

Bảng

Bảng 1.1 Thành viên đoàn nghiên cứu và ban cố vấn

	Name	Work Assignment
(1)	Study Team	
1	Shigeo OHNUMA /Norizo FUJITA	Team Leader
2	Masaki ITO	Deputy Team Leader/Water Resources Development and management
3	Toshikatsu IMAI	River Engineer(1)
4	Takuji KONO	River Engineer(2)
5	A.M.SUTMULLER /T.H.op ten NOORT	Hydrologist (1)
6	Akihiro MATSUDA	Hydrologist (2)
7	Hideo OHHATA	Sabo Planner
8	C.C. SEKINGTON	Disaster Prevention Planner
9	Tomoyasu KITA	Facility Design Engineer
10	Takuji KONO	Dam Design Engineer
11	Akihiro TAKATO	Construction Planner/Cost Estimate
12	Noritoshi MAEHARA	Economist
13	I.B.VAN BON / C.C. SEKINGTON	Water Use Planner
14	Takatoshi YAMAZAKI	Agronomist
15	Naoto MORIOKA	Agro-economist
16	Kuninobu NODA	Irrigation Planner (1)
17	J.S.T.FEKKES	Irrigation Planner (2)
18	Norihiko INOUE	Social Environmentalist
19	Hitoshi SAKAI	Natural Environmentalist
20	Kenichi SHIBATA	Satellite Image Analyst (1)
21	Chiyo KIGASAWA	Satellite Image Analyst (2)
22	Pucaï YANG	Geologist /Geo-mechanical Engineer
23	Takaharu YAMAGUCHI	Coordinator
24	Toshio TSUKANO / Takashi HASHIMOTO	Interpreter
(2)	Advisory Committee	
1	Tsuneo UESAKA	Chairman
2	Yoshihiro ISHIBASHI / Yoshinao MORI	Member
3	Hiroshi OKUDAIRA	Member
4	Akira NIWA	Member
5	Mutsuya MORI	Member

Bảng 1.2 Thành viên ban chỉ đạo

	Name	Position
Chairman / Member	Nguyen Dinh Thinh	Vice Minister of MARD
Member	Pham Xuan Su	Director of Water Resources and Hydraulic Works Department, MARD
Member	To Trung Nghia	Director of Institute of Water Resources Planning, MARD
Member	Bui Nguyen Hong	Vice Director of Flood Control and Dyke Management Department, MARD
Member	Tran Dinh Hoi	Vice Director of Institute of Water Resources Research, MARD
Member	Vu Nang Dung	Director of National Institute for Agriculture Planning and Projection
Member	Nguyen Hong Toan	General Secretary of Vietnam National Mekong Committee, MARD
Member	Le Kien	Representative of Ministry of Planning and Investment

Bảng 2.1 Diện tích rừng tự nhiên và Rừng đặc dụng trong vùng sinh thái

Ecoregion	Total area (ha)	Natural Forest (ha/%)		Special-use Forest (ha/%)	
1. Northern Indochina Subtropical Forests	11,427,170	2,599,543	22.7	719,818	6.3
2. Gulf of Tonkin Mangroves	221,108	29,051	13.1	14,295	6.5
3. Red River Fresh-water Swamp Forests	1,080,826	9,219	0.9	5,067	0.5
4. Northern Vietnam Coastal Forests	2,324,576	233,624	10.1	87,037	3.7
5. North-east Indochina Montane Forests	557,750	452,749	81.2	134,984	24.2
6. Annamite Range Moist Forests	1,123,768	589,676	52.5	185,936	16.5
7. Kon Tum Montane Forests	2,683,772	1,495,318	55.7	169,488	6.3
8. Southern Vietnam Coastal Forests	3,287,860	732,075	22.3	135,006	4.1
9. Cardomom Mountains Moist Forests	54,697	30,839	56.4	12,639	23.1
10. Da Lat Montane Forests	1,902,517	1,165,439	61.3	98,646	5.2
11. Eastern Indochina Pine Forests	444,197	311,837	70.2	90,431	20.4
12. Eastern Indochina Moist Forests	2,874,009	789,213	27.5	65,756	2.3
13. Tonle Sap-Mekong Peatswamp Forests	1,287,320	2,805	0.2	43,221	3.4
14. Tonle Sap Fresh-water Swamp Forests	964,719	0	0.0	0	0.0
15. Gulf of Thailand Mangroves	1,523,190	2,062	0.1	7,146	0.5
16. Central Indochina Dry Forests	676,994	492,570	72.8	98,358	14.5
Total	32,434,473	8,936,020	27.6	1,867,828	5.8

Source: Expanding the Protected Areas Network in Vietnam for the 21 Century, 1999

Bảng 2.2 Số lượng các loài động vật trên cạn quý hiếm liệt kê theo mức độ quý hiếm trong Sách Đỏ của Việt Nam

Ecoregion	Area(km ²)	Endangered	Vulnerable	Threatened	Rare	Undetermined*	Total	Total No per 1,000 km ²
1. Bang Giang & Ky Cung Rivers	10,640	9	26	18	23	2	78	7.3
2. Red and Thai Binh Rivers	87,840	31	54	33	50	1	169	1.9
3. Ma River	20,190	11	19	17	8	0	55	2.7
4. Ca River	20,460	16	32	25	17	0	90	4.4
5. Thach Han River	2,550	11	13	24	12	0	60	23.5
6. Huong River	3,300	9	13	25	12	0	59	17.9
7. Vu Gia-Thu Bon River	11,510	10	11	20	13	0	54	4.7
8. Tra Khuc River	5,200	5	6	18	10	0	39	7.5
9. Kone River	3,640	6	7	17	10	0	40	11.0
10. Ba River	14,030	17	26	29	20	0	92	6.6
11. Dong Nai River	35,410	24	36	31	31	0	122	3.4
12. Sesan River	11,530	15	25	19	14	0	73	6.3
13. Srepok River	12,030	19	22	16	17	0	74	6.2
14. Cuu Long River	37,870	8	23	17	19	0	67	1.8

*Status of preciousness in not determined.

Source: Red Data Book of Vietnam, Volume 1. Animals, 2000, MOSTE

Bảng 2.3 Số lượng các loài thực vật trên cạn quý hiếm liệt kê theo mức độ quý hiếm Trong sách đỏ của Việt Nam

Ecoregion	Area(km ²)	Endangered	Vulnerable	Threatened	Rare	Undetermined ²	Total	Total No. per 1,000 km ²
1. Bang Giang & Ky Cung River	10,640	5	14	9	18	10	56	5.3
2. Red and Thai Binh Rivers	87,840	18	33	36	85	18	190	2.2
3. Ma River	20,190	2	5	6	4	8	25	1.2
4. Ca River	20,460	1	11	6	4	12	34	1.7
5. Thach Han River	2,550	2	4	4	7	5	22	8.6
6. Huong River	3,300	1	6	7	10	8	32	9.7
7. Vu Gia-Thu Bon River	11,510	2	11	9	10	10	42	3.6
8. Tra Khuc River	5,200	1	4	4	4	4	17	3.3
9. Kone River	3,640	1	3	4	4	4	16	4.4
10. Ba River	14,030	4	15	4	19	11	53	3.8
11. Dong Nai River	35,410	4	22	14	45	14	99	2.8
12. Sesan River	11,530	5	16	3	15	11	50	4.3
13. Srepok River	12,030	3	9	3	8	12	35	2.9
14. Cuu Long River	37,870	1	6	7	9	6	29	0.8

²Status of preciousness in not determined.

Source: Red Data Book of Vietnam, Volume 2. Plants, 2000, MOSTE

Bảng 2.4 Số lượng và diện tích mặt các khu vực bảo tồn thiên nhiên trong 14 lưu vực sông

River Basin	Unit for surface area : ha										
	National Park		Nature Reserve*		CHES**		Wetland		Total		
	No of Sites	Surface Area	No of Sites	Surface Area	No of Site	Surface Area	No of Sites	Surface Area	No of Sites	Surface Area	Coverage (%)
1. Bang Giang & Ky Cung River	0	0	3	23,640	3	5,928	0	0	6	29,568	2.78
2. Red and Thai Binh Rivers	5	89,270	20	590,300	9	24,487	5	97,320	39	801,377	9.12
3. Ma River	1	16,634	3	75,852	3	900	0	0	7	93,386	4.63
4. Ca River	0	0	3	211,409	1	600	0	0	4	212,009	10.36
5. Thach Han River	0	0	1	40,526	0	0	0	0	1	40,526	15.89
6. Huong River	1	22,031	1	33,900	1	14,547	2	20,000	5	90,478	27.42
7. Vu Gia-Thu Bon River	0	0	1	43,327	3	12,750	1	3,600	5	59,677	5.18
8. Tra Khuc River	0	0	0	0	1	5,000	1	3,600	2	8,600	1.65
9. Kone River	0	0	0	0	1	2,616	4	8,300	5	10,916	3.00
10. Ba River	0	0	3	66,290	1	8,876	7	11,570	11	86,736	6.18
11. Dong Nai River	1	38,900	5	79,603	3	4,940	6	45,892	15	169,335	4.78
12. Sesan River	0	0	2	99,711	0	0	1	6,450	3	106,161	9.21
13. Srepok River	1	58,200	4	111,631	1	6,000	3	198	9	176,029	14.63
14. Cuu Long River	1	7,612	7	27,642	1	3,495	7	30,313	16	69,062	1.82
Total	10	232,647	53	1,403,831	28	90,139	37	227,243	128	1,953,860	7.07

* There is one Man and the Biosphere Reserve within a Nature Reserve in Mekong River basin.

** CHES: Cultural and Historical Environmental Site

Source: Map of Nature Conservation Areas of Vietnam, April, 2001, NEA-MOSTE

Bảng 2.5 Tóm tắt hiện trạng chất lượng nước và tình trạng nhiễm mặn

No	River	Surface Water Quality	Salinity Intrusion
1	Bang Giang & Ky Cung Rivers	Slightly polluted with organics. No heavy metal contamination.	Estimated to be no problem because of located in an inland area.
2	Red and Thai Binh Rivers	Recorded relatively high concentrations of ammonia and nitrite, implying pollution by fertilizers and livestock.	No data available.
3	Ma River	No data available.	Intrudes up to 15 - 20 km from river mouth. Ham Rong water supply intake is likely to be suffering from salinity intrusion if no measure is made.
4	Ca River	River water shows turbid appearance and slight pollution with organics. No heavy metal contamination.	Intrudes up to 20 km in dry season. In wet season, salinity intrusion is not significant.
5	Thach Han River	Not polluted and river water is usable for domestic and industrial use.	Intrudes up to Dai Loc or Thach Han weir in dry seasons. Thirty five (35) ha of crop lands are affected by salinity intrusion.
6	Huong River	No organic pollution in the river, except for canals draining into it near Hue city. Recognized a problem of high coliform concentration.	Intrudes up to Moi Bridge located about 18 km from river mouth. Thao Long Barrage is now being constructed, which will alleviate the problem of salinity intrusion.
7	Vu Gia - Thu Bon River	Slightly polluted with organics. River water shows turbid appearance. Pollution from industry and wastewater is not seen.	The biggest problem of the river is salinity intrusion. Intrudes up to 15km inland.
8	Tra Khuc River	No organic pollution. BOD ₅ concentration is relatively low. But polluted near drainage from Quang Ngai sugar mill.	Suffering from salinity intrusion, especially in Tra Bong downstream area, covering a 1,275 – ha cultivated land.
9	Kone River	There is a problem of pollution with mercury from gold mining.	Salinity intrusion is the biggest problem of the river, affecting aquaculture production.
10	Ba River	No data available. Water quality condition is estimated similar to those rivers draining to the East Sea.	Intrudes up to Ban Trach Bridge of Highway No.1.
11	Dong Nai River	River water shows turbid appearance and slight pollution with organics.	Salinity intrusion is serious problem in lowland area of the basin, lasting during all the dry season. Salinity intrudes as far as 70-80 km from river mouth at its maximum extent.
12	Sesan River	No organic pollution in the river. Recorded relatively high concentrations of ammonia, implying pollution by fertilizers and livestock.	Estimated to be no problem because of located in an inland area.
13	Srepok River	Estimated to be similar situation to that of Sesan river, because of located next to it in an inland area under the similar natural conditions.	Estimated to be no problem because of located in an inland area.
14	Cuu Long River	River water shows turbid appearance but no pollution with organics or heavy metal contamination, either.	Salinity intrusion is seen over the lowland area of Cuu Long river delta, intrudes up to more than 50 km from river mouth.

Source : “River Basin Profiles,” World Bank. : Documents of IWRP

Bảng 2.6 Tình trạng sử dụng đất trong 14 lưu vực sông (Trên cơ sở của Tỉnh)

River Basin	Unit	Total	Land Use Category				
			Agriculture Land	Forest Land	Specially Used Land	Residential Land	Unused Land
I. Bang Giang & Ky Cung Rivers	thou. ha	1499.6	133.7	540.8	18.6	7.1	799.4
	%	-	8.9%	36.1%	1.2%	0.5%	53.3%
II. Red and Thai Binh Rivers	thou. ha	10075.5	2029.2	3289.1	477.1	158.5	4121.6
	%	-	20.1%	32.6%	4.7%	1.6%	40.9%
(1) Red River Delta	thou. ha	1478.8	857.6	119.0	233.0	91.3	177.9
	%	-	58.0%	8.0%	15.8%	6.2%	12.0%
(2) Other	thou. ha	8596.7	1171.6	3170.1	244.1	67.2	3943.7
	%	-	13.6%	36.9%	2.8%	0.8%	45.9%
III. Ma River	thou. ha	1110.6	239.8	430.4	67.1	19.3	354.0
	%	-	21.6%	38.8%	6.0%	1.7%	31.9%
IV. Ca River	thou. ha	2254.3	294.1	926.0	104.9	21.7	907.6
	%	-	13.0%	41.1%	4.7%	1.0%	40.3%
V. Thach Han River	thou. ha	474.6	68.9	149.8	18.3	3.6	234.0
	%	-	14.5%	31.6%	3.9%	0.8%	49.3%
VI. Huong River	thou. ha	505.4	59.0	224.5	21.1	4.0	196.8
	%	-	11.7%	44.4%	4.2%	0.8%	38.9%
VII. Vu Gia-Thu Bon Rivers	thou. ha	1166.4	123.0	481.8	63.5	9.8	488.3
	%	-	10.5%	41.3%	5.4%	0.8%	41.9%
VIII. Tra Khuc River	thou. ha	513.5	99.1	144.2	20.8	6.6	242.8
	%	-	19.3%	28.1%	4.1%	1.3%	47.3%
IX. Kone River	thou. ha	602.6	116.9	193.7	29.4	6.4	256.2
	%	-	19.4%	32.1%	4.9%	1.1%	42.5%
X. Ba River	thou. ha	2054.1	500.3	916.7	69.1	14.1	553.9
	%	-	24.4%	44.6%	3.4%	0.7%	27.0%
XI. Dong Nai River	thou. ha	4365.5	2104.1	1497.5	248.3	69.1	446.5
	%	-	48.2%	34.3%	5.7%	1.6%	10.2%
XII. Sesan River	thou. ha	961.5	92.3	606.7	12.3	3.3	246.9
	%	-	9.6%	63.1%	1.3%	0.3%	25.7%
XIII. Srepok River	thou. ha	1960.0	524.9	1017.9	51.9	13.6	351.7
	%	-	26.8%	51.9%	2.6%	0.7%	17.9%
XIV. Cuu Long River	thou. ha	3522.1	2638.9	292.4	194.9	90.2	305.7
	%	-	74.9%	8.3%	5.5%	2.6%	8.7%
Total	thou. ha	31065.7	9024.2	10711.5	1397.3	427.3	9505.4
	%	-	29.0%	34.5%	4.5%	1.4%	30.6%

Source: Socio-economic Statistical Data of 61 Provinces and Cities in Vietnam, 2001, GSO

Bảng 2.7 Diện tích rừng ở 14 lưu vực sông (Trên cơ sở của Tỉnh)

Unit: ha

River Basin	Total of Forest Land Area	Forest Land Area									Seedling Area
		Natural Forest Area					Afforested Area				
		Subtotal	Of Which			Subtotal	Of Which				
			Productive Forest	Preventive Forest	Special Usage Forest		Productive Forest	Preventive Forest	Special Usage Forest		
I. Bang Giang & Ky Cung Rivers	540,841	434,335	78,471	337,762	18,102	106,475	76,799	29,493	183	31	
II. Red and Thai Binh Rivers	3,289,230	2,631,635	571,756	1,730,153	329,726	650,693	435,397	190,389	24,907	139	
(1) Red River Delta	(119,102)	(54,589)	(2,781)	(26,732)	(25,076)	(64,466)	(23,726)	(24,939)	(9,038)	(47)	
(2) Other	(3,170,128)	(2,577,046)	(568,975)	(1,703,421)	(304,650)	(592,990)	(411,671)	(165,450)	(15,869)	(92)	
III. Ma River	430,424	335,667	98,014	182,173	55,480	94,725	66,918	25,959	1,848	32	
IV. Ca River	926,033	816,642	172,875	429,250	214,517	109,361	46,098	58,869	4,394	30	
V. Thach Han River	149,813	101,468	40,106	61,269	93	48,333	34,076	14,257	-	12	
VI. Huong River	224,525	176,416	40,577	109,774	26,065	48,092	25,909	16,132	6,051	17	
VII. Vu Gia-Thu Bon Rivers	481,886	425,534	135,173	193,927	96,434	56,341	37,916	13,466	4,959	11	
VIII. Tra Khuc River	144,164	102,125	16,233	83,974	1,918	42,033	30,522	11,511	-	6	
IX. Kone River	193,659	151,532	34,624	116,686	222	42,127	30,865	11,262	-	-	
X. Ba River	916,735	871,060	583,619	238,595	48,846	45,672	32,374	11,346	1,952	3	
XI. Dong Nai River	1,497,284	1,269,521	454,678	587,250	227,593	227,716	143,197	75,292	9,227	47	
XII. Sesan River	606,669	594,103	311,280	206,771	76,052	12,548	3,798	8,519	231	18	
XIII. Srepok River	1,017,955	1,008,080	664,240	156,733	187,107	9,874	5,878	3,957	39	1	
XIV. Cuu Long River	292,314	81,387	12,487	36,119	32,781	210,903	161,117	40,374	9,412	24	
Total	10,711,532	8,999,505	3,214,133	4,470,436	1,314,936	1,704,893	1,130,864	510,826	63,203	371	

Source: Agricultural, Forest, and Aquacultural Production Data, 2001, MARD

Bảng 2.8 Ước tính khối lượng cá nước ngọt đánh bắt theo vùng
(Annual average in 1980s)

Region\Water	Unit: ton				
	Pond	Lake/ Reservoir	Ricefield	River	Total
ALL VIETNAM	220,000	13,000	36,000	29,500	298,500
North	120,000	5,000	5,000	6,000	136,000
South	90,000	4,000	30,000	20,000	144,000
Center	5,000	3,000	900	3,000	11,900
High Lands	5,000	1,000	100	500	6,600

Source: Country Report of Vietnam on Transboundary Diagnostic Assessment, 1998, NEA/MOSTE

Bảng 2.9 Sản xuất và diện tích mặt nuôi trồng thủy sản nội địa năm 1991

River Basin	Area (ha)	Production (tons)	Provinces/Cities with data available
ALL VIETNAM	520,000	335,910	45 provinces and cities
I. Bang Giang & Ky Cung Rivers	2,000	800	Cao Bang, Lang Son
II. Red and Thai Binh Rivers	43,528	25,500	Ha Noi, Hai Phong, Vinh Phuc, Thai Binh, Quang Ninh, Lai Chau, Son La
III. Ma River	8,800	4,300	Thanh Hoa
IV. Ca River	-	-	Data is not available
V. Thach Han River	1,600	1,000	Quang Tri
VI. Huong River	4,000	1,410	Thua Thien - Hue
VII. Vu Gia-Thu Bon Rivers	5,730	1,500	Da Nang, Quang Nam
VIII. Tra Khuc River	3,700	1,500	Quang Ngai
IX. Kone River	3,500	1,800	Binh Dinh
X. Ba River	2,300	1,200	Phu Yen
XI. Dong Nai River	77,400	36,800	Ho Chi Minh, Lam Dong, Tay Ninh, Dong Nai, Long An
XII. Sesan River	-	-	Data is not available
XIII. Srepok River	-	-	Data is not available
XIV. Cuu Long River	64,542	93,800	Dong Thap, An Giang, Tien Giang, Ben Tre,

Source: Country Report of Vietnam on Transboundary Diagnostic Assessment, 1998, NEA/MOSTE

Bảng 2.10 Tóm tắt tình trạng lây lan bệnh tật và tỷ lệ tử vong do các bệnh có liên quan đến nước tại 14 lưu vực sông (Trên cơ sở của Tỉnh)

River Basin	Diarrhea/gastroenteritis of infectious origin				Dengue fever				Malaria			
	Morbidity		Mortality		Morbidity		Mortality		Morbidity		Mortality	
	Cases	Cases/ 100000 popu.	Deaths	Deaths/ 100000 popu.	Cases	Cases/ 100000 popu.	Deaths	Deaths/ 100000 popu.	Cases	Cases/ 100000 popu.	Deaths	Deaths/ 100000 popu.
ALL VIETNAM	250,337	330.8	-	-	186,573	246.5	472	0.6	87,944	116.2	-	-
I. Bang Giang & Ky Cung Rivers	2,845	220.0	9	0.7	-	-	-	-	1,047	92.5	-	-
II. Red and Thai Binh Rivers	70,175	264.3	61	0.2	4,674	9.0	2	0.0	12,359	244.3	4	0.0
(1) Red River Delta	46,235	280.5	13	0.1	4,674	18.0	-	-	-	-	-	-
(2) Other	23,940	248.0	48	0.4	-	-	2	0.1	12,359	488.7	4	0.0
III. Ma River	8,492	239.0	4	0.1	453	12.7	4	0.1	929	26.1	-	-
IV. Ca River	6,208	149.4	10	0.2	5,140	130.4	27	1.0	2,463	66.0	5	0.2
V. Thach Han River	1,134	201.6	-	-	6,878	1223.1	3	0.5	5,811	1033.4	9	1.6
VI. Huong River	2,696	258.7	-	-	1,986	190.6	-	-	-	-	5	0.4
VII. Vu Gia-Thu Bon Rivers	7,488	348.7	-	-	11,739	676.1	-	-	2,672	96.9	-	-
VIII. Tra Khuc River	3,407	276.2	-	-	6,571	532.7	17	1.3	2,519	204.2	12	0.9
IX. Kone River	3,307	223.7	-	-	4,867	329.3	9	0.6	3,171	214.5	-	-
X. Ba River	4,057	251.0	8	0.5	14,499	903.6	24	1.6	7,929	476.5	21	1.2
XI. Dong Nai River	49,958	429.9	-	-	50,260	527.4	70	0.8	23,288	371.7	57	0.8
XII. Sesan River	428	159.1	7	2.6	752	279.5	-	-	4,561	1695.5	18	6.6
XIII. Srepok River	2,734	202.9	15	1.1	3,624	269.0	15	1.1	6,999	519.5	51	3.7
XIV. Cuu Long River	80,449	544.7	9	0.0	57,216	362.0	225	1.4	695	8.1	-	-

Source: Health Statistics Yearbook, 1998, MOH

-: Data is not available.

Bảng 2.11 Tình hình các Khu môi trường văn hoá và lịch sử tại 14 lưu vực sông

	River Basin	Name of CHES	Province	Area (ha)	Objective of designation
I.	Bang Giang & Ky Cung Rivers	Ai Chi Lang	Lang Son	1,000	Historical significance, Limestone forest
		Bac Son	Lang Son	2,144	Historical significance, Limestone forest, Moschus berezovskii, bats
		Pac Son	Cao Bang	2,784	Historical site
	(Sub-total)			5,928	
II.	Red and Thai Binh Rivers	Bai Chay	Ouang Ninh	562	Resort area
		Cac dao vung ho song Da	Hoa Binh	3,000	Island forest
		Con Son-Kien Bac	Hai Duong	1,477	Pine forest and historical significance of Nguyen Trai
		Do Son	Hai Duong	238	Pine forest surrounding the resort area
		Den Hung	Phu Tho	285	Cultural and historical site
		Huong Son	Ha Tay	4,355	Limestone forest with huong Tich pagora
		Hang Phuong Hoang	Thai Nguyen	6,000	Limestone forest, caves, historical place
		Kim Binh	Thai Nguyen	1,937	Historical site
	(Sub-total)			6,633	Historical site
				24,487	
III.	Ma River	Den Ba Trieu	Thanh Hoa	300	Cultural and historical site
		Lam Son	Thanh Hoa	300	Historical site
		Ngoc Trao	Thanh Hoa	300	Historical site
	(Sub-total)			900	
IV.	Ca River	Nui Chung	Nghe An	600	Historical site in Kim Lien village
	(Sub-total)			600	
V.	Thach Han River	-	-	-	
VI.	Huong River	Bac Hai Van	Thua Thien Hue	14,547	Natural landscape on Hai Van mountain pass
				14,547	
VII.	Vu Gia-Thu Bon Rivers	Nam Hai Van	TP Da Nang	10,850	Natural landscape on Hai Van mountain pass
		Ngu Hanh Son	Quang Nam	400	Natural landscape
		Nui Tuanh	Quang Nam	1,500	Historical site
	(Sub-total)			12,750	
VIII.	Tra Khuc River	Ba To	Quang Ngai	5,000	Cultural and historical site, lowland evergreen forest
				5,000	
IX.	Kone River	Genh Rang	Binh Dinh	2,616	Cultural and environmental importance
				2,616	
X.	Ba River	Deo Ca – Hon Nua	Phu Yen	8,876	Natural landscape and Coastal forest
				8,876	
XI.	Dong Nai River	Boi Loi	Tay Ninh	2,000	Historical site
		Nui Ba Den	Tay Ninh	2,000	Historical site
		Nui Ba Ra	Binh Phuoc	940	Historical site
	(Sub-total)			4,940	
XII.	Sesan River	-	-	-	
XIII.	Srepok River	Ho Lak	Dak Lak	6,000	Highland lake
				6,000	
XIV.	Cuu Long River	Hon Chong	Kien Giang	3,495	Limestone landscape
				3,495	

Source: IUCN

CHES: Cultural, Historical and Environmental Sites

Bảng 2.12 Danh sách các Dự án phải nộp báo cáo đánh giá tác động môi trường để thẩm định

1. Works located in or adjacent to environmentally sensitive areas, nature reservation areas, tourist sites, historical and cultural sites of national and international importance.
2. Planning:
 - 2.1 Regional Development;
 - 2.2 Sectoral Development;
 - 2.3 Urban Areas;
 - 2.4 Industrial Zones/Export-Processing Zones;
3. In the field of oil and gases:
 - 3.1 Exploitation;
 - 3.2 Processing;
 - 3.3 Transportation;
 - 3.4 Oil and Petroleum Depot (with capacity of 20,000 m³ and higher);
4. Cast-iron Steel and non-ferrous metal factories (with capacity of 10,000 ton of product/year and higher).
5. Leather tanning (with capacity of 10,000 products/year and higher).
6. Textiles factories (with capacity of 20 million m of cloth/year and higher).
7. Paint factories (with capacity of 1,000 ton of product/year and higher).
8. Sugar factories (with capacity of 100,000 ton of sugar-cane/year and higher).
9. Food-processing factories (with capacity of 1,000 ton of product/year and higher).
10. Frozen food factories (with capacity of 1,000 ton of product/year and higher).
11. Thermo-electricity factories (with capacity of 200 MW/year and higher).
12. Pulp and paper factories (with capacity of 40,000 ton of pulp/year and higher).
13. Cement factories (with capacity of 1,000,000 ton of cement/year and higher).
14. Tourist and entertainment sites (with area of 100 ha or larger).
15. Airports.
16. Ports (for ships of tonnage of 10,000 DWT or higher).
17. Rail-ways, highways for automobiles (from Class I to Class III according to Standard TCVN 4054-85) that are longer than 50 km.
18. Hydro-power plants (with reservoirs of capacity of 100 million m³ or higher).
19. Irrigation works (for working, drainage, prevention of sea water, etc. with area of 10,000 ha or larger).
20. Waste treatment (concentrated waste water treatment complex with capacity of 100,000 m³/(day and night) or higher; landfill site for soil waste).
21. Exploitation of minerals and construction materials (total volume of minerals and soil and stone of 100,000 m³/year or higher).
22. Forestry farm for wood exploitation (all).
23. Aqua-culture (total area of 200 ha or larger).
24. Production, warehousing, and use of hazardous chemicals (all).
25. Atomic Reactors (all).

**The above projects, if to be invested in IZ/EPZ that have been granted the decision approving EIA Report will be registered for the Environmental Standard Acceptable Certificate on the basis of self-prepared and analyzed EIA Report.*

Source: Circular No. 490/1998/TT-BKHCMNT, dated 29 April 1998

Bảng 5.1 Diện tích, Dân số, Giới tính, Đô thị, Nông thôn và mật độ dân số theo tỉnh (1/2)
(Results of Population and Housing Census 1999)

No.	Region/Province	Area (km ²)	Population as of April 1, 1999 (1,000 persons)					Population density (persons/km ²)
			Total	Male	Female	Urban	Rural	
I.	Red River Delta	14,789	16,834	8,199	8,635	3,296	13,537	1,138
1	Ha Noi	921	2,675	1,337	1,339	1,524	1,151	2,905
2	Hai Phong	1,519	1,672	823	849	570	1,103	1,101
19	Vinh Phuc	1,371	1,092	531	561	114	978	797
3	Ha Tay	2,192	2,378	1,156	1,222	185	2,194	1,085
21	Bac Ninh	804	942	457	485	87	855	1,172
4	Hai Duong	1,648	1,651	797	854	226	1,425	1,002
5	Hung Yen	923	1,069	514	555	100	969	1,158
6	Ha Nam	850	793	383	410	47	746	933
7	Nam Dinh	1,637	1,890	916	974	232	1,658	1,155
8	Thai Binh	1,542	1,786	851	935	100	1,686	1,158
9	Ninh Binh	1,382	884	433	451	112	772	640
II.	Northeast	65,327	8,827	4,387	4,439	1,579	7,248	135
10	Ha Giang	7,884	603	300	303	64	539	76
11	Cao Bang	6,691	490	240	250	66	424	73
12	Lao Cai	8,057	594	297	297	100	494	74
13	Bac Kan	4,857	275	138	138	39	236	57
14	Lang Son	8,305	704	348	355	129	574	85
15	Tuyen Quang	5,868	676	336	340	62	615	115
16	Yen Bai	6,883	679	339	340	132	547	99
17	Thai Nguyen	3,541	1,046	521	525	228	818	295
18	Phu Tho	3,519	1,262	618	644	177	1,084	358
20	Bac Giang	3,822	1,493	738	755	121	1,371	391
22	Quang Ninh	5,900	1,005	513	492	460	545	170
III.	Northwest	35,637	2,226	1,114	1,113	270	1,956	62
23	Lai Chau	16,919	588	296	291	71	517	35
24	Son La	14,055	882	443	439	98	784	63
25	Hoa Binh	4,663	757	375	382	101	655	162
IV.	North Central Coast	51,501	10,008	4,910	5,098	1,261	8,746	194
26	Thanh Hoa	11,106	3,467	1,694	1,773	315	3,153	312
27	Nghê An	16,487	2,859	1,405	1,453	288	2,570	173
28	Ha Tinh	6,056	1,269	621	648	119	1,150	210
29	Quang Binh	8,052	795	393	402	99	695	99
30	Quang Tri	4,746	573	281	291	134	439	121
31	Thua Thien - Hue	5,054	1,045	515	530	306	739	207
V.	South Central Coast	33,066	6,528	3,186	3,342	1,755	4,773	197
32	Da Nang	1,256	685	337	348	544	141	545
33	Quang Nam	10,407	1,374	665	709	203	1,170	132
34	Quang Ngai	5,135	1,190	578	612	136	1,054	232
35	Binh Dinh	6,026	1,461	707	754	348	1,112	242
36	Phu Yen	5,045	787	390	398	147	640	156
37	Khanh Hoa	5,197	1,031	509	522	376	655	198
VI.	Central Highlands	54,476	4,060	2,054	2,006	1,104	2,956	75
38	Kon Tum	9,615	314	158	156	100	214	33
39	Gia Lai	15,496	967	488	479	244	723	62
40	Dak Lak	19,600	1,781	905	876	374	1,406	91
42	Lam Dong	9,765	998	503	495	385	613	102

Bảng 5.1 Diện tích, Dân số, Giới tính, Đô thị, Nông thôn và mật độ dân số theo tỉnh (2/2)
(Results of Population and Housing Census 1999)

No.	Region/Province	Area (km ²)	Population as of April 1, 1999 (1,000 persons)					Population density (persons/km ²)
			Total	Male	Female	Urban	Rural	
VII.	Southeast	34,733	11,710	5,737	5,973	6,030	5,680	337
41	Ho Chi Minh City	2,095	5,034	2,421	2,613	4,208	826	2,403
43	Ninh Thuan	3,360	505	250	255	119	386	150
44	Binh Phuoc	6,856	654	334	320	101	553	95
45	Tay Ninh	4,028	967	476	491	132	835	240
46	Binh Duong	2,696	717	346	370	217	500	266
47	Dong Nai	5,895	1,991	992	999	603	1,388	338
48	Binh Thuan	7,828	1,046	522	525	318	728	134
49	Ba Ria - Vung Tau	1,975	796	397	400	333	463	403
VIII.	Cuu Long River Delta	39,713	16,131	7,882	8,248	2,782	13,349	406
50	Long An	4,492	1,306	640	666	212	1,094	291
51	Dong Thap	3,238	1,567	768	798	225	1,342	484
52	An Giang	3,406	2,044	1,004	1,041	441	1,603	600
53	Tien Giang	2,367	1,604	776	828	209	1,395	678
54	Vinh Long	1,475	1,011	491	520	144	867	685
55	Ben Tre	2,315	1,299	629	670	108	1,191	561
56	Kien Giang	6,269	1,498	739	759	329	1,168	239
57	Can Tho	2,986	1,809	886	924	393	1,417	606
58	Tra Vinh	2,226	967	469	498	124	843	434
59	Soc Trang	3,223	1,172	571	601	209	963	364
60	Bac Lieu	2,521	735	358	377	180	555	292
61	Ca Mau	5,195	1,119	552	567	208	911	215
TOTAL		329,241	76,323	37,469	38,854	18,077	58,246	232

Source: - Population and Housing Census Vietnam 1999, Completed Census Results, GSO

- Areas of provinces: Map of Vietnam, 1/2,200,000, Nha Xuat Ban Ban Do - Tong Cuc Dia Chinh

Bảng 5.4 Số lượng hộ gia đình, Dân số và Bình quân số người trong gia đình

(1/2)

No.	Province	Number of Households (1,000)			Population (1,000 persons)			Avg. Family Size (persons)		
		Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
I.	Red River Delta	4,107	827	3,280	14,800	3,095	11,704	3.6	3.7	3.6
1	Ha Noi	642	378	264	2,675	1,524	1,151	4.2	4.0	4.4
2	Hai Phong	414	145	269	1,672	570	1,103	4.0	3.9	4.1
19	Vinh Phuc	238	27	211	1,092	114	978	4.6	4.2	4.6
3	Ha Tay	547	46	502	2,378	185	2,194	4.3	4.0	4.4
21	Bac Ninh	217	21	196	942	87	855	4.3	4.1	4.4
4	Hai Duong	412	58	354	1,651	226	1,425	4.0	3.9	4.0
5	Hung Yen	268	25	243	1,069	100	969	4.0	4.0	4.0
6	Ha Nam	199	12	188	793	47	746	4.0	4.0	4.0
7	Nam Dinh	481	60	421	1,890	232	1,658	3.9	3.9	3.9
8	Thai Binh	474	27	446	1,786	100	1,686	3.8	3.6	3.8
9	Ninh Binh	215	29	185	884	112	772	4.1	3.9	4.2
II.	Northeast	1,921	405	1,516	10,861	1,780	9,081	5.7	4.4	6.0
10	Ha Giang	115	16	99	603	64	539	5.2	4.0	5.4
11	Cao Bang	101	18	84	490	66	424	4.9	3.8	5.1
12	Lao Cai	115	26	89	594	100	494	5.2	3.8	5.6
13	Bac Kan	57	10	47	275	39	236	4.8	3.9	5.0
14	Lang Son	143	31	112	704	129	574	4.9	4.1	5.1
15	Tuyen Quang	144	17	128	676	62	615	4.7	3.7	4.8
16	Yen Bai	144	34	109	679	132	547	4.7	3.8	5.0
17	Thai Nguyen	238	59	179	1,046	228	818	4.4	3.9	4.6
18	Phu Tho	291	46	244	1,262	177	1,084	4.3	3.8	4.4
20	Bac Giang	337	31	306	1,493	121	1,371	4.4	3.9	4.5
22	Quang Ninh	236	116	120	1,005	460	545	4.3	4.0	4.6
III.	Northwest	426	69	356	2,226	270	1,956	5.2	3.9	5.5
23	Lai Chau	103	18	85	588	71	517	5.7	3.9	6.1
24	Son La	163	25	137	882	98	784	5.4	3.9	5.7
25	Hoa Binh	161	26	134	757	101	655	4.7	3.9	4.9
IV.	North Central	2,185	293	1,892	10,008	1,261	8,746	4.6	4.3	4.6
26	Thanh Hoa	773	78	695	3,467	315	3,153	4.5	4.0	4.5
27	Nghe An	615	71	544	2,859	288	2,570	4.6	4.1	4.7
28	Ha Tinh	299	30	268	1,269	119	1,150	4.3	3.9	4.3
29	Quang Binh	172	24	149	795	99	695	4.6	4.2	4.7
30	Quang Tri	122	30	92	573	134	439	4.7	4.5	4.8
31	Thua Thien - Hue	203	60	144	1,045	306	739	5.1	5.1	5.1
V.	Central Coast	1,417	377	1,039	6,528	1,755	4,773	4.6	4.6	4.6
32	Da Nang	145	113	32	685	544	141	4.7	4.8	4.4
33	Quang Nam	312	46	266	1,374	203	1,170	4.4	4.4	4.4
34	Quang Ngai	265	32	233	1,190	136	1,054	4.5	4.3	4.5
35	Binh Dinh	316	76	241	1,461	348	1,112	4.6	4.6	4.6
36	Phu Yen	169	32	137	787	147	640	4.7	4.6	4.7
37	Khanh Hoa	209	78	130	1,031	376	655	4.9	4.8	5.0
VI.	Central Highlands	608	149	459	3,062	718	2,344	5.0	4.8	5.1
38	Kon Tum	64	22	42	314	100	214	4.9	4.6	5.1
39	Gia Lai	192	50	141	967	244	723	5.0	4.8	5.1
40	Dak Lak	353	77	276	1,781	374	1,406	5.1	4.9	5.1

Bảng 5.4 Số lượng hộ gia đình, Dân số và Bình quân số người trong gia đình

(2/2)

No.	Province	Number of Households (1,000)			Population (1,000 persons)			Avg. Family Size (persons)		
		Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
VII.	Southeast	2,621	1,310	1,311	12,708	6,415	6,293	4.8	4.9	4.8
41	Ho Chi Minh	1,017	836	181	5,034	4,208	826	5.0	5.0	4.6
42	Lam Dong	211	85	125	998	385	613	4.7	4.5	4.9
43	Ninh Thuan	96	24	72	505	119	386	5.3	4.9	5.4
44	Binh Phuoc	142	22	119	654	101	553	4.6	4.5	4.6
45	Tay Ninh	212	30	183	967	132	835	4.6	4.4	4.6
46	Binh Duong	162	49	112	717	217	500	4.4	4.4	4.4
47	Dong Nai	409	127	282	1,991	603	1,388	4.9	4.7	4.9
48	Binh Thuan	207	63	143	1,046	318	728	5.1	5.0	5.1
49	Ba Ria - Vung Tau	165	71	93	796	333	463	4.8	4.7	5.0
VIII.	Cuu Long River Delta	3,378	596	2,782	16,131	2,782	13,349	4.8	4.7	4.8
50	Long An	286	49	236	1,306	212	1,094	4.6	4.3	4.6
51	Dong Thap	331	50	281	1,567	225	1,342	4.7	4.5	4.8
52	An Giang	421	92	329	2,044	441	1,603	4.9	4.8	4.9
53	Tien Giang	354	47	307	1,604	209	1,395	4.5	4.5	4.5
54	Vinh Long	217	32	185	1,011	144	867	4.7	4.4	4.7
55	Ben Tre	301	26	275	1,299	108	1,191	4.3	4.2	4.3
56	Kien Giang	298	67	231	1,498	329	1,168	5.0	4.9	5.1
57	Can Tho	367	83	284	1,809	393	1,417	4.9	4.7	5.0
58	Tra Vinh	205	27	178	967	124	843	4.7	4.6	4.7
59	Soc Trang	235	43	192	1,172	209	963	5.0	4.9	5.0
60	Bac Lieu	145	36	108	735	180	555	5.1	4.9	5.1
61	Ca Mau	219	43	177	1,119	208	911	5.1	4.9	5.2
TOTAL		16,661	4,026	12,635	76,323	18,077	58,246	4.6	4.5	4.6

Source: Population and Housing Census, Vietnam 1999, Completed Census Results, CSO

Bảng 5.5 Số lượng và mật độ hộ gia đình

No.	Province	Area (km ²)	Number of house- hold (1,000)	Density of house- hold	No.	Province	Area (km ²)	Number of house- hold (1,000)	Density of house- hold
I.	Red River Delta	14,789	4,107	278	VII.	Southeast	44,498	2,621	59
1	Ha Noi	921	642	697	41	Ho Chi Minh	2,095	1,017	485
2	Hai Phong	1,519	414	272	42	Lam Dong	9,765	211	22
19	Vinh Phuc	1,371	238	174	43	Ninh Thuan	3,360	96	29
3	Ha Tay	2,192	547	250	44	Binh Phuoc	6,856	142	21
21	Bac Ninh	804	217	270	45	Tay Ninh	4,028	212	53
4	Hai Duong	1,648	412	250	46	Binh Duong	2,696	162	60
5	Hung Yen	923	268	291	47	Dong Nai	5,895	409	69
6	Ha Nam	850	199	235	48	Binh Thuan	7,828	207	26
7	Nam Dinh	1,637	481	294	49	Ba Ria - Vung Tau	1,975	165	83
8	Thai Binh	1,542	474	307	VIII.	Cuu Long River Delta	39,713	3,378	85
9	Ninh Binh	1,382	215	155	50	Long An	4,492	286	64
II.	Northeast	65,327	1,921	29	51	Dong Thap	3,238	331	102
10	Ha Giang	7,884	115	15	52	An Giang	3,406	421	124
11	Cao Bang	6,691	101	15	53	Tien Giang	2,367	354	150
12	Lao Cai	8,057	115	14	54	Vinh Long	1,475	217	147
13	Bac Kan	4,857	57	12	55	Ben Tre	2,315	301	130
14	Lang Son	8,305	143	17	56	Kien Giang	6,269	298	47
15	Tuyen Quang	5,868	144	25	57	Can Tho	2,986	367	123
16	Yen Bai	6,883	144	21	58	Tra Vinh	2,226	205	92
17	Thai Nguyen	3,541	238	67	59	Soc Trang	3,223	235	73
18	Phu Tho	3,519	291	83	60	Bac Lieu	2,521	145	57
20	Bac Giang	3,822	337	88	61	Ca Mau	5,195	219	42
22	Quang Ninh	5,900	236	40		TOTAL	329,241	16,661	51
III.	Northwest	35,637	426	12	Source: - Population and Housing Census Vietnam 1999, Completed Census Results, CSO - Map of Vietnam, 1/2,200,000, Nha Xuat Ban Ban Do - Tong Cuc Dia Chinh				
23	Lai Chau	16,919	103	6					
24	Son La	14,055	163	12					
25	Hoa Binh	4,663	161	34					
IV.	North Central	51,501	2,185	42					
26	Thanh Hoa	11,106	773	70					
27	Nghe An	16,487	615	37					
28	Ha Tinh	6,056	299	49					
29	Quang Binh	8,052	172	21					
30	Quang Tri	4,746	122	26					
31	Thua Thien - Hue	5,054	203	40					
V.	Central Coast	33,066	1,417	43					
32	Da Nang	1,256	145	116					
33	Quang Nam	10,407	312	30					
34	Quang Ngai	5,135	265	52					
35	Binh Dinh	6,026	316	53					
36	Phu Yen	5,045	169	33					
37	Khanh Hoa	5,197	209	40					
VI.	Central Highlands	44,711	608	14					
38	Kon Tum	9,615	64	7					
39	Gia Lai	15,496	192	12					
40	Dak Lak	19,600	353	18					

Bảng 5.6 Tổng sản phẩm nội địa

Year	At Current Market Price				At 1994 Constant Price			
	GDP		GDP Per Capita		GDP		GDP Per Capita	
	Amount (Billion Dongs)	Growth Rate	Amount (Dongs)	Growth Rate	Amount (Billion Dongs)	Growth Rate	Amount (Dongs)	Growth Rate
1985	117		1,954		106,176		1,773,383	
1986	599	412.0%	9,802	401.6%	109,189	2.8%	1,786,791	0.8%
1987	2,870	379.1%	45,955	368.8%	113,154	3.6%	1,811,856	1.4%
1988	15,420	437.3%	241,970	426.5%	119,960	6.0%	1,882,405	3.9%
1989	28,093	82.2%	433,708	79.2%	125,571	4.7%	1,938,602	3.0%
1990	41,955	49.3%	635,521	46.5%	131,968	5.1%	1,999,009	3.1%
1991	76,707	82.8%	1,140,753	79.5%	139,634	5.8%	2,076,577	3.9%
1992	110,532	44.1%	1,614,782	41.6%	151,782	8.7%	2,217,411	6.8%
1993	140,258	26.9%	2,013,914	24.7%	164,043	8.1%	2,355,434	6.2%
1994	178,534	27.3%	2,520,794	25.2%	178,534	8.8%	2,520,794	7.0%
1995	228,892	28.2%	3,179,254	26.1%	195,567	9.5%	2,716,378	7.8%
1996	272,036	18.8%	3,718,538	17.0%	213,833	9.3%	2,922,945	7.6%
1997	313,623	15.3%	4,220,644	13.5%	231,264	8.2%	3,112,282	6.5%
1998	361,016	15.1%	4,784,438	13.4%	244,596	5.8%	3,241,558	4.2%
1999	399,942	10.8%	5,221,400	9.1%	256,272	4.8%	3,345,732	3.2%
2000*	444,139	11.1%	5,717,142	9.5%	273,582	6.8%	3,521,661	5.3%
Average Annual Growth Rate								
1989 - 1999 (last 10 years)	30.4%		28.3%		7.4%		5.6%	
1996 - 1999 (last 3 years)	13.7%		12.0%		6.2%		4.6%	

Source: - Atatistical Yearbook 2000, GSO

Note: *: The figures in the year 2000 is preliminary.

Bảng 5.7 Tổng sản phẩm nội địa theo ngành và tỷ lệ tăng trưởng

Year	GDP at Current Market Price (Billion Dong)							GDP at 1994 Constant Price (Billion Dong)						
	Total	Agriculture, forestry and fishery		Industry and construction		Service		Total	Agriculture, forestry and fishery		Industry and construction		Service	
		Amount	Distr.	Amount	Distr.	Amount	Distr.		Amount	Distr.	Amount	Distr.	Amount	Distr.
1985	117	47	40.2%	32	27.4%	38	32.5%	106,176	36,832	34.7%	26,396	24.9%	42,948	40.4%
1986	599	228	38.1%	173	28.9%	198	33.1%	109,189	37,932	34.7%	29,284	26.8%	41,973	38.4%
1987	2,870	1,164	40.6%	814	28.4%	892	31.1%	113,154	37,499	33.1%	31,762	28.1%	43,893	38.8%
1988	15,420	7,139	46.3%	3,695	24.0%	4,586	29.7%	119,960	38,867	32.4%	33,349	27.8%	47,744	39.8%
1989	28,093	11,818	42.1%	6,444	22.9%	9,831	35.0%	125,571	41,589	33.1%	32,485	25.9%	51,497	41.0%
1990	41,955	16,252	38.7%	9,513	22.7%	16,190	38.6%	131,968	42,003	31.8%	33,221	25.2%	56,744	43.0%
1991	76,707	31,058	40.5%	18,252	23.8%	27,397	35.7%	139,634	42,917	30.7%	35,783	25.6%	60,934	43.6%
1992	110,532	37,513	33.9%	30,135	27.3%	42,884	38.8%	151,782	45,869	30.2%	40,359	26.6%	65,554	43.2%
1993	140,258	41,895	29.9%	40,535	28.9%	57,828	41.2%	164,043	47,373	28.9%	45,454	27.7%	71,216	43.4%
1994	178,534	48,968	27.4%	51,540	28.9%	78,026	43.7%	178,534	48,968	27.4%	51,540	28.9%	78,026	43.7%
1995	228,892	62,219	27.2%	65,820	28.8%	100,853	44.1%	195,567	51,319	26.2%	58,550	29.9%	85,698	43.8%
1996	272,036	75,514	27.8%	80,876	29.7%	115,646	42.5%	213,833	53,577	25.1%	67,016	31.3%	93,240	43.6%
1997	313,623	80,826	25.8%	100,595	32.1%	132,202	42.2%	231,264	55,895	24.2%	75,474	32.6%	99,895	43.2%
1998	361,016	93,072	25.8%	117,299	32.5%	150,645	41.7%	244,596	57,866	23.7%	81,764	33.4%	104,966	42.9%
1999	399,942	101,723	25.4%	137,959	34.5%	160,260	40.1%	256,272	60,895	23.8%	88,047	34.4%	107,330	41.9%
2000*	444,139	107,913	24.3%	162,595	36.6%	173,631	39.1%	273,582	63,353	23.2%	96,916	35.4%	113,313	41.4%
Average Annual Growth Rate														
1989 - 1999 (last 10 years)	30.4%	24.0%		35.8%		32.2%		7.4%	3.9%		10.5%		7.6%	
1994 - 1999 (last 5 years)	17.5%	15.7%		21.8%		15.5%		7.5%	4.5%		11.3%		6.6%	

Source: - Atatistical Yearbook 2000, GSO

Note: *: The figures in the year 2000 is preliminary.

Bảng 5.8 Tổng sản phẩm nội địa theo hoạt động kinh tế

	1995		1996		1997		1998		1999		2000*		Average annual
	Amount	Distr.	Amount	Distr.	Amount	Distr.	Amount	Distr.	Amount	Distr.	Amount	Distr.	growth rate(95-99)
Agriculture, Forestry, and Fishery	62,219	27.2%	75,514	27.8%	80,826	25.8%	93,072	25.8%	101,723	25.4%	107,913	24.3%	13%
Agriculture	52,713	23.0%	65,743	24.2%	65,883	21.0%	76,170	21.1%	83,335	20.8%	88,409	19.9%	12%
Forestry	2,842	1.2%		0.0%	4,813	1.5%	5,304	1.5%	5,737	1.4%	5,966	1.3%	19%
Fishery	6,664	2.9%		9,771	3.6%	10,130	3.2%	11,598	3.2%	12,651	3.2%	13,538	3.0%
Industry and Construction	65,820	28.8%	80,877	29.7%	100,594	32.1%	117,299	32.5%	137,959	34.5%	162,595	36.6%	20%
Mining and quarrying	11,009	4.8%	15,282	5.6%	19,768	6.3%	24,196	6.7%	33,703	8.4%	42,219	9.5%	32%
Manufacturing	34,318	15.0%	41,291	15.2%	51,700	16.5%	61,906	17.1%	70,767	17.7%	82,922	18.7%	20%
Electricity, gas, and water supply	4,701	2.1%	6,538	2.4%	8,604	2.7%	10,339	2.9%	11,725	2.9%	12,993	2.9%	26%
Construction	15,792	6.9%	17,766	6.5%	20,522	6.5%	20,858	5.8%	21,764	5.4%	24,461	5.5%	8%
Services	100,853	44.1%	115,646	42.5%	132,203	42.2%	150,645	41.7%	160,260	40.1%	173,631	39.1%	12%
Wholesale and retail trade, repair of motor vehicles, motor cycles and personal and household goods	37,491	16.4%	43,125	15.9%	48,914	15.6%	55,783	15.5%	59,384	14.8%	64,460	14.5%	12%
Hotels and restaurant	8,625	3.8%	9,776	3.6%	11,307	3.6%	12,404	3.4%	13,412	3.4%	14,343	3.2%	12%
Transport, storage, and communication	9,117	4.0%	10,390	3.8%	12,418	4.0%	14,076	3.9%	15,546	3.9%	17,601	4.0%	14%
Financial intermedation	4,604	2.0%	5,148	1.9%	5,444	1.7%	6,274	1.7%	7,488	1.9%	8,457	1.9%	13%
Scientific activities and technology	1,405	0.6%	1,629	0.6%	1,774	0.6%	2,026	0.6%	1,902	0.5%	2,416	0.5%	8%
Real estate, renting, and business activities	12,392	5.4%	13,507	5.0%	15,355	4.9%	17,683	4.9%	18,260	4.6%	19,173	4.3%	10%
Public administration and defence, compulsory social security	8,278	3.6%	9,417	3.5%	10,460	3.3%	11,849	3.3%	11,683	2.9%	12,195	2.7%	9%
Education and training	8,293	3.6%	9,887	3.6%	11,274	3.6%	13,202	3.7%	14,004	3.5%	14,841	3.3%	14%
Health and social work	3,642	1.6%	4,007	1.5%	4,381	1.4%	4,979	1.4%	5,401	1.4%	5,999	1.4%	10%
Recreational, cultural and sporting activities	1,259	0.6%	1,511	0.6%	1,844	0.6%	2,068	0.6%	2,378	0.6%	2,708	0.6%	17%
Activities of party and of membership organization	223	0.1%	281	0.1%	443	0.1%	577	0.2%	584	0.1%	632	0.1%	27%
Community, social, and personal service activities	4,979	2.2%	6,319	2.3%	7,855	2.5%	8,874	2.5%	9,323	2.3%	9,853	2.2%	17%
Private households with employed persons	545	0.2%	649	0.2%	734	0.2%	850	0.2%	895	0.2%	953	0.2%	13%
Total	228,892	100.0%	272,037	100.0%	313,623	100.0%	361,016	100.0%	399,942	100.0%	444,139	100.0%	15%

Source: Statistical Yearbooks 1998 and 2000

Note: *: The figures in the year 2000 is preliminary.

Bảng 5.9 Diện tích canh tác/trồng trọt các loại cây chính

Crop	Year					
	1995	1996	1997	1998	1999	2000
1. Planted Area of Major Crops (1,000 ha)						
Paddy	6,766	7,004	7,100	7,363	7,654	7,655
- Spring paddy	2,421	2,541	2,683	2,783	2,889	3,012
- Autumn paddy	1,742	1,984	1,885	2,141	2,341	2,293
- Winter paddy	2,602	2,479	2,532	2,439	2,424	2,350
Maize	557	615	663	650	692	714
Sweet potatoes	305	303	267	254	270	258
Cassava	277	276	254	236	225	235
Cotton	18	15	15	24	21	19
Jute	8	8	12	7	4	6
Rush	10	9	11	10	11	9
Sugar cane	225	237	257	283	344	303
Peanut	260	263	254	269	248	244
Soybean	121	110	106	129	129	122
Tobacco	28	24	26	32	33	24
Tea	67	75	79	77	85	90
Coffee	186	254.2	340	371	408	517
Rubber	278	254.2	348	382	395	407
Pepper	7	8	10	13	18	25
Coconut	173	181	170	163	164	163
Total	9,285	9,635	9,911	10,262	10,699	10,789
2. Planted Area of Major Crops (%)						
Paddy	72.9	72.7	71.6	71.7	71.5	70.9
- Spring paddy	26.1	26.4	27.1	27.1	27.0	27.9
- Autumn paddy	18.8	20.6	19.0	20.9	21.9	21.2
- Winter paddy	28.0	25.7	25.5	23.8	22.7	21.8
Maize	6.0	6.4	6.7	6.3	6.5	6.6
Sweet potatoes	3.3	3.1	2.7	2.5	2.5	2.4
Cassava	3.0	2.9	2.6	2.3	2.1	2.2
Cotton	0.2	0.2	0.2	0.2	0.2	0.2
Jute	0.1	0.1	0.1	0.1	0.0	0.1
Rush	0.1	0.1	0.1	0.1	0.1	0.1
Sugar cane	2.4	2.5	2.6	2.8	3.2	2.8
Peanut	2.8	2.7	2.6	2.6	2.3	2.3
Soybean	1.3	1.1	1.1	1.3	1.2	1.1
Tobacco	0.3	0.2	0.3	0.3	0.3	0.2
Tea	0.7	0.8	0.8	0.8	0.8	0.8
Coffee	2.0	2.6	3.4	3.6	3.8	4.8
Rubber	3.0	2.6	3.5	3.7	3.7	3.8
Pepper	0.1	0.1	0.1	0.1	0.2	0.2
Coconut	1.9	1.9	1.7	1.6	1.5	1.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: - Statistical Yearbook 1998, GSO

- Statistical Yearbook 2000, GSO

Bảng 5.10 Tình hình sản xuất của các loại cây chính

Crop	Year					
	1995	1996	1997	1998	1999	2000
1. Production of Major Crops (1,000 tons)						
Paddy	24,964	26,397	27,524	29,146	31,394	32,554
- Spring paddy	10,737	12,210	13,310	13,560	14,103	15,562
- Autumn paddy	6,501	6,879	6,638	7,523	8,758	8,612
- Winter paddy	7,726	7,309	7,576	8,063	8,533	8,380
Maize	1,177	1,537	1,651	1,612	1,753	1,930
Sweet potatoes	1,686	1,697	1,691	1,526	1,745	1,658
Cassava	2,212	2,067	2,403	1,773	1,801	2,036
Cotton	13	11	14	22	22	19
Jute	15	15	22	15	9	11
Rush	76	55	81	70	73	58
Sugar cane	10,711	11,430	11,921	13,844	17,760	15,246
Peanut	335	358	351	386	318	353
Soybean	126	114	113	147	147	142
Tobacco	28	24	27	33	36	27
Tea	40	47	52	57	70	77
Coffee	218	316.9	421	409	510	698
Rubber	125	142.5	187	194	249	292
Pepper	9	11	13	16	31	37
Coconut	1,165	1,318	1,318	1,106	1,104	968
2. Production Increase of Major Crops (year on year, %)						
Paddy		6%	4%	6%	8%	4%
- Spring paddy		14%	9%	2%	4%	10%
- Autumn paddy		6%	-3%	13%	16%	-2%
- Winter paddy		-5%	4%	6%	6%	-2%
Maize		31%	7%	-2%	9%	10%
Sweet potatoes		1%	0%	-10%	14%	-5%
Cassava		-7%	16%	-26%	2%	13%
Cotton		-13%	25%	57%	1%	-14%
Jute		1%	49%	-35%	-36%	17%
Rush		-27%	47%	-14%	4%	-20%
Sugar cane		7%	4%	16%	28%	-14%
Peanut		7%	-2%	10%	-18%	11%
Soybean		-9%	-1%	30%	0%	-4%
Tobacco		-15%	16%	22%	7%	-24%
Tea		16%	12%	8%	24%	9%
Coffee		45%	33%	-3%	25%	37%
Rubber		14%	31%	4%	29%	17%
Pepper		13%	24%	22%	95%	19%
Coconut		13%	0%	-16%	0%	-12%

Source: - Statistical Yearbook 1998, GSO
- Statistical Yearbook 2000, GSO

Bảng 5.11 Sản lượng của các loại cây chính

Crop	Year					
	1995	1996	1997	1998	1999	2000
1. Yield of Major Crops (Quintal/ha)						
Paddy						
- Spring paddy	44.3	48.0	49.6	48.7	48.8	51.7
- Autumn paddy	37.3	34.7	35.2	35.1	37.4	37.6
- Winter paddy	29.7	29.5	29.9	33.1	35.2	35.7
Maize	21.1	25.0	24.9	24.8	25.3	27.0
Sweet potatoes	55.3	56.1	63.3	60.2	64.6	64.3
Cassava	79.7	75.0	94.5	75.3	79.9	86.7
Cotton	7.3	7.5	9.2	9.2	10.5	10.1
Jute	19.7	18.8	19.2	21.8	22.9	19.3
Rush	72.7	60.4	72.9	71.3	66.5	67.2
Sugar cane	476.5	479.8	463.8	489.2	516.0	503.3
Peanut	12.9	13.6	13.9	14.3	12.8	14.5
Soybean	10.4	10.3	10.6	11.3	11.4	11.6
Tobacco	9.9	9.8	10.3	10.3	11.0	11.1
2. Yield Increase of Major Crops (year on year, %)						
Paddy						
- Spring paddy		8%	3%	-2%	0%	6%
- Autumn paddy		-7%	1%	0%	7%	1%
- Winter paddy		-1%	1%	11%	6%	1%
Maize		18%	0%	0%	2%	7%
Sweet potatoes		1%	13%	-5%	7%	0%
Cassava		-6%	26%	-20%	6%	9%
Cotton		3%	23%	0%	14%	-4%
Jute		-5%	2%	14%	5%	-16%
Rush		-17%	21%	-2%	-7%	1%
Sugar cane		1%	-3%	5%	5%	-2%
Peanut		5%	2%	3%	-10%	13%
Soybean		-1%	3%	7%	1%	2%
Tobacco		-1%	5%	0%	7%	1%

Source: - Statistical Yearbook 1998, GSO

- Statistical Yearbook 2000, GSO

Bảng 5.12 Tổng sản phẩm nông nghiệp đầu ra

Year	Gross Output of Agriculture at Current Price (Billion VND)				Gross Output of Agriculture at 1994 Constant Price (Billion VND)			
	Total	Cultivation	Animal husbandary	Service	Total	Cultivation	Animal husbandary	Service
1985	50.7	41.2	8.3	1.2	51,541.1	41,951.3	8,079.3	1,510.5
1986	235.2	190.0	39.5	5.7	54,175.0	43,470.5	9,059.8	1,644.7
1987	1,232.5	999.1	203.4	30.0	54,337.0	42,570.6	10,087.1	1,679.3
1988	7,751.6	6,201.3	1,360.3	190.0	56,603.6	45,406.3	9,391.8	1,805.5
1989	13,382.5	10,705.6	2,341.8	335.1	60,826.1	48,899.8	10,040.8	1,885.5
1990	20,666.5	16,393.5	3,701.0	572.0	61,817.5	49,604.0	10,283.2	1,930.3
1991	41,892.6	33,345.0	7,500.3	1,047.3	63,512.1	51,247.5	10,294.5	1,970.1
1992	49,061.1	37,539.9	10,152.4	1,368.8	68,820.3	55,132.6	11,651.0	2,036.7
1993	53,929.2	40,818.2	11,553.2	1,557.8	73,380.5	58,906.2	12,309.1	2,165.2
1994	64,876.8	49,920.7	13,112.9	1,843.2	76,998.3	61,660.0	12,999.0	2,339.3
1995	85,507.6	66,793.8	16,168.2	2,545.6	82,307.1	66,183.4	13,629.2	2,494.5
1996	92,006.2	71,589.4	17,791.8	2,625.0	86,489.3	69,620.2	14,347.2	2,521.9
1997	98,852.3	76,858.3	19,287.0	2,707.0	92,530.2	74,492.5	15,465.4	2,572.3
1998	113,269.2	90,077.9	20,365.2	2,826.1	96,102.7	77,298.2	16,204.2	2,600.3
1999	121,731.5	96,644.6	22,177.7	2,909.2	102,932.9	82,945.6	17,337.0	2,650.3
Distribution (%)					Average annual growth rate during 4 years from 1995 to 1999			
1985	100	81	16	3	5.7%	5.8%	6.2%	1.5%
1986	100	81	17	2	Average annual growth rate during 10 years from 1989 to 1999			
1987	100	81	17	2	5.4%	5.4%	5.6%	3.5%
1988	100	80	18	2	Average annual growth rate during 14 years from 1985 to 1999			
1989	100	80	17	3	5.1%	5.0%	5.6%	4.1%
1990	100	79	18	3				
1991	100	80	18	2				
1992	100	77	21	2				
1993	100	76	21	3				
1994	100	77	20	3				
1995	100	78	19	3				
1996	100	78	19	3				
1997	100	78	20	2				
1998	100	80	18	2				
1999	100	79	18	3				

Source: Statistical Data of Vietnam Agriculture, Forestry and Fishery 1975 - 2000, GSO

Bảng 5.13 Mặt hàng xuất nhập khẩu chính

Item	1996		1997		1998		1999		2000	
	Qty (1,000 tons)	Value (MillionUS\$)	Qty (1,000 tons)	Value (MillionUS\$)	Qty (1,000 tons)	Value (MillionUS\$)	Qty (1,000 tons)	Value (MillionUS\$)	Qty (1,000 tons)	Value (MillionUS\$)
Export										
Rubber	195	263	194	191	191	128	265	147	273	166
Coffee	283	337	392	498	382	594	483	585	733	510
Tea	21	29	33	48	33	51	36	45	55	69
Rice	3,003	855	3,575	871	3,749	1,024	4,508	1,025	3,476	668
Cashew nut	23	104	33	133	26	117	18	110	34	167
Pepper	25	47	25	68	15	64	35	137	37	145
Peanut	127	71	86	47	87	42	56	33	76	41
Coal	3,647	114	3,454	111	3,162	102	3,260	96	3,251	94
Petroleum, crude	8,705	1,346	9,638	1,423	12,144	1,232	14,882	2,092	15,423	3,502
Vegetable, fruits		61		71		53		105		213
Marine products		697		782		858		971		1,478
Textile, clothing		1,150		1,503		1,450		1,747		1,892
Shoes & sandals		530		978		1,032		1,392		1,464
Handicrafts, fine art		21		43		111		168		236
Electronic goods & Computer parts		89		440		502		585		782
Other		1,542		1,979		2,001		2,302		3,028
Total export		7,255		9,185		9,361		11,540		14,455
Import										
Automobile	19,169	155	13,975	136	17,202	130	10,723	89	15,740	134
Automobile parts	8,697	66	4,812	52	3,874	40	4,524	39	10,958	97
Motorcycle parts	472	434	247	233	384	351	509	399	1,807	787
Steel	1,548	530	1,400	510	1,750	530	1,327	419	2,837	812
Fertilizers	1,467	354	1,480	258	1,950	241	1,890	189	3,973	508
Petroleum and fuel	5,899	1,104	5,958	1,123	6,830	827	7,403	1,054	8,777	2,057
Paper	109	76	147	104	162	97	195	102	241	142
Plastic material	312	265	364	333	513	316	578	346	648	480
Seasoning	24	32	21	30	12	16	8	7	11	9
Electronic parts		185		466		135		518		748
Medicine		206		340		312		267		308
Chemical material		227		216		235		258		307
Other		7,510		7,792		8,297		7,935		9,251
Total import		11,143		11,592		11,527		11,622		15,639
Trade Balance		-3,888		-2,407		-2,166		-82		-1,184

Source: Ministry of Trade

Bảng 5.14 Tốc độ tăng trưởng của tổng sản phẩm công nghiệp đầu ra

(On 1994 Constant Price Basis)

Crop	Industrial Gross Output at 1994 constant price						Annual Growth Rate (%)					
	1995	1996	1997	1998	1999	2000	95-96	96-97	97-98	98-99	99-00	Ave.
1. Mining and quarrying	13,920	15,968	18,314	21,118	24,580	26,488	15	15	15	16	8	14
Coal	1,677	1,930	2,229	2,138	2,048	2,243	15	16	-4	-4	10	6
Crude petroleum and natural gas	10,845	12,467	14,239	16,869	20,582	21,920	15	14	18	22	7	15
Ore	236	283	172	200	191	222	20	-39	16	-4	16	-1
Stone and other mining	1,162	1,288	1,674	1,911	1,759	2,103	11	30	14	-8	20	13
2. Manufacturing	83,261	94,788	107,662	120,666	133,702	157,173	14	14	12	11	18	14
Food and beverage	27,008	30,887	34,015	36,496	37,744	39,410	14	10	7	3	4	8
Tobacco	3,977	4,196	4,400	4,895	4,796	5,614	6	5	11	-2	17	7
Textile products	6,176	6,374	7,261	8,366	8,388	9,395	3	14	15	0	12	9
Garments	2,950	3,400	4,325	4,667	5,218	5,974	15	27	8	12	14	15
Leather tanning and processing	3,570	4,469	6,614	7,083	7,725	8,934	25	48	7	9	16	20
Wood and wood products	3,324	3,199	3,146	2,956	3,180	3,682	-4	-2	-6	8	16	2
Paper and paper products	1,947	2,294	2,644	3,178	3,470	4,095	18	15	20	9	18	16
Publishing, printing, media recording	1,510	1,515	1,621	1,868	2,012	2,181	0	7	15	8	8	8
Coke and refined petroleum products	343	209	84	108	101	106	-39	-60	29	-7	6	-21
Chemical and chemical products	5,086	6,283	7,223	8,144	9,682	11,890	24	15	13	19	23	19
Rubber and plastic products	2,272	2,790	3,528	4,418	5,427	6,827	23	26	25	23	26	25
Non-metallic mineral products	9,200	10,121	12,223	13,745	14,785	17,372	10	21	12	8	18	14
Basic metal	3,428	4,086	4,000	4,080	5,000	5,770	19	-2	2	23	15	11
Fabricated metal products	2,332	2,941	3,559	4,210	5,036	6,143	26	21	18	20	22	21
Machinery and equipment	1,345	1,560	1,674	2,050	2,163	2,406	16	7	22	6	11	12
Office, accounting, and computing machinery	28	40	38	228	1,703	5,108	42	-5	505	647	200	183
Electrical machinery and apparatus	1,088	1,342	1,650	2,308	2,944	3,680	23	23	40	28	25	28
Radio and communication equipment	2,065	3,079	3,278	3,478	3,993	4,616	49	6	6	15	16	17
Medical, precision, and optical instruments	203	262	239	368	396	443	29	-9	54	7	12	17
Assembling & repairing motor vehicle	1,460	1,375	1,629	1,668	1,846	2,134	-6	18	2	11	16	8
Production & repairing other transport equipment	1,893	1,982	1,815	3,379	4,574	7,090	5	-8	86	35	55	30
Furniture	1,970	2,265	2,564	2,815	3,395	4,169	15	13	10	21	23	16
Reproduced goods	89	123	133	161	127	136	38	9	21	-21	7	9
3. Electricity, gas, and water supply	6,195	7,341	8,444	9,440	10,467	11,661	19	15	12	11	11	13
Production and distribution of electricity, gas, fuel	5,444	6,538	7,597	8,520	9,496	10,635	20	16	12	11	12	14
Purification and distribution of water	751	804	847	920	971	1,026	7	5	9	5	6	6
TOTAL	103,375	118,097	134,420	151,223	168,749	195,321	14	14	13	12	16	14

Source: - Statistical Yearbook 1998, GSO
 - Statistical Yearbook 2000, GSO

**Bảng 5.15 Lực lượng dân số trong độ tuổi lao động theo giới tính, đô thị và nông thôn
(tính đến ngày 1/4/1999)**

Unit: 1,000 persons

	Total	Male	Female	Urban	Rural
1. Population aged 13 and over	54,729	26,386	28,343	13,881	40,847
2. Economically non-active	16,508	6,461	10,047	5,285	11,224
2-1 Household work	4,219	235	3,984	1,582	2,638
2-2 Student	7,202	3,981	3,220	2,258	4,944
2-3 Invalid	3,216	1,350	1,865	746	2,469
2-4 No demand for work	1,872	895	977	699	1,173
3. Economically active	38,211	19,920	18,291	8,594	29,617
3-1 Worked	36,420	18,889	17,531	7,792	28,628
3-3 Unemployed (have demand for work)	1,791	1,031	760	801	989
4. Not stated	10	5	5	3	7
5. Total	54,729	26,386	28,343	13,881	40,847
6. Unemployment ratio	4.7%	5.2%	4.2%	9.3%	3.3%
Distribution:					
1. Population aged 13 and over	100.0%	100.0%	100.0%	100.0%	100.0%
2. Economically non-active	30.2%	24.5%	35.4%	38.1%	27.5%
2-1 Household work	7.7%	0.9%	14.1%	11.4%	6.5%
2-2 Student	13.2%	15.1%	11.4%	16.3%	12.1%
2-3 Invalid	5.9%	5.1%	6.6%	5.4%	6.0%
2-4 No demand for work	3.4%	3.4%	3.4%	5.0%	2.9%
3. Economically active	69.8%	75.5%	64.5%	61.9%	72.5%
3-1 Worked	66.5%	71.6%	61.9%	56.1%	70.1%
3-3 Unemployed (have demand for work)	3.3%	3.9%	2.7%	5.8%	2.4%
4. Not stated	0.0%	0.0%	0.0%	0.0%	0.0%
5. Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Population and Housing Census Vietnam 1999, Completed Census Results

Bảng 5.17 Dự tính dân số theo Tỉnh, Đô thị và nông thôn

(1/2)

No.	River Basin/Province	2000 (1,000 persons)			2001 (1,000 persons)			2005 (1,000 persons)			2010 (1,000 persons)			2015 (1,000 persons)			2020 (1,000 persons)		
		Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
I.	Bang Giang & Ky Cung Rivers	1,220	202	1,018	1,234	204	1,030	1,291	211	1,080	1,366	222	1,144	1,445	233	1,212	1,530	245	1,285
11	Cao Bang	495	66	429	501	66	435	528	68	460	563	71	492	600	74	526	641	78	563
14	Lang Son	725	136	589	733	138	595	763	143	620	803	151	652	845	159	686	889	167	722
II.	Red and Thai Binh Rivers	27,171	5,182	21,989	27,588	5,306	22,282	29,409	6,650	22,759	31,495	8,445	23,050	33,463	9,622	23,841	35,726	11,009	24,717
(1)	Red River Delta	17,127	3,498	13,629	17,360	3,585	13,775	18,311	4,567	13,744	19,394	5,842	13,552	20,425	6,668	13,757	21,649	7,646	14,003
1	Ha Noi	2,734	1,579	1,155	2,763	1,594	1,169	3,000	1,750	1,250	3,200	1,925	1,275	3,476	2,194	1,282	3,790	2,500	1,290
2	Hai Phong	1,700	580	1,120	1,719	586	1,133	1,807	850	957	1,916	1,100	816	2,017	1,158	859	2,125	1,220	905
19	Vinh Phuc	1,110	120	990	1,124	121	1,003	1,186	128	1,058	1,267	137	1,130	1,354	146	1,208	1,447	156	1,291
3	Ha Tay	2,411	197	2,214	2,464	204	2,260	2,533	380	2,153	2,649	662	1,987	2,688	861	1,827	2,798	1,119	1,679
21	Bac Ninh	951	90	861	963	91	872	1,015	96	919	1,082	102	980	1,154	109	1,045	1,231	116	1,115
4	Hai Duong	1,663	230	1,433	1,677	233	1,444	1,740	280	1,460	1,830	350	1,480	1,902	437	1,465	1,995	545	1,450
5	Hung Yen	1,083	107	976	1,096	110	986	1,139	111	1,028	1,186	117	1,069	1,241	118	1,123	1,300	120	1,180
6	Ha Nam	857	129	728	869	130	739	900	180	720	955	287	668	1,016	313	703	1,080	341	739
7	Nam Dinh	1,915	239	1,676	1,933	245	1,688	2,033	259	1,774	2,129	268	1,861	2,212	305	1,907	2,300	346	1,954
8	Thai Binh	1,801	104	1,697	1,841	129	1,712	1,998	300	1,698	2,195	520	1,675	2,342	570	1,772	2,500	625	1,875
9	Ninh Binh	902	123	779	911	142	769	960	233	727	985	374	611	1,023	457	566	1,083	558	525
(2)	Other Areas in the Basin	10,044	1,684	8,360	10,228	1,721	8,507	11,098	2,083	9,015	12,101	2,603	9,498	13,038	2,954	10,084	14,077	3,363	10,714
10	Ha Giang	615	66	549	627	72	555	675	96	579	783	150	633	817	167	650	855	187	668
12	Lao Cai	616	104	512	646	113	533	780	156	624	866	238	628	1,004	289	715	1,165	350	815
13	Bac Kan	281	42	239	285	42	243	302	44	258	324	46	278	348	49	299	374	52	322
15	Tuyen Quang	686	62	624	696	62	634	733	66	667	773	67	706	792	68	724	811	69	742
16	Yen Bai	693	137	556	700	140	560	798	206	592	904	274	630	1,004	313	691	1,115	357	758
17	Thai Nguyen	1,068	241	827	1,078	243	835	1,122	253	869	1,181	267	914	1,243	281	962	1,307	295	1,012
18	Phu Tho	1,275	181	1,094	1,290	182	1,108	1,353	188	1,165	1,436	196	1,240	1,525	205	1,320	1,619	214	1,405
20	Bac Giang	1,507	123	1,384	1,522	124	1,398	1,664	184	1,480	1,790	196	1,594	1,918	209	1,709	2,055	222	1,833
22	Quang Ninh	1,019	451	568	1,033	457	576	1,096	484	612	1,164	514	650	1,252	582	670	1,350	660	690
23	Lai Chau	609	75	534	634	81	553	725	121	604	840	216	624	936	279	657	1,051	360	691
24	Son La	905	95	810	910	96	814	999	140	859	1,115	208	907	1,210	238	972	1,315	273	1,042
25	Hoa Binh	770	107	663	807	109	698	851	145	706	925	231	694	989	274	715	1,060	324	736
III.	Ma River	3,561	331	3,230	3,605	378	3,227	3,790	568	3,222	3,980	995	2,985	4,183	1,046	3,137	4,396	1,099	3,297
26	Thanh Hoa	3,561	331	3,230	3,605	378	3,227	3,790	568	3,222	3,980	995	2,985	4,183	1,046	3,137	4,396	1,099	3,297
IV.	Ca River	4,336	357	3,979	4,394	373	4,021	4,687	543	4,144	4,989	716	4,273	5,271	777	4,494	5,575	843	4,732
27	Nghe An	3,068	255	2,813	3,118	258	2,860	3,325	270	3,055	3,558	285	3,273	3,808	301	3,507	4,075	318	3,757
28	Ha Tinh	1,268	102	1,166	1,276	115	1,161	1,362	273	1,089	1,431	431	1,000	1,463	476	987	1,500	525	975
V.	Thach Han River	587	138	449	598	148	450	633	154	479	669	163	506	706	172	534	746	182	564
30	Quang Tri	587	138	449	598	148	450	633	154	479	669	163	506	706	172	534	746	182	564
VI.	Huong River	1,066	316	750	1,083	319	764	1,142	348	794	1,220	400	820	1,307	460	847	1,403	528	875
31	Thua Thien - Hue	1,066	316	750	1,083	319	764	1,142	348	794	1,220	400	820	1,307	460	847	1,403	528	875
VII.	Vu Gia-Thu Bon Rivers	2,112	775	1,337	2,133	790	1,343	2,246	859	1,387	2,415	975	1,440	2,518	1,035	1,483	2,619	1,096	1,523
32	Da Nang	717	566	151	733	579	154	802	633	169	930	734	196	982	775	207	1,038	819	219
33	Quang Nam	1,395	209	1,186	1,400	211	1,189	1,444	226	1,218	1,485	241	1,244	1,536	260	1,276	1,581	277	1,304

Bảng 5.17 Dự tính dân số theo Tỉnh, Đô thị và nông thôn

(2/2)

No.	River Basin/Province	2000 (1,000 persons)			2001 (1,000 persons)			2005 (1,000 persons)			2010 (1,000 persons)			2015 (1,000 persons)			2020 (1,000 persons)		
		Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
VIII.	Tra Khuc River	1,199	143	1,056	1,214	145	1,069	1,273	152	1,121	1,345	161	1,184	1,421	170	1,251	1,501	180	1,321
34	Quang Ngai	1,199	143	1,056	1,214	145	1,069	1,273	152	1,121	1,345	161	1,184	1,421	170	1,251	1,501	180	1,321
IX.	Kone River	1,486	358	1,128	1,503	363	1,140	1,573	387	1,186	1,684	437	1,247	1,793	483	1,310	1,910	533	1,377
35	Binh Dinh	1,486	358	1,128	1,503	363	1,140	1,573	387	1,186	1,684	437	1,247	1,793	483	1,310	1,910	533	1,377
X.	Ba River	1,793	401	1,392	1,834	423	1,411	2,003	486	1,517	2,255	629	1,626	2,378	664	1,714	2,507	700	1,807
36	Phu Yen	804	152	652	815	154	661	858	162	696	915	173	742	962	182	780	1,011	191	820
39	Gia Lai	989	249	740	1,019	269	750	1,145	324	821	1,340	456	884	1,416	482	934	1,496	509	987
XI.	Dong Nai River	11,718	5,299	6,420	11,966	5,465	6,501	13,616	6,664	6,952	15,231	7,866	7,365	16,266	8,600	7,666	17,381	9,404	7,977
41	Ho Chi Minh City	5,170	3,464	1,706	5,285	3,541	1,744	6,325	4,367	1,958	7,230	4,954	2,276	7,637	5,233	2,404	8,066	5,527	2,539
42	Lam Dong	1,038	402	637	1,065	419	646	1,181	496	685	1,340	604	736	1,511	726	785	1,679	849	830
44	Binh Phuoc	676	101	575	702	110	592	824	156	668	1,017	241	776	1,075	255	820	1,135	269	866
45	Tay Ninh	979	137	842	990	141	849	1,036	156	880	1,089	174	915	1,151	197	954	1,204	217	987
46	Binh Duong	742	241	501	761	266	495	841	370	471	951	509	442	1,064	649	415	1,217	827	390
47	Dong Nai	2,042	633	1,409	2,070	662	1,408	2,215	775	1,440	2,374	973	1,401	2,451	1,078	1,373	2,540	1,194	1,346
48	Binh Thuan	1,071	321	750	1,093	326	767	1,194	345	849	1,230	410	820	1,377	462	915	1,540	520	1,020
XII.	Se San River	328	105	223	338	226	112	380	247	133	420	260	160	480	281	199	550	303	247
38	Kon Tum	328	105	223	338	226	112	380	247	133	420	260	160	480	281	199	550	303	247
XIII.	Srepok River	1,882	396	1,486	1,940	412	1,528	2,190	484	1,706	2,549	614	1,935	2,935	764	2,171	3,325	925	2,400
40	Dak Lak	1,882	396	1,486	1,940	412	1,528	2,190	484	1,706	2,549	614	1,935	2,935	764	2,171	3,325	925	2,400
XIV.	Cuu Long River Delta	16,582	2,904	13,677	16,832	3,036	13,796	18,049	3,884	14,165	19,466	4,952	14,514	20,471	5,256	15,215	21,509	5,569	15,940
50	Long An	1,329	220	1,109	1,351	230	1,121	1,422	242	1,180	1,510	257	1,253	1,554	264	1,290	1,600	272	1,328
51	Dong Thap	1,581	230	1,350	1,597	236	1,361	1,667	260	1,407	1,744	287	1,457	1,831	320	1,511	1,896	345	1,551
52	An Giang	2,084	449	1,635	2,114	455	1,659	2,277	569	1,708	2,407	794	1,613	2,543	839	1,704	2,685	886	1,799
53	Tien Giang	1,821	255	1,566	1,841	277	1,564	1,945	389	1,556	2,059	453	1,606	2,174	478	1,696	2,297	505	1,792
54	Vinh Long	1,015	150	865	1,027	152	875	1,182	264	918	1,351	331	1,020	1,427	350	1,077	1,507	369	1,138
55	Ben Tre	1,316	123	1,193	1,331	127	1,204	1,364	143	1,221	1,455	167	1,288	1,536	176	1,360	1,623	186	1,437
56	Kien Giang	1,546	339	1,207	1,574	346	1,228	1,690	375	1,315	1,834	422	1,412	1,937	446	1,491	2,046	471	1,575
57	Can Tho	1,834	401	1,433	1,874	431	1,443	2,059	576	1,483	2,362	827	1,535	2,494	873	1,621	2,635	923	1,712
58	Tra Vinh	973	125	848	990	134	856	1,064	174	890	1,128	192	936	1,155	219	936	1,186	249	937
59	Soc Trang	1,191	214	977	1,210	217	993	1,287	283	1,004	1,378	436	942	1,456	461	995	1,537	486	1,051
60	Bac Lieu	748	183	565	759	186	573	799	195	604	835	228	607	882	241	641	931	254	677
61	Ca Mau	1,144	215	929	1,164	245	919	1,293	414	879	1,403	558	845	1,482	589	893	1,566	623	943
TOTAL		75,041	16,907	58,134	76,262	17,588	58,674	82,282	21,638	60,644	89,084	26,835	62,249	94,637	29,562	65,075	100,678	32,615	68,063

Note: The population projection was made based on population targets prepared by each province.

When population target of province is not available at all, population projection by GSO was applied. In this case, urban and rural population was estimated by the study team from the present population distribution and past trend of increasing rates.

When the population target of province is available but information is not complete, the following arrangements were made by the study team:

- If some intermediate population is not available, it is estimated by applying the same increasing rate for the period.

- If population target in 2015 and 2020 is not available, the average annual increasing rate of 1.1% (national target) was applied to estimate the population.

Bảng 5.18 Kế hoạch phát triển kinh tế theo lưu vực sông (Tỷ lệ GRDP trong tương lai của các tỉnh trong lưu vực sông)
(Medium Development Scenario)

(2/6)

No.		GRDP at 2000 Constant Price (Billion VND)																			
		2001				2005				2010				2015				2020			
		Total	Agriculture, forestry and fishery	Industry and construction	Services	Total	Agriculture, forestry and fishery	Industry and construction	Services	Total	Agriculture, forestry and fishery	Industry and construction	Services	Total	Agriculture, forestry and fishery	Industry and construction	Services	Total	Agriculture, forestry and fishery	Industry and construction	Services
VIII. Tra Khue River		3,618	1,368	1,453	797	4,822	1,618	2,190	1,014	6,818	1,941	3,401	1,476	9,908	2,361	5,477	2,070	14,597	2,873	8,821	2,903
34	Quang Ngai	3,618	1,368	1,453	797	4,822	1,618	2,190	1,014	6,818	1,941	3,401	1,476	9,908	2,361	5,477	2,070	14,597	2,873	8,821	2,903
IX. Kone River		5,010	2,024	1,192	1,794	6,674	2,336	1,869	2,469	9,797	2,645	3,232	3,920	14,609	3,403	4,976	6,230	21,939	4,378	7,661	9,900
35	Binh Dinh	5,010	2,024	1,192	1,794	6,674	2,336	1,869	2,469	9,797	2,645	3,232	3,920	14,609	3,403	4,976	6,230	21,939	4,378	7,661	9,900
X. Ba River		6,272	3,538	1,889	845	8,329	4,167	2,981	1,181	12,706	5,062	5,168	2,476	19,062	6,158	8,577	4,327	29,396	7,493	14,260	7,643
36	Phu Yen	1,683	730	397	556	2,390	844	732	814	4,692	1,077	1,674	1,941	7,836	1,310	2,950	3,576	13,382	1,594	5,198	6,590
39	Gia Lai	4,589	2,808	1,492	289	5,939	3,323	2,249	367	8,014	3,985	3,494	535	11,226	4,848	5,627	751	16,014	5,899	9,062	1,053
XI. Dong Nai River		88,571	10,831	38,747	38,993	113,078	13,229	53,195	46,654	154,939	16,377	78,709	59,853	185,167	19,108	96,813	69,246	224,911	22,441	120,967	81,503
41	Ho Chi Minh	57,852	1,173	26,246	30,433	64,178	1,196	29,658	33,324	71,391	1,220	33,514	36,657	75,303	1,232	35,625	38,446	79,437	1,245	37,870	40,322
42	Lam Dong	3,192	1,611	642	939	4,068	1,906	967	1,195	5,528	2,286	1,502	1,740	7,640	2,781	2,419	2,440	10,702	3,384	3,896	3,422
44	Binh Phuoc	1,442	909	165	368	2,105	1,175	402	528	3,516	1,565	1,100	851	4,942	2,093	1,468	1,381	7,000	2,800	1,960	2,240
45	Tay Ninh	4,583	1,904	1,045	1,634	7,711	2,776	2,391	2,544	10,500	3,255	3,518	3,727	14,459	4,034	5,068	5,357	20,000	5,000	7,300	7,700
46	Binh Duong	6,468	1,145	3,443	1,880	11,886	1,266	7,817	2,803	23,782	1,597	16,918	5,267	32,179	1,946	23,059	7,174	43,574	2,372	31,430	9,772
47	Dong Nai	11,608	2,664	6,397	2,547	17,723	2,863	10,542	4,318	30,747	3,368	19,424	7,955	40,014	3,643	26,059	10,312	52,269	3,940	34,961	13,368
48	Binh Thuan	3,426	1,425	809	1,192	5,407	2,047	1,418	1,942	9,475	3,086	2,733	3,656	10,630	3,379	3,115	4,136	11,929	3,700	3,550	4,679
XII. Se San River		876	389	137	350	1,277	551	256	470	1,812	712	497	603	2,512	866	800	846	3,529	1,054	1,289	1,186
38	Kon Tum	876	389	137	350	1,277	551	256	470	1,812	712	497	603	2,512	866	800	846	3,529	1,054	1,289	1,186
XIII. Srepok River		5,460	3,374	714	1,372	7,035	3,993	1,159	1,883	10,624	5,024	2,380	3,220	15,344	6,261	4,008	5,075	22,552	7,802	6,750	8,000
40	Dak Lak	5,460	3,374	714	1,372	7,035	3,993	1,159	1,883	10,624	5,024	2,380	3,220	15,344	6,261	4,008	5,075	22,552	7,802	6,750	8,000
XIV. Cuu Long River Delta		73,071	38,667	13,343	21,061	115,114	54,090	25,038	35,986	190,891	76,559	49,153	65,179	276,851	95,198	84,683	96,970	418,777	118,759	151,425	148,593
50	Long An	5,090	2,518	1,112	1,460	7,045	3,060	1,911	2,074	10,974	3,822	3,750	3,402	17,713	4,774	7,359	5,580	29,556	5,963	14,440	9,153
51	Dong Thap	5,947	3,594	745	1,608	8,740	4,632	1,311	2,797	12,000	5,640	2,400	3,960	16,914	7,266	3,718	5,930	24,000	9,360	5,760	8,880
52	An Giang	9,790	3,869	1,200	4,721	17,596	6,236	3,105	8,255	28,926	9,425	5,617	13,884	39,986	11,467	9,046	19,473	55,832	13,951	14,569	27,312
53	Tien Giang	8,941	5,370	1,211	2,360	15,392	8,536	2,469	4,387	28,813	14,449	5,444	8,920	38,858	17,579	8,768	12,511	53,055	21,388	14,120	17,547
54	Vinh Long	4,567	2,626	575	1,366	6,351	3,093	1,035	2,223	9,108	3,501	1,905	3,702	12,519	4,259	3,068	5,192	17,405	5,182	4,941	7,282
55	Ben Tre	4,383	2,828	636	919	6,061	3,451	1,158	1,452	8,101	4,199	1,865	2,037	10,969	5,109	3,003	2,857	15,060	6,216	4,837	4,007
56	Kien Giang	8,507	4,208	2,293	2,006	15,755	7,849	4,346	3,560	27,654	12,812	7,976	6,866	38,064	15,588	12,846	9,630	53,159	18,965	20,688	13,506
57	Can Tho	7,314	2,129	2,388	2,797	12,634	3,037	4,257	5,340	24,516	4,429	9,170	10,917	35,469	5,389	14,768	15,312	51,816	6,556	23,785	21,475
58	Tra Vinh	3,984	2,736	434	814	6,646	3,813	1,130	1,703	13,226	5,720	3,334	4,172	28,424	8,484	9,720	10,220	65,952	12,583	28,335	25,034
59	Soc Trang	4,343	2,769	750	824	6,689	3,421	1,525	1,743	11,279	4,168	3,314	3,797	15,733	5,071	5,337	5,325	22,235	6,170	8,596	7,469
60	Bac Lieu	3,575	2,178	623	774	4,263	2,600	750	913	5,652	3,163	1,208	1,281	7,590	3,848	1,945	1,797	10,335	4,682	3,133	2,520
61	Ca Mau	6,630	3,842	1,376	1,412	7,942	4,362	2,041	1,539	10,642	5,231	3,170	2,241	14,612	6,364	5,105	3,143	20,372	7,743	8,221	4,408
Total		332,318	104,045	102,885	125,388	474,911	139,727	159,640	175,544	717,916	182,708	271,713	263,495	992,875	224,605	412,146	356,124	1,443,968	278,421	667,886	497,661

Note: 1. The economic development targets of the objective provinces are collected by questionnaire survey with assistance of IWRP. Some data from the provinces are not complete or appropriate but they are the official targets and esteemed as much as possible.

2. If the economic development targets of provinces are not available at all, those prepared by MPI were applied.

3. When the economic development targets are available but the information is impractical or a part of information are not available, the national target rates have been applied.

4. Future GRDP is estimated on 2000 constant price basis. Since the price change from 2000 to 2001 is negligibly small, the figures are directly used for this study.

**Bảng 5.18 Kế hoạch phát triển kinh tế theo lưu vực sông (Tỷ lệ GRDP trong tương lai của các tỉnh trong lưu vực sông)
(High Development Scenario)**

No.	River Basis/Province	GRDP at 2000 Constant Price (Billion VND)																			
		2001				2005				2010				2015				2020			
		Total	Agriculture, forestry and fishery	Industry and construction	Services	Total	Agriculture, forestry and fishery	Industry and construction	Services	Total	Agriculture, forestry and fishery	Industry and construction	Services	Total	Agriculture, forestry and fishery	Industry and construction	Services				
VIII. Tra Khuc River		3,618	1,368	1,453	797	4,960	1,645	2,277	1,038	7,263	2,009	3,688	1,566	10,975	2,492	6,214	2,269	16,850	3,091	10,471	3,288
34 Quang Ngai		3,618	1,368	1,453	797	4,960	1,645	2,277	1,038	7,263	2,009	3,688	1,566	10,975	2,492	6,214	2,269	16,850	3,091	10,471	3,288
IX. Kone River		5,010	2,024	1,192	1,794	6,982	2,381	1,994	2,607	10,685	2,729	3,631	4,325	16,606	3,598	5,825	7,183	26,018	4,744	9,345	11,929
35 Binh Dinh		5,010	2,024	1,192	1,794	6,982	2,381	1,994	2,607	10,685	2,729	3,631	4,325	16,606	3,598	5,825	7,183	26,018	4,744	9,345	11,929
X. Ba River		6,272	3,538	1,889	845	8,538	4,367	3,051	1,120	13,451	5,416	5,547	2,488	20,938	6,717	9,652	4,569	33,665	8,331	16,832	8,502
36 Phu Yen		1,683	730	397	556	2,447	989	714	744	4,973	1,292	1,761	1,920	8,621	1,602	3,273	3,746	15,379	1,987	6,083	7,309
39 Gia Lai		4,589	2,808	1,492	289	6,091	3,378	2,337	376	8,478	4,124	3,786	568	12,317	5,115	6,379	823	18,286	6,344	10,749	1,193
XI. Dong Nai River		88,571	10,831	38,747	38,993	118,892	13,854	56,102	48,936	167,019	17,521	85,082	64,416	203,149	20,755	106,545	75,849	251,958	24,774	135,975	91,209
41 Ho Chi Minh		57,852	1,173	26,246	30,433	68,677	1,211	32,421	35,045	77,235	1,238	37,081	38,916	81,918	1,252	39,657	41,009	86,893	1,266	42,412	43,215
42 Lam Dong		3,192	1,611	642	939	4,167	1,938	1,006	1,223	5,842	2,366	1,630	1,846	8,356	2,934	2,747	2,675	12,144	3,639	4,629	3,876
44 Binh Phuoc		1,442	909	165	368	2,187	1,205	435	547	3,875	1,650	1,303	922	5,625	2,270	1,789	1,566	8,239	3,123	2,456	2,660
45 Tay Ninh		4,583	1,904	1,045	1,634	8,108	2,878	2,576	2,654	11,394	3,428	3,933	4,033	16,210	4,339	5,868	6,003	23,182	5,492	8,755	8,935
46 Binh Duong		6,468	1,145	3,443	1,880	11,710	1,404	7,042	3,264	24,680	1,812	16,363	6,505	34,361	2,251	22,981	9,129	47,884	2,797	32,275	12,812
47 Dong Nai		11,608	2,664	6,397	2,547	18,411	3,098	11,130	4,183	33,578	3,703	21,715	8,160	44,858	4,036	29,974	10,848	60,195	4,399	41,374	14,422
48 Binh Thuan		3,426	1,425	809	1,192	5,632	2,120	1,492	2,020	10,415	3,324	3,057	4,034	11,821	3,673	3,529	4,619	13,421	4,058	4,074	5,289
XII. Se San River		876	389	137	350	1,257	536	241	480	1,839	710	498	631	2,634	881	839	914	3,831	1,093	1,414	1,324
38 Kon Tum		876	389	137	350	1,257	536	241	480	1,839	710	498	631	2,634	881	839	914	3,831	1,093	1,414	1,324
XIII. Srepok River		5,460	3,374	714	1,372	7,212	4,059	1,212	1,941	11,374	5,223	2,660	3,491	17,102	6,650	4,706	5,746	26,250	8,467	8,325	9,458
40 Dak Lak		5,460	3,374	714	1,372	7,212	4,059	1,212	1,941	11,374	5,223	2,660	3,491	17,102	6,650	4,706	5,746	26,250	8,467	8,325	9,458
XIV. Cuu Long River Delta		73,071	38,667	13,343	21,061	115,815	53,970	25,665	36,180	202,137	79,343	53,629	69,165	305,477	100,815	97,334	107,328	486,420	128,607	184,839	172,974
50 Long An		5,090	2,518	1,112	1,460	7,147	3,120	1,919	2,108	11,615	3,982	4,009	3,624	19,689	5,083	8,376	6,230	34,696	6,488	17,499	10,709
51 Dong Thap		5,947	3,594	745	1,608	9,071	4,747	1,381	2,943	12,876	5,892	2,675	4,309	18,808	7,780	4,321	6,707	27,691	10,273	6,979	10,439
52 An Giang		9,790	3,869	1,200	4,721	16,918	5,789	3,066	8,063	29,210	9,102	5,864	14,244	41,809	11,288	9,881	20,640	60,558	14,000	16,650	29,908
53 Tien Giang		8,941	5,370	1,211	2,360	16,197	8,917	2,635	4,645	32,197	15,863	6,248	10,086	44,817	19,674	10,528	14,615	63,318	24,400	17,740	21,178
54 Vinh Long		4,567	2,626	575	1,366	6,488	3,008	1,119	2,361	9,754	3,447	2,181	4,126	13,929	4,275	3,675	5,979	20,159	5,302	6,193	8,664
55 Ben Tre		4,383	2,828	636	919	4,877	2,648	1,047	1,182	6,761	3,284	1,764	1,713	9,527	4,073	2,972	2,482	13,656	5,052	5,008	3,596
56 Kien Giang		8,507	4,208	2,293	2,006	16,674	8,311	4,609	3,754	30,861	14,211	8,953	7,697	43,864	17,625	15,086	11,153	63,441	21,859	25,421	16,161
57 Can Tho		7,314	2,129	2,388	2,797	12,859	2,964	4,669	5,226	26,691	4,482	10,794	11,415	40,289	5,559	18,189	16,541	61,512	6,894	30,650	23,968
58 Tra Vinh		3,984	2,736	434	814	6,719	3,836	1,119	1,764	14,305	5,982	3,635	4,688	33,329	9,214	11,658	12,457	84,681	14,192	37,388	33,101
59 Soc Trang		4,343	2,769	750	824	5,566	3,128	1,135	1,303	9,583	3,885	2,649	3,049	13,700	4,818	4,464	4,418	19,900	5,976	7,522	6,402
60 Bac Lieu		3,575	2,178	623	774	4,682	2,880	810	992	6,374	3,571	1,365	1,438	8,813	4,429	2,300	2,084	12,388	5,493	3,875	3,020
61 Ca Mau		6,630	3,842	1,376	1,412	8,617	4,622	2,156	1,839	11,910	5,642	3,492	2,776	16,903	6,997	5,884	4,022	24,420	8,678	9,914	5,828
Total		332,318	104,045	102,885	125,388	485,840	140,268	165,572	180,000	765,088	188,727	295,878	280,483	1,099,474	237,082	470,514	391,878	1,683,159	300,808	811,946	570,405

Note: 1. The economic development targets of the objective provinces are collected by questionnaire survey with assistance of IWRP. Some data from the provinces are not complete or appropriate but they are the official targets and esteemed as much as possible.

2. If the economic development targets of provinces are not available at all, those prepared by MPI were applied.

3. When the economic development targets are available but the information is impractical or a part of information are not available, the national target rates have been applied.

4. Future GRDP is estimated on 2000 constant price basis. Since the price change from 2000 to 2001 is negligibly small, the figures are directly used for this study.

Bảng 5.18 Kế hoạch phát triển kinh tế theo lưu vực sông (Tỷ lệ GRDP trong tương lai của các tỉnh trong lưu vực sông)
(Low Development Scenario)

(6/6)

No.	River Basis/Province	GRDP at 2000 Constant Price (Billion VND)																			
		2001				2005				2010				2015				2020			
		Total	Agriculture, forestry and fishery	Industry and construction	Services	Total	Agriculture, forestry and fishery	Industry and construction	Services	Total	Agriculture, forestry and fishery	Industry and construction	Services	Total	Agriculture, forestry and fishery	Industry and construction	Services				
VIII.	Tra Khuc River	3,618	1,368	1,453	797	4,689	1,592	2,106	991	6,402	1,876	3,135	1,391	8,951	2,239	4,824	1,888	12,656	2,672	7,422	2,562
34	Quang Ngai	3,618	1,368	1,453	797	4,689	1,592	2,106	991	6,402	1,876	3,135	1,391	8,951	2,239	4,824	1,888	12,656	2,672	7,422	2,562
IX.	Kone River	5,010	2,024	1,192	1,794	6,579	2,312	1,825	2,442	9,291	2,586	2,996	3,709	13,309	3,246	4,425	5,638	19,181	4,075	6,536	8,570
35	Binh Dinh	5,010	2,024	1,192	1,794	6,579	2,312	1,825	2,442	9,291	2,586	2,996	3,709	13,309	3,246	4,425	5,638	19,181	4,075	6,536	8,570
X.	Ba River	6,272	3,538	1,889	845	8,080	4,206	2,808	1,066	11,667	5,018	4,588	2,061	16,619	5,989	7,238	3,392	24,220	7,147	11,436	5,637
36	Phu Yen	1,683	730	397	556	2,290	937	646	707	4,091	1,167	1,368	1,556	6,383	1,393	2,284	2,706	10,182	1,662	3,814	4,706
39	Gia Lai	4,589	2,808	1,492	289	5,790	3,269	2,162	359	7,576	3,851	3,220	505	10,236	4,596	4,954	686	14,038	5,485	7,622	931
XI.	Dong Nai River	88,571	10,831	38,747	38,993	112,637	13,251	52,448	46,938	147,255	16,038	72,915	58,302	171,369	18,407	86,840	66,122	202,080	21,238	104,809	76,033
41	Ho Chi Minh	57,852	1,173	26,246	30,433	66,599	1,204	31,225	34,170	73,321	1,226	34,861	37,234	76,936	1,237	36,833	38,866	80,734	1,248	38,916	40,570
42	Lam Dong	3,192	1,611	642	939	3,972	1,875	930	1,167	5,233	2,209	1,385	1,639	6,991	2,636	2,131	2,224	9,443	3,146	3,279	3,018
44	Binh Phuoc	1,442	909	165	368	2,028	1,147	371	510	3,197	1,486	926	785	4,350	1,932	1,202	1,216	5,956	2,512	1,560	1,884
45	Tay Ninh	4,583	1,904	1,045	1,634	7,336	2,678	2,218	2,440	9,680	3,091	3,144	3,445	12,904	3,751	4,372	4,781	17,266	4,552	6,079	6,635
46	Binh Duong	6,468	1,145	3,443	1,880	10,562	1,354	6,240	2,968	19,490	1,670	12,566	5,254	25,560	1,996	16,619	6,945	33,546	2,386	21,980	9,180
47	Dong Nai	11,608	2,664	6,397	2,547	16,974	3,015	10,120	3,839	27,763	3,490	17,598	6,675	35,124	3,745	22,943	8,436	44,593	4,019	29,912	10,662
48	Binh Thuan	3,426	1,425	809	1,192	5,166	1,978	1,344	1,844	8,571	2,866	2,435	3,270	9,504	3,110	2,740	3,654	10,542	3,375	3,083	4,084
XII.	Se San River	876	389	137	350	1,180	507	219	454	1,606	639	399	568	2,148	763	614	771	2,902	911	945	1,046
38	Kon Tum	876	389	137	350	1,180	507	219	454	1,606	639	399	568	2,148	763	614	771	2,902	911	945	1,046
XIII.	Srepok River	5,460	3,374	714	1,372	6,859	3,927	1,106	1,826	9,921	4,831	2,123	2,967	13,771	5,892	3,402	4,477	19,392	7,186	5,451	6,755
40	Dak Lak	5,460	3,374	714	1,372	6,859	3,927	1,106	1,826	9,921	4,831	2,123	2,967	13,771	5,892	3,402	4,477	19,392	7,186	5,451	6,755
XIV.	Cuu Long River Delta	73,071	38,667	13,343	21,061	106,655	50,793	22,931	32,931	167,619	69,415	42,112	56,092	233,210	84,513	68,487	80,210	335,030	103,163	114,490	117,377
50	Long An	5,090	2,518	1,112	1,460	6,727	3,003	1,747	1,977	9,980	3,670	3,217	3,093	15,249	4,485	5,925	4,839	23,963	5,481	10,912	7,570
51	Dong Thap	5,947	3,594	745	1,608	8,416	4,519	1,243	2,654	11,180	5,397	2,149	3,634	15,209	6,783	3,192	5,234	20,803	8,524	4,741	7,538
52	An Giang	9,790	3,869	1,200	4,721	15,375	5,396	2,626	7,353	24,096	7,837	4,491	11,768	32,235	9,353	6,910	15,972	43,472	11,162	10,632	21,678
53	Tien Giang	8,941	5,370	1,211	2,360	14,623	8,169	2,313	4,141	25,766	13,151	4,738	7,877	33,676	15,695	7,290	10,691	44,458	18,731	11,216	14,511
54	Vinh Long	4,567	2,626	575	1,366	6,084	2,936	999	2,149	8,428	3,283	1,736	3,409	11,216	3,918	2,671	4,627	15,066	4,676	4,110	6,280
55	Ben Tre	4,383	2,828	636	919	4,771	2,680	961	1,130	6,212	3,199	1,479	1,534	8,176	3,818	2,276	2,082	10,885	4,557	3,502	2,826
56	Kien Giang	8,507	4,208	2,293	2,006	14,874	7,405	4,095	3,374	24,745	11,534	7,095	6,116	32,983	13,765	10,917	8,301	44,492	16,428	16,797	11,267
57	Can Tho	7,314	2,129	2,388	2,797	11,661	2,797	4,167	4,697	21,267	3,933	8,355	8,979	29,736	4,694	12,855	12,187	41,922	5,602	19,779	16,541
58	Tra Vinh	3,984	2,736	434	814	6,121	3,615	957	1,549	11,267	5,215	2,559	3,493	22,092	7,446	6,769	7,877	46,300	10,631	17,905	17,764
59	Soc Trang	4,343	2,769	750	824	5,319	3,060	1,056	1,203	8,229	3,657	2,135	2,437	10,958	4,365	3,285	3,308	14,753	5,209	5,054	4,490
60	Bac Lieu	3,575	2,178	623	774	4,463	2,741	773	949	5,748	3,271	1,189	1,288	7,481	3,904	1,829	1,748	9,846	4,659	2,814	2,373
61	Ca Mau	6,630	3,842	1,376	1,412	8,221	4,472	1,994	1,755	10,701	5,268	2,969	2,464	14,199	6,287	4,568	3,344	19,070	7,503	7,028	4,539
	Total	332,318	104,045	102,885	125,388	453,276	132,846	151,929	168,501	651,613	168,941	242,547	240,125	866,219	203,500	349,612	313,107	1,198,231	246,753	531,842	419,636

Note: 1. The economic development targets of the objective provinces are collected by questionnaire survey with assistance of IWRP. Some data from the provinces are not complete or appropriate but they are the official targets and esteemed as much as possible.

2. If the economic development targets of provinces are not available at all, those prepared by MPI were applied.

3. When the economic development targets are available but the information is impractical or a part of information are not available, the national target rates have been applied.

4. Future GRDP is estimated on 2000 constant price basis. Since the price change from 2000 to 2001 is negligibly small, the figures are directly used for this study.

Bảng 6.1 Yêu cầu tưới tổng (GIR) và Nhu cầu nước tưới (IWD) năm 2001

Present Cropping Pattern (2001), Averaga Rainfall Year

River Basin / Irri. Area		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Average
01. Bang Giang	GIR (lit/sec/ha)	0.28	0.13	0.17	0.27	0.19	0.00	0.60	0.29	0.58	0.76	0.74	0.01	0.33
	25,500 ha IWD (m ³ /sec)	7.1	3.3	4.3	6.9	4.8	0.0	15.3	7.4	14.8	19.4	18.9	0.3	8.5
02. Red	GIR (lit/sec/ha)	1.05	0.53	0.59	0.49	0.45	0.00	0.41	0.20	0.30	0.41	0.53	0.03	0.42
	1,008,000 ha IWD (m ³ /sec)	1,058.4	534.2	594.7	493.9	453.6	0.0	413.3	201.6	302.4	413.3	534.2	30.2	419.0
03. Ma	GIR (lit/sec/ha)	0.62	0.39	0.47	0.61	0.46	0.00	0.72	0.29	0.24	0.28	0.41	0.01	0.38
	112,000 ha IWD (m ³ /sec)	69.4	43.7	52.6	68.3	51.5	0.0	80.6	32.5	26.9	31.4	45.9	1.1	42.0
04. Ca	GIR (lit/sec/ha)	0.93	0.36	0.51	0.61	0.14	0.41	0.76	0.48	0.22	0.06	0.04	0.00	0.38
	93,000 ha IWD (m ³ /sec)	86.5	33.5	47.4	56.7	13.0	38.1	70.7	44.6	20.5	5.6	3.7	0.0	35.2
05. Thach Han	GIR (lit/sec/ha)	0.11	0.53	0.61	0.26	1.04	0.75	1.10	0.83	0.06	0.00	0.00	0.20	0.46
	5,000 ha IWD (m ³ /sec)	0.6	2.7	3.1	1.3	5.2	3.8	5.5	4.2	0.3	0.0	0.0	1.0	2.3
06. Huong	GIR (lit/sec/ha)	0.09	0.49	0.62	0.39	0.90	0.71	0.92	0.30	0.00	0.00	0.00	0.18	0.38
	25,900 ha IWD (m ³ /sec)	2.3	12.7	16.1	10.1	23.3	18.4	23.8	7.8	0.0	0.0	0.0	4.7	9.9
07. Thu Bon	GIR (lit/sec/ha)	0.33	0.63	0.77	0.25	0.16	0.11	0.87	0.63	0.18	0.00	0.00	0.48	0.37
	30,900 ha IWD (m ³ /sec)	10.2	19.5	23.8	7.7	4.9	3.4	26.9	19.5	5.6	0.0	0.0	14.8	11.4
08. Tra Khuc	GIR (lit/sec/ha)	0.19	0.47	0.50	0.69	0.69	0.56	0.53	0.62	0.22	0.00	0.14	0.06	0.39
	33,000 ha IWD (m ³ /sec)	6.3	15.5	16.5	22.8	22.8	18.5	17.5	20.5	7.3	0.0	4.6	2.0	12.8
09. Kone	GIR (lit/sec/ha)	0.90	1.04	1.00	0.84	1.41	1.39	0.74	1.43	0.71	0.22	0.26	0.40	0.86
	25,000 ha IWD (m ³ /sec)	22.5	26.0	25.0	21.0	35.3	34.8	18.5	35.8	17.8	5.5	6.5	10.0	21.5
10. Ba	GIR (lit/sec/ha)	0.49	0.86	0.97	0.45	0.00	0.66	1.67	1.33	0.75	0.19	0.00	0.33	0.64
	41,000 ha IWD (m ³ /sec)	20.1	35.3	39.8	18.5	0.0	27.1	68.5	54.5	30.8	7.8	0.0	13.5	26.4
11. Sesan	GIR (lit/sec/ha)	0.48	0.55	0.56	0.27	0.00	0.27	0.03	0.05	0.07	0.20	0.14	0.50	0.26
	22,500 ha IWD (m ³ /sec)	10.8	12.4	12.6	6.1	0.0	6.1	0.7	1.1	1.6	4.5	3.2	11.3	5.8
12. Srepok	GIR (lit/sec/ha)	0.76	1.09	1.13	0.78	0.19	0.18	0.08	0.11	0.08	0.09	0.24	0.70	0.45
	58,000 ha IWD (m ³ /sec)	44.1	63.2	65.5	45.2	11.0	10.4	4.6	6.4	4.6	5.2	13.9	40.6	26.0
13. Dong Nai	GIR (lit/sec/ha)	1.44	1.66	0.59	1.39	0.54	0.48	0.41	0.15	0.06	0.01	0.68	0.88	0.68
	115,000 ha IWD (m ³ /sec)	165.6	190.9	67.9	159.9	62.1	55.2	47.2	17.3	6.9	1.2	78.2	101.2	78.5
14. Cuu Long Delta	GIR (lit/sec/ha)	1.22	1.27	0.40	1.64	0.48	0.48	0.40	0.15	0.02	0.00	0.60	0.86	0.62
	1,487,000 ha IWD (m ³ /sec)	1,814.1	1,888.5	594.8	2,438.7	713.8	713.8	594.8	223.1	29.7	0.0	892.2	1,278.8	923.9

Bảng 6.2 Yêu cầu tưới tổng (GIR) và Nhu cầu nước tưới (IWD) năm 2010

Future Cropping Pattern (2010), Averaga Rainfall Year

River Basin / Irri. Area		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Average
01. Bang Giang	GIR (lit/sec/ha)	0.20	0.09	0.12	0.19	0.13	0.00	0.32	0.15	0.32	0.48	0.53	0.05	0.22
	54,500 ha IWD (m ³ /sec)	10.9	4.9	6.5	10.4	7.1	0.0	17.4	8.2	17.4	26.2	28.9	2.7	11.8
02. Red	GIR (lit/sec/ha)	0.96	0.49	0.54	0.45	0.41	0.00	0.39	0.19	0.28	0.38	0.49	0.03	0.38
	1,197,000 ha IWD (m ³ /sec)	1,149.1	586.5	646.4	538.7	490.8	0.0	466.8	227.4	335.2	454.9	586.5	35.9	459.9
03. Ma	GIR (lit/sec/ha)	0.51	0.32	0.38	0.50	0.38	0.00	0.54	0.22	0.18	0.21	0.31	0.04	0.30
	176,000 ha IWD (m ³ /sec)	89.8	56.3	66.9	88.0	66.9	0.0	95.0	38.7	31.7	37.0	54.6	7.0	52.6
04. Ca	GIR (lit/sec/ha)	0.69	0.28	0.40	0.47	0.11	0.29	0.55	0.34	0.16	0.04	0.03	0.02	0.28
	150,000 ha IWD (m ³ /sec)	103.5	42.0	60.0	70.5	16.5	43.5	82.5	51.0	24.0	6.0	4.5	3.0	42.3
05. Thach Han	GIR (lit/sec/ha)	0.09	0.41	0.51	0.27	0.75	0.58	0.83	0.62	0.05	0.00	0.00	0.15	0.36
	12,300 ha IWD (m ³ /sec)	1.1	5.0	6.3	3.3	9.2	7.1	10.2	7.6	0.6	0.0	0.0	1.8	4.4
06. Huong	GIR (lit/sec/ha)	0.09	0.46	0.58	0.37	0.88	0.70	0.90	0.29	0.00	0.00	0.00	0.17	0.37
	25,900 ha IWD (m ³ /sec)	2.3	11.9	15.0	9.6	22.8	18.1	23.3	7.5	0.0	0.0	0.0	4.4	9.6
07. Thu Bon	GIR (lit/sec/ha)	0.25	0.48	0.58	0.21	0.18	0.13	0.68	0.49	0.14	0.00	0.00	0.36	0.29
	69,000 ha IWD (m ³ /sec)	17.3	33.1	40.0	14.5	12.4	9.0	46.9	33.8	9.7	0.0	0.0	24.8	20.1
08. Tra Khuc	GIR (lit/sec/ha)	0.15	0.38	0.40	0.56	0.56	0.48	0.43	0.46	0.15	0.00	0.11	0.05	0.31
	42,000 ha IWD (m ³ /sec)	6.3	16.0	16.8	23.5	23.5	20.2	18.1	19.3	6.3	0.0	4.6	2.1	13.1
09. Kone	GIR (lit/sec/ha)	0.78	0.90	0.76	0.63	1.08	1.15	0.79	1.31	0.61	0.18	0.22	0.34	0.73
	36,500 ha IWD (m ³ /sec)	28.5	32.9	27.7	23.0	39.4	42.0	28.8	47.8	22.3	6.6	8.0	12.4	26.6
10. Ba	GIR (lit/sec/ha)	0.28	0.53	0.53	0.32	0.11	0.46	1.20	0.98	0.48	0.11	0.00	0.14	0.43
	129,000 ha IWD (m ³ /sec)	36.1	68.4	68.4	41.3	14.2	59.3	154.8	126.4	61.9	14.2	0.0	18.1	55.4
11. Sesan	GIR (lit/sec/ha)	0.54	0.64	0.69	0.34	0.00	0.16	0.02	0.03	0.04	0.12	0.17	0.54	0.27
	35,400 ha IWD (m ³ /sec)	19.1	22.7	24.4	12.0	0.0	5.7	0.7	1.1	1.4	4.2	6.0	19.1	9.6
12. Srepok	GIR (lit/sec/ha)	0.54	0.86	1.00	0.73	0.15	0.17	0.08	0.11	0.08	0.09	0.18	0.48	0.37
	97,000 ha IWD (m ³ /sec)	52.4	83.4	97.0	70.8	14.6	16.5	7.8	10.7	7.8	8.7	17.5	46.6	35.8
13. Dong Nai	GIR (lit/sec/ha)	0.72	0.86	0.35	0.72	0.28	0.42	0.34	0.25	0.14	0.03	0.31	0.41	0.40
	255,000 ha IWD (m ³ /sec)	183.6	219.3	89.3	183.6	71.4	107.1	86.7	63.8	35.7	7.7	79.1	104.6	101.7
14. Cuu Long Delta	GIR (lit/sec/ha)	1.11	1.15	0.37	1.39	0.40	0.40	0.33	0.12	0.01	0.00	0.52	0.77	0.54
	1,891,000 ha IWD (m ³ /sec)	2,099.0	2,174.7	699.7	2,628.5	756.4	756.4	624.0	226.9	18.9	0.0	983.3	1,456.1	1,023.8

Bảng 6.3 Yêu cầu tưới tổng (GIR) và Nhu cầu nước tưới (IWD) năm 2020

Future Cropping Pattern (2020), Averaga Rainfall Year

River Basin / Irri. Area		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Average
01. Bang Giang 67,500 ha	GIR (lit/sec/ha)	0.17	0.08	0.11	0.16	0.12	0.00	0.28	0.14	0.28	0.43	0.48	0.06	0.19
	IWD (m ³ /sec)	11.5	5.4	7.4	10.8	8.1	0.0	18.9	9.5	18.9	29.0	32.4	4.1	13.0
02. Red 1,291,000 ha	GIR (lit/sec/ha)	0.88	0.44	0.49	0.41	0.37	0.00	0.35	0.17	0.26	0.35	0.46	0.03	0.35
	IWD (m ³ /sec)	1,136.1	568.0	632.6	529.3	477.7	0.0	451.9	219.5	335.7	451.9	593.9	38.7	453.9
03. Ma 199,500 ha	GIR (lit/sec/ha)	0.50	0.30	0.36	0.48	0.36	0.00	0.47	0.18	0.15	0.19	0.28	0.05	0.28
	IWD (m ³ /sec)	99.8	59.9	71.8	95.8	71.8	0.0	93.8	35.9	29.9	37.9	55.9	10.0	55.4
04. Ca 203,000 ha	GIR (lit/sec/ha)	0.59	0.23	0.34	0.40	0.09	0.24	0.45	0.28	0.13	0.03	0.03	0.03	0.24
	IWD (m ³ /sec)	119.8	46.7	69.0	81.2	18.3	48.7	91.4	56.8	26.4	6.1	6.1	6.1	48.2
05. Thach Han 15,400 ha	GIR (lit/sec/ha)	0.07	0.35	0.43	0.25	0.70	0.55	0.73	0.54	0.03	0.00	0.00	0.13	0.32
	IWD (m ³ /sec)	1.1	5.4	6.6	3.9	10.8	8.5	11.2	8.3	0.5	0.0	0.0	2.0	4.9
06. Huong 25,900 ha	GIR (lit/sec/ha)	0.09	0.45	0.57	0.37	1.03	0.83	1.09	0.35	0.00	0.00	0.00	0.17	0.41
	IWD (m ³ /sec)	2.3	11.7	14.8	9.6	26.7	21.5	28.2	9.1	0.0	0.0	0.0	4.4	10.7
07. Thu Bon 77,000 ha	GIR (lit/sec/ha)	0.21	0.41	0.50	0.19	0.17	0.13	0.61	0.44	0.12	0.00	0.00	0.31	0.26
	IWD (m ³ /sec)	16.2	31.6	38.5	14.6	13.1	10.0	47.0	33.9	9.2	0.0	0.0	23.9	19.9
08. Tra Khuc 54,000 ha	GIR (lit/sec/ha)	0.12	0.31	0.31	0.41	0.43	0.38	0.36	0.36	0.11	0.00	0.09	0.04	0.24
	IWD (m ³ /sec)	6.5	16.7	16.7	22.1	23.2	20.5	19.4	19.4	5.9	0.0	4.9	2.2	13.1
09. Kone 49,000 ha	GIR (lit/sec/ha)	0.68	0.80	0.54	0.44	0.78	0.95	0.87	1.23	0.54	0.16	0.19	0.29	0.62
	IWD (m ³ /sec)	33.3	39.2	26.5	21.6	38.2	46.6	42.6	60.3	26.5	7.8	9.3	14.2	30.4
10. Ba 186,000 ha	GIR (lit/sec/ha)	0.22	0.44	0.41	0.27	0.13	0.42	1.07	0.88	0.41	0.09	0.00	0.09	0.36
	IWD (m ³ /sec)	40.9	81.8	76.3	50.2	24.2	78.1	199.0	163.7	76.3	16.7	0.0	16.7	67.3
11. Sesan 50,000 ha	GIR (lit/sec/ha)	0.51	0.61	0.66	0.32	0.00	0.12	0.01	0.03	0.03	0.09	0.17	0.49	0.25
	IWD (m ³ /sec)	25.5	30.5	33.0	16.0	0.0	6.0	0.5	1.5	1.5	4.5	8.5	24.5	12.6
12. Srepok 149,000 ha	GIR (lit/sec/ha)	0.50	0.80	0.93	0.68	0.15	0.13	0.06	0.08	0.06	0.06	0.18	0.42	0.34
	IWD (m ³ /sec)	74.5	119.2	138.6	101.3	22.4	19.4	8.9	11.9	8.9	8.9	26.8	62.6	49.9
13. Dong Nai 393,000 ha	GIR (lit/sec/ha)	0.53	0.67	0.35	0.44	0.17	0.35	0.28	0.25	0.15	0.03	0.19	0.26	0.30
	IWD (m ³ /sec)	208.3	263.3	137.6	172.9	66.8	137.6	110.0	98.3	59.0	11.8	74.7	102.2	119.2
14. Cuu Long Delta 2,242,000 ha	GIR (lit/sec/ha)	1.00	1.03	0.32	1.22	0.35	0.34	0.29	0.11	0.01	0.00	0.45	0.69	0.48
	IWD (m ³ /sec)	2,242.0	2,309.3	717.4	2,735.2	784.7	762.3	650.2	246.6	22.4	0.0	1,008.9	1,547.0	1,075.9

Bảng 6.4

Hiện trạng nhu cầu nước cho chăn nuôi năm 2001

River Basin	Kind of Livestock	Unit Water Requirement (lit/head/day)	Number (10 ³ heads)	Daily Consumption (m ³ /day)	Intake Discharge (m ³ /sec)
01. Bang Giang and Ky Cung	Pig	15	332	4,983	0.058
	Ox	35	103	3,622	0.042
	Buffalo	35	166	5,822	0.067
	Poultry	0.25	2,625	656	0.008
	Goat	25	-	-	-
	Total	-	-	15,083	0.175
02. Red and Thai Binh	Pig	15	9,082	136,226	1.577
	Ox	35	991	34,690	0.402
	Buffalo	35	1,473	51,561	0.597
	Poultry	0.25	84,035	21,009	0.243
	Goat	25	-	-	-
	Total	-	-	243,486	2.818
03. Ma	Pig	15	1,494	22,410	0.259
	Ox	35	336	11,774	0.136
	Buffalo	35	368	12,895	0.149
	Poultry	0.25	11,180	2,795	0.032
	Goat	25	-	-	-
	Total	-	-	49,875	0.577
04. Ca	Pig	15	951	14,263	0.165
	Ox	35	353	12,354	0.143
	Buffalo	35	292	10,220	0.118
	Poultry	0.25	7,760	1,940	0.022
	Goat	25	-	-	-
	Total	-	-	38,777	0.449
05. Thach Han	Pig	15	186	2,784	0.032
	Ox	35	63	2,195	0.025
	Buffalo	35	35	1,239	0.014
	Poultry	0.25	1,700	425	0.005
	Goat	25	-	-	-
	Total	-	-	6,643	0.077
06. Huong	Pig	15	227	3,404	0.039
	Ox	35	33	1,149	0.013
	Buffalo	35	35	1,212	0.014
	Poultry	0.25	1,790	448	0.005
	Goat	25	-	-	-
	Total	-	-	6,212	0.072
07. Vu Gia - Thu Bon	Pig	15	495	7,425	0.086
	Ox	35	214	7,492	0.087
	Buffalo	35	52	1,822	0.021
	Poultry	0.25	3,910	978	0.011
	Goat	25	-	-	-
	Total	-	-	17,717	0.205
08. Tra Khuc	Pig	15	314	4,716	0.055
	Ox	35	174	6,101	0.071
	Buffalo	35	34	1,186	0.014
	Poultry	0.25	1,935	484	0.006
	Goat	25	-	-	-
	Total	-	-	12,487	0.145
09. Kone	Pig	15	221	3,310	0.038
	Ox	35	134	4,380	0.54
	Buffalo	35	10	354	0.004
	Poultry	0.25	1,800	450	0.005
	Goat	25	-	-	-
	Total	-	-	8,794	0.102
10. Ba	Pig	15	390	5,852	0.068
	Ox	35	291	10,171	0.118
	Buffalo	35	17	586	0.007
	Poultry	0.25	2,075	519	0.006
	Goat	25	-	-	-
	Total	-	-	17,128	0.198
11. Sesan	Pig	15	190	2,846	0.033
	Ox	35	135	4,732	0.055
	Buffalo	35	14	503	0.006
	Poultry	0.25	780	195	0.002
	Goat	25	-	-	-
	Total	-	-	8,275	0.096
12. Srepok	Pig	15	299	4,480	0.052
	Ox	35	74	2,594	0.030
	Buffalo	35	16	550	0.006
	Poultry	0.25	2050	513	0.006
	Goat	25	-	-	-
	Total	-	-	8,136	0.094
13. Dong Nai	Pig	15	1,675	25,169	0.291
	Ox	35	313	10,964	0.127
	Buffalo	35	140	4,895	0.057
	Poultry	0.25	19,980	4,995	0.058
	Goat	25	-	-	-
	Total	-	-	46,023	0.533
14. Cuu Long Delta	Pig	15	2,662	39,937	0.462
	Ox	35	171	5,999	0.069
	Buffalo	35	41	1,429	0.017
	Poultry	0.25	38,960	9,740	0.113
	Goat	25	-	-	-
	Total	-	-	57,105	0.661

Bảng 6.5

Nhu cầu nước cho chăn nuôi trong tương lai năm 2010

River Basin	Kind of Livestock	Unit Water Requirement (lit/head/day)	Number (10 ³ heads)	Daily Consumption (m ³ /day)	Intake Discharge (m ³ /sec)
01. Bang Giang and Ky Cung	Pig	15	558	8,363	0.097
	Ox	35	177	6,209	0.072
	Buffalo	35	355	12,411	0.144
	Poultry	0.25	-	-	-
	Goat	25	-	-	-
	Total	-	-	26,983	0.312
02. Red and Thai Binh	Pig	15	13,663	204,948	2.372
	Ox	35	1,363	47,689	0.552
	Buffalo	35	1,889	66,105	0.765
	Poultry	0.25	122,957	30,739	0.356
	Goat	25	30	750	0.009
	Total	-	-	350,231	4.054
03. Ma	Pig	15	2,187	32,805	0.380
	Ox	35	492	17,203	0.199
	Buffalo	35	482	16,863	0.195
	Poultry	0.25	4,105	1,026	0.012
	Goat	25	-	-	-
	Total	-	-	67,897	0.786
04. Ca	Pig	15	1,248	18,720	0.217
	Ox	35	480	16,800	0.194
	Buffalo	35	345	12,068	0.140
	Poultry	0.25	14,438	3,610	0.042
	Goat	25	-	-	-
	Total	-	-	51,198	0.593
05. Thach Han	Pig	15	240	3,600	0.042
	Ox	35	85	2,975	0.034
	Buffalo	35	42	1,470	0.017
	Poultry	0.25	-	-	-
	Goat	25	-	-	-
	Total	-	-	8,405	0.093
06. Huong	Pig	15	305	4,575	0.053
	Ox	35	49	1,698	0.020
	Buffalo	35	38	1,339	0.015
	Poultry	0.25	2,261	565	0.007
	Goat	25	-	-	-
	Total	-	-	8,177	0.095
07. Vu Gia - Thu Bon	Pig	15	533	7,995	0.093
	Ox	35	279	9,748	0.113
	Buffalo	35	65	2,279	0.026
	Poultry	0.25	4,080	1,020	0.012
	Goat	25	-	-	-
	Total	-	-	21,041	0.244
08. Tra Khuc	Pig	15	436	6,540	0.076
	Ox	35	223	7,805	0.090
	Buffalo	35	44	1,531	0.018
	Poultry	0.25	90	23	0.000
	Goat	25	-	-	-
	Total	-	-	15,899	0.184
09. Kone	Pig	15	361	5,420	0.063
	Ox	35	195	6,825	0.079
	Buffalo	35	11	389	0.004
	Poultry	0.25	3,764	941	0.011
	Goat	25	5	125	0.001
	Total	-	-	21,580	0.250
10. Ba	Pig	15	443	6,644	0.077
	Ox	35	390	13,650	0.158
	Buffalo	35	21	746	0.009
	Poultry	0.25	2,165	541	0.006
	Goat	25	-	-	-
	Total	-	-	13,699	0.159
11. Sesan	Pig	15	268	4,017	0.046
	Ox	35	254	8,890	0.103
	Buffalo	35	27	931	0.011
	Poultry	0.25	1,350	338	0.004
	Goat	25	-	-	-
	Total	-	-	14,176	0.164
12. Srepok	Pig	15	453	6,798	0.079
	Ox	35	188	6,577	0.076
	Buffalo	35	23	788	0.009
	Poultry	0.25	3,116	779	0.009
	Goat	25	-	-	-
	Total	-	-	14,941	0.173
13. Dong Nai	Pig	15	2,657	39,849	0.461
	Ox	35	490	17,133	0.198
	Buffalo	35	143	5,021	0.058
	Poultry	0.25	38,340	9,585	0.111
	Goat	25	-	-	-
	Total	-	-	71,588	0.829
14. Cuu Long Delta	Pig	15	5,236	78,537	0.909
	Ox	35	270	9,437	0.109
	Buffalo	35	49	1,706	0.020
	Poultry	0.25	69,417	17,354	0.201
	Goat	25	-	-	-
	Total	-	-	107,035	1.239

Bảng 6.6

Nhu cầu nước cho chăn nuôi trong tương lai năm 2020

River Basin	Kind of Livestock	Unit Water Requirement (lit/head/day)	Number (10 ³ heads)	Daily Consumption (m ³ /day)	Intake Discharge (m ³ /sec)
01. Bang Giang and Ky Cung	Pig	15	780	11,701	0.135
	Ox	35	307	10,738	0.124
	Buffalo	35	465	16,291	0.189
	Poultry	0.25	-	-	-
	Goat	25	-	-	-
	Total	-	-	38,730	0.448
02. Red and Thai Binh	Pig	15	20,986	314,795	3.643
	Ox	35	1,997	69,895	0.809
	Buffalo	35	2,401	84,026	0.973
	Poultry	0.25	241,124	60,281	0.698
	Goat	25	43	1,075	0.012
	Total	-	-	530,073	6.135
03. Ma	Pig	15	3,222	48,333	0.559
	Ox	35	719	25,151	0.291
	Buffalo	35	626	21,896	0.253
	Poultry	0.25	10,979	2,745	0.032
	Goat	25	-	-	-
	Total	-	-	98,125	1.136
04. Ca	Pig	15	1,648	24,720	0.286
	Ox	35	649	22,708	0.263
	Buffalo	35	409	14,308	0.166
	Poultry	0.25	41,550	10,388	0.120
	Goat	25	-	-	-
	Total	-	-	72,124	0.835
05. Thach Han	Pig	15	402	6,030	0.070
	Ox	35	1,118	4,130	0.048
	Buffalo	35	50	1,750	0.020
	Poultry	0.25	-	-	-
	Goat	25	-	-	-
	Total	-	-	11,910	0.138
06. Huong	Pig	15	666	9,997	0.116
	Ox	35	68	2,373	0.028
	Buffalo	35	42	1,470	0.017
	Poultry	0.25	2,872	718	0.008
	Goat	25	-	-	-
	Total	-	-	14,558	0.168
07. Vu Gia - Thu Bon	Pig	15	625	9,368	0.108
	Ox	35	356	12,460	0.144
	Buffalo	35	82	2,860	0.033
	Poultry	0.25	4,780	1,195	0.014
	Goat	25	-	-	-
	Total	-	-	25,883	0.300
08. Tra Khuc	Pig	15	673	10,098	0.117
	Ox	35	302	10,586	0.123
	Buffalo	35	59	2,058	0.024
	Poultry	0.25	150	37	0.000
	Goat	25	-	-	-
	Total	-	-	22,779	0.264
09. Kone	Pig	15	608	9,121	0.106
	Ox	35	298	10,442	0.121
	Buffalo	35	12	417	0.005
	Poultry	0.25	8,135	2,034	0.024
	Goat	25	10	250	0.003
	Total	-	-	22,263	0.258
10. Ba	Pig	15	615	9,227	0.107
	Ox	35	715	25,009	0.289
	Buffalo	35	28	994	0.012
	Poultry	0.25	4,432	1,108	0.013
	Goat	25	-	-	-
	Total	-	-	36,339	0.421
11. Sesan	Pig	15	385	5,774	0.067
	Ox	35	436	15,250	0.176
	Buffalo	35	47	1,638	0.019
	Poultry	0.25	2,444	611	0.007
	Goat	25	-	-	-
	Total	-	-	23,272	0.269
12. Srepok	Pig	15	747	11,201	0.130
	Ox	35	448	15,680	0.181
	Buffalo	35	31	1,068	0.012
	Poultry	0.25	7,418	1,854	0.021
	Goat	25	-	-	-
	Total	-	-	29,803	0.345
13. Dong Nai	Pig	15	4,721	70,814	0.820
	Ox	35	821	28,742	0.333
	Buffalo	35	154	5,390	0.062
	Poultry	0.25	72,960	18,240	0.211
	Goat	25	-	-	-
	Total	-	-	123,186	1.426
14. Cuu Long Delta	Pig	15	10,677	160,157	1.854
	Ox	35	455	15,908	0.184
	Buffalo	35	47	1,635	0.019
	Poultry	0.25	131,980	32,995	0.382
	Goat	25	-	-	-
	Total	-	-	210,693	2.439

Bảng 6.7 Hiện trạng nhu cầu nước cho nuôi trồng thủy sản năm 2001 (1/2)

River Basin	Provinces concerned	Contribution to Basin	Coastal Shrimp Culture			Inland Fish Culture			Total Fresh Water Consumption (m ³ /year)	Average Intake Discharge (m ³ /sec)
			Provincial Shrimp Area (ha)	Shrimp Area in Basin (ha)	Fresh Water Consumption (m ³ /year)	Provincial Fish Area (ha)	Fish Area in Basin (ha)	Fresh Water Consumption (m ³ /year)		
01. Bang Giang	11. Cao Bang	65%	-	-	-	185	120	4,088,500	4,088,500	0.130
	14. Lang Son	70%	-	-	-	630	441	14,994,000	14,994,000	0.475
	13. Bac Kan	40%	-	-	-	370	148	5,032,000	5,032,000	0.160
	Subtotal			-	-		709	24,114,500	24,114,500	0.765
02. Red	01. Ha Noi	100%	-	-	-	2,900	2,900	98,600,000	98,600,000	3.127
	02. Hai Phong	100%	3,700	3,700	17,020,000	6,900	6,900	234,600,000	251,620,000	7.979
	19. Vinh Phuc	100%	-	-	-	2,410	2,410	81,940,000	81,940,000	2.598
	03. Ha Tay	100%	3	3	13,800	7,000	7,000	238,000,000	238,013,800	7.547
	21. Bac Ninh	100%	-	-	-	2,765	2,765	94,010,000	94,010,000	2.981
	04. Hai Duong	100%	-	-	-	5,800	5,800	197,200,000	197,200,000	6.253
	05. Hung Yen	100%	-	-	-	3,300	3,300	112,200,000	112,200,000	3.558
	06. Ha Nam	100%	-	-	-	3,800	3,800	129,200,000	129,200,000	4.097
	07. Nam Dinh	100%	2,100	2,100	9,660,000	6,800	6,800	231,200,000	240,860,000	7.638
	08. Thai Binh	100%	2,245	2,245	10,327,000	5,780	5,780	196,520,000	206,847,000	6.559
	09. Ninh Binh	100%	850	850	3,910,000	2,850	2,850	96,900,000	100,810,000	3.197
	10. Ha Giang	100%	-	-	-	900	900	30,600,000	30,600,000	0.970
	12. Lao Cai	100%	-	-	-	662	662	22,508,000	22,508,000	0.714
	13. Bac Kan	60%	-	-	-	370	222	7,548,000	7,548,000	0.239
	15. Tuyen Quang	100%	-	-	-	1,100	1,100	37,400,000	37,400,000	1.186
	16. Yen Bai	100%	-	-	-	1,700	1,700	57,800,000	57,800,000	1.833
	17. Thai Nguyen	100%	-	-	-	4,470	4,470	151,980,000	151,980,000	4.819
	18. Phu Tho	100%	-	-	-	3,177	3,177	108,018,000	108,018,000	3.425
	20. Bac Giang	100%	-	-	-	3,289	3,289	111,826,000	111,826,000	3.546
	22. Quang Ninh	100%	780	780	3,588,000	12,150	12,150	413,100,000	416,688,000	13.213
23. Lai Chau	80%	-	-	-	1,000	800	27,200,000	27,200,000	0.863	
24. Son La	60%	-	-	-	945	567	19,278,000	19,278,000	0.611	
25. Hoa Binh	80%	-	-	-	1,300	1,040	35,360,000	35,360,000	1.121	
11. Cao Bang	35%	-	-	-	185	65	2,201,500	2,201,500	0.070	
14. Lang Son	30%	-	-	-	630	189	6,426,000	6,426,000	0.204	
Subtotal				9,678	44,518,800		80,636	2,741,615,500	2,786,134,300	88.348
03. Ma	26. Thanh Hoa	100%	4,550	4,550	20,930,000	8,600	8,600	292,400,000	313,330,000	9.936
	23. Lai Chau	20%	-	-	-	1,000	200	6,800,000	6,800,000	0.216
	24. Son La	40%	-	-	-	945	378	12,852,000	12,852,000	0.408
	25. Hoa Binh	20%	-	-	-	1,300	260	8,840,000	8,840,000	0.280
	27. Nghe An	20%	1,150	230	1,058,000	8,945	1,789	60,826,000	61,884,000	1.962
	Subtotal				4,780	21,988,000		11,227	381,718,000	403,706,000
04. Ca	27. Nghe An	80%	1,150	920	4,232,000	8,945	7,156	243,304,000	247,536,000	7.849
	28. Ha Tinh	80%	1,050	840	3,864,000	1,400	1,120	38,080,000	41,944,000	1.330
	Subtotal				1,760	8,096,000.00		8,276	281,384,000	289,480,000
05. Thach Han	30. Quang Tri	100%	190	190	874,000	520	520	17,680,000	18,554,000	0.588
	Subtotal				190	874,000		520	17,680,000	18,554,000
06. Huong	31. Thua Thien - Hue	100%	950	950	4,370,000	750	750	25,500,000	29,870,000	0.947
	33. Quang Nam	5%	1,200	60	276,000	3,400	170	5,780,000	6,056,000	0.192
	Subtotal				1,010	4,646,000		920	31,280,000	35,926,000

Data sources: Table 4.21- Fishes-area under water by provinces and Table 4.23 - Shrimp-area under water by provinces from Statistical Data of Vietnam Agriculture, Forestry and Fishery 1975-2000, General Statistical Office, Department of Agriculture, Forestry and Fishery)

Plan for aquaculture development in the 14. Cuu Long drafted by the Institute of Fishery Economics and Planning - Ministry of Fishery

Table 6.7 Hiện trạng nhu cầu nước cho nuôi trồng thủy sản năm 2001 (2/2)

River Basin	Provinces concerned	Contribution to Basin	Coastal Shrimp Culture			Inland Fish Culture			Total Fresh Water Consumption (m ³ /year)	Average Intake Discharge (m ³ /sec)
			Provincial Shrimp Area (ha)	Shrimp Area in Basin (ha)	Fresh Water Consumption (m ³ /year)	Provincial Fish Area (ha)	Fish Area in Basin (ha)	Fresh Water Consumption (m ³ /year)		
07. Thu Bon	32. Da Nang	30%	150	45	207,000	530	159	5,406,000	5,613,000	0.178
	33. Quang Nam	95%	1,200	1,140	5,244,000	3,400	3,230	109,820,000	115,064,000	3.649
	38. Kon Tum	10%	-	-	-	420	42	1,428,000	1,428,000	0.045
	Subtotal			1,185	5,451,000		3,431	116,654,000	122,105,000	3.872
08. Tra Khuc	34. Quang Ngai	75%	500	375	1,725,000	30	23	765,000	2,490,000	0.079
	38. Kon Tum	10%	-	-	-	420	42	1,428,000	1,428,000	0.045
	Subtotal			375	1,725,000		65	2,193,000	3,918,000	0.124
09. Kone	35. Binh Dinh	50%	1,870	935	4,301,000	1,370	685	23,290,000	27,591,000	0.875
	39. Gia Lai	5%	-	-	-	85	4	144,500	144,500	0.005
	Subtotal			935	4,301,000		689	23,434,500	27,735,500	0.879
10. Ba	36. Phu Yen	45%	1,855	835	3,839,850	70	32	1,071,000	4,910,850	0.156
	39. Gia Lai	65%	-	-	-	85	55	1,878,500	1,878,500	0.060
	40. Dak Lak	20%	5	1	4,600	3,075	615	20,910,000	20,914,600	0.663
	Subtotal			836	3,844,450		702	23,859,500	27,703,950	0.878
11. Se Sang	38. Kon Tum	80%	-	-	-	420	336	11,424,000	11,424,000	0.362
	39. Gia Lai	30%	-	-	-	85	26	867,000	867,000	0.027
	Subtotal			-	-		362	12,291,000	12,291,000	0.39
12. Srepok	40. Dak Lak	50%	-	-	-	3,075	1,538	52,275,000	52,275,000	1.658
	42. Lam Dong	25%	-	-	-	1,200	300	10,200,000	10,200,000	0.323
	Subtotal			-	-		1,838	62,475,000	62,475,000	1.981
13. Dong Nai	41. Ho Chi Minh Cty	85%	900	765	3,519,000	700	595	20,230,000	23,749,000	0.753
	42. Lam Dong	75%	-	-	-	1,200	900	30,600,000	30,600,000	0.970
	44. Binh Phuoc	100%	-	-	-	340	340	11,560,000	11,560,000	0.367
	45. Tay Ninh	100%	-	-	-	510	510	17,340,000	17,340,000	0.550
	46. Binh Duong	100%	-	-	-	167	167	5,678,000	5,678,000	0.180
	47. Dong Nai	80%	650	520	2,392,000	25,500	20,400	693,600,000	695,992,000	22.070
	48. Binh Thuan	40%	280	112	515,200	450	180	6,120,000	6,635,200	0.210
	50. Long An	100%	3,990	3,990	18,354,000	1,900	1,900	64,600,000	82,954,000	2.630
	40. Dak Lak	10%	5	1	2,300	3,075	308	10,455,000	10,457,300	0.332
	53. Tien Giang	30%	3,995	1,199	5,513,100	5,640	1,692	57,528,000	63,041,100	1.999
Subtotal			6,586	30,295,600		26,992	917,711,000	948,006,600	30.061	
14. Cuu Long Delta	51. Dong Thap	100%	120	120	552,000	1,600	1,600	54,400,000	54,952,000	1.743
	52. An Giang	100%	10	10	46,000	950	950	32,300,000	32,346,000	1.026
	53. Tien Giang	70%	3,995	2,797	12,863,900	5,640	3,948	134,232,000	147,095,900	4.664
	54. Vinh Long	100%	50	50	230,000	1,150	1,150	39,100,000	39,330,000	1.247
	55. Ben Tre	100%	35,583	35,583	163,681,800	1,400	1,400	47,600,000	211,281,800	6.700
	56. Kien Giang	100%	21,410	21,410	98,486,000	13,000	13,000	442,000,000	540,486,000	17.139
	57. Can Tho	100%	240	240	1,104,000	11,960	11,960	406,640,000	407,744,000	12.929
	58. Tra Vinh	100%	25,400	25,400	116,840,000	15,000	15,000	510,000,000	626,840,000	19.877
	59. Soc Trang	100%	39,000	39,000	179,400,000	2,900	2,900	98,600,000	278,000,000	8.815
	60. Bac Lieu	100%	58,591	58,591	269,518,600	7,650	7,650	260,100,000	529,618,600	16.794
	61. Ca mau	100%	209,000	209,000	961,400,000	60,000	60,000	2,040,000,000	3,001,400,000	95.174
	Subtotal			392,201	1,804,122,300		119,558	4,064,972,000	5,869,094,300	186.108

Data sources: Table 4.21- Fishes-area under water by provinces and Table 4.23 - Shrimp-area under water by provinces from Statistical Data of Vietnam Agriculture, Forestry and Fishery 1975-2000, General Statistical Office, Department of Agriculture, Forestry and Fishery)

Plan for aquaculture development in the 14. Cuu Long drafted by the Institute of Fishery Economics and Planning - Ministry of Fishery

Bảng 6.8 Nhu cầu nước cho nuôi trồng thủy sản năm 2010 (1/2)

River Basin	Provinces concerned	Contribution to Basin	Coastal Shrimp Culture			Inland Fish Culture			Total Fresh Water Consumption (m ³ /year)	Average Intake Discharge (m ³ /sec)
			Provincial Shrimp Area (ha)	Shrimp Area in Basin (ha)	Fresh Water Consumption (m ³ /year)	Provincial Fish Area (ha)	Fish Area in Basin (ha)	Fresh Water Consumption (m ³ /year)		
01. Bang Giang	11. Cao Bang	65%	-	-	-	210	137	4,641,000	4,641,000	0.147
	14. Lang Son	70%	-	-	-	693	485	16,493,400	16,493,400	0.523
	13. Bac Kan	40%	-	-	-	728	291	9,900,800	9,900,800	0.314
	Subtotal		-	-	-		913	31,035,200	31,035,200	0.984
02. Red	01. Ha Noi	100%	-	-	-	3,897	3,897	132,498,000	132,498,000	4.201
	02. Hai Phong	100%	6,166	6,166	28,363,600	11,499	11,499	390,966,000	419,329,600	13.297
	19. Vinh Phuc	100%	-	-	-	1,357	1,357	46,138,000	46,138,000	1.463
	03. Ha Tay	100%	3	3	13,800	8,084	8,084	274,856,000	274,869,800	8.716
	21. Bac Ninh	100%	-	-	-	4,344	4,344	147,696,000	147,696,000	4.683
	04. Hai Duong	100%	-	-	-	13,481	13,481	458,354,000	458,354,000	14.534
	05. Hung Yen	100%	-	-	-	4,815	4,815	163,710,000	163,710,000	5.191
	06. Ha Nam	100%	-	-	-	4,181	4,181	142,154,000	142,154,000	4.508
	07. Nam Dinh	100%	2,520	2,520	11,592,000	8,160	8,160	277,440,000	289,032,000	9.165
	08. Thai Binh	100%	3,076	3,076	14,149,600	7,920	7,920	269,280,000	283,429,600	8.987
	09. Ninh Binh	100%	1,721	1,721	7,916,600	5,771	5,771	196,214,000	204,130,600	6.473
	10. Ha Giang	100%	-	-	-	990	990	33,660,000	33,660,000	1.067
	12. Lao Cai	100%	-	-	-	728	728	24,752,000	24,752,000	0.785
	13. Bac Kan	60%	-	-	-	728	437	14,851,200	14,851,200	0.471
	15. Tuyen Quang	100%	-	-	-	1,210	1,210	41,140,000	41,140,000	1.305
	16. Yen Bai	100%	-	-	-	1,783	1,783	60,622,000	60,622,000	1.922
	17. Thai Nguyen	100%	-	-	-	4,918	4,918	167,212,000	167,212,000	5.302
	18. Phu Tho	100%	-	-	-	3,496	3,496	118,864,000	118,864,000	3.769
	20. Bac Giang	100%	-	-	-	7,967	7,967	270,878,000	270,878,000	8.589
	22. Quang Ninh	100%	1,339	1,339	6,159,400	20,853	20,853	709,002,000	715,161,400	22.678
23. Lai Chau	80%	-	-	-	1,172	938	31,878,400	31,878,400	1.011	
24. Son La	60%	-	-	-	2,901	1,741	59,180,400	59,180,400	1.877	
25. Hoa Binh	80%	-	-	-	1,430	1,144	38,896,000	38,896,000	1.233	
11. Cao Bang	35%	-	-	-	210	74	2,499,000	2,499,000	0.079	
14. Lang Son	30%	-	-	-	693	208	7,068,600	7,068,600	0.224	
Subtotal			14,825	68,195,000		119,994	4,079,809,600	4,148,004,600	131.532	
03. Ma	26. Thanh Hoa	100%	5,021	5,021	23,096,600	9,490	9,490	322,660,000	345,756,600	10.964
	23. Lai Chau	20%	-	-	-	1,172	234	7,969,600	7,969,600	0.253
	24. Son La	40%	-	-	-	2,901	1,160	39,453,600	39,453,600	1.251
	25. Hoa Binh	20%	-	-	-	1,430	286	9,724,000	9,724,000	0.308
	27. Nghe An	20%	-	-	-	13,203	2,641	89,780,400	89,780,400	2.847
	Subtotal			5,021	23,096,600		13,811	469,587,600	492,684,200	15.623
04. Ca	27. Nghe An	80%	1,697	1,358	6,244,960	13,203	10,562	359,121,600	365,366,560	11.586
	28. Ha Tinh	80%	1,155	924	4,250,400	1,540	1,232	41,888,000	46,138,400	1.463
	Subtotal			2,282	10,495,360,00		11,794	401,009,600	411,504,960	13.049
05. Thach Han	30. Quang Tri	100%	267	267	1,228,200	732	732	24,888,000	26,116,200	0.828
	Subtotal			267	1,228,200		732	24,888,000	26,116,200	0.828
06. Huong	31. Thua Thien - Hue	100%	3,231	3,231	14,862,600	2,550	2,550	86,700,000	101,562,600	3.221
	33. Quang Nam	5%	1,234	62	283,820	3,496	175	5,943,200	6,227,020	0.197
	Subtotal			3,293	15,146,420		2,725	92,643,200	107,789,620	3.418

Note. After the Governmental Resolution No. 09 of June 15, 2000 regarding land use transition from paddy area into shrimp cultivated area, the planned area for shrimp culture in the 14. Cuu Long Delta has been adjusted, and the estimation of its water demand has also been adjusted in accordance with it.

Bảng 6.8 Nhu cầu nước cho nuôi trồng thủy sản năm 2010 (2/2)

River Basin	Provinces concerned	Contribution to Basin	Coastal Shrimp Culture			Inland Fish Culture			Total Fresh Water Consumption (m ³ /year)	Average Intake Discharge (m ³ /sec)
			Provincial Shrimp Area (ha)	Shrimp Area in Basin (ha)	Fresh Water Consumption (m ³ /year)	Provincial Fish Area (ha)	Fish Area in Basin (ha)	Fresh Water Consumption (m ³ /year)		
07. Thu Bon	32. Da Nang	30%	177	53	244,260	625	188	6,375,000	6,619,260	0.210
	33. Quang Nam	95%	1,234	1,172	5,392,580	3,496	3,321	112,920,800	118,313,380	3.752
	38. Kon Tum	10%	-	-	-	462	46	1,570,800	1,570,800	0.050
	Subtotal			1,225	5,636,840		3,555	120,866,600	126,503,440	4.011
08. Tra Khuc	34. Quang Ngai	75%	550	413	1,897,500	33	25	841,500	2,739,000	0.087
	38. Kon Tum	10%	-	-	-	462	46	1,570,800	1,570,800	0.050
	Subtotal			413	1,897,500		71	2,412,300	4,309,800	0.137
09. Kone	35. Binh Dinh	50%	2,057	1,029	4,731,100	1,507	754	25,619,000	30,350,100	0.962
	39. Gia Lai	5%	-	-	-	94	5	159,800	159,800	0.005
	Subtotal			1,029	4,731,100		758	25,778,800	30,509,900	0.967
10. Ba	36. Phu Yen	45%	3,051	1,373	6,315,570	115	52	1,759,500	8,075,070	0.256
	39. Gia Lai	65%	-	-	-	94	61	2,810,600	2,810,600	0.089
	40. Dak Lak	20%	6	1	5,520	3,383	677	23,004,400	23,009,920	0.730
	Subtotal			1,374	6,321,090		789	27,574,500	33,895,590	1.075
11. Se Sang	38. Kon Tum	80%	-	-	-	462	370	12,566,400	12,566,400	0.398
	39. Gia Lai	30%	-	-	-	94	28	958,800	958,800	0.030
	Subtotal			-	-		398	13,525,200	13,525,200	0.43
12. Srepok	40. Dak Lak	50%	-	-	-	3,383	1,692	57,511,000	57,511,000	1.824
	42. Lam Dong	25%	-	-	-	1,320	330	11,220,000	11,220,000	0.356
	Subtotal			-	-		2,022	68,731,000	68,731,000	2.179
13. Dong Nai	41. Ho Chi Minh Cty	85%	1,223	1,040	4,781,930	951	808	27,483,900	32,265,830	1.023
	42. Lam Dong	75%	-	-	-	1,320	990	33,660,000	33,660,000	1.067
	44. Binh Phuoc	100%	-	-	-	374	374	12,716,000	12,716,000	0.403
	45. Tay Ninh	100%	-	-	-	811	811	27,574,000	27,574,000	0.874
	46. Binh Duong	100%	-	-	-	184	184	6,256,000	6,256,000	0.198
	47. Dong Nai	80%	500	400	1,840,000	26,500	21,200	720,800,000	722,640,000	22.915
	48. Binh Thuan	40%	308	123	566,720	495	198	6,732,000	7,298,720	0.231
	50. Long An	100%	5,100	5,100	23,460,000	4,500	4,500	153,000,000	176,460,000	5.596
	40. Dak Lak	10%	6	1	2,760	3,383	338	11,502,200	11,504,960	0.365
	53. Tien Giang	30%	3,755	1,127	5,181,900	5,500	1,650	56,100,000	61,281,900	1.943
Subtotal			7,790	35,833,310		31,054	1,055,824,100	1,091,657,410	34.616	
14. Cuu Long Delta	51. Dong Thap	100%	350	350	1,610,000	-	-	-	1,610,000	0.051
	52. An Giang	100%	130	130	598,000	15,000	15,000	510,000,000	510,598,000	16.191
	53. Tien Giang	70%	3,755	2,629	12,091,100	5,500	3,850	130,900,000	142,991,100	4.534
	54. Vinh Long	100%	55	55	253,000	12,600	12,600	428,400,000	428,653,000	13.592
	55. Ben Tre	100%	50,391	50,391	231,798,600	10,500	10,500	357,000,000	588,798,600	18.671
	56. Kien Giang	100%	51,967	51,967	239,048,200	40,300	40,300	1,370,200,000	1,609,248,200	51.029
	57. Can Tho	100%	4,000	4,000	18,400,000	44,000	44,000	1,496,000,000	1,514,400,000	48.021
	58. Tra Vinh	100%	13,400	13,400	61,640,000	36,000	36,000	1,224,187,000	1,285,827,000	40.773
	59. Soc Trang	100%	45,000	45,000	207,000,000	-	-	-	207,000,000	6.564
	60. Bac Lieu	100%	133,000	133,000	611,800,000	-	-	-	611,800,000	19.400
	61. Ca mau	100%	227,000	227,000	1,044,200,000	45,000	45,000	1,530,000,000	2,574,200,000	81.627
Subtotal			527,922	2,428,438,900		207,256	7,046,687,000	9,475,125,900	300.454	

Note. After the Governmental Resolution No. 09 of June 15, 2000 regarding land use transition from paddy area into shrimp cultivated area, the planned area for shrimp culture in the 14. Cuu Long Delta has been adjusted, and the estimation of its water demand has also been adjusted in accordance with it.

Bảng 6.9 Nhu cầu nước cho nuôi trồng thủy sản năm 2020 (1/2)

River Basin	Provinces concerned	Contribution to Basin	Coastal Shrimp Culture			Inland Fish Culture			Total Fresh Water Consumption (m ³ /year)	Average Intake Discharge (m ³ /sec)
			Provincial Shrimp Area (ha)	Shrimp Area in Basin (ha)	Fresh Water Consumption (m ³ /year)	Provincial Fish Area (ha)	Fish Area in Basin (ha)	Fresh Water Consumption (m ³ /year)		
01. Bang Giang	11. Cao Bang	65%	-	-	-	216	141	4,780,009	4,780,009	0.152
	14. Lang Son	70%	-	-	-	713	499	16,967,020	16,967,020	0.538
	13. Bac Kan	40%	-	-	-	790	316	10,749,848	10,749,848	0.341
	Subtotal			-	-		956	32,496,877	32,496,877	1.030
02. Red	01. Ha Noi	100%	-	-	-	4,232	4,232	143,903,640	143,903,640	4.563
	02. Hai Phong	100%	6,696	6,696	30,802,842	12,488	12,488	424,579,760	455,382,602	14.440
	19. Vinh Phuc	100%	-	-	-	1,474	1,474	50,113,960	50,113,960	1.589
	03. Ha Tay	100%	4	4	17,296	8,779	8,779	298,483,280	298,500,576	9.465
	21. Bac Ninh	100%	-	-	-	4,717	4,717	160,377,660	160,377,660	5.086
	04. Hai Duong	100%	-	-	-	14,640	14,640	497,758,300	497,758,300	15.784
	05. Hung Yen	100%	-	-	-	5,229	5,229	177,779,200	177,779,200	5.637
	06. Ha Nam	100%	-	-	-	4,540	4,540	154,375,640	154,375,640	4.895
	07. Nam Dinh	100%	2,737	2,737	12,588,774	8,862	8,862	301,296,780	313,885,554	9.953
	08. Thai Binh	100%	3,341	3,341	15,367,174	8,601	8,601	292,432,980	307,800,154	9.760
	09. Ninh Binh	100%	1,869	1,869	8,598,090	6,267	6,267	213,082,760	221,680,850	7.029
	10. Ha Giang	100%	-	-	-	1,075	1,075	36,562,580	36,562,580	1.159
	12. Lao Cai	100%	-	-	-	791	791	26,894,000	26,894,000	0.853
	13. Bac Kan	60%	-	-	-	790	474	16,124,772	16,124,772	0.511
	15. Tuyen Quang	100%	-	-	-	1,314	1,314	44,687,560	44,687,560	1.417
	16. Yen Bai	100%	-	-	-	1,937	1,937	65,848,480	65,848,480	2.088
	17. Thai Nguyen	100%	-	-	-	5,341	5,341	181,594,340	181,594,340	5.758
	18. Phu Tho	100%	-	-	-	3,796	3,796	129,066,040	129,066,040	4.093
	20. Bac Giang	100%	-	-	-	8,652	8,652	294,157,460	294,157,460	9.328
	22. Quang Ninh	100%	1,454	1,454	6,687,388	22,645	22,645	769,945,980	776,633,368	24.627
23. Lai Chau	80%	-	-	-	1,273	1,018	34,620,160	34,620,160	1.098	
24. Son La	60%	-	-	-	3,151	1,890	64,271,832	64,271,832	2.038	
25. Hoa Binh	80%	-	-	-	1,553	1,243	42,250,032	42,250,032	1.340	
11. Cao Bang	35%	-	-	-	216	76	2,573,851	2,573,851	0.082	
14. Lang Son	30%	-	-	-	713	214	7,271,580	7,271,580	0.231	
Subtotal			16,100	16,100	74,061,564	130,296	4,430,052,627	4,504,114,191	142.825	
03. Ma	26. Thanh Hoa	100%	5,147	5,147	23,674,912	9,728	9,728	330,747,580	354,422,492	11.239
	23. Lai Chau	20%	-	-	-	1,273	255	8,655,040	8,655,040	0.274
	24. Son La	40%	-	-	-	3,151	1,260	42,847,888	42,847,888	1.359
	25. Hoa Binh	20%	-	-	-	1,553	311	10,562,508	10,562,508	0.335
	27. Nghe An	20%	1,805	361	1,660,536	14,039	2,808	95,466,492	97,127,028	3.080
	Subtotal			5,508	5,508	25,335,448	14,361	488,279,508	513,614,956	16.287
04. Ca	27. Nghe An	80%	1,805	1,444	6,642,142	14,039	11,231	381,865,968	388,508,110	12.320
	28. Ha Tinh	80%	1,228	983	4,520,770	1,638	1,310	44,552,512	49,073,282	1.556
	Subtotal			2,427	11,162,912,000	12,542	12,542	426,418,480	437,581,392	13.876
05. Thach Han	30. Quang Tri	100%	292	292	1,341,820	798	798	27,143,560	28,485,380	0.903
	Subtotal			292	1,341,820	798	798	27,143,560	28,485,380	0.903
06. Huong	31. Thua Thien - Hue	100%	4,450	4,450	20,471,288	3,513	3,513	119,454,920	139,926,208	4.437
	33. Quang Nam	5%	1,264	63	290,821	3,583	179	6,090,369	6,381,190	0.202
	Subtotal			4,514	20,762,109	3,693	3,693	125,545,289	146,307,398	4.639

Note. After the Governmental Resolution No. 09 of June 15, 2000 regarding land use transition from paddy area into shrimp cultivated area, the planned area for shrimp culture in the 14. Cuu Long Delta has been adjusted, and the estimation of its water demand has also been adjusted in accordance with it.

Bảng 6.9 Nhu cầu nước cho nuôi trồng thủy sản năm 2020 (2/2)

River Basin	Provinces concerned	Contribution to Basin	Coastal Shrimp Culture			Inland Fish Culture			Total Fresh Water Consumption (m ³ /year)	Average Intake Discharge (m ³ /sec)
			Provincial Shrimp Area (ha)	Shrimp Area in Basin (ha)	Fresh Water Consumption (m ³ /year)	Provincial Fish Area (ha)	Fish Area in Basin (ha)	Fresh Water Consumption (m ³ /year)		
07. Thu Bon	32. Da Nang	30%	181	54	250,304	641	192	6,536,976	6,787,280	0.215
	33. Quang Nam	95%	1,264	1,201	5,525,603	3,583	3,403	115,717,011	121,242,614	3.845
	38. Kon Tum	10%	-	-	-	473	47	1,609,288	1,609,288	0.051
	Subtotal			1,256	5,775,907		3,643	123,863,275	129,639,182	4.111
08. Tra Khuc	34. Quang Ngai	75%	605	454	2,087,250	34	25	862,155	2,949,405	0.094
	38. Kon Tum	10%	-	-	-	473	47	1,609,288	1,609,288	0.051
	Subtotal			454	2,087,250		73	2,471,443	4,558,693	0.145
09. Kone	35. Binh Dinh	50%	2,107	1,054	4,846,997	1,544	772	26,246,640	31,093,637	0.986
	39. Gia Lai	5%	-	-	-	101	5	171,445	171,445	0.005
	Subtotal			1,054	4,846,997		777	26,418,085	31,265,082	0.991
10. Ba	36. Phu Yen	45%	3,290	1,480	6,809,493	124	56	1,899,342	8,708,835	0.276
	39. Gia Lai	65%	-	-	-	101	66	2,228,785	2,228,785	0.071
	40. Dak Lak	20%	6	1	5,180	3,465	693	23,564,516	23,569,696	0.747
	Subtotal			1,481	6,814,672		814	27,692,643	34,507,315	1.094
11. Se Sang	38. Kon Tum	80%	-	-	-	473	379	12,874,304	12,874,304	0.408
	39. Gia Lai	30%	-	-	-	101	30	1,028,670	1,028,670	0.033
	Subtotal			-	-		409	13,902,974	13,902,974	0.44
12. Srepok	40. Dak Lak	50%	-	-	-	3,465	1,733	58,911,290	58,911,290	1.868
	42. Lam Dong	25%	-	-	-	1,411	353	11,996,135	11,996,135	0.380
	Subtotal			-	-		2,086	70,907,425	70,907,425	2.248
13. Dong Nai	41. Ho Chi Minh Cty	85%	1,307	1,111	5,109,471	1,016	864	29,373,382	34,482,853	1.093
	42. Lam Dong	75%	-	-	-	1,411	1,058	35,988,405	35,988,405	1.141
	44. Binh Phuoc	100%	-	-	-	400	400	13,595,580	13,595,580	0.431
	45. Tay Ninh	100%	-	-	-	867	867	29,480,720	29,480,720	0.935
	46. Binh Duong	100%	-	-	-	196	196	6,677,940	6,677,940	0.212
	47. Dong Nai	80%	534	428	1,966,813	28,327	22,661	770,483,792	772,450,605	24.494
	48. Binh Thuan	40%	329	132	605,930	529	212	7,197,664	7,803,594	0.247
	50. Long An	100%	5,452	5,452	25,077,084	4,810	4,810	163,544,760	188,621,844	5.981
	40. Dak Lak	10%	6	1	2,590	3,465	347	11,782,258	11,784,848	0.374
	53. Tien Giang	30%	4,819	1,446	6,650,137	7,058	2,118	71,995,374	78,645,511	2.494
Subtotal			8,568	39,412,025		33,533	1,140,119,875	1,179,531,900	37.403	
14. Cuu Long Delta	51. Dong Thap	100%	449	449	2,066,182	-	-	-	2,066,182	0.066
	52. An Giang	100%	167	167	767,464	19,250	19,250	654,503,060	655,270,524	20.778
	53. Tien Giang	70%	4,819	3,373	15,516,987	7,058	4,941	167,989,206	183,506,193	5.819
	54. Vinh Long	100%	71	71	324,760	16,170	16,170	549,782,720	550,107,480	17.444
	55. Ben Tre	100%	64,689	64,689	297,568,296	13,475	13,475	458,152,040	755,720,336	23.964
	56. Kien Giang	100%	66,691	66,691	306,779,980	51,719	51,719	1,758,431,720	2,065,211,700	65.487
	57. Can Tho	100%	5,133	5,133	23,613,456	56,467	56,467	1,919,875,960	1,943,489,416	61.628
	58. Tra Vinh	100%	17,197	17,197	79,105,050	46,207	46,207	1,571,047,520	1,650,152,570	52.326
	59. Soc Trang	100%	57,750	57,750	265,651,288	-	-	-	265,651,288	8.424
	60. Bac Lieu	100%	170,684	170,684	785,147,090	-	-	-	785,147,090	24.897
	61. Ca mau	100%	291,318	291,318	1,340,063,122	57,750	57,750	1,963,509,520	3,303,572,642	104.756
Subtotal			677,523	3,116,603,675		265,979	9,043,291,746	12,159,895,421	385.588	

Note. After the Governmental Resolution No. 09 of June 15, 2000 regarding land use transition from paddy area into shrimp cultivated area, the planned area for shrimp culture in the 14. Cuu Long Delta has been adjusted, and the estimation of its water demand has also been adjusted in accordance with it.

Bảng 6.10 Dân số lưu vực sông (Nguồn: Khuôn khổ kinh tế - xã hội)

River Basins	Population 2001			Population 2005			Population 2010		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Bang Giang and Ky Cung	204,000	1,030,000	1,234,000	211,000	1,080,000	1,291,000	222,000	1,144,000	1,366,000
Red and Thai Binh River Basin	5,306,000	22,282,000	27,588,000	6,650,000	22,759,000	29,409,000	8,445,000	23,050,000	31,495,000
Ma River	378,000	3,227,000	3,605,000	568,000	3,222,000	3,790,000	995,000	2,985,000	3,980,000
Ca River	373,000	4,021,000	4,394,000	543,000	4,144,000	4,687,000	716,000	4,273,000	4,989,000
Thach Han River	148,000	450,000	598,000	154,000	479,000	633,000	163,000	506,000	669,000
Huong River	319,000	764,000	1,083,000	348,000	794,000	1,142,000	400,000	820,000	1,220,000
Vu Gia-Thu Bon River	789,995	1,343,005	2,133,000	859,282	1,386,718	2,246,000	974,957	1,440,043	2,415,000
Tra Khuc River	145,000	1,069,000	1,214,000	152,000	1,121,000	1,273,000	161,000	1,184,000	1,345,000
Kone River	363,000	1,140,000	1,503,000	387,000	1,186,000	1,573,000	437,000	1,247,000	1,684,000
Ba River	423,000	1,411,000	1,834,000	486,000	1,517,000	2,003,000	629,000	1,626,000	2,255,000
Dong Nai River	5,464,607	6,501,393	11,966,000	6,664,491	6,951,509	13,616,000	7,865,710	7,365,290	15,231,000
Sesan River (Xe Xan)	226,000	112,000	338,000	247,000	133,000	380,000	260,000	160,000	420,000
Srepok River (Xre Pok)	412,000	1,528,000	1,940,000	484,060	1,705,940	2,190,000	614,033	1,934,967	2,549,000
Mekong River	3,035,987	13,796,013	16,832,000	3,883,940	14,165,060	18,049,000	4,952,397	14,513,603	19,466,000
Totals	17,587,590	58,674,410	76,262,000	21,637,773	60,644,227	82,282,000	26,835,097	62,248,903	89,084,000

River Basins	Population 2015			Population 2020		
	Urban	Rural	Total	Urban	Rural	Total
Bang Giang and Ky Cung	233,000	1,212,000	1,445,000	245,000	1,285,000	1,530,000
Red and Thai Binh River Basin	9,622,000	23,841,000	33,463,000	11,009,000	24,717,000	35,726,000
Ma River	1,046,000	3,137,000	4,183,000	1,099,000	3,297,000	4,396,000
Ca River	777,000	4,494,000	5,271,000	843,000	4,732,000	5,575,000
Thach Han River	172,000	534,000	706,000	182,000	564,000	746,000
Huong River	460,000	847,000	1,307,000	528,000	875,000	1,403,000
Vu Gia-Thu Bon River	1,034,700	1,483,300	2,518,000	1,095,758	1,523,242	2,619,000
Tra Khuc River	170,000	1,251,000	1,421,000	180,000	1,321,000	1,501,000
Kone River	483,000	1,310,000	1,793,000	533,000	1,377,000	1,910,000
Ba River	664,000	1,714,000	2,378,000	700,000	1,807,000	2,507,000
Dong Nai River	8,599,910	7,666,090	16,266,000	9,403,668	7,977,332	17,381,000
Sesan River	281,000	199,000	480,000	303,000	247,000	550,000
Srepok River	763,899	2,171,101	2,935,000	924,986	2,400,014	3,325,000
Mekong River	5,255,746	15,215,254	20,471,000	5,568,984	15,940,016	21,509,000
Totals	29,562,256	65,074,744	94,637,000	32,615,395	68,062,605	100,678,000

Bảng 6.11 Tình hình cấp nước tại các thành phố/thị xã

(As per investigation of the JICA Study Team, year 2001)

Name City/Town	River Basin	Population		House connections	Water Production		Water Use from WSC (demand/sales)					UFW =(P-C)/P %	Service Coverage =Pop/S %	Per Capita Use =HC/(S-(PT;.025)) lpcd	Sources		Pipelines		Source of Information
		Total (=Pop) 2001	Served (=S)		Max. Cap. m ³ /day	by WSC (=P) m ³ /day	Houseconn. (=HC) m ³ /day	Public taps (=PT) m ³ /day	Ind/comm m ³ /day	Institutions m ³ /day	Total used (=C) m ³ /day				Rivers %	Groundwater %	Transport km	Distribution km	
Primary Cities																			
Hanoi (1)	Red River	1,603,400	1,225,000	175,000	410,000	360,000	60,000	2,000	41,600	6,000	109,600	70%	76%	52	0%	100%	40	460	ADB '97/ WB WatSup '97
Hai Phong (2)	Red River	579,000	430,000	105,000	146,000	126,000	31,500	1,500	12,600	4,000	49,600	61%	74%	85	100%	0%	27	157	WB WatSup '97
Ho Chi Minh City	Dong Nai	4,208,000	2,365,000	236,433	730,000	706,000	321,500	100	235,000	25,000	581,600	18%	56%	136	89%	11%	190	800	ADB '97
Da Nang (3)	Thu Bon	558,000	275,000	34,000	120,000	90,000	36,000	0	10,000	5,000	51,000	43%	49%	131	100%	0%	30	160	WB WatSup '97
Hue City	Huong River	318,000	275,000	32,000	80,000	43,000	25,000	0	5,000	1,900	31,900	26%	86%	91	100%	0%			WSC interview '01
Totals/Averages Primary Cities		7,266,400	4,570,000	582,433	1,486,000	1,325,000	474,000	3,600	304,200	41,900	823,700	43%	69%	99					
Secondary Cities >100,000																			
Ha Long & Cam Pha (4)	Red River	350,000	150,000	33,000	80,000	-	-	-	-	-	-	-	43%	-	80%	20%	116	400	WB WatSup '97
Thai Nguyen	Red River	130,000	40,000	8,889	-	20,000	6,800	0	5,600	-	12,400	38%	31%	170	✓	✓	-	-	D. Boggs, ADB 1995
Viet Tri	Red River	130,000	65,000	14,444	-	26,000	6,100	0	9,500	-	15,600	40%	50%	94	100%	0%	-	-	D. Boggs, ADB 1995
Hai Duong (5)	Red River	226,000	64,000	14,222	20,750	14,500	8,700	0	450	450	9,600	34%	28%	136	95%	5%	7	22.5	JICA '99
Thai Binh	Red River	90,000	60,000	13,333	-	9,000	3,400	0	2,000	-	5,400	40%	67%	57	100%	0%	-	-	D. Boggs, ADB 1995
Nam Dinh	Red River	200,000	40,000	8,889	-	36,000	4,000	5,700	8,300	-	18,000	50%	20%	?	100%	0%	-	-	D. Boggs, ADB 1995
Thanh Hoa (6)	Ma River	290,000	80,000	19,500	28,000	19,000	7,333	0	377	3,200	10,910	43%	28%	92	90%	10%	153	132	WSC interview '01
Vinh	Ca River	130,000	65,000	14,444	-	20,000	4,900	2,600	2,500	-	10,000	50%	50%	?	100%	0%	-	-	D. Boggs, ADB 1995
Dong Ha	not in project	100,000	36,000	8,000	-	20,000	8,800	0	1,200	-	10,000	50%	36%	244	100%	0%	-	-	D. Boggs, ADB 1995
Kon Tum	Sesan River	110,000	no information																
Quy Nhon (7)	Kone River	320,000	85,375	17,800	20,000	20,000	9,200	0	325	2,480	12,005	40%	27%	108	0	100%	32	15	WSC interview '01
Tuy Hoa	Ba River	154,000	no information																
Buon Ma Thuot	Srepok River	101,000	86,000	19,111	-	9,300	5,600	0	-	-	5,600	40%	85%	65	100%	0%	-	-	D. Boggs, ADB 1995
Pleiku	Srepok River	55,000	30,000	6,667	-	5,800	3,500	0	-	-	3,500	40%	55%	117	?	?	-	-	D. Boggs, ADB 1995
Nha Trang	not in project	200,000	40,000	8,889	-	6,000	3,600	0	-	-	3,600	40%	20%	90	✓	✓	-	-	D. Boggs, ADB 1995
Da Lat	not in project	107,000	90,000	20,000	-	17,500	10,500	0	-	-	10,500	40%	84%	117	100%	0%	-	-	D. Boggs, ADB 1995
Bien Hoa	Dang Nai	258,000	120,000	26,667	-	29,000	17,400	0	-	-	17,400	40%	47%	145	100%	0%	-	-	D. Boggs, ADB 1995
Phan Thiet	not in project	90,000	45,000	10,000	-	3,500	2,100	0	-	-	2,100	40%	50%	47	100%	0%	-	-	D. Boggs, ADB 1995
Long Xuyen	Mekong River	165,000	135,000	30,000	-	14,500	8,700	0	-	-	8,700	40%	82%	64	100%	0%	-	-	D. Boggs, ADB 1995
My Tho	Mekong River	125,000	85,000	18,889	-	14,000	8,400	0	-	-	8,400	40%	68%	99	100%	0%	-	-	D. Boggs, ADB 1995
Vung Tau and Ba Ria	not in project	154,000	42,000	9,333	-	20,000	3,000	0	9,000	-	12,000	40%	27%	71	✓	✓	-	-	D. Boggs, ADB 1995
Can Tho	Mekong River	230,000	180,000	40,000	-	30,000	18,000	0	-	-	18,000	40%	78%	100	100%	0%	-	-	D. Boggs, ADB 1995
Rach Gia	Mekong River	95,000	80,000	17,778	-	14,000	8,400	0	-	-	8,400	40%	84%	105	✓	✓	-	-	D. Boggs, ADB 1995
Ca Mau	Mekong River	77,000	37,000	8,222	-	3,800	2,300	0	-	-	2,300	39%	48%	62	-	?	-	-	D. Boggs, ADB 1995
Bac Lieu	Mekong River	84,000	46,000	10,222	-	5,500	3,300	0	-	-	3,300	40%	55%	72	-	?	-	-	D. Boggs, ADB 1995
Totals Secondary Towns		3,971,000	1,701,375		357,400	154,033	8,300	39,252	207,715										
Averages		158,840	73,973		16,245	7,002	377	1,869	9,442			41%	51%	103					

Source information:

- (1-4) Hanoi, Hai Phong, Da Nang The facilities of these 3 cities will be upgraded under the World Bank Water Supply Project, to be completed in 2003. Project was delayed by two years, halfway target figures have been included.
- (5) Hai Duong* The production capacity in Hai Duong will be extended with 10,200 m³/day in 2002 (JICA project), thereby allowing for an imminent increase of service coverage to 46% (105,000 people)
- (6) Thanh Hoa Includes Bim Son and sam Son, extension of production capacity planned of 50,000 m³/day by 2001
- (7) Qui Nhon Extension of capacity planned for end 2003 of 25,000 m³/day and 8,500 m³/day for industrial zone at Phu T:

- ADB Data '97 = ADB 2nd Water Utility Data Book 1997
- WB WatSup '97 = World Bank Water Supply Project 1997 (4 cities)
- D. Boggs '95 = Municipal and Industrial Water Supply and Disposal, D. Boggs, ADB 1995
- WSC interview '01 = visit Water Supply Company of concerned town, 2001
- JICA '99 = Basic Design Report JICA '99

Bảng 6.12 Tình hình cấp nước ở nông thôn

(Source: General Statistics Office - Analysis of Results of the Multiple Indicator Cluster Survey II (MICSII))

Provision	% of rural pop.	Typical use lpcd	Relative share lpcd	Weighted average lpcd
Inside private tap	0.70%	100	0.7	
Outside private tap	0.13%	75	0.0975	
Public Standpipe	0.03%	45	0.0135	
Drilled well & pump	21.3%	25	5.32	
Protected handdug well	36.5%	25	9.1175	
Spring with filter	0.82%	25	0.205	
Sum safe supply:	59.4%			26.00
Rain water	14.1%	20	2.816	
Unprotected well	6.8%	25	1.705	
Unprotected spring	5.4%	25	1.345	
Surface water	13.5%	15	2.0265	
Water vendors	0.02%	15	0.003	
Other	0.74%	15	0.111	
Sum unsafe supply	40.6%			19.74
Total	100.0%			~ 25 lpcd

Bảng 6.13 Cơ cấu giá nước ở Việt Nam

User category	Price per m3
Households	1300 - 2000 VND
Institutions	2000 - 2500 VND
Industry	3000 - 3500 VND
Commerce	4000 - 6000 VND

**Bảng 6.14(1) -- Khả năng yêu cầu nước từ năm 2001 đến năm 2020
to be provided by Water Supply Companies**

River Basins	Urban actual water use 100 lpcd, UFW = 40% Coverage = 60%, Institutional use = 15% Rural 25 lpcd, no UFW, coverage = 30%			Urban actual water use 110 lpcd, UFW = 40% Coverage = 70%, Institutional use = 15% Rural 25 lpcd, no UFW, coverage = 35%			Urban actual water use 120 lpcd, UFW = 40% Coverage = 75%, Institutional use = 15% Rural 30 lpcd, no UFW, coverage = 40%			Urban actual water use 130 lpcd, UFW = 40% Coverage = 80%, Institutional use = 15% Rural 35 lpcd, no UFW, coverage = 45%			Urban actual water use 140 lpcd, UFW = 40% Coverage = 85%, Institutional use = 15% Rural 40 lpcd, no UFW, coverage = 50%		
	Water use 2001 (m ³ /day)			Water Demand 2005 (m ³ /day)			Water Demand 2010 (m ³ /day)			Water Demand 2015 (m ³ /day)			Water Demand 2020 (m ³ /day)		
	Urban*	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Bang Giang and Ky Cung	19,706	7,725	27,431	26,158	9,450	35,608	32,168	13,728	45,896	39,014	19,089	58,103	46,940	25,700	72,640
Red and Thai River Basin	512,560	167,115	679,675	824,401	199,141	1,023,542	1,223,681	276,600	1,500,281	1,611,108	375,496	1,986,603	2,109,214	494,340	2,603,554
Ma River	36,515	24,203	60,717	70,415	28,193	98,607	144,176	35,820	179,996	175,142	49,408	224,550	210,557	65,940	276,497
Ca River	36,032	30,158	66,189	67,316	36,260	103,576	103,748	51,276	155,024	130,101	70,781	200,881	161,510	94,640	256,150
Trach Han River	14,297	3,375	17,672	19,091	4,191	23,283	23,619	6,072	29,691	28,800	8,411	37,210	34,869	11,280	46,149
Huong River	30,815	5,730	36,545	43,142	6,948	50,089	57,960	9,840	67,800	77,022	13,340	90,363	101,160	17,500	118,660
Vu Gia-Thu Bon River	76,314	10,073	86,386	106,525	12,134	118,659	141,271	17,281	158,552	173,250	23,362	196,612	209,936	30,465	240,401
Tra Khuc River	14,007	8,018	22,025	18,843	9,809	28,652	23,329	14,208	37,537	28,465	19,703	48,168	34,486	26,420	60,906
Kone River	35,066	8,550	43,616	47,976	10,378	58,354	63,321	14,964	78,285	80,874	20,633	101,506	102,117	27,540	129,657
Ba River	40,862	10,583	51,444	60,249	13,274	73,523	91,142	19,512	110,654	111,180	26,996	138,176	134,113	36,140	170,253
Dong Nai River	527,881	48,760	576,641	826,197	60,826	887,023	1,139,741	88,383	1,228,125	1,439,969	120,741	1,560,710	1,801,649	159,547	1,961,195
Sesan River	21,832	840	22,672	30,621	1,164	31,784	37,674	1,920	39,594	47,051	3,134	50,185	58,052	4,940	62,992
Srepok River	39,799	11,460	51,259	60,009	14,927	74,936	88,973	23,220	112,193	127,907	34,195	162,102	177,218	48,000	225,218
Mekong River	293,276	103,470	396,746	481,492	123,944	605,436	717,602	174,163	891,766	880,022	239,640	1,119,662	1,066,962	318,800	1,385,762
Totals (in m³/day)	1,698,961	440,058	2,139,019	2,682,435	530,637	3,213,072	3,888,405	746,987	4,635,392	4,949,904	1,024,927	5,974,831	6,248,783	1,361,252	7,610,036
Totals (in M m³/year)	620	161	781	979	194	1,173	1,419	273	1,692	1,807	374	2,181	2,281	497	2,778

**Table 6.14(2) -- Khả năng yêu cầu nước từ năm 2001 đến năm 2020
including non-connected people**

River Basins	Water use 2001 (m ³ /day)			Water Demand 2005 (m ³ /day)			Water Demand 2010 (m ³ /day)			Water Demand 2015 (m ³ /day)			Water Demand 2020 (m ³ /day)		
	Urban*	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Bang Giang and Ky Cung	21,746	25,750	47,496	27,740	27,000	54,740	33,555	30,888	64,443	40,179	35,754	75,933	47,858	41,763	89,621
Red and Thai River Basin	565,620	557,050	1,122,670	874,276	568,975	1,443,251	1,223,681	622,350	1,846,031	1,659,218	703,310	2,362,527	2,150,498	803,303	2,953,801
Ma River	40,295	80,675	120,970	74,675	80,550	155,225	144,176	80,595	224,771	180,372	92,542	272,914	214,679	107,153	321,831
Ca River	39,762	100,525	140,287	71,388	103,600	174,988	103,748	115,371	219,119	133,986	132,573	266,559	164,672	153,790	318,462
Trach Han River	15,777	11,250	27,027	20,246	11,975	32,221	23,619	13,662	37,281	29,660	15,753	45,413	35,552	18,330	53,882
Huong River	34,005	19,100	53,105	45,752	19,850	65,602	57,960	22,140	80,100	79,322	24,987	104,309	103,140	28,438	131,577
Vu Gia-Thu Bon River	84,214	33,575	117,789	112,970	34,668	147,638	141,271	38,881	180,152	178,424	43,757	222,181	214,045	49,505	263,551
Tra Khuc River	15,457	26,725	42,182	19,983	28,025	48,008	23,329	31,968	55,297	29,315	36,905	66,219	35,161	42,933	78,094
Kone River	38,696	28,500	67,196	50,879	29,650	80,529	63,321	33,669	96,990	83,289	38,645	121,934	104,116	44,753	148,869
Ba River	45,092	35,275	80,367	63,894	37,925	101,819	91,142	43,902	135,044	114,500	50,563	165,063	136,738	58,728	195,466
Dong Nai River	582,527	162,535	745,062	876,181	173,788	1,049,968	1,139,741	198,863	1,338,604	1,482,968	226,150	1,709,118	1,836,912	259,263	2,096,176
Sesan River	24,092	2,800	26,892	32,473	3,325	35,798	37,674	4,320	41,994	48,456	5,871	54,326	59,188	8,028	67,216
Srepok River	43,919	38,200	82,119	63,639	42,649	106,288	88,973	52,244	141,217	131,727	64,047	195,774	180,687	78,000	258,687
Mekong River	323,636	344,900	668,537	510,622	354,127	864,748	717,602	391,867	1,109,470	906,301	448,850	1,355,151	1,087,845	518,051	1,605,896
Totals (in m³/day)	1,874,837	1,466,860	3,341,697	2,844,718	1,516,106	4,360,824	3,889,793	1,680,720	5,570,513	5,097,715	1,919,705	7,017,420	6,371,091	2,212,035	8,583,126
Totals (in M m³/year)	684	535	1,220	1,038	553	1,592	1,420	613	2,033	1,861	701	2,561	2,325	807	3,133

NB: Urban*: The figures in this column are theoretically calculated based on the assumptions mentioned in paragraph 9.3.2. It is obvious that these theoretical production figures will differ from the actual production as given in table 9.3.2, since UFW, coverage and per capita demand are in reality not uniform as assumed in this table.

Bảng 6.15 Dự báo nhu cầu nước bổ sung của khu chế xuất (EPZ) và khu công nghiệp (IE)

Zone	Name	River Basin	Surface area ha	Employees no.	Type industry	Typ. demand m ³ /ha/day	Demand m ³ /day
Hanoi Area	Bac Nam - Thang Long IE	Red River	1,000	32,500	medium	200	200,000
	Gia Lam Centralised IE	Red River	400	32,500	medium	200	80,000
	Soc Son IE	Red River	300	42,500	medium	200	60,000
	Noi Bai EPZ	Red River	760	25,000	medium	200	152,000
	Sum						492,000
Haiphong Area	Northwest Haiphong IE	Red River	500	26,000	heavy	500	250,000
	Vat Cach IE	Red River	300	19,200	medium	200	60,000
	Khu Minh Duc IE	Red River	100	6,400	heavy	500	50,000
	Khu Ben Rung IE	Red River	100	6,400	heavy	500	50,000
	Dinh Vu IE and EPZ	Red River	100	6,400	port	200	20,000
	Haiphong EPZ	Red River	1000	64,000	medium	200	200,000
	Sum						630,000
Quang Ninh Province	Can Lin Port IE/EPZ	Red River	300	19,200	port	200	60,000
Sum						60,000	
Quang Nam - Da Nang	Xuan Thieu IE	Thu Bon	300	19,200	heavy	500	150,000
	Ghia Gai IE	Thu Bon	300	19,200	medium	500	150,000
	Hoa Khan EPZ	Thu Bon	200	12,800	light	75	15,000
	Tien Sa	Thu Bon	80	5,120	light	75	6,000
	Thuan Quoc IE	Thu Bon	20	1,280	light	75	1,500
	Hoa Tho IE	Thu Bon	80	5,120	light	75	6,000
	Hoa Khuong IE	Thu Bon	200	12,800	medium	500	100,000
	Dien Ngoc - Dien Nam IE	Thu Bon	30	1,920	light	75	2,250
	The Au Don EPZ	Thu Bon	120	7,680	water treatment	0	-
	An Don EPZ	Thu Bon	120	7,680	light	75	9,000
	Sum						559,750
Ho Chi Minh City Area	HCMC existing	Dong Nai	8,000	512,000	medium	200	1,600,000
	Sum						1,600,000
	HCMC planned	Dong Nai	5,000	320,000	light	75	375,000
	Bien Hoa IE	Dong Nai	1,200	76,800	medium	200	240,000
	Sum						615,000
	Tham Phuk IE	Dong Nai	800	51,200	light	75	60,000
	Nam Trach IE	Dong Nai	12,000	768,000	light	75	900,000
	Go Dau IE	Dong Nai	500	32,000	light	75	37,500
	Phu My Power Plant	Dong Nai		-	heavy	500	-
	My Son	Dong Nai	100	6,400	heavy	500	50,000
	Than Thuan EPZ	Dong Nai	300	19,200	medium	200	60,000
	Linh Trung EPZ	Dong Nai	60	3,840	light	75	4,500
	Sum						1,112,000
Vung Tau Area	Long Huong IE	not in project	600	38,400	light	75	45,000
	Phuoc Thang IE	not in project	100	6,400	light	75	7,500
	Can Tho EPZ	not in project	150	9,600	light	75	11,250
Sum						63,750	
Totals			35,120	2,216,740			
Totals (m³/day)							5,072,500
Totals (M m³/yr)							1,851

Bảng 6.16 Nhu cầu chính về nước dùng trong công nghiệp năm 2001 và Dự báo

River Basins	Major Urban Centres	Demand 2001 m ³ /day	Growth factor upto 2005	Demand 2005 m ³ /day	Growth factor upto 2010	Demand 2010 m ³ /day	Growth factor upto 2015	Demand 2015 m ³ /day	Growth factor upto 2020	Demand 2020 m ³ /day
Bang Giang and Ky Cung		500	10.6%	748	10.7%	1,244	10.7%	2,068	10.7%	3,437
Red and Thai Binh River Basins	Hanoi	180,000	+25% of plan	303,000	+50% of plan	426,000	+75% of plan	549,000	+100% of plan	672,000
	Haiphong	12,600	+25% of plan	170,100	+50% of plan	327,600	+75% of plan	485,100	+100% of plan	642,600
	Halong & Cam Pha	12,000	+25% of plan	27,000	+50% of plan	42,000	+75% of plan	57,000	+100% of plan	72,000
	Other	25,000	10.9%	37,815	11.5%	65,169	10.3%	106,394	10.3%	173,698
Ma River	Thanh Hoa	3,000	16.3%	5,488	16.5%	11,778	16.5%	25,275	16.5%	54,241
Ca River	Vinh	500	17.7%	960	14.4%	1,880	8.6%	2,840	8.6%	4,290
Thach Han River		100	20.5%	211	8.8%	321	8.4%	481	8.4%	720
Huong River	Hue	5,000	16.5%	9,210	14.0%	17,734	14.0%	34,145	14.0%	65,743
Vu Gia-Thu Bon River	Da Nang	6,100	+25% of plan	146,038	+25% of plan	285,975	+75% of plan	425,913	+100% of plan	565,850
Tra Khuc River		2,500	10.8%	3,768	9.2%	5,851	10.0%	9,423	10.0%	15,175
Kone River	Qui Nhon	2,000	12.5%	3,204	11.6%	5,546	9.0%	8,533	9.0%	13,129
Ba River	Tuy Hoa	500	11.6%	776	11.6%	1,343	10.7%	2,232	10.7%	3,710
Dong Nai River	Ho Chi Minh City	1,600,000	+25% of plan	1,693,750	+50% of plan	1,787,500	+75% of plan	1,881,250	+100% of plan	1,975,000
	Bien Hoa	98,100	+25% of plan	158,100	+50% of plan	218,100	+75% of plan	278,100	+100% of plan	338,100
	Other	5,000	+25% of plan	283,000	+50% of plan	561,000	+75% of plan	839,000	+100% of plan	1,117,000
Sesan River (Xe Xan)	Kon Tum	500	13.8%	839	14.2%	1,629	10.0%	2,623	10.0%	4,225
Srepok River (Xre Pok)	Pleiku	500	12.9%	812	15.5%	1,670	11.0%	2,814	11.0%	4,741
Mekong River	My Tho	500	16.0%	905	14.4%	1,774	11.9%	3,112	11.9%	5,461
	Can Tho	500	16.0%	905	14.4%	1,774	11.9%	3,112	11.9%	5,461
	Other	5,000	16.0%	9,053	14.4%	17,739	11.9%	31,123	11.9%	54,605
Totals (m³/day)		1,959,900		2,855,682		3,783,626		4,749,538		5,791,186
Totals (M m³/yr)		715		1,042		1,381		1,734		2,114

Bảng 6.17 Dự báo nhu cầu điện của Tổng công ty Điện lực Việt Nam và dự kiến tình hình phát triển điện

Year	Power Demand		Estimated Power Development	
	Power Energy Generation Requirement (GWh/yr.)	Peak Load (MW)	Load Factor	Installed Capacity (MW)
2001	30,000	5,800	0.648	7,834
2002	35,750	6,600	0.651	8,659
2003	41,500	7,400	0.653	9,594
2004	47,250	8,200	0.655	10,584
2005	53,000	9,000	0.657	11,664
2006	61,400	10,400	0.660	13,067
2007	69,800	11,800	0.663	14,197
2008	78,200	13,200	0.666	15,327
2009	86,600	14,600	0.668	16,572
2010	95,000	16,000	0.672	17,417
2011	104,000	17,500	0.674	19,902
2012	113,000	19,000	0.675	22,082
2013	122,000	20,500	0.675	23,702
2014	131,000	22,000	0.675	24,882
2015	140,000	23,500	0.675	26,462
2016	152,400	25,300	0.675	29,832
2017	164,800	27,100	0.675	32,167
2018	177,200	28,900	0.675	34,867
2019	189,600	30,700	0.675	37,807
2020	202,000	32,500	0.675	41,307

Source: EVN's Mater Plan of Vietnam Power Development for the Period of 2001 - 2010 with Outlook up to 2020

Bảng 6.18 Các trạm điện hiện có (Tính đến năm 2000)

Power Stations	Installed Capacity (MW)	Expected Energy Generation		Average Power Output (MW)
		Energy/yr. (GWh/yr.)	Energy/day (GWh/day)	
Hydro	3,272.5	14,333.6	39.268	1636.17
Thac Ba	120.0	525.6	1.438	
Hoa Binh	1,920.0	8,409.6	23.040	
Da Ninh	160.0	700.8	1.920	
Tri Anh	440.0	1,927.2	5.280	
Thac Mo	150.0	657.0	1.800	
Vinh Son	66.0	289.1	0.792	
Yali 1,2	360.0	1,576.8	4.320	
Small Hydro	56.5	247.5	0.678	
Thermal (Coal-fired)	645.0	4,708.5	12.900	537.50
Ninh Binh	100.0	730.0	2.000	
Uong Bi	105.0	766.5	2.100	
Pha Lai 1	440.0	3,212.0	8.800	
Thermal (Oil-fired)	198.0	1,445.4	3.960	165.00
Thu Duc	165.0	1,204.5	3.300	
Can Tho 1,2	33.0	240.9	0.660	
Gas Turbine	962.5	2,107.9	5.775	962.50
Thu Duc GT 1-7	111.5	244.2		
Can Tho GT 1-4	150.0	328.5		
Ba Ria GT 1-7	326.0	713.9		
Hiep Phuoc	375.0	821.3		
Diesel	397.0	869.4	2.380	397.00
Total	5,475.0	23,464.8	64.283	3,698.17

Bảng 6.19 : Chương trình phát triển điện

	Planned Year of Installation	Power Stations	Type of Power Station	Installed Capacity (MW)	Expected Energy Generation (GWh/yr.)		Expected Energy Generation (GWh/day)	Expected Operation Hours (Hrs./day)	Average Power Output (MW)
					Sub Total	Sub Total			
1	2001	Song Ninh	Hydro	70.00		404.00	1.11	15.80	70.00
2		Phu My 1	Gas C.C.	1,090.00		1,790.33	4.91	4.50	1,090.00
3		Pha Lai 2 TPP	Coal - fired	600.00		5,256.00	14.40	24.00	600.00
4		Yaly 3,4	Hydro	360.00		1,825.00	5.00	14.80	337.84
5		Ham Thuan - Dam Mi	Hydro	238.50	2,358.50	1,040.25	2.85	14.80	192.57
6	2002	Ba Ria 306-2	Gas C.C.	56.00		91.98	0.25	4.50	56.00
7		Ham Thuan - Dam Mi	Hydro	238.50		1,040.25	2.85	14.80	192.57
8		Phu My 2-1	Gas C.C.	143.00		234.88	0.64	4.50	143.00
9		Phu My 4	Gas Turbine	288.00		262.80	0.72	2.50	288.00
10		Na Duong TPP	Coal - fired	100.00	825.50	876.00	2.40	24.00	100.00
11	2003	Phu My 2-1 Extention	Gas C.C.	140.00		229.95	0.63	4.50	140.00
12		Can Don	Hydro	72.00		280.00	0.77	14.80	51.80
13		Phu My 4	Gas C.C.	143.00		234.88	0.64	4.50	143.00
14		Phu My 2-2	Gas Turbine	480.00		438.00	1.20	2.50	480.00
15		Caoc Ngan	Coal - fired	100.00	935.00	876.00	2.40	24.00	100.00
16	2004	Uong Bi extention	Coal - fired	300.00		2,628.00	7.20	24.00	300.00
17		O Mon TPP	Coal - fired	300.00		2,628.00	7.20	24.00	300.00
18		Phu My 2-2	Gas C.C.	240.00		595.68	1.63	6.80	240.00
19		Cam Pha	Coal - fired	150.00	990.00	1,314.00	3.60	24.00	150.00
20	2005	O Mon TPP	Coal - fired	300.00		2,628.00	7.20	24.00	300.00
21		Dai Ninh	Hydro	300.00		1,314.00	3.60	14.80	243.24
22		Rao Quan	Hydro	70.00		206.50	0.57	14.80	38.23
23		Ca Mau No.1	Gas C.C.	360.00		893.52	2.45	6.80	360.00
24		Geo Thermal	Geo-thermal	50.00	1,080.00	270.10	0.74	14.80	50.00
25	2006	Ca Mau No.2	Gas C.C.	360.00		893.52	2.45	6.80	360.00
26		Cua Dat	Hydro	120.00		486.19	1.33	14.80	90.00
27		Se San 3	Hydro	273.00		1,127.00	3.09	14.80	208.63
28		Hai Phong TPP No.1	Coal - fired	300.00		2,628.00	7.20	24.00	300.00
29		Geo Thermal	Geo-thermal	50.00		270.10	0.74	14.80	50.00
30		Import from Laos		300.00	1,403.00	2,058.60	5.64	18.80	300.00
31	2007	Na Hang(Dai Thi)	Hydro	300.00		985.50	2.70	14.80	182.43
32		A Vuong 1	Hydro	170.00		759.93	2.08	14.80	148.70
33		Thai Binh	Gas C.C.	360.00		893.52	2.45	6.80	360.00
34		Hai Phong TPP No.2	Coal - fired	300.00	1,130.00	2,628.00	7.20	24.00	300.00
35	2008	Ban May(Ban La)	Hydro	260.00		996.09	2.73	14.80	184.39
36		Dong Nai 3&4	Hydro	510.00		1,700.00	4.66	14.80	314.70
37		Ca Mau No.3	Gas C.C.	360.00	1,130.00	893.52	2.45	6.80	360.00
38	2009	An Khe - Ka Nak	Hydro	155.00		712.00	1.95	14.80	131.80
39		Buon Kuop	Hydro	280.00		1,346.00	3.69	14.80	263.41
40		Cam Pha TPP	Coal-fired	150.00		1,314.00	3.60	24.00	150.00
41		Ca Mau No.4	Gas C.C.	360.00		893.52	2.45	6.80	360.00
42		Import from Laos		300.00	1,245.00	2,058.60	5.64	18.80	300.00
43	2010	Song Ba Ha	Hydro	200.00		944.00	2.59	14.80	174.75
44		Plei Krong	Hydro	120.00		629.00	1.72	14.80	118.85
45		Quang Ninh TPP	Coal - fired	300.00		2,628.00	7.20	24.00	300.00
46		O Mon Gas- TPPext.	Gas C.C.	300.00		1,095.00	3.00	10.00	300.00
47		Import from Laos		400.00	1,320.00	2,744.80	7.52	18.80	400.00
48	2011	O Mon Gas- TPPext.	Gas C.C.	300.00		1,095.00	3.00	10.00	300.00
49		Se San 4	Hydro	330.00		1,348.00	3.69	14.80	249.54
50		Thuong Kon Tum	Hydro	220.00		945.00	2.59	14.80	174.94
51		Pumped Storage	Hydro	200.00		226.30	0.62	3.10	200.00
52		Quang Ninh TPP	Coal-fired	300.00		2,628.00	7.20	24.00	300.00
53		Phu My 2-2 No.1	Gas C.C.	360.00		1,314.00	3.60	10.00	360.00
54		Import from Laos		300.00	2,010.00	2,058.60	5.64	18.80	300.00
55	2012	Son La Unit 1	Hydro	360.00		1,585.60	4.34	22.00	197.46
56		Quang Ninh TPP	Coal-fired	300.00		2,628.00	7.20	24.00	300.00
57		Song Tranh 2	Hydro	160.00		497.00	1.36	14.80	92.00
58		Phu My 2-2 No.2	Gas C.C.	360.00		1,314.00	3.60	10.00	360.00
59		Nhon Trach No.1&2	Gas C.C.	600.00		2,190.00	6.00	10.00	600.00
60		Import from Laos		400.00	2,180.00	2,744.80	7.52	18.80	400.00
61	2013	Son La Unit 2&3	Hydro	720.00		3,171.20	8.69	22.00	394.92
62		Nhon Trach No.3&4	Gas C.C.	600.00		2,190.00	6.00	10.00	600.00
63		Import from Laos		300.00	1,620.00	2,058.60	5.64	18.80	300.00
64	2014	Son La Unit 4&5	Hydro	720.00		3,171.20	8.69	22.00	394.92
65		Se San 3A	Hydro	100.00		478.00	1.31	14.80	88.49
66		Ca Mau No.5	Gas C.C.	360.00	1,180.00	893.52	2.45	6.80	360.00
67	2015	Son La Unit 6&7	Hydro	720.00		3,171.20	8.69	22.00	394.92
68		B.Loc+B.Binh+D.Xuyen	Hydro	200.00		750.00	2.06	14.80	138.84
69		Dak Drinh	Hydro	100.00		444.00	1.22	14.80	82.19
70		Ca Mau No.6	Gas C.C.	360.00		893.52	2.45	6.80	360.00
71		Pumped Storage	Hydro	200.00	1,580.00	226.30	0.62	3.10	200.00
72	2016	Mien Tay No.1&2	Gas C.C.	720.00		3,232.44	8.86	12.30	720.00
73		Srok Phu Mien+Dong Nai 2	Hydro	170.00		650.00	1.78	14.80	120.33
74		Pumped Storage	Hydro	200.00		226.30	0.62	3.10	200.00
75		Se San 4A	Hydro	140.00		613.00	1.68	14.80	113.48
76		Dak My 4	Hydro	200.00		768.00	2.10	14.80	142.17
77		Coal Thermal	Coal-fired	500.00		4,380.00	12.00	24.00	500.00
78		Quang Tri No.1	Gas C.C.	360.00		1,616.22	4.43	12.30	360.00
79		Son La Unit 8-10	Hydro	1,080.00	3,370.00	4,756.80	13.03	22.00	592.38
80	2017	Nuclear Plant No.1	Nuclear	1,000.00		8,760.00	24.00	24.00	1,000.00
81		Hua Na	Hydro	275.00		689.00	1.89	14.80	127.55
82		Coal Thermal	Coal-fired	500.00		4,380.00	12.00	24.00	500.00
83		Quang Tri No.2	Gas C.C.	360.00		1,616.22	4.43	12.30	360.00
84		Pumped Storage	Hydro	200.00	2,335.00	226.30	0.62	3.10	200.00
85	2018	Coal Thermal	Coal-fired	1,000.00		8,760.00	24.00	24.00	1,000.00
86		Nuclear Plant No.2	Nuclear	1,000.00		8,760.00	24.00	24.00	1,000.00
87		Pumped Storage	Hydro	200.00		226.30	0.62	3.10	200.00
88		Import		500.00	2,700.00	3,431.00	9.40	18.80	500.00
89	2019	Nuclear Plant No.3	Nuclear	1,000.00		8,760.00	24.00	24.00	1,000.00
90		Srepok 3	Hydro	190.00		598.00	1.64	14.80	110.70
91		Ban Uon	Hydro	250.00		1,015.00	2.78	14.80	187.89
92		Import		500.00		3,431.00	9.40	18.80	500.00
93		Coal Thermal	Coal-fired	1,000.00	2,940.00	8,760.00	24.00	24.00	1,000.00
94	2020	Import		1,000.00		6,862.00	18.80	18.80	1,000.00
95		Huoi Quang	Hydro	500.00		1,920.00	5.26	14.80	355.42
96		Coal Thermal	Coal-fired	1,000.00		8,760.00	24.00	24.00	1,000.00
97		Nuclear Plant No.4	Nuclear	1,000.00		8,760.00	24.00	24.00	1,000.00
		Total			35,832	198,022			32,562
		Existing			5,475	23,465			3,698
		Grand Total			41,307	221,487			36,260

Bảng 6.20 : Nhu cầu nước tối thiểu cho phát điện trong kế hoạch phát triển điện quốc gia

	Power Stations	Installed Capacity (MW)	Rated Head (m)	Expected Energy Generation (GWh/yr.)	Expected Energy Generation (GWh/day)	Expected Operation Hours (Hrs./day)	Average Power Output (MW)	Planned Firm Output (MW)	Required Turbine Discharge for Firm Output (m3/s)	Daily Discharge Volume for Firm Output (1000 M3)	Monthly Discharge Volume for Firm Output (Mil. M3)
1	Song Hinh	70	140.0	404	1.108	15.8	70.0	31.5	26.4	1406.1	42.2
2	Yaly 3,4	360	190.0	1,825	5.000	14.8	337.8	90.0	55.6	2960.1	88.8
3	Ham Thuan	300	250.0	1,291	3.537	14.8	239.0	80.0	37.5	1999.7	60.0
4	Dami	177	142.9	789	2.163	14.8	146.1	45.0	36.9	1967.9	59.0
5	Can Don	72	51.0	280	0.767	14.8	51.8	18.0	41.4	2205.6	66.2
6	Dai Ninh	300	635.0	1,314	3.600	14.8	243.2	98.5	18.2	969.4	29.1
7	Rao Quan	70	499.0	207	0.566	14.8	38.2	17.5	4.1	219.2	6.6
7	Cua Dat	120	69.5	486	1.332	14.8	90.0	30.0	50.6	2697.5	80.9
9	Se San 3	273	62.6	1,127	3.088	14.8	208.6	68.3	127.9	6813.1	204.4
10	Na Hang(Dai Thi)	300	58.2	986	2.700	14.8	182.4	81.0	163.2	8697.2	260.9
11	A Vuong 1	170	102.0	760	2.082	14.8	140.7	53.8	61.9	3297.9	98.9
12	Ban May(Ban La)	260	87.0	996	2.729	14.8	184.4	65.0	87.6	4668.9	140.1
13	Dong Nai 3	250	131.0	784	2.148	14.8	145.1	62.5	56.0	2981.5	89.4
14	Dong Nai 4	260	127.0	916	2.510	14.8	169.6	65.0	60.0	3198.4	96.0
15	An Khe - Ka Nak	155	360.0	712	1.950	14.8	131.8	43.3	14.1	751.6	22.6
16	Buon Kuop	280	113.0	1,346	3.688	14.8	263.4	70.0	72.7	3871.1	116.1
17	Song Ba Ha	200	63.0	944	2.586	14.8	174.8	49.8	92.7	4939.8	148.2
18	Plei Krong	120	59.5	629	1.723	14.8	116.4	30.0	59.1	3150.8	94.5
19	Se San 4	330	54.0	1,348	3.693	14.8	249.5	82.5	179.2	9547.3	286.4
20	Son La Units 1to 10	3,600	127.5	15,856	43.440	22.0	1974.6	600.0	549.8	43543.3	1306.3
21	Song Tranh 2	160	32.0	497	1.362	14.8	92.0	34.2	125.4	6678.8	200.4
22	Se San 3A	100	23.0	478	1.310	14.8	88.5	25.0	127.5	6792.5	203.8
23	Srok Phu Mien	70	25.0	261	0.715	14.8	48.3	17.5	89.4	4763.2	142.9
24	Dong Nai 2	100	86.9	389	1.066	14.8	72.0	25.0	33.7	1797.8	53.9
25	Dak My 4	200	170.0	768	2.104	14.8	142.2	65.0	44.9	2389.4	71.7
26	Hua Na	275	105.0	689	1.888	14.8	127.6	64.0	71.5	3809.0	114.3
27	Srepok 3	190	50.0	598	1.638	14.8	110.7	47.5	121.3	6464.4	193.9
28	Ban Uon	250	64.0	1,015	2.781	14.8	187.9	55.0	100.8	5370.3	161.1
29	Huoi Quang	500	149.0	1,920	5.260	14.8	355.4	130.0	102.3	5452.3	163.6

Bảng 6.21 Kết quả kiểm tra dòng duy trì lưu lượng sông

River Basin	Basin Area	Prevention of saline water intrusion			Remark	Ecological conservation	
		B (m)	i (-)	Q (m ³ /s)		P=90% monthly flow (m ³ /s) ^{*3}	Month/Year
Bang Giang & Ky Cung	11,250km ²	NA	NA	NA		29.3	Mar. '72
Red & Thai Binh	156,640km ²	_*1	_*1	_*1		867.0	Feb. '85
Ma	31,060km ²	400	1/10000	61.0		114.7	Feb. '94
Ca	29,850km ²	750	1/4000	72.3		173.0	Jun. '77
Thach Han	2,550km ²	_*1	_*1	_*1		10.9	Jul. '91
Huong ^{*2}	3,300km ²	400	1/10000	61.0	Examination basis	31.0	-
Vu Gia-Thu Bon	10,380km ²	300	1/4000	28.9		147.1	Apr. '95
Sesan	11,530km ²	NA	NA	NA		96.1	Apr. '83
Tra Khuc	5,200km ²	250	1/4000	24.1		52.0	Aug. '84
Kone	3,640km ²	200	1/2500	15.3		13.5	Aug. '93
Ba	14,030km ²	250	1/2000	17.1		28.7	Jun. '77
Srepok	12,030km ²	NA	NA	NA		40.5	Apr. '77
Dong Nai	29,120km ²	_*1	_*1	_*1		97.5	Apr. '70
Cuu Long	768,270km ²	_*1	_*1	_*1		2074.6	Apr. '61

NA: Not Applicable because of no estuaries in Vietnam.

*1: Examination is unable due to the lack of information.

*2: Examination was conducted in existing studies (see Phase 2-1).

*3: Discharge after conversion according to the basin area except Bang Giang & Ky Cung, Huong, Sesan, and Srepok.

Bảng 8.1 Tình trạng nhu cầu cấp nước đến năm 2020

(1/2)

Item	Unit	2001	2005	2010	2015	2020	Demand Increase	Contribution by Project(s) (%)
(1) Bang Giang and Ky Cung River Basin								
- Domestic Water Demand	(m ³ /day)	47,496	54,740	64,443	75,933	89,621	42,125	47.00
- Industrial Water Demand	(")	0	748	1,244	2,068	3,437	2,937	85.45
- Agricultural Water Demand	(")	819,000	957,000	1,130,000	1,189,000	1,248,000	429,000	34.38
<u>Sub-total</u>	(")	<u>866,496</u>	<u>1,012,488</u>	<u>1,195,687</u>	<u>1,267,001</u>	<u>1,341,058</u>	<u>474,062</u>	
(2) Red and Thai Binh River Basin								
- Domestic Water Demand	(m ³ /day)	1,122,670	1,443,251	1,846,031	2,362,527	2,953,801	1,831,131	61.99
- Industrial Water Demand	(")	229,600	537,915	860,769	1,197,494	1,560,298	1,330,698	85.28
- Agricultural Water Demand	(")	44,081,000	47,358,000	51,455,000	51,774,000	52,092,000	8,011,000	15.38
<u>Sub-total</u>	(")	<u>45,433,270</u>	<u>49,339,166</u>	<u>54,161,800</u>	<u>55,334,021</u>	<u>56,606,099</u>	<u>11,172,829</u>	
(3) Ma River Basin								
- Domestic Water Demand	(m ³ /day)	120,970	155,225	224,771	272,914	321,831	200,861	62.41
- Industrial Water Demand	(")	3,000	5,488	11,778	25,275	54,241	51,241	94.47
- Agricultural Water Demand	(")	4,788,000	4,679,000	4,543,000	5,417,000	6,290,000	1,502,000	23.88
<u>Sub-total</u>	(")	<u>4,911,970</u>	<u>4,839,713</u>	<u>4,779,549</u>	<u>5,715,189</u>	<u>6,666,072</u>	<u>1,754,102</u>	
(4) Ca River Basin								
- Domestic Water Demand	(m ³ /day)	140,287	174,988	219,119	266,559	318,462	178,175	55.95
- Industrial Water Demand	(")	500	960	1,880	2,840	4,290	3,597	88.34
- Agricultural Water Demand	(")	3,876,000	4,300,000	4,831,000	5,132,000	5,433,000	1,557,000	28.66
<u>Sub-total</u>	(")	<u>4,016,787</u>	<u>4,475,948</u>	<u>5,051,999</u>	<u>5,401,399</u>	<u>5,755,752</u>	<u>1,738,772</u>	
(5) Thach Han River Basin								
- Domestic Water Demand	(m ³ /day)	27,027	32,221	37,281	45,413	53,882	26,855	49.84
- Industrial Water Demand	(")	100	211	321	481	720	620	86.11
- Agricultural Water Demand	(")	255,000	345,000	457,000	485,000	512,000	257,000	50.20
<u>Sub-total</u>	(")	<u>282,127</u>	<u>377,432</u>	<u>494,602</u>	<u>530,894</u>	<u>566,602</u>	<u>284,475</u>	
(6) Huong River Basin								
- Domestic Water Demand	(m ³ /day)	53,105	65,602	80,100	104,309	131,577	78,472	59.64
- Industrial Water Demand	(")	5,000	9,210	17,734	28,560	45,997	40,997	89.13
- Agricultural Water Demand	(")	964,000	1,039,000	1,133,000	1,237,000	1,340,000	376,000	28.06
<u>Sub-total</u>	(")	<u>1,022,105</u>	<u>1,113,812</u>	<u>1,230,834</u>	<u>1,369,869</u>	<u>1,517,574</u>	<u>495,469</u>	
(7) Vu Gia-Thu Bon River Basin								
- Domestic Water Demand	(m ³ /day)	117,789	147,638	180,152	222,181	263,551	145,762	55.31
- Industrial Water Demand	(")	6,100	146,038	285,975	425,913	565,850	559,750	98.92
- Agricultural Water Demand	(")	1,337,000	1,679,000	2,107,000	2,105,000	2,103,000	766,000	36.42
<u>Sub-total</u>	(")	<u>1,460,889</u>	<u>1,972,676</u>	<u>2,573,127</u>	<u>2,753,094</u>	<u>2,932,401</u>	<u>1,471,512</u>	

Bảng 8.1 Tình trạng nhu cầu cấp nước đến năm 2020

(2/2)

Item	Unit	2001	2005	2010	2015	2020	Demand Increase	Contribution by Project(s) (%)
(8) Tra Khuc River Basin								
- Domestic Water Demand	(m ³ /day)	42,182	48,008	55,297	66,219	78,094	35,912	45.99
- Industrial Water Demand	(")	2,500	3,768	5,851	9,423	15,175	12,675	83.53
- Agricultural Water Demand	(")	1,132,000	1,144,000	1,158,000	1,164,000	1,170,000	38,000	3.25
<u>Sub-total</u>	(")	<u>1,176,682</u>	<u>1,195,776</u>	<u>1,219,148</u>	<u>1,239,642</u>	<u>1,263,269</u>	<u>86,587</u>	
(9) Kone River Basin								
- Domestic Water Demand	(m ³ /day)	67,196	80,529	96,990	121,934	148,869	81,673	54.86
- Industrial Water Demand	(")	2,000	3,204	5,546	8,533	13,129	11,129	84.77
- Agricultural Water Demand	(")	1,944,000	2,144,000	2,393,000	2,564,000	2,735,000	791,000	28.92
<u>Sub-total</u>	(")	<u>2,013,196</u>	<u>2,227,733</u>	<u>2,495,536</u>	<u>2,592,467</u>	<u>2,896,998</u>	<u>883,802</u>	
(10) Ba River Basin								
- Domestic Water Demand	(m ³ /day)	80,367	101,819	135,044	165,063	195,466	115,099	58.88
- Industrial Water Demand	(")	500	776	1,343	2,232	3,710	3,210	86.52
- Agricultural Water Demand	(")	2,372,000	3,497,000	4,903,000	5,492,000	6,080,000	3,708,000	60.99
<u>Sub-total</u>	(")	<u>2,452,867</u>	<u>3,599,595</u>	<u>5,039,387</u>	<u>5,659,295</u>	<u>6,279,176</u>	<u>3,826,309</u>	
(11) Sesan River Basin								
- Domestic Water Demand	(m ³ /day)	26,892	35,798	41,994	54,326	67,216	40,324	59.99
- Industrial Water Demand	(")	500	839	1,629	2,623	4,225	3,725	88.17
- Agricultural Water Demand	(")	544,000	694,000	882,000	1,016,000	1,149,000	605,000	52.65
<u>Sub-total</u>	(")	<u>571,392</u>	<u>730,637</u>	<u>925,623</u>	<u>1,072,949</u>	<u>1,220,441</u>	<u>649,049</u>	
(12) Srepok River Basin								
- Domestic Water Demand	(m ³ /day)	82,119	106,288	141,217	195,774	258,687	176,568	68.26
- Industrial Water Demand	(")	500	821	1,670	2,814	4,741	4,241	89.45
- Agricultural Water Demand	(")	1,301,000	1,309,000	1,318,000	2,088,000	2,858,000	1,557,000	54.48
<u>Sub-total</u>	(")	<u>1,383,619</u>	<u>1,416,109</u>	<u>1,460,887</u>	<u>2,286,588</u>	<u>3,121,428</u>	<u>1,737,809</u>	
(13) Dong Nai River Basin								
- Domestic Water Demand	(m ³ /day)	745,062	1,049,968	1,338,604	1,709,118	2,096,176	1,351,114	64.46
- Industrial Water Demand	(")	1,703,100	2,134,850	2,566,600	2,998,350	3,430,100	1,727,000	50.35
- Agricultural Water Demand	(")	9,428,000	10,505,000	11,851,000	12,750,000	13,648,000	4,220,000	30.92
<u>Sub-total</u>	(")	<u>11,876,162</u>	<u>13,689,818</u>	<u>15,756,204</u>	<u>17,457,468</u>	<u>19,174,276</u>	<u>7,298,114</u>	
(14) Cuu Long Delta River Basin								
- Domestic Water Demand	(m ³ /day)	668,537	864,748	1,109,470	1,355,151	1,605,896	937,359	58.37
- Industrial Water Demand	(")	6,000	10,863	21,287	37,347	65,527	59,527	90.84
- Agricultural Water Demand	(")	95,958,000	104,209,000	114,523,000	120,511,000	126,498,000	30,540,000	24.14
<u>Sub-total</u>	(")	<u>96,632,537</u>	<u>105,084,611</u>	<u>115,653,757</u>	<u>121,903,498</u>	<u>128,169,423</u>	<u>31,536,886</u>	

Bảng 8.2 Mức độ phòng chống lũ của 14 lưu vực sông

No.	River	Q(m ³ /s)	Location	Protection Level	Flood
1	Bang Giang - Ky Cung	4,520	Lang Son Town	P=2.5%	Main Flood
2	Red and Thai Binh	37,800	Hanoi	P=0.8% for present	Main Flood
		42,600		P=0.4% for medium term	Main Flood
		48,500		P=0.2% for long term-1	Main Flood
		>48,500		P<0.2% for long term-2	Main Flood
3	Ma	7,000	Tao Bridge	P=1%	Main Flood
4	Ca	11,900	Ben Thuy Bridge	P=1%	Main Flood
5	Thach Han	13,670	Quang Tri Citadel	P=1.9%	Main Flood
6	Huong	13,670	Kim Long	P=5.9%	Main Flood
		3,500	Phu Oc	P=5.9%	Main Flood
7	Thu Bon	9,610	Nong Son	P=10%	Main Flood
	Vu Gia	10,870	Ai Nghia	P=10%	Main Flood
8	Tra Khuc	10,690	Song Giang	P=10%	Main Flood
9	Kone	2,997	Bin Thanh	P=5%	Late Flood
		1,521		P=1%	Early Flood
10	Ba	13,560	Cung Son	P=10%	Main Flood
11	Sesan	3,600	Kontum	P=1.4%	Main Flood
12	Srepok	1,633	Giang Son	P=10%	Main Flood
13	Dong Nai	6,200	Lower Dong Nai	P=7%	Main Flood
		2,200	Saigon River	P=10%	Main Flood
14	Cuu Long	-	-	P=10%, p=4%	Main Flood

Bảng 9.1 Tiêu chí phòng chống lũ cho lưu vực sông

River	Location	Occurred floods		Flood control criteria			Frequencies (%)	Remarks
	Name	H (m)	Q (m ³ /s)	Year	H (m)	Q (m ³ /s)		
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			
	Phu Oc	4.50	1,410	1989	3.50		10	Summer-autumn flood
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 Moug		6,340	1987		10,200	10	Main flood
	Cay Moug		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			
	Bien Hoa	4.80			4.87		1	main flood P=1% for Ho Chi Minh city. P=3-5% for other cities.
	Nha Be	1.52			1.54			
	Phu An	1.48			1.54			
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

Bảng 9.2 Dự án đập/hồ chứa chính trong mỗi lưu vực sông

River Basin	Project name	River	Investment Cost (Mil US\$)* ⁴	B/C	CA (km ²)	Dam			Reservoir						Power		Resettlement	Remarks
						Type	Height (m)	Crest L (m)	FWL (m)	FSL (m)	MOL (m)	Gross (10 ⁶ m ³)	Active (10 ⁶ m ³)	Dead (10 ⁶ m ³)	Area (km ²)	MW/GWh		
1	Bang Giang & Ky Cung	Ban Lai	(114.3)		(550)	(R/Fill)	(40)	(400)		(320)		(345.2)	(310.5)	(34.7)	(29.4)	9	Approx. 20,000	
2	Red River & Thai Binh	Son La	2,899.4	1.7	43,760	C/Gravity				265	220		14,900		440	3600/14895	Approx. 96,000	
		Bac Me	419.4	1.2	5,000	C/Gravity	105	525		195	165	1,830	1,055	775	60	280/662	Approx. 17,000	
		Dai Thi (Pac Ta)	360.9	1.18	12,690	C/Gravity	95	467		120	95	1,626	1,091	535.3	57	300/985	Approx. 11,547	
3	Ma	Na Han																
		Cua Dat	Chu	362.0		5,700	C/Gravity	90	480		123	77.4	1,531	1,210	321	39	120/465	8,324
4	Ca	Ban La	470.9	1.33	8,700	C/Gravity	133	463		200	160	1,800	1,244	556	45	300/996	Approx. 12,000	
		Ban Mai	647.3	0.97	13,272	RCCD	125			153	109.2	4,200	3,140	1,060	108	480/1226	Approx. 43,000	
		Ngan Truoi	N Sau										1,100			120		
5	Thach Han	Rao Quan	187.1		159	R/Fill	95			493	445		291			70/292	Approx. 36,000	
		Song Nhung	8.0			Earthfill	20	500	28	23	10	42.3	40	2.3				
		Tan Kim	1.8		8	Earthfill	24.4	750	34.28	34.1	19.8	6.11	5.89	0.23				
6	Huong	Ta Trach	100.6	1.65	717	E/Fill and rock mixed	56	1,200	51.98	45	23	610	538	72	30	19.5/70	Approx. 5,000	Saddle dam with length 660m
		Huu Trach	30		570					55	35	230	182	48	11	15/66		
		Co Bi	27.7		712					40	27	242	167	75		21/94		
7	Vu Gia-Thu Bon	Ho Song Tranh II	(241.7)		1,441	R/Fill	48	640		125	90	1067	945	122	53	150/615	Approx. 25,000	
		Song Cai	128.0		1,763	Earthfill	89	450		100	75	870	550	320	28	177	Approx. 7,100	
		A Vuong	245.7	1.79	682	Concrete	60	269	383.5	380	340	343.54	266.48	77.06	9.09	170/760	Approx. 1006	
8	Tra Khuc	Nuoc Trong	51.9	1.52	446	C/Gravity	60	394	128.19	125	86	222.56	185.78	36.78		15.3/63.5	Approx. 10,000	Sub-dam with height 37.4m
		Drac Ring																
9	Kone	Dinh Binh	59.7	1.38	1,040	Concrete	65.3	638	93.31	91.93	65	226	209	17	13.85	6.6/38.33	2,932	
		Dong Sim			35	Earth	16	570	49	46	38	11.5	11	0.5		-		
		Suoi Xem			124	Concrete	45	(350)	84.9	83		126.208	120	6.21		-		
10	Ba	Song Ba Ha * ¹	318.2	1.36	11,115	Concrete	55.85	356	113.15	110	103	740.6	484.4	256.2	99.29	250/1,044	7,391	
		An Khe - Kanak * ²	Ba		1,222						425	6.19	0	6.19	1.68	150/631		
				833					520	490	404.4	356.7	47.7	19.35	15/62.6			
11	Sesan	Sesan No.4	502.4	1.1	9,326	Rockfill				215	205		471		58.4	330/664	Approx. 800	
		Dak Bla	254.5	0.74	2,780	Rockfill	95			590	567		873		69	107/346	Approx. 2500	
		Plei Krong	236.8	0.83	3,224	Rockfill	91	(500)		585	564		1131		80	120/405	Approx. 7300	
12	Srepok	Buon Kuop-Chupong Krong * ³	298.5	1.94	7,980	Earth	37	540	417.8	415	410	36.82	14.98	21.84	7.21	280/1025	Approx. 5,000	
					3,860	Earth	20	170	434.5	433.3	422	350.86	315.04	35.82	50.03		-	
		Krong Boung	4.0		790	Earthfill	30	570		447.5	444.5		21.6				-	Approx. 2,200
	Upper Krong Pach	6.3		490	Earthfill	18.5	585		454.6	451.5		72				-	Approx. 1,000	
	Upper Krong Buk	6.8		149	Earthfill	29.3	665	700.8	699.8	686		83.4				-	Approx. 2,700	
13	Dong Nai	Dong Nai No.3	413.2	0.8	4,361	RCCD	116.5	450		590	560	1,763.5	1,185.9	577.6	53.5	250/784	Approx. 1,130	
		Dong Nai No.4	384.5	1.01	4,530	R/Fill		320		440	430	117.5	30.2	87.3	4.2	286/943	no resettlement	
		Dong Nai No.8	267.1	1.06	9,679	Earthfill	48	3,450		124	112	1,031.5	933.8	97.7	119.4	195/609	Approx. 18,840	
14	Cuu Long	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

*1 This project has a combined dam, concrete and earth fill dam

*2 This project has two dams, An Khe dam will be constructed at downstream, and Kanak dam be constructed at upstream

*3 This project has two dams, Buon Kuop Dam will be constructed at downstream and Chupong Krong be constructed at upstream

*4 Price level as of December 2001

Bảng 9.4

Yêu cầu tài chính tổng thể cho 14 lưu vực sông (1/2)

Unit : Million VND, Million US\$

Description	Period (2002-2020)														Total
	Bang Giang & KY Cung	Red & Thai Binh	MA	Ca	Thach Han	Huong	Vu Gia-Thu Bon	Tra Khuc	Kone	Ba	Sesan	Srepok	Dong Nai	Cuu Long	
1. Multipurpose Dam, A-1															
1.1 Multipurpose Dam, A-1															
- Capital															
Dam & Appurtenant Facilities				6,479,240	2,347,594	1,250,495			735,318		3,183,796				
Power Generating Facilities				616,281	471,628	265,501			164,241		651,010				
Sub-total	1,722,272	5,742,415	5,454,616	7,095,521	2,819,223	1,515,996	3,641,936	782,029	899,560	4,794,638	3,834,806	4,497,798	13,380,384	56,181,193	
Equivalent to US\$	114.3	381.1	362.0	470.9	187.1	100.6	241.7	51.9	59.7	318.2	254.5	298.5	888.0	3,728.5	
1.2 Flood Control Facilities, A-1															
- Capital															
Dike				141,531	49,341		18,531	2,429	7,555	40,223			12,248	271,857	
River Dredging Works				0	1,281,397		493,802		784,816	0				2,560,014	
Railway Bridge				0	238,553		42,412		58,202	0				339,167	
Road Bridge				0	364,852		83,929		115,176	0				563,956	
Diversion Channel				0	0		0		0	0				0	
Retarding Basin				0	0		0		0	0				0	
Diversion Tunnel				0	0		0		0	0				0	
Sub-total				141,531	1,934,143		638,673		965,749	40,223			12,248	4,898,980	
Equivalent to US\$				9.4	128.4		42.4		64.1	2.7			0.8	325.1	
1.3 Irrigation & Drainage Facilities, A-1															
- Capital															
Rehabilitation incl. Existing Intake Facilities	1,044,212	436,463	2,148,094	2,734,842	258,567	0	528,371	522,106	343,098	3,440,928	683,711	498,040		12,638,433	
Improvement of Existing Canals and Structures	406,836	482,685	1,195,796	1,223,522	92,819	993,340	218,044	325,469	233,855	1,081,280	301,360	232,602		6,787,608	
Development of New Irrigation System	0	0	33,978	0	0	0	31,331	0	315,072	203,870	0	606,915		1,191,166	
New Construction of weir	0	0	0	0	0	0	0	0	171,814	0	0	43,809		215,623	
New Construction of Pumping Stations	0	0	0	0	0	0	0	0	57,373	0	0	0		57,373	
Sub-total	1,451,048	919,148	3,377,869	3,958,364	351,386	993,340	777,747	847,575	1,121,213	4,726,078	985,071	1,381,365	19,874,692	57,565,715	
Equivalent to US\$	96.3	61.0	224.2	262.7	23.3	65.9	51.6	56.3	74.4	313.7	65.4	91.7	1,319.0	3,820.4	
1.4 Domestic & Industrial Water Supply, A-1															
- Capital	407,397		2,279,204	1,643,364	248,396	755,853	3,080,764	439,265	839,004	1,069,608	398,238	1,046,181		12,207,274	
Sub-total	407,397	1,762,956	2,279,204	1,643,364	248,396	755,853	3,080,764	439,265	839,004	1,069,608	398,238	1,046,181	8,076,448	31,057,342	
Equivalent to US\$	27.0	117.0	151.3	109.1	16.5	50.2	204.5	29.2	55.7	71.0	26.4	69.4	536.0	2,061.1	
Sub-total	3,580,717	8,424,519	11,111,689	12,838,780	5,353,148	3,265,189	8,139,119	2,068,870	3,825,525	10,630,547	5,218,115	6,925,344	41,343,772	149,703,231	
Equivalent to US\$	237.6	559.1	737.4	852.1	355.3	216.7	540.2	137.3	253.9	705.5	346.3	459.6	2,743.8	9,935.2	
2. Multipurpose Dam, A-2															
2.1 Multipurpose Dam, A-2															
- Capital															
Dam & Appurtenant Facilities						346,228								346,228	
Power Generating Facilities						105,812								105,812	
Sub-total		4,942,304				452,040	1,928,704					60,272		7,383,320	
Equivalent to US\$		328.0				30.0	128.0					4.0		490.0	
2.2 Flood Control Facilities, A-2															
- Capital															
Dike							19,835							19,835	
River Dredging Works							528,562							528,562	
Railway Bridge							45,397							45,397	
Road Bridge							89,837							89,837	
Diversion Channel							0							0	
Retarding Basin							0							0	
Diversion Tunnel							0							0	
Sub-total							683,631							683,631	
Equivalent to US\$							45.4							45.4	
2.3 Irrigation & Drainage Facilities, A-2															
- Capital															
Rehabilitation incl. Existing Intake Facilities		450,774					565,565					34,240		1,050,580	
Improvement of Existing Canals and Structures		498,510					233,393				15,991			747,894	
Development of New Irrigation System		0					33,537				41,725			75,262	
New Construction of weir		0					0				3,012			3,012	
New Construction of Pumping Stations		0					0				0			0	
Sub-total		949,284					832,495				94,969			1,876,748	
Equivalent to US\$		63.0					55.2				6.3			124.6	
2.4 Domestic & Industrial Water Supply, A-2															
- Capital							3,297,629				71,925			3,369,554	
Sub-total		1,838,296					3,297,629				71,925			5,207,850	
Equivalent to US\$		122.0					218.8				4.8			345.6	
Sub-total		7,729,884				452,040	6,742,459				227,166			15,151,549	
Equivalent to US\$		513.0				30.0	447.5				15.1			1,005.5	

Bảng 9.4 Yêu cầu tài chính tổng thể cho 14 lưu vực sông (2/2)

Description	Bang Giang & KY Cung	Red & Thai Binh	MA	Ca	Thach Han	Huong	Vu Gia-Thu Bon	Tra Khuc	Kone	Ba	Sesan	Srepok	Dong Nai	Cuu Long	Total
3. Multipurpose Dam, A-3															
3.1 Multipurpose Dam, A-3															
- Capital															
Dam & Appurtenant Facilities															0
Power Generating Facilities															0
Sub-total		39,702,673										94,928			39,797,601
Equivalent to US\$		2,634.9										6.3			2,641.2
3.2 Irrigation & Drainage Facilities, A-3															
- Capital															
Rehabilitation incl. Existing Intake Facilities		6,146,261										113,615			6,259,876
Improvement of Existing Canals and Structures		6,797,151										53,062			6,850,213
Development of New Irrigation System												138,452			138,452
New Construction of weir												9,994			9,994
New Construction of Pumping Stations												0			0
Sub-total		12,943,412										315,124			13,258,536
Equivalent to US\$		859.0										20.9			879.9
3.3 Domestic & Industrial Water Supply, A-3															
- Capital												238,660			238,660
Sub-total		24,967,676										238,660			25,206,336
Equivalent to US\$		1,657.0										15.8			1,672.8
Sub-total		77,613,761										648,712			78,262,473
Equivalent to US\$		5,150.9										43.1			5,194.0
4. Multipurpose Dam, A-4															
4.1 Multipurpose Dam, A-4															
- Capital															
Dam & Appurtenant Facilities															0
Power Generating Facilities															0
Sub-total												102,462			102,462
Equivalent to US\$												6.8			6.8
4.2 Irrigation & Drainage Facilities, A-4															
- Capital															
Rehabilitation incl. Existing Intake Facilities												132,292			132,292
Improvement of Existing Canals and Structures												61,785			61,785
Development of New Irrigation System												161,212			161,212
New Construction of weir												11,637			11,637
New Construction of Pumping Stations												0			0
Sub-total												366,925			366,925
Equivalent to US\$												24.4			24.4
4.3 Domestic & Industrial Water Supply, A-4															
- Capital												277,892			277,892
Sub-total												277,892			277,892
Equivalent to US\$												18.4			18.4
Equivalent to US\$												65.4			65.4
Total	3,580,717	93,768,164	11,111,689	12,838,780	5,353,148	3,717,229	14,881,578	2,068,870	3,825,525	10,630,547	5,218,115	8,787,162	41,343,772	26,971,720	175,781,524
Name of Dam :															
Multipurpose Dam A-1	Ban Lai	Bac Me	Cua Dat	Ban La	Rao Quan	Ta Trach	Ho Song Tranh I	Nuoc Trong	Dinh Binh	Song Ba Ha	Dak Bla	Buon Kuop - Chupong Krong	Dong Nai Basin Development	Cuu Long Delta Development	
Multipurpose Dam A-2		Dai Thia					Song Cai					Krong Boung			
Multipurpose Dam A-3		Son La										Upper Krong Pach			
Multipurpose Dam A-4												Upper Krong Buk			

Note:

- (1) Constant price of December, 2001
- (2) Exchange rate : US\$ 1.0=VND 15,068=123.39
- (3) The above costs are referred from the National Hydropower Plan Study, Vietnam Sep. 1999, Red River Delta Master Plan 1995, Mekong Delta Master Plan 1991, on-going projects and other survey data.

Bảng 9.5 Kết quả đánh giá thiệt hại do lũ lụt gây ra, tháng 11/1999 (1/2)

(Source: General Statistical Office of Thua Thien Hue Province)

FROM NOVEMBER, 1st TO 6th, 1999

A. HUMAN DAMAGE

1. Dead: 352 people (357)

2. Lost: 11 people (12)

3. Injured: 305 people

CRITERIA	UNIT	QUANTITY	TOTAL (MILLION VND)
A	B	1	2
A. Flood, storm prevention structure and infrastructure		x	481,123
I. Flood and storm prevention structure		x	76,501
1. Length of bursted, floated dykes	m	20,270	x
2. Length of eroded dykes	m	132,250	x
3. Estimated quantity of landslide	m ³	595,750	14,893
4. Length of broken, floated revetment	m	1,930	x
5. Estimated quantity of floated dyke	m ³	28,950	44,343
6. Estimated quantity of eroded, floated concrete	m ³	28,776	17,266
II. Water resources		x	58,293
7. Destroyed culvert...	unit	218	14,649
8. Damaged culvert...	unit	247	7,167
9. Damaged, destroyed pumping station	unit	124	874
10. Length of eroded, floated canal	m	449,955	x
11. Estimated quantity of landslide..	m ³	959,332	23,332
12. Estimated quantity of stone slide...	m ³	218,595	6,132
13. Estimated eroded concrete	m ³	16,542	6,140
III. Transportation and fishery		x	293,082
14. Destroyed, sunk boats and ships	unit	1,431	15,240
15. Damaged boats and ships	unit	1,175	8,048
16. Lost boats and ships	unit	256	x
17. Destroyed bridges and culverts	unit	384	18,239
18. Damaged bridges and culverts	unit	1,369	8,860
19. Length of eroded, floated road	m	395,147	22,841
20. Length of inundated road	m	220,700	x
21. Estimated quantity of eroded, floated land, stone, concrete...	m ³	1,126,801	42,371
22. Destroyed, floated cars	unit	9	15
23. Damaged cars	unit	150	322
24. Other damage to transportation		x	27,146
Managed by transportation department	million VND		150,000
IV. Electricity and post office		x	53,248
Electricity	million VND	x	28,248
Post office	million VND	x	25,000
Of which:			
24. Collapsed mid and high voltage pole	pole	273	143
25. Collapsed low voltage pole	pole	624	945
26. Inundated and damaged transformer station	station	256	4,280
27. Collapsed communication pole	pole	469	237
28. Floated communication wire	km	83	4,210
B. DAMAGE TO BUSINESS		x	523,549
29. Inundated, damaged paddy area	ha	345	x
29.1. Of which, dead loss area	ha	255	1,398
30. Inundated, damaged sown area	ha	241	28
31. Inundated, damaged subsidiary crop	ha	4,450	x
31.1. Of which, dead loss area	ha	3,963	8,322
32. Damaged fruit trees area	ha	2,077	10,383
33. Inundated, damaged industrial plants	ha	2,299	9,461
34. Damaged protective forest area	ha	5,154	23,646
35. Damaged seedling garden	ha	526	10,200
36. Dead buffalo and cows	head	5,062	11,342
37. Dead pigs	head	86,862	45,460
38. Damaged livestock, poultry	head	869,872	23,316
39. Damaged aquaculture area	ha	2,459	32,852
40. Amount of damaged factories, warehouse, restaurant, shop, and others for manufacture and business.	unit	729	2,479
41. Floated machines, devices, materials and products			10,130
Destroyed agricultural machines	unit	330	574
Inundated, damaged pumping machines	unit	125	506
Inundated, damaged fertilizer	ton	1,258	2,515
Inundated, floated pesticide	ton	8	611
Paddy	ton	4,199	7,558
Rice	ton	139	411

Bảng 9.5 Kết quả đánh giá thiệt hại do lũ lụt gây ra, tháng 11/1999 (2/2)

(Source: General Statistical Office of Thua Thien Hue Province)

FROM NOVEMBER, 1st TO 6th, 1999

A. HUMAN DAMAGE

1. Dead: 352 people (357)
2. Lost: 11 people (12)
3. Injured: 305 people

CRITERIA	UNIT	QUANTITY	TOTAL (MILLION VND)
A	B	1	2
Wet, floated cement	ton	919	16
Fishing devices: Fish net	ton	2,742	
Net	ton	127	30,930
Say	unit	50,700	
Lost fish of all kinds	ton	293	
Fish breed	million heads	4	11,529
Other kinds of fish	ton	290	
Others		x	46,631
42. Amount of each wet, inundated, but can be recovered machine, device, material, product			53,940
Paddy	ton	15,656	28,180
Cement	ton	500	400
Foods of all kinds	ton	110	1,620
Petrol of all kinds	litre	50,000	200
Others		x	23,540
Damage of sectors in provincial level	million VND		189,442
Industry	million VND		100,978
Service	million VND		58,400
Tourism	million VND		15,000
Construction	million VND		15,064
C. DAMAGE TO WELFARE, CULTURAL STRUCTURE		x	86,227
Damage to cultural sector	million VND		20,516
Damage to health care	million VND		20,000
Damage to education	million VND		45,712
Of which:			
43. Collapsed, floated classroom	classroom	126	
44. Inundated, damaged classroom	classroom	938	
45. Inundated, floated clinics, hospitals	room	45	
46. Partly damaged clinics, hospitals	room	192	
47. Other damaged cultural, welfare constructions, included:			
Floated desks, chairs	set		
Books and learning aids			
Drugs and medical device			
Others			
D. DAMAGED HOUSES		x	235,922
48. Collapsed, floated houses	house	12,390	112,872
49. Inundated houses	house	152,024	30,405
50. Eroded, non-roof houses	house	15,853	92,645
E. ECOLOGICAL ENVIRONMENT AND LIVELIHOOD			
51. Homeless people because of collapsed or floated houses	person	71,876	x
52. Temporarily homeless because of inundation	person	66,686	x
53. Inundated residential area because of pesticide, petrol, fertilizer, toxic chemicals...	km ²	262	x
F. OTHER DAMAGED ASSETS (IF ANY)		x	419,585
Wet and floated paddy, including seedling paddy	ton	78,987	126,379
Petrol of all kinds	litre	4,850	17
Subsidiary crop	ton		1,018
Floated Vinh Hien estuary		788	35,000
Others		x	225,369
Administration and armament		x	31,803
Administration	million VND		25,303
Armament	million VND		6,500
G. ESTIMATED TOTAL DAMAGE			1,746,406
H. INITIALLY FLOOD, STORM DAMAGE RECOVERY			
1. Human and asset safeguard			
Rescued people			
Rescued asset			
...			
2. Relief, support and stabilization			
Supported people	person		
Supported sum	million VND		

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (1/14)
(Ma River Basin, Without Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood							Total	
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%		Sub-total l=g+h+i+j+k
		Paddy b	Upland crop c	Sub-total d=b+c	House e	Household durable goods f	Sub-total g=e+f						
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-	-
	20	-	-	-	-	-	-	-	-	-	-	-	-
	50	-	-	-	2,848	234	3,082	1,017	1,110	185	894	6,288	6,288
	100	-	-	-	33,959	3,683	37,642	12,422	13,551	2,259	10,916	76,790	76,790

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	-	-	-	-	-
	10	0.10	0.10	-	-	-	-	-
	20	0.05	0.05	-	-	-	-	-
	50	0.02	0.03	6,288	3,144	94	94	0.01
	100	0.010	0.01	76,790	41,539	415	510	0.03

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (2/14)
(Ma River Basin, With Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood								Total	
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%	Sub-total l=g+h+i+j+k		
		Paddy b	Upland crop c	Sub-total d=b+c	House e	Household durable goods f	Sub-total g=e+f							
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-	-	-
	20	-	-	-	-	-	-	-	-	-	-	-	-	-
	50	-	-	-	-	-	-	-	-	-	-	-	-	-
	100	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	-	-	-	-	-
	10	0.10	0.10	-	-	-	-	-
	20	0.05	0.05	-	-	-	-	-
	50	0.02	0.03	-	-	-	-	-
	100	0.010	0.01	-	-	-	-	-

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (3/14)
(Thach Han River Basin, Without Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood							Total	
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%		Sub-total l=g+h+i+j+k
		Paddy	Upland crop	Sub-total	House	Household durable goods	Sub-total						
a	b	c	d=b+c	e	f	g=e+f					m=d+l		
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-
	5	13,001	-	13,001	96,862	10,820	107,682	35,535	38,766	6,461	31,228	219,672	232,673
	10	18,343	-	18,343	140,927	15,801	156,728	51,720	56,422	9,404	45,451	319,725	338,068
	20	18,343	-	18,343	174,847	19,505	194,352	64,136	69,967	11,661	56,362	396,478	414,821
	50	18,343	-	18,343	230,108	26,016	256,124	84,521	92,205	15,367	74,276	522,493	540,836
	100	18,343	-	18,343	286,594	32,119	318,713	105,175	114,737	19,123	92,427	650,175	668,518

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	232,673	116,337	34,901	34,901	2.32
	10	0.10	0.10	338,068	285,371	28,537	63,438	4.21
	20	0.05	0.05	414,821	376,445	18,822	82,260	5.46
	50	0.02	0.03	540,836	477,829	14,335	96,595	6.41
	100	0.010	0.01	668,518	604,677	6,047	102,642	6.81

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (4/14)
(Thach Han River Basin, With Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood							Total	
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%		Sub-total l=g+h+i+j+k
		Paddy b	Upland crop c	Sub-total d=b+c	House e	Household durable goods f	Sub-total g=e+f						
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-
	5	4,236	-	4,236	25,269	3,451	28,720	9,478	10,339	1,723	8,329	58,589	62,825
	10	7,312	-	7,312	54,481	6,147	60,628	20,007	21,826	3,638	17,582	123,681	130,993
	20	7,312	-	7,312	58,660	6,606	65,266	21,538	23,496	3,916	18,927	133,143	140,455
	50	7,312	-	7,312	64,484	7,291	71,775	23,686	25,839	4,307	20,815	146,422	153,734
	100	7,312	-	7,312	72,843	8,208	81,051	26,747	29,178	4,863	23,505	165,344	172,656

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	62,825	31,413	9,424	9,424	0.63
	10	0.10	0.10	130,993	96,909	9,691	19,115	1.27
	20	0.05	0.05	140,455	135,724	6,786	25,901	1.72
	50	0.02	0.03	153,734	147,095	4,413	30,314	2.01
	100	0.010	0.01	172,656	163,195	1,632	31,946	2.12

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (5/14)
(Huong River Basin, Without Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood								Total
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%	Sub-total l=g+h+i+j+k	
		Paddy	Upland crop	Sub-total	House	Household durable goods	Sub-total						
a	b	c	d=b+c	e	f	g=e+f	h=g x 33%	i=g x 36%	j=g x 6%	k=g x 29%	l=g+h+i+j+k	m=d+l	
Huong River	2	-	-	-	108,522	10,430	118,952	39,254	42,823	7,137	34,496	242,662	242,662
	5	2,767	-	2,767	295,193	33,738	328,931	108,547	118,415	19,736	95,390	671,019	673,786
	10	5,489	-	5,489	501,476	70,981	572,457	188,911	206,085	34,347	166,013	1,167,813	1,173,302
	20	5,489	-	5,489	841,726	142,769	984,495	324,883	354,418	59,070	285,504	2,008,370	2,013,859
	50	5,489	-	5,489	1,208,585	208,660	1,417,245	481,123	523,549	86,227	419,585	2,927,729	2,933,218
	100	5,489	-	5,489	1,670,088	283,924	1,954,012	644,824	703,444	117,241	566,663	3,986,184	3,991,673

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	242,662	121,331	60,666	60,666	4.03
	5	0.20	0.30	673,786	458,224	137,467	198,133	13.15
	10	0.10	0.10	1,173,302	923,544	92,354	290,487	19.28
	20	0.05	0.05	2,013,859	1,593,581	79,679	370,166	24.57
	50	0.02	0.03	2,933,218	2,473,539	74,206	444,372	29.49
	100	0.010	0.01	3,991,673	3,462,446	34,624	478,997	31.79

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (6/14)
(Huong River Basin, With Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood								Total
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%	Sub-total l=g+h+i+j+k	
		Paddy b	Upland crop c	Sub-total d=b+c	House e	Household durable goods f	Sub-total g=e+f						
	a	b	c	d=b+c	e	f	g=e+f	h=g x 33%	i=g x 36%	j=g x 6%	k=g x 29%	l=g+h+i+j+k	m=d+l
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-	-
	20	-	-	-	13,857	1,612	15,469	5,105	5,569	928	4,486	31,557	31,557
	50	-	-	-	72,649	6,837	79,486	26,230	28,615	4,769	23,051	162,151	162,151
	100	-	-	-	184,617	18,716	203,333	67,100	73,200	12,200	58,967	414,800	414,800

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	-	-	-	-	-
	10	0.10	0.10	-	-	-	-	-
	20	0.05	0.05	31,557	15,779	789	789	0.05
	50	0.02	0.03	162,151	96,854	2,906	3,695	0.25
	100	0.010	0.01	414,800	288,476	2,885	6,579	0.44

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (7/14)
(Vu Gia-Thu Bon River Basin, Without Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood							Total	
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%		Sub-total l=g+h+i+j+k
		Paddy b	Upland crop c	Sub-total d=b+c	House e	Household durable goods f	Sub-total g=e+f						
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-
	5	12,075	-	12,075	75,689	13,225	88,914	29,342	32,009	5,335	25,785	181,385	193,460
	10	14,497	-	14,497	91,048	16,142	107,190	35,373	38,588	6,431	31,085	218,667	233,164
	20	14,497	-	14,497	163,561	28,324	191,885	63,322	69,079	11,513	55,647	391,446	405,943
	50	14,497	-	14,497	527,655	91,019	618,674	204,162	222,723	37,120	179,415	1,262,094	1,276,591
	100	14,497	-	14,497	979,269	170,998	1,150,267	379,588	414,096	69,016	333,577	2,346,544	2,361,041

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	193,460	96,730	29,019	29,019	1.93
	10	0.10	0.10	233,164	213,312	21,331	50,350	3.34
	20	0.05	0.05	405,943	319,554	15,978	66,328	4.40
	50	0.02	0.03	1,276,591	841,267	25,238	91,566	6.08
	100	0.010	0.01	2,361,041	1,818,816	18,188	109,754	7.28

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (8/14)
(Vu Gia-Thu Bon River Basin, With Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood								Total
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%	Sub-total l=g+h+i+j+k	
		Paddy	Upland crop	Sub-total	House	Household durable goods	Sub-total						
a	b	c	d=b+c	e	f	g=e+f	h=g x 33%	i=g x 36%	j=g x 6%	k=g x 29%	l=g+h+i+j+k	m=d+l	
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-
	5	8,928	-	8,928	56,546	9,903	66,449	21,928	23,922	3,987	19,270	135,556	144,484
	10	9,108	-	9,108	57,671	10,152	67,823	22,382	24,416	4,069	19,669	138,359	147,467
	20	9,108	-	9,108	69,619	12,099	81,718	26,967	29,418	4,903	23,698	166,704	175,812
	50	9,108	-	9,108	75,575	13,136	88,711	29,275	31,936	5,323	25,726	180,971	190,079
	100	9,108	-	9,108	81,547	14,239	95,786	31,609	34,483	5,747	27,778	195,403	204,511

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	144,484	72,242	21,673	21,673	1.44
	10	0.10	0.10	147,467	145,976	14,598	36,270	2.41
	20	0.05	0.05	175,812	161,640	8,082	44,352	2.94
	50	0.02	0.03	190,079	182,946	5,488	49,840	3.31
	100	0.010	0.01	204,511	197,295	1,973	51,813	3.44

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (9/14)
(Tra Khúc River Basin, Without Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood							Total	
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%		Sub-total l=g+h+i+j+k
		Paddy b	Upland crop c	Sub-total d=b+c	House e	Household durable goods f	Sub-total g=e+f						
a	b	c	d=b+c	e	f	g=e+f	h=g x 33%	i=g x 36%	j=g x 6%	k=g x 29%	l=g+h+i+j+k	m=d+l	
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-
	5	16,556	-	16,556	282,252	49,924	332,176	109,618	119,583	19,931	96,331	677,639	694,195
	10	22,716	-	22,716	384,000	68,808	452,808	149,427	163,011	27,168	131,314	923,728	946,444
	20	22,716	-	22,716	502,367	89,225	591,592	195,225	212,973	35,496	171,562	1,206,848	1,229,564
	50	22,716	-	22,716	706,495	125,787	832,282	274,653	299,622	49,937	241,362	1,697,856	1,720,572
	100	22,716	-	22,716	1,052,018	186,898	1,238,916	408,842	446,010	74,335	359,286	2,527,389	2,550,105

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	694,195	347,098	104,129	104,129	6.91
	10	0.10	0.10	946,444	820,320	82,032	186,161	12.35
	20	0.05	0.05	1,229,564	1,088,004	54,400	240,561	15.97
	50	0.02	0.03	1,720,572	1,475,068	44,252	284,813	18.90
	100	0.010	0.01	2,550,105	2,135,339	21,353	306,167	20.32

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (10/14)
(Tra Khuc River Basin, With Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood							Total	
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%		Sub-total l=g+h+i+j+k
		Paddy b	Upland crop c	Sub-total d=b+c	House e	Household durable goods f	Sub-total g=e+f						
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-
	10	4,327	-	4,327	55,172	11,761	66,933	22,088	24,096	4,016	19,411	136,544	140,871
	20	4,327	-	4,327	210,127	37,339	247,466	81,664	89,088	14,848	71,765	504,831	509,158
	50	4,327	-	4,327	354,666	63,875	418,541	138,119	150,675	25,112	121,377	853,824	858,151
	100	4,327	-	4,327	473,176	83,983	557,159	183,862	200,577	33,430	161,576	1,136,604	1,140,931

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	-	-	-	-	-
	10	0.10	0.10	140,871	70,436	7,044	7,044	0.47
	20	0.05	0.05	509,158	325,015	16,251	23,294	1.55
	50	0.02	0.03	858,151	683,655	20,510	43,804	2.91
	100	0.010	0.01	1,140,931	999,541	9,995	53,799	3.57

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (11/14)
(Kone River Basin, Without Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood							Total	
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%		Sub-total l=g+h+i+j+k
		Paddy	Upland crop	Sub-total	House	Household durable goods	Sub-total						
a	b	c	d=b+c	e	f	g=e+f					m=d+l		
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-
	5	16,112	-	16,112	293,451	44,323	337,774	111,465	121,599	20,266	97,954	689,058	705,170
	10	19,377	-	19,377	345,879	51,818	397,697	131,240	143,171	23,862	115,332	811,302	830,679
	20	19,377	-	19,377	402,619	60,447	463,066	152,812	166,704	27,784	134,289	944,655	964,032
	50	19,377	-	19,377	482,039	73,282	555,321	183,256	199,916	33,319	161,043	1,132,855	1,152,232
	100	19,377	-	19,377	563,235	85,010	648,245	213,921	233,368	38,895	187,991	1,322,420	1,341,797

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	705,170	352,585	105,776	105,776	7.02
	10	0.10	0.10	830,679	767,925	76,792	182,568	12.12
	20	0.05	0.05	964,032	897,356	44,868	227,436	15.09
	50	0.02	0.03	1,152,232	1,058,132	31,744	259,180	17.20
	100	0.010	0.01	1,341,797	1,247,015	12,470	271,650	18.03

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (12/14)
(Kone River Basin, With Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood								Total	
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%	Sub-total l=g+h+i+j+k		
		Paddy b	Upland crop c	Sub-total d=b+c	House e	Household durable goods f	Sub-total g=e+f							
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-	-	-
	20	-	-	-	20,482	4,375	24,857	8,203	8,949	1,491	7,209	50,709	50,709	
	50	-	-	-	108,826	16,334	125,160	41,303	45,058	7,510	36,296	255,327	255,327	
	100	-	-	-	165,675	24,901	190,576	62,890	68,607	11,435	55,267	388,775	388,775	

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	-	-	-	-	-
	10	0.10	0.10	-	-	-	-	-
	20	0.05	0.05	50,709	25,355	1,268	1,268	0.08
	50	0.02	0.03	255,327	153,018	4,591	5,858	0.39
	100	0.010	0.01	388,775	322,051	3,221	9,079	0.60

Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (13/14)
(Ba River Basin, Without Project)

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood							Total	
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%		Sub-total l=g+h+i+j+k
		Paddy b	Upland crop c	Sub-total d=b+c	House e	Household durable goods f	Sub-total g=e+f						
a	b	c	d=b+c	e	f	g=e+f	h=g x 33%	i=g x 36%	j=g x 6%	k=g x 29%	l=g+h+i+j+k	m=d+l	
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-
	10	4,191	-	4,191	25,206	6,067	31,273	10,320	11,258	1,876	9,069	63,796	67,987
	20	4,191	-	4,191	101,613	19,739	121,352	40,046	43,687	7,281	35,192	247,558	251,749
	50	4,191	-	4,191	209,902	40,809	250,711	82,735	90,256	15,043	72,706	511,451	515,642
	100	4,191	-	4,191	340,760	66,985	407,745	134,556	146,788	24,465	118,246	831,800	835,991

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	-	-	-	-	-
	10	0.10	0.10	67,987	33,994	3,399	3,399	0.23
	20	0.05	0.05	251,749	159,868	7,993	11,393	0.76
	50	0.02	0.03	515,642	383,696	11,511	22,904	1.52
	100	0.010	0.01	835,991	675,817	6,758	29,662	1.97

**Bảng 9.6 Ước tính khả năng thiệt hại do lũ lụt gây ra (14/14)
(Ba River Basin, With Project)**

(1) Estimation of Flood Damage by Magnitude of Flood

Unit: VND Million

River System	Return Period (Year)	Early Flood			Major Flood								Total	
		Crops			1. House			2. River facilities and infrastructure /1 h=g x 33%	3. Business activities /2 i=g x 36%	4. Welfare and cultural facilities /3 j=g x 6%	5. Other /4 k=g x 29%	Sub-total l=g+h+i+j+k		
		Paddy b	Upland crop c	Sub-total d=b+c	House e	Household durable goods f	Sub-total g=e+f							
Huong River	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-	-	-
	20	-	-	-	71,178	13,916	85,094	28,081	30,634	5,106	24,677	173,592	173,592	
	50	-	-	-	180,568	35,404	215,972	71,271	77,750	12,958	62,632	440,583	440,583	
	100	-	-	-	313,358	61,359	374,717	123,657	134,898	22,483	108,668	764,423	764,423	

Note: /1 This item includes the damages to the facilities for flood prevention, water utilization, transportation, fishery, electricity, and post office.

/2 This item includes the damages to crops, forest, livestock, aquaculture, factories, shops, offices, machines, materials, and products.

/3 This item includes the damages to the facilities for cultural sector, health care, and education.

/4 This item includes the damages to administrative sector, armaments, and others.

(2) Estimation of Annual Mean Flood Damage

River System	Return Period	Exceedance	Difference of Exceedance	Damage (VND Million)		Annual Damage (VND Million)		Equivalent US\$ million
				Amount	Mean	Segment	Cumulative	
Huong River	-	1.00						
	2	0.50	0.50	-	-	-	-	-
	5	0.20	0.30	-	-	-	-	-
	10	0.10	0.10	-	-	-	-	-
	20	0.05	0.05	173,592	86,796	4,340	4,340	0.29
	50	0.02	0.03	440,583	307,088	9,213	13,552	0.90
	100	0.010	0.01	764,423	602,503	6,025	19,577	1.30

Bảng 9.7 Lợi ích tưới (1/11)
(Bang Giang & Ky Cung River Project)

Crop	Net Income per ha (US\$/ha)							Total		
	Unit Price		Unit Yield ton/ha	Gross Income US\$/ha	Product. Cost		Net Income US\$/ha	Planted Area ha	Net Income US\$	
	US\$/ton	adjust			US\$/ha	US\$/ha				adjust
Present Condition							\$439 /ha	106,400 ha	29,636,000	
1. Winter - Spring Crop							-	42,600 ha	13,904,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	5,000 ha	1,000,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	0 ha	0
Maize	Irrigated	144	-	2.50	360	216	60%	144	10,000 ha	1,440,000
Maize	Rainfed	144	-	1.80	259	155	60%	104	6,300 ha	655,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	2,000 ha	328,000
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	0 ha	0
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	1,000 ha	180,000
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	0 ha	0
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	7,000 ha	4,662,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	11,300 ha	5,639,000
2. Summer - Autumn Crop							-	48,600 ha	10,064,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	25,000 ha	5,000,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	11,000 ha	1,265,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	0 ha	0
Maize	Rainfed	144	-	1.80	259	155	60%	104	6,300 ha	655,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	0 ha	0
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	0 ha	0
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	0 ha	0
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	0 ha	0
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	6,300 ha	3,144,000
3. Year Round Crop							-	10,000 ha	4,004,000	
Sugar Cane, etc.	Irrigated	28	-	50.00	1,400	840	60%	560	500 ha	280,000
Sugar Cane, etc.	Rainfed	28	-	35.00	980	588	60%	392	9,500 ha	3,724,000
4. Perennial Crop							-	5,200 ha	1,664,000	
Coffee, etc.	Irrigated	500	-	2.00	1,000	600	60%	400	0 ha	0
Coffee, etc.	Rainfed	500	-	1.60	800	480	60%	320	5,200 ha	1,664,000
Future Condition							\$1,120 /ha	123,500 ha	75,584,000	
1. Winter - Spring Crop							-	56,000 ha	38,064,000	
Paddy	Irrigated	125	100%	5.00	625	250	40%	375	7,000 ha	2,625,000
Maize	Irrigated	144	115%	4.00	576	230	40%	346	22,000 ha	7,612,000
Sweet Potatoes	Irrigated	63	50%	7.00	441	176	40%	265	3,000 ha	795,000
Groundnuts	Irrigated	375	300%	1.50	563	225	40%	338	2,000 ha	676,000
Vegetables	Irrigated	208	166%	9.60	1,997	799	40%	1,198	22,000 ha	26,356,000
2. Summer - Autumn Crop							-	56,000 ha	28,940,000	
Paddy	Irrigated	125	-	5.00	625	250	40%	375	36,000 ha	13,500,000
Maize	Irrigated	144	-	4.00	576	230	40%	346	10,000 ha	3,460,000
Groundnuts	Irrigated	375	-	1.50	563	225	40%	338	0 ha	0
Vegetables	Irrigated	208	-	9.60	1,997	799	40%	1,198	10,000 ha	11,980,000
3. Year Round Crop							-	2,500 ha	2,100,000	
Sugar Cane	Irrigated	28	-	50.00	1,400	560	40%	840	2,500 ha	2,100,000
4. Perennial Crop							-	9,000 ha	6,480,000	
Coffee, etc.	Irrigated	500	-	2.40	1,200	480	40%	720	9,000 ha	6,480,000
Increment	0.90 (SCF)	139	per ton					\$681 /ha	17,100 ha	45,948,000
								Irrigation Area	67,500 ha	

Bảng 9.7 Lợi ích tưới (2/11)

(Ma River Project)

Crop	Net Income per ha (US\$/ha)							Total		
	Unit Price		Unit Yield	Gross Income	Product. Cost		Net Income	Planted Area	Net Income	
	US\$/ton	adjust	ton/ha	US\$/ha	US\$/ha	adjust	US\$/ha	ha	US\$	
Present Condition							\$342 /ha	352,100 ha	68,204,000	
1. Winter - Spring Crop								152,500 ha	26,901,000	
Paddy	Irrigated	-	-	-	-	-	200	91,000 ha	18,200,000	
Paddy	Rainfed	125	-	2.30	288	173	60%	115	32,000 ha	3,680,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	0 ha	0
Maize	Rainfed	144	-	1.80	259	155	60%	104	12,200 ha	1,269,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	8,200 ha	992,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	0 ha	0
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	4,700 ha	564,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	0 ha	0
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	4,400 ha	2,196,000
2. Summer - Autumn Crop								172,500 ha	30,476,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	106,000 ha	21,200,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	37,000 ha	4,255,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	0 ha	0
Maize	Rainfed	144	-	1.80	259	155	60%	104	12,200 ha	1,269,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	8,200 ha	992,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	0 ha	0
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	4,700 ha	564,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	0 ha	0
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	4,400 ha	2,196,000
3. Year Round Crop								20,600 ha	8,747,000	
Sugar Cane, etc.	Irrigated	28	-	45.00	1,260	756	60%	504	6,000 ha	3,024,000
Sugar Cane, etc.	Rainfed	28	-	35.00	980	588	60%	392	14,600 ha	5,723,000
4. Perennial Crop								6,500 ha	2,080,000	
Coffee, etc.	Irrigated	500	-	2.00	1,000	600	60%	400	0 ha	0
Coffee, etc.	Rainfed	500	-	1.60	800	480	60%	320	6,500 ha	2,080,000
Future Condition							\$697 /ha	354,500 ha	139,114,000	
1. Winter - Spring Crop								155,000 ha	53,755,000	
Paddy	Irrigated	125	100%	4.10	513	205	40%	308	144,000 ha	44,352,000
Maize	Irrigated	144	115%	3.60	518	207	40%	311	1,000 ha	311,000
Sweet Potatoes	Irrigated	63	50%	8.00	504	202	40%	302	2,000 ha	604,000
Groundnuts	Irrigated	375	300%	1.50	563	225	40%	338	0 ha	0
Vegetables	Irrigated	208	166%	8.50	1,768	707	40%	1,061	8,000 ha	8,488,000
2. Summer - Autumn Crop								164,000 ha	56,034,000	
Paddy	Irrigated	125	-	4.10	513	205	40%	308	144,000 ha	44,352,000
Maize	Irrigated	144	-	3.00	432	173	40%	259	10,000 ha	2,590,000
Sweet Potatoes	Irrigated	63	-	8.00	504	202	40%	302	2,000 ha	604,000
Groundnuts	Irrigated	375	-	1.50	563	225	40%	338	0 ha	0
Vegetables	Irrigated	208	-	8.50	1,768	707	40%	1,061	8,000 ha	8,488,000
3. Year Round Crop								30,000 ha	25,200,000	
Sugar Cane	Irrigated	28	-	50.00	1,400	560	40%	840	30,000 ha	25,200,000
4. Perennial Crop								5,500 ha	4,125,000	
Coffee, etc.	Irrigated	500	-	2.50	1,250	500	40%	750	5,500 ha	4,125,000
Increment	0.90 (SCF)	139	per ton					\$355 /ha	2,400 ha	70,910,000
								Irrigation Area	199,500 ha	

Bảng 9.7 Lợi ích tưới (3/11)
(Ca River Project)

Crop	Net Income per ha (US\$/ha)							Total		
	Unit Price		Unit Yield ton/ha	Gross Income US\$/ha	Product. Cost		Net Income US\$/ha	Planted Area ha	Net Income US\$	
	US\$/ton	adjust			US\$/ha	adjust				
Present Condition							\$352 /ha	374,000 ha	71,370,000	
1. Winter - Spring Crop							-	180,000 ha	33,059,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	67,000 ha	13,400,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	47,000 ha	5,405,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	1,000 ha	144,000
Maize	Rainfed	144	-	1.80	259	155	60%	104	10,000 ha	1,040,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	11,000 ha	1,804,000
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	11,000 ha	1,331,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	10,500 ha	1,890,000
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	9,500 ha	1,140,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	2,500 ha	1,665,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	10,500 ha	5,240,000
2. Summer - Autumn Crop							-	180,000 ha	33,087,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	88,000 ha	17,600,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	59,000 ha	6,785,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	1,000 ha	144,000
Maize	Rainfed	144	-	1.80	259	155	60%	104	10,000 ha	1,040,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	1,000 ha	164,000
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	5,000 ha	605,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	500 ha	90,000
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	3,500 ha	420,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	1,500 ha	999,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	10,500 ha	5,240,000
3. Year Round Crop							-	8,000 ha	3,304,000	
Sugar Cane, etc.	Irrigated	28	-	50.00	1,400	840	60%	560	1,000 ha	560,000
Sugar Cane, etc.	Rainfed	28	-	35.00	980	588	60%	392	7,000 ha	2,744,000
4. Perennial Crop							-	6,000 ha	1,920,000	
Coffee, etc.	Irrigated	500	-	2.00	1,000	600	60%	400	0 ha	0
Coffee, etc.	Rainfed	500	-	1.60	800	480	60%	320	6,000 ha	1,920,000
Future Condition							\$767 /ha	365,000 ha	155,606,000	
1. Winter - Spring Crop							-	162,000 ha	61,566,000	
Paddy	Irrigated	125	100%	4.70	588	235	40%	353	103,000 ha	36,359,000
Maize	Irrigated	144	115%	4.00	576	230	40%	346	9,000 ha	3,114,000
Sweet Potatoes	Irrigated	63	50%	7.00	441	176	40%	265	18,000 ha	4,770,000
Groundnuts	Irrigated	375	300%	1.50	563	225	40%	338	23,000 ha	7,774,000
Vegetables	Irrigated	208	166%	8.50	1,768	707	40%	1,061	9,000 ha	9,549,000
2. Summer - Autumn Crop							-	162,000 ha	62,300,000	
Paddy	Irrigated	125	-	4.70	588	235	40%	353	132,000 ha	46,596,000
Maize	Irrigated	144	-	4.00	576	230	40%	346	9,000 ha	3,114,000
Sweet Potatoes	Irrigated	63	-	7.00	441	176	40%	265	4,000 ha	1,060,000
Groundnuts	Irrigated	375	-	1.50	563	225	40%	338	9,000 ha	3,042,000
Vegetables	Irrigated	208	-	8.50	1,768	707	40%	1,061	8,000 ha	8,488,000
3. Year Round Crop							-	11,000 ha	9,240,000	
Sugar Cane	Irrigated	28	-	50.00	1,400	560	40%	840	11,000 ha	9,240,000
4. Perennial Crop							-	30,000 ha	22,500,000	
Coffee, etc.	Irrigated	500	-	2.50	1,250	500	40%	750	30,000 ha	22,500,000
Increment	0.90 (SCF)	139	per ton					\$415 /ha	-9,000	84,236,000
								Irrigation Area	203,000 ha	

Bảng 9.7 Lợi ích tưới (4/11)
(Thach Han River Project)

Crop	Net Income per ha (US\$/ha)							Total		
	Unit Price		Unit Yield	Gross Income	Product. Cost		Net Income	Planted Area	Net Income	
	US\$/ton	adjust	ton/ha	US\$/ha	US\$/ha	adjust	US\$/ha	ha	US\$	
Present Condition							\$339 /ha	25,700 ha	5,221,000	
1. Winter - Spring Crop							-	11,200 ha	1,943,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	4,000 ha	800,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	5,000 ha	575,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	0 ha	0
Maize	Rainfed	144	-	1.80	259	155	60%	104	300 ha	31,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	300 ha	49,000
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	400 ha	48,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	300 ha	54,000
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	300 ha	36,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	300 ha	200,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	300 ha	150,000
2. Summer - Autumn Crop							-	10,300 ha	1,840,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	4,000 ha	800,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	4,100 ha	472,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	0 ha	0
Maize	Rainfed	144	-	1.80	259	155	60%	104	300 ha	31,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	300 ha	49,000
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	400 ha	48,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	300 ha	54,000
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	300 ha	36,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	300 ha	200,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	300 ha	150,000
3. Year Round Crop							-	1,200 ha	470,000	
Sugar Cane, etc.	Irrigated	28	-	50.00	1,400	840	60%	560	0 ha	0
Sugar Cane, etc.	Rainfed	28	-	35.00	980	588	60%	392	1,200 ha	470,000
4. Perennial Crop							-	3,000 ha	968,000	
Coffee, etc.	Irrigated	500	-	2.00	1,000	600	60%	400	100 ha	40,000
Coffee, etc.	Rainfed	500	-	1.60	800	480	60%	320	2,900 ha	928,000
Future Condition							\$726 /ha	26,600 ha	11,181,000	
1. Winter - Spring Crop							-	12,200 ha	4,569,000	
Paddy	Irrigated	125	100%	4.80	600	240	40%	360	9,000 ha	3,240,000
Maize	Irrigated	144	115%	4.00	576	230	40%	346	1,400 ha	484,000
Sweet Potatoes	Irrigated	63	50%	7.00	441	176	40%	265	400 ha	106,000
Groundnuts	Irrigated	375	300%	1.50	563	225	40%	338	1,100 ha	372,000
Vegetables	Irrigated	208	166%	9.80	2,038	815	40%	1,223	300 ha	367,000
2. Summer - Autumn Crop							-	11,200 ha	4,176,000	
Paddy	Irrigated	125	-	4.80	600	240	40%	360	8,000 ha	2,880,000
Maize	Irrigated	144	-	4.00	576	230	40%	346	1,400 ha	484,000
Sweet Potatoes	Irrigated	63	-	6.50	410	164	40%	246	400 ha	98,000
Groundnuts	Irrigated	375	-	1.40	525	210	40%	315	1,100 ha	347,000
Vegetables	Irrigated	208	-	9.80	2,038	815	40%	1,223	300 ha	367,000
3. Year Round Crop							-	400 ha	336,000	
Sugar Cane	Irrigated	28	-	50.00	1,400	560	40%	840	400 ha	336,000
4. Perennial Crop							-	2,800 ha	2,100,000	
Coffee, etc.	Irrigated	500	-	2.50	1,250	500	40%	750	2,800 ha	2,100,000
Increment	0.90 (SCF)	139	per ton					\$387 /ha	900 ha	5,960,000
								Irrigation Area	15,400 ha	

Bảng 9.7 Lợi ích tưới (5/11)
(Huong River Project)

Crop	Net Income per ha (US\$/ha)							Total		
	Unit Price		Unit Yield ton/ha	Gross Income US\$/ha	Product. Cost		Net Income US\$/ha	Planted Area ha	Net Income US\$	
	US\$/ton	adjust			US\$/ha	adjust				
Present Condition								\$307 /ha	44,386 ha	7,949,000
1. Winter - Spring Crop									25,900 ha	4,366,000
Paddy	Irrigated	125	-	2.80	350	210	60%	140	18,022 ha	2,523,000
Maize	Rainfed	144	-	1.20	173	104	60%	69	78 ha	5,000
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	4,838 ha	585,000
Groundnuts	Rainfed	375	-	1.20	450	270	60%	180	706 ha	127,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	2,256 ha	1,126,000
2. Summer - Autumn Crop									18,486 ha	3,583,000
Paddy	Irrigated	125	-	3.00	375	225	60%	150	15,197 ha	2,280,000
Maize	Rainfed	144	-	1.20	173	104	60%	69	79 ha	5,000
Groundnuts	Rainfed	375	-	1.20	450	270	60%	180	954 ha	172,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	2,256 ha	1,126,000
Future Condition									51,800 ha	22,376,000
1. Winter - Spring Crop									25,900 ha	11,062,000
Paddy	Irrigated	125	100%	5.00	625	250	40%	375	19,912 ha	7,467,000
Maize	Irrigated	144	115%	4.00	576	230	40%	346	460 ha	159,000
Sweet Potatoes	Irrigated	63	50%	7.00	441	176	40%	265	3,456 ha	916,000
Groundnuts	Irrigated	375	300%	1.50	563	225	40%	338	72 ha	24,000
Vegetables	Irrigated	208	166%	10.00	2,080	832	40%	1,248	2,000 ha	2,496,000
2. Summer - Autumn Crop									25,900 ha	11,314,000
Paddy	Irrigated	125	-	5.00	625	250	40%	375	19,912 ha	7,467,000
Maize	Irrigated	144	-	4.00	576	230	40%	346	460 ha	159,000
Groundnuts	Irrigated	375	-	1.50	563	225	40%	338	3,528 ha	1,192,000
Vegetables	Irrigated	208	-	10.00	2,080	832	40%	1,248	2,000 ha	2,496,000
Increment									7,414 ha	14,427,000
	0.90 (SCF)			139 per ton				\$557 /ha	Irrigation Area	25,900 ha

Bảng 9.7 Lợi ích tưới (6/11)

(Vu Gia-Thu Bon River Project)

Crop	Net Income per ha (US\$/ha)							Total		
	Unit Price		Unit Yield ton/ha	Gross Income US\$/ha	Product. Cost		Net Income US\$/ha	Planted Area ha	Net Income US\$	
	US\$/ton	adjust			US\$/ha	adjust				
Present Condition							\$369 /ha	138,400 ha	28,426,000	
1. Winter - Spring Crop							-	61,500 ha	11,252,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	26,000 ha	5,200,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	23,000 ha	2,645,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	500 ha	72,000
Maize	Rainfed	144	-	1.80	259	155	60%	104	1,700 ha	177,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	300 ha	49,000
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	3,000 ha	363,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	300 ha	54,000
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	2,600 ha	312,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	2,000 ha	1,332,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	2,100 ha	1,048,000
2. Summer - Autumn Crop							-	61,500 ha	11,252,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	26,000 ha	5,200,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	23,000 ha	2,645,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	500 ha	72,000
Maize	Rainfed	144	-	1.80	259	155	60%	104	1,700 ha	177,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	300 ha	49,000
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	3,000 ha	363,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	300 ha	54,000
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	2,600 ha	312,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	2,000 ha	1,332,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	2,100 ha	1,048,000
3. Year Round Crop							-	10,100 ha	4,194,000	
Sugar Cane, etc.	Irrigated	28	-	50.00	1,400	840	60%	560	1,400 ha	784,000
Sugar Cane, etc.	Rainfed	28	-	35.00	980	588	60%	392	8,700 ha	3,410,000
4. Perennial Crop							-	5,300 ha	1,728,000	
Coffee, etc.	Irrigated	500	-	2.00	1,000	600	60%	400	400 ha	160,000
Coffee, etc.	Rainfed	500	-	1.60	800	480	60%	320	4,900 ha	1,568,000
Future Condition							\$753 /ha	143,200 ha	57,959,000	
1. Winter - Spring Crop							-	66,200 ha	24,682,000	
Paddy	Irrigated	125	100%	4.60	575	230	40%	345	49,000 ha	16,905,000
Maize	Irrigated	144	115%	3.50	504	202	40%	302	4,000 ha	1,208,000
Sweet Potatoes	Irrigated	63	50%	6.80	428	171	40%	257	5,000 ha	1,285,000
Groundnuts	Irrigated	375	300%	1.50	563	225	40%	338	5,000 ha	1,690,000
Vegetables	Irrigated	208	166%	9.00	1,872	749	40%	1,123	3,200 ha	3,594,000
2. Summer - Autumn Crop							-	66,200 ha	24,682,000	
Paddy	Irrigated	125	-	4.60	575	230	40%	345	49,000 ha	16,905,000
Maize	Irrigated	144	-	3.50	504	202	40%	302	4,000 ha	1,208,000
Sweet Potatoes	Irrigated	63	-	6.80	428	171	40%	257	5,000 ha	1,285,000
Groundnuts	Irrigated	375	-	1.50	563	225	40%	338	5,000 ha	1,690,000
Vegetables	Irrigated	208	-	9.00	1,872	749	40%	1,123	3,200 ha	3,594,000
3. Year Round Crop							-	5,500 ha	4,620,000	
Sugar Cane	Irrigated	28	-	50.00	1,400	560	40%	840	5,500 ha	4,620,000
4. Perennial Crop							-	5,300 ha	3,975,000	
Coffee, etc.	Irrigated	500	-	2.50	1,250	500	40%	750	5,300 ha	3,975,000
Increment	0.90 (SCF)	139	per ton					\$384 /ha	4,800 ha	29,533,000
								Irrigation Area	77,000 ha	

Bảng 9.7 Lợi ích tưới (7/11)
(Tra Khuc River Project)

Crop	Net Income per ha (US\$/ha)							Total		
	Unit Price		Unit Yield	Gross Income	Product. Cost		Net Income	Planted Area	Net Income	
	US\$/ton	adjust	ton/ha	US\$/ha	US\$/ha	adjust	US\$/ha	ha	US\$	
Present Condition							\$502 /ha	116,200 ha	27,107,000	
1. Winter - Spring Crop							-	34,700 ha	6,017,000	
Paddy	Irrigated	125	-	3.80	475	285	60%	190	27,000 ha	5,130,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	6,000 ha	690,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	500 ha	72,000
Maize	Rainfed	144	-	1.80	259	155	60%	104	1,200 ha	125,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	0 ha	0
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	0 ha	0
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	0 ha	0
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	0 ha	0
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	0 ha	0
2. Summer - Autumn Crop							-	62,300 ha	14,151,000	
Paddy	Irrigated	125	-	3.80	475	285	60%	190	45,000 ha	8,550,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	1,100 ha	127,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	500 ha	72,000
Maize	Rainfed	144	-	1.80	259	155	60%	104	1,200 ha	125,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	2,000 ha	328,000
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	1,100 ha	133,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	3,500 ha	630,000
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	900 ha	108,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	3,500 ha	2,331,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	3,500 ha	1,747,000
3. Year Round Crop							-	13,200 ha	4,939,000	
Sugar Cane, etc.	Irrigated	28	-	40.00	1,120	672	60%	448	4,500 ha	2,016,000
Sugar Cane, etc.	Rainfed	28	-	30.00	840	504	60%	336	8,700 ha	2,923,000
4. Perennial Crop							-	6,000 ha	2,000,000	
Coffee, etc.	Irrigated	500	-	2.00	1,000	600	60%	400	1,000 ha	400,000
Coffee, etc.	Rainfed	500	-	1.60	800	480	60%	320	5,000 ha	1,600,000
Future Condition							\$991 /ha	123,000 ha	53,514,000	
1. Winter - Spring Crop							-	36,000 ha	11,046,000	
Paddy	Irrigated	125	100%	4.10	513	205	40%	308	33,000 ha	10,164,000
Maize	Irrigated	144	115%	3.40	490	196	40%	294	3,000 ha	882,000
Sweet Potatoes	Irrigated	63	50%	6.90	435	174	40%	261	0 ha	0
Groundnuts	Irrigated	375	300%	1.50	563	225	40%	338	0 ha	0
Vegetables	Irrigated	208	166%	8.50	1,768	707	40%	1,061	0 ha	0
2. Summer - Autumn Crop							-	69,000 ha	30,420,000	
Paddy	Irrigated	125	-	4.10	513	205	40%	308	46,000 ha	14,168,000
Maize	Irrigated	144	-	3.40	490	196	40%	294	3,000 ha	882,000
Sweet Potatoes	Irrigated	63	-	6.90	435	174	40%	261	1,500 ha	392,000
Groundnuts	Irrigated	375	-	1.50	563	225	40%	338	6,000 ha	2,028,000
Vegetables	Irrigated	208	-	8.30	1,726	690	40%	1,036	12,500 ha	12,950,000
3. Year Round Crop							-	12,000 ha	8,268,000	
Sugar Cane	Irrigated	28	-	41.00	1,148	459	40%	689	12,000 ha	8,268,000
4. Perennial Crop							-	6,000 ha	3,780,000	
Coffee, etc.	Irrigated	500	-	2.10	1,050	420	40%	630	6,000 ha	3,780,000
Increment	0.90 (SCF)	139	per ton					\$489 /ha	6,800 ha	26,407,000
								Irrigation Area	54,000 ha	

Bảng 9.7 Lợi ích tưới (8/11)
(Kone River Project)

Crop	Net Income per ha (US\$/ha)							Total		
	Unit Price		Unit Yield ton/ha	Gross Income US\$/ha	Product. Cost		Net Income US\$/ha	Planted Area ha	Net Income US\$	
	US\$/ton	adjust			US\$/ha	adjust				
Present Condition							\$538 /ha	121,200 ha	26,341,000	
1. Winter - Spring Crop							-	41,700 ha	7,374,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	24,000 ha	4,800,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	16,000 ha	1,840,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	0 ha	0
Maize	Rainfed	144	-	1.80	259	155	60%	104	500 ha	52,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	0 ha	0
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	0 ha	0
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	0 ha	0
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	500 ha	333,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	700 ha	349,000
2. Summer - Autumn Crop							-	72,100 ha	15,982,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	48,000 ha	9,600,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	14,400 ha	1,656,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	0 ha	0
Maize	Rainfed	144	-	1.80	259	155	60%	104	500 ha	52,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	0 ha	0
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	0 ha	0
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	0 ha	0
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	500 ha	333,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	8,700 ha	4,341,000
3. Year Round Crop							-	7,400 ha	2,985,000	
Sugar Cane, etc.	Irrigated	28	-	50.00	1,400	840	60%	560	500 ha	280,000
Sugar Cane, etc.	Rainfed	28	-	35.00	980	588	60%	392	6,900 ha	2,705,000
4. Perennial Crop							-	0 ha	0	
Coffee, etc.	Irrigated	500	-	2.00	1,000	600	60%	400	0 ha	0
Coffee, etc.	Rainfed	500	-	1.60	800	480	60%	320	0 ha	0
Future Condition							\$1,221 /ha	132,000 ha	59,846,000	
1. Winter - Spring Crop							-	43,000 ha	15,626,000	
Paddy	Irrigated	125	100%	4.60	575	230	40%	345	40,000 ha	13,800,000
Maize	Irrigated	144	115%	3.70	533	213	40%	320	2,000 ha	640,000
Sweet Potatoes	Irrigated	63	50%	7.00	441	176	40%	265	0 ha	0
Groundnuts	Irrigated	375	300%	1.50	563	225	40%	338	0 ha	0
Vegetables	Irrigated	208	166%	9.50	1,976	790	40%	1,186	1,000 ha	1,186,000
2. Summer - Autumn Crop							-	83,000 ha	39,180,000	
Paddy	Irrigated	125	-	4.60	575	230	40%	345	68,000 ha	23,460,000
Maize	Irrigated	144	-	3.70	533	213	40%	320	2,000 ha	640,000
Sweet Potatoes	Irrigated	63	-	7.00	441	176	40%	265	0 ha	0
Groundnuts	Irrigated	375	-	1.50	563	225	40%	338	0 ha	0
Vegetables	Irrigated	208	-	9.30	1,934	774	40%	1,160	13,000 ha	15,080,000
3. Year Round Crop							-	6,000 ha	5,040,000	
Sugar Cane	Irrigated	28	-	50.00	1,400	560	40%	840	6,000 ha	5,040,000
4. Perennial Crop							-	0 ha	0	
Coffee, etc.	Irrigated	500	-	2.50	1,250	500	40%	750	0 ha	0
Increment	0.90 (SCF)	139	per ton					\$684 /ha	10,800 ha	33,505,000
								Irrigation Area	49,000 ha	

Bảng 9.7 Lợi ích tưới (9/11)
(Ba River Project)

Crop	Net Income per ha (US\$/ha)							Total		
	Unit Price		Unit Yield ton/ha	Gross Income US\$/ha	Product. Cost		Net Income US\$/ha	Planted Area ha	Net Income US\$	
	US\$/ton	adjust			US\$/ha	adjust				
Present Condition							\$392 /ha	221,700 ha	72,935,000	
1. Winter - Spring Crop							-	106,000 ha	41,201,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	26,000 ha	5,200,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	3,000 ha	345,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	800 ha	115,000
Maize	Rainfed	144	-	1.80	259	155	60%	104	9,100 ha	946,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	1,800 ha	218,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	0 ha	0
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	2,100 ha	252,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	15,500 ha	10,323,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	47,700 ha	23,802,000
2. Summer - Autumn Crop							-	83,700 ha	19,689,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	37,000 ha	7,400,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	24,000 ha	2,760,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	300 ha	43,000
Maize	Rainfed	144	-	1.80	259	155	60%	104	3,000 ha	312,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	600 ha	73,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	0 ha	0
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	1,400 ha	168,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	1,500 ha	999,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	15,900 ha	7,934,000
3. Year Round Crop							-	23,900 ha	9,453,000	
Sugar Cane, etc.	Irrigated	28	-	50.00	1,400	840	60%	560	500 ha	280,000
Sugar Cane, etc.	Rainfed	28	-	35.00	980	588	60%	392	23,400 ha	9,173,000
4. Perennial Crop							-	8,100 ha	2,592,000	
Coffee, etc.	Irrigated	500	-	2.00	1,000	600	60%	400	0 ha	0
Coffee, etc.	Rainfed	500	-	1.60	800	480	60%	320	8,100 ha	2,592,000
Future Condition							\$1,005 /ha	294,800 ha	186,900,000	
1. Winter - Spring Crop							-	126,200 ha	90,258,000	
Paddy	Irrigated	125	100%	4.70	588	235	40%	353	39,000 ha	13,767,000
Maize	Irrigated	144	115%	3.50	504	202	40%	302	15,000 ha	4,530,000
Sweet Potatoes	Irrigated	63	50%	7.00	441	176	40%	265	2,700 ha	716,000
Groundnuts	Irrigated	375	300%	1.40	525	210	40%	315	7,500 ha	2,363,000
Vegetables	Irrigated	208	166%	8.90	1,851	740	40%	1,111	62,000 ha	68,882,000
2. Summer - Autumn Crop							-	91,400 ha	38,658,000	
Paddy	Irrigated	125	-	4.70	588	235	40%	353	74,000 ha	26,122,000
Maize	Irrigated	144	-	3.50	504	202	40%	302	5,000 ha	1,510,000
Sweet Potatoes	Irrigated	63	-	7.00	441	176	40%	265	900 ha	239,000
Groundnuts	Irrigated	375	-	1.40	525	210	40%	315	2,500 ha	788,000
Vegetables	Irrigated	208	-	8.90	1,851	740	40%	1,111	9,000 ha	9,999,000
3. Year Round Crop							-	20,000 ha	16,800,000	
Sugar Cane	Irrigated	28	-	50.00	1,400	560	40%	840	20,000 ha	16,800,000
4. Perennial Crop							-	57,200 ha	41,184,000	
Coffee, etc.	Irrigated	500	-	2.40	1,200	480	40%	720	57,200 ha	41,184,000
Increment	0.90 (SCF)	139	per ton					\$613 /ha	73,100 ha	113,965,000
								Irrigation Area	186,000 ha	

Bảng 9.7 Lợi ích tưới (10/11)

(Se San River Project)

Crop	Net Income per ha (US\$/ha)							Total		
	Unit Price		Unit Yield ton/ha	Gross Income US\$/ha	Product. Cost		Net Income US\$/ha	Planted Area ha	Net Income US\$	
	US\$/ton	adjust			US\$/ha	adjust				
Present Condition							\$334 /ha	55,200 ha	16,686,000	
1. Winter - Spring Crop							-	5,200 ha	1,023,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	5,000 ha	1,000,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	200 ha	23,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	0 ha	0
Maize	Rainfed	144	-	1.80	259	155	60%	104	0 ha	0
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	0 ha	0
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	0 ha	0
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	0 ha	0
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	0 ha	0
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	0 ha	0
2. Summer - Autumn Crop							-	23,300 ha	5,883,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	13,000 ha	2,600,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	2,000 ha	230,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	0 ha	0
Maize	Rainfed	144	-	1.80	259	155	60%	104	2,700 ha	281,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	200 ha	24,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	0 ha	0
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	300 ha	36,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	1,000 ha	666,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	4,100 ha	2,046,000
3. Year Round Crop							-	7,500 ha	2,996,000	
Sugar Cane, etc.	Irrigated	28	-	45.00	1,260	756	60%	504	500 ha	252,000
Sugar Cane, etc.	Rainfed	28	-	35.00	980	588	60%	392	7,000 ha	2,744,000
4. Perennial Crop							-	19,200 ha	6,784,000	
Coffee, etc.	Irrigated	500	-	2.00	1,000	600	60%	400	8,000 ha	3,200,000
Coffee, etc.	Rainfed	500	-	1.60	800	480	60%	320	11,200 ha	3,584,000
Future Condition							\$852 /ha	71,800 ha	42,582,000	
1. Winter - Spring Crop							-	21,800 ha	11,802,000	
Paddy	Irrigated	125	100%	4.40	550	220	40%	330	12,000 ha	3,960,000
Maize	Irrigated	144	115%	3.30	475	190	40%	285	3,000 ha	855,000
Sweet Potatoes	Irrigated	63	50%	7.00	441	176	40%	265	300 ha	80,000
Groundnuts	Irrigated	375	300%	1.50	563	225	40%	338	500 ha	169,000
Vegetables	Irrigated	208	166%	9.00	1,872	749	40%	1,123	6,000 ha	6,738,000
2. Summer - Autumn Crop							-	24,800 ha	12,792,000	
Paddy	Irrigated	125	-	4.40	550	220	40%	330	15,000 ha	4,950,000
Maize	Irrigated	144	-	3.30	475	190	40%	285	3,000 ha	855,000
Sweet Potatoes	Irrigated	63	-	7.00	441	176	40%	265	300 ha	80,000
Groundnuts	Irrigated	375	-	1.50	563	225	40%	338	500 ha	169,000
Vegetables	Irrigated	208	-	9.00	1,872	749	40%	1,123	6,000 ha	6,738,000
3. Year Round Crop							-	6,000 ha	4,740,000	
Sugar Cane	Irrigated	28	-	47.00	1,316	526	40%	790	6,000 ha	4,740,000
4. Perennial Crop							-	19,200 ha	13,248,000	
Coffee, etc.	Irrigated	500	-	2.30	1,150	460	40%	690	19,200 ha	13,248,000
Increment	0.90 (SCF)	139	per ton					\$518 /ha	16,600 ha	25,896,000
								Irrigation Area	50,000 ha	

Bảng 9.7 Lợi ích tưới (11/11)
(Srepok River Project)

Crop	Net Income per ha (US\$/ha)							Total		
	Unit Price		Unit Yield ton/ha	Gross Income US\$/ha	Product. Cost		Net Income US\$/ha	Planted Area ha	Net Income US\$	
	US\$/ton	adjust			US\$/ha	adjust				
Present Condition							\$402 /ha	115,800 ha	36,617,000	
1. Winter - Spring Crop							-	25,000 ha	7,530,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	4,000 ha	800,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	2,600 ha	299,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	500 ha	72,000
Maize	Rainfed	144	-	1.80	259	155	60%	104	4,500 ha	468,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	400 ha	48,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	500 ha	90,000
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	1,500 ha	180,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	500 ha	333,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	10,500 ha	5,240,000
2. Summer - Autumn Crop							-	33,000 ha	8,578,000	
Paddy	Irrigated	125	-	4.00	500	300	60%	200	5,500 ha	1,100,000
Paddy	Rainfed	125	-	2.30	288	173	60%	115	9,100 ha	1,047,000
Maize	Irrigated	144	-	2.50	360	216	60%	144	500 ha	72,000
Maize	Rainfed	144	-	1.80	259	155	60%	104	4,500 ha	468,000
Sweet Potatoes	Irrigated	63	-	6.50	410	246	60%	164	0 ha	0
Sweet Potatoes	Rainfed	63	-	4.80	302	181	60%	121	400 ha	48,000
Groundnuts	Irrigated	375	-	1.20	450	270	60%	180	500 ha	90,000
Groundnuts	Rainfed	375	-	0.80	300	180	60%	120	1,500 ha	180,000
Vegetables	Irrigated	208	-	8.00	1,664	998	60%	666	500 ha	333,000
Vegetables	Rainfed	208	-	6.00	1,248	749	60%	499	10,500 ha	5,240,000
3. Year Round Crop							-	2,900 ha	1,221,000	
Sugar Cane, etc.	Irrigated	28	-	50.00	1,400	840	60%	560	500 ha	280,000
Sugar Cane, etc.	Rainfed	28	-	35.00	980	588	60%	392	2,400 ha	941,000
4. Perennial Crop							-	54,900 ha	19,288,000	
Coffee, etc.	Irrigated	500	-	2.00	1,000	600	60%	400	21,500 ha	8,600,000
Coffee, etc.	Rainfed	500	-	1.60	800	480	60%	320	33,400 ha	10,688,000
Future Condition							\$1,046 /ha	124,900 ha	95,149,000	
1. Winter - Spring Crop							-	34,100 ha	30,788,000	
Paddy	Irrigated	125	100%	5.00	625	250	40%	375	6,100 ha	2,288,000
Maize	Irrigated	144	115%	4.20	605	242	40%	363	4,900 ha	1,779,000
Sweet Potatoes	Irrigated	63	50%	8.00	504	202	40%	302	400 ha	121,000
Groundnuts	Irrigated	375	300%	1.70	638	255	40%	383	2,000 ha	766,000
Vegetables	Irrigated	208	166%	10.00	2,080	832	40%	1,248	20,700 ha	25,834,000
2. Summer - Autumn Crop							-	34,100 ha	23,321,000	
Paddy	Irrigated	125	-	5.00	625	250	40%	375	14,600 ha	5,475,000
Maize	Irrigated	144	-	4.20	605	242	40%	363	4,900 ha	1,779,000
Sweet Potatoes	Irrigated	63	-	8.00	504	202	40%	302	400 ha	121,000
Groundnuts	Irrigated	375	-	1.60	600	240	40%	360	2,000 ha	720,000
Vegetables	Irrigated	208	-	10.00	2,080	832	40%	1,248	12,200 ha	15,226,000
3. Year Round Crop							-	1,800 ha	1,512,000	
Sugar Cane	Irrigated	28	-	50.00	1,400	560	40%	840	1,800 ha	1,512,000
4. Perennial Crop							-	54,900 ha	39,528,000	
Coffee, etc.	Irrigated	500	-	2.40	1,200	480	40%	720	54,900 ha	39,528,000
Increment	0.90 (SCF)	139	per ton					\$643 /ha	9,100 ha	58,532,000
								Irrigation Area	91,000 ha	

Bảng 9.8 Lợi ích kinh tế của dự án

(1/2)

Benefits	Economic benefit (US\$ million)	Remarks
Bang Giang & Ky Cung Rivers		
1. Flood control (in 2020)	2.2	
2. Agriculture (in 2020)	56.5	
1) Crop	45.9	
2) Livestock	10.5	
3) Aquaculture	0.1	
3. Hydropower	2.0	39.4 GWh/year
4. Water supply (in 2020)	2.0	16.5 million m ³ /year
Total of (1.- 4.)	62.7	
Ma River		
1. Flood control (in 2020)	0.0	
2. Agriculture (in 2020)	93.4	
1) Crop	70.9	
2) Livestock	20.8	
3) Aquaculture	1.7	
3. Hydropower	23.3	465.0 GWh/year
4. Water supply (in 2020)	11.0	92.0 million m ³ /year
Total of (1.- 4.)	127.7	
Ca River		
1. Flood control (in 2020)	-	
2. Agriculture (in 2020)	97.2	
1) Crop	84.3	
2) Livestock	10.7	
3) Aquaculture	2.2	
3. Hydropower	49.8	996.0 GWh/year
4. Water supply (in 2020)	7.9	66.4 million m ³ /year
Total of (1.- 4.)	154.9	
Thach Han River		
1. Flood control (in 2020)	5.9	
2. Agriculture (in 2020)	23.7	
1) Crop	6.0	
2) Livestock	17.5	
3) Aquaculture	0.2	
3. Hydropower	14.6	292.0 GWh/year
4. Water supply (in 2020)	1.2	10.0 million m ³ /year
Total of (1.- 4.)	45.4	
Huong River		
1. Flood control (in 2020)	39.0	
2. Agriculture (in 2020)	20.7	
1) Crop	14.4	
2) Livestock	3.5	
3) Aquaculture	2.8	
3. Hydropower	7.5	150.6 GWh/year
4. Water supply (in 2020)	5.2	43.6 million m ³ /year
Total of (1.- 4.)	72.5	
Vu Gia-Thu Bon Rivers		
1. Flood control (in 2020)	4.7	
2. Agriculture (in 2020)	33.0	
1) Crop	29.5	
2) Livestock	3.4	
3) Aquaculture	0.1	
3. Hydropower	69.5	1,390.3 GWh/year
4. Water supply (in 2020)	30.8	257.5 million m ³ /year
Total of (1.- 4.)	138.0	

Bảng 9.8 Lợi ích kinh tế của dự án

(2/2)

Benefits	Economic benefit (US\$ million)	Remarks
Tra Khuc River		
1. Flood control (in 2020)	20.6	
2. Agriculture (in 2020)	31.0	
1) Crop	26.4	
2) Livestock	4.6	
3) Aquaculture	-	
3. Hydropower	3.2	63.5 GWh/year
4. Water supply (in 2020)	2.1	17.7 million m ³ /year
Total of (1.- 4.)	56.9	
Kone River		
1. Flood control (in 2020)	22.1	
2. Agriculture (in 2020)	38.6	
1) Crop	33.5	
2) Livestock	5.0	
3) Aquaculture	0.1	
3. Hydropower	1.9	38.3 GWh/year
4. Water supply (in 2020)	4.0	33.9 million m ³ /year
Total of (1.- 4.)	66.7	
Ba River		
1. Flood control (in 2020)	1.0	
2. Agriculture (in 2020)	122.2	
1) Crop	113.9	
2) Livestock	8.0	
3) Aquaculture	0.3	
3. Hydropower	52.2	1,044.0 GWh/year
4. Water supply (in 2020)	5.2	43.2 million m ³ /year
Total of (1.- 4.)	180.5	
Se San River		
1. Flood control (in 2020)	0.2	
2. Agriculture (in 2020)	32.2	
1) Crop	25.9	
2) Livestock	6.3	
3) Aquaculture	-	
3. Hydropower	17.3	346.0 GWh/year
4. Water supply (in 2020)	1.9	16.1 million m ³ /year
Total of (1.- 4.)	51.6	
Srepok River		
1. Flood control (in 2020)	0.0	
2. Agriculture (in 2020)	67.4	
1) Crop	58.5	
2) Livestock	8.8	
3) Aquaculture	0.1	
3. Hydropower	51.3	1,025.0 GWh/year
4. Water supply (in 2020)	7.9	66.0 million m ³ /year
Total of (1.- 4.)	126.6	

Bảng 9.9 Chi phí tài chính và kinh tế của Dự án

Cost Item	Project Cost (VND million)		Equivalent US\$ million	
	Financial cost	Economic cost	Financial cost	Economic cost
Bang Giang & Ky Cung Rivers				
1. Construction cost	2,814,444	2,533,000	186.78	168.10
2. Resettlement cost	474,426	426,983	31.49	28.34
3. Engineering service and administration costs	239,908	215,917	15.92	14.33
4. Physical contingency	608,124	547,312	40.36	36.32
Total of (1.- 4.)	4,136,902	3,723,212	274.55	247.09
Ma River				
1. Construction cost	8,733,788	7,860,409	579.62	521.66
2. Resettlement cost	197,456	177,710	13.10	11.79
3. Engineering service and administration costs	744,483	670,035	49.41	44.47
4. Physical contingency	1,667,446	1,500,701	110.66	99.60
Total of (1.- 4.)	11,343,173	10,208,855	752.79	677.52
Ca River				
1. Construction cost	10,091,281	9,082,153	669.72	602.74
2. Resettlement cost	284,656	256,190	18.89	17.00
3. Engineering service and administration costs	860,198	774,178	57.09	51.38
4. Physical contingency	1,936,356	1,742,720	128.51	115.66
Total of (1.- 4.)	13,172,491	11,855,241	874.21	786.78
Thach Han River				
1. Construction cost	2,687,338	2,418,604	178.35	160.51
2. Resettlement cost	853,967	768,570	56.67	51.01
3. Engineering service and administration costs	229,073	206,166	15.20	13.68
4. Physical contingency	649,760	584,784	43.12	38.81
Total of (1.- 4.)	4,420,138	3,978,124	293.34	264.01
Huong River				
1. Construction cost	3,023,956	2,721,561	200.69	180.62
2. Resettlement cost	202,243	182,019	13.42	12.08
3. Engineering service and administration costs	246,149	221,534	16.34	14.70
4. Physical contingency	347,235	312,512	23.04	20.74
Total of (1.- 4.)	3,819,583	3,437,626	253.49	228.14
Vu Gia-Thu Bon Rivers				
1. Construction cost	11,696,920	10,527,228	776.28	698.65
2. Resettlement cost	761,454	685,308	50.53	45.48
3. Engineering service and administration costs	997,066	897,359	66.17	59.55
4. Physical contingency	2,318,816	2,086,934	153.89	138.50
Total of (1.- 4.)	15,774,256	14,196,829	1,046.87	942.18
Tra Khuc River				
1. Construction cost	1,626,132	1,463,519	107.92	97.13
2. Resettlement cost	237,213	213,492	15.74	14.17
3. Engineering service and administration costs	138,614	124,753	9.20	8.28
4. Physical contingency	345,004	310,504	22.90	20.61
Total of (1.- 4.)	2,346,963	2,112,268	155.76	140.19
Kone River				
1. Construction cost	3,006,863	2,706,177	199.55	179.60
2. Resettlement cost	69,503	62,553	4.61	4.15
3. Engineering service and administration costs	256,310	230,679	17.01	15.31
4. Physical contingency	574,330	516,897	38.12	34.30
Total of (1.- 4.)	3,907,006	3,516,306	259.29	233.36
Ba River				
1. Construction cost	8,355,610	7,520,049	554.53	499.07
2. Resettlement cost	175,300	157,770	11.63	10.47
3. Engineering service and administration costs	712,247	641,022	47.27	42.54
4. Physical contingency	1,592,900	1,433,610	105.71	95.14
Total of (1.- 4.)	10,836,057	9,752,451	719.14	647.22
Se San River				
b. Construction cost	4,101,438	3,691,294	272.20	244.98
2. Resettlement cost	59,303	53,373	3.94	3.54
3. Engineering service and administration costs	349,614	314,653	23.20	20.88
4. Physical contingency	777,282	699,554	51.58	46.43
Total of (1.- 4.)	5,287,637	4,758,874	350.92	315.83
Srepok River				
1. Construction cost	6,963,242	6,266,918	462.12	415.91
2. Resettlement cost	282,283	254,055	18.73	16.86
3. Engineering service and administration costs	593,559	534,203	39.39	35.45
4. Physical contingency	1,350,933	1,215,840	89.66	80.69
Total of (1.- 4.)	9,190,017	8,271,016	609.90	548.91

Note: 1. Price level: as of December 2001, US\$1.00 = VND15,068, JPY100 = VND12,212
2. Resettlement cost has been estimated by the study team by applying the same unit resettlement cost as Ta Trach Reservoir Project in the Huong River Basin
3. Both financial and economic costs do not include neither price escalation nor value added tax
4. Economic cost has been estimated from the financial cost by applying SCF (0.9)

Bảng 9.10 Chi phí kinh tế hàng năm của Dự án

Cost Item	Economic Project Cost (US\$ million)	Year																		
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bang Giang & Ky Cung Rivers:																				
1. Construction cost	168.10	-	-	-	-	8.40	18.49	18.49	18.49	18.49	18.49	18.49	6.05	6.05	6.05	6.05	5.04	0.50	0.53	
2. Resettlement cost	28.34	-	-	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	-	-	-	-	-	-	-	-	
3. Engineering service and administration cost:	14.33	-	-	0.86	1.43	1.43	1.43	1.43	1.15	0.72	0.72	0.72	0.43	0.43	0.43	0.43	0.43	0.43	0.43	
4. Physical contingency	36.32	0.29	0.29	0.44	0.44	1.45	2.91	2.91	2.91	3.63	3.63	3.63	1.82	1.82	1.82	1.82	1.82	0.91	0.87	
Total of (1.-4.)	247.09	0.29	0.29	4.45	5.02	14.43	25.98	25.98	25.70	25.99	25.99	22.84	8.30	8.30	8.30	8.30	7.29	1.84	1.83	
Ma River																				
1. Construction cost	521.66	-	-	-	-	26.08	57.38	57.38	57.38	57.38	57.38	57.38	18.78	18.78	18.78	18.78	15.65	1.56	1.59	
2. Resettlement cost	11.79	-	-	1.68	1.68	1.68	1.68	1.68	1.68	-	-	-	-	-	-	-	-	-	-	
3. Engineering service and administration cost:	44.47	-	-	2.67	4.45	4.45	4.45	4.45	3.56	2.22	2.22	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.35	
4. Physical contingency	99.60	0.80	0.80	1.20	1.20	3.98	7.97	7.97	7.97	9.96	9.96	9.96	4.98	4.98	4.98	4.98	4.98	2.49	2.47	
Total of (1.-4.)	677.52	0.80	0.80	5.55	7.33	36.19	71.48	71.48	70.59	69.56	69.56	69.56	25.09	25.09	25.09	25.09	21.96	5.38	5.41	
Ca River																				
1. Construction cost	602.74	-	-	-	-	30.14	66.30	66.30	66.30	66.30	66.30	66.30	21.70	21.70	21.70	21.70	18.08	1.81	1.81	
2. Resettlement cost	17.00	-	-	2.12	2.13	2.13	2.13	2.13	2.13	-	-	-	-	-	-	-	-	-	-	
3. Engineering service and administration cost:	51.38	-	-	3.08	5.14	5.14	5.14	5.14	4.11	2.57	2.57	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	
4. Physical contingency	115.66	0.93	0.93	1.39	1.39	4.63	9.25	9.25	9.25	11.57	11.57	11.57	5.78	5.78	5.78	5.78	5.78	2.89	2.89	
Total of (1.-4.)	786.78	0.93	0.93	6.59	8.66	42.04	82.82	82.82	81.79	82.57	80.44	80.44	29.02	29.02	29.02	29.02	25.40	6.24	6.24	
Thach Han River																				
1. Construction cost	160.51	-	-	-	-	8.03	17.66	17.66	17.66	17.66	17.66	17.66	5.78	5.78	5.78	5.78	4.82	0.48	0.44	
2. Resettlement cost	51.01	-	-	5.10	5.10	5.10	5.10	5.10	5.10	5.10	5.10	-	-	-	-	-	-	-	-	
3. Engineering service and administration cost:	13.68	-	-	0.82	1.37	1.37	1.37	1.37	1.09	0.68	0.68	0.68	0.41	0.41	0.41	0.41	0.41	0.41	0.42	
4. Physical contingency	38.81	0.31	0.31	0.47	0.47	1.55	3.10	3.10	3.10	3.88	3.88	3.88	1.94	1.94	1.94	1.94	1.94	0.97	0.99	
Total of (1.-4.)	264.01	0.31	0.31	6.39	6.94	16.05	27.23	27.23	26.95	27.32	27.32	27.32	8.13	8.13	8.13	8.13	7.17	1.86	1.85	
Huong River																				
1. Construction cost	180.62	-	-	-	-	5.86	17.17	20.00	15.34	14.22	18.25	20.68	20.29	9.29	12.95	10.45	9.16	6.24	0.36	
2. Resettlement cost	12.08	2.42	2.42	2.42	2.43	-	-	-	0.60	0.60	0.60	0.59	-	-	-	-	-	-	-	
3. Engineering service and administration cost:	14.70	-	-	0.80	1.35	1.35	1.35	1.35	1.29	0.91	1.12	1.12	0.91	0.68	0.68	0.67	0.72	0.27	0.06	
4. Physical contingency	20.74	0.24	0.24	0.33	0.38	0.72	1.85	2.14	1.72	1.57	1.99	2.23	2.09	1.00	1.37	1.12	0.98	0.66	0.04	
Total of (1.-4.)	228.14	2.66	2.66	3.55	4.16	7.93	20.37	23.49	18.95	17.30	21.96	24.62	23.29	10.97	15.00	12.24	10.86	7.17	0.46	
Vu Gia-Thu Bon Rivers																				
1. Construction cost	698.65	-	-	-	-	34.93	76.85	76.85	76.85	76.85	76.85	76.85	25.15	25.15	25.15	25.15	20.96	2.10	2.11	
2. Resettlement cost	45.48	-	-	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	-	-	-	-	-	-	-	-	
3. Engineering service and administration cost:	59.55	-	-	3.57	5.96	5.96	5.96	5.96	4.76	2.98	2.98	2.98	1.79	1.79	1.79	1.79	1.79	1.79	1.74	
4. Physical contingency	138.50	1.11	1.11	1.66	1.66	5.54	11.08	11.08	11.08	13.85	13.85	13.85	6.93	6.93	6.93	6.93	6.93	3.46	3.44	
Total of (1.-4.)	942.18	1.11	1.11	10.28	12.67	51.48	98.94	98.94	98.94	97.74	98.73	98.73	43.87	43.87	43.87	43.87	37.47	7.35	7.29	
Tra Khuc River																				
1. Construction cost	97.13	-	-	-	-	4.86	10.68	10.68	10.68	10.68	10.68	10.68	3.50	3.50	3.50	3.50	2.91	0.29	0.31	
2. Resettlement cost	14.17	-	-	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	-	-	-	-	-	-	-	-	
3. Engineering service and administration cost:	8.28	-	-	0.50	0.83	0.83	0.83	0.83	0.66	0.41	0.41	0.41	0.25	0.25	0.25	0.25	0.25	0.25	0.24	
4. Physical contingency	20.61	0.16	0.16	0.25	0.25	0.82	1.65	1.65	1.65	2.06	2.06	2.06	1.03	1.03	1.03	1.03	1.03	0.52	0.52	
Total of (1.-4.)	140.19	0.16	0.16	2.52	2.85	8.28	14.93	14.93	14.76	14.92	13.15	13.15	4.78	4.78	4.78	4.78	4.19	1.06	1.07	
Kone River																				
1. Construction cost	179.60	-	-	-	-	8.98	19.76	19.76	19.76	19.76	19.76	19.76	6.47	6.47	6.47	6.47	5.39	0.54	0.49	
2. Resettlement cost	4.15	-	-	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	-	-	-	-	-	-	-	-	
3. Engineering service and administration cost:	15.31	-	-	0.92	1.53	1.53	1.53	1.53	1.22	0.77	0.77	0.77	0.46	0.46	0.46	0.46	0.46	0.46	0.45	
4. Physical contingency	34.30	0.27	0.27	0.41	0.41	1.37	2.74	2.74	2.74	3.43	3.43	3.43	1.72	1.72	1.72	1.72	1.72	0.86	0.86	
Total of (1.-4.)	233.36	0.27	0.27	1.79	2.40	12.34	24.49	24.49	24.18	24.42	24.42	23.96	8.65	8.65	8.65	8.65	7.57	1.86	1.80	
Ba River																				
1. Construction cost	499.07	-	-	-	-	24.95	54.90	54.90	54.90	54.90	54.90	54.90	17.97	17.97	17.97	17.97	14.97	1.50	1.47	
2. Resettlement cost	10.47	-	-	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	-	-	-	-	-	-	-	-	
3. Engineering service and administration cost:	42.54	-	-	2.55	4.25	4.25	4.25	4.25	3.40	2.13	2.13	2.13	1.28	1.28	1.28	1.28	1.28	1.28	1.27	
4. Physical contingency	95.14	0.76	0.76	1.14	1.14	3.81	7.61	7.61	7.61	9.51	9.51	9.51	4.76	4.76	4.76	4.76	4.76	2.38	2.38	
Total of (1.-4.)	647.22	0.76	0.76	4.85	6.55	34.17	67.92	67.92	67.07	67.70	67.70	66.54	24.01	24.01	24.01	24.01	21.01	5.16	5.12	
Se San River																				
1. Construction cost	244.98	-	-	-	-	12.25	26.95	26.95	26.95	26.95	26.95	26.95	8.82	8.82	8.82	8.82	7.35	0.73	0.72	
2. Resettlement cost	3.54	-	-	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	-	-	-	-	-	-	-	-	
3. Engineering service and administration cost:	20.88	-	-	1.25	2.09	2.09	2.09	2.09	1.67	1.04	1.04	1.04	0.63	0.63	0.63	0.63	0.63	0.63	0.61	
4. Physical contingency	46.43	0.37	0.37	0.56	0.56	1.86	3.71	3.71	3.71	4.64	4.64	4.64	2.32	2.32	2.32	2.32	2.32	1.16	1.19	
Total of (1.-4.)	315.83	0.37	0.37	2.20	3.04	16.59	33.14	33.14	32.72	33.02	33.02	32.63	11.77	11.77	11.77	11.77	10.30	2.52	2.52	
Srepok River																				
1. Construction cost	415.91	-	-	-	-	20.80	45.75	45.75	45.75	45.75	45.75	45.75	14.97	14.97	14.97	14.97	12.48	1.25	1.25	
2. Resettlement cost	16.86	-	-	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	-	-	-	-	-	-	-	-	
3. Engineering service and administration cost:	35.45	-	-	2.13	3.55	3.55	3.55	3.55	2.84	1.77	1.77	1.77	1.06	1.06	1.06	1.06	1.06	1.06	1.06	
4. Physical contingency	80.69	0.65	0.65	0.97	0.97	3.23	6.46	6.46	6.46	8.07	8.07	8.07	4.03	4.03	4.03	4.03	4.03	2.02	2.00	
Total of (1.-4.)	548.91	0.65	0.65	4.97	6.39	29.45	57.63	57.63	56.92	57.46	57.46	55.59	20.06	20.06	20.06	20.06	17.57	4.33	4.31	

Note: 1. Price level: as of December 2001, US\$1.00 = VND15,068, JPY100 = VND12,212

2. Resettlement cost has been estimated by the study team by applying the same unit resettlement cost as Ta Trach Reservoir Project in the Huong River Basin

Bảng 10.1 Mẫu thang điểm đánh giá tổng thể

Evaluation Items		River Basin 1			River Basin 2		River Basin 14		
		Project P1	Project P2	Basin	Project P3	Basin	Project n-1	Project n	Basin
(1) Domestic Water Supply	Contribution Degree of Project (%)	45	32		35				
	Score of Project for Evaluation Item	60	40		40				
	Weight on Evaluation Item given in each basin	0.1	0.1		0.1				
	Weighted score of Project for Evaluation Item	6	4		4				
	Weight of Project in Basin	0.58	0.42		1				
	Score of Basin for Evaluation Item	3.48	1.68	5.16	4	4			
(2) Industrial Water Supply	Contribution Degree of Project (%)	68	55		90				
	Score of Project for Evaluation Item	60	40		100				
	Weight on Evaluation Item given in each basin	0.1	0.1		0.1				
	Weighted score of Project for Evaluation Item	6	4		10				
	Weight of Project in Basin	0.55	0.45		1				
	Score of Basin for Evaluation Item	3.6	1.6	5.2	10	10			
(3) Agricultural Water Supply	Contribution Degree of Project (%)	48	27		60				
	Score of Project for Evaluation Item	80	40		100				
	Weight on Evaluation Item given in each basin	0.1	0.1		0.1				
	Weighted score of Project for Evaluation Item	8	4		10				
	Weight of Project in Basin	0.64	0.36		1				
	Score of Basin for Evaluation Item	4.8	1.6	6.4	10	10			
(4) Power Generation	Power Energy Generation of Project (GWh)	2,000	650		3,000				
	Score of Project for Evaluation Item	60	40		60				
	Weight on Evaluation Item given in each basin	0.1	0.1		0.1				
	Weighted score of Project for Evaluation Item	6	4		6				
	Weight of Project in Basin	0.75	0.25		1				
	Score of Basin for Evaluation Item	3.6	1.6	5.2	6	6			
(5) Flood Control Effect	Flood Damage Reduction by Project (Mil. USD)	b+ D b	c+ D c		a+ D a				
	Score of Project for Evaluation Item	80	60		100				
	Weight on Evaluation Item given in each basin	0.3	0.3		0.3				
	Weighted score of Project for Evaluation Item	24	18		30				
	Weight of Project in Basin	0.6	0.4		1				
	Score of Basin for Evaluation Item	14.4	7.2	21.6	30	30			
(6) River Maintenance Flow	Discharge Increase Rate in the Driest Month	1.8	1.6		1.9				
	Score of Project for Evaluation Item	80	60		80				
	Weight on Evaluation Item given in each basin	0.1	0.1		0.1				
	Weighted score of Project for Evaluation Item	8	6		8				
	Weight of Project in Basin	0.53	0.47		1				
	Score of Basin for Evaluation Item	4.8	2.4	7.2	8	8			
(7) Degree of Poverty in River Basin	Population below Poverty line (%)	22	22		17				
	Score of Project for Evaluation Item	80	80		60				
	Weight on Evaluation Item given in each basin	0.2	0.2		0.2				
	Weighted score of Project for Evaluation Item	16	16		12				
	Weight of Project in Basin	0.5	0.5		1				
	Score of Basin for Evaluation Item	9.6	6.4	16	12	12			
	Sub-total of score (i)	74	56	66.8	80	80			
(8) Investment Cost (Degree of Financing Difficulty)	Investment cost of Project (Mil. USD)	200	80		550				
	Score of Project for Evaluation Item	-60	-40		-100				
	Weight on Evaluation Item given in each basin	0.6	0.6		0.6				
	Weighted score of Project for Evaluation Item	-36	-24		-60				
	Weight of Project in Basin	0.71	0.29		1				
	Score of Basin for Evaluation Item	-21.6	-9.6	-31.2	-60	-60			
(9) Resettlement (Adverse Impact on Social Environment)	Number of people to be resettled by Project (Nos.)	15,000	7,000		28,000				
	Score of Project for Evaluation Item	-60	-40		-80				
	Weight on Evaluation Item given in each basin	0.4	0.4		0.4				
	Weighted score of Project for Evaluation Item	-24	-16		-32				
	Weight of Project in Basin	0.68	0.32		1				
	Score of Basin for Evaluation Item	-14.4	-6.4	-20.8	-32	-32			
	Sub-total of score (ii)	-60	-40	-52	-92	-92			
	Grand Total of Score ((i) + (ii))	14	16	14.8	-12	-12			

Bảng 10.2 Tỷ lệ hạng mục đánh giá phù hợp với chính sách của Nhà nước

Evaluation Items	(A)	(B)	(C)								(D)		(E)		(F)
	Red River Delta and Northern Key Economic Region	Southeast and Southern Key Economic Region	North Central, Central Coastal Area and Central Key Economic Regions								Northwest and Northeast Regions		Central Highland Regions		Cuu Long Delta Regions
	Downstream of Red and Thai Binh	Dong Nai	Ma	Ca	Thach Han	Huong	Vu Gia-Thu Bon	Tra Khuc	Kone	Ba	Bang Giang & Ky Cung	Upstream of Red and Thai Binh	Sesan	Srepok	Cuu Long
(1) Domestic Water Supply	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
(2) Industrial Water Supply	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3
(3) Agricultural Water Supply	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
(4) Power Generation	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
(5) Flood Control Effect	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1
(6) River Maintenance Flow	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
(7) Degree of Poverty in River Basin	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Sub Total	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
(8) Investment Cost * (Degree of Financing Difficulty)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
(9) Resettlement * (Adverse impact on Social Environment)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Total	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Note: * shows negative factor

Bảng 10.3 Kết quả đánh giá của từng hạng mục

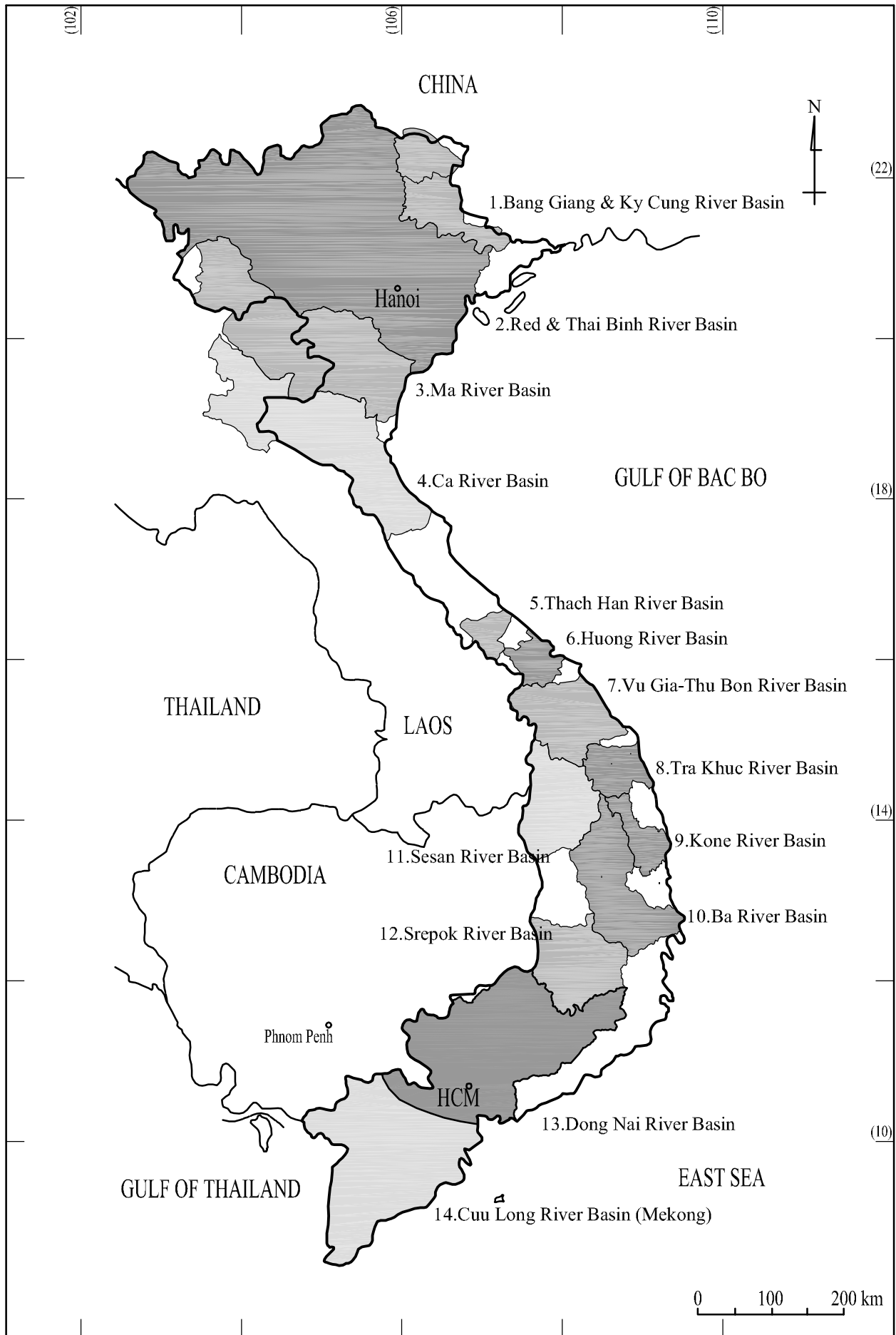
Item	Domestic Water Supply			Industrial Water Supply			Agriculture Water Supply			Power Generation			Flood Control Effect			
	Contribution (%)	Grade	Score	Contribution (%)	Grade	Score	Contribution (%)	Grade	Score	Power Energy Generation (GWh)	Grade	Score	Damage Reduction (Mil.VND)	Grade	Score	
Ban Lai	47.0	V	20	85.5	IV	40	34.4	III	60	39	V	20	27,720	III	60	
Cua Dat	62.4	I	100	94.5	I	100	23.9	III	60	465	II	80	510	IV	40	
Ban La	56.0	III	60	88.3	III	60	28.7	III	60	996	I	100	0	V	20	
Rao Quan	49.8	V	20	86.1	III	60	50.2	II	80	292	III	40	102,642	II	80	
Ta Trach	59.6	II	80	89.1	II	80	28.1	III	60	70	IV	40	425,176	I	100	
Huu Trach	0.0	V	20	0.0	V	20	0.0	V	20	71	IV	40	47,242	II	80	
Ho Song Tranh II	55.3	III	60	98.9	I	100	36.4	II	80	615	II	80	36,625	III	60	
Song Cai	0.0	V	20	0.0	V	20	0.0	V	20	775	II	80	21,316	III	60	
Nuoe Trong	46.0	V	20	83.5	IV	40	3.3	V	20	64	IV	40	252,368	I	100	
Dinh Binh	54.9	IV	40	84.8	IV	40	28.9	III	60	38	V	20	262,571	I	100	
Song Ba Ha	58.9	III	60	86.5	III	60	61.0	I	100	1,044	I	100	10,085	IV	40	
Dak Bla	60.0	II	80	88.2	III	60	52.7	II	80	346	III	60	948	IV	40	
Buon Kuop-Chupong Krong	44.4	V	20	58.1	IV	40	35.4	II	80	1,025	I	100	227	IV	40	
Krong Buong	2.7	V	20	3.6	V	20	2.2	V	20	0	V	20	15	V	20	
Upper Krong Pach	9.6	V	20	12.5	V	20	7.7	V	20	0	V	20	50	V	20	
Upper Krong Buk	11.6	V	20	15.3	V	20	8.7	V	20	0	V	20	58	V	20	
Bac Me	3.8	V	20	5.3	V	20	1.0	V	20	993	I	100	0	V	20	
Dai Thi	4.0	V	20	5.5	V	20	1.0	V	20	985	I	100	0	V	20	
Son La	54.2	IV	40	74.5	IV	40	13.4	IV	40	14,895	I	100	0	V	20	
Dong Nai Basin Development	64.5	I	100	50.6	IV	40	30.9	III	60	1,700	I	100	43,018	III	60	
Cuu Long Delta Development	58.4	III	60	90.8	II	80	24.1	III	60	0	V	20	621,389	I	100	
Grading	Grade I	More Than	60	More Than	92	More Than	55	More Than	900	More Than	180,000	More Than	180,000	More Than	45,000	
	Grade II	60	----	59	92	----	89	55	----	35	900	----	400	180,000	----	45,000
	Grade III	59	----	55	89	----	86	35	----	20	400	----	100	45,000	----	20,000
	Grade IV	55	----	50	86	----	20	20	----	10	100	----	60	20,000	----	100
	Grade V	Less than		50	Less than	20	Less than	10	Less than	60	Less than	100	Less than	60	Less than	100

Item	River Maintenance Flow			Degree of Poverty			Investment Cost			Resettlement			
	Increase Rate	Grade	Score	Rate	Grade	Score	Amount (Mil. US\$)	Grade	Score	Affected People	Grade	Score	
Ban Lai	1.6	IV	40	32.8	I	100	238	IV	-40	20,000	I	-100	
Cua Dat	2.9	II	80	21.3	III	60	737	II	-80	8,324	IV	-40	
Ban La	2.6	II	80	21.3	III	60	852	II	-80	12,000	II	-80	
Rao Quan	1.5	IV	40	21.3	III	60	355	III	-60	36,000	I	-100	
Ta Trach	3.7	II	80	15.3	IV	40	184	IV	-40	5,000	IV	-40	
Huu Trach	1.5	IV	40	6.0	IV	40	63	IV	-40	3,500	IV	-40	
Ho Song Tranh II	1.0	IV	40	13.5	IV	40	540	II	-80	25,000	I	-100	
Song Cai	0.6	IV	40	8.0	IV	40	448	III	-60	7,100	IV	-40	
Nuoe Trong	1.8	IV	40	21.5	III	60	137	IV	-40	10,000	III	-60	
Dinh Binh	2.2	III	60	21.5	III	60	254	IV	-40	2,930	IV	-40	
Song Ba Ha	3.2	II	80	21.5	III	60	706	II	-80	7,390	IV	-40	
Dak Bla	1.7	IV	40	31.5	II	80	346	III	-60	2,500	V	-20	
Buon Kuop-Chupong Krong	1.5	IV	40	20.5	III	60	460	II	-80	6,000	IV	-40	
Krong Buong	0.1	V	20	1.3	V	20	15	IV	-40	2,200	V	-20	
Upper Krong Pach	0.3	V	20	4.4	V	20	48	IV	-40	1,000	V	-20	
Upper Krong Buk	0.4	V	20	5.4	V	20	65	IV	-40	2,700	V	-20	
Bac Me	0.2	V	20	18.0	IV	40	559	II	-80	10,000	III	-60	
Dai Thi	0.2	V	20	18.0	IV	40	513	II	-80	14,000	II	-80	
Son La	3.0	II	80	18.0	IV	40	5,150	I	-100	110,000	I	-100	
Dong Nai Basin Development	1.1	IV	40	3.1	V	20	2,744	I	-100	1,130	V	-20	
Cuu Long Delta Development	0.0	V	20	12.8	IV	40	1,790	I	-100	0	V	-20	
Grading	Grade I	More Than	5.00	More Than	32	More Than	1,000	More Than	20,000	More Than	12,000		
	Grade II	5.00	----	2.50	32	----	25	1,000	----	450	20,000	----	12,000
	Grade III	2.50	----	2.00	25	----	20	450	----	300	12,000	----	8,500
	Grade IV	2.00	----	0.50	20	----	6	300	----	10	8,500	----	2,900
	Grade V	Less than		0.50	Less than	6	Less than	10	Less than	10	Less than	2,900	

Bảng 10.4 Đánh giá tổng thể các lưu vực sông và các Dự án

Evaluation Items	River Basin	Bang Giang and Ky Cung	Ma	Ca	Thach Han	Huong		Vu Gia-Thu Bon		Tra Khuc	Kone	Ba	Sesan	Srepok					
	Project	Ban Lai	Cua Dat	Ban La	Rao Quan	Ta Trach	Huu Trach		Ho Song Tranh II	Song Cai		Nuoe Trong	Dinh Binh	Song Ba Ha	Dak Bla	Buon Kuop-Chupong Krong	Krong Buong	Upper Krong Pach	Upper Krong Buk
Domestic Water Supply	Contribution Degree of Project(%)	47.00	62.41	55.95	49.84	59.64	0.00		55.31	0.00		45.99	54.86	58.88	59.99	44.37	2.73	9.56	11.60
	Score of Project for Evaluation Item	20	100	60	20	80	20		60	20		20	40	60	80	20	20	20	20
	Weight on Evaluation Item Given in each basin	0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Weighted score of Project for Evaluation Item	2	10	6	2	8	2		6	2		2	4	6	8	2	2	2	2
	Weight of Project in Basin	1	1	1	1	1.00	0.00		1.00	0.00		1	1	1	1	1	0.65	0.04	0.14
Score of Basin for Evaluation Item	2.0	10.0	6.0	2.0	8.0	0.0	8.0	6.0	0.0	6.0	2.0	4.0	6.0	8.0	1.3	0.1	0.3	0.3	2.0
Industrial Water Supply	Contribution Degree of Project(%)	85.45	94.47	88.34	86.11	89.13	0.00		98.92	0.00		83.53	84.77	86.52	88.17	58.14	3.58	12.52	15.31
	Score of Project for Evaluation Itc	40	100	60	60	80	20		100	20		40	40	60	60	40	20	20	20
	Weight on Evaluation Item Given in each basin	0.3	0.3	0.1	0.1	0.1	0.1		0.1	0.1		0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3
	Weighted score of Project for Evaluation Item	12	30	6	6	8	2		10	2		4	4	6	18	12	6	6	6
	Weight of Project in Basin	1	1	1	1	1.00	0.00		1.00	0.00		1	1	1	1	1	0.65	0.04	0.14
Score of Basin for Evaluation Item	12.0	30.0	6.0	6.0	8.0	0.0	8.0	10.0	0.0	10.0	4.0	4.0	6.0	18.0	7.8	0.2	0.8	1.0	9.9
Agriculture Water Supply	Contribution Degree of Project(%)	34.38	23.88	28.66	50.20	28.06	0.00		36.42	0.00		3.25	28.92	60.99	52.65	35.40	2.20	7.70	8.70
	Score of Project for Evaluation Item	60	60	60	80	60	20		80	20		20	60	100	80	80	20	20	20
	Weight on Evaluation Item Given in each basin	0.2	0.2	0.1	0.1	0.1	0.1		0.1	0.1		0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
	Weighted score of Project for Evaluation Item	12	12	6	8	6	2		8	2		2	6	10	16	16	4	4	4
	Weight of Project in Basin	1	1	1	1	1.00	0.00		1.00	0.00		1	1.00	1	1	1	0.66	0.04	0.14
Score of Basin for Evaluation Item	12.0	12.0	6.0	8.0	6.0	0.0	6.0	8.0	0.0	8.0	2.0	6.0	10.0	16.0	10.5	0.2	0.6	0.6	11.9
Power Generation	Power Energy Generation of Project(GWh)	39.40	465.00	996.00	292.00	70.00	71.00		615.00	775.30		63.50	38.30	1044.00	346.00	1025.00	0.00	0.00	0.00
	Score of Project for Evaluation Item	20	80	100	60	40	40		80	80		40	20	100	60	100	20	20	20
	Weight on Evaluation Item Given in each basin	0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Weighted score of Project for Evaluation Item	2	8	10	6	4	4		8	8		4	2	10	6	10	2	2	2
	Weight of Project in Basin	1	1	1	1	0.50	0.50		0.44	0.56		1	1.00	1	1	1.00	0.00	0.00	0.00
Score of Basin for Evaluation Item	2.0	8.0	10.0	6.0	2.0	2.0	4.0	3.5	4.5	8.0	4.0	2.0	10.0	6.0	10.0	0.0	0.0	0.0	10.0
Flood Control Effect	Flood Damage Reduction by Project(MilUSD)	27720	510	0	102642	425176	47242		36625	21316		252368	262571	10085	948	227	15	50	58
	Score of Project for Evaluation Item	60	40	20	80	100	80		60	60		100	100	40	40	40	20	20	20
	Weight on Evaluation Item Given in each basin	0.1	0.1	0.3	0.3	0.3	0.3		0.3	0.3		0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1
	Weighted score of Project for Evaluation Item	6	4	6	24	30	24		18	18		30	30	12	4	4	2	2	2
	Weight of Project in Basin	1	1	1	1	0.90	0.10		0.63	0.37		1	1.00	1	1	1	0.65	0.04	0.14
Score of Basin for Evaluation Item	6.0	4.0	6.0	24.0	27.0	2.4	29.4	11.4	6.6	18.0	30.0	30.0	12.0	4.0	2.6	0.1	0.3	0.3	3.3
River Maintenance Flow (Improvement of River Environment)	Discharge Increase Rate in the Driest Month	1.56	2.88	2.56	1.50	3.65	1.45		1.01	0.60		1.82	2.22	3.23	1.70	1.46	0.09	0.32	0.38
	Score of Project for Evaluation Item	40	80	80	40	80	40		40	40		40	60	80	40	40	20	20	20
	Weight on Evaluation Item Given in each basin	0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Weighted score of Project for Evaluation Item	4	8	8	4	8	4		4	4		4	6	8	4	4	2	2	2
	Weight of Project in Basin	1	1	1	1	0.72	0.28		0.63	0.37		1	1.00	1	1	1	0.65	0.04	0.14
Score of Basin for Evaluation Item	4.0	8.0	8.0	4.0	5.7	1.1	6.9	2.5	1.5	4.0	4.0	6.0	8.0	4.0	2.6	0.1	0.3	0.3	3.3
Degree of Poverty in River basin	Population below Poverty line (%)	32.83	21.30	21.30	21.30	15.30	6.00		13.54	7.95		21.49	21.49	21.49	31.48	20.46	1.26	4.41	5.35
	Score of Project for Evaluation Item	100	60	60	60	40	40		40	40		60	60	60	80	60	20	20	20
	Weight on Evaluation Item Given in each basin	0.1	0.1	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
	Weighted score of Project for Evaluation Item	10	6	12	12	8	8		8	8		12	12	12	8	6	2	2	2
	Weight of Project in Basin	1	1	1	1	0.72	0.28		0.63	0.37		1	1.00	1	1	1	0.65	0.04	0.14
Score of Basin for Evaluation Item	10.0	6.0	12.0	12.0	5.7	2.3	8.0	5.0	3.0	8.0	12.0	12.0	12.0	8.0	3.9	0.1	0.3	0.3	4.6
Investment Cost (Degree of Financing Difficulty)	Sub-total of score (i)	48.0	78.0	54.0	62.0			70.3			62.0	58.0	64.0	64.0	64.0				45.0
	Investment cost of Project (Mil.USD)	237.6	737.4	852.1	354.8	183.8	62.9		540.2	447.5		137.3	253.9	705.5	346.3	459.6	15.1	47.8	65.4
	Score of Project for Evaluation Item	-40	-80	-80	-60	-40	-40		-80	-60		-40	-40	-80	-60	-80	-40	-40	-40
	Weight on Evaluation Item Given in each basin	0.6	0.6	0.6	0.6	0.6	0.6		0.6	0.6		0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Weighted score of Project for Evaluation Item	-24	-48	-48	-36	-24	-24		-48	-36		-24	-24	-48	-36	-48	-24	-24	-24
Weight of Project in Basin	1	1	1	1	0.75	0.25		0.55	0.45		1	1.00	1	1	1	0.78	0.03	0.08	0.11
Score of Basin for Evaluation Item	-24.0	-48.0	-48.0	-36.0	-17.9	-6.1	-24.0	-26.3	-16.3	-42.6	-24.0	-24.0	-48.0	-36.0	-37.5	-0.6	-2.0	-2.7	-42.8
Resettlement (Adverse Impact on Social Environment)	Number of people to be resettled by Project (No)	20000	8324	12000	36000	5000	3500		25000	7100		10000	2930	7390	2500	6000	2200	1000	2700
	Score of Project for Evaluation Item	-100	-40	-80	-100	-40	-40		-100	-40		-60	-40	-40	-20	-40	-20	-20	-20
	Weight on Evaluation Item Given in each basin	0.4	0.4	0.4	0.4	0.4	0.4		0.4	0.4		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	Weighted score of Project for Evaluation Item	-40	-16	-32	-40	-16	-16		-40	-16		-24	-16	-16	-8	-16	-8	-8	-8
	Weight of Project in Basin	1	1	1	1	0.59	0.41		0.78	0.22		1	1.00	1	1	0.50	0.18	0.08	0.23
Score of Basin for Evaluation Item	-40.0	-16.0	-32.0	-40.0	-9.4	-6.6	-16.0	-31.2	-3.5	-34.7	-24.0	-16.0	-16.0	-8.0	-8.1	-1.5	-0.7	-1.8	-12.0
Score of Each Project	Sub-total of score (ii)	-64.0	-64.0	-80.0	-76.0			-40.0			-77.3	-48.0	-40.0	-44.0					-54.8
	Grand Total of Score	-16	14	-26	-14	32	6		-26	-8		10	24	0	20	-10	-12	-12	-12
	Ranking in 11 River Basin	14	4	15	13	1	6		15	8		5	2	7	3	9	10	10	10
Score of Eaach Rvier Basin	Grand Total of Score ((i)+(ii))	-16.0	14.0	-26.0	-14.0			30.3			-15.3	10.0	24.0	0.0	20.0				-9.8
	Ranking in 11 River Basins	10	4	11	8			1			9	5	2	6	3				7

Hình



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

JAPAN INTERNATIONAL COOPERATION AGENCY

Hình 1.1
Bản đồ vị trí 14 lưu vực sông