

Table 4.2 [contd]

		NYERI WATER SUPPLY - FINANCIAL PROJECTIONS - DISCOUNT RATES AND DISCOUNTED COSTS											
Year	No	Required Discount Rates			Discounted Costs (KShs.)			Discounted Output (m ³ /day)			NPV	NPV	
		5%	7%	10%	5%	7%	10%	5%	7%	10%			
1	15	16	17	18	19	20	21	22	23	24	25	26	27
1995	0	1.000	1.000	1.000	810,138,030	810,138,030	810,138,030	810,138,030	810,138,030	17,876	17,876	17,876	17,876
1996	1	0.952	0.935	0.909	93,799,832	92,046,564	89,536,203	87,937,343	87,679	17,348	17,679	16,875	16,574
1997	2	0.907	0.873	0.826	90,945,773	87,577,705	82,865,880	79,932,808	79,483	17,483	17,290	16,339	15,366
1998	3	0.864	0.816	0.751	88,209,806	83,355,341	76,719,667	72,682,640	72,290	17,290	16,339	15,038	14,247
1999	4	0.823	0.763	0.683	85,586,504	79,364,699	71,054,526	66,113,537	66,099	17,099	15,856	14,196	13,209
2000	5	0.784	0.713	0.621	83,070,698	75,591,936	65,831,072	60,159,503	60,110	16,910	15,388	13,401	12,246
2001	6	0.746	0.666	0.564	80,657,461	72,024,072	61,013,260	54,761,105	54,723	16,723	14,933	12,650	11,354
2002	7	0.711	0.623	0.513	78,342,098	68,648,942	56,568,088	49,864,806	49,539	16,539	14,492	11,942	10,527
2003	8	0.677	0.582	0.467	76,458,558	65,746,142	52,698,592	45,624,311	45,356	16,356	14,064	11,273	9,760
2004	9	0.645	0.544	0.424	73,987,320	62,431,963	48,677,338	41,390,320	41,175	16,175	13,649	10,642	9,049
2005	10	0.614	0.508	0.386	71,939,581	59,569,385	45,178,733	37,729,467	37,246	15,996	13,246	10,046	8,390
2006	11	0.585	0.475	0.350	69,973,054	56,857,998	41,946,292	34,404,470	34,855	15,820	12,855	9,483	7,778
2007	12	0.557	0.444	0.319	68,084,050	54,288,974	38,958,726	31,383,451	31,645	15,645	12,475	8,952	7,212
2008	13	0.530	0.415	0.290	66,269,056	51,854,036	36,196,516	28,637,650	28,472	15,472	12,107	8,451	6,886
2009	14	0.505	0.388	0.263	64,524,725	49,545,414	33,641,764	26,141,111	26,301	15,301	11,749	7,978	6,199
2010	15	0.481	0.362	0.239	62,847,865	47,355,819	31,278,055	23,870,399	23,802	15,132	11,402	7,531	5,747
2011	16	0.458	0.339	0.218	61,339,450	45,938,473	29,068,340	22,274,062	22,665	14,965	11,065	7,109	5,329
2012	17	0.436	0.317	0.198	60,046,105	44,648,272	30,402,968	22,381,297	22,800	14,800	10,739	6,711	4,940
2013	18	0.416	0.296	0.180	58,245,449	42,456,834	28,418,940	20,418,940	20,636	14,636	10,421	6,335	4,580
2014	19	0.396	0.277	0.164	56,515,161	40,379,490	26,242,975	18,635,097	18,815	14,474	10,114	5,981	4,247
2015	20	0.377	0.258	0.149	54,852,059	38,409,640	24,394,192	17,012,952	17,315	14,315	9,815	5,646	3,937
2016	21	0.359	0.242	0.135	53,253,111	36,541,090	22,683,411	15,537,326	15,566	14,156	9,525	5,329	3,650
2017	22	0.342	0.226	0.123	51,715,429	34,768,028	21,099,771	14,194,507	14,000	14,000	9,244	5,031	3,385
2018	23	0.326	0.211	0.112	50,236,261	33,084,997	19,633,303	12,972,110	13,845	13,845	8,971	4,749	3,138
2019	24	0.310	0.197	0.102	48,812,981	31,486,873	18,274,856	11,858,939	13,692	13,692	8,706	4,483	2,909
2020	25	0.295	0.184	0.092	47,443,090	30,968,846	17,016,025	10,844,878	13,541	13,541	8,449	4,232	2,697
					2,633,293,509	2,276,079,565	1,909,360,182	1,738,901,060	405,922	327,662	247,871	211,032	

Table 4.3
 OPTION B1 - NYERI WATER SUPPLY - FINANCIAL PROJECTIONS - OUTPUT, INVESTMENT AND EXPENDITURE

Year	OUTPUT at 3.84 % /year	Pump- ing hrs.	Power Req'd at 3.90/KWh	Demand /KVA 250/=	Monthly Charge 480/=	Energy Cost	Pipelines		Pumps		Structures		Treatment		Admin- stration Costs	Personnel Costs	Annual Invest- ment Cost	Annual Operat'n Cost	Annual Total Cost	Annual Maint'n Cost	Total
							Capital Cost	Capacity increase Cost	Replac- ment Cost	Capital Cost	Maint. Cost	Alum 40 mg/l	Soda Ash 15 mg/l	TCL 5 mg/l							
1995	17,876	13.6	508.2	17,361,718	1,905,703	5,760	19,273,181	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,134,636	1,468,067	7,014,096	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
1996	18,562	14.2	510.4	17,438,054	1,914,882	5,760	19,445,864	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,145,406	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
1997	19,275	14.7	512.7	17,517,321	1,922,783	5,760	19,537,210	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,149,646	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
1998	20,015	15.3	515.2	17,599,633	1,931,818	5,760	19,629,098	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,153,886	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
1999	20,784	15.9	517.7	17,685,105	1,941,200	5,760	19,720,560	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,158,126	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2000	21,582	16.5	520.3	17,773,859	1,950,942	5,760	19,812,022	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,162,366	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2001	22,411	17.1	522.9	17,866,021	1,961,058	5,760	19,903,484	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,166,606	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2002	23,271	17.8	525.7	17,961,722	1,971,562	5,760	20,000,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,170,846	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2003	24,165	18.4	528.7	18,061,099	1,982,470	5,760	20,100,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,175,086	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2004	25,093	19.1	531.7	18,164,291	1,993,797	5,760	20,200,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,179,326	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2005	26,057	19.9	534.8	18,271,446	2,005,559	5,760	20,300,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,183,566	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2006	27,057	20.6	538.1	18,382,715	2,017,773	5,760	20,400,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,187,806	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2007	28,096	21.4	541.5	18,498,258	2,030,455	5,760	20,500,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,192,046	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2008	29,175	22.3	545.0	18,618,237	2,043,625	5,760	20,600,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,196,286	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2009	30,295	23.1	548.6	18,742,823	2,057,300	5,760	20,700,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,200,526	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2010	31,459	24.0	552.4	18,872,194	2,071,500	5,760	20,800,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,204,766	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2011	32,667	24.0	552.4	18,872,194	2,071,500	5,760	20,800,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,204,766	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2012	33,921	24.0	552.4	18,872,194	2,071,500	5,760	20,800,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,204,766	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2013	35,224	24.0	552.4	18,872,194	2,071,500	5,760	20,800,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,204,766	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2014	36,576	24.0	552.4	18,872,194	2,071,500	5,760	20,800,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,204,766	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2015	37,981	24.0	552.4	18,872,194	2,071,500	5,760	20,800,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,204,766	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2016	39,439	24.0	552.4	18,872,194	2,071,500	5,760	20,800,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,204,766	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2017	40,954	24.0	552.4	18,872,194	2,071,500	5,760	20,800,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,204,766	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2018	42,526	24.0	552.4	18,872,194	2,071,500	5,760	20,800,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,204,766	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2019	44,159	24.0	552.4	18,872,194	2,071,500	5,760	20,800,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,204,766	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2020	45,855	24.0	552.4	18,872,194	2,071,500	5,760	20,800,000	353,398,950	7,067,979	901,125	113,400,000	1,134,000	9,204,766	1,582,979	7,283,437	16,525,000	5,735,119	573,511,860	59,150,098	10,363,271	10,363,271
2020	774,477	526,950,857	24,403,345	24,403,345	893	5,760	27,087,730	353,398,950	7,125,962	1,330,425	157,950,000	1,579,500	3,765,847	3,765,847	17,992,382	22,300,000	487,400,000	157,254,650	655,595,025	1,370,448,013	281,188,330
2010	385,174	288,814,494	19,280	19,280	57,840,584	92,160	149,760	353,398,950	7,125,962	2,120,175	667,500	1,579,500	3,765,847	3,765,847	17,992,382	22,300,000	487,400,000	157,254,650	655,595,025	1,370,448,013	281,188,330

Table 4.3 [contd]

NYERI WATER SUPPLY - FINANCIAL PROJECTIONS - AVERAGE INCREMENTAL FINANCIAL COSTS													
Year	INVESTMENT COSTS			REINVESTMENT COSTS		RECURRENT COSTS					TOTAL COSTS	OUTPUT at 3.84 % per year m3/day	A.I.F.C. K.shs/m3
	Existing Assets	New Project	Interest during Const.	Existing Assets	New Project	Personnel	Maintenance and Repairs	Energy	Treatment	Administration			
	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1995	47,600,000	573,511,860	-	7,500,000	-	16,525,000	8,247,035	19,273,181	112,825,881	5,735,119	791,218,076	17,876	121.3
1996	-	-	-	-	-	16,525,000	8,247,035	19,357,896	7,283,437	5,735,119	57,148,487	18,562	129.7
1997	-	-	-	-	-	16,525,000	8,247,035	19,445,864	7,563,121	5,735,119	57,516,139	19,275	137.9
1998	-	-	-	-	-	16,525,000	8,247,035	19,537,210	7,853,545	5,735,119	57,897,909	20,015	145.8
1999	-	-	-	-	-	16,525,000	8,247,035	19,632,064	8,155,121	5,735,119	58,294,339	20,784	153.5
2000	-	-	-	-	-	16,525,000	8,247,035	19,730,560	8,468,277	5,735,119	58,705,992	21,582	160.9
2001	-	-	-	-	-	16,525,000	8,247,035	19,832,839	8,793,459	5,735,119	59,133,452	22,411	168.2
2002	-	-	-	-	-	16,525,000	8,247,035	19,939,045	9,131,128	5,735,119	59,577,327	23,271	175.2
2003	-	-	-	500,000	-	16,525,000	8,247,035	20,049,329	9,481,763	5,735,119	60,538,246	24,165	182.0
2004	-	-	-	-	-	16,525,000	8,247,035	20,163,848	9,845,863	5,735,119	60,516,865	25,093	188.7
2005	-	-	-	-	-	16,525,000	8,247,035	20,282,765	10,223,944	5,735,119	61,013,863	26,057	195.1
2006	-	-	-	-	-	16,525,000	8,247,035	20,406,248	10,616,544	5,735,119	61,529,945	27,057	201.3
2007	-	-	-	-	-	16,525,000	8,247,035	20,534,473	11,024,219	5,735,119	62,065,845	28,096	207.3
2008	-	-	-	-	-	16,525,000	8,247,035	20,667,621	11,447,549	5,735,119	62,622,324	29,175	213.2
2009	-	-	-	-	-	16,525,000	8,247,035	20,805,883	11,887,135	5,735,119	63,200,171	30,295	218.9
2010	-	-	-	-	-	16,525,000	8,247,035	20,949,454	12,343,601	5,735,119	63,800,208	31,459	224.5
2011	-	81,415,665	-	2,000,000	2,000,000	22,300,000	8,766,414	25,841,353	45,565,085	6,549,275	194,437,792	32,667	240.8
2012	-	-	-	-	-	22,300,000	8,766,414	25,959,901	13,309,791	6,549,275	76,885,381	33,921	247.0
2013	-	-	-	-	-	22,300,000	8,766,414	26,083,001	13,820,887	6,549,275	77,519,577	35,224	253.0
2014	-	-	-	-	-	22,300,000	8,766,414	26,210,829	14,351,609	6,549,275	78,178,127	36,576	258.9
2015	-	-	-	-	-	22,300,000	8,766,414	26,343,565	14,902,710	6,549,275	78,861,965	37,981	264.6
2016	-	-	-	-	-	22,300,000	8,766,414	26,481,398	15,474,975	6,549,275	79,572,062	39,439	270.1
2017	-	-	-	-	-	22,300,000	8,766,414	26,624,524	16,069,214	6,549,275	80,309,427	40,954	275.5
2018	-	-	-	-	-	22,300,000	8,766,414	26,773,146	16,686,271	6,549,275	81,075,106	42,526	280.7
2019	-	-	-	-	-	22,300,000	8,766,414	26,927,475	17,327,024	6,549,275	81,870,188	44,159	285.8
2020	-	-	-	-	-	22,300,000	8,766,414	27,087,730	17,992,382	6,549,275	82,695,801	45,855	290.7
TOTALS	47,600,000	654,927,525	-	10,000,000	2,000,000	487,400,000	219,616,704	584,941,201	442,444,532	157,254,650	2,606,184,613	774,477	5,490.7

Discount Rate	Discounted Costs	Discounted Output	Cost/Output
5	1,412,048,588	96,176,256	14.68
7	1,334,538,579	84,174,150	15.85
10	1,243,251,644	70,176,302	17.72
12	1,195,049,512	62,859,784	19.01

YEAR 2010 WORKS

Discount Rate	Discounted Costs	Discounted Output	Cost/Output
5	1,759,755,485	148,161,438	11.88
7	1,575,497,103	119,596,747	13.17
10	1,384,843,028	90,472,851	15.31
12	1,295,540,157	77,026,609	16.82

YEAR 2020 WORKS

Table 4.3 [contd]

NYERI WATER SUPPLY - FINANCIAL PROJECTIONS - DISCOUNT RATES AND DISCOUNTED COSTS													
Year	No	Required Discount Rates				Discounted Costs (KShs)				Discounted Output (m ³ /day)			
		5 %	7 %	10 %	12 %	5 %	7 %	10 %	12 %	5 %	8 %	10 %	12 %
		(fill in above values)				NPV				NPV			
1	15	16	17	18	19	20	21	22	23	24	25	26	27
1995	0	1.000	1.000	1.000	1.000	791,218,076	791,218,076	791,218,076	791,218,076	17876	17876	17876	17876
1996	1	0.952	0.935	0.909	0.893	54,427,130	53,409,801	51,953,170	51,025,435	17679	17348	16875	16574
1997	2	0.907	0.873	0.826	0.797	52,168,834	50,236,823	47,533,999	45,851,514	17483	16836	15930	15366
1998	3	0.864	0.816	0.751	0.712	50,014,391	47,261,940	43,499,556	41,210,588	17290	16339	15038	14247
1999	4	0.823	0.763	0.683	0.636	47,958,897	44,472,472	39,815,818	37,047,106	17099	15856	14196	13209
2000	5	0.784	0.713	0.621	0.567	45,997,681	41,856,561	36,451,802	33,311,356	16910	15388	13401	12246
2001	6	0.746	0.666	0.564	0.507	44,126,292	39,403,116	33,379,292	29,958,847	16723	14933	12650	11354
2002	7	0.711	0.623	0.513	0.452	42,340,494	37,101,765	30,572,589	26,949,757	16539	14492	11942	10527
2003	8	0.677	0.582	0.467	0.404	40,974,668	35,233,810	28,241,539	24,450,382	16356	14064	11273	9760
2004	9	0.645	0.544	0.424	0.361	39,009,711	32,917,165	25,665,058	21,822,988	16175	13649	10642	9049
2005	10	0.614	0.508	0.386	0.322	37,457,219	31,016,354	23,523,485	19,644,831	15996	13246	10046	8390
2006	11	0.585	0.475	0.350	0.287	35,975,285	29,232,434	21,565,870	17,688,389	15820	12855	9483	7778
2007	12	0.557	0.444	0.319	0.257	34,560,585	27,557,978	19,776,091	15,930,757	15645	12475	8952	7212
2008	13	0.530	0.415	0.290	0.229	33,209,955	25,986,038	18,139,457	14,351,420	15472	12107	8451	6686
2009	14	0.505	0.388	0.263	0.205	31,920,381	24,510,116	16,642,580	12,932,007	15301	11749	7978	6199
2010	15	0.481	0.362	0.239	0.183	30,688,991	23,124,132	15,273,263	11,656,060	15132	11402	7531	5747
2011	16	0.458	0.339	0.218	0.163	29,574,193	21,862,807	14,139,329	10,571,016	14965	11065	7109	5329
2012	17	0.436	0.317	0.198	0.146	28,544,837	20,639,943	13,092,363	9,571,921	14800	10739	6711	4940
2013	18	0.416	0.296	0.180	0.130	27,560,985	19,525,246	12,092,577	8,600,614	14636	10421	6335	4580
2014	19	0.396	0.277	0.164	0.116	26,617,739	18,516,903	11,122,748	7,677,010	14474	10114	5981	4247
2015	20	0.377	0.258	0.149	0.104	25,722,245	17,579,430	10,222,329	6,775,365	14315	9815	5646	3937
2016	21	0.359	0.242	0.135	0.093	24,861,784	16,717,694	9,322,618	5,915,159	14156	9525	5329	3650
2017	22	0.342	0.226	0.123	0.083	24,023,767	15,926,895	8,465,690	5,106,973	14000	9244	5031	3385
2018	23	0.326	0.211	0.112	0.074	23,205,728	15,192,541	7,615,319	4,342,366	13845	8971	4749	3138
2019	24	0.310	0.197	0.102	0.066	22,407,318	14,514,431	6,765,920	3,613,780	13692	8706	4483	2909
2020	25	0.295	0.184	0.092	0.059	21,622,299	13,881,633	5,916,492	2,914,440	13541	8449	4232	2697
TOTALS		15	13	10	9	1,759,755,485	1,575,497,103	1,384,843,028	1,295,540,157	405,922	327,662	247,871	211,032

Table 4.4
 OPTION B2 - NYERI WATER SUPPLY - FINANCIAL PROJECTIONS - OUTPUT, INVESTMENT AND EXPENDITURE

Year	OUTPUT		Energy and Costs						Pipelines		Pumps		Structures		Treatment				Personnel		Admin-		Annual Investment Cost		Annual Operational Cost		Total Annual Maintenance Cost																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	increase %/year	at 3.84 ing hrs.	Pump- ing hrs.	Power Req'd at 3.90/kWh	Demand Monthly	Charge 480/=	Total Energy	Capital Maint.	Capacity Increase	Replac- ment	Cost at 5%	Capital Maint.	Cost at 1%	Capital	Maint.	at 2%	Alum 40 mg/l	Soda Ash 15 mg/l	TCL 5 mg/l	Personnel	Costs	Admin-	Annual	Invest-	Annual	Operat'n	Annual	Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
1995	17.876	13.6	1319.1	45,065,883	1649	4,946,642	5,760	50,018,285	6,024,537	2,356,425	117,821	1,236,600	123,660,000	1,236,600	136,966,275	2,739,326	9,134,636	1,468,067	7,014,096	19,545,000	5,642,096	564,209,550	564,209,550	92,822,178	10,118,284	10,118,284	69,358,510	10,118,284	10,118,284	71,148,117	73,006,445	74,936,133	76,939,921	79,020,654	81,181,288	83,424,889	85,754,645	88,173,864	90,685,980	93,294,582	96,003,314	98,816,081	101,628,284	104,440,487	107,252,690	110,064,893	112,877,096	115,689,299	118,501,502	121,313,705	124,125,908	126,938,111	129,750,314	132,562,517	135,374,720	138,186,923	141,000,126	143,812,329	146,624,532	149,436,735	152,248,938	155,061,141	157,873,344	160,685,547	163,497,750	166,309,953	169,122,156	171,934,359	174,746,562	177,558,765	180,370,968	183,183,171	186,000,374	188,812,577	191,624,780	194,436,983	197,249,186	200,061,389	202,873,592	205,685,795	208,497,998	211,310,201	214,122,404	216,934,607	219,746,810	222,559,013	225,371,216	228,183,419	231,000,622	233,812,825	236,625,028	239,437,231	242,249,434	245,061,637	247,873,840	250,686,043	253,498,246	256,310,449	259,122,652	261,934,855	264,747,058	267,559,261	270,371,464	273,183,667	276,000,870	278,813,073	281,625,276	284,437,479	287,249,682	290,061,885	292,874,088	295,686,291	298,498,494	301,310,697	304,122,900	306,935,103	309,747,306	312,559,509	315,371,712	318,183,915	321,000,118	323,812,321	326,624,524	329,436,727	332,248,930	335,061,133	337,873,336	340,685,539	343,497,742	346,309,945	349,122,148	351,934,351	354,746,554	357,558,757	360,370,960	363,183,163	366,000,366	368,812,569	371,624,772	374,436,975	377,249,178	380,061,381	382,873,584	385,685,787	388,497,990	391,310,193	394,122,396	396,934,599	399,746,802	402,559,005	405,371,208	408,183,411	411,000,614	413,812,817	416,625,020	419,437,223	422,249,426	425,061,629	427,873,832	430,686,035	433,498,238	436,310,441	439,122,644	441,934,847	444,747,050	447,559,253	450,371,456	453,183,659	456,000,862	458,813,065	461,625,268	464,437,471	467,249,674	470,061,877	472,874,080	475,686,283	478,498,486	481,310,689	484,122,892	486,935,095	489,747,298	492,559,501	495,371,704	498,183,907	501,000,110	503,812,313	506,624,516	509,436,719	512,248,922	515,061,125	517,873,328	520,685,531	523,497,734	526,309,937	529,122,140	531,934,343	534,746,546	537,558,749	540,370,952	543,183,155	546,000,358	548,812,561	551,624,764	554,436,967	557,249,170	560,061,373	562,873,576	565,685,779	568,497,982	571,310,185	574,122,388	576,934,591	579,746,794	582,558,997	585,371,200	588,183,403	591,000,606	593,812,809	596,625,012	599,437,215	602,249,418	605,061,621	607,873,824	610,686,027	613,498,230	616,310,433	619,122,636	621,934,839	624,747,042	627,559,245	630,371,448	633,183,651	636,000,854	638,813,057	641,625,260	644,437,463	647,249,666	650,061,869	652,874,072	655,686,275	658,498,478	661,310,681	664,122,884	666,935,087	669,747,290	672,559,493	675,371,696	678,183,899	681,000,102	683,812,305	686,624,508	689,436,711	692,248,914	695,061,117	697,873,320	700,685,523	703,497,726	706,309,929	709,122,132	711,934,335	714,746,538	717,558,741	720,370,944	723,183,147	726,000,350	728,812,553	731,624,756	734,436,959	737,249,162	740,061,365	742,873,568	745,685,771	748,497,974	751,310,177	754,122,380	756,934,583	759,746,786	762,558,989	765,371,192	768,183,395	771,000,598	773,812,801	776,625,004	779,437,207	782,249,410	785,061,613	787,873,816	790,686,019	793,498,222	796,310,425	799,122,628	801,934,831	804,747,034	807,559,237	810,371,440	813,183,643	816,000,846	818,813,049	821,625,252	824,437,455	827,249,658	830,061,861	832,874,064	835,686,267	838,498,470	841,310,673	844,122,876	846,935,079	849,747,282	852,559,485	855,371,688	858,183,891	861,000,094	863,812,297	866,624,500	869,436,703	872,248,906	875,061,109	877,873,312	880,685,515	883,497,718	886,309,921	889,122,124	891,934,327	894,746,530	897,558,733	900,370,936	903,183,139	906,000,342	908,812,545	911,624,748	914,436,951	917,249,154	920,061,357	922,873,560	925,685,763	928,497,966	931,310,169	934,122,372	936,934,575	939,746,778	942,558,981	945,371,184	948,183,387	951,000,590	953,812,793	956,624,996	959,437,199	962,249,402	965,061,605	967,873,808	970,686,011	973,498,214	976,310,417	979,122,620	981,934,823	984,747,026	987,559,229	990,371,432	993,183,635	996,000,838	998,813,041	1,001,625,244	1,004,437,447	1,007,249,650	1,010,061,853	1,012,874,056	1,015,686,259	1,018,498,462	1,021,310,665	1,024,122,868	1,026,935,071	1,029,747,274	1,032,559,477	1,035,371,680	1,038,183,883	1,041,000,086	1,043,812,289	1,046,624,492	1,049,436,695	1,052,248,898	1,055,061,101	1,057,873,304	1,060,685,507	1,063,497,710	1,066,309,913	1,069,122,116	1,071,934,319	1,074,746,522	1,077,558,725	1,080,370,928	1,083,183,131	1,086,000,334	1,088,812,537	1,091,624,740	1,094,436,943	1,097,249,146	1,100,061,349	1,102,873,552	1,105,685,755	1,108,497,958	1,111,310,161	1,114,122,364	1,116,934,567	1,119,746,770	1,122,558,973	1,125,371,176	1,128,183,379	1,131,000,582	1,133,812,785	1,136,624,988	1,139,437,191	1,142,249,394	1,145,061,597	1,147,873,800	1,150,686,003	1,153,498,206	1,156,310,409	1,159,122,612	1,161,934,815	1,164,747,018	1,167,559,221	1,170,371,424	1,173,183,627	1,176,000,830	1,178,813,033	1,181,625,236	1,184,437,439	1,187,249,642	1,190,061,845	1,192,874,048	1,195,686,251	1,198,498,454	1,201,310,657	1,204,122,860	1,206,935,063	1,209,747,266	1,212,559,469	1,215,371,672	1,218,183,875	1,221,000,078	1,223,812,281	1,226,624,484	1,229,436,687	1,232,248,890	1,235,061,093	1,237,873,296	1,240,685,499	1,243,497,702	1,246,309,905	1,249,122,108	1,251,934,311	1,254,746,514	1,257,558,717	1,260,370,920	1,263,183,123	1,266,000,326	1,268,812,529	1,271,624,732	1,274,436,935	1,277,249,138	1,280,061,341	1,282,873,544	1,285,685,747	1,288,497,950	1,291,310,153	1,294,122,356	1,296,934,559	1,299,746,762	1,302,558,965	1,305,371,168	1,308,183,371	1,311,000,574	1,313,812,777	1,316,624,980	1,319,437,183	1,322,249,386	1,325,061,589	1,327,873,792	1,330,685,995	1,333,498,198	1,336,310,401	1,339,122,604	1,341,934,807	1,344,747,010	1,347,559,213	1,350,371,416	1,353,183,619	1,356,000,822	1,358,813,025	1,361,625,228	1,364,437,431	1,367,249,634	1,370,061,837	1,372,874,040	1,375,686,243	1,378,498,446	1,381,310,649	1,384,122,852	1,386,935,055	1,389,747,258	1,392,559,461	1,395,371,664	1,398,183,867	1,401,000,070	1,403,812,273	1,406,624,476	1,409,436,679	1,412,248,882	1,415,061,085	1,417,873,288	1,420,685,491	1,423,497,694	1,426,309,897	1,429,122,100	1,431,934,303	1,434,746,506	1,437,558,709	1,440,370,912	1,443,183,115	1,446,000,318	1,448,812,521	1,451,624,724	1,454,436,927	1,457,249,130	1,460,061,333	1,462,873,536	1,465,685,739	1,468,497,942	1,471,310,145	1,474,122,348	1,476,934,551	1,479,746,754	1,482,558,957	1,485,371,160	1,488,183,363	1,491,000,566	1,493,812,769	1,496,624,972	1,499,437,175	1,502,249,378	1,505,061,581	1,507,873,784	1,510,685,987	1,513,498,190	1,516,310,393	1,519,122,596	1,521,934,799	1,524,746,999	1,527,559,202	1,530,371,405	1,533,183,608	1,536,000,811	1,538,813,014	1,541,625,217	1,544,437,420	1,547,249,623	1,550,061,826	1,552,874,029	1,555,686,232	1,558,498,435	1,561,310,638	1,564,122,841	1,566,935,044	1,569,747,247	1,572,559,450	1,575,371,653	1,578,183,856	1,581,000,059	1,583,812,262	1,586,624,465	1,589,436,668	1,592,248,871	1,595,061,074	1,597,873,277	1,600,685,480	1,603,497,683	1,606,309,886	1,609,122,089	1,611,934,292	1,614,746,495	1,617,558,698	1,620,370,901	1,623,183,104	1,626,000,307	1,628,812,510	1,631,624,713	1,634,436,916	1,637,249,119	1,640,061,322	1,642,873,525	1,645,685,728	1,648,497,931	1,651,310,134	1,654,122,337	1,656,934,540	1,659,746,743	1,662,558,946	1,665,371,149	1,668,183,352	1,671,000,555	1,673,812,758	1,676,624,961	1,679,437,164	1,682,249,367	1,685,061,570	1,687,873,773	1,690,685,976	1,693,498,179	1,696,310,382	1,699,122,585	1,701,934,788	1,704,746,991	1,707,559,194	1,710,371,397	1,713,183,600	1,716,000,803	1,718,813,006	1,721,625,209	1,724,437,412	1,727,249,615	1,730,061,818	1,732,874,021	1,735,686,224	1,738,498,427	1,741,310,630	1,744,122,833	1,746,935,036	1,749,747,239	1,752,559,442	1,755,371,645	1,758,183,848	1,761,000,051	1,763,812,254	1,766,624,457	1,769,436,660	1,772,248,863	1,775,061,066	1,777,873,269	1,780,685,472	1,783,497,675	1,786,309,878	1,789,122,081	1,791,934,284	1,794,746,487	1,797,558,690	1,800,370,893	1,803,183,096	1,806,000,299	1,808,812,502	1,811,624,705	1,814,436,908	1,817,249,111	1,820,061,314	1,822,873,517	1,825,685,720	1,828,

Table 4.4 [contd]

NYERI WATER SUPPLY - FINANCIAL PROJECTIONS - AVERAGE INCREMENTAL FINANCIAL COSTS													
Year	INVESTMENT COSTS			REINVESTMENT COSTS		RECURRENT COSTS					TOTAL COSTS	OUTPUT at 3.84 % per year m3/day	A.I.F.C. K.shs/m3
	Existing Assets	New Project	Interest during Const.	Existing Assets	New Project	Personnel	Maintenance and Repairs	Energy	Treatment	Administration			
	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1995	47,600,000	564,209,550	-	7,500,000	-	19,545,000	7,378,958	50,018,285	143,980,371	5,642,096	845,874,259	17,876	129.6
1996						19,545,000	7,378,958	51,065,227	7,283,437	5,642,096	90,914,718	18,562	143.1
1997						19,545,000	7,378,958	52,152,372	7,563,121	5,642,096	92,281,547	19,275	156.2
1998						19,545,000	7,378,958	53,281,264	7,853,545	5,642,096	93,700,862	20,015	169.0
1999						19,545,000	7,378,958	54,453,504	8,155,121	5,642,096	95,174,679	20,784	181.5
2000						19,545,000	7,378,958	55,670,759	8,468,277	5,642,096	96,705,090	21,582	193.8
2001						19,545,000	7,378,958	56,934,757	8,793,459	5,642,096	98,294,270	22,411	205.8
2002						19,545,000	7,378,958	58,247,292	9,131,128	5,642,096	99,944,473	23,271	217.6
2003				500,000		19,545,000	7,378,958	59,610,228	9,481,763	5,642,096	102,158,045	24,165	229.2
2004						19,545,000	7,378,958	61,025,501	9,845,863	5,642,096	103,437,418	25,093	240.5
2005						19,545,000	7,378,958	62,495,120	10,223,944	5,642,096	105,285,118	26,057	251.6
2006						19,545,000	7,378,958	64,021,173	10,616,544	5,642,096	107,203,771	27,057	262.4
2007						19,545,000	7,378,958	65,605,827	11,024,219	5,642,096	109,196,099	28,096	273.1
2008						19,545,000	7,378,958	67,251,331	11,447,549	5,642,096	111,264,933	29,175	283.5
2009						19,545,000	7,378,958	68,960,022	11,887,135	5,642,096	113,413,210	30,295	293.8
2010						19,545,000	7,378,958	70,734,327	12,343,601	5,642,096	115,643,982	31,459	303.8
2011		79,728,314		2,000,000	2,000,000	26,157,000	7,992,677	80,232,089	42,847,400	6,439,379	247,396,858	32,667	324.6
2012						26,157,000	7,992,677	82,220,857	13,309,791	6,439,379	136,119,703	33,921	335.6
2013						26,157,000	7,992,677	84,285,993	13,820,887	6,439,379	138,695,935	35,224	346.4
2014						26,157,000	7,992,677	86,430,431	14,351,609	6,439,379	141,371,095	36,576	357.0
2015						26,157,000	7,992,677	88,657,215	14,902,710	6,439,379	144,148,981	37,981	367.4
2016						26,157,000	7,992,677	90,969,508	15,474,975	6,439,379	147,033,538	39,439	377.6
2017						26,157,000	7,992,677	93,370,593	16,069,214	6,439,379	150,028,862	40,954	387.6
2018						26,157,000	7,992,677	95,863,879	16,686,271	6,439,379	153,139,206	42,526	397.5
2019						26,157,000	7,992,677	98,452,908	17,327,024	6,439,379	156,368,987	44,159	407.2
2020						26,157,000	7,992,677	101,141,355	17,992,382	6,439,379	159,722,792	45,855	416.7
TOTALS	47,600,000	643,937,864	-	10,000,000	2,000,000	574,290,000	197,990,098	1,853,151,817	470,881,337	154,667,314	3,954,518,431	774,477	7,251.8

Discount Rate	Discounted Costs	Discounted Output	Cost/Output
5	1,891,408,673	96,176,256	19.67
7	1,757,954,127	84,174,150	20.88
10	1,601,275,804	70,176,302	22.82
12	1,518,815,142	62,859,784	24.16

YEAR 2010 WORKS

Discount Rate	Discounted Costs	Discounted Output	Cost/Output
5	2,481,610,435	148,161,438	16.75
7	2,164,158,920	119,596,747	18.10
10	1,837,553,641	90,472,851	20.31
12	1,685,394,855	77,026,609	21.88

YEAR 2020 WORKS

Table 4.4 [contd]

NYERI WATER SUPPLY - FINANCIAL PROJECTIONS - DISCOUNT RATES AND DISCOUNTED COSTS													
Year	No	Required Discount Rates				Discounted Costs (KShs.)				Discounted Output (m3/day)			
		5	7	10	12	5	7	10	12	5	7	10	12
		%	%	%	%	%	%	%	%	%	%	%	%
		(fill in above values)				NPV				NPV			
1	15	16	17	18	19	20	21	22	23	24	25	26	27
1995	0	1.000	1.000	1.000	1.000	845,874,259	845,874,259	845,874,259	845,874,259	17,876	17,876	17,876	17,876
1996	1	0.952	0.935	0.909	0.893	86,585,446	84,967,026	82,649,744	81,173,855	17,679	17,348	16,875	16,574
1997	2	0.907	0.873	0.826	0.797	83,702,083	80,602,277	76,265,741	73,566,284	17,483	16,836	15,930	15,366
1998	3	0.864	0.816	0.751	0.712	80,942,328	76,487,815	70,398,844	66,694,423	17,290	16,339	15,038	14,247
1999	4	0.823	0.763	0.683	0.636	78,300,444	72,608,307	65,005,586	60,485,229	17,099	15,856	14,196	13,209
2000	5	0.784	0.713	0.621	0.567	75,770,969	68,949,393	60,046,253	54,873,065	16,910	15,388	13,401	12,246
2001	6	0.746	0.666	0.564	0.507	73,348,697	65,497,622	55,484,553	49,798,936	16,723	14,933	12,650	11,354
2002	7	0.711	0.623	0.513	0.452	71,028,671	62,240,395	51,287,318	45,209,804	16,539	14,492	11,942	10,527
2003	8	0.677	0.582	0.467	0.404	69,144,586	59,456,912	47,657,482	41,259,921	16,356	14,064	11,273	9,760
2004	9	0.645	0.544	0.424	0.361	66,676,682	56,263,102	43,867,562	37,300,570	16,175	13,649	10,642	9,049
2005	10	0.614	0.508	0.386	0.322	64,635,930	53,521,615	40,591,971	33,898,990	15,996	13,246	10,046	8,390
2006	11	0.585	0.475	0.350	0.287	62,679,824	50,931,739	37,574,268	30,818,522	15,820	12,855	9,483	7,778
2007	12	0.557	0.444	0.319	0.257	60,804,474	48,484,374	34,793,242	28,027,919	15,645	12,475	8,952	7,212
2008	13	0.530	0.415	0.290	0.229	59,006,170	46,170,992	32,229,488	25,499,051	15,472	12,107	8,451	6,686
2009	14	0.505	0.388	0.263	0.205	57,281,378	43,983,598	29,865,243	23,206,590	15,301	11,749	7,978	6,199
2010	15	0.481	0.362	0.239	0.183	55,626,732	41,914,701	27,684,250	21,127,723	15,132	11,402	7,531	5,747
2011	16	0.458	0.339	0.218	0.163	54,035,351	39,801,875	25,640,764	19,127,723	14,965	11,065	7,109	5,329
2012	17	0.436	0.317	0.198	0.146	52,500,575	37,721,012	23,640,558	17,127,723	14,800	10,739	6,711	4,940
2013	18	0.416	0.296	0.180	0.130	51,021,026	35,671,123	21,640,683	15,127,723	14,636	10,421	6,335	4,580
2014	19	0.396	0.277	0.164	0.116	49,594,343	33,640,286	19,640,808	13,127,723	14,474	10,114	5,981	4,247
2015	20	0.377	0.258	0.149	0.104	48,218,235	31,640,836	17,640,928	11,127,723	14,315	9,815	5,646	3,937
2016	21	0.359	0.242	0.135	0.093	46,892,566	29,640,524	15,641,052	9,127,723	14,156	9,525	5,329	3,650
2017	22	0.342	0.226	0.123	0.083	45,617,347	27,640,489	13,641,176	7,127,723	14,000	9,244	5,031	3,385
2018	23	0.326	0.211	0.112	0.074	44,392,731	25,640,238	11,641,304	5,127,723	13,845	8,971	4,749	3,138
2019	24	0.310	0.197	0.102	0.066	43,218,005	23,640,617	9,641,455	3,127,723	13,692	8,706	4,483	2,909
2020	25	0.295	0.184	0.092	0.059	42,093,583	21,640,793	7,641,775	1,127,723	13,541	8,449	4,232	2,697
TOTALS		15	13	10	9	2,481,610,435	2,164,158,920	1,837,553,641	1,685,394,855	405,922	327,662	247,871	211,032

Table 4.2 [contd]

NYERI WATER SUPPLY - FINANCIAL PROJECTIONS - AVERAGE INCREMENTAL FINANCIAL COSTS													
Year	INVESTMENT COSTS			REINVESTMENT COSTS		RECURRENT COSTS					TOTAL COSTS	OUTPUT at 3.84 % per year m3/day	A.I.F.C. K.shs/m3
	Existing Assets	New Project	Interest during Const.	Existing Assets	New Project	Personnel	Maintenance and Repairs	Energy	Treatment	Administration			
	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1995	47,600,000	532,043,721	-	7,500,000	-	17,056,000	7,059,985	60,327,162	133,230,726	5,320,437	810,138,030	17,876	124.2
1996						17,056,000	7,059,985	61,769,965	7,283,437	5,320,437	98,489,824	18,562	138.7
1997						17,056,000	7,059,985	63,268,172	7,563,121	5,320,437	100,267,715	19,275	153.0
1998						17,056,000	7,059,985	64,823,910	7,853,545	5,320,437	102,113,877	20,015	166.9
1999						17,056,000	7,059,985	66,439,389	8,155,121	5,320,437	104,030,931	20,784	180.6
2000						17,056,000	7,059,985	68,116,901	8,468,277	5,320,437	106,021,600	21,582	194.1
2001						17,056,000	7,059,985	69,858,831	8,793,459	5,320,437	108,088,712	22,411	207.3
2002						17,056,000	7,059,985	71,667,650	9,131,128	5,320,437	110,235,200	23,271	220.3
2003				500,000		17,056,000	7,059,985	73,545,928	9,481,763	5,320,437	112,964,113	24,165	233.1
2004						17,056,000	7,059,985	75,496,332	9,845,863	5,320,437	114,778,617	25,093	245.6
2005						17,056,000	7,059,985	77,521,631	10,223,944	5,320,437	117,181,997	26,057	258.0
2006						17,056,000	7,059,985	79,624,702	10,616,544	5,320,437	119,677,668	27,057	270.1
2007						17,056,000	7,059,985	81,808,531	11,024,219	5,320,437	122,269,172	28,096	282.0
2008						17,056,000	7,059,985	84,076,219	11,447,549	5,320,437	124,960,190	29,175	293.7
2009						17,056,000	7,059,985	86,430,986	11,887,135	5,320,437	127,754,542	30,295	305.3
2010						17,056,000	7,059,985	88,876,176	12,343,601	5,320,437	130,656,199	31,459	316.7
2011		86,899,284		2,000,000	2,000,000	23,983,000	7,816,250	99,638,457	42,891,005	6,189,430	271,417,426	32,667	339.4
2012						23,983,000	7,816,250	102,372,429	13,309,791	6,189,430	153,670,900	33,921	351.8
2013						23,983,000	7,816,250	105,211,386	13,820,887	6,189,430	157,020,953	35,224	364.1
2014						23,983,000	7,816,250	108,159,359	14,351,609	6,189,430	160,499,648	36,576	376.1
2015						23,983,000	7,816,250	111,220,534	14,902,710	6,189,430	164,111,925	37,981	387.9
2016						23,983,000	7,816,250	114,399,258	15,474,975	6,189,430	167,862,913	39,439	399.6
2017						23,983,000	7,816,250	117,700,045	16,069,214	6,189,430	171,757,939	40,954	411.1
2018						23,983,000	7,816,250	121,127,583	16,686,271	6,189,430	175,802,535	42,526	422.4
2019						23,983,000	7,816,250	124,686,738	17,327,024	6,189,430	180,002,442	44,159	433.6
2020						23,983,000	7,816,250	128,382,564	17,992,382	6,189,430	184,363,626	45,855	444.6
TOTALS	47,600,000	618,943,005	-	10,000,000	2,000,000	512,726,000	191,122,256	2,306,550,840	460,175,297	147,021,296	4,296,138,693	774,477	7,520

Discount Rate	Discounted Costs	Discounted Output	Cost/Output
5	1,964,834,413	95,113,737	20.66
7	1,816,397,022	81,688,259	22.24
10	1,642,302,742	66,246,429	24.79
12	1,550,770,951	58,280,000	26.61

YEAR 2010 WORKS

Discount Rate	Discounted Costs	Discounted Output	Cost/Output
5	2,633,293,509	148,161,438	17.77
7	2,276,079,565	119,596,747	19.03
10	1,909,360,182	90,472,851	21.10
12	1,738,901,060	77,026,609	22.58

YEAR 2020 WORKS

Table 4.2
FINANCIAL PROJECTIONS - OPTION A2

Year	OUTPUT increase at 3.84 % /year m3/day	Energy and Costs						Pipelines		Pumps			Structures		Treatment					Personnel Costs K.shs	Admin- istration Costs K.shs	Annual Invest- ment Cost K.shs	Total Annual Operat'n Cost K.shs	Total Annual Maint'ce. Cost K.shs			
		Pump- ing hrs. hrs/day	Power Req'd at 3.90/kWh kW	Demand 0.80 pf /KVA KVA	Monthly Charge 480/= K.shs	Total Energy Cost K.shs	Capital Cost K.shs	Maint. at 2% p.a. K.shs	Capacity increase Cost K.shs	Replac- ment Cost K.shs	Maint. at 5% p.a. K.shs	Capital Cost K.shs	Maint. at 1% p.a. K.shs	Capital Cost K.shs	Maint. at 2% p.a. K.shs	Alum 40 mg/l @ 35.0/= /kg K.shs	Soda Ash 15 mg/l @ 15.0/= /kg K.shs	TCL 5 mg/l @ 215.0/= /kg K.shs									
1995	17,876	13.6	1591.0	54,355,129	1989	5,966,273	5,760	60,327,162	290,745,666	5,814,913	2,356,425	-	117,821	112,725,000	1,127,250	126,216,630	2,524,333	9,134,636	1,468,067	7,014,096	17,056,000	5,320,437	532,043,721	100,320,397	9,584,317		
1996	18,562	14.2	1629.1	55,655,228	2036	6,108,977	5,760	61,769,965		5,814,913	-	-	117,821		1,127,250	-	2,524,333	9,485,406	1,524,440	7,283,437	17,056,000	5,320,437		80,063,248	9,584,317		
1997	19,275	14.7	1668.6	57,005,250	2086	6,257,162	5,760	63,268,172		5,814,913	-	-	117,821		1,127,250	-	2,524,333	9,849,646	1,582,979	7,563,121	17,056,000	5,320,437		82,263,917	9,584,317		
1998	20,015	15.3	1709.6	58,407,113	2137	6,411,037	5,760	64,823,910		5,814,913	-	-	117,821		1,127,250	-	2,524,333	10,227,872	1,643,765	7,853,545	17,056,000	5,320,437		84,549,092	9,584,317		
1999	20,784	15.9	1752.2	59,862,808	2190	6,570,821	5,760	66,439,389		5,814,913	-	-	117,821		1,127,250	-	2,524,333	10,620,622	1,706,886	8,155,121	17,056,000	5,320,437		86,922,017	9,584,317		
2000	21,582	16.5	1796.5	61,374,401	2246	6,736,741	5,760	68,116,901		5,814,913	-	-	117,821		1,127,250	-	2,524,333	11,028,454	1,772,430	8,468,277	17,056,000	5,320,437		89,386,063	9,584,317		
2001	22,411	17.1	1842.4	62,944,039	2303	6,909,031	5,760	69,858,831		5,814,913	-	-	117,821		1,127,250	-	2,524,333	11,451,947	1,840,491	8,793,459	17,056,000	5,320,437		91,944,728	9,584,317		
2002	23,271	17.8	1890.1	64,573,952	2363	7,087,938	5,760	71,667,650		5,814,913	-	-	117,821		1,127,250	-	2,524,333	11,891,702	1,911,166	9,131,128	17,056,000	5,320,437		94,601,646	9,584,317		
2003	24,165	18.4	1939.7	66,266,453	2425	7,273,715	5,760	73,545,928		5,814,913	-	1,745,500	117,821		1,127,250	-	2,524,333	12,348,343	1,984,555	9,481,763	17,056,000	5,320,437	1,745,500	97,360,589	9,584,317		
2004	25,093	19.1	1991.1	68,023,946	2489	7,466,626	5,760	75,496,332		5,814,913	-	-	117,821		1,127,250	-	2,524,333	12,822,519	2,060,762	9,845,863	17,056,000	5,320,437		100,225,476	9,584,317		
2005	26,057	19.9	2044.5	69,848,927	2556	7,666,944	5,760	77,521,631		5,814,913	-	-	117,821		1,127,250	-	2,524,333	13,314,904	2,139,895	10,223,944	17,056,000	5,320,437		103,200,375	9,584,317		
2006	27,057	20.6	2100.0	71,743,987	2625	7,874,955	5,760	79,624,702		5,814,913	-	-	117,821		1,127,250	-	2,524,333	13,826,196	2,222,067	10,616,544	17,056,000	5,320,437		106,289,509	9,584,317		
2007	28,096	21.4	2157.6	73,711,818	2697	8,090,953	5,760	81,808,531		5,814,913	-	-	117,821		1,127,250	-	2,524,333	14,357,122	2,307,395	11,024,219	17,056,000	5,320,437		109,497,267	9,584,317		
2008	29,175	22.3	2217.4	75,755,213	2772	8,315,246	5,760	84,076,219		5,814,913	-	-	117,821		1,127,250	-	2,524,333	14,908,436	2,395,999	11,447,549	17,056,000	5,320,437		112,828,202	9,584,317		
2009	30,295	23.1	2279.5	77,877,075	2849	8,548,151	5,760	86,430,986		5,814,913	-	-	117,821		1,127,250	-	2,524,333	15,480,920	2,488,005	11,887,135	17,056,000	5,320,437		116,287,045	9,584,317		
2010	31,459	24.0	2344.0	80,080,416	2930	8,790,000	5,760	88,876,176		5,814,913	-	-	117,821		1,127,250	-	2,524,333	16,075,387	2,583,544	12,343,601	17,056,000	5,320,437		119,878,708	9,584,317		
2011	32,667	17.1	2627.9	89,778,221	3285	9,854,476	5,760	99,638,457	14,453,559	6,103,985	4,032,315	-	201,616	38,340,000	1,510,650	30,073,410	3,125,801	16,692,682	2,682,752	12,817,595	23,983,000	6,189,430	86,899,284	131,831,486	10,942,051		
2012	33,921	17.8	2700.0	92,241,781	3375	10,124,888	5,760	102,372,429		6,103,985	-	-	201,616		1,510,650	-	3,125,801	17,333,681	2,785,770	13,309,791	23,983,000	6,189,430		135,801,671	10,942,051		
2013	35,224	18.4	2774.8	94,799,942	3469	10,405,684	5,760	105,211,386		6,103,985	-	-	201,616		1,510,650	-	3,125,801	17,999,294	2,892,744	13,820,887	23,983,000	6,189,430		139,924,311	10,942,051		
2014	36,576	19.1	2852.6	97,456,337	3566	10,697,262	5,760	108,159,359		6,103,985	-	-	201,616		1,510,650	-	3,125,801	18,690,467	3,003,825	14,351,609	23,983,000	6,189,430		144,205,260	10,942,051		
2015	37,981	19.9	2933.3	100,214,737	3667	11,000,037	5,760	111,220,534		6,103,985	-	-	201,616		1,510,650	-	3,125,801	19,408,181	3,119,172	14,902,710	23,983,000	6,189,430		148,650,598	10,942,051		
2016	39,439	20.6	3017.2	103,079,060	3771	11,314,438	5,760	114,399,258		6,103,985	-	-	201,616		1,510,650	-	3,125,801	20,153,455	3,238,948	15,474,975	23,983,000	6,189,430		153,266,636	10,942,051		
2017	40,954	21.4	3104.2	106,053,373	3880	11,640,913	5,760	117,700,045		6,103,985	-	-	201,616		1,510,650	-	3,125,801	20,927,348	3,363,324	16,069,214	23,983,000	6,189,430		158,059,931	10,942,051		
2018	42,526	22.3	3194.6	109,141,899	3993	11,979,924	5,760	121,127,583		6,103,985	-	-	201,616		1,510,650	-	3,125,801	21,730,958	3,492,475	16,686,271	23,983,000	6,189,430		163,037,288	10,942,051		
2019	44,159	23.1	3288.5	112,349,025	4111	12,331,953	5,760	124,686,738		6,103,985	-	-	201,616		1,510,650	-	3,125,801	22,565,427	3,626,586	17,327,024	23,983,000	6,189,430		168,205,775	10,942,051		
2020	45,855	24.0	3386.0	115,679,304	4233	12,697,500	5,760	128,382,564		6,103,985	-	-	201,616		1,510,650	-	3,125,801	23,431,939	3,765,847	17,992,382	23,983,000	6,189,430		173,572,733	10,942,051		
Totals																											
2020	774,477			2,078,279,435	76,041	228,121,645	149,760	2,306,550,840	305,199,225	154,078,458	6,388,740	1,745,500	3,901,298	151,065,000	33,142,500	156,290,040	71,647,330	395,757,544	63,603,891	303,885,257	512,726,000	147,021,296	620,688,505	3,092,173,970	262,769,585		
2010	385,174			1,057,485,756	38,692	116,074,569	92,160	1,173,652,485	290,745,666	93,038,613	2,356,425	1,745,500	1,885,140	112,725,000	18,036,000	126,216,630	40,389,322	196,824,112	31,632,447	151,132,800	272,896,000	85,126,995	533,789,221	1,575,618,281	153,349,075		

PRE-FEASIBILITY REPORT

Table 4.1 [contd]

NYERI WATER SUPPLY - FINANCIAL PROJECTIONS - DISCOUNT RATES AND DISCOUNTED COSTS													
Year	No	Required Discount Rates				Discounted Costs (KShs)				Discounted Output (m ³ /day)			
		5 %	7 %	10 %	12 %	5 %	7 %	10 %	12 %	5 %	7 %	10 %	12 %
		NPV				NPV				NPV			
1	15	16	17	18	19	20	21	22	23	24	25	26	27
1995	0	1.000	1.000	1.000	1.000	634,632,060	634,632,060	634,632,060	634,632,060	17,876	17,876	17,876	17,876
1996	1	0.952	0.935	0.909	0.893	72,890,166	71,527,733	69,576,976	68,334,530	17,679	17,348	16,875	16,574
1997	2	0.907	0.873	0.826	0.797	70,509,072	67,897,853	64,244,836	61,970,864	17,483	16,836	15,930	15,366
1998	3	0.864	0.816	0.751	0.712	68,229,323	64,474,447	59,341,826	56,219,230	17,290	16,339	15,038	14,247
1999	4	0.823	0.763	0.683	0.636	66,046,227	61,244,924	54,832,048	51,019,138	17,099	15,856	14,196	13,209
2000	5	0.784	0.713	0.621	0.567	63,955,311	58,197,486	50,682,694	46,316,208	16,910	15,388	13,401	12,246
2001	6	0.746	0.666	0.564	0.507	61,952,318	55,321,085	46,863,772	42,061,545	16,723	14,933	12,650	11,354
2002	7	0.711	0.623	0.513	0.452	60,033,187	52,605,367	43,347,864	38,211,170	16,539	14,492	11,942	10,527
2003	8	0.677	0.582	0.467	0.404	58,532,474	50,331,637	40,343,149	34,927,467	16,356	14,064	11,273	9,760
2004	9	0.645	0.544	0.424	0.361	56,431,235	47,617,791	37,126,934	31,569,016	16,175	13,649	10,642	9,049
2005	10	0.614	0.508	0.386	0.322	54,741,220	45,328,327	34,378,000	28,709,606	15,996	13,246	10,046	8,390
2006	11	0.585	0.475	0.350	0.287	53,120,665	43,164,254	31,843,901	26,118,459	15,820	12,855	9,483	7,778
2007	12	0.557	0.444	0.319	0.257	51,566,385	41,118,091	29,507,068	23,769,607	15,645	12,475	8,952	7,212
2008	13	0.530	0.415	0.290	0.229	50,075,344	39,182,822	27,351,423	21,639,665	15,472	12,107	8,451	6,686
2009	14	0.505	0.388	0.263	0.205	48,644,649	37,351,872	25,362,243	19,707,564	15,301	11,749	7,978	6,199
2010	15	0.481	0.362	0.239	0.183	47,271,544	35,619,073	23,526,049	17,954,319	15,132	11,402	7,531	5,747
2011	16	0.458	0.339	0.218	0.163	91,012,618	67,296,108	43,236,191	32,407,239	14,965	11,065	7,109	5,329
2012	17	0.436	0.317	0.198	0.146	50,532,459	36,666,064	22,914,631	16,868,720	14,800	10,739	6,711	4,940
2013	18	0.416	0.296	0.180	0.130	49,031,879	34,912,257	21,223,528	15,344,810	14,636	10,421	6,335	4,580
2014	19	0.396	0.277	0.164	0.116	47,592,749	33,254,138	19,664,208	13,963,524	14,474	10,114	5,981	4,247
2015	20	0.377	0.258	0.149	0.104	46,212,254	31,686,012	18,225,919	12,711,087	14,315	9,815	5,646	3,937
2016	21	0.359	0.242	0.135	0.093	44,887,710	30,202,535	16,898,819	11,575,087	14,156	9,525	5,329	3,650
2017	22	0.342	0.226	0.123	0.083	43,616,562	28,798,701	15,673,895	10,544,343	14,000	9,244	5,031	3,385
2018	23	0.326	0.211	0.112	0.074	42,396,373	27,469,813	14,542,894	9,608,776	13,845	8,971	4,749	3,138
2019	24	0.310	0.197	0.102	0.066	41,224,824	26,211,466	13,498,252	8,759,301	13,692	8,706	4,483	2,909
2020	25	0.295	0.184	0.092	0.059	40,099,701	25,019,531	12,533,042	7,987,724	13,541	8,449	4,232	2,697
TOTALS		15	13	10	9	2,015,238,310	1,747,131,447	1,471,372,221	1,342,931,058	405,922	327,662	247,871	211,032

PRE-FEASIBILITY REPORT

Table 4.1 [contd]

NYERI WATER SUPPLY - FINANCIAL PROJECTIONS - AVERAGE INCREMENTAL FINANCIAL COSTS														
Year	INVESTMENT COSTS			Incremental Working Capital	REINVESTMENT COSTS		RECURRENT COSTS					TOTAL COSTS	OUTPUT at 3.84 % per year m3/day	A.I.F.C. K.shs/m3
	Existing Assets	New Project	Interest during Const.		Existing Assets	New Project	Personnel	Maintenance and Repairs	Energy	Treatment	Administration			
	K.shs	K.shs	K.shs		K.shs	K.shs	K.shs	K.shs	K.shs	K.shs	K.shs			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1995	47,600,000	504,154,530	-	-	7,500,000	-	14,036,000	9,098,974	29,584,213	17,616,798	5,041,545	634,632,060	17,876	97.3
1996	-	-	-	-	-	-	14,036,000	9,098,974	30,064,871	18,293,283	5,041,545	76,534,674	18,562	108.6
1997	-	-	-	-	-	-	14,036,000	9,098,974	30,563,987	18,995,745	5,041,545	77,736,252	19,275	119.6
1998	-	-	-	-	-	-	14,036,000	9,098,974	31,082,269	19,725,182	5,041,545	78,983,971	20,015	130.4
1999	-	-	-	-	-	-	14,036,000	9,098,974	31,620,453	20,482,629	5,041,545	80,279,602	20,784	141.0
2000	-	-	-	-	-	-	14,036,000	9,098,974	32,179,304	21,269,162	5,041,545	81,624,985	21,582	151.4
2001	-	-	-	-	-	-	14,036,000	9,098,974	32,759,614	22,085,897	5,041,545	83,022,031	22,411	161.5
2002	-	-	-	-	-	-	14,036,000	9,098,974	33,362,208	22,933,996	5,041,545	84,472,723	23,271	171.5
2003	-	-	-	-	500,000	-	14,036,000	9,098,974	33,987,941	23,814,661	5,041,545	86,479,122	24,165	181.3
2004	-	-	-	-	-	-	14,036,000	9,098,974	34,637,703	24,729,144	5,041,545	87,543,367	25,093	190.8
2005	-	-	-	-	-	-	14,036,000	9,098,974	35,312,416	25,678,743	5,041,545	89,167,679	26,057	200.2
2006	-	-	-	-	-	-	14,036,000	9,098,974	36,013,038	26,664,807	5,041,545	90,854,365	27,057	209.4
2007	-	-	-	-	-	-	14,036,000	9,098,974	36,740,563	27,688,736	5,041,545	92,605,819	28,096	218.4
2008	-	-	-	-	-	-	14,036,000	9,098,974	37,496,026	28,751,983	5,041,545	94,424,529	29,175	227.3
2009	-	-	-	-	-	-	14,036,000	9,098,974	38,280,498	29,856,059	5,041,545	96,313,077	30,295	236.0
2010	-	-	-	-	-	-	14,036,000	9,098,974	39,095,094	31,002,532	5,041,545	98,274,146	31,459	244.6
2011	-	80,946,945	-	-	2,000,000	2,000,000	20,126,000	10,326,029	45,226,113	32,193,029	5,851,015	198,669,131	32,667	261.2
2012	-	-	-	-	-	-	20,126,000	10,326,029	46,089,036	33,429,242	5,851,015	115,821,321	33,921	270.6
2013	-	-	-	-	-	-	20,126,000	10,326,029	46,985,095	34,712,925	5,851,015	118,001,063	35,224	279.8
2014	-	-	-	-	-	-	20,126,000	10,326,029	47,915,563	36,045,901	5,851,015	120,264,507	36,576	288.8
2015	-	-	-	-	-	-	20,126,000	10,326,029	48,881,761	37,430,063	5,851,015	122,614,868	37,981	297.6
2016	-	-	-	-	-	-	20,126,000	10,326,029	49,885,061	38,867,378	5,851,015	125,055,482	39,439	306.3
2017	-	-	-	-	-	-	20,126,000	10,326,029	50,926,887	40,359,885	5,851,015	127,589,816	40,954	314.8
2018	-	-	-	-	-	-	20,126,000	10,326,029	52,008,720	41,909,705	5,851,015	130,221,468	42,526	323.2
2019	-	-	-	-	-	-	20,126,000	10,326,029	53,132,095	43,519,037	5,851,015	132,954,176	44,159	331.5
2020	-	-	-	-	-	-	20,126,000	10,326,029	54,298,608	45,190,169	5,851,015	135,791,820	45,855	339.6
TOTALS	47,600,000	585,101,475	-	-	10,000,000	2,000,000	425,836,000	248,843,875	1,038,129,137	763,246,693	139,174,872	3,259,932,052	774,477	5,802.6

Discount Rate	Discounted Costs	Discounted Output	Cost/Output
5	1,518,631,181	96,176,256	15.79
7	1,405,614,821	84,174,150	16.70
10	1,272,960,842	70,176,302	18.14
12	1,203,160,449	62,859,784	19.14

YEAR 2010 WORKS

Discount Rate	Discounted Costs	Discounted Output	Cost/Output
5	2,015,238,310	148,161,438	13.60
7	1,747,131,447	119,596,747	14.61
10	1,471,372,221	90,472,851	16.26
12	1,342,931,058	77,026,609	17.43

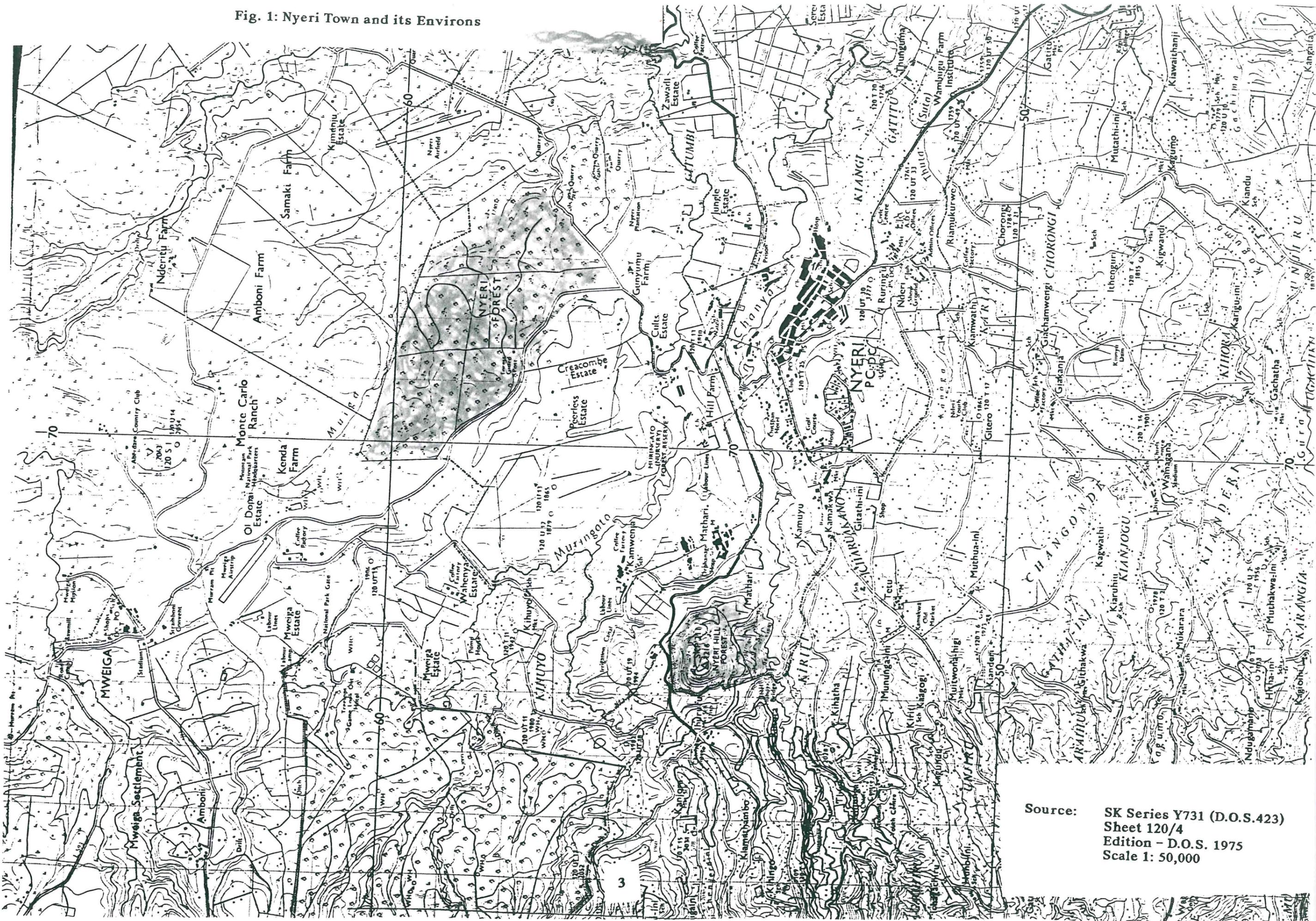
YEAR 2020 WORKS

PRE-FEASIBILITY REPORT

Table 4.1
FINANCIAL PROJECTIONS - OPTION A1

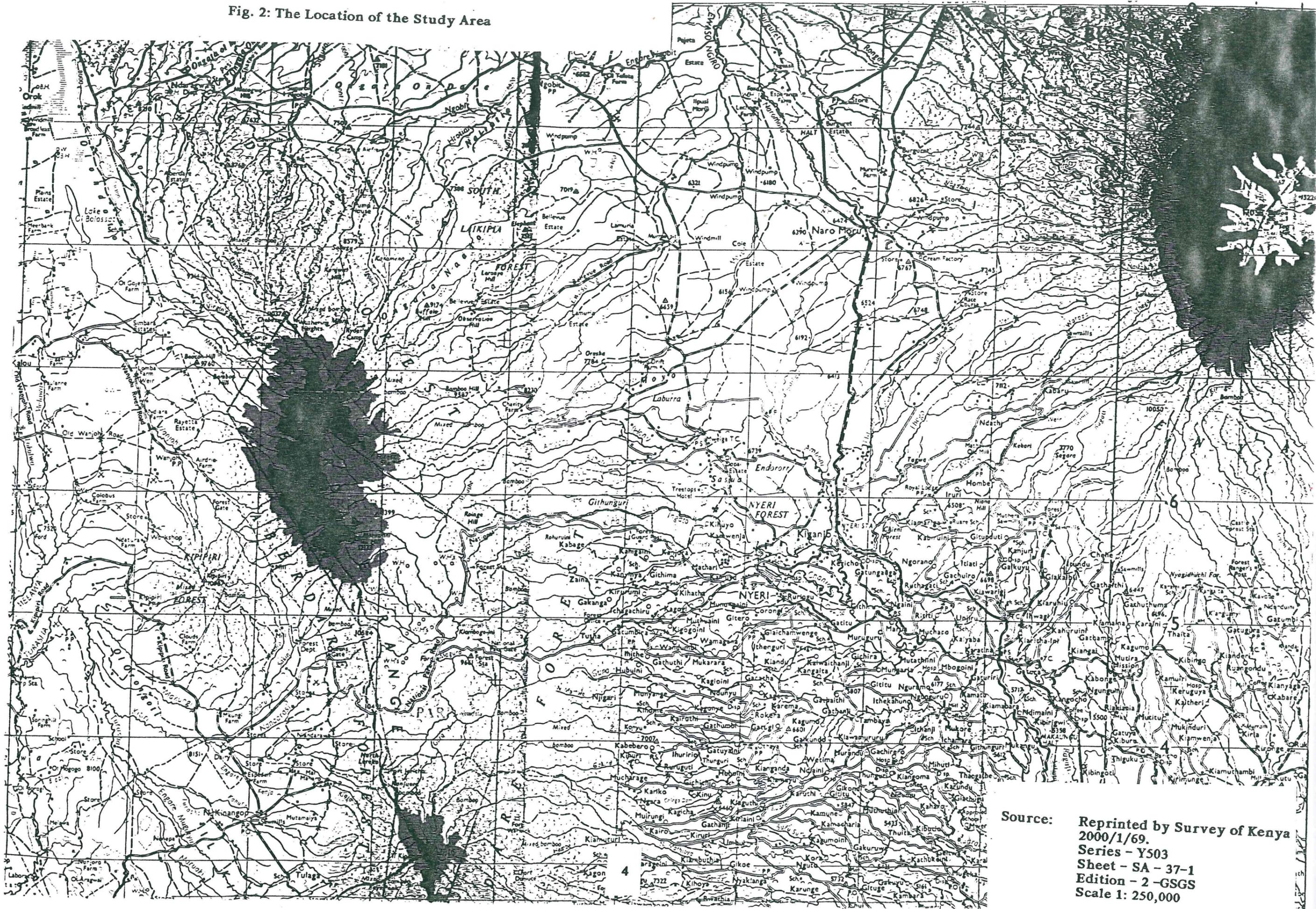
Year	OUTPUT increase at 3.84 % /year m3/day	Energy and Costs						Pipelines		Pumps			Structures		Treatment					Personnel Costs K.shs	Admin- istration Costs K.shs	Annual Invest- ment Cost K.shs	Total Annual Operat'n Cost K.shs	Total Annual Maint'ce. Cost K.shs		
		Pump- ing hrs. hrs/day	Power Req'd at 3.90/kWh kW	Demand 0.80 pf 250/= /KVA K.shs	Monthly Charge 480/= K.shs	Total Energy Cost K.shs	Capital Cost K.shs	Maint. at 2% p.a. K.shs	Capacity increase Cost K.shs	Replac- ment Cost K.shs	Maint. at 5% p.a. K.shs	Capital Cost K.shs	Maint. at 1% p.a. K.shs	Capital Cost K.shs	Maint. at 2% p.a. K.shs	Alum 40 mg/l @ 35.0/=/kg K.shs	Soda Ash 15 mg/l @ 15.0/=/kg K.shs	TCL 5 mg/l @ 215.0/=/kg K.shs								
1995	17,876	13.6	780.1	26,652,905	975	2,925,547	5,760	29,584,213	307,325,475	6,146,510	901,125	-	45,056	101,115,000	1,011,150	94,812,930	1,896,259	9,134,636	1,468,067	7,014,096	14,036,000	5,041,545	504,154,530	66,278,556	9,098,974	
1996	18,562	14.2	792.8	27,086,023	991	2,973,088	5,760	30,064,871		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	9,485,406	1,524,440	7,283,437	14,036,000	5,041,545		48,358,154	9,098,974	
1997	19,275	14.7	806.0	27,535,772	1007	3,022,455	5,760	30,563,987		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	9,849,646	1,582,979	7,563,121	14,036,000	5,041,545		49,559,732	9,098,974	
1998	20,015	15.3	819.7	28,002,792	1025	3,073,717	5,760	31,082,269		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	10,227,872	1,643,765	7,853,545	14,036,000	5,041,545		50,807,451	9,098,974	
1999	20,784	15.9	833.9	28,487,745	1042	3,126,948	5,760	31,620,453		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	10,620,622	1,706,886	8,155,121	14,036,000	5,041,545		52,103,082	9,098,974	
2000	21,582	16.5	848.6	28,991,321	1061	3,182,223	5,760	32,179,304		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	11,028,454	1,772,430	8,468,277	14,036,000	5,041,545		53,448,465	9,098,974	
2001	22,411	17.1	863.9	29,514,234	1080	3,239,620	5,760	32,759,614		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	11,451,947	1,840,491	8,793,459	14,036,000	5,041,545		54,845,511	9,098,974	
2002	23,271	17.8	879.8	30,057,226	1100	3,299,221	5,760	33,362,208		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	11,891,702	1,911,166	9,131,128	14,036,000	5,041,545		56,296,204	9,098,974	
2003	24,165	18.4	896.3	30,621,070	1120	3,361,111	5,760	33,987,941		6,146,510	-	667,500	45,056	-	1,011,150	-	1,896,259	12,348,343	1,984,555	9,481,763	14,036,000	5,041,545	667,500	57,802,603	9,098,974	
2004	25,093	19.1	913.4	31,206,565	1142	3,425,378	5,760	34,637,703		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	12,822,519	2,060,762	9,845,863	14,036,000	5,041,545		59,366,848	9,098,974	
2005	26,057	19.9	931.2	31,814,543	1164	3,492,113	5,760	35,312,416		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	13,314,904	2,139,895	10,223,944	14,036,000	5,041,545		60,991,159	9,098,974	
2006	27,057	20.6	949.7	32,445,868	1187	3,561,410	5,760	36,013,038		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	13,826,196	2,222,067	10,616,544	14,036,000	5,041,545		62,677,845	9,098,974	
2007	28,096	21.4	968.9	33,101,435	1211	3,633,368	5,760	36,740,563		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	14,357,122	2,307,395	11,024,219	14,036,000	5,041,545		64,429,299	9,098,974	
2008	29,175	22.3	988.8	33,782,176	1236	3,708,089	5,760	37,496,026		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	14,908,436	2,395,999	11,447,549	14,036,000	5,041,545		66,248,009	9,098,974	
2009	30,295	23.1	1009.5	34,489,058	1262	3,785,680	5,760	38,280,498		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	15,480,920	2,488,005	11,887,135	14,036,000	5,041,545		68,136,557	9,098,974	
2010	31,459	24.0	1031.0	35,223,084	1289	3,866,250	5,760	39,095,094		6,146,510	-	-	45,056	-	1,011,150	-	1,896,259	16,075,387	2,583,544	12,343,601	14,036,000	5,041,545		70,097,626	9,098,974	
2011	32,667	17.1	1192.7	40,747,696	1491	4,472,657	5,760	45,226,113	8,320,050	6,312,911	1,219,050	-	60,953	38,340,000	1,394,550	33,067,845	2,557,616	16,692,682	2,682,752	12,817,595	20,126,000	5,851,015	80,946,945	77,419,142	10,326,029	
2012	33,921	17.8	1215.5	41,525,269	1519	4,558,007	5,760	46,089,036		6,312,911	-	-	60,953	-	1,394,550	-	2,557,616	17,333,681	2,785,770	13,309,791	20,126,000	5,851,015		79,518,278	10,326,029	
2013	35,224	18.4	1239.1	42,332,701	1549	4,646,635	5,760	46,985,095		6,312,911	-	-	60,953	-	1,394,550	-	2,557,616	17,999,294	2,892,744	13,820,887	20,126,000	5,851,015		81,698,020	10,326,029	
2014	36,576	19.1	1263.6	43,171,138	1580	4,738,665	5,760	47,915,563		6,312,911	-	-	60,953	-	1,394,550	-	2,557,616	18,690,467	3,003,825	14,351,609	20,126,000	5,851,015		83,961,464	10,326,029	
2015	37,981	19.9	1289.1	44,041,771	1611	4,834,230	5,760	48,881,761		6,312,911	-	-	60,953	-	1,394,550	-	2,557,616	19,408,181	3,119,172	14,902,710	20,126,000	5,851,015		86,311,824	10,326,029	
2016	39,439	20.6	1315.6	44,945,836	1644	4,933,465	5,760	49,885,061		6,312,911	-	-	60,953	-	1,394,550	-	2,557,616	20,153,455	3,238,948	15,474,975	20,126,000	5,851,015		88,752,439	10,326,029	
2017	40,954	21.4	1343.1	45,884,618	1679	5,036,510	5,760	50,926,887		6,312,911	-	-	60,953	-	1,394,550	-	2,557,616	20,927,348	3,363,324	16,069,214	20,126,000	5,851,015		91,286,773	10,326,029	
2018	42,526	22.3	1371.6	46,859,449	1715	5,143,512	5,760	52,008,720		6,312,911	-	-	60,953	-	1,394,550	-	2,557,616	21,730,958	3,492,475	16,686,271	20,126,000	5,851,015		93,918,425	10,326,029	
2019	44,159	23.1	1401.2	47,871,713	1752	5,254,622	5,760	53,132,095		6,312,911	-	-	60,953	-	1,394,550	-	2,557,616	22,565,427	3,626,586	17,327,024	20,126,000	5,851,015		96,651,133	10,326,029	
2020	45,855	24.0	1432.0	48,922,848	1790	5,370,000	5,760	54,298,608		6,312,911	-	-	60,953	-	1,394,550	-	2,557,616	23,431,939	3,765,847	17,992,382	20,126,000	5,851,015		99,488,777	10,326,029	
Totals																										
2020	774,477			935,314,856	34,222	102,664,521	149,760	1,038,129,137	315,645,525	161,473,257	2,120,175	667,500	1,330,425	139,455,000	30,123,900	127,880,775	55,916,293	395,757,544	63,603,891	303,885,257	425,836,000	139,174,872		585,768,975	1,820,453,376	248,843,875
2010	385,174			489,011,819	17,892	53,676,218	92,160	542,780,198	307,325,475	98,344,152	901,125	667,500	720,900	101,115,000	16,178,400	94,812,930	30,340,138	196,824,112	31,632,447	151,132,800	224,576,000	80,664,725		504,822,030	941,447,102	145,583,590

Fig. 1: Nyeri Town and its Environs



Source: SK Series Y731 (D.O.S.423)
Sheet 120/4
Edition - D.O.S. 1975
Scale 1: 50,000

Fig. 2: The Location of the Study Area



Source: Reprinted by Survey of Kenya
2000/1/69.
Series - Y503
Sheet - SA - 37-1
Edition - 2 - GSGS
Scale 1: 250,000

