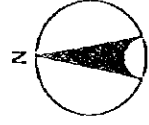
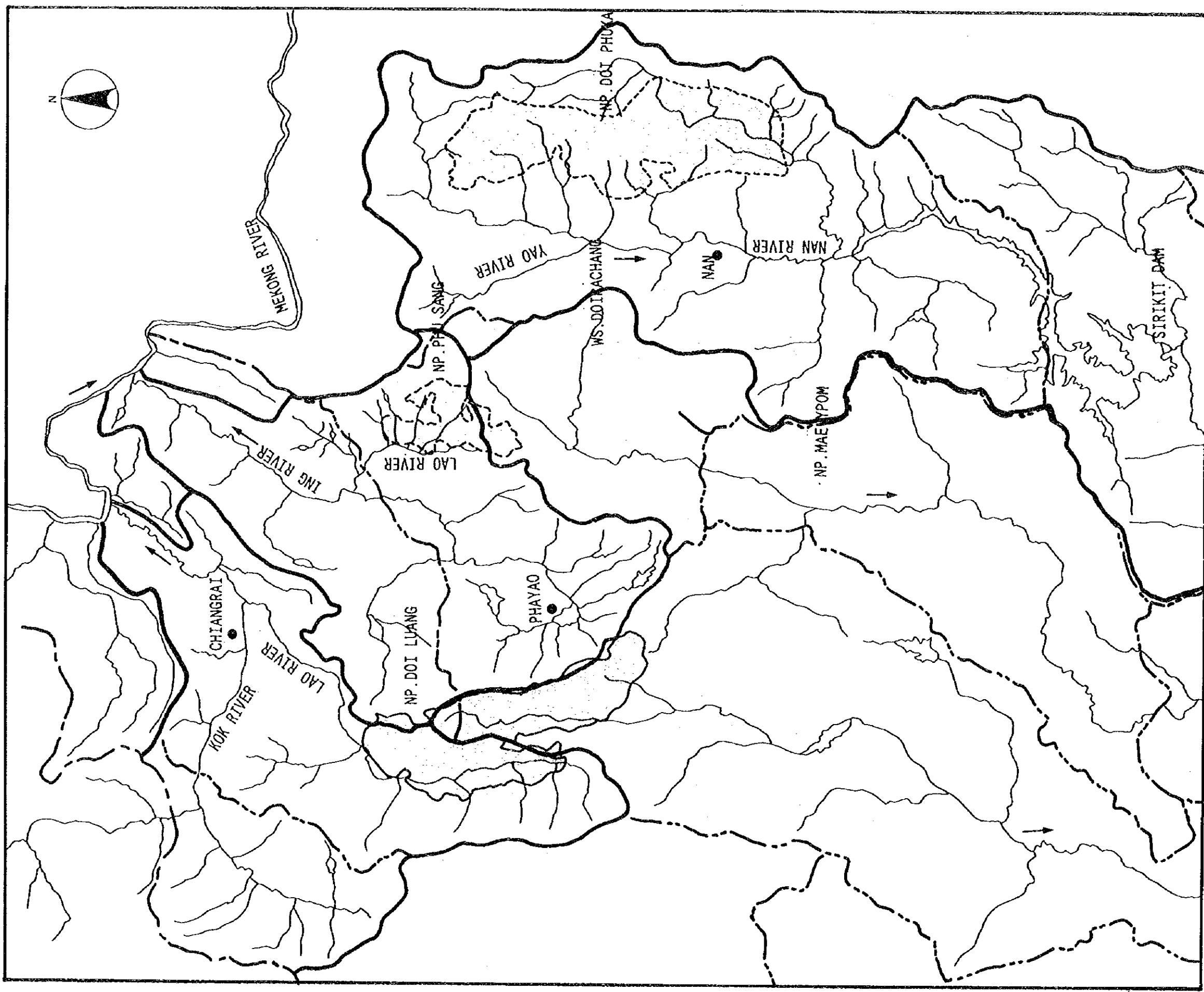
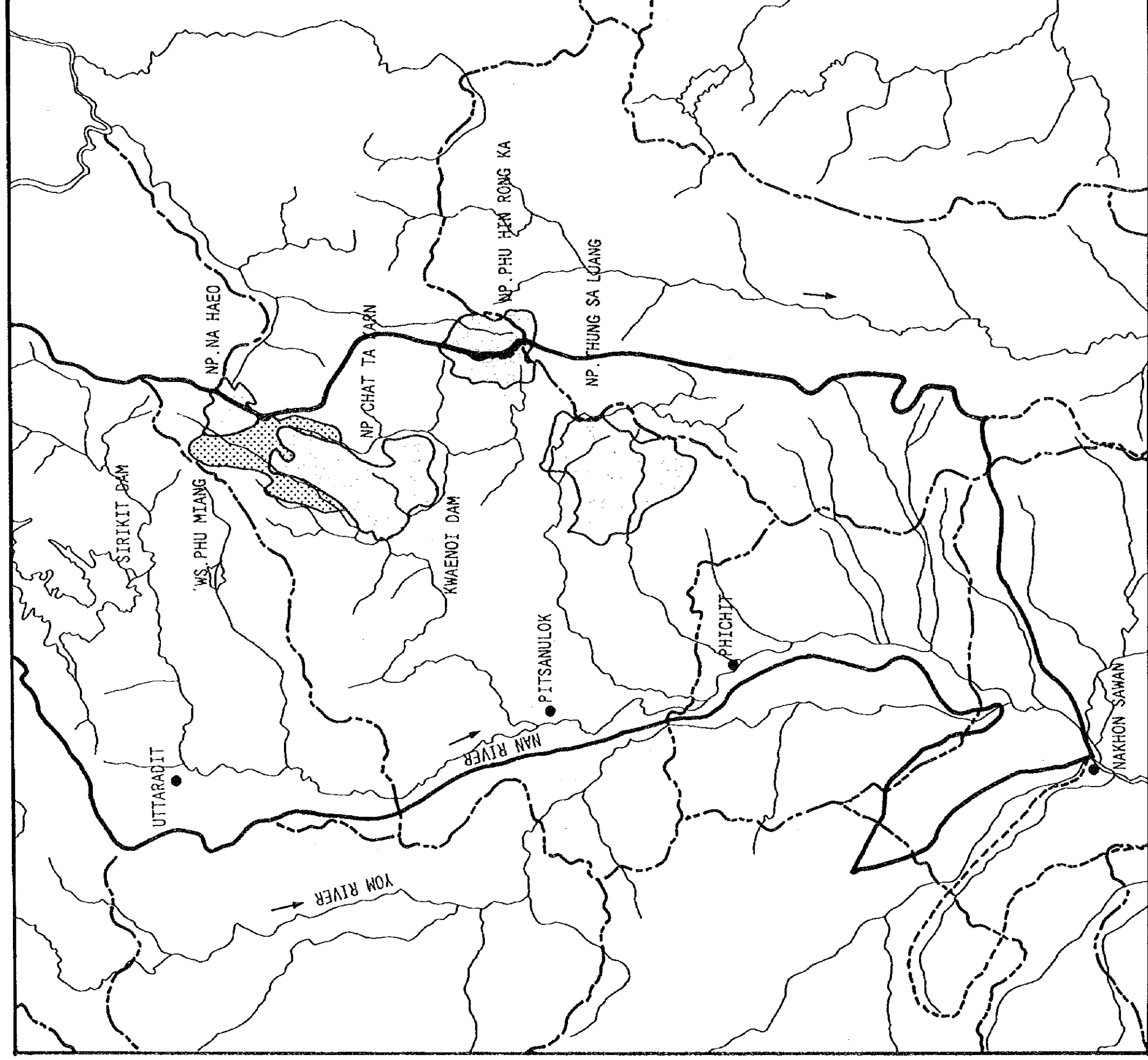
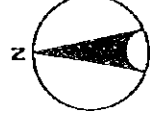


<b>PART VII INITIAL ENVIRONMENTAL EXAMINATION</b>	
<b>Figure E-1</b>	<b>National Park and Wildlife Sanctuary in the Study Area (1/2)</b>
<b>Figure E-2</b>	<b>National Park and Wildlife Sanctuary in the Study Area (2/2)</b>
<b>Figure E-3</b>	<b>National Forest Reserves in the Project Area (1/2)</b>
<b>Figure E-4</b>	<b>National Forest Reserves in the Project Area (2/2)</b>
<b>Figure E-5</b>	<b>Watershed Classification in the Project Area (1/2)</b>
<b>Figure E-6</b>	<b>Watershed Classification in the Project Area (2/2)</b>
<b>Figure E-7</b>	<b>Wetland Related the Project</b>
<b>Figure E-8</b>	<b>Fish Production in Chiang Rai Province</b>
<b>Figure E-9</b>	<b>Fish Production in Phayao Province</b>
<b>Figure E-10</b>	<b>Fish Production in Nan Province</b>
<b>Figure E-11</b>	<b>Administrative Boundary and 1994 Chiang Rai Population</b>
<b>Figure E-12</b>	<b>Administrative Boundary and 1994 Phayao Population</b>
<b>Figure E-13</b>	<b>Administrative Boundary and 1994 Nan Population</b>
<b>Figure E-14</b>	<b>Per Capita GPP by Province in 1993</b>
<b>Figure E-15</b>	<b>Income Distribution in Chiang Rai Province</b>
<b>Figure E-16</b>	<b>Income Distribution in Phayao Province</b>
<b>Figure E-17</b>	<b>Income Distribution in Nan Province</b>
<b>Figure E-18</b>	<b>Distribution of Major Tribal Village Settlement in Thailand</b>



Legend	
NP.	National Park
	NP. ( Existing )
	NP. ( Under Establishment )

THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT  
 NATIONAL PARK AND WILDLIFE SANCTUARY  
 IN THE STUDY AREA (1/2)  
 Map & Drawing No.  
 Figure E-1  
 JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
 SANYU CONSULTANTS INC. & NIPPON KOEI CO., LTD.



Legend	
NP.	National Park
	NP. ( Existing )
	NP. ( Under Establishment )
WS.	Wildlife Sanctuary
	WS. ( Existing )

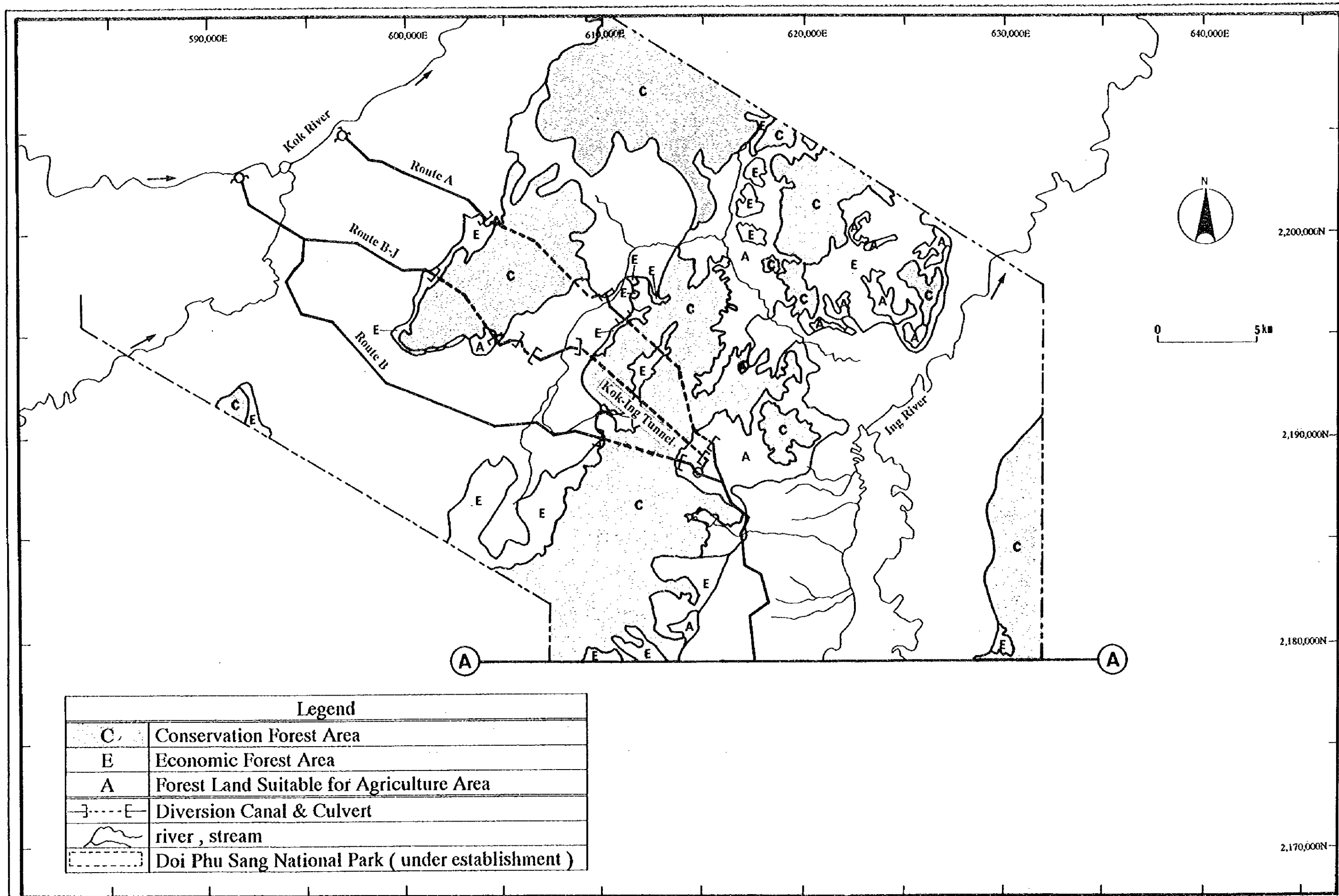
THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT  
 NATIONAL PARK AND WILDLIFE SANCTUARY  
 IN THE STUDY AREA (2/2)


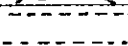
Map & Drawing No.

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
 SANYU CONSULTANTS INC. & NIPPON KOEI CO., LTD.

Source ; 1995 , Office of Socio and Economic Development Board

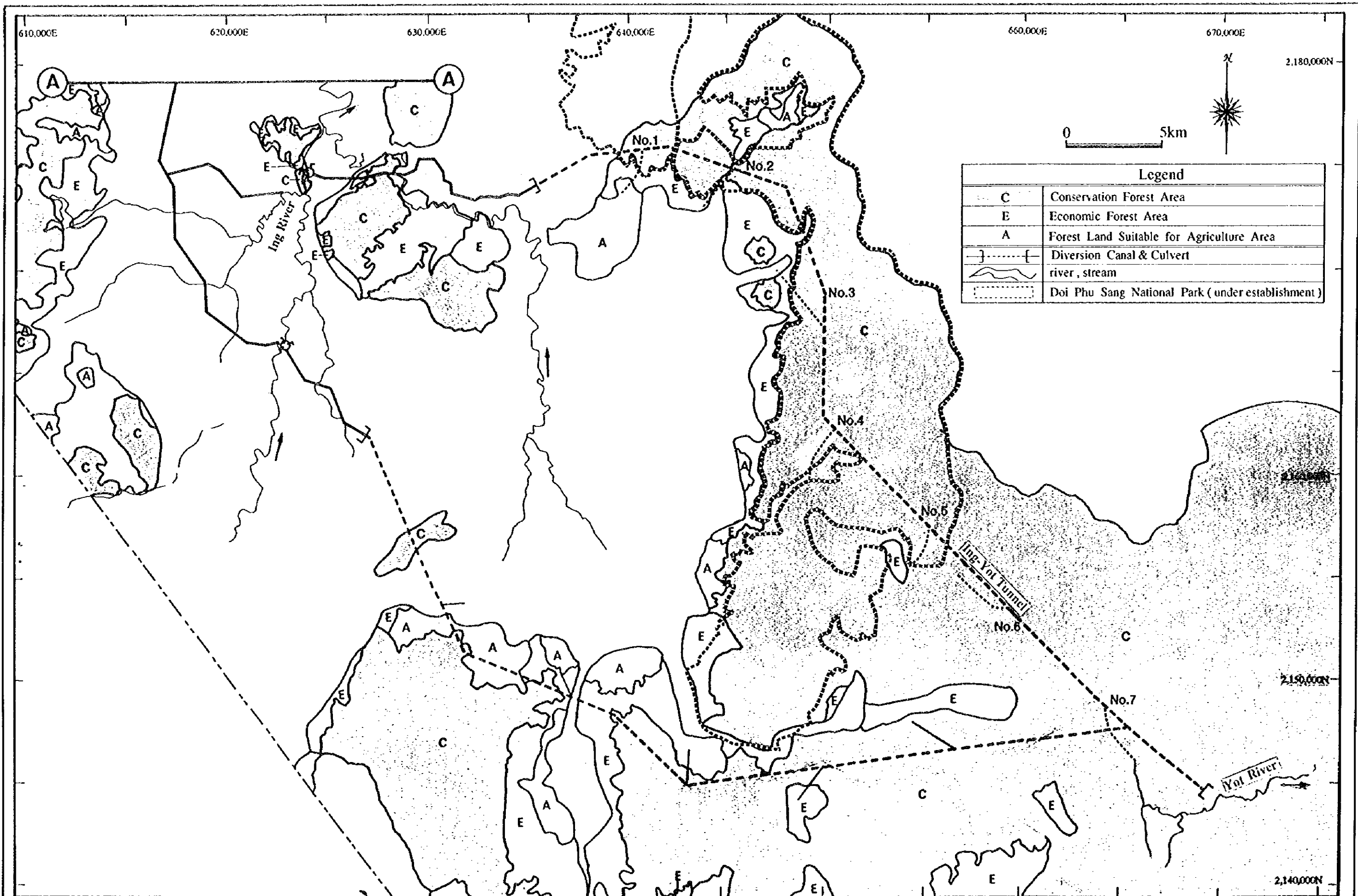
Figure E-2



Legend	
C	Conservation Forest Area
E	Economic Forest Area
A	Forest Land Suitable for Agriculture Area
---E---	Diversion Canal & Culvert
	river, stream
	Doi Phu Sang National Park ( under establishment )

Source ; Royal Forest Department

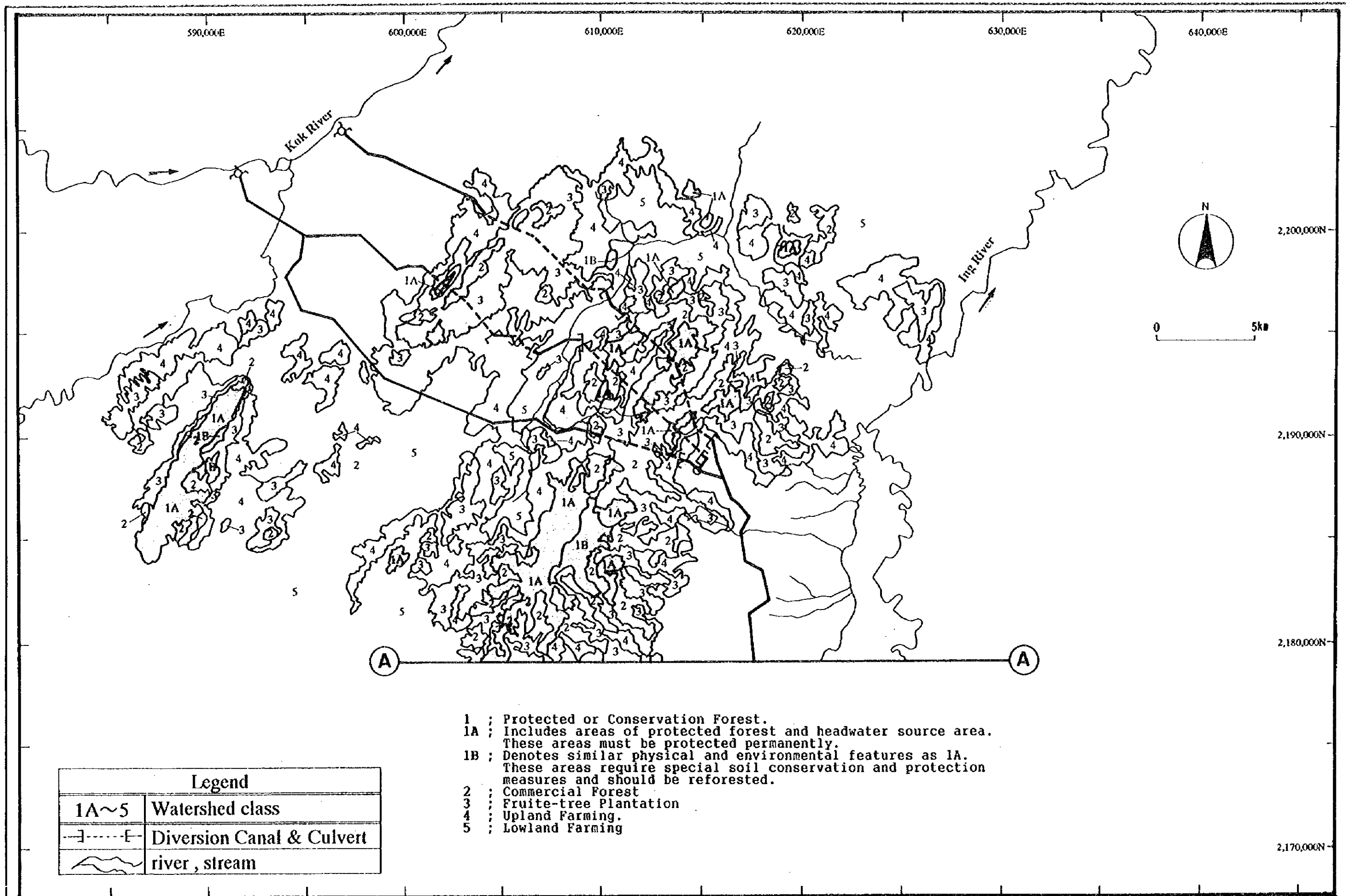
THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT	
NATIONAL FOREST RESERVES IN THE PROJECT AREA (1/2)	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	Map & Drawing No.
SANYU CONSULTANTS INC. & NIPPON KOEI CO., LTD.	Figure E-3



Legend	
C	Conservation Forest Area
E	Economic Forest Area
A	Forest Land Suitable for Agriculture Area
- - - - -	Diversion Canal & Culvert
~~~~~	river, stream
.....	Doi Phu Sang National Park (under establishment)

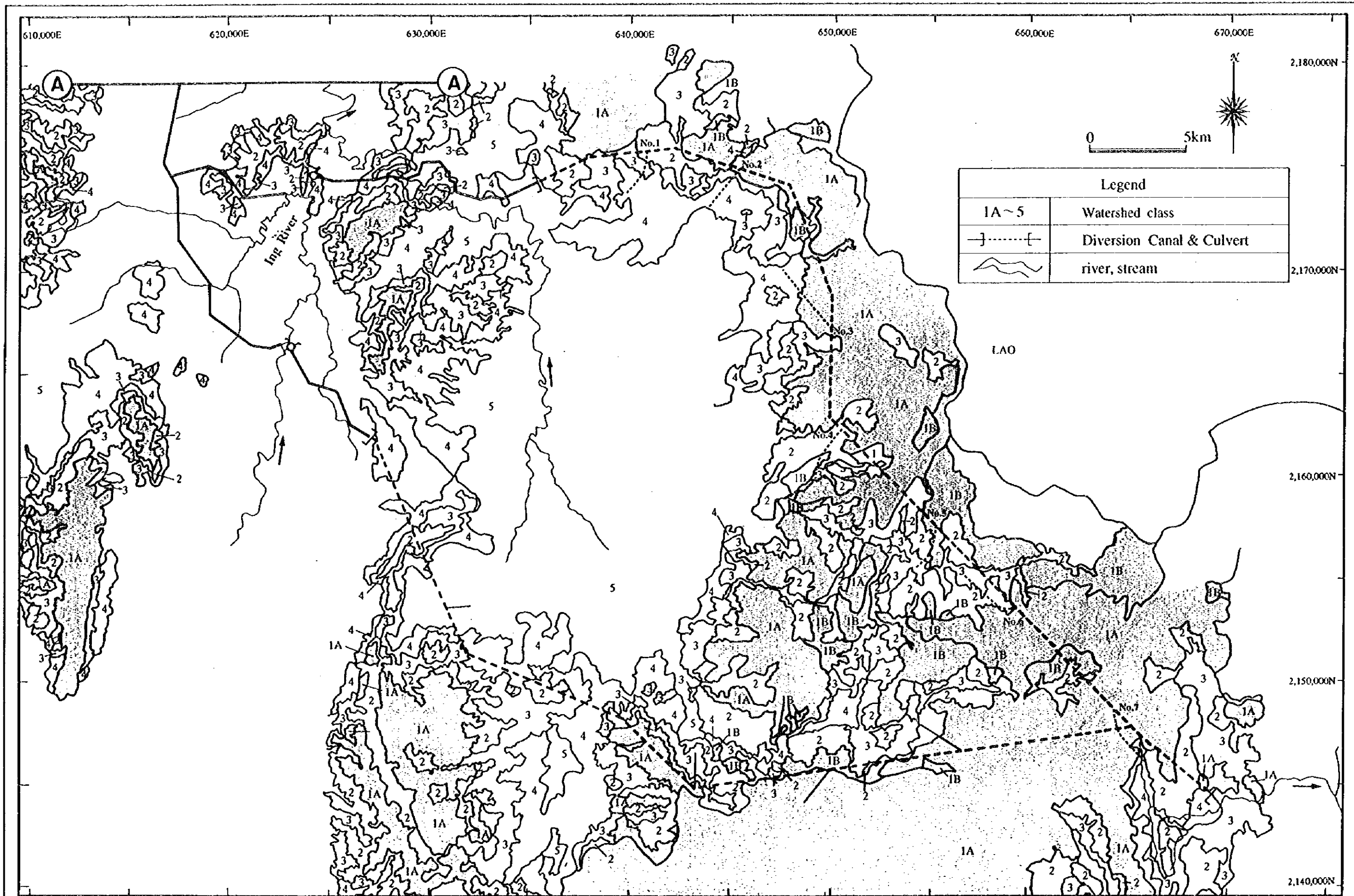
THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT	
NATIONAL FOREST RESERVES IN THE PROJECT AREA (2/2)	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	Map & Draw - Ing No.
SANYU CONSULTANTS INC. & NIPPON KOEI CO., LTD.	Figure E-4

Source ; Royal Forest Department



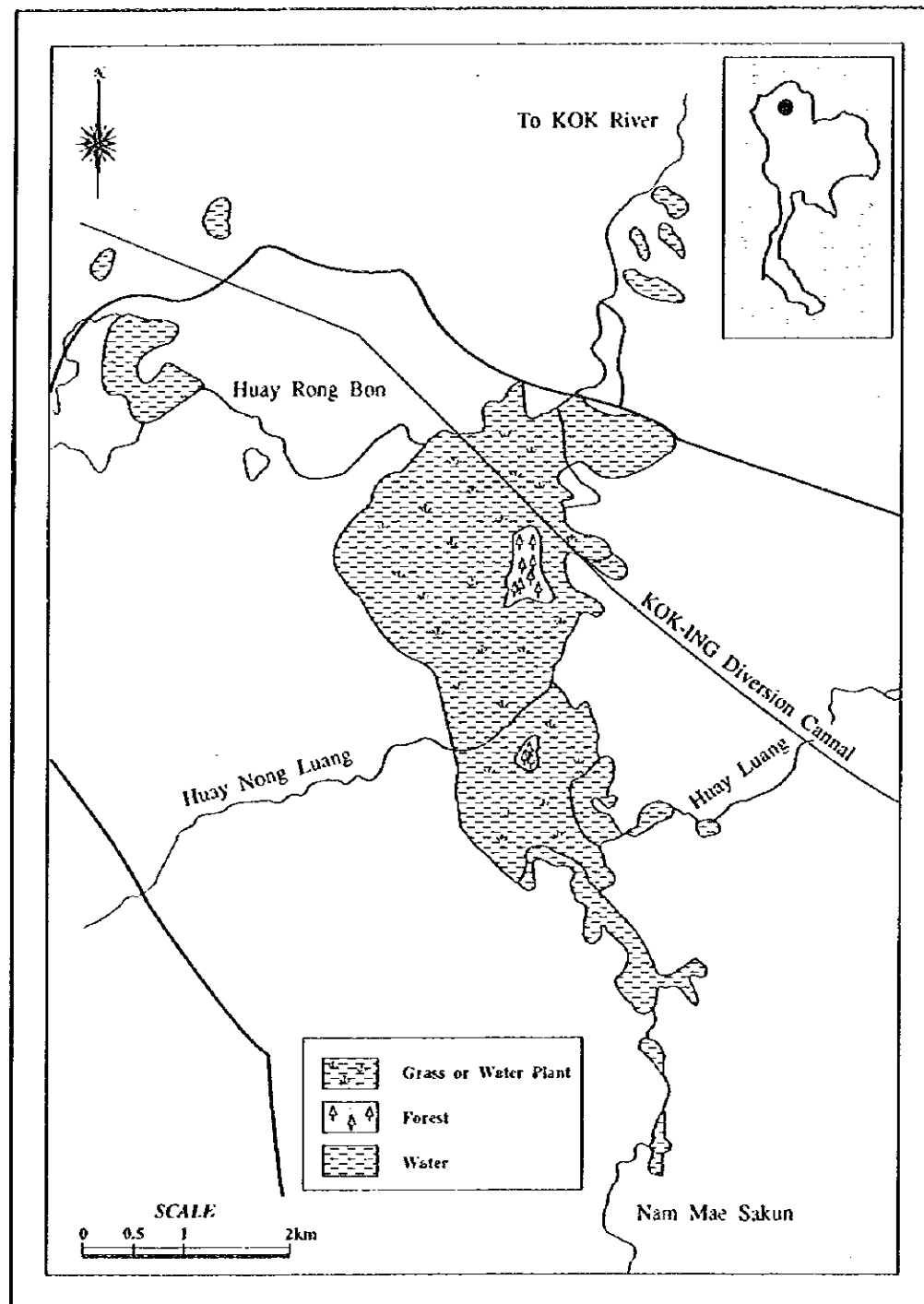
- 1 ; Protected or Conservation Forest.
- 1A ; Includes areas of protected forest and headwater source area. These areas must be protected permanently.
- 1B ; Denotes similar physical and environmental features as 1A. These areas require special soil conservation and protection measures and should be reforested.
- 2 ; Commercial Forest
- 3 ; Fruite-tree Plantation
- 4 ; Upland Farming.
- 5 ; Lowland Farming

Legend	
1A~5	Watershed class
— --- ---	Diversion Canal & Culvert
~~~~~	river, stream

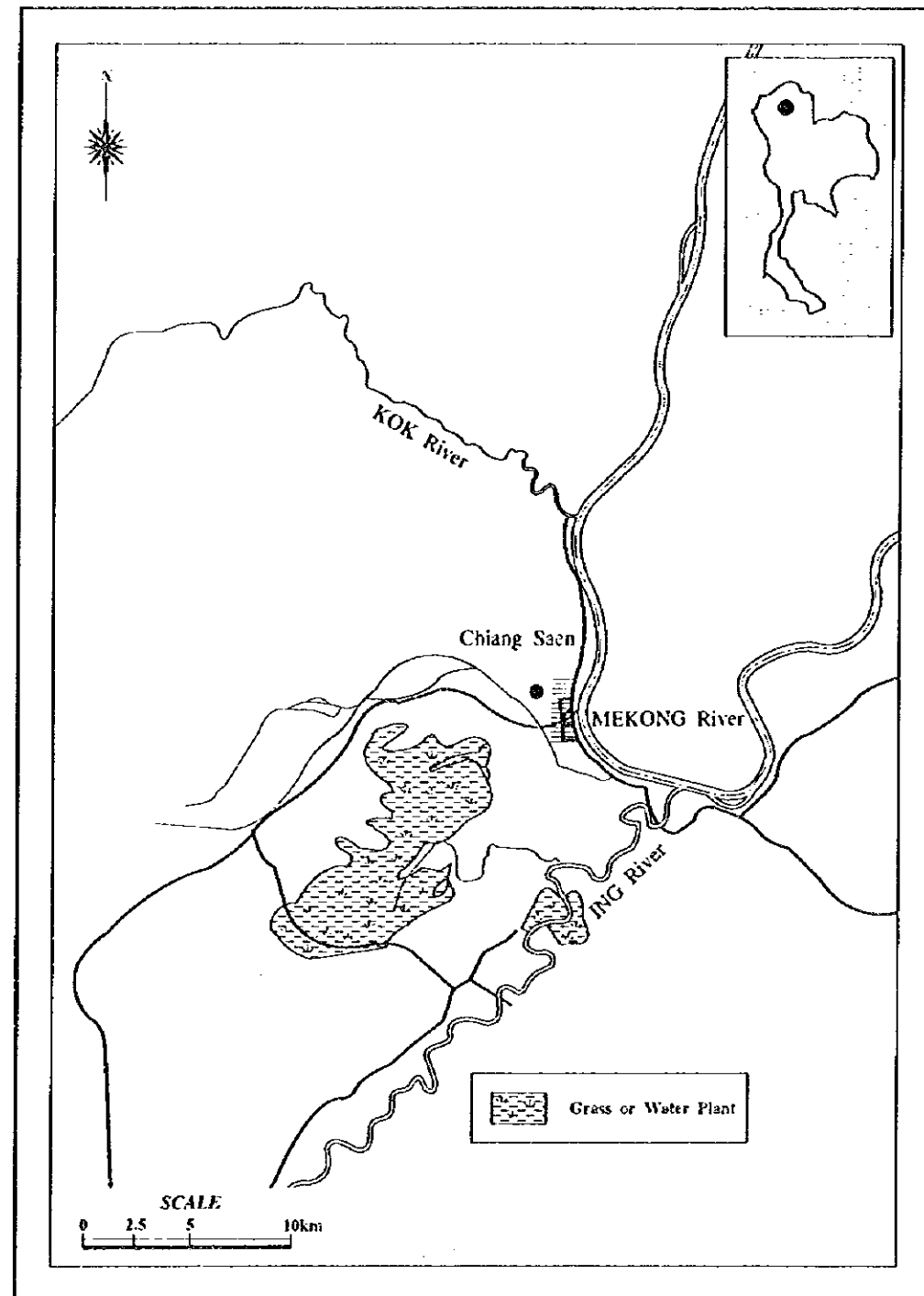


THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT	
WATERSHED CLASSIFICATION IN THE PROJECT AREA (2/2)	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
SANYU CONSULTANTS INC. & NIPPON KOEI CO., LTD.	
Map & Draw- ing No.	Figure E-6

Source : Office of Environmental Policy and Planning



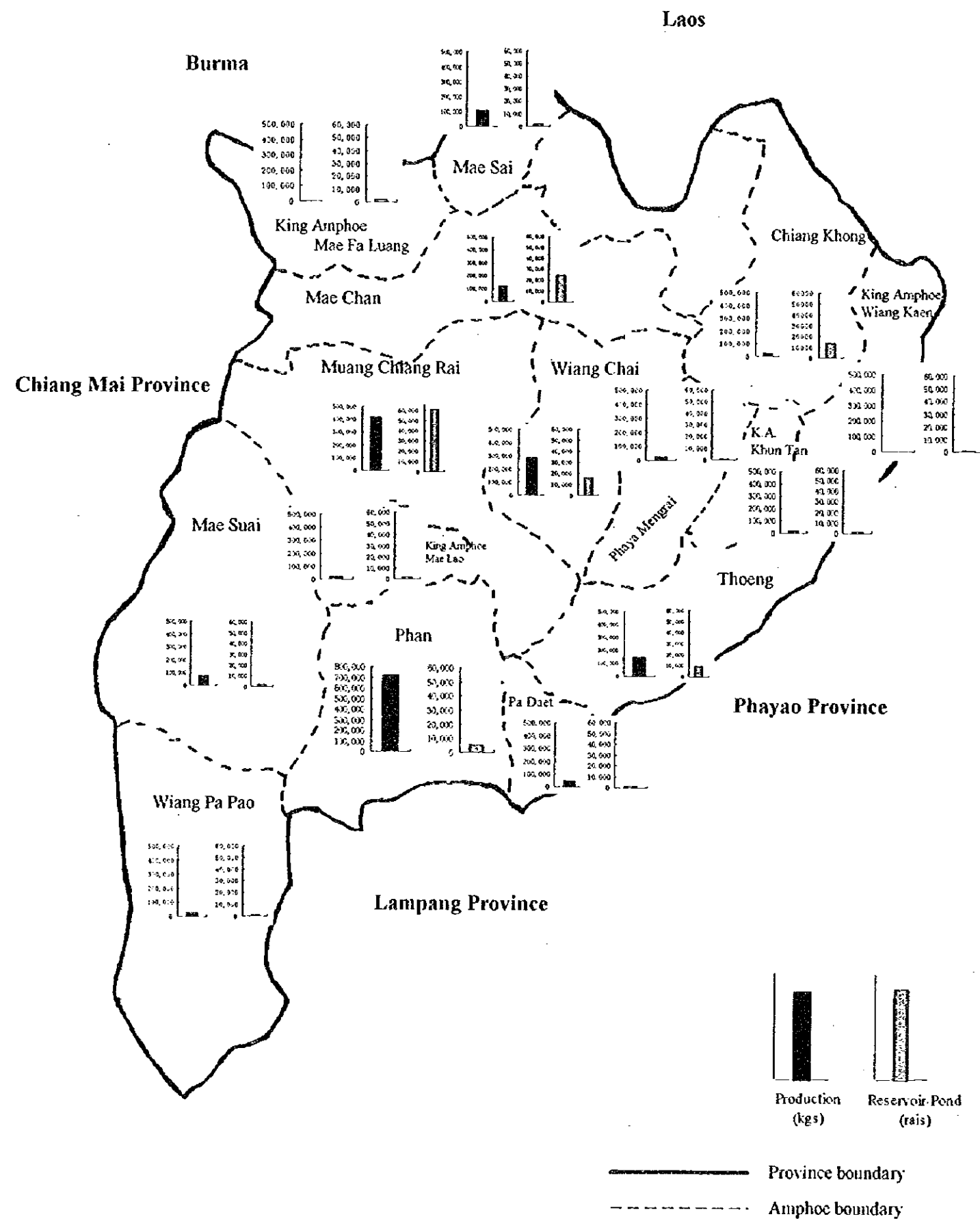
Nong Luang



Chiang Saen Basin

THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT	
WETLAND RELATED THE PROJECT	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	Map & Drawing No.
SANYU CONSULTANTS INC. & NIPPON KOEI CO., LTD.	Figure E-7

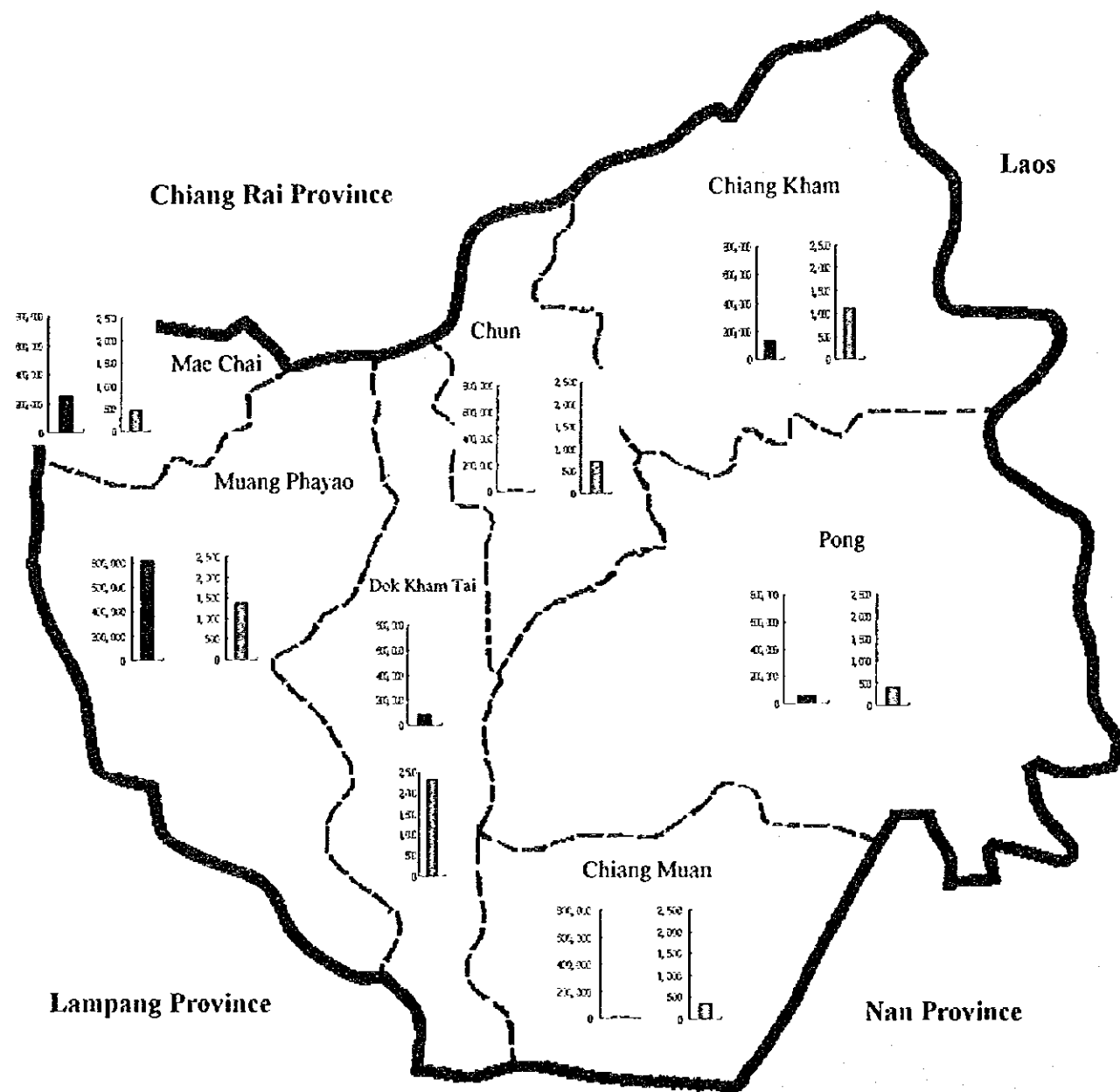




Amphoe	Production kgs	Reservoir raïs	Pond raïs	Productivity kgs/rai
Muang Chiang Rai	418,000	59,027	1,962	6.9
Mae Chan	123,300	24,597	412	4.9
Mae Sai	107,900	1,026	950	113.5
Chiang Saen	155,350	31,877	667	4.8
Wiang Chai	288,000	15,259	1,105	17.6
Thoeng	148,000	9,261	556	15.1
Mae Suai	75,200	1,846	246	35.9
Wiang Pa Pao	24,450	1,027	103	21.6
Chiang Khong	22,045	12,667	314	1.7
Phan	719,500	3,610	1,619	137.6
Pa Daet	48,690	583	556	42.7
Phaya Mengrai	44,900	1,064	198	35.6
K.A. Mae Fa Luang		1,805	58	
K.A. Mae Lao	18,800	1,557	152	11.0
K.A. Khun Tan	24,700	1,463	182	15.0
K.A. Chiang Rung		597	1,012	
K.A. Wiang Kaen		392	20	
<b>Total</b>	<b>2,218,835</b>	<b>166,633</b>	<b>10,112</b>	
<b>Average</b>	<b>158,488</b>	<b>9,802</b>	<b>595</b>	<b>33.1</b>

Fish Production (Chiang Rai Province)

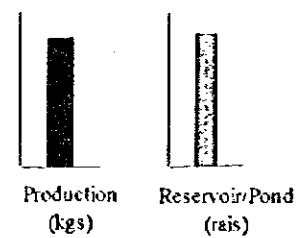
Fish production in Chiang Rai province

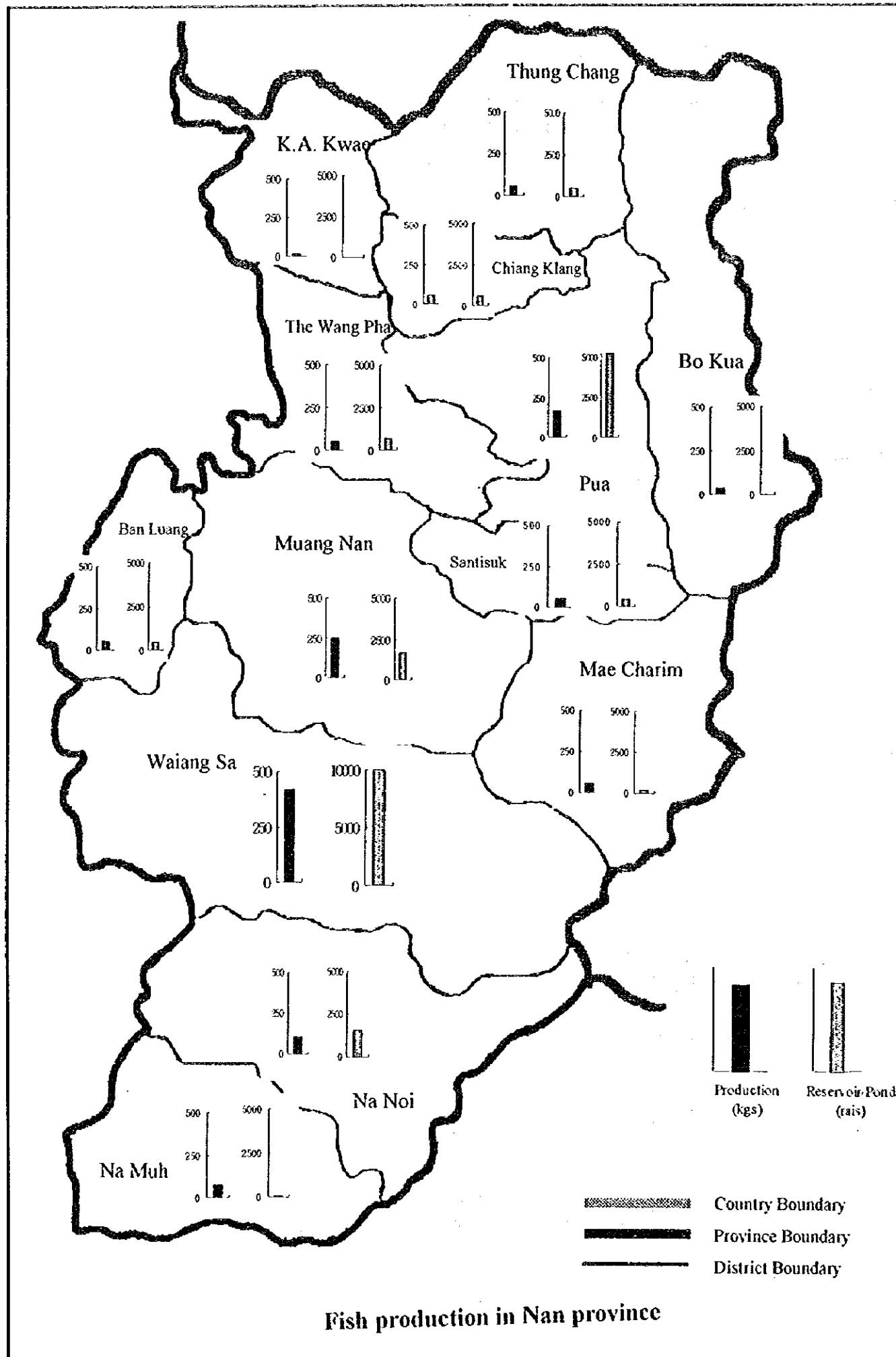


Amphoe	Production kgs	Reservoir rais	Pond rais	Productivity kgs/rai
Muang Phayao	823,000	805	584	592.5
Chun	18,700	351	361	26.3
Chiang Kham	136,820	591	545	120.4
Chiang Muan	11,150	230	98	34.0
Dok Kham Thai	83,940	1,980	337	36.2
Pong	59,691	201	194	151.1
Mae Chai	249,585	252	210	540.2
<b>Total</b>	<b>1,382,886</b>	<b>4,410</b>	<b>2,329</b>	
<b>Average</b>	<b>197,555</b>	<b>630</b>	<b>333</b>	<b>214.0</b>

Fish Production (Phayao Province)

Fish production in Phayao province

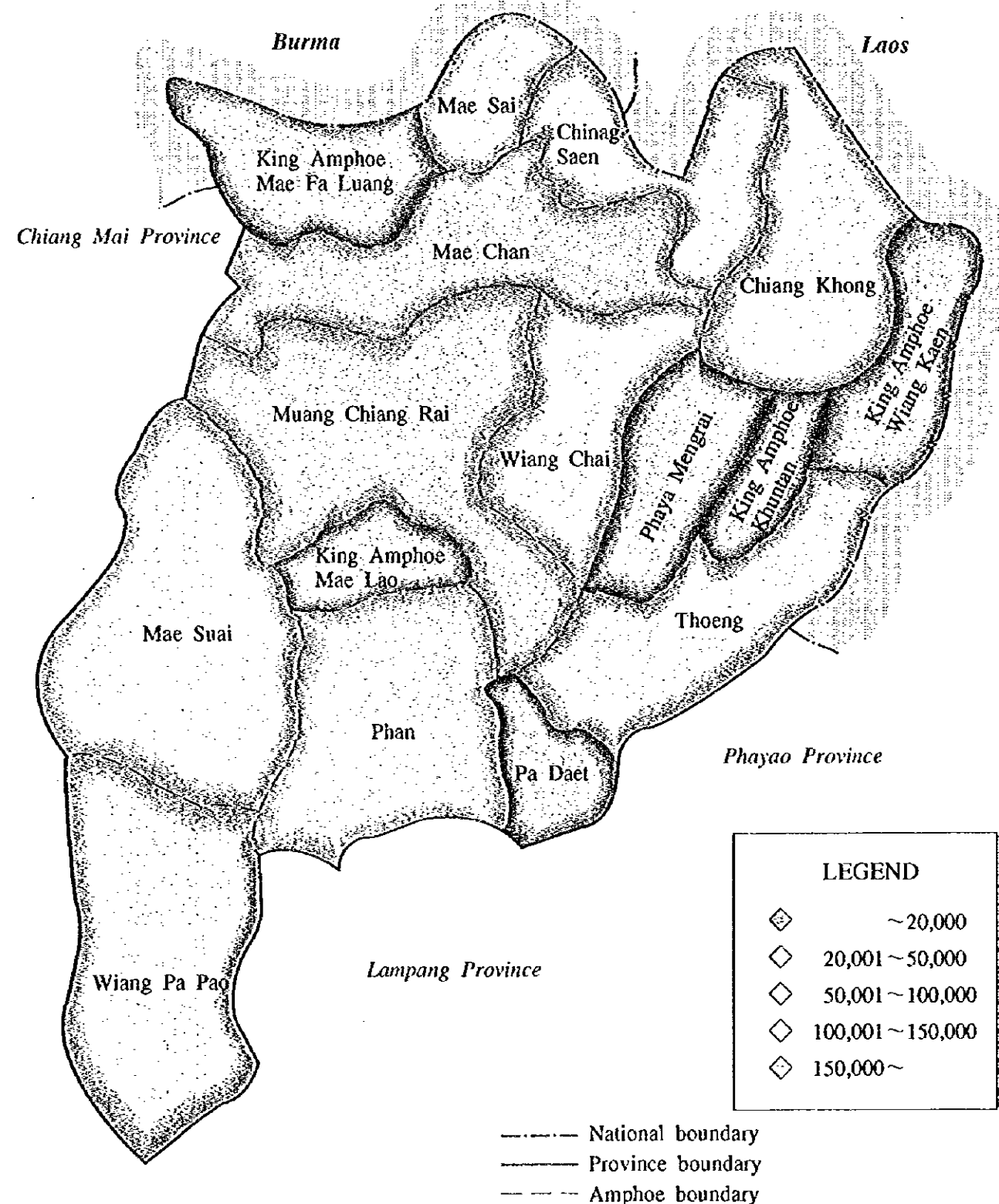




Amphoe	Production kgs	Reservoir rais	Pond rais	Productivity kgs/rai
Muang Nan	246,000	1,335	299	150.6
Waiang Sa	420,050	9,500	472	42.1
Na Noi	101,555	1,450	96	65.7
Tha Wang Pha	53,030	515	176	76.7
Pua	165,000	5,000	173	31.9
Chiang Klang	56,400	553	54	92.9
Thung Chang	59,540	380	128	117.2
Mae Charim	51,450	140	20	321.6
Ban Luang	51,200	400	13	124.0
Santisuk	51,100	370	23	130.0
Na Muh	76,600	30	5	2188.6
Bo Kua	34,000	7	10	2000.0
K.A. Kwae	17,500	20	13	530.3
Total	1,383,425	19,700	1,482	
Average	106,417	1,515	114	452.0

Fish Production (Nan Province)

## Population of Chiang Rai Province in 1994



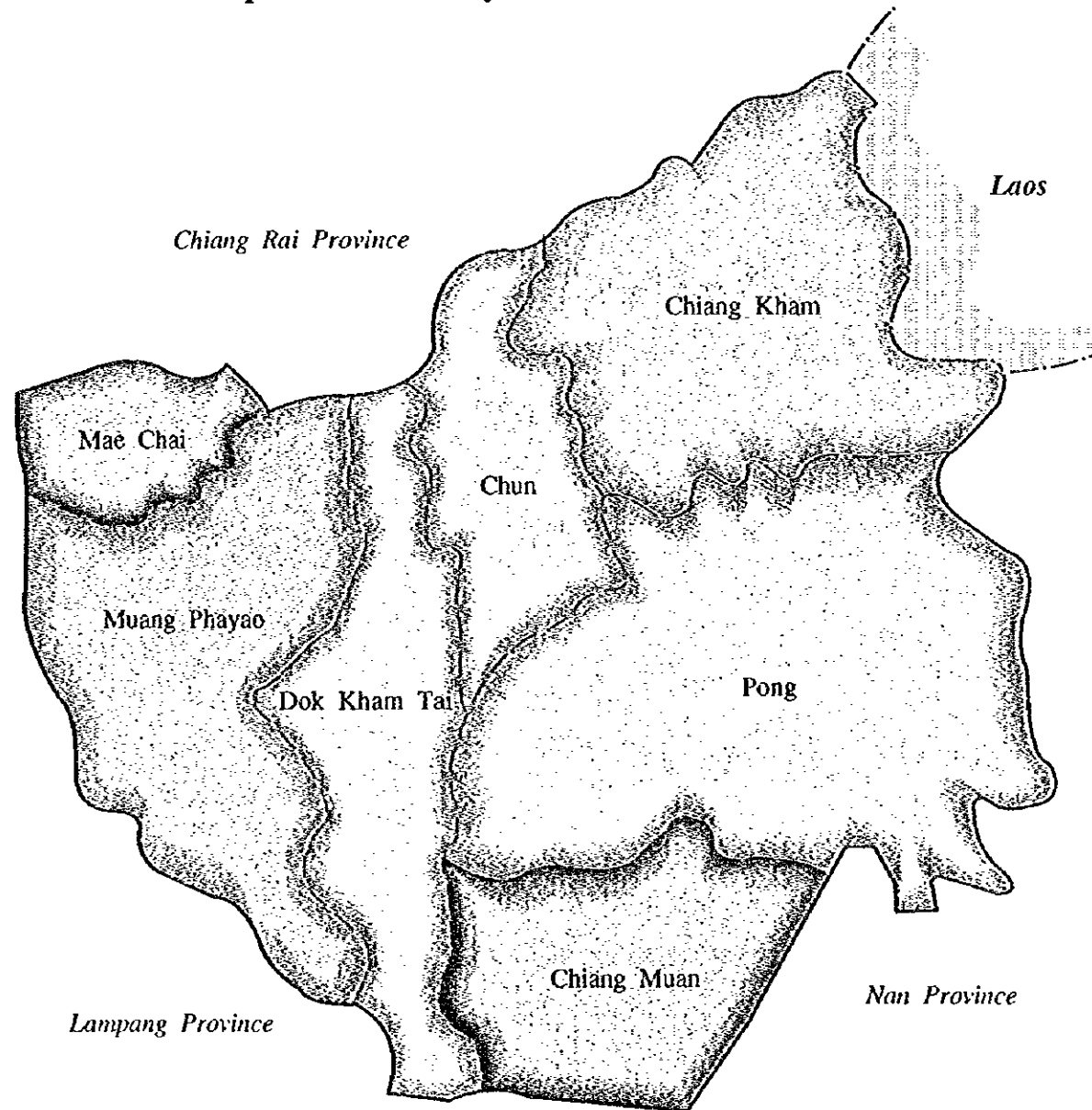
Number of Population and Population Density in Chiang Rai Province : 1994

Amphoe's Name	Number of Population			Population density
	Male	Female	Total	per Sq. km.
Muang Chiang Rai	109,996	109,966	219,962	171.266
King Amphoe Khuntan	17,464	16,809	34,273	146.466
Chiang Khong	34,708	33,513	68,221	81.516
Chinag Saen	27,687	27,050	54,737	98.803
Thoeng	44,373	43,227	87,600	106.699
Pa Daet	13,805	13,360	27,165	81.503
Phaya Mengrai	22,631	21,750	44,381	71.582
Phan	70,893	69,872	140,765	137.600
Mae Chan	91,139	89,470	180,609	178.120
King Amphoe Mae Fa Luang	14,292	13,381	27,673	43.144
King Amphoe Mae Lao	16,694	16,710	33,404	99.595
Mae Suai	38,365	36,178	74,543	52.179
Mae Sai	40,800	40,241	81,041	284.354
King Amphoe Wiang Kaen	16,450	15,416	31,866	60.582
Wiang Chai	37,715	36,761	74,476	142.647
Wiang Pa Pao	35,954	34,723	70,677	58.075
<b>Total</b>	<b>632,966</b>	<b>618,427</b>	<b>1,251,393</b>	<b>107.171</b>

Source : Department of Local Administration, Ministry of Interior

THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT	
ADMINISTRATIVE BOUNDARY AND 1994 CHIANG RAI POPULATION	Map & Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	Figure E-11
SANYU CONSULTANTS INC. & NIPPON KOEI CO., LTD.	

### Population of Phayao Province in 1994



LEGEND	
◊	~20,000
◊	20,001 ~ 50,000
◊	50,001 ~ 100,000
◊	100,001 ~ 150,000
◊	150,000 ~

- National boundary
- Province boundary
- - - - Amphoe boundary

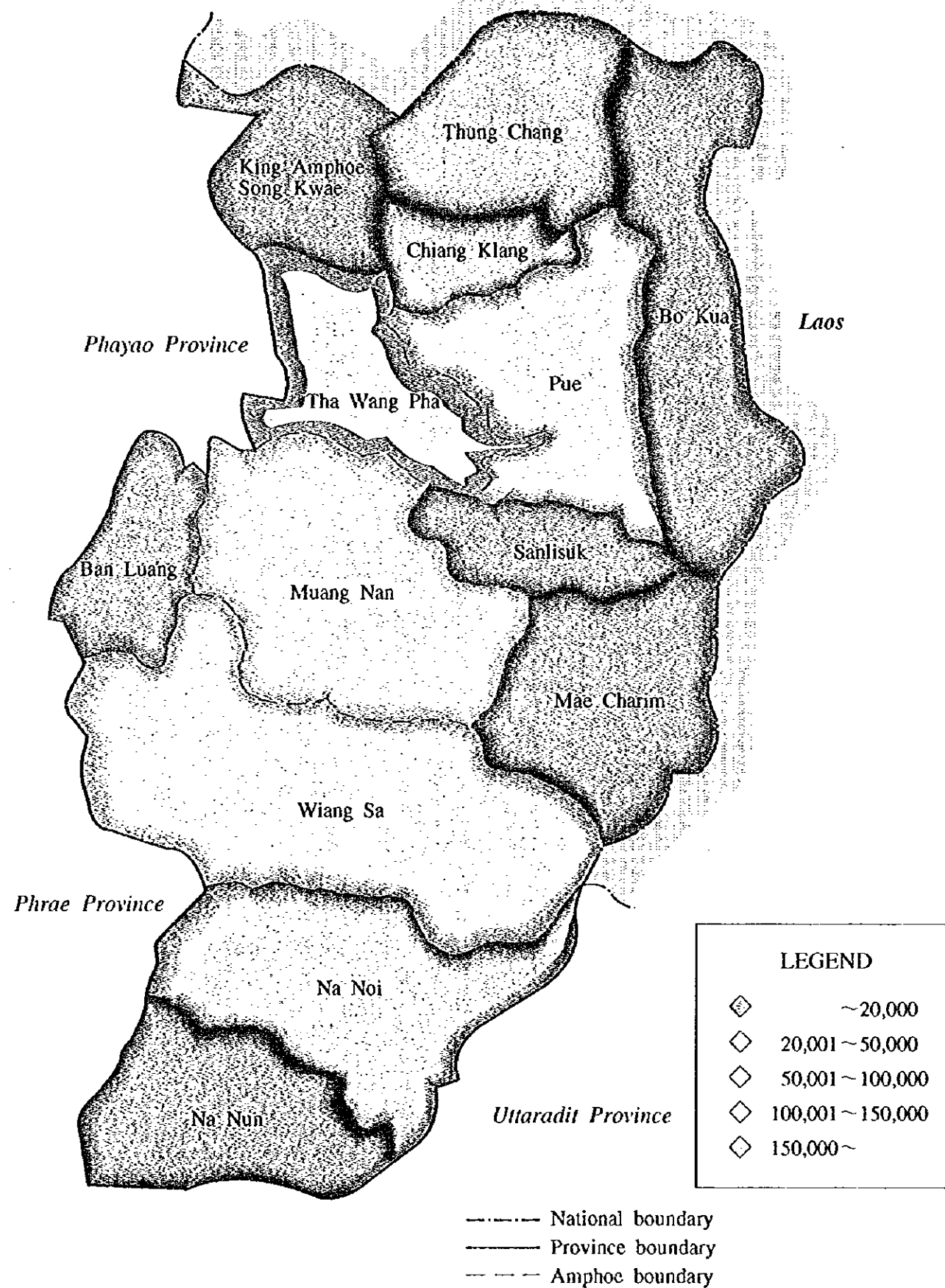
Number of Population and Population Density in Phayao Province by Amphoe : 1994

Amphoe's Name	Number of Population			Population density
	Male	Famale	Total	per Sq. km.
Muang Phayao	76,926	76,674	153,600	125
Chun	27,774	27,959	55,733	98
Chiang Kham	59,449	58,057	117,506	109
Chiang Muan	10,303	9,800	20,103	28
Dok Kham Tai	37,011	36,727	73,738	89
Pong	27,278	26,236	53,514	30
Mae Chai	19,694	19,583	39,277	131
<b>Total</b>	<b>258,435</b>	<b>255,036</b>	<b>513,471</b>	<b>81</b>

Source : Department of Local Administration, Ministry of Interior

THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT	
ADMINISTRATIVE BOUNDARY AND 1994 PHAYAO POPULATION	Map & Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	Figure E-12
SANYU CONSULTANTS INC. & NIPPON KOEI CO., LTD.	

### Population of Nan Province in 1994



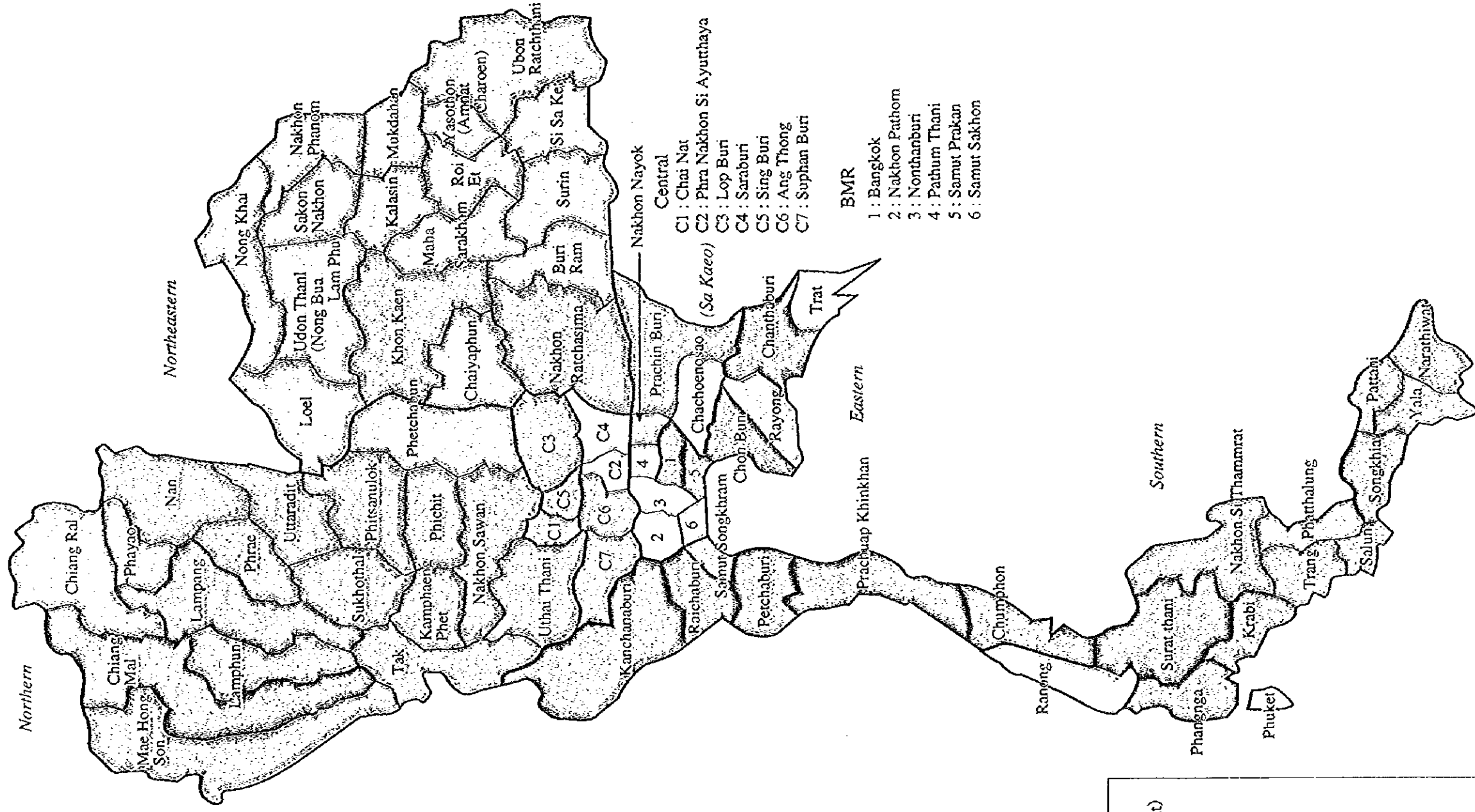
Number of Population and Population Density in Nan Province : 1994

Amphoe's Name	Number of Population			Population density per Sq. km.
	Male	Famale	Total	
Muang Nan	58,362	56,861	115,223	87.20
Chiang Klang	14,648	14,157	28,805	96.94
Tha Wang Pha	26,350	25,650	52,000	74.05
Thung Chang	11,341	11,087	22,428	23.68
Na Noi	16,784	16,470	33,254	23.80
Na Mun	7,878	7,428	15,306	19.48
Ban Luang	6,246	5,790	12,036	35.58
Bo Kua	9,017	8,651	17,668	14.95
Pue	32,562	31,837	64,399	97.96
Mae Charim	7,884	7,417	15,301	15.32
Wiang Sa	35,516	34,798	70,314	37.10
Sanlisuk	7,785	7,406	15,191	36.44
King Amphoe Song Kwae	5,685	5,235	10,920	20.82
<b>Total</b>	<b>240,058</b>	<b>232,787</b>	<b>472,845</b>	<b>41.24</b>

Source : Department of Local Administration, Ministry of Interior

THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT	
ADMINISTRATIVE BOUNDARY AND 1994 NAN POPULATION	Map & Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	Figure E-13
SANYU CONSULTANTS INC. & NIPPON KOEI CO., LTD.	

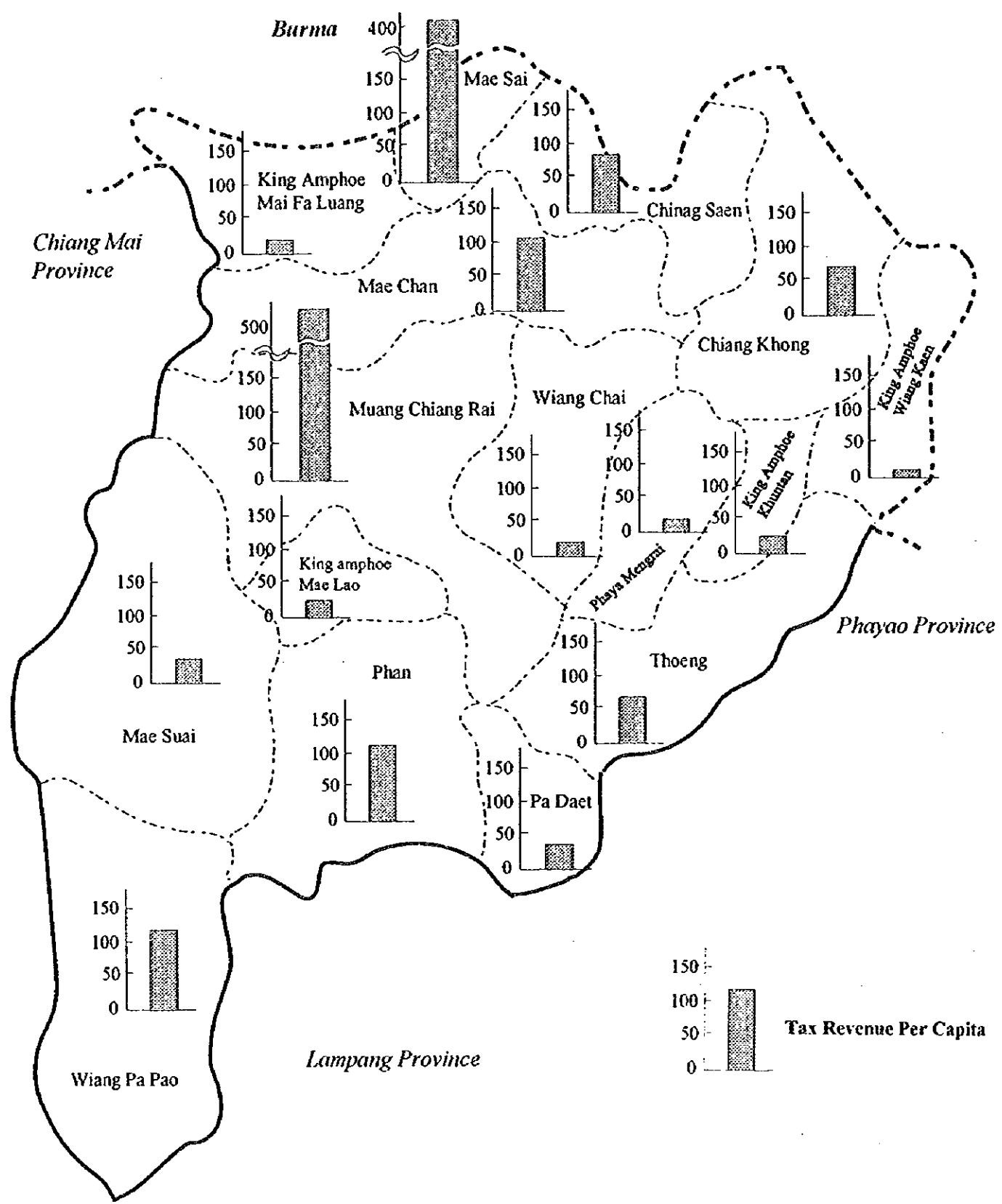
# Per Capita GPP by Province in 1993



**LEGEND** per capita GPP(Baht)

180,000 level
110,000-15,000
45,000-90,000
30,000-45,000
20,000-44,999
10,000-19,999

- Central**  
 C1 : Chai Nat  
 C2 : Phra Nakhon Si Ayutthaya  
 C3 : Lop Buri  
 C4 : Saraburi  
 C5 : Sing Buri  
 C6 : Ang Thong  
 C7 : Suphan Buri
- BMR**  
 1 : Bangkok  
 2 : Nakhon Pathom  
 3 : Nonthaburi  
 4 : Pathum Thani  
 5 : Samut Prakan  
 6 : Samut Sakhon

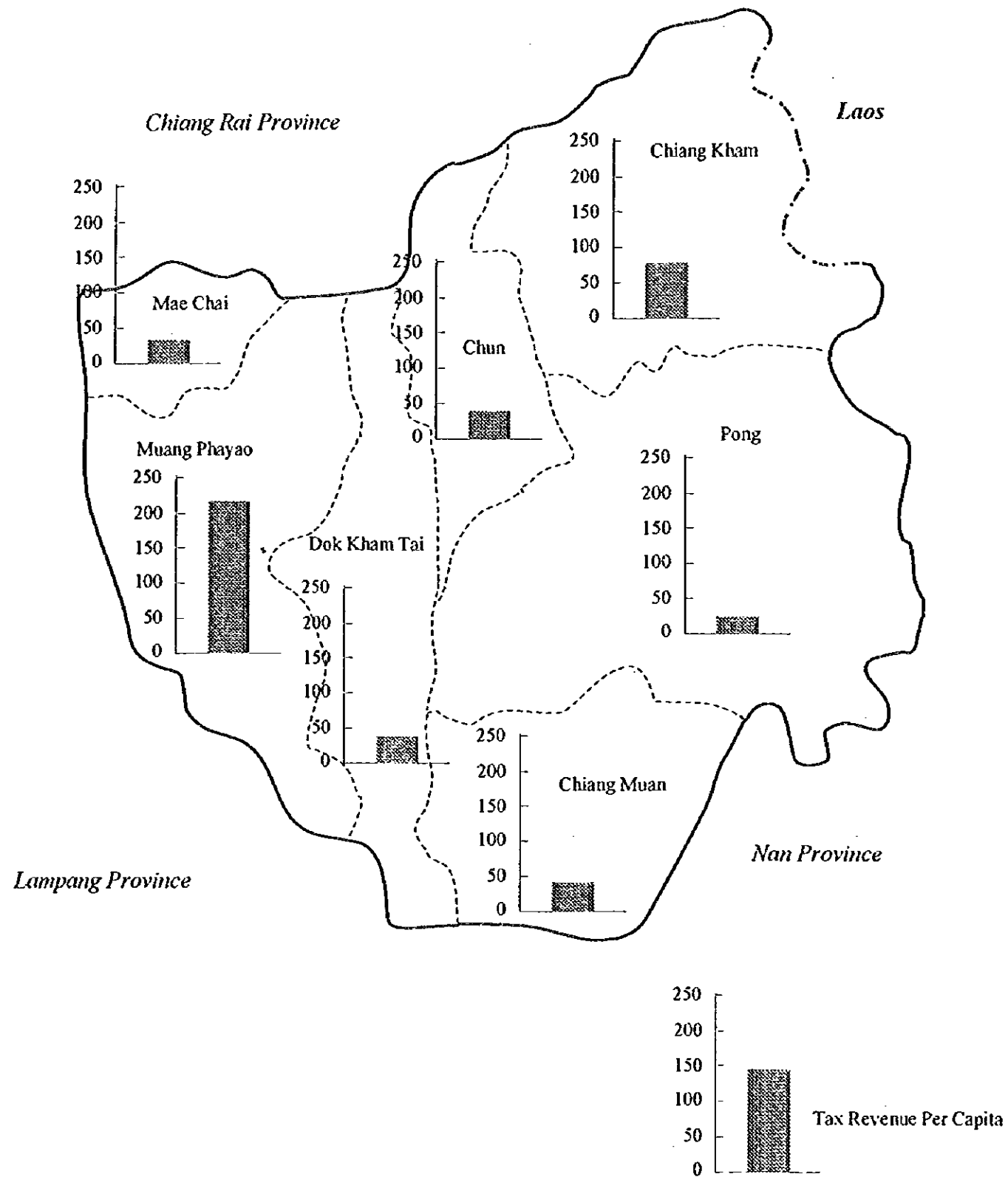


Personal Income Tax Revenue (Chiang Rai Province)

Amphoe	Personal Income Tax Revenue (unit: Baht)	Number of Population	Tax Revenue Per Capita
Muang Chiang Rai	119,775,985	219,962	545
King Amphoe Khuntan	699,908	34,273	20
Chiang Khong	4,220,312	68,221	62
Chiang Saen	4,716,436	54,737	86
Thoeng	5,223,169	87,600	60
Pa Daet	964,632	27,165	36
Phaya Mengrai	841,547	44,381	19
Phan	15,075,930	140,765	107
Mae Chan	18,854,078	180,609	104
King Amphoe Mae Fa Luang	392,702	27,673	14
King Amphoe Mae Lao	586,591	33,404	18
Mae Suai	1,977,015	74,543	27
Mae Sai	32,679,830	81,041	403
King Amphoe Wiang Kaen	230,932	31,866	7
Wiang Chai	1,289,037	74,476	17
Wiang Pa Pao	7,795,934	70,677	110
<b>Total</b>	<b>215,324,038</b>	<b>1,251,393</b>	<b>1,635</b>

Personal Income Tax Revenue (Chiang Rai Province)

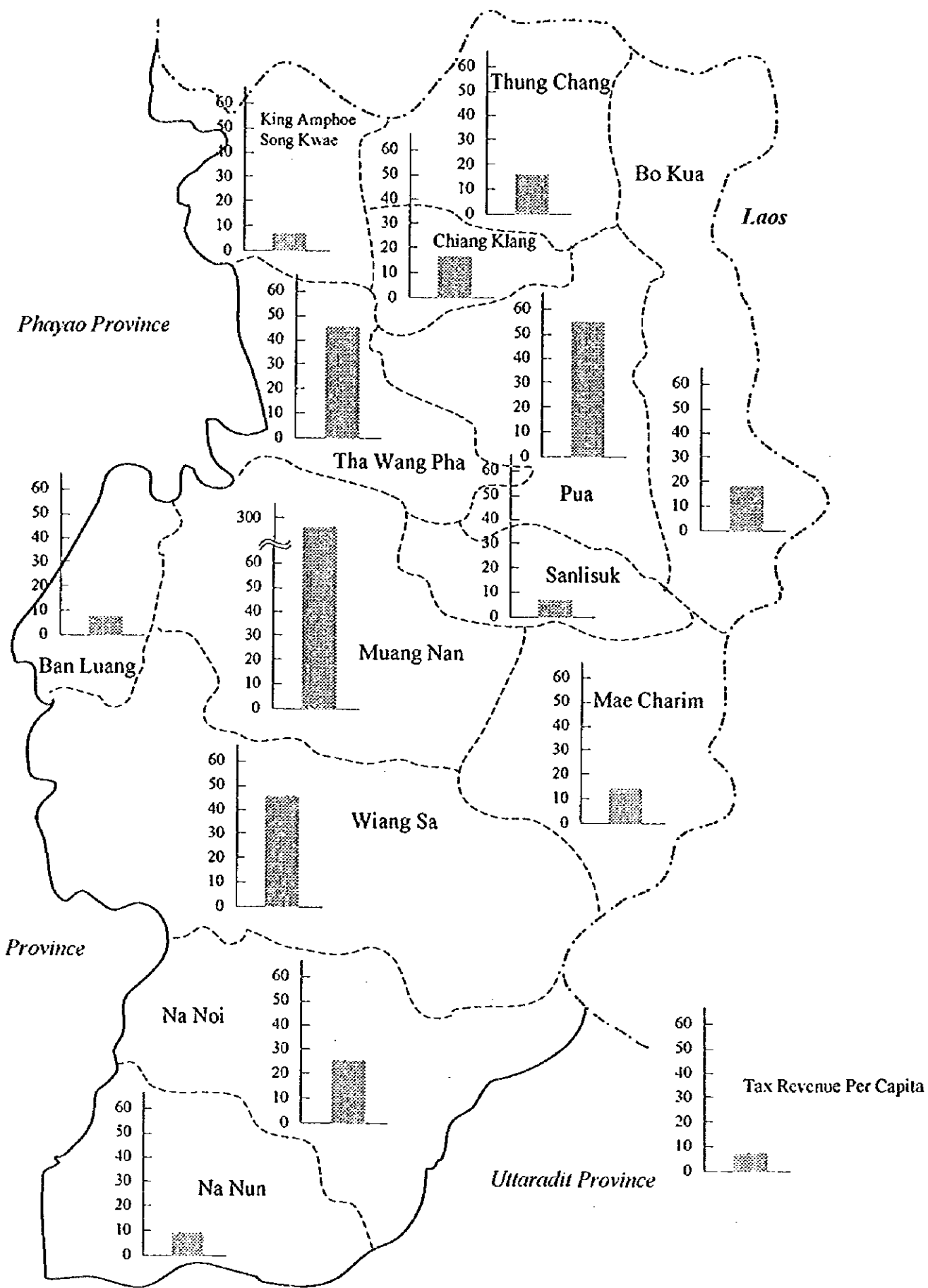




**Personal Income Tax Revenue (Phayao Province)**

Amphoe	Personal Income Tax Revenue (unit: Baht)	Number of Population	Tax Revenue Per Capita
Muang Phayao	33,480,038	153,600	218
Chun	2,374,682	55,733	43
Chiang Kham	9,267,855	117,506	79
Chiang Muan	962,279	20,103	48
Dok Kham Tai	2,323,253	73,738	32
Pong	1,301,135	53,514	24
Mae Chai	1,197,851	39,277	30
<b>Total</b>	<b>50,907,093</b>	<b>513,471</b>	<b>474</b>

**Personal Income Tax Revenue (Phayao Province)**



**Personal Income Tax Revenue (Nan Province)**

**Personal Income Tax Revenue (Nan Province)**

Amphoe	Personal Income Tax Revenue (unit: Baht)	Number of Population	Tax Revenue Per Capita
Muang Nan	31,267,591	115,223	271
Chiang Klang	476,346	28,805	17
Tha Wang Pha	2,250,001	52,000	43
Thung Chang	329,712	22,428	15
Na Noi	802,063	33,254	24
Na Mun	135,665	15,306	9
Bo Kua	174,308	12,036	14
Ban Luang	140,753	17,668	8
Pua	3,531,105	64,399	55
Mae Charim	185,053	15,301	12
Wiang Sa	3,196,040	70,314	45
Santisuk	120,336	15,191	8
King Amphoe Song Kwae	73,933	10,920	7
<b>Total</b>	<b>42,682,906</b>	<b>472,845</b>	<b>528</b>

# Distribution of Major Village Settlements in Thailand



Based on a map produced by Tribal Research Centre, Chiang Mai

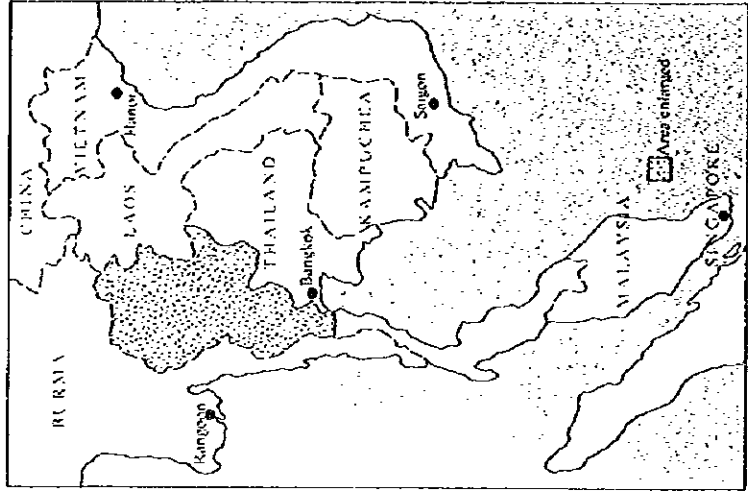
Scale 1 : 1 000 000

0 10 20 30 40 km

Country Boundary

Province Boundary

☉ Karen  
 ● Himong  
 ● Mien  
 ● Lahu  
 ● Akha  
 ● Lisu



THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT	Map & Drawing No.
DISTRIBUTION OF MAJOR TRIBAL VILLAGE SETTLEMENT IN THAILAND	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	Figure E-18
SANYU CONSULTANTS INC. & NIPPON KOEI CO., LTD.	







JICA