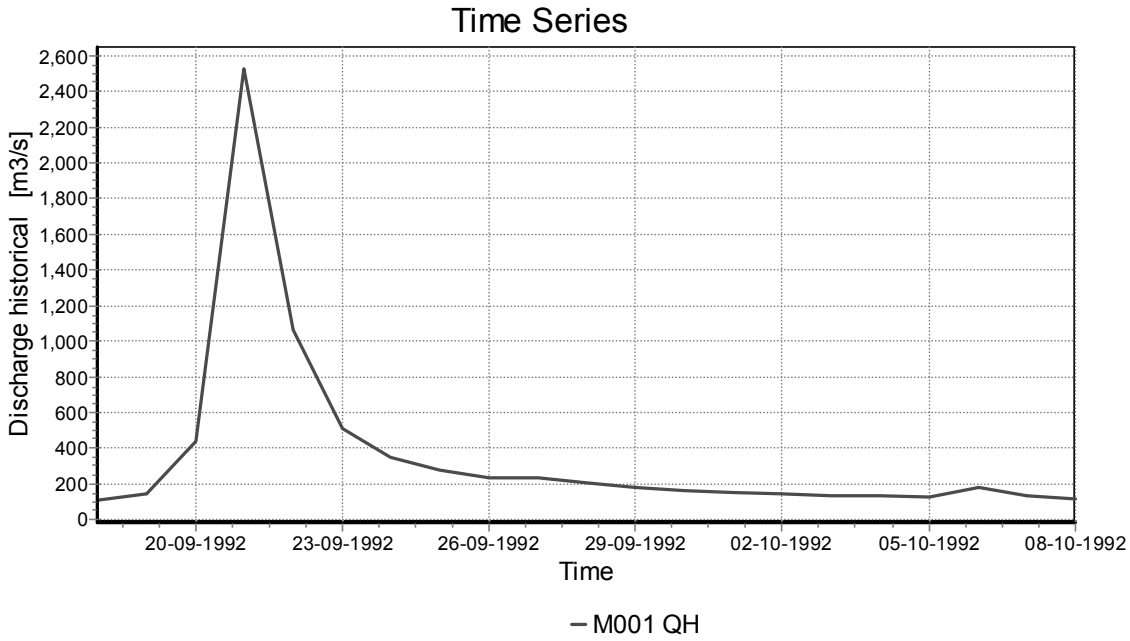
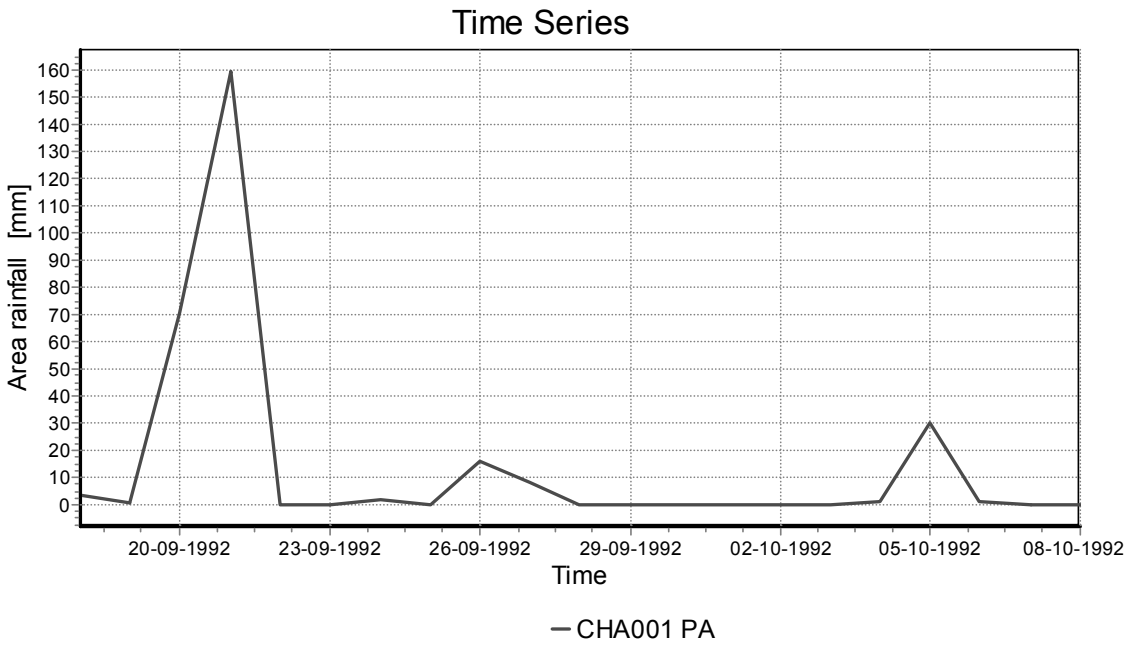
1992 Flood at Cua Dat (instaneous peak discharge: 4220m3/s)

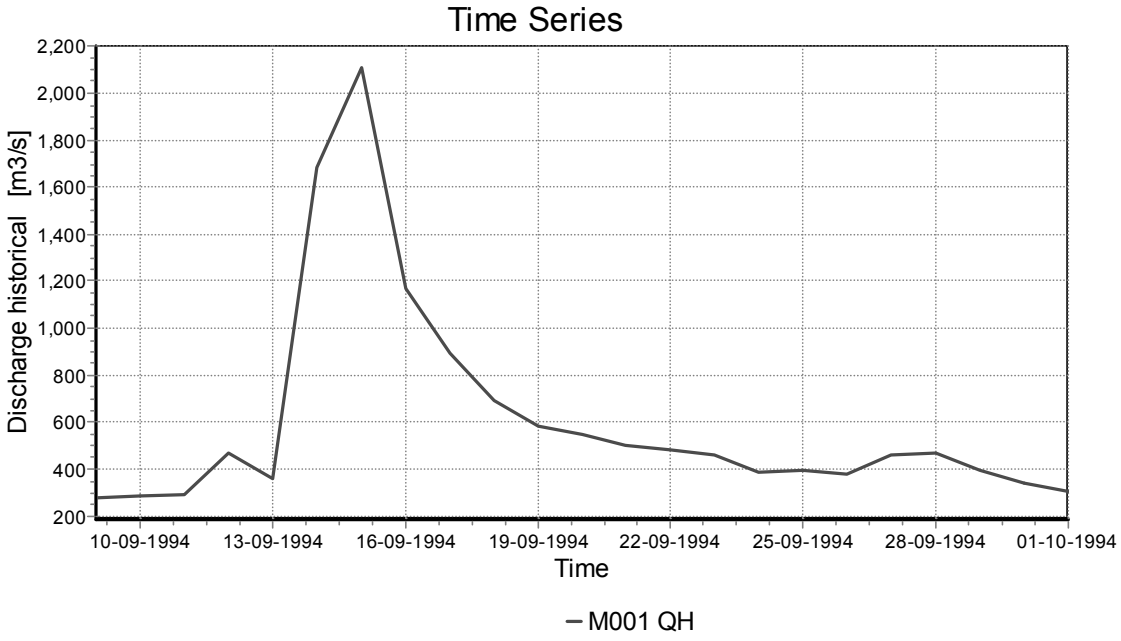


Chu Basin Area Rainfall (upstream Cua Dat)

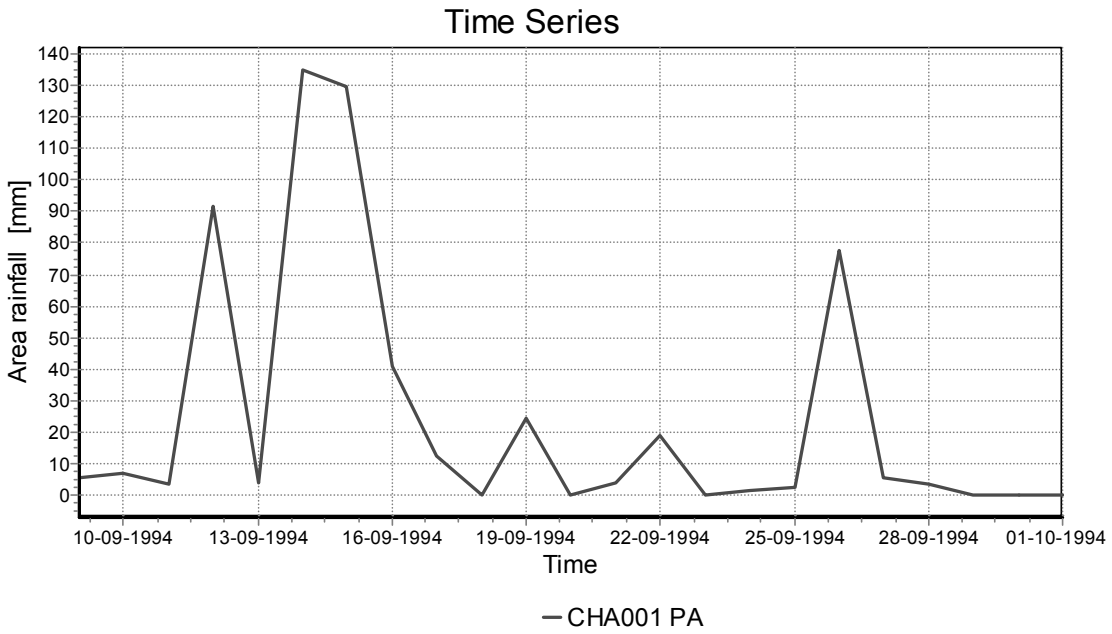


The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.7 (1/2)** **Typical Flood** **Chu River at Cua Dat**
JAPAN INTERNATIONAL COOPERATION AGENCY	

1994 Flood at Cua Dat (instaneous peak discharge: 3560m3/s)

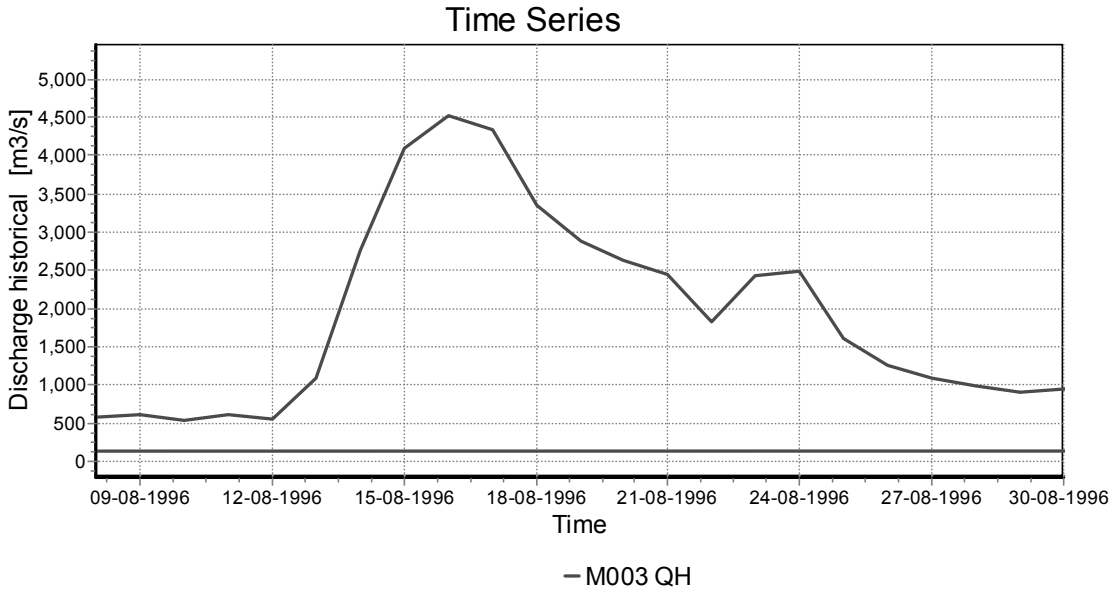


Chu Basin Area Rainfall (upstream Cua dat)

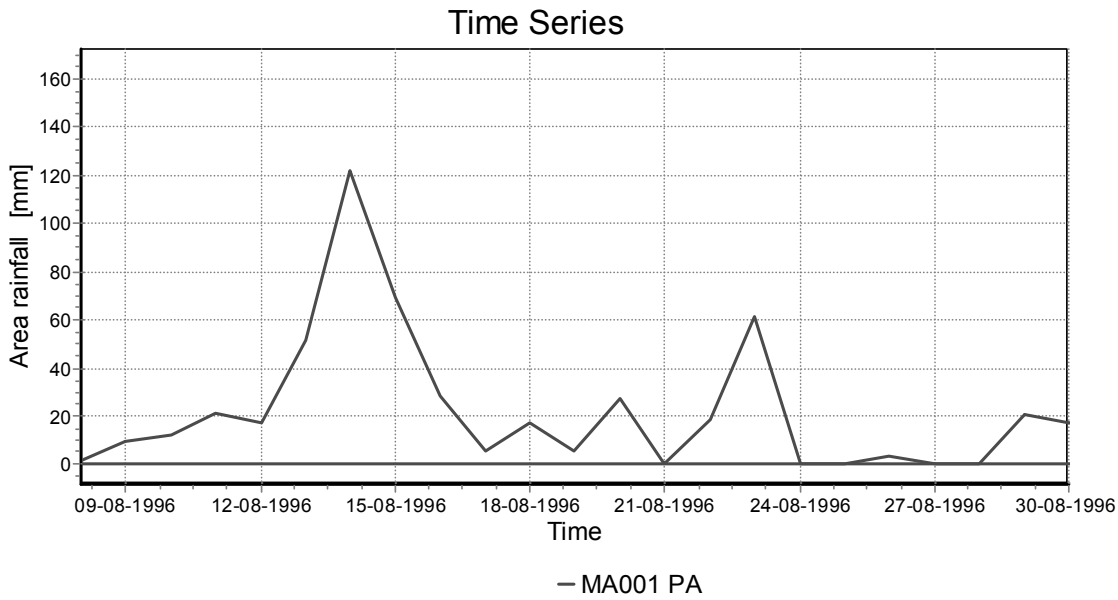


The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.7 (2/2)** **Typical Flood** **Chu River at Cua Dat**
JAPAN INTERNATIONAL COOPERATION AGENCY	

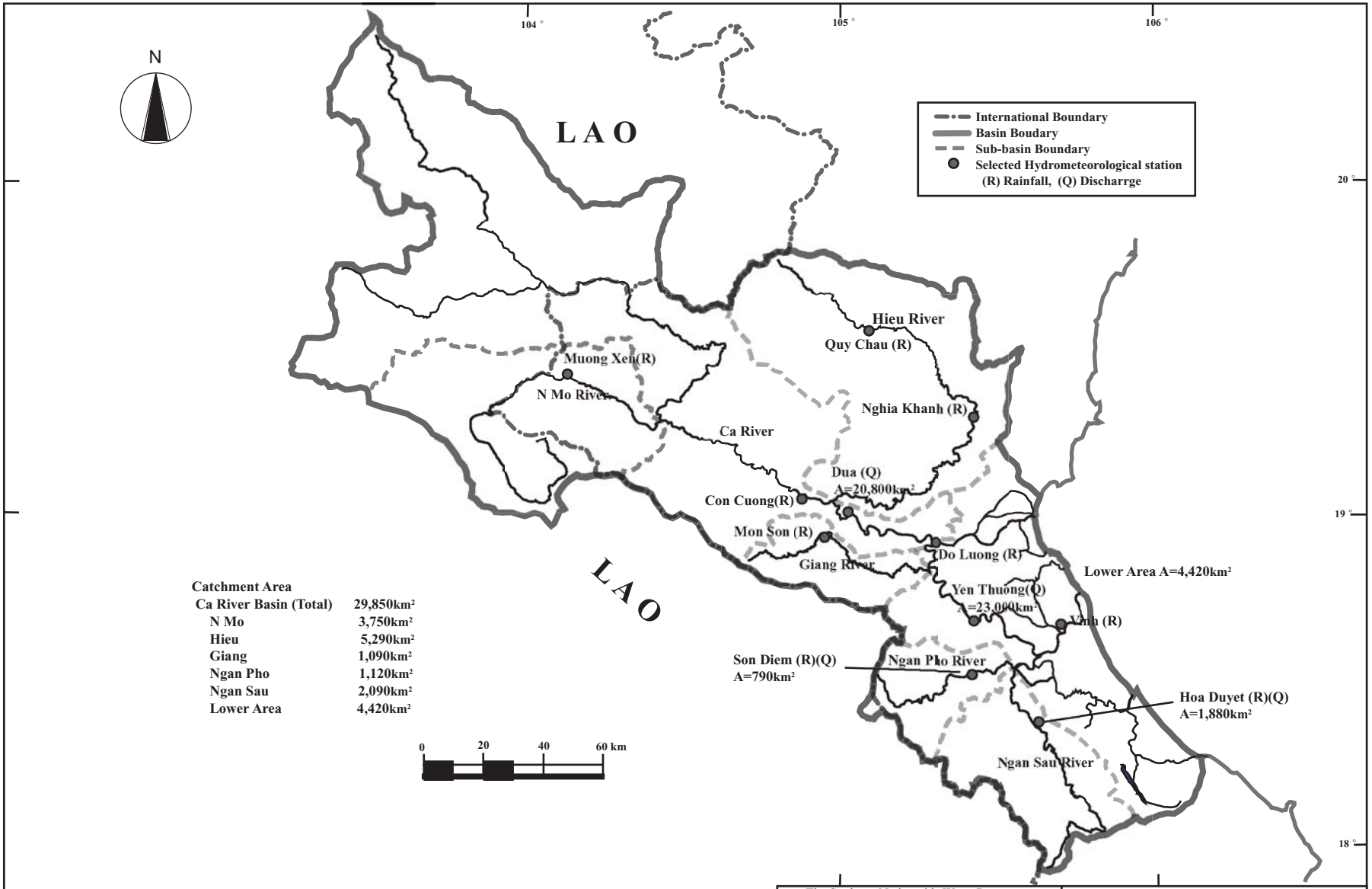
1996 Flood at Cam Thuy (instaneous peak discharge: 5270m3/s)



Ma Basin Area Rainfall (upstream Cam Thuy)



The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.8** **Typical Flood** **Ma River at Cam Thuy**
JAPAN INTERNATIONAL COOPERATION AGENCY	

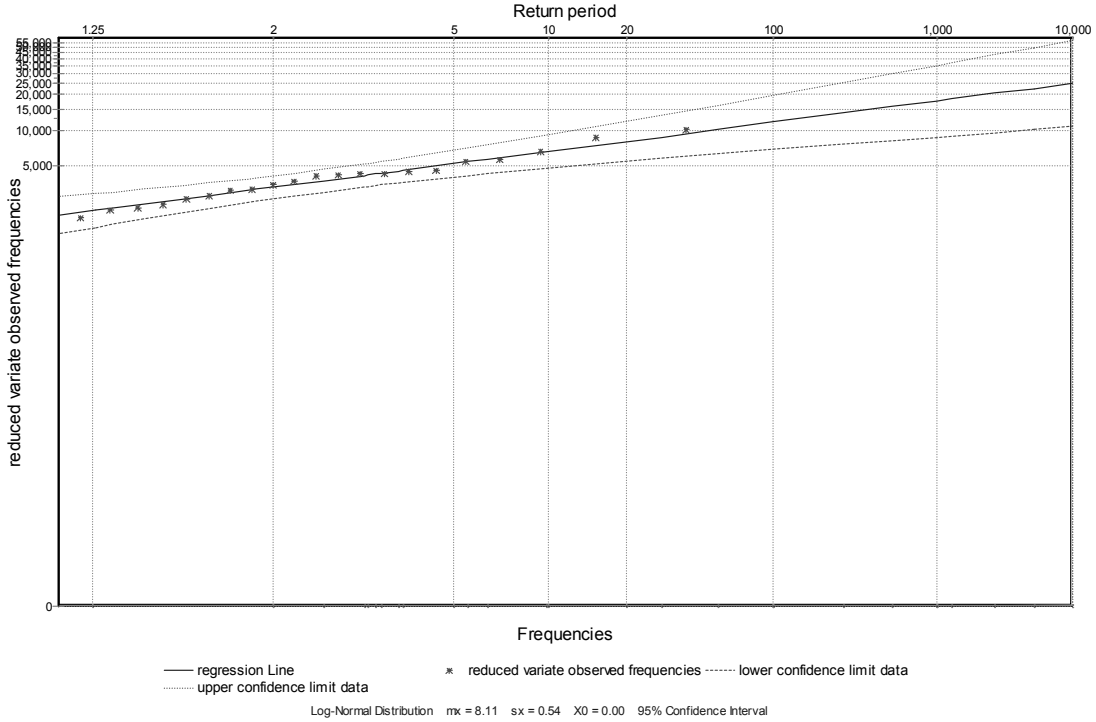


The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam

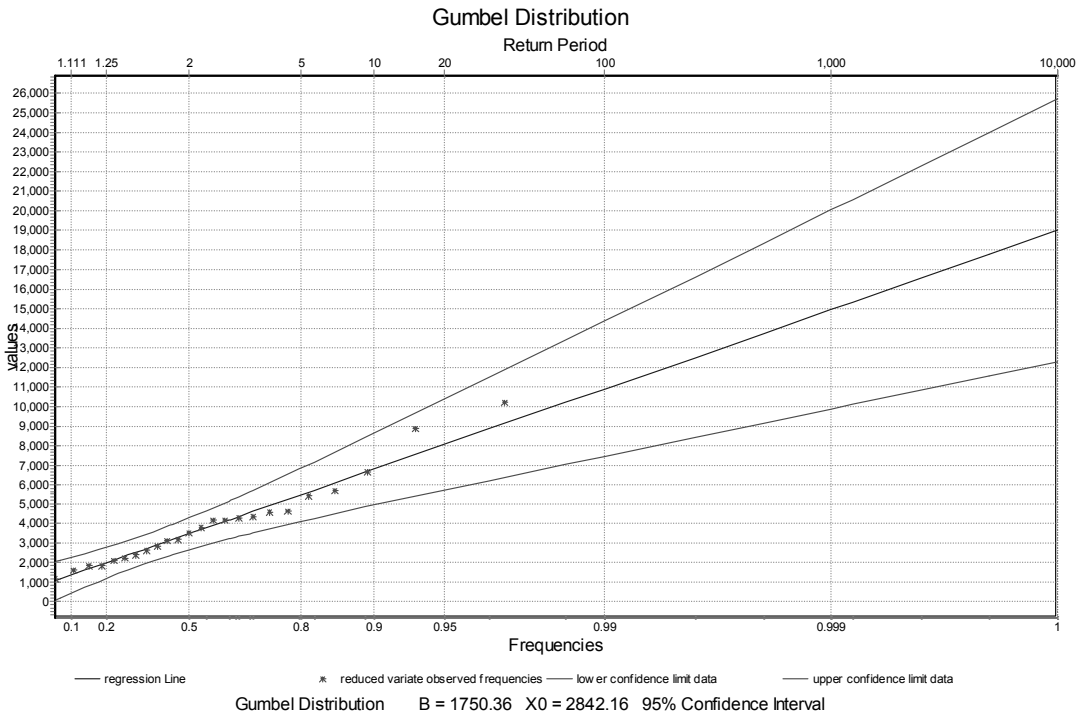
JAPAN INTERNATIONAL COOPERATION AGENCY

Figure B.9
Location Map Ca River Basin

Log-Normal Distribution (Yearly maximum discharges)

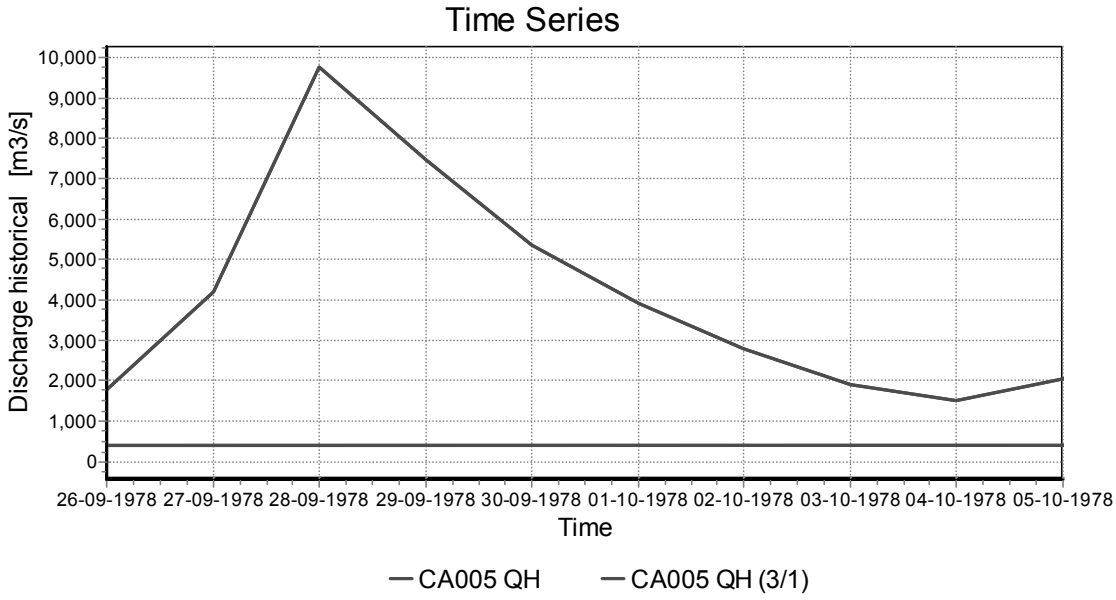


Gumbel Distributions (Yearly maximum discharges)

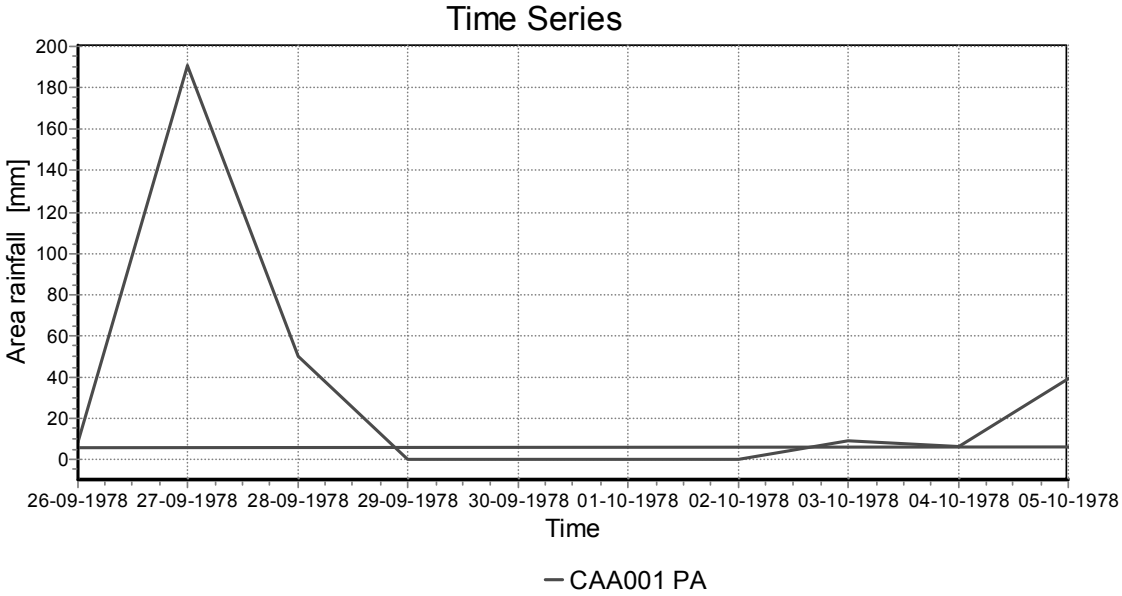


The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.10** **Frequency Distributions Ca River at Dua**
JAPAN INTERNATIONAL COOPERATION AGENCY	

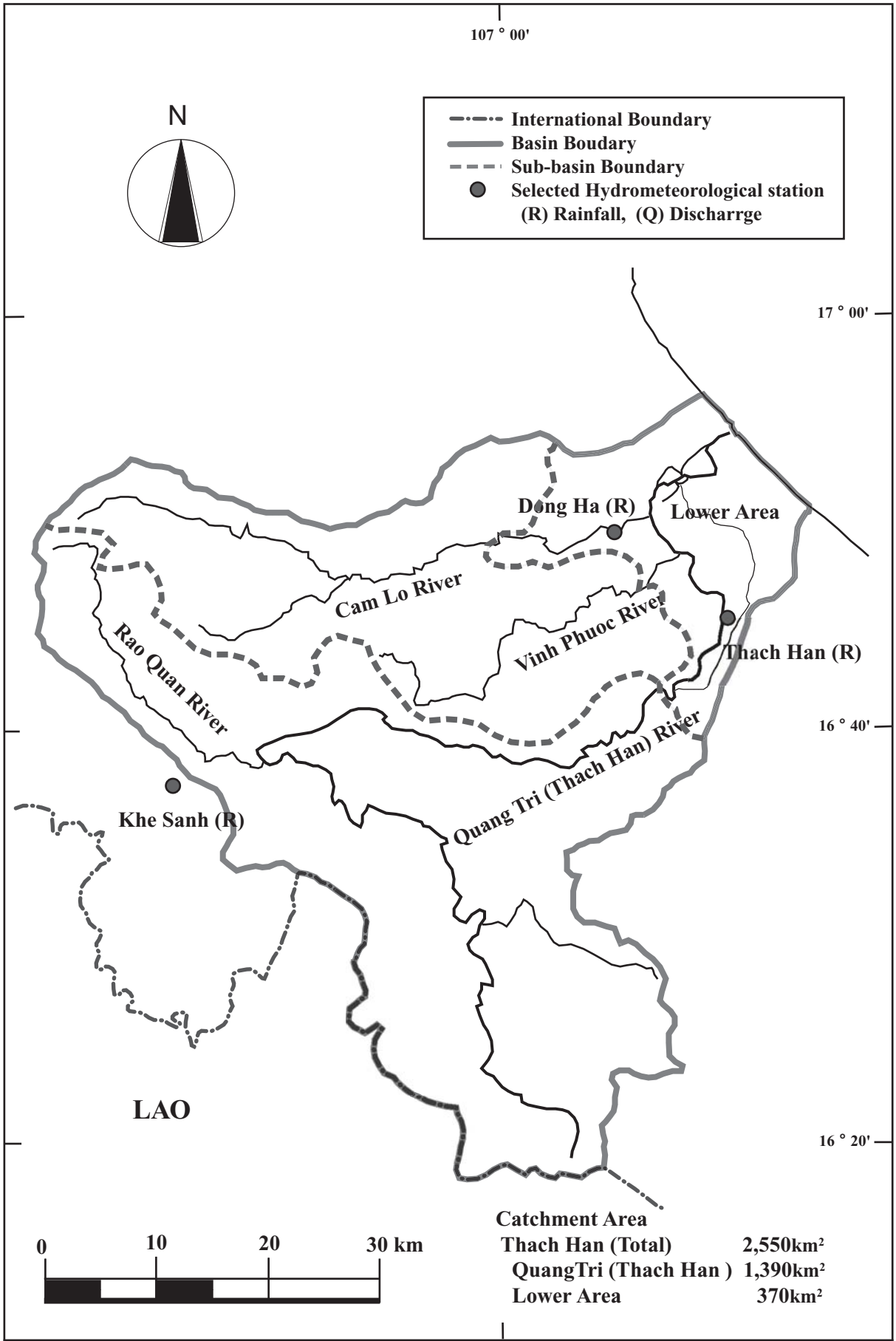
1978 Flood at Dua (instaneous peak discharge: 10,200m3/s)



Ca Basin Area Rainfall (upstream Dua)



The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.11** **Typical Flood Ca River at Dua**
JAPAN INTERNATIONAL COOPERATION AGENCY	



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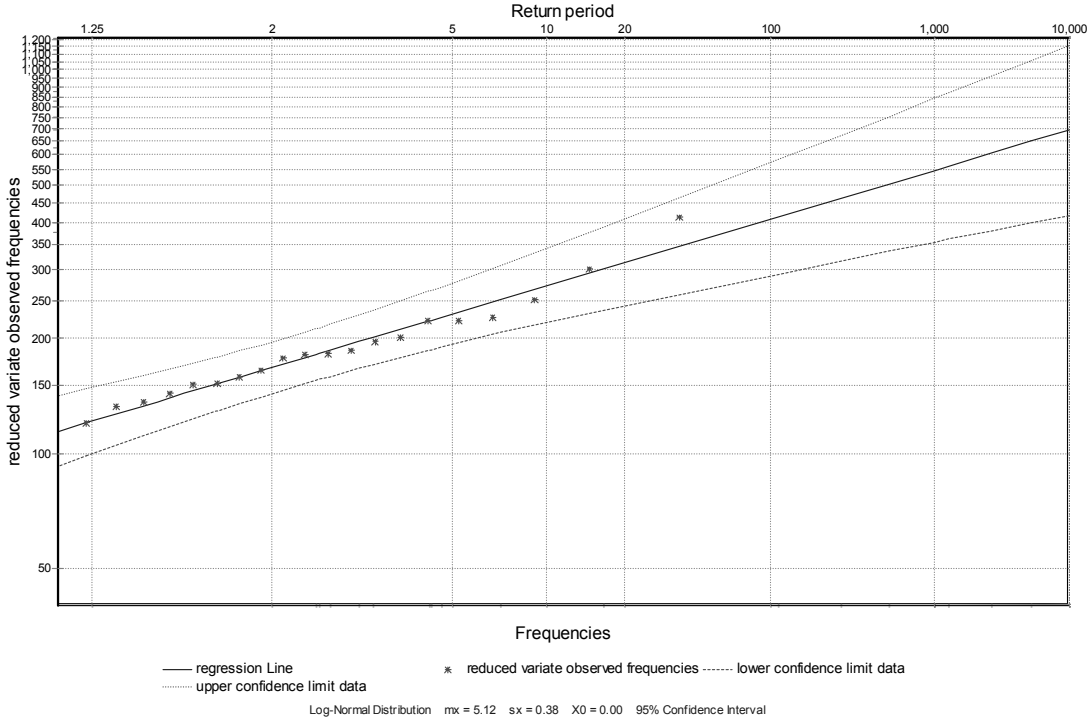
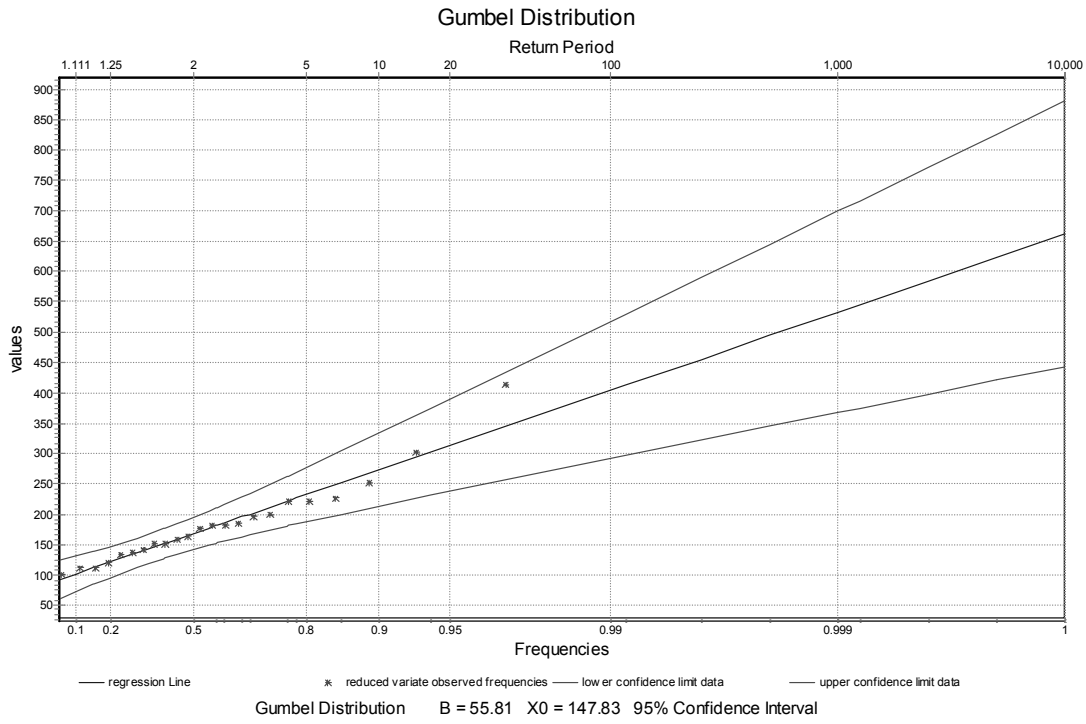
JAPAN INTERNATIONAL COOPERATION AGENCY

Figure B.12
Location Map Thach Han River Basin

Log-Normal Distribution (One-day yearly maximum area rainfall in mm)

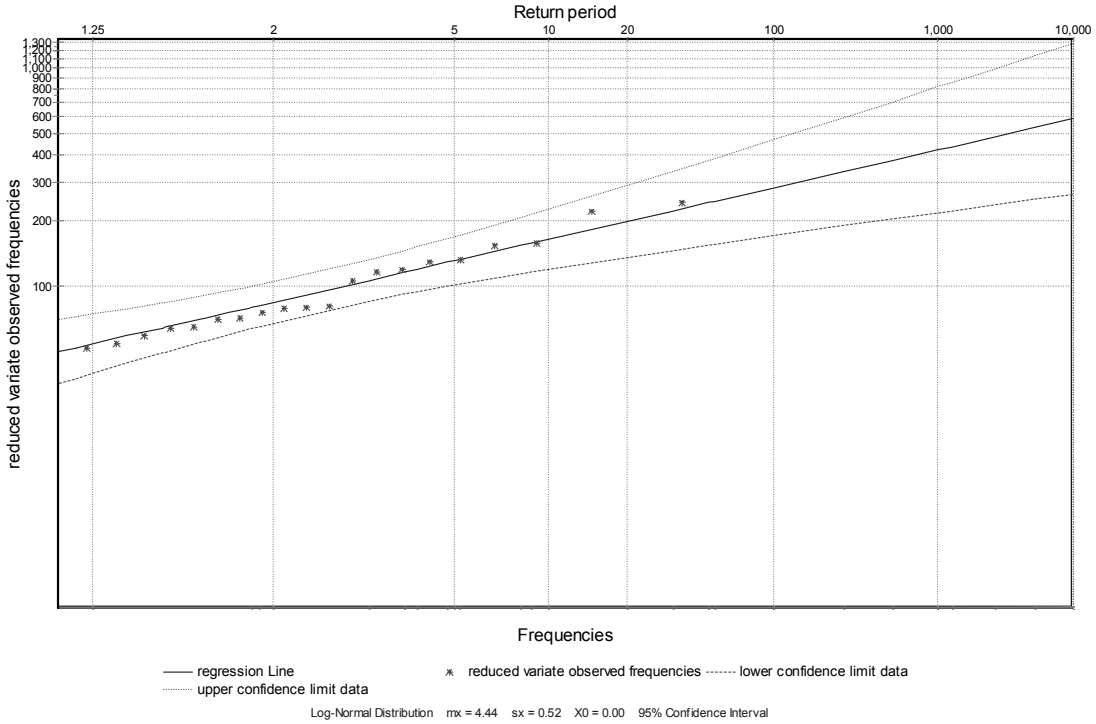


Gumbel Distribution (One-day yearly maximum area rainfall in mm)

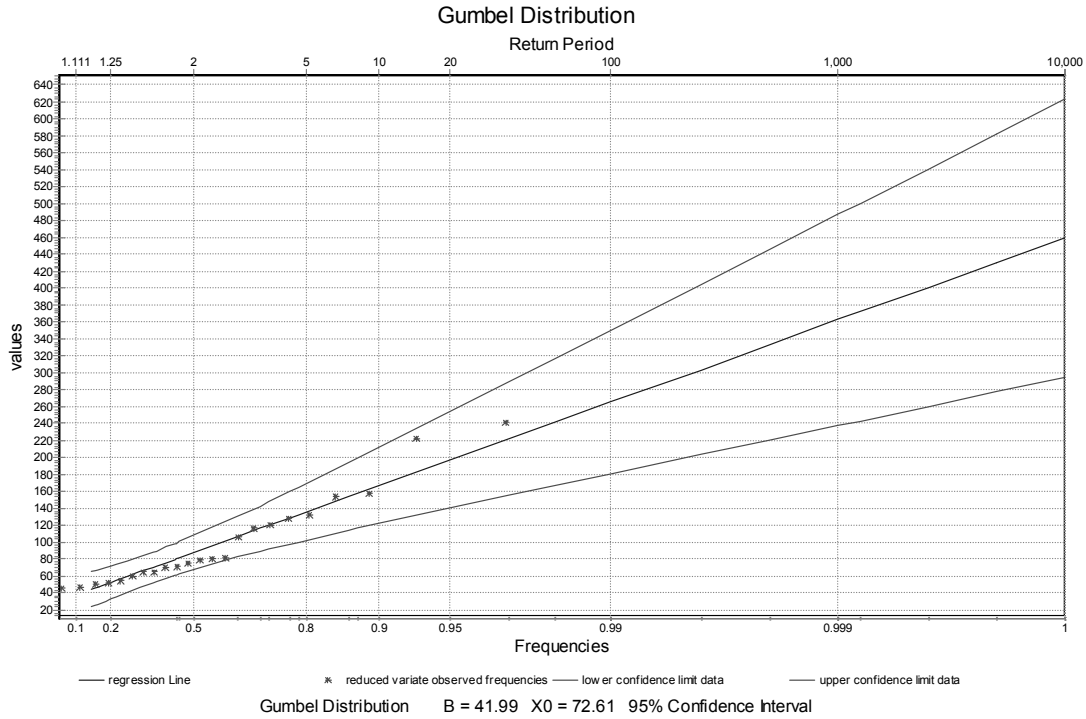


The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.13 (1/2)** **Frequency Distributions of Area Rainfall Upper and Middle Thach Han River**
JAPAN INTERNATIONAL COOPERATION AGENCY	

Log-Normal Distribution (One-day early maximum area rainfall in mm)

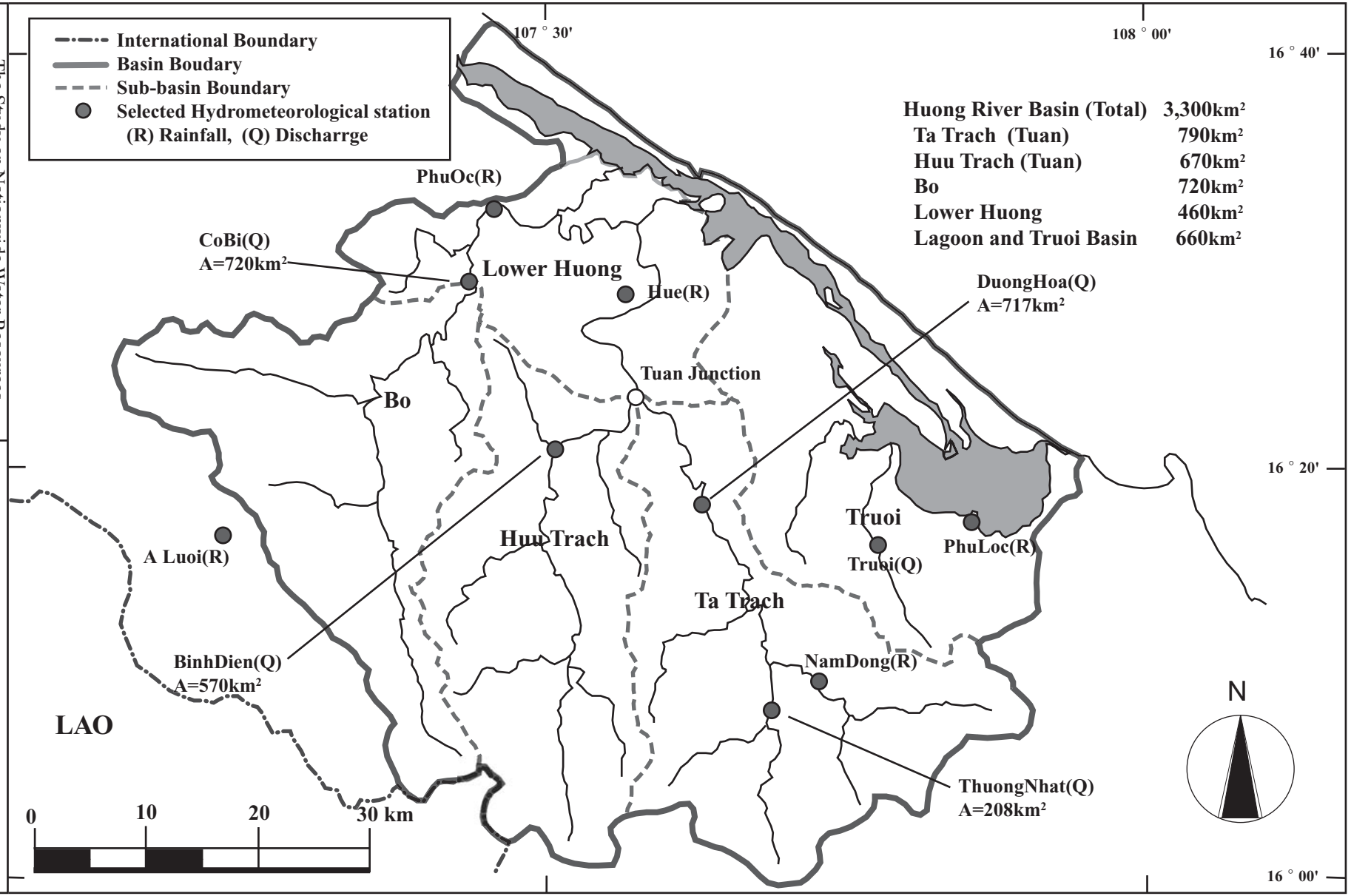


Gumbel Distribution (One-day early maximum area rainfall in mm)



early flood season : January-August

The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.13 (2/2)** **Frequency Distributions of Area Rainfall Upper and Middle Thach Han River**
JAPAN INTERNATIONAL COOPERATION AGENCY	

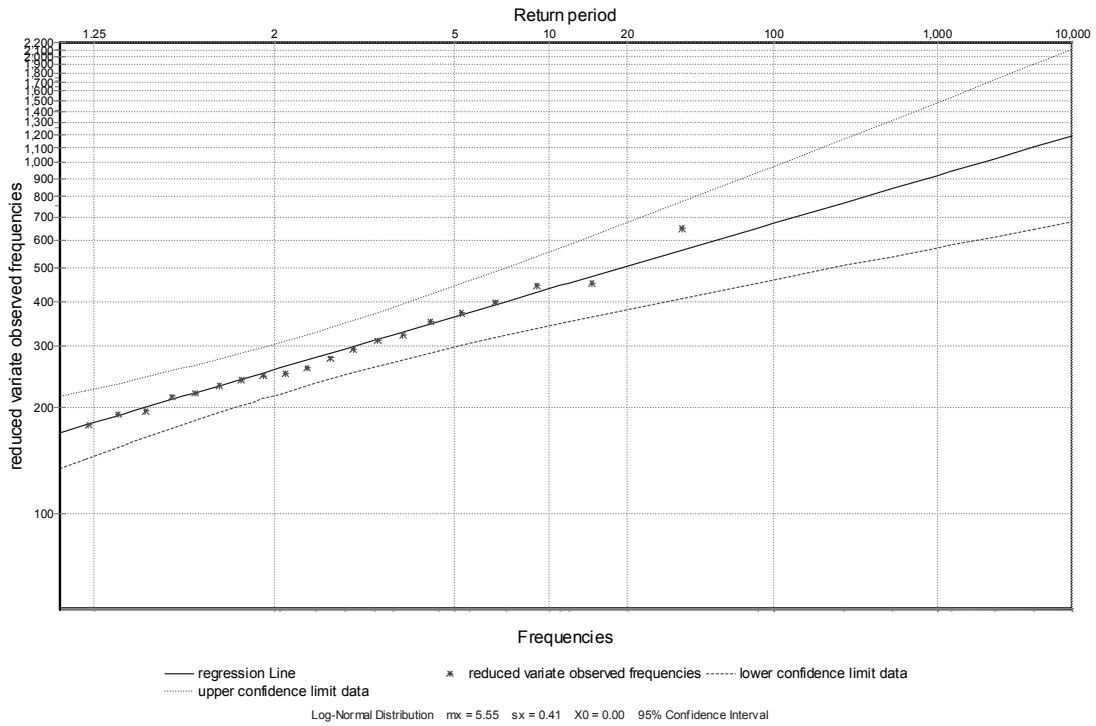


The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam

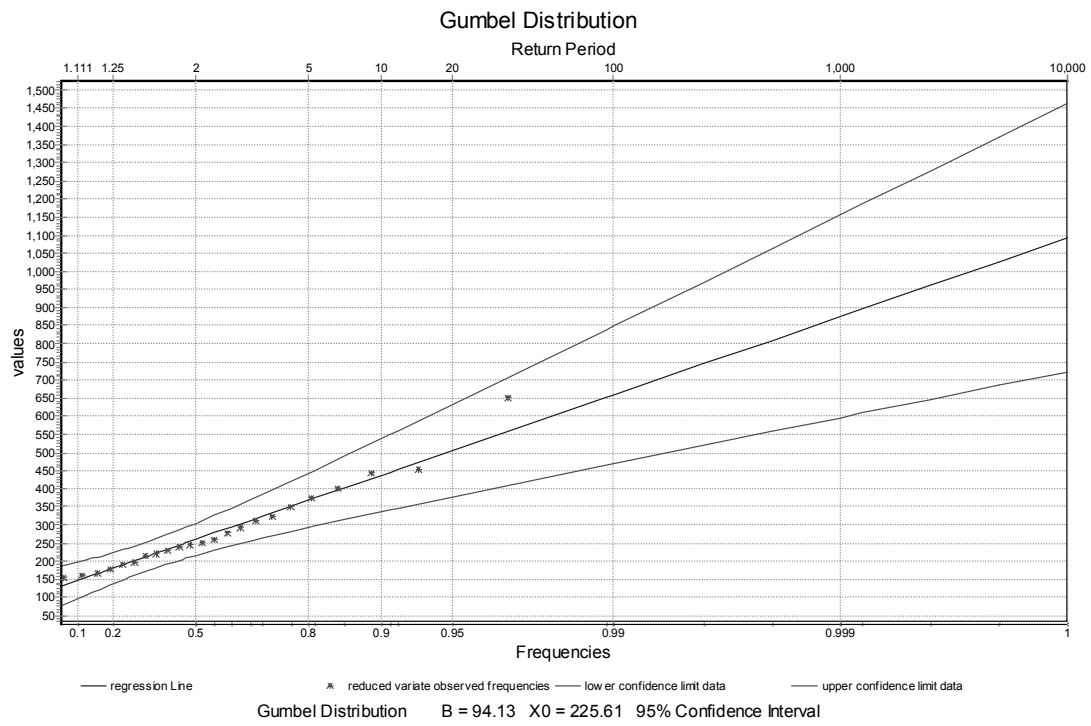
JAPAN INTERNATIONAL COOPERATION AGENCY

Figure B.14 Location Map Huong River Basin

Log-Normal Distribution (yearly maximum area rainfall)

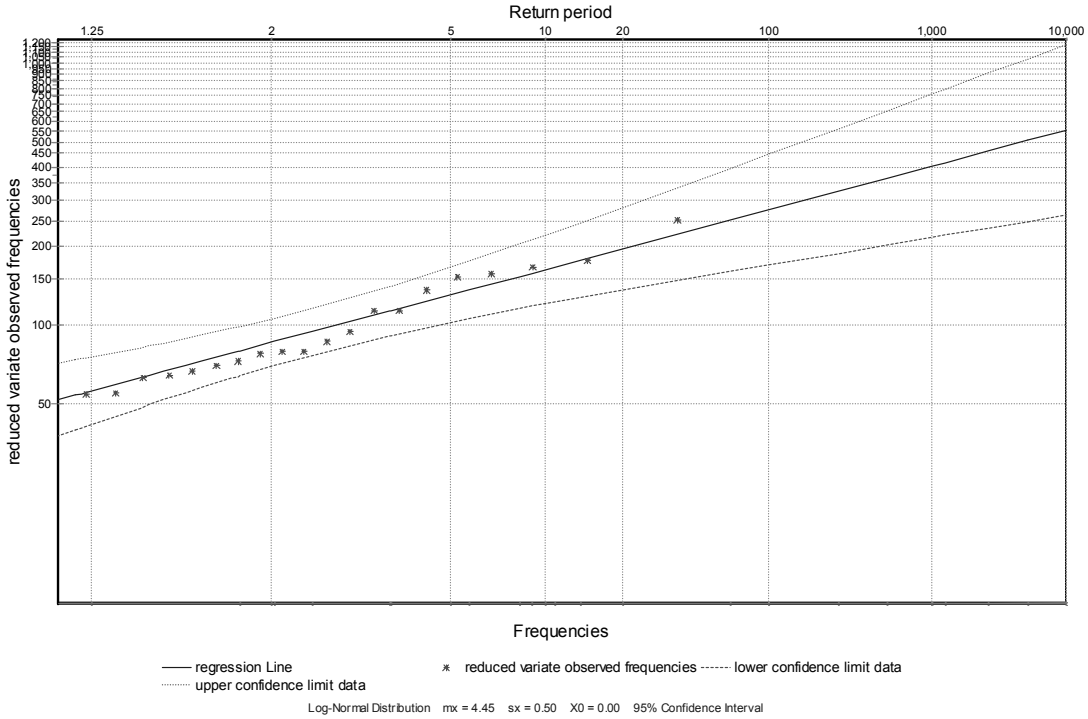


Gumbel Distribution (yearly maximum area rainfall)

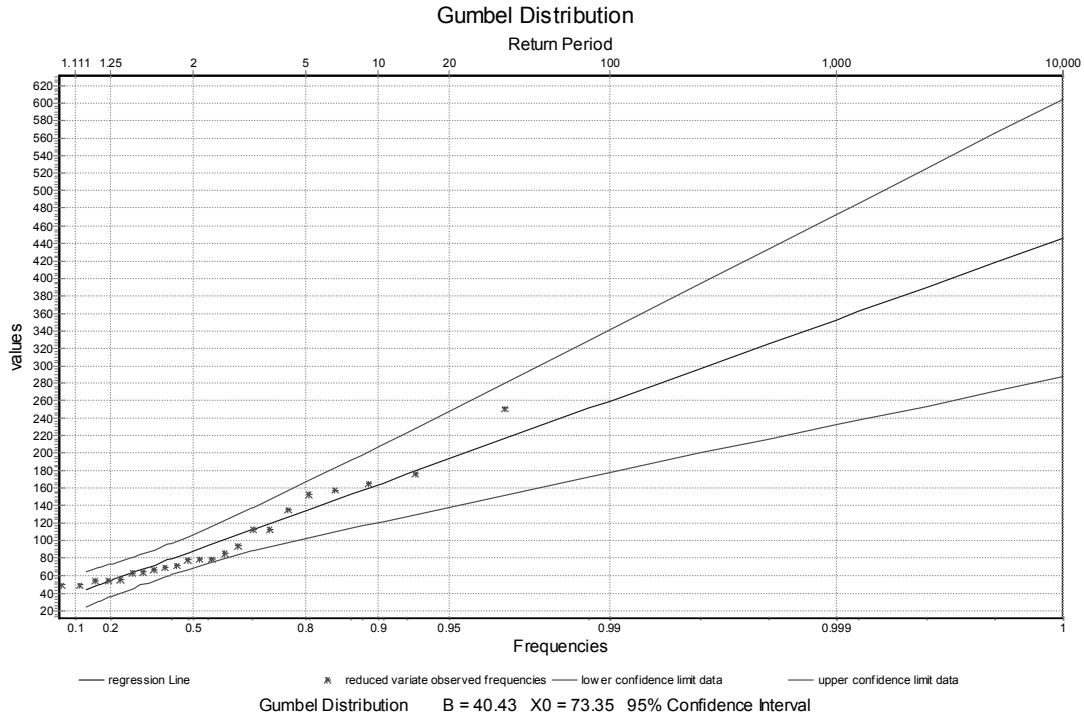


The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.15 (1/2)** **Frequency Distributions** **Bo River at Co Bi**
JAPAN INTERNATIONAL COOPERATION AGENCY	

Log-Normal Distribution (yearly early maximum area rainfall)



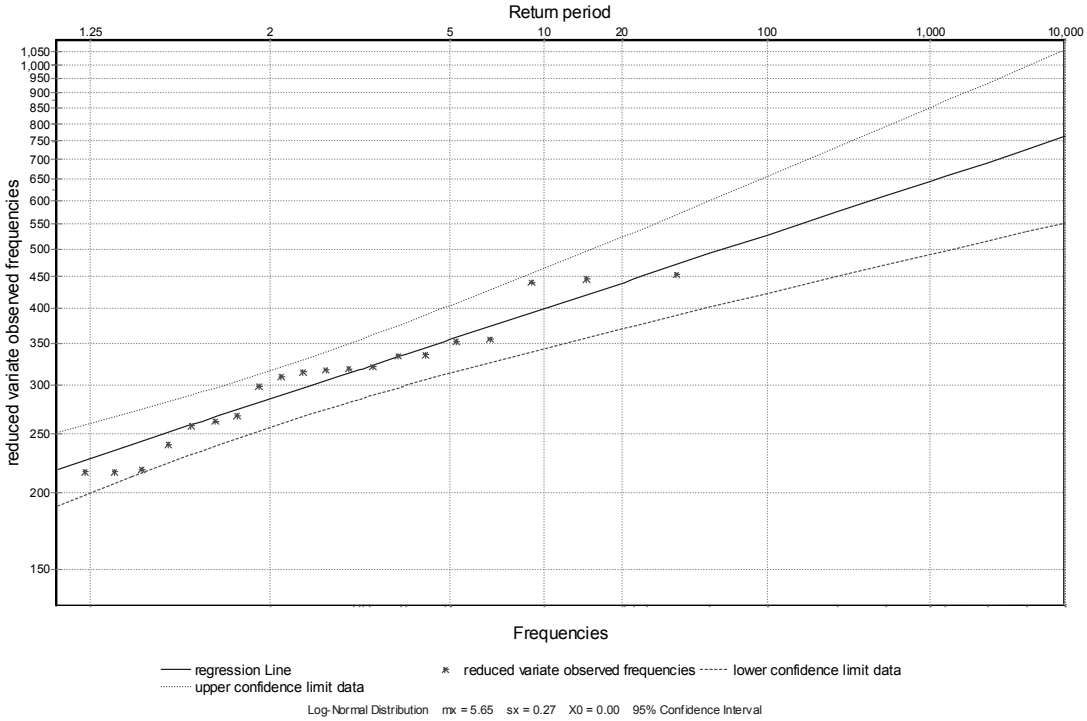
Gumbel Distribution (yearly early maximum area rainfall)



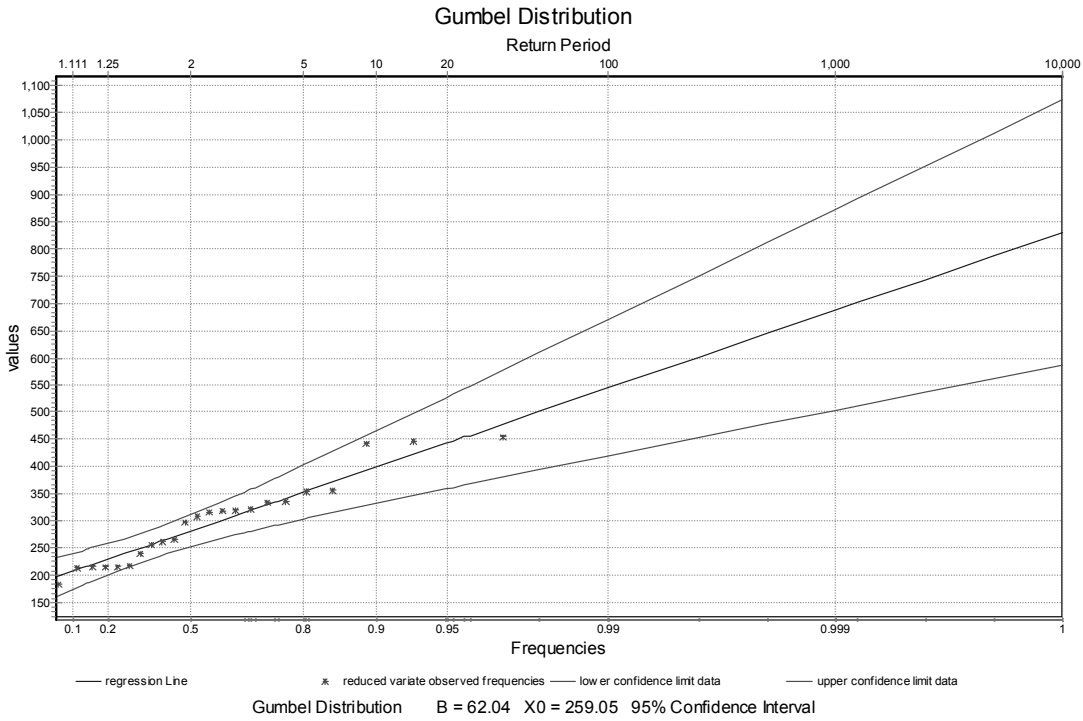
early flood season: January-August

The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.15 (2/2)** **Frequency Distributions** **Bo River at Co Bi**
JAPAN INTERNATIONAL COOPERATION AGENCY	

Log-Normal Distribution (yearly maximum area rainfall)

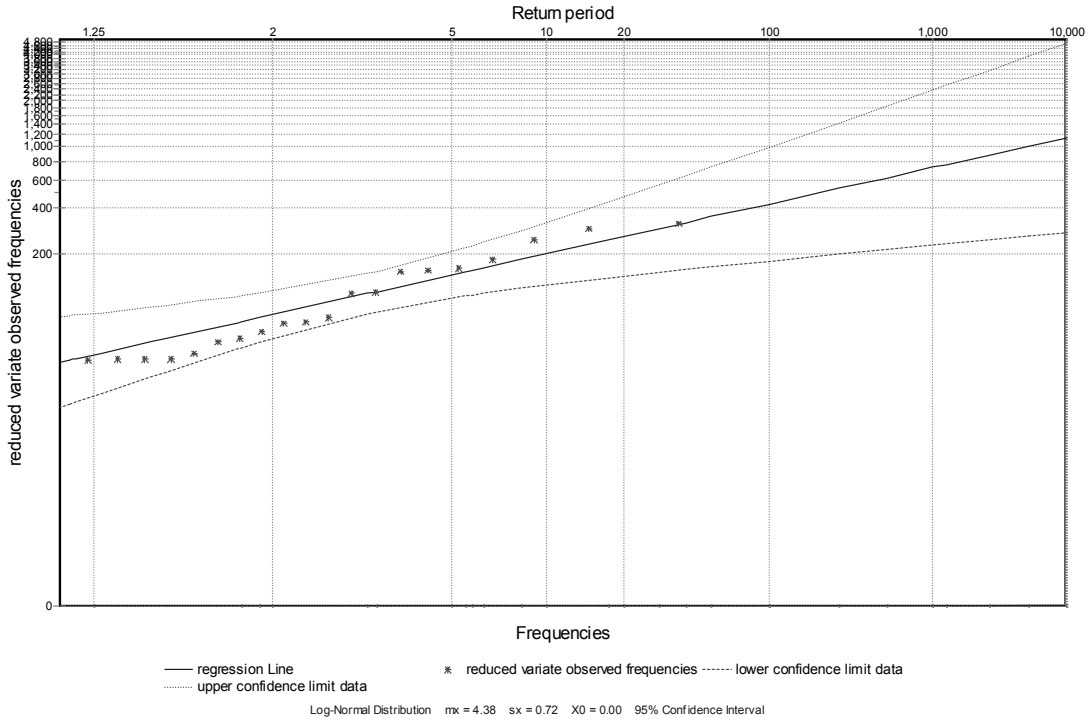


Gumbel Distribution (yearly maximum area frainfall)

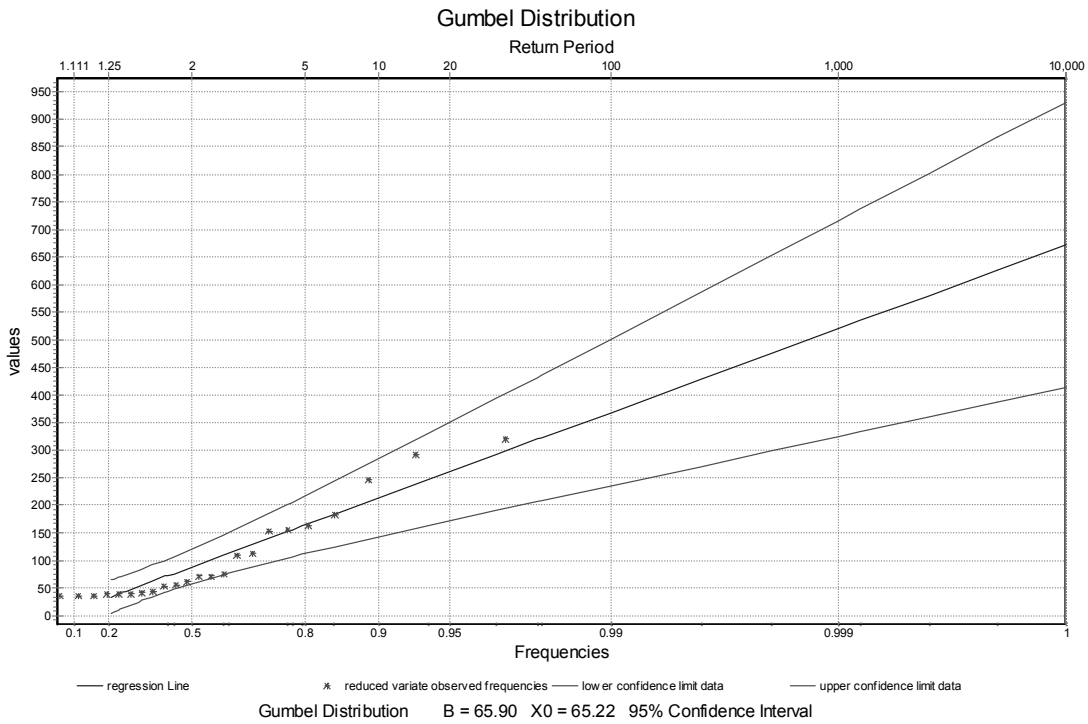


The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.16 (1/2)** **Frequency Distributions** **Huu Trach River at Binh Dien**
JAPAN INTERNATIONAL COOPERATION AGENCY	

Log-Normal Distribution (yearly early maximum area rainfall)



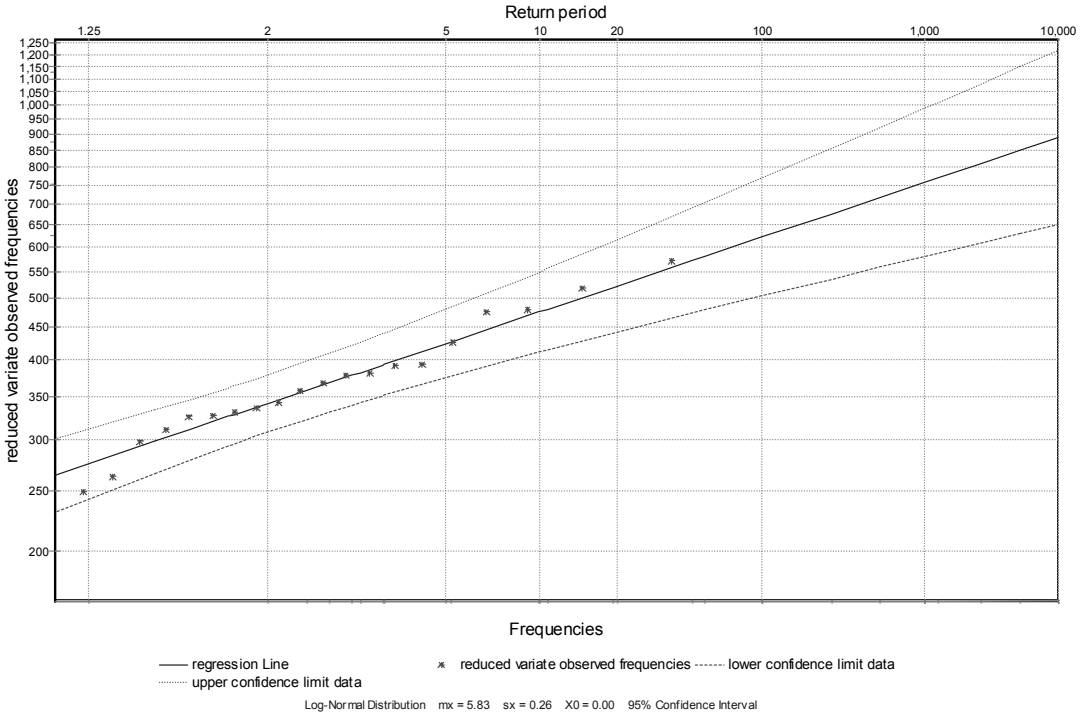
Gumbel Distribution (yearly early maximum area rainfall)



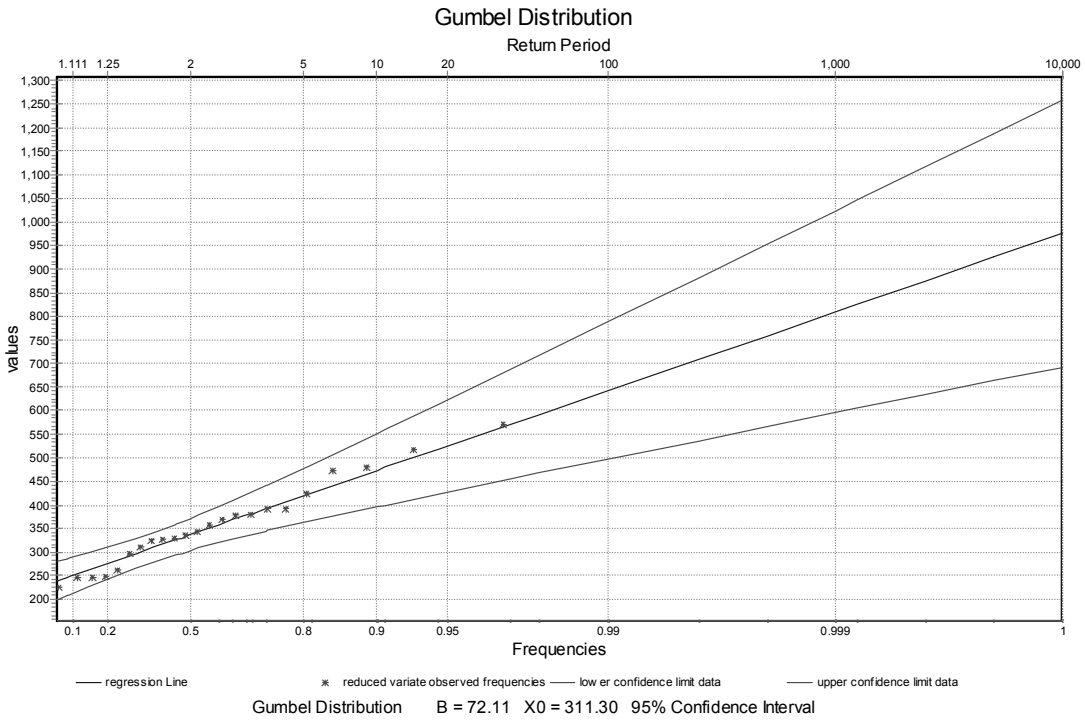
early flood season: January-August

The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.16 (2/2)** **Frequency Distributions** **Huu Trach River at Binh Dien**
JAPAN INTERNATIONAL COOPERATION AGENCY	

Log-Normal Distribution (yearly maximum one-day area rainfall)

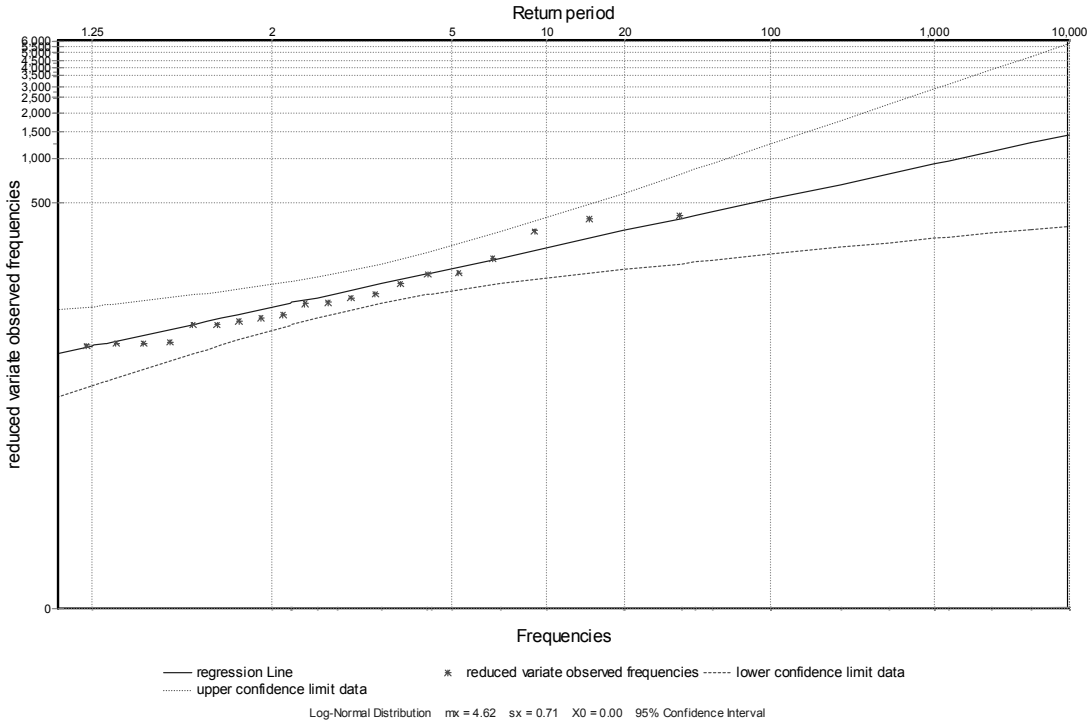


Gumbel Distribution (yearly maximum one-day area rainfall)

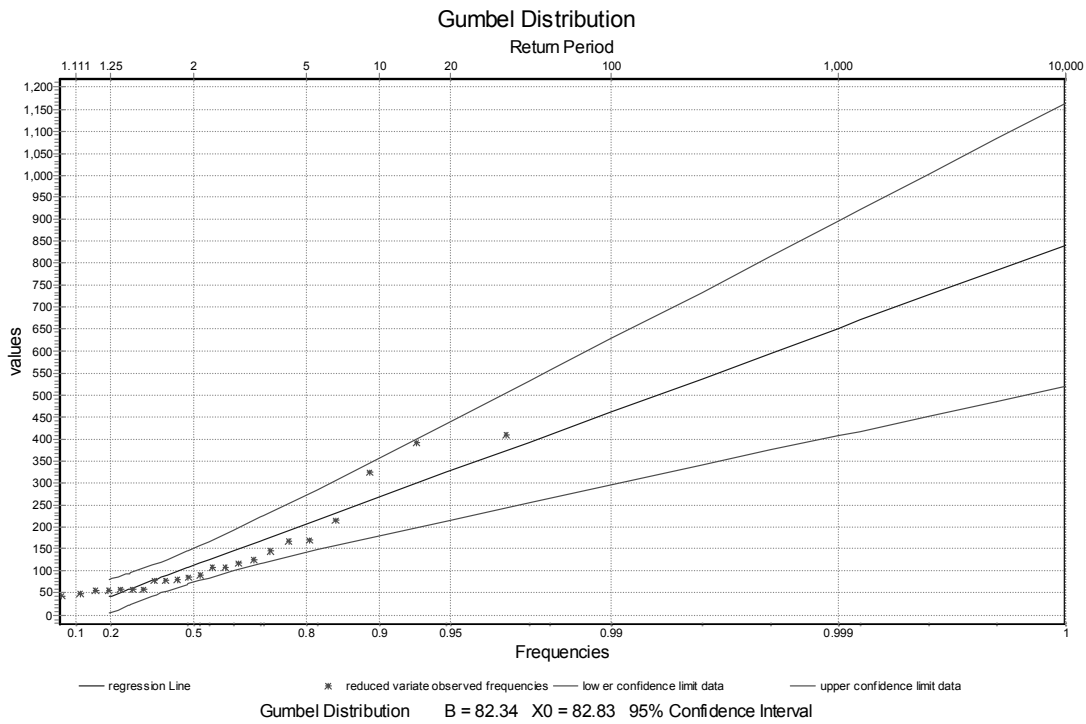


The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.17 (1/2)** **Frequency Distributions** **Ta Trach River u/s Duong Hoa**
JAPAN INTERNATIONAL COOPERATION AGENCY	

Log-Normal Distribution (yearly early maximum one-day area rainfall)



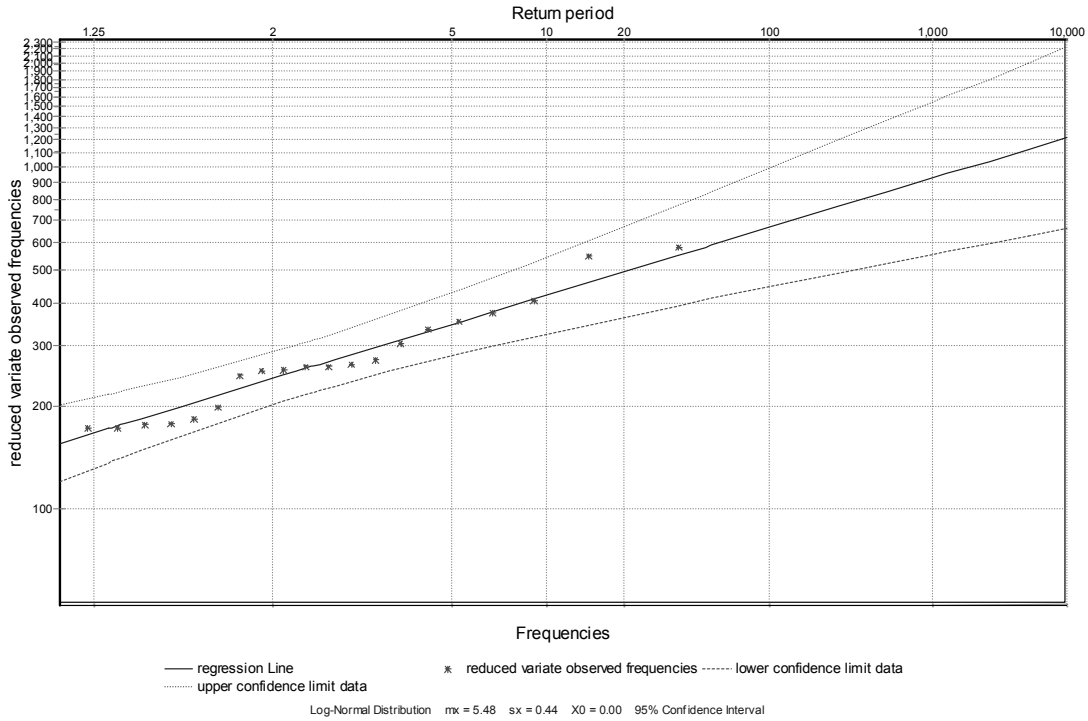
Gumbel Distribution (yearly early maximum one-day area rainfall)



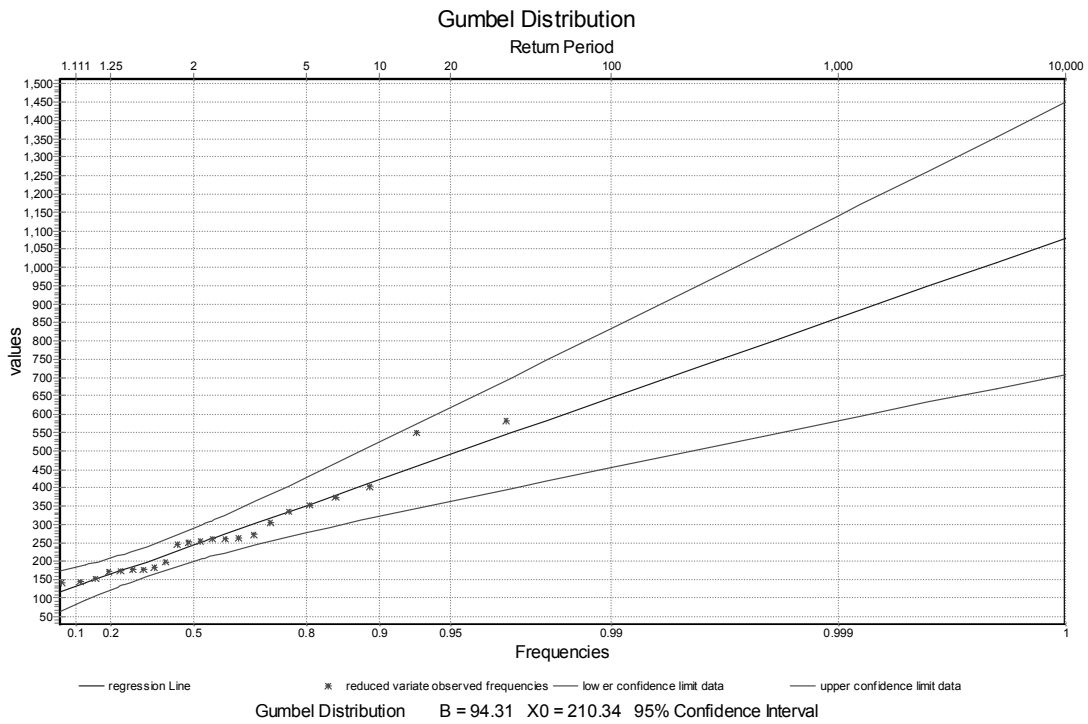
early flood season: January-August

The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.17 (2/2)** **Frequency Distributions** **Ta Trach River u/s Duong Hoa**
JAPAN INTERNATIONAL COOPERATION AGENCY	

Log-Normal Distribution (yearly maximum one-day area rainfall)

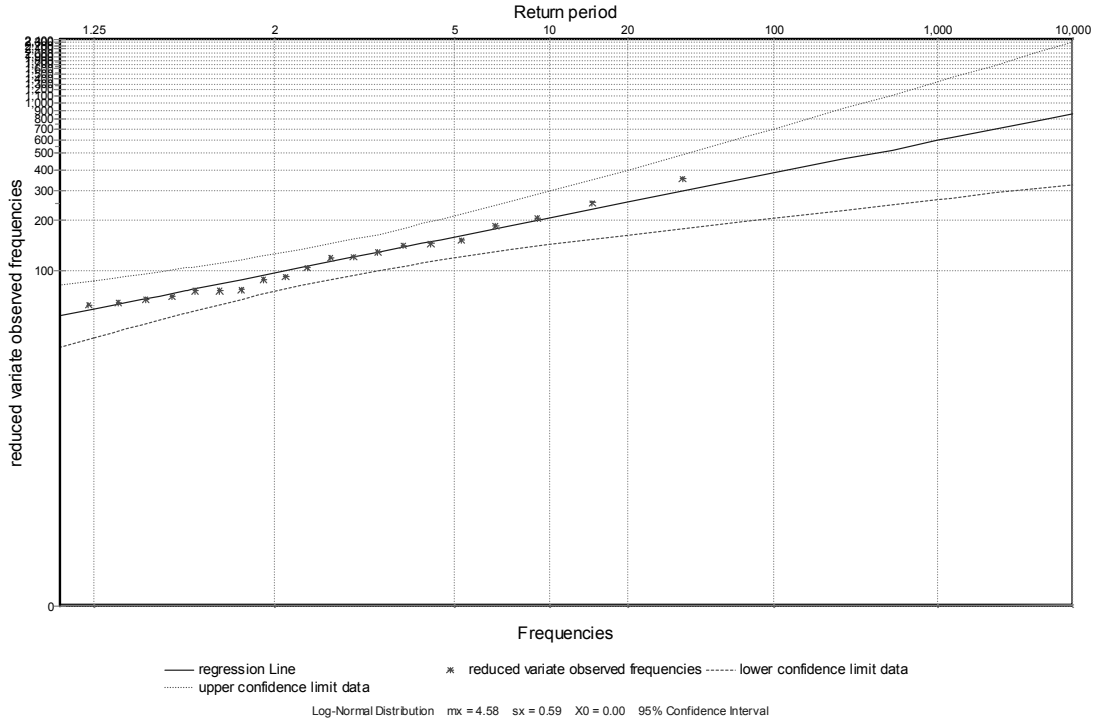


Gumbel Distribution (yearly maximum one-day area rainfall)

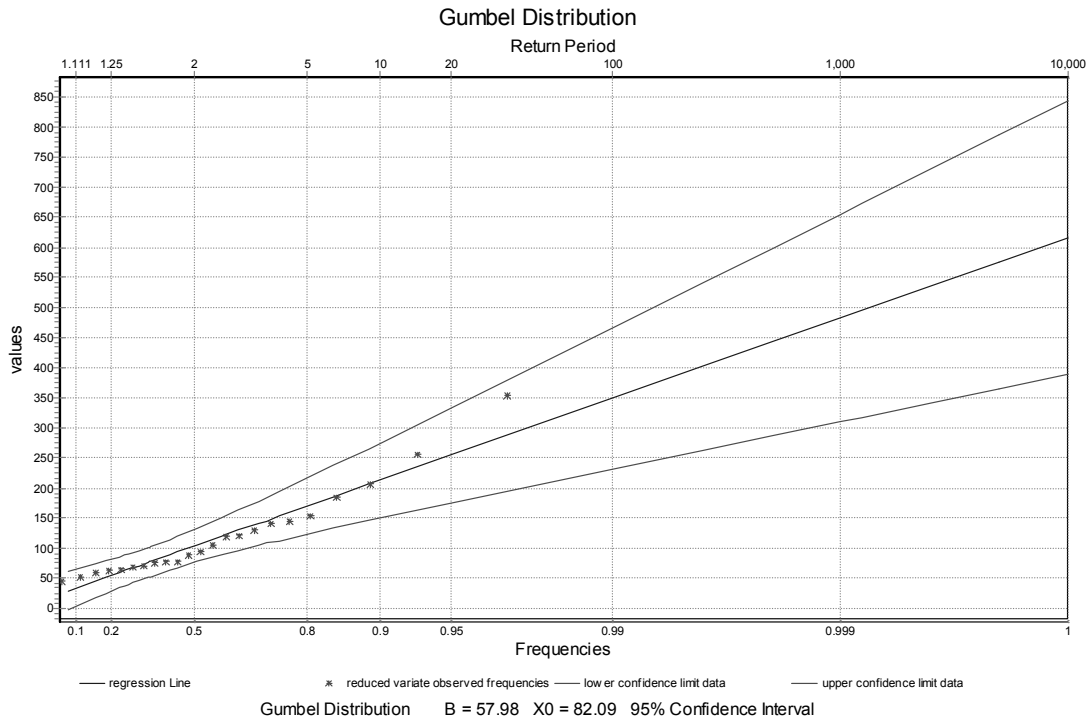


The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.18 (1/2)** **Frequency Distributions** **Lower Huong Basin**
JAPAN INTERNATIONAL COOPERATION AGENCY	

Log-Normal Distribution (yearly early maximum one-day area rainfall)

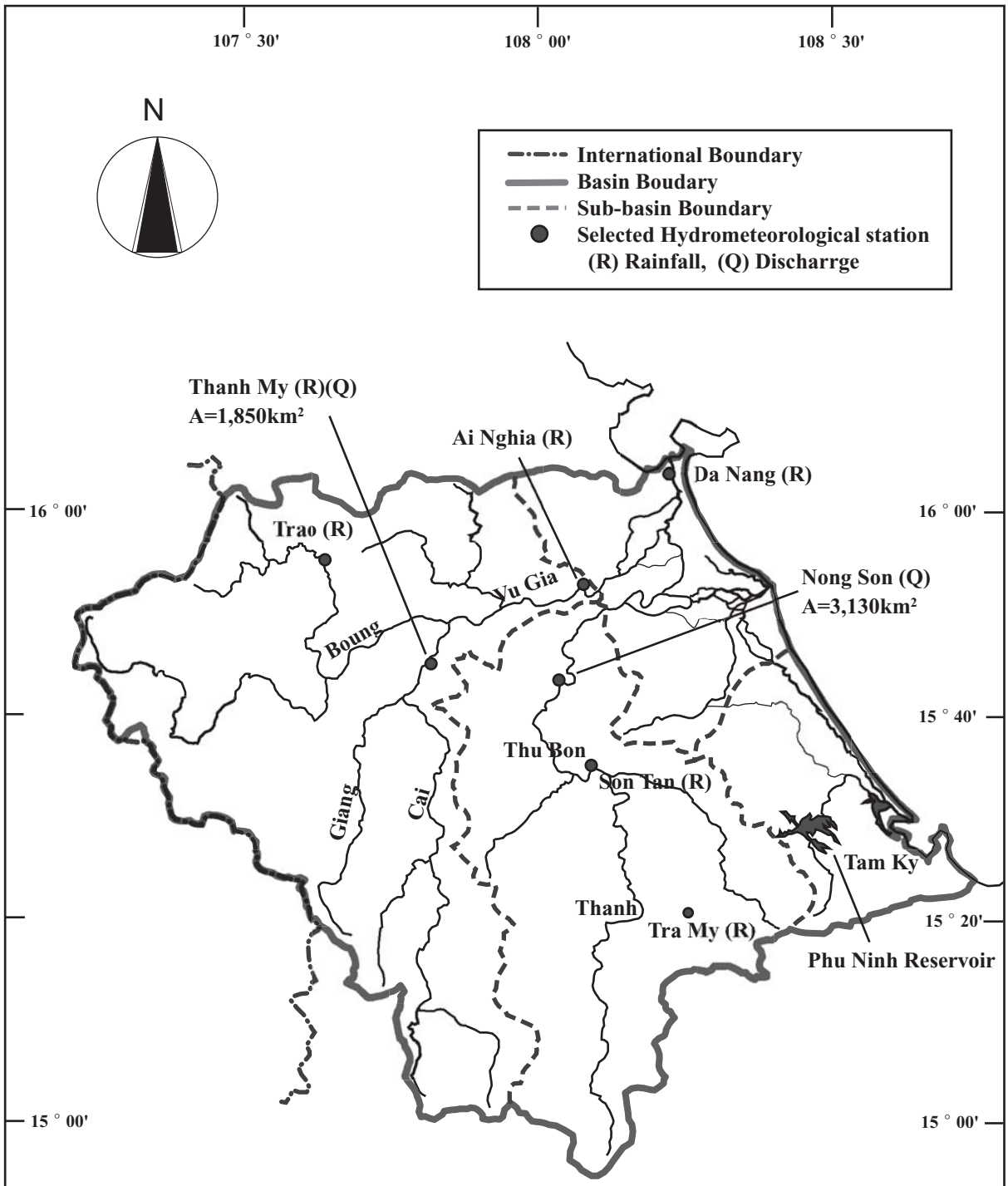


Gumbel Distribution (yearly early maximum one-day area rainfall)



early flood season: January-August

The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.18 (2/2)** **Frequency Distributions** **Lower Huong Basin**
JAPAN INTERNATIONAL COOPERATION AGENCY	



Vu Gia - Thu Bon River Basin Total	**11,510km²**
Thu Bon	**3,590km²**
Vu Gia	**5,420km²**
Lower Area	**1,370km²**
Tam Ky Basin	**1,130km²**

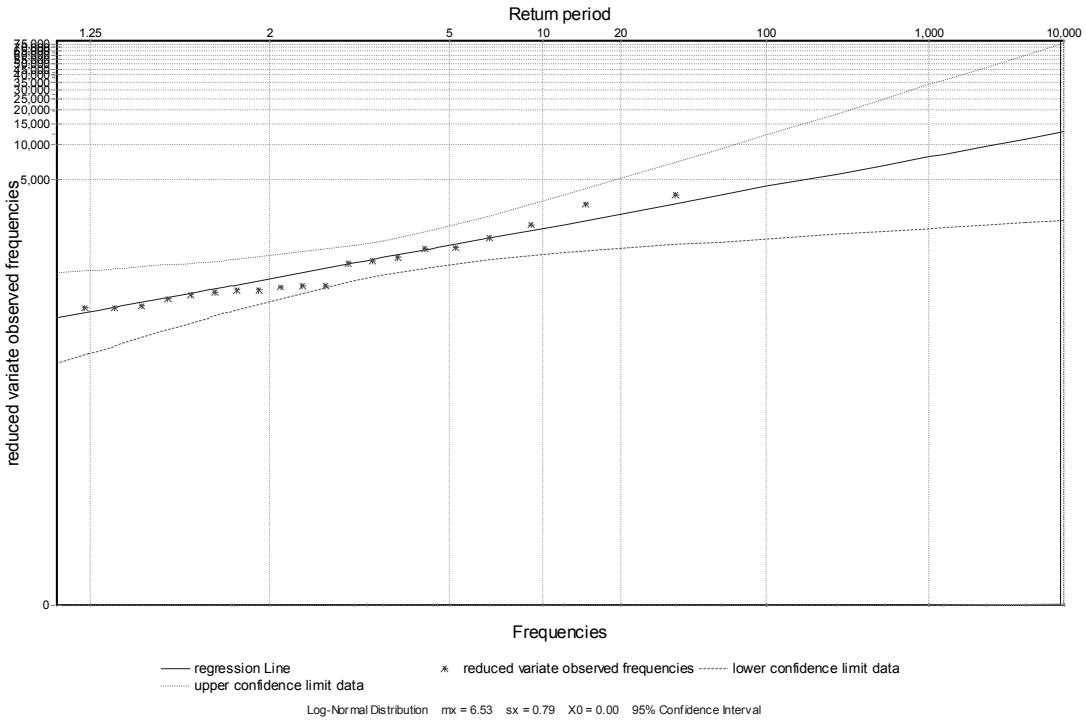
0 20 40 60 km

The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam

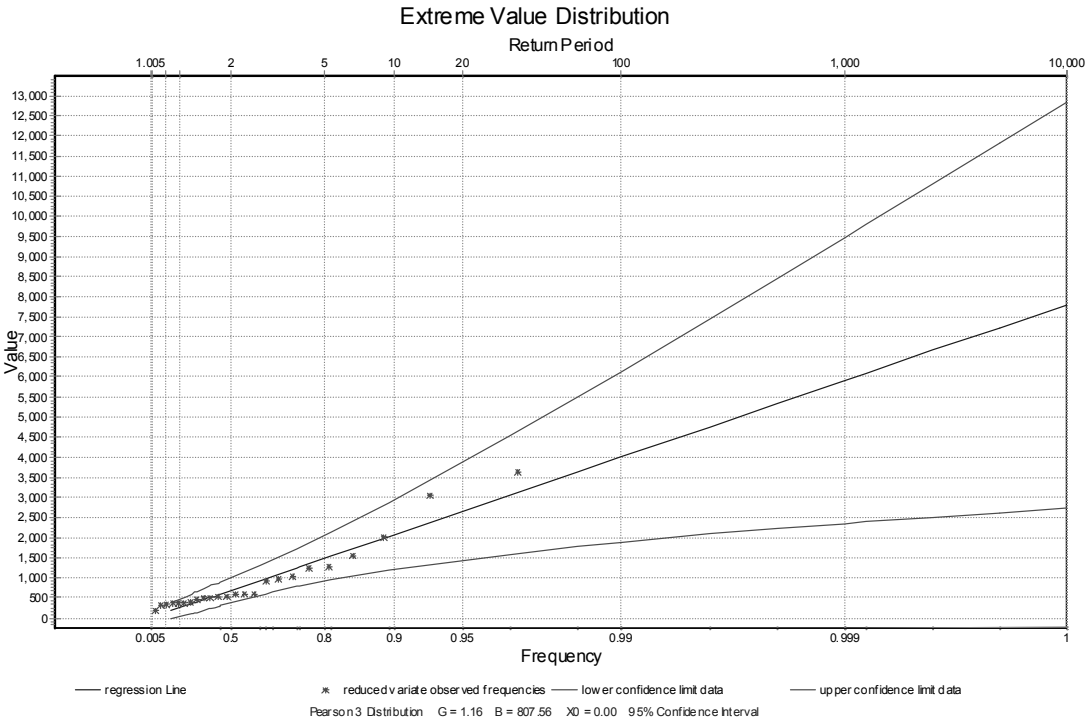
JAPAN INTERNATIONAL COOPERATION AGENCY

Figure B.19
Location Map Vu Gia - Thu Bon River Basin

Log-Normal Distribution (yearly early maximum discharge)

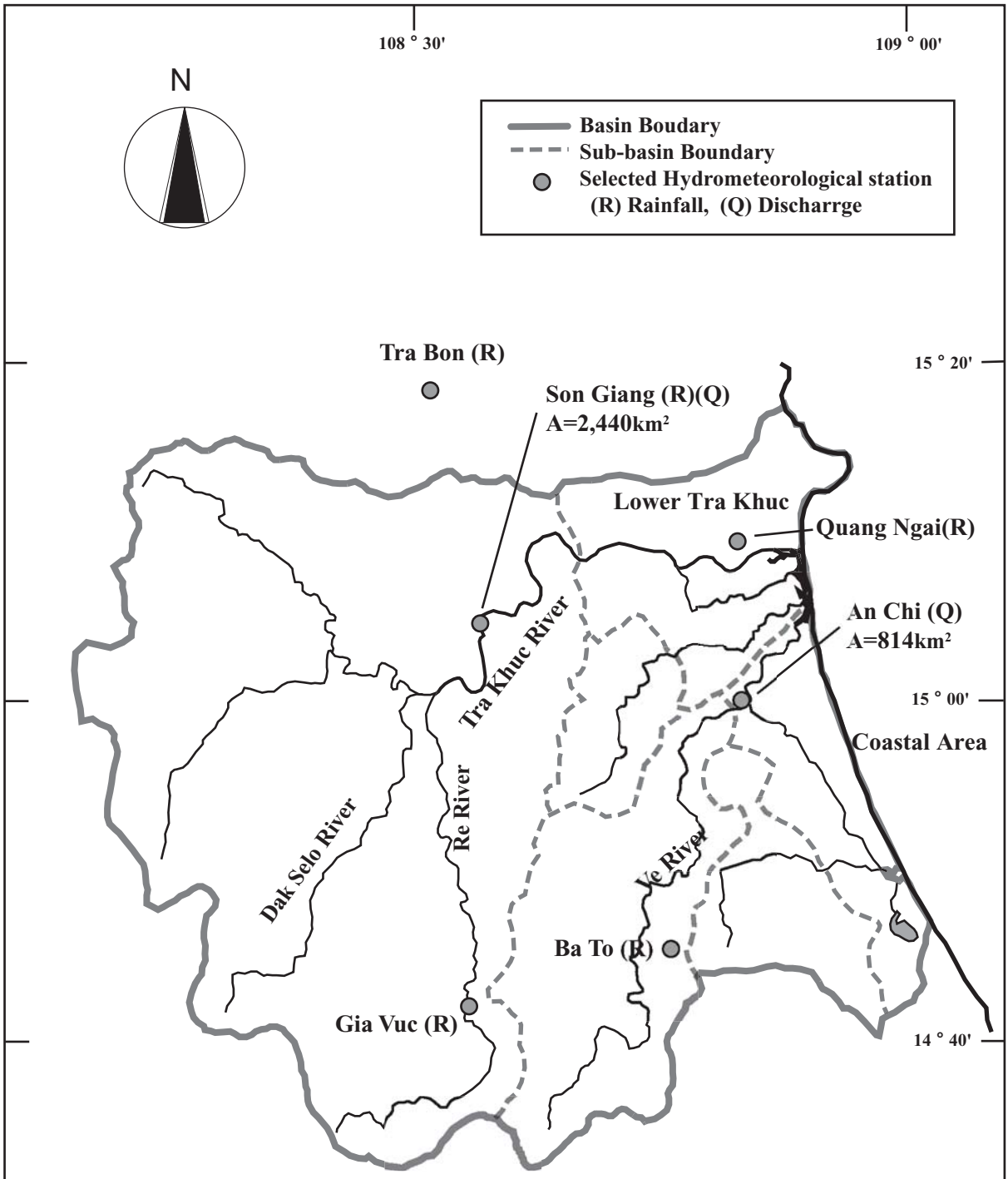


Pearson 3 Distribution (yearly early maximum discharge)



early flood season: January-August

The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.20** **Frequency Distributions Thu Bon River at Nong Son**
JAPAN INTERNATIONAL COOPERATION AGENCY	



Catchement Area

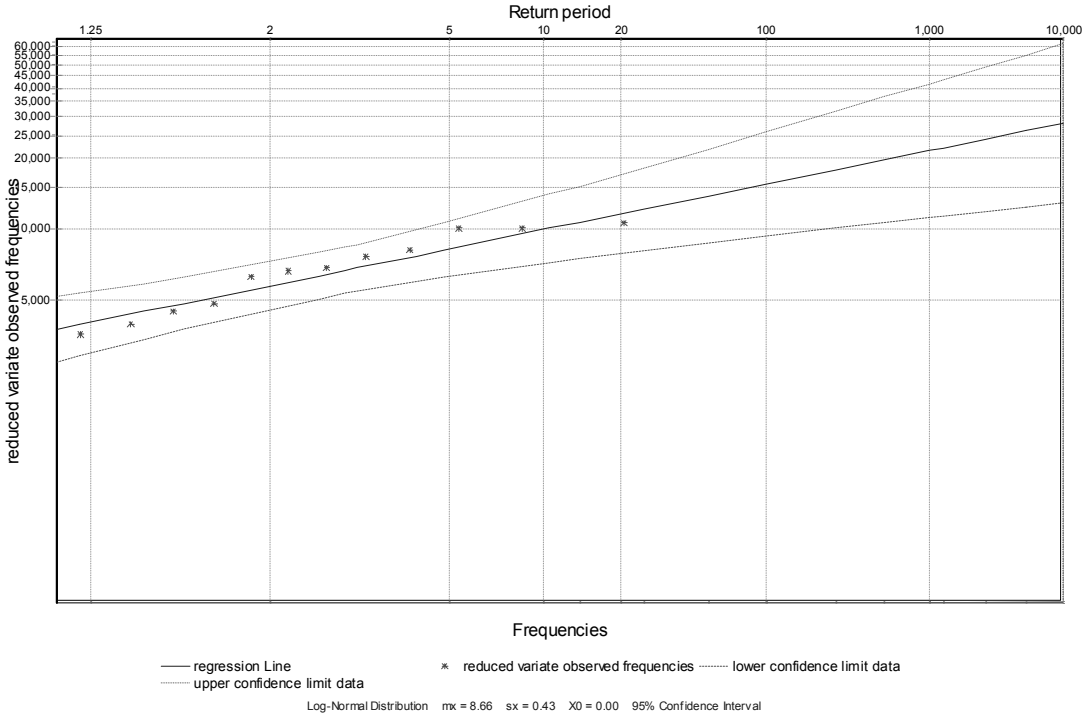
Tra Khuc River Basin (Total)	5,200km²
Tra Khuc	3,030km²
Ve	820km²
Lower Tra Khuc (Delta)	540km²
Coastal Area	300km²
Other small basins	510km²

The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam

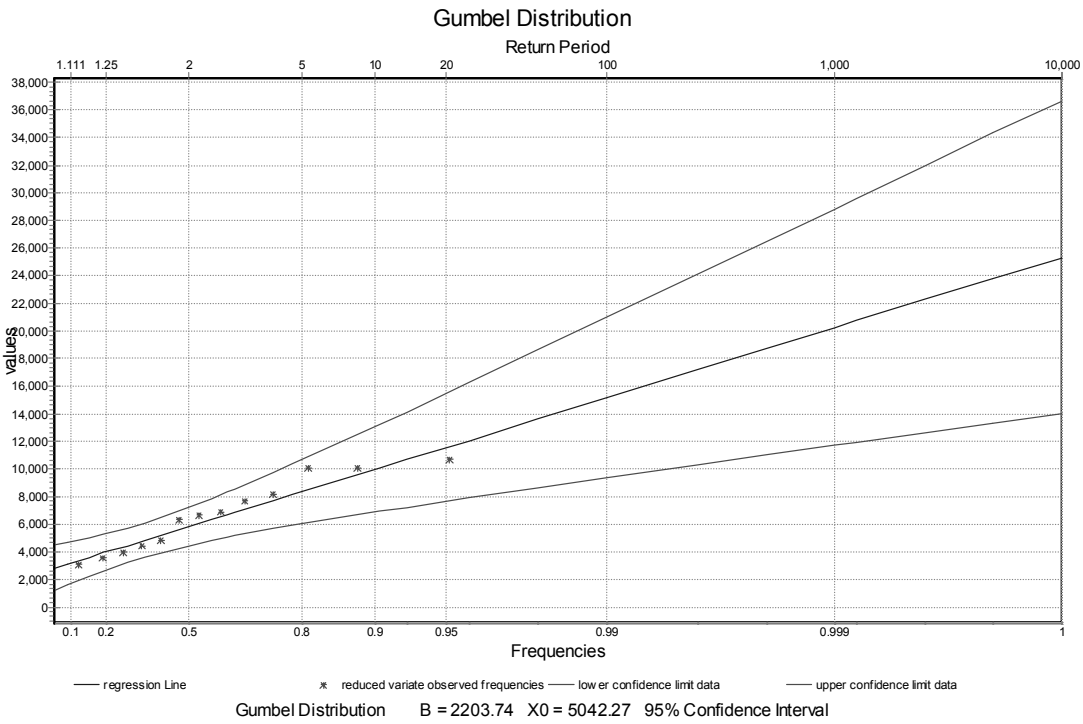
JAPAN INTERNATIONAL COOPERATION AGENCY

Figure B.21
Location Map Tra Khuc River Basin

Log-Normal Distribution (yearly maximum discharge)

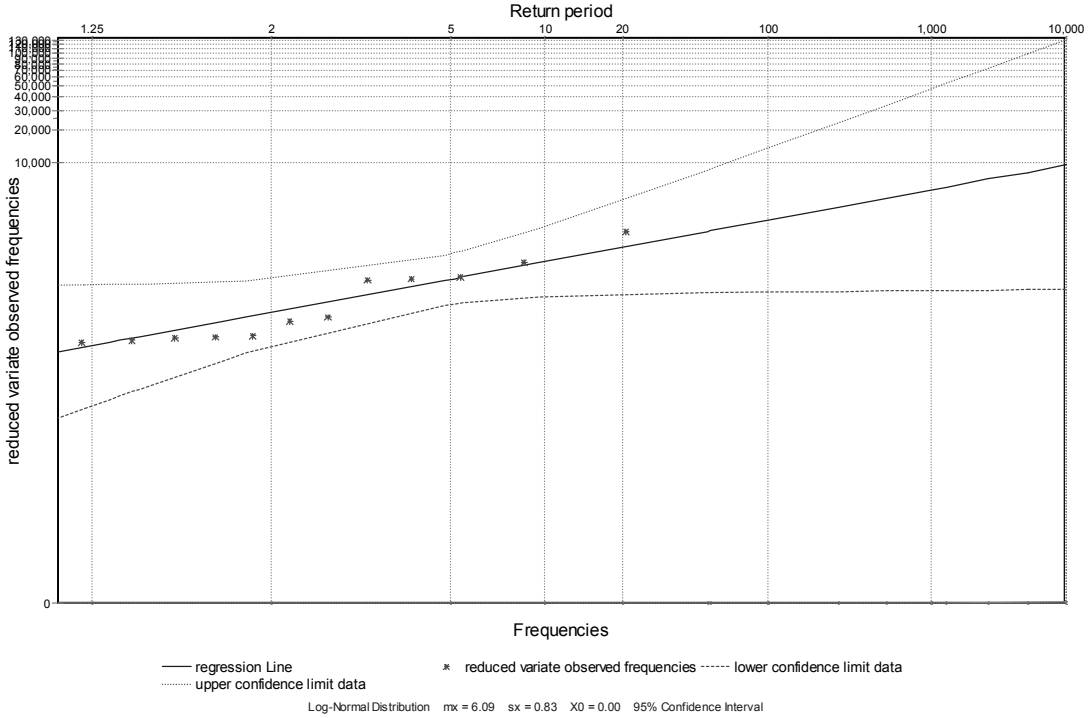


Gumbel Distribution (yearly maximum discharge)

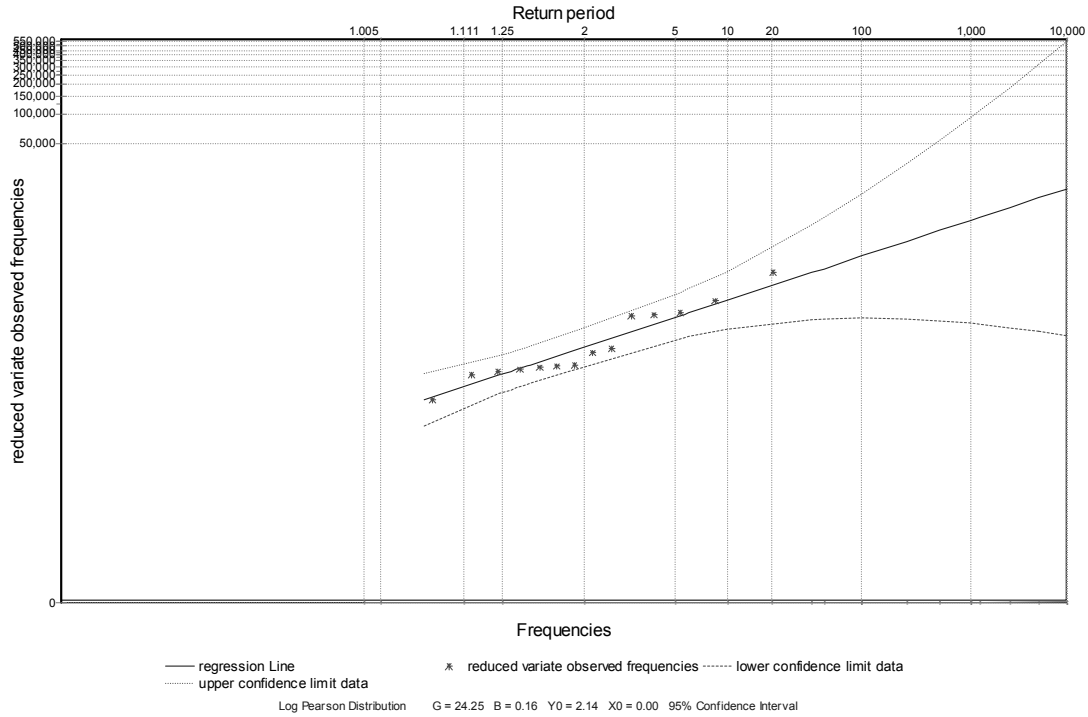


The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.22 (1/2)** **Frequency Distributions Tra Khuc River at Son Giang**
JAPAN INTERNATIONAL COOPERATION AGENCY	

Log-Normal Distribution (yearly early maximum discharge)



Gumbel Distribution (yearly early maximum discharge)



Early Flood Season : January - August

The Study on Nationwide Water Resources Development and Management in the Socialist Republic of Vietnam	**Figure B.22 (2/2)** **Frequency Distributions**
JAPAN INTERNATIONAL COOPERATION AGENCY	**Tra Khuc River at Son Giang**