Appendix H

Flood Control Plan for 14 River Basins

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1. BANG GIANG AND KY CUNG RIVER BASIN

The objective area is 10,000 ha agricultural land and Lang Son Town. The design discharge for the objective flood protection area is 2,800 m^3/s based on the flood control criteria adopted in the Study as shown in Table H.1.

The hourly design discharge hydrograph at the basic point of the river basin is prepared based on the flood record at Lang Son in July 1986 as discussed in the above. The prepared hourly design discharge hydrograph is shown in Figure H.1.

In consideration that the downstream of the rivers is a foreign country, China, the flood control of the basin should be attained by construction of reservoir in the upstream basin. The flood control by construction of dike system may worsen the flooding situation in the downstream basin in China.

The reservoir proposed is Ban Lai reservoir and necessary flood control volume is estimated at 96.2 million m^3.

2. RED RIVER DELTA

The objective area of flood control is the Red River delta including the capital city, Hanoi of Vietnam. Although the present dike system is provided for the probable flood of occurrence probability of 0.8% (125-year return period) of major flood, the Government of Vietnam is planning to raise up the flood protection level to 0.5% to 0.2% in the coming future in consideration of the recent tendency of increase of flood peak under the background of upstream development and the world wide climate change due to El Niño, green house effect, and others. For this purpose, Dhai Thi reservoir is planned for the flood of the occurrence probability of 0.5% and Son La reservoir is planned for the flood of the occurrence probability of 0.2% for the long-term flood control in the Red River basin. Accordingly no additional plan to this flood control plan is proposed in the present study.

3. MA RIVER BASIN

The flood prone area and the objective area of flood control of the Ma River basin is shown in Figures H.2 and H.3, respectively. The objective area includes the Thanh Hoa City, the capital of the Thanh Hoa province. The basic design discharge of the Ma River for the objective area is estimated based on the occurrence probability of 1% shown in the flood control criteria in Table H.1. The estimated basic design discharge at the basic point for the objective flood control area is 7,000 m^3/s.

The hourly design discharge hydrograph at the basic point of this river basin is prepared based on the flood record at Cam Thuy in September 1996 as afore-mentioned, since the other year's flood record is not available. The prepared hourly design discharge hydrograph at the basic point of the river basin is shown in Figure H.4.

As shown in the flood control criteria, the design high water level at Tao Bridge of the Ma River is defined to be 5.6 m. The discharge of 5,000 m^3/s in the present river conditions corresponds to the design high water level of 5.6 m at Tao Bridge. This high water level seems to have enough freeboard in the present river conditions.

In consideration that the present Ma River in the downstream reaches has the dyke system and the height of the dyke is already high enough, additional heightening of the dyke is not proposed for the new basic design discharge of 7,000 m^3/s. Accordingly the design discharge distribution of the Ma River in the downstream reaches is proposed to be 5,000 m^3/s and it is proposed that the remaining 2,000 m^3/s should be retained in the upstream reservoir.

Cua Dat reservoir to be located in the upstream basin of the Chu River, one of the main tributaries of the Ma River, is proposed to have the function of flood control. The required flood control volume is estimated at 105.6 million m^3. The design high water level of the design discharge of the Ma River is shown in Figure H.5. Accordingly no river improvement works are proposed in the present study on the flood control plan of the Ma River.

4. CA RIVER BASIN

The flood prone area and the objective area of flood control of the Ca River basin is shown in Figures H.6 and H.7 respectively. The objective area includes the Vinh City, the capital of the Nghe An province. The basic design discharge of the Ca River for the objective area is estimated based on the occurrence probability of 1% shown in the flood control criteria. The estimated basic design discharge at the basic point for the objective flood control area is 11,900 m^3/s.

The hourly design discharge hydrograph at the basic point of this river basin is prepared based on the flood record at Dua in September 1978 as afore-mentioned. The prepared hourly design discharge hydrograph at the basic point of the river basin is shown in Figure H.8.

As shown in the flood control criteria, the design high water level at Ben Thuy Bridge of the Ca River is defined to be 6.28 m. The discharge of 10,000 m^3/s in the present river conditions corresponds to the design high water level of 6.28 m at Ben Thuy Bridge. This high water level does not seem to have enough freeboard in the present river conditions.

In consideration that the present Ca River in the downstream reaches has the dyke system and the height of the dyke is already high enough, additional heightening of the dyke is not proposed here for the new basic design discharge of 11,900 m^3/s. Accordingly the design discharge distribution of the Ca River in the downstream reaches is proposed to be 10,000 m^3/s and it is proposed that the remaining 1,900 m^3/s should be retained in the upstream reservoir of the Ca River.

Ban La reservoir to be located in the upstream basin of the Ca River is proposed to have the function of flood control. The required flood control volume is estimated at 216.0 million m^3. The design high water level of the design discharge of the Ca River is shown in Figure H.9. Since the present dyke system in the downstream reaches of the Ca River does not have enough freeboard in its elevation, the heightening of the present dike within the limit of necessary freeboard in the downstream reaches is proposed.

5. THACH HAN RIVER BASIN

The flood prone area and the objective area of flood control of the Thach Han River basin is shown in Figures H.10 and H.11, respectively. The objective area includes the Quang Tri City, the capital of the Quang Binh province, and Dong Ha City. The basic design discharge of the Ca River for the objective area is estimated from 1999 flood shown in the flood control criteria. The estimated basic design discharge at the basic point for the objective flood control area is 16,520 m^3/s.

Since even the daily discharge record is not available in this river basin, the objective hourly design discharge hydrograph is prepared based on the hourly discharge hydrograph prepared in the Huong River basin that is the adjacent river basin for this Thach Han River basin. The prepared hourly design discharge hydrograph at the basic point of the river basin is shown in Figure H.12.

As the flood control criteria in the said flood control criteria table, the design high water level at Quang Tri Citadel of the Thach Han River is defined to be 6.5 m. The basic flood design discharge at the Quang Tri Citadel site is estimated at 13,670 m^3/s. To keep the design high water level at the site at 6.5 m to this basic design discharge of 13,670m, the present river channel needs to be greatly widened. Accordingly the design discharge distribution at this site should be decreased as much as possible by constructing the upstream reservoir.

Accordingly the Rao Quan reservoir in the upstream basin is proposed to have the function of flood control. The possible flood control volume is estimated at 104.7 million m^3. In consideration of this flood control function of Rao Quan reservoir, the design flood discharge distribution of the Thach Han River is estimated at 9,210 m^3/s in the reaches downstream of Quang Tri Citadel site to the confluence and

12,050 m^3/s in the reaches downstream of the confluence of the Cam Lo River to the river-mouth.

To fulfill the flood control criteria that the design high water level at Quang Tri Citadel should be 6.5 m, the necessary river improvement works are proposed since the present river channel does not have enough discharge carrying capacity for the said 9,210 m^3/s below the water level of 6.5m. The necessary river improvement works are river widening and construction of river dyke.

The design high water level of the design discharge of the Thac Han River is shown in Figure H.13.

6. HUONG RIVER BASIN

The flood prone area and the objective area of flood control of the Huong River basin is shown in Figures H.14 and H.15, respectively. The objective area includes the Hue City, the capital of the Thua Thien-Hue province. The basic design discharge of the Huong River for the objective area is defined as 13,670 m^3/s based on the flood control criteria.

As afore-mentioned, the hourly design discharge hydrograph in this river basin is prepared with the flood run off calculation. The hourly design discharge hydrograph is prepared with the flood run-off calculation by use of probable 2-day rainfall in the river basin in consideration that 2-day rainfall is the dominant rainfall in the past major flood records. The prepared hourly design discharge hydrograph at the basic point of the river basin is shown in Figure H.16.

As shown in the flood control criteria, the design high water level at Kim Long of the Huong River is defined to be 3.71 m. In consideration of the design high water level of 3.71 m at Kim Long, the design discharge distribution of the site is estimated at 2,000 m^3/s. The remaining 11,670 m^3/s should be retained in the upstream reservoirs. Since the Hue City is one of the important tourism industry centers in Vietnam, no dyke can be constructed along the Huong River in its downstream reaches.

The alternative study among several combinations of Ta Trach reservoir, Huu Trach reservoir, retarding basin, flood diversion channel to the Bo River, the flood diversion tunnel to the Song River, and the parapet wall around the Hue City, shows that the combination of the Ta Trach reservoir and the Huu Trach reservoir is the conceivable option as the flood control measures of the Huong River basin for the said flood control criteria.

The necessary flood control volumes of the reservoirs are estimated at 390 million m^3 for Ta Trach and 105 million m^3 for Huu Trach respectively.

7. VU GIA – THU BON RIVER BASIN

The hourly design discharge hydrograph at the basic point of this river basin is prepared based on the flood record at Nong Son in November 1998 as afore-mentioned. The prepared hourly design discharge hydrographs at the basic point of the Vu Gia River and the Thu Bon River basin are shown in Figure H.17.

Vu Gia River

The inundated area in 1999 flood and the objective area of flood control of the Vu Gia – Thu Bon River basin is shown in Figures H.18 and H.19, respectively. The objective area includes the Hoi An City, one of the important tourism industry centers in Vietnam, and Tam Ky City. The Vu Gia River flows near the Da Nang City. But even during the 1999 flood, Da Nang City was out of inundation area situated at rather highly elevated area. Accordingly Da Nang City is set out of the flood control objective area.

The basic design discharge of the Vu Gia River is defined to be 9,100 m^3/s at Nong Son in the flood control criteria in Table H.1. Based on this criterion, the basic design discharge of the Thu Bon River at Ai Nghia, the basic point of the Vu Gia River for the objective flood control area is estimated at 10,870 m^3/s.

As shown in the flood control criteria, the design high water level at Ai Nghia of the Vu Gia River is defined to be 9.5 m. In consideration of the design high water level of 9.5 m at Ai Nghia, the design discharge distribution of the site is proposed to be 6,510 m^3/s including the river improvement and construction of reservoir in the upstream basin.

The difference of discharge between the basic design discharge of 10,870 m^3/s and the design discharge distribution in the downstream reaches of 6,510 m^3/s is proposed to be retained in the Song Cai reservoir to be located in the upstream reaches of the Vu Gia River. The necessary flood control volume of the Song Cai reservoir is estimated at 550 million m^3. The typical river cross-section of the Vu Gia River is shown in Figure H.20. The longitudinal profile of the Vu Gia River for the design discharge distribution is shown in Figure H.21.

Thu Bon River

The basic design discharge of the Thu Bon River is defined to be 9,100 m^3/s at Nong Son of the Thu Bon River in the flood control criteria. Based on this criterion, the basic design discharge of the Thu Bon River at Giao Thuy the basic point of the Thu Bon River for the objective flood control area is estimated at 10,870 m^3/s.

As shown in the flood control criteria, the design high water level at Giao Thuy of the Thu Bon River is defined to be 8.4 m. In consideration of the design high water level of 8.4 m at Giao Thuy the design discharge distribution of the site is estimated at 4,600 m^3/s. In

consideration of the special aspects of the Hoi An City that is registered as the world cultural heritage, and the characteristics of the river channel in the objective area that flows very widely in the downstream basin, the flood control of the Thu Bon River is to be attained by construction of reservoir in the upstream basin.

Accordingly no river improvement works are proposed in the present study and the difference of the discharge is proposed to be retained in the upstream reservoir. Ho Song Trach II reservoir is proposed for this purpose. The necessary flood control volume is estimated at 800 million m^3. The longitudinal profile of the Thu Bon River for the design discharge distribution is shown in Figure H.22.

8. TRA KHUC RIVER BASIN

The flood prone area and the objective area of flood control of the Tra Khuc River basin are shown in Figures H.23 and H.24, respectively. The objective area of flood control includes the Quang Ngai City, the capital of the Quang Ngai Province. But the city is surrounded by ring levee for flood control. Accordingly the city will have to solve the drainage congestion problem even the city may be free from flooding from the Tra Khuc River.

The basic design discharge of the Tra Khuc River is defined to be 10,200 m^3/s at Son Giang of the Tra Khuc River in the flood control criteria. Based on this criterion, the basic design discharge of the Tra Khuc River at the basic point of the objective area of flood control is estimated at 10,690 m^3/s.

The hourly design discharge hydrograph at the basic point of this river basin is prepared based on the flood record at Son Giang in November 1998 as afore-mentioned. The prepared hourly design discharge hydrograph at the basic point of the river basin is shown in Figure H.25.

As shown in the flood control criteria, the design high water level at Tra Khuc of the Tra Khuc River is defined to be 6.2 m. In consideration of the design high water level of 6.2 m at Tra Khuc, the design discharge distribution of the site is proposed to be 6,040 m^3/s. For this design discharge distribution in the downstream reaches of the Tra Khuc River, the existing dyke does not have enough freeboard. Accordingly the heightening of the present dyke within the limit of necessary freeboard is proposed for the Tra Khuc River. The remaining discharge is proposed to be retained in the upstream reservoir. The Nuoc Trong reservoir is proposed for this purpose. The necessary flood control volume is estimated at 184.2 million m3. The longitudinal profile of the Tra Khuc River for the design discharge distribution is shown in Figure H.26.

9. KONE RIVER BASIN

The flood prone area and the objective area of flood control of the Kone River basin are shown in Figures G27 and G.28, respectively. The objective area of flood control does not include the Quy Nhon City, the capital of the Binh Dinh Province. The Quy Nhon City is located rather far from the river mouth of the Kone River and free from flooding from the Kone River.

The basic design discharge of the Kone River is defined to be 4,920 m^3/s at Cay Muong of the Kone River in the flood control criteria. Based on this criterion, the basic design discharge of the Kone River at the basic point of the objective area of flood control is estimated at 5,580 m^3/s.

The hourly design discharge hydrograph at the basic point of this river basin is prepared based on the flood record at Cay Muong in November 1987 as afore-mentioned. The prepared hourly design discharge hydrograph at the basic point of the river basin is shown in Figure H.29.

As shown in the flood control criteria, the design high water level at Tan An of the Kone River is defined to be 7.6 m. In consideration of the design high water level of 7.6 m at Tan An, the design discharge distribution of the site is proposed to be 3,000 m^3/s. For this design discharge distribution in the downstream reaches of the Kone River, the river improvement and the upstream reservoir are needed. Dinh Binh reservoir to be located in the upstream basin of the Kone River is proposed to have the function of flood control. The necessary flood control volume of the Dinh Binh reservoir is estimated at 97.2 million m^3. The river improvement of the Kone River is rather in a large scale. The typical river cross-section of the Kone River for the river improvement is shown in Figure H.30. The longitudinal profile of the Kone River for the design discharge is shown in Figure H.31.

10. BA RIVER BASIN

The flood prone area and the objective area of flood control of the Ba River basin are shown in Figures H.32 and H.33, respectively. The objective area of flood control includes the Tuy Hoa City, the capital of the Phu Yen Province.

The basic design discharge of the Ba River is defined to be 13,675 m^3/s at Cung Son of the Ba River in the flood control criteria in Table H.1. Based on this criterion, the basic design discharge of the Ba River at the basic point of the objective area of flood control is estimated at 13,560 m^3/s.

The hourly design discharge hydrograph at the basic point of this river basin is prepared based on the flood record at Cam Son in October 1993 as afore-mentioned. The prepared hourly design discharge hydrograph at the basic point of the river basin is shown in Figure

H.34.

As shown in the flood control criteria, the design high water level at Phu Lam of the Ba River is defined to be 4.39 m. In consideration of the design high water level of 4.39 m at Phu Lam, the design discharge distribution of the site is proposed to be 11,000 m^3/s. For this design discharge distribution in the downstream reaches of the Ba River, the existing dyke does not have enough freeboard. Accordingly the heightening of the existing dyke is proposed within the limit of necessary freeboard. The remaining discharge should be retained in the upstream reservoir of Song Ba Ha reservoir. The necessary flood control volume of the Song Ba Ha is estimated at 38.1 million m^3. The longitudinal profile of the Ba River for the design discharge distribution is shown in Figure H.35.

11. SESAN RIVER BASIN

The basic design discharge of the Sesan River is defined to be 3,600 m^3/s at Kontum of the Sesan River in the flood control criteria.

As shown in the flood control criteria, the design high water level at Dakbla bridge of the Sesan River is defined to be 517.0 m.

The corresponding discharge at Dakbla bridge to the water level of 517.0 m is estimated at 642 m^3/s.

The hourly design discharge hydrograph at the basic point of this river basin is prepared based on the flood record at Kon Tum in September 1996 as afore-mentioned. The prepared hourly design discharge hydrograph at the basic point of the river basin is shown in Figure H.36.

In consideration that the downstream of the Sesan River is Cambodia, the river improvement of the said reaches of the river is not proposed in the present study. The discharge more than 642 m^3/s to the basic design discharge of 3,600 m^3/s is proposed to be retained in the upstream reservoir. The Dak Bla reservoir to be located along the Krone River, one of the tributaries of the Sesan River, is proposed for this purpose. The necessary flood control volume of the Dak Bla reservoir is estimated at 78.0 million m^3.

12. SREPOK RIVER BASIN

Here the Duc Xuyen site is to be submerged as the impounding area of Buon Kuop reservoir, the Duc Xuyen site is not taken up in the present study.

The basic design discharge at Giang Son site is defined to be the discharge of occurrence probability of 10% as shown in the flood control criteria. The estimated discharge corresponding to this criterion is 2,550 m^3/s.

The hourly design discharge hydrograph at the basic point of this river basin is prepared

based on the flood record at Duc Xyen in October 1992 as afore-mentioned. The prepared hourly design discharge hydrograph at the basic point of the river basin is shown in Figure H.37.

As shown in the flood control criteria, the design high water level at Giang Son located along the Ea Krong Ana River, one of the tributaries of the Srepok River is defined to be 425.0 m.

The corresponding discharge at Giang Son to the water level of 425.0 m is estimated at 527 m^3/s. In consideration that the downstream of the Srepok River is Cambodia, the river improvement of the said reaches of the river is not proposed in the present study. The discharge more than 527 m^3/s to the basic design discharge of 2,550 m^3/s is proposed to be retained in the upstream reservoir.

The existing Lower Krong Buk reservoir, proposed Upper Krong Buk reservoir, and proposed Krong Buong reservoir are proposed for retaining the excess discharge from 527 m^3/s to 2,550 m^3/s. The necessary flood control volume of these reservoirs is estimated at 33.3 million m^3, 26.2 million m^3, 21.4 million m^3 respectively.

13. DONG NAI RIVER BASIN

The master plan of the Dong Nai River basin has been prepared based on the JICA Study under the name of Master Plan Study on Dong Nai River and Surrounding Basins Water Resources Development, in August 1996.

It is reported that the basic flood control in the Dong Nai River basin can be coped with the existing reservoirs. Accordingly no additional flood control plan on the Dong Nai River basin will be proposed in the present study.

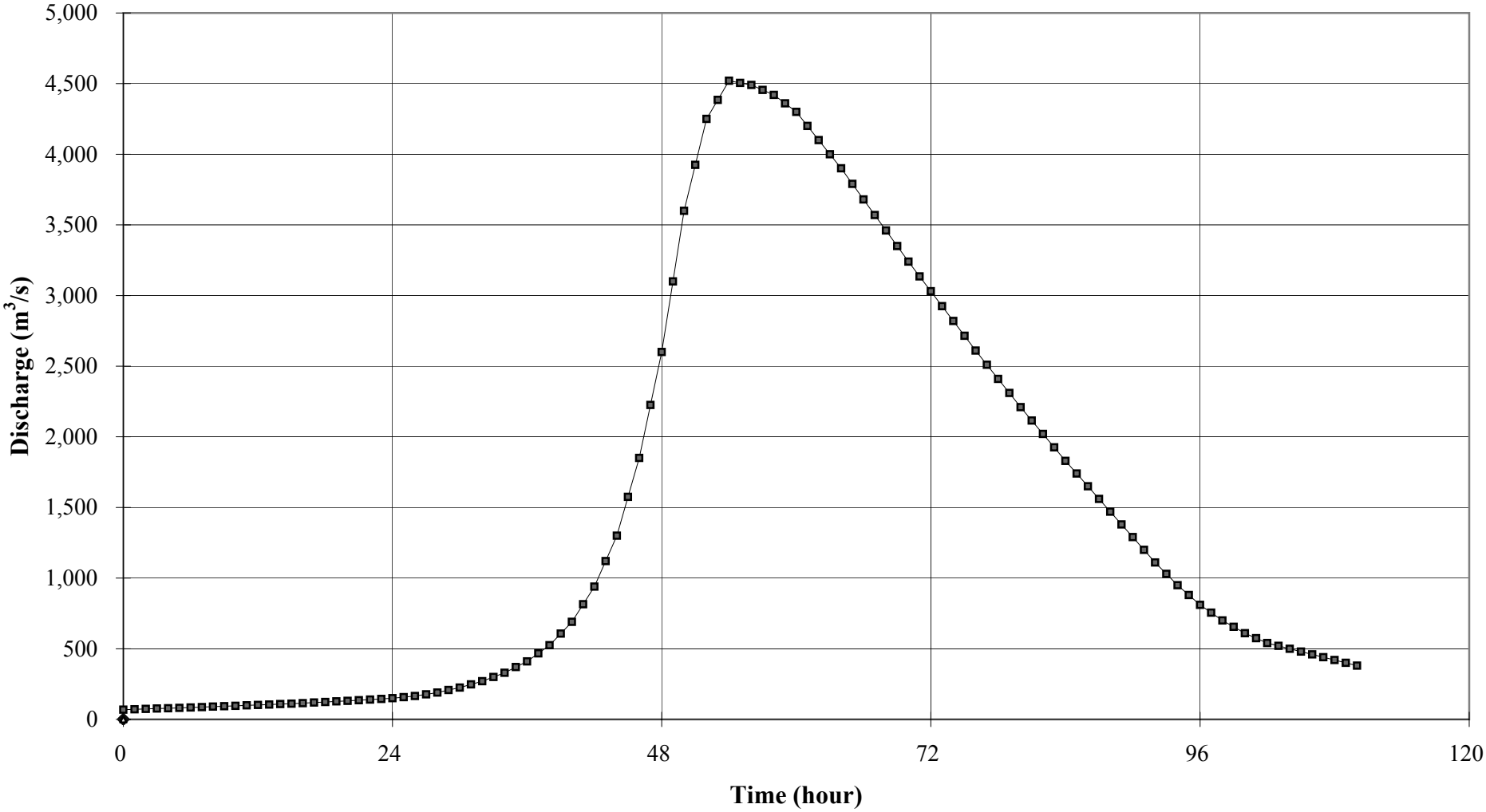
14. CUU LONG RIVER BASIN

The flood control plan of this river basin is elaborately and adequately prepared by KOIKA that was started in April 1999 and completed in September 2000. Accordingly no additional flood control plan is proposed in the present study.

Table H.1 Flood Control Criteria for River Basin

River	Location	Occurred floods		Flood control criteria				Remarks
	Name	H (m)	Q (m^3/s)	Year	H (m)	Q (m3/s)	Frequencies (%)	
Bang Giang - Ky Cung	Lang Son town	20.00	4,520	7/1986	17.00	2,800	2.5	
		17.00	2,800	8/1980				
Ma	Xuan Khanh	13.90	8,500	1962	13.90		0.6	
	Giang	7.50	NA	1927	7.50		1	
	Len Bridge	6.80	2,050	1973	6.80		1	
	Tao Bridge	5.60	1,250	1973	5.60		1	
	Kim Tan	13.50	NA	1996	13.50		5	
Ca	Do Luong	20.49(upstream)	8,350	1978	20.49		2	
		20.33(downstream)			20.33			
	Yen Thuong	12.95	13,060	1978	12.95		1.5	
	Nam Dan	10.16	13,160	1978	10.16		1	
	Cho Trang	7.28	16,000	1978	7.28		1	
	Linh Cam	7.88	5,970	1978	7.88		1	
	Ben Thuy	6.28	17,660	1978	6.28		1	
Thach Han	Quang Tri Citadel	7.64	NA	1999	6.50			Main flood
	Quang Tri Citadel	4.25	NA	1983	3.85			Summer-autumn flood
Huong	Kim Long	5.84	13,670	1999	3.71			Main flood
	Phu Oc	4.89	3,050	1999	4.50			
	Kim Long	4.23	42,43	1989	2.50		10	Summer-autumn flood
	Phu Oc	4.50	1,410	1989	3.50			
Vu Gia - Thu Bon	Nog Son		10,600	11/1998		9,100	10	Mail flood
	Nog Son		4,500	10/1986		4,766	5	Early floods
	Ai Nghia	10.56		1946	9.50		10	Main flood
	Giao Thuy	9.41		20/11/1998	8.40		10	Main flood
Tra Khuc	Song Giang		18,400	12/1986		10,200	10	Main flood
	Song Giang		6,560	9/1997			5	Early flood
	Tra Khuc	7.72		11/1998	6.20		10	Main flood
Kone	Cay Moung		6,340	1987		10,200	10	Main flood
	Cay Moung		978	9/1977		1,780	1	Eary flood
	Tan An	8.92		1987	7.60		10	Main flood
Ba	Cung Son		20,700	11/1993		13,675	10	Main flood
	Cung Son		4,500	9/1977		4,500	10	Early flood
	Phu Lam	5.20		11/1993	4.39		10	Main flood
Sesan	Kontum		3,620	11/1996		3,600	3	Main flood
	Kontum		2,540	9/1994		2,900	5	Early flood
	Dakbla Bridge	520.70		11/1996	517.00		3	Main flood
Srepok	Giang Son		990	10/1992			10	Main flood
	Giang Son	426.70		10/1992	425.00		10	Main flood
	Duc Xuyen	431.85	1,920	10/1992	431.00		10	Main flood
Dong Nai	Tri An			1978			10	early floods
	Bien Hoa	1.89			2.45			
	Nha Be	1.19			1.46			
	Binh Duong	1.28			1.35			
	Phu An	1.33			1.45			
				1952			1	main flood
	Bien Hoa	4.80			4.87			P=1% for Ho Chi
	Nha Be	1.52			1.54			Minh city.
	Binh Duong	1.69			1.70			P=3-5% for oter
	Phu An	1.48			1.54			cities.
Cuu Long (Mekong)	Tan Chau	4.880		30/8/1978	4.37	23,950	10	early floods
	Chau Doc	4.040		31/8/1978	3.57	7,910	10	early floods
	Tan Chau	5.280		12/10/1961	5.50	28,820	1	main floods
	Chau Doc	5.060		13/10/1961	5.17	9,220	1	main floods
								P=2-5% for towns
	Tan Chau			11/1994				Late floods and
								11/1994 flood

Figure H.1 Design Discharge Hydrograph at Basic Point of Ky Cung River Basin



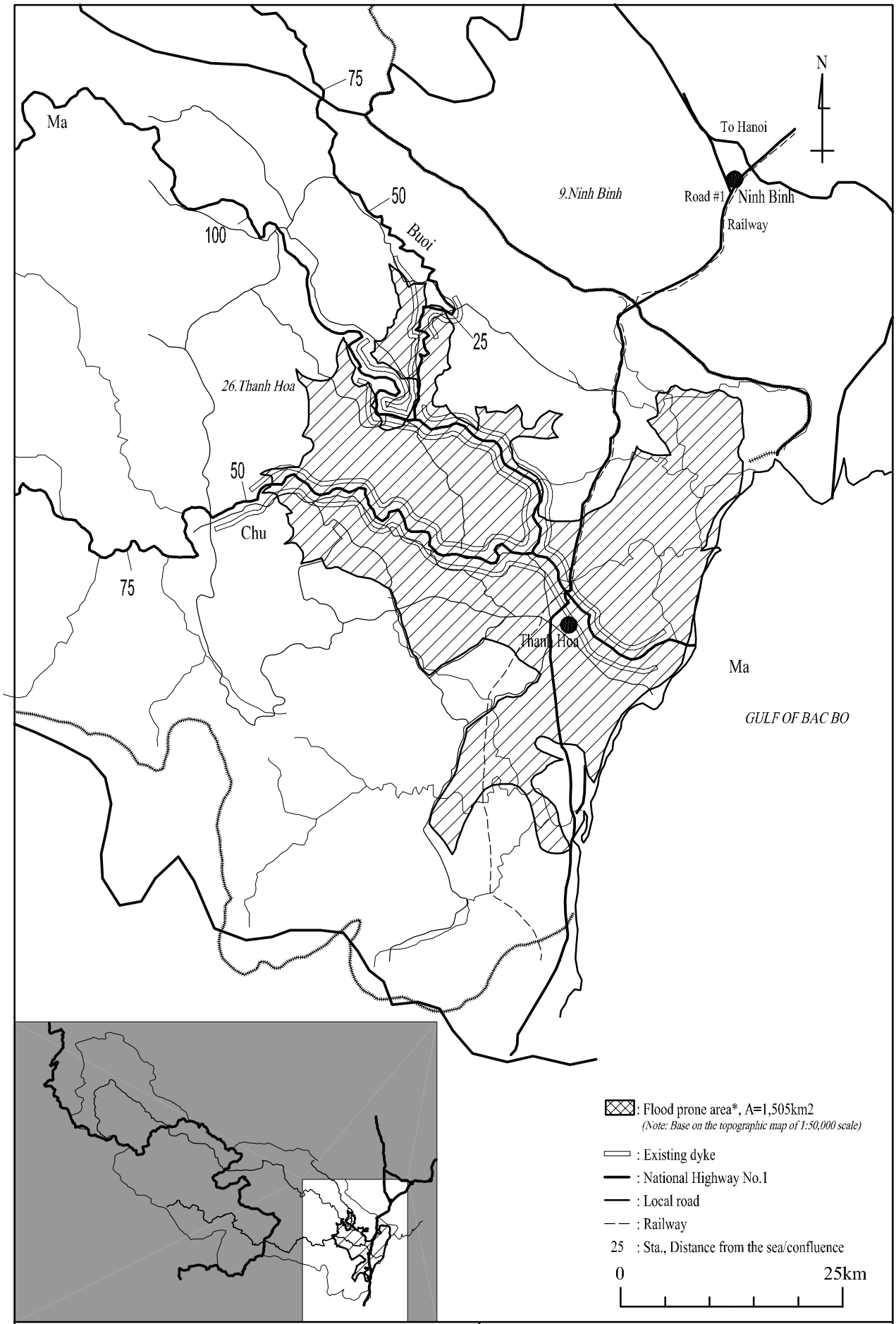


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Figure H.2
Flood Prone Area Map of Ma River Basin

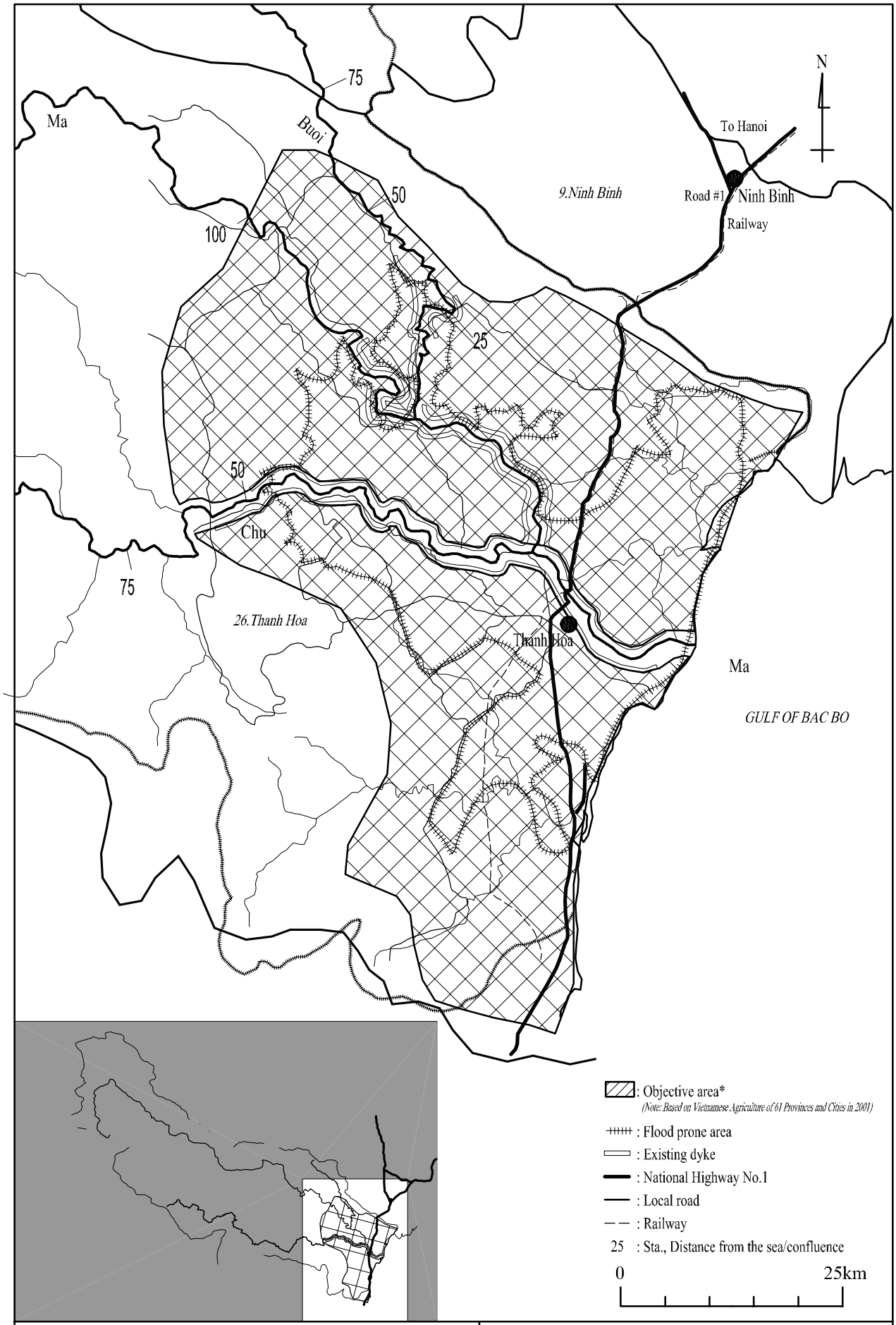

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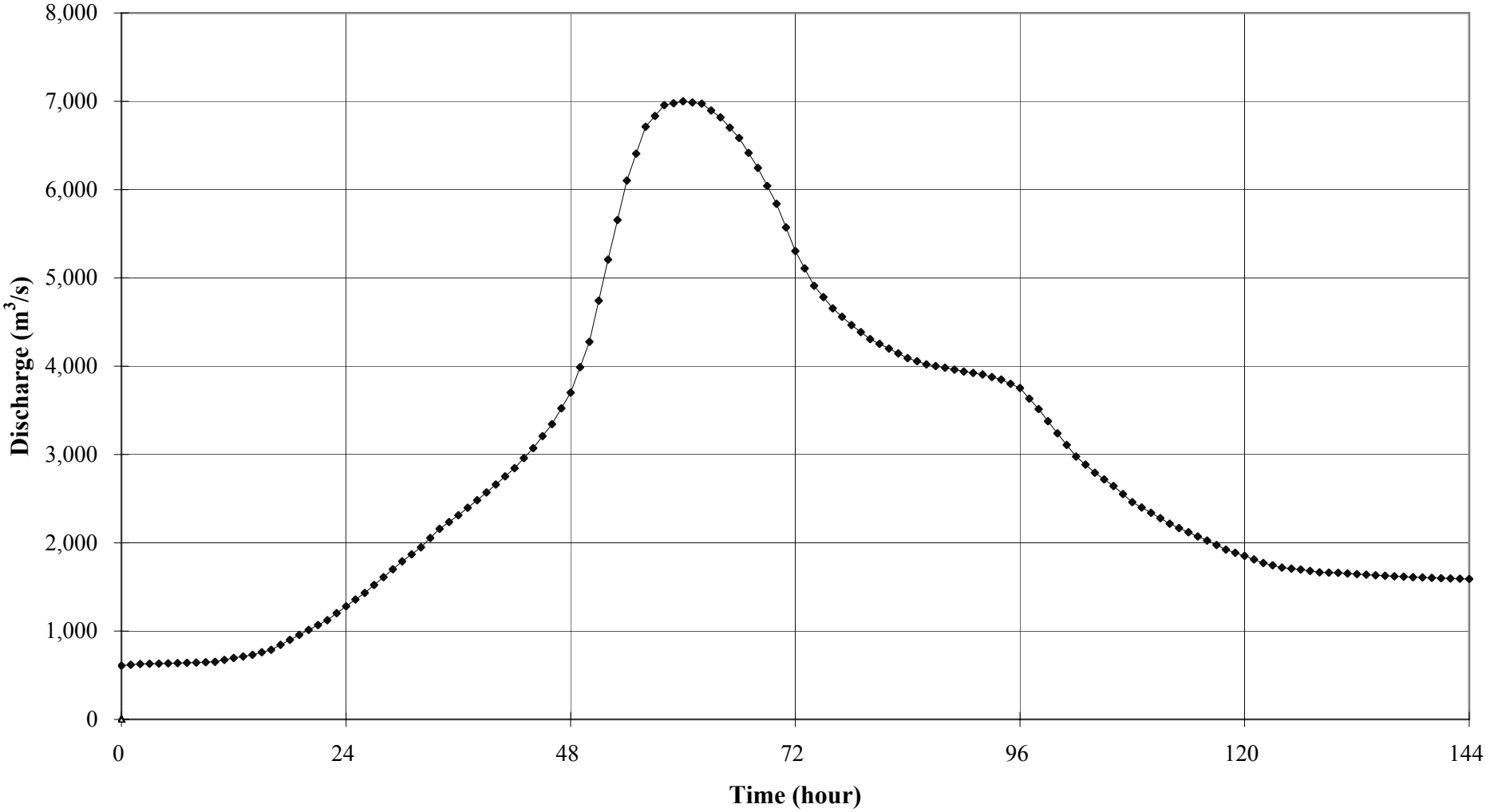
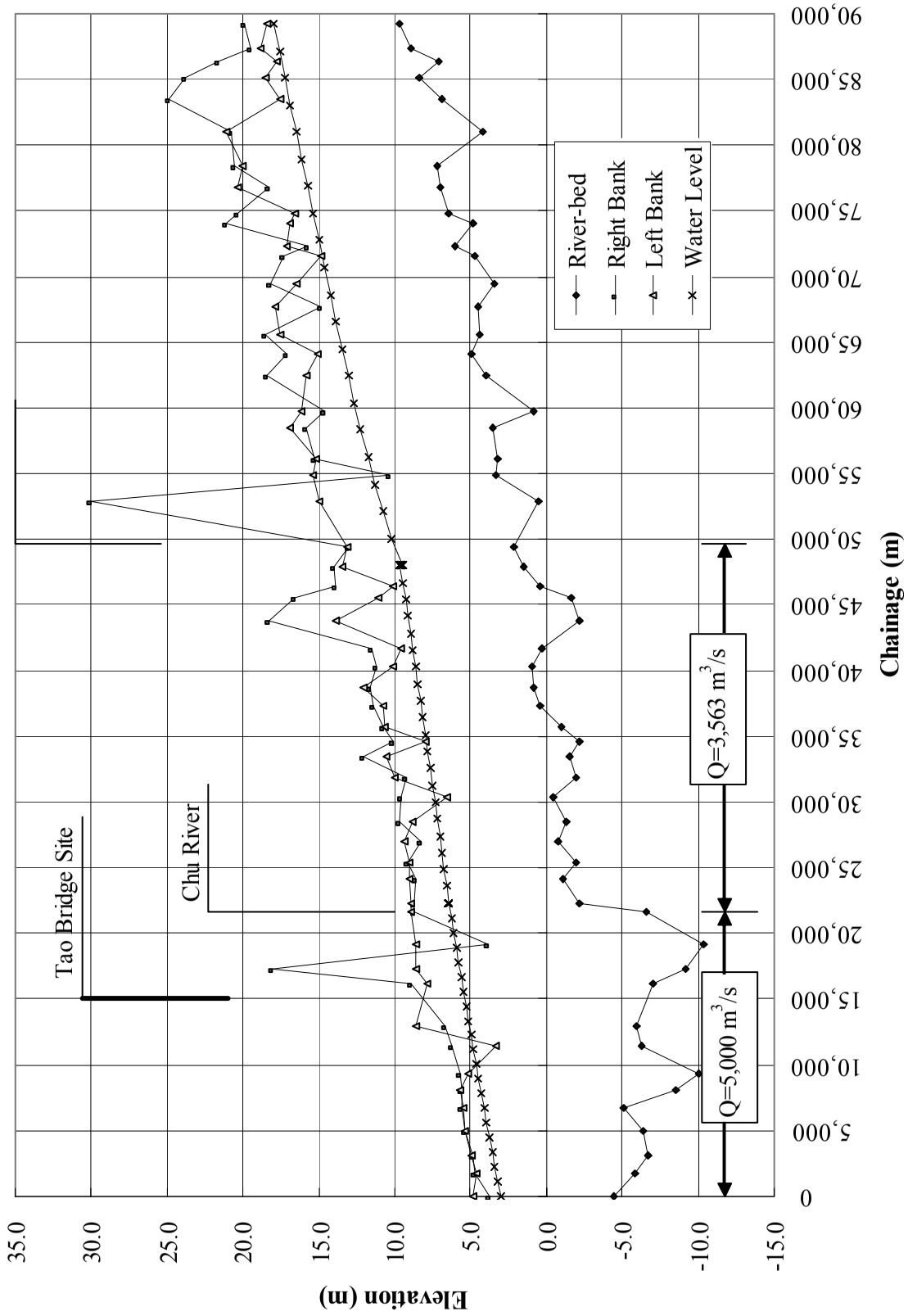
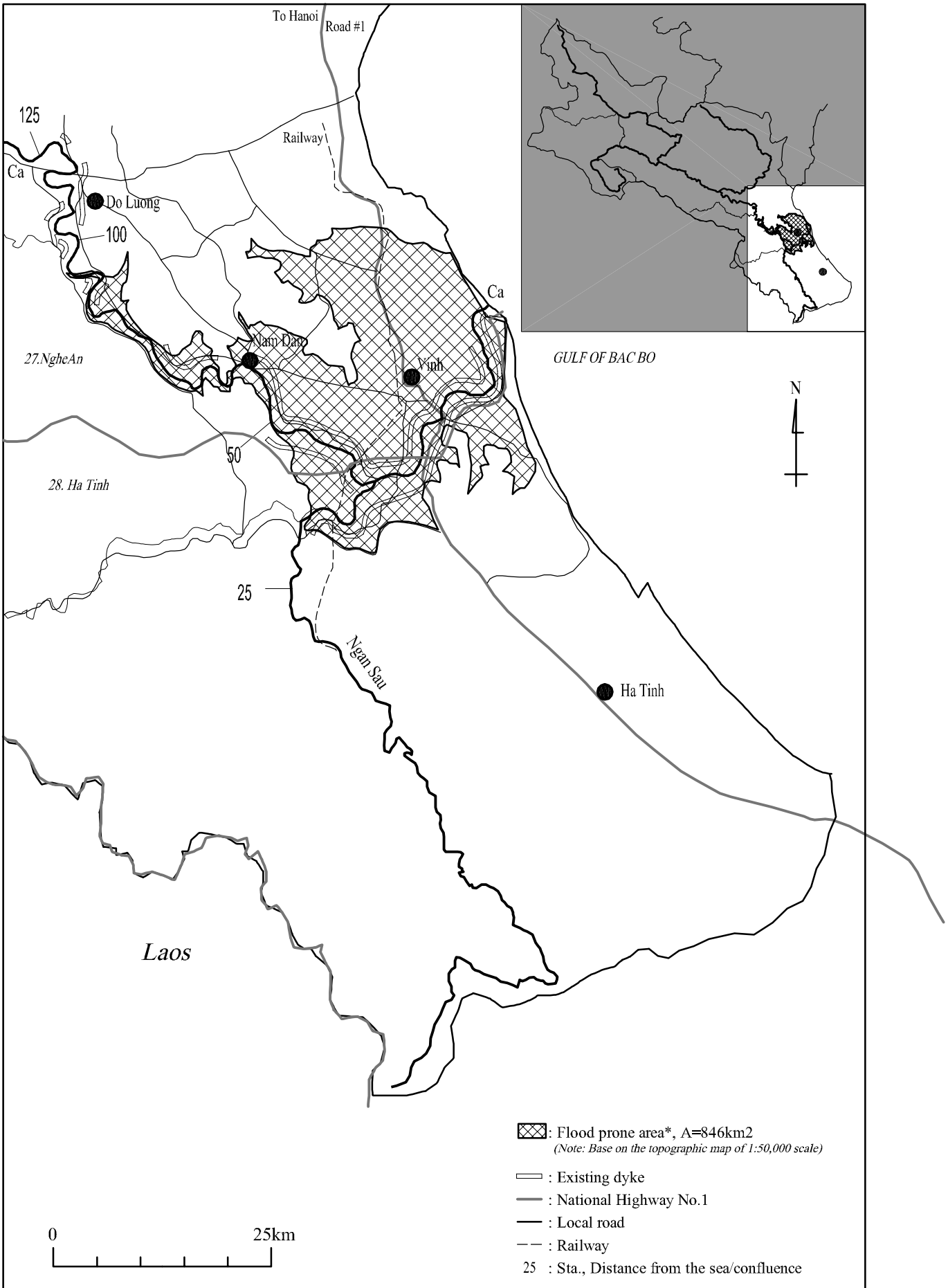
Figure H.3
Objective Area of Flood Control in Ma River Basin

Figure H.4 Design Discharge Hydrograph at Basic Point of Ma River Basin





The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam JAPAN INTERNATIONAL COOPERATION AGENCY	**Figure H.5** **Longitudinal Profile of Ma River in Flood Prone Area**



The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure H.6** **Flood Prone Area Map of Ca River Basin**
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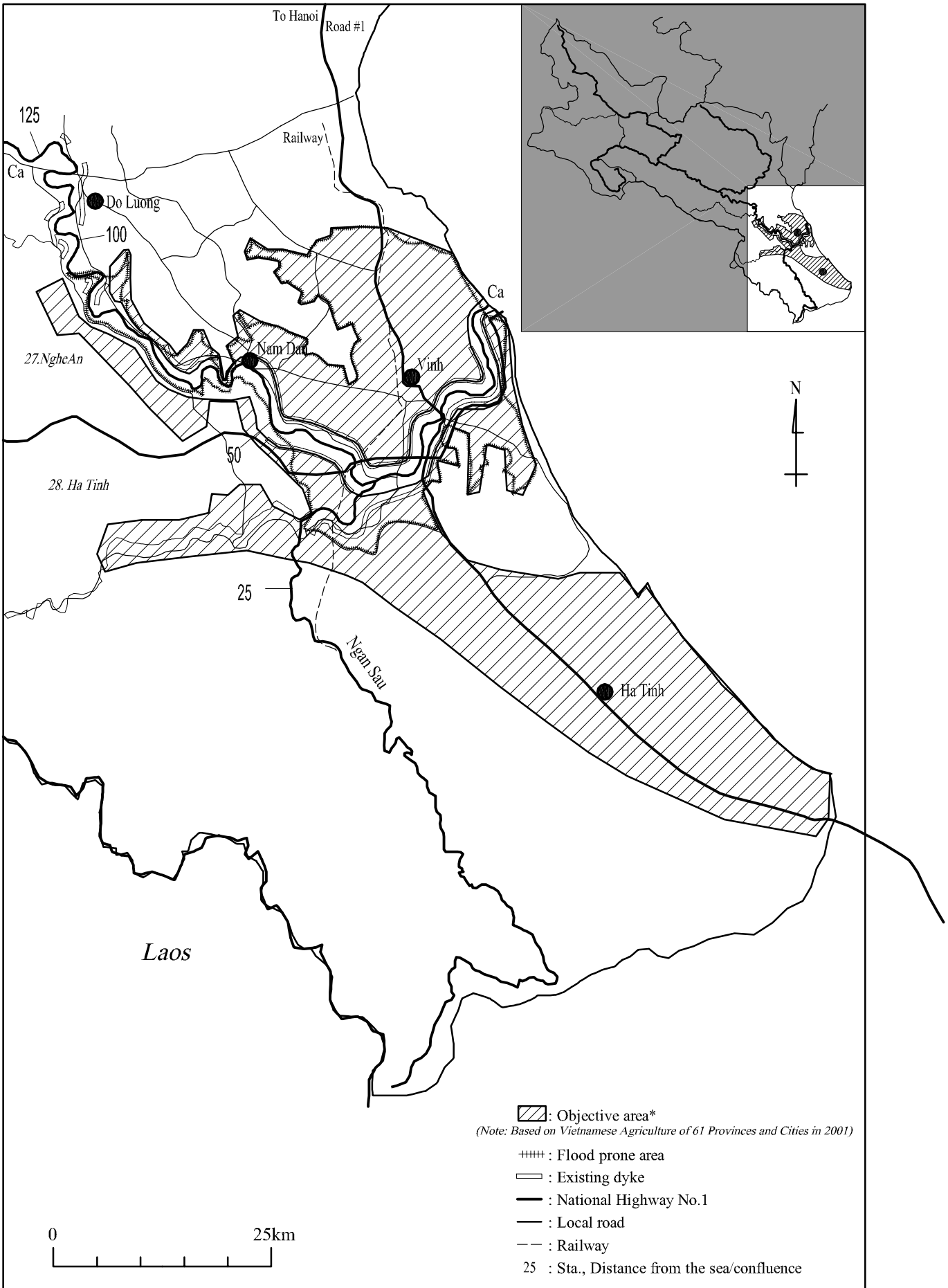

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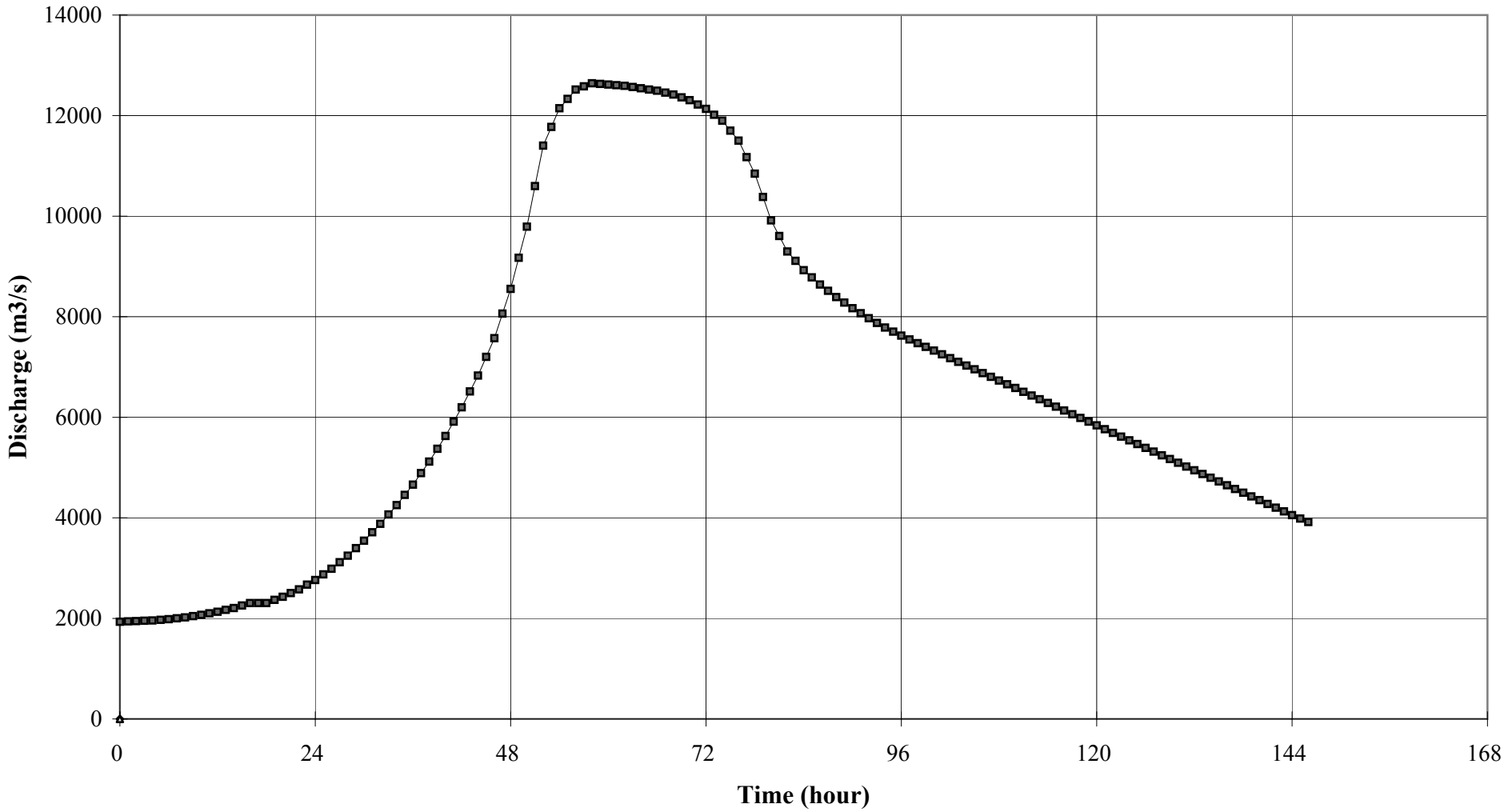
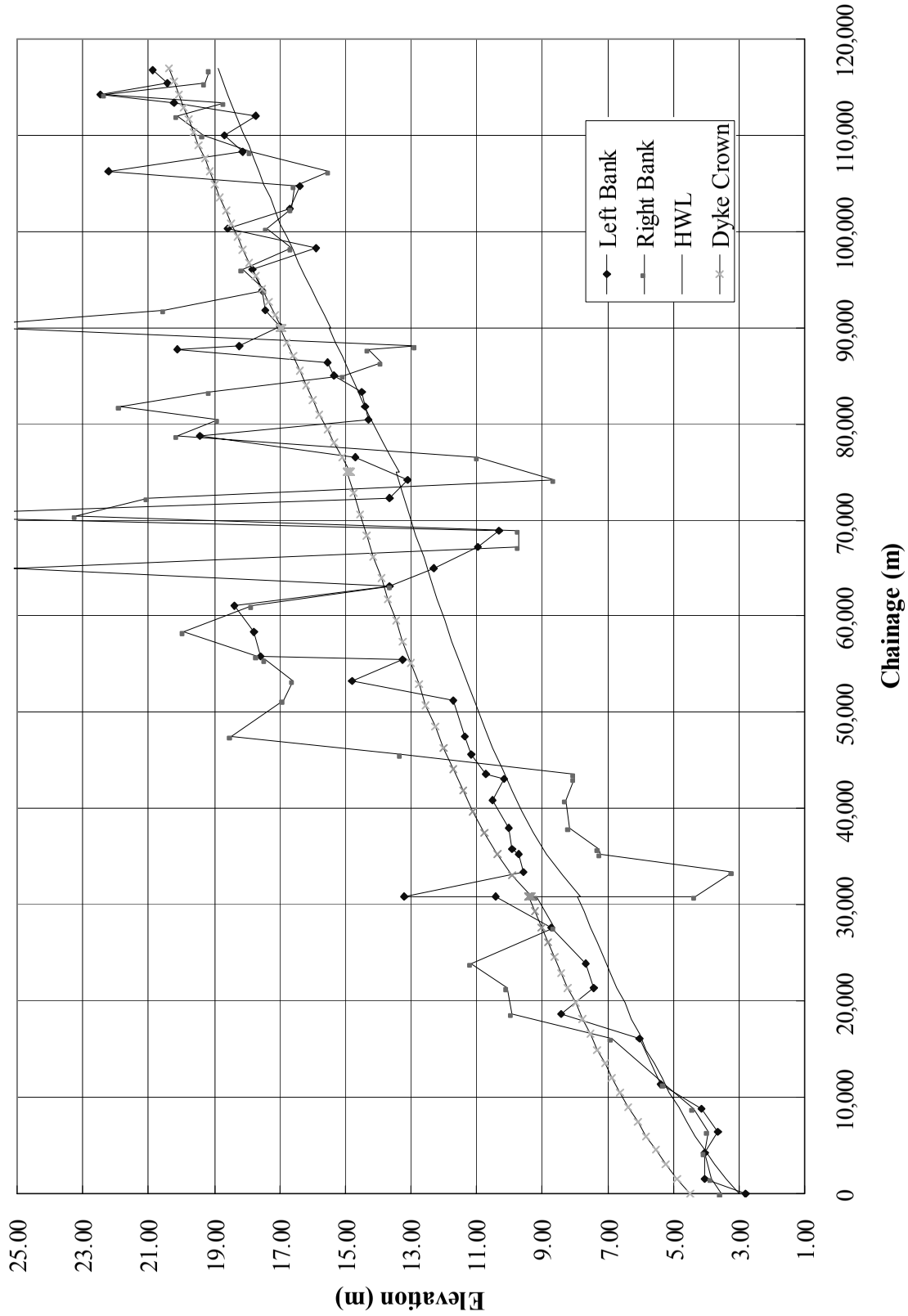
Figure H.7
Objective Area of Flood Control in Ca River Basin

Figure H.8 Design Discharge Hydrograph at Basic Point of Ca River Basin





The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam JAPAN INTERNATIONAL COOPERATION AGENCY	**Figure H.9** **Longitudinal Profile of Ca River in Flood Prone Area**

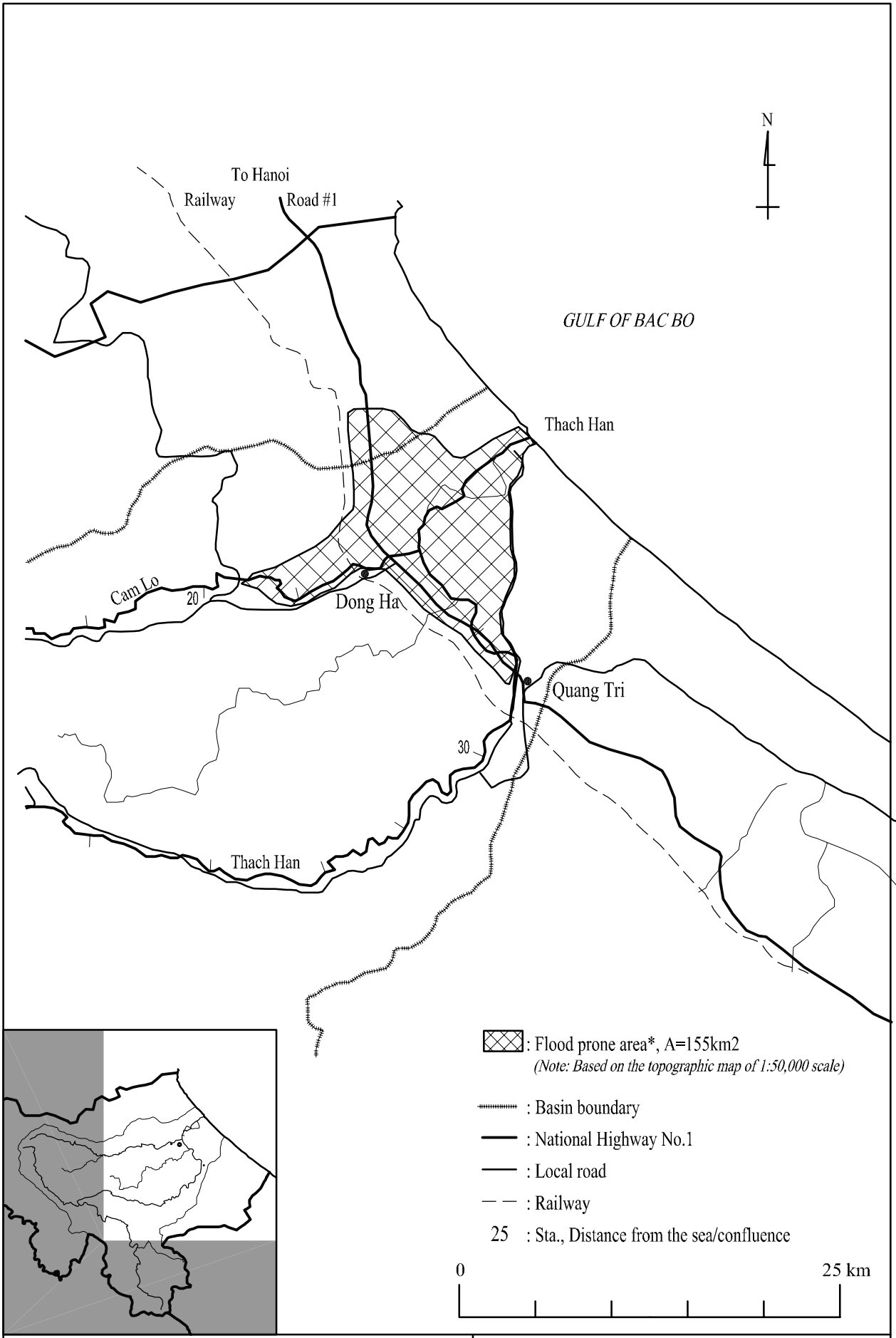


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Figure H.10

Flood Prone Area Map of Thach Han River Basin

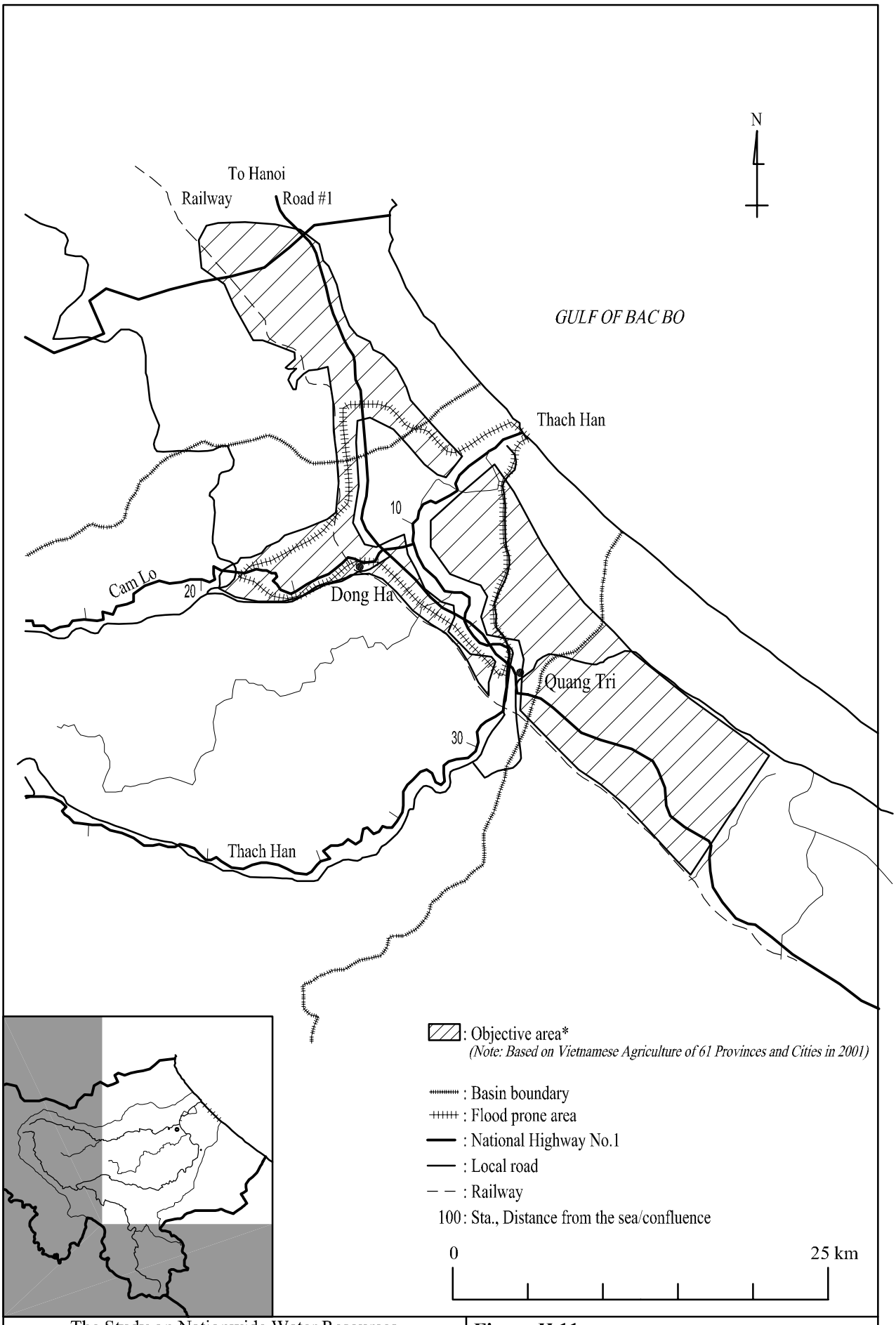

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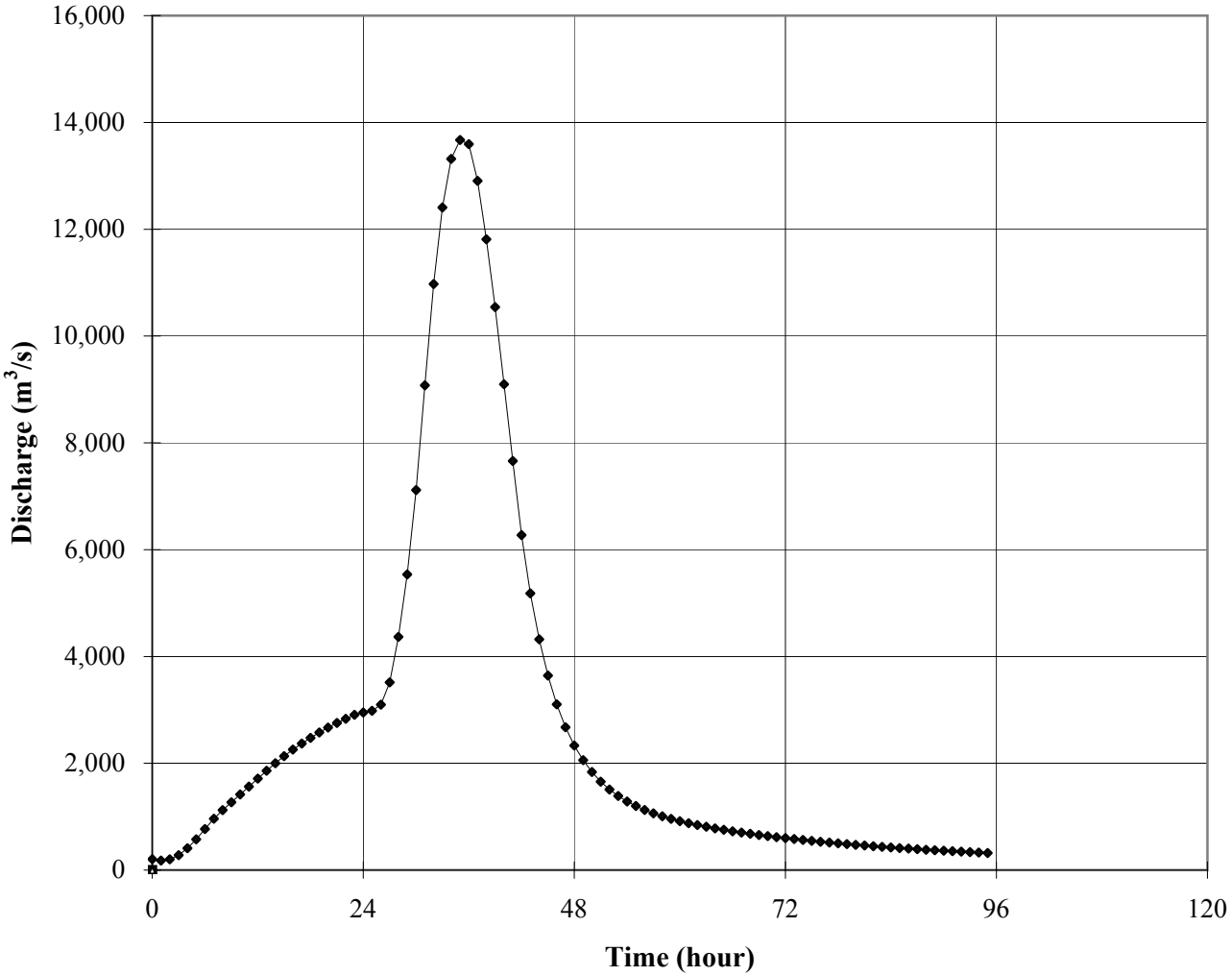
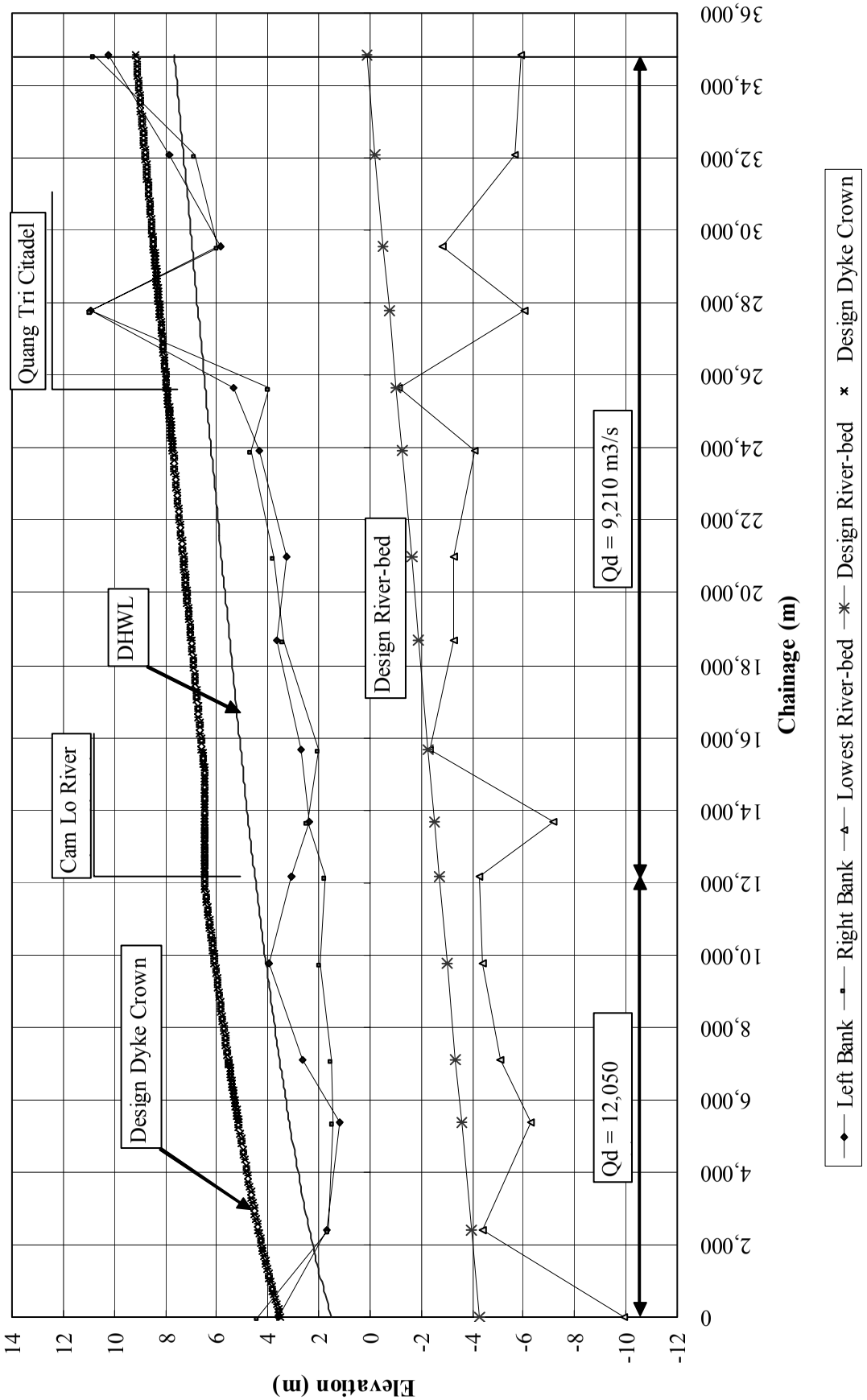
Figure H.11

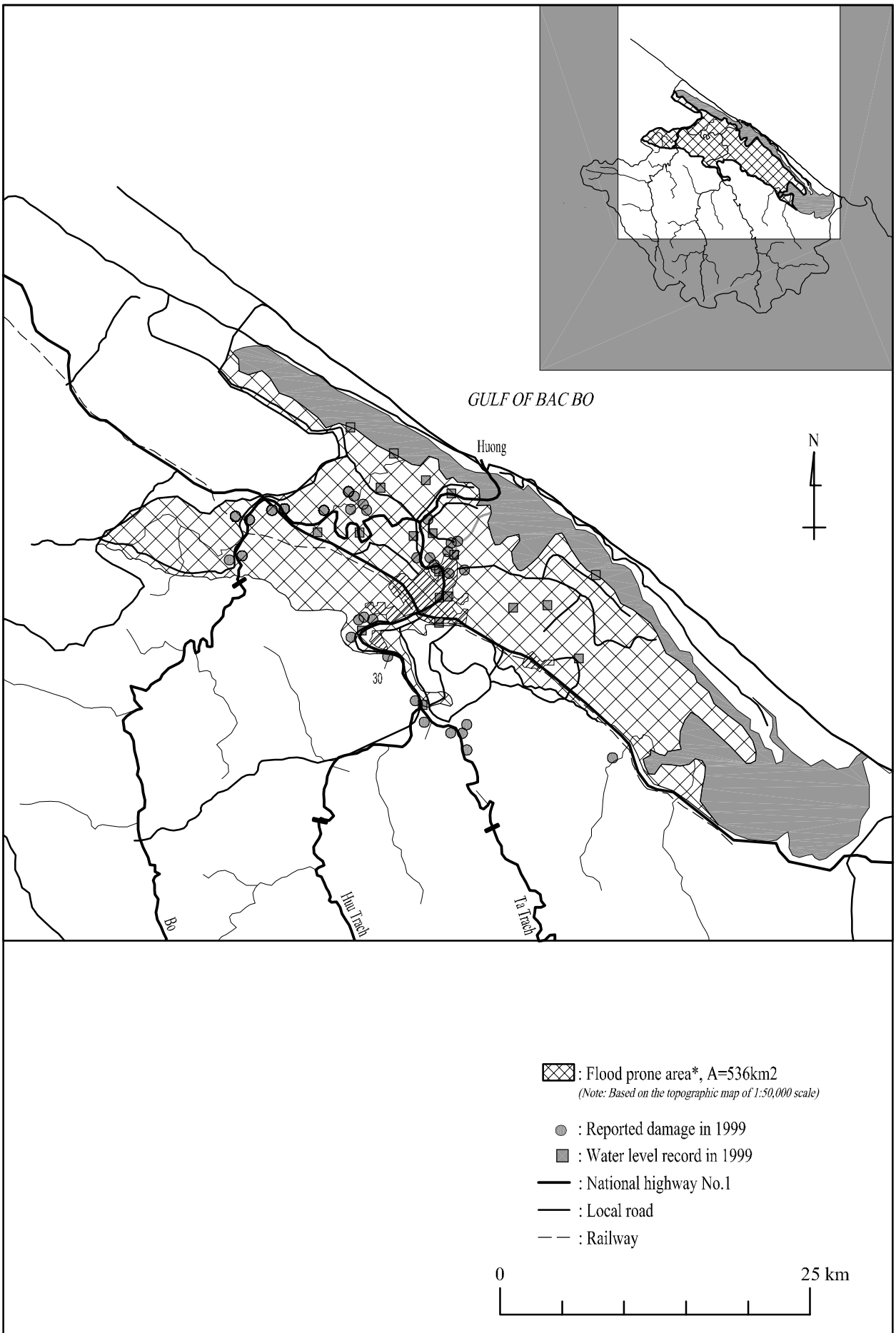
Objective Area of Flood Control in Thach Han River Basin

Figure H.12 Design Discharge Hydrograph at Basic Point of Thac Han River Basin





The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure H.13**
JAPAN INTERNATIONAL COOPERATION AGENCY	**Design Longitudinal Profile of the Thac Han River with Rao Quan Reservoir**



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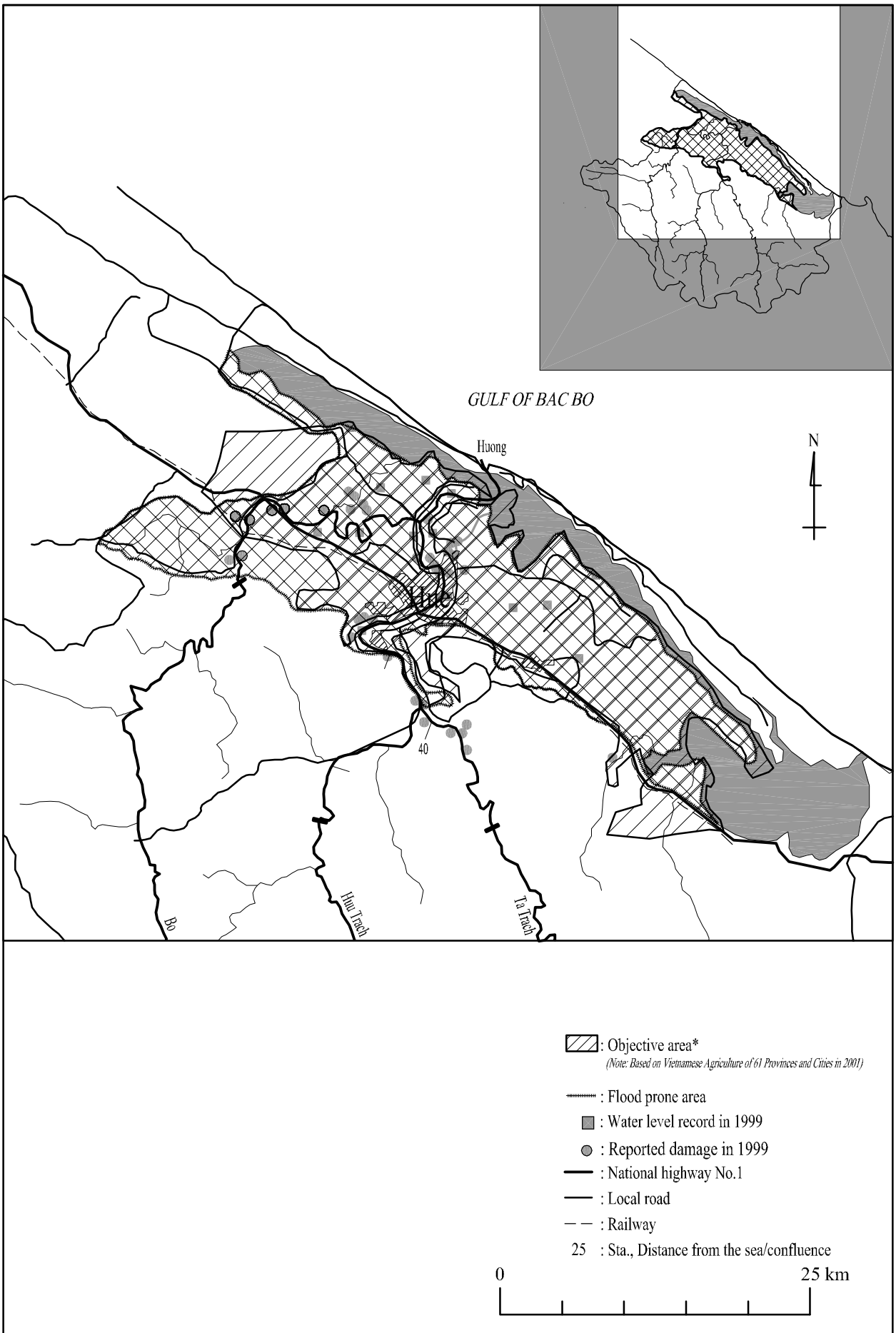

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Figure H.15

Objective Area of Flood Control in Huong River Basin