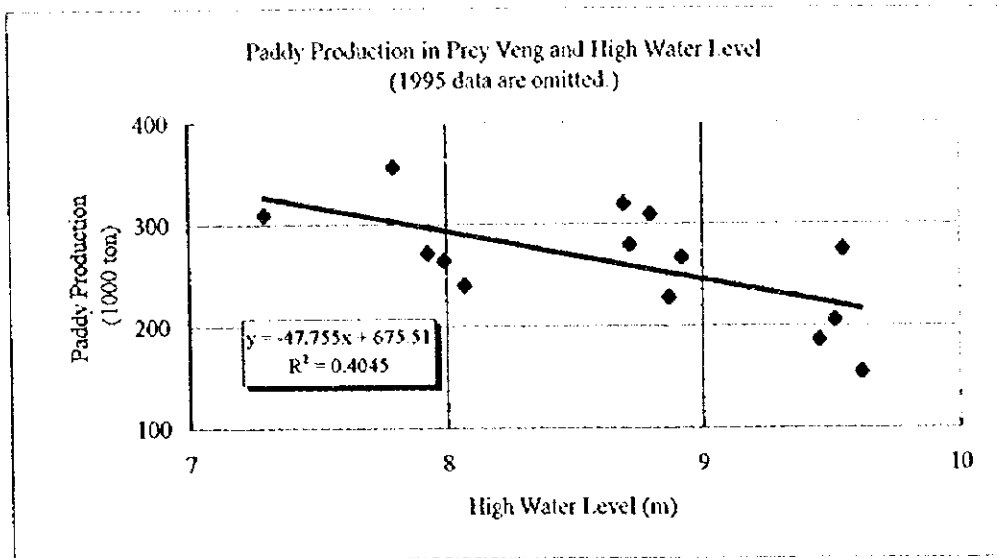
Y-Axis	X-Axis	Coefficient of Correlation
A	R1	$r=-0.29$
B	R2	$r=0.39$
C	R3	$r=0.76^{**}$
D	R4	$r=0.12$
E	R5	$r=0.25$

**Paddy Production and Rainfall during September and October**

Y-Axis	X-Axis	Coefficient of Correlation
A	R1	$r=0.41$
B	R2	$r=0.29$
C	R3	$r=0.07$
D	R4	$r=-0.09$
E	R5	$r=0.37$

Note: C<sup>1)</sup>-Omitting 1995 data

The symbols of \* and \*\* mean 5% and 1% significant, respectively.



Source See Table E.2.1 and E.2.2.

**Figure E.2.1 Significant Correlation Analyses between Paddy Production and Hydro-Meteorological Data**

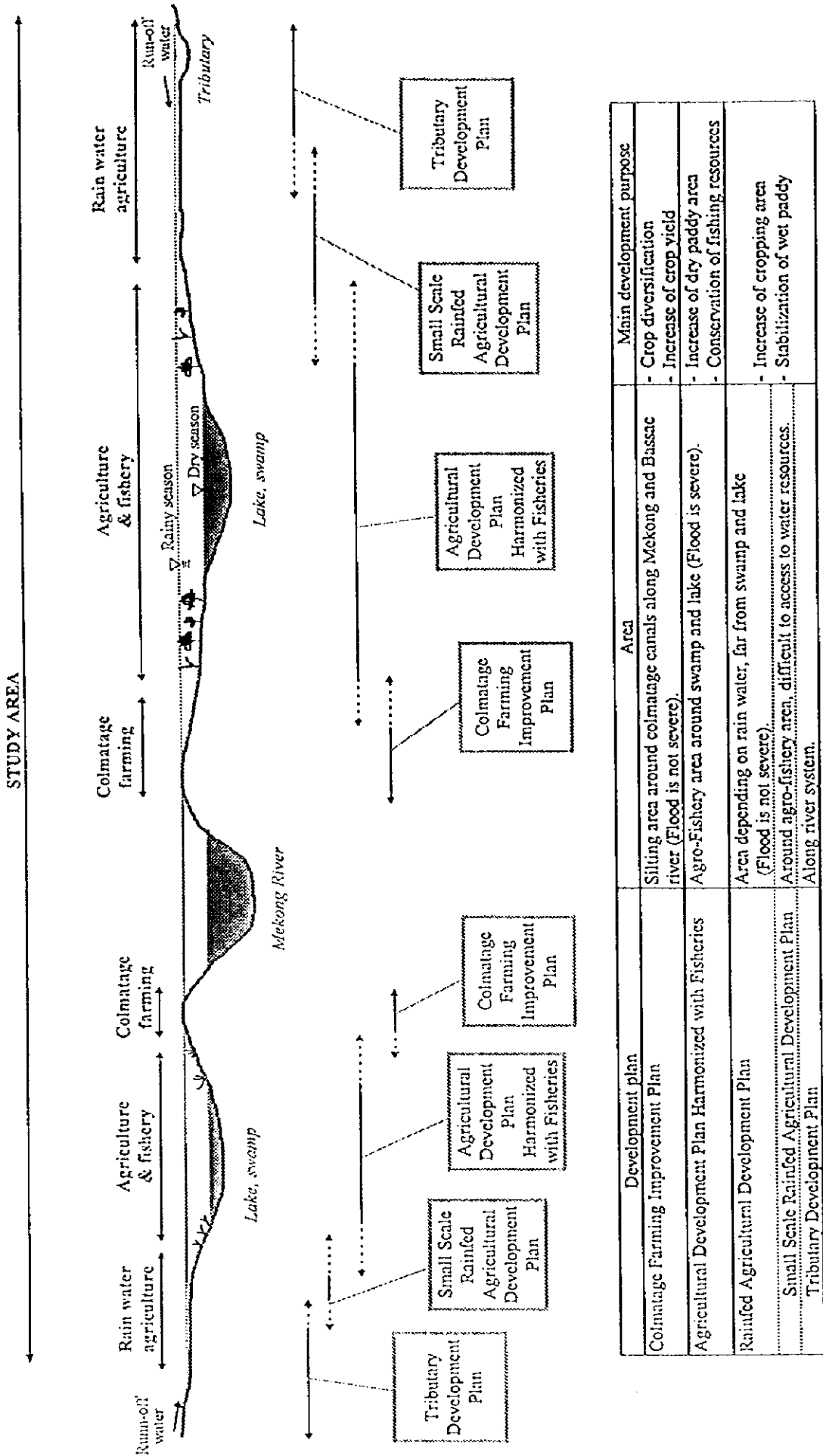
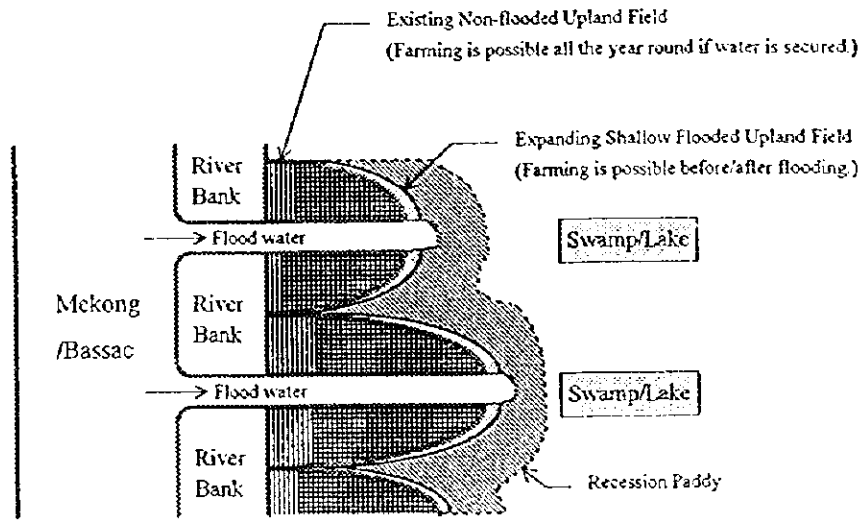
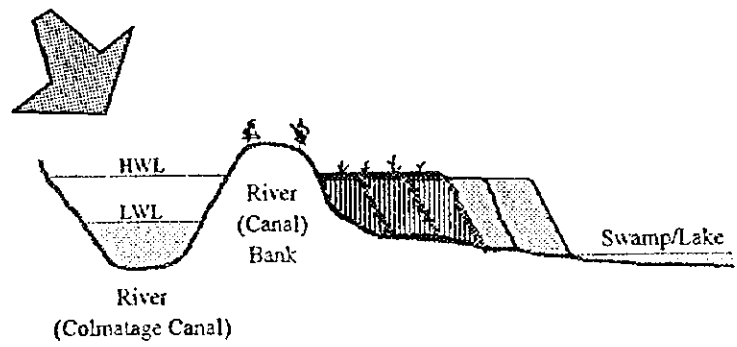
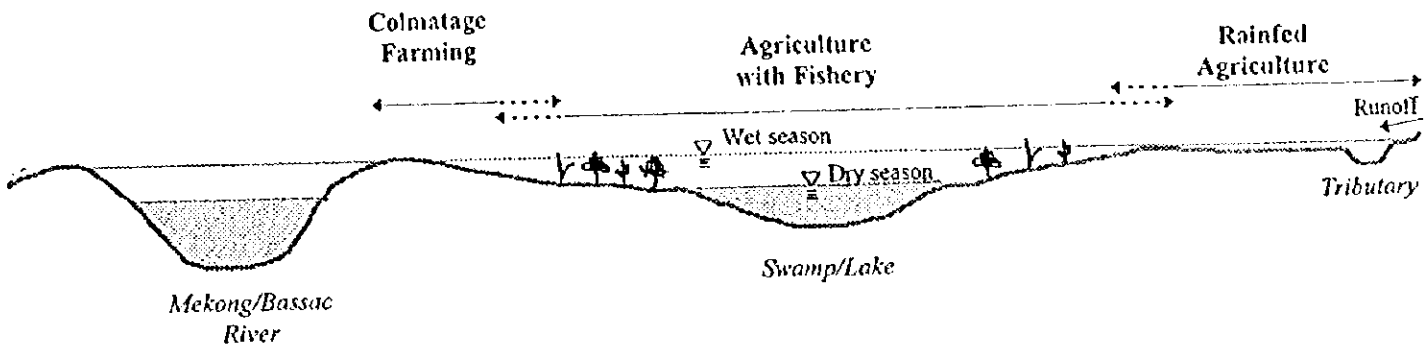


Figure E.3.1 Development Concept of the Study Area



**Land Descriptions**

- Farmland mainly comprises non-flooded upland crops field and shallow flooded upland crops field.
- Soils are relatively fertile (alluvial/brown alluvial).

Figure E.3.2 Outline of Land Use in Colmatage Farming Areas

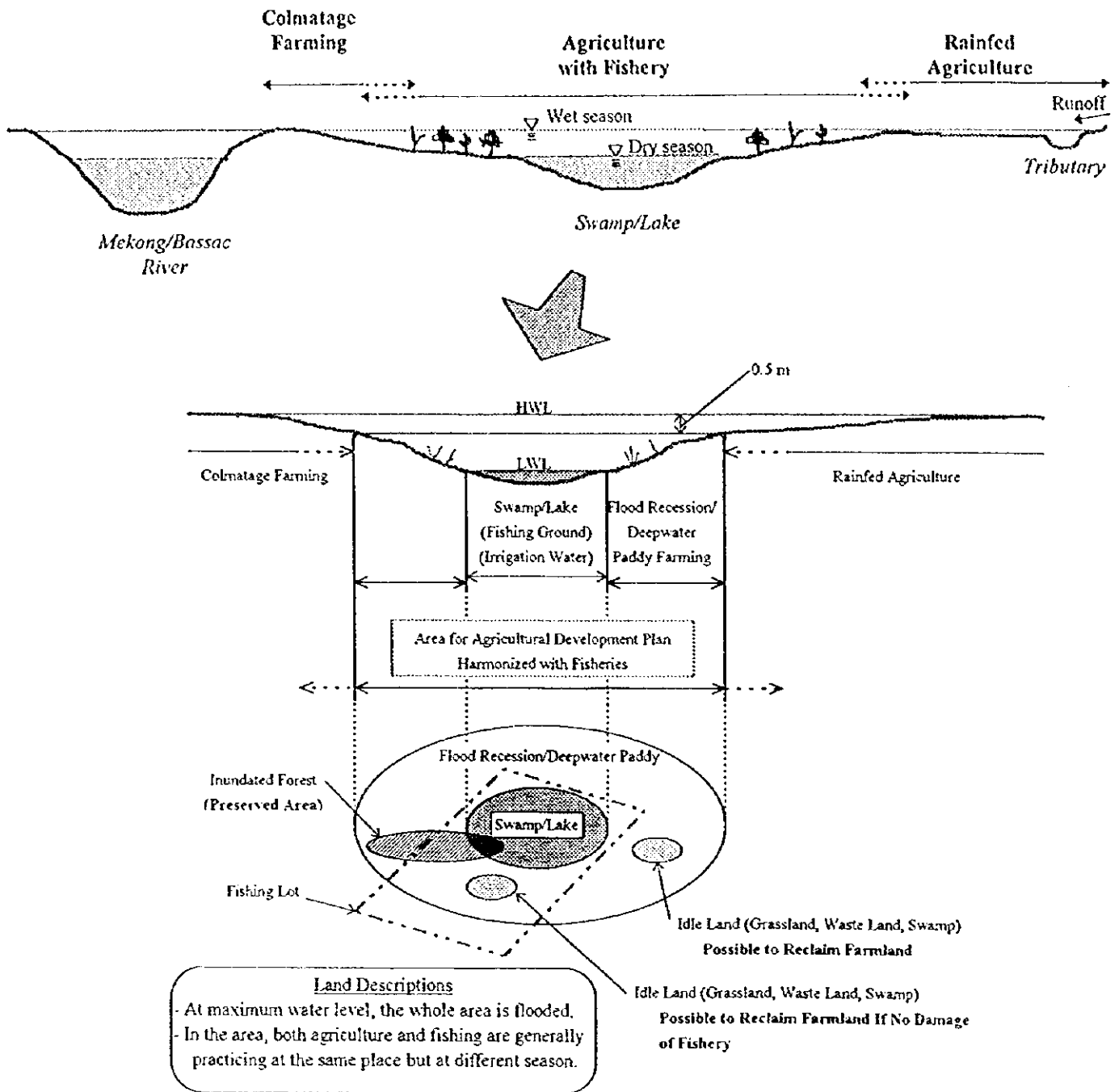


Figure E.3.3 Outline of Land Use in the Areas for Agricultural Development Plan Harmonized with Fisheries

### The Area for Agricultural Development Plan Harmonized with Fishery

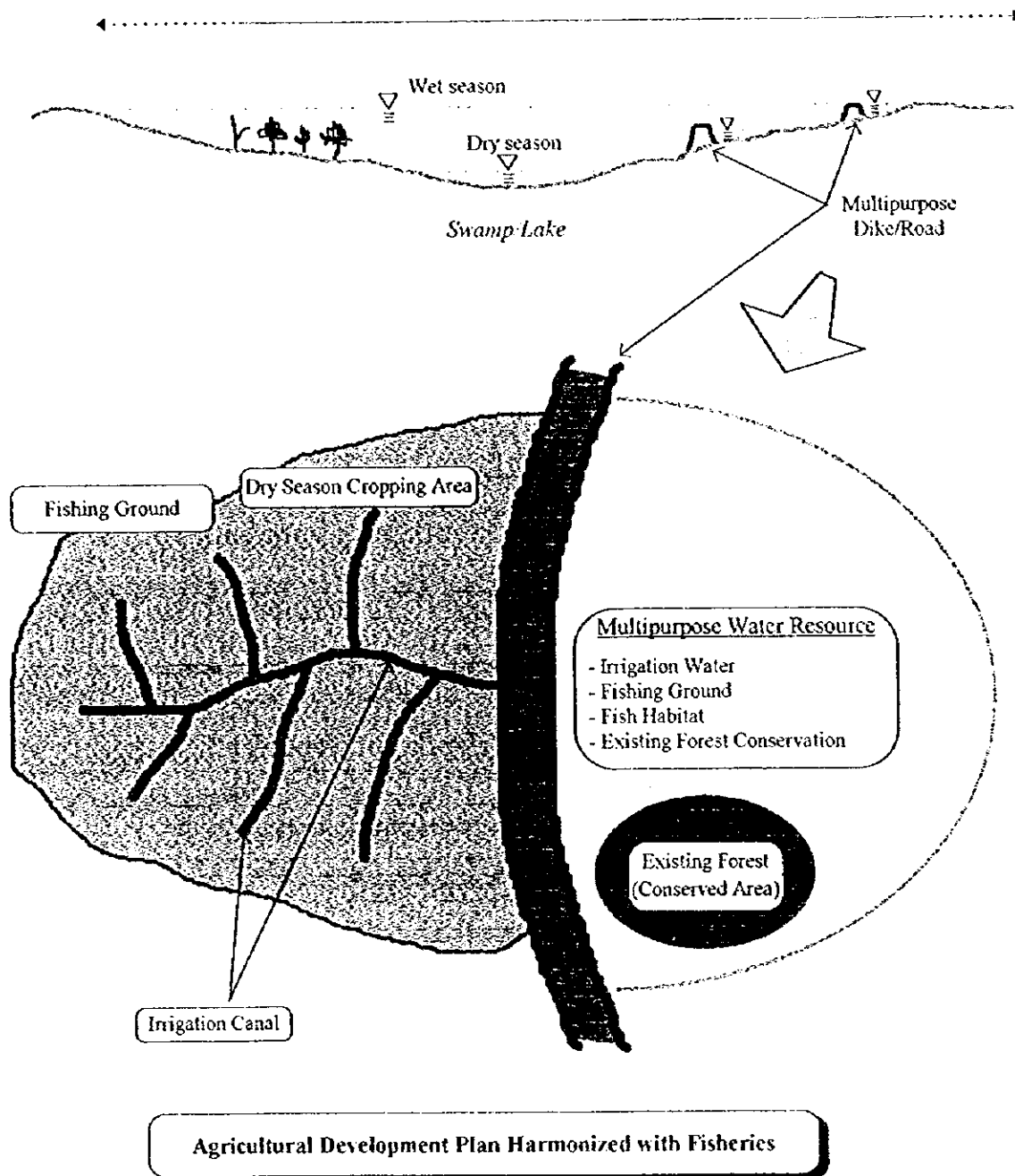


Figure E.3.4 Outline of Agricultural Development Plan Harmonized with Fisheries



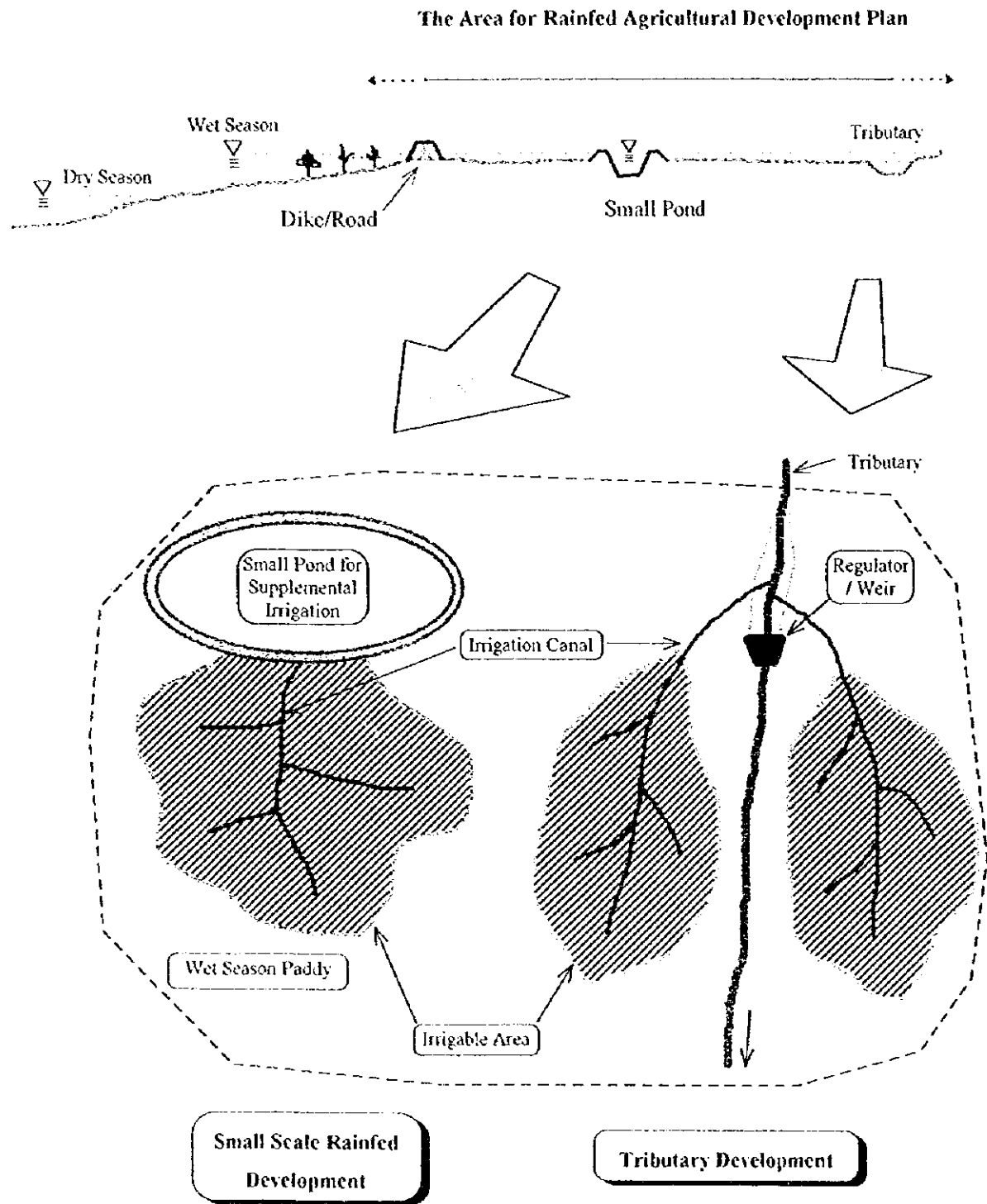


Figure E.3.5 Outline of Rainfed Agricultural Development Plan

Table E.4.1 Planted Area and Production of the Study Area by Zone

Item	Season	Crop	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	Zone 12	Zone 13	Total	
Planted Area (ha)	Wet Season	Paddy	13,807	11,361	12,185	57,580	47,055	6,893	4,062	48,984	10,725	4,315	90,943	2,529	31,361	341,800	
		Maize	2,938	3,364	138	1,005	1,137	1,884	298	66	4,910	8,350	34	2,437	48	26,609	
		Mungbean	747	99	225	42	22	33	5	102	57	0	102	65	0	1,499	
		Vegetable*	22	0	0	32	23	326	177	411	1,254	142	356	0	0	2,743	
		Sweet Potato**	14	0	0	17	35	37	0	38	14	0	87	0	12	254	
		Sesame***	1,055	1,113	58	159	55	12	0	0	0	0	0	0	424	54	2,962
	Dry Season	Paddy	4,202	5,565	2,220	4,902	18,693	10,302	5,325	7,347	11,790	9,721	28,265	10,500	10,582	129,415	
		Maize	9	96	5	160	1,175	1,008	34	13	729	285	74	2,497	55	6,139	
		Mungbean	15	269	0	133	49	1,039	0	39	480	1,963	270	67	0	4,324	
		Vegetable*	43	0	0	57	41	430	895	481	2,044	2,131	829	0	0	6,952	
		Sweet Potato**	26	0	0	35	89	40	4	85	221	530	270	0	27	1,327	
		Sesame***	0	7	0	48	61	12	0	0	0	0	0	0	424	77	629
	Total	Paddy	18,009	16,926	14,404	62,482	65,749	17,195	9,387	56,331	22,515	14,036	119,209	13,029	41,943	471,215	
		Maize	2,947	3,460	143	1,165	2,312	2,892	332	79	5,639	8,635	108	4,934	103	32,748	
		Mungbean	762	368	225	175	71	1,072	5	141	538	1,963	372	132	0	5,822	
		Vegetable*	66	0	0	89	64	756	1,072	892	3,298	2,273	1,185	0	0	9,694	
		Sweet Potato**	40	0	0	53	124	77	4	123	235	530	357	0	39	1,581	
		Sesame***	1,055	1,120	58	207	116	24	0	0	0	0	0	0	849	131	3,591
	Production (ton)	Wet Season	Paddy	23,017	17,360	20,176	92,956	86,982	18,924	7,649	88,861	22,269	7,971	150,987	4,288	57,414	598,855
			Maize	4,096	3,835	179	1,139	1,467	3,959	583	73	6,818	13,614	31	3,168	62	39,023
Mungbean			240	20	34	21	12	11	2	35	16	12	61	39	0	503	
Vegetable*			189	0	0	140	100	1,525	788	2,105	6,243	531	3,200	0	0	14,821	
Sweet Potato**			56	0	0	75	154	148	0	125	48	0	303	0	54	963	
Sesame***			1,053	1,110	58	136	32	6	0	0	0	0	0	0	212	27	2,634
Dry Season		Paddy	10,085	13,429	5,557	12,571	63,286	39,221	17,830	23,186	42,884	41,040	84,796	48,795	40,306	442,985	
		Maize	12	77	7	157	1,175	1,099	41	15	1,108	267	66	2,497	55	6,576	
		Mungbean	5	95	0	58	25	672	0	23	309	1,704	162	34	0	3,088	
		Vegetable*	369	0	0	287	205	2,089	4,029	3,326	11,017	8,600	7,464	0	0	37,385	
		Sweet Potato**	103	0	0	150	362	222	20	334	1,233	3,160	946	0	109	6,641	
		Sesame***	0	3	0	24	30	6	0	0	0	0	0	0	212	39	315
Total		Paddy	33,101	30,789	25,732	105,527	150,268	58,145	25,479	112,048	65,153	49,011	235,783	53,084	97,719	1,041,839	
		Maize	4,107	3,912	185	1,296	2,641	5,058	624	88	7,926	13,882	97	5,665	117	45,600	
		Mungbean	245	115	34	79	37	684	2	58	325	1,716	223	72	0	3,592	
		Vegetable*	557	0	0	427	305	3,614	4,817	5,431	17,260	9,131	10,664	0	0	52,206	
		Sweet Potato**	159	0	0	225	516	370	20	458	1,281	3,160	1,250	0	163	7,604	
		Sesame***	1,053	1,113	58	160	62	12	0	0	0	0	0	0	424	66	2,949

Source: Provincial Agricultural Office

Note: Based on the district area distribution to the Study Area, all data are proportioned

\*The vegetable data of Kampong Cham and Prey Veng are not included

\*\*The sweet potato data of Kampong Cham are not included

\*\*\*The sesame data of Kandal and Takeo are not included

Table E.4.2 Classification of 13 Zones by Agricultural Characteristics

Type	A	B	C	D	E
Zone No.	Zone 3,4,8	Zone 5,11,13	Zone 1,2	Zone 6,7,9	Zone 10,12
Main Crop Types	Paddy	Paddy	Paddy + Upland Crops	Paddy + Upland Crops	Paddy + Upland Crops
Cultivated Crops	Paddy	Paddy	Paddy, Cereal	Paddy, Cereal, Legume, Vegetable	Paddy, Cereal, Legume, Vegetable
Farming Season	Wet	Wet + Dry	Wet	Wet + Dry (Wet Season : Paddy > Upland Crops)	Wet + Dry (Wet Season : Upland Crops > Paddy)
Characteristics	Item 1	Total Paddy Planted Area / Total Planted Area > 90%	Total Paddy Planted Area / Total Planted Area > 90%	Total Upland Crops Planted Area / Total Planted Area > 10%	Total Upland Crops Planted Area / Total Planted Area > 10%
	Item 2	Wet Season Planted Area / Total Planted Area > 80%	Wet Season Planted Area / Total Planted Area < 80%	Wet Season Planted Area / Total Planted Area > 70%	Wet Season Planted Area / Total Planted Area < 70% (Wet Season : Paddy > Upland Crops)

Source: JICA Study Team (Original statistics, collected from the concerned provinces, are modified in accord with area proportion to the zone.)

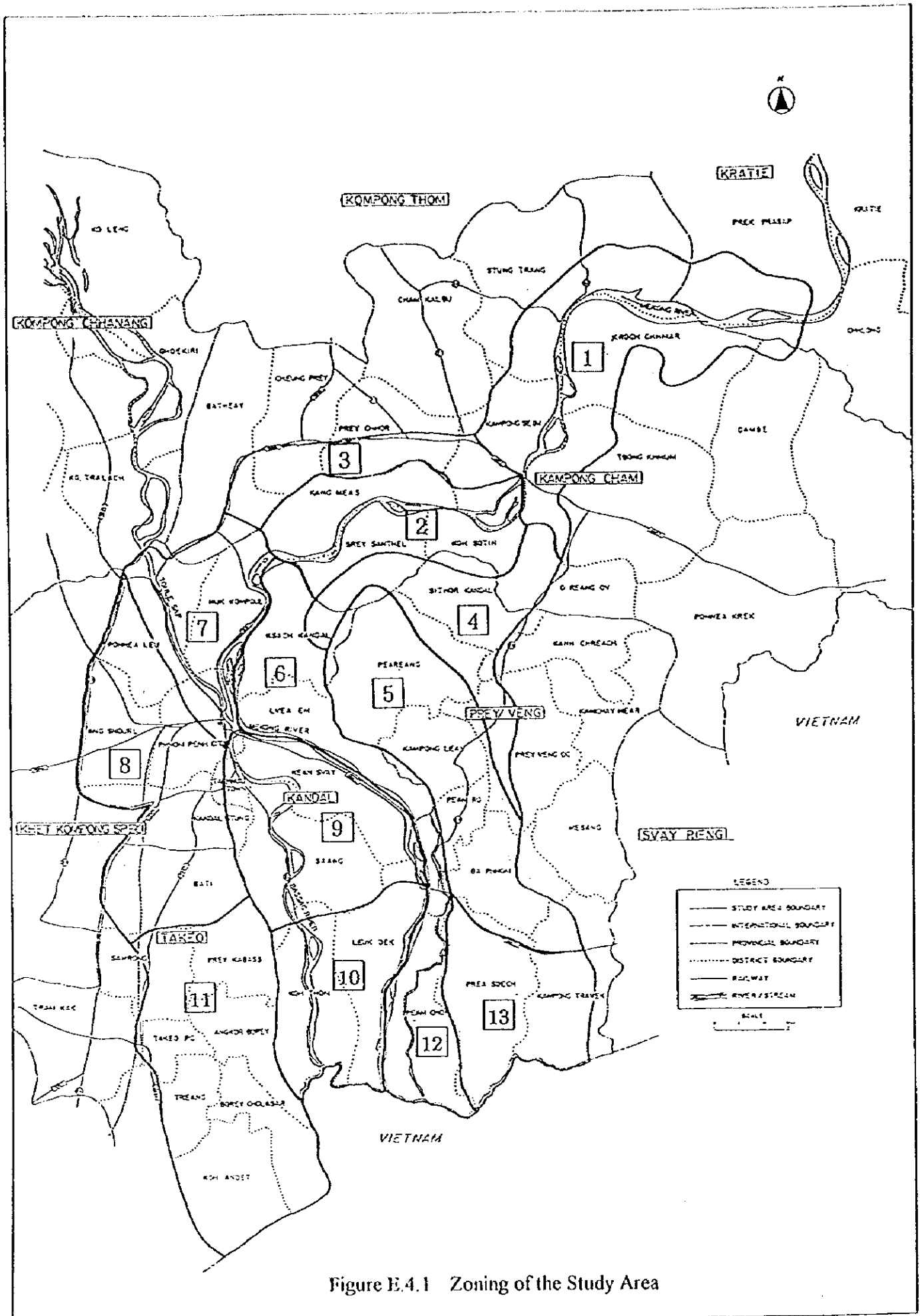


Figure E.4.1 Zoning of the Study Area

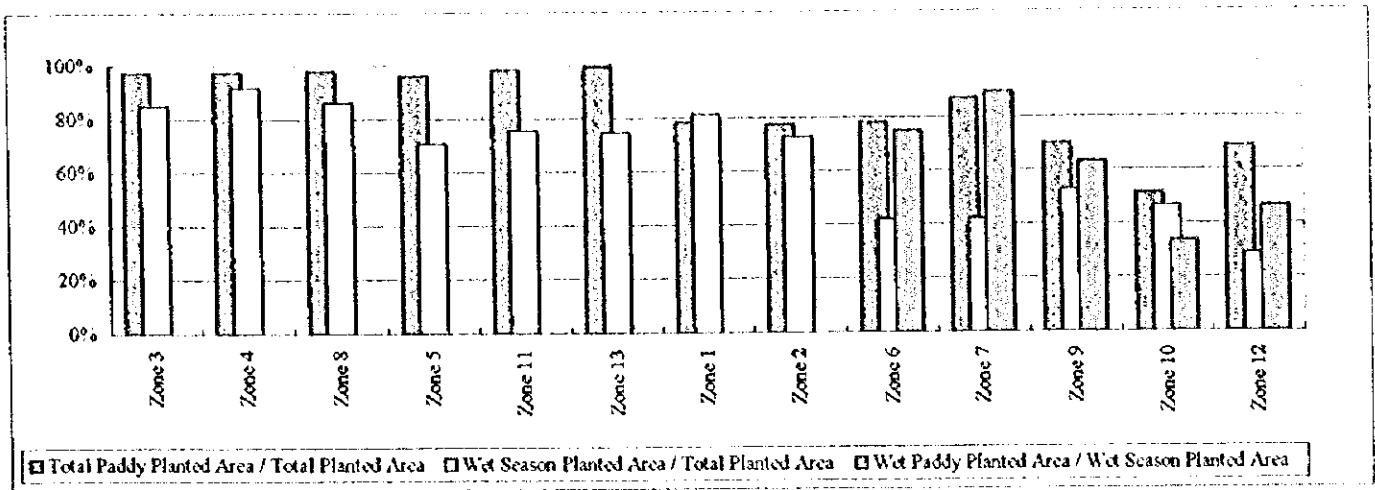
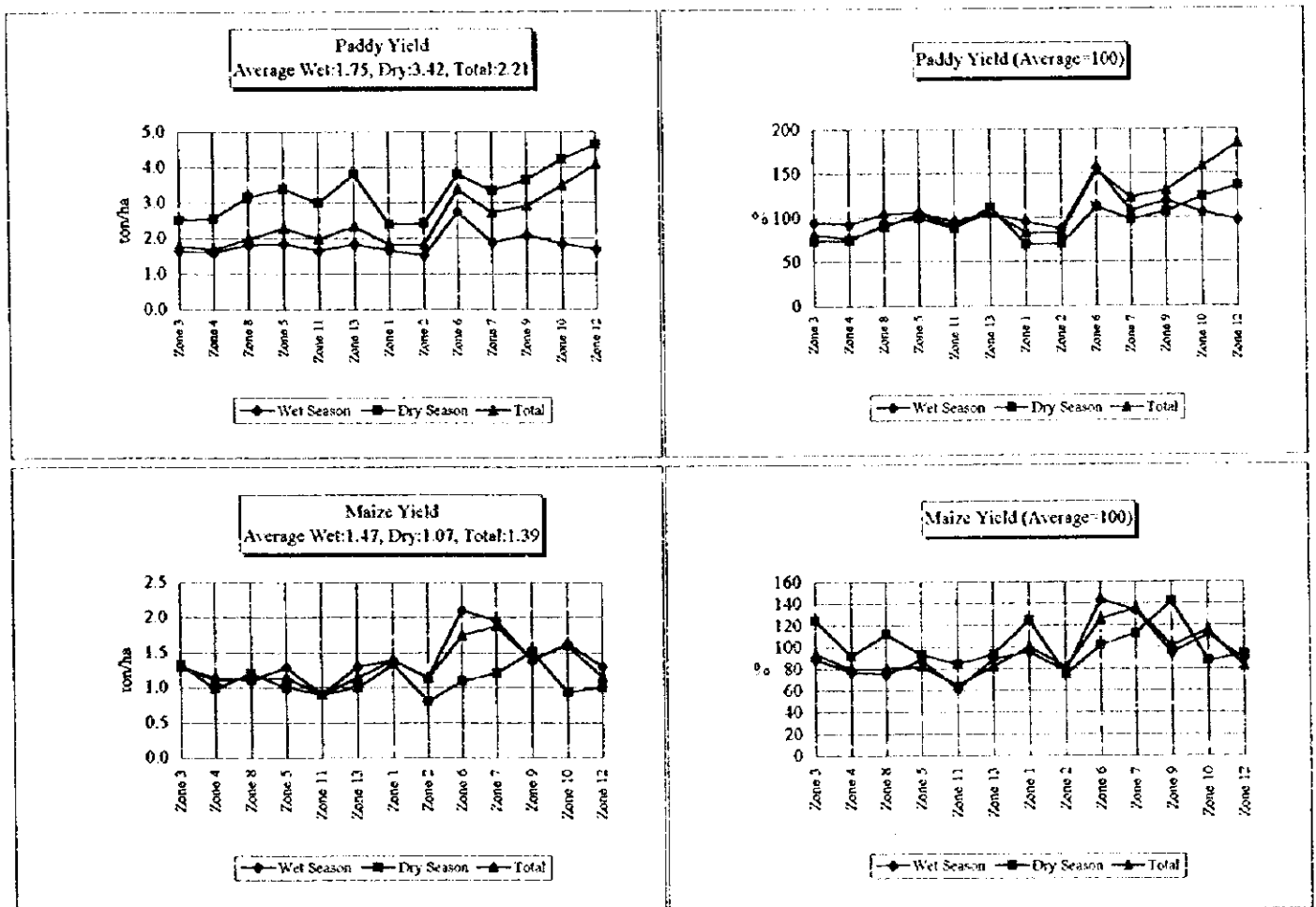


Figure E.4.2 Classification of 13 Zones by Some Agricultural Characteristics



Source: JICA Study Team (Original statistics, collected from the provinces concerned, are modified in accord with area proportion to the zone.)

Figure E.4.3 Yield of Paddy and Maize by Zone

Table E.4.3 Agricultural Development Target of Each Zone

Types of Main Cropping Pattern <sup>1)</sup> Zone No.	A			B			C			D			E	
	Zone 3	Zone 4	Zone 8	Zone 5	Zone 11	Zone 13	Zone 1	Zone 2	Zone 6	Zone 7	Zone 9	Zone 10	Zone 12	
Major Cultivated Crops	Paddy	Paddy	Paddy	Paddy	Paddy	Paddy	Paddy + Cereal	Paddy + Cereal	Paddy + Cereal + Vegetable	Paddy + Vegetable	Paddy + Cereal + Vegetable	Cereal + Paddy	Paddy + Cereal	
Present Conditions														
Paddy Yield (ton/ha)	1.66	1.61	1.81	1.85	1.66	1.85	1.67	1.53	2.75	1.88	2.08	1.85	1.70	
	2.50	2.56	3.16	3.39	3.00	3.81	2.40	2.41	3.81	3.35	3.64	4.22	4.65	
Maize Yield (ton/ha)	1.30	1.13	1.10	1.29	0.90	1.30	1.39	1.14	2.10	1.96	1.39	1.63	1.50	
	1.33	0.98	1.20	1.00	0.90	1.00	1.33	0.80	1.09	1.21	1.52	0.94	1.00	
Existing Colmatage Canal	23	-	-	-	10	-	25	30	9	4	96	154	35	
Existing Irrigation Systems	Small	9	6	29	5	12	67	4	15	1	4	-	12	
	Medium	9	12	13	19	24	2	3	9	5	16	4	8	
	Large	1	-	-	3	1	-	-	-	-	-	-	-	
Existing National Road	NR 6	-	NR 2,3,4	NR 15	NR 2,3	NR 1	-	-	-	NR 5,6A	NR 1	-	-	
Plan Basic Plan <sup>2)</sup>	(1) Colmatage	○	-	-	-	-	○	○	△	△	⊙	⊙	○	
	(2) Agri. with Fish.	○	○	-	○	○	○	○	⊙	⊙	⊙	⊙	⊙	
	(3) Rainfed Agri.	⊙	⊙	⊙	○	○	○	○	△	△	△	△	△	
Agricultural Target	1. Wet Season Paddy	○	○	○	○	○	○	○	○	○	○	○	○	
	2. Dry Season Paddy	-	-	-	-	-	○	○	○	○	○	○	○	
	3. Wet Season Upland Crops	-	-	-	○	○	○	○	○	○	○	○	○	
	4. Dry Season Upland Crops	-	-	-	○	○	○	○	○	○	○	○	○	

Main Cropping Pattern<sup>1)</sup>  
 A: Paddy Cropping Zone in Wet Season  
 B: Paddy Cropping Zone in both Wet & Dry Season  
 C: Paddy + Upland Crops Cropping Zone in Wet Season  
 D: Paddy + Upland Crops Cropping Zone in both Wet & Dry Season (Wet Paddy > Wet Upland Crops)  
 E: Paddy + Upland Crops Cropping Zone in both Wet & Dry Season (Wet Upland Crops > Wet Paddy)

Basic Plan<sup>2)</sup>  
 (1): Colmatage Farming Improvement Plan  
 (2): Agricultural Development Plan Harmonized with Fisheries  
 (3): Rainfed Agricultural Development Plan  
 ⊙: There are many possible areas.  
 ○: There are moderate possible areas.  
 △: There are a few possible areas.  
 -: There are no possible areas.