ANNEX 3

TABLE OF COST ESTIMATION IN PRIOLITY COMMUNES

Table 3.1 Project cost (Target year 2010), Hoa Thuong

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structural Facility				
	(1)	Water source	1 system	400	
	(2)	Treatment plant	Total 1, 630 m3/day	3,400	
		Subtotal		3,800	
B	Pipeline				
	(1)	Pipeline laying	37 km	11,000	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	2,340 Connections	1,600	
		Distribution branch pipe			
		Subtotal		12,600	
C	Land cost			0	
D		Engineering service			
			Detailed design	900	
			Construction supervision	1,150	
		Subtotal		2,050	
E		Base cost(A+B+C+D)		18,450	1.323
F		Physical contingency		1,480	0.106
G		Project cost(E+F)		19,930	1.430
H		Price contingency		3,990	0.286
I		Total financing required(G+H)		**23,900**	**1.71**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.2 Project cost (Target year 2010), Dong Bam

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system	400	
	(2)	Treatment plant	Total 880m3/day	2,600	
		Subtotal		3,000	
B	Pipeline				
	(1)	Pipeline laying	28 km	4,700	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	1,160 Connections	800	
		Distribution branch pipe			
		Subtotal		5,500	
C	Land cost			0	
D		Engineering service			
			Detailed design	470	
			Construction supervision	600	
		Subtotal		1,070	
E		Base cost(A+B+C+D)		9,570	0.686
F		Physical contingency		770	0.055
G		Project cost(E+F)		10,340	0.742
H		Price contingency		2,070	0.148
I		Total financing required(G+H)		**12,400**	**0.89**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.3 Project cost (Target year 2010), Thinh Duc

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system	1,100	
	(2)	Treatment plant	Total 700m3/day	1,900	
		Subtotal		3,000	
B	Pipeline				
	(1)	Pipeline laying	22 km	6,000	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	1,340 Connections	900	
		Distribution branch pipe			
		Subtotal		6,900	
C	Land cost			0	
D		Engineering service			
			Detailed design	540	
			Construction supervision	690	
		Subtotal		1,230	
E		Base cost(A+B+C+D)		11,130	0.798
F		Physical contingency		890	0.064
G		Project cost(E+F)		12,020	0.862
H		Price contingency		2,400	0.172
I		Total financing required(G+H)		**14,400**	**1.03**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.4 Project cost (Target year 2010), NamTien

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system	900	
	(2)	Treatment plant	Total 750m3/day	2,000	
		Subtotal		2,900	
B	Pipeline				
	(1)	Pipeline laying	28 km	5,800	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	1,360 Connections	1,000	
		Distribution branch pipe			
		Subtotal		6,800	
C	Land cost			0	
D		Engineering service			
			Detailed design	530	
			Construction supervision	680	
		Subtotal		1,210	
E		Base cost(A+B+C+D)		10,910	0.783
F		Physical contingency		870	0.062
G		Project cost(E+F)		11,780	0.845
H		Price contingency		2,360	0.169
I		Total financing required(G+H)		**14,100**	**1.01**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.5 Project cost (Target year 2010), Dong Ngac

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system,	300	
	(2)	Treatment plant	Total 1,200 m3/day	3,000	
		Subtotal		3,300	
B	Pipeline				
	(1)	Pipeline laying	20 km	3,700	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	1,460 Connections	1,000	
		Distribution branch pipe			
		Subtotal		4,700	
C	Land cost			0	
D		Engineering service			
			Detailed design	440	
			Construction supervision	560	
		Subtotal		1,000	
E		Base cost(A+B+C+D)		9,000	0.646
F		Physical contingency		720	0.052
G		Project cost(E+F)		9,720	0.697
H		Price contingency		1,940	0.139
I		Total financing required(G+H)		**11,700**	**0.84**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.6 Project cost (Target year 2010), Xuan Dinh

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system,	200	
	(2)	Treatment plant	Total 2,710 m3/day	7,400	
		Subtotal		7,600	
B	Pipeline				
	(1)	Pipeline laying	13 km	5,600	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	3,280 Connections	2,300	
		Distribution branch pipe			
		Subtotal		7,900	
C	Land cost			0	
D		Engineering service			
			Detailed design	850	
			Construction supervision	1,090	
		Subtotal		1,940	
E		Base cost(A+B+C+D)		17,440	1.251
F		Physical contingency		1,400	0.100
G		Project cost(E+F)		18,840	1.351
H		Price contingency		3,770	0.270
I		Total financing required(G+H)		**22,600**	**1.62**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.7 Project cost (Target year 2010), Dong Phong

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system,	400	
	(2)	Treatment plant	1,610m3/day	2,800	
		Subtotal		3,200	
B	Pipeline				
	(1)	Pipeline laying	23 km	5,100	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	2,040 Connections	1,400	
		Distribution branch pipe			
		Subtotal		6,500	
C	Land cost			0	
D		Engineering service			
			Detailed design	530	
			Construction supervision	680	
		Subtotal		1,210	
E		Base cost(A+B+C+D)		10,910	0.783
F		Physical contingency		870	0.062
G		Project cost(E+F)		11,780	0.845
H		Price contingency		2,360	0.169
I		Total financing required(G+H)		**14,100**	**1.01**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.8 Project cost (Target year 2010), Quang Son

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system,	1,700	
	(2)	Treatment plant	1,230m3/day	3,000	
		Subtotal		4,700	
B	Pipeline				
	(1)	Pipeline laying	14 km	3,400	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	1,560 Connections	1,100	
		Distribution branch pipe			
		Subtotal		4,500	
C	Land cost			0	
D		Engineering service			
			Detailed design	510	
			Construction supervision	640	
		Subtotal		1,150	
E		Base cost(A+B+C+D)		10,350	0.742
F		Physical contingency		830	0.060
G		Project cost(E+F)		11,180	0.802
H		Price contingency		2,240	0.161
I		Total financing required(G+H)		**13,400**	**0.96**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.9 Project cost (Target year 2010), Yen Thang

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system,	600	
	(2)	Treatment plant	1,380m3/day	3,200	
		Subtotal		3,800	
B	Pipeline				
	(1)	Pipeline laying	20 km	6,800	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	1,560 Connections	1,100	
		Distribution branch pipe			
		Subtotal		7,900	
C	Land cost			0	
D		Engineering service			
			Detailed design	640	
			Construction supervision	820	
		Subtotal		1,460	
E		Base cost(A+B+C+D)		13,160	0.944
F		Physical contingency		1,050	0.075
G		Project cost(E+F)		14,210	1.019
H		Price contingency		2,840	0.204
I		Total financing required(G+H)		**17,100**	**1.23**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.10 Project cost (Target year 2010), Vinh Loc Town, Vinh Thanh

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system,	400	
	(2)	Treatment plant	Total 2,040 m3/day	3,800	
		Subtotal		4,200	
B	Pipeline				
	(1)	Pipeline laying	20 km	5,400	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	1,300 Connections	900	
		Distribution branch pipe			
		Subtotal		6,300	
C	Land cost			0	
D		Engineering service			
			Detailed design	510	
			Construction supervision	640	
		Subtotal		1,150	
E		Base cost(A+B+C+D)		11,650	0.836
F		Physical contingency		930	0.067
G		Project cost(E+F)		12,580	0.802
H		Price contingency		2,520	0.181
I		Total financing required(G+H)		**15,100**	**1.080**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.11 Project cost (Target year 2010), Dinh Tuong

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system,	300	
	(2)	Treatment plant	1,080m3/day	2,400	
		Subtotal		2,700	
B	Pipeline			4,100	
	(1)	Pipeline laying	17 km	4,100	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	1,380 Connections	1,000	
		Distribution branch pipe			
		Subtotal		5,100	
C	Land cost			0	
D		Engineering service			
			Detailed design	430	
			Construction supervisior	550	
		Subtotal		980	
E		Base cost(A+B+C+D)		8,780	0.630
F		Physical contingency		700	0.050
G		Project cost(E+F)		9,480	0.802
H		Price contingency		1,900	0.136
I		Total financing required(G+H)		**11,380**	**0.820**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.12 Project cost (Target year 2010), Thieu Hung

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system,	200	
	(2)	Treatment plant	Total 1,130 m3/day	2,600	
		Subtotal		2,800	
B	Pipeline				
	(1)	Pipeline laying	17 km	3,300	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	1,440 Connections	1,000	
		Distribution branch pipe			
		Subtotal		4,300	
C	Land cost			0	
D		Engineering service			
			Detailed design	390	
			Construction supervision	500	
		Subtotal		890	
E		Base cost(A+B+C+D)		7,990	0.573
F		Physical contingency		640	0.046
G		Project cost(E+F)		8,630	0.802
H		Price contingency		1,730	0.124
I		Total financing required(G+H)		**10,360**	**0.740**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.13 Project cost (Target year 2010), Thieu Do

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system,	200	
	(2)	Treatment plant	1,170 m3/day	2,000	
		Subtotal		2,200	
B	Pipeline				
	(1)	Pipeline laying	14 km	3,100	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	1,500 Connections	1,100	
		Distribution branch pipe			
		Subtotal		4,200	
C	Land cost			0	
D		Engineering service			
			Detailed design	350	
			Construction supervisio	450	
		Subtotal		800	
E		Base cost(A+B+C+D)		7,200	0.516
F		Physical contingency		580	0.042
G		Project cost(E+F)		7,780	0.802
H		Price contingency		1,560	0.112
I		Total financing required(G+H)		**9,340**	**0.670**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

Table 3.14 Project cost (Target year 2010), Van Thang

		Component	Quantity	Cost(Mil VD)	Cost(Mil US$)
A	Structual Facility				
	(1)	Water source	1 system,	1,000	
	(2)	Treatment plant	1,110 m3/day	2,800	
		Subtotal		3,800	
B	Pipeline				
	(1)	Pipeline laying	28 km	5,300	
		(Transmission &			
		Distribution Pipeline)			
	(2)	House connection &	1,420 Connections	1,000	
		Distribution branch pipe			
		Subtotal		6,300	
C	Land cost			0	
D		Engineering service			
			Detailed design	560	
			Construction supervisio	710	
		Subtotal		1,270	
E		Base cost(A+B+C+D)		11,370	0.816
F		Physical contingency		910	0.065
G		Project cost(E+F)		12,280	0.802
H		Price contingency		2,460	0.176
I		Total financing required(G+H)		**14,740**	**1.060**
				(Mil VD)	(Mil US$)

Note: Cost 1999 year level
Exchange rate US$ 1.00=13,941VD(Vietnam Dong)

ANNEX 4

WATER DEMAND AND FINANCIAL ANALYSIS TABLES

Province: Thai Nguyen
Commune Hoa Thuong

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50/dc	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	13,600	50	6,800	30	2,040	80	147	10	70	4,760	0			100	238	395
2003	13,800	60	8,280	30	2,484	84	188	12	70	5,796	0			100	290	490
2004	14,000	70	9,800	30	2,940	88	233	15	70	6,860	0			100	343	591
2005	14,200	80	11,360	30	3,408	90	276	17	70	7,952	5	90	36	95	378	707
2006	14,400	82	11,808	30	3,542	96	306	18	70	8,266	5	96	40	95	393	756
2007	14,600	84	12,264	30	3,679	100	331	18	70	8,585	5	100	43	95	408	800
2008	14,800	86	12,728	30	3,818	104	357	19	70	8,910	5	104	46	95	423	846
2009	15,000	88	13,200	30	3,960	108	385	20	70	9,240	5	108	50	95	439	894
2010	15,200	90	13,680	30	4,104	110	406	21	70	9,576	10	112	107	90	431	965
2011	15,400	91	14,014	30	4,204	116	439	21	70	9,810	10	116	114	90	441	1,015
2012	15,600	92	14,352	30	4,306	120	465	22	70	10,046	10	120	121	90	452	1,059
2015	16,200	95	15,390	30	4,617	120	499	23	70	10,773	10	120	129	90	485	1,136
2020	17,100	100	17,100	30	5,130	120	554	26	70	11,970	10	120	144	90	539	1,262
2025	17,900	100	17,900	30	5,370	120	580	27	70	12,530	10	120	150	90	564	1,321

A-4-1

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	395	2,720	35	0	8	438	188,000
2003	490	2,760	36	0	10	536	230,000
2004	591	2,800	36	0	12	639	274,000
2005	707	2,840	37	0	14	758	325,000
2006	756	2,880	37	0	15	809	347,000
2007	800	2,920	38	0	16	854	367,000
2008	846	2,960	38	0	17	901	387,000
2009	894	3,000	39	0	18	950	408,000
2010	965	3,040	40	0	19	1,024	440,000
2011	1,015	3,080	40	0	20	1,075	462,000
2012	1,059	3,120	41	0	21	1,121	481,000
2015	1,136	3,240	42	0	23	1,201	516,000
2020	1,262	3,420	44	0	25	1,332	572,000
2025	1,321	3,580	47	0	26	1,394	599,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25) +(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	131,600	24,000,000	3,760,000	30,644,000	30,683,000	89,087,000	1.16	103,129,000	32,068,000	135,197,000	1,000
2003	161,000	24,000,000	4,600,000	37,490,000	34,412,000	100,502,000	1.22	122,161,000	40,131,000	162,292,000	1,000
2004	191,800	36,000,000	5,480,000	44,662,000	38,318,000	124,460,000	1.28	158,846,000	59,099,000	217,945,000	1,100
2005	227,500	36,000,000	6,500,000	52,975,000	42,845,000	138,320,000	1.34	185,362,000	71,163,000	256,525,000	1,100
2006	242,900	36,000,000	6,940,000	56,561,000	44,798,000	144,299,000	1.41	203,043,000	76,348,000	279,391,000	1,200
2007	256,900	36,000,000	7,340,000	59,821,000	46,572,000	149,733,000	1.48	221,224,000	96,326,000	317,550,000	1,200
2008	270,900	36,000,000	7,740,000	63,081,000	48,348,000	155,169,000	1.55	240,718,000	101,989,000	342,707,000	1,300
2009	285,600	36,000,000	8,160,000	66,504,000	50,213,000	160,877,000	1.63	262,052,000	107,871,000	369,923,000	1,300
2010	308,000	36,000,000	8,800,000	71,720,000	53,052,000	169,572,000	1.71	290,026,000	139,176,000	429,202,000	1,400
2011	323,400	36,000,000	9,240,000	75,306,000	55,005,000	175,551,000	1.80	315,264,000	146,790,000	462,054,000	1,400
2012	336,700	36,000,000	9,620,000	78,403,000	56,693,000	180,716,000	1.89	340,767,000	153,401,000	494,168,000	1,500
									Total	3,466,954,000	1,200

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)={(34)+(35)+(36)+(37) +(38)+(39)) *0.5	(41)=(34)+(35) +(36)+(37) +(38)+(39)+(40)
2002	2	3,216,000	324,000	188,000	11,125,000	150,000	240,000	5,400,000	10,228,000	30,683,000
2003	2	3,216,000	324,000	230,000	13,611,000	150,000	240,000	5,400,000	11,471,000	34,412,000
2004	2	3,216,000	324,000	274,000	16,215,000	150,000	240,000	5,400,000	12,773,000	38,318,000
2005	2	3,216,000	324,000	325,000	19,233,000	150,000	240,000	5,400,000	14,282,000	42,845,000
2006	2	3,216,000	324,000	347,000	20,535,000	150,000	240,000	5,400,000	14,933,000	44,798,000
2007	2	3,216,000	324,000	367,000	21,718,000	150,000	240,000	5,400,000	15,524,000	46,572,000
2008	2	3,216,000	324,000	387,000	22,902,000	150,000	240,000	5,400,000	16,116,000	48,348,000
2009	2	3,216,000	324,000	408,000	24,145,000	150,000	240,000	5,400,000	16,738,000	50,213,000
2010	2	3,216,000	324,000	440,000	26,038,000	150,000	240,000	5,400,000	17,684,000	53,052,000
2011	2	3,216,000	324,000	462,000	27,340,000	150,000	240,000	5,400,000	18,335,000	55,005,000
2012	2	3,216,000	324,000	481,000	28,465,000	150,000	240,000	5,400,000	18,898,000	56,693,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)
	(42)	(43)=(42)*{(7) +(13))/0.85* 0.7*365	(44)	(45)=(44)*{(8) +(15)}/0.85* 0.7*365	(46)	(47)=(44)*{(18) +(19)+(20)} /0.85*0.7*365	(48)=(43)+(45) +(47)
2002	1,500	66,226,000	1,000	74,606,000	1,500	19,506,000	160,338,000
2003	2,000	112,895,000	1,400	127,181,000	2,000	27,462,000	267,538,000
2004	2,500	174,978,000	1,700	182,785,000	2,500	36,229,000	393,992,000
2005	2,500	234,333,000	1,700	201,722,000	2,500	38,364,000	474,419,000
2006	2,500	259,812,000	1,700	209,678,000	2,500	39,498,000	508,988,000
2007	3,000	337,307,000	2,000	256,206,000	3,000	48,663,000	642,176,000
2008	3,000	364,071,000	2,000	265,899,000	3,000	49,958,000	679,928,000
2009	3,000	392,095,000	2,000	275,760,000	3,000	51,284,000	719,139,000
2010	3,500	540,282,000	2,400	325,674,000	3,500	61,882,000	927,838,000
2011	3,500	581,486,000	2,400	333,626,000	3,500	63,485,000	978,597,000
2012	3,500	616,045,000	2,400	341,672,000	3,500	64,958,000	1,022,675,000
							6,775,628,000

Total Annual Saving (VND)	Cumulative Saving (VND)
(49)=(48)-(31)	(50)
25,141,000	25,141,000
105,246,000	130,387,000
176,047,000	306,434,000
217,894,000	524,328,000
229,597,000	753,925,000
324,626,000	1,078,551,000
337,221,000	1,415,772,000
349,216,000	1,764,988,000
498,636,000	2,263,624,000
516,543,000	2,780,167,000
528,507,000	3,308,674,000
3,308,674,000	

Province: Thai Nguyen
Commun Dong Bam

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50l/c	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(15)
2002	5,600	50	2,800	70	1,960	80	141	10	30	840	0		0	100	42	193
2003	5,700	60	3,420	70	2,394	84	181	12	30	1,026	0		0	100	51	244
2004	5,800	70	4,060	70	2,842	88	225	14	30	1,218	0		0	100	61	300
2005	5,900	80	4,720	70	3,304	90	268	17	30	1,416	5	90	6	95	67	358
2006	6,000	82	4,920	70	3,444	96	298	17	30	1,476	5	96	7	95	70	392
2007	6,100	84	5,124	70	3,587	100	323	18	30	1,537	5	100	8	95	73	427
2008	6,200	86	5,332	70	3,732	104	349	19	30	1,600	5	104	8	95	76	452
2009	6,300	88	5,544	70	3,881	108	377	19	30	1,663	5	108	9	95	79	485
2010	6,400	90	5,760	70	4,032	110	399	20	30	1,728	10	112	19	90	78	516
2011	6,500	91	5,915	70	4,141	116	432	21	30	1,775	10	116	21	90	80	553
2012	6,600	92	6,072	70	4,250	120	459	21	30	1,822	10	120	22	90	82	584
2015	6,800	95	6,460	70	4,522	120	488	23	30	1,938	10	120	23	90	87	621
2020	7,200	100	7,200	70	5,040	120	544	25	30	2,160	10	120	26	90	97	693
2025	7,500	100	7,500	70	5,250	120	567	26	30	2,250	10	120	27	90	101	722

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Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	193	1,120	15	0	4	211	91,000
2003	244	1,140	15	0	5	264	113,000
2004	300	1,160	15	0	6	321	138,000
2005	358	1,180	15	0	7	380	163,000
2006	392	1,200	16	0	8	415	178,000
2007	421	1,220	16	0	8	446	191,000
2008	452	1,240	16	0	9	477	205,000
2009	485	1,260	16	0	10	511	219,000
2010	516	1,280	17	0	10	543	233,000
2011	553	1,300	17	0	11	581	250,000
2012	584	1,320	17	0	12	613	263,000
2015	621	1,360	18	0	12	652	280,000
2020	693	1,440	19	0	14	725	311,000
2025	722	1,500	20	0	14	755	324,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25)+(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	63,700	24,000,000	1,820,000	14,833,000	22,073,000	62,726,000	1.16	72,613,000	17,501,000	90,114,000	1,400
2003	79,100	24,000,000	2,260,000	18,419,000	24,026,000	68,705,000	1.22	83,511,000	22,092,000	105,603,000	1,300
2004	96,600	36,000,000	2,760,000	22,494,000	26,246,000	87,500,000	1.28	111,675,000	33,506,000	145,181,000	1,500
2005	114,100	36,000,000	3,260,000	26,569,000	28,464,000	94,293,000	1.34	126,362,000	39,843,000	166,205,000	1,500
2006	124,600	36,000,000	3,560,000	29,014,000	29,796,000	98,370,000	1.41	138,416,000	43,676,000	182,092,000	1,500
2007	133,700	36,000,000	3,820,000	31,133,000	30,950,000	101,903,000	1.48	150,557,000	56,192,000	206,749,000	1,500
2008	143,500	36,000,000	4,100,000	33,415,000	32,193,000	105,708,000	1.55	163,988,000	60,319,000	224,307,000	1,600
2009	153,300	36,000,000	4,380,000	35,697,000	33,435,000	109,512,000	1.63	178,384,000	64,639,000	243,023,000	1,600
2010	163,100	36,000,000	4,660,000	37,979,000	34,677,000	113,316,000	1.71	193,809,000	80,898,000	274,707,000	1,700
2011	175,000	36,000,000	5,000,000	40,750,000	36,188,000	117,938,000	1.80	211,800,000	86,759,000	298,559,000	1,700
2012	184,100	36,000,000	5,260,000	42,869,000	37,341,000	121,470,000	1.89	229,050,000	91,612,000	320,662,000	1,700
									Total	2,257,202,000	1,500

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000* (22)/365/1000	(37)	(38)	(39)	(40)={(34)+(35)+(36)+(37)+(38)+(39)} *0.5	(41)=(34)+(35)+(36)+(37)+(38)+(39)+(40)
2002	2	3,216,000	324,000	91,000	5,385,000	150,000	240,000	5,400,000	7,358,000	22,073,000
2003	2	3,216,000	324,000	113,000	6,687,000	150,000	240,000	5,400,000	8,009,000	24,026,000
2004	2	3,216,000	324,000	138,000	8,167,000	150,000	240,000	5,400,000	8,749,000	26,246,000
2005	2	3,216,000	324,000	163,000	9,646,000	150,000	240,000	5,400,000	9,488,000	28,464,000
2006	2	3,216,000	324,000	178,000	10,534,000	150,000	240,000	5,400,000	9,932,000	29,796,000
2007	2	3,216,000	324,000	191,000	11,303,000	150,000	240,000	5,400,000	10,317,000	30,950,000
2008	2	3,216,000	324,000	205,000	12,132,000	150,000	240,000	5,400,000	10,731,000	32,193,000
2009	2	3,216,000	324,000	219,000	12,960,000	150,000	240,000	5,400,000	11,145,000	33,435,000
2010	2	3,216,000	324,000	233,000	13,788,000	150,000	240,000	5,400,000	11,559,000	34,677,000
2011	2	3,216,000	324,000	250,000	14,795,000	150,000	240,000	5,400,000	12,063,000	36,188,000
2012	2	3,216,000	324,000	263,000	15,564,000	150,000	240,000	5,400,000	12,447,000	37,341,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)
	(42)	(43)=(42)*{(7)+(13)}/0.85*0.7*365	(44)	(45)=(44)*{(8)+(15)}/0.85*0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)}/0.85*0.7*365	(48)=(43)+(45)+(47)
2002	1,500	63,629,000	1,000	15,570,000	1,500	8,305,000	87,504,000
2003	2,000	108,805,000	1,400	26,626,000	2,000	11,846,000	147,277,000
2004	2,500	169,146,000	1,700	38,381,000	2,500	15,844,000	223,371,000
2005	2,500	205,900,000	1,700	42,812,000	2,500	16,905,000	265,617,000
2006	2,500	228,933,000	1,700	44,626,000	2,500	17,614,000	291,173,000
2007	3,000	298,031,000	2,000	54,678,000	3,000	21,903,000	374,612,000
2008	3,000	322,535,000	2,000	56,897,000	3,000	22,694,000	402,126,000
2009	3,000	348,257,000	2,000	59,159,000	3,000	23,511,000	430,927,000
2010	3,500	440,309,000	2,400	70,641,000	3,500	28,373,000	539,323,000
2011	3,500	476,427,000	2,400	72,542,000	3,500	29,424,000	578,393,000
2012	3,500	505,938,000	2,400	74,467,000	3,500	30,344,000	610,749,000
							3,951,072,000

Total Annual Saving (VND)	Cumulative Saving (VND)
(49)=(48)-(31)	(50)
-2,610,000	-2,610,000
41,674,000	39,064,000
78,190,000	117,254,000
99,412,000	216,666,000
109,081,000	325,747,000
167,863,000	493,610,000
177,819,000	671,429,000
187,904,000	859,333,000
264,616,000	1,123,949,000
279,834,000	1,403,783,000
290,087,000	1,693,870,000
1,693,870,000	

Province: Thai Nguyen
Commune Thinh Duc

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50)/dc	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	6,600	50	3,300	10	330	80	24	2	90	2,970	0		0	100	149	174
2003	6,700	60	4,020	10	402	84	30	2	90	3,618	0		0	100	181	213
2004	6,800	70	4,760	10	476	88	38	2	90	4,284	0		0	100	214	254
2005	6,900	80	5,520	10	552	90	45	3	90	4,968	5	90	22	95	236	306
2006	7,000	82	5,740	10	574	96	50	3	90	5,166	5	96	25	95	245	323
2007	7,100	84	5,964	10	596	100	54	3	90	5,368	5	100	27	95	255	338
2008	7,200	86	6,192	10	619	104	58	3	90	5,573	5	104	29	95	265	355
2009	7,300	88	6,424	10	642	108	62	3	90	5,782	5	108	31	95	275	371
2010	7,400	90	6,660	10	666	110	66	3	90	5,994	10	112	67	90	270	406
2011	7,500	91	6,825	10	683	116	73	3	90	6,143	10	116	71	90	276	422
2012	7,600	92	6,992	10	699	120	76	3	90	6,293	10	120	76	90	283	438
2015	7,900	95	7,505	10	751	120	81	4	90	6,755	10	120	81	90	304	470
2020	8,300	100	8,300	10	830	120	90	4	90	7,470	10	120	90	90	336	520
2025	8,700	100	8,700	10	870	120	94	4	90	7,830	10	120	94	90	352	545

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	174	1,320	17	0	3	195	84,000
2003	213	1,340	17	0	4	235	101,000
2004	254	1,360	18	0	5	277	119,000
2005	306	1,380	18	0	6	330	142,000
2006	323	1,400	18	0	6	347	149,000
2007	338	1,420	18	0	7	364	156,000
2008	355	1,440	19	0	7	381	163,000
2009	371	1,460	19	0	7	398	171,000
2010	406	1,480	19	0	8	433	186,000
2011	422	1,500	20	0	8	450	193,000
2012	438	1,520	20	0	9	466	200,000
2015	470	1,580	21	0	9	500	215,000
2020	520	1,660	22	0	10	552	237,000
2025	545	1,740	23	0	11	578	248,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25) +(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	58,800	24,000,000	1,680,000	13,692,000	29,309,000	68,681,000	1.16	79,507,000	13,030,000	92,537,000	1,600
2003	70,700	24,000,000	2,020,000	16,463,000	31,173,000	73,656,000	1.22	89,529,000	16,242,000	105,771,000	1,500
2004	83,300	36,000,000	2,380,000	19,397,000	33,038,000	90,815,000	1.28	115,906,000	23,417,000	139,323,000	1,700
2005	99,400	36,000,000	2,840,000	23,146,000	35,256,000	97,242,000	1.34	130,314,000	28,571,000	158,885,000	1,600
2006	104,300	36,000,000	2,980,000	24,287,000	36,233,000	99,500,000	1.41	140,006,000	30,193,000	170,199,000	1,600
2007	109,200	36,000,000	3,120,000	25,428,000	37,032,000	101,580,000	1.48	150,080,000	37,564,000	187,644,000	1,700
2008	114,100	36,000,000	3,260,000	26,569,000	37,919,000	103,748,000	1.55	160,947,000	39,401,000	200,348,000	1,800
2009	119,700	36,000,000	3,420,000	27,873,000	38,895,000	106,188,000	1.63	172,969,000	41,296,000	214,265,000	1,800
2010	130,200	36,000,000	3,720,000	30,318,000	40,227,000	110,265,000	1.71	188,591,000	54,866,000	243,457,000	1,900
2011	135,100	36,000,000	3,860,000	31,459,000	41,204,000	112,523,000	1.80	202,075,000	57,179,000	259,254,000	1,900
2012	140,000	36,000,000	4,000,000	32,600,000	42,003,000	114,603,000	1.89	216,101,000	59,354,000	275,455,000	2,000
									Total	2,047,138,000	1,700

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)=((34)+(35)+(36)+(37) +(38)+(39)) *0.5	(41)=(34)+(35) +(36)+(37) +(38)+(39)+(40)
2002	5	8,040,000	324,000	91,000	5,385,000	150,000	240,000	5,400,000	9,770,000	29,309,000
2003	5	8,040,000	324,000	112,000	6,628,000	150,000	240,000	5,400,000	10,391,000	31,173,000
2004	5	8,040,000	324,000	133,000	7,871,000	150,000	240,000	5,400,000	11,013,000	33,038,000
2005	5	8,040,000	324,000	158,000	9,350,000	150,000	240,000	5,400,000	11,752,000	35,256,000
2006	5	8,040,000	324,000	169,000	10,001,000	150,000	240,000	5,400,000	12,078,000	36,233,000
2007	5	8,040,000	324,000	178,000	10,534,000	150,000	240,000	5,400,000	12,344,000	37,032,000
2008	5	8,040,000	324,000	188,000	11,125,000	150,000	240,000	5,400,000	12,640,000	37,919,000
2009	5	8,040,000	324,000	199,000	11,776,000	150,000	240,000	5,400,000	12,965,000	38,895,000
2010	5	8,040,000	324,000	214,000	12,664,000	150,000	240,000	5,400,000	13,409,000	40,227,000
2011	5	8,040,000	324,000	225,000	13,315,000	150,000	240,000	5,400,000	13,735,000	41,204,000
2012	5	8,040,000	324,000	234,000	13,848,000	150,000	240,000	5,400,000	14,001,000	42,003,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)	Total Annual Saving (VND)	Cumulative Saving (VND)
	(42)	(43)=(42)*{(7) +(13)}/0.85* 0.7*365	(44)	(45)=(44)*{(8) +(15)}/0.85* 0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)} /0.85*0.7*365	(48)=(43)+(45) +(47)	(49)=(48)-(31)	(50)
2002	1,500	10,713,000	1,000	45,133,000	1,500	9,305,000	65,151,000	-27,386,000	-27,386,000
2003	2,000	18,270,000	1,400	76,973,000	2,000	13,037,000	108,280,000	2,509,000	-24,877,000
2004	2,500	28,330,000	1,700	110,672,000	2,500	17,108,000	156,110,000	16,787,000	-8,090,000
2005	2,500	50,400,000	1,700	121,996,000	2,500	18,077,000	190,473,000	31,588,000	23,498,000
2006	2,500	55,902,000	1,700	126,858,000	2,500	18,526,000	201,286,000	31,087,000	54,585,000
2007	3,000	72,605,000	2,000	155,069,000	3,000	22,751,000	250,425,000	62,781,000	117,366,000
2008	3,000	78,396,000	2,000	160,997,000	3,000	23,279,000	262,672,000	62,324,000	179,690,000
2009	3,000	84,461,000	2,000	167,030,000	3,000	23,816,000	275,307,000	61,042,000	240,732,000
2010	3,500	139,994,000	2,400	196,989,000	3,500	28,787,000	365,770,000	122,313,000	363,045,000
2011	3,500	149,925,000	2,400	201,869,000	3,500	29,401,000	381,195,000	121,941,000	484,986,000
2012	3,500	158,889,000	2,400	206,809,000	3,500	29,998,000	395,696,000	120,241,000	605,227,000
							2,652,365,000	605,227,000	

Province: Thai Nguyen
Commune Nam Tien

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50]dc	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50]/d/c	(16)=(7)+(8)+(13)+(15)
2002	6,700	50	3,350	70	2,345	80	169	12	30	1,005	0		0	100	50	231
2003	6,800	60	4,080	70	2,856	84	216	14	30	1,224	0		0	100	61	291
2004	6,900	70	4,830	70	3,383	88	268	17	30	1,449	0		0	100	72	357
2005	7,000	80	5,600	70	3,920	90	318	20	30	1,680	5	90	8	95	80	424
2006	7,100	82	5,822	70	4,075	96	352	20	30	1,747	5	96	8	95	83	464
2007	7,200	84	6,048	70	4,234	100	381	21	30	1,814	5	100	9	95	86	497
2008	7,300	86	6,278	70	4,395	104	411	22	30	1,883	5	104	10	95	89	533
2009	7,400	88	6,512	70	4,558	108	443	23	30	1,954	5	108	11	95	93	569
2010	7,500	90	6,750	70	4,725	110	468	24	30	2,025	10	112	23	90	91	605
2011	7,600	91	6,916	70	4,841	116	505	24	30	2,075	10	116	24	90	93	647
2012	7,700	92	7,084	70	4,959	120	536	25	30	2,125	10	120	26	90	96	681
2015	8,000	95	7,600	70	5,320	120	575	27	30	2,280	10	120	27	90	103	731
2020	8,400	100	8,400	70	5,880	120	635	29	30	2,520	10	120	30	90	113	808
2025	8,800	100	8,800	70	6,160	120	665	31	30	2,640	10	120	32	90	119	847

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13 /1000	(19)	(20)=(16)*0.02	(21)=(16)+(18) +(20)	(22)=(21)/0.85 *365
2002	231	1,340	17	0	5	253	109,000
2003	291	1,360	18	0	6	315	135,000
2004	357	1,380	18	0	7	382	164,000
2005	424	1,400	18	0	8	451	194,000
2006	464	1,420	18	0	9	492	211,000
2007	497	1,440	19	0	10	526	226,000
2008	533	1,460	19	0	11	562	241,000
2009	569	1,480	19	0	11	600	258,000
2010	605	1,500	20	0	12	637	273,000
2011	647	1,520	20	0	13	680	292,000
2012	681	1,540	20	0	14	715	307,000
2015	731	1,600	21	0	15	767	329,000
2020	808	1,680	22	0	16	846	363,000
2025	847	1,760	23	0	17	886	381,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25)+(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	76,300	24,000,000	2,180,000	17,767,000	45,378,000	89,325,000	1.16	103,405,000	20,938,000	124,343,000	1,600
2003	94,500	24,000,000	2,700,000	22,005,000	47,687,000	96,392,000	1.22	117,165,000	26,355,000	143,520,000	1,500
2004	114,800	36,000,000	3,280,000	26,732,000	50,261,000	116,273,000	1.28	148,397,000	39,860,000	188,257,000	1,600
2005	135,800	36,000,000	3,880,000	31,622,000	52,925,000	124,427,000	1.34	166,744,000	47,271,000	214,015,000	1,600
2006	147,700	36,000,000	4,220,000	34,393,000	54,434,000	129,047,000	1.41	181,582,000	51,683,000	233,265,000	1,600
2007	158,200	36,000,000	4,520,000	36,838,000	55,764,000	133,122,000	1.48	196,682,000	66,325,000	263,007,000	1,700
2008	168,700	36,000,000	4,820,000	39,283,000	57,096,000	137,199,000	1.55	212,841,000	71,021,000	283,862,000	1,700
2009	180,600	36,000,000	5,160,000	42,054,000	58,605,000	141,819,000	1.63	231,008,000	75,925,000	306,933,000	1,700
2010	191,100	36,000,000	5,460,000	44,499,000	59,937,000	145,896,000	1.71	249,532,000	94,803,000	344,335,000	1,800
2011	204,400	36,000,000	5,840,000	47,596,000	61,623,000	151,059,000	1.80	271,280,000	101,441,000	372,721,000	1,800
2012	214,900	36,000,000	6,140,000	50,041,000	62,955,000	155,136,000	1.89	292,532,000	106,881,000	399,413,000	1,900
					243467000				Total	2,873,671,000	1,700

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)={(34)+(35)+(36)+(37)+(38)+(39)} *0.5	(41)=(34)+(35)+(36)+(37)+(38)+(39)+(40)
2002	11	17,688,000	324,000	109000	6,450,000	150,000	240,000	5,400,000	15,126,000	45,378,000
2003	11	17,688,000	324,000	135000	7,989,000	150,000	240,000	5,400,000	15,896,000	47,687,000
2004	11	17,688,000	324,000	164000	9,705,000	150,000	240,000	5,400,000	16,754,000	50,261,000
2005	11	17,688,000	324,000	194000	11,481,000	150,000	240,000	5,400,000	17,642,000	52,925,000
2006	11	17,688,000	324,000	211000	12,487,000	150,000	240,000	5,400,000	18,145,000	54,434,000
2007	11	17,688,000	324,000	226000	13,374,000	150,000	240,000	5,400,000	18,588,000	55,764,000
2008	11	17,688,000	324,000	241000	14,262,000	150,000	240,000	5,400,000	19,032,000	57,096,000
2009	11	17,688,000	324,000	258000	15,268,000	150,000	240,000	5,400,000	19,535,000	58,605,000
2010	11	17,688,000	324,000	273000	16,156,000	150,000	240,000	5,400,000	19,979,000	59,937,000
2011	11	17,688,000	324,000	292000	17,280,000	150,000	240,000	5,400,000	20,541,000	61,623,000
2012	11	17,688,000	324,000	307000	18,168,000	150,000	240,000	5,400,000	20,985,000	62,955,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)
	(42)	(43)=(42)*{(7)+(13)}/0.85*0.7*365	(44)	(45)=(44)*{(8)+(15)}/0.85*0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)}/0.85*0.7*365	(48)=(43)+(45)+(47)
2002	1,500	76,127,000	1,000	18,629,000	1,500	9,936,000	104,692,000
2003	2,000	129,802,000	1,400	31,764,000	2,000	14,132,000	175,698,000
2004	2,500	201,225,000	1,700	45,660,000	2,500	18,849,000	265,734,000
2005	2,500	244,288,000	1,700	50,793,000	2,500	20,056,000	315,137,000
2006	2,500	270,904,000	1,700	52,807,000	2,500	20,843,000	344,554,000
2007	3,000	351,775,000	2,000	64,537,000	3,000	25,853,000	442,165,000
2008	3,000	379,759,000	2,000	66,992,000	3,000	26,720,000	473,471,000
2009	3,000	409,064,000	2,000	69,489,000	3,000	27,616,000	506,169,000
2010	3,500	515,988,000	2,400	82,782,000	3,500	33,249,000	632,019,000
2011	3,500	557,054,000	2,400	84,818,000	3,500	34,404,000	676,276,000
2012	3,500	590,261,000	2,400	86,878,000	3,500	35,401,000	712,540,000
							4,648,455,000

Total Annual Saving (VND)	Cumulative Saving (VND)
(49)=(48)-(31)	(50)
-19,651,000	-19,651,000
32,178,000	12,527,000
77,477,000	90,004,000
101,122,000	191,126,000
111,289,000	302,415,000
179,158,000	481,573,000
189,609,000	671,182,000
199,236,000	870,418,000
287,684,000	1,158,102,000
303,555,000	1,461,657,000
313,127,000	1,774,784,000
1,774,784,000	

Province: Ha Noi
Commune: Dong Ngac

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50/dc	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	7,300	50	3,650	90	3,285	80	237	16	10	365	0		0	100	18	271
2003	7,400	60	4,440	90	3,996	84	302	20	10	444	0		0	100	22	344
2004	7,500	70	5,250	90	4,725	88	374	24	10	525	0		0	100	26	424
2005	7,600	80	6,080	90	5,472	90	443	27	10	608	5	90	3	95	29	502
2006	7,700	82	6,314	90	5,683	96	491	28	10	631	5	96	3	95	30	552
2007	7,800	84	6,552	90	5,897	100	531	29	10	655	5	100	3	95	31	595
2008	7,900	86	6,794	90	6,115	104	572	31	10	679	5	104	4	95	32	639
2009	8,000	88	7,040	90	6,336	108	616	32	10	704	5	108	4	95	33	685
2010	8,100	90	7,290	90	6,561	110	650	33	10	729	10	112	8	90	33	723
2011	8,200	91	7,462	90	6,716	116	701	34	10	746	10	116	9	90	34	777
2012	8,300	92	7,636	90	6,872	120	742	34	10	764	10	120	9	90	34	820
2015	8,400	95	7,980	90	7,182	120	776	36	10	798	10	120	10	90	36	857
2020	8,700	100	8,700	90	7,830	120	846	39	10	870	10	120	10	90	39	934
2025	8,900	100	8,900	90	8,010	120	865	40	10	890	10	120	11	90	40	956

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl.. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	271	1,460	19	0	5	296	127,000
2003	344	1,480	19	0	7	370	159,000
2004	424	1,500	20	0	8	452	194,000
2005	502	1,520	20	0	10	532	228,000
2006	552	1,540	20	0	11	583	251,000
2007	595	1,560	20	0	12	627	269,000
2008	639	1,580	21	0	13	672	289,000
2009	685	1,600	21	0	14	719	309,000
2010	723	1,620	21	0	14	759	326,000
2011	777	1,640	21	0	16	814	349,000
2012	820	1,660	22	0	16	858	368,000
2015	857	1,680	22	0	17	896	385,000
2020	934	1,740	23	0	19	976	419,000
2025	956	1,780	23	0	19	998	429,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25) +(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	88,900	24,000,000	2,540,000	20,701,000	21,651,000	68,892,000	1.16	79,751,000	25,614,000	105,365,000	1,200
2003	111,300	24,000,000	3,180,000	25,917,000	24,491,000	77,588,000	1.22	94,309,000	32,261,000	126,570,000	1,100
2004	135,800	36,000,000	3,880,000	31,622,000	27,599,000	99,101,000	1.28	126,481,000	49,159,000	175,640,000	1,300
2005	159,600	36,000,000	4,560,000	37,164,000	30,617,000	108,341,000	1.34	145,187,000	57,940,000	203,127,000	1,300
2006	175,700	36,000,000	5,020,000	40,913,000	32,658,000	114,591,000	1.41	161,241,000	63,664,000	224,905,000	1,300
2007	188,300	36,000,000	5,380,000	43,847,000	34,256,000	119,483,000	1.48	176,531,000	82,047,000	258,578,000	1,400
2008	202,300	36,000,000	5,780,000	47,107,000	36,030,000	124,917,000	1.55	193,787,000	88,067,000	281,854,000	1,400
2009	216,300	36,000,000	6,180,000	50,367,000	37,806,000	130,353,000	1.63	212,331,000	94,357,000	306,688,000	1,400
2010	228,200	36,000,000	6,520,000	53,138,000	39,315,000	134,973,000	1.71	230,850,000	116,498,000	347,348,000	1,500
2011	244,300	36,000,000	6,980,000	56,887,000	41,357,000	141,224,000	1.80	253,618,000	125,094,000	378,712,000	1,600
2012	257,600	36,000,000	7,360,000	59,984,000	43,044,000	146,388,000	1.89	276,036,000	132,005,000	408,041,000	1,600
									Total	2,816,828,000	1,400

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)={(34)+(35)+(36)+(37) +(38)+(39)} *0.5	(41)=(34)+(35) +(36)+(37) +(38)+(39)+(40)
2002	1	804,000	324,000	127000	7,516,000	150,000	240,000	5,400,000	7,217,000	21,651,000
2003	1	804,000	324,000	159000	9,409,000	150,000	240,000	5,400,000	8,164,000	24,491,000
2004	1	804,000	324,000	194000	11,481,000	150,000	240,000	5,400,000	9,200,000	27,599,000
2005	1	804,000	324,000	228000	13,493,000	150,000	240,000	5,400,000	10,206,000	30,617,000
2006	1	804,000	324,000	251000	14,854,000	150,000	240,000	5,400,000	10,886,000	32,658,000
2007	1	804,000	324,000	269000	15,919,000	150,000	240,000	5,400,000	11,419,000	34,256,000
2008	1	804,000	324,000	289000	17,102,000	150,000	240,000	5,400,000	12,010,000	36,030,000
2009	1	804,000	324,000	309000	18,286,000	150,000	240,000	5,400,000	12,602,000	37,806,000
2010	1	804,000	324,000	326000	19,292,000	150,000	240,000	5,400,000	13,105,000	39,315,000
2011	1	804,000	324,000	349000	20,653,000	150,000	240,000	5,400,000	13,786,000	41,357,000
2012	1	804,000	324,000	368000	21,778,000	150,000	240,000	5,400,000	14,348,000	43,044,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)
	(42)	(43)=(42)*{(7) +(13)}/0.85* 0.7*365	(44)	(45)=(44)*{(8) +(15)}/0.85* 0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)} /0.85*0.7*365	(48)=(43)+(45) +(47)
2002	1,500	106,643,000	1,000	10,423,000	1,500	11,003,000	128,069,000
2003	2,000	181,614,000	1,400	17,750,000	2,000	15,706,000	215,070,000
2004	2,500	281,215,000	1,700	25,486,000	2,500	21,028,000	327,729,000
2005	2,500	335,132,000	1,700	28,739,000	2,500	22,397,000	386,268,000
2006	2,500	371,232,000	1,700	29,845,000	2,500	23,347,000	424,424,000
2007	3,000	481,532,000	2,000	36,435,000	3,000	29,011,000	546,978,000
2008	3,000	519,290,000	2,000	37,781,000	3,000	30,041,000	587,112,000
2009	3,000	558,788,000	2,000	39,149,000	3,000	31,107,000	629,044,000
2010	3,500	691,943,000	2,400	47,332,000	3,500	37,376,000	776,651,000
2011	3,500	746,736,000	2,400	48,449,000	3,500	38,778,000	833,963,000
2012	3,500	790,498,000	2,400	49,578,000	3,500	39,959,000	880,035,000
							5,735,343,000

Total Annual Saving (VND)	Cumulative Saving (VND)
(49)=(48)-(31)	(50)
22,704,000	22,704,000
88,500,000	111,204,000
152,089,000	263,293,000
183,141,000	446,434,000
199,519,000	645,953,000
288,400,000	934,353,000
305,258,000	1,239,611,000
322,356,000	1,561,967,000
429,303,000	1,991,270,000
455,251,000	2,446,521,000
471,994,000	2,918,515,000
2,918,515,000	

Province: Ha Noi
Commune: Xuan Dinh

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50l/d/c	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	16,600	50	8,300	90	7,470	80	538	37	10	830	0		0	100	42	617
2003	16,800	60	10,080	90	9,072	84	686	45	10	1,008	0		0	100	50	782
2004	17,000	70	11,900	90	10,710	88	848	54	10	1,190	0		0	100	60	961
2005	17,200	80	13,760	90	12,384	90	1,003	62	10	1,376	5	90	6	95	65	1,137
2006	17,400	82	14,268	90	12,841	96	1,109	64	10	1,427	5	96	7	95	68	1,248
2007	17,600	84	14,784	90	13,306	100	1,198	67	10	1,478	5	100	7	95	70	1,342
2008	17,800	86	15,308	90	13,777	104	1,290	69	10	1,531	5	104	8	95	73	1,439
2009	18,000	88	15,840	90	14,256	108	1,386	71	10	1,584	5	108	9	95	75	1,541
2010	18,200	90	16,380	90	14,742	110	1,459	74	10	1,638	10	112	18	90	74	1,625
2011	18,400	91	16,744	90	15,070	116	1,573	75	10	1,674	10	116	19	90	75	1,743
2012	18,600	92	17,112	90	15,401	120	1,663	77	10	1,711	10	120	21	90	77	1,838
2015	19,000	95	18,050	90	16,245	120	1,754	81	10	1,805	10	120	22	90	81	1,939
2020	19,600	100	19,600	90	17,640	120	1,905	88	10	1,960	10	120	24	90	88	2,105
2025	20,100	100	20,100	90	18,090	120	1,954	90	10	2,010	10	120	24	90	90	2,159

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13 /1000	(19)	(20)=(16)*0.02	(21)=(16)+(18) +(20)	(22)=(21)/0.85 *365
2002	617	3,320	43	0	12	672	289,000
2003	782	3,360	44	0	16	841	361,000
2004	961	3,400	44	0	19	1,025	440,000
2005	1,137	3,440	45	0	23	1,204	517,000
2006	1,248	3,480	45	0	25	1,319	566,000
2007	1,342	3,520	46	0	27	1,414	607,000
2008	1,439	3,560	46	0	29	1,514	650,000
2009	1,541	3,600	47	0	31	1,618	695,000
2010	1,625	3,640	47	0	33	1,705	732,000
2011	1,743	3,680	48	0	35	1,826	784,000
2012	1,838	3,720	48	0	37	1,923	826,000
2015	1,939	3,800	49	0	39	2,027	870,000
2020	2,105	3,920	51	0	42	2,198	944,000
2025	2,159	4,020	52	0	43	2,254	968,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25)+(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	202,300	24,000,000	5,780,000	47,107,000	36,030,000	112,917,000	1.16	130,716,000	58,245,000	188,961,000	900
2003	252,700	24,000,000	7,220,000	58,843,000	42,422,000	132,485,000	1.22	161,036,000	73,240,000	234,276,000	900
2004	308,000	36,000,000	8,800,000	71,720,000	49,434,000	165,954,000	1.28	211,804,000	111,428,000	323,232,000	1,000
2005	361,900	36,000,000	10,340,000	84,271,000	56,270,000	186,881,000	1.34	250,438,000	131,128,000	381,566,000	1,100
2006	396,200	36,000,000	11,320,000	92,258,000	60,620,000	200,198,000	1.41	281,699,000	143,863,000	425,562,000	1,100
2007	424,900	36,000,000	12,140,000	98,941,000	64,259,000	211,340,000	1.48	312,245,000	185,131,000	497,376,000	1,200
2008	455,000	36,000,000	13,000,000	105,950,000	68,076,000	223,026,000	1.55	345,987,000	198,429,000	544,416,000	1,200
2009	486,500	36,000,000	13,900,000	113,285,000	72,071,000	235,256,000	1.63	383,207,000	212,302,000	595,509,000	1,200
2010	512,400	36,000,000	14,640,000	119,316,000	75,354,000	245,310,000	1.71	419,563,000	261,760,000	681,323,000	1,300
2011	548,800	36,000,000	15,680,000	127,792,000	79,971,000	259,443,000	1.80	465,922,000	280,700,000	746,622,000	1,400
2012	578,200	36,000,000	16,520,000	134,638,000	83,699,000	270,857,000	1.89	510,741,000	295,820,000	806,561,000	1,400
									Total	5,425,404,000	1,200

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)={(34)+(35)+(36)+(37)+(38)+(39)} *0.5	(41)=(34)+(35)+(36)+(37)+(38)+(39)+(40)
2002	1	804,000	324,000	289,000	17,102,000	150,000	240,000	5,400,000	12,010,000	36,030,000
2003	1	804,000	324,000	361,000	21,363,000	150,000	240,000	5,400,000	14,141,000	42,422,000
2004	1	804,000	324,000	440,000	26,038,000	150,000	240,000	5,400,000	16,478,000	49,434,000
2005	1	804,000	324,000	517,000	30,595,000	150,000	240,000	5,400,000	18,757,000	56,270,000
2006	1	804,000	324,000	566,000	33,495,000	150,000	240,000	5,400,000	20,207,000	60,620,000
2007	1	804,000	324,000	607,000	35,921,000	150,000	240,000	5,400,000	21,420,000	64,259,000
2008	1	804,000	324,000	650,000	38,466,000	150,000	240,000	5,400,000	22,692,000	68,076,000
2009	1	804,000	324,000	695,000	41,129,000	150,000	240,000	5,400,000	24,024,000	72,071,000
2010	1	804,000	324,000	732,000	43,318,000	150,000	240,000	5,400,000	25,118,000	75,354,000
2011	1	804,000	324,000	784,000	46,196,000	150,000	240,000	5,400,000	26,657,000	79,971,000
2012	1	804,000	324,000	826,000	48,881,000	150,000	240,000	5,400,000	27,900,000	83,699,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)
	(42)	(43)=(42)*{(7)+(13)}/0.85*0.7*365	(44)	(45)=(44)*{(8)+(15)}/0.85*0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)}/0.85*0.7*365	(48)=(43)+(45)+(47)
2002	1,500	242,303,000	1,000	23,701,000	1,500	25,021,000	291,225,000
2003	2,000	412,313,000	1,400	40,298,000	2,000	35,657,000	488,268,000
2004	2,500	637,421,000	1,700	57,769,000	2,500	47,663,000	742,853,000
2005	2,500	758,456,000	1,700	65,040,000	2,500	50,688,000	874,184,000
2006	2,500	838,888,000	1,700	67,441,000	2,500	52,758,000	959,087,000
2007	3,000	1,086,533,000	2,000	82,212,000	3,000	65,462,000	1,234,207,000
2008	3,000	1,170,045,000	2,000	85,126,000	3,000	67,688,000	1,322,859,000
2009	3,000	1,257,274,000	2,000	88,084,000	3,000	69,991,000	1,415,349,000
2010	3,500	1,554,736,000	2,400	106,351,000	3,500	83,980,000	1,745,067,000
2011	3,500	1,675,603,000	2,400	108,714,000	3,500	87,013,000	1,871,330,000
2012	3,500	1,771,479,000	2,400	111,103,000	3,500	89,548,000	1,972,130,000
							12,916,559,000

Total Annual Saving (VND)	Cumulative Saving (VND)
(49)=(48)-(31)	(50)
102,264,000	102,264,000
253,992,000	356,256,000
419,621,000	775,877,000
492,618,000	1,268,495,000
533,525,000	1,802,020,000
736,831,000	2,538,851,000
778,443,000	3,317,294,000
819,840,000	4,137,134,000
1,063,744,000	5,200,878,000
1,124,708,000	6,325,586,000
1,165,569,000	7,491,155,000
7,491,155,000	

Province: Ninth Bin
Commune Dong Phong

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50ldc	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	10,500	50	5,250	80	4,200	80	302	21	20	1,050	0		0	100	53	376
2003	10,600	60	6,360	80	5,088	84	385	25	20	1,272	0		0	100	64	474
2004	10,700	70	7,490	80	5,992	88	475	30	20	1,498	0		0	100	75	579
2005	10,800	80	8,640	80	6,912	90	560	35	20	1,728	5	90	8	95	82	684
2006	10,900	82	8,938	80	7,150	96	618	36	20	1,788	5	96	9	95	85	747
2007	11,000	84	9,240	80	7,392	100	665	37	20	1,848	5	100	9	95	88	799
2008	11,100	86	9,546	80	7,637	104	735	38	20	1,909	5	104	10	95	91	854
2009	11,200	88	9,856	80	7,885	108	766	39	20	1,971	5	108	11	95	94	910
2010	11,300	90	10,170	80	8,136	110	805	41	20	2,034	10	112	23	90	92	960
2011	11,400	91	10,374	80	8,299	116	866	41	20	2,075	10	116	24	90	93	1,025
2012	11,500	92	10,580	80	8,464	120	914	42	20	2,116	10	120	25	90	95	1,077
2015	11,800	95	11,210	80	8,968	120	969	45	20	2,242	10	120	27	90	101	1,141
2020	12,200	100	12,200	80	9,760	120	1,054	49	20	2,440	10	120	29	90	110	1,242
2025	12,500	100	12,500	80	10,000	120	1,080	50	20	2,500	10	120	30	90	113	1,273

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	376	2,100	27	0	8	411	176,000
2003	474	2,120	28	0	9	511	219,000
2004	579	2,140	28	0	12	619	266,000
2005	684	2,160	28	0	14	726	312,000
2006	747	2,180	28	0	15	790	339,000
2007	799	2,200	29	0	16	844	362,000
2008	854	2,220	29	0	17	900	386,000
2009	910	2,240	29	0	18	957	411,000
2010	960	2,260	29	0	19	1,009	433,000
2011	1,025	2,280	30	0	21	1,076	462,000
2012	1,077	2,300	30	0	22	1,128	485,000
2015	1,141	2,360	31	0	23	1,195	513,000
2020	1,242	2,440	32	0	25	1,299	558,000
2025	1,273	2,500	33	0	25	1,330	571,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25) +(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	123,200	24,000,000	3,520,000	28,688,000	26,000,000	82,208,000	1.16	95,166,000	34,828,000	129,994,000	1,100
2003	153,300	24,000,000	4,380,000	35,697,000	29,817,000	93,894,000	1.22	114,129,000	43,647,000	157,776,000	1,000
2004	186,200	36,000,000	5,320,000	43,358,000	33,989,000	118,667,000	1.28	151,453,000	65,973,000	217,426,000	1,200
2005	218,400	36,000,000	6,240,000	50,856,000	38,073,000	131,169,000	1.34	175,779,000	77,634,000	253,413,000	1,200
2006	237,300	36,000,000	6,780,000	55,257,000	40,469,000	138,506,000	1.41	194,892,000	84,733,000	279,625,000	1,200
2007	253,400	36,000,000	7,240,000	59,006,000	42,510,000	144,756,000	1.48	213,871,000	108,518,000	322,389,000	1,300
2008	270,200	36,000,000	7,720,000	62,918,000	44,642,000	151,280,000	1.55	234,685,000	115,865,000	350,550,000	1,300
2009	287,700	36,000,000	8,220,000	66,993,000	46,860,000	158,073,000	1.63	257,484,000	123,507,000	380,991,000	1,300
2010	303,100	36,000,000	8,660,000	70,579,000	48,813,000	164,052,000	1.71	280,585,000	152,679,000	433,264,000	1,400
2011	323,400	36,000,000	9,240,000	75,306,000	51,387,000	171,933,000	1.80	308,767,000	163,037,000	471,804,000	1,500
2012	339,500	36,000,000	9,700,000	79,055,000	53,429,000	178,184,000	1.89	335,993,000	171,263,000	507,256,000	1,500
									Total	3,504,488,000	1,300

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)={(34)+(35)+(36)+(37) +(38)+(39)} *0.5	(41)=(34)+(35) +(36)+(37) +(38)+(39)+(40)
2002	1	804,000	324,000	176000	10,415,000	150,000	240,000	5,400,000	8,667,000	26,000,000
2003	1	804,000	324,000	219000	12,960,000	150,000	240,000	5,400,000	9,939,000	29,817,000
2004	1	804,000	324,000	266000	15,741,000	150,000	240,000	5,400,000	11,330,000	33,989,000
2005	1	804,000	324,000	312000	18,464,000	150,000	240,000	5,400,000	12,691,000	38,073,000
2006	1	804,000	324,000	339000	20,061,000	150,000	240,000	5,400,000	13,490,000	40,469,000
2007	1	804,000	324,000	362000	21,422,000	150,000	240,000	5,400,000	14,170,000	42,510,000
2008	1	804,000	324,000	386000	22,843,000	150,000	240,000	5,400,000	14,881,000	44,642,000
2009	1	804,000	324,000	411000	24,322,000	150,000	240,000	5,400,000	15,620,000	46,860,000
2010	1	804,000	324,000	433000	25,624,000	150,000	240,000	5,400,000	16,271,000	48,813,000
2011	1	804,000	324,000	462000	27,340,000	150,000	240,000	5,400,000	17,129,000	51,387,000
2012	1	804,000	324,000	485000	28,701,000	150,000	240,000	5,400,000	17,810,000	53,429,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)	Total Annual Saving (VND)	Cumulative Saving (VND)
	(42)	(43)=(42)*{(7) +(13)}/0.85* 0.7*365	(44)	(45)=(44)*{(8) +(15)}/0.85* 0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)} /0.85*0.7*365	(48)=(43)+(45) +(47)	(49)=(48)-(31)	(50)
2002	1,500	136,347,000	1,000	22,093,000	1,500	15,699,000	174,139,000	44,145,000	44,145,000
2003	2,000	231,244,000	1,400	37,470,000	2,000	22,264,000	290,978,000	133,202,000	177,347,000
2004	2,500	356,623,000	1,700	53,583,000	2,500	29,614,000	439,820,000	222,394,000	399,741,000
2005	2,500	426,571,000	1,700	59,603,000	2,500	31,386,000	517,560,000	264,147,000	663,888,000
2006	2,500	470,702,000	1,700	61,659,000	2,500	32,524,000	564,885,000	285,260,000	949,148,000
2007	3,000	608,258,000	2,000	74,991,000	3,000	40,205,000	723,454,000	401,065,000	1,350,213,000
2008	3,000	653,538,000	2,000	77,474,000	3,000	41,420,000	772,432,000	421,882,000	1,772,095,000
2009	3,000	700,714,000	2,000	79,990,000	3,000	42,673,000	823,377,000	442,386,000	2,214,481,000
2010	3,500	871,362,000	2,400	95,378,000	3,500	51,119,000	1,017,859,000	584,595,000	2,799,076,000
2011	3,500	936,863,000	2,400	97,291,000	3,500	52,758,000	1,086,912,000	615,108,000	3,414,184,000
2012	3,500	988,413,000	2,400	99,223,000	3,500	54,119,000	1,141,755,000	634,499,000	4,048,683,000
							7,553,171,000	4,048,683,000	

Province: Ninth Bin
Commune Quang Son

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50ldc	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	7,900	50	3,950	80	3,160	80	228	16	20	790	0		0	100	40	283
2003	8,000	60	4,800	80	3,840	84	290	19	20	960	0		0	100	48	358
2004	8,100	70	5,670	80	4,536	88	359	23	20	1,134	0		0	100	57	439
2005	8,200	80	6,560	80	5,248	90	425	26	20	1,312	5	90	6	95	62	520
2006	8,300	82	6,806	80	5,445	96	470	27	20	1,361	5	96	7	95	65	569
2007	8,400	84	7,056	80	5,645	100	508	28	20	1,411	5	100	7	95	67	610
2008	8,500	86	7,310	80	5,848	104	547	29	20	1,462	5	104	8	95	69	654
2009	8,600	88	7,568	80	6,054	108	588	30	20	1,514	5	108	8	95	72	699
2010	8,700	90	7,830	80	6,264	110	620	31	20	1,566	10	112	18	90	70	739
2011	8,800	91	8,008	80	6,406	116	669	32	20	1,602	10	116	19	90	72	792
2012	8,900	92	8,188	80	6,550	120	707	33	20	1,638	10	120	20	90	74	834
2015	9,100	95	8,645	80	6,916	120	747	35	20	1,729	10	120	21	90	78	880
2020	9,400	100	9,400	80	7,520	120	812	38	20	1,880	10	120	23	90	85	957
2025	9,600	100	9,600	80	7,680	120	829	38	20	1,920	10	120	23	90	86	977

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	283	1,580	21	0	6	309	133,000
2003	358	1,600	21	0	7	385	166,000
2004	439	1,620	21	0	9	468	201,000
2005	520	1,640	21	0	10	551	237,000
2006	569	1,660	22	0	11	602	258,000
2007	610	1,680	22	0	12	644	277,000
2008	654	1,700	22	0	13	689	296,000
2009	699	1,720	22	0	14	735	316,000
2010	739	1,740	23	0	15	777	334,000
2011	792	1,760	23	0	16	830	357,000
2012	834	1,780	23	0	17	873	375,000
2015	880	1,820	24	0	18	921	396,000
2020	957	1,880	24	0	19	1,000	430,000
2025	977	1,920	25	0	20	1,022	439,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25)+(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	93,100	24,000,000	2,660,000	21,679,000	35,450,000	83,789,000	1.16	96,996,000	26,204,000	123,200,000	1,300
2003	116,200	24,000,000	3,320,000	27,058,000	38,379,000	92,757,000	1.22	112,747,000	32,941,000	145,688,000	1,300
2004	140,700	36,000,000	4,020,000	32,763,000	41,486,000	114,269,000	1.28	145,839,000	49,942,000	195,781,000	1,400
2005	165,900	36,000,000	4,740,000	38,631,000	44,681,000	124,052,000	1.34	166,242,000	58,944,000	225,186,000	1,400
2006	180,600	36,000,000	5,160,000	42,054,000	46,545,000	129,759,000	1.41	182,584,000	64,521,000	247,105,000	1,400
2007	193,900	36,000,000	5,540,000	45,151,000	48,231,000	134,922,000	1.48	199,341,000	82,868,000	282,209,000	1,500
2008	207,200	36,000,000	5,920,000	48,248,000	49,919,000	140,087,000	1.55	217,321,000	88,725,000	306,046,000	1,500
2009	221,200	36,000,000	6,320,000	51,508,000	51,693,000	145,521,000	1.63	237,038,000	94,835,000	331,873,000	1,500
2010	233,800	36,000,000	6,680,000	54,442,000	53,291,000	150,413,000	1.71	257,257,000	117,549,000	374,806,000	1,600
2011	249,900	36,000,000	7,140,000	58,191,000	55,334,000	156,665,000	1.80	281,348,000	125,853,000	407,201,000	1,600
2012	262,500	36,000,000	7,500,000	61,125,000	56,931,000	161,556,000	1.89	304,638,000	132,543,000	437,181,000	1,700
									Total	3,076,276,000	1,500

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)={(34)+(35)+(36)+(37)+(38)+(39)} *0.5	(41)=(34)+(35)+(36)+(37)+(38)+(39)+(40)
2002	6	9,648,000	324,000	133000	7,871,000	150,000	240,000	5,400,000	11,817,000	35,450,000
2003	6	9,648,000	324,000	166000	9,824,000	150,000	240,000	5,400,000	12,793,000	38,379,000
2004	6	9,648,000	324,000	201000	11,895,000	150,000	240,000	5,400,000	13,829,000	41,486,000
2005	6	9,648,000	324,000	237000	14,025,000	150,000	240,000	5,400,000	14,894,000	44,681,000
2006	6	9,648,000	324,000	258000	15,268,000	150,000	240,000	5,400,000	15,515,000	46,545,000
2007	6	9,648,000	324,000	277000	16,392,000	150,000	240,000	5,400,000	16,077,000	48,231,000
2008	6	9,648,000	324,000	296000	17,517,000	150,000	240,000	5,400,000	16,640,000	49,919,000
2009	6	9,648,000	324,000	316000	18,700,000	150,000	240,000	5,400,000	17,231,000	51,693,000
2010	6	9,648,000	324,000	334000	19,765,000	150,000	240,000	5,400,000	17,764,000	53,291,000
2011	6	9,648,000	324,000	357000	21,127,000	150,000	240,000	5,400,000	18,445,000	55,334,000
2012	6	9,648,000	324,000	375000	22,192,000	150,000	240,000	5,400,000	18,977,000	56,931,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)	Total Annual Saving (VND)	Cumulative Saving (VND)
	(42)	(43)=(42)*{(7)+(13)}/0.85*0.7*365	(44)	(45)=(44)*{(8)+(15)}/0.85*0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)}/0.85*0.7*365	(48)=(43)+(45)+(47)	(49)=(48)-(31)	(50)
2002	1,500	102,585,000	1,000	16,623,000	1,500	11,811,000	131,019,000	7,819,000	7,819,000
2003	2,000	174,524,000	1,400	28,279,000	2,000	16,803,000	219,606,000	73,918,000	81,737,000
2004	2,500	269,967,000	1,700	40,563,000	2,500	22,418,000	332,948,000	137,167,000	218,904,000
2005	2,500	323,878,000	1,700	45,254,000	2,500	23,830,000	392,962,000	167,776,000	386,680,000
2006	2,500	358,425,000	1,700	46,951,000	2,500	24,766,000	430,142,000	183,037,000	569,717,000
2007	3,000	464,488,000	2,000	57,266,000	3,000	30,702,000	552,456,000	270,247,000	839,964,000
2008	3,000	500,457,000	2,000	59,327,000	3,000	31,718,000	591,502,000	285,456,000	1,125,420,000
2009	3,000	538,048,000	2,000	61,421,000	3,000	32,767,000	632,236,000	300,363,000	1,425,783,000
2010	3,500	670,872,000	2,400	73,433,000	3,500	39,357,000	783,662,000	408,856,000	1,834,639,000
2011	3,500	723,192,000	2,400	75,102,000	3,500	40,725,000	839,019,000	431,818,000	2,266,457,000
2012	3,500	764,946,000	2,400	76,790,000	3,500	41,883,000	883,619,000	446,438,000	2,712,895,000
							5,789,171,000	2,712,895,000	

Province: Ninth Bin
Commune Yen Thang

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(1)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50lde	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	9,000	50	4,500	80	3,600	80	259	18	20	900	0		0	100	45	322
2003	9,100	60	5,460	80	4,368	84	330	22	20	1,092	0		0	100	55	407
2004	9,200	70	6,440	80	5,152	88	408	26	20	1,288	0		0	100	64	498
2005	9,300	80	7,440	80	5,952	90	482	30	20	1,488	5	90	7	95	73	589
2006	9,400	82	7,708	80	6,166	96	533	31	20	1,542	5	96	7	95	73	644
2007	9,500	84	7,980	80	6,384	100	575	32	20	1,596	5	100	8	95	76	690
2008	9,600	86	8,256	80	6,605	104	618	33	20	1,651	5	104	9	95	78	738
2009	9,700	88	8,536	80	6,829	108	664	34	20	1,707	5	108	9	95	81	788
2010	9,800	90	8,820	80	7,056	110	699	35	20	1,764	10	112	20	90	79	833
2011	9,900	91	9,009	80	7,207	116	752	36	20	1,802	10	116	21	90	82	890
2012	10,000	92	9,200	80	7,360	120	795	37	20	1,840	10	120	22	90	83	937
2015	10,200	95	9,690	80	7,752	120	837	39	20	1,938	10	120	23	90	87	986
2020	10,500	100	10,500	80	8,400	120	907	42	20	2,100	10	120	25	90	95	1,069
2025	10,800	100	10,800	80	8,640	120	933	43	20	2,160	10	120	26	90	97	1,099

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	322	1,800	23	0	6	352	151,000
2003	407	1,820	24	0	8	438	188,000
2004	498	1,840	24	0	10	532	228,000
2005	589	1,860	24	0	12	625	268,000
2006	644	1,880	24	0	13	682	293,000
2007	690	1,900	25	0	14	729	313,000
2008	738	1,920	25	0	15	778	334,000
2009	788	1,940	25	0	16	829	356,000
2010	833	1,960	25	0	17	875	376,000
2011	890	1,980	26	0	18	934	401,000
2012	937	2,000	26	0	19	981	421,000
2015	986	2,040	27	0	20	1,033	443,000
2020	1,069	2,100	27	0	21	1,118	480,000
2025	1,099	2,160	28	0	22	1,150	494,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25) +(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	105,700	24,000,000	3,020,000	24,613,000	32,223,000	83,856,000	1.16	97,074,000	29,852,000	126,926,000	1,200
2003	131,600	24,000,000	3,760,000	30,644,000	35,507,000	93,911,000	1.22	114,149,000	37,470,000	151,619,000	1,200
2004	159,600	36,000,000	4,560,000	37,164,000	39,059,000	116,783,000	1.28	149,048,000	56,725,000	205,773,000	1,300
2005	187,600	36,000,000	5,360,000	43,684,000	42,609,000	127,653,000	1.34	171,067,000	66,852,000	237,919,000	1,300
2006	205,100	36,000,000	5,860,000	47,759,000	44,828,000	134,447,000	1.41	189,180,000	73,072,000	262,252,000	1,300
2007	219,100	36,000,000	6,260,000	51,019,000	46,604,000	139,883,000	1.48	206,671,000	93,720,000	300,391,000	1,400
2008	233,800	36,000,000	6,680,000	54,442,000	48,467,000	145,589,000	1.55	225,856,000	100,208,000	326,064,000	1,400
2009	249,200	36,000,000	7,120,000	58,028,000	50,420,000	151,568,000	1.63	246,888,000	106,965,000	353,853,000	1,400
2010	263,200	36,000,000	7,520,000	61,288,000	52,196,000	157,004,000	1.71	268,530,000	132,412,000	400,942,000	1,500
2011	280,700	36,000,000	8,020,000	65,363,000	54,414,000	163,797,000	1.80	294,156,000	141,585,000	435,741,000	1,600
2012	294,700	36,000,000	8,420,000	68,623,000	56,190,000	169,233,000	1.89	319,114,000	148,925,000	468,039,000	1,600
					889492200				Total	3,269,519,000	1,400

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)=((34)+(35)+(36)+(37) +(38)+(39)) *0.5	(41)=(34)+(35) +(36)+(37) +(38)+(39)+(40)
2002	4	6,432,000	324,000	151000	8,936,000	150,000	240,000	5,400,000	10,741,000	32,223,000
2003	4	6,432,000	324,000	188000	11,125,000	150,000	240,000	5,400,000	11,836,000	35,507,000
2004	4	6,432,000	324,000	228000	13,493,000	150,000	240,000	5,400,000	13,020,000	39,059,000
2005	4	6,432,000	324,000	268000	15,860,000	150,000	240,000	5,400,000	14,203,000	42,609,000
2006	4	6,432,000	324,000	293000	17,339,000	150,000	240,000	5,400,000	14,943,000	44,828,000
2007	4	6,432,000	324,000	313000	18,523,000	150,000	240,000	5,400,000	15,535,000	46,604,000
2008	4	6,432,000	324,000	334000	19,765,000	150,000	240,000	5,400,000	16,156,000	48,467,000
2009	4	6,432,000	324,000	356000	21,067,000	150,000	240,000	5,400,000	16,807,000	50,420,000
2010	4	6,432,000	324,000	376000	22,251,000	150,000	240,000	5,400,000	17,399,000	52,196,000
2011	4	6,432,000	324,000	401000	23,730,000	150,000	240,000	5,400,000	18,138,000	54,414,000
2012	4	6,432,000	324,000	421000	24,914,000	150,000	240,000	5,400,000	18,730,000	56,190,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)
	(42)	(43)=(42)*{(7) +(13)}/0.85* 0.7*365	(44)	(45)=(44)*{(8) +(15)}/0.85* 0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)} /0.85*0.7*365	(48)=(43)+(45) +(47)
2002	1,500	116,869,000	1,000	18,937,000	1,500	13,456,000	149,262,000
2003	2,000	198,521,000	1,400	32,168,000	2,000	19,113,000	249,802,000
2004	2,500	306,629,000	1,700	46,072,000	2,500	25,463,000	378,164,000
2005	2,500	367,325,000	1,700	51,325,000	2,500	27,027,000	445,677,000
2006	2,500	405,927,000	1,700	53,174,000	2,500	28,048,000	487,149,000
2007	3,000	525,314,000	2,000	64,765,000	3,000	34,723,000	624,802,000
2008	3,000	565,222,000	2,000	67,005,000	3,000	35,823,000	668,050,000
2009	3,000	606,868,000	2,000	69,277,000	3,000	36,958,000	713,103,000
2010	3,500	755,695,000	2,400	82,717,000	3,500	44,333,000	882,745,000
2011	3,500	813,591,000	2,400	84,490,000	3,500	45,816,000	943,897,000
2012	3,500	859,490,000	2,400	86,281,000	3,500	47,060,000	992,831,000
							6,535,482,000

Total Annual Saving (VND)	Cumulative Saving (VND)
(49)=(48)-(31)	(50)
22,336,000	22,336,000
98,183,000	120,519,000
172,391,000	292,910,000
207,758,000	500,668,000
224,897,000	725,565,000
324,411,000	1,049,976,000
341,986,000	1,391,962,000
359,250,000	1,751,212,000
481,803,000	2,233,015,000
508,156,000	2,741,171,000
524,792,000	3,265,963,000
3,265,963,000	

Province: Thanh Hoa
Commune Vinh Loc Town and Vinh Thanh

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50]dc	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	11,900	50	5,950	80	4,760	80	343	24	20	1,190	0		0	100	60	426
2003	12,100	60	7,260	80	5,808	84	439	29	20	1,452	0		0	100	73	543
2004	12,300	70	8,610	80	6,888	88	546	34	20	1,722	0		0	100	86	666
2005	12,500	80	10,000	80	8,000	90	648	40	20	2,000	5	90	9	95	95	792
2006	12,700	82	10,414	80	8,331	96	720	42	20	2,083	5	96	10	95	99	870
2007	12,900	84	10,836	80	8,669	100	780	43	20	2,167	5	100	11	95	103	937
2008	13,100	86	11,266	80	9,013	104	844	45	20	2,253	5	104	12	95	107	1,007
2009	13,300	88	11,704	80	9,363	108	910	47	20	2,341	5	108	13	95	111	1,081
2010	13,500	90	12,150	80	9,720	110	962	49	20	2,430	10	112	27	90	109	1,147
2011	13,700	91	12,467	80	9,974	116	1,041	50	20	2,493	10	116	29	90	112	1,232
2012	13,900	92	12,788	80	10,230	120	1,105	51	20	2,558	10	120	31	90	115	1,302
2015	14,400	95	13,680	80	10,944	120	1,182	55	20	2,736	10	120	33	90	123	1,393
2020	15,200	100	15,200	80	12,160	120	1,313	61	20	3,040	10	120	36	90	137	1,547
2025	16,000	100	16,000	80	12,800	120	1,382	64	20	3,200	10	120	38	90	144	1,629

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	426	2,380	31	60	9	465	200,000
2003	541	2,420	31	60	11	583	250,000
2004	666	2,460	32	60	13	711	305,000
2005	792	2,500	33	60	16	840	361,000
2006	870	2,540	33	60	17	921	395,000
2007	937	2,580	34	60	19	990	425,000
2008	1,007	2,620	34	60	20	1,062	456,000
2009	1,081	2,660	35	60	22	1,137	488,000
2010	1,147	2,700	35	60	23	1,205	518,000
2011	1,232	2,740	36	60	25	1,293	555,000
2012	1,302	2,780	36	60	26	1,364	586,000
2015	1,393	2,880	37	60	28	1,458	626,000
2020	1,547	3,040	40	60	31	1,618	695,000
2025	1,629	3,200	42	60	33	1,703	731,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25) +(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	140,000	24,000,000	4,000,000	32,600,000	31,749,000	92,349,000	1.16	106,906,000	44,882,000	151,788,000	1,100
2003	175,000	24,000,000	5,000,000	40,750,000	36,188,000	105,938,000	1.22	128,768,000	55,234,000	184,002,000	1,100
2004	213,500	36,000,000	6,100,000	49,715,000	41,069,000	132,884,000	1.28	169,597,000	82,601,000	252,198,000	1,200
2005	252,700	36,000,000	7,220,000	58,843,000	46,040,000	148,103,000	1.34	198,472,000	96,617,000	295,089,000	1,200
2006	276,500	36,000,000	7,900,000	64,385,000	49,058,000	157,343,000	1.41	221,397,000	105,489,000	326,886,000	1,200
2007	297,500	36,000,000	8,500,000	69,275,000	51,722,000	165,497,000	1.48	244,514,000	135,378,000	379,892,000	1,300
2008	319,200	36,000,000	9,120,000	74,328,000	54,473,000	173,921,000	1.55	269,809,000	144,857,000	414,666,000	1,300
2009	341,600	36,000,000	9,760,000	79,544,000	57,314,000	182,618,000	1.63	297,465,000	154,780,000	452,245,000	1,300
2010	362,600	36,000,000	10,360,000	84,434,000	59,976,000	190,770,000	1.71	326,281,000	191,872,000	518,153,000	1,400
2011	388,500	36,000,000	11,100,000	90,465,000	63,261,000	200,826,000	1.80	360,655,000	205,399,000	566,054,000	1,500
2012	410,200	36,000,000	11,720,000	95,518,000	66,012,000	209,250,000	1.89	394,572,000	216,474,000	611,046,000	1,500
									Total	4,152,019,000	1,300

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)={(34)+(35)+(36)+(37) +(38)+(39)} *0.5	(41)=(34)+(35) +(36)+(37) +(38)+(39)+(40)
2002	2	3,216,000	324,000	200000	11,836,000	150,000	240,000	5,400,000	10,583,000	31,749,000
2003	2	3,216,000	324,000	250000	14,795,000	150,000	240,000	5,400,000	12,063,000	36,188,000
2004	2	3,216,000	324,000	305000	18,049,000	150,000	240,000	5,400,000	13,690,000	41,069,000
2005	2	3,216,000	324,000	361000	21,363,000	150,000	240,000	5,400,000	15,347,000	46,040,000
2006	2	3,216,000	324,000	395000	23,375,000	150,000	240,000	5,400,000	16,353,000	49,058,000
2007	2	3,216,000	324,000	425000	25,151,000	150,000	240,000	5,400,000	17,241,000	51,722,000
2008	2	3,216,000	324,000	456000	26,985,000	150,000	240,000	5,400,000	18,158,000	54,473,000
2009	2	3,216,000	324,000	488000	28,879,000	150,000	240,000	5,400,000	19,105,000	57,314,000
2010	2	3,216,000	324,000	518000	30,654,000	150,000	240,000	5,400,000	19,992,000	59,976,000
2011	2	3,216,000	324,000	555000	32,844,000	150,000	240,000	5,400,000	21,087,000	63,261,000
2012	2	3,216,000	324,000	586000	34,678,000	150,000	240,000	5,400,000	22,004,000	66,012,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)
	(42)	(43)=(42)*{(7) +(13)}/0.85* 0.7*365	(44)	(45)=(44)*{(8) +(15)}/0.85* 0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)} /0.85*0.7*365	(48)=(43)+(45) +(47)
2002	1,500	154,526,000	1,000	25,039,000	1,500	44,845,000	224,410,000
2003	2,000	263,967,000	1,400	42,773,000	2,000	61,485,000	368,225,000
2004	2,500	409,949,000	1,700	61,596,000	2,500	79,131,000	550,676,000
2005	2,500	493,716,000	1,700	68,985,000	2,500	81,414,000	644,115,000
2006	2,500	548,433,000	1,700	71,841,000	2,500	82,983,000	703,257,000
2007	3,000	713,321,000	2,000	87,944,000	3,000	101,256,000	902,521,000
2008	3,000	771,293,000	2,000	91,434,000	3,000	102,989,000	965,716,000
2009	3,000	832,097,000	2,000	94,988,000	3,000	104,781,000	1,031,866,000
2010	3,500	1,041,008,000	2,400	113,947,000	3,500	124,194,000	1,279,149,000
2011	3,500	1,125,879,000	2,400	116,920,000	3,500	126,526,000	1,369,325,000
2012	3,500	1,194,691,000	2,400	119,930,000	3,500	128,537,000	1,443,158,000
							9,482,418,000

Total Annual Saving (VND)	Cumulative Saving (VND)
(49)=(48)-(31)	(50)
72,622,000	72,622,000
184,223,000	256,845,000
298,478,000	555,323,000
349,026,000	904,349,000
376,371,000	1,280,720,000
522,629,000	1,803,349,000
551,050,000	2,354,399,000
579,621,000	2,934,020,000
760,996,000	3,695,016,000
803,271,000	4,498,287,000
832,112,000	5,330,399,000
5,330,399,000	

Province: Thanh Hoa
Commune Dinh Tuong

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50/dc	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	6,900	50	3,450	80	2,760	80	199	14	20	690	0		0	100	35	247
2003	7,000	60	4,200	80	3,360	84	254	17	20	840	0		0	100	42	313
2004	7,100	70	4,970	80	3,976	88	315	20	20	994	0		0	100	50	384
2005	7,200	80	5,760	80	4,608	90	373	23	20	1,152	5	90	5	95	55	456
2006	7,300	82	5,986	80	4,789	96	414	24	20	1,197	5	96	6	95	57	500
2007	7,400	84	6,216	80	4,973	100	448	25	20	1,243	5	100	6	95	59	538
2008	7,500	86	6,450	80	5,160	104	483	26	20	1,290	5	104	7	95	61	577
2009	7,600	88	6,688	80	5,350	108	520	27	20	1,338	5	108	7	95	64	618
2010	7,700	90	6,930	80	5,544	110	549	28	20	1,386	10	112	16	90	62	654
2011	7,800	91	7,098	80	5,678	116	593	28	20	1,420	10	116	16	90	64	702
2012	7,900	92	7,268	80	5,814	120	628	29	20	1,454	10	120	17	90	65	740
2015	8,200	95	7,790	80	6,232	120	673	31	20	1,558	10	120	19	90	70	793
2020	8,700	100	8,700	80	6,960	120	752	35	20	1,740	10	120	21	90	78	886
2025	9,200	100	9,200	80	7,360	120	795	37	20	1,840	10	120	22	90	83	937

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Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	247	1,380	18	0	5	270	116,000
2003	313	1,400	18	0	6	337	145,000
2004	384	1,420	18	0	8	411	176,000
2005	456	1,440	19	0	9	484	208,000
2006	500	1,460	19	0	10	529	227,000
2007	538	1,480	19	0	11	568	244,000
2008	577	1,500	20	0	12	608	261,000
2009	618	1,520	20	0	12	650	279,000
2010	654	1,540	20	0	13	688	295,000
2011	702	1,560	20	0	14	736	316,000
2012	740	1,580	21	0	15	775	333,000
2015	793	1,640	21	0	16	830	356,000
2020	886	1,740	23	0	18	926	398,000
2025	937	1,840	24	0	19	979	420,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25)+(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	81,200	24,000,000	2,320,000	18,908,000	20,675,000	65,903,000	1.16	76,291,000	22,887,000	99,178,000	1,200
2003	101,500	24,000,000	2,900,000	23,635,000	23,249,000	73,784,000	1.22	89,685,000	28,823,000	118,508,000	1,200
2004	123,200	36,000,000	3,520,000	28,688,000	26,000,000	94,208,000	1.28	120,236,000	43,776,000	164,012,000	1,300
2005	145,600	36,000,000	4,160,000	33,904,000	28,841,000	102,905,000	1.34	137,903,000	51,756,000	189,659,000	1,300
2006	158,900	36,000,000	4,540,000	37,001,000	30,527,000	108,068,000	1.41	152,063,000	56,748,000	208,811,000	1,300
2007	170,800	36,000,000	4,880,000	39,772,000	32,036,000	112,688,000	1.48	166,491,000	73,003,000	239,494,000	1,400
2008	182,700	36,000,000	5,220,000	42,543,000	33,545,000	117,308,000	1.55	181,983,000	78,287,000	260,270,000	1,400
2009	195,300	36,000,000	5,580,000	45,477,000	35,144,000	122,201,000	1.63	199,053,000	83,808,000	282,861,000	1,400
2010	206,500	36,000,000	5,900,000	48,085,000	36,564,000	126,549,000	1.71	216,442,000	104,038,000	320,480,000	1,600
2011	221,200	36,000,000	6,320,000	51,508,000	38,427,000	132,255,000	1.80	237,511,000	111,552,000	349,063,000	1,600
2012	233,100	36,000,000	6,660,000	54,279,000	39,936,000	136,875,000	1.89	258,098,000	117,650,000	375,748,000	1,600
									Total	2,608,084,000	1,400

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)={(34)+(35)+(36)+(37)+(38)+(39)} *0.5	(41)=(34)+(35)+(36)+(37)+(38)+(39)+(40)
2002	1	804,000	324,000	116000	6,865,000	150,000	240,000	5,400,000	6,892,000	20,675,000
2003	1	804,000	324,000	145000	8,581,000	150,000	240,000	5,400,000	7,750,000	23,249,000
2004	1	804,000	324,000	176000	10,415,000	150,000	240,000	5,400,000	8,667,000	26,000,000
2005	1	804,000	324,000	208000	12,309,000	150,000	240,000	5,400,000	9,614,000	28,841,000
2006	1	804,000	324,000	227000	13,433,000	150,000	240,000	5,400,000	10,176,000	30,527,000
2007	1	804,000	324,000	244000	14,439,000	150,000	240,000	5,400,000	10,679,000	32,036,000
2008	1	804,000	324,000	261000	15,445,000	150,000	240,000	5,400,000	11,182,000	33,545,000
2009	1	804,000	324,000	279000	16,511,000	150,000	240,000	5,400,000	11,715,000	35,144,000
2010	1	804,000	324,000	295000	17,458,000	150,000	240,000	5,400,000	12,188,000	36,564,000
2011	1	804,000	324,000	316000	18,700,000	150,000	240,000	5,400,000	12,809,000	38,427,000
2012	1	804,000	324,000	333000	19,706,000	150,000	240,000	5,400,000	13,312,000	39,936,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)
	(42)	(43)=(42)*{(7)+(13)}/0.85*0.7*365	(44)	(45)=(44)*{(8)+(15)}/0.85*0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)}/0.85*0.7*365	(48)=(43)+(45)+(47)
2002	1,500	89,599,000	1,000	14,518,000	1,500	10,316,000	114,433,000
2003	2,000	152,708,000	1,400	24,744,000	2,000	14,703,000	192,155,000
2004	2,500	236,637,000	1,700	35,555,000	2,500	19,651,000	291,843,000
2005	2,500	284,381,000	1,700	39,735,000	2,500	20,924,000	345,040,000
2006	2,500	315,241,000	1,700	41,294,000	2,500	21,782,000	378,317,000
2007	3,000	409,192,000	2,000	50,448,000	3,000	27,047,000	486,687,000
2008	3,000	441,580,000	2,000	52,347,000	3,000	27,986,000	521,913,000
2009	3,000	475,484,000	2,000	54,279,000	3,000	28,957,000	558,720,000
2010	3,500	593,760,000	2,400	64,992,000	3,500	34,833,000	693,585,000
2011	3,500	641,011,000	2,400	66,568,000	3,500	36,098,000	743,677,000
2012	3,500	678,997,000	2,400	68,162,000	3,500	37,177,000	784,336,000
							5,110,706,000

Total Annual Saving (VND)	Cumulative Saving (VND)
(49)=(48)-(31)	(50)
15,255,000	15,255,000
73,647,000	88,902,000
127,831,000	216,733,000
155,381,000	372,114,000
169,506,000	541,620,000
247,193,000	788,813,000
261,643,000	1,050,456,000
275,859,000	1,326,315,000
373,105,000	1,699,420,000
394,614,000	2,094,034,000
408,588,000	2,502,622,000
2,502,622,000	

Province: Thanh Hoa
Commune: Thie Hung

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(3)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50]dc	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	7,200	50	3,600	80	2,880	80	207	14	20	720	0		0	100	36	258
2003	7,300	60	4,380	80	3,504	84	265	18	20	876	0		0	100	44	326
2004	7,400	70	5,180	80	4,144	88	328	21	20	1,036	0		0	100	52	401
2005	7,500	80	6,000	80	4,800	90	389	24	20	1,200	5	90	5	95	57	475
2006	7,600	82	6,232	80	4,986	96	431	25	20	1,246	5	96	6	95	59	521
2007	7,700	84	6,468	80	5,174	100	466	26	20	1,294	5	100	6	95	61	559
2008	7,800	86	6,708	80	5,366	104	502	27	20	1,342	5	104	7	95	64	600
2009	7,900	88	6,952	80	5,562	108	541	28	20	1,390	5	108	8	95	66	642
2010	8,000	90	7,200	80	5,760	110	570	29	20	1,440	10	112	16	90	65	680
2011	8,100	91	7,371	80	5,897	116	616	29	20	1,474	10	116	17	90	66	729
2012	8,200	92	7,544	80	6,035	120	652	30	20	1,509	10	120	18	90	68	768
2015	8,500	95	8,075	80	6,460	120	698	32	20	1,615	10	120	19	90	73	822
2020	9,000	100	9,000	80	7,200	120	778	36	20	1,800	10	120	22	90	81	916
2025	9,500	100	9,500	80	7,600	120	821	38	20	1,900	10	120	23	90	86	967

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	258	1,440	19	0	5	282	121,000
2003	326	1,460	19	0	7	352	151,000
2004	401	1,480	19	0	8	428	184,000
2005	475	1,500	20	0	10	504	217,000
2006	521	1,520	20	0	10	551	237,000
2007	559	1,540	20	0	11	591	254,000
2008	600	1,560	20	0	12	632	271,000
2009	642	1,580	21	0	13	675	290,000
2010	680	1,600	21	0	14	714	307,000
2011	729	1,620	21	0	15	764	328,000
2012	768	1,640	21	0	15	805	346,000
2015	822	1,700	22	0	16	861	370,000
2020	916	1,800	23	0	18	958	411,000
2025	967	1,900	25	0	19	1,011	434,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25)+(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	84,700	24,000,000	2,420,000	19,723,000	21,119,000	67,262,000	1.16	77,864,000	23,882,000	101,746,000	1,200
2003	105,700	24,000,000	3,020,000	24,613,000	23,781,000	75,414,000	1.22	91,666,000	30,059,000	121,725,000	1,200
2004	128,800	36,000,000	3,680,000	29,992,000	26,711,000	96,383,000	1.28	123,012,000	45,626,000	168,638,000	1,300
2005	151,900	36,000,000	4,340,000	35,371,000	29,640,000	105,351,000	1.34	141,180,000	53,913,000	195,093,000	1,300
2006	165,900	36,000,000	4,740,000	38,631,000	31,415,000	110,786,000	1.41	155,887,000	59,080,000	214,967,000	1,300
2007	177,800	36,000,000	5,080,000	41,402,000	32,924,000	115,406,000	1.48	170,507,000	75,963,000	246,470,000	1,400
2008	189,700	36,000,000	5,420,000	44,173,000	34,433,000	120,026,000	1.55	186,200,000	81,419,000	267,619,000	1,400
2009	203,000	36,000,000	5,800,000	47,270,000	36,120,000	125,190,000	1.63	203,921,000	87,116,000	291,037,000	1,400
2010	214,900	36,000,000	6,140,000	50,041,000	37,629,000	129,810,000	1.71	222,019,000	108,091,000	330,110,000	1,500
2011	229,600	36,000,000	6,560,000	53,464,000	39,492,000	135,516,000	1.80	243,367,000	115,842,000	359,209,000	1,600
2012	242,200	36,000,000	6,920,000	56,398,000	41,091,000	140,409,000	1.89	264,762,000	122,118,000	386,880,000	1,600
									Total	2,683,494,000	1,400

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)=((34)+(35)+(36)+(37)+(38)+(39)) *0.5	(41)=(34)+(35)+(36)+(37)+(38)+(39)+(40)
2002	1	804,000	324,000	121000	7,161,000	150,000	240,000	5,400,000	7,040,000	21,119,000
2003	1	804,000	324,000	151000	8,936,000	150,000	240,000	5,400,000	7,927,000	23,781,000
2004	1	804,000	324,000	184000	10,889,000	150,000	240,000	5,400,000	8,904,000	26,711,000
2005	1	804,000	324,000	217000	12,842,000	150,000	240,000	5,400,000	9,880,000	29,640,000
2006	1	804,000	324,000	237000	14,025,000	150,000	240,000	5,400,000	10,472,000	31,415,000
2007	1	804,000	324,000	254000	15,031,000	150,000	240,000	5,400,000	10,975,000	32,924,000
2008	1	804,000	324,000	271000	16,037,000	150,000	240,000	5,400,000	11,478,000	34,433,000
2009	1	804,000	324,000	290000	17,162,000	150,000	240,000	5,400,000	12,040,000	36,120,000
2010	1	804,000	324,000	307000	18,168,000	150,000	240,000	5,400,000	12,543,000	37,629,000
2011	1	804,000	324,000	328000	19,410,000	150,000	240,000	5,400,000	13,164,000	39,492,000
2012	1	804,000	324,000	346000	20,476,000	150,000	240,000	5,400,000	13,697,000	41,091,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)
	(42)	(43)=(42)*{(7)+(13)}/0.85*0.7*365	(44)	(45)=(44)*{(8)+(15)}/0.85*0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)}/0.85*0.7*365	(48)=(43)+(45)+(47)
2002	1,500	93,495,000	1,000	15,150,000	1,500	10,765,000	119,410,000
2003	2,000	159,253,000	1,400	25,805,000	2,000	15,333,000	200,391,000
2004	2,500	246,636,000	1,700	37,058,000	2,500	20,481,000	304,175,000
2005	2,500	296,230,000	1,700	41,391,000	2,500	21,796,000	359,417,000
2006	2,500	328,196,000	1,700	42,991,000	2,500	22,677,000	393,864,000
2007	3,000	425,781,000	2,000	52,494,000	3,000	28,144,000	506,419,000
2008	3,000	459,243,000	2,000	54,441,000	3,000	29,106,000	542,790,000
2009	3,000	494,253,000	2,000	56,422,000	3,000	30,100,000	580,775,000
2010	3,500	616,894,000	2,400	67,524,000	3,500	36,190,000	720,608,000
2011	3,500	665,666,000	2,400	69,128,000	3,500	37,486,000	772,280,000
2012	3,500	704,782,000	2,400	70,750,000	3,500	38,589,000	814,121,000
							5,314,250,000

Total Annual Saving (VND)	Cumulative Saving (VND)
(49)=(48)-(31)	(50)
17,664,000	17,664,000
78,666,000	96,330,000
135,537,000	231,867,000
164,324,000	396,191,000
178,897,000	575,088,000
259,949,000	835,037,000
275,171,000	1,110,208,000
289,738,000	1,399,946,000
390,498,000	1,790,444,000
413,071,000	2,203,515,000
427,241,000	2,630,756,000
2,630,756,000	

Province: Thanh Hoa
Commune Thieu Do

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50/dc	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	7,500	50	3,750	80	3,000	80	216	15	20	750	0		0	100	38	269
2003	7,600	60	4,560	80	3,648	84	276	18	20	912	0		0	100	46	340
2004	7,700	70	5,390	80	4,312	88	342	22	20	1,078	0		0	100	54	417
2005	7,800	80	6,240	80	4,992	90	404	25	20	1,248	5	90	6	95	59	494
2006	7,900	82	6,478	80	5,182	96	448	26	20	1,296	5	96	6	95	62	542
2007	8,000	84	6,720	80	5,376	100	484	27	20	1,344	5	100	7	95	64	582
2008	8,100	86	6,966	80	5,573	104	522	28	20	1,393	5	104	7	95	66	623
2009	8,200	88	7,216	80	5,773	108	561	29	20	1,443	5	108	8	95	69	666
2010	8,300	90	7,470	80	5,976	110	592	30	20	1,494	10	112	17	90	67	705
2011	8,400	91	7,644	80	6,115	116	638	31	20	1,529	10	116	18	90	69	756
2012	8,500	92	7,820	80	6,256	120	676	31	20	1,564	10	120	19	90	70	796
2015	8,800	95	8,360	80	6,688	120	722	33	20	1,672	10	120	20	90	75	851
2020	9,300	100	9,300	80	7,440	120	804	37	20	1,860	10	120	22	90	84	947
2025	9,800	100	9,800	80	7,840	120	847	39	20	1,960	10	120	24	90	88	998

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	269	1,500	20	0	5	293	126,000
2003	340	1,520	20	0	7	366	157,000
2004	417	1,540	20	0	8	445	191,000
2005	494	1,560	20	0	10	524	225,000
2006	541	1,580	21	0	11	573	246,000
2007	581	1,600	21	0	12	614	264,000
2008	623	1,620	21	0	12	656	282,000
2009	666	1,640	21	0	13	701	301,000
2010	705	1,660	22	0	14	741	318,000
2011	756	1,680	22	0	15	792	340,000
2012	796	1,700	22	0	16	834	358,000
2015	851	1,760	23	0	17	891	383,000
2020	947	1,860	24	0	19	990	425,000
2025	998	1,960	25	0	20	1,043	448,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND)	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25)+(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	88,200	24,000,000	2,520,000	20,538,000	21,561,000	68,619,000	1.16	79,435,000	24,877,000	104,312,000	1,200
2003	109,900	24,000,000	3,140,000	25,591,000	24,314,000	77,045,000	1.22	93,649,000	31,294,000	124,943,000	1,100
2004	133,700	36,000,000	3,820,000	31,133,000	27,332,000	98,285,000	1.28	125,439,000	47,476,000	172,915,000	1,300
2005	157,500	36,000,000	4,500,000	36,675,000	30,350,000	107,525,000	1.34	144,094,000	56,069,000	200,163,000	1,300
2006	172,200	36,000,000	4,920,000	40,098,000	32,214,000	113,232,000	1.41	159,329,000	61,412,000	220,741,000	1,300
2007	184,800	36,000,000	5,280,000	43,032,000	33,812,000	118,124,000	1.48	174,523,000	78,922,000	253,445,000	1,400
2008	197,400	36,000,000	5,640,000	45,966,000	35,409,000	123,015,000	1.55	190,837,000	84,550,000	275,387,000	1,400
2009	210,700	36,000,000	6,020,000	49,063,000	37,097,000	128,180,000	1.63	208,792,000	90,424,000	299,216,000	1,400
2010	222,600	36,000,000	6,360,000	51,834,000	38,606,000	132,800,000	1.71	227,133,000	112,145,000	339,278,000	1,500
2011	238,000	36,000,000	6,800,000	55,420,000	40,559,000	138,779,000	1.80	249,227,000	120,132,000	369,359,000	1,600
2012	250,600	36,000,000	7,160,000	58,354,000	42,156,000	143,670,000	1.89	270,911,000	126,586,000	397,497,000	1,600
									Total	2,757,256,000	1,400

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000*(22)/365/1000	(37)	(38)	(39)	(40)=((34)+(35)+(36)+(37)+(38)+(39))*0.5	(41)=(34)+(35)+(36)+(37)+(38)+(39)+(40)
2002	1	804,000	324,000	126000	7,456,000	150,000	240,000	5,400,000	7,187,000	21,561,000
2003	1	804,000	324,000	157000	9,291,000	150,000	240,000	5,400,000	8,105,000	24,314,000
2004	1	804,000	324,000	191000	11,303,000	150,000	240,000	5,400,000	9,111,000	27,332,000
2005	1	804,000	324,000	225000	13,315,000	150,000	240,000	5,400,000	10,117,000	30,350,000
2006	1	804,000	324,000	246000	14,558,000	150,000	240,000	5,400,000	10,738,000	32,214,000
2007	1	804,000	324,000	264000	15,623,000	150,000	240,000	5,400,000	11,271,000	33,812,000
2008	1	804,000	324,000	282000	16,688,000	150,000	240,000	5,400,000	11,803,000	35,409,000
2009	1	804,000	324,000	301000	17,813,000	150,000	240,000	5,400,000	12,366,000	37,097,000
2010	1	804,000	324,000	318000	18,819,000	150,000	240,000	5,400,000	12,869,000	38,606,000
2011	1	804,000	324,000	340000	20,121,000	150,000	240,000	5,400,000	13,520,000	40,559,000
2012	1	804,000	324,000	358000	21,186,000	150,000	240,000	5,400,000	14,052,000	42,156,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)
	(42)	(43)=(42)*((7)+(13))/0.85*0.7*365	(44)	(45)=(44)*((8)+(15))/0.85*0.7*365	(46)	(47)=(44)*((18)+(19)+(20))/0.85*0.7*365	(48)=(43)+(45)+(47)
2002	1,500	97,391,000	1,000	15,781,000	1,500	11,213,000	124,385,000
2003	2,000	165,798,000	1,400	26,865,000	2,000	15,963,000	208,626,000
2004	2,500	256,635,000	1,700	38,560,000	2,500	21,311,000	316,506,000
2005	2,500	308,079,000	1,700	43,047,000	2,500	22,667,000	373,793,000
2006	2,500	341,151,000	1,700	44,688,000	2,500	23,573,000	409,412,000
2007	3,000	442,370,000	2,000	54,539,000	3,000	29,240,000	526,149,000
2008	3,000	476,906,000	2,000	56,535,000	3,000	30,225,000	563,666,000
2009	3,000	513,022,000	2,000	58,564,000	3,000	31,243,000	602,829,000
2010	3,500	640,027,000	2,400	70,056,000	3,500	37,547,000	747,630,000
2011	3,500	690,320,000	2,400	71,688,000	3,500	38,874,000	800,882,000
2012	3,500	730,566,000	2,400	73,339,000	3,500	40,001,000	843,906,000
							5,517,784,000

Total Annual Saving (VND)	Cumulative Saving (VND)
(49)=(48)-(31)	(50)
20,073,000	20,073,000
83,683,000	103,756,000
143,591,000	247,347,000
173,630,000	420,977,000
188,671,000	609,648,000
272,704,000	882,352,000
288,279,000	1,170,631,000
303,613,000	1,474,244,000
408,352,000	1,882,596,000
431,523,000	2,314,119,000
446,409,000	2,760,528,000
2,760,528,000	

Province: Thanh Hoa
Commune Van Thang

Domestic Water Demand

Year	Population	Share of Population Served (%)	Population Served	Share of Population in Densely Populated Area (%)	Population in Densely Populated Area	Unit Water demand (l/d/c)	Demand of HC Water in densely populated Area (m3/d)	Demand of PT Water in densely populated Area (m3/d)	Share of Population in Sparsely Populated Area (%)	Population in sparsely Populated Area	Share of HC (%)	Unit Water demand (l/d/c)	Demand of HC in Sparsely Populated Area (m3/d)	Share of PT (%)	Demand of PT in Sparsely Populated Area (m3/d)	Total Water Demand (m3/d)
	(1)	(2)	(3)=(1)*(2)	(4)	(5)=(3)*(4)	(6)	(7)=(5)*90%*(6)	(8)=(5)*10%*50/dc	(9)	(10)=(3)-(4)	(11)	(12)	(13)=(10)*(11)*(12)	(14)=1-(11)	(15)=(10)*(14)*50 l/d/c	(16)=(7)+(8)+(13)+(15)
2002	7,100	50	3,550	80	2,840	80	204	14	20	710	0		0	100	36	254
2003	7,200	60	4,320	80	3,456	84	261	17	20	864	0		0	100	43	322
2004	7,300	70	5,110	80	4,088	88	324	20	20	1,022	0		0	100	51	395
2005	7,400	80	5,920	80	4,736	90	384	24	20	1,184	5	90	5	95	56	469
2006	7,500	82	6,150	80	4,920	96	425	25	20	1,230	5	96	6	95	58	514
2007	7,600	84	6,384	80	5,107	100	460	26	20	1,277	5	100	6	95	61	552
2008	7,700	86	6,622	80	5,298	104	496	26	20	1,324	5	104	7	95	63	592
2009	7,800	88	6,864	80	5,491	108	534	27	20	1,373	5	108	7	95	65	634
2010	7,900	90	7,110	80	5,688	110	563	28	20	1,422	10	112	16	90	64	671
2011	8,000	91	7,280	80	5,824	116	608	29	20	1,456	10	116	17	90	66	720
2012	8,100	92	7,452	80	5,962	120	644	30	20	1,490	10	120	18	90	67	759
2015	8,400	95	7,980	80	6,384	120	689	32	20	1,596	10	120	19	90	72	812
2020	8,900	100	8,900	80	7,120	120	769	36	20	1,780	10	120	21	90	80	906
2025	9,400	100	9,400	80	7,520	120	812	38	20	1,880	10	120	23	90	85	957

Total Water Demand

Year	Average Domestic Water Demand (m3/day)	Average Non-domestic Water Demand				Total Water Demand (m3/day)	Total Water Supply incl. Water Loss (m3/year)
		Number of Students	Demand of School (m3/day)	Demand of Commerce (m3/day)	Miscellaneous Use (m3/day)		
	(16)	(17)=(1)*0.2	(18)=(17)*13/1000	(19)	(20)=(16)*0.02	(21)=(16)+(18)+(20)	(22)=(21)/0.85*365
2002	254	1,420	18	0	5	278	119,000
2003	322	1,440	19	0	6	347	149,000
2004	395	1,460	19	0	8	422	181,000
2005	469	1,480	19	0	9	497	214,000
2006	514	1,500	20	0	10	544	234,000
2007	552	1,520	20	0	11	583	250,000
2008	592	1,540	20	0	12	624	268,000
2009	634	1,560	20	0	13	667	286,000
2010	671	1,580	21	0	13	705	303,000
2011	720	1,600	21	0	14	755	324,000
2012	759	1,620	21	0	15	795	341,000
2015	812	1,680	22	0	16	850	365,000
2020	906	1,780	23	0	18	947	407,000
2025	957	1,880	24	0	19	1,000	430,000

O/M Costs

Year	Annual Accounted-for Water (m3/year)	Staff Cost (VND/year)	Chemical cost (VND 20/m3)	Electricity Cost (VND 163,000 /1000m3)	Repair Cost (VND	Total Physical Cost (VND)	Price Index (5% / year)	Total Physical Cost w/ Price Escalation (VND)	Administration Cost (20% of Revenue, VND)	Total O/M Cost (VND)	Average Unit Cost (VND/m3)
	(23)=(22)*0.7	(24)	(25)=(22)*20	(26)=(22)*163	(41)	(27)=(24)+(25) +(26)+(41)	(28)	(29)=(27)*(28)	(30)=(48) *0.2	(31)=(29)+(30)	(32)=(31)/(23)
2002	83,300	24,000,000	2,380,000	19,397,000	31,794,000	77,571,000	1.16	89,798,000	23,550,000	113,348,000	1,400
2003	104,300	24,000,000	2,980,000	24,287,000	34,458,000	85,725,000	1.22	104,199,000	29,647,000	133,846,000	1,300
2004	126,700	36,000,000	3,620,000	29,503,000	37,298,000	106,421,000	1.28	135,823,000	45,010,000	180,833,000	1,400
2005	149,800	36,000,000	4,280,000	34,882,000	40,227,000	115,389,000	1.34	154,632,000	53,194,000	207,826,000	1,400
2006	163,800	36,000,000	4,680,000	38,142,000	42,003,000	120,825,000	1.41	170,013,000	58,302,000	228,315,000	1,400
2007	175,000	36,000,000	5,000,000	40,750,000	43,424,000	125,174,000	1.48	184,939,000	74,976,000	259,915,000	1,500
2008	187,600	36,000,000	5,360,000	43,684,000	45,021,000	130,065,000	1.55	201,774,000	80,375,000	282,149,000	1,500
2009	200,200	36,000,000	5,720,000	46,618,000	46,619,000	134,957,000	1.63	219,831,000	86,013,000	305,844,000	1,500
2010	212,100	36,000,000	6,060,000	49,389,000	48,128,000	139,577,000	1.71	238,724,000	106,740,000	345,464,000	1,600
2011	226,800	36,000,000	6,480,000	52,812,000	49,992,000	145,284,000	1.80	260,909,000	114,412,000	375,321,000	1,700
2012	238,700	36,000,000	6,820,000	55,583,000	51,501,000	149,904,000	1.89	282,666,000	120,629,000	403,295,000	1,700
									Total	2,836,156,000	1,500

Breakdown of Repair Costs

Year	Number of Well	Repair of Well Pump	Repair of Distribution Pump	Total Annual Water Supply (m3/year)	Repair of Service Pipe	Power Receiving Equipment	Sludge Treatment	Water Quality Examination	Other repair costs (50% of all repair cost)	Total Repair Cost
	(33)	(34)=1,608,000 *(33)	(35)	(22)	(36)=21,600,000 *(22)/365/1000	(37)	(38)	(39)	(40)={(34)+(35)+(36)+(37) +(38)+(39)} *0.5	(41)=(34)+(35) +(36)+(37) +(38)+(39)+(40)
2002	5	8,040,000	324,000	119000	7,042,000	150,000	240,000	5,400,000	10,598,000	31,794,000
2003	5	8,040,000	324,000	149000	8,818,000	150,000	240,000	5,400,000	11,486,000	34,458,000
2004	5	8,040,000	324,000	181000	10,711,000	150,000	240,000	5,400,000	12,433,000	37,298,000
2005	5	8,040,000	324,000	214000	12,664,000	150,000	240,000	5,400,000	13,409,000	40,227,000
2006	5	8,040,000	324,000	234000	13,848,000	150,000	240,000	5,400,000	14,001,000	42,003,000
2007	5	8,040,000	324,000	250000	14,795,000	150,000	240,000	5,400,000	14,475,000	43,424,000
2008	5	8,040,000	324,000	268000	15,860,000	150,000	240,000	5,400,000	15,007,000	45,021,000
2009	5	8,040,000	324,000	286000	16,925,000	150,000	240,000	5,400,000	15,540,000	46,619,000
2010	5	8,040,000	324,000	303000	17,931,000	150,000	240,000	5,400,000	16,043,000	48,128,000
2011	5	8,040,000	324,000	324000	19,174,000	150,000	240,000	5,400,000	16,664,000	49,992,000
2012	5	8,040,000	324,000	341000	20,180,000	150,000	240,000	5,400,000	17,167,000	51,501,000

Revenues

Year	Water Tariff for HC (VND/m3)	Annual Revenue from HC (VND)	Water Tariff for PT (VND/m3)	Annual Revenue from PT (VND)	Water Tariff for non-domestic Use (VND)	Annual Revenue from non-domestic use (VND)	Total Annual Revenue (VND)
	(42)	(43)=(42)*{(7) +(13))/0.85* 0.7*365	(44)	(45)=(44)*{(8) +(15))/0.85* 0.7*365	(46)	(47)=(44)*{(18)+(19)+(20)} /0.85*0.7*365	(48)=(43)+(45) +(47)
2002	1,500	92,196,000	1,000	14,939,000	1,500	10,615,000	117,750,000
2003	2,000	157,072,000	1,400	25,451,000	2,000	15,123,000	197,646,000
2004	2,500	243,303,000	1,700	36,557,000	2,500	20,204,000	300,064,000
2005	2,500	292,280,000	1,700	40,839,000	2,500	21,505,000	354,624,000
2006	2,500	323,878,000	1,700	42,426,000	2,500	22,379,000	388,683,000
2007	3,000	420,251,000	2,000	51,812,000	3,000	27,778,000	499,841,000
2008	3,000	453,355,000	2,000	53,743,000	3,000	28,733,000	535,831,000
2009	3,000	487,997,000	2,000	55,707,000	3,000	29,719,000	573,423,000
2010	3,500	609,182,000	2,400	66,680,000	3,500	35,738,000	711,600,000
2011	3,500	657,448,000	2,400	68,274,000	3,500	37,023,000	762,745,000
2012	3,500	696,187,000	2,400	69,887,000	3,500	38,118,000	804,192,000
							5,246,399,000

Total Annual Saving (VND)	Cumulative Saving (VND)
(49)=(48)-(31)	(50)
4,402,000	4,402,000
63,800,000	68,202,000
119,231,000	187,433,000
146,798,000	334,231,000
160,368,000	494,599,000
239,926,000	734,525,000
253,682,000	988,207,000
267,579,000	1,255,786,000
366,136,000	1,621,922,000
387,424,000	2,009,346,000
400,897,000	2,410,243,000
2,410,243,000	