

Tables

Table B.2.1 Rainfall volume of Each Area from 1991 to 1999

Unit : mm

Area	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	Average
North West	663	462	367	404	791	440	740	691	582
	110%	77%	63%	67%	136%	73%	123%	114%	100%
North East	622	427	309	342	795	319	546	525	480
	127%	87%	60%	70%	166%	65%	111%	107%	100%
Central West	388	354	191	222	458	210	342	277	298
	122%	111%	89%	70%	154%	66%	107%	87%	100%
Central East	337	342	278	118	664	205	366	263	305
	108%	109%	83%	38%	218%	66%	113%	82%	100%
South West	103	109	97	39	225	104	88	143	114
	88%	93%	97%	34%	197%	89%	70%	115%	100%
South East	171	82	170	86	389	99	158	179	173
	98%	47%	70%	49%	225%	57%	91%	103%	100%
Average	381	296	235	202	554	229	374	346	325
	113%	88%	70%	60%	165%	68%	110%	102%	100%

Source : La Situation Pluviometrique et Hydrologique en Tunisie au Cours de L'Annee Agricole 1998-1999

Table B.2.2 Annual Rainfall Data by Stations

Area	Stations per Gouvernorates	Rainfall(mm/month) --1998~1999--												total (mm/y)	ave./gov. (mm/y)	
		98/9	10	11	12	99/1	2	3	4	5	6	7	8			
North East	TUNIS CARTHAGE	34	77	49	36	88	37	27	7	5	2	20	0	382	Grand Tunis	392
	TUNIS MANNOUBIA	84	89	51	41	98	29	38	10	3	4	8	0	455		
	ARIANA/MENZAHE	36	70	45	32	72	34	24	5	5	7	26	0	356		
	BEN AROUS	68	67	39	33	93	27	30	6	3	2	6	0	374	Nabeul	449
	NABEUL	49	127	22	80	134	8	30	9	3	7	0	4	473		
	KELIBIA	36	101	65	99	68	57	30	6	3	2	0	0	467		
	GROMBALIA	40	54	49	59	113	35	34	4	10	1	0	2	401	Zaghouan	559
	HAOUARIA	56	93	123	75	26	60	15	12	4	2	0	0	466		
	HAMMAMET	62	126	14	54	126	10	29	9	3	2	0	2	437		
	ZAGHOUAN	59	101	29	50	211	22	53	4	27	20	1	5	582	Bizerte	523
	EL FAHS	51	113	58	50	155	34	75	3	24	13	9	8	593		
	BIRMECHERGA Bge	65	69	42	53	122	22	55	4	18	7	21	0	478		
	MOGRANE	68	97	39	50	206	26	47	4	26	16	3	1	583	Bizerte	523
	BIZERTE	30	52	83	50	94	95	43	32	19	3	2	0	503		
	TINJA	43	64	84	47	89	86	34	29	21	4	0	0	501		
	MATEUR	45	49	44	49	64	54	49	22	19	6	7	0	408	Bizerte	523
	JOUMINE Bge	37	71	130	75	138	100	66	39	19	5	1	0	681		
North West	JENDOUBA	54	56	114	45	77	44	73	25	12	19	13	3	535		
	BOU SALEM	56	58	119	54	44	62	63	25	16	15	15	0	527		
	AIN DRAHAM	124	169	443	203	148	244	206	96	28	9	0	0	1697		
	TABARKA	97	108	327	112	82	125	141	46	42	2	0	0	1082	Beja	657
	GHARDIMAOU	105	54	104	33	106	36	46	25	40	6	4	2	561		
	BOU HEURTMA	67	66	180	122	75	114	69	43	27	3	23	0	789		
	BEJA	64	57	146	59	83	61	89	23	16	25	5	0	628	Beja	657
	MEJEZ EL BAB	63	38	57	49	85	49	57	9	11	9	28	0	455		
	NEFZA	70	106	202	128	129	222	140	57	24	5	2	1	1086		
	SIDI SALEM Bge	62	36	87	45	63	51	77	10	9	11	21	0	472	Le Kef	472
	TEBOURSOUK	73	55	118	99	84	63	90	11	22	15	10	2	642		
	LE KEF	54	54	71	25	73	26	37	1	19	27	33	15	435		
	MELLEQUE Bge	71	28	80	30	91	20	40	10	13	7	5	6	401	Siliana	405
	SAKIET S YOUSSEF	88	38	114	43	116	32	58	14	27	19	11	19	579		
	SILIANA	73	45	38	19	81	32	58	7	25	30	11	3	422		
	LAKHMESS Bge	64	41	43	17	94	24	59	11	12	20	2	0	387	Kairouan	258
	KAIROUAN	29	60	15	3	83	1	20	5	6	6	3	3	234		
HAFFOUZ	17	46	16	3	122	3	15	7	27	30	0	1	287			
West	SIDI SAAD	10	48	7	1	58	0	13	1	17	26	0	0	181	Kasserine	273
	QUESLATIA	89	27	22	2	154	1	24	8	17	18	4	11	377		
	NEBHANA Bge	40	26	8	0	77	0	27	7	8	16	3	0	212		
	KASSERINE	23	30	14	1	121	4	6	7	16	19	4	28	273	Sidi Bouzid	285
	TALA	47	43	47	12	99	0	33	8	39	20	35	8	391		
	SBETILA	12	19	4	1	83	0	16	0	9	25	7	12	188		
	AIN SABOUN	24	63	6	0	68	0	12	7	4	30	9	18	241	Sidi Bouzid	285
	SIDI BOUZID	12	56	11	0	141	0	14	0	20	3	28	3	288		
	JELMA/NEGADA	9	35	6	0	155	0	13	0	10	23	9	21	281		
	East	SOUSSE	35	51	6	25	93	3	30	4	9	11	6	0	273	Sousse
CHOTT MARIAM		45	46	7	7	93	0	24	6	7	7	5	0	247		
MONASTIR		25	44	14	14	90	59	41	1	4	6	6	1	305	Mahdia	192
JAMMEL		6	44	16	12	98	51	27	0	4	7	2	4	271		
MAHDIA		18	48	19	23	67	17	25	0	3	1	0	0	221	Sfax	274
ELJEM		29	33	3	12	62	4	16	0	3	0	0	0	162		
SFAX METEO		20	76	5	19	143	5	5	0	3	0	1	0	277		
South	CHAAL	56	52	3	0	153	3	2	0	1	0	0	0	270	Gafsa	224
	GAFSA	16	45	8	0	98	0	4	0	10	1	6	11	199		
	SIDI AICH	23	19	5	1	160	0	3	0	15	8	13	1	248		
	TOZEUR	27	33	18	0	41	0	24	0	2	0	4	0	149	Tozeur	111
	NEFTA	4	7	10	3	32	2	8	0	5	0	4	0	72		
	KEBILI	13	40	0	0	23	2	15	0	1	0	0	1	95	Mednine	182
	DOUZ	0	48	3	0	25	3	9	0	0	0	0	0	88		
South East	GABES METEO	14	47	2	2	87	10	10	0	1	0	4	0	177	Gabes	184
	MATMATA	5	91	1	1	51	22	19	0	0	0	0	0	190		
	MEDNINE	12	14	4	20	34	53	19	0	1	0	0	0	157	Mednine	182
	ZARZIS	8	10	3	27	39	51	18	0	0	0	3	0	159		
	JERBA AEROPORT	21	74	7	9	67	45	8	0	0	0	0	0	231	Tataouine	154
	TATAOUINE	9	29	6	12	21	83	51	0	0	0	0	0	211		
REMADA	1	15	1	0	5	45	29	0	0	0	0	0	96	Tataouine	154	
Average																338

Source : La Situation Pluviometrique et Hydrologique en Tunisie au Cours (Sep.1998 ~ Aug.1999)

Table B.2.3 1998 Seasonally Rainfall Data by Areas

(mm/m)					
Region	98/99	Autumn (Sep~Nov)	Winter (Dec~Feb)	Spring (Mar~May)	Summer (Jun~Aug)
North West	691	268	272	121	30
	100%	39%	39%	18%	4%
North East	519	190	247	69	13
	100%	37%	48%	13%	3%
Central West	279	85	113	43	38
	100%	30%	41%	15%	14%
Central East	263	88	138	30	7
	100%	33%	52%	11%	3%
South West	144	54	61	20	9
	100%	38%	42%	14%	6%
South East	171	54	96	20	1
	100%	32%	56%	12%	1%
TUNISIA	188	67	84	28	9
	100%	36%	45%	15%	5%

Table B.2.4 1998 Monthly Rainfall Data by Areas

(mm/m)													
Region	98/99	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
North West	691	73	61	134	70	128	74	75	24	22	14	13	3
	100%	11%	9%	19%	10%	19%	11%	11%	3%	3%	2%	2%	0%
North East	519	51	82	57	53	150	44	42	13	14	6	6	1
	100%	10%	16%	11%	10%	29%	8%	8%	3%	3%	1%	1%	0%
Central West	279	29	41	15	2	110	1	19	7	17	20	9	9
	100%	10%	15%	5%	1%	39%	0%	7%	3%	6%	7%	3%	3%
Central East	263	29	49	10	14	106	18	23	2	5	4	2	1
	100%	11%	19%	4%	5%	40%	7%	9%	1%	2%	2%	1%	0%
South West	144	14	32	8	0	60	1	10	3	7	2	5	2
	100%	10%	22%	6%	0%	42%	1%	7%	2%	5%	1%	3%	1%
South East	171	10	41	3	8	44	44	20	0	0	0	1	0
	100%	6%	24%	2%	5%	26%	26%	12%	0%	0%	0%	1%	0%
TUNISIA	188	19	28	21	13	55	17	17	4	6	4	3	1
	100%	10%	15%	11%	7%	29%	9%	9%	2%	3%	2%	2%	1%

Source : La Situation Pluviométrique et Hydrologique en Tunisie au Cours (Sep.1998 ~ Aug.1999)

Table B.3.1 List of Deep Tube Wells for Project 2001

Well No.	Sub-Project	Governorate	Longitude (grade)	Latitude (grade)	Elevation (m)	Constructed date	Drilling Depth (GL-m)	Well Depth (GL-m)	Well Diameter	Seen position (GL-m)	SWL (GL-m)	PWL (GL-m)	Q (l/s)	DD (GL-m)	Specific Capacity (l/s/m)	Transmissivity (m ² /day)	Aquifer	Test pumping hour (hr)	Drilling contractor	Allowable Q (l/s)	Elevation in meters at Possible Q	Ground surface	PWL	Allowable PWL	Screen top
11734/2	Rouisse/ Bouga	Zaghouan	8° 40' 22"	40° 52' 48"	240	1986/7/31 1986/8/30	150	124	9"-5/8	78.2 112.6	35.5	63.8	7.0	28.27	0.25	23.7	Sand (Sand Stone)	8	SOFORI	7.0		240.0	176.3	163.77	161.8
9316/1	Smadah	Bizerte	7° 83' 90"	40° 97' 50"	360	1999/8/8 1999/9/18	206	65	9"-5/8	38 65	11.0	17.0	14.0	6.00	2.33	55.3	Line Stone	6	EMASONHY	14.0		349.0	343.0	324	322.0
9317/1	Tergulech	Bizerte	8° 24' 20"	41° 00' 00"	140	1999/6/23 1999/8/6	53	33	12"-1/4	8.0 30.0	7.4	7.9	15.7	0.50	31.40	316.2	Line Stone	60	EMASONHY	15.7		140.0	132.6	132.1	134
6957/3	Chaamba-O.Ei Assel-Hamadia	Le Kef	7° 33' 25"	39° 93' 10"	685	1997/5/31 1998/6/17	197	197	9"-5/8	110 140	79.8	116.9	1.8	37.13	0.05	1.6	Line Stone /Marl	24	R.S.H	1.8		685.0	605.2	568.1	577
19666/4	Hmdiet	Kairouan	8° 35' 20"	39° 41' 95"	170	1999/1/22 1999/2/8	268	216	9"-5/8	159.8 207.1	65.8	78.8	12.0	13.04	0.92	75.9	Sand (Sand Stone)	8	SOFORI	12.0		170.0	104.2	91.2	12.2
19631/4	Daaysia	Kasserine	7° 26' 20"	39° 52' 95"	920	-	170	100	9"-5/8	100	119	129.0	5.0	10.00	0.50	49.4	Line Stone	24	E.H	5.0		920.0	801.0	791.0	822
-	Henchir Tounsi	Kasserine	7° 22' 10"	39° 45' 50"	945	1999/8/23 1999/9/11	62	57	9"-5/8	31.1 38.1	7.00	20.5	13.5	13.50	1.00	26.7	Line Stone	6	R.S.H	13.5		945.0	938.0	924.5	915.9
-	Oued Lagsab	Kasserine	6° 79' 60"	38° 63' 00"	710	-	300	250	9"-5/8	160	150.18	160.7	4.5	10.50	0.43	24.9	Sand (Sand Stone)	24	SOFORI	4.5		710.0	559.8	549.3	552
-	Sidi Harrath-Gouassem	Kasserine	7° 25' 80"	39° 14' 20"	665	-	270	140	9"-5/8	60	53.5	56.0	22.0	2.50	8.8	-	Sand (Sand Stone)	4	SOFORI	22.0		665.0	611.5	609.0	607
20389/5	Amairia	Sidi Bouzid	7° 80' 90"	38° 72' 50"	362	1996/11/19	280	225	13"-3/8	225.0	44.0	97.2	16.0	53.20	0.30	16.3	Line Stone	8	E.Hyd	16.0		362.0	318.0	264.8	139
19577/4	Blakdia	Sidi Bouzid	7° 70' 95"	39° 27' 90"	540	1997/2/27 1998/9/18	716	673	9"-5/8	279.0 673.0	158.0	163.0	7.2	5.00	1.44	162.6	Sandy Marl	24	SOFORI	7.2		540.0	382.0	377.0	-79
20554/5	Bouchiha	Sidi Bouzid	8° 39' 80"	38° 85' 05"	200	1998/1/27 1999/2/16	450	437	9"-5/8	350.0 431.0	123.0	162.8	6.5	39.80	0.16	15.6	Sand (Sand Stone)	24	SOFORI	6.5		200.0	77.0	37.2	-148
20557/5	Mahrunga	Sidi Bouzid	7° 79' 80"	38° 48' 50"	330	1998/2/18	300	164	9"-5/8	75.1	55.0	61.0	20.0	6.00	3.3	191.6	Line Stone	14	SOFORI	20.0		330.0	275.0	269.0	254.9
19393/5	Khanguet Zammour	Gasfa	7° 88' 50"	38° 20' 20"	125	1994/2/2 1986/1/1	320	53.27	9"-5/8	53.3	43.0	47.0	3.3	4.00	0.8	-	Sand & gravel	10	R.S.H	3.3		125.0	82.0	78.0	73.75
9624/5	Thlejjia	Gasfa	7° 52' 80"	38° 36' 10"	377	1986/4/25 1988/2/7	235.5	71	9"-5/8	52.8 68.1	26.0	32.0	4.6	5.96	0.8	8.1	Sand & gravel	8	R.S.H	4.6		377.0	351.0	345.0	326.17
Baten Trajima	Gabes	Gabes	8° 18' 50"	37° 51' 75"		1968/5/20	Not Completed																		

Note: SWL= Static Water Level, PWL= Pumping Water Level, Q= Quantity, DD= Drawdown

Table B.4.1 Parameters and Methodology

No.	Parameters		Method adopted in the Study	Quantification limit (mg/L)*
Bacteriological quality				
1	Total coliform	-	NFT90-413 (General method by culture in liquid media, Most Probable Number)	3 MPN
2	Thermotolerant coliform	-	NFT90-413 (General method by culture in liquid media, Most Probable Number)	3 MPN
3	Escherichia coli	-	NFT90-413 (General method by culture in liquid media, Most Probable Number)	3 MPN
4	Faecal streptococci	-	NFT 90-411 (General method by culture in liquid media, Most Probable Number)	3 MPN
Toxic Chemical Substances				
5	arsenic	As	ICP/AES (Inductively Coupled Plasma Atomic Emission Spectrometry)	0.05
6	cadmium	Cd	FDT 90.112(Nov 96) [Extraction after formation of complex compound]	0.005
8	cyanide	CN	Potentiometric Method with specific electrode for cyanide	0.05
13	Mercury	Hg	NFT 90.113(Sept 86) [Cold vapor method]	0.001
11	lead	Pb	FDT 90.112(Nov 96) [Extraction after formation of complex compound]	0.05
Chemical substances that likely induce health problems				
9	fluoride	F ⁻	Potentiometric Method with specific electrode for fluoride	-
14	nitrate	NO ₃ ⁻	ISO 7890-3 1988(F) [Spectrophotometric]	0.18
Acceptability Aspects				
16	colour		Description of organoleptique	-
17	Odour		Description of organoleptique	-
18	turbidity		Turbidimeter LOVIBOND TM 720	-
24	pH	pH	NF T 90.008 Avril 1953 (Glass Electorode)	-
20	chloride	Cl ⁻	NF T 9.014 Fev 1952 [Volumetric]	-
7	copper	Cu	FDT 90.112(nov 96) [Direct dosage method]	0.1
30	magnesium	Mg ²⁺	NF T 90.005 Mars 1985 [Atomic Absorption]	-
12	manganese	Mn	FDT 90.112(nov 96) [Direct dosage method]	0.1
23	iron	Fe	FDT 90.112(nov 96) [Direct dosage method]	0.1
28	zinc	Zn	FDT 90.112(nov 96) [Direct dosage method]	0.02
21	total hardness		Summation of [Ca2+] and [Mg2+]	-
26	sulphate	SO ₄ ²⁻	NF T 90.040 Sept 1986 [Spectrophotometric]	-
29	calcium	Ca ²⁺	NF T 90.005 Mars 1985 [Atomic Absorption]	-
Other Supporting Data				
10	hexavalent chromium	Cr(VI)	NFT 90.043 Oct 1988 [Atomic Absorption]	0.05
27	total disolved solids	TDS	Direct measurement with electrode	
19	ammonium	NH ₄ ⁺	NFT 90.015 Aout 1975, 2 [Indophenol blue]	0.01
22	sulphide	H ₂ S	Dosage of sulfate and reducing agent	-
25	sodium	Na ⁺	NF T 90.019 Aout 1984 [Flame Photometer]	-
33	potassium	K ⁺	NF T 90.019 Aout 1984 [Flame Photometer]	-
15	nitrite	NO ₂ ⁻	NF EN 26777 Mai 97 [Spectrophotometric]	0.04
31	Bicarbonate	HCO ₃ ⁻	NFEN ISO 9963-1 Fev 96 [Volumetric]	-
32	Carbonate	CO ₃ ⁻	NFEN ISO 9963-1 Fev 96 [Volumetric]	-

* : Quantification limits are expressed in mg/L unless oterwise stated.

Table B.4.2 Digest of the National Draft Guideline for Drinking Water

No.	Items	Unit	Standard of Tunisia for drinking water(PNT)		WHO's Guidelines	
			Maximum Desirable Level	Maximum Acceptable Level	Guideline values	Remarks
Bacteriological aspects						
1	Total coliform	MPN				
2	Thermotolerant coliform	MPN				
3	Escherichia coli	MPN				
4	Faecal streptococci	MPN				
Chemicals of health significance in drinking water						
5	arsenic	mg/L	-	0.05	0.01	(P)
6	cadmium	mg/L	-	0.005	0.003	
7	copper	mg/L	0.05	1	2	ATO
8	cyanide	mg/L	-	0.05	0.07	
9	fluoride			*	1.5	
10	chromium (VI)	mg/L	-	-	0.05	as T-Cr (P)
11	lead	mg/L	-	0.05	0.01	
12	manganese	mg/L	0.05	0.5	0.5	ATO (P)
13	Mercury(Hg)	mg/L	-	0.001	0.001	
14	nitrate	mg/L	-	**45	50	
15	nitrite		-	-	3	(P)
Substances and parameters that mat give rise to complaints from consumers						
16	colour	-	5 units	50 units	15TCU	True color unit
17	Odour	-	acceptable	acceptable	acceptable	
18	turbidity	NTU	5	25	5	
19	ammonium				1.5	
20	chloride	mg/L	200	600	250	
21	total hardness	CaCO ₃ mg/L	100	1000	-	
22	sulphide				0.05	
23	iron	mg/L	0.1	0.5-1.0	0.3	
24	pH	-	7.0-8.0	6.5-8.5	-	
25	sodium		-	-	200	
26	sulphate	mg/L	200	600	250	
27	Total Disolved Solids	mg/L	500	2000-2500	1000	
28	zinc	mg/L	1	5	3	
29	calcium	mg/L	75	300		
30	magnesium	mg/L	150	150		
Other substances						
31	Bicarbonate		-	-	-	
32	Carbonate		-	-	-	
33	potassium		-	-	-	

*: The value varies by water temperature as given below.

**: This standard value is applied to infant below 1 years of age.

Table B.4.3 Water quality analysis results

	Parameters		T coliform *1	Therm. Col *2	E.Coli	Faecal Str	As	Cd	CN	Hg	Pb	Cr(VI)	F	NO ₃ ⁻	Color	Odour	Turbidity	pH	Cl ⁻	Cu	Mg	Mn	Fe	Zn	Hardness *6	SO ₄ ²⁻	Ca	TDS	NH ₄ ⁺	H ₂ S	Na ⁺	K ⁺	NO ₂ ⁻	HCO ₃ ⁻	CO ₃ ²⁻	
	Unit	Unit																																		
Draft Guideline	Maximum Permissible Concentration																																			
Chemicals of health significance																																				
WHO	Consumer complaints																																			
	Quantification Limit		3	3	3																															
BEJA	FATNASSA		<3	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	<0.05	0.9	2	No	No	0.1	7.4	28	<0.1	12	<0.1	0.028	134	30	87	253	<0.01	0	18	1	0.19	271	0		
	SMADAH		4	<3	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	<0.05	0.6	44	No	No	0.3	8.0	74	<0.1	6	<0.1	<0.1	<0.02	134	34	97	307	<0.01	0	37	10	<0.04	201	0	
	BIZERTE		15	<3	-	9	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	0.2	36	No	No	0.2	7.5	143	<0.1	14	<0.1	<0.1	<0.02	169	43	113	398	0.0815	0	85	3	<0.04	214	0	
	CHOUGAULA		23	<3	-	23	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	0.2	3	No	No	6	8.6	82	<0.1	16	<0.1	<0.1	<0.02	125	117	75	325	<0.01	0	53	3	<0.04	0	143	0
	JENDOUBA		9	<3	-	9	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	0.2	5	No	No	6	8.4	45	<0.1	15	<0.1	<0.1	<0.02	122	131	73	290	<0.01	0	44	2	0.06	0	134	0
LE KEF	CHIAAMBA-O-EL ASSEL-HMAIDIA		200	<3	-	4	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	1.7	<0.18	No	No	2	7.7	119	<0.1	11	<0.1	0.36	<0.02	64	163	34	537	0.162	0	225	4	0.06	419	0	
	MHAFDHIA - GHRAISSIA		90	4	<3	4	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	0.4	75	No	No	0.2	7.7	51	<0.1	33	<0.1	<0.1	<0.02	198	200	104	413	<0.01	0	40	35	<0.04	198	0	
	NABEUL		90	4	-	9	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	0.6	1	No	No	0.4	7.6	161	<0.1	65	<0.1	0.11	0.024	280	313	118	608	0.0745	0	133	7	<0.04	325	0	
ZAGHOUAN	ROUSSAT BOUGARMIN		<3	-	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	1.4	<0.18	No	No	1	8.0	400	<0.1	42	<0.1	0.15	0.438	151	137	52	823	<0.01	0	285	4	0.14	291	0	
KASSERINE	CHELALGA		4	<3	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	0.1	5	No	No	0.1	7.5	60	<0.1	15	<0.1	<0.1	<0.02	131	55	80	258	<0.01	0	27	2	<0.04	204	0	
	HMIDET		15	4	<3	23	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	1.0	13	No	No	1	7.6	294	<0.1	89	<0.1	0.39	<0.02	286	310	83	869	<0.01	0	329	9	<0.04	296	0	
	ZGAINA		40	4	<3	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	1.8	19	No	No	0.1	7.6	16	<0.1	17	<0.1	<0.1	0.052	95	27	49	199	<0.01	0	27	3	<0.04	231	0	
	GUDJETT		<3	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	<0.05	1.0	23	No	No	0.2	7.7	101	<0.1	22	<0.1	<0.1	0.099	160	102	91	372	<0.01	0	63	3	<0.04	210	0	
	DAAYSIA		<3	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	<0.05	0.2	46	No	No	1	7.4	32	<0.1	30	<0.1	<0.1	<0.02	175	42	91	287	<0.01	0	22	1	<0.04	364	0	
SIDI BOUZID	HENCHIR TOUNSI		<3	-	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	0.9	28	No	No	0	7.2	445	<0.1	63	<0.1	<0.1	<0.02	411	365	226	1084	<0.01	0	318	4	<0.04	313	0	
	OUJEDI AGSAB		9	<3	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	0.7	9	No	No	2	7.5	81	<0.1	41	<0.1	0.40	<0.02	208	178	100	415	<0.01	0	78	2	<0.04	233	0	
	SIDI HARRATH - GOUASSEM		<3	-	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	1.0	43	No	No	2	7.7	142	<0.1	41	<0.1	0.27	<0.02	219	278	108	491	0.0371	0	95	6	<0.04	176	0	
	BLAHDA		7	4	<3	<3	<0.05	<0.005	<0.05	<0.001	0.361	<0.05	0.7	0.42	maron	No	270	7.3	30	0.291	5	0.26	16.75	2.51	25	8	12	169	1.066	0	48	4	0.108	0	121.2	0
	AMAIRIA		<3	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	<0.05	1.3	28	No	No	29	7.7	489	0.08	131	0.081	0.39	0.257	544	1.013	220	1376	0.048	0	330	8	0.13	232	0	
GABES	MAHROUGA		<3	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	<0.05	2.1	28	No	No	0.5	6.9	292	<0.1	144	<0.1	<0.1	1.18	739	1.328	345	1419	<0.01	0	265	7	<0.04	315	0	
	BOUCHHA		70	<3	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	0.2	<0.18	No	No	4.0	8.5	596	<0.1	85	0.067	1.61	<0.02	344	490	136	1122	1.22	0	279	15	<0.04	0	34.2	0
	EZZAIRA		<3	-	-	<3	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	1.2	39	No	No	0.4	7.5	386	<0.1	118	<0.1	<0.1	0.072	695	777	364	1466	<0.01	0	258	9	<0.04	240	0	
	BATEN TRAIMA		>1100	1100	>1100	23	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	1.4	28	yellow	No	100	7.5	728	<0.1	117	0.396	5.72	0.042	568	1.296	262	1845	0.496	0	577	21	0.050	63	0	
	HENCHIR EDHOUAHER		4	<3	-	90	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	0.9	15	No	No	0.4	7.7	182	<0.1	74	<0.1	<0.1	0.413	302	302	120	735	<0.01	0	149	6	<0.04	237	0	
GAFSA	THLEIDIA		40	<3	-	23	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	1.4	21	No	No	1	7.4	278	<0.1	95	<0.1	<0.1	0.030	478	546	228	1098	<0.01	0	233	6	<0.04	173	0	
	KHANGUET ZAMMOUR		23	<3	-	90	<0.05	<0.005	<0.05	<0.001	<0.05	<0.05	2.0	36	Slight	No	8	7.7	208	<0.1	117	<0.1	0.80	0.256	492	891	201	1221	0.101	0	288	6	<0.04	165	0	

*1: Total Coliform

*2: Thermotolerant Coliform

*3: The national drinking water standard for fluoride varies by temperature.

*4: The unit is TCU

*5: In situ measurement is recorded when it is available.

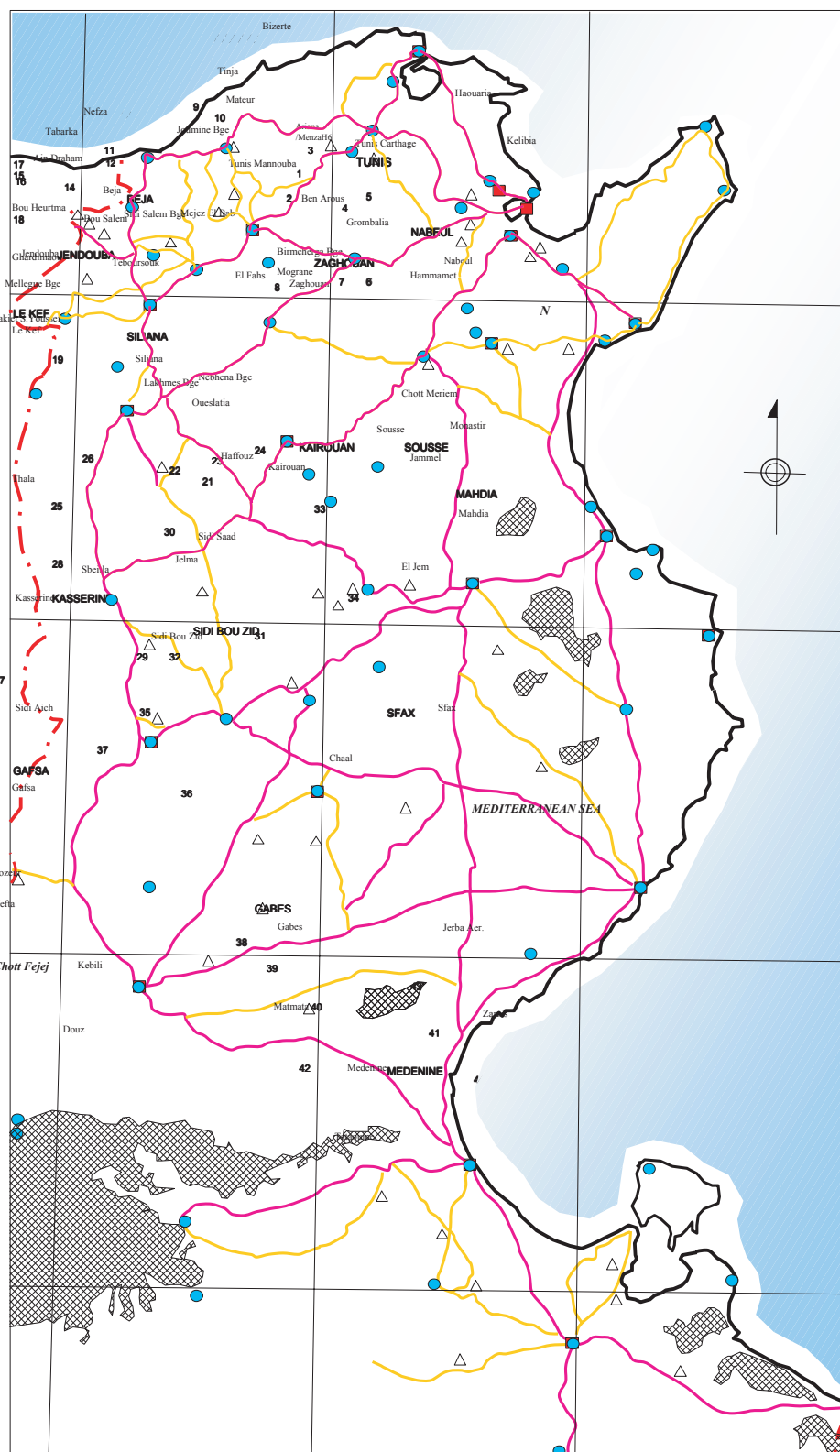
*6: Unit: mg CaCO₃ per litre.

Table B.5.1 Allowable and Design Water Intake

GOVERNORATE	NAME OF SUBPROJECT		Water Sources	Allowable Intake (l/s)	Design Intake (l/s)
ARIANA	FAIDH EL AMRINE-SIDI GHRIB		SONEDE	1.13	1.20
ARIANA	HMAIEM ESSOUFLA		SONEDE	0.50	0.40
ARIANA	TYAYRA		SONEDE	1.00	0.40
BEN AROUS	OULED BEN MILED and OULED SAAD		SONEDE	2.00	2.00
BEN AROUS	SIDI FREDJ		SONEDE	1.00	1.10
NABEUL	SIDI HAMMED		SONEDE	2.00	2.00
ZAGHOUAN	JIMLA		SONEDE	2.00	0.30
ZAGHOUAN	ROUISSAT BOUGARMINE		Tube Well	7.00	1.60
BIZERTE	SMADAH		Tube Well	14.00	1.50
BIZERTE	TERGULECH		Tube Well	15.70	7.00
BEJA	EL GARIA		SONEDE	1.00	0.30
BEJA	EL GARRAG		SONEDE	2.00	1.70
BEJA	FATNASSA		Spring	5.00	0.70
JENDOUBA	CHOUAOUA		GR Extension	5.00	1.70
JENDOUBA	JOUAOUA 1 / BATTAHA	Complex AEP Barbara	Barbara Dam	16.10	9.20
JENDOUBA	MAALIM				3.00
JENDOUBA	OULED DHIFALLAH				3.00
JENDOUBA	SIDI SALAH*		-	-	-
LE KEF	CHAAMBA - O.EI ASSEL - HMAIDIA		Tube Well	1.80	0.60
LE KEF	M'HAFDHIA - GHRAISSIA		Spring	2.00	0.60
KAIROUAN	CHELALGA		GR Extension	11.00	1.50
KAIROUAN	GUDIFETT		GR Extension	10.00	1.70
KAIROUAN	HMIDET		Tube Well	12.00	2.10
KAIROUAN	ZGAINIA		GR Extension	3.00	0.70
KASSERINE	DAAYSIA		Tube Well	5.00	0.50
KASSERINE	HENCHIR TOUNSI		Tube Well	13.50	1.70
KASSERINE	OUEDE LAGSAB		Tube Well	4.50	0.90
KASSERINE	SIDI HARRATH - GOUASSEM		Tube Well	22.00	1.30
SIDI BOUZID	AMAIRIA		Tube Well	15.00	0.60
SIDI BOUZID	BLAHDIA		Tube Well	7.00	1.70
SIDI BOUZID	BOUCHIHA		Tube Well	6.00	3.00
SIDI BOUZID	MAHROUGA		Tube Well	15.00	1.00
MAHDIA	COMPLEXE BOUSSLIM		SONEDE	27.00	10.00
MAHDIA	COMPLEXE EL AITHA		SONEDE	8.50	2.10
GAFSA	HENCHIR EDHOUAHER		GR Extension	4.00	0.40
GAFSA	KHANGUET ZAMMOUR		Tube Well	4.00	2.50
GAFSA	THLEJIA		Tube Well	4.00	2.50
GABES	BATEN TRAJMA		Tube Well		0.20
GABES	CHAABET EJJAYER		SONEDE	2.00	0.50
GABES	EZZAHRA		GR Extension	1.50	0.20
MEDENINE	BOUGUEDDIMA		SONEDE	4.50	0.60
MEDENINE	CHOUAMEKH - R. ENNAGUEB		SONEDE	7.50	3.80
MEDENINE	ECHGIUGUIA		SONEDE	5.00	0.80
MEDENINE	TARF ELLIL		SONEDE	3.50	1.00

* Subproject is cancelled.

Figures



- Project 2001**
- 1 FAIDH EL AMRINE-SIDI GHRIB
 - 2 HMAIEM ESSOUFLA
 - 3 TYAYRA
 - 4 OULED BEN MILED and OULED SAAD
 - 5 SIDI FREDJ
 - 6 SIDI HAMED
 - 7 JIMLA
 - 8 ROUISSA/BOUGA
 - 9 SMADAH
 - 10 TERGULECH
 - 11 EL GARIA
 - 12 EL GARRAG
 - 13 FATNASSA
 - 14 CHOUAOUA
 - 15 JOUAOUA/ BATTAHA
 - 16 MAALIM
 - 17 OULED DHIFALLAH
 - 18 SIDI SALAH
 - 19 CHAAMBA - O.EL ASSEL - HMAIDIA
 - 20 MHAFDHA - GHRAISSIA
 - 21 CHELALGA
 - 22 GUDFETT
 - 23 HMIDET
 - 24 ZGAINIA
 - 25 DAAYSIA
 - 26 MARTHOUM - MAJA
 - 27 OUED LAGSAB
 - 28 SIDI HARRATH - GOUASSEM
 - 29 AMAIRIA
 - 30 BLAHDIA
 - 31 BOUCHIA
 - 32 MAHROUGA
 - 33 COMPLEXE BOUSSLIM
 - 34 COMPLEXE EL ALTHA
 - 35 HENCHIER EDHOUAHER
 - 36 KHANGUET ZAMMOUR
 - 37 THLEJIA
 - 38 BATEN TRAJMA
 - 39 CHAABET EJAYER
 - 40 EZZAHRA
 - 41 BOUGUEDDIMA
 - 42 CHOUAMEKH - R. ENNAGUE B
 - 43 ECHGUIGUIA
 - 44 TARF ELLIL

LEGEND

- △ Project 2001
- City
- Trunk road
- Sub road
- Rainfall observation station

SCALE 0 10 20 30 40 50 km