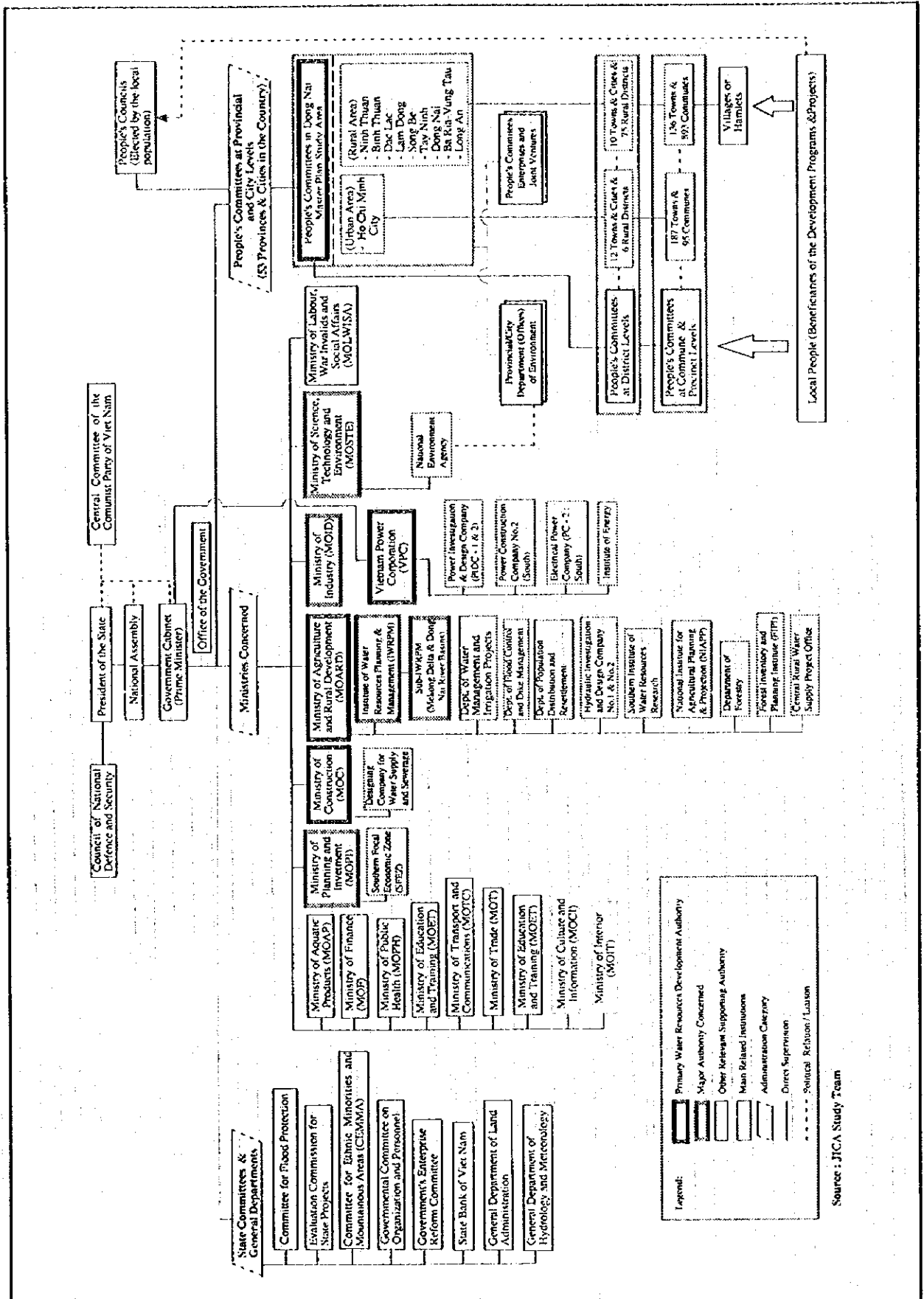


SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT

JAPAN INTERNATIONAL COOPERATION AGENCY

**Figure 2.1**  
**Administrative Unit and Ecological Zone**  
**in Viet Nam**

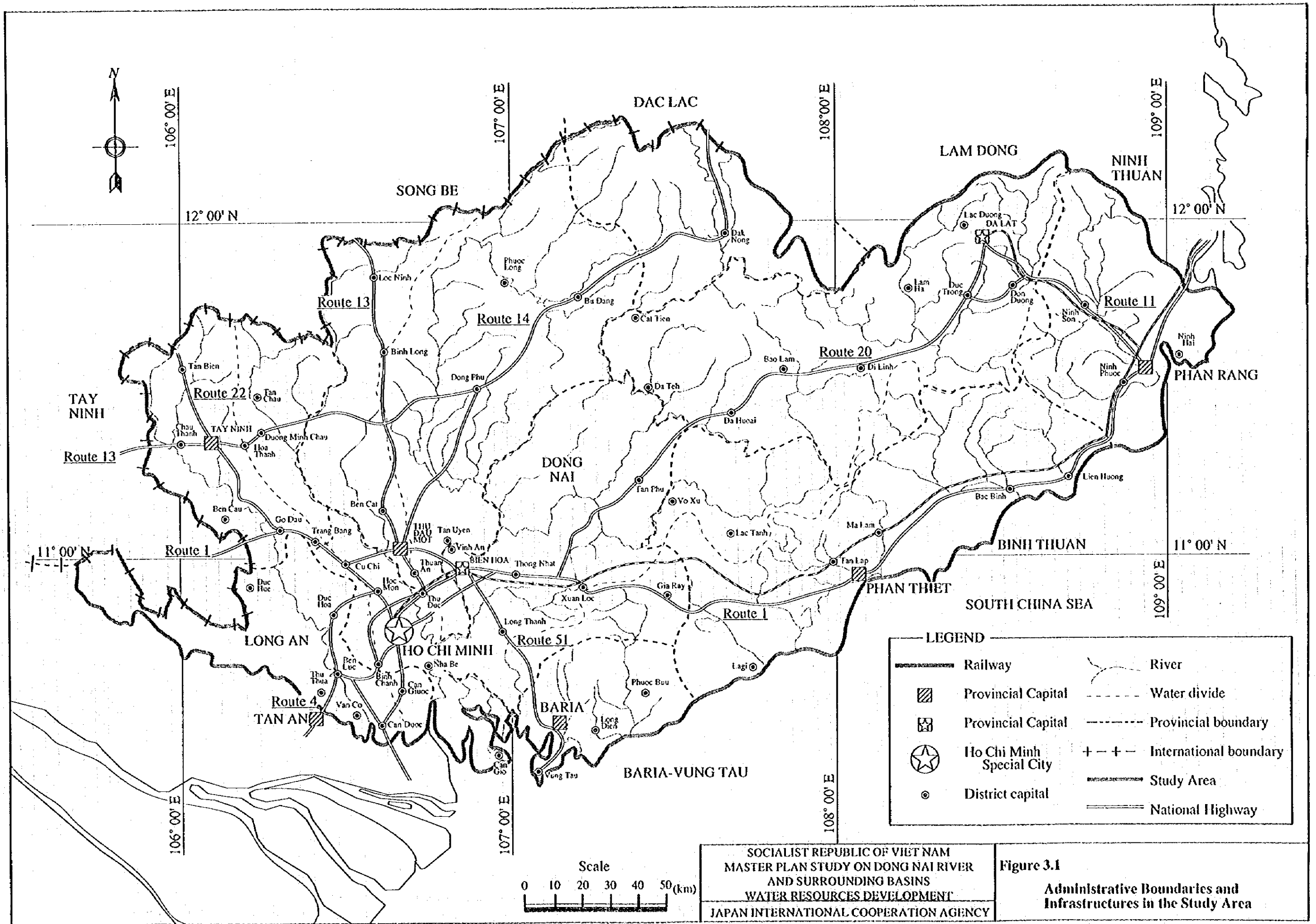


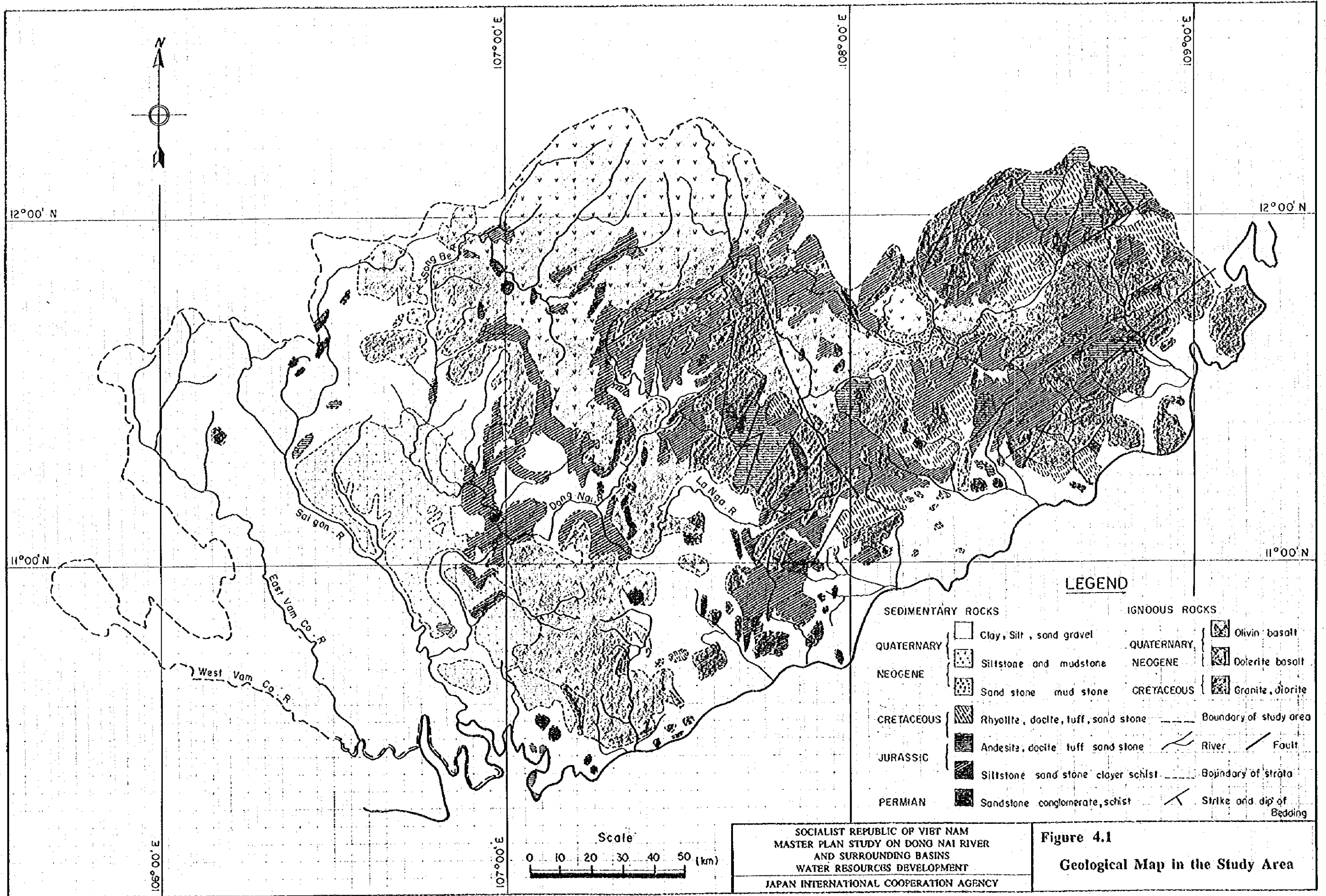


**SOCIALIST REPUBLIC OF VIET NAM**  
**MASTER PLAN STUDY ON DONG NAI RIVER**  
**AND SURROUNDING BASINS**  
**WATER RESOURCES DEVELOPMENT**

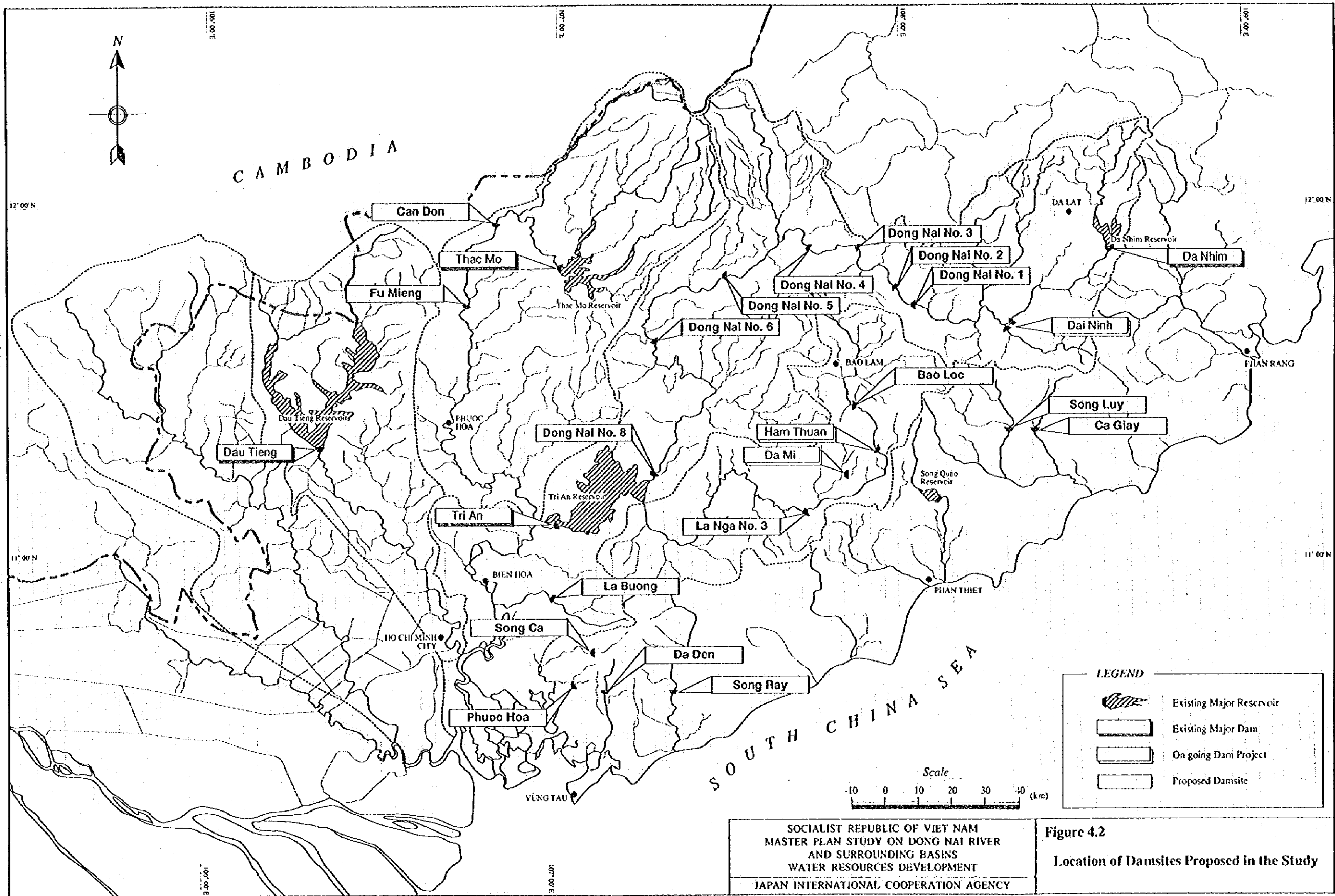
**Figure 2.2**  
**Organization Structure for Water Resources Development**  
**in Viet Nam (Main Agencies and Institutions Related to**  
**the Dong Nai Master Plan Study)**

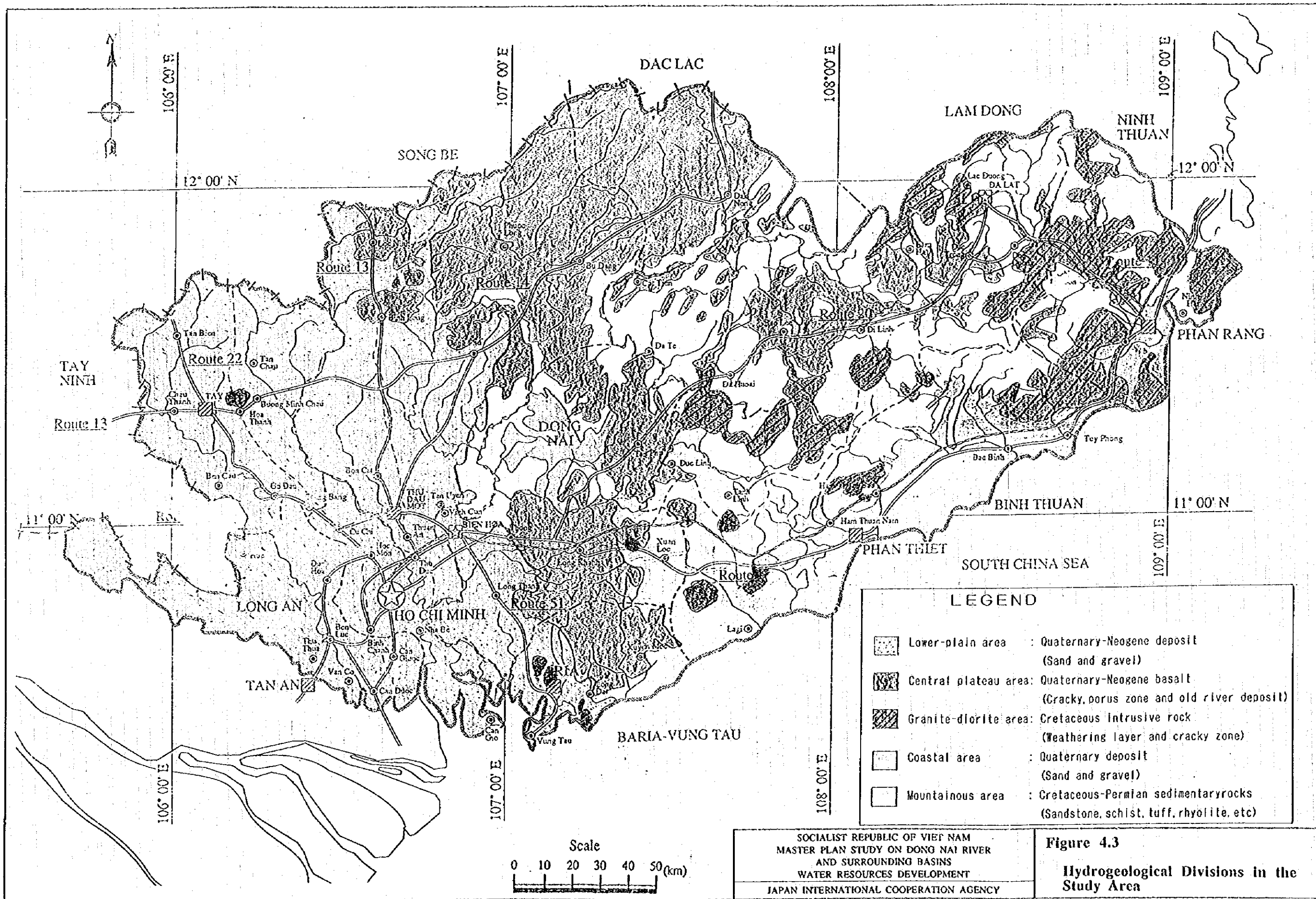
**JAPAN INTERNATIONAL COOPERATION AGENCY**





**Figure 4.1**  
**Geological Map in the Study Area**



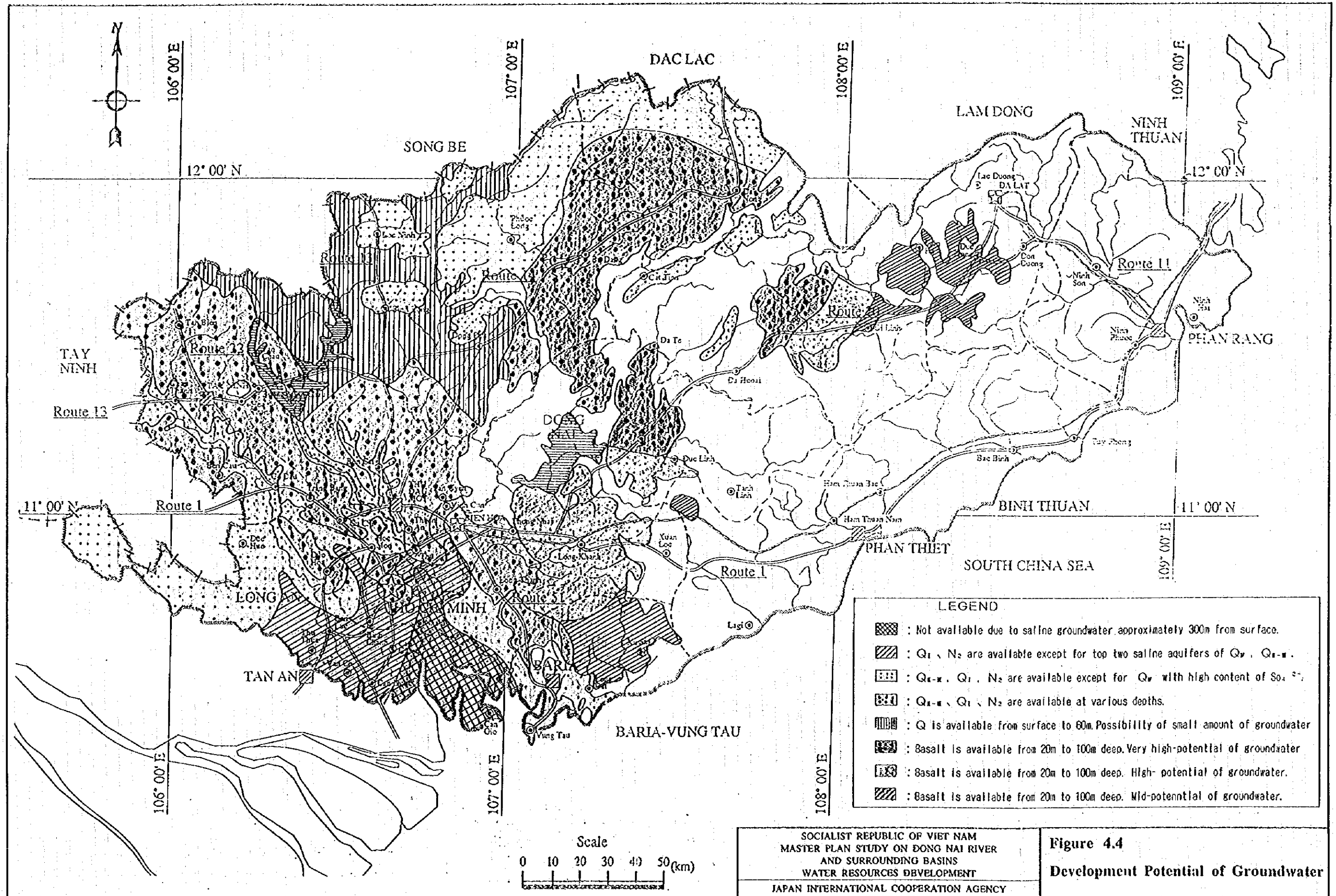


**LEGEND**

	Lower-plain area	: Quaternary-Neogene deposit (Sand and gravel)
	Central plateau area	: Quaternary-Neogene basalt (Cracky, porous zone and old river deposit)
	Granite-diorite area	: Cretaceous intrusive rock (Weathering layer and cracky zone)
	Coastal area	: Quaternary deposit (Sand and gravel)
	Mountainous area	: Cretaceous-Permian sedimentary rocks (Sandstone, schist, tuff, rhyolite, etc)

SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

**Figure 4.3**  
 Hydrogeological Divisions in the Study Area





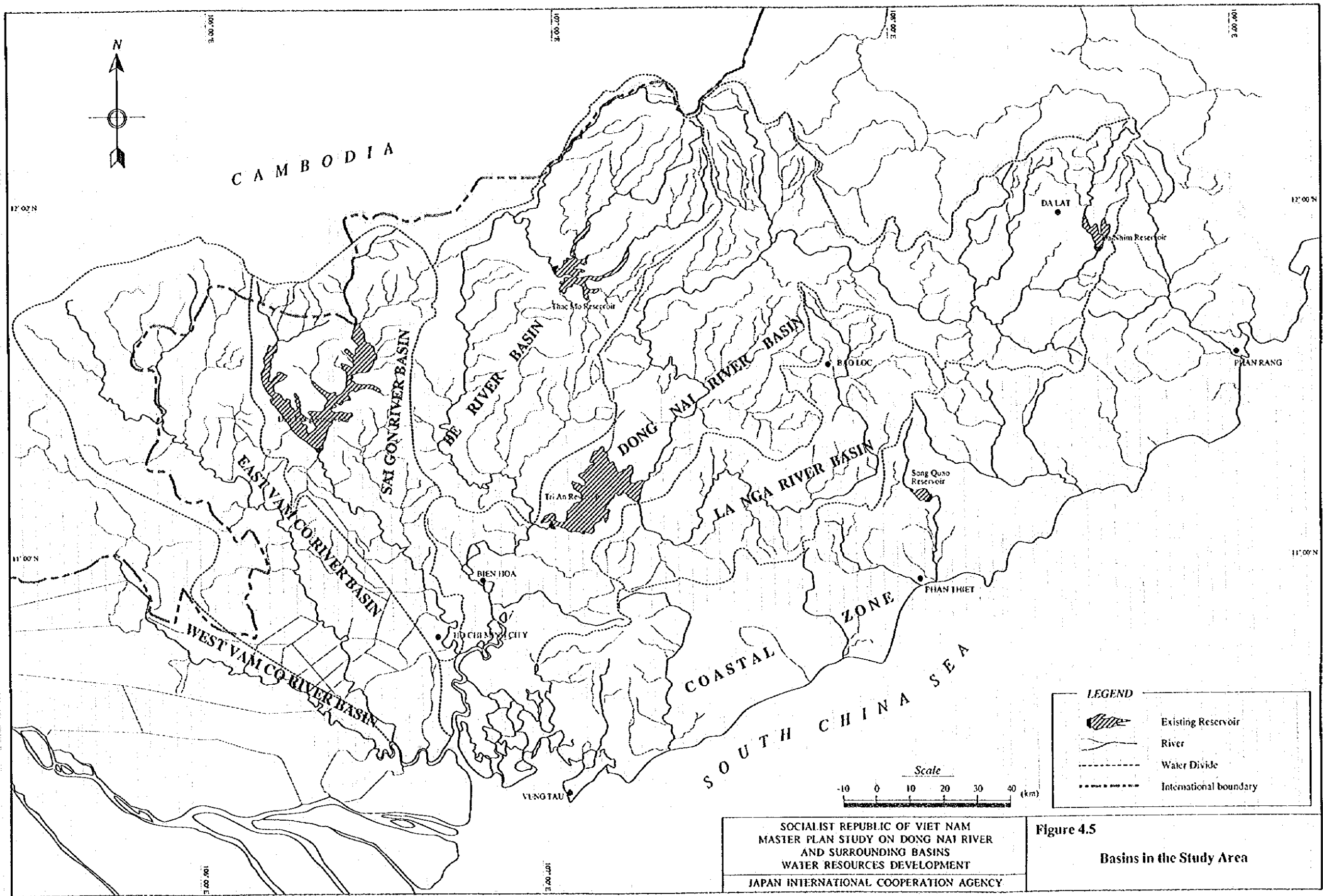
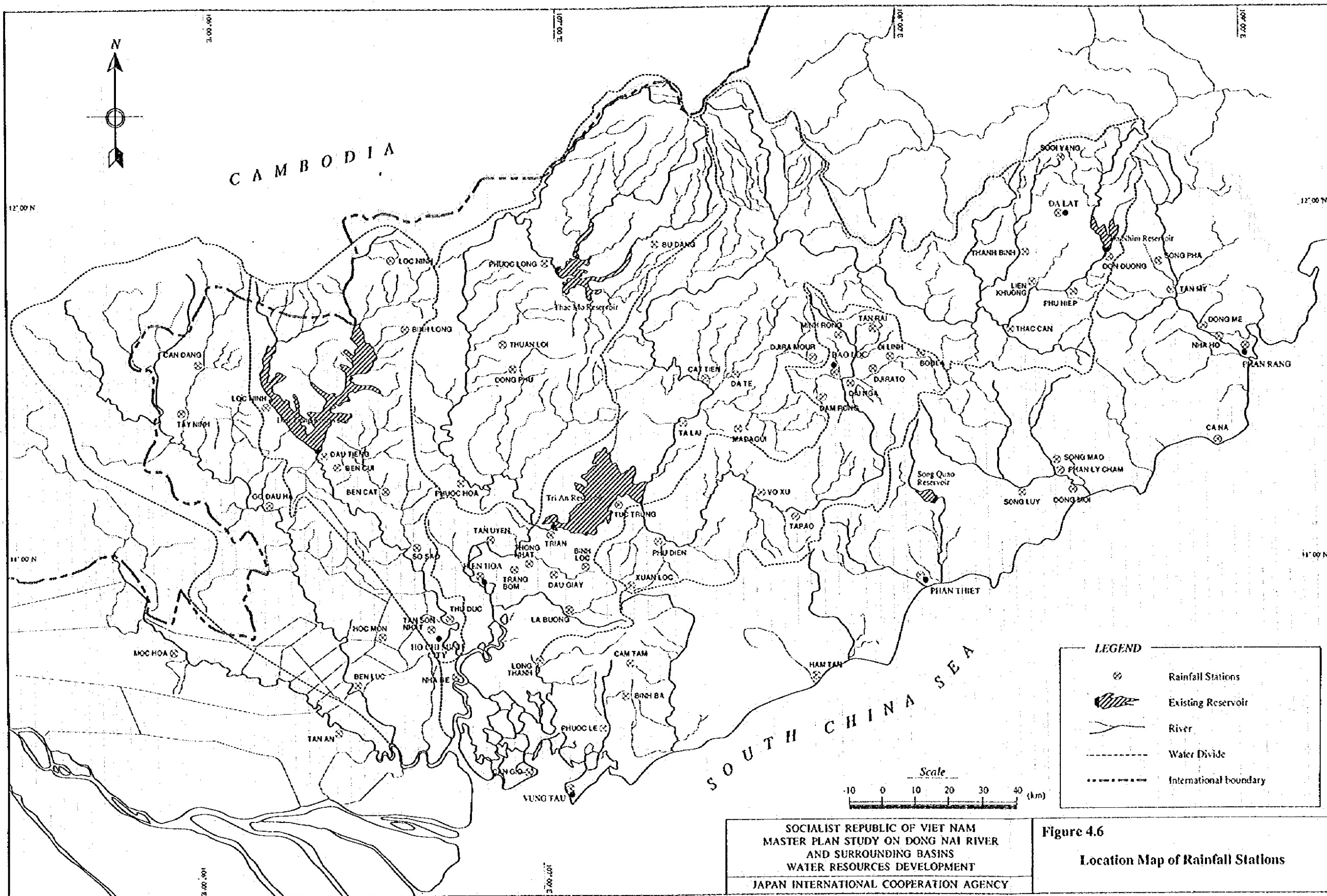
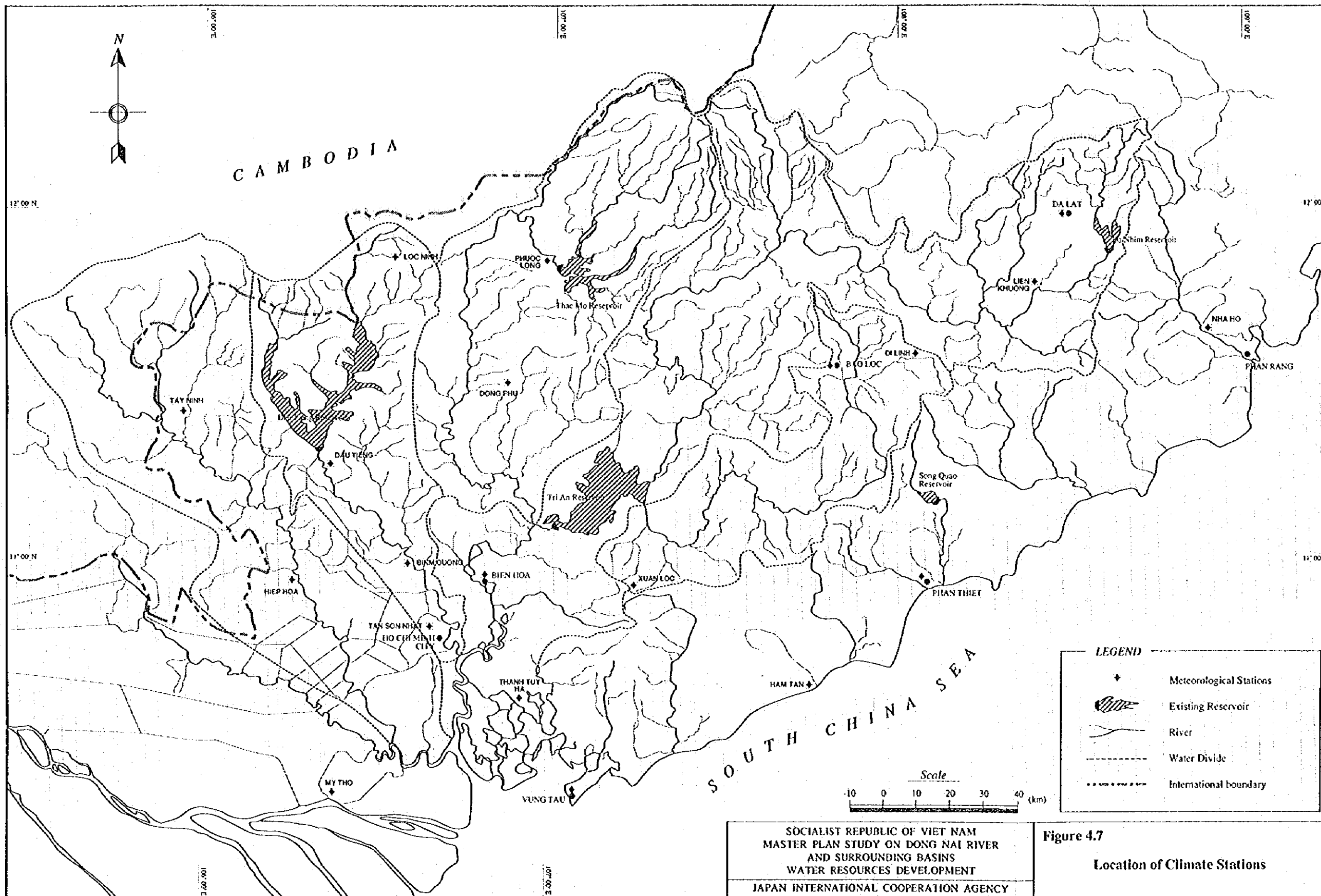


Figure 4.5

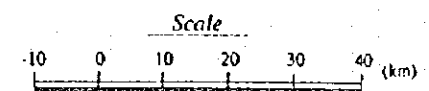
Basins in the Study Area





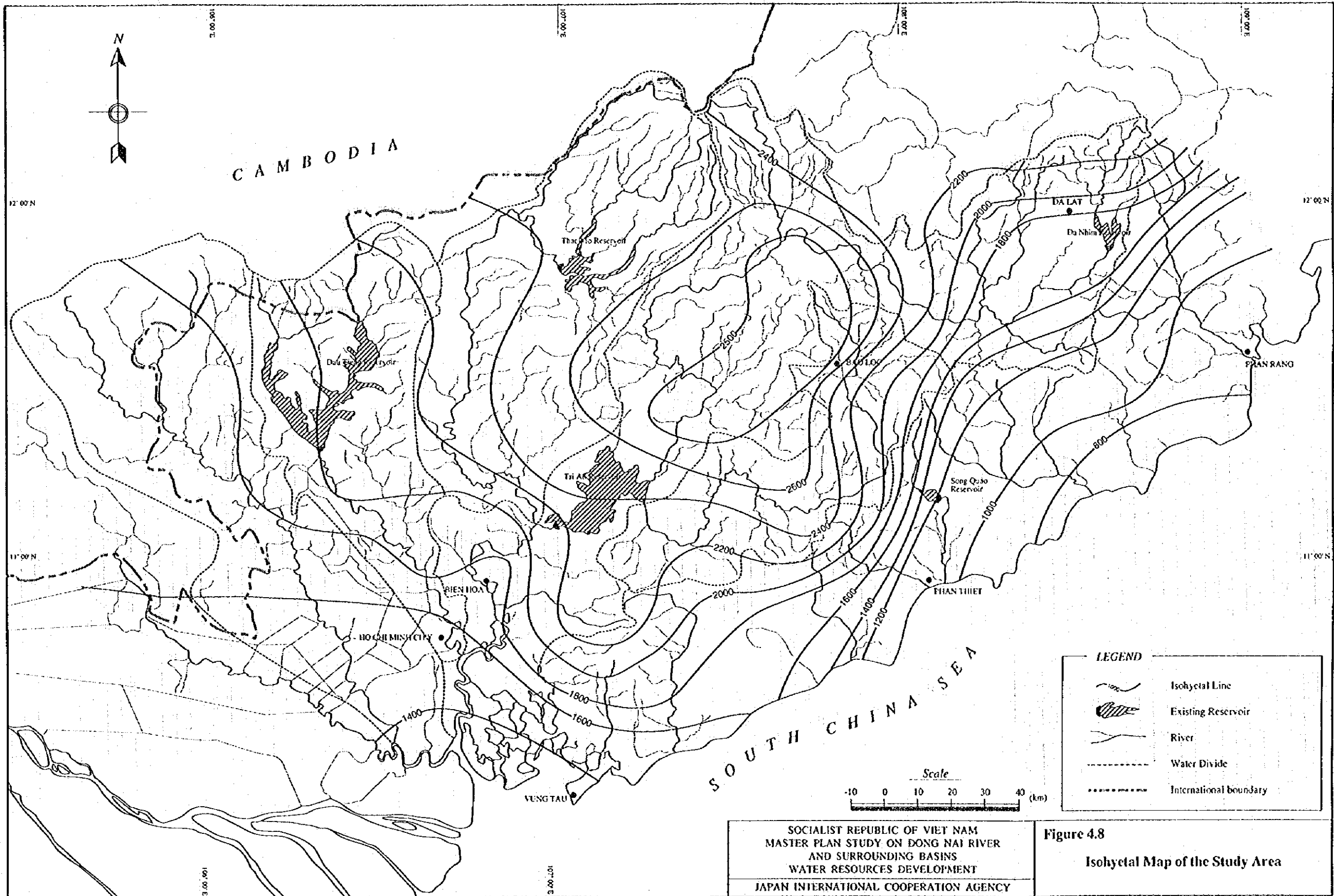
**LEGEND**

- ✦ Meteorological Stations
- ▨ Existing Reservoir
- River
- - - Water Divide
- International boundary



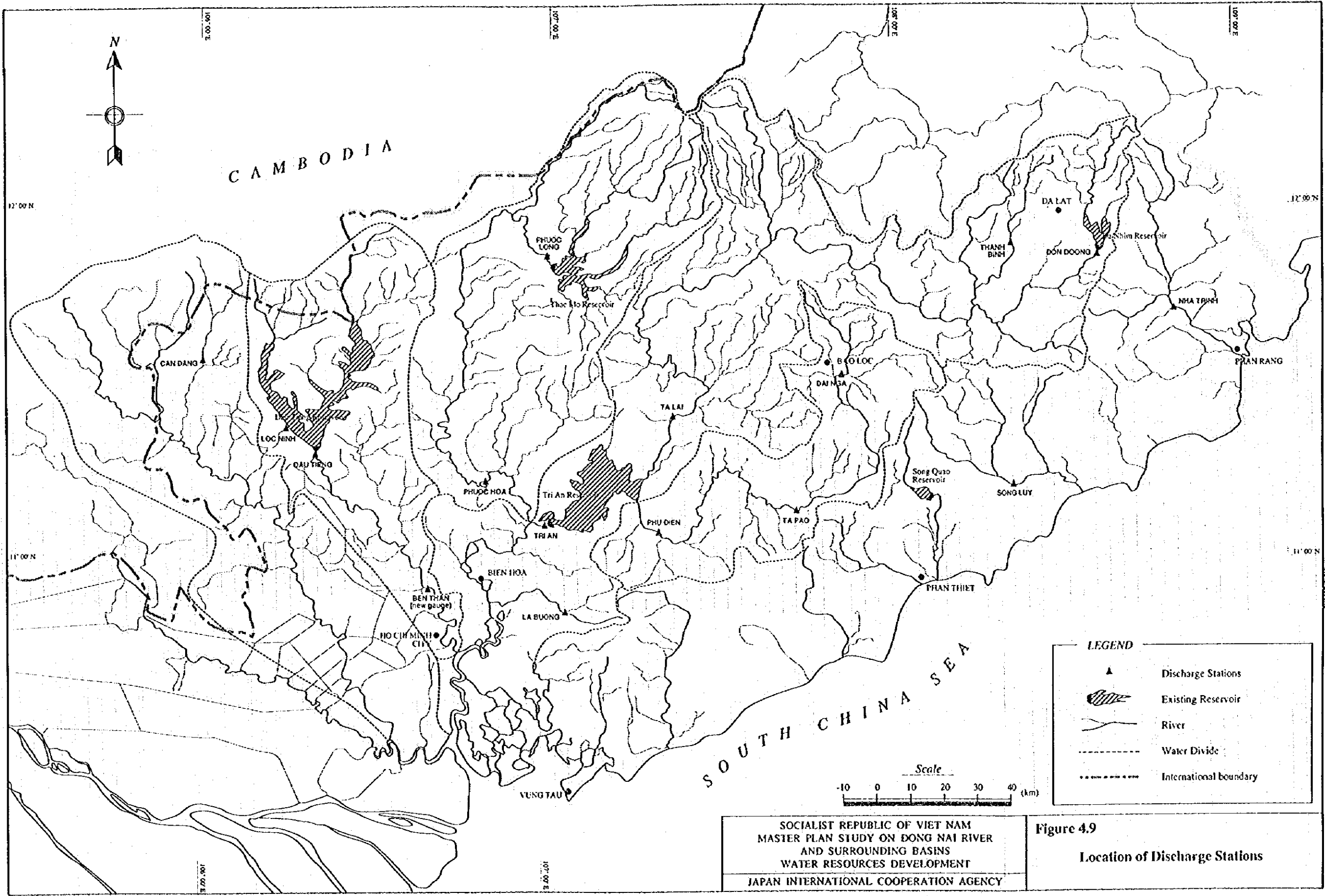
SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

**Figure 4.7**  
 Location of Climate Stations

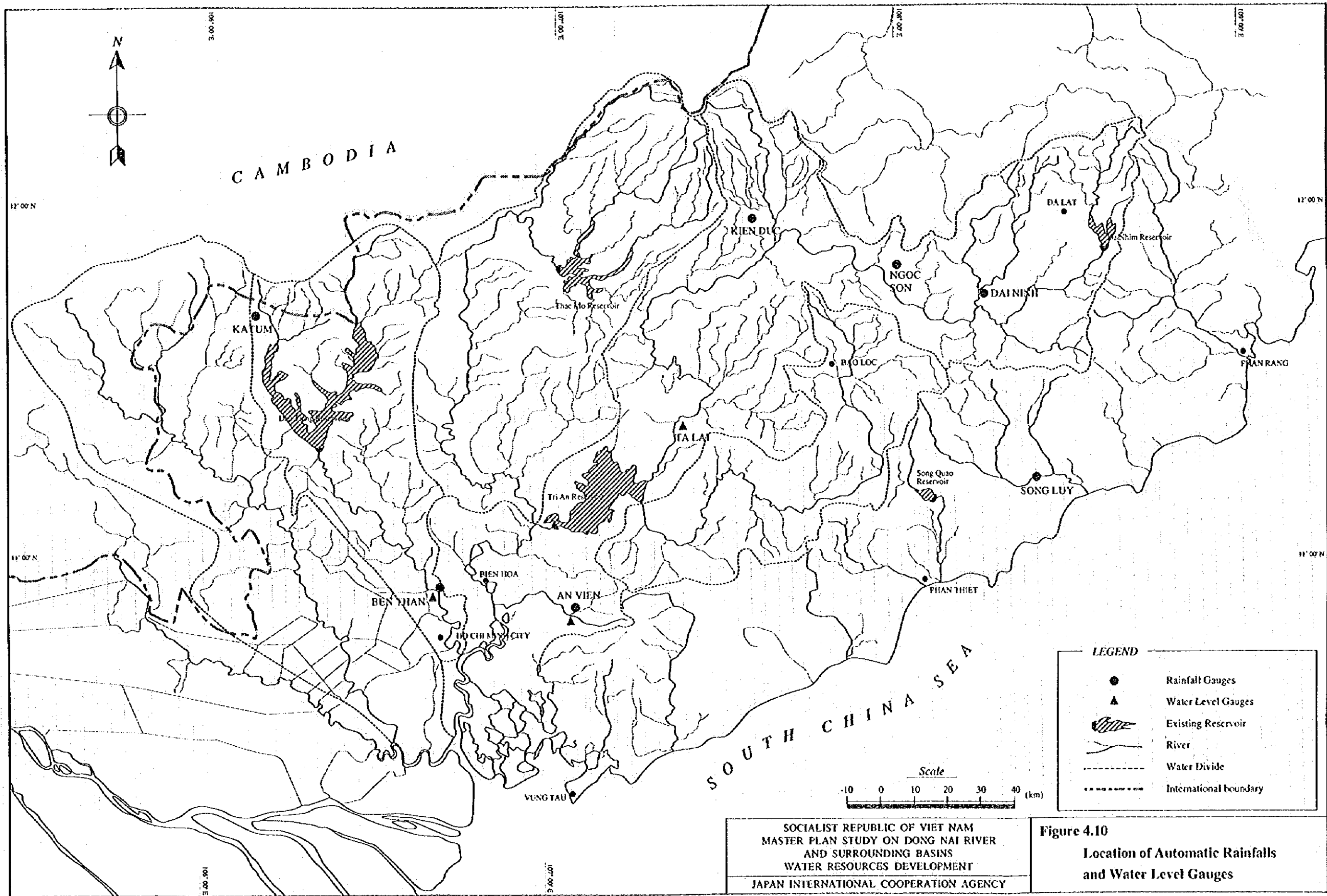


SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 4.8  
 Isohyetal Map of the Study Area



**Figure 4.9**  
**Location of Discharge Stations**



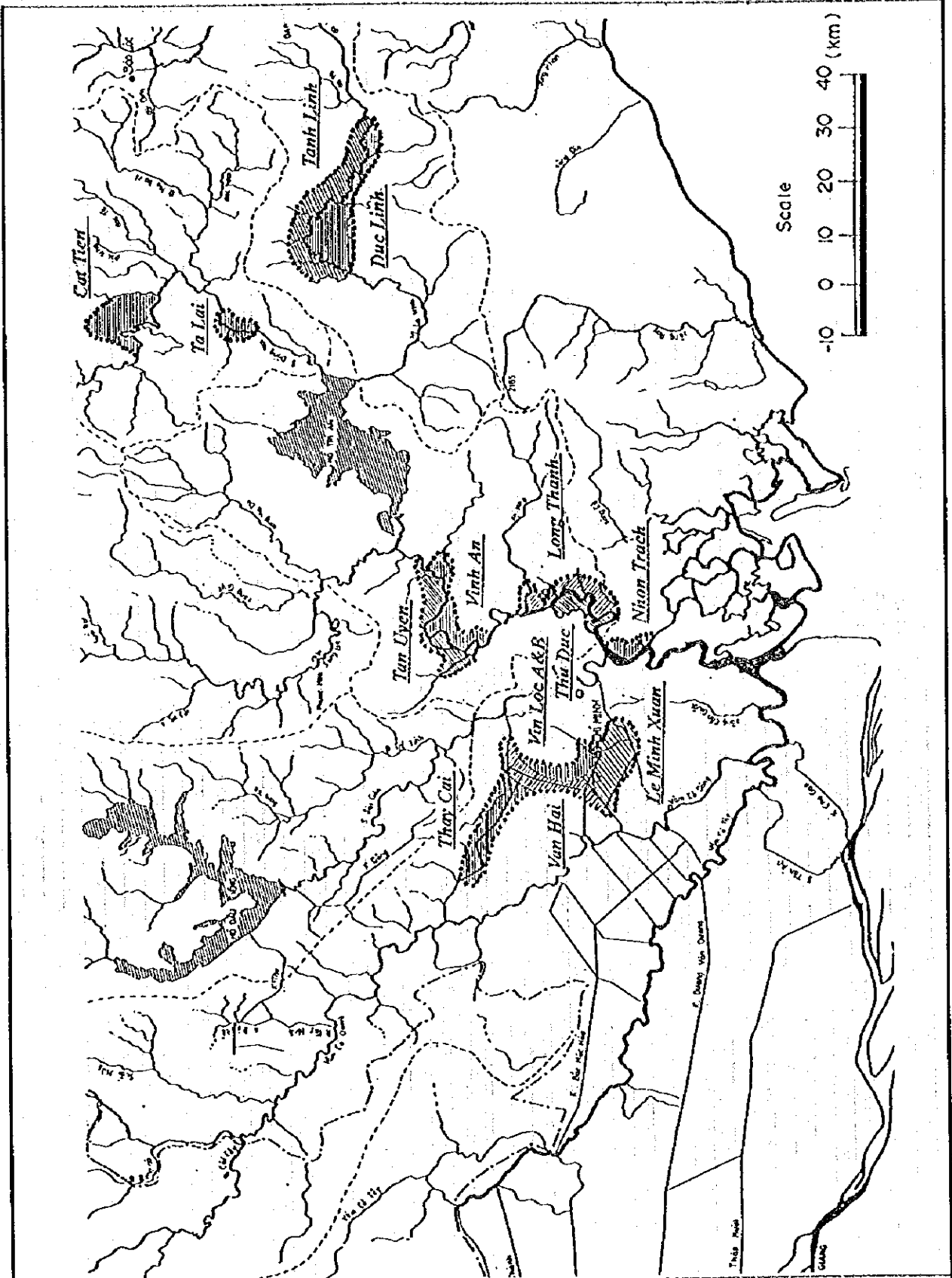
**LEGEND**

- Rainfall Gauges
- ▲ Water Level Gauges
- ▨ Existing Reservoir
- River
- - - Water Divide
- ..... International boundary

SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

**Figure 4.10**  
 Location of Automatic Rainfalls  
 and Water Level Gauges

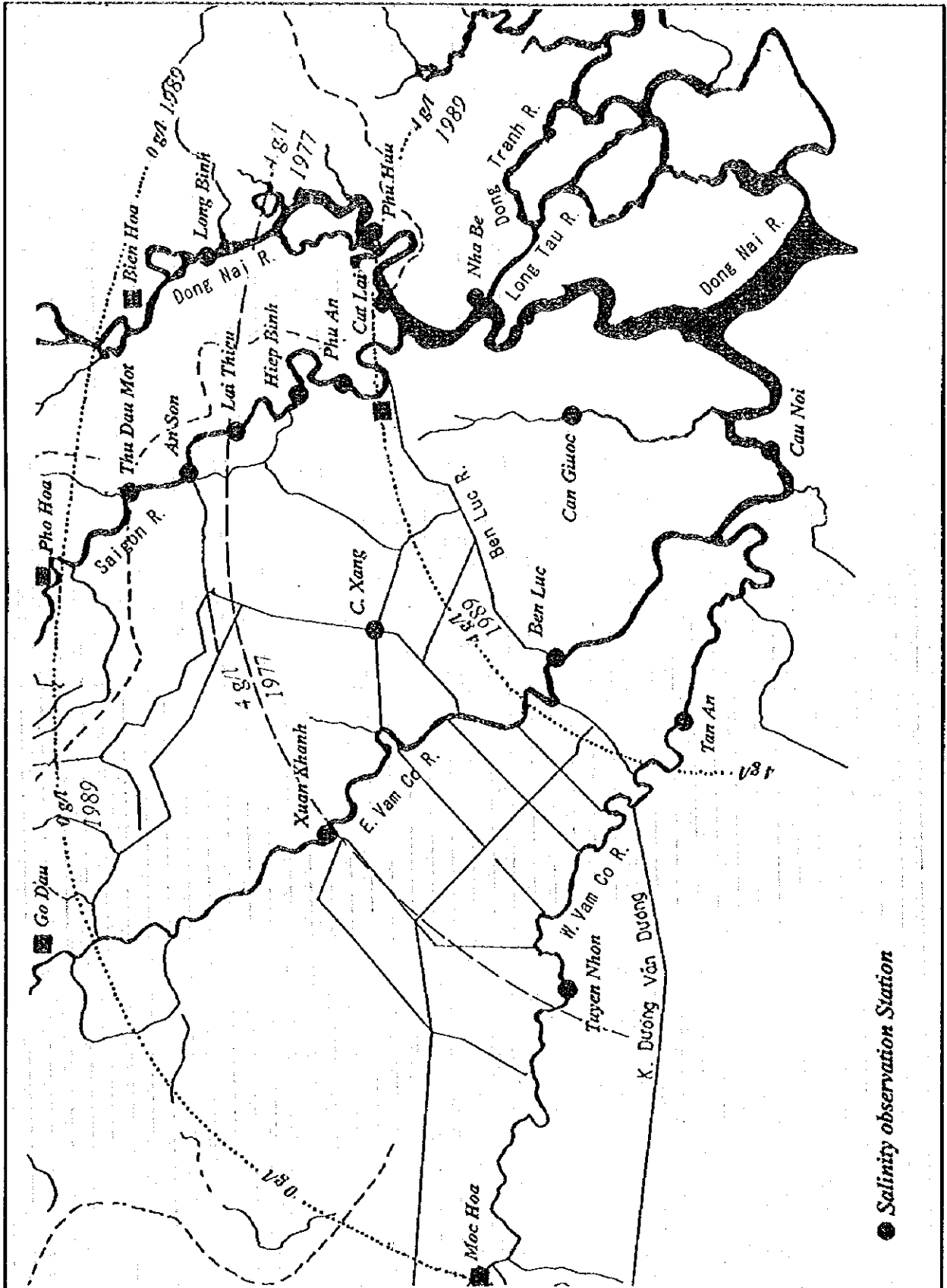




SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 5.1  
 Flood-Prone Area



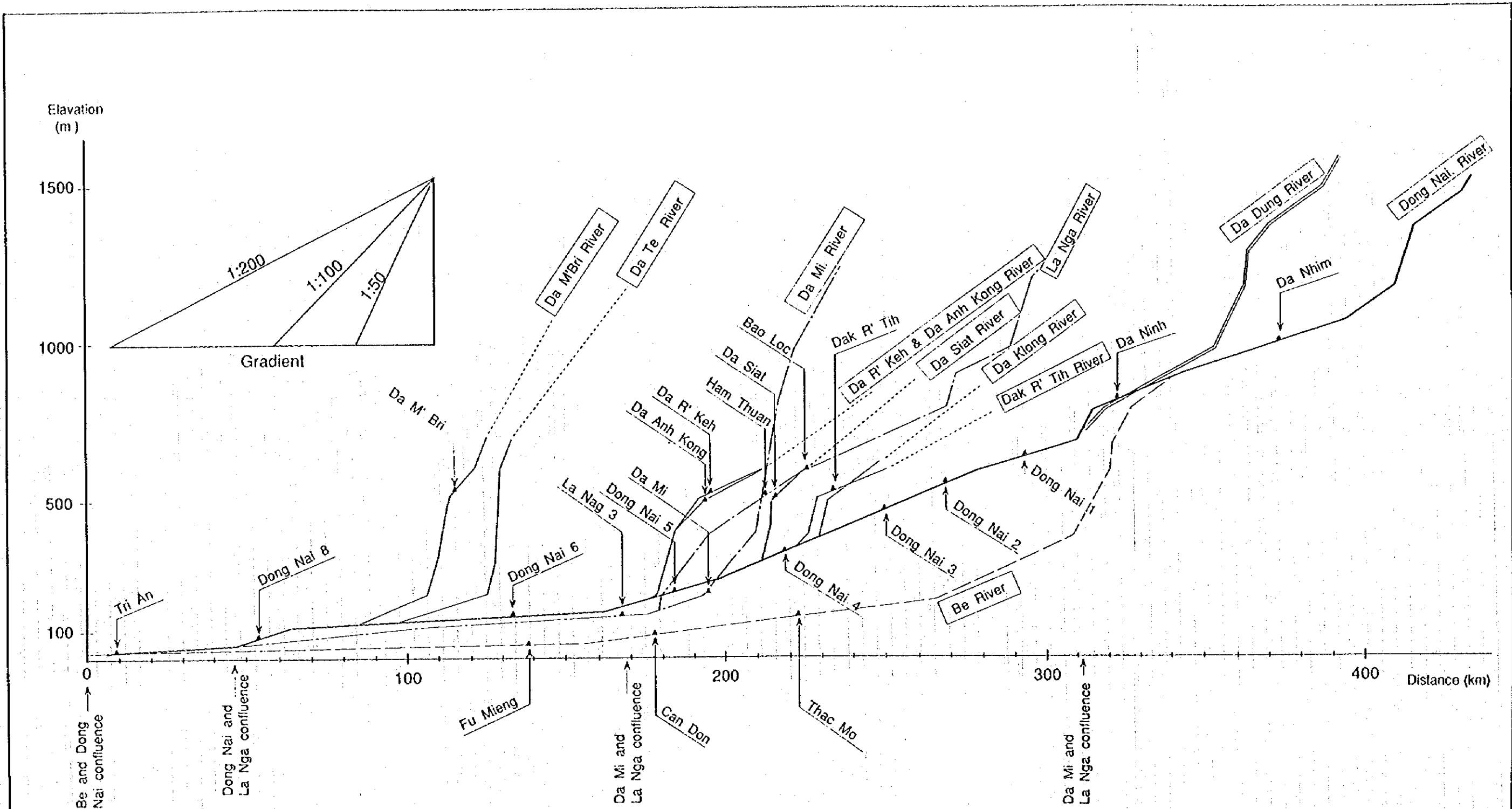


● Salinity observation Station

SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

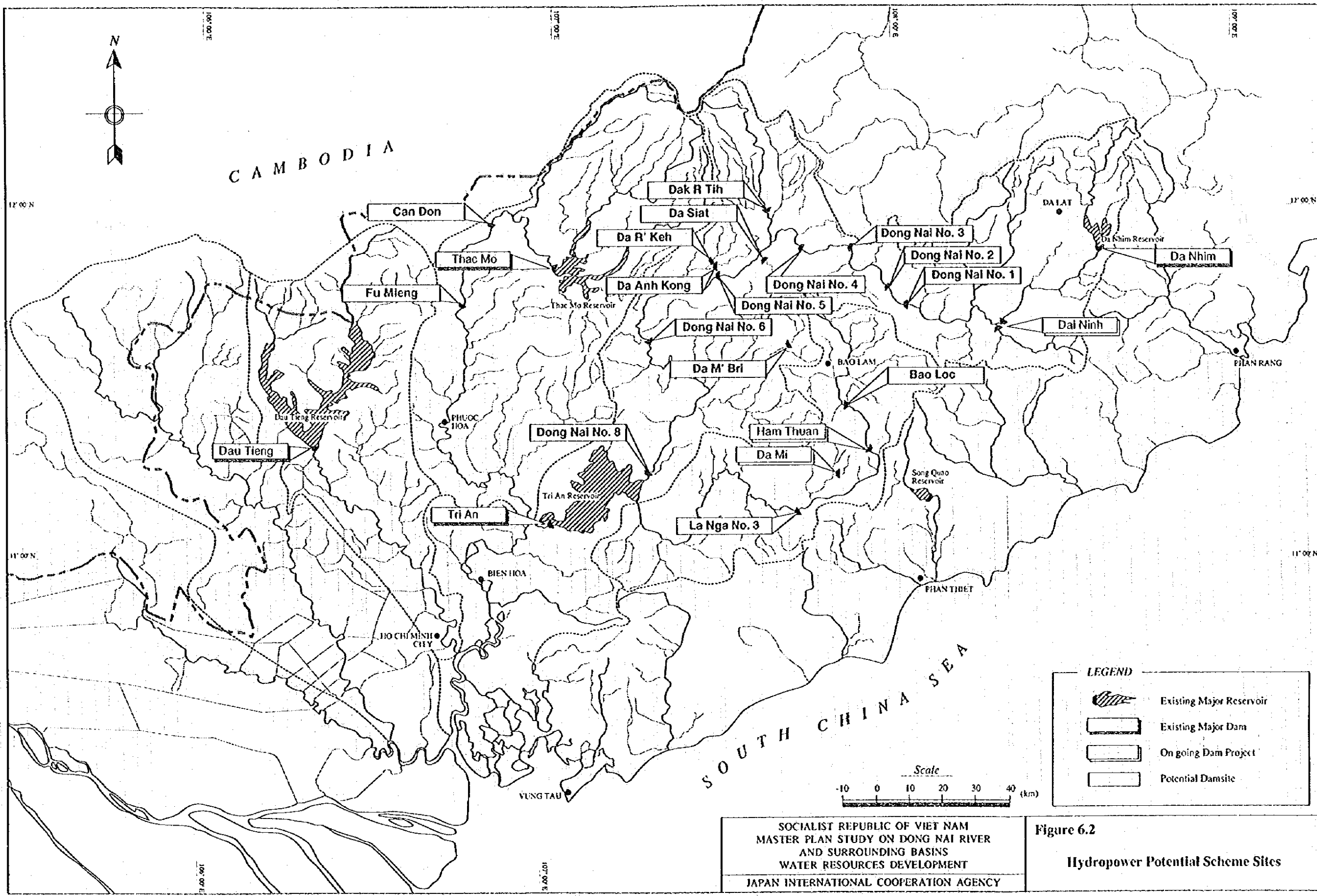
Figure 5.2  
 Extent of Salinity Intrusion and  
 Observation Network



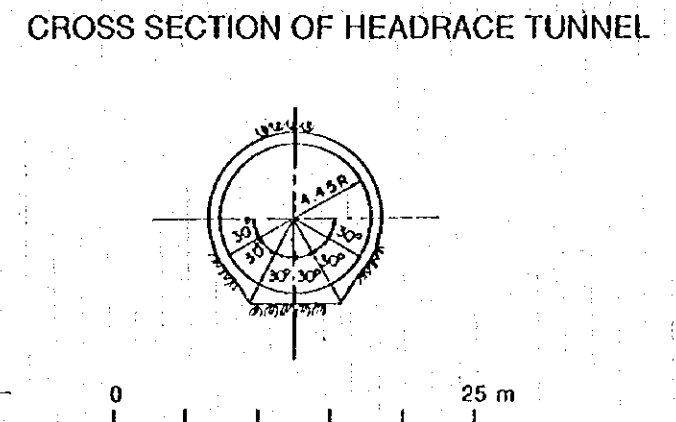
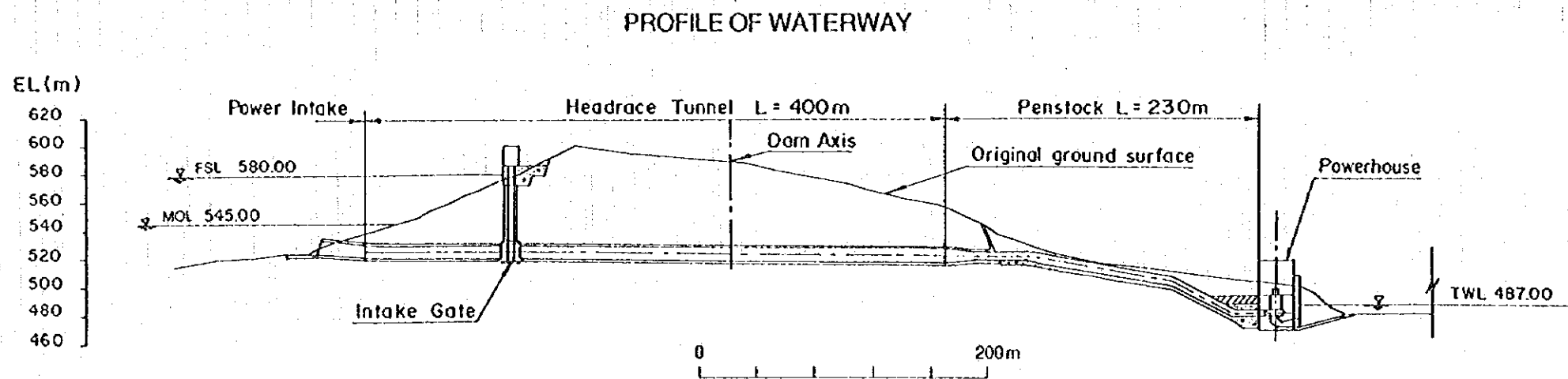
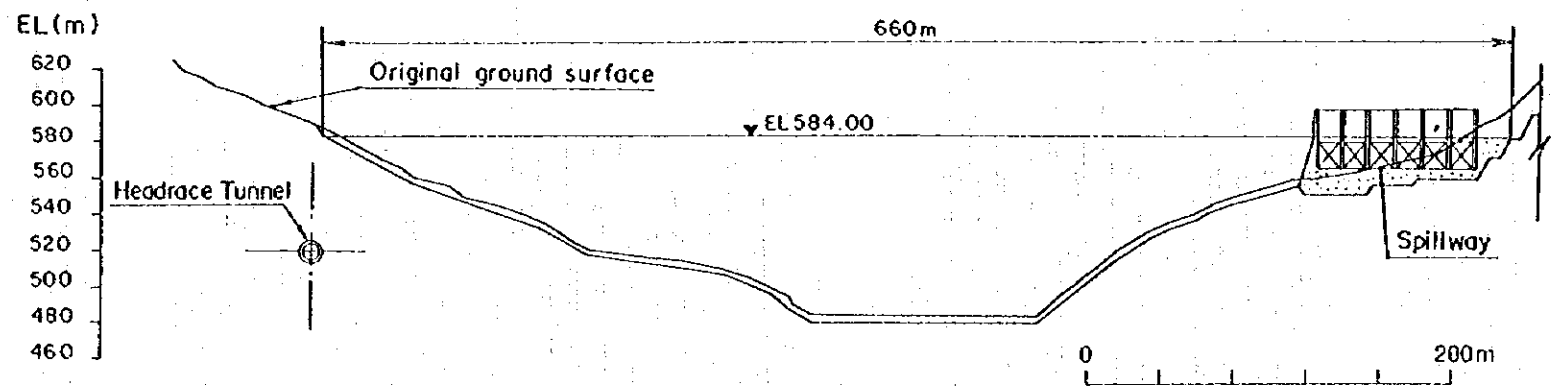
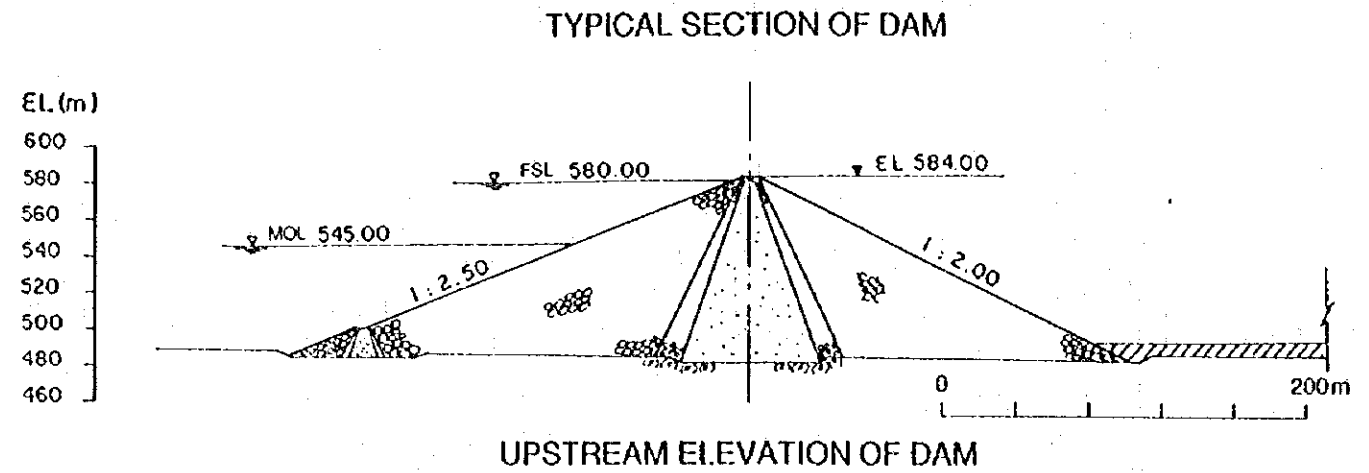
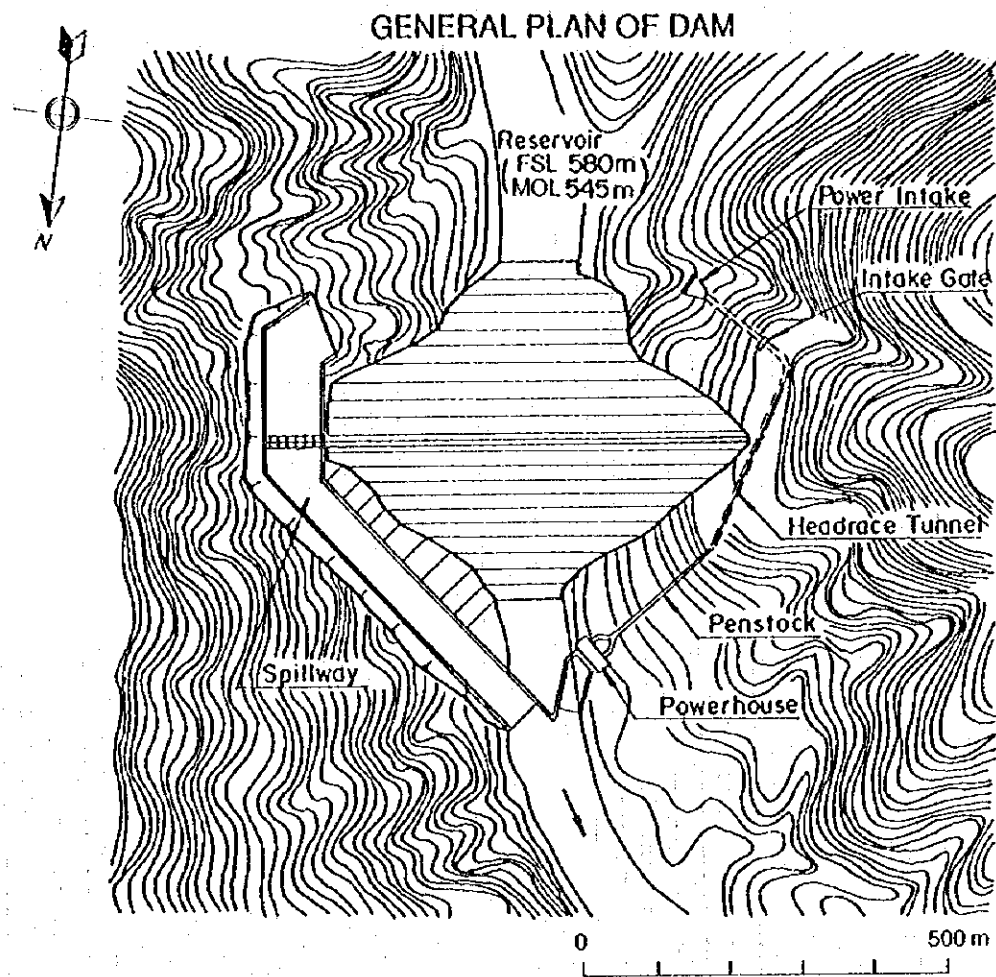


SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

**Figure 6.1**  
**Longitudinal Profiles of the Dong Nai River and Tributaries**



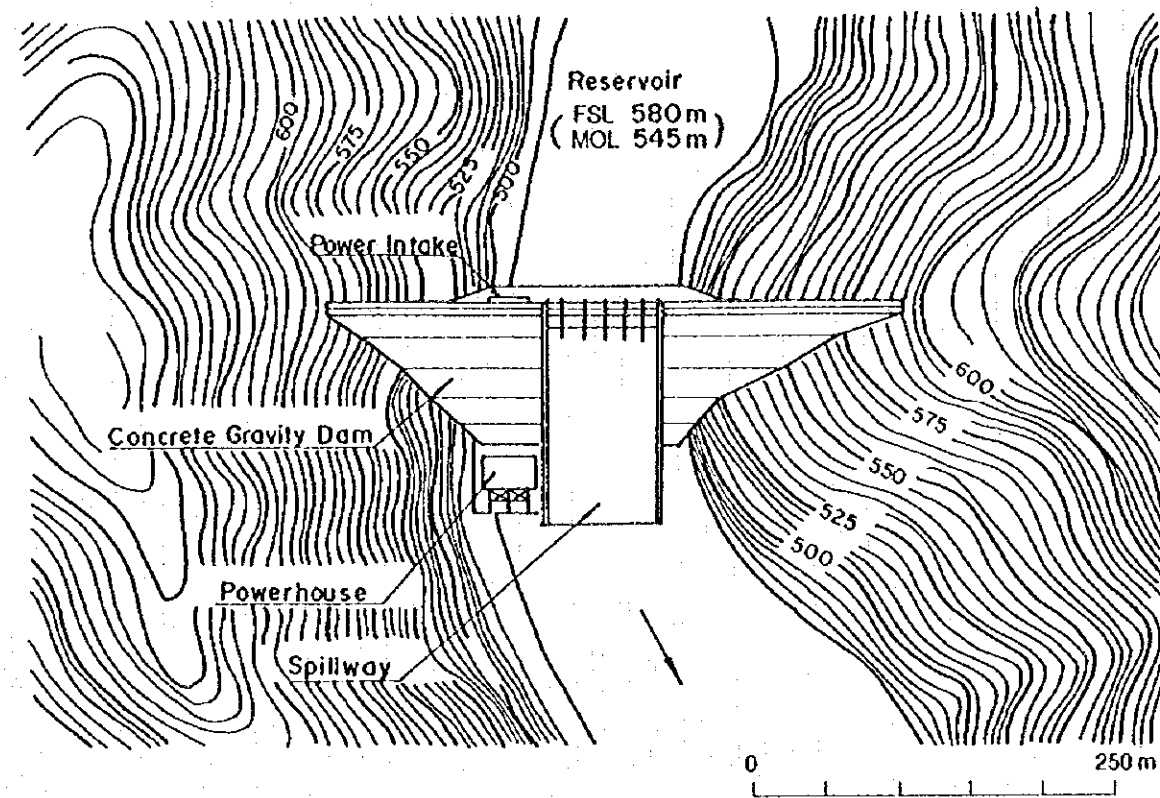
**Figure 6.2**  
**Hydropower Potential Scheme Sites**



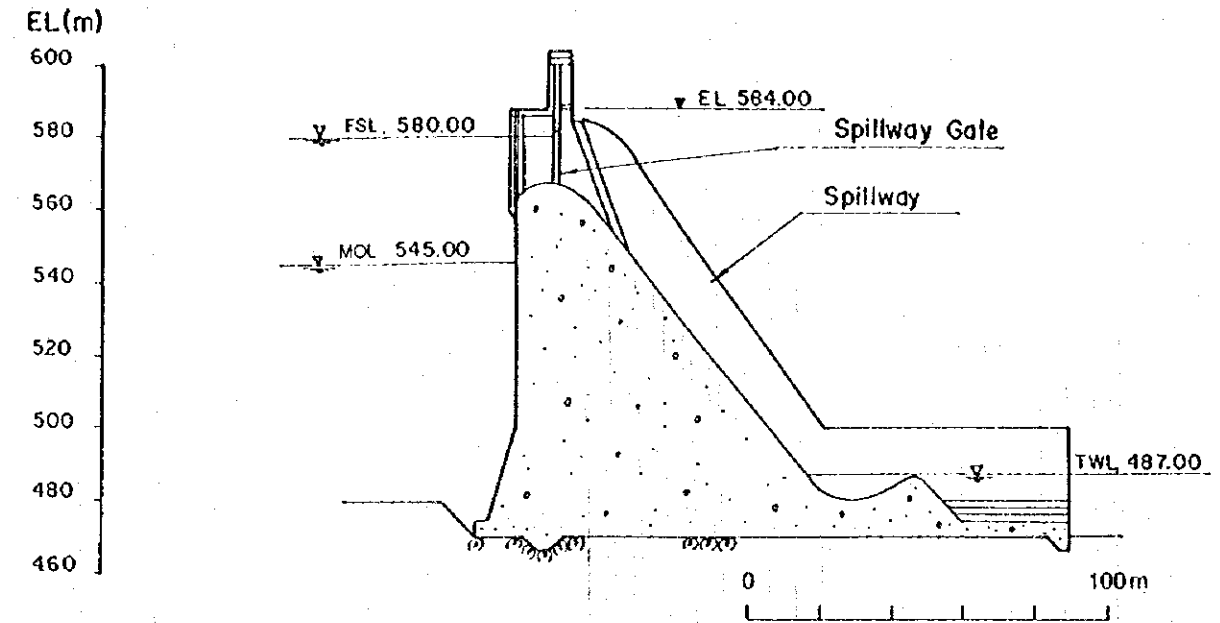
SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 6.3  
 Dong Nai No.3 Project

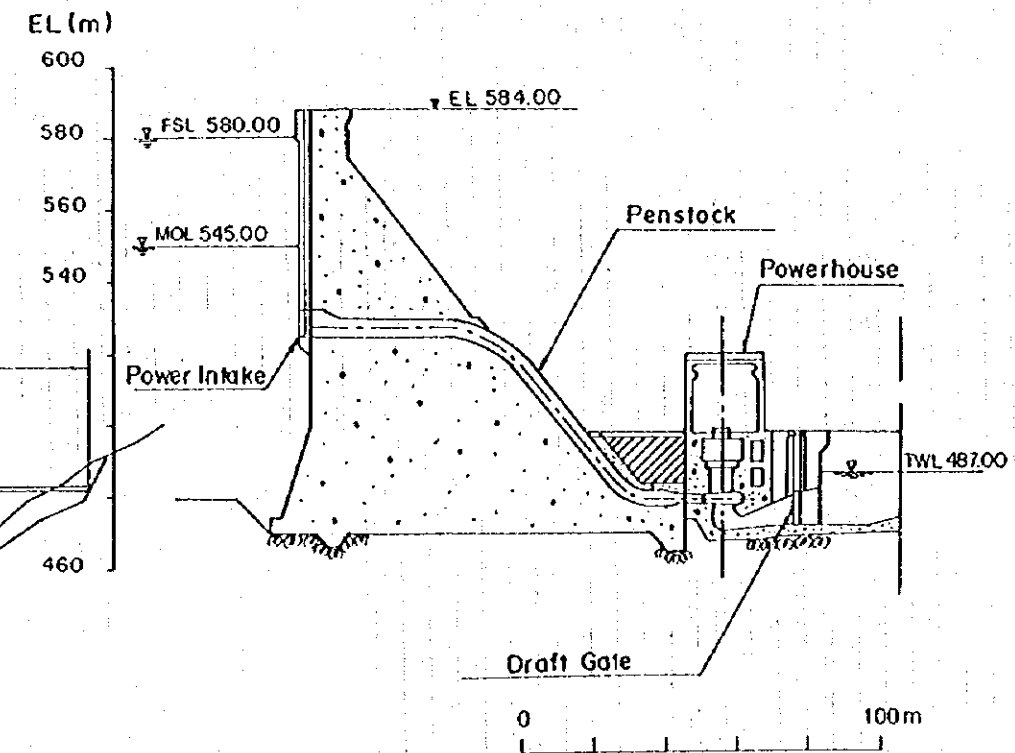
GENERAL PLAN OF DAM



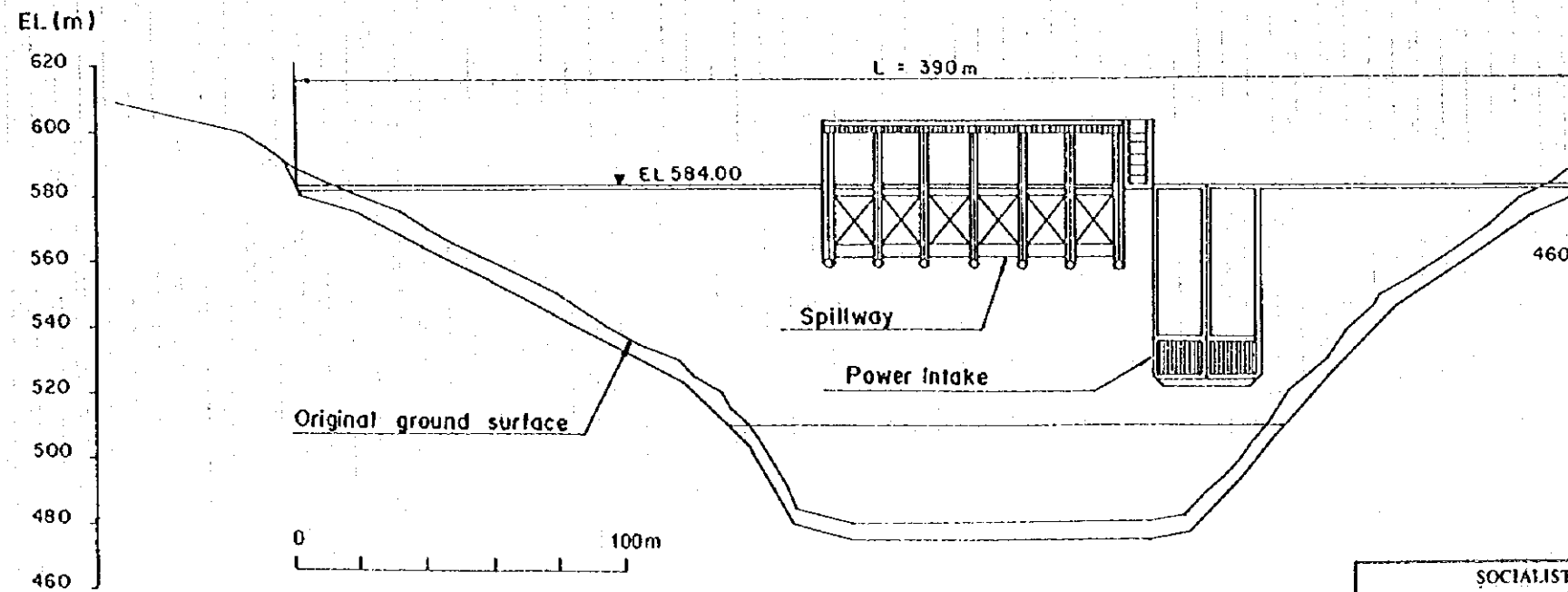
TYPICAL SECTION OF DAM



PROFILE OF WATERWAY



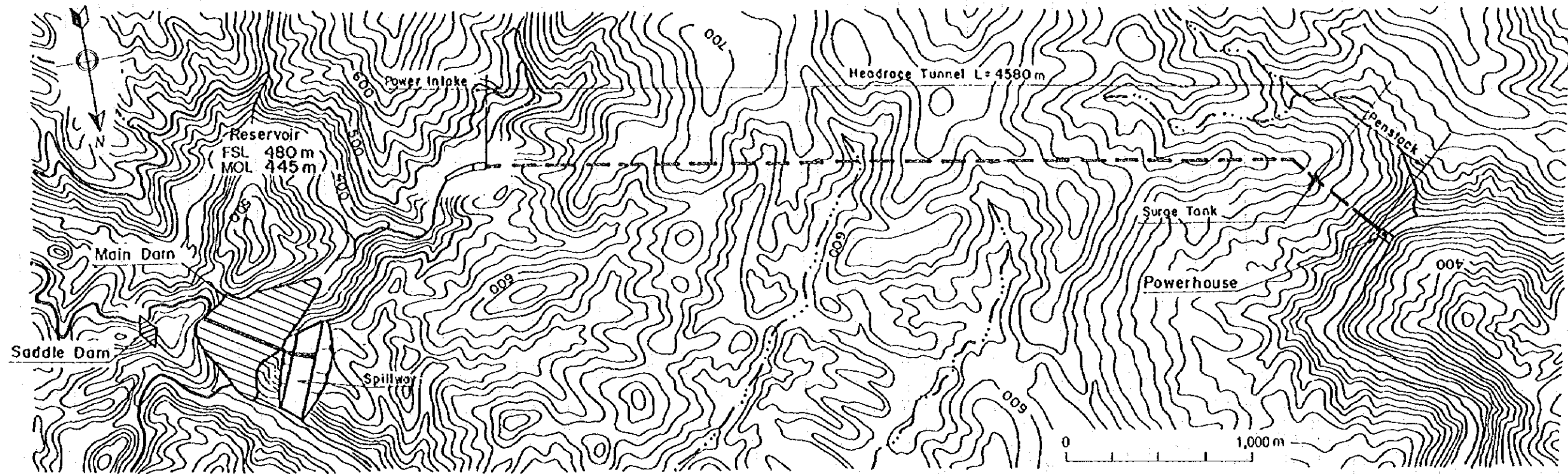
UPSTREAM ELEVATION OF DAM



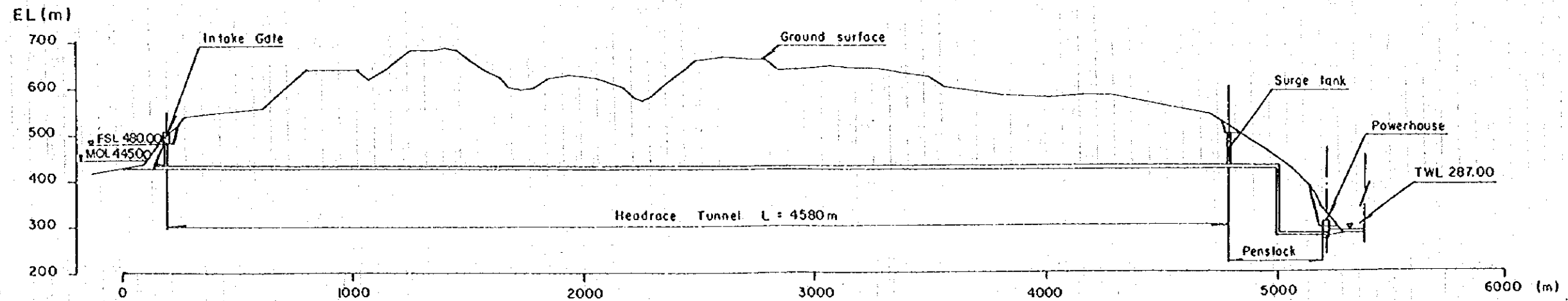
SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 6.4  
 Dong Nai No.3 Alternative Plan

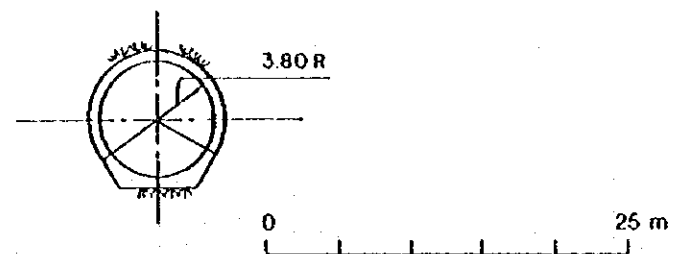
### GENERAL LAYOUT OF PROJECT



### PROFILE OF WATERWAY



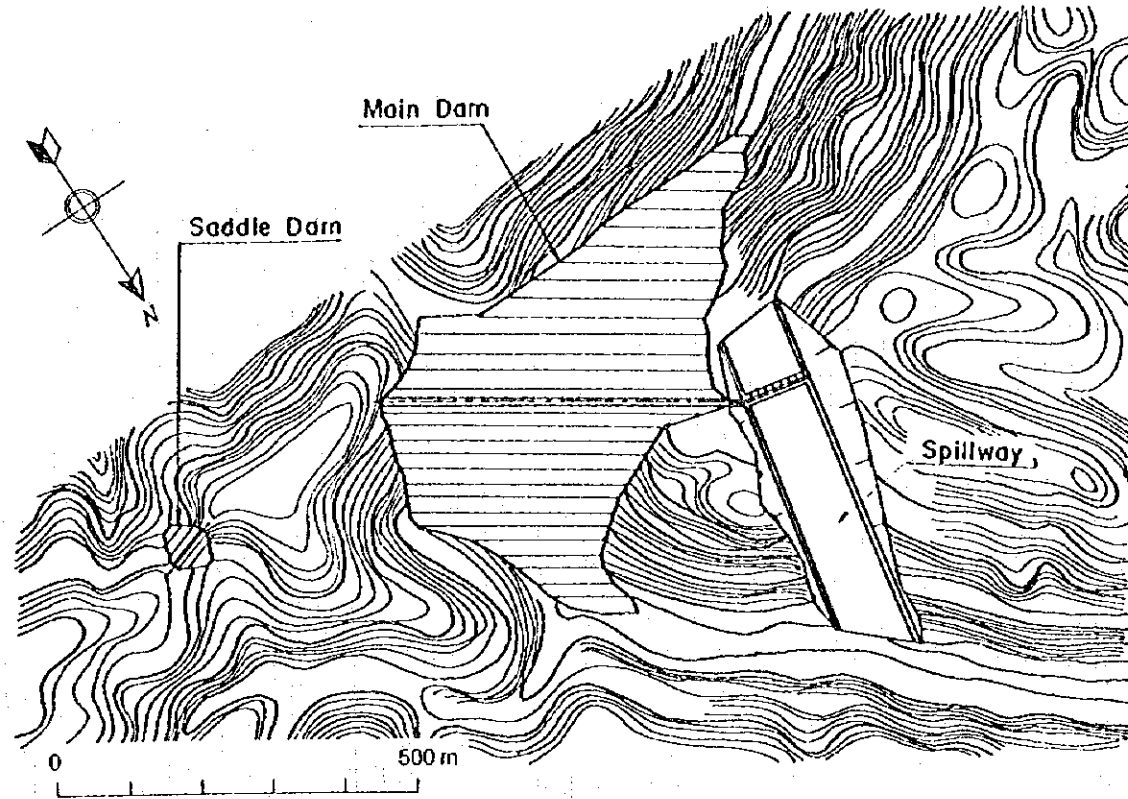
### CROSS SECTION OF HEADRACE TUNNEL



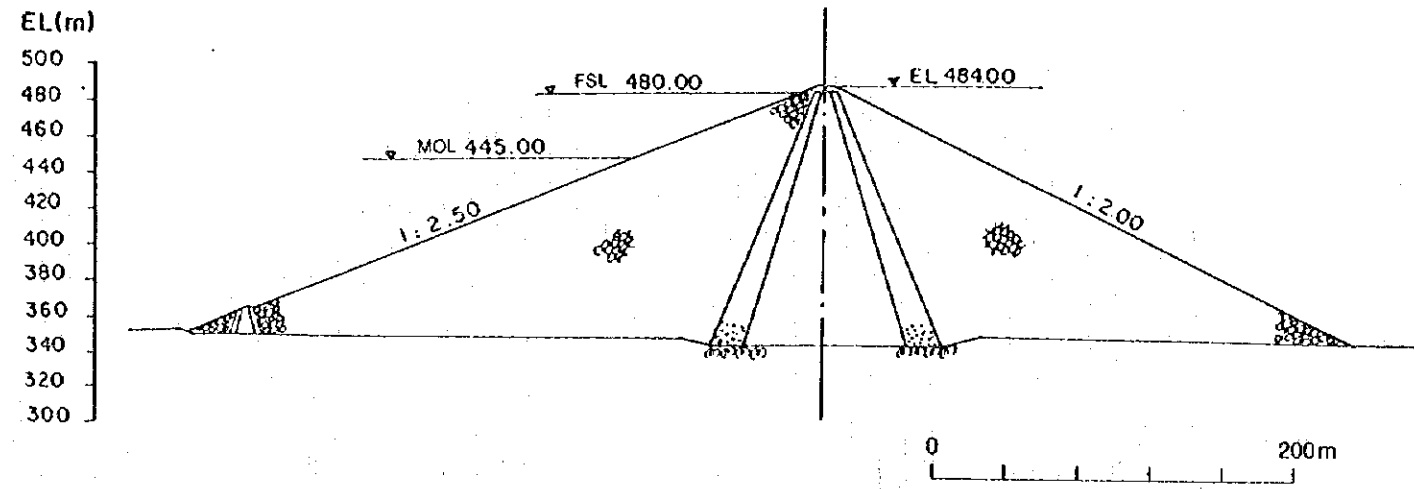
SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 6.5  
 Dong Nai No.4 Project (1/2)

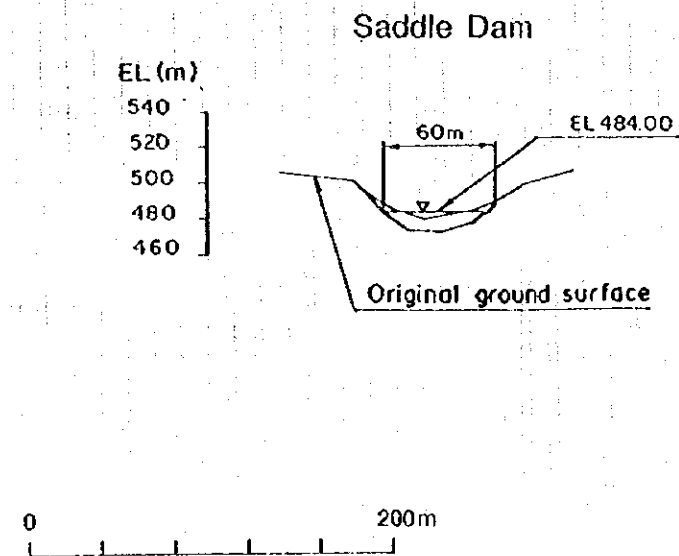
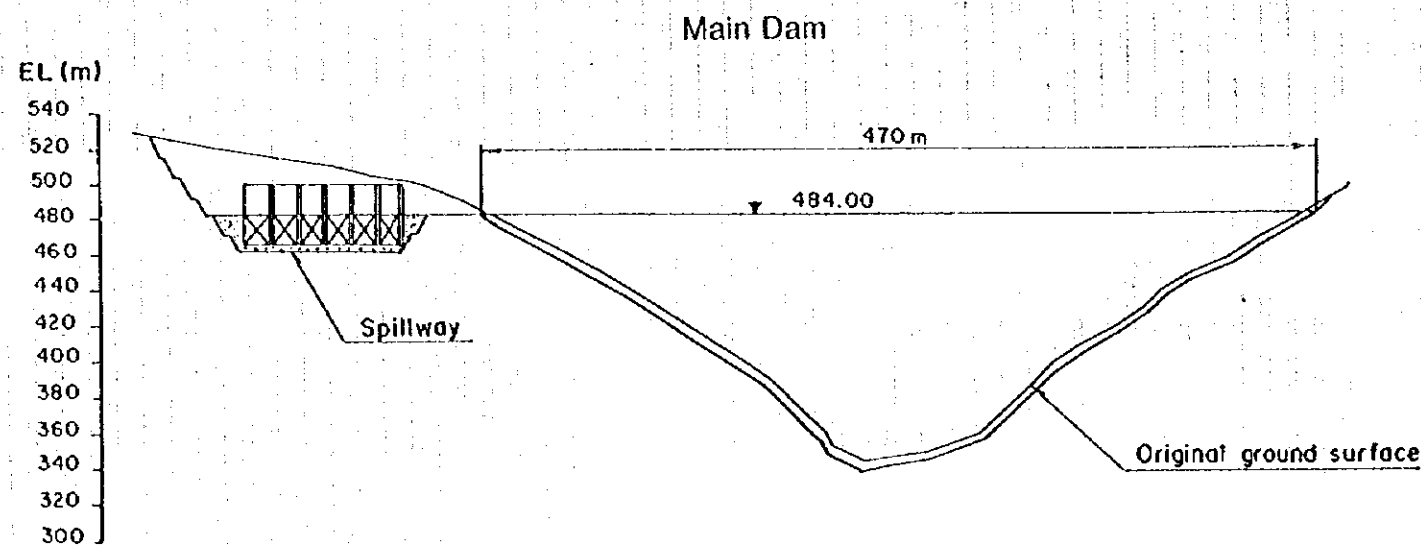
GENERAL PLAN OF DAM



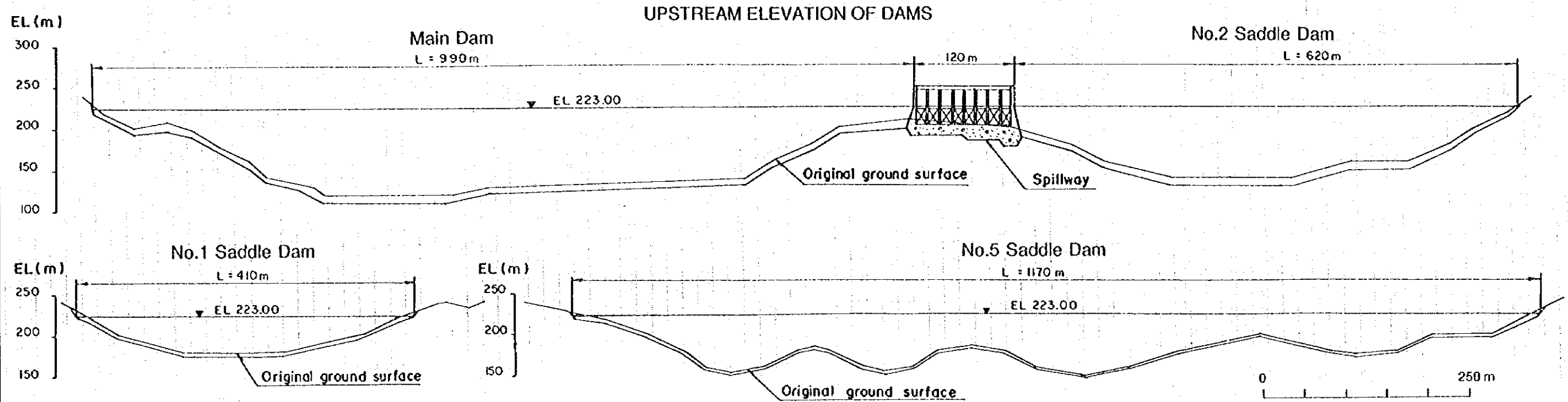
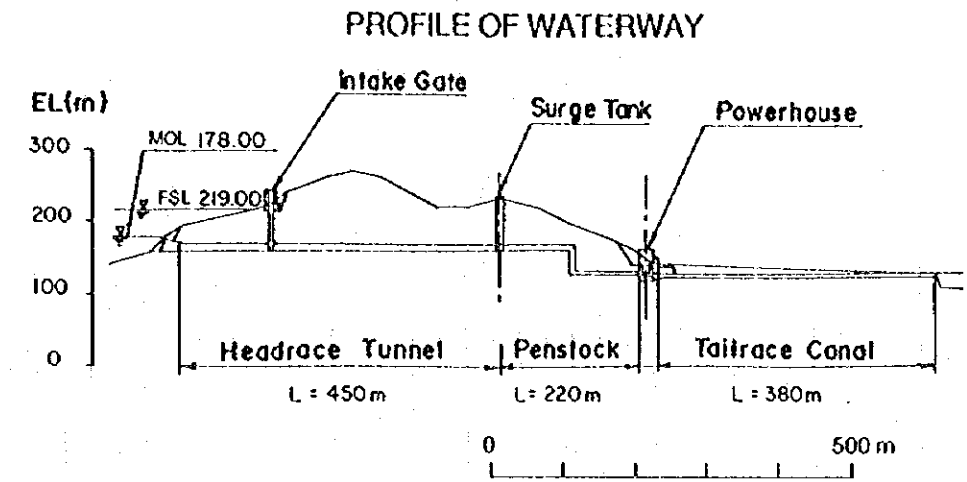
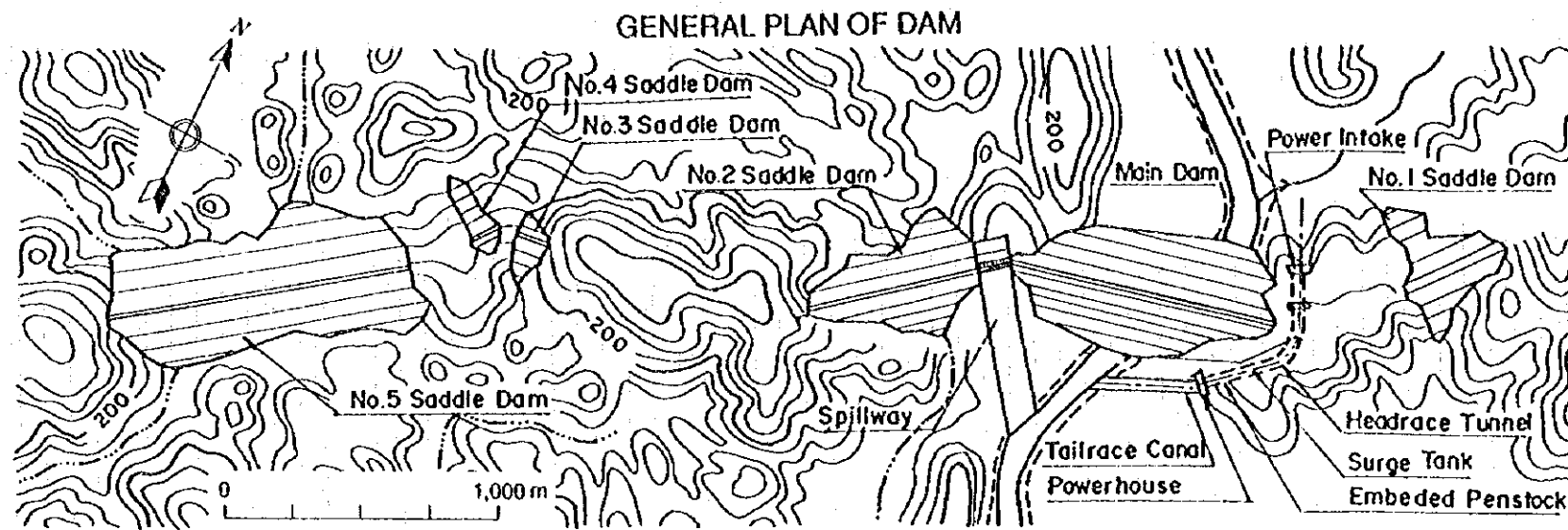
TYPICAL SECTION OF DAM



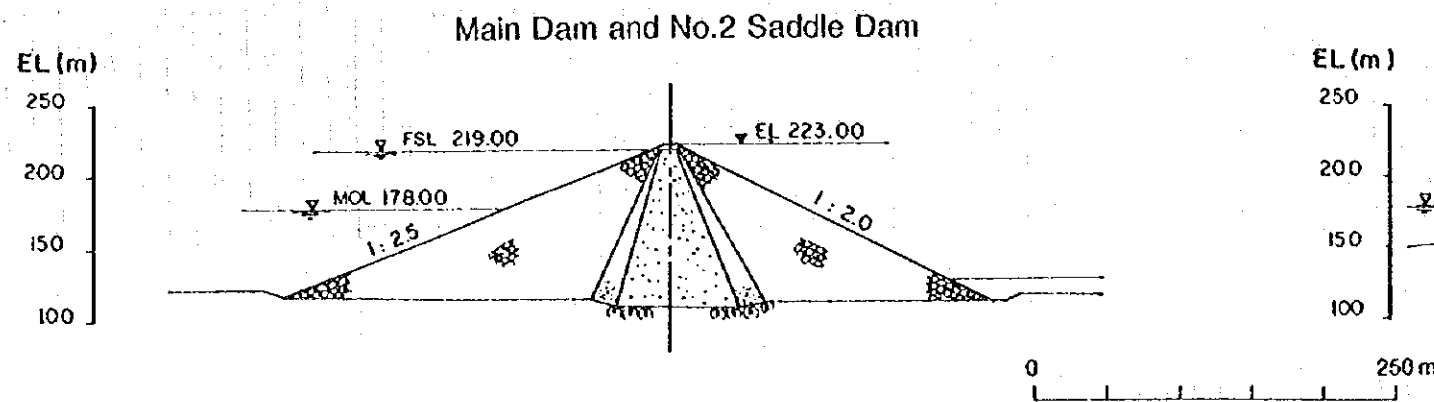
UPSTREAM ELEVATION OF DAMS







### TYPICAL SECTION OF DAM



SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 6.6  
 Dong Nai No.6 Project

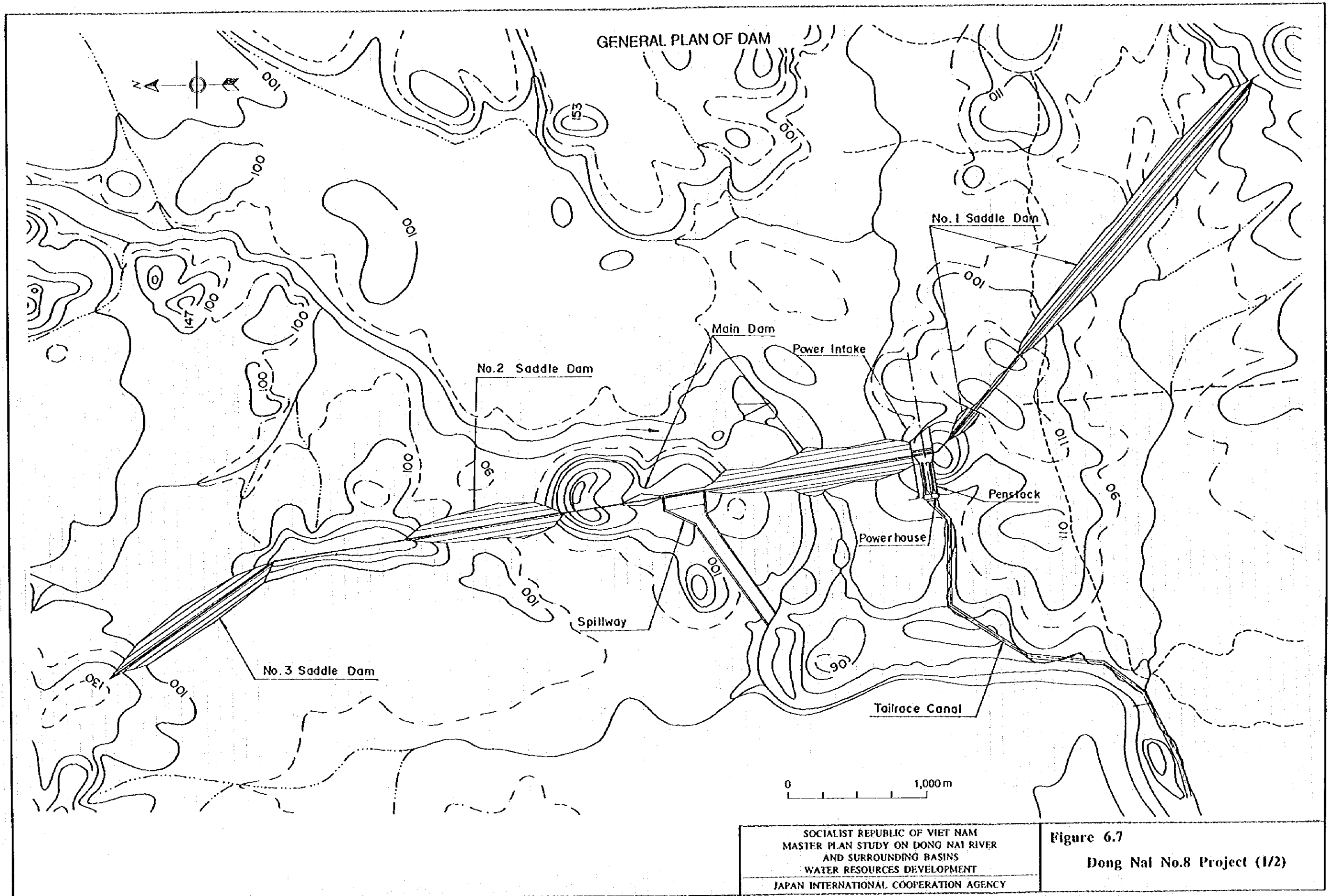
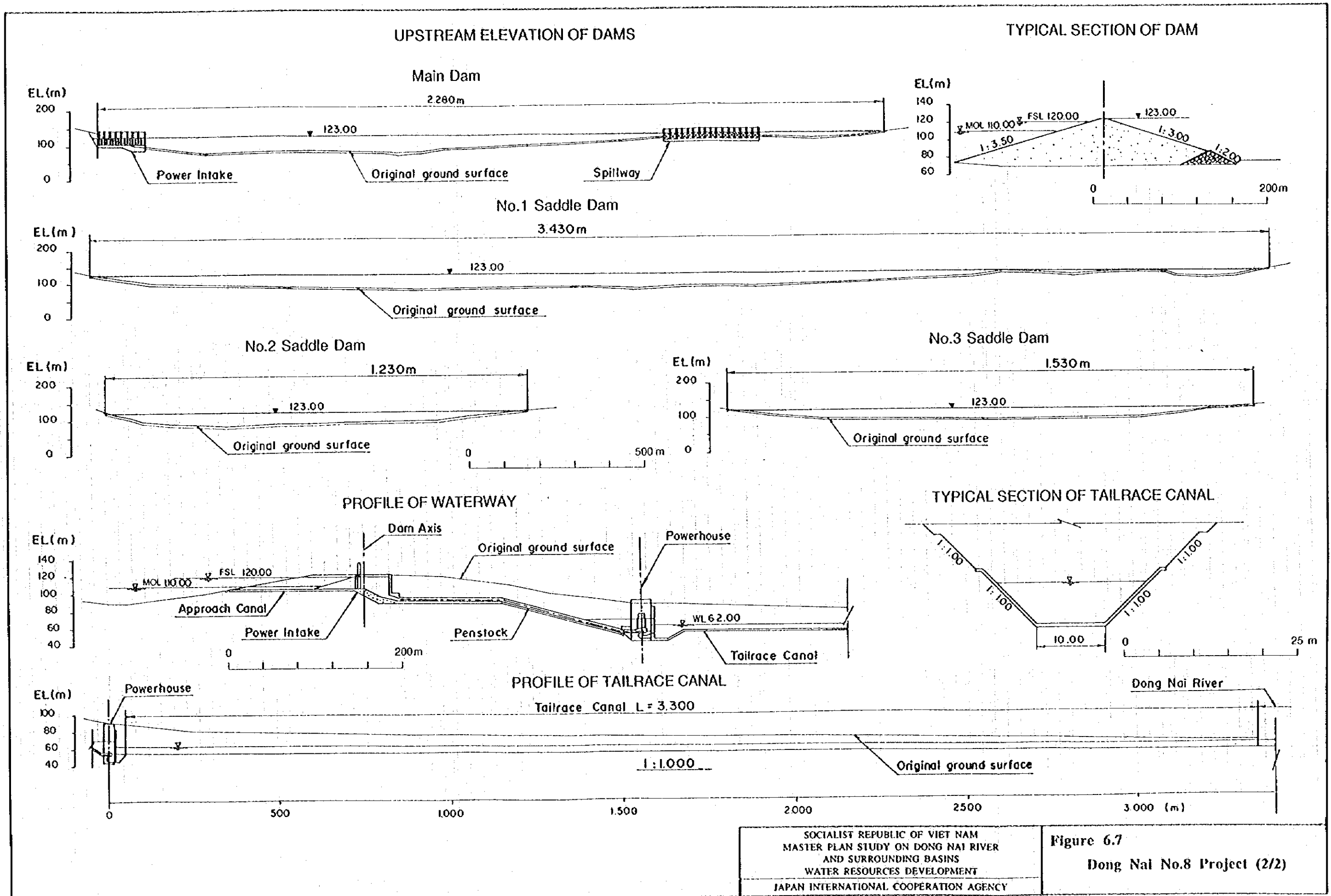
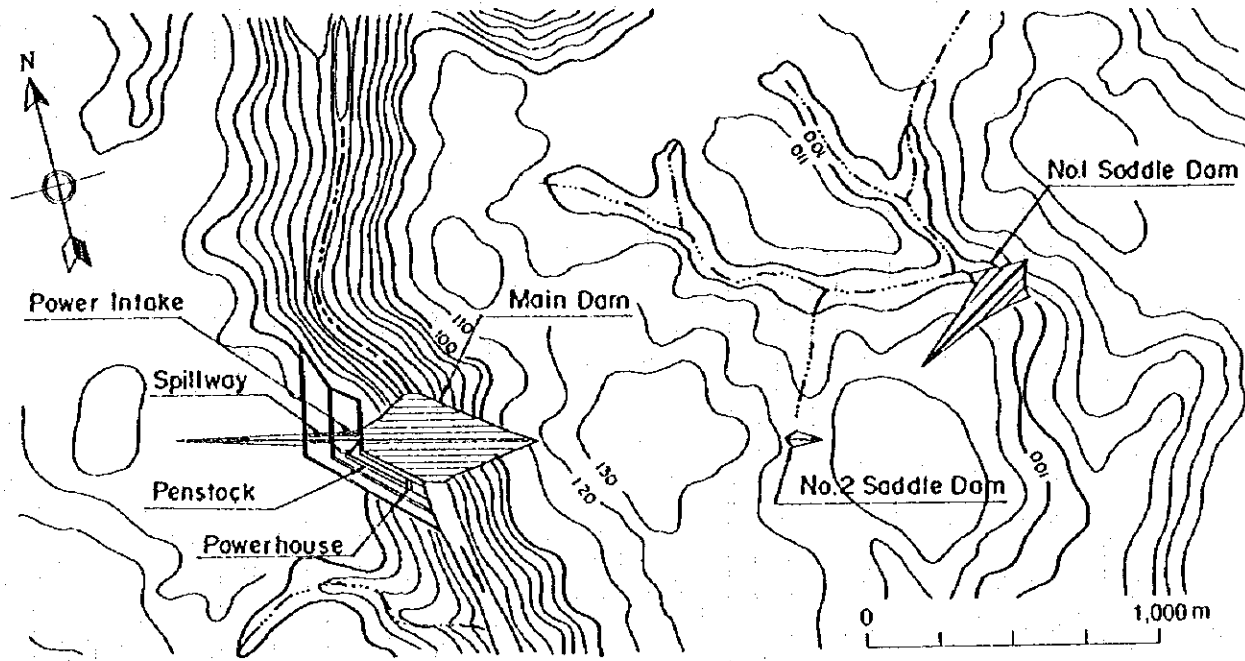


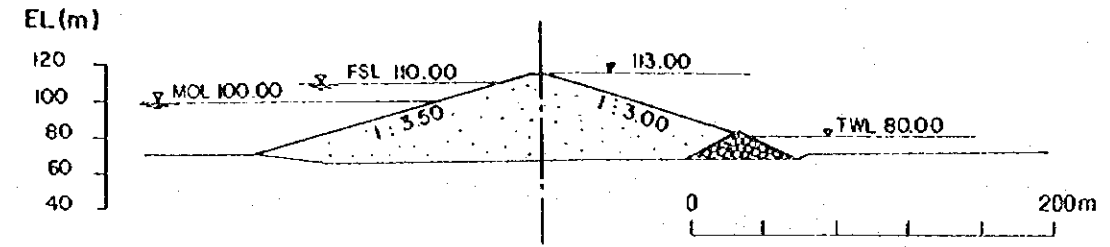
Figure 6.7  
 Dong Nai No.8 Project (1/2)



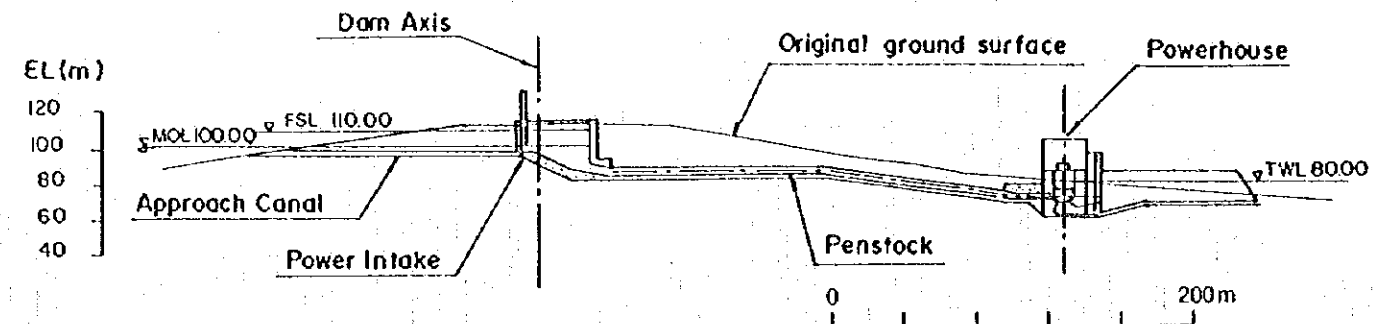
GENERAL PLAN OF DAM



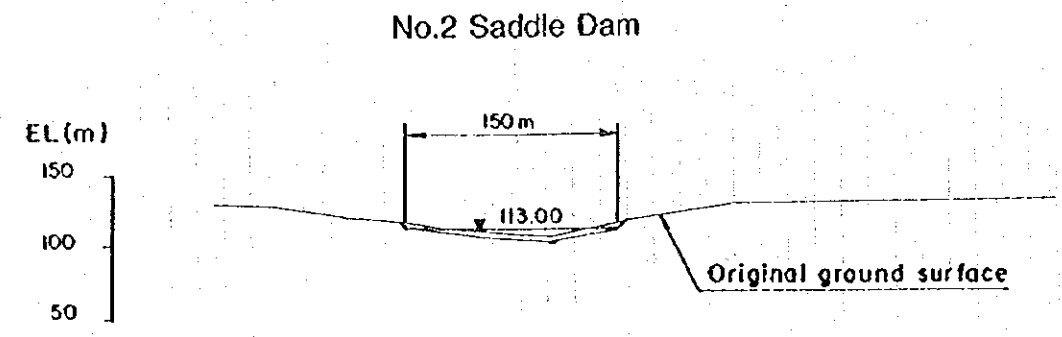
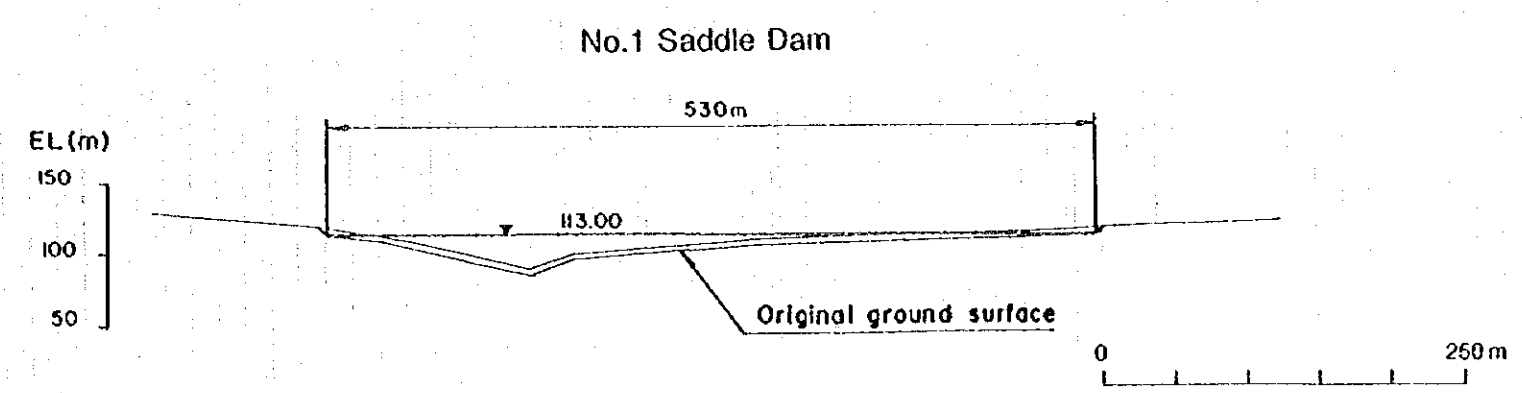
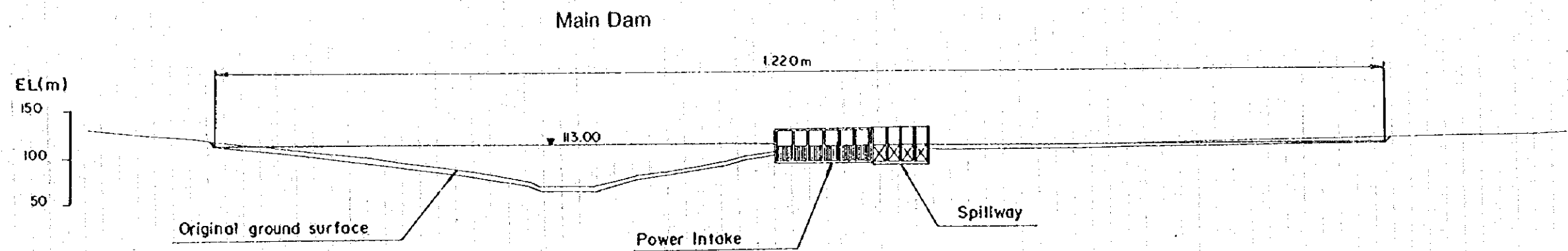
TYPICAL SECTION OF DAM



PROFILE OF WATERWAY



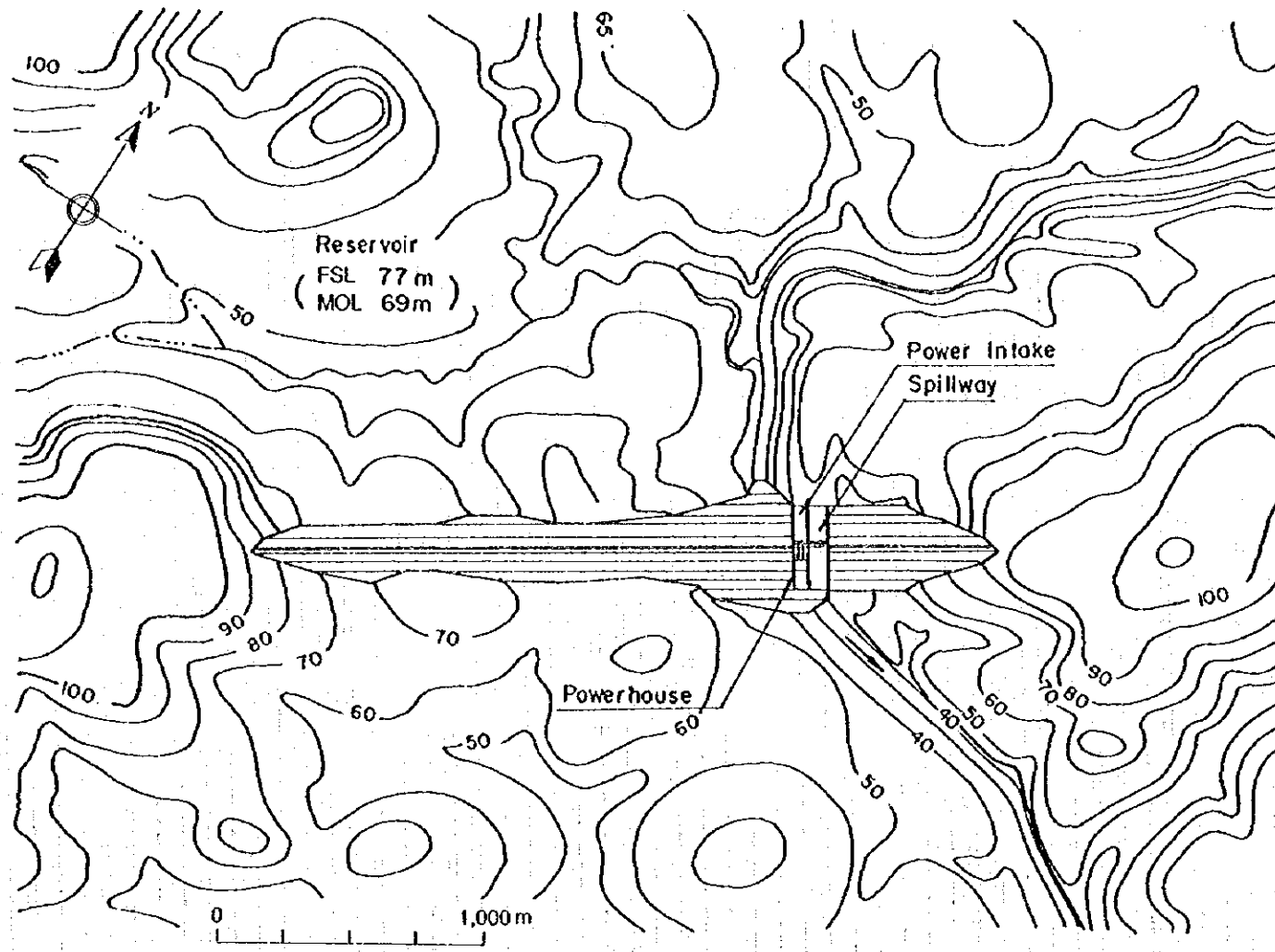
UPSTREAM ELEVATION OF DAMS



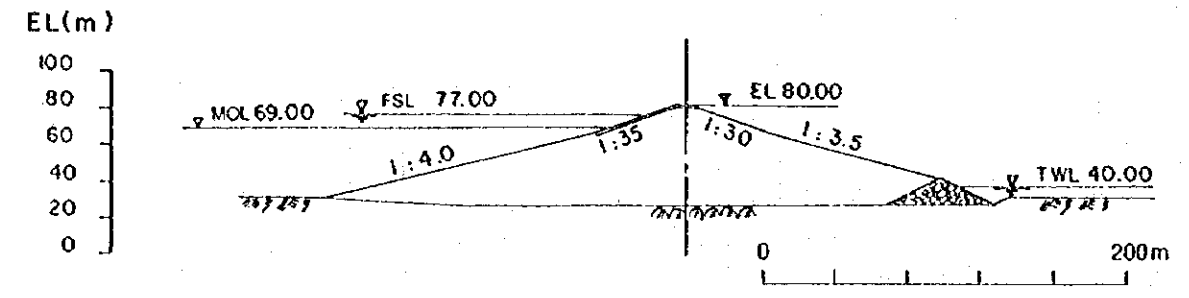
SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 6.8  
 Can Don Project

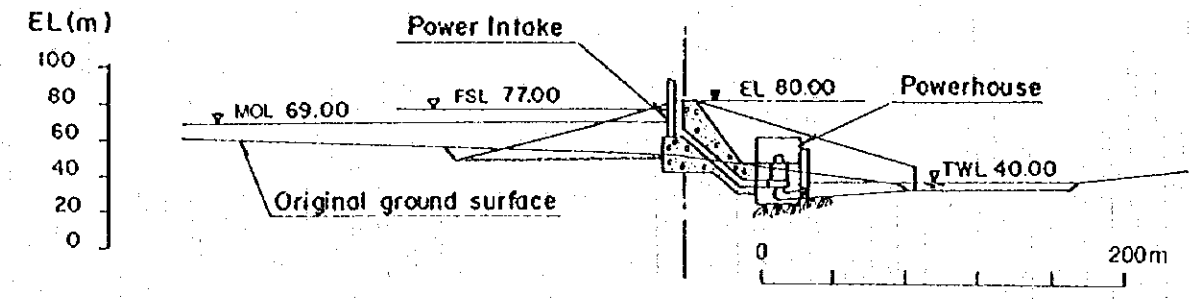
GENERAL PLAN OF DAM



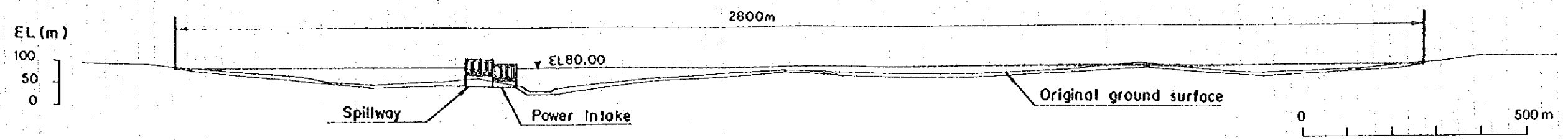
TYPICAL SECTION OF DAM



PROFILE OF WATERWAY



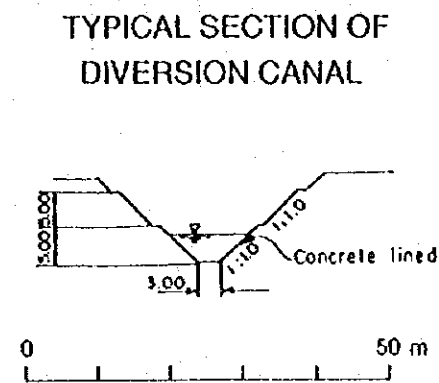
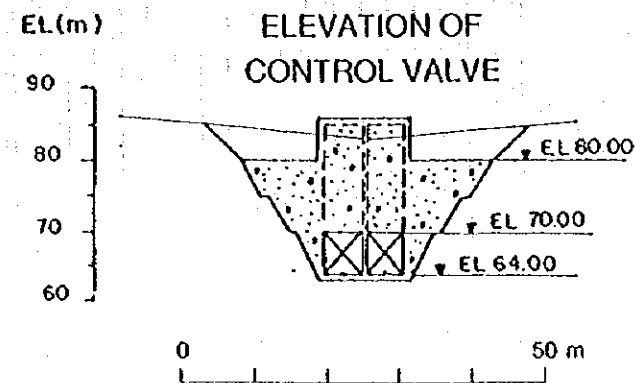
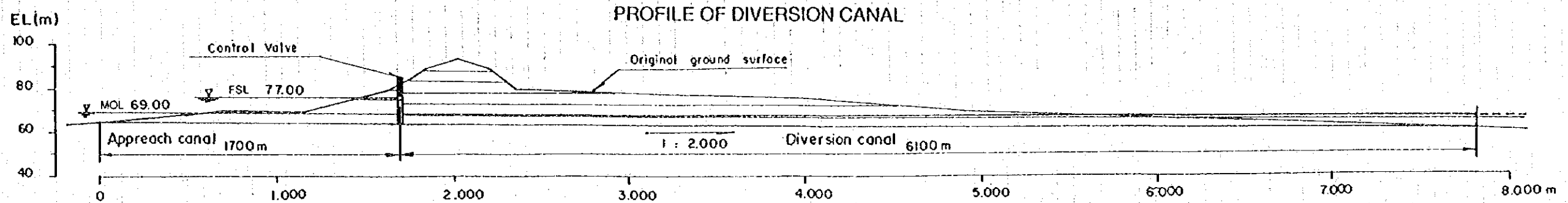
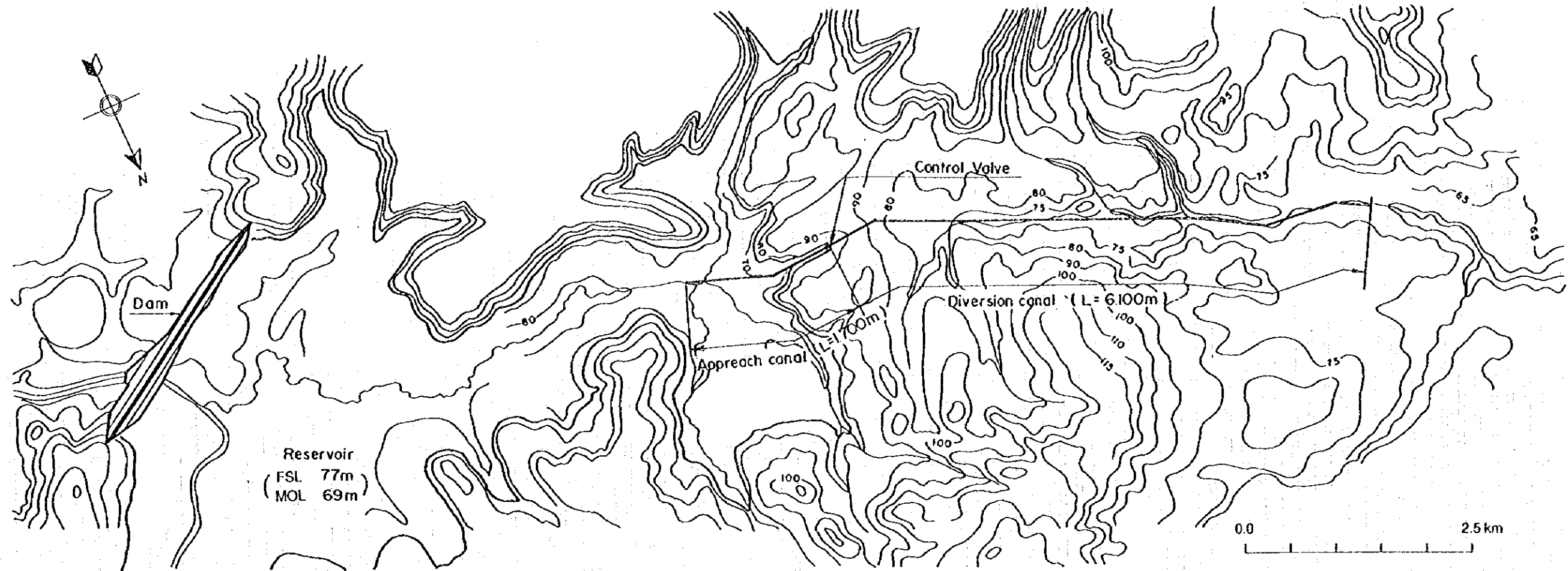
UPSTREAM ELEVATION OF DAM



SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON ĐÔNG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 6.9  
 Fu Mieng Project (1/2)

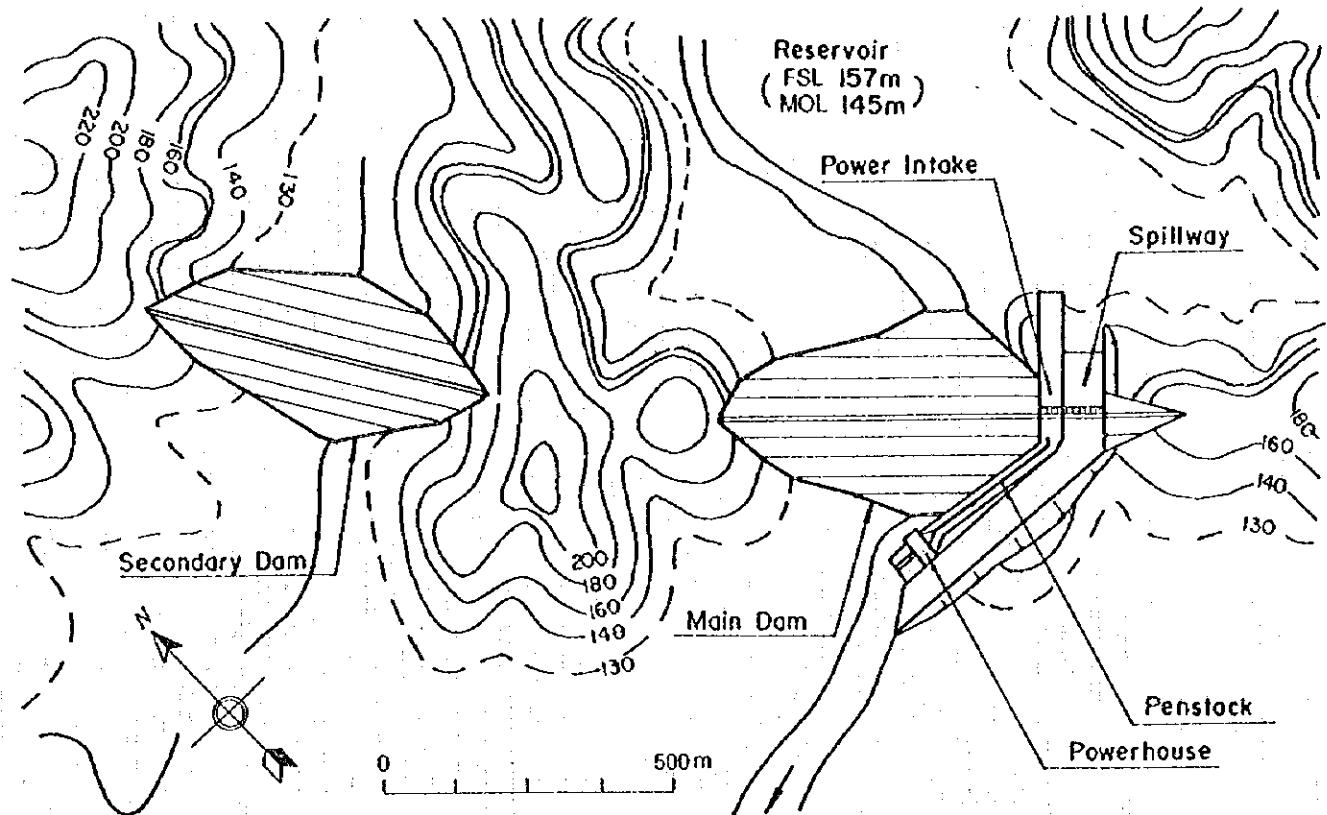
GENERAL LAYOUT OF PROJECT



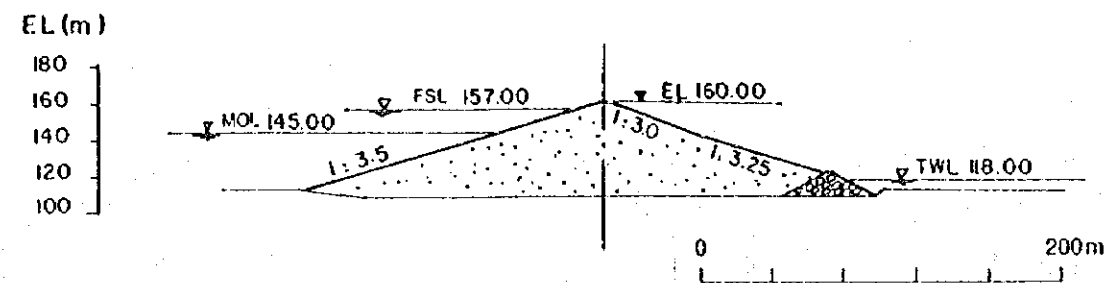
SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 6.9  
 Fu Mieng Project (2/2)

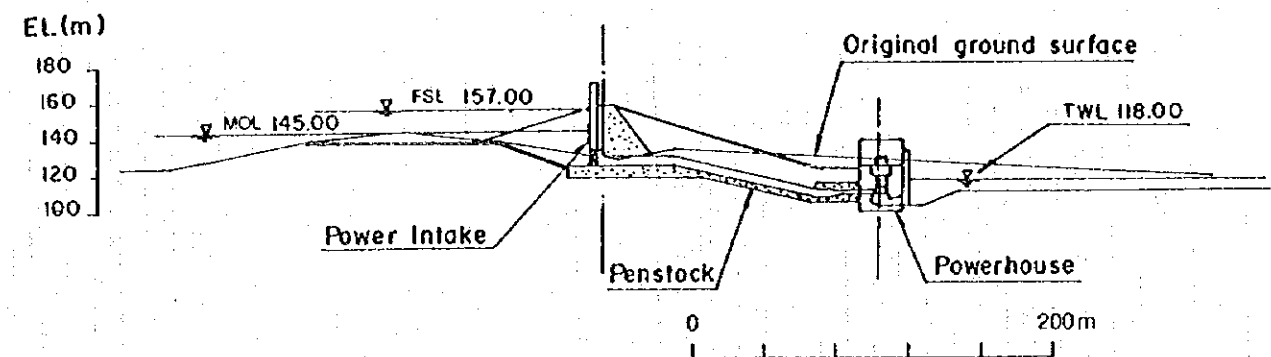
GENERAL PLAN OF DAM



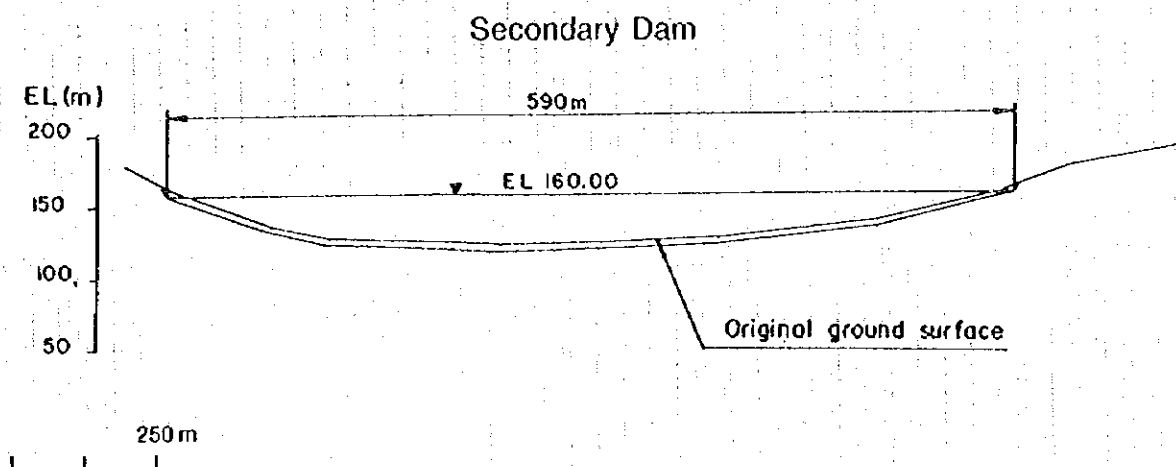
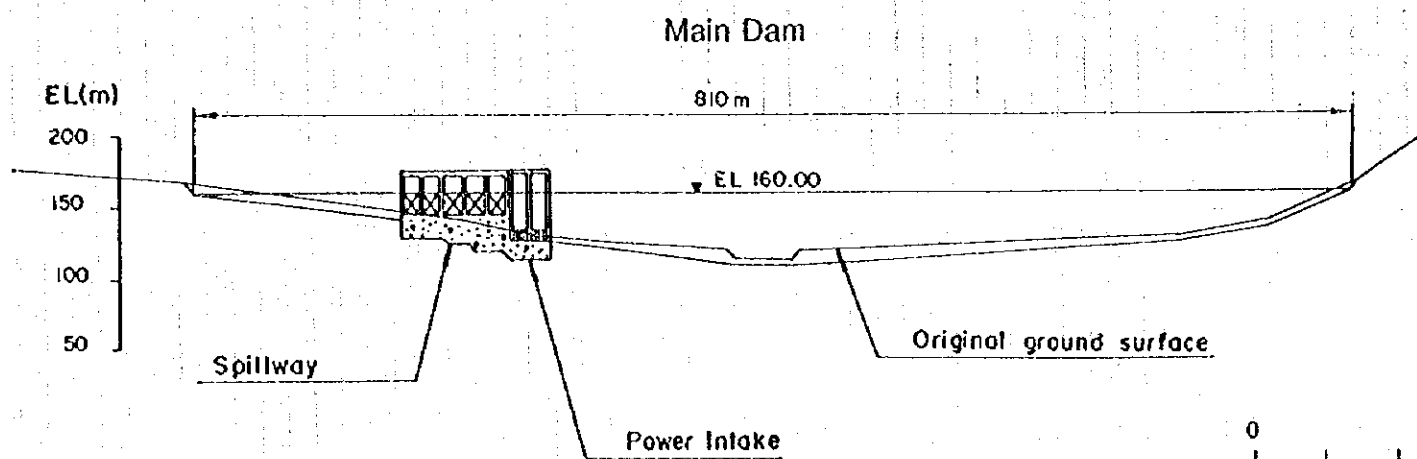
TYPICAL SECTION OF DAM



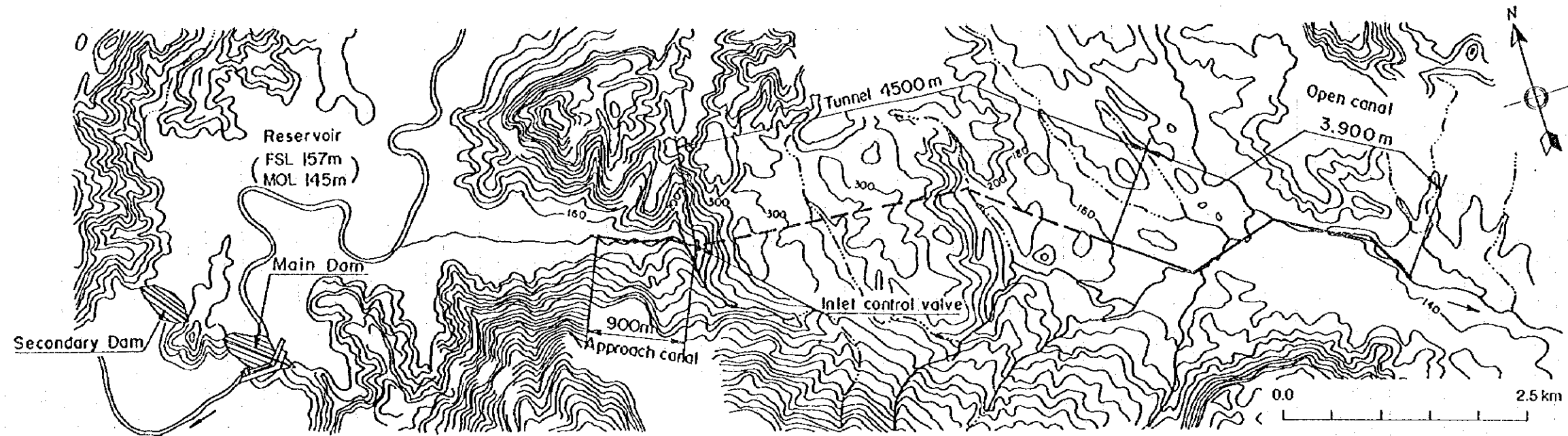
PROFILE OF WATERWAY



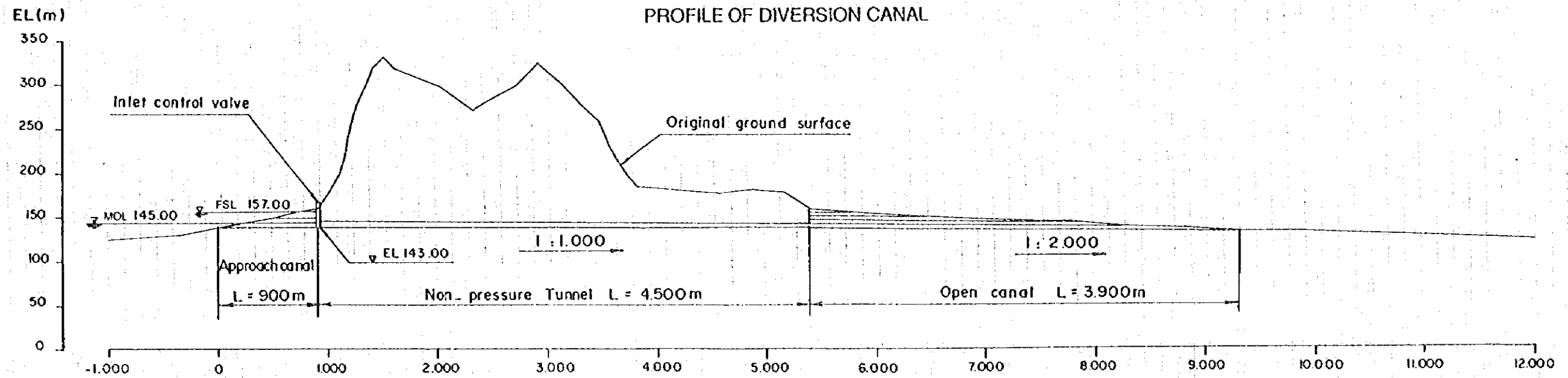
UPSTREAM ELEVATION OF DAM



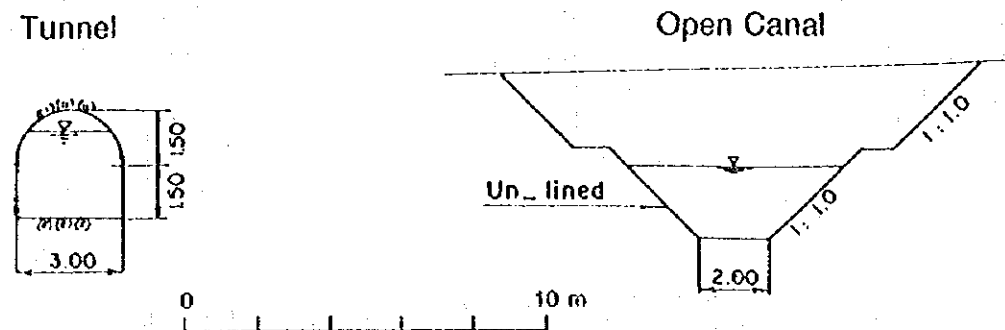
GENERAL LAYOUT OF PROJECT



PROFILE OF DIVERSION CANAL



TYPICAL SECTION OF DIVERSION CANAL

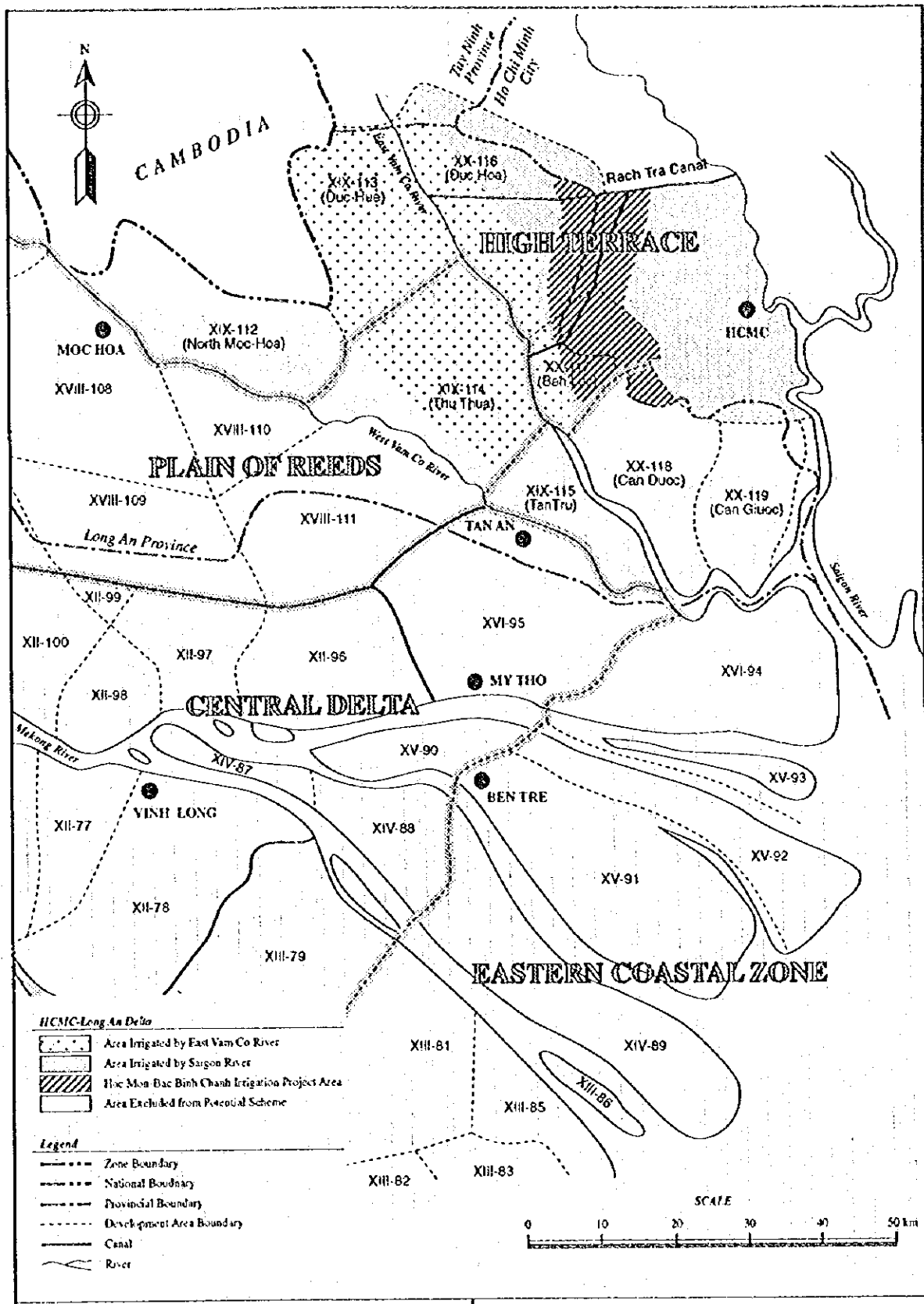


SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 6.10  
 La Nga No.3 Project (2/2)



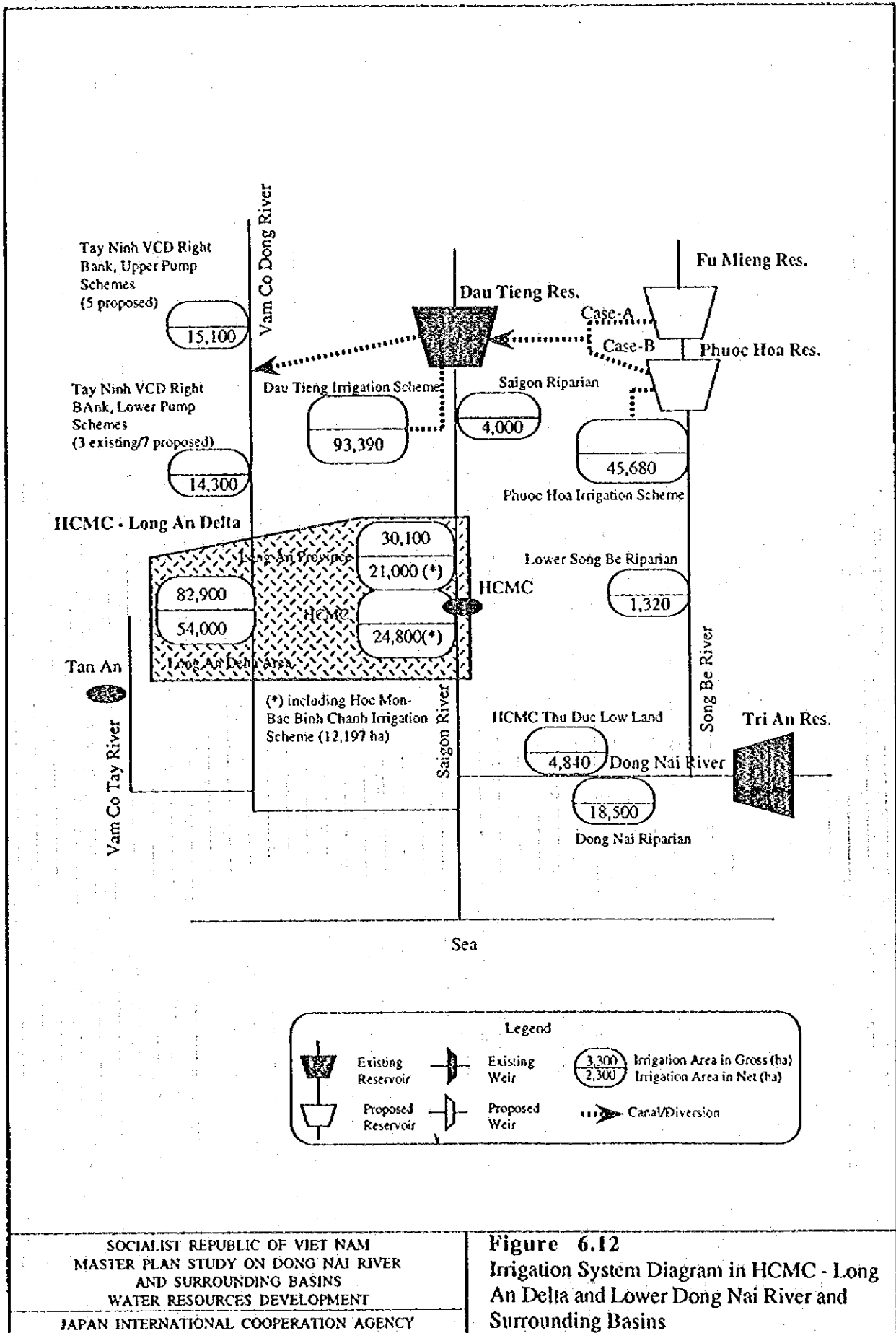




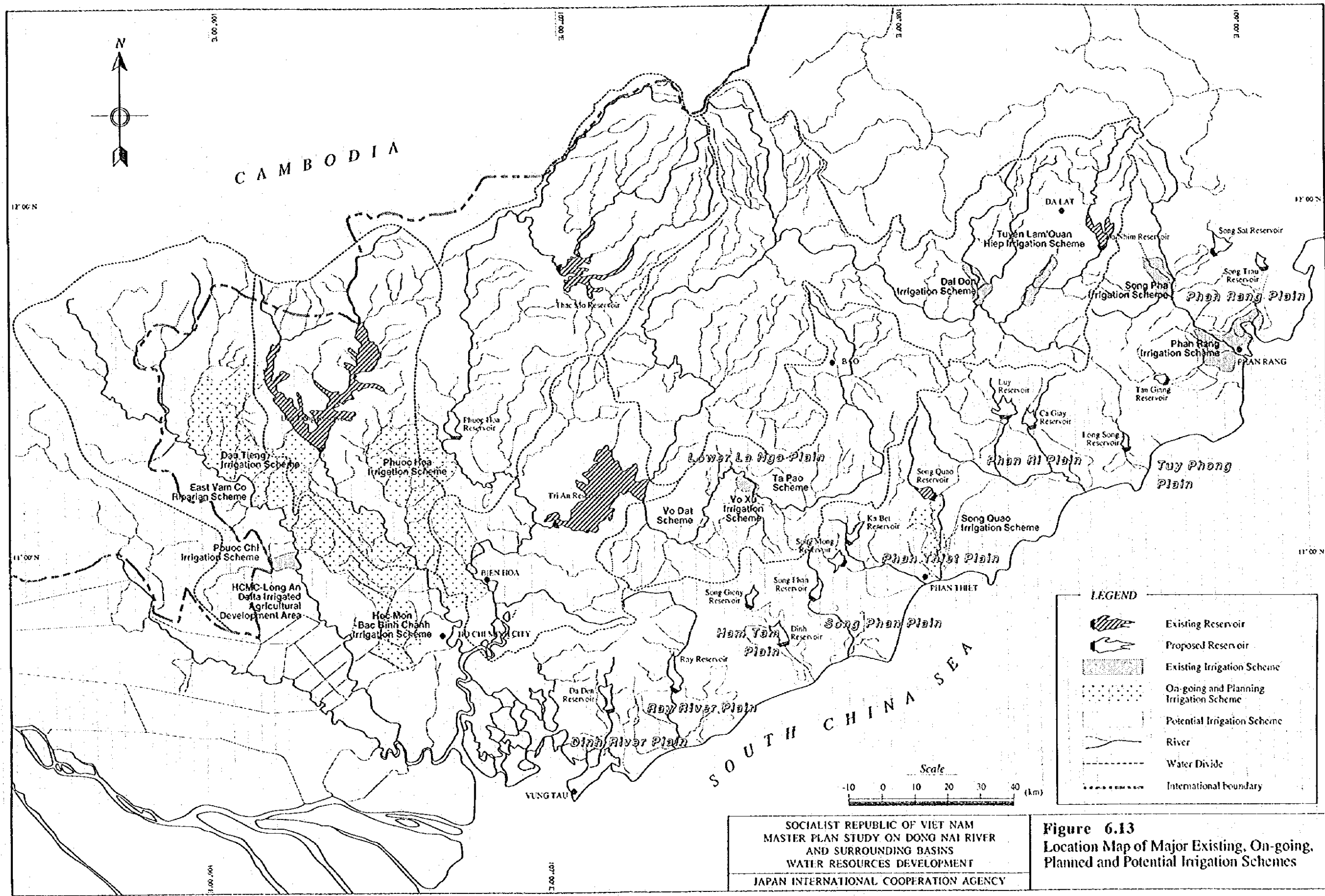
SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT

**Figure 6.11**  
 HCMC-Long An Delta

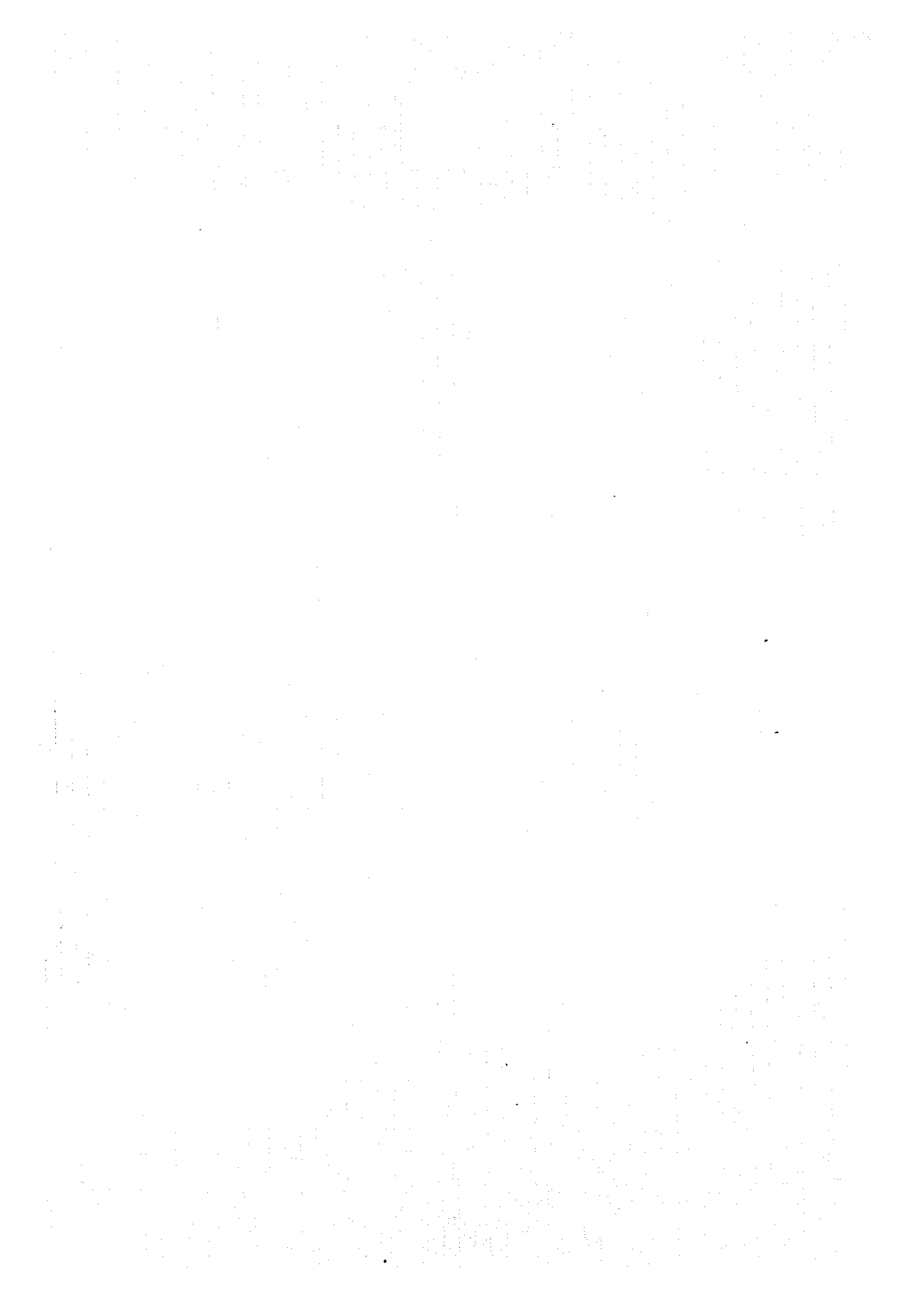
JAPAN INTERNATIONAL COOPERATION AGENCY

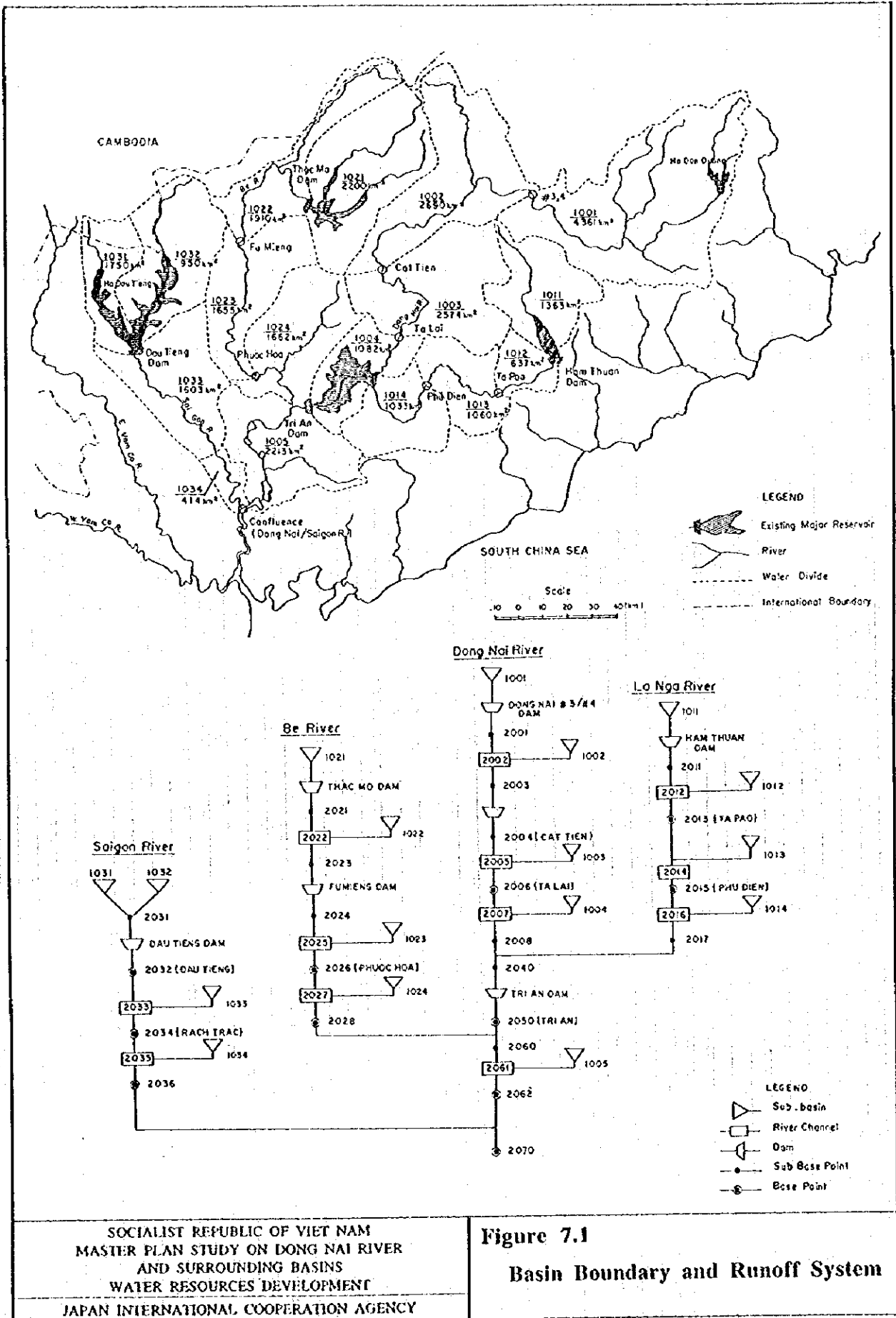






**Figure 6.13**  
Location Map of Major Existing, On-going, Planned and Potential Irrigation Schemes

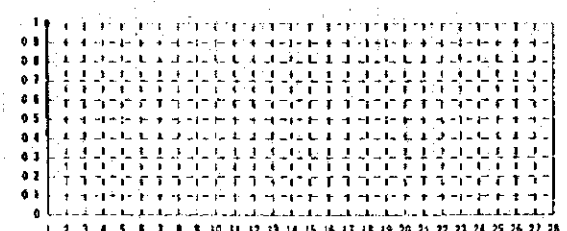
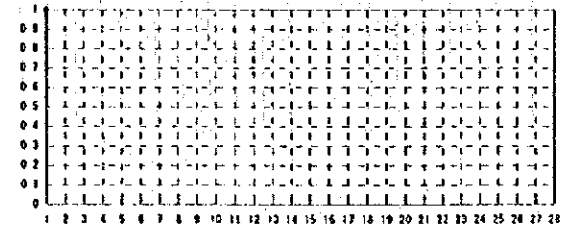
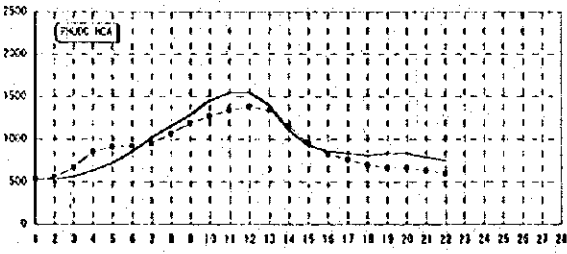
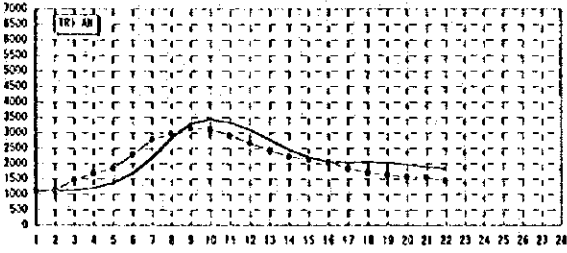
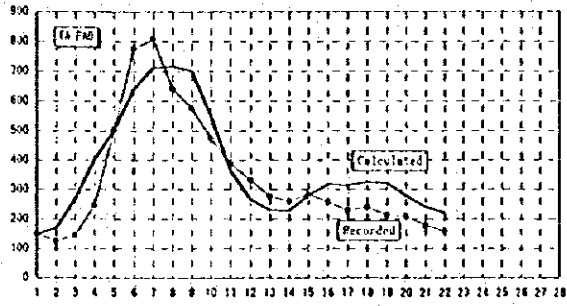
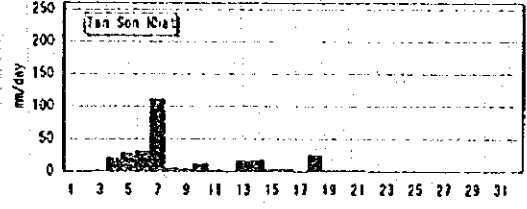
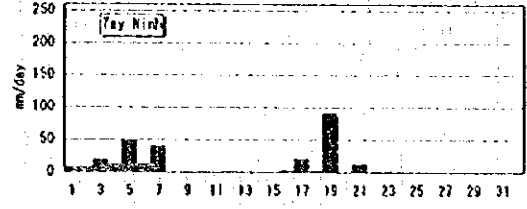
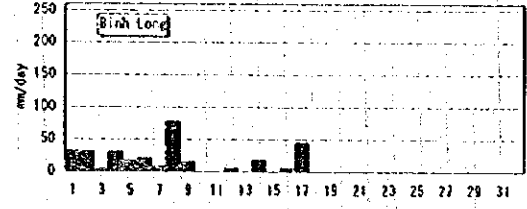
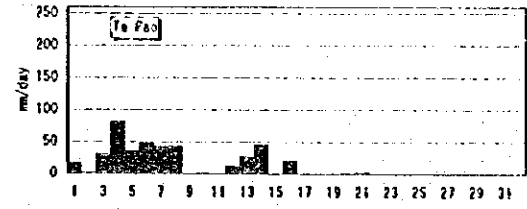
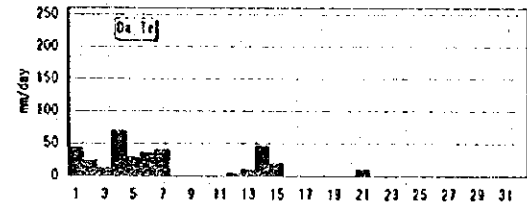
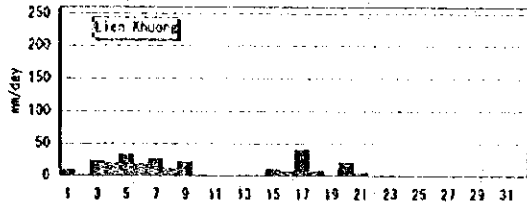




SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 7.1  
 Basin Boundary and Runoff System

1982 - FLOOD



SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 7.2  
 Calibration Result of Flood Runoff  
 Model (1/2)



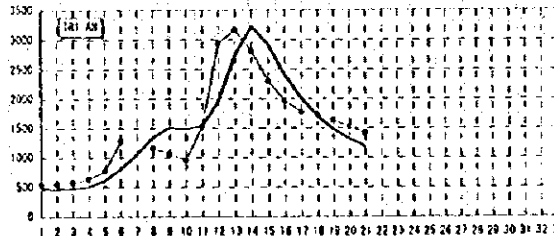
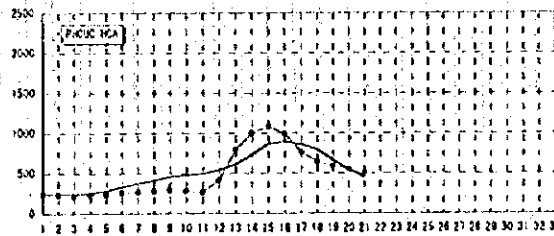
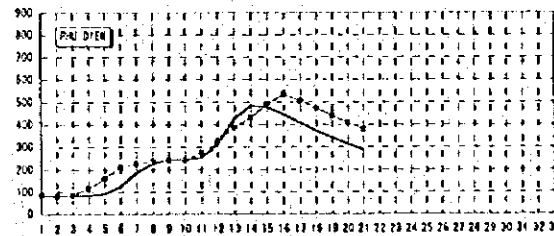
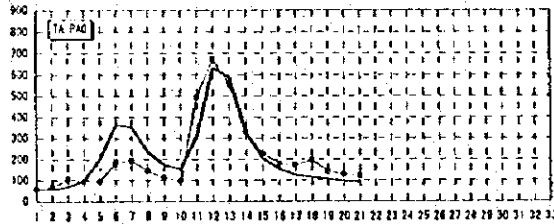
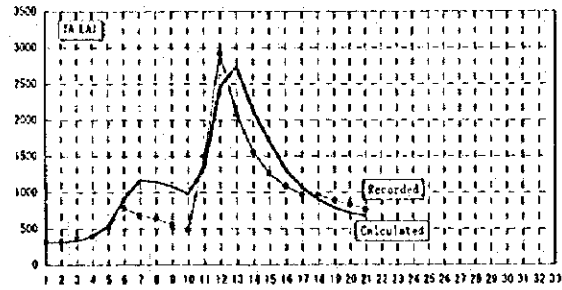
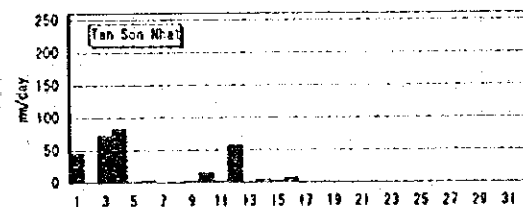
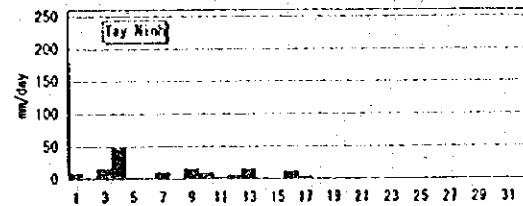
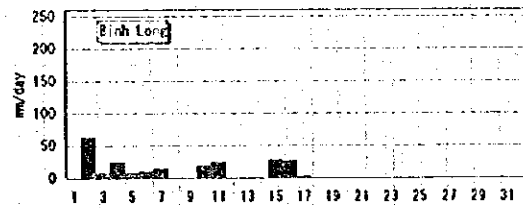
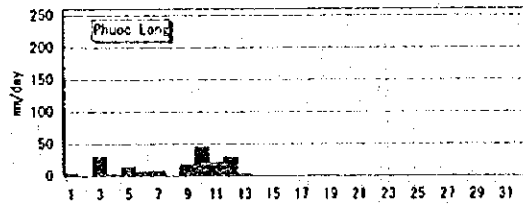
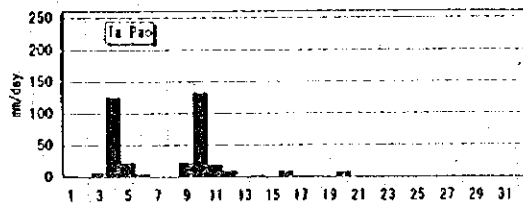
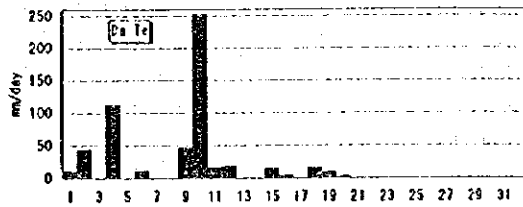
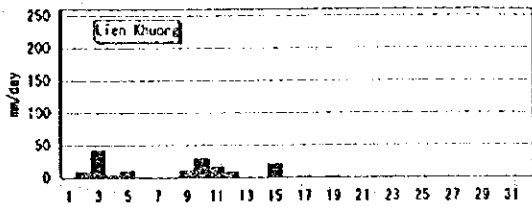
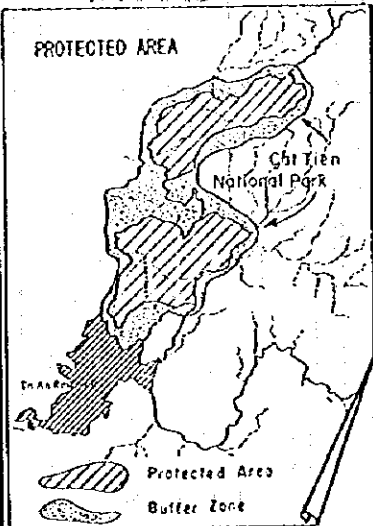
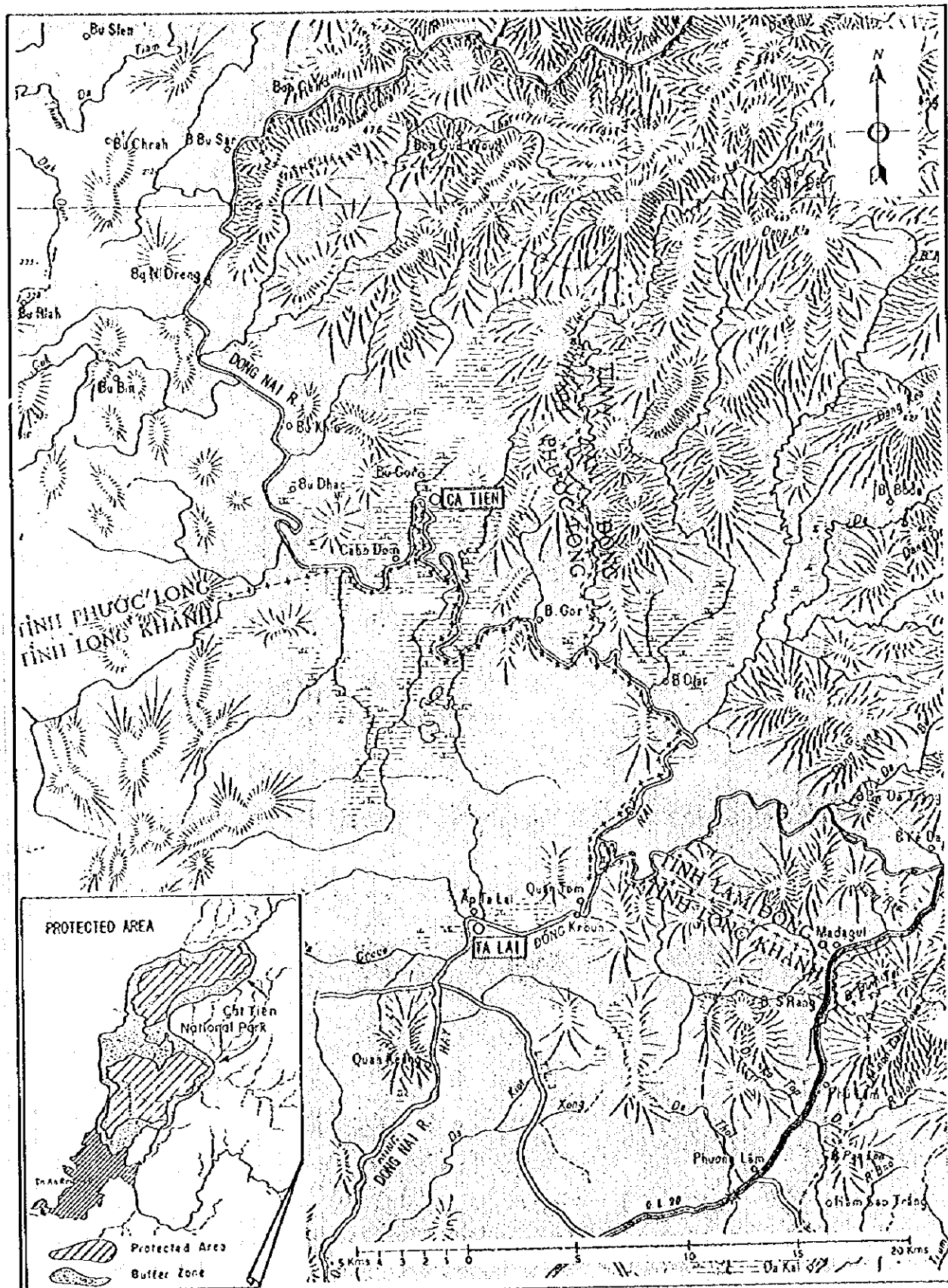


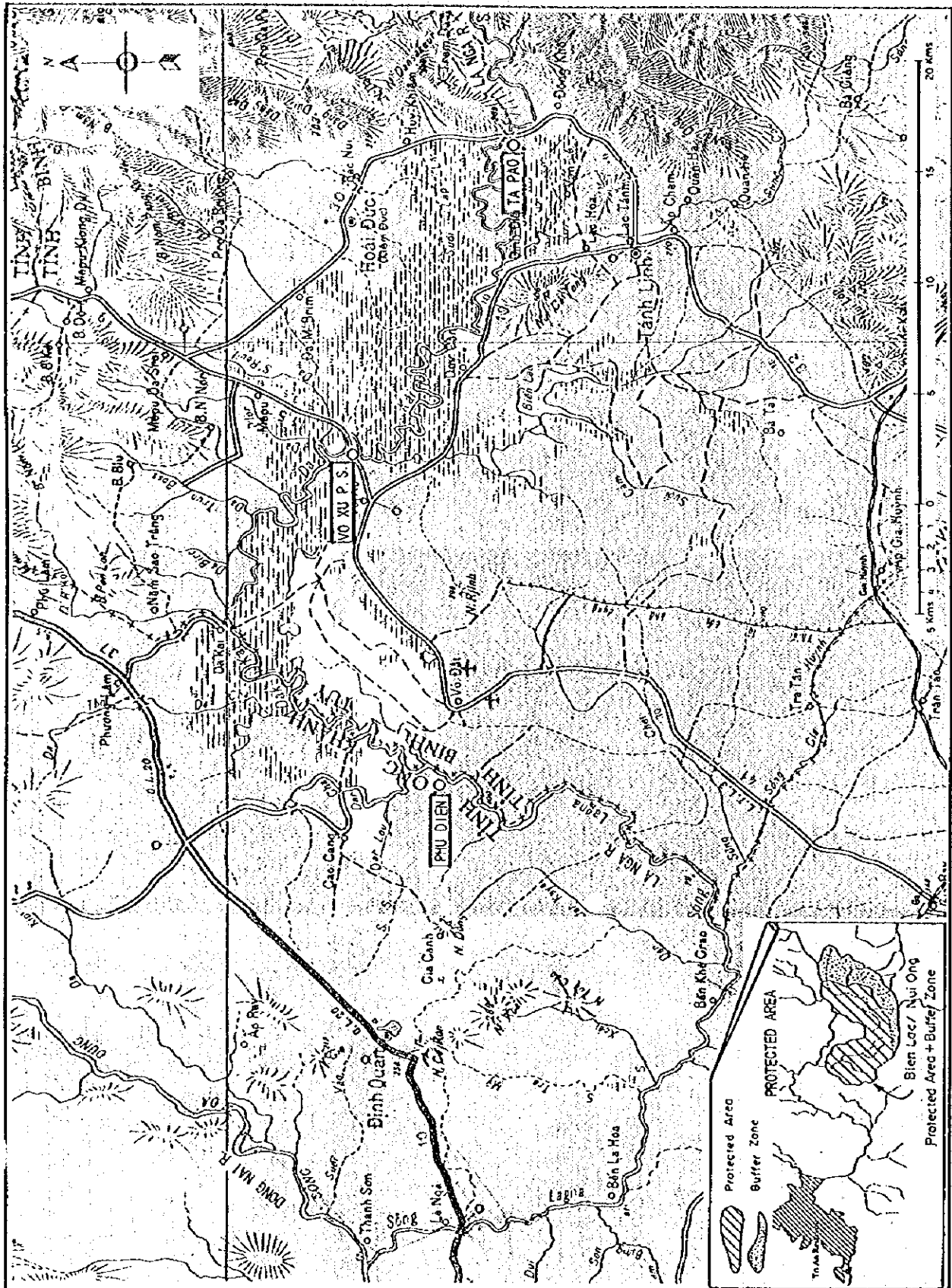
Figure 7.2  
 Calibration Result of Flood Runoff  
 Model (2/2)





SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

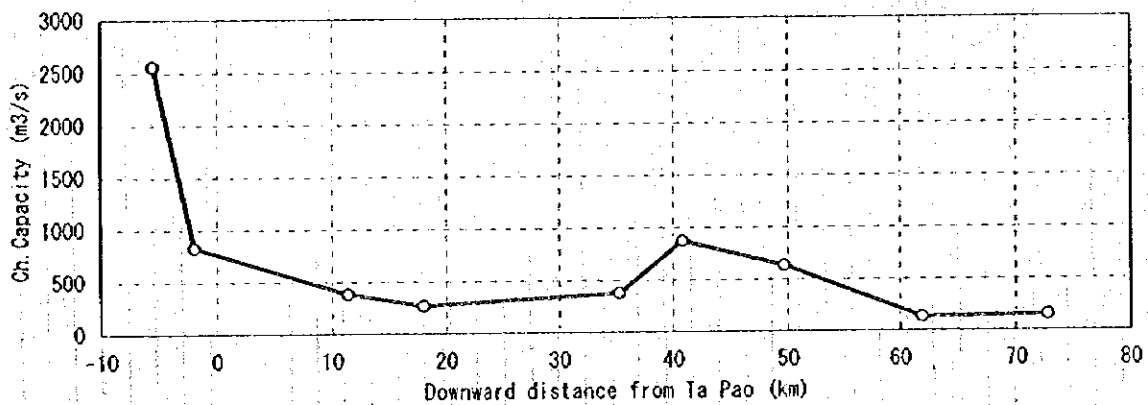
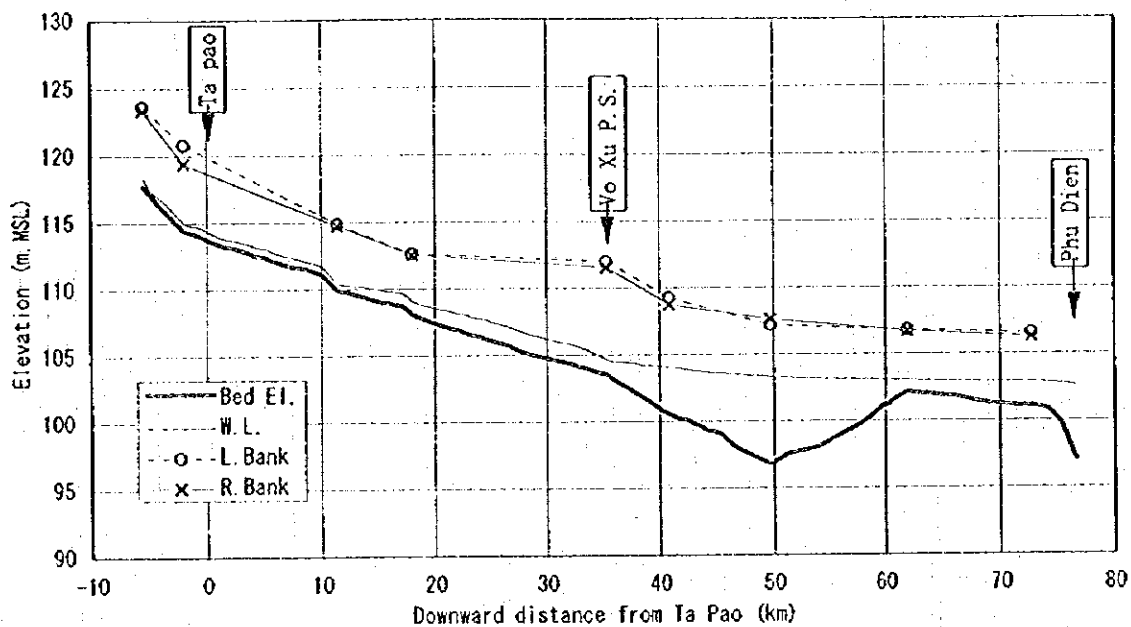
**Figure 7.4**  
 Location Map of the Cat Tien-Ta Lai Area



SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 7.5

Location Map of the La Nga River

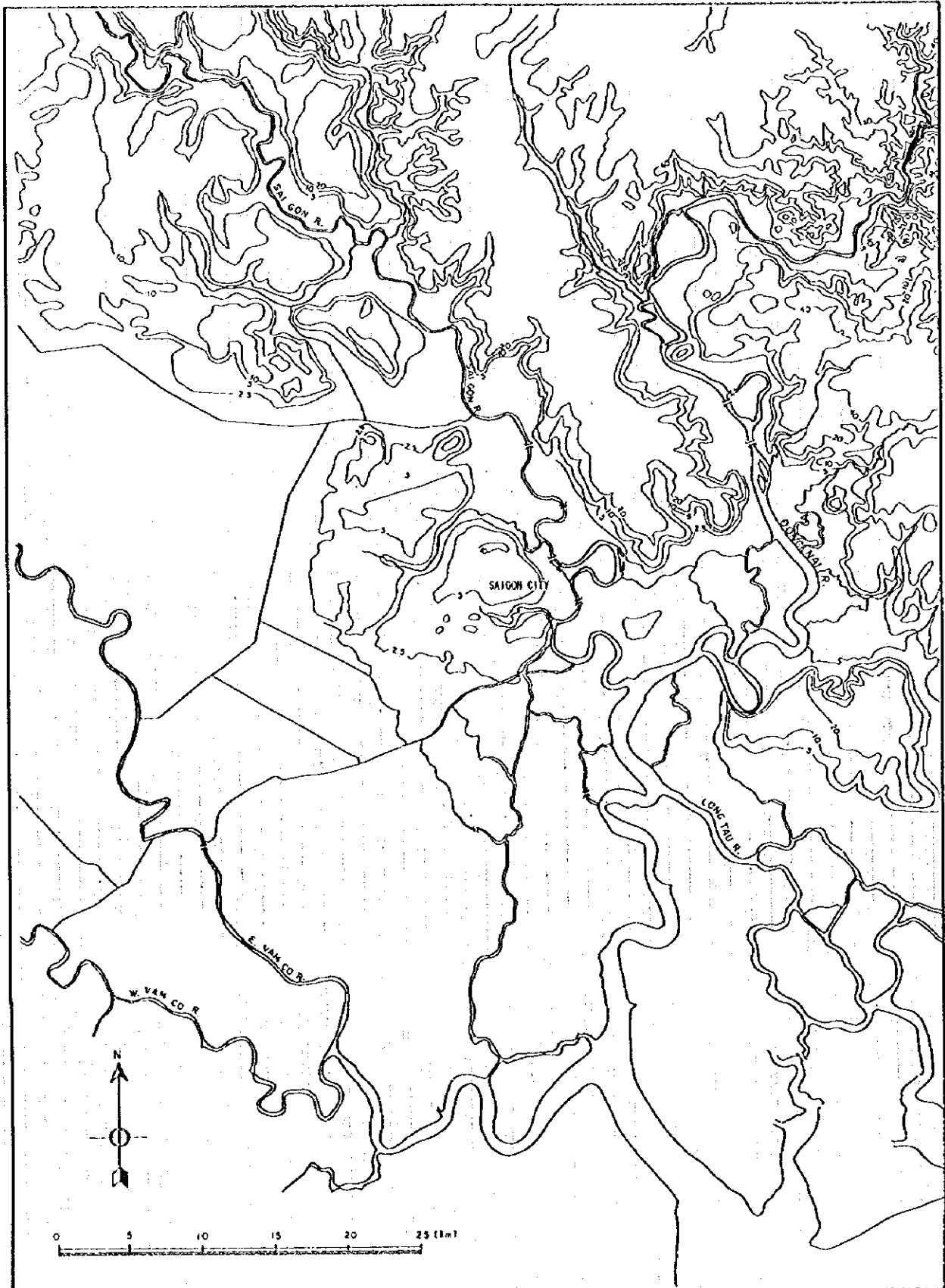


Sec. No.	Dis- tance (km)	River Bank Elev. (m. MSL)		Sect. Area (m <sup>2</sup> )	Channel Width (m)	Mean Depth (m)	Slope (1/1)	Capa- city (m <sup>3</sup> /s)
		L. Bank	R. Bank					
M/C 22	-5.46	123.62	123.37	1156.50	418	2.77	882	2,560
M/C 23	-1.96	120.80	119.40	321.80	93	3.47	882	828
M/C 24	11.42	114.89	114.75	233.30	55	4.25	2,875	381
M/C 25	18.07	112.61	112.54	215.82	74	2.92	3,009	268
M/C 25A	35.27	112.01	111.56	531.05	111	4.79	17,551	380
M/C 26	40.87	109.27	108.75	417.72	89	4.70	1,993	875
M/C 27	49.72	107.17	107.61	410.84	64	6.41	5,601	631
M/C 28	61.97	106.79	106.70	264.88	68	3.89	26,064	135
M/C 29	72.77	106.53	106.25	292.44	77	3.79	24,000	153

Distance: Downward distance from Ta Pao  
 Sect. Area: Sectional area below lower river bank  
 Capacity: Estimated bankful channel capacity

Figure 7.6

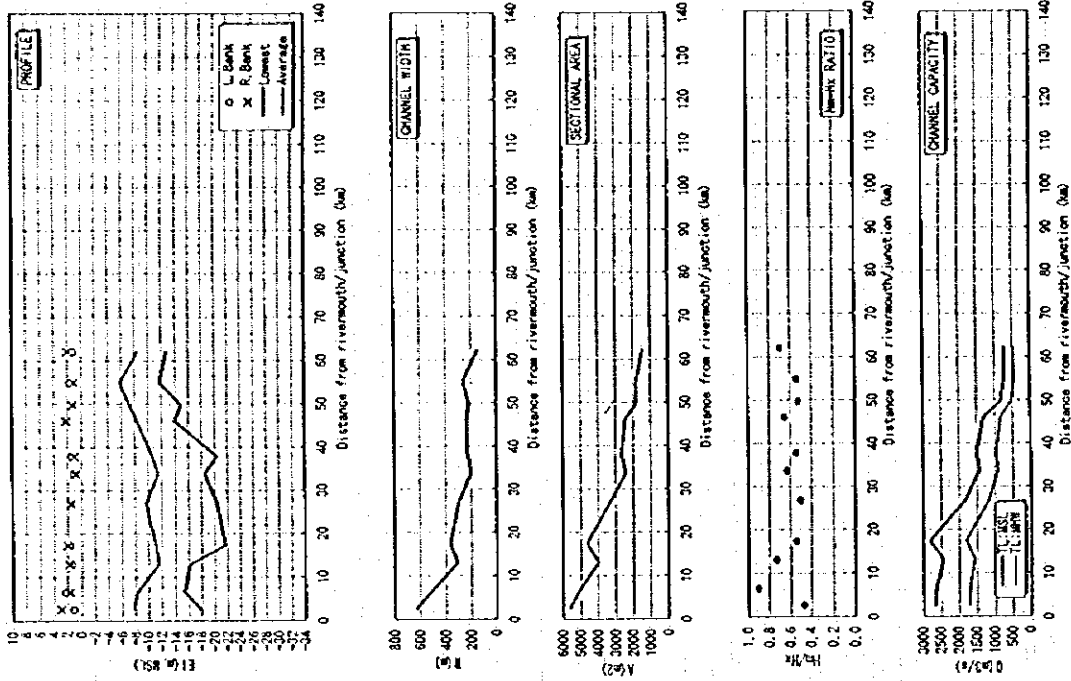
Channel Features of the La Nga River



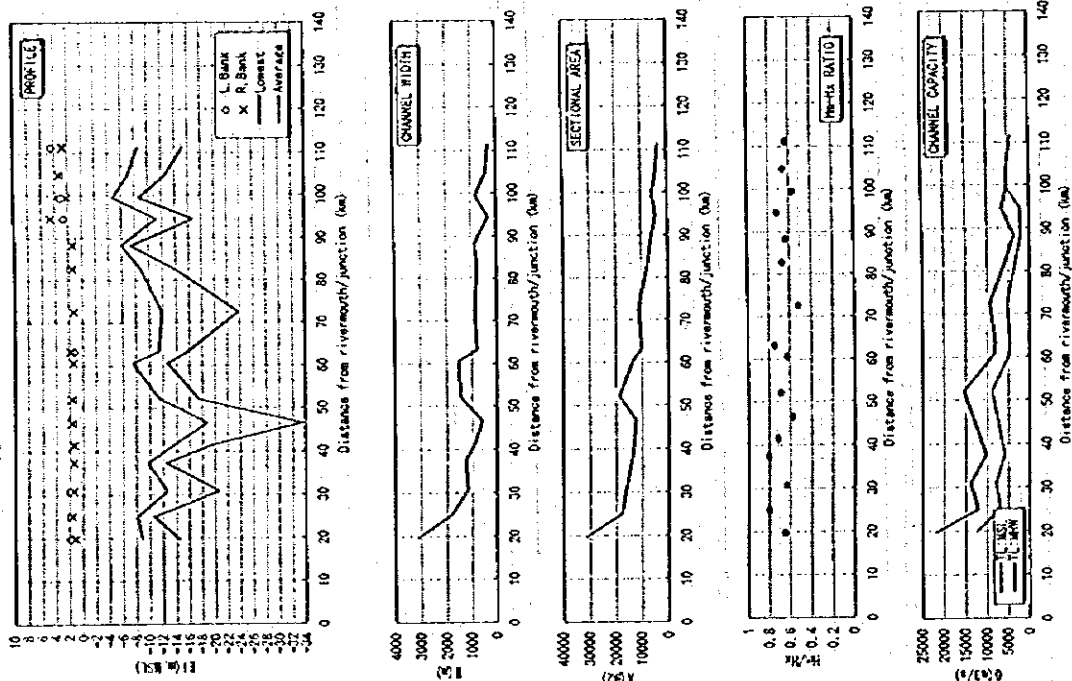
SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

**Figure 7.7**  
**Location Map of the Lower Dong Nai**  
**and Related Rivers**

CHANNEL PROFILE OF SALOON RIVER



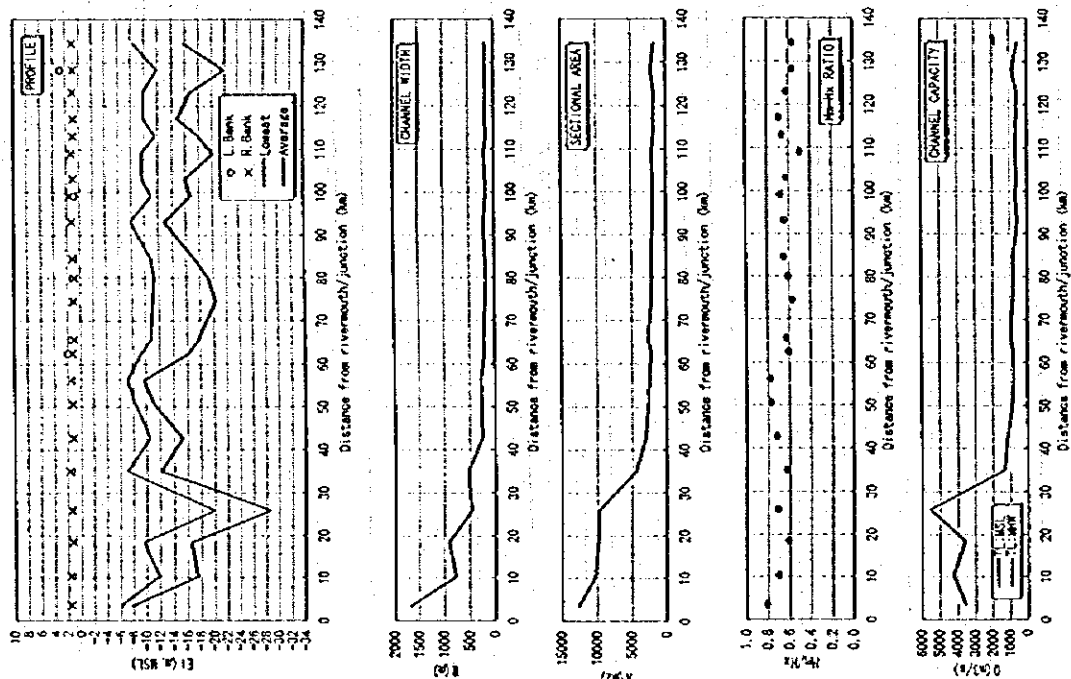
CHANNEL PROFILE OF DONG NAI RIVER



SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

Figure 7.8  
 Channel Profiles in the Lower  
 Dong Nai (1/2)

CHANNEL PROFILE OF EAST VAM CO RIVER



CHANNEL PROFILE OF WEST VAM CO RIVER

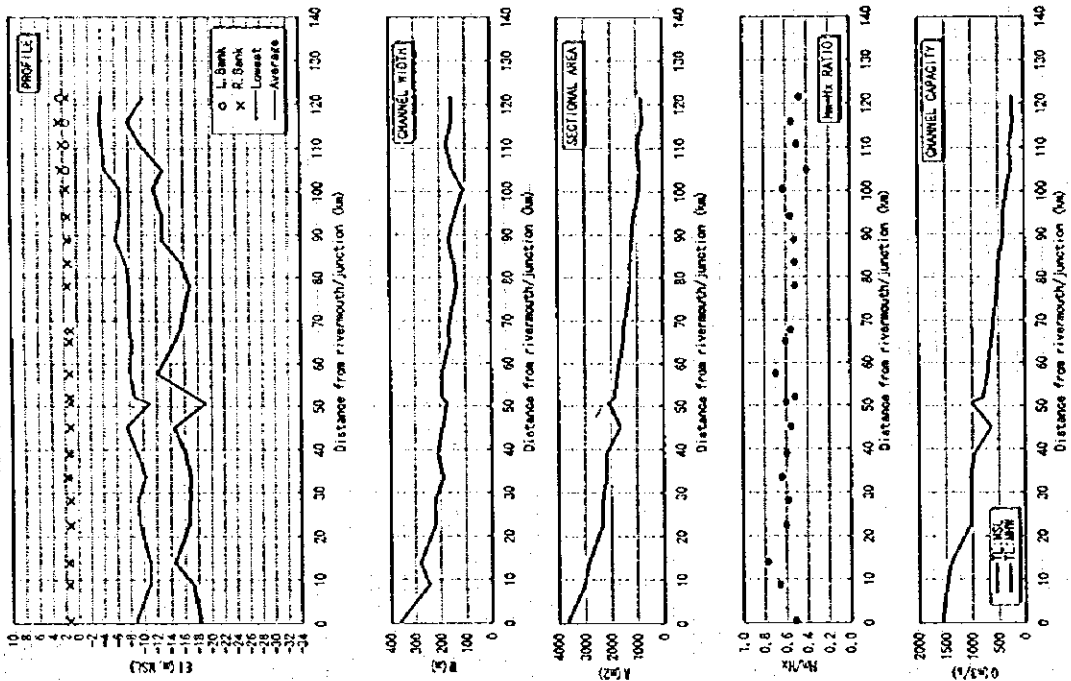
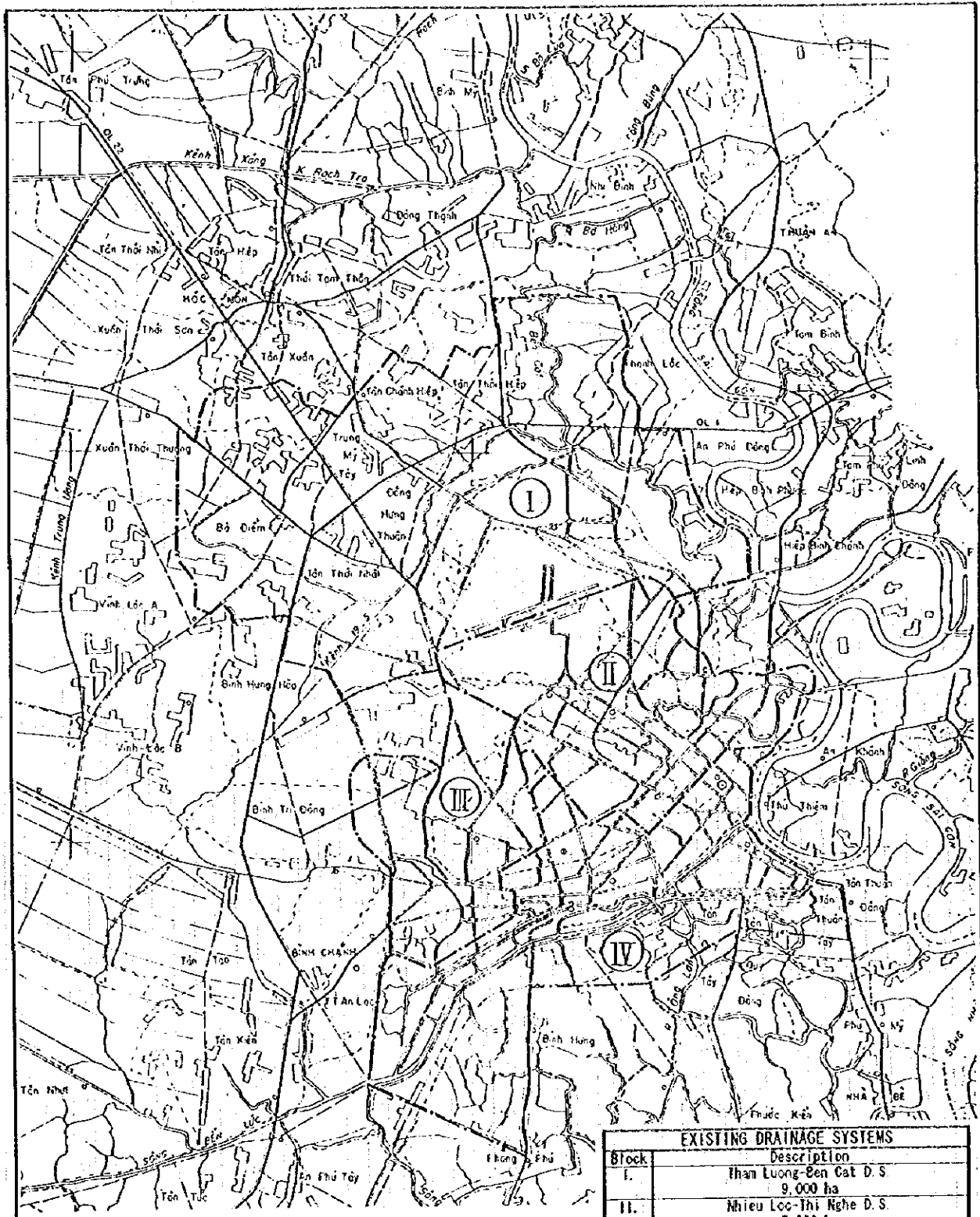


Figure 7.8  
 Channel Profiles in the Lower  
 Dong Nai (2/2)

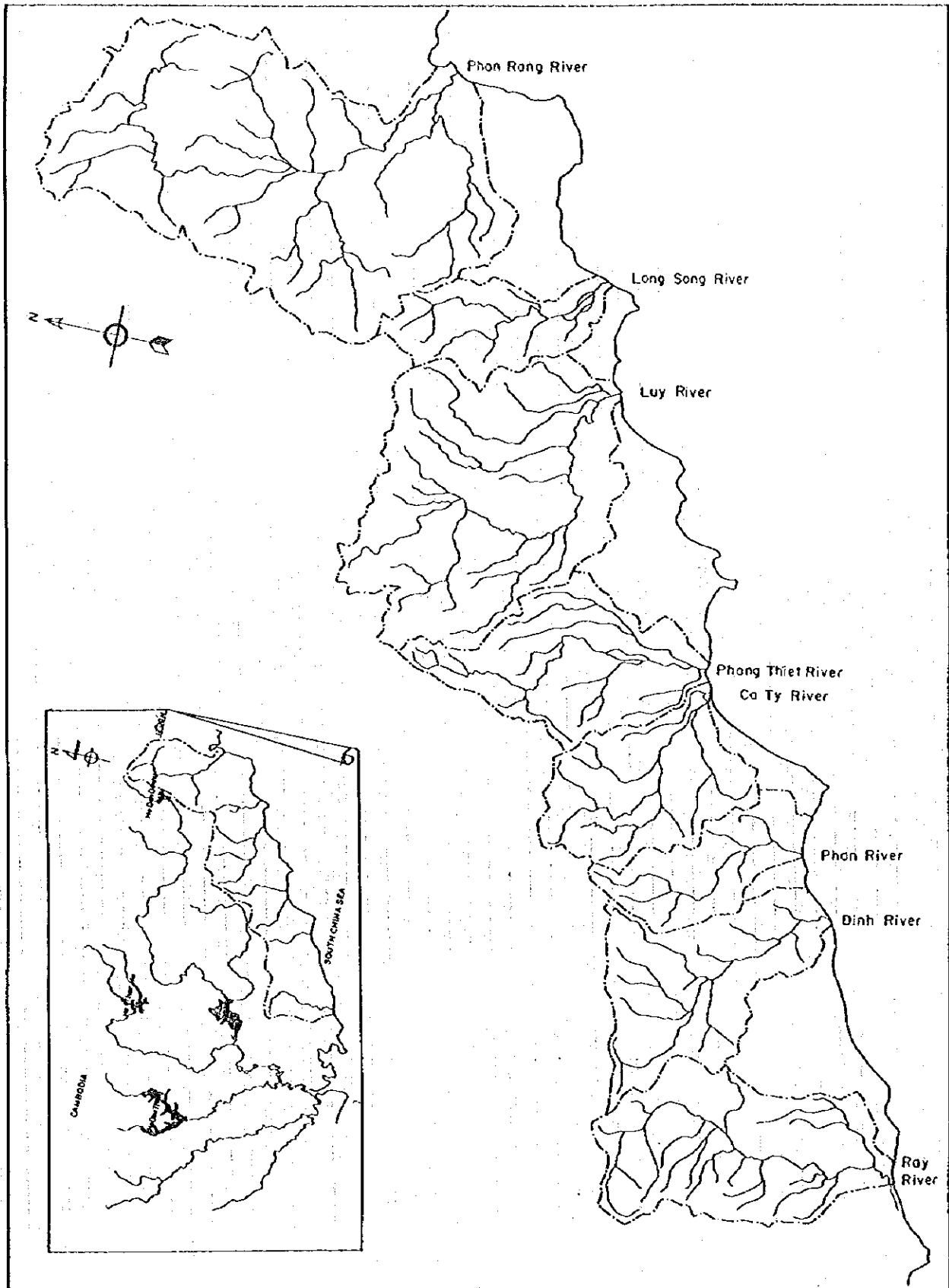




EXISTING DRAINAGE SYSTEMS	
Block	Description
I.	Tham Lương-Bến Cát D. S. 9,000 ha
II.	Nhiêu Lộc-Thị Nghè D. S. 5,000 ha
III.	Tân Hòa-Lò Gốm D. S. 2,115 ha
IV.	Kinh Đô-Kinh Tế-Tây Hồ-Bến Nghé D. S. 4,900 ha

SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON ĐÔNG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

**Figure 7.9**  
**Existing Drainage System in HICMC**



SOCIALIST REPUBLIC OF VIET NAM  
 MASTER PLAN STUDY ON DONG NAI RIVER  
 AND SURROUNDING BASINS  
 WATER RESOURCES DEVELOPMENT  
 JAPAN INTERNATIONAL COOPERATION AGENCY

**Figure 7.10**  
**Location of the Coastal River Basins**