(44) Water Demand and Supply Plan (Monze)

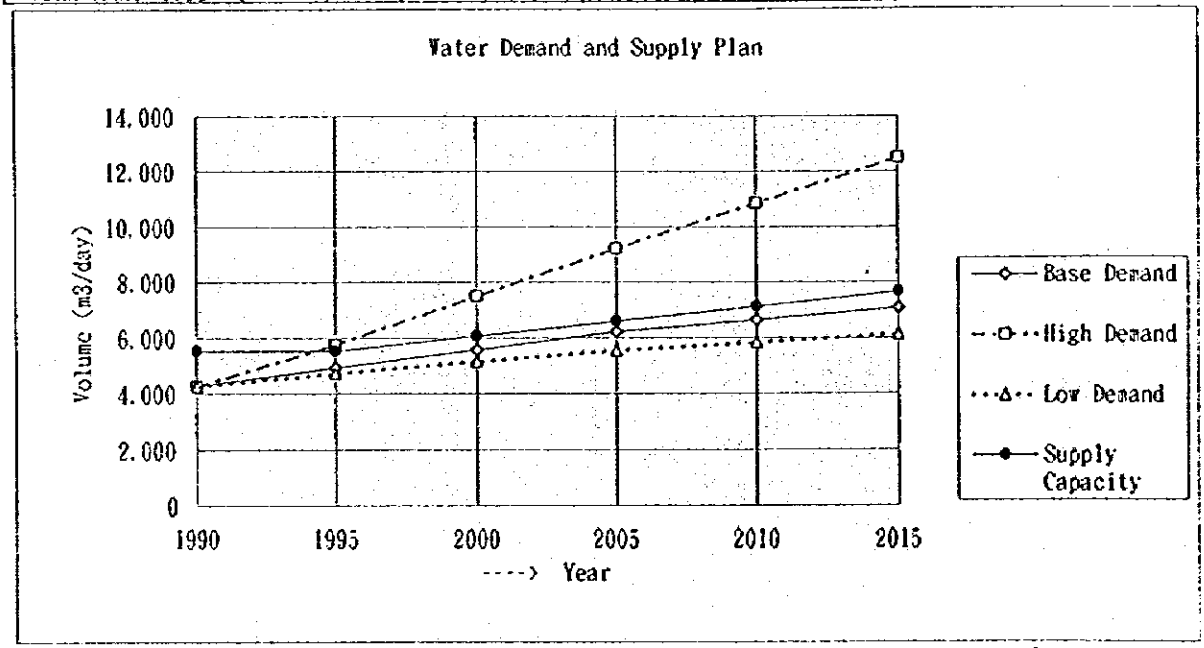
TOWNSHIP		DISTRICT		PROVINCE	
641	Monze	64	Monze	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	15,910	(1) Base Projection	17,739	21,349	24,666
- Household	3,440	(2) High Projection	20,074	31,385	47,905
- Family Size	4.6	(3) Low Projection	17,601	20,456	22,439

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Monze Water Supply	-Council	5,540
Surface Water Source : Magoye River		5,540
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Magoye River, Kasungla River, Lufua River
Groundwater Potential	Quartzites, shales and conglomerates (Mine Series Shales) Safe Yield=106m3/day, radius of influence=1230m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	2,387	2,661	2,932	3,202	3,451	3,700
	(High)	2,387	3,011	3,859	4,708	5,947	7,186
	(Low)	2,387	2,640	2,854	3,068	3,217	3,366
< Industrial Water >							
Water Demand (m3/day)	(Base)	1,331	1,621	1,912	2,202	2,326	2,449
	(High)	1,331	1,994	2,658	3,321	3,505	3,688
	(Low)	1,331	1,475	1,618	1,762	1,857	1,952
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	3,718	4,282	4,843	5,404	5,777	6,149
	(High)	3,718	5,005	6,517	8,029	9,451	10,874
	(Low)	3,718	4,115	4,473	4,830	5,074	5,318
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	4,275	4,925	5,570	6,215	6,643	7,071
	(High)	4,275	5,756	7,495	9,233	10,869	12,505
	(Low)	4,275	4,732	5,143	5,555	5,835	6,116
< Water Supply Program >							
- Existing Capacity (m3/day)		5,540	5,540	5,540	5,540	5,540	5,540
(1) Boreholes (5 wells)				530	530	530	530
(2) Boreholes (5 wells)					530	530	530
(3) Boreholes (5 wells)						530	530
(4) Boreholes (5 wells)							530
- Total Water Supply (m3/day)		5,540	5,540	6,070	6,600	7,130	7,660



(45) Water Demand and Supply Plan (Chisekesi)

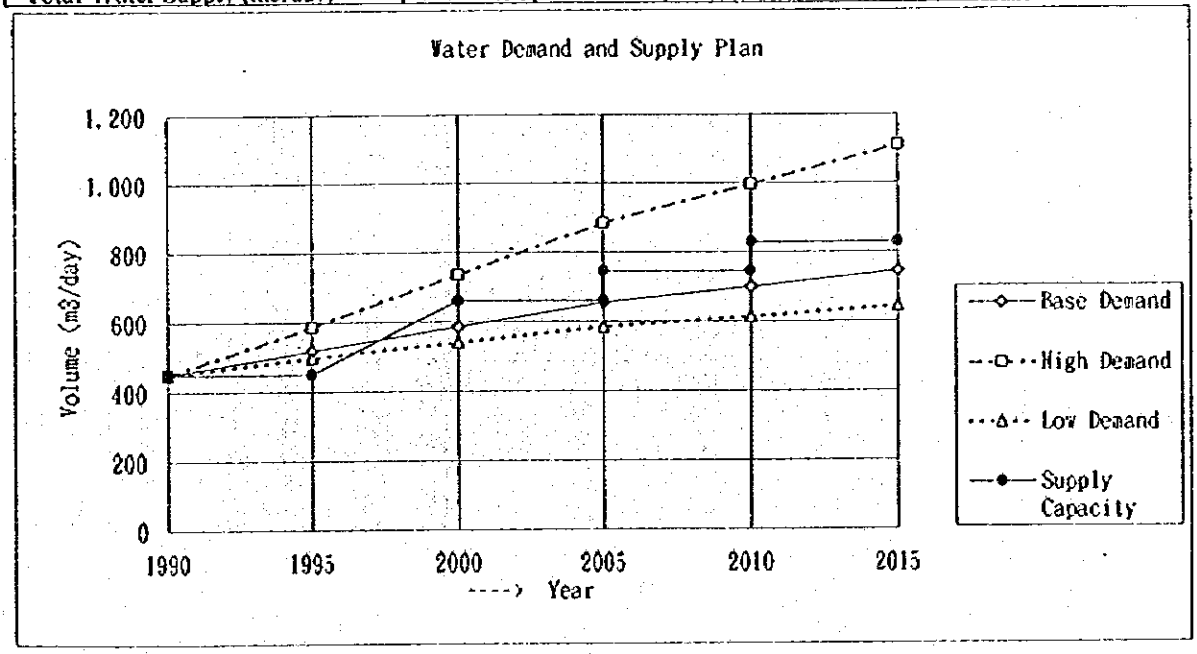
TOWNSHIP		DISTRICT		PROVINCE	
642	Chisekesi	64	Monze	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	1,675	(1) Base Projection	1,868	2,248	2,597
- Household	283	(2) High Projection	1,996	2,796	3,846
- Family Size	5.9	(3) Low Projection	1,853	2,154	2,362

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
Surface Water Source :		
Groundwater Source :		

WATER RESOURCES POTENTIAL	
Surface Water Potential	Kasungla River, Magoye River
Groundwater Potential	Granitic gneiss, migmatites, shists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,φ=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	251	280	309	337	363	390
	(High)	251	299	359	419	498	577
	(Low)	251	278	301	323	339	354
< Industrial Water >							
Water Demand (m3/day)	(Base)	140	171	201	232	245	258
	(High)	140	210	280	350	370	389
	(Low)	140	155	171	186	196	206
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	391	451	510	569	608	648
	(High)	391	509	639	769	868	966
	(Low)	391	433	471	509	535	560
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	450	518	587	655	700	745
	(High)	450	586	735	885	998	1,111
	(Low)	450	498	542	585	615	644
< Water Supply Program >							
- Existing Capacity (m3/day)		450	450	450	450	450	450
(1) Boreholes (5 wells)				210	210	210	210
(2) Boreholes (2 wells)					84	84	84
(3) Boreholes (2 wells)						84	84
- Total Water Supply (m3/day)		450	450	660	744	828	828



(46) Water Demand and Supply Plan (Choma)

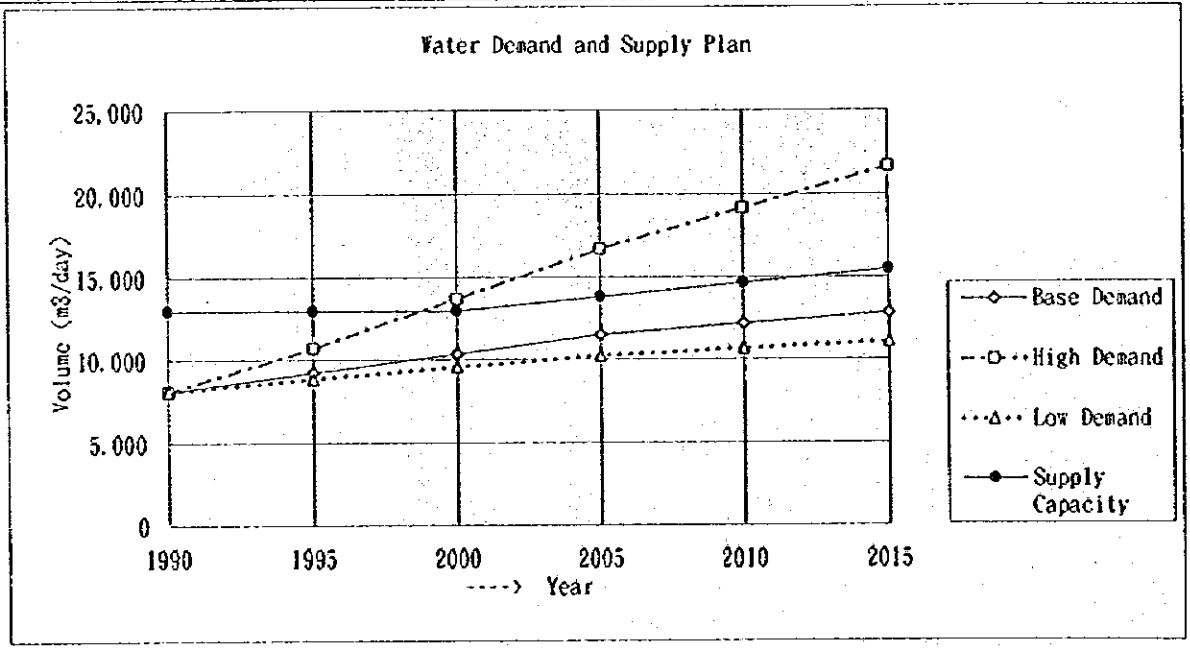
TOWNSHIP		DISTRICT		PROVINCE	
651	Choma	65	Choma	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	30,143	(1) Base Projection	33,134	38,758	43,538
- Household	6,382	(2) High Projection	36,990	54,704	78,973
- Family Size	4.7	(3) Low Projection	32,873	37,150	39,635

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Choma Township Water Supply	-Council	12,960
Surface Water Source : Munzuma Dam, Choma Dam		12,960
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Bwengwa River, Zongwe River
Groundwater Potential	Granitic gneiss, migmatites, shists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	4,521	4,970	5,392	5,814	6,172	6,531
	(High)	4,521	5,549	6,877	8,206	10,026	11,846
	(Low)	4,521	4,931	5,252	5,573	5,759	5,945
< Industrial Water >							
Water Demand (m3/day)	(Base)	2,521	3,071	3,622	4,172	4,407	4,641
	(High)	2,521	3,778	5,036	6,293	6,642	6,990
	(Low)	2,521	2,794	3,066	3,339	3,519	3,699
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	7,042	8,041	9,014	9,986	10,579	11,172
	(High)	7,042	9,327	11,913	14,499	16,667	18,836
	(Low)	7,042	7,725	8,318	8,912	9,278	9,644
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	8,099	9,248	10,366	11,484	12,166	12,847
	(High)	8,099	10,726	13,700	16,673	19,167	21,661
	(Low)	8,099	8,883	9,566	10,248	10,670	11,091
< Water Supply Program >							
- Existing Capacity (m3/day)		12,960	12,960	12,960	12,960	12,960	12,960
(1) Boreholes (20 wells)					840	840	840
(2) Boreholes (20 wells)						840	840
(3) Boreholes (20 wells)							840
- Total Water Supply (m3/day)		12,960	12,960	12,960	13,800	14,640	15,480



(47) Water Demand and Supply Plan (Batoka)

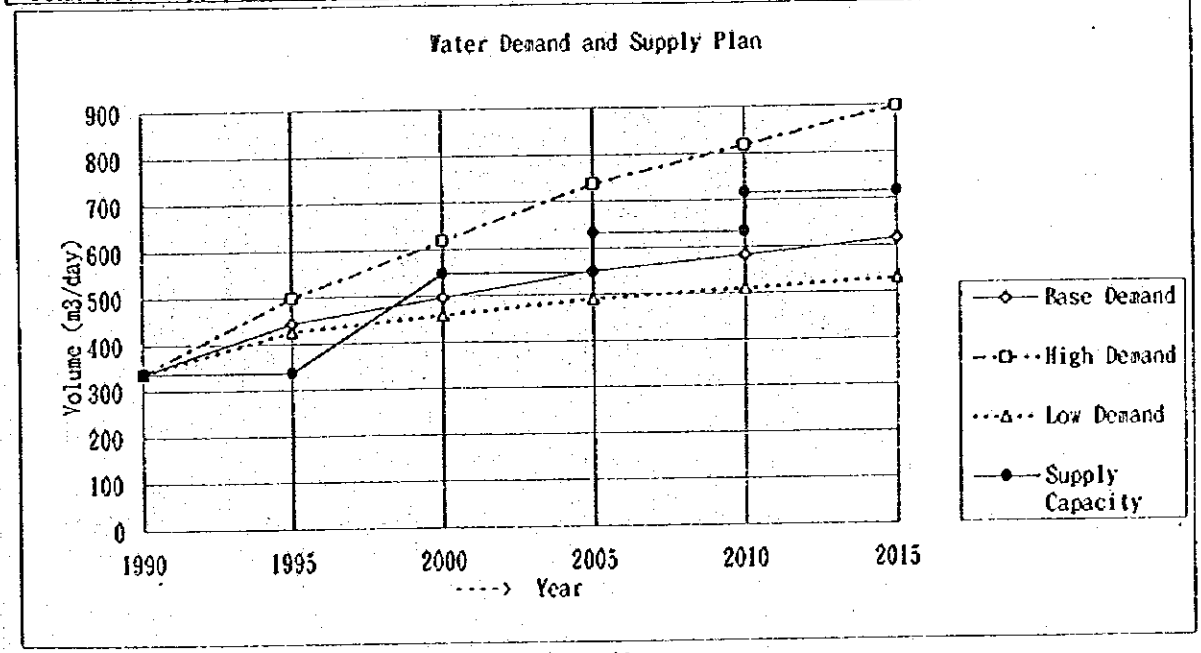
TOWNSHIP		DISTRICT		PROVINCE	
652	Batoka	65	Choma	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION				
1990 Census Data	Projection Scenarios	1995	2005	2015
- Population 1,445	(1) Base Projection	1,588	1,858	2,087
- Household 297	(2) High Projection	1,686	2,264	2,986
- Family Size 4.9	(3) Low Projection	1,576	1,781	1,900

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
Surface Water Source :		
Groundwater Source :		

WATER RESOURCES POTENTIAL	
Surface Water Potential	Bwengwa River, Njongola River
Groundwater Potential	Granitic gneiss, migmatites, schists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	217	238	258	279	296	313
	(High)	217	253	296	340	394	448
	(Low)	217	236	252	267	276	285
< Industrial Water >							
Water Demand (m3/day)	(Base)	121	147	174	200	211	222
	(High)	121	181	242	302	318	334
	(Low)	121	134	147	160	169	177
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	338	386	432	479	507	535
	(High)	338	434	538	642	712	782
	(Low)	338	370	399	427	445	462
- Water Loss Rate (%)			15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	338	443	497	551	583	615
	(High)	338	499	619	738	819	899
	(Low)	338	426	459	491	511	531
< Water Supply Program >							
- Existing Capacity (m3/day)		338	338	338	338	338	338
(1) Boreholes (5 wells)				210	210	210	210
(2) Boreholes (2 wells)					84	84	84
(3) Boreholes (2 wells)						84	84
- Total Water Supply (m3/day)		338	338	548	632	716	716



(48) Water Demand and Supply Plan (Pemba)

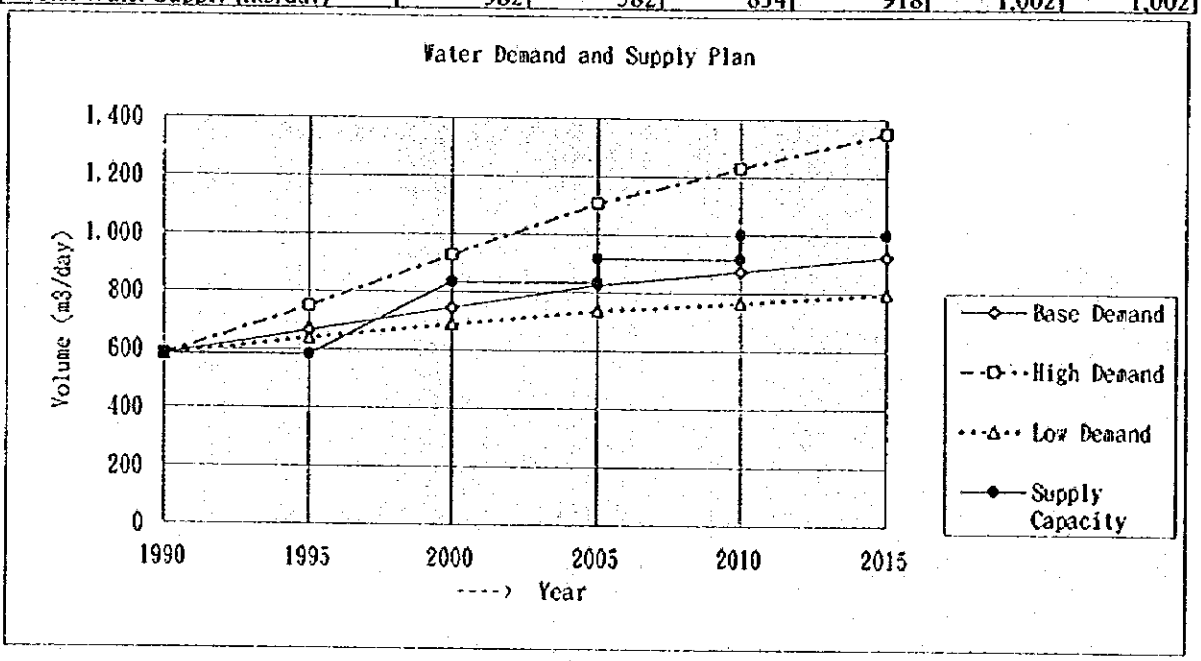
TOWNSHIP		DISTRICT		PROVINCE	
653	Pemba	65	Choma	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	2,170	(1) Base Projection	2,385	2,790	3,134
- Household	475	(2) High Projection	2,532	3,401	4,484
- Family Size	4.6	(3) Low Projection	2,367	2,674	2,853

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Pemba Water Supply	-Council	
Surface Water Source :		
Groundwater Source :		

WATER RESOURCES POTENTIAL	
Surface Water Potential	Kalabo River, Chezya River
Groundwater Potential	Granitic gneiss, migmatites, schists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,φ=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	326	358	388	419	444	470
	(High)	326	380	445	510	591	673
	(Low)	326	355	378	401	415	428
< Industrial Water >							
Water Demand (m3/day)	(Base)	181	221	260	300	317	334
	(High)	181	272	362	453	478	503
	(Low)	181	201	220	240	253	266
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	507	578	648	719	761	804
	(High)	507	651	807	963	1,069	1,176
	(Low)	507	556	598	641	668	694
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	582	665	746	826	875	925
	(High)	582	749	928	1,108	1,230	1,352
	(Low)	582	639	688	737	768	798
< Water Supply Program >							
- Existing Capacity (m3/ day)		582	582	582	582	582	582
(1) Boreholes (6 wells)				252	252	252	252
(2) Boreholes (2 wells)					84	84	84
(3) Boreholes (2 wells)						84	84
- Total Water Supply (m3/day)		582	582	834	918	1,002	1,002



(49) Water Demand and Supply Plan (Mbabala)

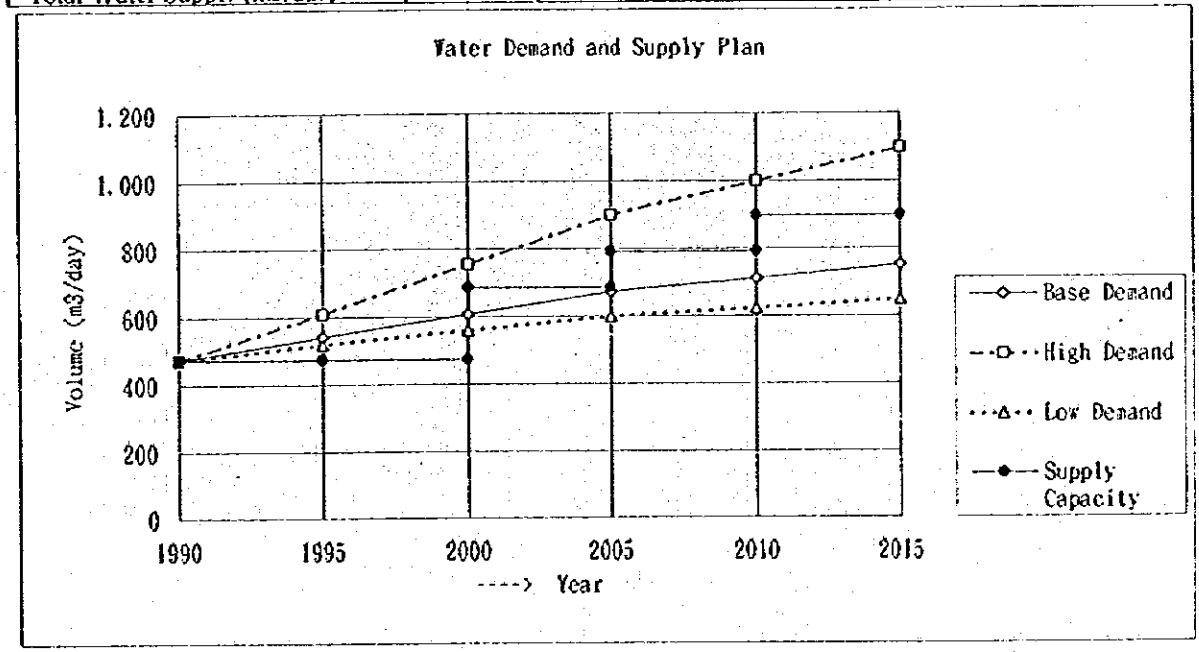
TOWNSHIP		DISTRICT		PROVINCE	
654	Mbabala	65	Choma	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	1,762	(1) Base Projection	1,937	2,266	2,545
- Household	386	(2) High Projection	2,056	2,761	3,641
- Family Size	4.6	(3) Low Projection	1,922	2,172	2,317

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
Surface Water Source :		
Groundwater Source :		

WATER RESOURCES POTENTIAL	
Surface Water Potential	Zongwe River
Groundwater Potential	Granite Safe Yield=106m3/day, radius of influence=1010m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	264	291	315	340	361	382
	(High)	264	308	361	414	480	546
	(Low)	264	288	307	326	337	348
< Industrial Water >							
Water Demand (m3/day)	(Base)	147	179	212	244	258	271
	(High)	147	221	294	368	388	408
	(Low)	147	163	179	195	206	216
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	411	470	527	584	618	653
	(High)	411	529	656	782	868	954
	(Low)	411	451	486	521	542	564
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	473	540	606	671	711	751
	(High)	473	608	754	899	998	1,097
	(Low)	473	519	559	599	624	648
< Water Supply Program >							
- Existing Capacity (m3/day)		473	473	473	473	473	473
(1) Bore holes (2 wells)				212	212	212	212
(2) Borehole (1 well)					106	106	106
(3) Borehole (1 well)						106	106
- Total Water Supply (m3/day)		473	473	685	791	897	897



(50) Water Demand and Supply Plan (Kalomo)

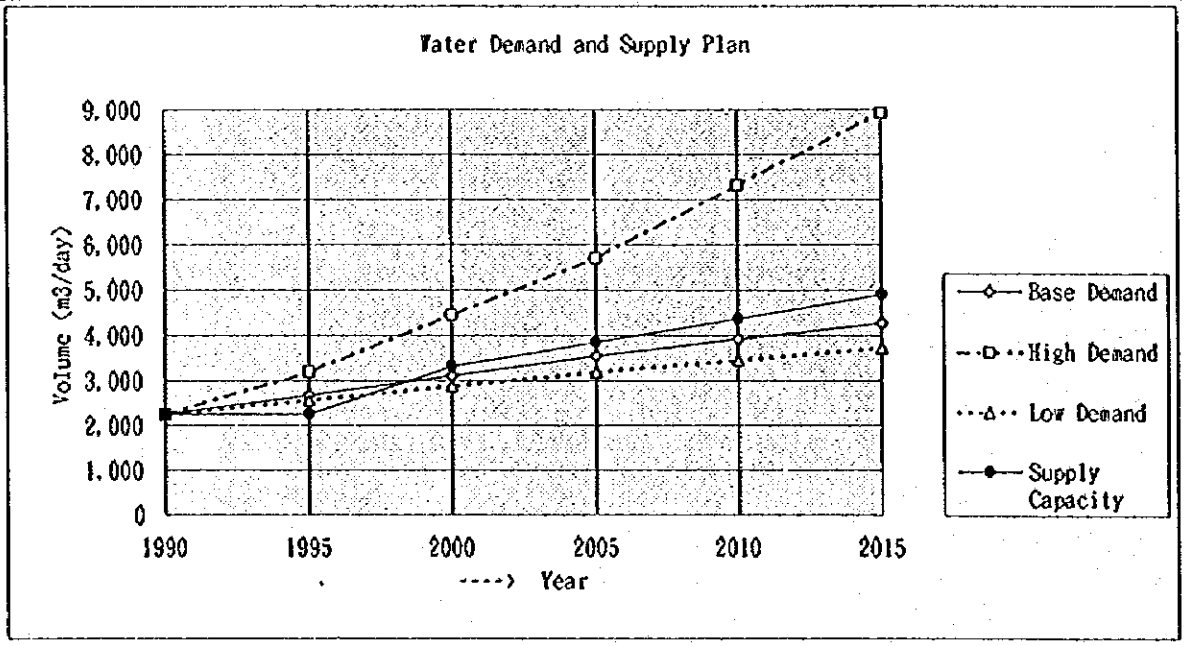
TOWNSHIP		DISTRICT		PROVINCE	
661	Kalomo	66	Kalomo	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	8,386	(1) Base Projection	9,774	12,845	16,203
- Household	1,920	(2) High Projection	11,522	21,386	38,734
- Family Size	4.4	(3) Low Projection	9,693	12,299	14,738

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Kalomo Water Supply	-Council	
Surface Water Source :		
Groundwater Source :		

WATER RESOURCES POTENTIAL	
Surface Water Potential	Kalomo River, Mwemba River
Groundwater Potential	Granite Safe Yield=106m3/day, radius of influence=1010m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	1,258	1,466	1,696	1,927	2,179	2,430
	(High)	1,258	1,728	2,468	3,208	4,509	5,810
	(Low)	1,258	1,454	1,649	1,845	2,028	2,211
< Industrial Water >							
Water Demand (m3/day)	(Base)	701	854	1,008	1,161	1,226	1,291
	(High)	701	1,051	1,401	1,751	1,848	1,944
	(Low)	701	777	853	929	979	1,029
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	1,959	2,320	2,704	3,088	3,405	3,721
	(High)	1,959	2,779	3,869	4,959	6,357	7,754
	(Low)	1,959	2,231	2,502	2,774	3,007	3,240
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	2,253	2,668	3,110	3,551	3,915	4,280
	(High)	2,253	3,196	4,449	5,703	7,310	8,917
	(Low)	2,253	2,566	2,878	3,190	3,458	3,726
< Water Supply Program >							
- Existing Capacity (m3/day)		2,253	2,253	2,253	2,253	2,253	2,253
(1) Boreholes (10 wells)				1,060	1,060	1,060	1,060
(2) Boreholes (5 wells)					530	530	530
(3) Boreholes (5 wells)						530	530
(4) Boreholes (5 wells)							530
- Total Water Supply (m3/day)		2,253	2,253	3,313	3,843	4,373	4,903



(51) Water Demand and Supply Plan (Zimba)

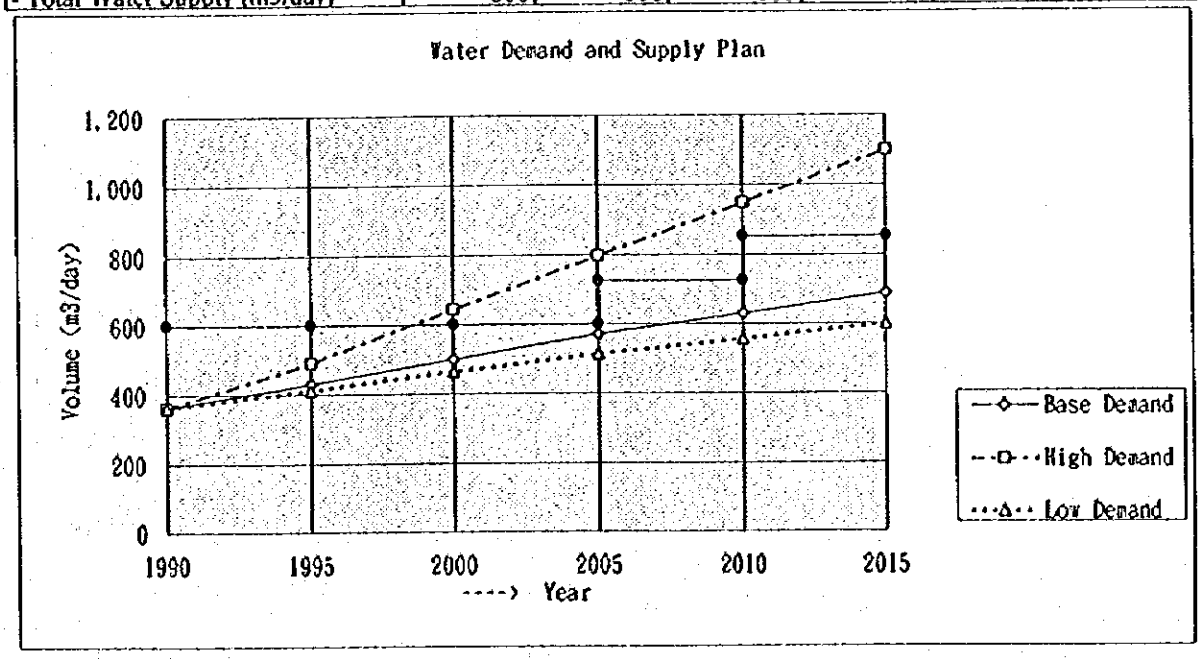
TOWNSHIP		DISTRICT		PROVINCE	
662	Zimba	66	Kalomo	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	1,351	(1) Base Projection	1,575	2,069	2,610
- Household	304	(2) High Projection	1,718	2,741	4,294
- Family Size	4.4	(3) Low Projection	1,562	1,982	2,374

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Zimba Water Supply	-DWA	600
Surface Water Source :		600
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Ngwezé River, Kalomo River
Groundwater Potential	Granitic gneiss, migmatites, schists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	203	236	273	310	351	392
	(High)	203	258	334	411	528	644
	(Low)	203	234	266	297	327	356
< Industrial Water >							
Water Demand (m3/day)	(Base)	113	138	162	187	198	208
	(High)	113	169	226	282	298	313
	(Low)	113	125	138	150	158	166
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	316	374	436	497	548	600
	(High)	316	427	560	693	825	957
	(Low)	316	360	403	447	485	522
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	363	430	501	572	631	689
	(High)	363	491	644	797	949	1,101
	(Low)	363	414	464	514	557	600
< Water Supply Program >							
- Existing Capacity (m3/day)		600	600	600	600	600	600
(1) Boreholes (3 wells)					126	126	126
(2) Boreholes (3 wells)						126	126
- Total Water Supply (m3/day)		600	600	600	726	852	852



(52) Water Demand and Supply Plan (Siavonga)

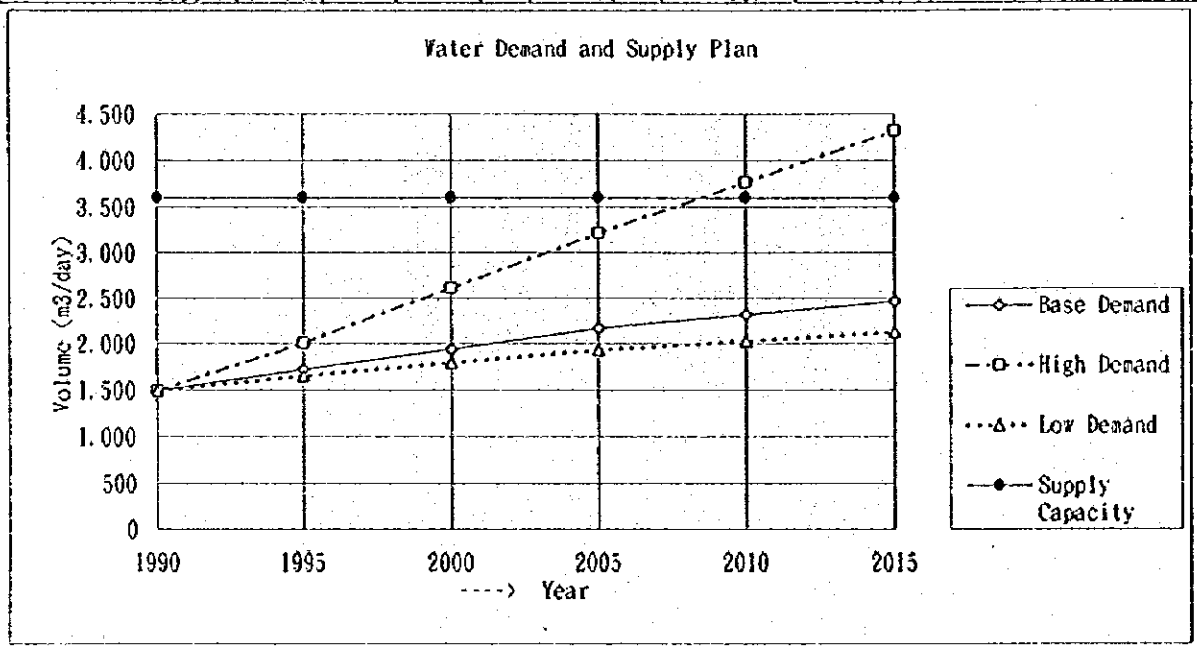
TOWNSHIP		DISTRICT		PROVINCE	
671	Siavonga	67	Siavonga	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	5,569	(1) Base Projection	6,197	7,429	8,550
- Household	1,300	(2) High Projection	7,000	10,860	16,450
- Family Size	4.3	(3) Low Projection	6,149	7,118	7,777

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Siavonga District Water Supply	-Council	3,600
Surface Water Source : Lake Kariba		3,600
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Lake Kariba
Groundwater Potential	Granitic gneiss, migmatites, schists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	835	930	1,022	1,114	1,198	1,283
	(High)	835	1,050	1,340	1,629	2,048	2,468
	(Low)	835	922	995	1,068	1,117	1,167
< Industrial Water >							
Water Demand (m3/day)	(Base)	466	568	669	771	814	857
	(High)	466	698	931	1,163	1,227	1,291
	(Low)	466	516	567	617	650	683
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	1,301	1,497	1,691	1,885	2,012	2,140
	(High)	1,301	1,748	2,270	2,792	3,275	3,759
	(Low)	1,301	1,439	1,562	1,685	1,767	1,850
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	1,497	1,722	1,945	2,168	2,314	2,460
	(High)	1,497	2,011	2,611	3,211	3,767	4,322
	(Low)	1,497	1,654	1,796	1,937	2,032	2,127
< Water Supply Program >							
- Existing Capacity (m3/day)		3,600	3,600	3,600	3,600	3,600	3,600
- Total Water Supply (m3/day)		3,600	3,600	3,600	3,600	3,600	3,600



(53) Water Demand and Supply Plan (Chirundu)

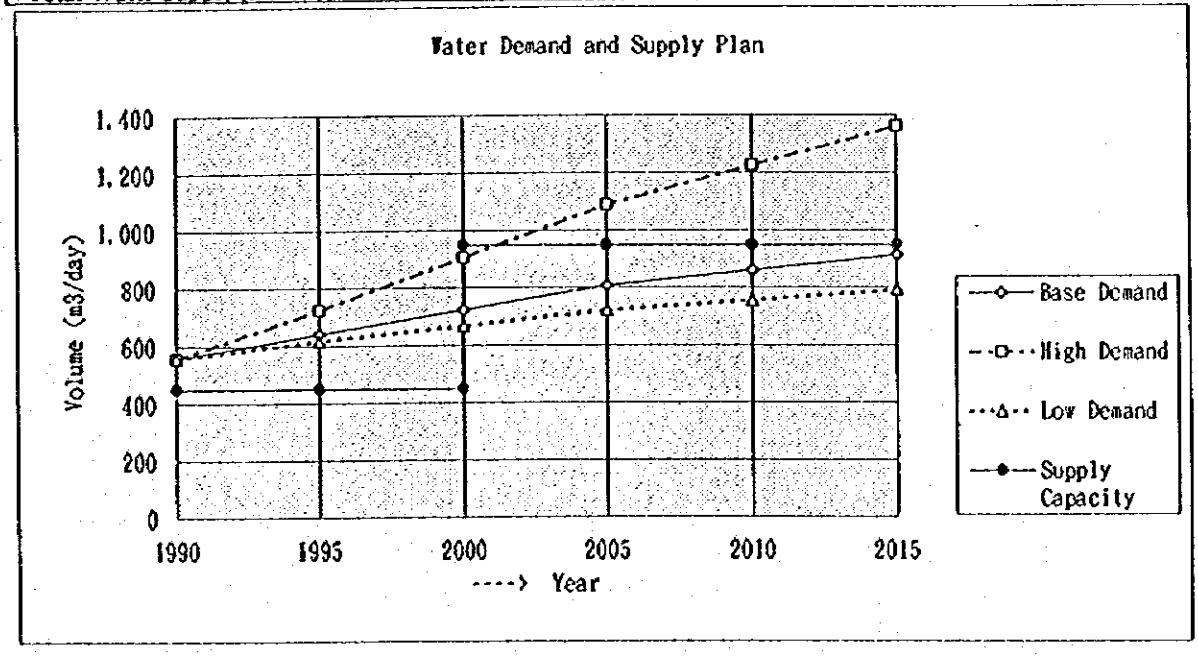
TOWNSHIP		DISTRICT		PROVINCE	
672	Chirundu	67	Siavonga	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	2,072	(1) Base Projection	2,306	2,764	3,181
- Household	390	(2) High Projection	2,462	3,429	4,689
- Family Size	5.3	(3) Low Projection	2,288	2,648	2,894

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Chirundu Water Supply	-DWA	449
Surface Water Source : Zambezi River		449
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Zambezi River, Kafue River
Groundwater Potential	Sandstones, mudstones and siltstones (Karroo Sandstones) Safe Yield=192m3/day, radius of influence=1170m, Borehole:L=60m,o=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	311	346	380	415	446	477
	(High)	311	369	442	514	609	703
	(Low)	311	343	370	397	416	434
< Industrial Water >							
Water Demand (m3/day)	(Base)	173	211	249	287	303	319
	(High)	173	260	346	433	457	480
	(Low)	173	192	211	230	242	254
< Domestic & Industrial Water >							
Township Gross Water Demand (m3/day)	(Base)	484	557	629	702	749	796
	(High)	484	629	788	947	1,065	1,183
	(Low)	484	535	581	627	658	688
- Water Loss Rate (%)		15	15	15	15	15	15
Township Net Water Demand (m3/day)	(Base)	556	640	724	807	861	916
	(High)	556	723	906	1,089	1,225	1,361
	(Low)	556	615	668	721	756	791
< Water Supply Program >							
- Existing Capacity (m3/day)		449	449	449	449	449	449
(1) Water Supply Extension				500	500	500	500
- Total Water Supply (m3/day)		449	449	949	949	949	949



(54) Water Demand and Supply Plan (Gwembe)

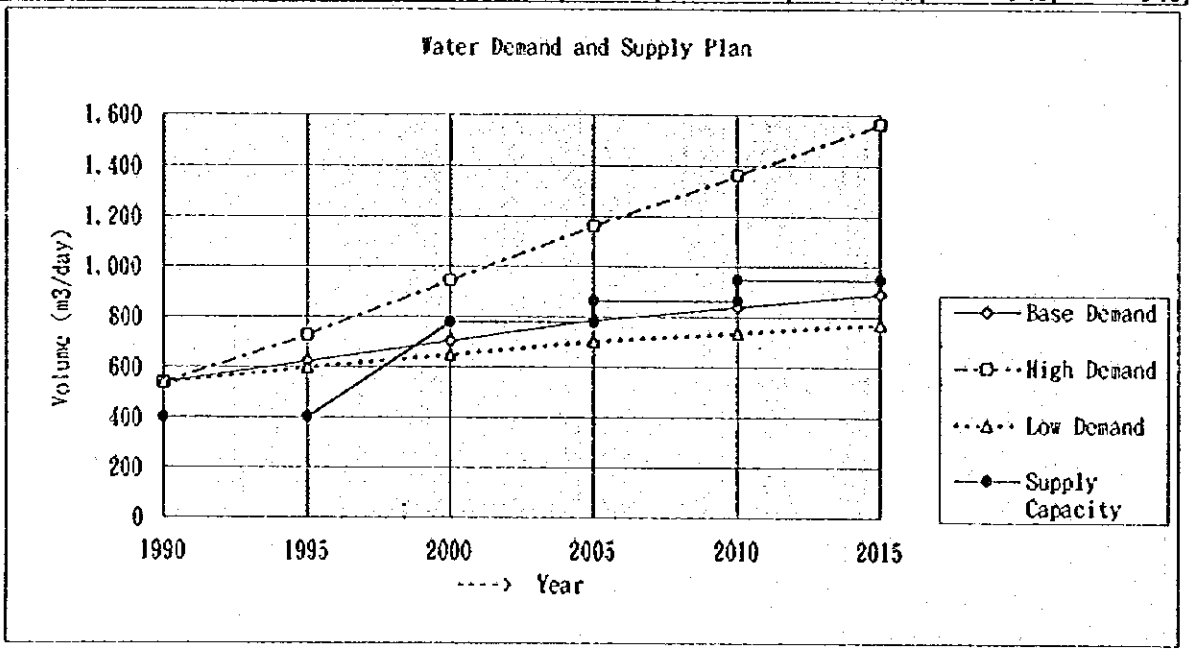
TOWNSHIP		DISTRICT		PROVINCE	
681	Gwembe	68	Gwembe	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	2,013	(1) Base Projection	2,240	2,685	3,090
- Household	406	(2) High Projection	2,530	3,926	5,946
- Family Size	5.0	(3) Low Projection	2,223	2,573	2,811

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Gwembe Water Supply Scheme	-DWA	400
Surface Water Source : Singonia Dam, Gwembe Dam		400
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Nabukuyu River, Chibwe River
Groundwater Potential	Granitic gneiss, migmatites, schists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,ø=30cm

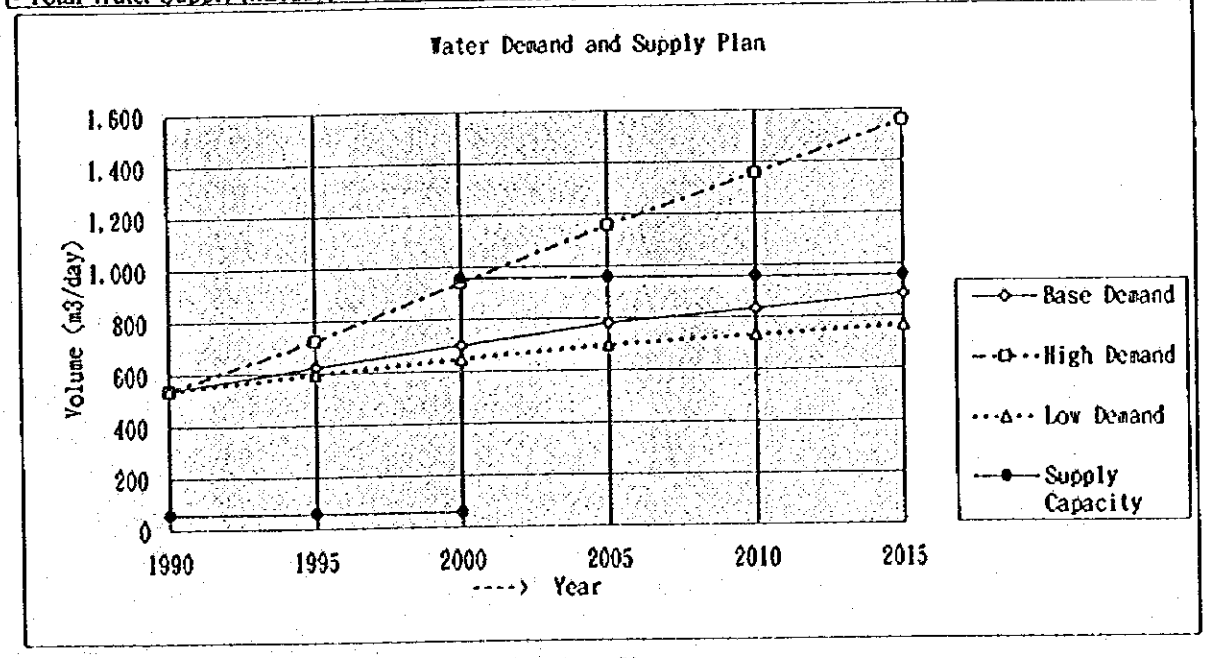
WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	302	336	369	403	433	464
	(High)	302	380	484	589	740	892
	(Low)	302	333	360	386	404	422
< Industrial Water >							
Water Demand (m3/day)	(Base)	168	205	242	279	295	310
	(High)	168	252	337	421	444	467
	(Low)	168	186	205	223	235	247
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	470	541	611	682	728	774
	(High)	470	632	821	1,010	1,184	1,359
	(Low)	470	520	564	609	639	669
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	540	622	703	784	837	890
	(High)	540	727	944	1,161	1,362	1,563
	(Low)	540	598	649	700	735	769
< Water Supply Program >							
- Existing Capacity (m3/day)		400	400	400	400	400	400
(1) Boreholes (9 wells)				378	378	378	378
(2) Boreholes (2 wells)					84	84	84
(3) Boreholes (2 wells)						84	84
- Total Water Supply (m3/day)		400	400	778	862	946	946



(55) Water Demand and Supply Plan (Sinazongwe)

TOWNSHIP		DISTRICT	PROVINCE	
651 Sinazongwe		69 Sinazongwe	60	Southern
1990 CENSUS POPULATION AND FUTURE PROJECTION				
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	2,006	(1) Base Projection	2,232	2,676	3,080
- Household	456	(2) High Projection	2,521	3,912	5,926
- Family Size	4.4	(3) Low Projection	2,215	2,564	2,802
CURRENT DOMESTIC WATER SUPPLY PROJECT					
Name of Water Supply Project		Type of Managing Body	Water Supply Volume (m3/day)		
-Sinazongwe Water Supply		-DWA	56		
Surface Water Source : Lake Kariba			56		
Groundwater Source :			0		
WATER RESOURCES POTENTIAL					
Surface Water Potential	Lake Kariba				
Groundwater Potential	Sandstones, mudstones and siltstones (Karroo Sandstones) Safe Yield=192m3/day, radius of influence=1170m, Borehole:L=60m,ø=30cm				

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	301	335	368	401	432	462
	(High)	301	378	482	587	738	889
	(Low)	301	332	358	385	402	420
< Industrial Water >							
Water Demand (m3/day)	(Base)	168	205	241	278	294	309
	(High)	168	252	335	419	442	465
	(Low)	168	186	205	223	235	246
< Domestic & Industrial Water >							
Township Gross Water Demand (m3/day)	(Base)	469	539	609	679	725	771
	(High)	469	630	818	1,006	1,180	1,354
	(Low)	469	519	563	608	637	666
- Water Loss Rate (%)		15	15	15	15	15	15
Township Net Water Demand (m3/day)	(Base)	539	620	701	781	834	887
	(High)	539	724	940	1,157	1,357	1,557
	(Low)	539	596	648	699	732	766
< Water Supply Program >							
- Existing Capacity (m3/day)		56	56	56	56	56	56
(1) Water Supply Extension				900	900	900	900
- Total Water Supply (m3/day)		56	56	956	956	956	956



(56) Water Demand and Supply Plan (Maamba)

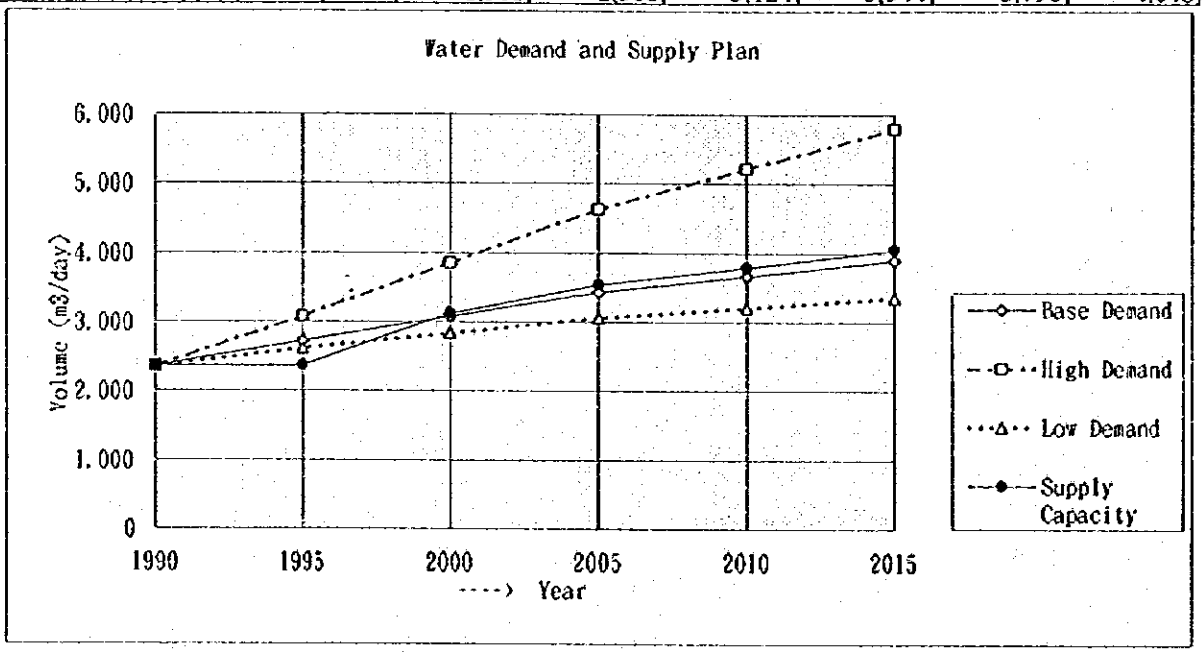
TOWNSHIP		DISTRICT		PROVINCE	
692	Maamba	69	Sinazongwe	60	Southern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	8,817	(1) Base Projection	9,812	11,762	13,535
- Household	1,726	(2) High Projection	10,476	14,591	19,955
- Family Size	5.1	(3) Low Projection	9,735	11,270	12,314

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
Surface Water Source :		
Groundwater Source :		

WATER RESOURCES POTENTIAL	
Surface Water Potential	Zhimu River, Zongwe River
Groundwater Potential	Granitic gneiss, migmatites, schists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,φ=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	1,323	1,472	1,618	1,764	1,897	2,030
	(High)	1,323	1,571	1,880	2,189	2,591	2,993
	(Low)	1,323	1,460	1,575	1,691	1,769	1,847
< Industrial Water >							
Water Demand (m3/day)	(Base)	737	898	1,059	1,220	1,289	1,357
	(High)	737	1,105	1,472	1,840	1,942	2,044
	(Low)	737	817	896	976	1,029	1,082
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	2,060	2,370	2,677	2,984	3,186	3,387
	(High)	2,060	2,676	3,352	4,029	4,533	5,037
	(Low)	2,060	2,277	2,472	2,667	2,798	2,929
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	2,368	2,725	3,079	3,432	3,664	3,895
	(High)	2,368	3,077	3,855	4,633	5,213	5,793
	(Low)	2,368	2,618	2,842	3,066	3,217	3,368
< Water Supply Program >							
- Existing Capacity (m3/day)		2,368	2,368	2,368	2,368	2,368	2,368
(1) Boreholes (18 wells)				756	756	756	756
(2) Boreholes (10 wells)					420	420	420
(3) Boreholes (6 wells)						252	252
(4) Boreholes (6 wells)							252
- Total Water Supply (m3/day)		2,368	2,368	3,124	3,544	3,796	4,048



(57) Water Demand and Supply Plan (Mansa)

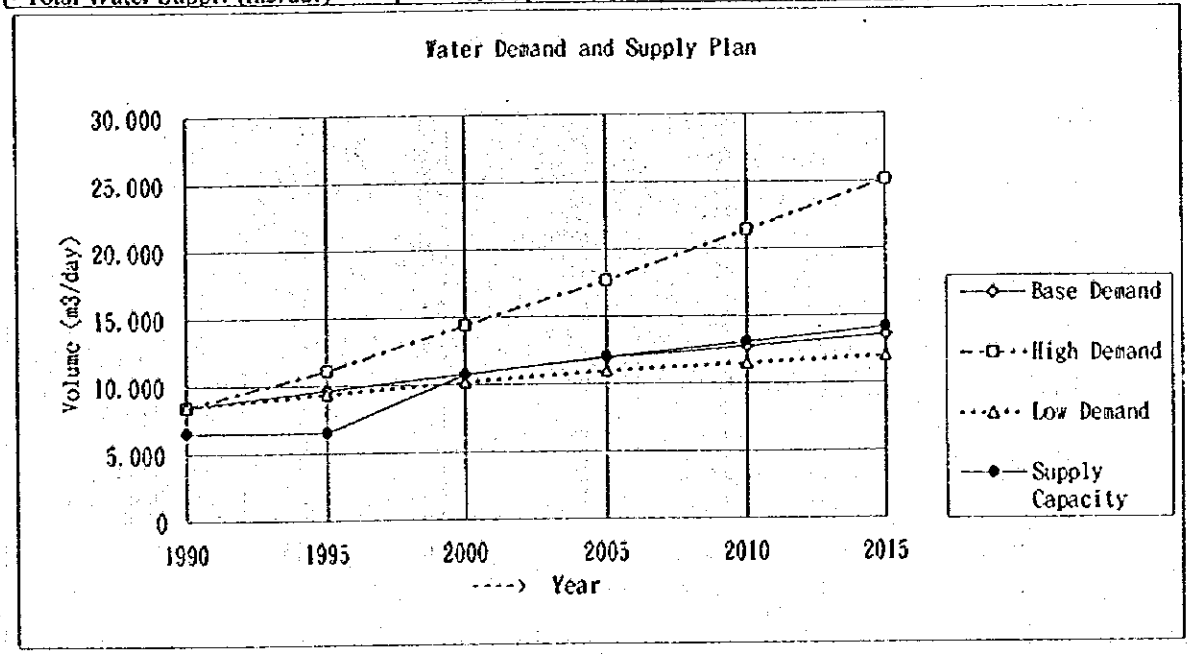
TOWNSHIP		DISTRICT		PROVINCE	
711	Mansa	71	Mansa	70	Luapula

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	39,051	(1) Base Projection	43,581	52,555	60,843
- Household	8,694	(2) High Projection	49,367	77,477	118,715
- Family Size	4.5	(3) Low Projection	43,243	50,358	55,350

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
Mansa District Council Water Supply	-Council	6,480
Surface Water Source : Namwandwe Tributary (Mansa River)		6,480
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Mansa River, Chibalashi River, Luapula River
Groundwater Potential	Granite Safe Yield=106m3/day, radius of influence=1010m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	5,858	6,537	7,210	7,883	8,505	9,126
	(High)	5,858	7,405	9,513	11,622	14,714	17,807
	(Low)	5,858	6,486	7,020	7,554	7,928	8,303
< Industrial Water >							
Water Demand (m3/day)	(Base)	1,503	1,832	2,161	2,490	2,584	2,678
	(High)	1,503	2,254	3,005	3,756	3,895	4,033
	(Low)	1,503	1,666	1,830	1,993	2,064	2,134
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	7,361	8,369	9,371	10,373	11,089	11,804
	(High)	7,361	9,659	12,518	15,378	18,609	21,840
	(Low)	7,361	8,153	8,850	9,547	9,992	10,437
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	8,465	9,625	10,777	11,929	12,752	13,575
	(High)	8,465	11,108	14,396	17,684	21,400	25,116
	(Low)	8,465	9,376	10,177	10,979	11,490	12,002
< Water Supply Program >							
- Existing Capacity (m3/day)		6,480	6,480	6,480	6,480	6,480	6,480
(1) Boreholes (40 wells)				4,240	4,240	4,240	4,240
(2) Boreholes (12 wells)					1,272	1,272	1,272
(3) Boreholes (10 wells)						1,060	1,060
(4) Boreholes (10 wells)							1,060
- Total Water Supply (m3/day)		6,480	6,480	10,720	11,992	13,052	14,112



(58) Water Demand and Supply Plan (Nchelenge)

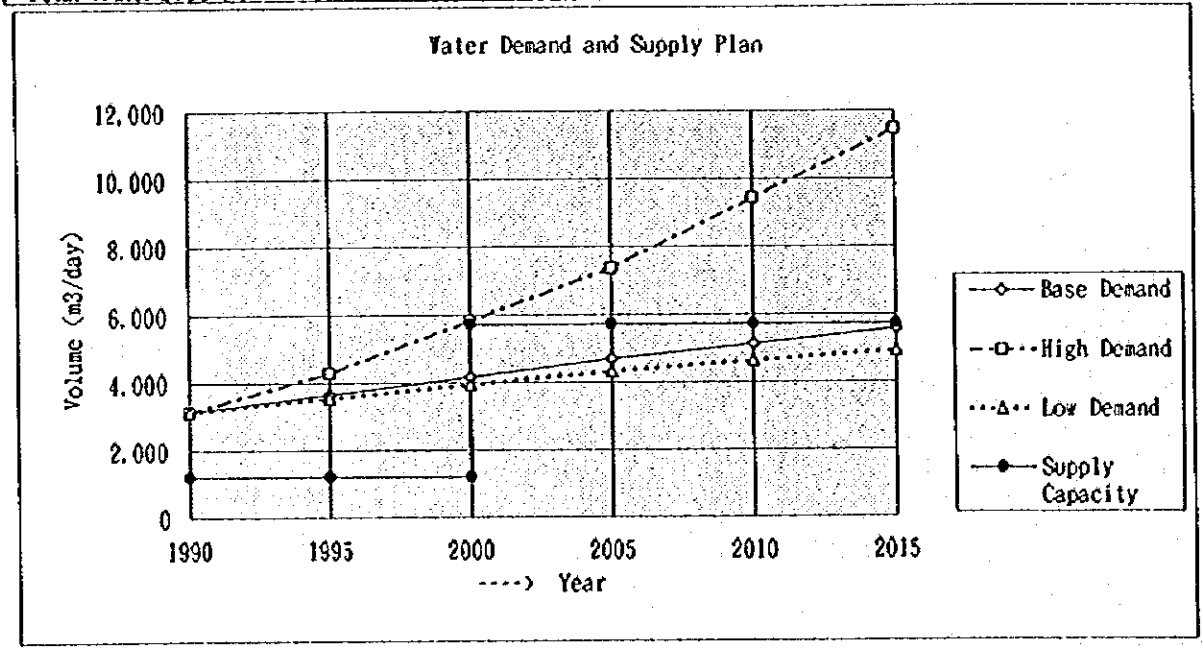
TOWNSHIP		DISTRICT		PROVINCE	
721	Nchelenge	72	Nchelenge	70	Luapula

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	14,498	(1) Base Projection	16,603	21,070	25,669
- Household	3,504	(2) High Projection	19,255	33,394	56,503
- Family Size	4.1	(3) Low Projection	16,467	20,182	23,353

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Nchelenge Water Spply	-DWA	1,210
Surface Water Source : Lake Mweru		1,210
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Lake Mweru
Groundwater Potential	Quartzites, shales and conglomerates (Mine Series Shales) Safe Yield=106m3/day, radius of influence=1230m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	2,175	2,490	2,825	3,161	3,505	3,850
	(High)	2,175	2,888	3,949	5,009	6,742	8,475
	(Low)	2,175	2,470	2,749	3,027	3,265	3,503
< Industrial Water >							
Water Demand (m3/day)	(Base)	558	680	802	924	959	994
	(High)	558	837	1,115	1,394	1,446	1,497
	(Low)	558	619	679	740	766	792
< Domestic & Industrial Water >							
Township Gross Water Demand (m3/day)	(Base)	2,733	3,170	3,627	4,085	4,464	4,844
	(High)	2,733	3,725	5,064	6,403	8,188	9,972
	(Low)	2,733	3,089	3,428	3,767	4,031	4,295
- Water Loss Rate (%)		15	15	15	15	15	15
Township Net Water Demand (m3/day)	(Base)	3,143	3,646	4,172	4,697	5,134	5,571
	(High)	3,143	4,284	5,824	7,364	9,416	11,468
	(Low)	3,143	3,552	3,942	4,332	4,636	4,939
< Water Supply Program >							
- Existing Capacity (m3/day)		1,210	1,210	1,210	1,210	1,210	1,210
(1) Water Supply Extension				4,500	4,500	4,500	4,500
- Total Water Supply (m3/day)		1,210	1,210	5,710	5,710	5,710	5,710



(59) Water Demand and Supply Plan (Chiengi)

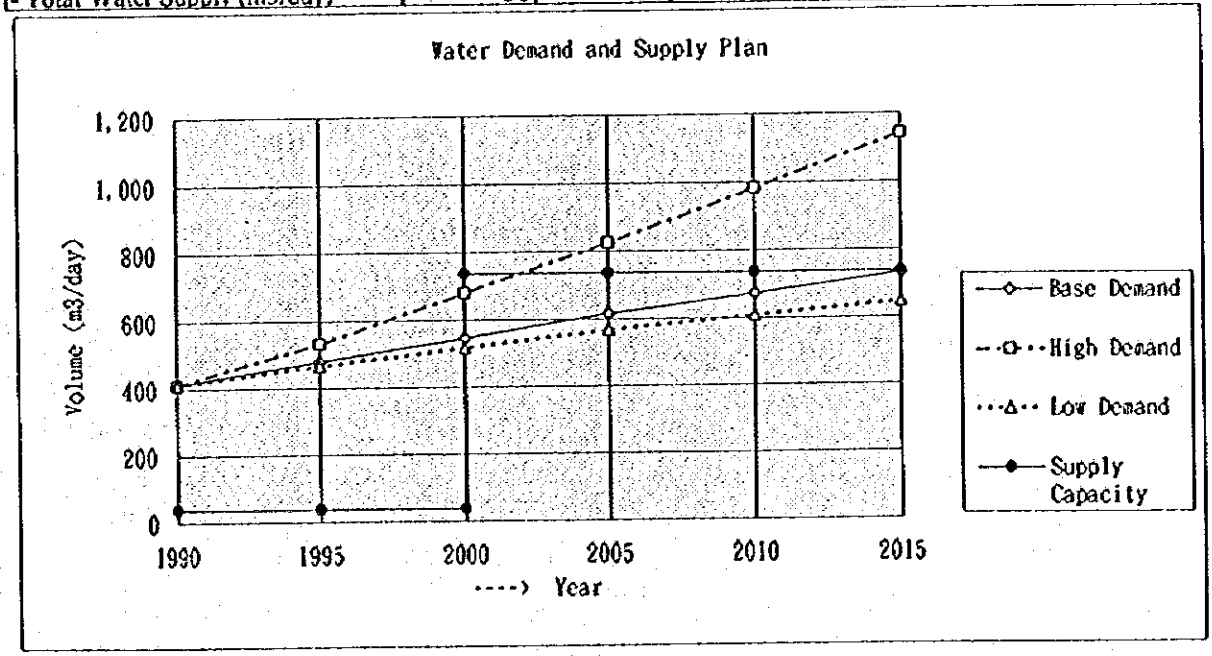
TOWNSHIP		DISTRICT		PROVINCE	
722	Chiengi	72	Nchelenge	70	Luapula

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	1,900	(1) Base Projection	2,176	2,761	3,364
- Household	519	(2) High Projection	2,354	3,568	5,307
- Family Size	3.7	(3) Low Projection	2,158	2,645	3,060

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Chiengi Water Supply	-DWA	36
Surface Water Source ; Lake Mweru		36
Groundwater Source ;		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Lake Mweru
Groundwater Potential	Granite Safe Yield=106m3/day, radius of influence=1010m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	285	326	370	414	459	505
	(High)	285	353	444	535	666	796
	(Low)	285	324	360	397	428	459
< Industrial Water >							
Water Demand (m3/day)	(Base)	73	89	105	121	126	130
	(High)	73	110	146	183	190	196
	(Low)	73	81	89	97	101	104
< Domestic & Industrial Water >							
Township Gross Water Demand (m3/day)	(Base)	358	415	475	535	585	635
	(High)	358	463	590	718	855	992
	(Low)	358	405	449	494	528	563
- Water Loss Rate (%)		15	15	15	15	15	15
Township Net Water Demand (m3/day)	(Base)	412	478	547	615	673	730
	(High)	412	532	679	826	983	1,141
	(Low)	412	465	517	568	608	647
< Water Supply Program >							
- Existing Capacity (m3/day)		36	36	36	36	36	36
(1) Water Supply Extension				700	700	700	700
- Total Water Supply (m3/day)		36	36	736	736	736	736



(60) Water Demand and Supply Plan (Kawambwa)

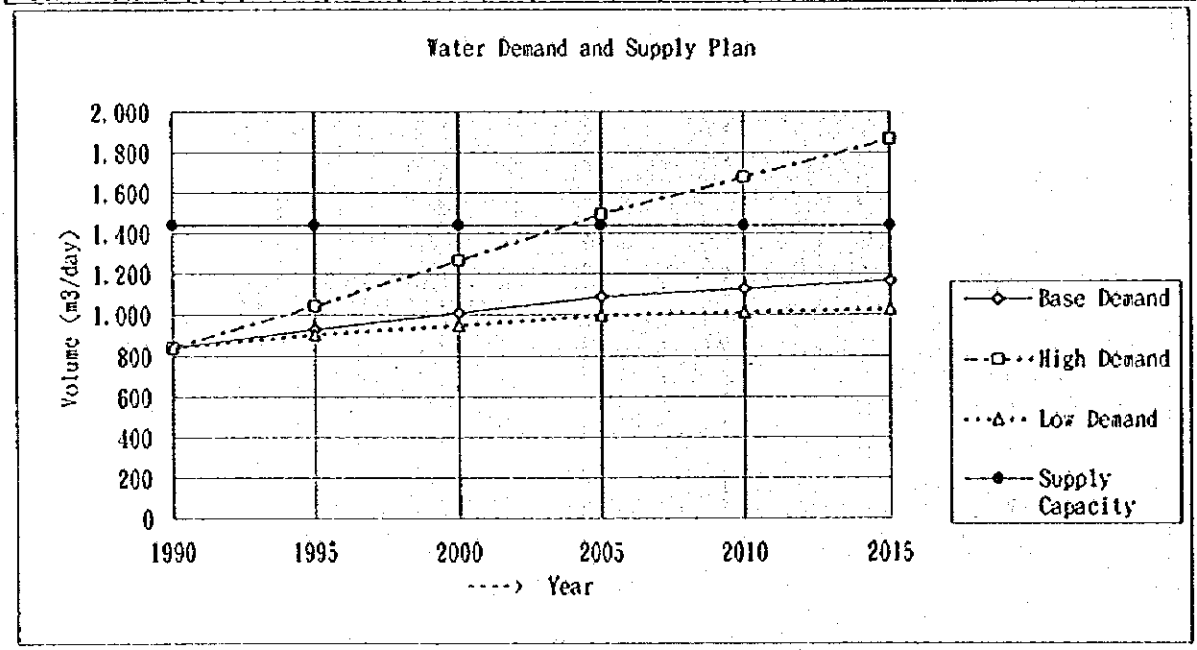
TOWNSHIP		DISTRICT		PROVINCE	
731	Kawambwa	73	Kawambwa	70	Luapula

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	3,882	(1) Base Projection	4,171	4,664	5,005
- Household	909	(2) High Projection	4,557	6,166	8,143
- Family Size	4.3	(3) Low Projection	4,139	4,469	4,554

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Kawambwa Water Supply	-DWA	1,440
Surface Water Source :		0
Groundwater Source : Spring		1,440

WATER RESOURCES POTENTIAL	
Surface Water Potential	
Groundwater Potential	Shales, mudstones, sandstones and quartzites (Muva Sediments) Safe Yield=106m3/day, radius of infuluence=1230m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	582	626	663	700	725	751
	(High)	582	684	804	925	1,073	1,221
	(Low)	582	621	646	670	677	683
< Industrial Water >							
Water Demand (m3/day)	(Base)	149	182	215	248	257	266
	(High)	149	224	299	374	388	401
	(Low)	149	165	182	198	205	212
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	731	808	878	948	982	1,017
	(High)	731	908	1,103	1,299	1,461	1,622
	(Low)	731	786	827	868	882	895
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	841	929	1,009	1,090	1,130	1,169
	(High)	841	1,044	1,269	1,494	1,680	1,866
	(Low)	841	904	951	999	1,014	1,029
< Water Supply Program >							
- Existing Capacity (m3/day)		1,440	1,440	1,440	1,440	1,440	1,440
- Total Water Supply (m3/day)		1,440	1,440	1,440	1,440	1,440	1,440



(61) Water Demand and Supply Plan (Mwansabombwe)

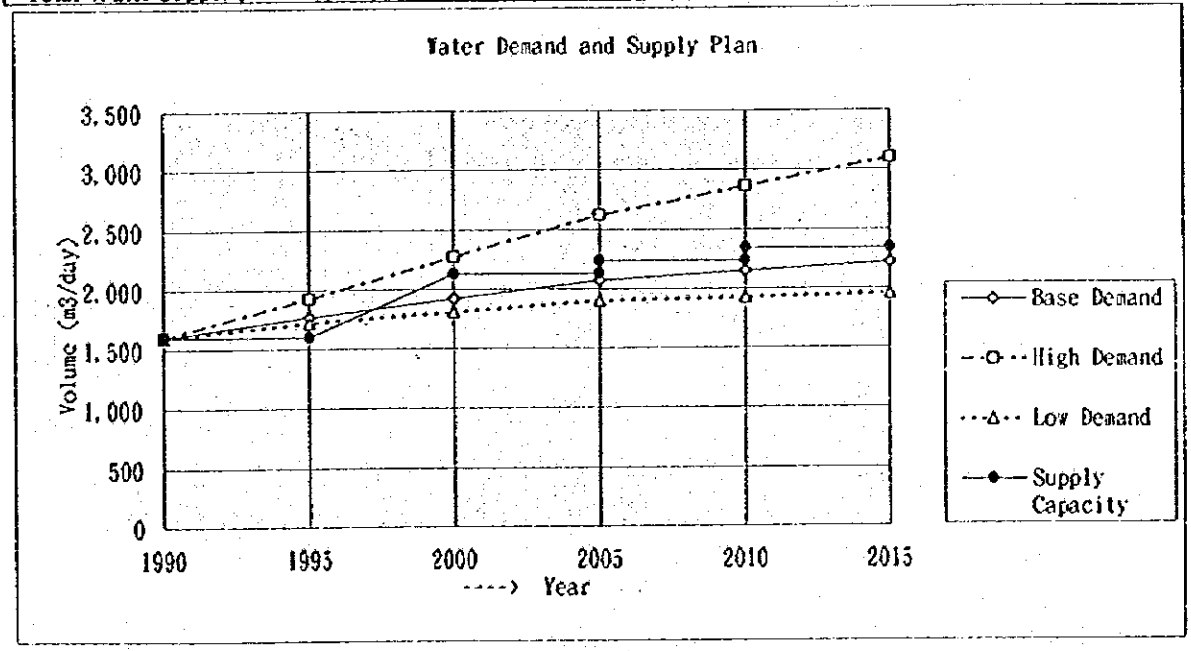
TOWNSHIP		DISTRICT		PROVINCE	
732	Mwansabombwe	73	Kawambwa	70	Luapula

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	7,382	(1) Base Projection	7,933	8,868	9,520
- Household	1,970	(2) High Projection	8,330	10,459	12,893
- Family Size	3.7	(3) Low Projection	7,869	8,496	8,661

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
Surface Water Source :		
Groundwater Source :		

WATER RESOURCES POTENTIAL	
Surface Water Potential	
Groundwater Potential	Shales, mudstones, sandstones and quartzites (Muva Sediments) Safe Yield=106m3/day, radius of influence=1230m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	1,107	1,190	1,260	1,330	1,379	1,428
	(High)	1,107	1,250	1,409	1,569	1,751	1,934
	(Low)	1,107	1,180	1,227	1,274	1,287	1,299
< Industrial Water >							
Water Demand (m3/day)	(Base)	284	346	409	471	489	506
	(High)	284	426	568	710	736	762
	(Low)	284	315	346	377	390	403
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	1,391	1,536	1,669	1,801	1,868	1,934
	(High)	1,391	1,676	1,977	2,279	2,487	2,696
	(Low)	1,391	1,495	1,573	1,651	1,677	1,702
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	1,600	1,767	1,919	2,071	2,148	2,224
	(High)	1,600	1,927	2,274	2,621	2,861	3,100
	(Low)	1,600	1,720	1,809	1,899	1,928	1,957
< Water Supply Program >							
- Existing Capacity (m3/day)		1,600	1,600	1,600	1,600	1,600	1,600
(1) Boreholes (5 wells)				530	530	530	530
(2) Borehole (1 well)					106	106	106
(3) Borehole (1 well)						106	106
- Total Water Supply (m3/day)		1,600	1,600	2,130	2,236	2,342	2,342



(62) Water Demand and Supply Plan (Mwense)

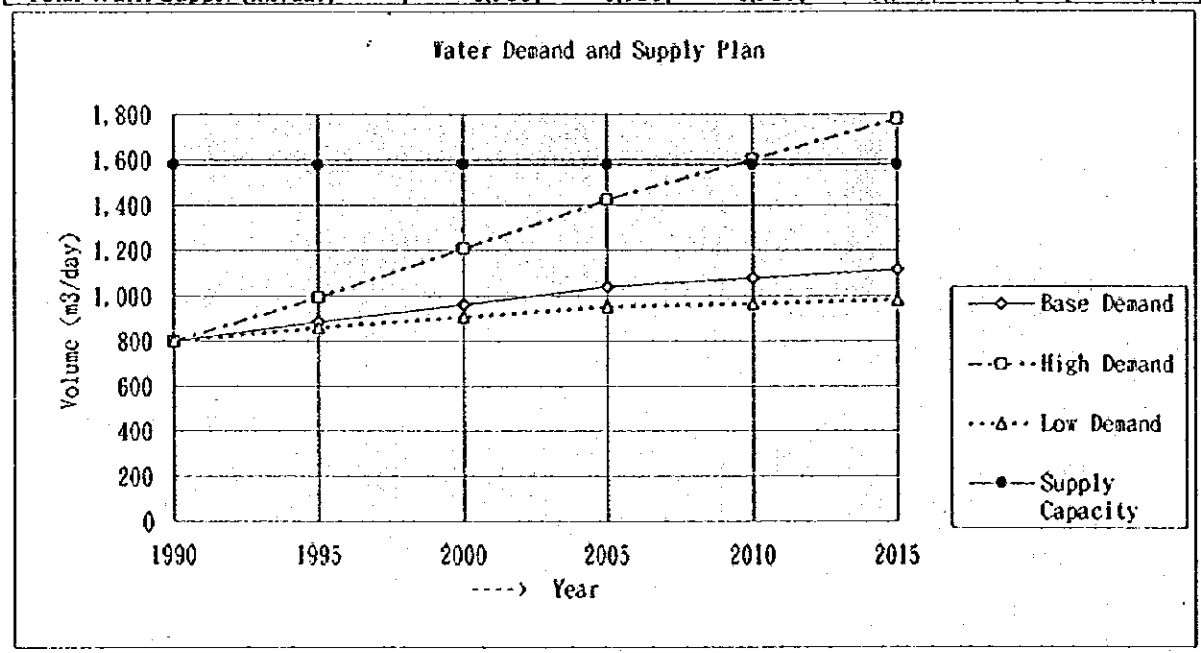
TOWNSHIP		DISTRICT		PROVINCE	
741	Mwense	74	Mwense	70	Luapula

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	3,695	(1) Base Projection	3,974	4,450	4,783
- Household	847	(2) High Projection	4,342	5,887	7,789
- Family Size	4.4	(3) Low Projection	3,941	4,260	4,348

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Mwense Water Supply	-DWA	1,580
Surface Water Source :		1,580
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Luapula River
Groundwater Potential	Quartzites, shales and conglomerates (Mine Series Shales) Safe Yield=106m3/day, radius of influence=1230m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	554	596	632	668	692	717
	(High)	554	651	767	883	1,026	1,168
	(Low)	554	591	615	639	646	652
< Industrial Water >							
Water Demand (m3/day)	(Base)	142	173	205	236	245	253
	(High)	142	213	285	356	369	381
	(Low)	142	158	173	189	196	202
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	696	769	836	904	937	970
	(High)	696	865	1,052	1,239	1,394	1,549
	(Low)	696	749	788	828	841	854
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	801	885	962	1,039	1,078	1,116
	(High)	801	994	1,210	1,425	1,603	1,782
	(Low)	801	861	907	952	967	982
< Water Supply Program >							
- Existing Capacity (m3/day)		1,580	1,580	1,580	1,580	1,580	1,580
- Total Water Supply (m3/day)		1,580	1,580	1,580	1,580	1,580	1,580



(63) Water Demand and Supply Plan (Samfya)

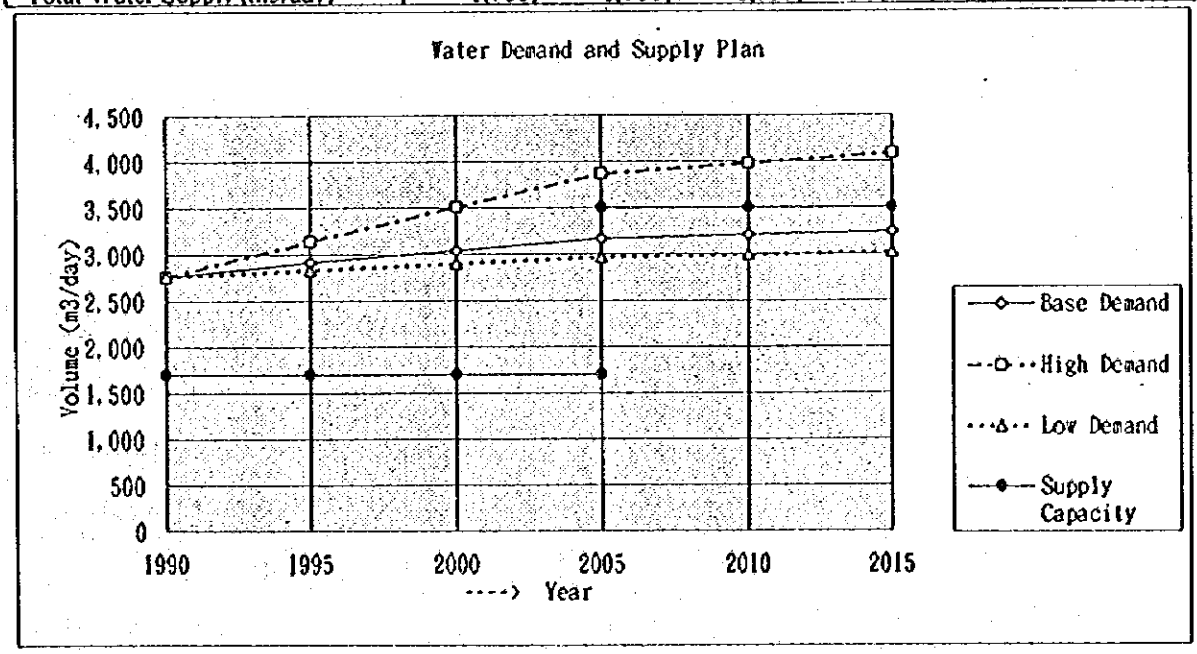
TOWNSHIP		DISTRICT		PROVINCE	
751	Samfya	75	Samfya	70	Luapula

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	12,718	(1) Base Projection	12,891	12,941	12,957
- Household	3,185	(2) High Projection	13,301	14,262	14,931
- Family Size	4.0	(3) Low Projection	12,788	12,846	12,858

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Samfya Water Supply	-DWA	1,700
Total		
Surface Water Source : Lake Bangweulu		1,700
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Lake Bangweulu
Groundwater Potential	Alluvial sands and gravels, clays near lakes (Alluvium) Safe Yield=468m3/day, radius of influence=1680m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	1,908	1,934	1,937	1,941	1,942	1,944
	(High)	1,908	1,995	2,067	2,139	2,189	2,240
	(Low)	1,908	1,918	1,923	1,927	1,928	1,929
< Industrial Water >							
Water Demand (m3/day)	(Base)	490	597	704	811	842	872
	(High)	490	734	979	1,223	1,268	1,313
	(Low)	490	543	596	649	672	695
< Domestic & Industrial Water >							
Township Gross Water Demand (m3/day)	(Base)	2,398	2,531	2,641	2,752	2,784	2,816
	(High)	2,398	2,729	3,046	3,362	3,457	3,553
	(Low)	2,398	2,461	2,519	2,576	2,600	2,624
- Water Loss Rate (%)		15	15	15	15	15	15
Township Net Water Demand (m3/day)	(Base)	2,757	2,910	3,038	3,165	3,201	3,238
	(High)	2,757	3,139	3,503	3,867	3,976	4,086
	(Low)	2,757	2,830	2,896	2,962	2,990	3,017
< Water Supply Program >							
- Existing Capacity (m3/day)		1,700	1,700	1,700	1,700	1,700	1,700
(1) Water Supply Extension					1,800	1,800	1,800
- Total Water Supply (m3/day)		1,700	1,700	1,700	3,500	3,500	3,500



(64) Water Demand and Supply Plan (Kaputa)

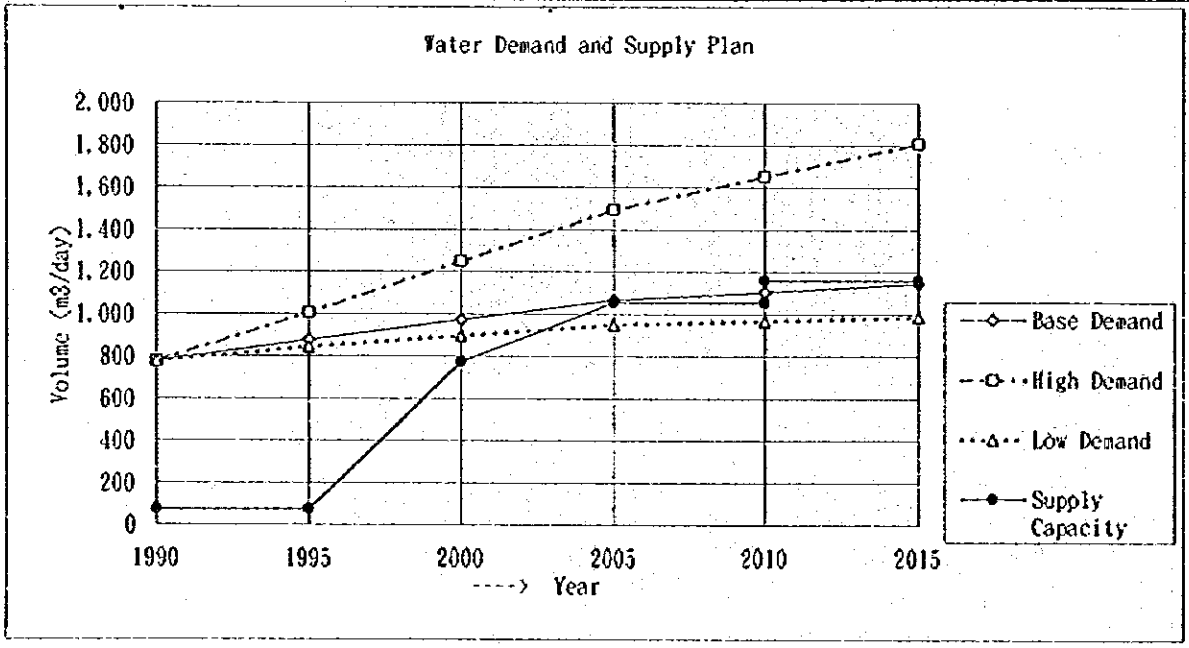
TOWNSHIP		DISTRICT		PROVINCE	
821	Kaputa	82	Kaputa	80	Northern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	2,936	(1) Base Projection	3,159	3,541	3,810
- Household	636	(2) High Projection	3,454	4,696	6,225
- Family Size	4.6	(3) Low Projection	3,134	3,392	3,467

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Kaputa Water Supply	-DWA	74
Total		
Surface Water Source : Choma River		74
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Choma River, Lake Mweru Wantipa
Groundwater Potential	Metasediments and metavolcanics (Metamorphic Rocks) Safe Yield=35m3/day, radius of influence=750m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	440	474	503	533	551	572
	(High)	440	518	611	704	819	934
	(Low)	440	470	489	509	514	520
< Industrial Water >							
Water Demand (m3/day)	(Base)	236	289	342	395	410	424
	(High)	236	356	476	596	618	639
	(Low)	236	263	289	316	327	338
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	676	763	845	926	961	996
	(High)	676	874	1,087	1,300	1,437	1,573
	(Low)	676	733	779	825	841	858
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	778	877	971	1,065	1,105	1,145
	(High)	778	1,005	1,250	1,495	1,652	1,809
	(Low)	778	843	896	949	968	987
< Water Supply Program >							
- Existing Capacity (m3/day)		74	74	74	74	74	74
(1) Boreholes (20 wells)				700	700	700	700
(2) Boreholes (8 wells)					280	280	280
(3) Boreholes (3 wells)						105	105
- Total Water Supply (m3/day)		74	74	774	1,054	1,159	1,159



(65) Water Demand and Supply Plan (Mbala)

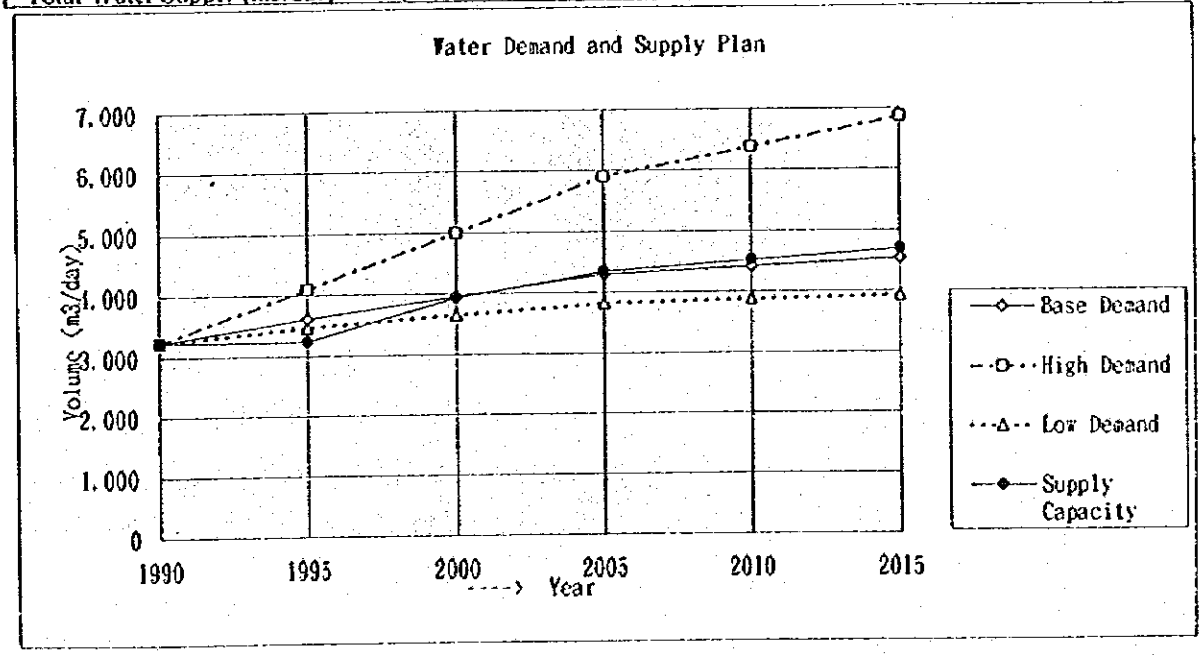
TOWNSHIP		DISTRICT		PROVINCE	
831	Mbala	83	Mbala	80	Northern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	12,185	(1) Base Projection	12,908	14,014	14,613
- Household	2,633	(2) High Projection	13,894	17,752	22,110
- Family Size	4.6	(3) Low Projection	12,801	13,429	13,454

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Mbala Water Supply	-Council	
Total		
Surface Water Source :		
Groundwater Source :		

WATER RESOURCES POTENTIAL	
Surface Water Potential	Lake Tanganyika, Lunzua River, Saisi River
Groundwater Potential	Metasediments and metavolcanics (Metamorphic Rocks) Safe Yield=35m3/day, radius of influence=750m, Borehole:60m,ø=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	1,828	1,936	2,019	2,102	2,147	2,192
	(High)	1,828	2,084	2,373	2,663	2,990	3,317
	(Low)	1,828	1,920	1,967	2,014	2,016	2,018
< Industrial Water >							
Water Demand (m3/day)	(Base)	978	1,198	1,418	1,638	1,700	1,761
	(High)	978	1,476	1,973	2,471	2,562	2,652
	(Low)	978	1,089	1,200	1,311	1,358	1,404
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	2,806	3,134	3,437	3,740	3,847	3,953
	(High)	2,806	3,560	4,347	5,134	5,551	5,969
	(Low)	2,806	3,009	3,167	3,325	3,374	3,422
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	3,227	3,604	3,953	4,301	4,424	4,546
	(High)	3,227	4,094	4,999	5,904	6,384	6,864
	(Low)	3,227	3,461	3,642	3,824	3,880	3,935
< Water Supply Program >							
- Existing Capacity (m3/day)		3,227	3,227	3,227	3,227	3,227	3,227
(1) Boreholes (20 wells)				700	700	700	700
(2) Boreholes (12 wells)					420	420	420
(3) Boreholes (5 wells)						175	175
(4) Boreholes (5 wells)							175
- Total Water Supply (m3/day)		3,227	3,227	3,927	4,347	4,522	4,697



(66) Water Demand and Supply Plan (Mpulungu)

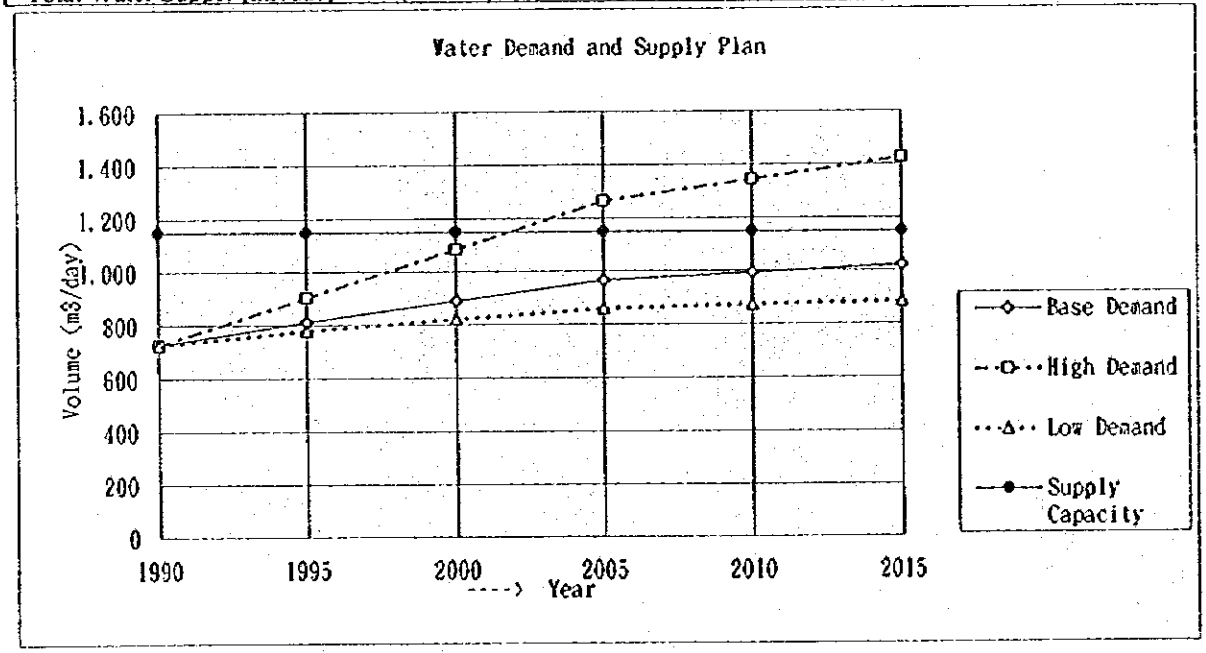
TOWNSHIP		DISTRICT		PROVINCE	
832	Mpulungu	83	Mbala	80	Northern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	2,739	(1) Base Projection	2,902	3,150	3,285
- Household	647	(2) High Projection	3,023	3,635	4,288
- Family Size	4.2	(3) Low Projection	2,877	3,018	3,024

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Mpulungu Water Supply	-DWA	1,150
Total		
Surface Water Source : Lake Tanganyika		1,150
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Lake Tanganyika, Lunzua River
Groundwater Potential	Metasediments and metavolcanics (Metamorphic Rocks) Safe Yield=35m3/day, radius of influence=750m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	411	435	454	473	483	493
	(High)	411	453	499	545	594	643
	(Low)	411	432	442	453	453	454
< Industrial Water >							
Water Demand (m3/day)	(Base)	220	269	319	368	382	396
	(High)	220	332	443	555	576	596
	(Low)	220	245	270	295	306	316
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	631	705	773	841	865	889
	(High)	631	785	943	1,100	1,170	1,239
	(Low)	631	677	712	748	759	770
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	725	810	888	967	994	1,022
	(High)	725	903	1,084	1,265	1,345	1,425
	(Low)	725	778	819	860	872	885
< Water Supply Program >							
- Existing Capacity (m3/day)		1,150	1,150	1,150	1,150	1,150	1,150
- Total Water Supply (m3/day)		1,150	1,150	1,150	1,150	1,150	1,150



(67) Water Demand and Supply Plan (Mporokoso)

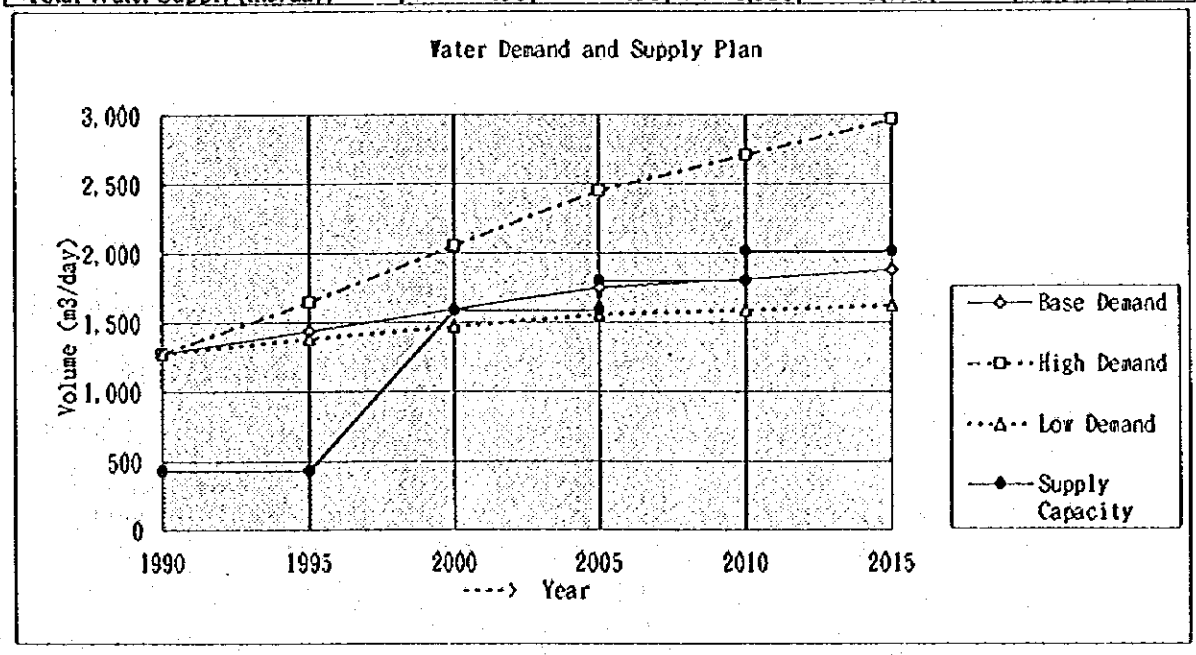
TOWNSHIP		DISTRICT		PROVINCE	
841	Mporokoso	84	Mporokoso	80	Northern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	4,818	(1) Base Projection	5,185	5,811	6,252
- Household	1,051	(2) High Projection	5,667	7,706	10,215
- Family Size	4.6	(3) Low Projection	5,142	5,566	5,689

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Mporokoso Water Supply	-DWA	430
Total		
Surface Water Source : Shili River		430
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Luangwa River
Groundwater Potential	Shales, mudstones and quartzites (Muva Sediments) Safe Yield=106m3/day, radius of influence=1230m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	723	778	825	872	905	938
	(High)	723	850	1,003	1,156	1,344	1,532
	(Low)	723	771	803	835	844	853
< Industrial Water >							
Water Demand (m3/day)	(Base)	387	474	561	648	672	696
	(High)	387	584	780	977	1,013	1,048
	(Low)	387	431	475	519	537	555
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	1,110	1,252	1,386	1,520	1,577	1,634
	(High)	1,110	1,434	1,783	2,133	2,357	2,580
	(Low)	1,110	1,202	1,278	1,354	1,381	1,408
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	1,276	1,440	1,594	1,748	1,813	1,879
	(High)	1,276	1,649	2,051	2,453	2,710	2,967
	(Low)	1,276	1,383	1,470	1,557	1,588	1,620
< Water Supply Program >							
- Existing Capacity (m3/day)		430	430	430	430	430	430
(1) Boreholes (11 wells)				1,156	1,156	1,156	1,156
(2) Boreholes (2 wells)					212	212	212
(3) Boreholes (2 wells)						212	212
- Total Water Supply (m3/day)		430	430	1,586	1,798	2,010	2,010



(68) Water Demand and Supply Plan (Luwingu)

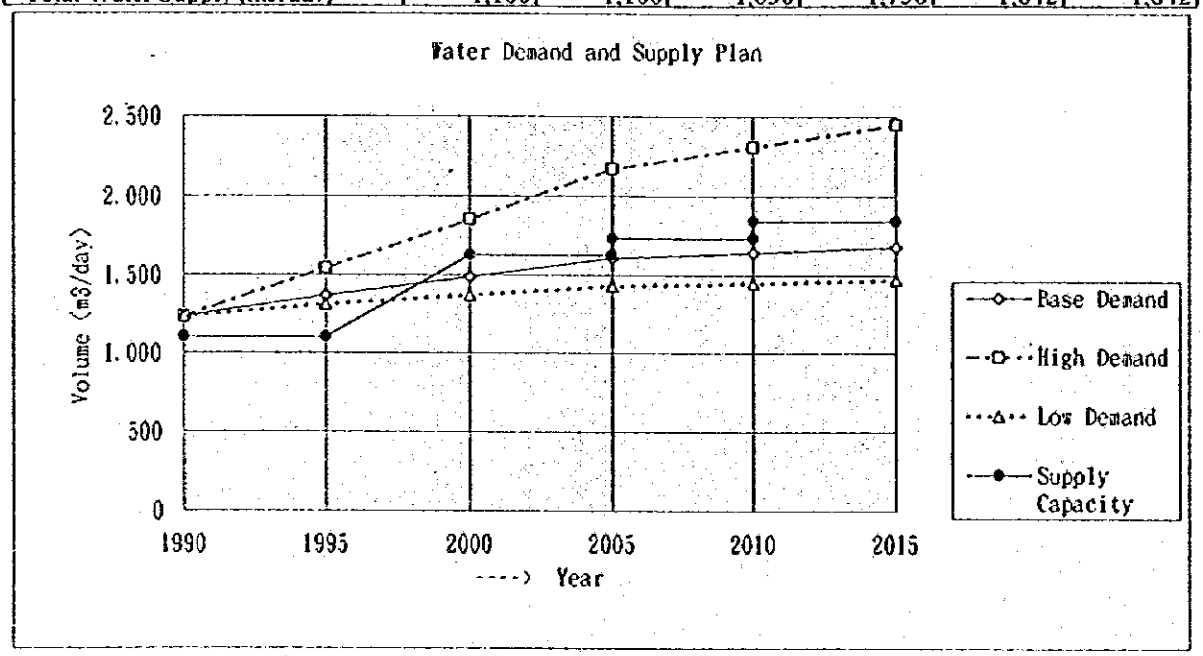
TOWNSIP		DISTRICT		PROVINCE	
851	Luwingu	85	Luwingu	80	Northern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	4,664	(1) Base Projection	4,876	5,156	5,236
- Household	999	(2) High Projection	5,179	6,277	7,423
- Family Size	4.7	(3) Low Projection	4,837	4,939	4,950

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Luwingu Water Supply	-DWA	1,100
Surface Water Source : Lufubu River		1,100
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Luena River, Lubansenshi River, Lufubu River
Groundwater Potential	Shales, mudstones and quartzites ,(Muva Sediments) Safe Yield=106m3/day, radius of influence=1230m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	700	731	752	773	779	785
	(High)	700	777	859	942	1,028	1,113
	(Low)	700	726	733	741	742	743
< Industrial Water >							
Water Demand (m3/day)	(Base)	375	459	543	627	651	674
	(High)	375	565	756	946	981	1,015
	(Low)	375	417	460	502	520	537
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	1,075	1,190	1,295	1,400	1,430	1,459
	(High)	1,075	1,342	1,615	1,888	2,008	2,128
	(Low)	1,075	1,143	1,193	1,243	1,261	1,280
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	1,236	1,369	1,490	1,610	1,644	1,678
	(High)	1,236	1,544	1,857	2,171	2,309	2,448
	(Low)	1,236	1,314	1,372	1,429	1,450	1,471
< Water Supply Program >							
- Existing Capacity (m3/day)		1,100	1,100	1,100	1,100	1,100	1,100
(1) Boreholes (5 wells)				530	530	530	530
(2) Borehole (1 well)					106	106	106
(3) Borehole (1 well)						106	106
- Total Water Supply (m3/day)		1,100	1,100	1,630	1,736	1,842	1,842



(69) Water Demand and Supply Plan (Chilubi)

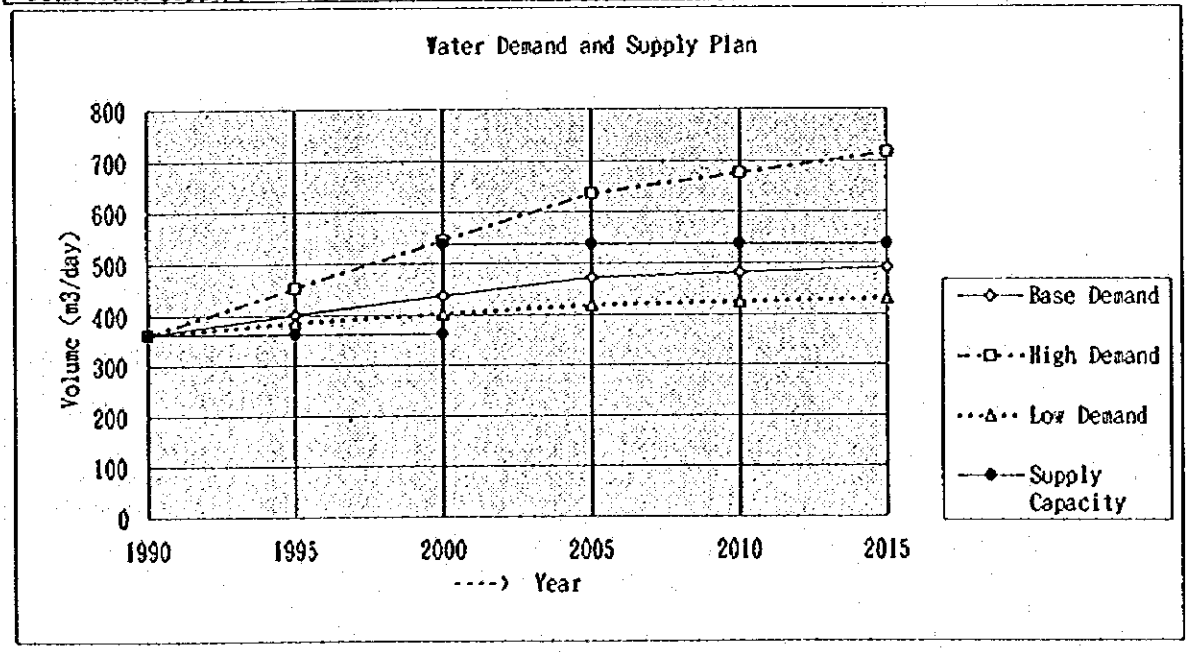
TOWNSIP		DISTRICT		PROVINCE	
861	Chilubi	86	Chilubi	80	Northern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	1,366	(1) Base Projection	1,428	1,510	1,533
- Household	371	(2) High Projection	1,517	1,838	2,174
- Family Size	3.7	(3) Low Projection	1,417	1,447	1,450

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
Surface Water Source :		
Groundwater Source :		

WATER RESOURCES POTENTIAL	
Surface Water Potential	Lake Bangweulu
Groundwater Potential	Alluvail sands and gravels, clays near lakes (Alluvium) Safe Yield=468m3/day, radius of influence=1680m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	205	214	220	227	228	230
	(High)	205	228	252	276	301	326
	(Low)	205	213	215	217	217	218
< Industrial Water >							
Water Demand (m3/day)	(Base)	110	135	159	184	191	197
	(High)	110	166	222	278	288	297
	(Low)	110	122	135	147	152	157
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	315	349	380	411	419	427
	(High)	315	394	474	554	588	623
	(Low)	315	335	349	364	369	375
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	362	401	437	472	482	491
	(High)	362	453	545	637	677	717
	(Low)	362	385	402	419	425	431
< Water Supply Program >							
- Existing Capacity (m3/day)		362	362	362	362	362	362
(1) Boreholes (5 wells)				175	175	175	175
- Total Water Supply (m3/day)		362	362	537	537	537	537



(70) Water Demand and Supply Plan (Isoka)

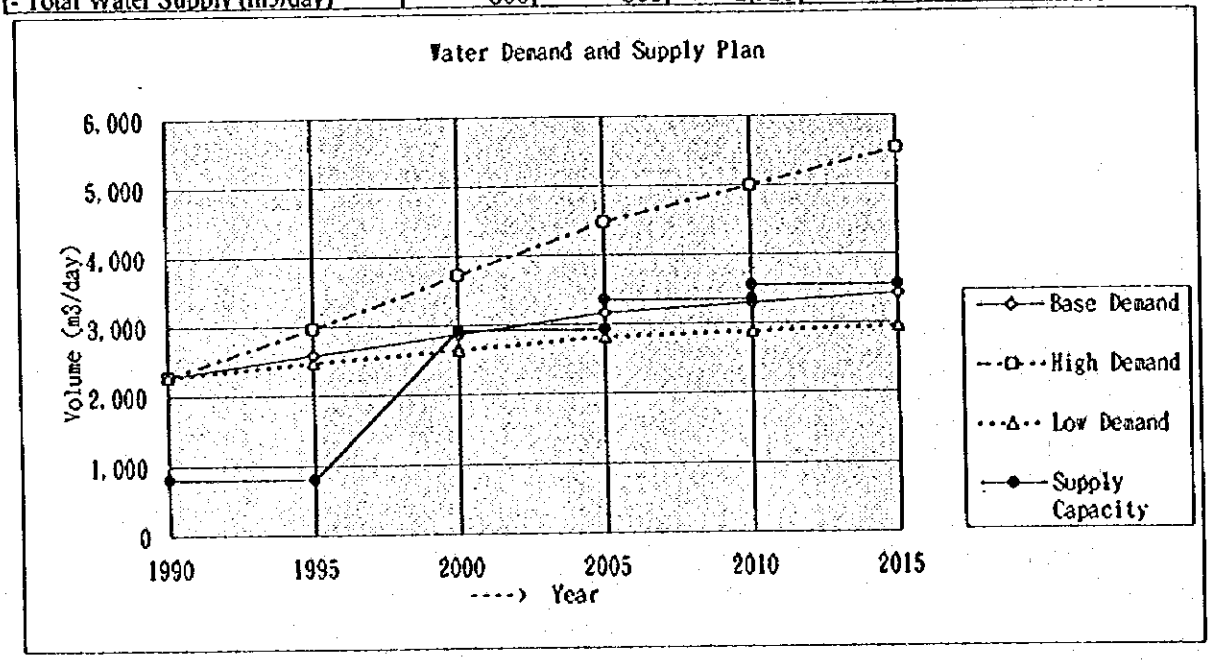
TOWNSHIP		DISTRICT		PROVINCE	
871	Isoka	87	Isoka	80	Northern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	8,596	(1) Base Projection	9,320	10,599	11,576
- Household	1,895	(2) High Projection	10,259	14,360	19,600
- Family Size	4.5	(3) Low Projection	9,242	10,148	10,525

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Isoka Water Supply	-DWA	800
Total		
Surface Water Source :		0
Groundwater Source : Spring		800

WATER RESOURCES POTENTIAL	
Surface Water Potential	Lwanga River, Luangwa River
Groundwater Potential	Shales, mudstones, sandstones and quartzites (Muva Sediments) Safe Yield=106m3/day, rudius of influence=1230m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	1,289	1,398	1,494	1,590	1,663	1,736
	(High)	1,289	1,539	1,846	2,154	2,547	2,940
	(Low)	1,289	1,386	1,454	1,522	1,550	1,579
< Industrial Water >							
Water Demand (m3/day)	(Base)	690	845	1,000	1,155	1,199	1,243
	(High)	690	1,041	1,391	1,742	1,807	1,872
	(Low)	690	768	846	924	958	991
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	1,979	2,243	2,494	2,745	2,862	2,979
	(High)	1,979	2,580	3,238	3,896	4,354	4,812
	(Low)	1,979	2,154	2,300	2,446	2,508	2,570
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	2,276	2,579	2,868	3,157	3,291	3,426
	(High)	2,276	2,966	3,723	4,480	5,007	5,534
	(Low)	2,276	2,477	2,645	2,813	2,884	2,955
< Water Supply Program >							
- Existing Capacity (m3/day)		800	800	800	800	800	800
(1) Boreholes (20 wells)				2,120	2,120	2,120	2,120
(2) Boreholes (4 wells)					424	424	424
(3) Boreholes (2 wells)						212	212
- Total Water Supply (m3/day)		800	800	2,920	3,344	3,556	3,556



(71) Water Demand and Supply Plan (Nakonde)

Township		DISTRICT		PROVINCE	
872	Nakonde	87	Isoka	80	Northern

1990 CENSUS POPULATION AND FUTURE PROJECTION

1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	4,493	(1) Base Projection	4,871	5,540	6,050
- Household	905	(2) High Projection	5,362	7,506	10,245
- Family Size	5.0	(3) Low Projection	4,831	5,304	5,501

CURRENT DOMESTIC WATER SUPPLY PROJECT

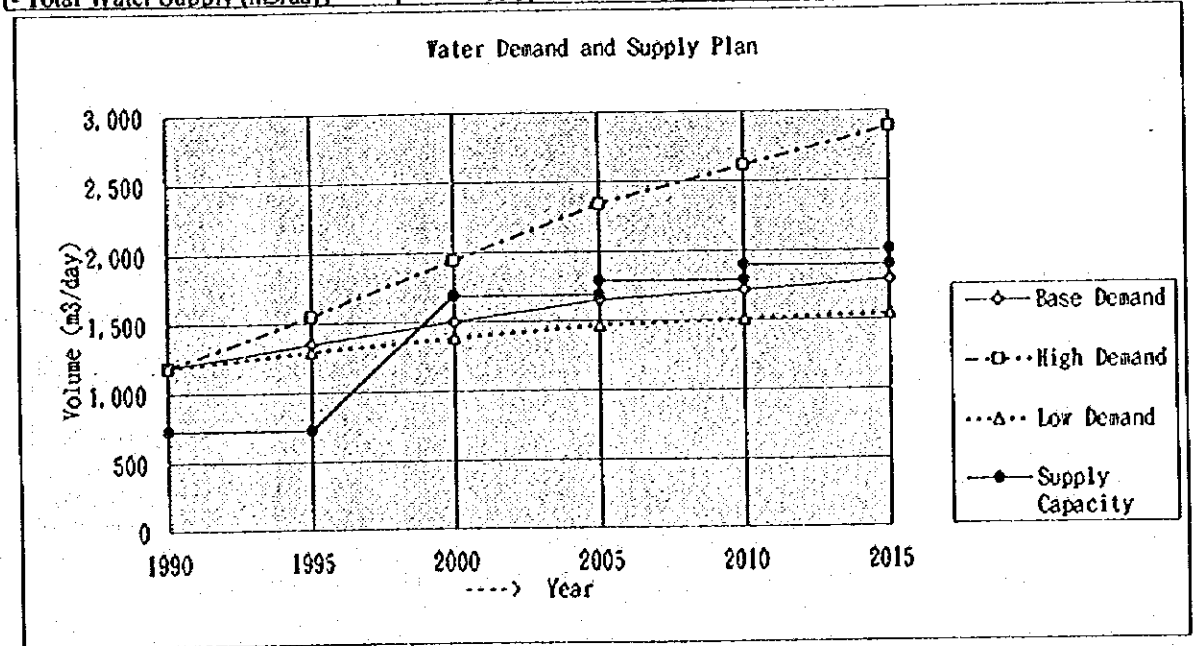
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Nakonde Water Supply	-DWA	731
Total		
Surface Water Source : Nakonde River		731
Groundwater Source :		0

WATER RESOURCES POTENTIAL

Surface Water Potential	Nakonde River
Groundwater Potential	Granite Safe Yield=106m3/day, radius of influence=1010m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY

Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	674	731	781	831	869	908
	(High)	674	804	965	1,126	1,331	1,537
	(Low)	674	725	760	796	810	825
< Industrial Water >							
Water Demand (m3/day)	(Base)	361	442	523	604	627	649
	(High)	361	544	728	911	944	977
	(Low)	361	402	442	483	500	517
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	1,035	1,173	1,304	1,435	1,496	1,557
	(High)	1,035	1,349	1,693	2,037	2,275	2,514
	(Low)	1,035	1,126	1,202	1,279	1,310	1,342
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	1,190	1,349	1,499	1,650	1,720	1,790
	(High)	1,190	1,551	1,947	2,342	2,617	2,891
	(Low)	1,190	1,295	1,383	1,470	1,507	1,543
< Water Supply Program >							
- Existing Capacity (m3/day)		731	731	731	731	731	731
(1) Boreholes (9 wells)				954	954	954	954
(2) Borehole (1 well)					106	106	106
(3) Borehole (1 well)						106	106
(4) Borehole (1 well)							106
- Total Water Supply (m3/day)		731	731	1,685	1,791	1,897	2,003



(72) Water Demand and Supply Plan (Chinsali)

TOWNSHIP		DISTRICT		PROVINCE	
881	Chinsali	88	Chinsali	80	Northern

1990 CENSUS POPULATION AND FUTURE PROJECTION

1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	7,509	(1) Base Projection	7,979	8,717	9,146
- Household	1,663	(2) High Projection	8,621	11,143	14,057
- Family Size	4.5	(3) Low Projection	7,915	8,353	8,412

CURRENT DOMESTIC WATER SUPPLY PROJECT

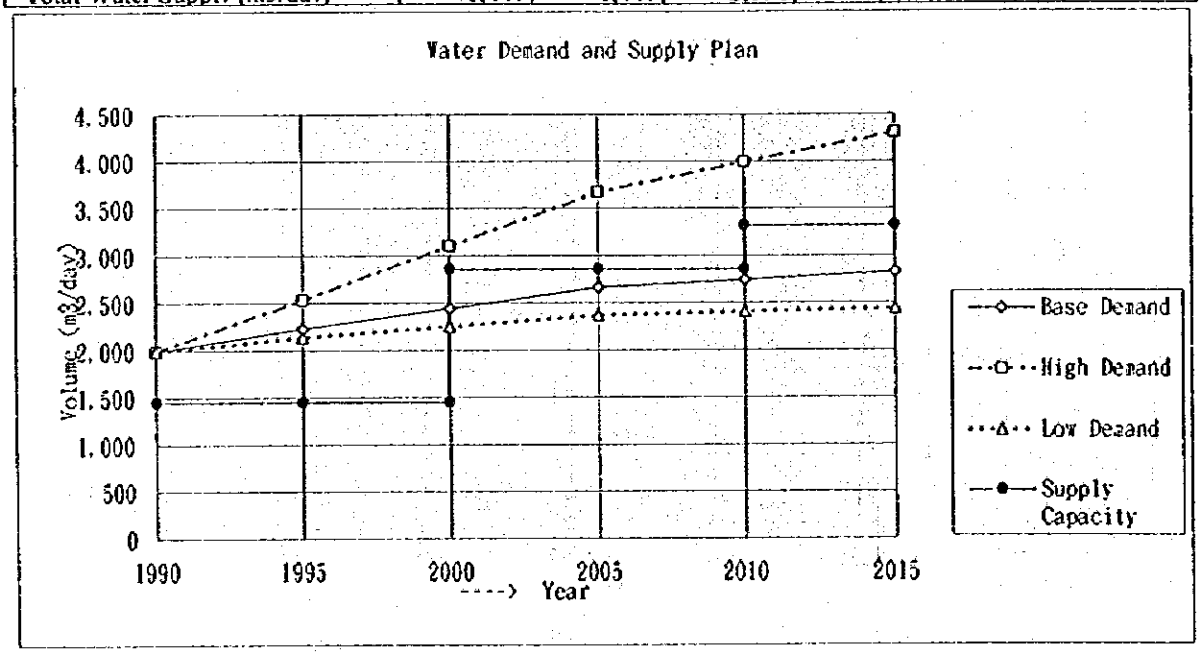
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Chinsali Water Supply	-DWA	1,447
Total		
Surface Water Source :		1,447
Groundwater Source :		0

WATER RESOURCES POTENTIAL

Surface Water Potential	Lubu River
Groundwater Potential	Alluvial sands and gravels (Alluvium) Safe Yield=468m3/day, radius of influence=1680m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY

Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	1,126	1,197	1,252	1,308	1,340	1,372
	(High)	1,126	1,293	1,482	1,671	1,890	2,109
	(Low)	1,126	1,187	1,220	1,253	1,257	1,262
< Industrial Water >							
Water Demand (m3/day)	(Base)	603	738	874	1,009	1,047	1,085
	(High)	603	909	1,216	1,522	1,578	1,634
	(Low)	603	671	740	808	837	865
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	1,729	1,935	2,126	2,317	2,387	2,457
	(High)	1,729	2,202	2,698	3,193	3,468	3,743
	(Low)	1,729	1,859	1,960	2,061	2,094	2,127
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	1,989	2,225	2,445	2,664	2,745	2,825
	(High)	1,989	2,533	3,103	3,672	3,988	4,304
	(Low)	1,989	2,137	2,254	2,370	2,408	2,446
< Water Supply Program >							
- Existing Capacity (m3/day)		1,447	1,447	1,447	1,447	1,447	1,447
(1) Boreholes (3 wells)				1,404	1,404	1,404	1,404
(2) Borehole (1 well)						468	468
- Total Water Supply (m3/day)		1,447	1,447	2,851	2,851	3,319	3,319



(73) Water Demand and Supply Plan (Mpika)

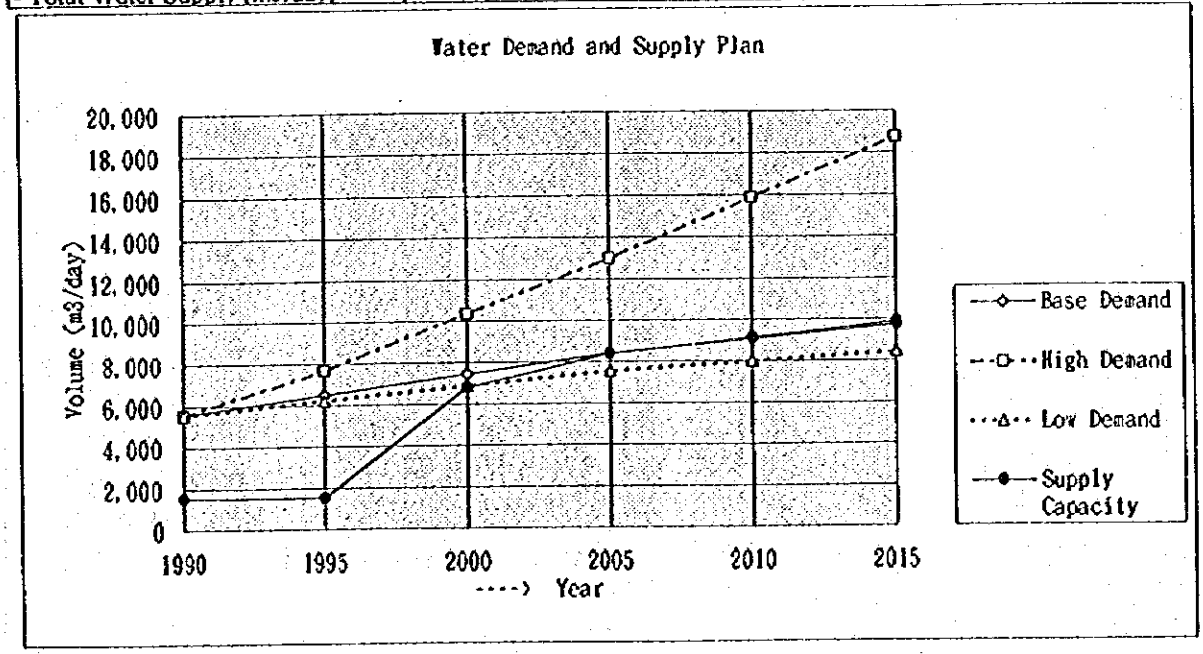
TOWNSHIP		DISTRICT		PROVINCE	
891	Mpika	89	Mpika	80	Northern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	20,950	(1) Base Projection	23,889	30,045	36,304
- Household	4,094	(2) High Projection	27,615	47,083	78,312
- Family Size	5.1	(3) Low Projection	23,691	28,781	33,009

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Boma, Tazara and Chief's Areas Water Supply	-Council	1,500
Total		
Surface Water Source : Malashi Tributary		1,500
Groundwater Source :		unknown

WATER RESOURCES POTENTIAL	
Surface Water Potential	Lwitikila River
Groundwater Potential	Shales, mudstones, sandstones and quartzites (Muva Sediments) Safe Yield=106m3/day, radius of influence=1230m, Borehole: L=60m, ϕ=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	3,143	3,583	4,045	4,507	4,976	5,446
	(High)	3,143	4,142	5,602	7,062	9,405	11,747
	(Low)	3,143	3,554	3,935	4,317	4,634	4,951
< Industrial Water >							
Water Demand (m3/day)	(Base)	1,682	2,060	2,438	2,816	2,922	3,028
	(High)	1,682	2,537	3,393	4,248	4,404	4,560
	(Low)	1,682	1,873	2,063	2,254	2,334	2,413
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	4,825	5,643	6,483	7,323	7,898	8,474
	(High)	4,825	6,680	8,995	11,310	13,809	16,307
	(Low)	4,825	5,426	5,999	6,571	6,968	7,364
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	5,548	6,490	7,456	8,421	9,083	9,745
	(High)	5,548	7,682	10,344	13,007	15,880	18,753
	(Low)	5,548	6,240	6,899	7,557	8,013	8,469
< Water Supply Program >							
- Existing Capacity (m3/day)		1,500	1,500	1,500	1,500	1,500	1,500
(1) Boreholes (50 wells)				5,300	5,300	5,300	5,300
(2) Boreholes (15 wells)					1,590	1,590	1,590
(3) Boreholes (7 wells)						742	742
(4) Boreholes (7 wells)							742
- Total Water Supply (m3/day)		1,500	1,500	6,800	8,390	9,132	9,874



(74) Water Demand and Supply Plan (Chama Township)

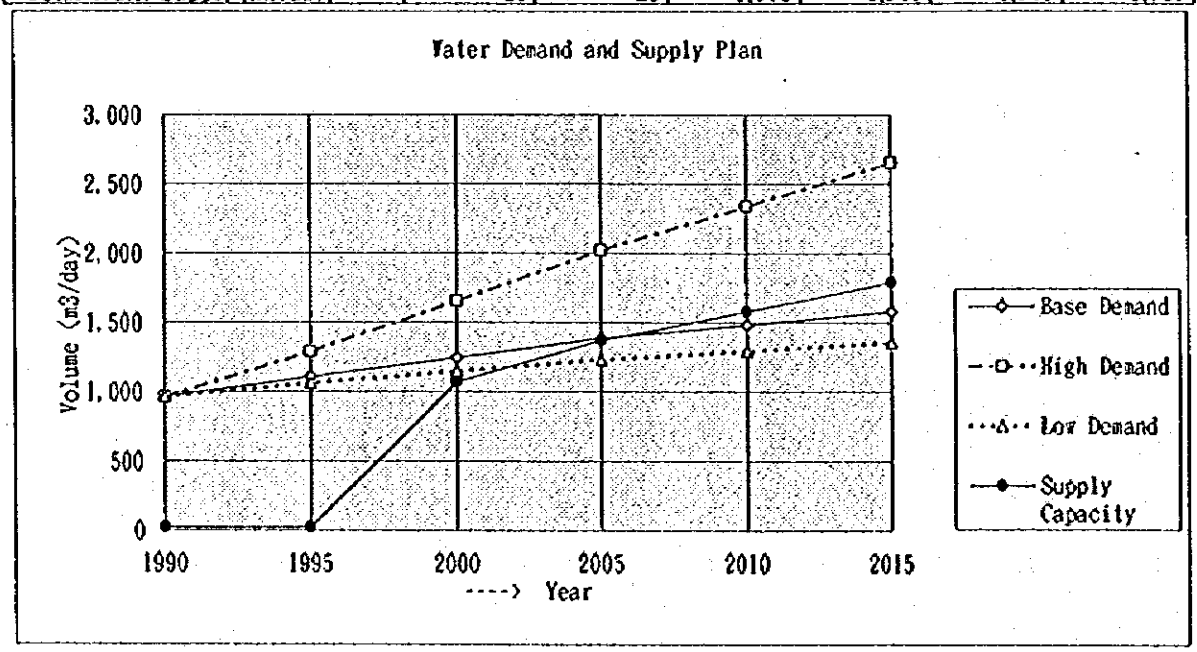
TOWNSHIP		DISTRICT		PROVINCE	
921	Chama Township	92	Chama	90	Eastern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	3,474	(1) Base Projection	3,826	4,491	5,062
- Household	764	(2) High Projection	4,276	6,366	9,252
- Family Size	4.5	(3) Low Projection	3,794	4,300	4,602

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Chama Water Supply	-DWA	23
Total		
Surface Water Source :		0
Groundwater Source : Boreholes (6 production wells, 2 operational)		23

WATER RESOURCES POTENTIAL	
Surface Water Potential	Kapembu River, Luangwa River
Groundwater Potential	Granitic gneiss, migmatites, schists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	521	574	624	674	716	759
	(High)	521	641	798	955	1,171	1,388
	(Low)	521	569	607	645	668	690
< Industrial Water >							
Water Demand (m3/day)	(Base)	319	390	462	533	573	613
	(High)	319	481	642	804	864	923
	(Low)	319	355	391	427	458	489
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	840	964	1,085	1,207	1,289	1,372
	(High)	840	1,122	1,440	1,759	2,035	2,311
	(Low)	840	924	998	1,072	1,126	1,179
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	966	1,109	1,248	1,388	1,483	1,578
	(High)	966	1,290	1,657	2,023	2,340	2,657
	(Low)	966	1,063	1,148	1,233	1,294	1,356
< Water Supply Program >							
- Existing Capacity (m3/day)		23	23	23	23	23	23
(1) Boreholes (25 wells)				1,050	1,050	1,050	1,050
(2) Boreholes (7 wells)					296	296	296
(3) Boreholes (5 wells)						210	210
(4) Boreholes (5 wells)							210
- Total Water Supply (m3/day)		23	23	1,073	1,369	1,579	1,789



(75) Water Demand and Supply Plan (Lundazi)

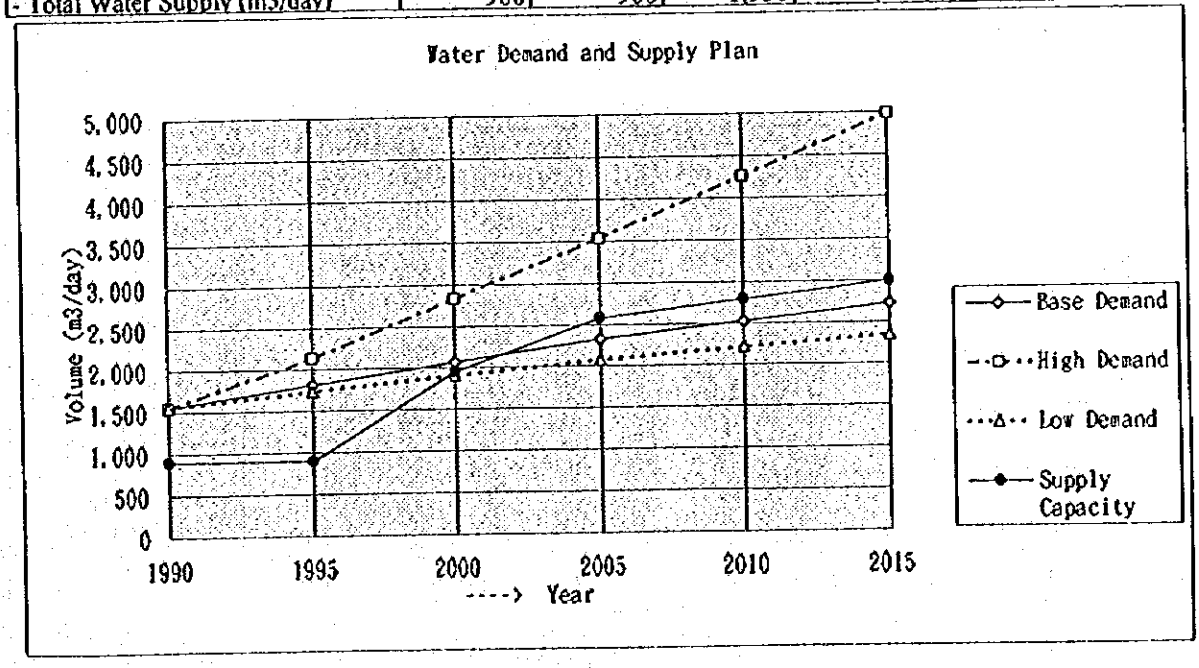
TOWNSHIP		DISTRICT		PROVINCE	
931	Lundazi	93	Lundazi	90	Eastern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	5,590	(1) Base Projection	6,313	7,786	9,224
- Household	1,200	(2) High Projection	7,224	11,856	18,984
- Family Size	4.7	(3) Low Projection	6,260	7,457	8,385

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
Lundazi Water Supply	-DWA	900
Total		900
Surface Water Source : Lundazi River		0
Groundwater Source :		

WATER RESOURCES POTENTIAL	
Surface Water Potential	Lundazi River
Groundwater Potential	Granitic gneiss, migmatites, schists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	839	947	1,057	1,168	1,276	1,384
	(High)	839	1,084	1,431	1,778	2,313	2,848
	(Low)	839	939	1,029	1,119	1,188	1,258
< Industrial Water >							
Water Demand (m3/day)	(Base)	513	628	743	858	922	986
	(High)	513	773	1,034	1,294	1,390	1,485
	(Low)	513	571	629	687	737	786
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	1,352	1,575	1,800	2,026	2,198	2,370
	(High)	1,352	1,857	2,465	3,072	3,703	4,333
	(Low)	1,352	1,510	1,658	1,806	1,925	2,044
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	1,554	1,811	2,070	2,330	2,527	2,725
	(High)	1,554	2,135	2,834	3,533	4,258	4,982
	(Low)	1,554	1,737	1,906	2,076	2,213	2,350
< Water Supply Program >							
- Existing Capacity (m3/day)		900	900	900	900	900	900
(1) Boreholes (25 wells)				1,050	1,050	1,050	1,050
(2) Boreholes (15 wells)					630	630	630
(3) Boreholes (5 wells)						210	210
(4) Boreholes (5 wells)							210
- Total Water Supply (m3/day)		900	900	1,950	2,580	2,790	3,000



(76) Water Demand and Supply Plan (Chadiza Township)

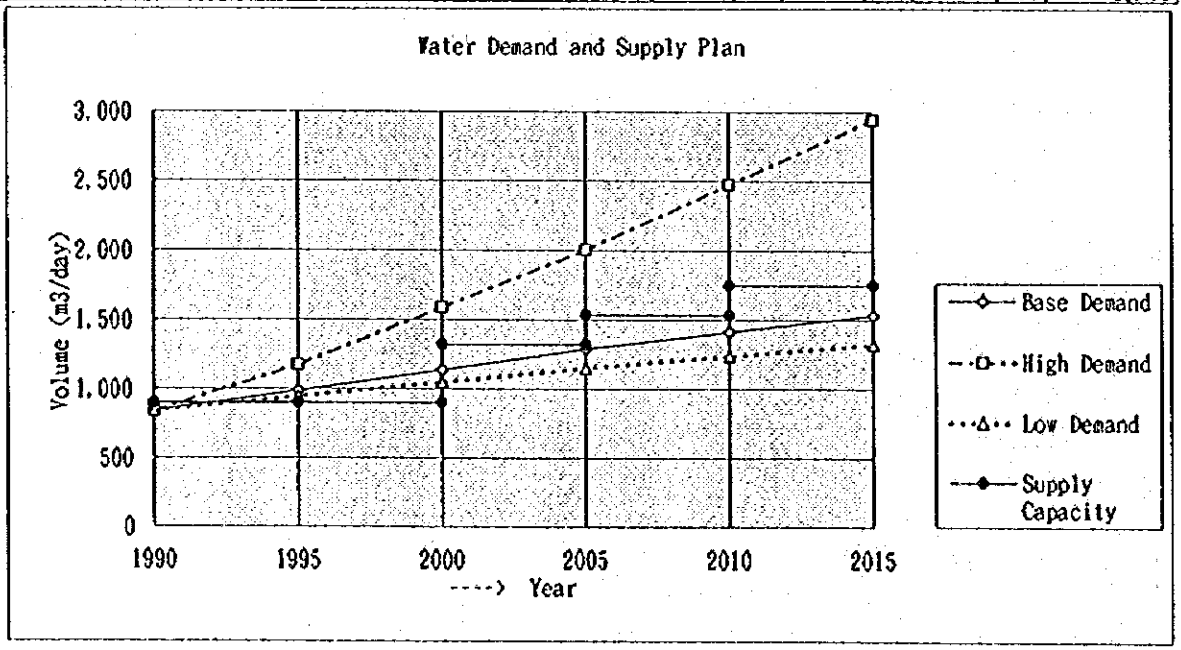
TOWNSHIP		DISTRICT		PROVINCE	
941	Chadiza Township	94	Chadiza	90	Eastern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	3,031	(1) Base Projection	3,466	4,390	5,335
- Household	746	(2) High Projection	4,018	6,935	11,690
- Family Size	4.1	(3) Low Projection	3,439	4,205	4,856

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Chadiza Water Supply	-DWA	900
Total		
Surface Water Source : Nsadzu River		900
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Nsadzu River
Groundwater Potential	Granite Safe Yield=106m3/day, radius of influence=1010m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	455	520	589	659	729	800
	(High)	455	603	821	1,040	1,397	1,754
	(Low)	455	516	573	631	680	728
< Industrial Water >							
Water Demand (m3/day)	(Base)	278	340	403	465	500	535
	(High)	278	419	560	701	754	806
	(Low)	278	309	341	372	399	426
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	733	860	992	1,124	1,229	1,335
	(High)	733	1,022	1,381	1,741	2,150	2,560
	(Low)	733	825	914	1,003	1,079	1,154
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	843	989	1,141	1,292	1,414	1,536
	(High)	843	1,175	1,589	2,002	2,473	2,943
	(Low)	843	949	1,051	1,153	1,240	1,328
< Water Supply Program >							
- Existing Capacity (m3/day)		900	900	900	900	900	900
(1) Boreholes (4 wells)				424	424	424	424
(2) Boreholes (2 wells)					212	212	212
(3) Boreholes (2 wells)						212	212
- Total Water Supply (m3/day)		900	900	1,324	1,536	1,748	1,748



(77) Water Demand and Supply Plan (Katete Township)

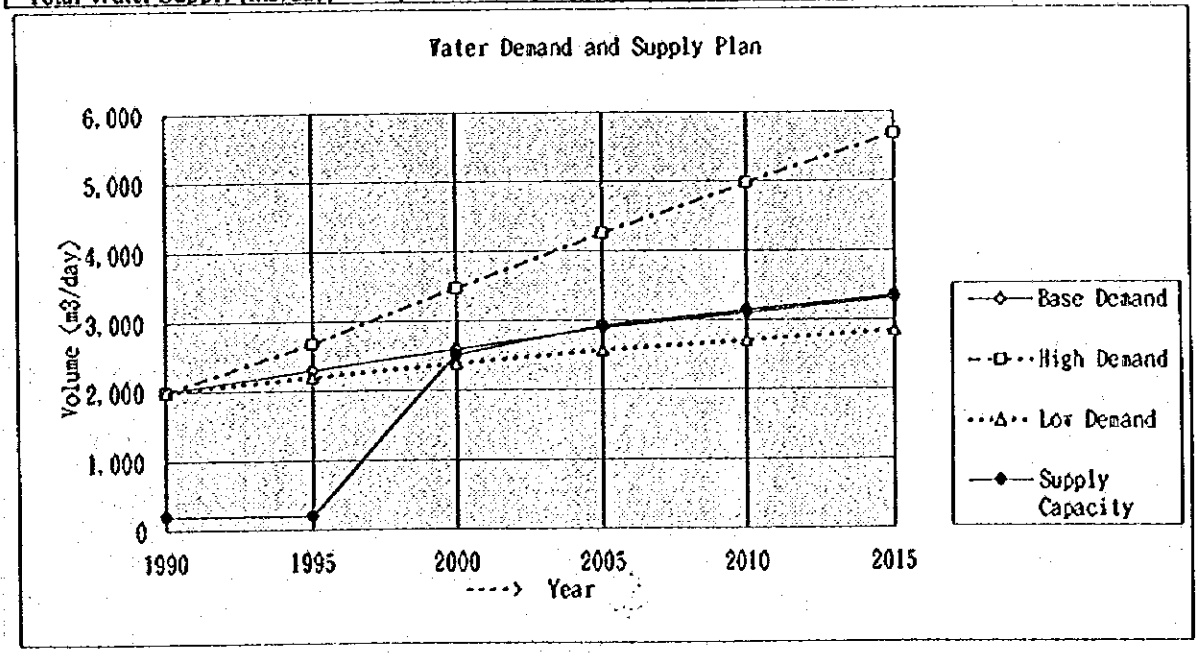
TOWNSHIP		DISTRICT		PROVINCE	
951	Katete Township	95	Katete	90	Eastern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	7,165	(1) Base Projection	7,942	9,437	10,769
- Household	1,633	(2) High Projection	8,929	13,629	20,291
- Family Size	4.4	(3) Low Projection	7,876	9,042	9,802

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Katete Water Supply	-DWA	200
Total		
Surface Water Source :		0
Groundwater Source : Boreholes (6 production wells)		200

WATER RESOURCES POTENTIAL	
Surface Water Potential	Kapoche River, Lupande River
Groundwater Potential	Granitic gneiss, migmatites, schists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	1,075	1,191	1,303	1,416	1,515	1,615
	(High)	1,075	1,339	1,692	2,044	2,544	3,044
	(Low)	1,075	1,181	1,269	1,356	1,413	1,470
< Industrial Water >							
Water Demand (m3/day)	(Base)	658	805	953	1,100	1,182	1,264
	(High)	658	992	1,325	1,659	1,782	1,904
	(Low)	658	732	806	880	944	1,007
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	1,733	1,997	2,256	2,516	2,697	2,879
	(High)	1,733	2,331	3,017	3,703	4,326	4,948
	(Low)	1,733	1,913	2,075	2,236	2,357	2,477
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	1,993	2,296	2,595	2,893	3,102	3,311
	(High)	1,993	2,681	3,470	4,259	4,974	5,690
	(Low)	1,993	2,200	2,386	2,572	2,710	2,849
< Water Supply Program >							
-Existing Capacity (m3/day)		200	200	200	200	200	200
(1) Boreholes (55 wells)				2,310	2,310	2,310	2,310
(2) Boreholes (10 wells)					420	420	420
(3) Boreholes (5 wells)						210	210
(4) Boreholes (5 wells)							210
- Total Water Supply (m3/day)		200	200	2,510	2,930	3,140	3,350



(78) Water Demand and Supply Plan (Petauke)

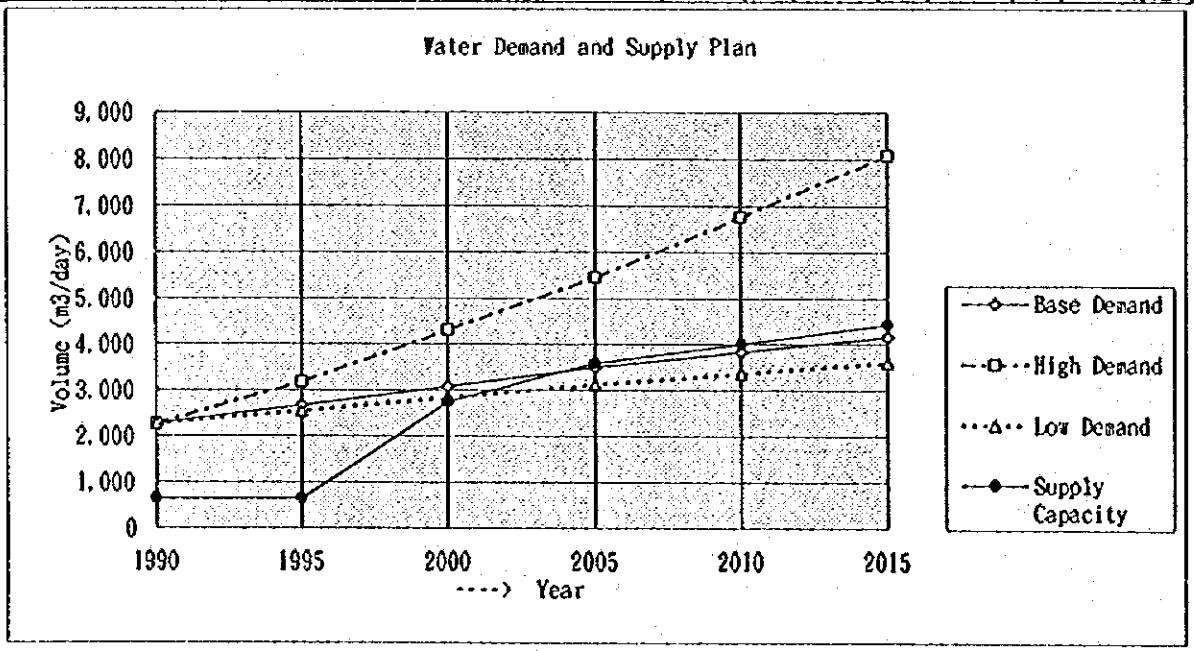
TOWNSHIP		DISTRICT		PROVINCE	
961	Petauke	96	Petauke	90	Eastern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	8,148	(1) Base Projection	9,349	11,910	14,575
- Household	1,723	(2) High Projection	10,874	19,000	32,392
- Family Size	4.7	(3) Low Projection	9,272	11,410	13,254

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Petauke Water Supply	-DWA	647
Total		
Surface Water Source :		0
Groundwater Source : Boreholes (7 production wells)		647

WATER RESOURCES POTENTIAL	
Surface Water Potential	Msanzara River, Mvuvye River
Groundwater Potential	Granitic gneiss, migmatites, schists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,ø=30cm

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	1,222	1,402	1,594	1,787	1,986	2,186
	(High)	1,222	1,631	2,241	2,850	3,854	4,859
	(Low)	1,222	1,391	1,551	1,712	1,850	1,988
< Industrial Water >							
Water Demand (m3/day)	(Base)	748	916	1,083	1,251	1,345	1,438
	(High)	748	1,128	1,507	1,887	2,027	2,166
	(Low)	748	832	917	1,001	1,074	1,146
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	1,970	2,318	2,678	3,038	3,331	3,624
	(High)	1,970	2,759	3,748	4,737	5,881	7,025
	(Low)	1,970	2,223	2,468	2,713	2,923	3,134
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	2,266	2,666	3,079	3,493	3,831	4,168
	(High)	2,266	3,173	4,310	5,448	6,763	8,079
	(Low)	2,266	2,557	2,838	3,119	3,362	3,604
< Water Supply Program >							
- Existing Capacity (m3/day)		647	647	647	647	647	647
(1) Boreholes (50 wells)				2,100	2,100	2,100	2,100
(2) Boreholes (20 wells)					840	840	840
(3) Boreholes (10 wells)						420	420
(4) Boreholes (10 wells)							420
- Total Water Supply (m3/day)		647	647	2,747	3,387	4,007	4,427



(79) Water Demand and Supply Plan (Nyimba)

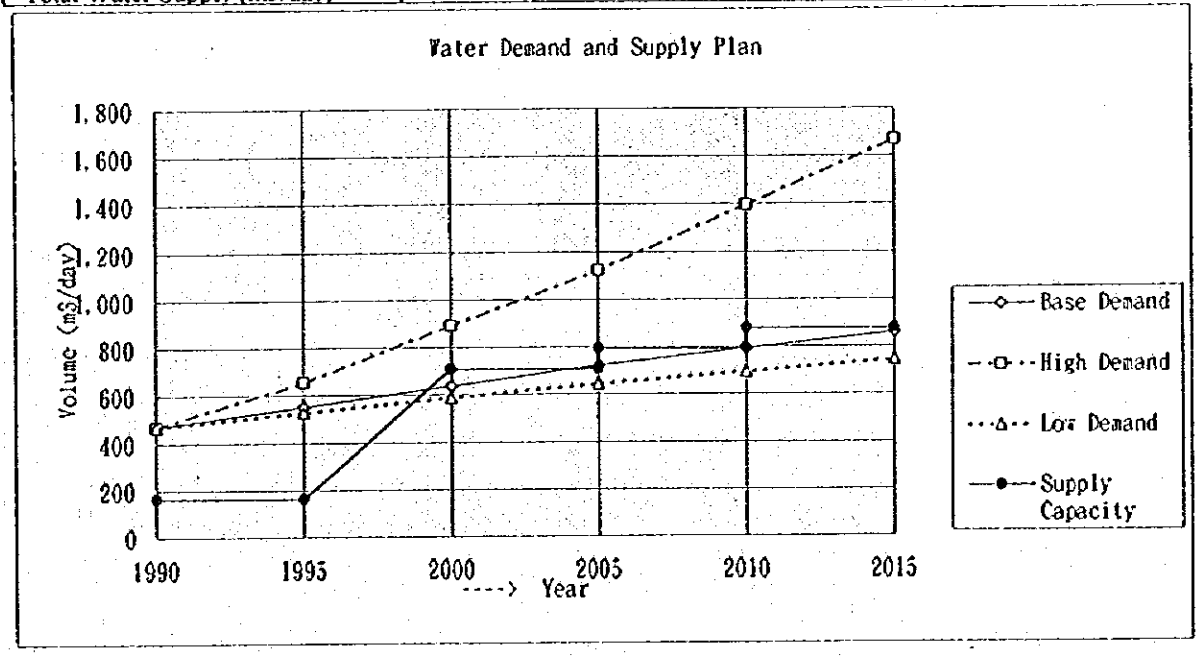
TOWNSHIP		DISTRICT		PROVINCE	
962	Nyimba	96	Petauke	90	Eastern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	1,684	(1) Base Projection	1,932	2,462	3,012
- Household	305	(2) High Projection	2,247	3,927	6,695
- Family Size	5.5	(3) Low Projection	1,916	2,358	2,739

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
-Nymba Water Supply	-DWA	162
Total		
Surface Water Source : Nymba River		162
Groundwater Source :		0

WATER RESOURCES POTENTIAL	
Surface Water Potential	Nymba River
Groundwater Potential	Granitic gneiss, migmatites, schists (Basement Gneiss) Safe Yield=42m3/day, radius of influence=810m, Borehole:L=60m,ϕ=30cm

WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	253	290	330	369	411	452
	(High)	253	337	463	589	797	1,004
	(Low)	253	287	321	354	382	411
< Industrial Water >							
Water Demand (m3/day)	(Base)	155	189	224	258	278	297
	(High)	155	233	311	389	418	447
	(Low)	155	172	190	207	222	237
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	408	479	553	627	688	749
	(High)	408	570	774	978	1,215	1,451
	(Low)	408	460	510	561	604	648
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	469	551	636	721	791	861
	(High)	469	656	890	1,125	1,397	1,669
	(Low)	469	529	587	645	695	745
< Water Supply Program >							
- Existing Capacity (m3/day)		162	162	162	162	162	162
(1) Boreholes (13 wells)				546	546	546	546
(2) Boreholes (2 wells)					84	84	84
(3) Boreholes (2 wells)						84	84
- Total Water Supply (m3/day)		162	162	708	792	876	876



(80) Water Demand and Supply Plan (Kachalola)

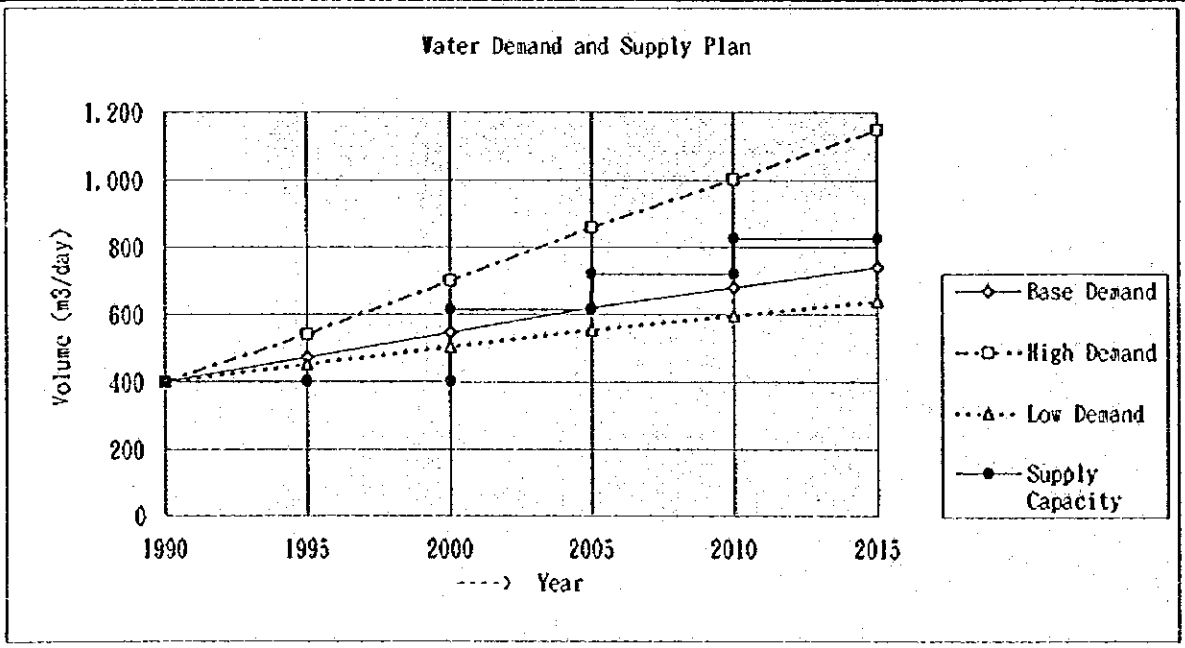
TOWNSHIP		DISTRICT		PROVINCE	
963	Kachalola	96	Petauke	90	Eastern

1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	1,445	(1) Base Projection	1,658	2,112	2,585
- Household	377	(2) High Projection	1,797	2,739	4,097
- Family Size	3.8	(3) Low Projection	1,644	2,023	2,350

CURRENT DOMESTIC WATER SUPPLY PROJECT		
Name of Water Supply Project	Type of Managing Body	Water Supply Volume (m3/day)
Total		
Surface Water Source :		
Groundwater Source :		

WATER RESOURCES POTENTIAL	
Surface Water Potential	
Groundwater Potential	Granite Safe Yield=106m3/day, radius of influence=1010m, Borehole:L=60m,ϕ=30cm

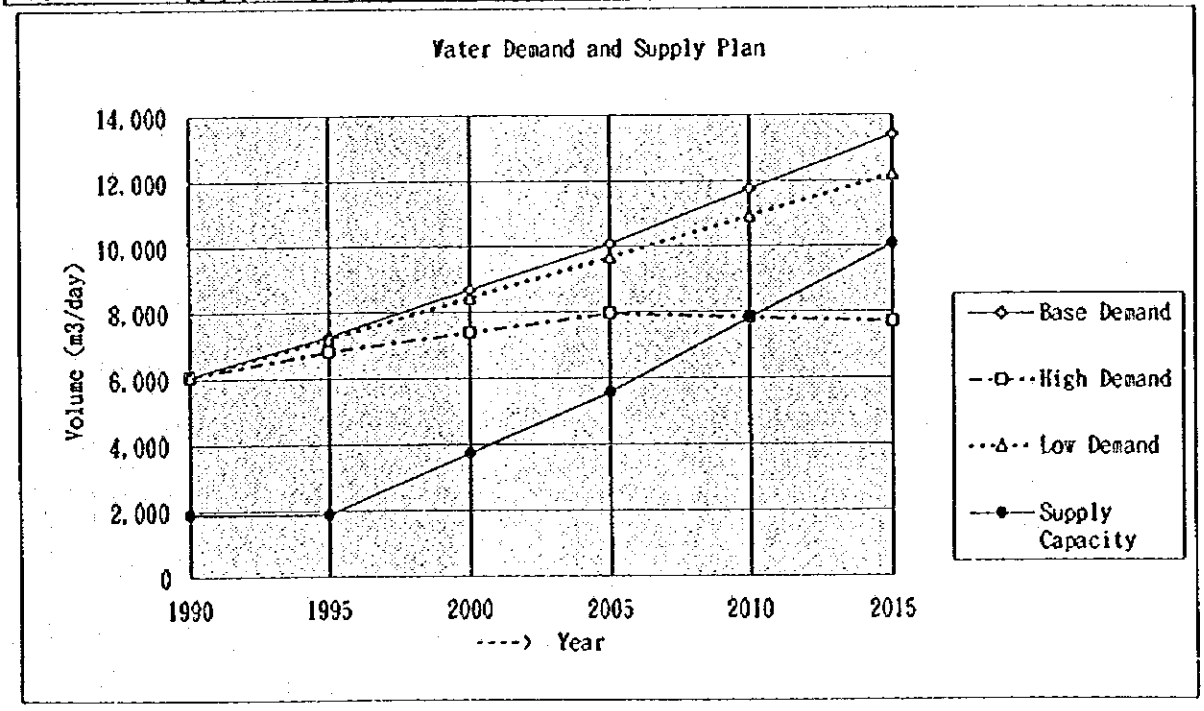
WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		150	150	150	150	150	150
Water Demand (m3/day)	(Base)	217	249	283	317	352	388
	(High)	217	270	340	411	513	615
	(Low)	217	247	275	303	328	353
< Industrial Water >							
Water Demand (m3/day)	(Base)	133	163	192	222	239	255
	(High)	133	200	268	335	360	384
	(Low)	133	148	163	178	191	203
< Domestic & Industrial Water >							
Cities & Municipalities Gross Water Demand (m3/day)	(Base)	350	411	475	539	591	643
	(High)	350	470	608	746	872	999
	(Low)	350	395	438	481	518	556
- Water Loss Rate (%)		15	15	15	15	15	15
Cities & Municipalities Net Water Demand (m3/day)	(Base)	402	473	546	620	679	739
	(High)	402	540	699	858	1,003	1,148
	(Low)	402	454	504	554	596	639
< Water Supply Program >							
- Existing Capacity (m3/day)		402	402	402	402	402	402
(1) Boreholes (2 wells)				212	212	212	212
(2) Borehole (1 well)					106	106	106
(3) Borehole (1 well)						106	106
- Total Water Supply (m3/day)		402	402	614	720	826	826



Appendix-1.3 Water Demand and Supply Plan for Rural Areas

(1) Water Demand and Supply Plan for Rural Areas (Lusaka Province)

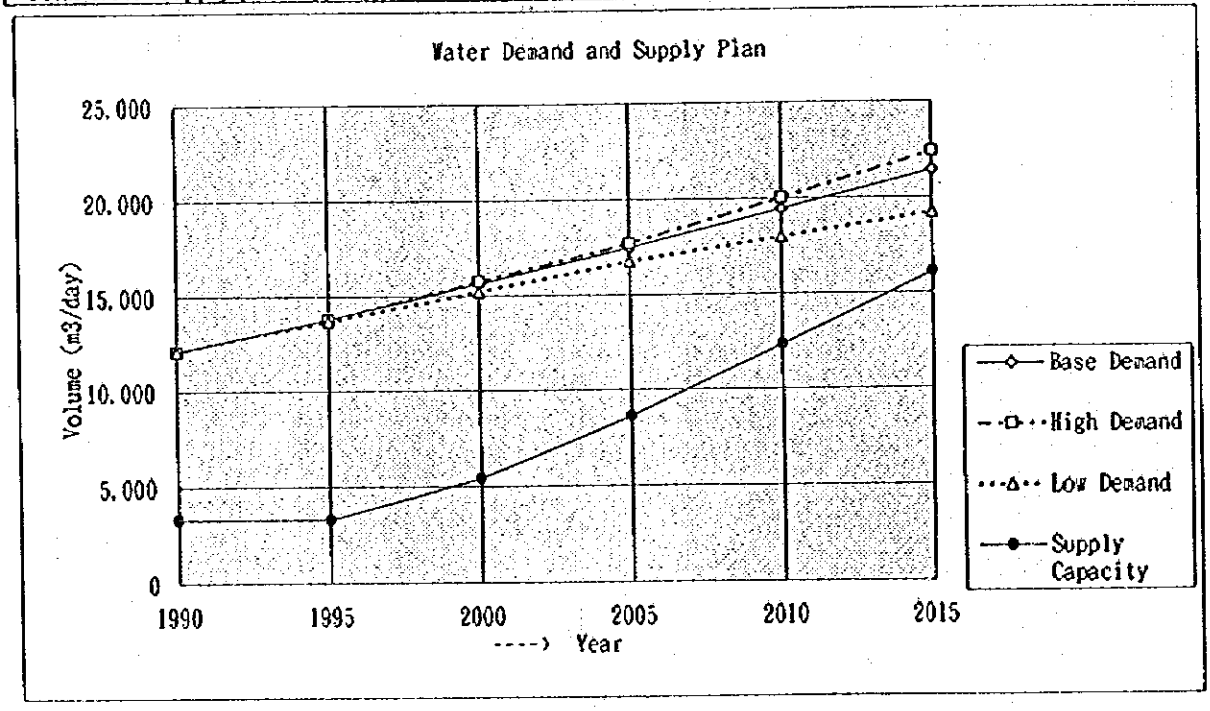
RURAL					PROVINCE		
					10	Lusaka	
1990 CENSUS POPULATION AND FUTURE PROJECTION							
1990 Census Data		Projection Scenarios			1995	2005	2015
- Population	157,633	(1) Base Projection			189,000	262,000	348,000
- Household	33,821	(2) High Projection			177,000	207,000	200,000
- Family Size	4.7	(3) Low Projection			187,000	251,000	317,000
WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		35	35	35	35	35	35
Rural Water Demand (m3/day)	(Base)	5,517	6,615	7,893	9,170	10,675	12,180
	(High)	5,517	6,195	6,720	7,245	7,123	7,000
	(Low)	5,517	6,545	7,665	8,785	9,940	11,095
- Water Loss Rate (%)		10	10	10	10	10	10
Rural Net Water Demand (m3/day)	(Base)	6,069	7,277	8,682	10,087	11,743	13,398
	(High)	6,069	6,815	7,392	7,970	7,835	7,700
	(Low)	6,069	7,200	8,432	9,664	10,934	12,205
< Water Supply Program >							
- Existing Capacity (m3/day)		1,884	1,884	1,884	1,884	1,884	1,884
(1) Boreholes (245 wells)				1,838	1,838	1,838	1,838
(2) Boreholes (245 wells)					1,838	1,838	1,838
(3) Boreholes (300 wells)						2,250	2,250
(4) Boreholes (300 wells)							2,250
- Total Water Supply (m3/day)		1,884	1,884	3,722	5,560	7,810	10,060



(2) Water Demand and Supply Plan for Rural Areas (Copperbelt Province)

RURAL			PROVINCE		
			20	Copperbelt	
1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	314,891	(1) Base Projection	358,000	454,000	556,000
- Household	73,769	(2) High Projection	358,000	460,000	581,000
- Family Size	4.3	(3) Low Projection	356,000	435,000	499,000

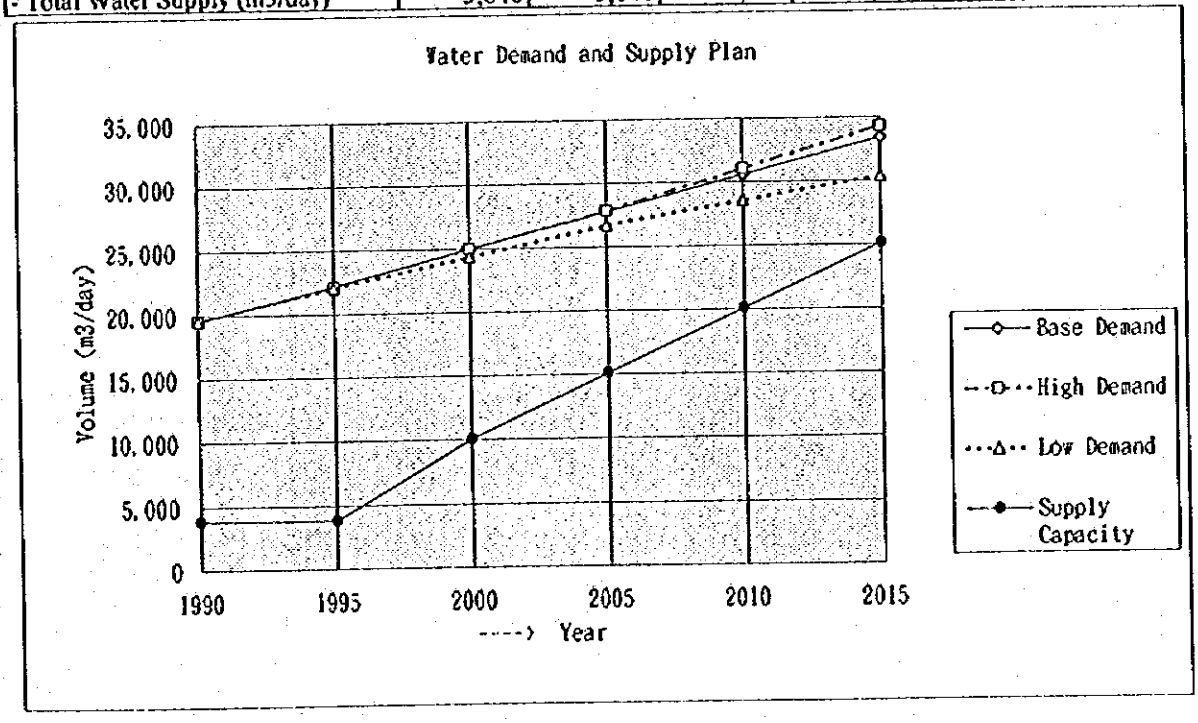
WATER DEMAND AND SUPPLY							
Items		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		35	35	35	35	35	35
Rural Water Demand (m3/day)	(Base)	11,021	12,530	14,210	15,890	17,675	19,460
	(High)	11,021	12,530	14,315	16,100	18,218	20,335
	(Low)	11,021	12,460	13,843	15,225	16,345	17,465
- Water Loss Rate (%)		10	10	10	10	10	10
Rural Net Water Demand (m3/day)	(Base)	12,123	13,783	15,631	17,479	19,443	21,406
	(High)	12,123	13,783	15,747	17,710	20,039	22,369
	(Low)	12,123	13,706	15,227	16,748	17,980	19,212
< Water Supply Program >							
- Existing Capacity (m3/day)		3,312	3,312	3,312	3,312	3,312	3,312
(1) Boreholes (280 wells)				2,100	2,100	2,100	2,100
(2) Boreholes (427 wells)					3,203	3,203	3,203
(3) Boreholes (498 wells)						3,735	3,735
(4) Boreholes (499 wells)							3,743
- Total Water Supply (m3/day)		3,312	3,312	5,412	8,615	12,350	16,093



(3) Water Demand and Supply Plan for Rural Areas (Central Province)

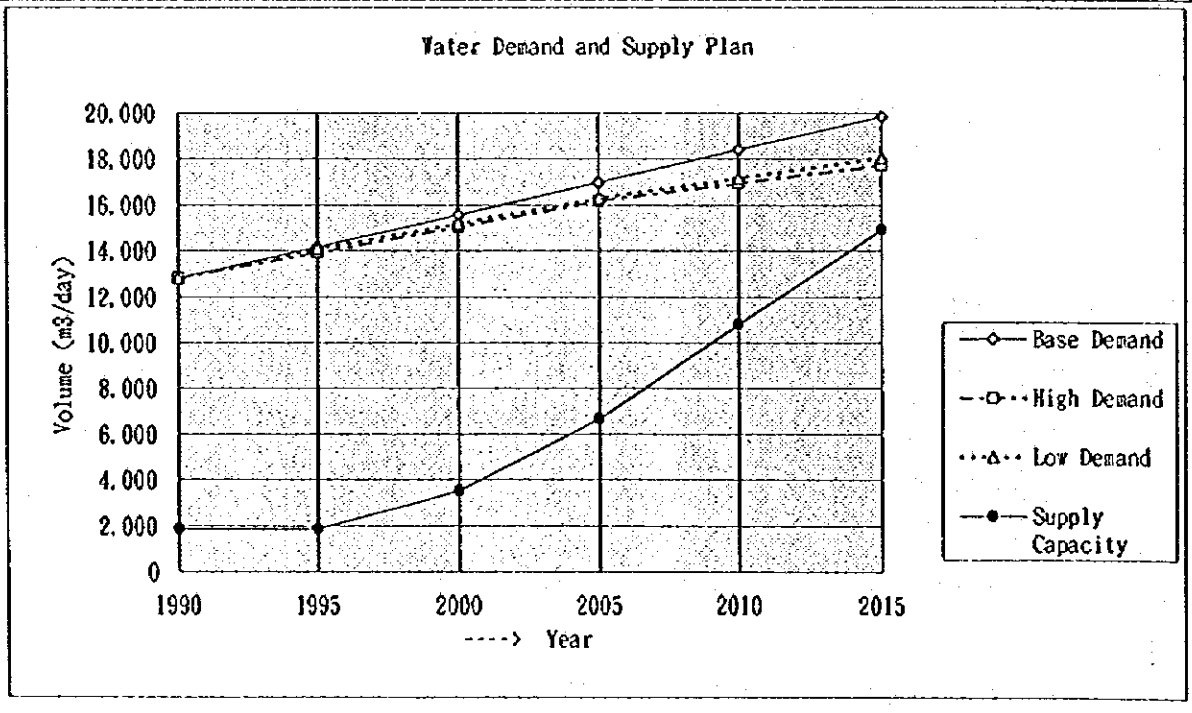
RURAL			PROVINCE		
			30	Central	
1990 CENSUS POPULATION AND FUTURE PROJECTION					
1990 Census Data		Projection Scenarios	1995	2005	2015
- Population	507,430	(1) Base Projection	576,000	721,000	868,000
- Household	92,790	(2) High Projection	574,000	723,000	892,000
- Family Size	5.5	(3) Low Projection	572,000	693,000	790,000

WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		35	35	35	35	35	35
Rural Water Demand (m3/day)	(Base)	17,760	20,160	22,698	25,235	27,808	30,380
	(High)	17,760	20,090	22,698	25,305	28,263	31,220
	(Low)	17,760	20,020	22,138	24,255	25,953	27,650
- Water Loss Rate (%)		10	10	10	10	10	10
Rural Net Water Demand (m3/day)	(Base)	19,536	22,176	24,967	27,759	30,588	33,418
	(High)	19,536	22,099	24,967	27,836	31,089	34,342
	(Low)	19,536	22,022	24,351	26,681	28,548	30,415
< Water Supply Program >							
- Existing Capacity (m3/day)		3,840	3,840	3,840	3,840	3,840	3,840
(1) Boreholes (830 wells)				6,225	6,225	6,225	6,225
(2) Boreholes (674 wells)					5,055	5,055	5,055
(3) Boreholes (665 wells)						4,988	4,988
(4) Boreholes (665 wells)							4,988
- Total Water Supply (m3/day)		3,840	3,840	10,065	15,120	20,108	25,096



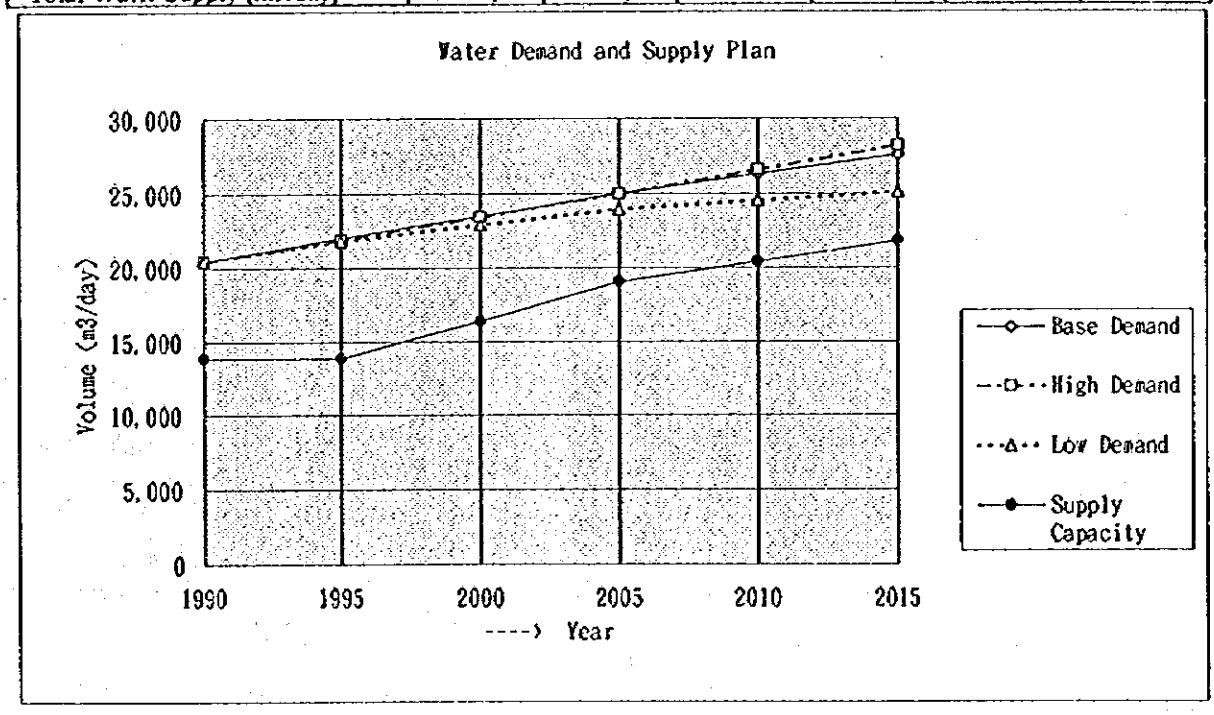
(4) Water Demand and Supply Plan for Rural Areas (North-western Province)

RURAL					PROVINCE		
					40	Northwestern	
1990 CENSUS POPULATION AND FUTURE PROJECTION							
1990 Census Data		Projection Scenarios			1995	2005	2015
- Population	333,234	(1) Base Projection			368,000	441,000	515,000
- Household	74,501	(2) High Projection			362,000	420,000	461,000
- Family Size	4.5	(3) Low Projection			366,000	423,000	469,000
WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		35	35	35	35	35	35
Rural Water Demand (m3/day)	(Base)	11,663	12,880	14,158	15,435	16,730	18,025
	(High)	11,663	12,670	13,685	14,700	15,418	16,135
	(Low)	11,663	12,810	13,808	14,805	15,610	16,415
- Water Loss Rate (%)		10	10	10	10	10	10
Rural Net Water Demand (m3/day)	(Base)	12,830	14,168	15,573	16,979	18,403	19,828
	(High)	12,830	13,937	15,054	16,170	16,959	17,749
	(Low)	12,830	14,091	15,188	16,286	17,171	18,057
< Water Supply Program >							
- Existing Capacity (m3/day)		1,854	1,854	1,854	1,854	1,854	1,854
(1) Boreholes (221 wells)				1,658	1,658	1,658	1,658
(2) Boreholes (422 wells)					3,165	3,165	3,165
(3) Boreholes (550 wells)						4,125	4,125
(4) Boreholes (549 wells)							4,118
- Total Water Supply (m3/day)		1,854	1,854	3,512	6,677	10,802	14,920



(5) Water Demand and Supply Plan for Rural Areas (Western Province)

RURAL					PROVINCE		
					50	Western	
1990 CENSUS POPULATION AND FUTURE PROJECTION							
1990 Census Data		Projection Scenarios			1995	2005	2015
- Population	531,072	(1) Base Projection			572,000	649,000	717,000
- Household	112,888	(2) High Projection			569,000	649,000	733,000
- Family Size	4.7	(3) Low Projection			567,000	622,000	652,000
WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		35	35	35	35	35	35
Rural Water Demand (m3/day)	(Base)	18,588	20,020	21,368	22,715	23,905	25,095
	(High)	18,588	19,915	21,315	22,715	24,185	25,655
	(Low)	18,588	19,845	20,808	21,770	22,295	22,820
- Water Loss Rate (%)		10	10	10	10	10	10
Rural Net Water Demand (m3/day)	(Base)	20,446	22,022	23,504	24,987	26,296	27,605
	(High)	20,446	21,907	23,447	24,987	26,604	28,221
	(Low)	20,446	21,830	22,888	23,947	24,525	25,102
< Water Supply Program >							
- Existing Capacity (m3/day)		13,872	13,872	13,872	13,872	13,872	13,872
(1) Boreholes (337 wells)				2,528	2,528	2,528	2,528
(2) Boreholes (353 wells)					2,648	2,648	2,648
(3) Boreholes (184 wells)						1,380	1,380
(4) Boreholes (184 wells)							1,380
- Total Water Supply (m3/day)		13,872	13,872	16,400	19,048	20,428	21,808



(6) Water Demand and Supply Plan for Rural Areas (Southern Province)

RURAL					PROVINCE		
					60	Southern	
1990 CENSUS POPULATION AND FUTURE PROJECTION							
1990 Census Data		Projection Scenarios			1995	2005	2015
- Population	695,166	(1) Base Projection			785,000	973,000	1,159,000
- Household	113,075	(2) High Projection			777,000	958,000	1,154,000
- Family Size	6.1	(3) Low Projection			779,000	932,000	1,057,000
WATER DEMAND AND SUPPLY							
I t e m s		1990	1995	2000	2005	2010	2015
< Domestic Water >							
Consumption Rate (lit/cap./day)		35	35	35	35	35	35
Rural Water Demand (m3/day)	(Base)	24,331	27,475	30,765	34,055	37,310	40,565
	(High)	24,331	27,195	30,363	33,530	36,960	40,390
	(Low)	24,331	27,265	29,943	32,620	34,808	36,995
- Water Loss Rate (%)		10	10	10	10	10	10
Rural Net Water Demand (m3/day)	(Base)	26,764	30,223	33,842	37,461	41,041	44,622
	(High)	26,764	29,915	33,399	36,883	40,656	44,429
	(Low)	26,764	29,992	32,937	35,882	38,288	40,695
< Water Supply Program >							
- Existing Capacity (m3/day)		7,392	7,392	7,392	7,392	7,392	7,392
(1) Boreholes (533 wells)				3,998	3,998	3,998	3,998
(2) Boreholes (1005 wells)					7,538	7,538	7,538
(3) Boreholes (989 wells)						7,418	7,418
(4) Boreholes (989 wells)							7,418
- Total Water Supply (m3/day)		7,392	7,392	11,390	18,928	26,346	33,764