

Appendix 2

PRESENT CONDITIONS OF AGRICULTURE IN STUDY AREA

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2-1 CULTIVATED AREA AND CROP PRODUCTION AMOUNT

Cultivated area of main crops in each related Amphoe and their ratios to total cultivated area in the Study Area in 1976 are shown in Table 2A-1.

Past trends, from 1971 to 1977, of cultivated area, crop production and average yield of major crops in Study Area, whole Kingdom and Project Area are compiled referring to statistic reports and given in Table 2A-2.

For the Project Area, those data are based on the informations obtained in the field survey in each related Amphoe for three years from 1975 to 1977.

The past trends of average yield of major crops and minor crops are shown in Table 2A-3.

2-2 FARM BUDGET ANALYSIS

2-2-1 Basic Data

As five of the six related Amphoes belong to the Changwat Phetchabun and more than 95 percent of the Project Area belongs to the Changwat, average holding of cultivated land by one farm household, current production

cost, farmgate prices and others are based on the data obtained in this Changwat.

2-2-2 Crops

For calculation of the farm budget, principal crops and second crops in both upland and lowland areas are selected. Maize and paddy are the principal crops and beans are the major second crops in combination with the principal crops. Though the other minor crops include sorghum, cotton, groundnut and sesame, cotton was excluded from the minor second crops in the farm budget analysis as it is rather difficult to be cultivated as second crop because of the difficulty in management and vegetation period. It needs constant water supply during growing period and careful control of insects and pests. Further it should not have rain in the fruiting season. Hence, without irrigation system, cotton is not recommendable for new land development.

Based on the Government promotion program, the new insect resistant variety of maize, "Hybrid Suwan I", is adopted beside Guatemala and local varieties. The production amount per acreage of Suwan I is much higher than Guatemala and local variety according to the results of the Agricultural Experiment Station.^{/1} According to the information of Department of Agricultural Economics of the Kasetsart University,^{/2} the rate of the new variety extends around 20 percent in newly opened fields and average yield reached 410 kilograms per rai in 1977 as follows:

^{/1} According to the results of the field test at Pharaputtabad Agricultural Experiment Station, the average yield per acreage of this variety reached about 450 kg/rai.

^{/2} "Idea & Suggestion of District Extension Officer for Suwan Corn Variety" by Dr. Junnean Burma, Agricultural Economic Department, 1978.

Planted Area and Average Yield of Maize by Each Variety
(1977)

	<u>Local Variety</u>	<u>Guatemala</u>	<u>Suvan I</u>
<u>Planted Area (Rai)</u>			
Old Field	1,581,606 (33.8%)	1,968,450 (40.0%)	1,225,641 (26.2%)
Newly Opened Field	439,625 (26.9%)	855,620 (52.3%)	339,997 (20.8%)
Total	2,021,231 (32.0%)	2,725,070 (43.2%)	1,565,618 (24.8%)
<u>Average Yield (kg per Rai)</u>			
Old Field	292	337	411
Newly Operated Field	255	330	408
Total	282	335	410

Judging from the past trend as shown in the Table 2A-3 and above table, the average yield per rai of each variety of maize in the Project Area is presumed as follows:

Guatemala & local variety	320 kg/rai
Suvan I	400 kg/rai

2-2-3 Production Costs

Production costs of typical farms are estimated as shown in Table 2A-4. The factors of production cost estimates are described below:

1) Cultivation Costs

Land preparation and cultivation are usually done by hired tractor and by draft buffalo. Weeding is done more than two times usually by buffalo and labor.

The costs of hired tractor and draft cattle are as follows:

Hired tractor	ploughing	B50 - 60/rai
	harrowing	B40 - 50/rai
	puddling	B40 - 50/rai
Draft cattle	ditching and weeding	B60/day, 5 rai/day

2) Agricultural Materials Costs

Agricultural production materials are such as fertilizer, agro-chemicals for plant protection, small farming tools, sacks and baskets.

At present, the farmers in the Study Area are not accustomed to use fertilizer and agro-chemicals for the production of crops, except rice and vegetables, owing to their limited farm input costs.

Ammonium sulphate is one of the typical fertilizers to apply to paddy lands. The price of ammonium sulphate was B2,800 - 3,000 per ton in Bangkok wholesale price in 1978, and around B3,400 per ton or B4 to 5 per kilogram at local market.

Prices of agro-chemicals varies by type of chemical for plant protection. The farmers use mainly insecticide chemical for the crops. The C.I.F. Bangkok prices of popular insecticide chemicals are as follows:

Furadan 5%	B33(\$1.65) per liter
Aldrin 5%	B12(\$0.60) per liter

The necessary amount of the chemicals to be applied to farm is around 1/6 liter per rai (1 liter per hectare) for one time spray. The average price of chemicals is estimated at B5 - 6 per rai per one time spray. The other agricultural materials are small farming tools, sacks, baskets etc. to be used for cultivation and harvesting.

3) Labour Costs

In the Study Area, normal labour cost is B25 per day for regular farm works. But for harvesting of maize and beans, payment is made under the performance basis as follows:

	Unit Cost per bag (B/bag)	Number of Bags per Man-day (Bag)	Man-day per rai (M/D)	Baht per rai (estimate)
Maize	5	5	1.8-2	45-50
Beans	14	3	3.3-3.5	140-150

Note: (1) One bag of corn cobs is equivalent to around 45 kg of shelled corn.

(2) One bag of bean pods is equivalent to around 15 kg of shelled bean.

4) Threshing and Shelling Cost

At present, almost all shelling of maize cobs is done by hired shelling machines attached to tractors or middlemen's machinery, and shelling of beans pods also become popular to be done by machines recently. Threshing of paddy is done by draft cattle and very few threshing machines are used in the Study Area. Average costs per threshing and shelling are as follows:

Threshing and Shelling Cost

Maize	by machine	B1 per 15 kg of shelled corn
Rice	by buffalo	B30 per rai (350-400 kg of paddy)
	by tractor	B42 per rai
Beans	by machine	B5 per 15 kg of shelled beans

2-2-4 Farmgate Prices to the Farmers

In principle, farmgate prices for agricultural products fluctuates according to the F.O.B. prices or local marketing condition. These prices are usually affected by the distance from farms to markets and the connected road conditions.

Especially, in the Study Area, the prices vary considerably depending on road condition in wet and dry seasons. According to the statistical data in 1977, the farmgate prices of the major crops in the Changvat Phetchabun are as follows:

Farmgate Prices in 1977

	(Bahts per kg)	
	Dry Season (Nov. - Apr.)	Wet Season (May - Oct.)
Maize	1.72 - 2.12	1.33 - 1.37
Rice	1.88 - 2.25	1.75 - 2.20
Mung bean	4.50 - 8.00	4.50 - 6.50
Soy bean	5.50 - 6.89	5.00 - 6.50

Source: Price Statistic 1967 - 1977
Agricultural Economic Division,
Ministry of Agriculture Cooperatives

The farmgate prices of the products in wet season are lower than those in dry season and this tendency will be much improved when all-weather road is constructed in the Project Area.

As shown in the Figure 2A-1, the trends of farmgate prices for maize and rice are almost same or getting lower in past four years from 1974. On the other hand, prices for beans have increased rapidly in these years, but the extremely high prices in 1977 are the special case due to the shortage of production caused by drought.

Judging from above-mentioned conditions and considering the trend of past wholesale prices, the current average farmgate prices of these crops in the Project Area are estimated for calculation of farm income as follows:

Maize	B1,600 per ton
Paddy	B2,000 per ton
Beans	B5,400 per ton
Other second crops	B2,800 per ton ^{/1}

^{/1} Weighted average of farmgate prices of sorghum, groundnut and sesame seed in Changvat Phetchabun in 1976.

It is noted that these prices expressed in term of market price are financial value of products from the view-point of farmer's economy. In other words, these are different from the economic value of the products discussed in Chapter V of Volume 1: Text from the view-point of national economy.

2-2-5 Farm Incomes

Based on the above-mentioned production costs and prices, the farm incomes of typical farms are estimated as shown in Table 2A-5.

Table 2A-1 CULTIVATED AREA IN RELATED AMPHOE (1976)

	(Unit 1,000 rai)										
	Changwat Phetchabun ^{/1}						Changwat Lop Buri ^{/2}		Total		
	Petchabun	Nong Phai	Bung Sam Phan	Wichian Buri	Si Thep	Total	% of Total Cultivated Land	Chai Badan	% of Total Cultivated Land	Cultivated Land	% of Total Cultivated Land
(1) Rice	159.8	108.3	57.5	107.4	53.6	486.6	20.1	23.5	3.0	510.1	15.9
(2) Maize	174.6	332.2	218.9	455.3	74.3	1,255.5	51.8	580.8	74.4	1,836.3	57.3
(3) Total = (1) + (2)	<u>334.4</u>	<u>440.5</u>	<u>276.4</u>	<u>562.9</u>	<u>127.9</u>	<u>1,742.1</u>	<u>71.9</u>	<u>604.3</u>	<u>77.4</u>	<u>2,346.4</u>	<u>73.2</u>
(4) Mung beans	28.7	61.3	36.7	109.8	31.3	267.8	11.1	48.0	6.2	315.8	9.9
(5) Soy beans	4.3	4.8	36.4	144.6	23.6	213.5	8.8	32.4	4.2	245.9	7.7
(6) Total = (4) + (5)	<u>33.0</u>	<u>66.1</u>	<u>73.1</u>	<u>254.4</u>	<u>54.9</u>	<u>481.3</u>	<u>19.9</u>	<u>80.4</u>	<u>10.4</u>	<u>561.7</u>	<u>17.6</u>
(7) = (6)/(3) (%)	<u>9.9</u>	<u>15.0</u>	<u>26.4</u>	<u>45.2</u>	<u>42.9</u>	<u>27.6</u>		<u>13.3</u>		<u>23.9</u>	
(8) Total of other crops	<u>16.4</u>	<u>45.9</u>	<u>32.7</u>	<u>55.2</u>	<u>14.5</u>	<u>164.7</u>	<u>6.8</u>	<u>87.7</u>	<u>11.2</u>	<u>252.4</u>	<u>7.9</u>
Sorghum	1.3	20.2	9.8	34.0	1.2	66.5	2.7	61.4	7.0	127.0	4.0
Cotton	4.7	12.5	12.9	5.5	0.5	36.1	1.5	4.8	0.6	40.9	1.3
Groundnut	3.7	2.5	6.6	4.2	4.7	21.7	0.9	19.1	2.4	40.8	1.3
Sesame	3.5	3.9	1.1	3.5	7.5	19.5	0.8	-	-	19.5	0.6
Other upland crops	3.2	6.8	2.3	8.0	0.6	20.9	0.9	2.4	0.3	23.3	0.7
(9) Vegetables	<u>2.8</u>	<u>0.7</u>	<u>0.5</u>	<u>1.2</u>	<u>0.2</u>	<u>5.4</u>	<u>0.2</u>	<u>0.6</u>	<u>0.1</u>	<u>6.0</u>	<u>0.2</u>
(10) Fruit trees	<u>15.1</u>	<u>8.7</u>	<u>0.8</u>	<u>1.0</u>	<u>2.5</u>	<u>28.1</u>	<u>1.2</u>	<u>7.4</u>	<u>0.9</u>	<u>35.5</u>	<u>1.1</u>
(11) Total cultivated land = (3)+(6)+(8)+(9)+(10)	401.7	561.9	383.5	874.7	200.0	2,421.6	100.0	780.4	100.0	3,202.0	100.0

Sources: /1 "Agricultural and Related Information of Changwat Phetchabun",
Agricultural Extension Office, Nov. 1977

/2 "Agricultural Information of Amphoe Chai Badan, 1977",
Agricultural Office

Table 2A-2 CROP PRODUCTION AREA, YIELD AND FARMGATE PRICE (2)

	1975				1976				1977				1971 - 1977
	Planted Area (1,000rai)	Production (1,000ton)	Average Yield (kg/rai)	Average Price (B/kg)	Planted Area (1,000rai)	Production (1,000ton)	Average Yield (kg/rai)	Average Price (B/kg)	Planted Area (1,000rai)	Production (1,000ton)	Average Yield (kg/rai)	Average Price (B/kg)	Average Yield (kg/rai)
Paddy													
Petchabun	727.4	344.1	473	2.15	808.7	339.6	420	1.94	810.2	316.2	390	1.90	439
Lop Buri	653.4	188.5	288	2.35	644.6	257.6	400	2.24	653.0	189.3	290	2.11	271
Thailand	55,602.0	15,200.0	275	2.21	53,595.0	15,068.0	281	2.00	-	-	-	2.05	279
Project Area	252.0	94.7	376		277.2	117.9	425		304.9	70.7	232		344
Maize													
Phetchabun	1,515.0	591.4	390	2.13	1,710.0	623.7	365	1.64	1,640.0	317.9	194	1.36	315
Lop Buri	1,184.0	333.8	282	1.88	1,315.0	407.6	310	1.68	791.0	118.7	150	1.69	260
Thailand	8,200.0	2,863.0	349	1.90	8,029.0	2,675.0	333	1.72	-	-	-	1.65	317
Project Area	579.6	235.0	405		587.7	204.7	348	-	604.2	127.0	210		321
Mung Bean													
Phetchabun	226.1	25.1	111	3.90	360.2	49.7	138	5.88	360.8	28.9	80	6.55	140
Lop Buri	199.2	22.9	115	3.50	76.8	11.5	150	5.14	625.5	86.5	138	5.89	151
Thailand	1,022.0	120.6	118	3.32	1,392.0	124.8	90	5.61	-	-	-	6.09	131
Project Area	149.6	20.0	134	-	189.2	26.7	141	-	217.5	26.9	124	-	133
Soy Bean													
Phetchabun	272.2	49.3	181	3.91	216.3	38.7	179	6.00	209.9	35.1	167	6.00	184
Lop Buri	-	-	-	-	36.3	4.4	120	4.50	171.6	25.7	150	6.13	131
Thailand	738.0	113.9	154	4.36	635.0	113.6	179	4.67	-	-	-	6.78	149
Project Area	(Data is not available)												-

Sources: - Planted area, Production and Average yield of Phetchabun, Lop Buri, and Thailand are from "Statistical Reports of Changvat" by National Statistical Office, and "Agricultural Statistics of Thailand, Crop Year 1976/77" by Division of Agricultural Economics, Ministry of Agriculture & Cooperatives.

- Data of Project Area are from field survey information.

- Average prices are from "Price of Agricultural Crops" by Division of Agricultural Economics, Ministry of Agriculture & Cooperatives.

Table 2A-4 CURRENT PRODUCTION COSTS
(Baht per rai)

- MAIZE -

	Guatemala & Local Varieties			Suwan I Variety		
	Materials & Equipment	Labor ^{/1}	Total Cost	Materials & Equipment	Labor ^{/1}	Total Cost
Variable Costs						
Cultivation ^{/2}	102	20	122	102	20	122
Seeds and Sowing ^{/3}	20	20	40	30	20	50
Agro-chemicals	6	-	6	-	-	-
Weeding & Management	20	75	95	20	75	95
Harvesting & Drying ^{/5}	-	75	75	-	85	85
Threshing & Shelling ^{/6}	22	30	52	27	40	67
Others ^{/1}	10	-	10	11	-	11
Sub-total	180	220	400	190	240	430
Fixed Cost^{/8}	40	-	40	40	-	40
Total	220	220	440	230	240	470

- Remarks:
- ^{/1} Hired labor and family labor (includes food expenses)
 - ^{/2} Tractor ploughing B50/rai, Harrowing B40/rai; Ditching Buffalo B60/5rai/day
 - ^{/3} Guatemala & local variety B2/kg, Suwan I B3/kg
 - ^{/4} Insecticide, 0.17//1 time/rai, B6/rai
 - ^{/5} Harvesting by labour B5/bag (80kg corn cob or 45 kg shelled corn), 5 bags/man/day
 - ^{/6} By mechanized threshing B1/15kg shelled corn
 - ^{/7} Cost of agricultural tools and materials
 - ^{/8} Land rent and public imposts
 - ^{/9} Ammonium Sulphate 5kg and Nitrogen 1kg, B5/kg
 - ^{/10} Insecticide, 1/6//1 time/rai, B6/time
 - ^{/11} Mainly by buffalo, 2-2.5 rai/day
 - ^{/12} 3 bags (45kg)/man/day, B14/bag
 - ^{/13} Mechanized threshing, B5/15kg

- PADDY -

	Materials & Equipment	Labor ^{/1}	Total Cost
Variable Costs			
Nursery Bed	-	10	10
Seeds & Sowing	15	10	25
Nursery Management	-	25	25
Cultivation ^{/2}	70	10	80
Transplanting	-	75	75
Fertilizer ^{/9}	30	-	30
Agro-chemicals ^{/10}	6	-	6
Weeding & Management	-	30	30
Harvesting & Drying	-	100	100
Threshing ^{/11}	30	10	40
Others ^{/1}	14	-	14
Sub-total	165	270	435
Fixed Cost^{/8}	50	-	50
Total	215	270	485

- BEANS -

	Materials & Equipment	Labor ^{/1}	Total Cost
Variable Costs			
Cultivation ^{/2}	62	20	82
Seeds & Sowing	48	20	68
Weeding & Management	-	90	90
Harvesting & Drying ^{/12}	-	175	175
Threshing & Shelling ^{/13}	45	30	75
Others ^{/1}	10	-	10
Sub-total	165	335	500
Fixed Cost^{/8}	40	-	40
Total	205	335	540

Table 2A-5 CURRENT FARM INCOME

(1) UNIT CROP INCOME FOR FARMERS

	Paragate ^{/1} Price (B/kg)	Unit ^{/1} Yield (kg/rai)	Gross Crop Income (B/rai)	Production ^{/2} Cost (B/rai)	Net Crop ^{/3} Income (B/rai)
Maize					
Guatemala & Local	1.6	320	512	440	72
Suvan I	1.6	400	640	470	170
Paddy	2.0	350	700	485	215
Beans ^{/4}	5.4	135	729	540	189
Others ^{/5}	2.8 ^{/6}	240 ^{/6}	672	490	182

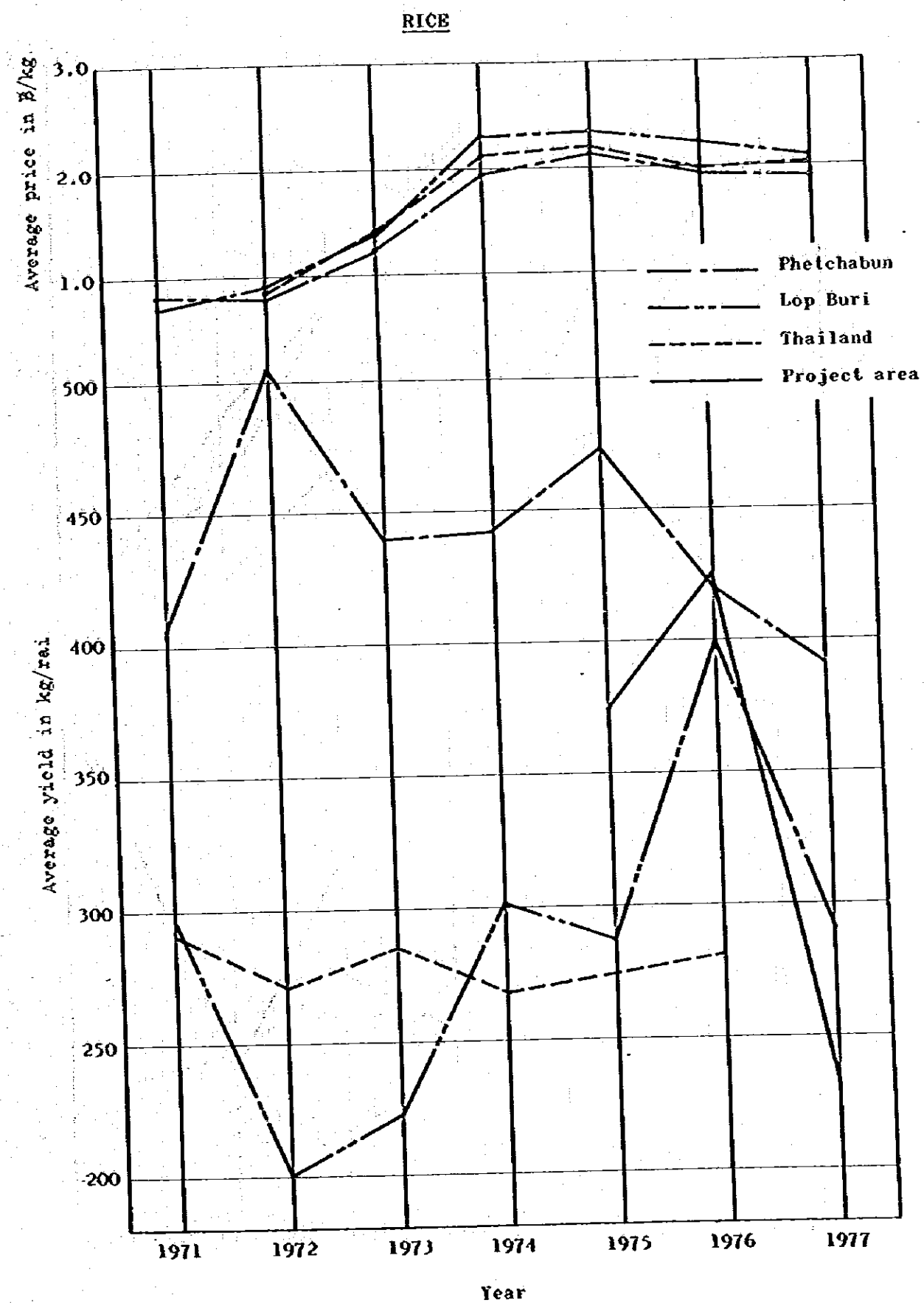
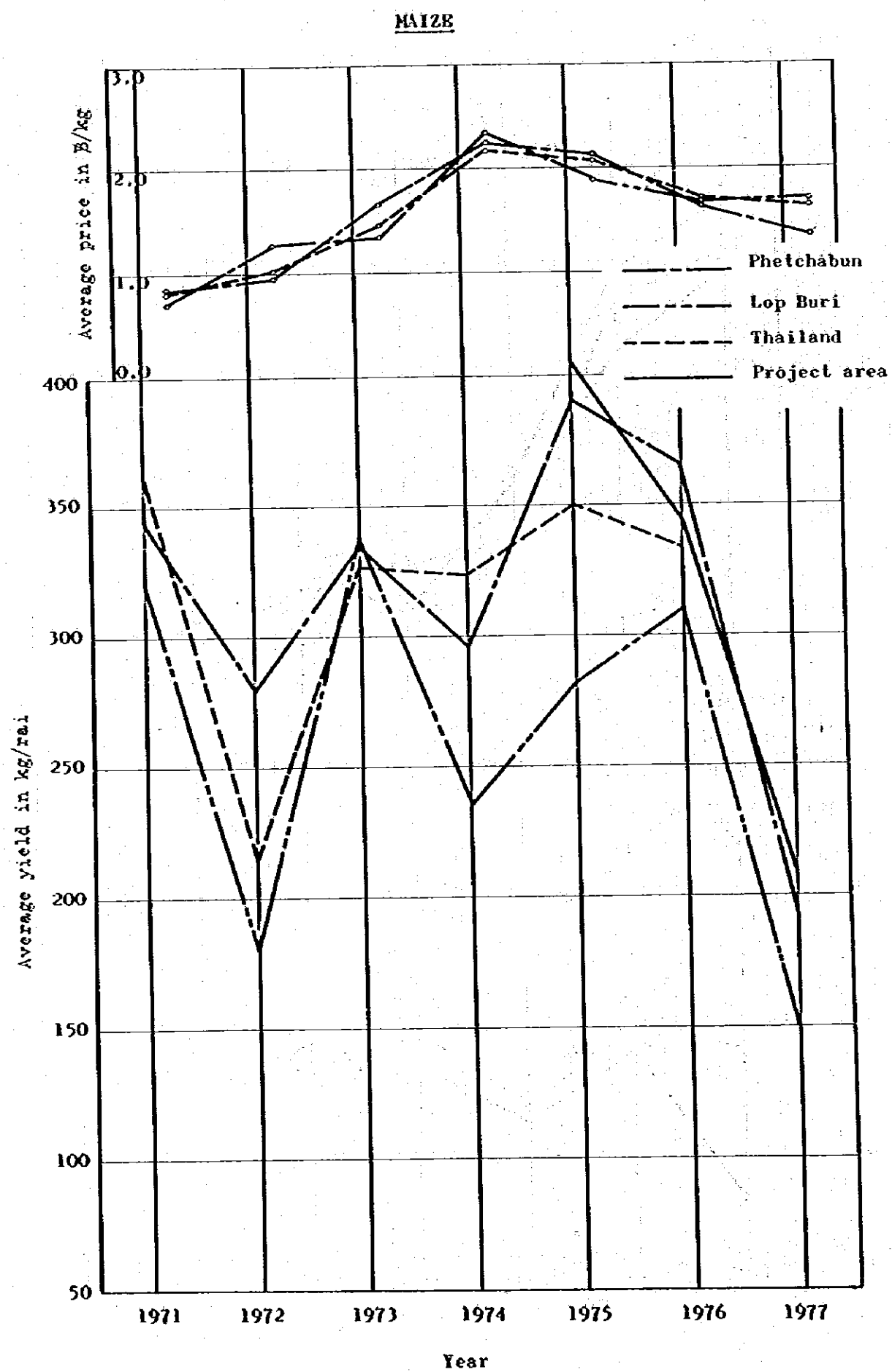
- Remarks:
- ^{/1} Based on the field survey information adjusted by statistical data of the related Chengvats.
 - ^{/2} Based on the field survey information adjusted by the data in "Production Cost of Important Crops", Chengvat Phetchabun, 1977.
 - ^{/3} After deducting costs of family labors which correspond to a part of living expenditures.
 - ^{/4} Mung beans and soy beans.
 - ^{/5} Sorghum, groundnuts and sesame.
 - ^{/6} Weighted average of three crops in Changvat Phetchabun in 1976.

(2) FARM INCOME OF TYPICAL FARM

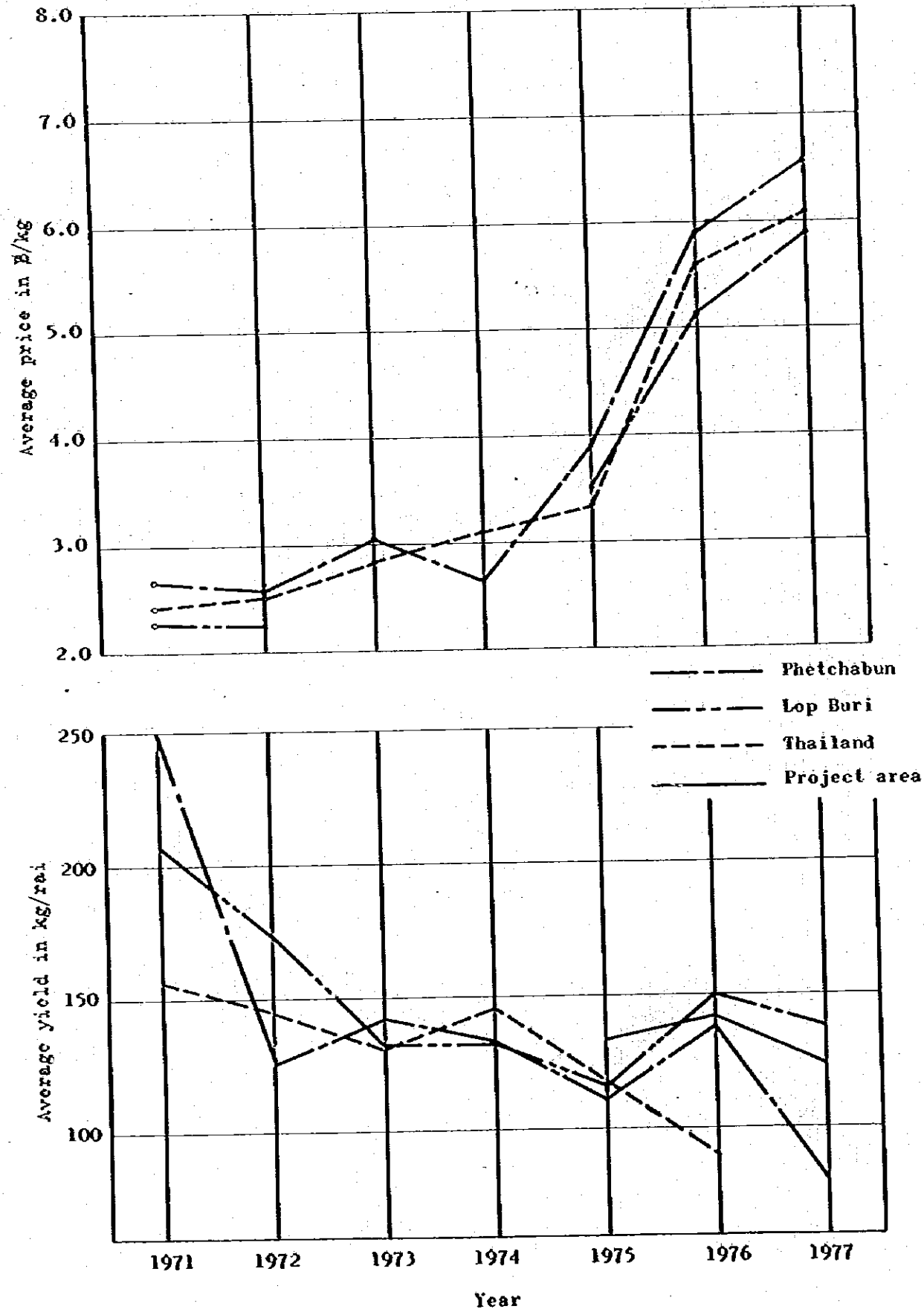
	Cultivated Area (rai)	Net Farm Income (B)
Maize Farm		4,159
Maize		
Guatemala & Local	20	1,440
Suvan I	5	850
Second Crops		
Beans	7	1,323
Others	3	546
Paddy Farm		5,935
Paddy	25	5,375
Second Crops		
Beans	2	378
Others	1	182

Figure 2A-1 AVERAGE YIELD AND PRICE (1)

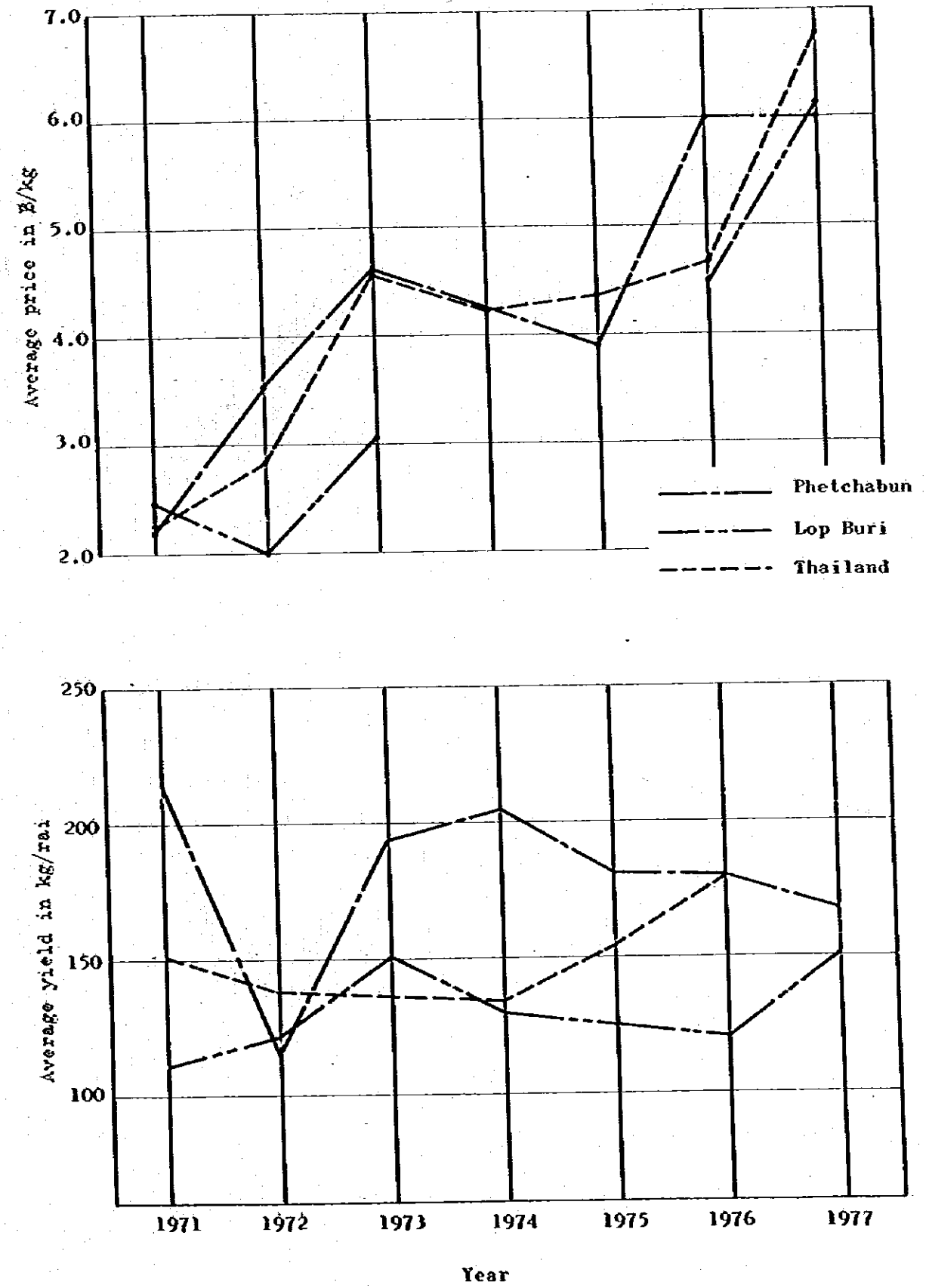
FIGURE 2A-1
1 of 2



MUNG BEANS



SOY BEANS



Appendix 3

FUTURE PRODUCTION COSTS AND FARM INCOMES

Table 3A-1 PRODUCTION COSTS WITH AND WITHOUT PROJECT
(Baht/rai, 1978 constant price)

Cost Item	Maize		Paddy		Beans	
	Guatemala & Local ^{/1}	Suvan I ^{/1}	Without Project	With Project	Without Project	With Project
Variable Cost						
Nursery Bed	-	-	10	10	-	-
Nursery Management	-	-	25	25	-	-
Cultivation	122	122	80	80	82	82
Seeds & Sowing	40	50	25	25	68	68
Transplanting	-	-	75	75	-	-
Fertilizer	-	-	30	56	-	-
Agro-chemicals	6	-	6	10	-	5
Weeding & Management	95	95	30	30	90	90
Harvesting & Drying	75	85	100	100	175	180
Threshing & Shelling	52	67	40	45	75	75
Others	10	11	14	14	10	10
Sub-total	400	430	435	470	500	510
Fixed Cost	40	40	50	50	40	40
Total	440	470	485	520	540	550

Remarks: ^{/1}

	7th yr.		15th yr.	
	<u>v</u>	<u>v</u>	<u>v</u>	<u>v</u>
Guatemala	40%	68%	20%	20%
Suvan I	60%	32%	80%	80%

Table 3A-2 FARM INCOME WITH AND WITHOUT PROJECT

(1) UNIT CROP INCOME FOR FARMERS

	Without Project					With Project				
	Unit Price (B/kg)	Unit Yield (kg/rai)	Gross Crop Income(B/rai)	Prod'n Cost(B/rai)	Net Crop Income(B/rai)	Unit Price (B/kg)	Unit Yield (kg/rai)	Gross Crop Income(B/rai)	Prod'n Cost(B/rai)	Net Crop Income(B/rai)
Maize										
Guatemala & Local	1.6	320	512	440	72	1.7	320	544	440	104
Suvan I	1.6	400	640	470	170	1.7	400	680	470	210
Paddy	2.0	350	700	485	215	2.1	370	777	520	257
Beans	5.4	135	729	540	189	5.5	140	770	550	220
Other Crops	2.8	240	672	490	182	2.9	240	696	490	206

(2) FARM INCOME OF TYPICAL FARM (25 rai)

Planted Crops	1st Year (1983)				15th Year (1997)			
	With Project		Without Project		With Project		Without Project	
	Cultivated Area(Rai)	Net Crop Income(B)	Cultivated Area(Rai)	Net Crop Income(B)	Cultivated Area(Rai)	Net Crop Income(B)	Cultivated Area(Rai)	Net Crop Income(B)
Maize Farm		<u>5,500</u>		<u>4,355</u>		<u>7,098</u>		<u>5,629</u>
Maize								
Guatemala & Local	(70%) 18	1,872	(70%) 18	1,296	(20%) 5	520	(20%) 5	360
Suvan I	(30%) 7	1,470	(30%) 7	1,190	(80%) 20	4,200	(80%) 20	3,400
Second Crops								
Beans	7	1,540	7	1,323	8	1,760	7	1,323
Other Crops	3	618	3	546	3	618	3	546
Rice Farm		<u>7,071</u>		<u>5,935</u>		<u>7,291</u>		<u>5,935</u>
Paddy	25	6,425	25	5,375	25	6,425	25	5,375
Second Crops								
Beans	2	440	2	378	3	660	2	370
Other Crops	1	206	1	182	1	206	1	182

Appendix 4

BASIC DATA FOR TRAFFIC STUDY

Table 4A-1 PERSON TRIP RATE (TRIPS WITHOUT FIXED DESTINATION)

(trips per 1,000 inhabitants)

Origin \ Destination	Wang Khong 26	Nam Ron 1 25	Tua Hin Poon 23,25	Tham Nam Bang 23	Kham Muat 22,23	Na Khao Do 18	Khok Charoen 17	Pak Bot 15	Ta Sao 13,14	Nong Daeng 13	Sap Bon 11	Khok Prong 9,11	Nam Ron 2 10	Wichian Buri 9	Na Sa Noon 6,9	Si Thep 6	Non Yai Toy 4,6	Rang Yoi 4	Tha Maduk 2
27 Phetchabun	29.2	36.0	30.9	51.3	20.5	0.6	3.4	1.4			3.1	2.5	0.3	1.9	0.1				
26 Yang Khong																			
25 Nam Ron 1					0.7														
24 Sam Yaek 1	0.1			10.2	1.5														
23 Tham Nam Bang				4.0															
21 Komo																			
18 Na Khao Do							0.4												
19 Nong Lai						17.3	4.0	1.4											
17 Khok Charoen	0.7					0.1		1.0											
16 Nong Phai	0.5					15.8	52.7	28.1	31.7										
15 Pak Bot							14.3												
12 Rahun		0.4							20.1	68.9	45.7	0.5	1.0						
13 Nong Daeng								0.1											
11 Sap Bon									4.4	16.3		14.3		13.3					
10 Nam Ron 2											20.4			31.3					
9 Wichian Buri						0.1		1.2	2.2	2.0	12.8	83.0	58.4		26.5	26.3			
8 Sam Yaek 2												2.3		0.9	1.8				
7 Khao Sapho																			
6 Si Thep														16.8	0.1		35.3	0.4	
5 Mai Sarika												0.5				16.3			
3 Ding Daeng																			
4 Rang Yoi																			7.1
2 Tha Maduk																			
1 Lae Narai						0.1							5.4	5.5	0.9	14.8	55.6	40.3	101.9
Total	30.5	36.4	30.9	65.6	22.7	34.0	74.8	33.2	58.4	87.2	82.0	103.1	65.1	69.7	29.4	57.4	90.9	40.7	109.0

Remarks: Figures ahead of the names of origins and destinations show the node numbers.

TABLE 4A-2

Table 4A-2 PERSON TRIP RATE (TRIPS WITH FIXED DESTINATION)

(trips per 1,000 inhabitants)

Origin \ Destination	Wang Khong	Nam Ron 1	Tun Hin Poon	Tham Nam Bang	Kham Muat	Na Khao Do	Khok Charoen	Pak Bot	Ta Sao	Nong Daeng	Sap Bon	Khok Prong	Nam Ron 2	Wichian Buri	Na Sa Noon	Si Thep	Non Yai Toy	Rang Yoi	Tha Maduk
	26	25	23.25	23	22.23	18	17	15	13.14	13	11	9.11	10	9	6.9	6	4.6	4	2
27 Phetchabun	45.5	31.9		0.5			0.4	1.9	0.6	0.1			0.9	23.2					0.2
26 Yang Khong																			
25 Nam Ron 1	0.6			3.0															
24 Sam Yaek 1	0.7			12.6				0.5			0.1		0.1	3.5					
23 Tham Nam Bang																			
21 Komo																			
18 Na Khao Do							4.9												
19 Nong Lai							0.6							0.2					
17 Khok Charoen						0.1		0.2											
16 Nong Phai				0.5			1.8							0.9					
15 Pak Bot												2.9							
12 Rahun								0.6											
13 Nong Daeng									11.0										
11 Sap Bon									6.6	0.6		0.1		0.4					
10 Nam Ron 2														0.2					
9 Wichian Buri							0.1				5.8				0.4	13.8		3.4	
8 Sam Yaek 2											6.5	1.5			0.5				
7 Khao Sapho																			
6 Si Thep														6.1	0.1			0.6	
5 Mai Sarika													0.1			1.1			
3 Ding Daeng																			
4 Rang Yoi																			0.1
2 Tha Maduk																0.4			
1 Lam Narai				0.1			0.3	0.1	0.2		1.6	2.0	0.1	75.3	0.1	10.8		1.4	15.9
Total	46.8	31.9		16.7		0.1	8.1	3.3	18.4	0.7	14.0	6.5	1.2	109.8	1.1	26.1		5.8	16.3

Remarks: Figures ahead of the name of origins and destinations show the node numbers.

Table 4A-3 LINK CHARACTERISTICS

ROAD LINK NO.	LENGTH (km)	FOR FREIGHT (Transportation Cost per Bag)						FOR PASSENGER (Transportation Cost per Person)								
		WITHOUT PROJECT CASE			WITH PROJECT CASE			WITHOUT PROJECT CASE			WITH PROJECT CASE					
		RAINY SEASON		DRY SEASON	THROUGH A YEAR			THROUGH A YEAR			THROUGH A YEAR					
		Grade	Speed (km/h)	Cost (B)	Grade	Speed (km/h)	Cost (B)	Grade	Speed (km/h)	Cost (B)	Grade	Speed (km/h)	Cost (B)			
1	11.0	2	78	0.44	2	78	0.44				2	78	1.76			
2	26.3	1	86	0.81	1	86	0.81				1	86	3.05			
3	12.5	9	4	17.25	5	42	4.38	4	54	3.75	7	29	6.88	4	54	3.00
4	10.0	1	86	0.40	1	86	0.40				1	86	1.50			
5	17.0	9	4	23.46	7	20	7.82				7	15	11.73			
6	18.0	7	20	8.28	5	42	6.30	4	54	5.40	6	35	6.12	4	54	4.32
7	17.0	-	-	-	-	-	-	5	42	5.95	-	-	-	5	42	5.44
8	13.2	9	3	18.22	7	25	6.07	4	54	3.96	7	18	8.45	4	54	3.17
9	23.5	1	86	0.94	1	86	0.94				1	86	3.53			
10	10.0	8	5	6.90	8	10	6.90	5	42	3.50	8	9	8.80	5	42	3.20
11	24.0	9	3	33.12	5	42	8.40	4	54	7.20	7	29	13.20	4	54	5.76
12	20.5	-	-	-	-	-	-	5	42	7.18	-	-	-	5	42	6.56
13	7.9	2	78	0.32	2	78	0.32				2	78	1.26			
14	21.3	1	86	0.85	1	86	0.85				1	86	3.20			
15	15.7	8	8	10.83	7	20	7.22	4	54	4.71	7	16	10.52	4	54	3.77
16	21.0	8	6	14.49	7	25	9.66	4	54	6.30	7	19	13.23	4	54	5.04
17	18.0	-	-	-	-	-	-	5	42	6.30	-	-	-	5	42	5.76
18	5.3	7	20	2.44	7	25	2.44	4	54	1.59	7	24	3.07	4	54	1.27
19	14.2	-	-	-	-	-	-	5	42	4.97	-	-	-	5	42	4.54
20	12.8	9	3	17.66	7	20	5.89	5	42	4.48	7	15	8.83	5	42	4.10
21	19.1	1	86	0.76	1	86	0.76				1	86	2.87			
22	14.0	8	6	9.66	7	25	6.44	4	54	4.20	7	19	8.82	4	54	3.36
23	4.4	7	19	2.02	7	25	2.02	4	54	1.32	7	23	2.60	4	54	1.41
24	12.5	8	5	8.63	7	20	5.75				7	15	8.63			
25	6.0	7	20	2.76	7	25	2.76	4	54	1.80	7	24	3.48	4	54	1.44
26	8.0	1	86	0.32	1	86	0.32				1	86	1.20			
27	4.5	7	20	2.07	7	25	2.07	4	54	1.35	7	24	2.61	4	54	1.08
28	15.5	-	-	-	-	-	-	5	42	5.43	-	-	-	5	42	4.96
29	9.0	8	6	6.21	7	25	4.14	4	54	2.70	7	19	5.67	4	54	2.16
30	10.0	-	-	-	-	-	-	5	42	3.50	-	-	-	5	42	3.20
31	14.5	1	86	0.58	1	86	0.58				1	86	2.18			
32	5.5	9	4	7.59	7	25	2.53				7	18	3.52			
33	6.5	7	15	2.99	7	25	2.99	5	42	2.28	7	22	3.90	5	42	2.08
34	11.5	1	86	0.46	1	86	0.46				1	86	1.73			
35	8.5	7	15	3.91	7	25	3.91	5	42	2.98	7	22	5.10	5	42	2.72
36	8.0	9	2	11.04	7	23	3.68	4	54	2.40	7	16	5.36	4	54	1.92
37	11.7	7	15	5.38	7	25	5.38	5	42	4.10	7	22	7.02	5	42	3.74
38	24.0	1	86	0.96	1	86	0.96				1	86	3.60			
39	4.5	8	5	3.11	7	25	2.07				7	19	2.84			
40	11.0	9	2	15.18	7	21	5.06	4	54	3.30	7	15	7.59	4	54	2.64
41	12.0	9	3	16.56	7	26	5.52				7	19	7.56			

Note: Passenger transportation cost includes time cost

Table 4A-4 CULTIVATION AREA BY LINK
(WITHOUT PROJECT)

LINK NO.	(1,000 rai)															
	MAIZE				RICE				BEANS				OTHERS			
	1978	1983	1989	1997	1978	1983	1989	1997	1978	1983	1998	1997	1978	1983	1998	1997
3	18.4	22.1	26.6	32.7	6.4	7.1	7.8	8.8	3.2	3.8	5.5	6.6	3.0	3.5	4.1	5.0
5	1.0	1.1	1.2	1.3	16.0	16.0	16.1	16.1	7.3	7.4	7.4	7.5	2.0	2.1	2.1	2.1
6	7.5	21.5	38.3	60.7	16.1	17.9	20.2	23.4	10.1	16.9	25.2	36.2	2.8	4.7	7.0	10.1
8	4.3	5.1	6.1	7.5	13.5	13.7	13.9	14.3	7.7	8.1	8.6	9.4	2.1	2.3	2.4	2.6
11	22.7	37.3	55.0	78.5	40.6	42.8	45.7	49.5	28.3	36.1	46.3	58.9	7.6	9.6	12.1	15.2
15	58.5	66.0	75.5	88.1	13.3	15.8	18.4	21.9	32.3	36.8	43.2	50.6	8.6	9.8	11.3	13.2
16	72.9	78.2	85.2	94.4	24.6	27.2	29.9	33.4	44.0	47.5	52.8	58.7	11.7	12.6	13.8	15.4
18	4.4	5.9	7.7	10.2	0.0	0.5	1.1	1.9	0.9	1.3	1.9	2.7	0.5	0.8	1.1	1.5
20	6.0	8.2	10.8	14.4	12.8	13.4	14.5	15.6	3.8	4.3	5.6	6.6	2.3	2.6	3.0	3.6
22	22.3	27.4	33.7	42.1	4.0	6.0	8.3	11.4	5.3	6.7	9.2	11.8	3.2	4.0	5.0	6.4
23	16.9	16.7	16.6	16.5	10.6	11.1	11.5	12.1	5.5	5.6	6.2	6.3	3.3	3.3	3.4	3.4
24	7.5	7.7	8.1	8.5	3.9	4.2	4.5	4.9	2.3	2.4	2.8	2.9	1.4	1.4	1.5	1.6
25	10.2	10.9	11.8	13.0	6.2	6.7	7.2	7.9	3.3	3.5	4.2	4.6	2.0	2.1	2.3	2.5
27	53.8	52.8	51.8	50.5	3.2	4.6	5.8	7.4	11.4	11.4	12.7	12.7	6.8	6.9	6.9	7.0
29	14.2	13.8	13.5	13.2	3.0	3.4	3.7	4.0	3.4	3.4	3.8	3.8	2.1	2.1	2.1	2.1
33	30.1	29.3	28.7	27.9	6.7	7.5	8.1	8.9	3.7	3.7	5.5	5.5	4.4	4.4	4.4	4.4
35	14.6	14.2	13.9	13.5	3.5	3.9	4.2	4.6	1.8	1.8	2.7	2.7	2.2	2.2	2.2	2.2
37	27.2	26.5	26.0	25.2	3.9	4.6	5.1	5.9	3.1	3.1	4.7	4.7	3.7	3.7	3.7	3.7
39	7.4	7.2	7.1	6.9	7.8	8.0	8.1	8.3	1.5	1.5	2.3	2.3	1.8	1.8	1.8	1.8
40	9.0	8.8	8.6	8.3	4.9	5.1	5.3	5.6	1.4	1.4	2.1	2.1	1.7	1.7	1.7	1.7
41	29.0	28.3	27.7	26.9	15.1	15.8	16.4	17.2	4.4	4.4	6.6	6.6	5.3	5.3	5.3	5.3
TOTAL	437.9	489.0	553.9	640.3	216.1	235.3	255.8	283.1	184.7	211.1	259.3	303.2	78.5	86.9	97.2	110.8

Table 4A-5 CULTIVATION AREA BY LINK
(ROUTE ALTERNATIVE - 1)

LINK NO.	MAIZE			RICE			BEANS			OTHERS		
	1983	1989	1997	1983	1989	1997	1983	1989	1997	1983	1989	1997
3	22.1	31.2	37.5	7.1	8.6	9.1	3.8	6.4	7.5	3.5	4.8	5.6
5	1.1	1.2	1.3	16.0	16.1	16.1	7.4	7.4	7.5	2.1	2.1	2.1
6	21.5	49.6	71.5	17.9	21.9	24.6	16.9	30.7	41.3	4.7	8.6	11.5
8	5.1	7.0	8.4	13.7	14.2	14.4	8.1	9.1	9.8	2.3	2.5	2.7
11	37.3	65.4	88.9	42.8	47.6	50.7	36.1	52.0	64.1	9.6	13.6	16.8
15	66.0	75.0	88.2	15.8	19.0	21.9	36.8	43.2	50.7	9.8	11.3	13.2
16	78.2	90.7	101.2	27.2	32.1	34.2	47.5	56.5	62.1	12.6	14.7	16.2
18	5.9	9.8	12.3	0.5	1.8	2.5	1.3	2.6	3.2	0.8	1.4	1.8
20	8.2	13.1	16.5	13.4	15.1	16.1	4.3	6.2	7.2	2.6	3.4	3.9
22	27.4	39.8	48.4	6.0	10.6	12.9	6.7	11.1	13.5	4.0	6.0	7.4
23	16.7	16.9	17.2	11.1	12.1	12.2	5.6	6.4	6.5	3.3	3.5	3.5
24	7.7	9.1	9.6	4.2	5.0	5.2	2.4	3.1	3.3	1.4	1.7	1.8
25	10.9	13.0	14.4	6.7	7.9	8.2	3.5	4.6	5.0	2.1	2.5	2.7
27	52.8	51.8	51.1	4.6	6.6	7.5	11.4	12.8	12.9	6.9	7.0	7.0
29	13.7	13.3	13.2	3.3	3.9	4.0	3.4	3.8	3.8	2.1	2.1	2.1
30	10.3	9.8	9.8	1.6	2.0	2.0	1.2	1.8	1.8	1.4	1.4	1.4
33	19.1	18.2	18.2	6.0	6.9	6.9	2.5	3.8	3.8	3.0	3.0	3.0
35	14.2	13.5	13.5	3.9	4.6	4.6	1.8	2.7	2.7	2.2	2.2	2.2
37	26.5	25.2	25.2	4.6	5.9	5.9	3.1	4.7	4.7	3.7	3.7	3.7
39	7.2	6.9	6.9	8.0	8.3	8.3	1.5	2.3	2.3	1.8	1.8	1.8
40	8.8	8.3	8.3	5.1	5.6	5.6	1.4	2.1	2.1	1.7	1.7	1.7
41	28.3	27.3	26.9	15.8	16.8	17.2	4.4	6.6	6.6	5.3	5.3	5.3
TOTAL	489.0	596.1	688.5	235.3	272.6	290.1	211.1	279.9	322.4	86.9	104.3	117.4

Table 4A-6 CULTIVATION AREA BY LINK
(ROUTE ALTERNATIVE - II)

LINK NO.	(1,000 rai)											
	MAIZE			RICE			BEANS			OTHERS		
	1983	1989	1997	1983	1989	1997	1983	1989	1997	1983	1989	1997
3	22.3	34.5	40.5	7.0	8.7	9.1	3.8	6.9	7.9	3.5	5.2	6.0
5	1.0	1.1	1.2	15.7	15.8	15.8	7.2	7.2	7.3	2.0	2.0	2.0
6	8.7	19.3	23.7	17.1	18.2	18.5	11.1	16.1	18.1	3.1	4.5	5.1
7	12.7	60.5	77.5	1.3	3.9	4.9	5.7	27.7	35.4	1.6	7.7	9.9
8	5.1	6.1	7.5	13.5	13.7	14.1	8.0	8.6	9.3	2.2	2.4	2.6
11	25.7	39.4	50.6	42.8	43.8	45.7	30.9	38.3	44.3	8.3	10.0	11.6
12	27.0	84.3	104.2	1.6	6.1	7.2	13.3	41.6	51.3	3.6	10.8	13.4
15	34.4	33.8	33.3	11.9	13.0	13.6	20.8	21.5	21.6	5.5	5.6	5.6
16	54.1	63.3	67.8	26.8	29.0	30.7	36.4	42.4	45.3	9.7	11.1	11.7
17	38.3	61.3	71.4	2.6	5.9	6.7	18.9	30.9	35.9	5.0	8.0	9.4
18	2.4	5.5	7.0	0.3	0.8	1.1	0.7	1.4	1.8	0.3	0.8	1.0
19	14.8	28.2	32.9	2.8	5.0	5.5	3.5	7.3	8.5	2.1	4.0	4.6
20	7.9	11.8	16.1	13.6	14.8	16.0	4.3	5.8	7.1	2.6	3.2	3.8
22	15.5	21.9	26.1	1.9	3.5	4.6	3.5	5.6	6.7	2.1	3.1	3.7
23	16.8	17.2	17.4	11.0	11.8	12.0	5.6	6.4	6.5	3.3	3.5	3.5
24	7.9	9.5	10.1	4.1	4.7	4.8	2.4	3.1	3.3	1.4	1.7	1.8
25	9.0	11.7	13.3	7.0	7.7	8.2	3.2	4.3	4.7	1.9	2.3	2.6
27	6.7	6.4	6.5	2.8	3.0	3.0	1.9	2.1	2.1	1.1	1.1	1.1
28	49.8	48.9	49.3	3.5	5.6	5.8	10.7	12.0	12.1	6.4	6.5	6.6
29	13.5	13.0	12.8	3.1	3.6	3.8	3.4	3.7	3.7	2.0	2.0	2.0
33	29.6	28.6	28.2	7.5	8.3	8.7	3.7	5.5	5.5	4.4	4.4	4.4
35	14.4	13.7	13.7	3.9	4.5	4.5	1.8	2.7	2.7	2.2	2.2	2.2
37	26.7	25.4	25.4	4.6	5.9	5.9	3.1	4.7	4.7	3.8	3.8	3.8
39	7.2	6.9	6.9	8.0	8.1	8.1	1.5	2.3	2.3	1.8	1.8	1.8
40	8.9	8.4	8.4	5.1	5.5	5.5	1.4	2.1	2.1	1.7	1.7	1.7
41	28.6	27.6	27.1	15.8	16.6	17.1	4.4	6.6	6.6	5.3	5.3	5.3
TOTAL	489.0	688.3	778.9	235.3	267.5	280.9	211.1	316.8	356.8	86.9	114.7	127.2

Table 4A-7 CULTIVATION LAND BY LINK
(ROUTE ALTERNATIVE - III)

LINK NO.	(1,000 rai)											
	MAIZE			RICE			BEANS			OTHERS		
	1983	1989	1997	1983	1989	1997	1983	1989	1997	1983	1989	1997
3	22.3	26.8	32.9	6.8	7.5	8.5	3.8	5.5	6.6	3.5	4.1	5.0
5	1.0	1.2	1.3	15.9	16.0	16.0	7.3	7.4	7.5	2.0	2.1	2.1
6	9.8	19.0	27.3	16.9	18.0	19.0	11.5	15.9	19.9	3.2	4.4	5.6
8	5.1	7.1	8.5	13.8	14.2	14.3	8.1	9.2	9.8	2.3	2.6	2.7
10	11.1	31.1	44.8	1.5	3.3	4.9	5.6	14.8	21.4	1.5	4.1	5.9
11	37.3	57.1	80.8	42.8	46.2	49.7	36.0	47.5	60.0	9.6	12.4	15.7
15	66.1	80.2	93.9	15.8	20.6	22.5	36.8	46.3	53.6	9.8	12.1	14.0
16	78.3	88.8	98.3	27.1	30.6	33.7	47.4	54.9	60.7	12.7	14.3	15.8
18	5.9	9.8	12.3	0.5	1.8	2.5	1.3	2.6	3.2	0.8	1.4	1.8
20	8.2	15.0	18.4	13.5	15.7	16.6	4.3	6.7	7.7	2.6	3.7	4.2
22	27.4	33.7	42.1	6.0	8.3	11.4	6.7	9.2	11.8	4.0	5.0	6.4
23	16.7	17.2	17.2	11.1	11.8	12.3	5.6	6.4	6.5	3.3	3.5	3.5
24	7.7	8.1	8.7	4.2	4.6	4.9	2.4	2.8	3.0	1.4	1.5	1.6
25	10.9	13.0	14.4	6.7	7.9	8.2	3.5	4.6	5.0	2.1	2.5	2.7
27	52.7	51.4	50.9	4.6	6.6	7.4	11.5	12.8	12.8	6.9	7.0	7.0
29	13.9	13.2	13.2	3.3	4.0	4.0	3.4	3.8	3.8	2.1	2.1	2.1
33	29.4	28.8	28.0	7.5	8.1	8.9	3.7	5.5	5.5	4.4	4.4	4.4
35	14.2	13.5	13.5	3.9	4.6	4.6	1.8	2.7	2.7	2.2	2.2	2.2
37	26.5	25.4	25.2	4.6	5.7	5.9	3.1	4.7	4.7	3.7	3.7	3.7
39	7.2	6.9	6.9	7.9	8.2	8.2	1.5	2.3	2.3	1.8	1.8	1.8
40	8.9	8.4	8.4	5.1	5.6	5.6	1.4	2.1	2.1	1.7	1.7	1.7
41	28.4	27.4	27.0	15.8	16.8	17.2	4.4	6.6	6.6	5.3	5.3	5.3
TOTAL	489.0	583.1	674.0	235.3	266.1	286.3	211.1	274.3	317.2	86.9	101.9	115.2

Table 4A-8 PRODUCTION BY DESTINATION
(WITHOUT PROJECT)

(1,000 Ton)

ORIGIN LINK NO.	1983						1989						1997					
	RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON		
	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL
3	7.75	0.01	0.17	2.46	0.11	0.64	9.91	0.02	0.21	2.82	0.12	0.73	12.79	0.02	0.26	3.29	0.15	0.84
5	0.73	0.02	0.07	4.79	0.20	1.11	0.79	0.02	0.07	4.81	0.20	1.11	0.86	0.02	0.07	4.83	0.20	1.12
6	8.10	0.03	0.23	6.36	0.27	1.42	15.20	0.04	0.37	7.91	0.33	1.73	24.65	0.07	0.56	9.98	0.42	2.15
8	2.13	0.02	0.09	4.31	0.18	0.99	2.63	0.02	0.10	4.43	0.19	1.01	3.30	0.02	0.11	4.59	0.19	1.04
11	14.37	0.07	0.44	14.68	0.62	3.28	22.12	0.08	0.59	16.49	0.69	3.63	32.44	0.12	0.80	18.91	0.79	4.11
15	24.08	0.07	0.54	8.12	0.34	1.68	29.05	0.07	0.64	9.44	0.39	1.95	35.67	0.10	0.77	11.19	0.46	2.30
16	28.72	0.10	0.68	12.16	0.51	2.57	32.91	0.10	0.76	13.36	0.56	2.82	38.48	0.12	0.86	14.95	0.62	3.15
18	2.07	0.00	0.04	0.32	0.01	0.08	2.90	0.01	0.06	0.56	0.02	0.14	3.99	0.01	0.08	0.87	0.04	0.21
20	3.04	0.01	0.10	3.99	0.17	0.98	4.24	0.02	0.13	4.33	0.19	1.06	5.82	0.02	0.16	4.80	0.21	1.17
22	9.68	0.02	0.21	2.49	0.11	0.62	12.64	0.03	0.27	3.36	0.15	0.83	16.58	0.03	0.34	4.52	0.20	1.10
23	6.00	0.02	0.15	3.57	0.16	0.88	6.26	0.02	0.16	3.71	0.16	0.91	6.61	0.02	0.16	3.89	0.17	0.95
24	2.76	0.01	0.07	1.39	0.06	0.34	3.03	0.01	0.07	1.49	0.06	0.37	3.38	0.01	0.08	1.63	0.07	0.40
25	3.90	0.01	0.10	2.18	0.09	0.54	4.46	0.01	0.11	2.37	0.10	0.58	5.20	0.01	0.12	2.62	0.11	0.64
27	18.51	0.03	0.37	2.89	0.13	0.72	19.08	0.04	0.38	3.23	0.14	0.80	19.83	0.04	0.39	3.69	0.16	0.90
29	4.89	0.01	0.11	1.35	0.06	0.34	5.02	0.01	0.11	1.44	0.06	0.35	5.19	0.01	0.11	1.55	0.07	0.38
33	10.25	0.02	0.22	2.65	0.12	0.72	10.53	0.02	0.22	2.87	0.13	0.76	10.91	0.02	0.23	3.16	0.14	0.81
35	4.97	0.01	0.11	1.35	0.06	0.36	5.11	0.01	0.11	1.46	0.07	0.38	5.30	0.01	0.11	1.60	0.07	0.41
37	9.24	0.01	0.19	1.82	0.08	0.50	9.49	0.02	0.19	2.01	0.09	0.54	9.84	0.02	0.20	2.27	0.10	0.59
39	2.58	0.01	0.07	2.30	0.10	0.59	2.65	0.01	0.07	2.36	0.10	0.60	2.75	0.01	0.08	2.45	0.11	0.61
40	3.09	0.01	0.07	1.57	0.07	0.41	3.18	0.01	0.08	1.64	0.07	0.42	3.30	0.01	0.08	1.73	0.08	0.44
41	9.95	0.02	0.24	4.86	0.22	1.27	10.24	0.02	0.24	5.09	0.22	1.31	10.61	0.02	0.25	5.40	0.24	1.36
TOTAL	176.81	0.51	4.27	85.61	3.67	20.03	211.44	0.59	4.94	95.18	4.04	22.03	257.50	0.71	5.82	107.92	4.60	24.68

Remarks: L.N. : Lam Narai and southward (Bangkok or Tha Rua in case of maize)
R-21 : Towns along Route-21
I'NAL : Consumed within Project Area

Table 4A-9 PRODUCTION BY DESTINATION (NORMAL)
(ROUTE ALTERNATIVE - 1)

(1,000 Ton)

ORIGIN LINK NO.	1983						1989						1997					
	RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON		
	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL
3	7.75	0.01	0.17	2.46	0.11	0.64	9.91	0.02	0.21	2.82	0.12	0.73	12.79	0.02	0.26	3.29	0.15	0.84
5	0.73	0.02	0.07	4.79	0.20	1.11	0.79	0.02	0.07	4.81	0.20	1.11	0.86	0.02	0.07	4.82	0.20	1.11
6	8.10	0.03	0.23	6.36	0.27	1.42	15.20	0.04	0.37	7.91	0.33	1.73	24.65	0.07	0.56	9.98	0.42	2.15
8	2.13	0.02	0.09	4.31	0.18	0.98	2.63	0.02	0.10	4.43	0.19	1.01	3.30	0.02	0.11	4.59	0.19	1.04
11	14.37	0.07	0.44	14.68	0.62	3.28	22.12	0.08	0.59	16.49	0.69	3.63	32.44	0.12	0.80	18.91	0.79	4.11
15	24.08	0.07	0.54	8.12	0.34	1.68	29.05	0.07	0.64	9.44	0.39	1.95	35.67	0.10	0.77	11.19	0.46	2.30
16	28.72	0.10	0.68	12.16	0.51	2.57	32.91	0.10	0.76	13.36	0.56	2.82	38.48	0.12	0.86	14.95	0.62	3.15
18	2.07	0.00	0.04	0.32	0.01	0.08	2.90	0.01	0.06	0.56	0.02	0.14	3.99	0.01	0.08	0.87	0.04	0.21
20	3.04	0.01	0.10	3.99	0.17	0.98	4.24	0.02	0.13	4.33	0.19	1.06	5.82	0.02	0.16	4.80	0.21	1.17
22	9.68	0.02	0.21	2.49	0.11	0.62	12.64	0.03	0.27	3.36	0.15	0.83	16.58	0.03	0.34	4.52	0.20	1.10
23	6.00	0.02	0.15	3.57	0.16	0.88	6.26	0.02	0.16	3.71	0.16	0.91	6.61	0.02	0.16	3.89	0.17	0.95
24	2.76	0.01	0.07	1.39	0.06	0.34	3.03	0.01	0.07	1.49	0.06	0.37	3.38	0.01	0.08	1.63	0.07	0.40
25	3.90	0.01	0.10	2.18	0.09	0.54	4.46	0.01	0.11	2.37	0.10	0.58	5.20	0.01	0.12	2.62	0.11	0.64
27	18.51	0.03	0.37	2.89	0.13	0.72	19.08	0.04	0.38	3.23	0.14	0.80	19.83	0.04	0.39	3.69	0.16	0.90
29	4.89	0.01	0.11	1.35	0.06	0.34	5.02	0.01	0.11	1.44	0.06	0.35	5.19	0.01	0.11	1.55	0.07	0.38
30	3.57	0.01	0.07	0.62	0.03	0.17	3.66	0.01	0.07	0.70	0.03	0.19	3.81	0.01	0.08	0.80	0.04	0.22
33	6.68	0.01	0.15	2.03	0.09	0.55	6.87	0.01	0.15	2.17	0.10	0.57	7.10	0.01	0.15	2.37	0.10	0.60
35	4.97	0.01	0.11	1.35	0.06	0.36	5.11	0.01	0.11	1.46	0.07	0.38	5.30	0.01	0.11	1.60	0.07	0.41
37	9.24	0.01	0.19	1.82	0.08	0.50	9.49	0.02	0.19	2.01	0.09	0.54	9.84	0.02	0.20	2.27	0.10	0.59
39	2.58	0.01	0.07	2.30	0.10	0.59	2.65	0.01	0.07	2.36	0.10	0.60	2.75	0.01	0.08	2.45	0.11	0.61
40	3.09	0.01	0.07	1.57	0.07	0.41	3.18	0.01	0.08	1.64	0.07	0.42	3.30	0.01	0.08	1.73	0.08	0.44
41	9.95	0.02	0.24	4.86	0.22	1.27	10.24	0.02	0.24	5.09	0.22	1.31	10.61	0.02	0.25	5.40	0.24	1.36
TOTAL	176.81	0.51	4.27	85.61	3.67	20.03	211.44	0.59	4.94	95.18	4.04	22.03	257.50	0.71	5.82	107.92	4.60	24.68

Remarks: L.N. : Lam Narai and southward (Bangkok or Tha Rua in case of maize)
R-21 : Towns along Route-21
I'NAL : Consumed within Project Area

TABLE 4A-10

Table 4A-10 PRODUCTION BY DESTINATION (NORMAL + DEVELOPMENT)
(ROUTE ALTERNATIVE - I)

ORIGIN LINK NO.	(1,000 Ton)																	
	1983						1989						1997					
	RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON		
	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL
3							11.93	0.02	0.25	3.34	0.15	0.85	14.68	0.03	0.30	3.63	0.16	0.93
5							0.82	0.02	0.07	4.97	0.21	1.15	0.89	0.02	0.07	4.98	0.21	1.15
6							19.75	0.06	0.46	9.29	0.39	2.01	29.03	0.09	0.65	11.23	0.47	2.40
8							3.03	0.02	0.11	4.70	0.20	1.07	3.67	0.02	0.12	4.83	0.20	1.09
11							26.58	0.10	9.69	18.35	0.77	4.01	36.69	0.13	0.88	20.51	0.86	4.43
15							29.15	0.09	0.64	9.75	0.41	2.01	35.72	0.10	0.77	11.34	0.47	2.34
16							35.84	0.11	0.81	14.93	0.62	3.14	41.18	0.12	0.91	16.07	0.68	3.37
18							3.77	0.01	0.08	0.85	0.04	0.21	4.83	0.01	0.10	1.12	0.05	0.27
20			SAME AS "NORMAL"				5.14	0.02	0.14	4.69	0.20	1.14	6.68	0.02	0.18	5.11	0.22	1.23
22			(See TABLE 6A-6)				15.28	0.03	0.32	4.40	0.17	1.07	19.08	0.03	0.39	5.33	0.23	1.29
23							6.58	0.02	0.16	4.10	0.17	0.98	6.88	0.02	0.17	4.15	0.18	1.00
24							3.52	0.01	0.08	1.76	0.08	0.43	3.84	0.01	0.09	1.83	0.08	0.44
25							5.05	0.01	0.12	2.73	0.12	0.66	5.74	0.01	0.13	2.88	0.12	0.70
27							19.37	0.04	0.39	3.57	0.16	0.86	20.07	0.04	0.40	3.84	0.17	0.93
29							5.05	0.01	0.11	1.56	0.07	0.38	5.19	0.01	0.11	1.60	0.07	0.39
30							3.73	0.01	0.08	0.82	0.04	0.21	3.83	0.01	0.08	0.83	0.04	0.22
33							6.94	0.01	0.15	2.48	0.11	0.63	7.12	0.01	0.15	2.48	0.11	0.63
35							5.17	0.01	0.11	1.67	0.07	0.43	5.30	0.01	0.11	1.68	0.07	0.43
37							9.59	0.02	0.20	2.37	0.11	0.61	9.84	0.02	0.20	2.37	0.11	0.61
39							2.68	0.01	0.08	2.55	0.11	0.64	2.75	0.01	0.08	2.56	0.11	0.64
40							3.22	0.01	0.08	1.81	0.08	0.46	3.30	0.01	0.08	1.82	0.08	0.46
41							10.29	0.02	0.24	5.38	0.24	1.37	10.61	0.02	0.25	5.55	0.24	1.40
TOTAL	176.81	0.51	4.27	85.61	3.67	20.03	232.48	0.66	5.37	106.07	4.52	24.32	276.92	0.75	6.22	115.74	4.93	26.35

Remarks: L.N. : Lam Narai and southward (Bangkok or Tha Rua in case of maize)
R-21 : Towns along Route-21
I'NAL : Consumed within Project Area

Table 4A-11 PRODUCTION BY DESTINATION (NORMAL)
(ROUTE ALTERNATIVE - II)

(1,000 Ton)

ORIGIN LINK NO.	1983						1989						1997					
	RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON		
	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL
3	7.82	0.02	0.17	2.44	0.11	0.64	9.98	0.02	0.21	2.80	0.12	0.72	12.86	0.02	0.26	3.29	0.14	0.84
5	0.69	0.01	0.07	4.70	0.20	1.09	0.74	0.02	0.07	4.71	0.20	1.09	0.82	0.02	0.07	4.73	0.20	1.09
6	3.49	0.02	0.13	5.50	0.23	1.25	4.97	0.02	0.16	5.84	0.25	1.32	6.96	0.03	0.20	6.29	0.27	1.41
7	4.56	0.01	0.09	0.84	0.03	0.16	10.16	0.02	0.21	2.15	0.08	0.40	17.63	0.04	0.36	3.66	0.15	0.73
8	2.13	0.02	0.09	4.25	0.18	0.97	2.63	0.02	0.10	4.37	0.19	1.00	3.29	0.02	0.11	4.53	0.19	1.03
11	10.54	0.06	0.36	13.98	0.59	3.22	14.40	0.07	0.44	15.25	0.66	3.36	19.49	0.08	0.53	16.18	0.68	3.60
12	9.36	0.02	0.21	2.39	0.10	0.34	16.16	0.04	0.34	3.49	0.14	0.77	25.23	0.08	0.52	5.86	0.25	1.16
15	12.61	0.04	0.30	5.32	0.22	1.13	12.98	0.04	0.30	5.53	0.23	1.17	13.47	0.04	0.31	5.81	0.24	1.24
16	20.06	0.07	0.50	10.79	0.45	2.33	22.36	0.08	0.54	11.49	0.48	2.47	25.43	0.08	0.60	12.43	0.52	2.67
17	14.13	0.04	0.30	2.81	0.12	0.59	17.75	0.04	0.37	3.74	0.15	0.72	22.48	0.06	0.45	5.10	0.20	0.97
18	0.83	0.00	0.02	0.15	0.01	0.04	1.29	0.00	0.03	0.28	0.01	0.07	1.90	0.00	0.04	0.45	0.02	0.11
19	5.23	0.01	0.11	1.22	0.05	0.30	6.78	0.01	0.14	1.68	0.07	0.41	8.84	0.02	0.18	2.28	0.10	0.56
20	2.94	0.01	0.10	3.99	0.17	0.98	4.34	0.02	0.13	4.39	0.19	1.07	6.21	0.02	0.17	4.93	0.21	1.20
22	5.46	0.01	0.11	1.00	0.04	0.25	6.90	0.01	0.14	1.43	0.06	0.35	8.82	0.02	0.18	2.00	0.09	0.49
23	6.04	0.02	0.15	3.54	0.15	0.87	6.31	0.02	0.16	3.68	0.16	0.90	6.66	0.02	0.16	3.86	0.17	0.94
24	2.81	0.01	0.07	1.39	0.06	0.34	3.08	0.01	0.07	1.49	0.06	0.36	3.44	0.01	0.08	1.62	0.07	0.39
25	3.25	0.01	0.09	2.21	0.10	0.54	3.84	0.01	0.10	2.40	0.10	0.59	4.62	0.01	0.11	2.65	0.11	0.65
27	2.37	0.01	0.05	0.94	0.04	0.23	2.44	0.01	0.06	0.99	0.04	0.24	2.54	0.01	0.06	1.05	0.05	0.25
28	17.48	0.03	0.35	2.39	0.11	0.60	18.08	0.03	0.36	2.73	0.12	0.68	18.88	0.03	0.37	3.18	0.14	0.78
29	4.76	0.01	0.10	1.28	0.06	0.32	4.88	0.01	0.10	1.37	0.06	0.34	5.04	0.01	0.11	1.48	0.06	0.36
33	10.35	0.02	0.22	2.60	0.12	0.71	10.63	0.02	0.22	2.83	0.13	0.75	11.02	0.02	0.23	3.12	0.14	0.80
35	5.04	0.01	0.11	1.33	0.06	0.36	5.18	0.01	0.11	1.44	0.06	0.38	5.37	0.01	0.11	1.58	0.07	0.41
37	9.24	0.01	0.19	1.82	0.08	0.50	9.49	0.02	0.19	2.01	0.09	0.54	9.84	0.02	0.20	2.27	0.10	0.59
39	2.58	0.01	0.07	2.30	0.10	0.59	2.65	0.01	0.07	2.36	0.10	0.60	2.75	0.01	0.08	2.45	0.11	0.61
40	3.09	0.01	0.07	1.57	0.07	0.41	3.18	0.01	0.08	1.64	0.07	0.42	3.30	0.01	0.08	1.73	0.08	0.44
41	9.95	0.02	0.24	4.86	0.22	1.27	10.24	0.02	0.24	5.09	0.22	1.31	10.61	0.02	0.25	5.40	0.24	1.36
TOTAL	176.81	0.51	4.27	85.61	3.67	20.03	211.44	0.59	4.94	95.18	4.04	22.03	257.50	0.71	5.82	107.92	4.60	24.68

Remarks: L.N. : Lam Narai and southward (Bangkok or Tha Rua in case of maize)
R-21 : Towns along Route-21
I'NAL : Consumed within Project Area

Table 4A-12 PRODUCTION BY DESTINATION (NORMAL + DEVELOPMENT)
(ROUTE ALTERNATIVE - II)

ORIGIN LINK NO.	1983						1989						1997					
	RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON		
	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL
3							11.13	0.02	0.27	3.46	0.15	0.88	15.85	0.03	0.32	3.74	0.17	0.95
5							0.74	0.02	0.07	4.71	0.20	1.09	0.82	0.02	0.07	4.73	0.20	1.09
6							7.90	0.03	0.22	6.51	0.27	1.45	9.85	0.04	0.25	6.84	0.29	1.51
7							23.60	0.06	0.48	4.34	0.18	0.83	30.97	0.07	0.62	5.52	0.23	1.05
8							2.63	0.02	0.10	4.37	0.19	1.00	3.29	0.02	0.11	4.53	0.19	1.03
11							16.12	0.08	0.47	15.31	0.65	3.41	21.25	0.09	0.57	16.50	0.69	3.64
12							33.00	0.08	0.67	6.49	0.26	1.21	41.84	0.10	0.84	7.93	0.32	1.48
15							13.16	0.04	0.31	5.76	0.24	1.22	13.62	0.04	0.31	5.94	0.25	1.26
16							24.77	0.08	0.59	12.14	0.51	2.60	27.79	0.09	0.65	12.93	0.54	2.76
17							23.98	0.06	0.49	5.16	0.21	0.98	28.68	0.07	0.58	5.95	0.24	1.13
18							2.12	0.00	0.04	0.42	0.02	0.10	2.74	0.01	0.05	0.53	0.02	1.13
19							10.81	0.02	0.22	2.41	0.11	0.58	12.93	0.02	0.26	2.73	0.12	0.66
20			SAME AS "NORMAL"				4.63	0.02	0.13	4.51	0.19	1.10	6.51	0.02	0.17	5.02	0.22	1.22
22			(See TABLE 6A-8)				8.32	0.02	0.17	1.73	0.08	0.42	10.25	0.02	0.21	2.16	0.09	0.52
23							6.67	0.02	0.16	4.03	0.17	0.98	6.98	0.02	0.17	4.07	0.18	0.99
24							3.52	0.01	0.08	1.76	0.08	0.43	3.84	0.01	0.09	1.83	0.08	0.44
25							4.50	0.01	0.11	2.63	0.11	0.64	5.29	0.01	0.12	2.82	0.12	0.68
27							2.49	0.01	0.06	1.09	0.05	0.27	2.57	0.01	0.06	1.10	0.05	0.27
28							18.65	0.03	0.37	3.27	0.14	0.79	19.33	0.03	0.38	3.33	0.15	0.81
29							4.90	0.01	0.10	1.45	0.06	0.35	5.04	0.01	0.11	1.51	0.07	0.37
33							10.69	0.02	0.22	3.08	0.14	0.80	11.02	0.02	0.23	3.23	0.14	0.83
35							5.24	0.01	0.11	1.65	0.07	0.42	5.37	0.01	0.11	1.66	0.07	0.42
37							9.59	0.02	0.20	2.37	0.11	0.61	9.84	0.02	0.20	2.37	0.11	0.61
39							2.68	0.01	0.08	2.55	0.11	0.64	2.75	0.01	0.08	2.56	0.11	0.64
40							3.22	0.01	0.08	1.81	0.08	0.46	3.30	0.01	0.08	1.82	0.08	0.46
41							10.29	0.02	0.24	5.38	0.24	1.37	10.61	0.02	0.25	5.55	0.24	1.40
TOTAL	176.81	0.51	4.27	85.61	3.67	20.03	265.35	0.73	6.04	108.39	4.62	24.63	312.33	0.82	6.89	116.90	4.97	27.35

Remarks: L.N. : Lam Narai and southward (Bangkok or Tha Rua in case of maize)
R-21 : Towns along Route-21
I'NAL : Consumed within Project Area

Table 4A-13 PRODUCTION BY DESTINATION (NORMAL)
(ROUTE ALTERNATIVE - III)

(1,000 Ton)

ORIGIN LINK NO.	1983						1989						1997					
	RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON		
	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL
3	7.75	0.01	0.17	2.46	0.11	0.64	9.91	0.02	0.21	2.82	0.12	0.73	12.79	0.02	0.26	3.29	0.15	0.84
5	0.73	0.02	0.07	4.79	0.20	1.11	0.79	0.02	0.07	4.81	0.20	1.11	0.86	0.02	0.07	4.83	0.20	1.12
6	3.88	0.02	0.14	5.47	0.23	1.24	6.57	0.03	0.19	6.07	0.26	1.36	10.16	0.04	0.26	6.86	0.29	1.52
8	2.13	0.02	0.09	4.31	0.18	0.98	2.63	0.02	0.10	4.43	0.19	1.01	3.30	0.02	0.11	4.59	0.19	1.04
10	4.22	0.01	0.09	1.00	0.04	0.20	8.63	0.01	0.18	1.95	0.08	0.39	14.49	0.04	0.30	3.16	0.13	0.64
11	14.37	0.07	0.44	14.57	0.62	3.26	22.12	0.08	0.59	16.38	0.68	3.61	32.44	0.11	0.80	18.87	0.79	4.10
15	24.08	0.07	0.54	8.12	0.34	1.68	29.05	0.07	0.64	9.44	0.39	1.95	35.67	0.10	0.77	11.19	0.46	2.30
16	28.72	0.10	0.68	12.16	0.51	2.57	32.91	0.10	0.76	13.36	0.56	2.82	38.48	0.12	0.86	14.95	0.62	3.15
18	2.07	0.00	0.04	0.32	0.01	0.08	2.90	0.01	0.06	0.56	0.02	0.14	3.99	0.01	0.08	0.87	0.04	0.21
20	3.04	0.01	0.10	3.99	0.17	0.98	4.24	0.02	0.13	4.33	0.19	1.06	5.82	0.02	0.16	4.80	0.21	1.17
22	9.68	0.02	0.21	2.49	0.11	0.62	12.64	0.03	0.27	3.36	0.15	0.83	16.58	0.03	0.34	4.52	0.20	1.10
23	6.00	0.02	0.15	3.57	0.16	0.88	6.26	0.02	0.16	3.71	0.16	0.91	6.61	0.02	0.16	3.89	0.17	0.95
24	2.76	0.01	0.07	1.39	0.06	0.34	3.03	0.01	0.07	1.49	0.06	0.37	3.38	0.01	0.08	1.63	0.07	0.40
25	3.90	0.01	0.10	2.18	0.09	0.54	4.46	0.01	0.11	2.37	0.10	0.58	5.20	0.01	0.12	2.62	0.11	0.64
27	18.51	0.03	0.37	2.89	0.13	0.72	19.08	0.04	0.38	3.23	0.14	0.80	19.83	0.04	0.39	3.69	9.16	0.90
29	4.89	0.01	0.11	1.35	0.06	0.34	5.02	0.01	0.11	1.44	0.06	0.35	5.19	0.01	0.11	1.55	0.07	0.38
33	10.25	0.02	0.22	2.65	0.12	0.72	10.53	0.02	0.22	2.87	0.13	0.76	10.91	0.02	0.23	3.16	0.14	0.81
35	4.97	0.01	0.11	1.35	0.06	0.36	5.11	0.01	0.11	1.46	0.07	0.38	5.30	0.01	0.11	1.60	0.07	0.41
37	9.24	0.01	0.19	1.82	0.08	0.50	9.49	0.02	0.19	2.01	0.09	0.54	9.84	0.02	0.20	2.27	0.10	0.59
39	2.58	0.01	0.07	2.30	0.10	0.59	2.65	0.01	0.07	2.36	0.10	0.60	2.75	0.01	0.08	2.45	0.11	0.61
40	3.09	0.01	0.07	1.57	0.07	0.41	3.18	0.01	0.08	1.64	0.07	0.42	3.30	0.01	0.08	1.73	0.08	0.44
41	9.95	0.02	0.24	4.86	0.22	1.27	10.24	0.02	0.24	5.09	0.22	1.31	10.61	0.02	0.25	5.40	0.24	1.36
TOTAL	176.81	0.51	4.27	85.61	3.67	20.03	211.44	0.59	4.94	95.18	4.04	22.03	257.50	0.71	5.82	107.92	4.60	24.68

Remarks: L.N. : Lam Narai and southward (Bangkok or Tha Rua in case of Maize)
R-21 : Towns along Route-21
I'NAL : Consumed within Project Area

Table 4A-14 PRODUCTION BY DESTINATION (NORMAL + DEVELOPMENT)
(ROUTE ALTERNATIVE - III)

ORIGIN LINK NO.	1983						1989						1997					
	RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON			RAINY SEASON			DRY SEASON		
	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL	TO L.N.	TO R-21	I'NAL
3							9.91	0.02	0.21	2.82	0.12	0.73	12.79	0.02	0.26	3.29	0.15	0.84
5							0.81	0.02	0.07	4.99	0.21	1.15	0.88	0.02	0.07	5.00	0.21	1.15
6							7.72	0.03	0.21	6.32	0.27	1.41	11.30	0.04	0.28	7.06	0.30	1.56
8							3.07	0.02	0.11	4.77	0.20	1.08	3.72	0.02	0.12	4.89	0.21	1.11
10							12.24	0.03	0.24	2.61	0.10	0.52	18.08	0.04	0.36	3.69	0.15	0.72
11							23.13	0.09	0.62	17.08	0.71	3.73	33.38	0.12	0.82	19.44	0.82	4.22
15							31.62	0.08	0.69	10.73	0.45	2.21	38.03	0.11	0.82	12.06	0.50	2.47
16							34.53	0.11	0.79	14.08	0.59	2.97	40.02	0.12	0.89	15.54	0.65	3.27
18							3.77	0.01	0.08	0.85	0.04	0.21	4.83	0.01	0.10	1.12	0.05	0.27
20	SAME AS "NORMAL"						5.92	0.02	0.16	5.08	0.22	1.23	7.43	0.02	0.19	5.45	0.24	1.32
22	(See TABLE 6A-10)						12.64	0.03	0.27	3.36	0.15	0.83	16.58	0.03	0.34	4.52	0.20	1.10
23							6.57	0.02	0.16	3.87	0.17	0.94	6.90	0.02	0.17	4.01	0.17	0.97
24							3.11	0.01	0.07	1.55	0.07	0.38	3.45	0.01	0.08	1.65	0.07	0.40
25							5.05	0.01	0.12	2.73	0.12	0.66	5.74	0.01	0.13	2.88	0.12	0.70
27							19.30	0.04	0.39	3.58	0.16	0.87	19.99	0.04	0.40	3.82	0.17	0.93
29							5.10	0.01	0.11	1.60	0.07	0.39	5.23	0.01	0.11	1.60	0.07	0.39
33							10.57	0.02	0.22	2.87	0.13	0.76	10.95	0.02	0.23	3.17	0.14	0.81
35							5.17	0.01	0.11	1.67	0.07	0.43	5.30	0.01	0.11	1.68	0.07	0.43
37							9.58	0.02	0.20	2.31	0.10	0.60	9.84	0.02	0.20	2.36	0.10	0.61
39							2.68	0.01	0.08	2.52	0.11	0.63	2.75	0.01	0.08	2.54	0.11	0.63
40							3.22	0.01	0.08	1.81	0.08	0.46	3.30	0.01	0.08	1.82	0.08	0.46
41							10.29	0.02	0.24	5.38	0.24	1.37	10.61	0.02	0.25	5.55	0.24	1.40
TOTAL	176.81	0.51	4.27	85.61	3.67	20.03	226.00	0.64	5.23	102.58	4.38	23.56	271.11	0.73	6.09	113.14	4.82	25.76

Remarks: L.N. : Lam Narai and southward (Bangkok or Tha Rua in case of maize)
R-21 : Towns along Route-21
I'NAL : Consumed within Project Area

Table 4A-15 POPULATION PROJECTION

NODE NO.	LOCATION	WITHOUT PROJECT				ALTERNATIVE - I		ALTERNATIVE - II		ALTERNATIVE - III	
		1978	1983	1989	1997	1989	1997	1989	1997	1989	1997
2	THA MADUK	2,000	2,200	2,400	2,700	2,700	2,900	2,800	3,200	2,400	2,700
4	RANG YOI	5,700	6,200	6,900	7,800	9,500	10,600	13,800	15,100	6,900	7,800
6	SI THEP	23,700	25,800	28,600	32,500	32,300	36,400	30,200	34,200	30,500	34,500
7	KHAO SAPO	1,700	1,900	2,100	2,400	2,100	2,400	11,500	12,400	4,300	4,800
9	WICHIAN BURI	29,600	32,400	35,800	40,600	37,200	42,100	37,100	42,000	36,000	40,800
10	NAM RON (2)	7,200	7,900	8,700	9,900	8,800	10,000	16,200	17,800	10,100	11,400
11	SAP BON	17,000	18,600	20,600	23,400	22,800	25,700	24,800	27,900	22,200	25,100
13	NON DAENG	11,400	12,500	13,800	15,700	16,500	18,700	14,900	16,900	14,900	16,800
14	NOEN SADA0	1,700	1,900	2,100	2,400	2,400	2,700	3,600	4,000	2,400	2,700
15	PAK BOT	15,200	16,600	18,400	20,900	18,900	21,500	19,000	21,600	18,800	21,400
17	KHOK CHAROEN	7,600	8,200	9,100	10,300	9,500	10,800	9,700	11,000	9,500	10,800
18	NO KHAO DO	2,000	2,200	2,400	2,700	2,400	2,700	2,400	2,700	2,400	2,700
20	RAVING	2,000	2,200	2,400	2,700	2,400	2,700	2,400	2,700	2,400	2,700
22	YANG LAT	600	700	800	900	800	900	800	900	800	900
23	THAM NAM BANG	3,500	3,800	4,200	4,800	4,200	4,800	4,200	4,800	4,200	4,800
25	NAM RON (1)	11,600	12,700	14,100	16,000	14,100	16,000	14,100	16,000	14,100	16,000
26	WANG KHONG	11,000	12,000	13,300	15,100	13,300	15,100	13,300	15,100	13,300	15,100
	TOTAL	153,500	167,800	185,700	210,800	199,900	226,000	220,800	248,300	195,200	221,000

Table 4A-16 VEHICLE OPERATING COST
(Economic Cost, Mid 1978)

Benchmark Speed (km/h)	(Bahts per kilometer)																	
	Passenger Car			Light Bus			Heavy Bus			Light Truck			Medium Truck			Heavy Truck		
	Bitumen	Gravel	Earth	Bitumen	Gravel	Earth	Bitumen	Gravel	Earth	Bitumen	Gravel	Earth	Bitumen	Gravel	Earth	Bitumen	Gravel	Earth
10	1.28	1.47	1.94	1.94	2.36	3.05	7.43	9.03	11.50	2.05	2.50	3.23	4.71	5.73	7.36	5.46	6.64	8.56
16	1.22	1.42	1.85	1.63	1.87	2.45	6.97	7.28	9.50	1.71	1.97	2.57	3.77	4.65	6.11	4.38	5.39	7.12
24	1.18	1.37	1.77	1.33	1.57	2.07	4.64	5.77	7.60	1.39	1.65	2.16	2.95	3.71	4.92	3.43	4.32	5.75
32	1.15	1.33	1.71	1.16	1.36	1.79	3.95	4.98	6.50	1.21	1.42	1.87	2.53	3.22	4.23	2.95	3.76	4.96
40	1.13	1.32	1.66	1.07	1.28	1.64	3.53	4.46	5.87	1.12	1.32	1.70	2.28	2.90	3.84	2.66	3.41	4.52
48	1.14	1.31	1.62	1.02	1.23	1.54	3.27	4.19	5.28	1.06	1.27	1.59	2.12	2.74	3.47	2.50	3.22	4.09
56	1.15	1.33	1.60	0.99	1.20	1.47	3.09	4.00	4.94	1.03	1.23	1.51	2.02	2.63	3.27	2.39	3.11	3.87
64	1.18	1.36	-	0.98	1.20	-	3.07	3.94	-	1.01	1.23	-	2.02	2.62	-	2.38	3.09	-
72	1.20	1.39	-	1.00	1.22	-	3.05	3.99	-	1.02	1.25	-	2.03	2.66	-	2.38	3.16	-
80	1.24	1.44	-	1.02	1.27	-	3.09	4.07	-	1.06	1.29	-	2.06	2.75	-	2.44	3.26	-
88	1.27	-	-	1.08	-	-	3.15	-	-	1.10	-	-	2.13	-	-	2.51	-	-

APPENDIX - 5

ROAD INVENTORY

Table 5A-1	Road Inventory, Link 3 (Tha Maduk - Rang Yoi)
Table 5A-2	Road Inventory, Link 6 (Rang Yoi - Si Thep)
Table 5A-3	Road Inventory, Link 8 (Mai Sarika - Si Thep)
Table 5A-4	Road Inventory, Link 11 (Si Thep - Wichian Buri)
Table 5A-5	Road Inventory, Link 13 (Sam Yaek - Wichian Buri)
Table 5A-6	Road Inventory, Link 15 (Wichian Buri - Nam Ron (2))
Table 5A-7	Road Inventory, Link 16 (Wichian Buri - Sap Bon) and Link 18 (Sap Bon - Nong Daeng)
Table 5A-8	Road Inventory, Link 20 (Rahun - Nong Daeng)
Table 5A-9	Road Inventory, Link 22 (Nong Daeng - Noen Sadao)
Table 5A-10	Road Inventory, Link 23 (Noen Sadao - Pak Bot)
Table 5A-11	Road Inventory, Link 25 (Pak Bot - Khok Charoen)
Table 5A-12	Road Inventory, Link 29 (Nong Lai - Na Khao Do) and Link 27 (Na Khao Do - Khok Charoen)
Table 5A-13	Road Inventory, Link 36 (Sam Yaek (1) - Tham Nam Bang)
Table 5A-14	Road Inventory, Link 40 (Nam Ron (1) - Phetchabun)

ABBREVIATION

C-P-n(ϕ)-L : PIPE CULVERT

C-B-n(AxB)-L : BOX CULVERT

n : Number of rows

ϕ : Diameter (cm)

A : Width (m)

B : Height (m)

L : Length (m)

Br-C(VxL)(n) : CONCRETE BRIDGE

Br-T(VxL)(n) : TIMBER BRIDGE

V : Carriageway width (m)

L : Bridge length (m)

n : Number of span

S.A.P. : SOIL AGGREGATE PAVEMENT

S.B.S.T. : SINGLE BITUMINOUS SURFACE TREATMENT

D.B.S.T. : DOUBLE BITUMINOUS SURFACE TREATMENT

TABLE 5A-1

Table 5A-1

ROAD INVENTORY

LINK 3 (THA MADUK - RANG YOI, 12.5 km)

STATION (km)		0	1	2	3	4	5	6	7	8	9	10	11	12	12.5
NAME OF VILLAGE		THA MADUK	RAILWAY CROSSING										RANG YOI		
			Nong Bong		Ko Rang								Sub Lung Ga		
TERRAIN		P L A T													
ROAD SURFACE	TYPE	S.A.P.													
	CONDITION	BAD (under maintenance of surface corrugation & pothole)											FAIR		
ROAD WIDTH (m)	CARRIAGE-WAY		6.0	8.0	8.0	7.0	7.0	7.0	8.0	8.0	8.0	8.0	8.0	6.0	
	SHOULDER														
ALIGNMENT	HORIZONTAL	GOOD													
	VERTICAL	GOOD											BAD	GOOD	
OVERFLOW SECTION	LENGTH (km)		1.7		1.2										
	FLOOD HEIGHT (m)		0.50		0.50										
BRIDGE AND DRAINAGE STRUCTURES			C-P(100)-16.0 C-P(100)-16.0	C-P(60)-14.5 C-P(80)-14.0 C-P(60)-20.5	C-P(60)-14.5 C-P(100)-17.0 C-P(100)-16.5 C-P(100)-16.5	C-B-4(2.4x2.4-7.8) C-P-2(100)-18.5 C-P-2(100)-14.5 C-P(100)-14.0 C-P-2(100)-14.5			C-P(60)-14.5	C-P(60)-12.5	C-P-2(80)-16.0	C-P(80)-15.2 C-P-2(100)-22.5	C-B-3(3.6x3.3-10.0)	C-P-2(80)-18.4	C-B-3(3.3x3.3-8.0) Br-C(7.0x36.0)(5) Br-C(7.0x41.0)(5)
LAND USE	LEFT		MAIZE			RICE			MAIZE		BUSH	FOREST			
	RIGHT		RICE					MAIZE			FOREST				

Table 5A-2 ROAD INVENTORY

LINK 6 (RANG YOI - SI THEP, 18.0 km)

STATION (km)		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14			
NAME OF VILLAGE		RANG YOI		Nang Yang Thoi															
TERRAIN		FLAT, ROLLING																	
ROAD SURFACE	TYPE	S.A.P.																	
	CONDITION	FAIR																	
ROAD WIDTH (m)	CARRIAGE-WAY		6.0	6.0	7.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0			
	SHOULDER																		
ALIGNMENT	HORIZONTAL	GOOD																	
	VERTICAL	GOOD		BAD					GOOD										
OVERFLOW SECTION	LENGTH (km)																		
	FLOOD HEIGHT (m)																		
BRIDGE AND DRAINAGE STRUCTURES			C-P-2(100)-20.0	C-P(100)-18.5	C-P-2(60)-18.0 C-P-2(100)-21.0	C-P(80)-21.0 C-P(100)-18.5	C-P(60)-11.5	C-P-2(80)-21.0 C-P(80)-16.0	C-B-3(2.40x2.40)-7.0	C-P(60)-16.0	C-P(80)-20.5 C-P-2(60)-19.0	C-B-3(3.00x2.40)-7.6 C-P(80)-18.5	C-P-2(100)-22.0	C-P(60)-14.5	C-B-4(3.30x3.00)-8.0	C-B-3(3.20x3.00)-10.2	C-P(80)-17.5	C-P-2(80)-16.0 C-P(60)-17.0 C-P(60)-12.5	C-P(60)-12.5 C-P(60)-14.5
LAND USE	LEFT	MAIZE			FOREST		MAIZE		FOREST	MAIZE	FOREST		FOREST	FOREST (RICE & MAIZE)					
	RIGHT	MAIZE			FOREST		WASTE LAND	MAIZE	FOREST	WASTE LAND	FOREST		FOREST	FOREST (RICE & MAIZE)					

Table 5A-3 ROAD INVENTORY

LINK 8 (MAI SARIKA - SI THEP, 13.2 km)

STATION (km)		0	1	2	3	4	5	6	7	8	9	10	11	12	13 13.2		
NAME OF VILLAGE		MAI SARIKA			Bung Na Chan										SI THEP		
TERRAIN		FLAT															
ROAD SURFACE	TYPE	S.B.S.T.		S.A.P.						S.B.S.T.		S.A.P.					
	CONDITION	FAIR		BAD		FAIR, BAD				FAIR							
ROAD WIDTH (m)	CARRIAGE-WAY	6.5			6.0		7.0			7.5							
	SHOULDER																
ALIGNMENT	HORIZONTAL	GOOD															
	VERTICAL	GOOD															
OVERFLOW SECTION	LENGTH (km)				4.0					0.5					0.5		
	FLOOD HEIGHT (m)				1.0					1.0					0		
BRIDGE AND DRAINAGE STRUCTURES		C-P(60)-8.0		C-P-2(80)-9.0		C-P(60)-8.5		SUBMERGED BRIDGE		C-P(100)-12.0 C-P(60)-17.0 NO BRIDGE		SUBMERGED BRIDGE		C-P(40)-10.0		C-P(100)-12.5	C-P(40)-12.0
LAND USE	LEFT	RICE			WASTELAND						RICE	VILLAGE	RICE	FOREST		RICE	
	RIGHT	RICE			WASTELAND						RICE	VILLAGE	RICE	FOREST		RICE	

TABLE 5A-4
1 of 2

Table 5A-4

ROAD INVENTORY

LINK 11 (SI THEP - WICHIAN BURI, 24.0 km)

STATION (km)		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14								
NAME OF VILLAGE		SI THEP				Takhop	Na Sanun									Bo Rang								
TERRAIN		FLAT																						
ROAD SURFACE	TYPE	S.A.P.					S.B.S.T.			S.A.P.					S.B.S.T.									
	CONDITION	GOOD																						
ROAD WIDTH (m)	CARRIAGE-WAY	6.0	6.0	6.0	8.0	6.0	9.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	6.0								
	SHOULDER																							
ALIGNMENT	HORIZONTAL	GOOD			BAD										GOOD									
	VERTICAL	GOOD																						
OVERFLOW SECTION	LENGTH (km)				0.5	0.8				0.5														
	FLOOD HEIGHT (m)				0	0.2				0														
BRIDGE AND DRAINAGE STRUCTURES		C-P(60)-12.0		C-P(100)-12.0			C-P(80)-12.0		C-P-2(100)-12.0		C-P(100)-12.5		C-P(60)-11.0		C-P-3(100)-12.0		C-P-2(100)-12.5		C-P-3(100)-12.5		C-P(100)-10.0		C-P(60)-12.0	
LAND USE	LEFT	RICE	FOREST				RICE	FOREST																
	RIGHT	RICE	FOREST				RICE	FOREST																

Table 5A-4

ROAD INVENTORY

LINK 11 (SI THEP - WICHIAN BURI, 24.0 km (Continued))

STATION (km)		14	15	16	17	18	19	20	21	22	23	24		
NAME OF VILLAGE		Thung Yai							WICHIAN BURI					
TERRAIN		P L A T												
ROAD SURFACE	TYPE	S.A.P.					S.B.S.T.		S.A.P.					
	CONDITION	GOOD		BAD			FAIR							
ROAD WIDTH (m)	CARRIAGE-WAY	6.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	7.0			
	SHOULDER													
ALIGNMENT	HORIZONTAL	GOOD					BAD		GOOD		FAIR			
	VERTICAL	GOOD										BAD		GOOD
OVERFLOW SECTION	LENGTH (km)	4.3							1.0					
	FLOOD HEIGHT (m)	0.3-0.5							0					
BRIDGE AND DRAINAGE STRUCTURES														
LAND USE	LEFT	RICE							MAIZE WASTELAND		RICE			
	RIGHT	RICE							MAIZE WASTELAND		RICE			

Table 5A-5

ROAD INVENTORY

LINK 13 (SAM YAEK (2) - WICHIAN BURI, 7.9 km)

STATION (km)		0	1	2	3	4	5	6	7	7.9										
NAME OF VILLAGE		SAM YAEK					WICHIAN BURI													
TERRAIN		FLAT																		
ROAD SURFACE	TYPE	D.B.S.T.																		
	CONDITION	PAIR																		
ROAD WIDTH (m)	CARRIAGE-WAY	6.0																		
	SHOULDER	3.0																		
ALIGNMENT	HORIZONTAL	GOOD																		
	VERTICAL	GOOD																		
OVERFLOW SECTION	LENGTH (km)																			
	FLOOD HEIGHT (m)																			
BRIDGE AND DRAINAGE STRUCTURES		<div style="display: flex; justify-content: space-around; text-align: center;"> <div>— Br-C (7.0x50.0) (5)</div> <div>— Br-C (7.0x32.0) (4)</div> <div>— Br-C (7.0x40.0) (4)</div> <div>— Br-C (7.0x40.0) (5)</div> <div>— Br-C (7.0x160.0) (11)</div> <div>— Br-C (7.7x10.1)</div> </div>																		
LAND USE	LEFT	MAIZE		RICE																
	RIGHT	MAIZE		RICE																

Table 5A-6 ROAD INVENTORY

LINK 15 (WICHIAN BURI - NAM RON (2), 15.7 km)

STATION (km)		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
NAME OF VILLAGE		WICHIAN BURI															
TERRAIN		FLAT, ROLLING															
ROAD SURFACE	TYPE	S.B.S.T.															
	CONDITION	S.A.P.															
ROAD WIDTH (m)	CARRIAGE-WAY	BAD															
	SHOULDER	8.5															
ALIGNMENT	HORIZONTAL	GOOD															
	VERTICAL	GOOD															
OVERFLOW SECTION	LENGTH (km)			1.0				4.0					1.0			1.0	
	FLOOD HEIGHT (m)			0				0					0			0	
BRIDGE AND DRAINAGE STRUCTURES						C-P-2(100)-15.0				C-P-2(100)-13.0							
LAND USE	LEFT		VASTELAND	RICE	MAIZE FOREST				RICE			FOREST			RICE		
	RIGHT		VASTELAND	RICE	MAIZE FOREST				RICE			FOREST			RICE		

Table 5A-6 ROAD INVENTORY

LINK 15 (WICHIAN BURI - NAM RON (2), 15.7 km) (Continued)

STATION (km)		14	15	15.7
NAME OF VILLAGE		NAM RON (2)		
TERRAIN		FLAT, ROLLING		
ROAD SURFACE	TYPE	S.A.P.		
	CONDITION	BAD		
ROAD WIDTH (m)	CARRIAGE-WAY	8.5		
	SHOULDER			
ALIGNMENT	HORIZONTAL	GOOD		
	VERTICAL	GOOD		
OVERFLOW SECTION	LENGTH (km)	1.0		
	FLOOD HEIGHT (m)	0		
BRIDGE AND DRAINAGE STRUCTURES				
LAND USE	LEFT	RICE	MAIZE	
	RIGHT	RICE	MAIZE	

Table 5A-7 ROAD INVENTORY

LINK 16 (WICHIAN BURI - SAP BON, 21.0 km)

STATION (km)		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
NAME OF VILLAGE		WICHIAN BURI									Bu Makrut			Khok Prong			
TERRAIN		FLAT						ROLLING			FLAT		ROLLING				
ROAD SURFACE	TYPE	S.B.S.T.									S.A.P.						
	CONDITION							PAIR									
ROAD WIDTH (m)	CARRIAGE-WAY	9.0	9.0	9.0	8.0	8.0	8.0	9.0	8.0	8.0	8.0	8.0	6.5	6.5	6.5	8.0	
	SHOULDER																
ALIGNMENT	HORIZONTAL							GOOD									
	VERTICAL							GOOD									
OVERFLOW SECTION	LENGTH (km)				1.8			1.0				1.8					
	FLOOD HEIGHT (m)				0.05			0.5				0.05					
BRIDGE AND DRAINAGE STRUCTURES		<div style="display: flex; justify-content: space-around; text-align: center;"> <div>C-P(80)-14.0</div> <div>C-P(80)-13.0</div> <div>C-P(80)-13.0</div> <div>C-P-2(80)-16.0</div> <div>Br-T(4.0x63.7)(16)</div> <div>Br-T(4.6x6.9)(2)</div> <div>C-P(80)-13.0</div> <div>C-P-2(100)-15.0</div> </div>															
LAND USE	LEFT				RICE			MAIZE								RICE	
	RIGHT				RICE			MAIZE							RICE		

Table 5A-7 ROAD INVENTORY

LINK 16 (WICHIAN BURI - SAP BON, 21.0 km) (Continued)
AND LINK 18 (SAP BON - NONG DAENG, 5.3 km)

STATION (km)		14	15	16	17	18	19	20	21	22	23	24	25	26	26.3	
NAME OF VILLAGE									LINK 16 SAP BON	LINK 18					NONG DAENG	
TERRAIN						FLAT										FLAT ROLLING
ROAD SURFACE	TYPE					S.A.P.										S.A.P.
	CONDITION					FAIR										GOOD
ROAD WIDTH (m)	CARRIAGE-WAY	8.0	8.0	7.0	8.5	8.0	7.0	8.0	8.0	8.0	9.0	8.0	8.0	9.0		
	SHOULDER															
ALIGNMENT	HORIZONTAL					GOOD										GOOD
	VERTICAL					GOOD										GOOD
OVERFLOW SECTION	LENGTH (km)								1.65							
	FLOOD HEIGHT (m)								0							
BRIDGE AND DRAINAGE STRUCTURES			C-P (1.00)-13.5	Br-T (4.2x11.3) (3)				Br-T (4.2x11.5) (3)		C-P (60)-11.0						Br-T (4.2x15.0) (3.0)
LAND USE	LEFT					RICE										VASTELAND (MAIZE)
	RIGHT			RICE				MAIZE								VASTELAND (MAIZE)

TABLE 5A-8

Table 5A-8 ROAD INVENTORY

LINK 20 (RAHUN - NONG DAENG, 12.8 km)

STATION (km)		0	1	2	3	4	5	6	7	8	9	10	11	12	12.8					
NAME OF VILLAGE		RAHUN													NONG DAENG					
TERRAIN				FLAT						ROLLING				FLAT						
ROAD SURFACE	TYPE			S.A.P.								SOIL		S.A.P.						
	CONDITION			PAIR						PAIR, BAD			BAD	PAIR						
ROAD WIDTH (m)	CARRIAGE-WAY			7.0						6.0				10.0						
	SHOULDER																			
ALIGNMENT	HORIZONTAL			GOOD																
	VERTICAL			GOOD						BAD				GOOD						
OVERFLOW SECTION	LENGTH (km)					4.0			0.4	0.1	0.1		1.0							
	FLOOD HEIGHT (m)					0.5			0.5	0.5	0.5		0.5							
BRIDGE AND DRAINAGE STRUCTURES				C-P-2(80)-15.0	C-P-2(80)-14.0	C-P(100)-20.0	C-P(80)-16.5	Br-T(4.3x18.2)(3)	Br-T(4.4x25.0)(5)	Br-T(4.4x15.5)(3)	C-P-2(100)-16.0	Br-C(7.0x75.0)(7)	C-P(100)-15.5	Br-T(4.2x5.0)		C-P(100)-16.0	C-P-2(80)-14.0			
LAND USE	LEFT			RICE			WASTELAND			MAIZE	R	N	R	MR	MAIZE	RICE	MAIZE	RICE	MAIZE	RICE
	RIGHT			RICE			WASTELAND			MAIZE	R	N	R	MR	MAIZE	RICE	MAIZE	RICE	MAIZE	

Table 5A-9 ROAD INVENTORY

LINK 22 (NONG DAENG - NOEN SADA0, 14.0 km)

STATION (km)		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
NAME OF VILLAGE		NONG DAENG											Noen Khontha		NOEN SADA0		
TERRAIN		FLAT ROLLING															
ROAD SURFACE	TYPE	S.A.P.															
	CONDITION	PAIR															
ROAD WIDTH (m)	CARRIAGE-WAY	8.0															
	SHOULDER																
ALIGNMENT	HORIZONTAL	GOOD															
	VERTICAL	GOOD															
OVERFLOW SECTION	LENGTH (km)												2.0				
	FLOOD HEIGHT (m)												0.5				
BRIDGE AND DRAINAGE STRUCTURES			Br-T (4.2x14.9) Br-T (4.2x11.2) C-P-2 (100)-15.0 Br-T (4.2x22.5)	C-P (100)-11.0 C-P (100)-12.0 C-P (60)-13.0			C-P (100)-13.5	Br-T (4.2x11.5)	C-P (80)-11.5 C-P (60)-12.0		C-P (60)-12.0 C-P (80)-11.0	C-P (100)-13.0 C-P (80)-17.0	C-P (60)-13.5 Br-T (4.2x11.2) (3)	C-P (60)-15.0 C-P-2 (100)-19.0	Br-T (4.2x15.0) (3) C-P (80)-17.0		C-P (80)-15.0
LAND USE	LEFT	MAIZE RICE	FOREST (WASTELAND)	RICE	FOREST (WASTELAND)	MAIZE					RICE			MAIZE	RICE		
	RIGHT	MAIZE RICE	FOREST (WASTELAND)	RICE	FOREST (WASTELAND)				MAIZE			RICE		MAIZE	RICE		

Table 5A-10

ROAD INVENTORY

LINK 23 (NOEN SADAQ - PAK BOT, 4.4 km)

STATION (km)		0	1	2	3	4	4.4
NAME OF VILLAGE		NOEN SADAQ			PAK BOT		
TERRAIN		FLAT, ROLLING					
ROAD SURFACE	TYPE	S.A.P.					
	CONDITION	FAIR					
ROAD WIDTH (m)	CARRIAGE-WAY	8.0					
	SHOULDER						
ALIGNMENT	HORIZONTAL	GOOD					
	VERTICAL	GOOD					
OVERFLOW SECTION	LENGTH (km)	0.1					
	FLOOD HEIGHT (m)	0					
BRIDGE AND DRAINAGE STRUCTURES		 C-P(300)-12.0 C-P(100)-15.0 B-T(4.4x15.4)(3)		 C-P(100)-17.0 C-P(100)-10.0 B-T(4.2x18.4)(3)		 B-T(4.5x24.3)(4)	
LAND USE	LEFT	MAIZE		RICE			
	RIGHT	FOREST, MAIZE		RICE			
		C-P(80)-20.5					

Table 5A-11

ROAD INVENTORY

LINK 25 (PAK BOT - KHOK CHAROEN, 6.0 km)

STATION (km)		0	1	2	3	4	5	6												
NAME OF VILLAGE		PAK BOT			KHOK CHAROEN															
TERRAIN		FLAT																		
ROAD SURFACE	TYPE	S.A.P.																		
	CONDITION	FAIR																		
ROAD WIDTH (m)	CARRIAGE-WAY	8.0	11.0	10.0	9.0	3.0	8.0	8.0												
	SHOULDER																			
ALIGNMENT	HORIZONTAL	GOOD																		
	VERTICAL	GOOD																		
OVERFLOW SECTION	LENGTH (km)																			
	FLOOD HEIGHT (m)																			
BRIDGE AND DRAINAGE STRUCTURES		Br-T (4.5x23.7) (4) C-P (60) - 14.0		Br-T (4.4x23.6) (4) Br-T (4.4x18.4) (3)		C-P (60) - 15.0 C-P (60) - 15.0		C-P-2 (80) - 15.0 C-P (80) - 15.0 C-P-2 (80) - 15.0 C-P (60) - 15.0												
LAND USE	LEFT	MAIZE	RICE	FOREST, WASTELAND				RICE (MAIZE)												
	RIGHT	MAIZE	RICE	FOREST, WASTELAND				RICE (MAIZE)												

Table 5A-12 ROAD INVENTORY

LINK 29 (NONG LAI - NA KHAO DO, 9.0 km)
AND LINK 27 (NA KHAO DO - KHOK CHAROEN, 4.5 km)

STATION (km)		0	1	2	3	4	5	6	7	8	9	10	11	12	13	13.5													
NAME OF VILLAGE		NONG LAI			LINK 29 LINK 27 NA KHAO DO										KHOK CHAROEN														
TERRAIN		ROLLING				FLAT			ROLLING				FLAT TO ROLLING																
ROAD SURFACE	TYPE	S.A.P.																											
	CONDITION	PAIR																											
ROAD WIDTH (m)	CARRIAGE-WAY	9.0				8.0		7.0		10.5				8.7															
	SHOULDER																												
ALIGNMENT	HORIZONTAL	GOOD																											
	VERTICAL	GOOD																											
OVERFLOW SECTION	LENGTH (km)					2.6																							
	FLOOD HEIGHT (m)					0.50																							
BRIDGE AND DRAINAGE STRUCTURES						Br-T-4.1x30.3 (5)		C-P(80)-16.0		Br-C-7.0x50.0 (5)		Br-T-4.2x32.5 (Broken)		Br-T-4.1x18.0 (3)				C-P(80)-16.0		C-P(60)-16.0		Br-T(4.0x14.5) (3)		Br-T(4.3x15.0) (3)		Br-T(4.3x18.2) (3)		Br-T(4.2x15.2) (3)	
LAND USE	LEFT	MAIZE		RICE				RICE				RICE & MAIZE				RICE		MAIZE											
	RIGHT	RICE		MAIZE				RICE				MAIZE				RICE													

Table 5A-13 ROAD INVENTORY

LINK 36 (SAM YAEK (i) - THAM NAM BANG, 8.0 km)

STATION (km)		0	1	2	3	4	5	6	7	8													
NAME OF VILLAGE		SAM YAEK			Ban Na Yom					THAM NAM BANG													
TERRAIN		FLAT																					
ROAD SURFACE	TYPE	D.B.S.T.					S.A.P.					SOIL											
	CONDITION	PAIR					BAD																
ROAD WIDTH (m)	CARRIAGE-WAY	5.5					5.0																
	SHOULDER	3.0																					
ALIGNMENT	HORIZONTAL	GOOD					BAD																
	VERTICAL	GOOD					BAD																
OVERFLOW SECTION	LENGTH (km)						4.0																
	FLOOD HEIGHT (m)						1.0																
BRIDGE AND DRAINAGE STRUCTURES			C-P-2 (60)-13.5	C-P (40)-12.0	C-P (50)-16.0	Br-C (7.0x50) (5)	Br-T (3.7x38.4) (8)	Br-T (3.6x7.7) (3)	C-P (60)-11.0	C-P (60)-10.5	C-P (60)-8.0	NO BRIDGE											
LAND USE	LEFT		MAIZE					RICE					RICE	MAIZE									
	RIGHT		RICE										RICE	MAIZE									

Table 5A-14 ROAD INVENTORY

LINK 40 (NAM RON (1) - PHETCHABUN, 11.0 km)

STATION (km)		0	1	2	3	4	5	6	7	8	9	10	11	
NAME OF VILLAGE		NAM RON (1)			Sak Haeng				Pak Nam			PHETCHABUN		
TERRAIN		FLAT												
ROAD SURFACE	TYPE	S.A.P.												
	CONDITION	PAIR			BAD					PAIR		PAIR		SBST
ROAD WIDTH (m)	CARRIAGE-WAY				6.0				8.0		7.0		6.5	
	SHOULDER													2.0
ALIGNMENT	HORIZONTAL	BAD								GOOD				
	VERTICAL	GOOD												
OVERFLOW SECTION	LENGTH (km)				6.7						2.3			
	FLOOD HEIGHT (m)				1.00						0.50			
BRIDGE AND DRAINAGE STRUCTURES		<div style="display: flex; justify-content: space-around; text-align: center;"> <div>Br-T (2.6x18.5)</div> <div>Br-T (4.0x27.8)</div> <div>Br-T (3.5x12.0)</div> <div>Br-T (3.3x14.5)</div> <div>Br-T (3.6x10.3)</div> <div>Br-C (7.0x90.0) (7)</div> <div>C-P-2 (60)-8.0</div> <div>Br-C (8.0x42.0) (6)</div> </div>												
LAND USE	LEFT				MAIZE		RICE		MAIZE		FOREST		RICE	
	RIGHT				MAIZE		RICE		MAIZE		FOREST		RICE	