Appendix-A Agricultural Statistics in Kafr El Sheikh Governorate

Appendix-A Agricultural Statistics in Kafr El Sheikh (Data Source: Economic Affairs Sector, Ministry of Agriculture and Land Reclamation)

Crop	2004			2005			2006			2007			2008			2009			2010			2012	2011		2013					
	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)
Rice, total	1,108,671	4.322	256,518	1,136,013	4.453	255,098	1,192,770	4.394	271,469	1,227,955	4.189	293,138	1,469,062	4.100	358,302	1,277,087	3.934	324,628	1,070,095	3.871	276,439	1,169,018	3.942	296,517	1,152,098	3.971	290,128	1,145,605	3.925	291,874
Total Short Grain	1,108,611	4.322	256,503	1,136,013	4.453	255,098	1,192,770	4.394	271,469	1,227,955	4.189	293,138	1,469,062	4.100	358,302	1,277,087	3.934	324,628	1,070,095	3.871	276,439	1,169,018	3.942	296,517	1,152,098	3.971	290,128	1,145,605	3.925	291,874
Giza 177	254,517	3.838	66,312	184,608	4.020	45,920	245,094	4.093	59,882	279,419	3.769	74,129	355,968	4.058	87,730	310,213	3.544	87,530				315,855	3.941	80,141	333,144	3.806	87,530	310,872	3.734	83,248
Giza 178	294,952	4.168	70,771	403,390	4.313	93,528	407,012	4.215	96,557	401,240	4.233	94,786	641,138	4.125	155,417	423,164	3.705	114,224				373,354	3.941	94,740	424,790	4.135	102,731	334,674	3.727	89,802
Sakha 101	214,037	4.541	47,130	236,718	4.582	51,663	175,496	4.456	39,381	229,157	4.305	53,235	158,008	4.099	38,547	196,062	4.395	44,612				189,967	3.946	48,141	122,121	3.030	40,301	84,688	4.168	20,319
Sakha 102	107,394	4.538	23,667	80,517	4.715	17,078	94,339	4.765	19,797	86,810	4.631	18,747	90,391	4.096	22,068	90,474	4.758	19,014				157,622	3.890	4,263	84,457	4.664	18,109	51,323	4.490	11,430
Sakha 103	157	4.758	33	2,570	4.750	541	3,487	4.499	775	1,972	4.000	493																		
Sakha 104	237,554	4.889	48,590	228,000	4.923	46,316	266,054	4.859	54,755	228,915	4.433	51,637	223,541	4.099	54,536	250,558	4.351	57,581				115,082	3.942	29,197	153,481	4.588	33,452	236,595	4.179	56,610
Sakha 105																						17,138	3.944	4,345	25,684	4.276	6,006	80,521	4.256	18,920
Sakha 106																									8,421	4.213	1,999	46,932	4.065	11,545
Hybrid 1				186	4.043	46	1,288	4.000	322	442	3.982	111	16	4.100	4	6,616	3.969	1,667												
Hybrid 2				24	4.000	6																								
Total Long Grain	60	4.000	15																											
Egyptian Jasmine	60	4.000	15																											
Soya Bean	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
	230	1.168	197	112	0.889	126				491	1.323	371	21	0.808	26	46	0.852	54	86	0.896	96	24	0.889	27				23	0.920	25
Sesame	9	0.529	17	3	0.429	7							135	0.450	300	19	0.475	40	83	0.435	191	33	0.500	66				150	0.500	300
	ardab	ardab/fed	fed	ardab	ardab/fed	fed							ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
	77	4.530	17	25	3.570	7							1,125	3.750	300	159	3.980	40	687	3.600	191	275	4.170	66				1,251	4.170	300
Sunflower	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
Oily	185	1.057	175	60	1.250	48																								
Normal						5,000	1.000	5,000	28	0.933	30	19	0.950	20																
Sugar Cane	4,164	46.267	90	2,668	46.000	58	4,496	42.819	105	3,846	42.733	90	3,053	42.403	72	4,718	40.325	117	5,748	40.766	141	6,923	41.208	168	3,502	41.200	85	3,375	40.663	83
First Year Harvesting	1,292	46.143	28				42	42.000	1																					
Second Year Harvesting	2,872	46.322	62	2,668	46.000	58	4,454	42.827	104	3,846	42.733	90	3,053	42.403	72	4,718	40.325	117	5,748	40.766	141	6,923	41.208	168	3,502	41.200	85	3,375	40.663	83
Green Fodder, Summer			9,437			10,546	11,540	305.000	11,235			21,880			11,316			9,322			19,416			20,271			27,117			11,981
Maize (Selag)							2,739			5,336			3,632			13,275			3,580			17,320								
Drawa	76,690	10.703	7,165	95,585	11.432	8,361	98,905	11.370	8,699	196,132	11.463	17,110	104,384	11.578	9,016	109,635	11.761	9,322				129,101	11.331	11,394	193,351	11.160	17,325	134,053	11.495	11,662
Sweet Corn	90,880	40.000	2,272	86,490	39.584	2,185	115,996	40.829	2,841	236,076	41.057	5,750	94,309	41.004	2,300							355,161	40.009	8,877	391,158	39.947	9,792	12,760	40.000	319
Fodder Beet				366	16.636	22																								
																												1000Quez	00Quez/	fed
Lufa	2,068	11.000	188	670	5.000	134	995	5.000	199	1,395	5.000	279	2,175	5.000	435	1,933	4.969	389	1,845	5.000	369	1,148	2.501	459	2,484	4.500	552	2,646	4.500	588
Nursery Ornamental Plants								28			23			23			26			25			26			26			26	
Wood Trees						8			17			17			17						17			17			18			
Maize (White&Corn), total	151,341	3.623	41,770	233,158	3.801	61,346	177,358	3.811	46,541	165,912	3.639	45,590	186,898	3.459	54,033	185,780	3.461	53,682	229,616	3.758	61,101	206,413	3.738	55,220	291,501	3.648	79,906	257,557	3.657	70,433
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
	1,081,008	25.880	41,770	1,665,409	27.150	61,346	1,266,846	27.220	46,541	1,185,088	25.990	45,590	1,334,981	24.710	54,033	1,326,999	24.720	53,682	1,640,114	26.840	61,101	1,474,375	26.700	55,220	2,082,152	26.060	79,906	1,839,689	26.120	70,433
Maize (White), total	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
	145,495	3.628	40,099	227,612	3.806	59,806	169,934	3.844	44,209	163,768	3.641	44,974	182,320	3.458	52,724	181,478	3.462	52,417	211,365	3.764	56,148	193,351	3.740	51,701	281,800	3.639	77,440	198,610	3.669	54,126
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
	1,039,248	25.920	40,099	1,625,798	27.180	59,806	1,213,816	27.460	44,209	1,169,774	26.010	44,974	1,302,283	24.700	52,724	1,296,272	24.730	52,417	1,509,751	26.890	56,148	1,381,078	26.710	51,701	2,012,857	25.090	77,440	1,418,642	26.210	54,126
Single Hybrid 1							26,872	24.790	1,084																					
Single Hybrid 3							92,293	24.770	3,726																					
Single Hybrid 10	172,747	27.460	6,290	379,742	27.200	13,963	364,868	27.980	13,038	334,472	26.150	12,789	507,677	24.790	20,478	390,620	24.800	15,750				507,437	25.840	19,634	928,415	26.310	35,282	665,849	26.240	25,372
Single Hybrid 30 / K / 8								16,331	27.130	602	1,590	26.070	61																	
Single Hybrid 122	8,554	26.000	329	22,897	25.440	900				4,862	26.000	187	25,371	24.120	1,052															
Single Hybrid 123	12,500	25.000	500																											
Third Hybrid 310	476,509	24.940	19,104	1,175,385	27.180	43,243	831,044	27.230	30,518	707,499	25.910	27,309	490,778	24.680	19,884	696,454	24.690	28,204				873,641	27.240	32,067	1,068,111	25.700	41,556	751,203	26.180	28,693
Third Hybrid 311							116,776	24.710	4,725																					
Third Hybrid 320	219,820	26.770	8,212																											
Third Hybrid 321	39,147	26.260	1,491	13,074	27.180	481	8,513	27.370	311	40,386	26.120	1,546	15,110	24.770	610															
Third Hybrid 323	43,437	26.980	1,610	13,074	27.180	481				40,316	26.540	1,519	121,047	24.420	4,956	22,984	24.710	930												
Third Hybrid 324	25,661	26.620	964							36,634	26.000	1,409				69,438	24.730	2,808												
Single Pioneer				4,621	27.180	170																								

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Crop	2004			2005			2006			2007			2008			2009			2010			2012 2011			2013					
	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)
Pachayer 13	250	17.860	14				9,391	27.460	342	5,070	26.000	195																		
Trials	27,118	26.000	1,043	21,148	27.180	778																								
Nevertiti	13,505	24.920	542	18,754	27.180	690				535	26.750	20	23,135	24.770	934															
Maize (Corn)	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
	5,846	3.499	1,671	5,546	3.601	1,540	7,424	3.184	2,332	2,144	3.481	616	4,578	3.497	1,309	4,302	3.401	1,265	18,251	3.685	4,953	13,062	3.712	3,519	8,701	3.934	2,466	58,947	3.615	16,307
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
	41,760	24.990	1,671	39,611	25.720	1,540	53,030	22.740	2,332	15,314	24.860	616	32,698	24.980	1,309	30,727	24.290	1,265	130,363	26.320	4,953	93,297	26.510	3,519	69,295	28.100	2,466	421,047	25.820	16,307
Goldn Yellow	41,760	24.990	1,671	39,611	25.720	1,540							32,698	24.980	1,309															
Third Hybrid 351							31,743	26.300	1,207																					
Third Hybrid 352							53,030	22.740	2,332	15,314	24.860	616				30,727	24.290	1,265				61,554	26.620	2,312	24,758	28.230	877	185,339	25.750	7,199
Single Hybrid 3062							44,537	28.030	1,589	235,708	25.880	9,108																		
Maize, Nili (White&Corn)	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
	10,368	2.434	4,259	8,922	2.236	3,990	5,656	2.287	2,473	7,056	2.271	3,107	19,260	2.410	7,991	26,792	2.385	11,232	23,035	2.117	10,879	17,466	2.164	8,071	16,133	2.072	7,786	19,197	2.380	8,066
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
	74,055	17.390	4,259	63,726	15.970	3,990	40,401	16.340	2,473	50,398	16.220	3,107	137,573	17.220	7,991	191,372	17.040	11,232	164,532	15.120	10,879	124,753	15.460	8,071	115,230	14.800	7,786	137,122	17.000	8,066
Maize, Nili (White)	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
	10,368	2.434	4,259	8,251	2.235	3,692	3,748	2.312	1,621	7,056	2.271	3,107	14,683	2.371	6,194	10,908	2.384	4,575	9,971	2.101	4,745	9,165	2.118	4,328	16,133	2.072	7,786	19,197	2.380	8,066
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
	74,055	17.390	4,259	58,937	15.960	3,692	26,769	16.510	1,621	50,398	16.220	3,107	104,879	16.930	6,194	77,914	17.030	4,575	71,222	15.010	4,745	65,462	15.130	4,328	115,230	14.800	7,786	137,122	17.000	8,066
Single Hybrid 10				13,450	15.420	872	14,161	17.000	833	10,369	16.540	627	50,983	16.960	3,006							65,462	15.130	4,328				137,122	17.000	8,066
Third Hybrid 310	74,055	17.390	4,259	45,487	16.130	2,820	12,608	16.000	788	40,029	16.140	2,480	53,896	16.910	3,188	46,923	17.050	2,752							115,230	14.800	7,786			
Others						30,991	17.000	1,823																						
Maize, Nili (Corn)	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
				671	2.252	298	1,908	2.239	852				4,577	2.547	1,797	15,884	2.386	6,657	13,064	2.130	6,134	8,301	2.218	3,743						
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
				4,789	16.070	298	13,632	16.000	852				32,694	18.190	1,797	113,458	17.040	6,657	93,310	15.210	6,134	59,291	15.840	3,743						
Balady				4,789	16.070	298																								
Third Hybrid 352							10,400	16.000	650				32,694	18.190	1,797	113,458	17.040	6,657				59,291	15.840	3,743						
Pioneer 3062							3,232	16.000	202																					
Wheat	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
	532,677	2.796	190,514	602,775	2.781	216,781	641,400	2.799	229,153	571,172	2.832	201,685	623,657	2.669	233,697	702,196	2.682	261,818	598,429	2.549	234,816	638,654	2.666	239,600	639,846	2.708	236,281	638,653	2.661	240,005
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
	3,551,181	18.640	190,514	4,018,504	18.540	216,781	4,275,995	18.660	229,153	3,807,813	18.880	201,685	4,157,709	17.790	233,697	4,681,306	17.880	261,818	3,989,524		234,816	4,257,692	17.770	239,600	4,265,644	18.050	236,281	4,257,689	17.740	240,005
Giza168	514,877	18.690	27,547	668,808	18.690	35,787	533,213	18.660	28,575	678,149	18.910	35,867	390,665	17.770	21,990	408,483	17.880	22,841	383,460	18.390	20,850				1,597,606	18.050	88,515	805,330	18.480	43,575
Sakha8	1,435	18.400	78																											
Sakha61	1,900,716	18.660	101,878	1,831,962	18.510	98,952	1,682,025	18.570	90,567	352,614	18.850	18,702	122,888	17.790	6,909	49,232	17.880	2,754	86,051	17.050	5,047									
Sakha69	12,868	18.790	685																											
Sakha93	1,103,348	18.590	59,349	1,510,417	18.500	81,650	1,888,727	18.730	100,815	1,881,176	18.870	99,669	2,464,558	17.790	138,518	3,153,907	17.880	176,410	2,471,608	16.850	146,668				2,073,671	18.060	114,818	1,250,068	18.270	68,435
Sakha94				679	19.400	35	132,623	18.680	7,100	856,080	18.880	45,345	1,169,049	17.800	65,687	1,049,225	17.880	58,676	1,024,445	16.830	60,873				306,394	18.030	16,996	144,801	17.980	8,054
Gemmeza7	14,759	18.950	779																											
Gemmeza9	3,178	16.050	198				38,979	18.800	2,073	39,794	18.930	2,102	5,212	17.790	293	20,459	17.990	1,137							157,883	18.060	8,744	250,517	16.830	14,889
Gemmeza10				6,638	18.590	357	428	18.610	23				5,337	17.790	300				23,594	17.370	1,358				12,724	17.870	712			
Masr 1						366	18.300	20				108,567	18.070	6,009	1,317,695	16.970	77,658												
Masr 2						233,489	17.410	13,412																						
Seds 12						8,799	18.070	487	255,789	18.290	13,982																			
Barley	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
	4,771	1.754	2,720	3,980	1.893	2,102	3,557	1.912	1,860	6,508	1.923	3,151	4,512	1.948	2,316	3,659	1.947	1,879	3,469	1.538	2,255	3,437	1.578	2,178	3,656	1.717	2,129	2,384	1.807	1,319
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
	39,760	14.620	2,720	33,170	15.780	2,102	29,647	15.940	1,860	50,479	16.020	3,151	37,603	16.240	2,316	30,496	16.230	1,879	28,909	12.820	2,255	28,642	13.150	2,178	30,468	14.310	2,129	19,869	15.060	1,319
Broad Bean,Dry (Single)	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
	35,473	1.375	25,805	32,129	1.426	22,529	32,812	1.469	22,342	39,457	1.470	26,841	38,189	1.603	23,820	39,656	1.492	26,586	29,238	1.127	25,952	25,566	1.166	21,917	18,900	1.345	14,052	23,987	1.374	17,456
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
	228,853	8.870	25,805	207,280	9.200	22,529	211,689	9.470	22,342	254,564	9.480	26,841	246,383	10.340	23,820	255,842	9.620	26,586	188,631	7.270	25,952	164,942	7.530	21,917	121,937	8.680	14,052	154,752	8.870	17,456
Broad Bean,Green	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
	28,683	3.955	7,252	33,411	4.070	8,209	32,412	4.025	8,053	40,392	4.118	9,809	33,890	4.024	8,422	32,317	4.037	8,005	21,614	4.181	5,169	14,040	4.119	3,409	14,470	3.907	3,704	11,021	4.218	2,613

Appendix-A Agricultural Statistics in Kafr El Sheikh (Data Source: Economic Affairs Sector, Ministry of Agriculture and Land Reclamation)

Crop	2004			2005			2006			2007			2008			2009			2010			2012	2011		2013					
	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)
Lentil																5	0.714	7	1	0.500	2									
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
																29	4.140	7	9	4.500	2									
Canola	5	0.385	13																											
	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
Sugar Beet	1,611,919	20.433	78,888	1,774,224	20.463	86,704	1,695,900	20.759	81,694	1,729,436	21.345	81,024	1,830,809	20.707	88,415	1,903,307	20.445	93,094	2,283,035	19.959	114,388	2,174,166	19.993	108,749	2,509,208	20.147	124,545	2,508,263	20.093	124,831
Clover, long season	5,456,845	34.822	156,708	5,656,144	44.525	127,033	5,107,908	45.467	112,344	5,842,910	44.295	131,908	4,982,333	42.270	117,868	4,103,242	41.134	99,754	4,505,394	40.201	112,072	4,331,815	39.353	110,077	4,462,086	41.306	108,024	4,697,987	41.467	113,223
Clover, short season	955,863	19.042	50,197	1,034,614	18.367	56,329	1,212,331	19.638	61,734	1,300,717	21.175	61,426	958,709	21.001	45,650	746,994	20.929	35,691	589,997	19.476	30,293	669,510	17.868	37,470	783,032	18.317	42,748	475,001	14.506	32,745
Clover, seed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
	3,885	0.271	14,313	3,448	0.279	12,378	3,032	0.278	10,893	3,724	0.293	12,710	3,341	0.292	11,458	2,857	0.298	9,580	3,191	0.291	10,984	2,981	0.278	10,708	2,687	0.254	10,583	2,797	0.251	11,142
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
	24,745	1.730	14,313	21,960	1.770	12,378	19,311	1.770	10,893	23,721	1.870	12,710	21,282	1.860	11,458	18,196	1.900	9,580	20,323	1.850	10,984	18,987	1.770	10,708	17,113	1.620	10,583	17,814	1.600	11,142
Flax (Straw, Fiber)	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
	28,944	4.177	6,929	10,924	4.477	2,440	7,984	3.910	2,042	8,289	4.435	1,869	12,920	4.500	2,871	7,059	4.242	1,664	2,582	4.490	575	3,564	4.494	793	4,771	5.964	800	2,525	6.297	401
Flax (Seed)	6,580	0.950	6,929	2,267	0.929	2,440	1,587	0.777	2,042	1,432	0.766	1,869	2,141	0.746	2,871	1,360	0.817	1,664	417	0.725	575	658	0.830	793				288	0.718	401
	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed	ardab	ardab/fed	fed
	53,930	7.780	6,929	18,586	7.620	2,440	13,008	6.370	2,042	11,737	6.280	1,869	17,548	6.110	2,871	11,149	6.700	1,664	3,421	5.950	575	5,393	6.800	793	4,959	6.200	800	2,361	5.890	401
	Q.M.	Q.M./fed	fed	Q.M.	Q.M./fed	fed	Q.M.	Q.M./fed	fed	Q.M.	Q.M./fed	fed	Q.M.	Q.M./fed	fed	Q.M.	Q.M./fed	fed	Q.M.	Q.M./fed	fed	Q.M.	Q.M./fed	fed	Q.M.	Q.M./fed	fed	Q.M.	Q.M./fed	fed
Cotton (Seed), Total	1,209,182	7.970	151,766	955,648	6.710	142,328	839,464	6.850	122,502	788,345	6.790	116,133	353,524	5.410	65,397	425,162	6.020	70,618	526,943	5.260	100,243	949,817	7.060	134,535	476,126	5.280	90,238	411,955	4.880	84,417
G.45	121	1.110	109	94	2.240	42	67	2.390	28	51	2.550	20	70	2.500	28								43	5.380	8	155	3.440	45		
G.70	1,139	2.480	460	487	1.780	273	298	2.660	112	299	2.090	143	80	3.080	26	50	3.060	18	437	5.200	84									
G.85	1,192	4.380	272	792	4.000	198	1,008	5.170	195	410	4.140	99	71	2.960	24															
G.86	1,200,342	8.010	149,776	943,553	6.760	139,523	771,921	6.910	111,718	739,998	6.810	108,586	356,864	5.800	61,577	423,255	6.040	70,106	524,109	5.260	99,556	946,780	7.070	133,971	473,698	5.280	89,719	403,500	4.870	82,808
G.87	2,366	6.280	377	8,262	4.760	1,734	63,514	6.490	9,784	45,968	6.600	6,963	539	4.690	115				227	5.540	41	167	4.510	37	278	5.910	47	1,607	4.590	350
G.88	3,029	6.560	462	595	1.850	322	1,231	3.030	406	1,063	6.560	162	16,820	5.000	3,364	1,290	3.610	357	1,559	3.900	400	1,809	5.870	308	1,288	4.140	311	205	1.510	136
G.89	294	3	94				647	6.810	95				79	2.930	27															
G.92						168	3.430	49	297	3.030	98	898	5.650	159	67	3.350	20	725	6.300	115										
G. 93						101	1.910	53																						
Others	699	3.240	216	1,865	7.900	236	778	4.740	164	556	3.480	160	703	2.980	236	394	4.480	88	314	4.910	64	163	2.720	60	752	5.650	133	5,662	6.220	910
Cotton (Ginned), Total	1,517,451	10.000	151,766	1,186,329	8.340	142,328	1,037,475	8.470	122,502	963,064	8.290	116,133	375,226	5.740	65,397	516,258	7.310	70,618	651,698	6.500	100,243	671,578	4.992	134,535						
G.45	130	1.190	109	102	2.430	42	72	2.570	28	55	2.750	20	73	2.610	28								41	5.130	8					
G.70	1,329	2.890	460	590	2.160	273	346	3.090	112	354	2.480	143	92	3.540	26	64	3.560	18	501	5.960	84									
G.85	1,469	5.400	272	978	4.940	198	1,236	6.340	195	489	4.940	99	85	3.540	24															
G.86	1,507,036	10.060	149,776	1,172,952	8.410	139,523	963,888	8.630	111,718	911,205	8.390	108,586	437,434	7.100	61,577	514,019	7.330	70,106	648,430	6.510	99,556	669,855		133,971	565,930	6.310	89,719			
G.87	2,665	7.070	377	8,728	5.030	1,734	68,706	7.020	9,784	49,066	7.050	6,963	563	4.900	115				229	5.590	41	66		37	297	6.320	47			
G.88	3,609	7.810	462	713	2.210	322	1,488	3.670	406	1,241	7.660	162	19,514	5.800	3,364	1,489	4.170	357	1,824	4.560	400	384		308	1,359	4.370	311			
G.89	352	3.740	94				779	8.200	95				90	3.330	27															
G.92						189	3.860	49	331	3.380	98	1,139		159	75	3.750	20													
Others	861	3.990	216	2,266	9.600	236	960	5.850	164	654	4.090	160	819	3.470	236	497	5.650	88	383	5.980	64	134		60	975	7.330	133			
Cotton (Seed), District, Total	134,076	7.980	16,794	110,121	6.830	16,120	86,738	6.820	12,709	96,482	6.920	13,949	42,690	5.850	7,300	43,881	6.220	7,051	51,333	5.400	9,505									
G.45	113	1.120	101	94	2.240	42	67	2.390	28	51	2.550	20	70	2.500	28															
G.70	1,139	2.480	460	487	1.780	273	298	2.660	112	299	2.090	143				55	3.060	18	437	5.200	84									
G.85	1,192	4.380	272	792	4.000	198	1,008	5.170	195	410	4.140	99	71	2.960	24															
G.86	129,624	8.370	15,495	106,536	7.030	15,149	83,356	7.000	11,908	94,019	7.040	13,352	41,688	5.990	6,958	42,763	6.340	6,750	49,383	5.460	9,052									
G.87				125	1.740	72	738	4.470	165	1,147	6.550	175							227	5.540	41									
G.88	1,061	6.060	175	222	1.480	150	624	3.030	206				145	3.090	47	501	3.430	146	675	4.070	166									
G.89	294	3.130	94				647	6.810	95				79	2.930	27															
G.92						168	3.430	49	297	3.030	98																			
Others	653	3.310	197	1,865	7.900	236				556	3.480	160	637	2.950	216	394	4.480	88	314	4.910	64									
Cotton (Ginned), District, Total	168,085	10.010	16,794	136,771	8.480	16,120	108,072	8.500	12,709	118,506	8.500	13,949	52,258	7.160	7,300	53,261	7.550	7,051	63,331	6.660	9,505									
G.45	121	1.200	101	102	2.430	42	72	2.570	28	55	2.750	20	73	2.610	28															
G.70	1,329	2.890	460	590	2.160	273	346	3.090	112	354	2.480	143				64	3.560	18	501	5.960	84									
G.85	1,469	5.400	272	978	4.940	198	1,236	6.340	195	489	4.940	99	85	3.540	24															
G.86	162,744	10.500	15,495	132,437	8.740	15,149	104,086	8.740	11,908	115,729	8.670	13,352	51,100	7.340	6,958	578	3.960	6,750	61,097	6.750	9,052									

Appendix-A Agricultural Statistics in Kafr El Sheikh (Data Source: Economic Affairs Sector, Ministry of Agriculture and Land Reclamation)

Crop	2004			2005			2006			2007			2008			2009			2010			2012 2011			2013					
	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)
G.87				133	1.850	72	798	4.840	165	1,225	7.000	175							229	5.590	41									
G.88	1,265	7.230	175	265	1.770	150	755	3.670	206				168	3.570	47	51,933	7.690	146	790	4.760	166									
G.89	352	3.740	94				779	8.200	95				90	3.330	27															
G.92																189	3.860	49	331	3.380	98									
Others	805	4.090	197	2,266	9.600	236				654	4.090	160	742	3.440	216	497	5.650	88	383	5.980	64									
	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed	ton	ton/fed	fed
Onion, Dry (Single)	3,601	9.233	390	2,241	8.586	261	6,595	12.281	537	2,029	12.077	168	3,388	8.028	422	5,066	9.799	517	6,216	9.882	629	6,352	10.622	598	19,071	11.011	1,732	3,271	11.809	277
Onion, Dry (Intercropped)	9,691	6.721	1,442	10,956	6.616	1,656	7,880	6.949	1,134	21,792	7.522	2,897	13,172	7.632	1,726	23,665	7.573	3,125	17,225	7.425	2,320	9,516	6.265	1,519	2,135	6.224	343	8,120	6.404	1,268
Garlic (Single)	5	5.000	1																170	4.048	42	45	4.091	11	12	4.000	3			
Medical, Aromatic, Cutting Flower																		16			10			26			27			28
Dry Coriander																			7	1.167	6									
Cumin																			1	0.500	2									
Caraway																10	0.714	14	2	1.000	2									
Violet																3	1.500	2												
Balady Mint (Green)																									3	3.000	1	8	4.000	2
Vegetables, Summer																														
Total	270,397		14,725	337,497		21,225	313,033		15,961	454,674		22,137	296,921		14,291	262,890		16,713	335,862		22,614	387,983		28,456	352,649		26,264	318,955		23,010
Tomato	158,588	25.730	6,164	180,880	23.030	7,853	171,470	28.890	5,935	257,421	28.520	9,026	187,466	287.430	6,834	100,926	24.622	4,099				119,823	17.452	6,866	96,081	17.002	5,651	105,205	16.982	6,195
Squash	1,845	10.310	179	14,199	6,051.000	2,182	1,590	8.150	195	3,341	8.370	399	3,028	7.160	423	1,840	8.000	230	3,610	10.000	361	10,104	8.000	1,263	3,384	8.000	423	7,456	9.182	812
Green Beans	335	1.220	274	813	4.020	202	1,044	4.500	232	2,013	4.630	435	3,147	5.050	623	3,046	4.414	690	1,901	4.169	456	2,362	4.578	516	8,235	4.532	1,817	4,373	4.969	880
Dry Kidney Beans	482	1.000	482	159	1.240	128	255	1.160	219	299	1.190	252	278	1.240	224	479	1.000	479	423	1.182	358	259	1.107	234	434	1.121	387	526	1.161	453
Cabbage	754	13.000	58	1,434	13.530	106	1,143	12.700	90	2,712	12.000	226	2,410	11.420	211	1,740	12.000	145	4,488	12.000	374	4,591	12.210	376	7,262	12.521	580	3,495	12.135	288
Eggplant	24,642	14.970	1,646	40,408	12.960	3,119	35,960	16.550	2,173	62,590	16.500	3,794	49,548	17.020	2,911	23,198	15.383	1,508	24,087	15.764	1,528	42,860	14.117	3,036	24,566	15.239	1,612	24,635	15.955	1,544
Pepper	7,425	6.980	1,063	11,753	6.690	1,757	11,066	8.140	1,360	9,155	8.360	1,095	1,358	8.180	166	1,905	7.905	241	9,388	7.817	1,201	11,735	7.091	1,655	3,918	8.045	487	5,522	8.354	661
Okra	150	6.520	23	2,238	4.790	467	221	6.500	34	1,918	7.000	274	98	7.540	13	24	6.000	4	63	7.000	9	112	7.000	16	708	7.010	101	40	8.000	5
Jews Mallow	30	5.000	6								15	3.000	5	358	3.510	102	12	4.000	3											
Sweet Potatoes	76,126	15.770	4,828	58,603	15.830	5,409	90,104	15.790	5,705	115,199	17.360	6,634	49,346	17.160	2,875	75,753	15.301	4,951	92,285	15.389	5,997	58,103	15.776	3,683	75,614	16.071	4,705	92,380	15.939	5,796
Taro						26	13.000	2	242	22.000	11	500	25.000	20	24	24.000	1													
Turnip	20	10.000	2				180	10.000	18							28	7.000	4							14	7.000	2	400	8.000	50
Egyptian Leek				10	5.000	2								30	5.000	6				100	4.000	25								
Rocket						57	3.000	19	9	3.000	3	306	3.000	102	84	3.000	28													
Green Peas							21	3.000	7																					
Radish						21	7.000	3							42	3.000	14	87	3.000	29										
Cauliflower							803	11.000	73																					
Lettuce						12	6.000	2																						
carrot						63	9.000	7																						
Antichoke							36	18.000	2																					
Makat, Summer	112,551		9,206	181,052		14,541	192,277		13,394	212,675		13,717	162,761		11,848															
Water melon, total	82,971	12.900	6,432	127,456	14.010	9,097	144,795	15.000	9,653	179,190	16.480	10,874	123,196	15.860	7,766							101,820	15.000	6,788	86,292	17.000	5,076	42,352	16.000	2,647
Water melon, Giza				30,160	10.000	3,016	51,390	15.000	3,426				34,176	16.000	2,136															
Water melon, Balady				97,296	16.000	6,081	93,405	15.000	6,227	179,190	16.480	10,874	89,020	15.810	5,630	36,285	15.000	2,419	89,249	15.752	5,666	101,820	15.000	6,788	86,292	17.000	5,076	42,352	16.000	2,647
Water melon, Seeds							20,571	0.499	41,203																					
pulp of Water Melon							29,937	0.549	54,578	14,985	0.493	30,395	16,446	0.500	32,886	20,857	0.500	41,709												
Cucumber	11,995	9.000	1,333	33,367	9.780	3,413	33,708	12.000	2,809	20,566	10.780	1,908	38,323	9.590	3,996	14,094	9.000	1,566	22,334	10.129	2,205	34,038	9.000	3,782	42,746	8.701	4,913	29,252	8.984	3,256
Snake Cucumber	17,515	12.210	1,434	19,594	10.260	1,910	13,674	14.830	922	12,919	13.820	935	1,182	14.590	81	1,248	8.000	156	2,817	9.000	313	560	8.000	70	1,312	8.000	164	1,176	8.000	147
Cantaloupe	70	10.000	7	635	5.250	121	100	10.000	10				60	12.000	5	1,000	8.000	125	2,074	13.210	157	1,550	10.000	155						
Melon (Shahd)							1,278	10.739	119	1,860	9.738	191																		
Vegetables, Nili																														
Total	4,710		357	8,797		569	3,963		326	8,223		645	8,800		651	12,797		907	6,827		540	51,203		3,984						
Tomato	1,227	19.480	63	5,440	20.920	260	1,028	15.580	66	2,260	15.370	147	3,999	20.720	193	5,146	17.806	289	1,718	13.528	127	22,060	14.668	1,504						
Squash						40	8.000	5	369	9.000	41																			
Green Beans							4	4.000	1	18	6.000	3	54	6.000	9				8	4.000	2								
Green Peas							8	8.000	1	240	8.000	30			165	5.000	33												
Cabbage	1,674	14.680	114	930	12.080	77	798	14.000	57	2,361	13.570	174	1,239	14.750	84	2,965	14.678	202	1,338	13.938	96	7,621	12.702	600						
Cauliflower	600	12.000	50	636	12.000	53	484	11.000	44	506	11.000	46	408	12.000	34	775	12.917	60	429	13.000	33	1,232	12.833	96						

Appendix-A Agricultural Statistics in Kafr El Sheikh (Data Source: Economic Affairs Sector, Ministry of Agriculture and Land Reclamation)

Crop	2004			2005			2006			2007			2008			2009			2010			2012	2011		2013					
	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)
Eggplant	630	15.000	42	435	15.000	29	663	13.000	51	728	12.770	57	725	15.100	48	1,199	15.571	77	1,184	16.000	74	4,919	15.517	317						
Pepper				204	6.000	34	306	6.000	51	316	5.850	54	266	6.050	44	266	7.000	38	273	7.000	39	2,228	7.006	318						
Jews Mallow	30	5.000	6																											
Sweet Potatoes																			98	14.000	7									
Radish	28	4.000	7																			10	2.500	4						
Rocket	23	4.600	5																			10	2.500	4						
Lettuce	333	9.000	37	300	10.000	30	684	12.000	57	660	12.000	55	807	9.840	82							221	7.367	30						
Carrot				72	12.000	6				1,352	13.000	104	130	11.820	11	1,356	12.000	113	144	12.000	12	1,812	12.000	151						
Okra																			8	8.000	1	35	7.000	5						
Cucumber				780	9.750	80				18	6.000	3	1,192	8.000	149				8	8.000	1	10,491	11.976	876						
Snake Cucumber																			606	13.773	44									
Egyptian Leek										18	4.500	4	8	4.000	2							21	7.000	3						
Turnip																						324	11.172	29						
Spinach																						46	3.833	12						
Potatoes, all seasons	8,745	13.900	629	18,466	13.550	1,363	9,690	15.410	629	6,069	17.290	351	26,766	15.770	1,697	15,065	15.263	987	19,876	15.408	1,290	22,544	16.207	1,391	30,809	14.471	2,129	17,443	15.686	1,112
Winter	2,795	11.050	253	8,080	104.000	777	2,486	10.720	232	146,758	10.720	13,693	15,074	14.650	1,029	9,811	14.621	671	10,728	13.825	776	9,456	13.947	678	15,734	13.670	1,151	7,428	14.423	515
Summer	5,633	16.420	343	10,242	17.940	571	7,204	18.150	397	6,069	17.290	351	10,540	17.830	591	4,378	16.838	260	9,148	17.798	514	13,088	18.356	713	15,075	15.414	978	10,015	16.776	597
Nili	317	9.610	33	144	9.600	15							1,152	14.960	77	876	15.643	56												
Water melon seeds, Summer	15,747	0.460	34,551	22,705	0.510	44,651	33,788	0.530	63,987	35,839	0.600	60,128	16,034	0.600	26,580															
Vegetable, Winter, Total	266,712		14,232	253,911		13,029	212,888		11,251	212,345		9,951	183,172		10,052	156,549		9,447	170,266		9,726	151,368		9,433	146,408		11,805	142,136		10,341
Tomato	215,964	23.850	9,056	220,188	23.030	9,561	164,735	23.590	6,983	177,539	25.540	6,951	137,383	23.470	5,854	109,231	22.861	4,778	128,002	21.997	5,819	106,299	21.711	4,896	82,676	14.883	5,555	74,716	16.360	4,567
Squash	432	8.000	54							88	8.000	11				15,309	9.000	1,701	7,920	9.000	880	7,590	10.000	759	22,360	10.000	2,236	228	12.000	19
Green Beans	280	4.000	70													20	5.000	4							30	5.000	6	80	5.000	16
Green Peas	4,999	4.840	1,032	3,171	4.530	700	1,638	4.390	373	1,404	6.000	234	2,790	6.000	465	2,158	6.011	359	2,235	5.775	387	3,235	5.000	647	3,994	4.213	948	5,142	4.869	1,056
Cabbage	20,977	13.240	1,584	12,611	13.360	944	24,056	13.170	1,826	15,796	13.720	1,151	18,158	13.090	1,387	10,742	12.333	871	13,004	12.749	1,020	13,260	12.787	1,037	15,823	12.479	1,268	12,434	13.770	903
Cauliflower	2,545	10.690	238	443	11.080	40	1,120	11.310	99	1,112	10.800	103	5,365	10.540	509	1,298	11.487	113	1,373	11.836	116	984	12.000	82				942	12.904	73
Eggplant	3,612	9.410	384	3,311	10.060	329	3,796	11.000	345	2,628	11.780	223	4,053	11.680	347	9,734	11.112	876	9,584	13.183	727	4,096	16.000	256	4,424	16.569	267	2,566	15.840	162
Pepper	84	6.000	14	100	4.350	23	301	4.120	73	407	4.850	84	394	4.990	79	25	5.000	5	156	6.000	26	5,698	7.000	814	49	7.000	7	390	7.358	53
Spinach							32	4.000	8				408	4.000	102	12	4.000	3	8	4.000	2	36	4.000	9	24	3.000	8	168	9.333	18
Artichoke																						64	16.000	4						
Taro													16	16.000	1										112	28.000	4	308	28.000	11
Radish	25	5.000	5	30	5.000	6				168	7.000	24	272	8.000	34	18	6.000	3				4	4.000	1	136	4.000	34	104	4.000	26
Turnip	220	11.000	20	252	10.960	23	187	11.000	17	30	10.000	3	297	11.000	27	44	11.000	4	168	12.000	14				399	7.000	57	14	7.000	2
Lettuce	6,168	6.910	892	4,908	7.340	669	6,293	8.380	751	3,897	7.970	489	2,432	8.000	304	2,244	9.235	243	2,048	8.000	256	2,464	8.000	308	1,595	8.264	193	1,779	8.431	211
Carrot	9,737	13.180	739	8,425	12.900	653	10,730	13.830	776	7,044	14.320	492	11,092	12.870	862	5,532	12.000	461	5,308	12.790	415	6,878	13.202	521	12,615	13.086	964	23,927	12.700	1,884
Rocket	10	5.000	2	35	5.000	7										12	6.000	2				92	4.000	23	84	4.000	21	131	3.639	36
Cucumber	419	23.280	18										104	8.000	13	104	8.000	13	296	8.000	37	549	9.000	61	421	8.420	50	18,564	15.867	1,170
Potatoes	2,795	11.050	253	8,080	10.400	777	2,486	10.720	232				15,074	14.650	1,029	9,811	14.621	671	10,728	13.825	776				15,734	13.670	1,151	7,428	14.423	515
Diamont													68	17.000	4															
Esponta													1,391	13.770	101															
Kara													7,640	18.770	407															
Mondial													54	18.000	3															
Flora													199	19.900	10															
Egyptian Leek	1,240	10.000	124	35	5.000	7													14	7.000	2	7	7.000	1	138	4.059	34	7	7.000	1
Sweet Potatoes				402	6.000	67				2,232	12.000	186				66	6.000	11	150	6.000	25	112	8.000	14	240	5.000	48	520	5.000	104
Pasley																												116	4.000	29
Vegetable, Greenhouse	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number
	ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2	
Total	897		245													1,843		413	1,695		351				2,008		517	3,127		693
Cucumber	872	6.720	238	1,100	10.640	257	1,009	10.330	261	918	10.220	210				1,725	11.968	362	1,577	11.238	306				1,879	10.446	462	2,392	11.351	500
Tomato							6	12.500	2																			76	6.850	29
Pepper	25	5.950	7	29	5.570	11	28	5.740	12	48	6.150	20				118	7.574	51	118	7.032	45				129	5.611	55	185	7.545	65
Eggplant							5	6.940	3	2	6.250	1																		
Squash																												468	11.587	97
Strawberry																												6	6.667	2

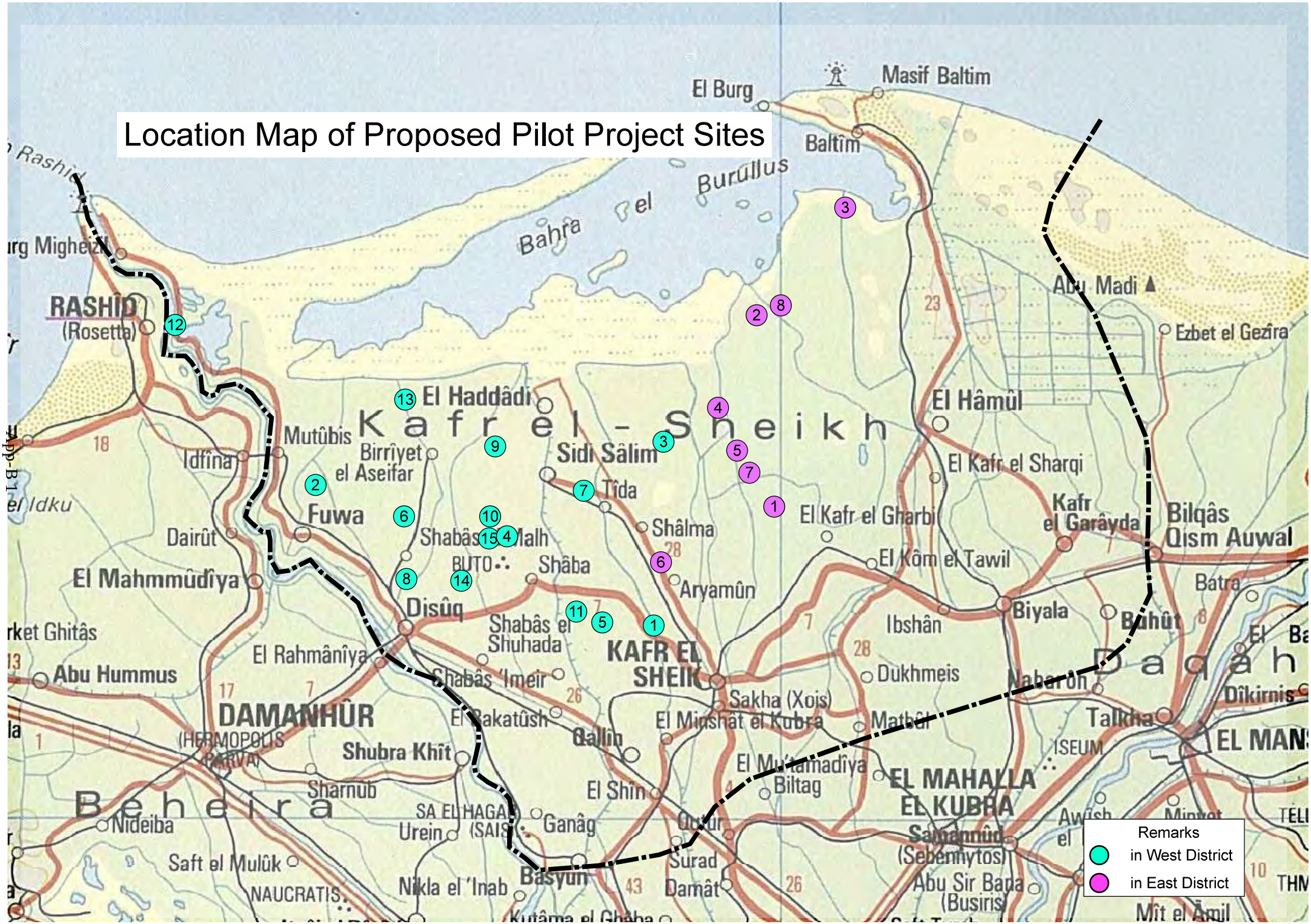
Appendix-A Agricultural Statistics in Kafr El Sheikh (Data Source: Economic Affairs Sector, Ministry of Agriculture and Land Reclamation)

Crop	2004			2005			2006			2007			2008			2009			2010			2012 2011			2013					
	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)	Prod (ton)	Yield (ton/fed)	Area (fed)
Water melon																														
Nili, Gerenhouses	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number	Prod	Yield	Number
	ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2		ton	K.G./m2	
Total										837		217	857		217	1,501		344							2,008		517	3,127		693
Cucumber										837	9.060	217	857		217	1,373	11.941	267							1,879	10.446	462	2,392	11.351	500
Tomato																												76	6.850	29
Pepper																128	5.599	77							129	5.611	55	185	7.545	65
Eggplant																			1	5.714	1									
Squash																												468	11.587	97
Strawberry																												6	6.667	2
Fruits	Prod	F.Area	T.Area	Prod	Yield	F.Area	Prod	Yield	F.Area	Prod	Yield	F.Area	Prod	Yield	F.Area	Prod	Yield	F.Area	Prod	Yield	F.Area	Prod	Yield	F.Area	Prod	Yield	F.Area	Prod	Yield	F.Area
Total	50,555	3,906	5,397	42,167		3,697	50,609		4,315	51,326		4,331	52,533		4,440	55,341		4,922	71,178		5,268	68,969		5,175	58,972		5,248	68,103		5,526
Citrus and Oranges	38,916	3,024	3,646	32,463		2,967	40,013		3,472	40,398		3,478	40,509		3,497	43,492		3,746	54,085		3,950	54,060		3,999	43,633		4,026	49,961		4,014
Total Citrus	1,478	142	154	1,106		112	1,357		121	1,375		122	1,386		120	1,440		121	1,391		121	1,388		122	8,005		660	5,354		639
Total Oranges	37,438	2,882	3,492	31,357	10.980	2,855	38,656	11.540	3,351	39,023	11.630	3,356	39,123	11.590	3,377	42,052	11.601	3,625	52,694	13.762	3,829	52,672	13.586	3,877	35,628	10.585	3,366	44,607	13.217	3,375
Graft Oranges	893	77	77	865	11.850	73	867	11.880	73	872	11.950	73	842	12.030	70	849	12.129	70	823	12.284	67	802	11.970	67	1,533	11.109	138	1,522	11.109	137
Navel Oranges	33,696	2,586	3,171	28,373	10.850	2,615	35,446	11.460	3,093	35,724	11.550	3,093	36,076	11.500	3,136	38,990	11.522	3,384	49,607	13.822	3,589	49,616	13.642	3,637	29,850	10.329	2,890	38,669	13.371	2,892
Saccharine Oranges	1,742	129	147	990	13.380	74	1,195	13.430	89	1,198	13.460	89	946	13.510	70	947	13.529	70	970	13.662	71	970	13.662	71	2,181	12.754	171	2,307	13.491	171
Summer Valanshia Oranges	1,107	90	97	1,129	12.140	93	1,148	11.960	96	1,229	12.170	101	1,259	12.470	101	1,266	12.535	101	1,285	12.723	101	1,275	12.624	101	1,787	12.240	146	1,834	11.909	154
Yafawy and Shamoty Oranges																			9	9.000	1	9	9.000	1	277	13.190	21	275	13.095	21
Mandarin	1,186	116	123	926	9.550	97	1,140	11.180	102	1,161	11.270	103	1,134	11.450	99	1,170	11.818	99	1,133	11.444	99	1,114	11.253	99	7,114	12.437	572	4,629	8.341	555
Sour Lime	82	9	13	28	9.290	3	65	9.290	7	59	8.430	7	32	8.000	4	34	8.500	4	25	6.250	4	25	6.250	4	851	10.012	85	400	8.642	81
Adalya Lime	210	17	18	152	12.660	12	152	12.670	12	155	12.920	12																		
Rough Lime													220	12.940	17	223	13.118	17	226	13.294	17	242	13.444	18	40	13.333	3	25	8.333	3
Sour Oranges																13	13.000	1	7	7.000	1	7	7.000	1						
Total Grapes	1,517	137	155	821	9.550	86	939	9.300	101	914	9.830	93	758	12.030	63	560	13.659	41	483	10.733	45	469	11.439	41	423	10.317	41	455	10.581	43
Total Mango	85	24	60	84	3.500	24	133	3.020	44	140	3.180	44	176	3.520	50	162	3.600	45	158	3.511	45	163	3.468	47	243	4.860	50	348	5.524	63
Total Banana	4,553	171	182	4,134	26.840	154	3,394	24.770	137	3,724	24.340	153	3,632	23.890	152	4,829	24.145	200	5,272	23.855	221	5,723	23.359	245	5,921	22.773	260	5,727	21.133	271
Apple	157	189	113	122	9.360	13	104	9.450	11	108	9.820	11	708	9.970	71	1,070	10.000	107	1,274	7.963	160	1,274	7.864	162	1,383	8.590	161	1,379	8.017	172
Peach	745	98	284	784	9.120	86	721	9.240	78	718	9.210	78	605	9.310	65	604	9.292	65	549	6.778	81	412	8.957	46	793	9.554	83	1,225	9.351	131
Fig	12	3	3	7	2.330	3	9	3.000	3	10	3.330	3	10	3.330	3	15	5.000	3	13	4.333	3									
Guava	4,537	424	947	3,633	10.560	344	5,214	11.460	455	5,233	11.450	457	6,056	11.540	525	4,587	6.461	710	9,326	12.303	758	6,850	10.873	630	6,559	10.528	623	8,999	10.842	830
Pear	33	7	7	28	4.000	7	26	4.330	6	25	4.170	6	23	3.830	6	22	4.400	5	18	3.600	5	18	3.600	5	17	4.250	4	9	4.500	2
Persimmon				91	7.000	13	56	7.000	8	56	7.000	8	56	7.000	8															
	(Ton)	/ Palm)	(Fed)	(Ton)	/ Palm)	(Fed)	(Ton)	/ Palm)	(Fed)	(Ton)	/ Palm)	(Fed)	(Ton)	/ Palm)	(Fed)	(Ton)	/ Palm)	(Fed)	(Ton)	/ Palm)	(Fed)	(Ton)	/ Palm)	(Fed)	(Ton)	/ Palm)	(Fed)	(Ton)	/ Palm)	(Fed)
Dates (Estimated Production)	45,367	93.840	5,177	36,103	88.820	5,173	53,166	111.430	5,200	53,870	112.870	5,204	54,346	113.870	5,204	54,815	114.702	5,194				58,450	119.936	5,371	60,546	120.379	5,199	66,690	136.410	5,198
Zagloul						2,437	109.983	72	2,753	110.999	24,802	2,729	111.138	110	2,758	111.120	103	2,467	113.582	90										
Hyani						24,462	117.998	2,448	23,317	118.000	197,602	25,844	123.622	2,592	26,464	123.602	2,426	27,425	127.149	2,436										
Bent Esha						4,287	84.003	427	4,198	85.007	49,384	4,237	95.540	422	4,364	95.528	423	4,861	110.399	422										
Samany						6,013	153.994	303	5,812	155.003	37,496	5,590	153.681	303	6,361	153.692	303	6,552	156.649	306										
Oraby						15,736	115.000	1,873	15,406	117.000	131,675	18,399	119.610	1,873	19,083	119.597	1,873	23,759	161.768	1,873										
Meghal						1,014	77.964	71	899	75.023	11,983	858	75.728	71	723	75.746	71	861	79.406	71										
Amhat						2	83.333	24	2	83.333	-																			
Others						866	101.834		682	98.927	6,894	791	100.983	-	791	100.983	-	765	96.676	-										

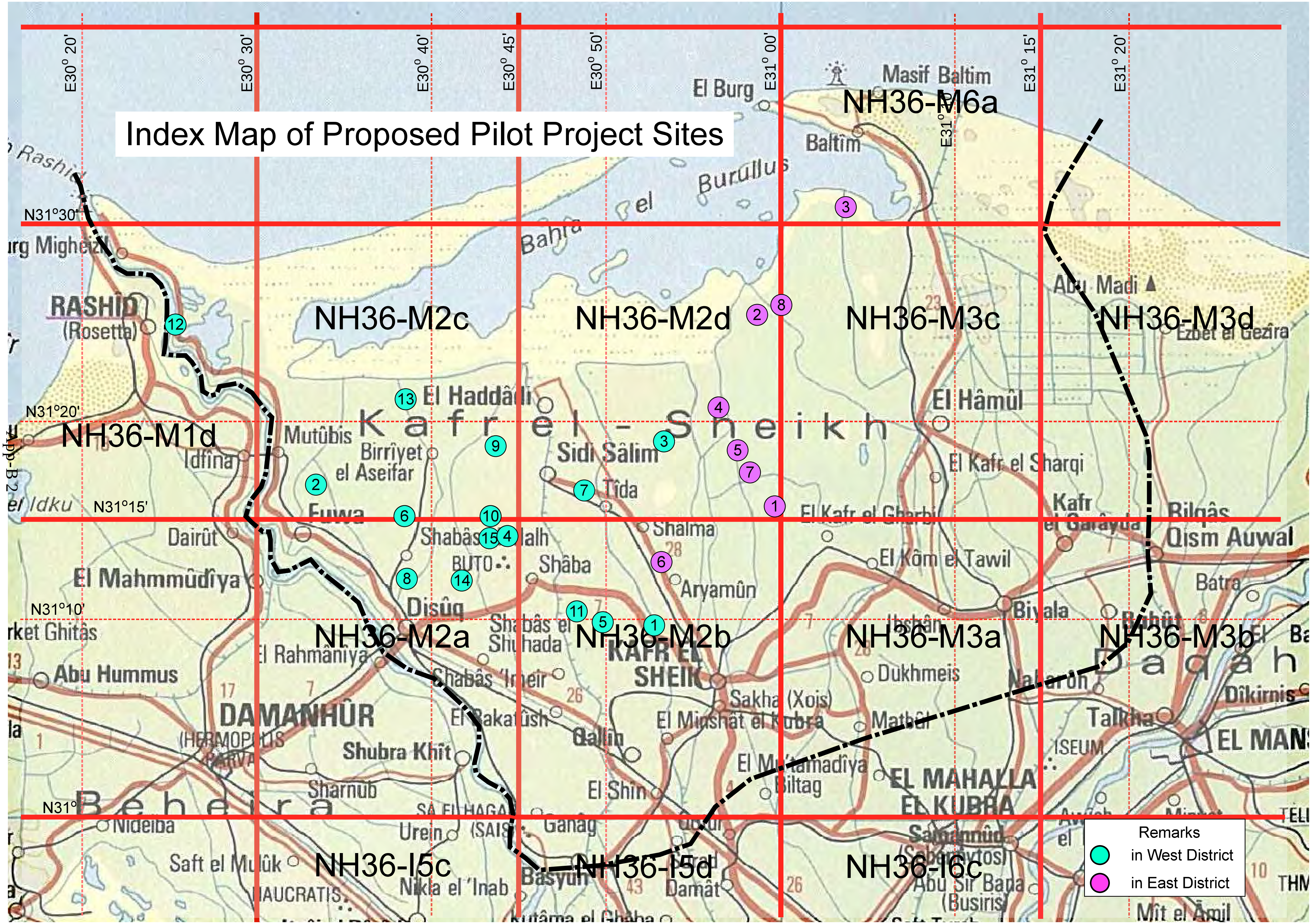
Unit

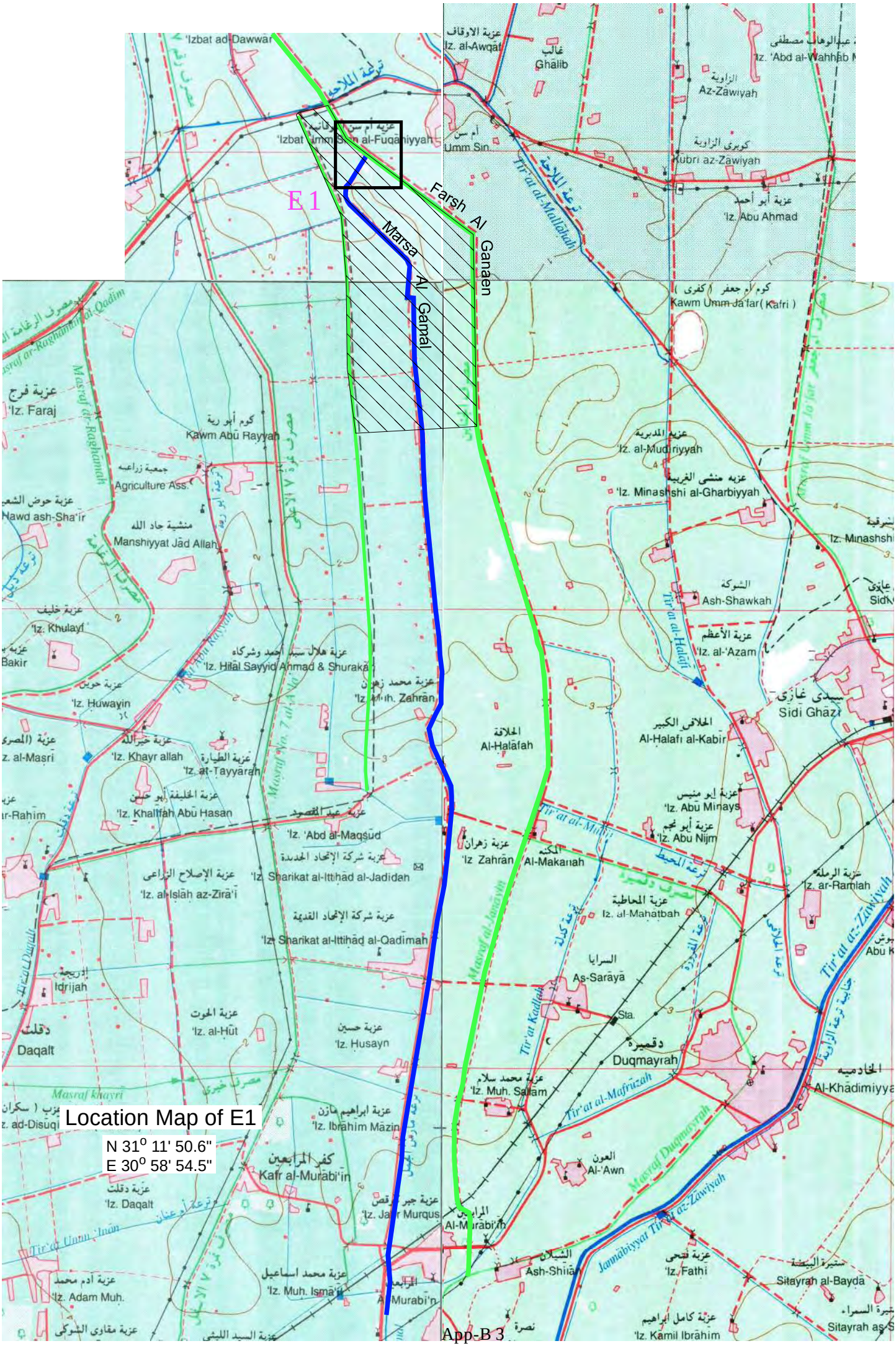
Item	Weight of unit in tor	Unit
Sesame	0.1200	Ardab
Seed Cotton	0.1575	Q.M
Cotton Seed(Ginned)	0.1200	Q.M
Maize	0.1400	Ardab
Wheat	0.1500	Ardab
Lentil	0.1600	Ardab
Flax Seed	0.1220	Ardab

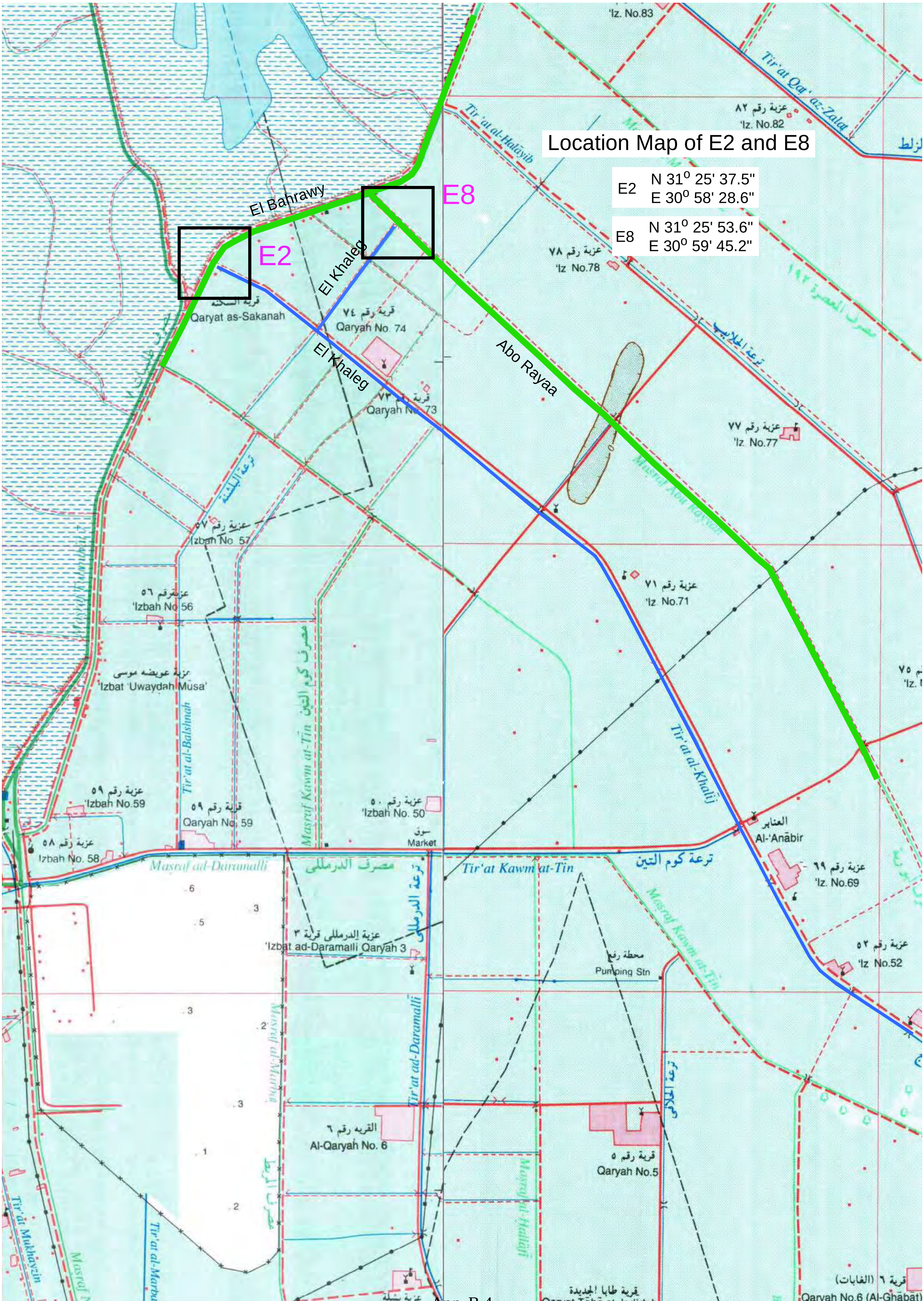
Appendix-B Location Maps of Proposed Pilot Project Sites


Location Map of Proposed Pilot Project Sites
El Burg
Masif Baltim
Baltîm
Bahra el Burullus
RASHÎD
(Rosetta)
Abu Madi
Ezbet el Gezîra
El Hâmûl
El Haddâdi
Kafr el - Sheikh
Mutûbis
Birrîyet el Aseifar
Idfîna
Sidi Sâlim
El Kafr el Sharqi
Tîda
Fuwa
El Kafr el Gharbi
Kafr el Garâyda
Bilqâs Qism Auwal
Dairût
Shâlma
El Kôm el Tawil
El Mahmmûdîya
Shâba
Aryamûn
Batra
Disûq
Biyala
Shabâs el Shuhada
Ibshân
El Rahmânîya
KAFR EL SHEIK
Dukhmeis
Abu Hummus
Shabâs 'Imeir
Sakha (Xois)
DAMANHÛR
(HERMOPOLIS PARVA)
El Minshât el Kubra
Matbûl
Talkha
Dîkirnis
Shubra Khît
Qallîn
El Mu'tamadîya
Biltag
EL MAHALLA EL KUBRA
Sharnub
El Shîn
Behaira
Nideiba
Urein
Ganâg
Saft el Mulûk
Surad
Damât
Nikla el 'Inab
Basyun
NAUCRATIS
Abu Sir Bana
(Busiris)
Remarks
in West District
in East District

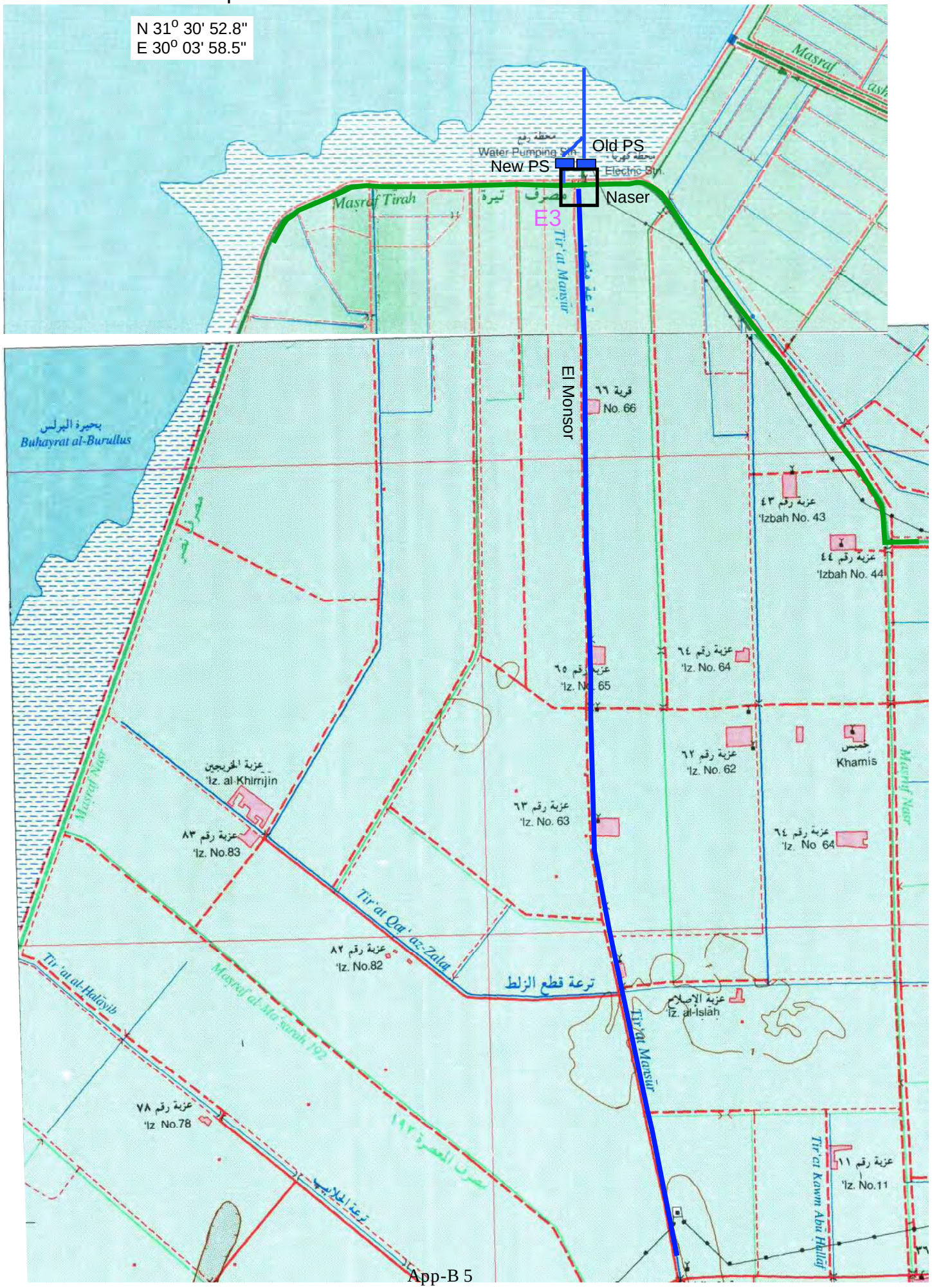
Index Map of Proposed Pilot Project Sites



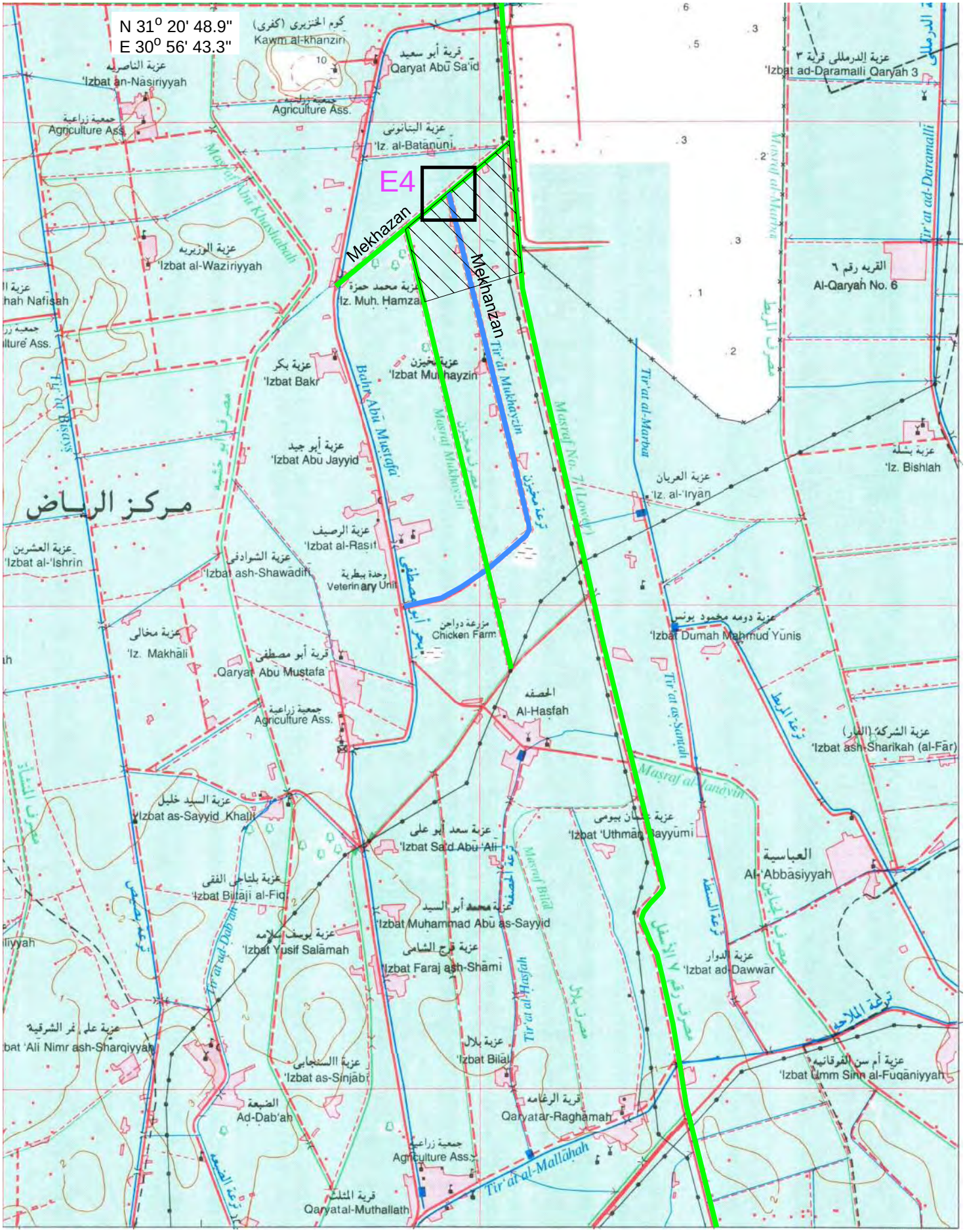

E1
Farsh Al Ganaen
Marsa Al Gamal
Location Map of E1
N 31° 11' 50.6"
E 30° 58' 54.5"

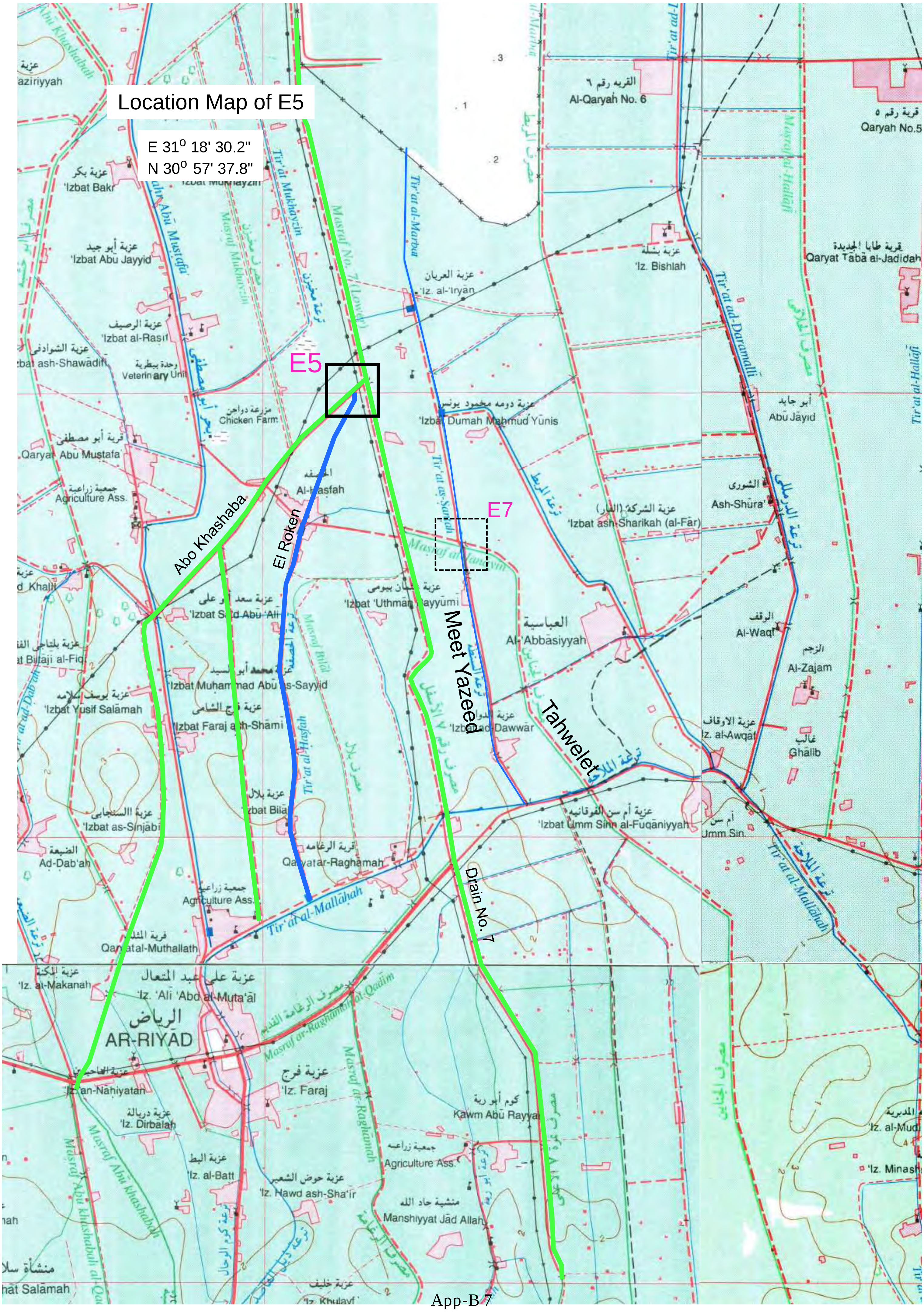

Location Map of E2 and E8
E2 N 31° 25' 37.5" E 30° 58' 28.6"
E8 N 31° 25' 53.6" E 30° 59' 45.2"
E2
E8
El Bahrawy
El Khaleg
El Khaleg
Abo Rayaa
Qaryat as-Sakanah
Qaryah No. 74
Qaryah No. 73
'Iz. No.78
'Iz. No.77
'Iz. No.71
'Iz. No.82
'Iz. No.83
Izbah No. 57
'Izbah No 56
'Izbat 'Uwaydah Musa'
'Izbah No.59
Qaryah No. 59
Izbah No. 58
'Izbah No. 50
Market
Al-'Anabir
'Iz. No.69
'Iz No.52
Tir'at al-Khalij
Tir'at Kawm at-Tin
Masraf ad-Daramalli
Masraf Kawm at-Tin
Tir'at al-Balshnah
'Izbat ad-Daramalli Qaryah 3
Pumping Stn
Al-Qaryah No. 6
Qaryah No.5
Qaryat Taba al-Jadidah
Qaryah No.6 (Al-Ghabat)
Tir'at ad-Daramalli
Tir'at al-Halayib
Tir'at Qa' az-Zalat
Tir'at Mukhayzin
Tir'at al-Marha

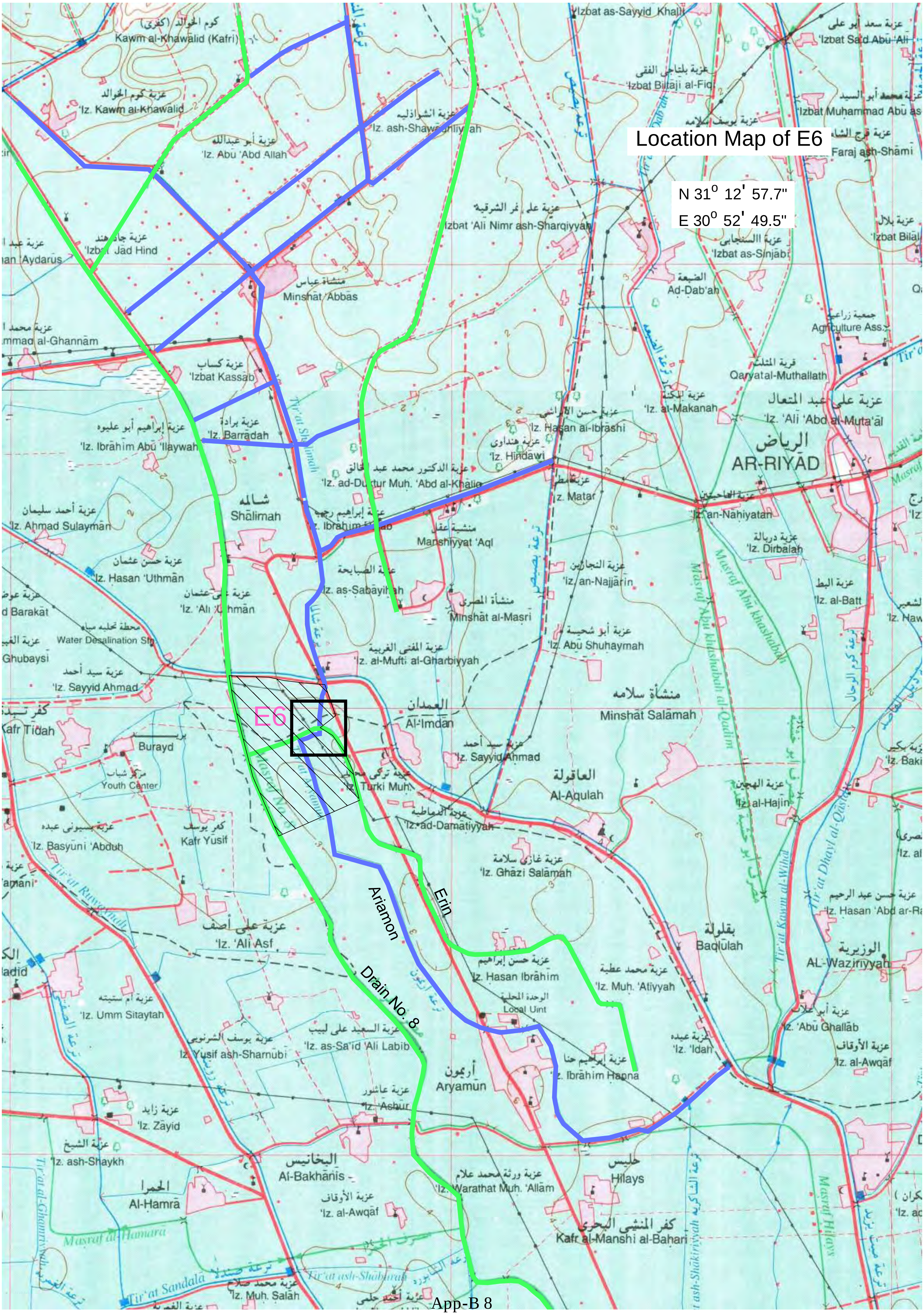
Location Map of E3

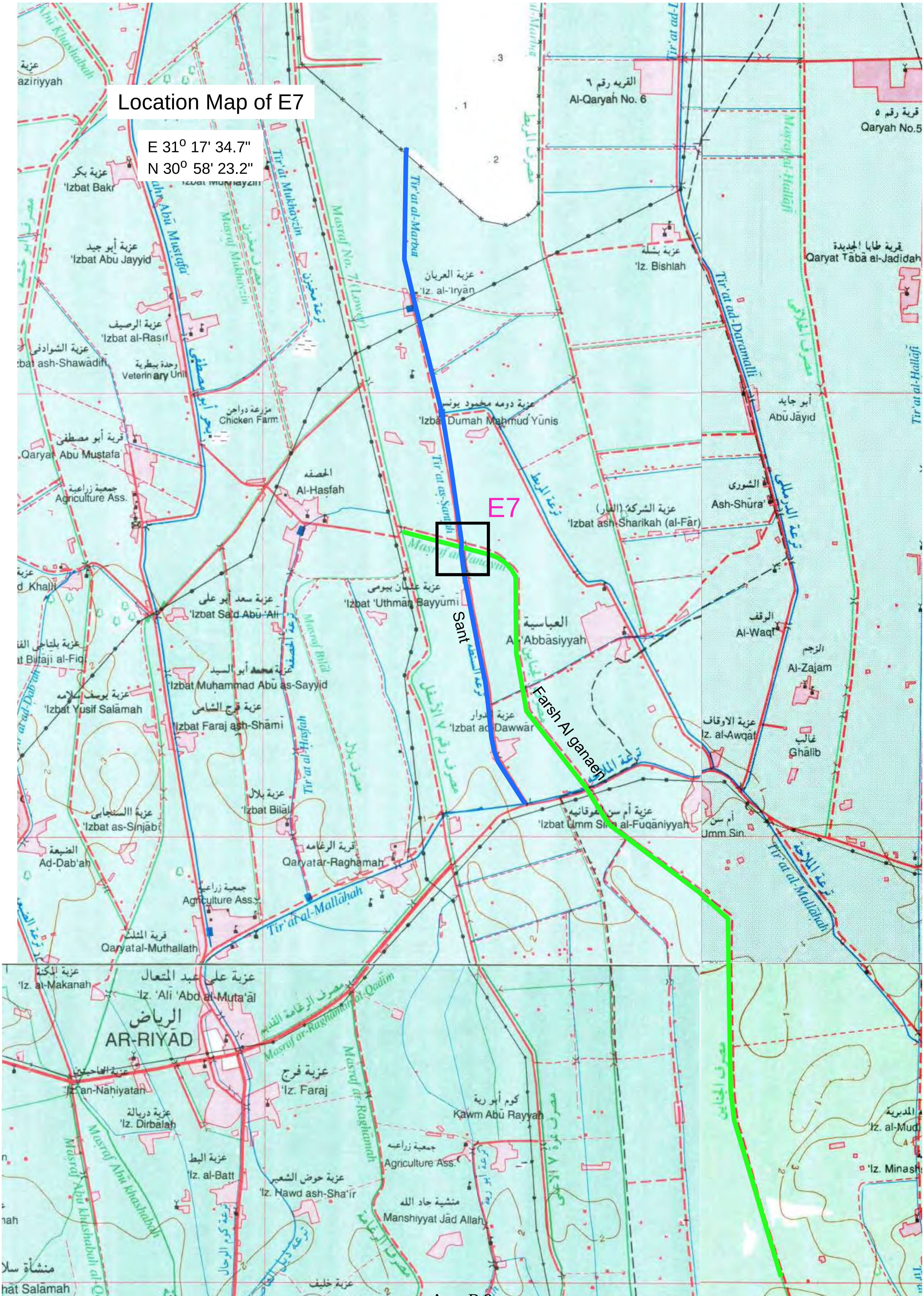


Location Map of E4



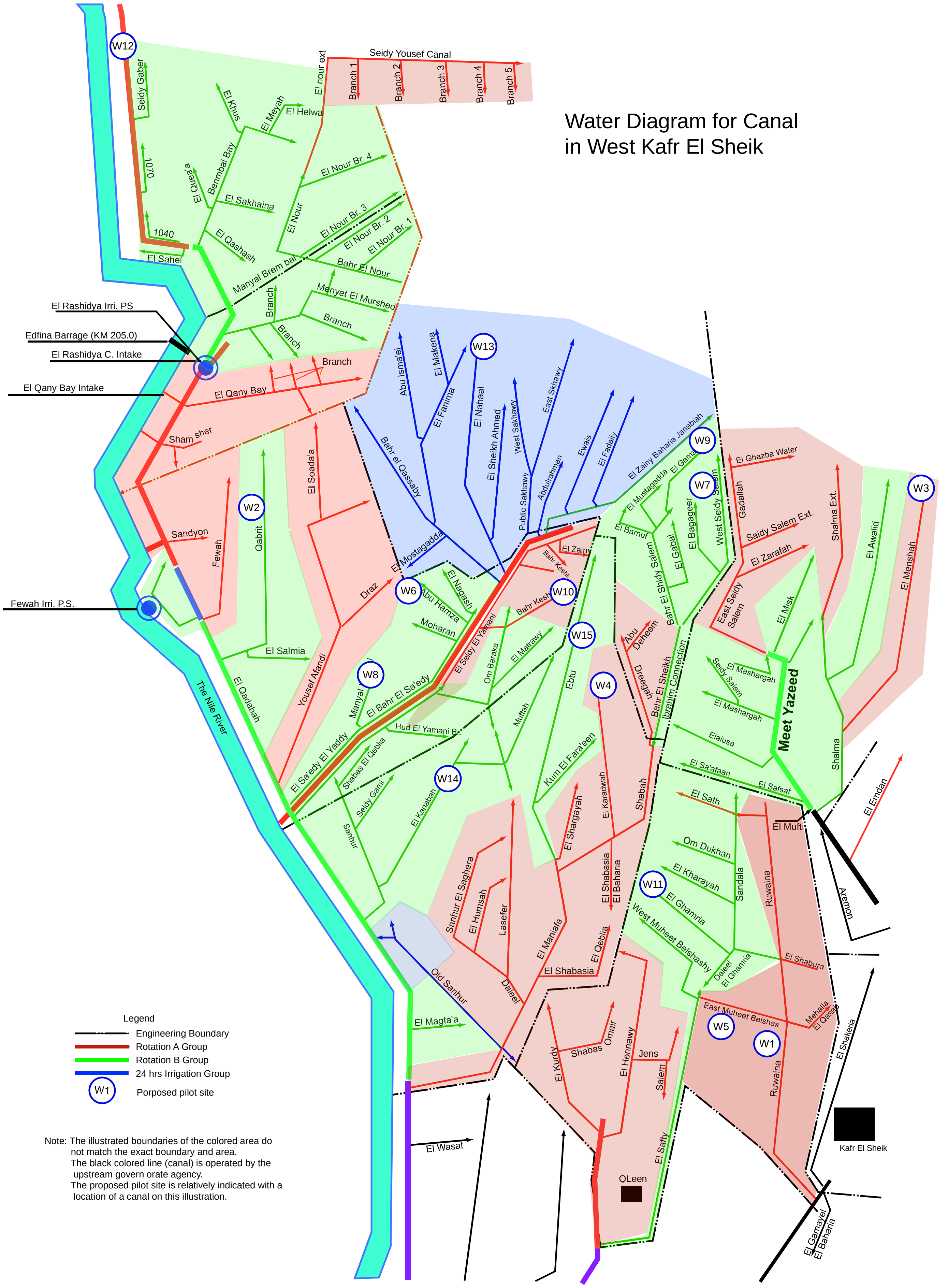

Location Map of E5
E 31° 18' 30.2"
N 30° 57' 37.8"
E5
E7
Abo Khashaba
El Roken
Meet Yazeed
Tahwelet
Drain No. 7


Location Map of E6
N 31° 12' 57.7"
E 30° 52' 49.5"
E6
Ariamon
Erin
Drain No. 8
AR-RIYAD
الرياض
Shālimah
Al-Imdān
Al-Aqulah
Minshat Salāmah
Baqlūlah
Aryamūn
Al-Bakhānis
Al-Hamrā
Hilays
Kafr al-Manshi al-Bahari
Minshat 'Abbas
Al-Waziriyyah
Kafr Yusif
Buravd
Youth Center
Water Desalination Stg



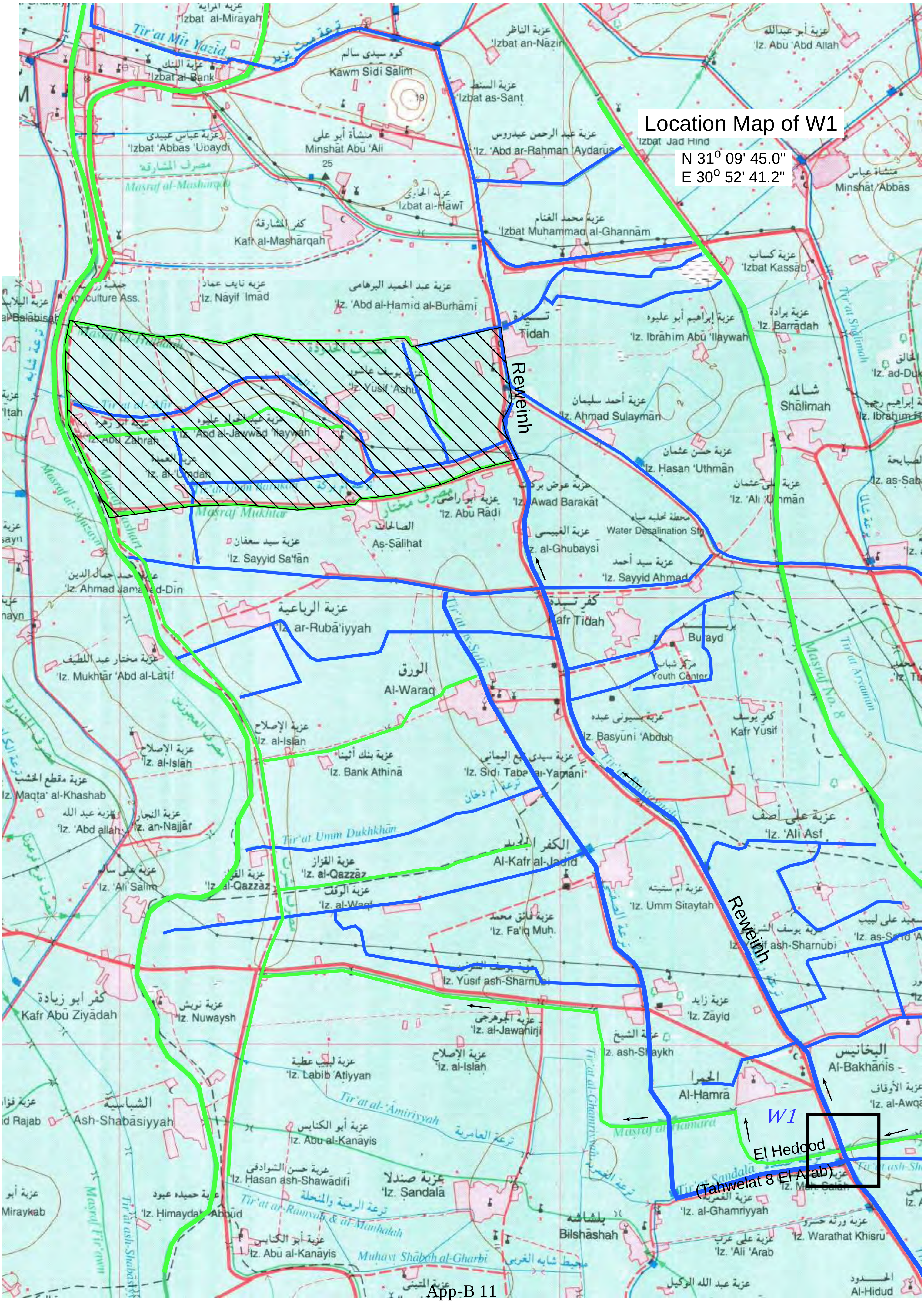
Location Map of E7
E 31° 17' 34.7"
N 30° 58' 23.2"
E7
Sant
Farsh Al ganaen
Tir'at al-Marbat
Tir'at as-Samakh
Masraf al-Janayin
Al-Qaryah No. 6
Qaryah No.5
'Izbat Bakr
'Izbat Abu Jayyid
'Izbat al-Rasif
Veterinary Unit
Chicken Farm
Qaryat Abu Mustafa
Agriculture Ass.
Al-Hasfah
'Iz. al-'Iryan
'Iz. Bishlah
Qaryat Taba al-Jadidah
'Izbat Dumah Mahmud Yunis
'Izbat ash-Sharikah (al-Far)
Abu Jayid
Ash-Shura'
Al-Waqf
Al-Zajam
Ghalib
'Izbat 'Uthman Bayyumi
Al-'Abbasiyyah
'Izbat Sa'd Abu 'Ali
'Izbat Muhammad Abu as-Sayyid
'Izbat Yusif Salamah
'Izbat Faraj ash-Shami
'Izbat ad-Dawwar
'Izbat Bilal
'Izbat as-Sinjabi
Ad-Dab'ah
Qaryatar-Raghamah
'Izbat Umm Sin al-Fuqaniyyah
Umm Sin
Tir'at al-Mallahah
Qaryatal-Muthallath
'Iz. al-Makanah
'Iz. 'Ali 'Abd al-Muta'al
AR-RIYAD
'Iz. an-Nahiyatan
'Iz. Dirbalah
'Iz. Faraj
'Iz. al-Batt
'Iz. Hawd ash-Sha'ir
Kawm Abu Rayyah
Manshiyyat Jad Allah
'Iz. Minash
Tir'at ad-Daramalli
Masraf al-Hallafi
Masraf No. 7 (Lower)
Masraf ar-Raghamah al-Qadim
Masraf ar-Raghamah
Masraf Abu Khashabah

Water Diagram for Canal in West Kafr El Sheik

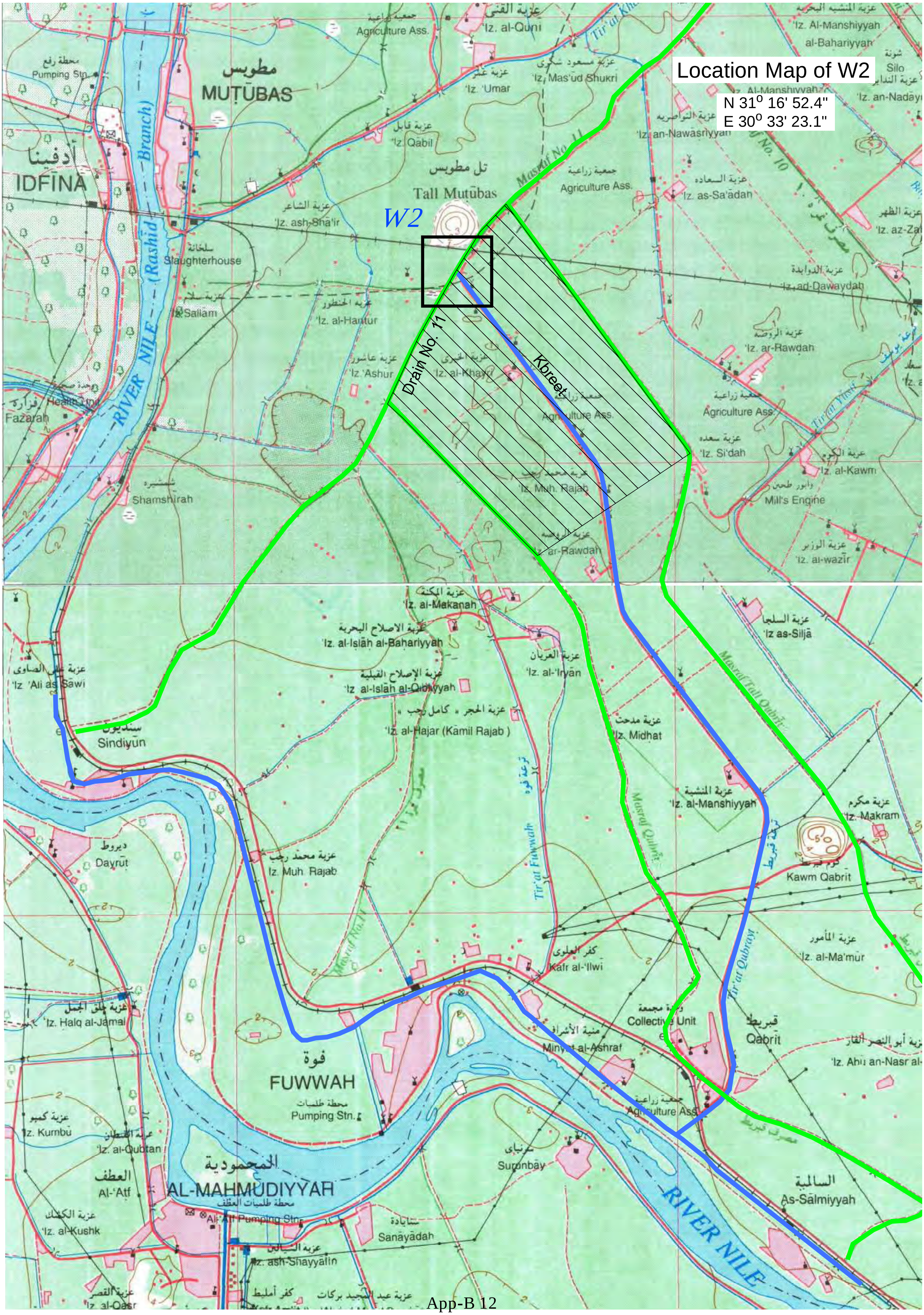


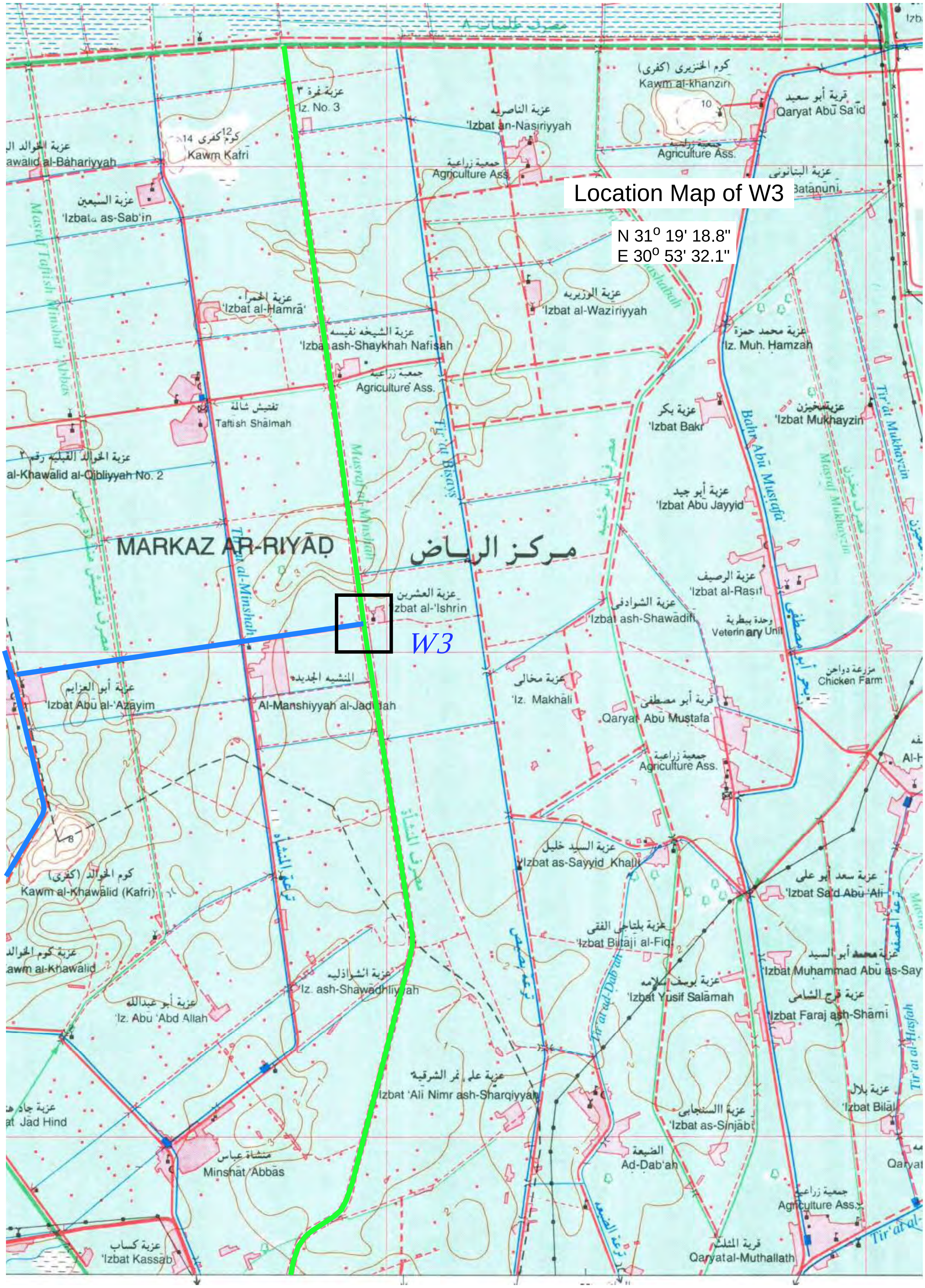
W12
Seidy Gaber
1070
1040
El Sahel
El Quena
Benmbal Bay
El Khus
El Meyah
El Helwa
El nour ext
Seidy Yousef Canal
Branch 1
Branch 2
Branch 3
Branch 4
Branch 5
El Sakhaina
El Qashash
El Nour
El Nour Br. 4
El Nour Br. 3
El Nour Br. 2
El Nour Br. 1
Bahr El Nour
Manyal Brem bal
Menyet El Murshed
Branch
El Rashidya Irri. PS
Edfina Barrage (KM 205.0)
El Rashidya C. Intake
El Qany Bay Intake
El Qany Bay
Sham sher
Sandyon
Fewah
Fewah Irri. P.S.
W2
Qabrit
El Soada'a
El Salmia
El Qadabah
The Nile River
Yousef Afandi
Draz
Abu Isma'el
El Makena
El Fanina
W13
El Nahaai
El Sheikh Ahmed
West Sakhawy
East Sakhawy
Public Sakhawy
Abdulrahman
Ewais
El Fadaily
Bahr el Qassaby
El Mostagadda
El Zainy Baharia Janabiah
W9
W7
W3
W6
W8
W10
W15
W4
W14
W11
W5
W1
Abu Hamza
El Nagash
Moharan
El Seidy El Yamani
Bahr Kesh
El Zainy
Om Baraka
El Matrawy
Manyal
El Bahr El Sa'edy
Hud El Yamani Br.
El Sa'edy El Yaddy
Shabas El Qeblia
Seidy Gami
Sanhur
El Kanabah
Muftah
Ebtu
Kum El Fara'een
El Shargayah
El Karadwah
Shabah
Abu Deheem
Dreegah
Bahr El Sheikh Ibrahim Connection
El Barnuf
El Mustagadda
El Gabal
El Bagageer
Bahr El Shidy Salem
West Seidy Salem
El Ghazba Water
Gadallah
Saidy Salem Ext.
Shalma Ext.
El Awalid
El Menshah
El Zarafah
East Seidy Salem
El Misk
Meet Yazeed
Seidy Salem
El Mashargah
Elaiusa
El Sa'afaan
El Safsaf
El Sath
El Mufti
Shalma
El Emdan
Aremon
Om Dukhan
El Kharayah
El Ghamria
West Muheet Belshashy
Sandala
Ruwaina
El Shabura
East Muheet Belshas
Mehalla El Qasab
El Shakeria
Daleel
Sanhur El Saghera
El Humsah
Lasefer
El Maniafa
El Qeblia
El Shabasia
El Shabasia El Baharia
Old Sanhur
El Magta'a
El Wasat
El Kurdy
Shabas Omair
El Hennawy
Jens
Salem
El Safty
QLeen
Kafr El Sheik
El Gamayel El Baharia
Legend
Engineering Boundary
Rotation A Group
Rotation B Group
24 hrs Irrigation Group
W1 Porposed pilot site

Note: The illustrated boundaries of the colored area do not match the exact boundary and area.
The black colored line (canal) is operated by the upstream govern orate agency.
The proposed pilot site is relatively indicated with a location of a canal on this illustration.

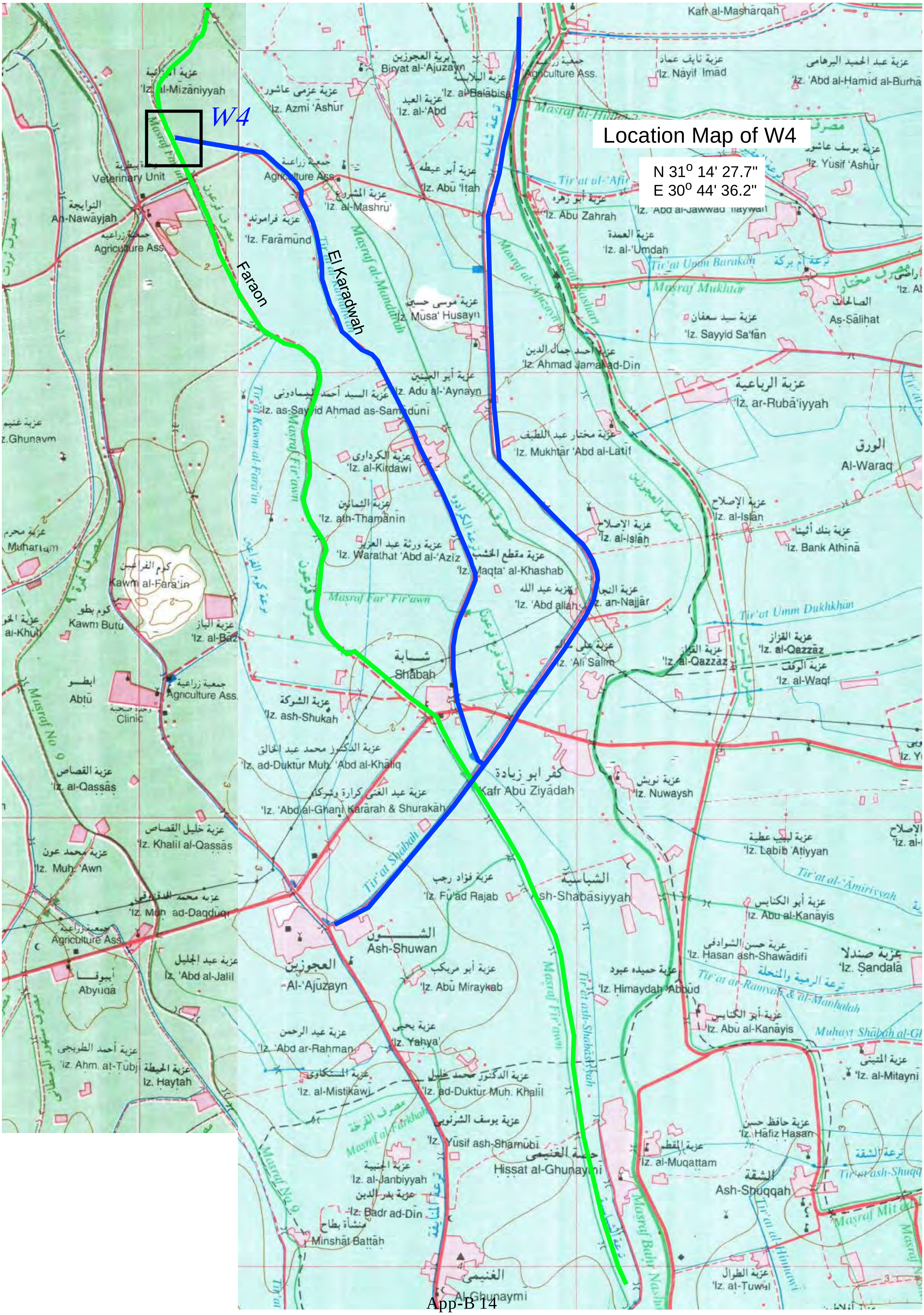


Location Map of W1
N 31^{o} 09' 45.0"
E 30^{o} 52' 41.2"
Reweinh
Reweinh
W1
El Hedood
(Tahwelat 8 El Arab)

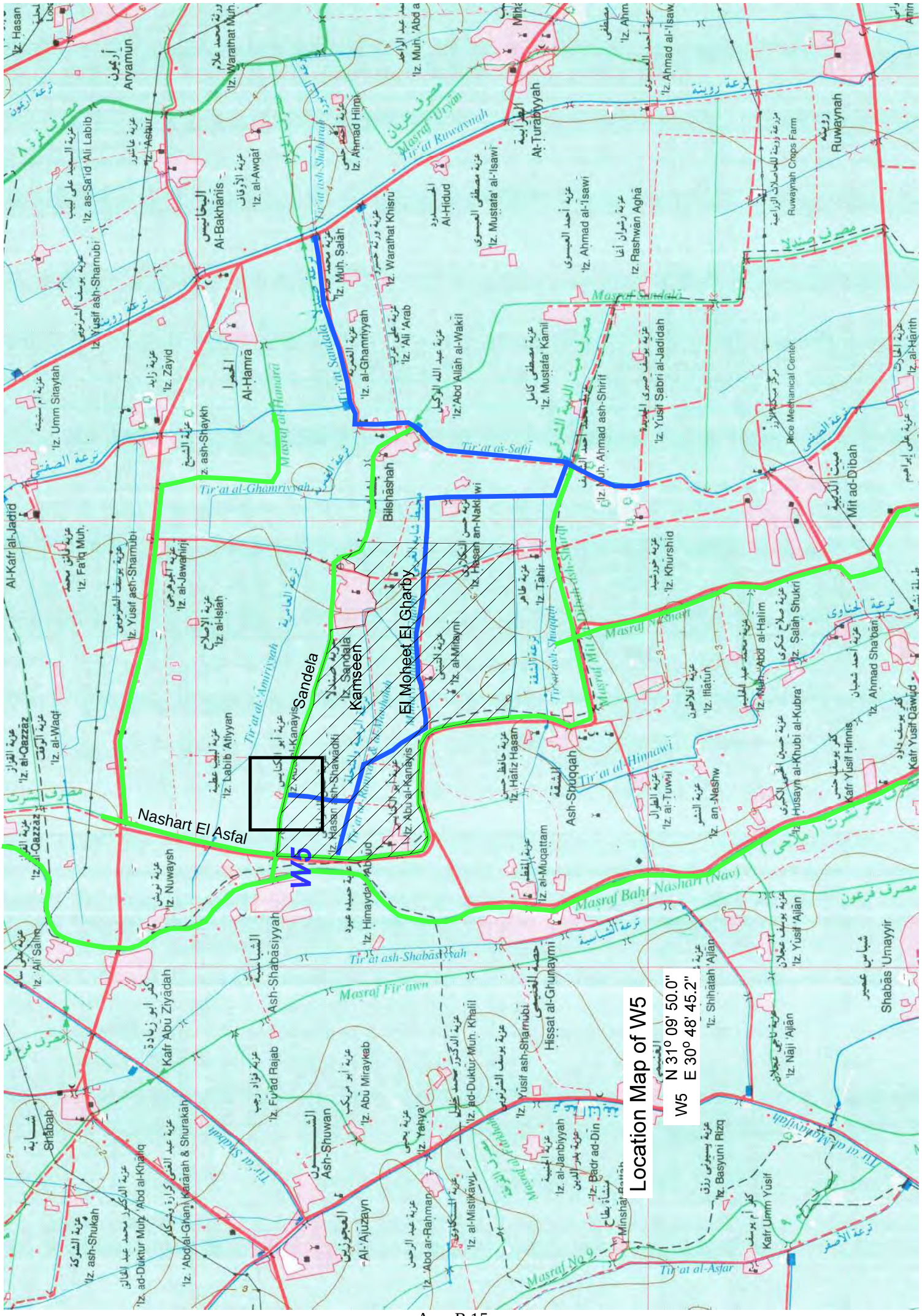

Location Map of W2
N 31° 16' 52.4"
E 30° 33' 23.1"
W2
Drain No. 11
Kbreet
MUTUBAS
مطوبس
IDFINA
أدفينا
Tall Mutubas
تل مطوبس
RIVER NILE
(Rashid Branch)
Pumping Stn.
Slaughterhouse
Agriculture Ass.
'Iz. al-Quni
'Iz. 'Umar
'Iz. Mas'ud Shukri
'Iz. Qabil
'Iz. ash-Sha'ir
'Iz. Al-Manshiyyah al-Bahariyyah
Silo
'Iz. an-Nadayr
'Iz. an-Nawasriyyah
'Iz. as-Sa'adah
'Iz. az-Za
'Iz. ad-Dawaydah
'Iz. ar-Rawdah
'Iz. al-Hantur
'Iz. 'Ashur
'Iz. al-Khayri
Sallam
Health Unit
Fazarah
Shamshirah
'Iz. Si'dah
'Iz. al-Kawm
Mill's Engine
'Iz. Muh. Rajab
ar-Rawdah
'Iz. al-wazir
'Iz. al-Makanah
'Iz. al-Islah al-Bahariyyah
'Iz. al-Islah al-Qibliyyah
'Iz. al-'Iryan
'Iz as-Silja
'Iz 'Ali as Sawi
Sindiyun
'Iz. al-Hajar (Kamil Rajab)
'Iz. Midhat
Masraf Tall Qabrit
'Iz. al-Manshiyyah
'Iz. Makram
Dayrut
'Iz. Muh. Rajab
Tir'at Fuwwah
Masraf Qabrit
Kawm Qabrit
Masraf No.11
Kafr al-'Ilwi
'Iz. al-Ma'mur
'Iz. Halq al-Jamal
Tir'at Qubrayt
Collective Unit
Qabrit
Minyat al-Ashraf
'Iz. Abu an-Nasr al-
FUWWAH
فوة
Pumping Stn.
Agriculture Ass.
'Iz. Kumbu
'Iz. al-Qubtan
Surunbay
Al-'Atf
AL-MAHMUDIYYAH
Al-'Atf Pumping Stn.
As-Salmiyyah
Sanayadah
RIVER NILE
'Iz. al-Kushk
'Iz. ash-Shayyalin
'Iz. al-Qasr

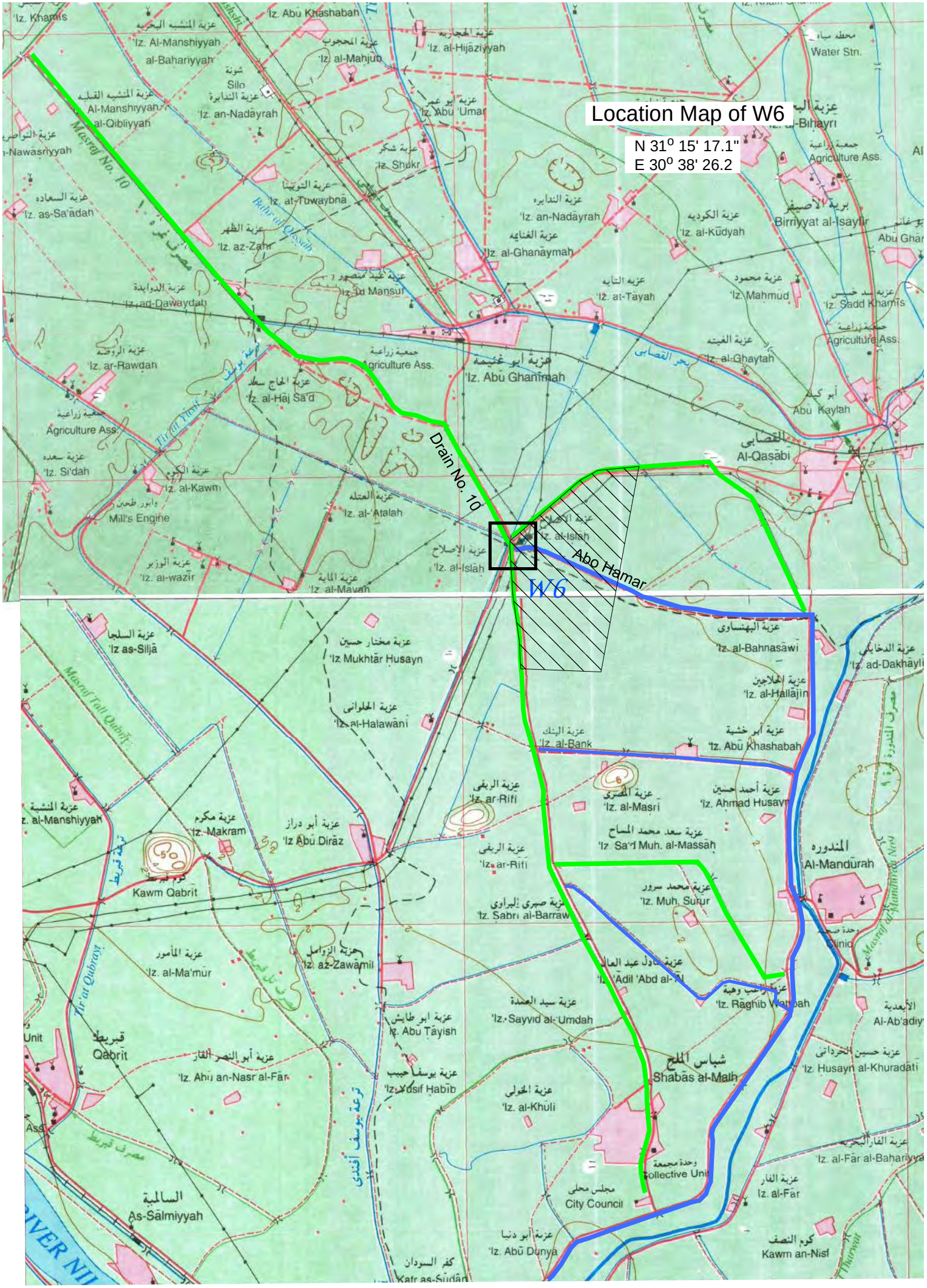


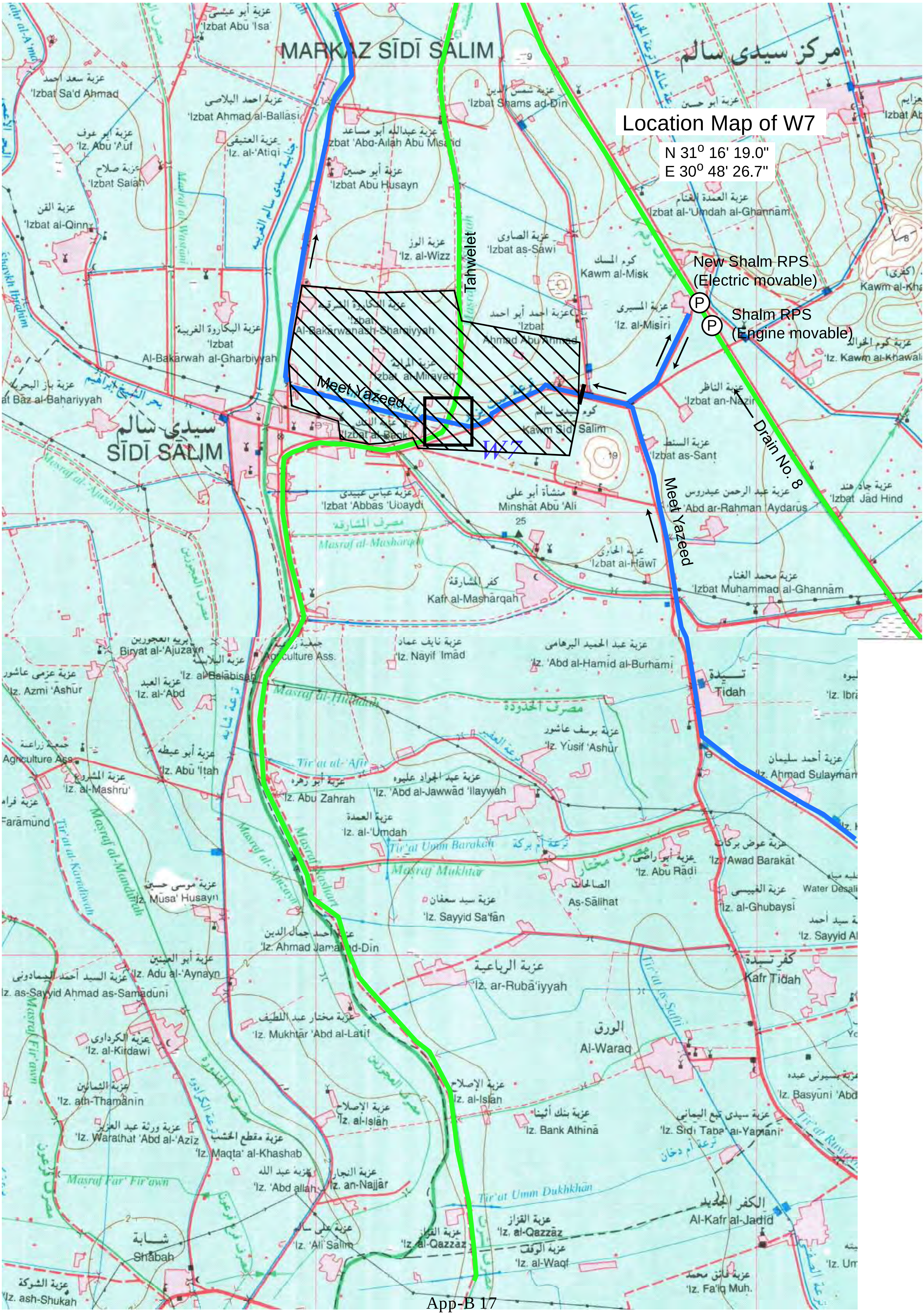
Location Map of W3
N 31° 19' 18.8"
E 30° 53' 32.1"
W3
MARKAZ AR-RIYĀḌ
مركز الرياض
Kawm al-Khanzīrī
Qaryat Abū Sa'īd
Iz. No. 3
'Izbat an-Nasiriyyah
Kawm Kafri
Agriculture Ass.
'Izbat as-Sab'in
'Izbat al-Hamrā'
'Izbat al-Waziriyyah
'Izbat ash-Shaykhah Nafīsah
Iz. Muh. Hamzah
Taftish Shālmah
'Izbat Bakr
'Izbat Mukhayzin
al-Khawālid al-Qibliyyah No. 2
'Izbat Abū Jayyid
'Izbat al-Rasīf
zbat al-'Ishrīn
'Izbat ash-Shawādifī
Veterinary Unit
Chicken Farm
'Izbat Abū al-'Azāyim
Al-Manshiyyah al-Jadīdah
Iz. Makhālī
Qaryat Abū Mustafa
Agriculture Ass.
Kawm al-Khawālid (Kafrī)
'Izbat as-Sayyid Khalīl
'Izbat Sa'd Abū 'Alī
'Izbat Biltājī al-Fiqī
Kawm al-Khawālid
Iz. ash-Shawādhliyyah
'Izbat Yūsif Salāmah
'Izbat Muhammad Abū as-Say
Iz. Abū 'Abd Allah
'Izbat Faraj ash-Shāmī
'Izbat 'Alī Nimr ash-Sharqiyyah
'Izbat Bilāl
at Jād Hind
'Izbat as-Sinjābī
Minshāt 'Abbās
Ad-Dab'ah
Agriculture Ass.
'Izbat Kassāb
Qaryat al-Muthallath
Bahr Abū Mustafā
Masraf Mukhayzin
Tir'at Mukhayzin
Tir'at Bisays
Masraf al-Minshah
Tir'at al-Minshah
Masraf Taftish Minshāt 'Abbās
Tir'at ad-Dab'ah
Tir'at al-Hisfah



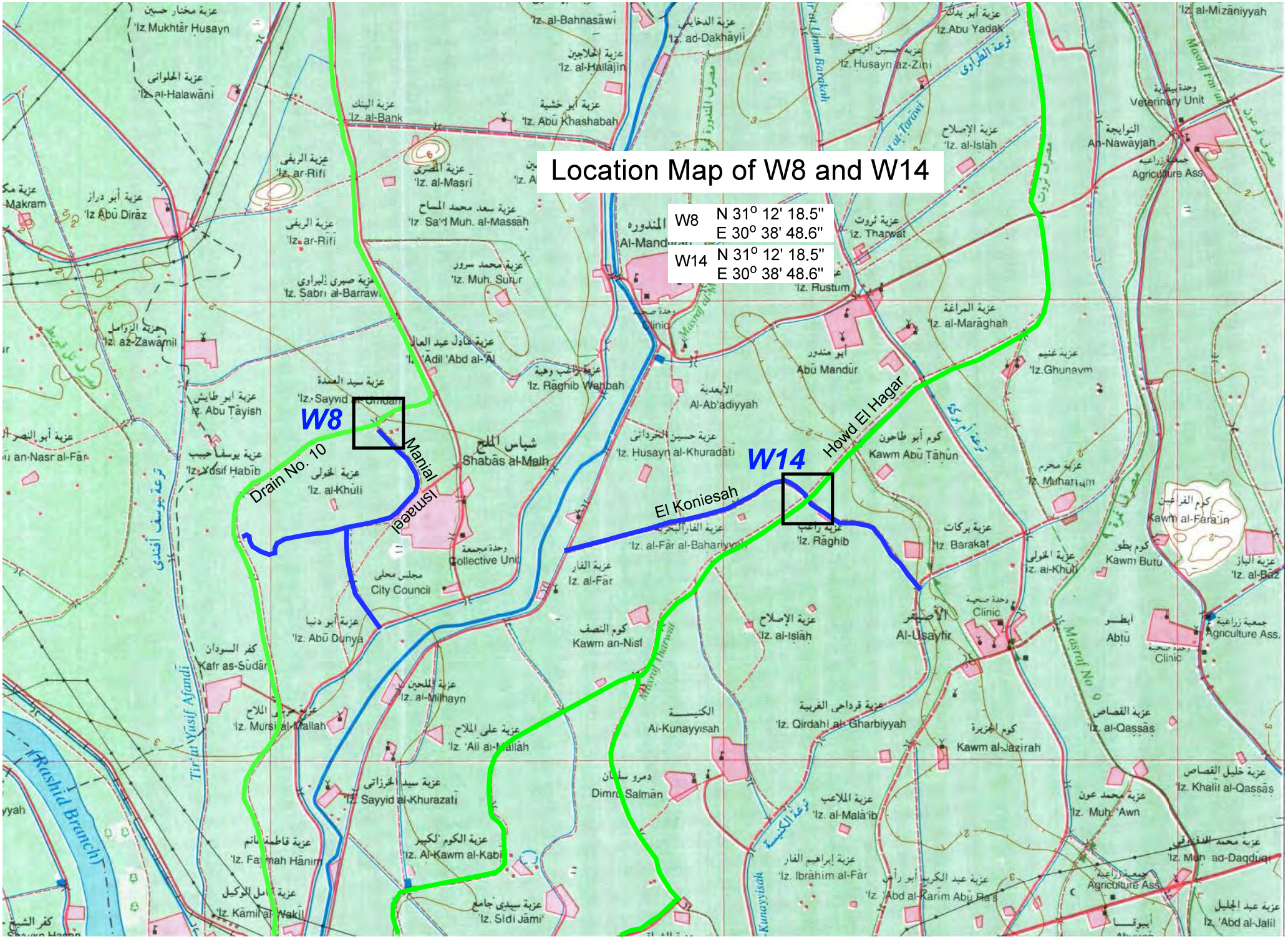
Location Map of W4
N 31^{o} 14' 27.7"
E 30^{o} 44' 36.2"
W4
Faraon
El Karadwah
Kafr al-Masharqah
Biryat al-'Ajuzayn
'Iz. Nayif 'Imad
'Iz. 'Abd al-Hamid al-Burha
'Iz. al-Mizaniyyah
'Iz. Azmi 'Ashur
'Iz. al-'Abd
'Iz. al-Balabisa
Agriculture Ass.
Masraf al-Hima
'Iz. Yusif 'Ashur
Veterinary Unit
An-Nawayjah
'Iz. Abu 'Itah
'Iz. al-Mashru'
Tir'at al-'Afir
'Iz. Abu Zahrah
'Iz. Faramund
'Iz. al-'Umdah
Tir'at Umm Barakah
Masraf Mukhtar
As-Salihat
'Iz. Musa' Husayn
'Iz. Sayyid Sa'fan
'Iz. Ahmad Jamal ad-Din
'Iz. Adu al-'Aynayn
'Iz. ar-Ruba'iyyah
'Iz. as-Sayyid Ahmad as-Samaduni
'Iz. Mukhtar 'Abd al-Latif
Al-Waraq
'Iz. al-Kirdawi
'Iz. ath-Thamanin
'Iz. al-Islah
'Iz. Bank Athina
'Iz. Warathat 'Abd al-'Aziz
'Iz. Maqta' al-Khashab
Kawm al-Fara'in
Kawm Butu
'Iz. al-Baz
'Iz. 'Abd allah
'Iz. an-Najjar
Masraf Far' Fir'awn
Tir'at Umm Dukhkhan
'Iz. al-Qazzaz
Shabah
'Iz. 'Ali Salim
'Iz. al-Waqf
Abtu
Clinic
'Iz. ash-Shukah
'Iz. ad-Duktur Muh. 'Abd al-Khaliq
Kafr Abu Ziyadah
'Iz. al-Qassas
'Iz. 'Abd al-Ghani Kararah & Shurakah
'Iz. Nuwaysh
'Iz. Khalil al-Qassas
'Iz. Labib 'Atiyyah
'Iz. Muh. 'Awn
Tir'at Shabah
'Iz. Fu'ad Rajab
Ash-Shabasiyyah
Tir'at al-'Amiriyyah
'Iz. Muh. ad-Daqduqi
'Iz. Abu al-Kanayis
Ash-Shuwan
'Iz. Hasan ash-Shawadifi
'Iz. Sandala
Abyuqa
Al-'Ajuzayn
'Iz. 'Abd al-Jalil
'Iz. Abu Miraykab
'Iz. Himaydah 'Abbud
'Iz. Abu al-Kanayis
'Iz. 'Abd ar-Rahman
'Iz. Yahya
'Iz. Ahm. at-Tubji
'Iz. Haytah
'Iz. al-Mistikawi
'Iz. ad-Duktur Muh. Khalil
'Iz. al-Mitayni
'Iz. Yusif ash-Sharnubi
'Iz. Hafiz Hasan
'Iz. al-Muqattam
Hissat al-Ghunaymi
Ash-Shuqqah
'Iz. al-Janbiyyah
'Iz. Badr ad-Din
Minshat Battah
Al-Ghunaymi
'Iz. at-Tuwil
Masraf No. 9
Masraf No. 2
Masraf Fir'awn

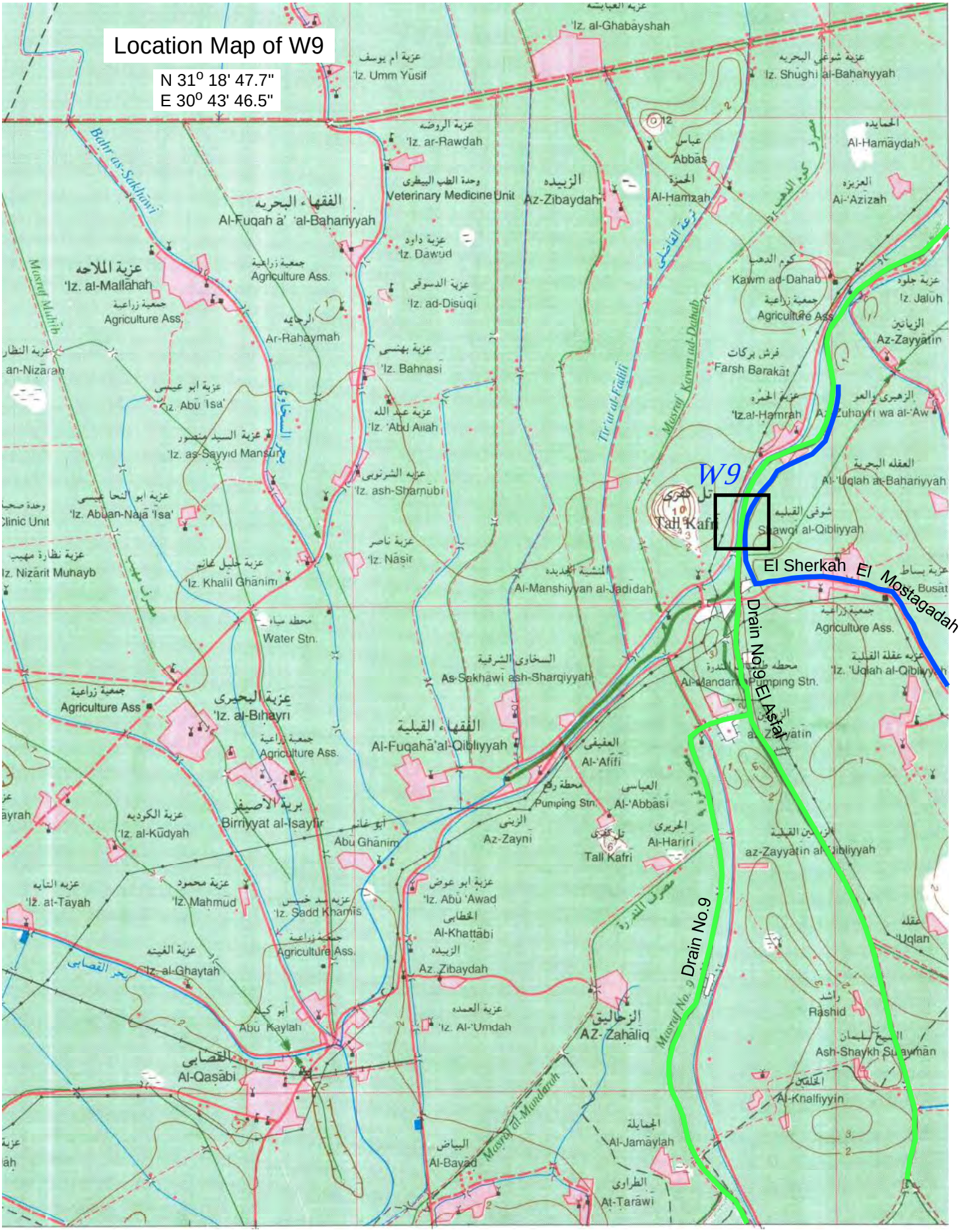

Sandela
Kamseen
El Moheet El Gharby
Nashart El Asfal
W5
Location Map of W5
W5 N 31° 09' 50.0"
E 30° 48' 45.2"

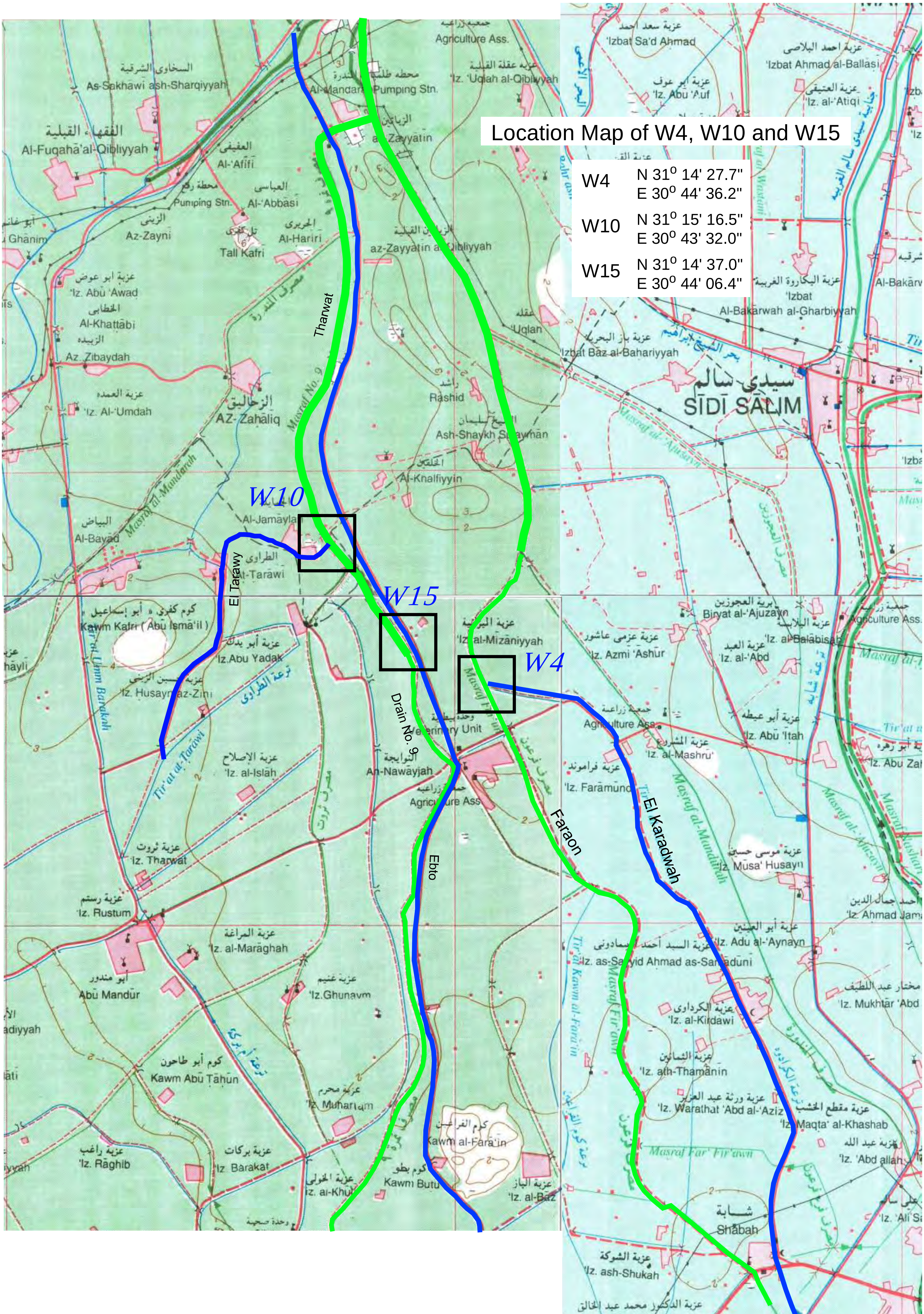

Location Map of W6
N 31° 15' 17.1"
E 30° 38' 26.2
Drain No. 10
Abo Hamar
W6
Water Stn.
Agriculture Ass.
Mill's Engine
Kawm Qabrit
Qabrit
Shabas al-Malh
City Council
Al-Mandurah
Al-Qasabi
Abu Kaylah
Abu Ghanimah
As-Salmiyyah
Kafr as-Sudan
Kawm an-Nisf

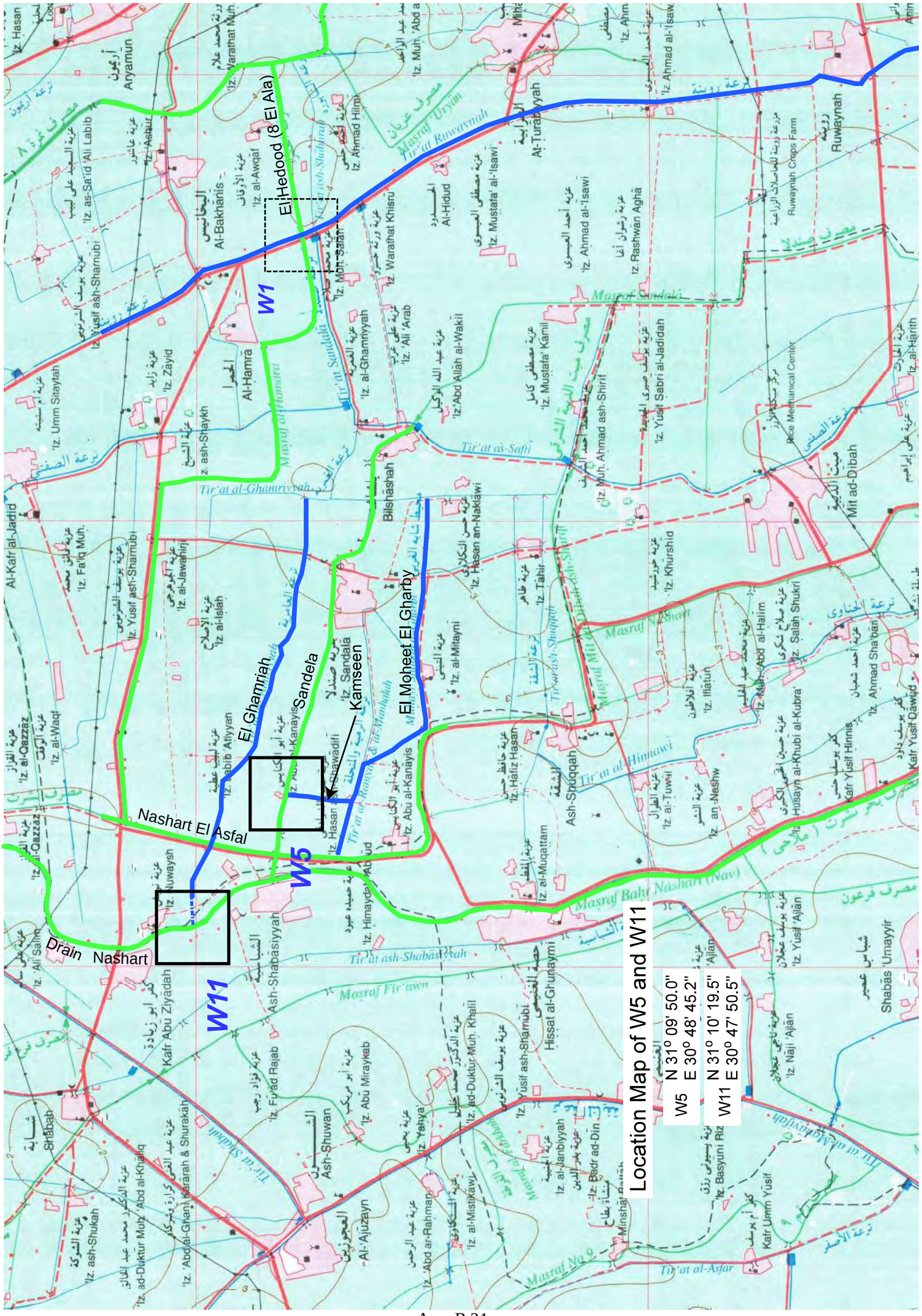


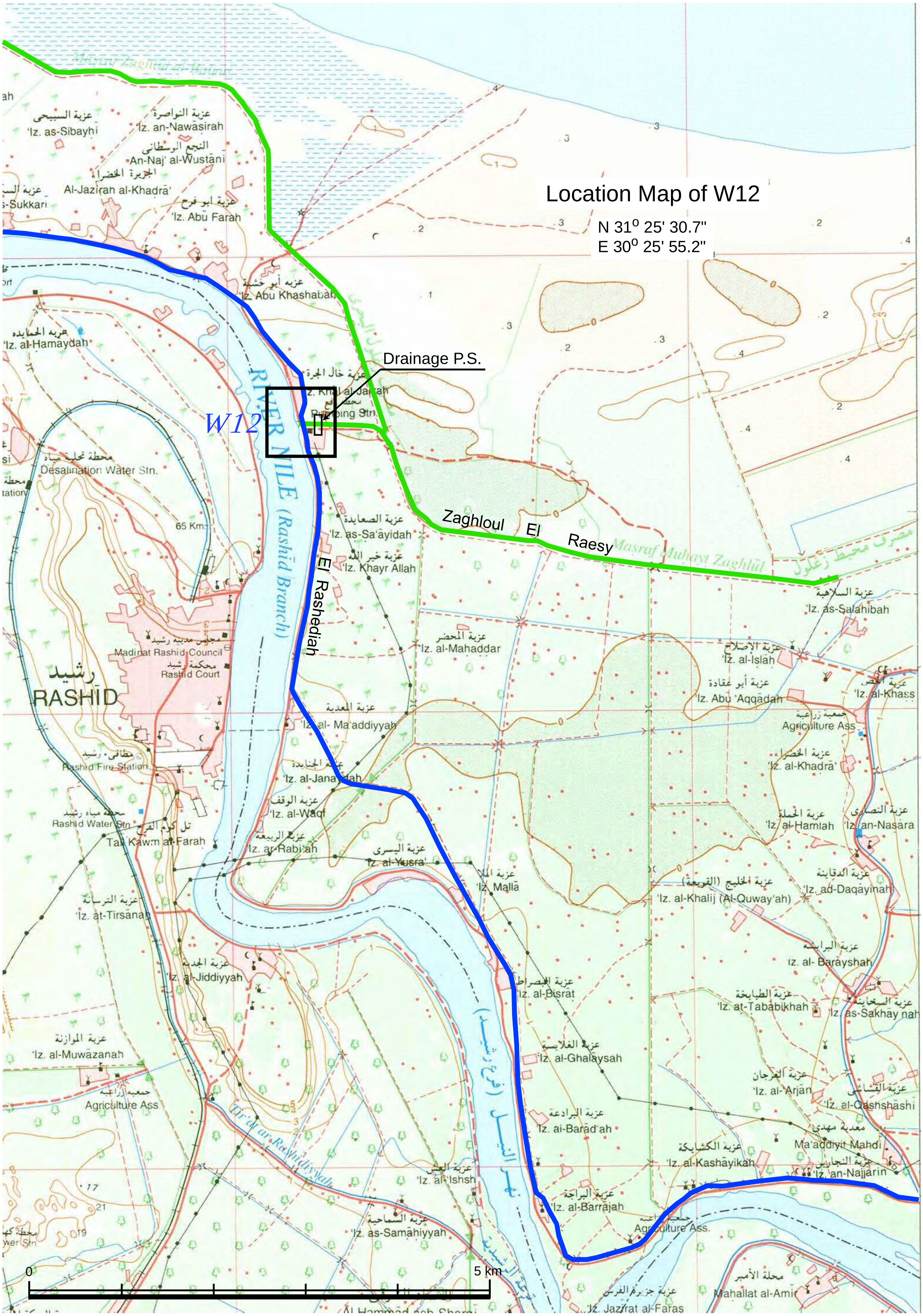
Location Map of W7
N 31° 16' 19.0"
E 30° 48' 26.7"
New Shalm RPS
(Electric movable)
Shalm RPS
(Engine movable)
Tahwelet
Meet Yazeed
W7
Drain No. 8
Meet Yazeed
MARKAZ SĪDĪ SALIM
مركز سيدى سالم
SĪDĪ SALIM
سيدي سالم


Location Map of W8 and W14
W8 N 31° 12' 18.5" E 30° 38' 48.6"
W14 N 31° 12' 18.5" E 30° 38' 48.6"
W8
W14
Drain No. 10
Manial Ismaeel
El Koniesah
Howd El Hagar
Rashid Branch
Tir'at Yusif Afandi
Shabas al-Malh
Al-Mandura
Abu Mandur
Al-Ab'adiyyah
Kawm Abu Tahun
Kawm an-Nisf
Al-Usayfir
Kawm al-Jazirah
Kawm al-Fara'in
Kawm Butu
Abtu
Kafr as-Sudan
Dimru Salman
Al-Kunayyisah
Clinic
Veterinary Unit
Agriculture Ass.
Collective Unit
City Council


Location Map of W9
N 31° 18' 47.7"
E 30° 43' 46.5"
W9
El Sherkah
El Mostagadah
Drain No.9 El Astal
Drain No.9
Tall Kafri
Az-Zibaydah
Al-Fuqah a' 'al-Bahariyyah
Al-Fuqaha'al-Qiblıyyah
Al-Qasabi
AZ- Zahaliq
Al-Manshiyyan al-Jadidah
Shawqi al-Qibliyyah
Al-Uqlah al-Bahariyyah
Al-Hamaydah
Al-'Azizah
Kawm ad-Dahab
Farsh Barakat
Az-Zayyatin
Al-Hamrah
Al-Afifi
Al-'Abbasi
Al-Hariri
Az-Zayni
Abu Ghanim
Birriyyat al-Isayfir
Al-Khattabi
Abu Kaylah
Al-Bayad
Al-Jamaylah
At-Tarawi
Ash-Shaykh Suaymān
Al-Khalfiyyin
Rashid
Water Stn.
Pumping Stn.
Agriculture Ass.
Veterinary Medicine Unit
Bahr as-Sakhawi
Misraf Muhib
Misraf Kawm ad-Dahab
Tir'at al-Fadili
Misraf al-Mandarah
Misraf No. 9


Location Map of W4, W10 and W15
W4 N 31° 14' 27.7" E 30° 44' 36.2"
W10 N 31° 15' 16.5" E 30° 43' 32.0"
W15 N 31° 14' 37.0" E 30° 44' 06.4"
W10
W15
W4
Tharwat
El Tarawy
Drain No. 9
Ebto
Faraon
El Karadwah
SIDI SALIM
سيدي سالم


El Hedood (8 El Ala)
W1
El Ghamriah
Sandela
Kamseen
El Moheet El Gharby
Nashart El Asfal
W5
Drain Nashart
W11
Location Map of W5 and W11
W5 N 31° 09' 50.0" E 30° 48' 45.2"
W11 N 31° 10' 19.5" E 30° 47' 50.5"


Location Map of W12
N 31° 25' 30.7"
E 30° 25' 55.2"
Drainage P.S.
W12
Zaghloul El Raesy
El Rashediah
RIVER NILE
(Rashid Branch)
RASHĪD
رشيد
Masraf Muhayt Zaghlūl
Desalination Water Stn.
Madinat Rashid Council
Rashid Court
Rashid Fire Station
Rashid Water Stn
Tall Kawm al-Farah
'Iz. as-Sibayhi
'Iz. an-Nawasirah
An-Naj' al-Wustani
Al-Jazirah al-Khadra'
'Iz. Abu Farah
'Iz. Abu Khashabah
'Iz. al-Hamaydah
'Iz. as-Sa'ayidah
'Iz. Khayr Allah
'Iz. al-Mahaddar
'Iz. as-Salahibah
'Iz. al-Islah
'Iz. Abu 'Aqqadah
'Iz. al-Khass
Agriculture Ass.
'Iz. al-Khadra'
'Iz. al- Ma'addiyyah
'Iz. al-Janadah
'Iz. al-Waqf
'Iz. ar-Rabi'ah
'Iz. al-Yusra
'Iz. Malla
'Iz. al-Hamlah
'Iz. an-Nasara
'Iz. ad-Daqayinah
'Iz. al-Khalij (Al-Quway'ah)
'Iz. at-Tirsanah
'Iz. al-Jiddiyyah
'Iz. al-Bisrat
'Iz. al- Barayshah
'Iz. at-Tababikhah
'Iz. as-Sakhaynah
'Iz. al-Muwazanah
'Iz. al-Ghalaysah
'Iz. al-Arjan
'Iz. al-Qashshashi
'Iz. al-Barad'ah
Ma'addiyat Mahdi
'Iz. al-Kashayikah
'Iz. an-Najjarin
'Iz. al-Ishsh
'Iz. al-Barrajah
'Iz. as-Samahiyyah
Agriculture Ass.
Mahallat al-Amir
'Iz. Jazirat al-Faras
Ur'at ar-Rashidiyyah
0
5 km

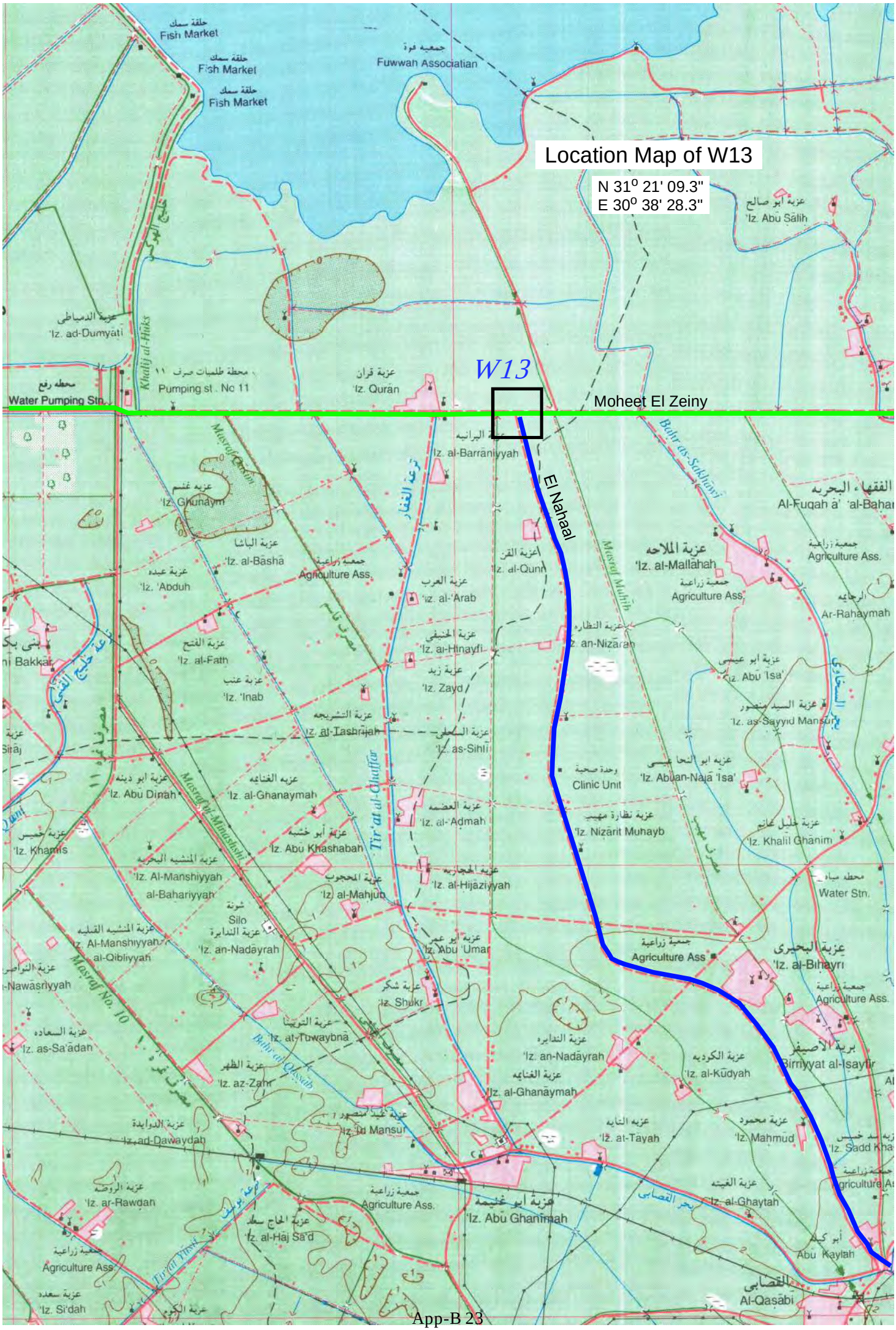

Location Map of W13
N 31° 21' 09.3"
E 30° 38' 28.3"
W13
Moheet El Zeiny
El Nahaal
Fish Market
Fuwwah Associatian
Pumping st . No 11
Water Pumping Stn.
Agriculture Ass.
Clinic Unit
Water Stn.
Silo

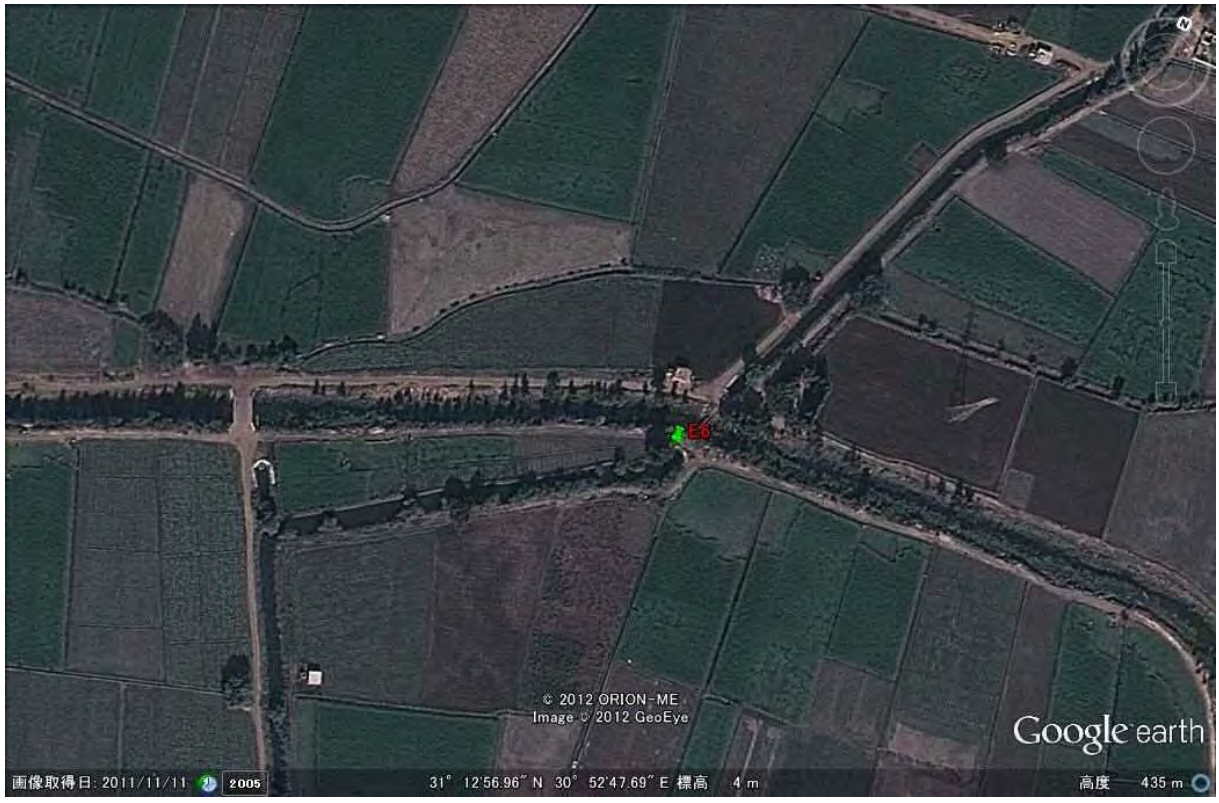
Photo Collection (Google eatth)

Site name: E1

Site name: E3

Site name: E4

Site name: E6



Site name: W1

Site name: W2

Site name: W4

Site name: W5

Site name: W6

Site name: W7

Site name: W14

Appendix-C Drainage Water Quality Monitoring Result in Pilot Project Sites (2013-2014/2015)

Appendix-C Drainage water quality monitoring result in pilot project site (2013 - 2014/2015)

Site Code: E1
Drainage Name: Frash Alganaen

Year	Month	Temp.	pH	DO	EC	TSS	TDS	T-N	T-P	COD (Cr)	BOD	TOC	Total Coliform
		℃	----	mg/l	dS/m	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	CFU/100ml
2013	May.	26.0	7.76	3.85	1.926	180	1,132	5.60	0.629	25	15	18.50	20×10^3
	Jun	25.0	7.73	3.60	1.979	165	1,198	8.50	0.533	33	22	9.29	4×10^3
	Jul.	26.4	7.82	3.20	1.857	70	1,188	4.20	0.354	32	13	7.43	7×10^3
	Aug.	28.2	7.84	2.85	1.671	140	1,030	6.72	0.546	28	14	9.46	380×10^3
	Oct.	20.4	7.83	3.21	1.671	180	904	5.04	0.806	21	14	8.54	14×10^3
	Dec.	17.5	7.79	3.80	1.239	135	860	12.50	0.621	25	16	7.32	12×10^3
	Max.	28.2	7.84	3.85	1.979	180	1,198	12.50	0.806	33	22	18.50	380×10^3
	Min.	17.5	7.73	2.85	1.239	70	860	4.20	0.354	21	13	7.32	4×10^3
	Ave.	23.9	7.80	3.42	1.724	145	1,052	7.09	0.582	27	16	10.09	73×10^3
2014/2015	Apr.	27.3	8.11	2.01	1.554	95	995	7.25	0.854	30	18	8.25	87×10^3
	May.	27.3	8.71	5.03	1.609	110	1,030	11.41	0.621	35	16	8.57	110×10^3
	Jun.	26.9	8.21	3.49	1.617	117	1,035	9.52	0.642	24	9	8.20	82×10^3
	Jul.	28.4	7.98	3.22	1.841	95	1,178	11.40	0.524	27	15	7.25	41×10^3
	Aug.	28.2	7.95	3.25	1.312	120	840	9.82	0.421	34	21	6.02	23×10^3
	Sep.	28.4	7.93	2.23	1.456	112	931	12.32	0.521	43	25	5.38	20×10^3
	Nov.	27.6	7.95	3.44	1.204	91	774	10.41	0.407	39	19	4.22	45×10^3
	Dec.	27.3	7.85	3.57	1.311	103	842	13.42	0.384	48	28	3.87	37×10^3
	Jan.	22.3	7.91	3.11	1.630	92	745	11.52	0.341	36	23	3.87	88×10^3
	Mar.	23.4	7.85	3.21	1.410	115	904	10.41	0.298	29	19	3.42	56×10^3
	Max.	28.4	8.71	5.03	1.841	120	1,178	13.42	0.854	48	28	8.57	110×10^3
	Min.	22.3	7.85	2.01	1.204	91	745	7.25	0.298	24	9	3.42	20×10^3
	Ave.	26.7	8.05	3.26	1.494	105	927	10.75	0.501	35	19	5.91	59×10^3

Appendix-C Drainage water quality monitoring result in pilot project site (2013 - 2014/2015)

Site Code: E4
Drainage Name: Mekhazan

Year	Month	Temp.	pH	DO	EC	TSS	TDS	T-N	T-P	COD (Cr)	BOD	TOC	Total Coliform
		℃	----	mg/l	dS/m	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	CFU/100ml
2013	May.	27.8	8.46	N.A.	3.04	70	1,940	4.20	0.567	28	15	11.19	27×10^3
	Jun.	26.8	8.31	1.42	4.14	174	2,682	5.72	0.633	35	15	11.07	37×10^3
	Jul.	28.2	8.28	1.32	6.46	160	4,234	21.80	0.383	45	15	6.81	4×10^3
	Aug.	28.0	8.17	1.12	1.446	40	912	12.88	0.236	19	11	5.92	280×10^5
	Oct.	19.4	8.20	0.95	1.446	58	1,544	16.32	0.416	12	7	6.34	45×10^3
	Dec.	17.5	8.33	3.20	2.840	55	1,980	24.30	0.354	16	11	6.02	55×10^3
	Max.	28.2	8.46	3.20	6.460	174	4,234	24.30	0.633	45	15	11.19	280×10^3
	Min.	17.5	8.17	0.95	1.446	40	912	4.20	0.236	12	7	5.92	4×10^3
	Ave.	24.6	8.29	1.60	3.229	93	2,215	14.20	0.432	26	12	7.89	75×10^3
2014/2015	Apr.	27.3	8.25	2.12	1.714	55	1,097	10.32	0.321	35	22	6.22	90×10^3
	May.	27.3	8.24	3.68	1.425	75	912	13.21	0.332	38	14	8.12	117×10^3
	Jun.	28.3	8.14	3.20	3.79	84	2,425	9.24	0.42	33	11	7.24	6×10^3
	Jul.	28.0	7.94	2.56	6.33	64	4,051	11.42	0.341	46	25	6.23	17×10^3
	Aug.	29.0	7.90	3.44	5.32	85	3,405	10.44	0.221	29	15	4.95	26×10^3
	Sep.	28.2	7.87	3.07	1.405	92	898	11.48	0.332	26	12	4.21	43×10^3
	Nov.	27.4	7.91	3.54	1.387	85	886	10.03	0.358	22	13	4.10	62×10^3
	Dec.	26.9	7.93	4.25	1.352	93	866	11.52	0.337	31	19	3.45	55×10^3
	Jan.	23.5	8.02	3.42	3.680	85	1,685	11.43	0.333	27	17	3.45	43×10^3
	Mar.	23.7	7.62	3.44	3.430	95	2,195	11.23	0.305	36	24	3.21	56×10^3
	Max.	29.0	8.25	4.25	6.330	95	4,051	13.21	0.42	46	25	8.12	117×10^3
	Min.	23.5	7.62	2.12	1.352	55	866	9.24	0.221	22	11	3.21	6×10^3
	Ave.	27.0	7.98	3.27	2.983	81	1,842	11.03	0.330	32	17	5.12	52×10^3

Appendix-C Drainage water quality monitoring result in pilot project site (2013 - 2014/2015)

Site Code: W2
Drainage Name: Drain No.11

Year	Month	Temp.	pH	DO	EC	TSS	TDS	T-N	T-P	COD (Cr)	BOD	TOC	Total Coliform
		℃	----	mg/l	dS/m	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	CFU/100ml
2013	May.	26.1	7.50	3.97	0.73	180	392	2.80	0.509	27	16	9.62	36×10^2
	Jun.	25.1	7.60	3.71	1.32	120	766	2.80	0.516	24	14	13.58	26×10^5
	Jul.	29.2	7.64	3.31	0.84	74	505	17.00	0.402	21	15	6.46	50×10^3
	Aug.	28.9	7.79	2.52	0.827	40	500	11.00	0.272	16	10	5.42	320×10^5
	Oct.	22.9	7.90	3.08	0.827	52	385	18.45	0.349	13	6	6.14	340×10^3
	Dec.	18.3	7.88	2.03	0.985	52	666	25.00	0.322	15	9	5.23	290×10^3
	Max.	29.2	7.90	3.97	1.322	180	766	25.00	0.516	27	16	13.58	320×10^5
	Min.	18.3	7.50	2.03	0.731	40	385	2.80	0.272	13	6	5.23	36×10^2
	Ave.	25.1	7.72	3.10	0.922	86	536	12.84	0.395	19	12	7.74	588×10^4
2014/2015	Apr.	24.1	7.93	1.15	0.925	48	592	13.54	0.332	22	12	6.31	100×10^4
	May.	24.1	7.65	0.45	0.780	55	500	12.24	0.302	33	14	7.85	80×10^4
	Jun.	27.9	8.09	2.17	0.85	62	542	6.42	0.388	51	17	7.05	63×10^4
	Jul.	27.7	7.89	2.82	0.98	60	627	8.20	0.311	30	18	5.95	180×10^4
	Aug.	29.0	7.77	2.35	1.04	70	667	7.20	0.198	28	18	4.23	75×10^3
	Sep.	27.7	7.77	1.33	1.230	84	787	11.76	0.31	24	15	3.54	92×10^3
	Nov.	27.2	7.80	2.50	1.330	87	854	9.52	0.247	18	14	2.35	102×10^3
	Dec.	26.6	7.92	3.21	1.281	88	816	13.20	0.301	33	20	2.45	93×10^3
	Jan.	25.6	7.82	2.48	0.985	74	452	12.74	0.342	25	15	2.45	53×10^3
	Mar.	26.8	7.72	2.46	1.230	90	787	11.74	0.312	30	20	2.37	56×10^3
	Max.	29.0	8.09	3.21	1.330	90	854	13.54	0.388	51	20	7.85	180×10^4
	Min.	24.1	7.65	0.45	0.780	48	452	6.42	0.198	18	12	2.35	75×10^3
	Ave.	26.7	7.84	2.09	1.063	72	662	10.66	0.304	29	16	4.46	470×10^3

Appendix-C Drainage water quality monitoring result in pilot project site (2013 - 2014/2015)

Site Code: W4
Drainage Name: Faraon

Year	Month	Temp.	pH	DO	EC	TSS	TDS	T-N	T-P	COD (Cr)	BOD	TOC	Total Coliform
		℃	----	mg/l	dS/m	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	CFU/100ml
2013	May.	27.4	7.62	4.92	1.132	36	770	3.08	0.457	18	13	12.77	28×10^3
	Jun.	28.2	7.65	2.79	1.631	128	958	1.12	0.316	23	18	12.19	24×10^5
	Jul.	29.1	7.70	2.43	1.221	88	711	12.60	0.201	24	12	7.04	20×10^4
	Aug.	28.1	7.70	1.95	1.070	76	701	8.48	0.201	10	6	6.21	48×10^5
	Oct.	23.1	8.22	1.40	1.070	84	491	12.81	0.39	6	4	6.38	30×10^3
	Dec.	18.0	8.29	3.10	0.496	65	341	26.80	0.402	10	8	6.10	37×10^3
	Max.	29.1	8.29	4.92	1.631	128	958	26.80	0.457	24	18	12.77	48×10^5
	Min.	18.0	7.62	1.40	0.496	36	341	1.12	0.201	6	4	6.10	28×10^3
	Ave.	25.7	7.86	2.77	1.103	80	662	10.82	0.328	15	10	8.45	125×10^4
2014/2015	Apr.	27.1	7.55	4.69	1.307	85	836	12.30	0.257	27	15	6.85	169×10^4
	May.	27.1	8.35	4.89	1.094	70	701	10.25	0.287	45	19	7.15	145×10^3
	Jun.	30.6	7.45	4.48	1.275	87	817	5.22	0.351	52	17	6.45	80×10^4
	Jul.	28.3	7.64	3.98	1.369	72	876	10.52	0.308	30	20	5.22	44×10^4
	Aug.	30.7	7.65	3.57	1.206	75	772	8.45	0.157	28	17	3.57	49×10^3
	Sep.	25.1	7.82	1.85	1.014	85	649	22.96	0.214	21	11	3.17	88×10^3
	Nov.	26.2	7.90	2.34	1.112	93	718	12.84	0.211	18	11	2.77	97×10^3
	Dec.	26.4	7.95	2.87	1.298	90	825	13.24	0.254	28	15	2.17	85×10^3
	Jan.	25.9	7.94	2.31	1.672	79	771	13.08	0.215	35	23	2.17	60×10^3
	Mar.	26.6	7.91	2.47	1.080	90	691	12.84	0.354	35	23	2.42	56×10^3
	Max.	30.7	8.35	4.89	1.672	93	876	22.96	0.354	52	23	7.15	169×10^4
	Min.	25.1	7.45	1.85	1.014	70	649	5.22	0.157	18	11	2.17	49×10^3
	Ave.	27.4	7.82	3.35	1.243	83	766	12.17	0.261	32	17	4.19	351×10^3

Appendix-C Drainage water quality monitoring result in pilot project site (2013 - 2014/2015)

Site Code: W5
Drainage Name: Sandela

Year	Month	Temp.	pH	DO	EC	TSS	TDS	T-N	T-P	COD (Cr)	BOD	TOC	Total Coliform
		℃	----	mg/l	dS/m	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	CFU/100ml
2013	May.	28.0	7.50	1.62	0.721	12	478	5.32	0.333	16	12	11.57	24×10^3
	Jun.	29.0	7.55	2.95	1.315	86	808	7.96	0.302	33	13	15.43	23×10^4
	Jul.	29.0	7.58	2.51	1.015	56	625	11.76	0.383	24	14	10.35	55×10^4
	Aug.	31.1	7.91	2.17	1.080	70	642	5.48	0.416	32	17	6.23	56×10^5
	Oct.	24.4	8.08	2.25	1.080	78	320	8.20	0.432	27	10	5.98	45×10^4
	Dec.	18.2	8.15	2.85	0.982	60	670	16.21	0.400	25	14	7.21	84×10^4
	Max.	31.1	8.15	2.95	1.315	86	808	16.21	0.432	33	17	15.43	56×10^5
	Min.	18.2	7.50	1.62	0.721	12	320	5.32	0.302	16	10	5.98	24×10^3
	Ave.	26.6	7.80	2.39	1.032	60	591	9.16	0.378	26	13	9.46	128×10^4
2014/2015	Apr.	24.9	7.60	0.35	0.669	75	428	3.94	0.505	35	25	7.42	199×10^3
	May.	24.9	7.72	0.99	1.002	70	642	6.54	0.378	36	19	7.24	60×10^4
	Jun.	31.4	7.43	8.70	1.168	77	748	4.11	0.402	28	12	6.84	117×10^4
	Jul.	30.1	7.45	2.54	1.834	64	1,178	5.60	0.423	41	30	5.14	70×10^4
	Aug.	32.2	7.50	4.32	1.168	70	748	4.54	0.204	35	23	3.55	30×10^3
	Sep.	26.1	7.61	1.66	1.083	80	691	20.72	0.157	31	18	2.85	62×10^3
	Nov.	26.5	7.73	2.05	1.187	75	762	14.35	0.129	27	16	1.87	77×10^3
	Dec.	27.2	7.68	2.46	1.127	86	724	12.25	0.223	34	21	2.34	69×10^3
	Jan.	26.5	7.72	1.39	1.058	92	479	10.87	0.207	26	17	2.34	67×10^3
	Mar.	26.8	7.84	1.81	1.310	105	837	11.24	0.300	31	21	2.29	56×10^3
	Max.	32.2	7.84	8.70	1.834	105	1,178	20.72	0.505	41	30	7.42	117×10^4
	Min.	24.9	7.43	0.35	0.669	64	428	3.94	0.129	26	12	1.87	30×10^3
	Ave.	27.7	7.63	2.63	1.161	79	724	9.42	0.293	32	20	4.19	303×10^3

Appendix-D Laws in Relation to Water Quality

Law 48 for the year 1982
Regarding the Protection of the Nile River and Waterways from Pollution

In the Name of the People

The President

The People's Assembly has adopted the following legislation and we have issued it as follows:

Article 1- In the application of the provisions of this law the following are considered waterways:

A) The freshwater bodies which include:
1- The Nile River, its tributaries and Akhwars.
2- Raiyahat, the canals with all its ranks and Gannabeyat.

B) The saline water bodies which include:
1- Drains with all its ranks.
2- Lakes.
3- Pools, enclosed water entities and Saiahats.

C) Groundwater Reservoirs.

Article 2 - It is prohibited to discharge or cast the solid, liquid or gas wastes discarded from real estate, shops, commercial, industrial and touristic facilities, or from sewage process in the waterways, either along the banks or over the surface unless after receiving license from the Ministry of Irrigation according to the regulations and standards stated in a resolution issued by the Minister of Irrigation based on a proposal by the Minister of Health. The license issued in this respect should include identification of the standards and specifications of each case separately.

Article 3 - The machinery of the Ministry of Health shall conduct a periodic analysis in its laboratories for samples of the processed liquid wastes taken from the facilities licensed to discharge in the waterways in the specified dates besides the analyses demanded by the Ministry of Irrigation in other than those periodic dates.

The machinery of the Ministry of Health shall be responsible for taking and analyzing the samples at the expense of the licensee, who must deposit a sum of money at the Ministry. The money shall be determined according to the quality of the wastes as a debit account of the costs of taking, transferring and analyzing the samples.

Both the Ministry of Irrigation and the licensee shall be informed with the result of the analysis. If the liquid wastes discharged in the waterways are violative of the standards and specifications stipulated in the license and do not constitute an instant danger, the licensee must within three months after being notified adopt a means of treating the wastes in order to be correspondent to the set specifications and standards. The process of treatment and testing should be performed during this period.

If the treatment is not finished by the end of the three-month period or is proved incompetent, the Ministry of Irrigation shall withdraw the given license and stop the discharge in the waterways in the administrative way.

If the result of the analysis shows that it violates the specifications and the standards specified in accordance with the provisions of this law in a way that shall constitute an instant danger to the pollution of the waterways, the licensee shall be notified to remove the causes of the damage immediately. Otherwise the Ministry of Irrigation shall undertake that task at the licensee's expenses or shall withdraw the granted license and stop the discharge done in the waterways in the administrative way.

Article 4 - It shall not be allowed to give permission to establish any facilities that would produce wastes disposed into the waterways.

However, the Ministry of Irrigation excluding any other authority may - if necessary and for the common good – give license to establish these facilities if the authorities using such facilities committed themselves to provide treatment units for these wastes in conformity with the specifications and standards set according to the provisions of this law. The operation of the treatment units should start upon the use of the facilities. The provisions of article 3 of this law shall apply to these facilities.

The existing facilities are to be given a one-year time limit starting from the date of putting this law into effect to provide a means for treating its wastes, otherwise the license shall be withdrawn. In such case the Ministry of Irrigation may take the measures necessary for stopping the discharge in the waterways in the administrative way without breaching the sanctions stated in this law.

Article 5 - The owners of the residential, tourist and other facilities floating in the Nile stream and its branches shall be committed to find a means for treating its wastes or combining them in certain places, draining and casting them in the sewage units. Draining any of its wastes in the Nile or the waterways shall not be allowed.

The irrigation engineers assigned with the application of this law, each in his area of jurisdiction, shall undertake the periodic inspection over these floating facilities. If it turns out that they violate the provisions of this article, the owner of the floating facility shall be given a time limit extending for three months to employ a means for treatment and removal of the causes of the damage. If this is not done by the end of the specified time, the license of the floating facility shall be cancelled.

Article 6 - The Ministry of Irrigation shall be responsible for issuing the licenses for establishing new floating facilities and renewing the licenses of the existing floating facilities, as well as authorizing the establishment of any facilities that would produce wastes to be discharged into the waterways.

Article 7- The movable river units used for transportation, tourism or any other purpose are prohibited to allow the leaking of the fuel used for its operation in the waterways.

The provisions of article 5 of this law shall apply to those units.

Article 8 - The Sanitation Utility shall undertake the task of setting more than one model for units for processing the liquid or adhesive wastes produced by factories, houses, other institutions, floating facilities and river units in a way that would conform to the specifications and standards set according to the provisions of this law.

Article 9 - The license pursuer shall be committed to submit evidence for providing a unit for processing the wastes as well as a certificate from the Sanitation Utility proving the examination of the processing unit and its competency.

Article 10- Upon choosing and using types of chemicals for controlling the plant diseases, the Ministry of Agriculture should maintain that they would not pollute waterways through what is leaked from these chemicals either in a direct way through the process of sprinkling or mixed with the agricultural drainage water or through washing the instruments and equipment used for sprinkling or the containers of pesticides in waterways according to the standards agreed upon among the ministries of Agriculture, Irrigation and Health.

Article 11- Upon choosing types of chemicals used for controlling the water weeds, the Ministry of Irrigation should maintain that they would

not result in polluting waterways, and should in all cases take the necessary precautions before, during and after the processing is done using chemicals, in order to prevent the use of processed water of the waterway until they are certain of the cessation of the effects of these substances on water quality and its usability for all purposes.

Article 12 - Reuse of Drains water shall not be allowed either directly or by mixing with fresh water for any purpose unless it is proven usable for that purpose. The Ministry of Irrigation , after consulting the Ministry of Health, shall take the actions necessary for processing the drains water that are to be reused.

Article 13 - The Nile Water Police Department shall supervise inspection patrols continuing along waterways and assist the competent authorities in controlling the wastes and in eliminating the causes of pollution and report any violations to the provisions of this law.

Article 14 - A special fund shall be instituted to comprise the revenues of charges, fines and costs resultant from the application of the provisions of this law. The money of that fund would be spent on the following cases:

- The costs of the administrative elimination of the violations.
- Monetary aids to the authorities that establish stations for processing the wastes before drainage.
- Conducting laboratory research and studies.
- Rewards for the officials who report and detect crimes violating the provisions of the law.

Article 15 - The Executive regulations for this law shall specify the charges that are due in implementation of the provisions of this law in a way that would not exceed the maximal limits stated in the enclosed table. The regulations shall also determine the expenses that are due in application of the provisions of this law and which may be collected via administrative confiscation.

Article 16 – Without prejudice to the provisions stated in the Penal Code, the punishment stated for violation of the provisions of articles 2, 3, 4, 5, 7 of this law shall be imprisonment for a period not exceeding one year in addition to a fine that shall not be less than five hundred pounds and shall not exceed two thousand pounds or one of these two penalties. If the violation reoccurs, the penalty shall be duplicated. The violator should eliminate or amend the violations at the date set by the Ministry of Irrigation. Unless the violator undertakes the elimination or the amendment of the violation at the specified date, the Ministry of Irrigation shall take the measures needed for the elimination or amendment by the administrative way and at the expense of the violator without breaching the right of the ministry to nullifying the license.

Article 17- The Minister of Irrigation shall issue the executive regulations of this law after consulting the other ministries concerned in three months from the date of issuing.

Article 18 - Irrigation engineers who, via a resolution from the Minister of Justice in agreement with the Minister of Irrigation, shall be designated as investigation officers in relation to the crimes stipulated in this legislation and which occur within their areas of jurisdiction.

Article 19 - This legislation is to be published in the official newspapers, and is to be in force within three months after the date of publication.

This legislation shall be stamped with the State Seal, and is to be implemented as one of its laws.

Issued at the Presidency on 21 June 1982.

Resolution no. 8 of the Minister of Irrigation for the year 1983
concerning the Executive Regulations of Law 48 for the year 1982
regarding the Protection of the Nile and Waterways from Pollution

Section 1
Definitions

Article 1- In the application of the provisions of law 48 for the year 1982, waterways mentioned are defined as follows:

1- The River Nile and its branches : the main stream of the Nile starting from the international boundaries with Sudan till the estuary of Demietta and Rashed branches in the Mediterranean.

2- Al-Akhwar : The side branches of the Nile Stream inside the islands

3-Al-Raiyahat: Large canals transferring water from the Delta Barrages supplying the network of canals in Lower Egypt.

4- Canals: Big and small canals with all its branches even field mesqas.

5- Gannabeyat: Distribution canals that pass parallel or adjacent to main canals transferring irrigation water.

6- Drains: Large and small drains with all its branches even the field drains and covered drains.

7- Lakes: Lakes connected with seas or springs.

8- Pools: Large enclosed water bodies into which waterways flow.

9- Closed water bodies: Lows filled with water and linked to waterways.

10- Saiahat: Low lands around the lakes into which drainage channels flow.

The source of the last three waterways is drainage water.

11- Groundwater reservoirs: Groundwater reservoirs within the Egyptian boundaries.

12- Solid Wastes : All the solid materials either resultant from garbage, sewage, dry wastes, stones, wastes from buildings or workshops, or any solid materials residual after individuals, residential, nonresidential buildings, either governmental or private, whether commercial, industrial, tourist or public as well as means of transportation.

13- Liquid wastes :

(1) Wastes emanating from industrial shops over which the standards regarding the liquid industrial wastes shall be applied.

(2) Human or animal wastes proceeding from the processes of sewage or its networks or from other properties or facilities such as public, commercial, industrial and tourist shops either movable, immovable or floating.

(3) Liquid animal wastes derived from the processes of slaughter, slaughter houses, abattoirs, poultry farms and barns.

14- The word "facility" refers to all the real estates, shops, commercial, industrial or tourist institutions whether governmental or nongovernmental.

Section 2
Licensing to Drain Processed Liquid Wastes in Waterways

Article 2- The banks of water bodies shall not be used - whatever their type - as places for collecting or disposal of solid wastes, transferring or storing volatile substances except for places for which a license is issued from the Ministry of Irrigation based on an application submitted by the party concerned.

Article 3- Storing or discharging chemicals or poisonous substances shall not be permitted at the banks of waterways except in places given prior license in relation to the existing licenses. The renewal of these licenses and issuance of new licenses shall be done by the Ministry of Irrigation.

Article 4- Liquid industrial wastes licensed to be discharged into waterways must not contain any pesticides or radiant substances or substances floating in the waterway... Or any substance that would constitute danger to man, animal, plant, fish, or bird, or would affect water usability for drinking, domestic, industrial, or agricultural uses.

Article 5- Licensing to drain human, animal wastes or sewage water into fresh water bodies, stated in article 1 from law 48 for the year 1982 referred to, or groundwater reservoirs shall not be granted. However the Minister of Irrigation may license draining wastes of movable floating facilities and river units into fresh waterways and groundwater after being processed according to the standards, conditions, and regulations stated as follows on the condition that the owner of floating facility or river unit should pay the charge stated in article 82 from the regulations.

Item	Standards and Specifications
Degree of Ionic Concentration of Hydrogen	7-8.5
Temperature	Five degrees above the average.
Color	Free from any colored substances.
Dissolved Oxygen	Not less than 2 milligrams/liter.
Absorbed biotic Oxygen	Not exceeding 20 milligrams/liter.
Chemically consumed oxygen (Permanganate Method)	Not exceeding 30 milligrams/liter.

Chemically consumed oxygen (Dicromate Method)	Not exceeding 60 milligram/liter.
Suspended Substances	Not Exceeding 20 milligram/liter.
Sulfides	Not Exceeding 0.5 milligram/liter.
Oils and greases	Not Exceeding 2 milligram/liter.
Nitrites	None.
Heavy metals group estimated	Not Exceeding 1.5 milligram/liter.
Lead of microscopic examination	Free from eggs of intestinal parasites
Potential number of colonic group	Not Exceeding 100/100 cm^3
Pesticides	None

1- The wastes must be sterilized after processing and before drainage into freshwater ways, Ozone is preferable.

In case of using chlorine or its derivatives, the chlorine left after 20 minutes after being added must not be less than 0.5 milligram/liter and must not exceed 1 milligram/liter.

2- Processing units for movable floating facilities should be designed in a way that provides points for taking samples before drainage. The draining of the slough resultant from processing into the waterway shall be

prohibited. Representatives of the Ministry of Health and Health Affairs Directorates are entitled to access these floating facilities and river units to confirm the operation of purification units and take the necessary samples.

3- The owner of the floating facility or river unit should submit to the Ministry of Health (the Public Department of Environmental Health) the detailed charts for the processing units accompanied with a study of competency and conformity with the specifications stated to get the preliminary approval before the issuance of the license.

4- The draining of processed and sterilized wastes shall take place only during the motion of the floating facility. Draining of processed or unprocessed wastes shall be prohibited during the halting of the floating facilities and river units at the anchorages or stopping in the waterway for any reason whatsoever.

5- Chemicals, oils, operation exhausts, or dry wastes must not be drained into a fresh waterway in any form whether the floating facility or river unit was movable or immovable.

6- Draining of processed or liquid wastes of the floating facilities into waterways should be stopped in case of extreme danger upon the decision of the Minister of Health.

Article 6- Drainage of all liquid industrial wastes or sewage water into fresh water bodies and groundwater reservoirs shall be prohibited. The Ministry of Irrigation may license drainage of liquid industrial wastes which were processed into groundwater reservoirs according to conditions, specifications and standards stated in the regulations.

Article 7- Licensing to discharge water produced through machinery cooling into waterways shall not be granted unless water is taken from the same stream in which it flows or from a similar source at least in terms of

water quality, provided that the cooling circuit should be closed and not mixed with wastes of any phase of the industrial operations. In such case it does not have to be compatible with specifications, and standards concerning discharge of industrial wastes into fresh or saline water bodies except for temperature, oil and grease standards.

Article 8- It is prohibited to discharge any water containing radiant materials in groundwater reservoirs.

Article 9- The pipe of discharging processed liquid wastes licensed to be drained into waterways must be located in an evident place above the water level of the water stream.

Article 10- In case of licensing to discharge processed liquid industrial wastes into waterways it is stipulated that the drainage pipe must be distanced at least 3 kilometers in front of drinking water intakes or one kilometer aback.

Article 11- Water used for washing the filters at drinking water purification stations should not be discharged into water bodies without being processed. The authorities concerned should provide suitable means of processing.

Article 12- The application for the license of discharging processed liquid wastes into waterways shall be submitted to the competent irrigation inspector of the Irrigation District in whose area of jurisdiction the facility is located, the application should be presented with the charge of stamp including the following data:

1. The name, location, and address of the facility.
2. The license issued to the facility or number and date of the license application as well as the approvals issued in its regard.
3. The name of owner of the facility.
4. The activity carried out by the facility.

5. The quality of the liquid wastes requiring a license to be discharged into the waterways.
6. The result of the analysis of a sample taken from these wastes for a period not exceeding three months in case of existing facilities.
7. The name of waterway adjacent to the facility and which may be used for drainage.
8. The charts demonstrating locations for draining the wastes into waterways or ground reservoirs as well as the proposed drainage technique and the necessary specifications.
9. Paying examination fees that amount to 20 Egyptian pounds.
10. Paying insurance fees at the account of the costs of sampling , transferring and analysis in the following categories :

	Type of wastes	Insurance rate
1	Sewage water	200 (two hundred pounds)
2	Liquid industrial wastes	
	(A) drained into fresh water bodies	500 (five hundred pounds)
	(B) drained into saline water bodies	400 (four hundred pounds)

Article 13 - The irrigation engineer in whose area of jurisdiction the facility is located shall undertake the necessary examination and the required technical studies.

Article 14 - The competent irrigation engineer should consult the Ministry of Health regarding the result of the analysis of a sample of liquid wastes requiring a license for drainage or concerning how identical the wastes proposed to discharge are in relation to the standards stated in the regulations.

Article 15 - The Ministry of Health shall undertake the process of taking one sample or more from processed liquid wastes in the scheduled times and shall inform the Ministry of Irrigation with the result of the analysis accompanied with the opinion of Health laboratories concerning the form referred to in article 26 of the regulations.

Article 16 - The license shall be issued by the General Director of the Public Department of Irrigation based on the technical examination and the result of the analysis.

Article 17 - The license issued in this regard shall include the following:

-The number of the license.
-The name and location of the facility.
-The name of the owner of the facility.
- The standards and specifications which should not be exceeded by the quality of the liquid wastes licensed to be drained.
- The name and location of the waterway in which liquid wastes are licensed to drain.
- The amount of liquid wastes licensed to drain into the waterway (m^3/day).
- The number and locations of the licensed drains.
- The duration of the effectiveness of the license.
- The charges that are due annually for the laboratory tests and analysis of samples.

Article 18 - The duration of the license should not exceed two years, and should be renewed at least two months before the expiry date. The license shall be abolished without renewal in case of expiry.

Article 19 - The following authorities shall be given a copy of the granted license:

1- The competent Irrigation Public Department.

2- The pursuer of the license.
3- The Public Department of Environmental Health of the Ministry of Health.
4- The Nile Water Police of the Ministry of Interior.

Article 20 - The Ministry of Irrigation, in case of disapproval of the license application, should inform the person concerned with a registered letter explaining the reasons of rejection within sixty days from the date of submitting the application. The owner of the facility has the right to complain in 15 days since the date of being notified with the rejection of the license.

Article 21- The complaint shall be submitted to the same authority to which the application of the license is presented. The same authority should examine and render a judgment regarding the application within thirty days from the date of receiving the complaint. The judgment shall be conclusive.

Article 22 - The sanctions stated in law 48 for the year 1982 referred to shall apply to any one who violates the conditions of the granted license.

Article 23 - In case of losing or damaging the license, the Irrigation Public Department issuing the license must be notified immediately in order to issue a substitutive license after paying the charges amounting to ten pounds.

Section 3
Monitoring Abidance by the Stipulations of the License

Article 24 - The Ministry of Health shall conduct in its laboratories at least once every three months a periodic analysis for samples of processed liquid wastes taken from the facilities licensed to drain in waterways stated in law 48 for the year 1982 referred to. The samples shall be taken at different times to determine the quality of the wastes in the required accuracy.

Article 25 - The Ministry of Irrigation shall have the right to request the Ministry of Health to take samples from the processed liquid wastes in the dates determined by the Ministry of Irrigation and in other than the periodic dates referred to in the above-mentioned article.

The Ministry of Health shall inform the facility requiring the license with the result of the analysis of these samples accompanied with the opinion of its laboratories.

Article 26 - The Ministry of Health shall apprise both the Ministry of Irrigation and the owner of the facility with the result of the analysis of the sample taken from the processed liquid wastes in a month from the date of taking the sample on a form including the following data:

1- The name and address of the facility.
2- The date and location of taking the samples
3- The hour of taking the sample.
4- The name and address of the laboratory following the Ministry of Health which performed the analysis.
5- The name and occupation of the official who took the sample.
6- The name and occupation of the laboratory official.
7- The result of the analysis in detail and comparing it with the stated standards.
8- The final opinion of the laboratory.

Article 27- If the result of the analysis of the samples turns out to be violating the standards and specifications stipulated in the license in a manner that represents an instant danger to the pollution of waterways, the Ministry of Irrigation shall notify the person concerned by any means possible to remove the causes of the danger of pollution immediately. Otherwise the Ministry of Irrigation shall undertake that task at the expenses of the person concerned.

In that case it is allowed to withdraw the license and stop the drainage in waterways in the administrative way and the police departments as well as the competent local government authorities shall be informed for implementation.

Article 28 - If the result of the analysis of samples taken from the processed liquid wastes turns out to be violating the standards and specifications stipulated in the license in a manner that would not represent an instant danger, the Ministry of Irrigation shall inform the person concerned with a registered letter to remove the causes of violation within three months from the date of notification.

The person concerned is considered aware of the notification since the date of receiving the notification or the date of receiving the result of the analysis of samples from the Ministry of Health.

Article 29 - The Ministry of Irrigation shall advise the Ministry of Health with the measures taken according to the above-mentioned article to assume the task of taking a new sample on the day following the end of the three-month period referred to in the preceding article for analysis and notifying the Ministry of Irrigation with the result of the analysis and the final opinion of the Ministry of Health in this respect according to the form referred to in article (26) in the regulations.

Article 30 - The Ministry of Irrigation shall withdraw the license and halt the drainage into waterways in the administrative way if the processing

does not occur within the three-month period referred to in article 28 or if the result of the reanalysis revealed the incompetence of the processing done by the party concerned.

Article 31 - The owners of permanent or temporary facilities that currently exist and produce wastes drained in waterways shall be committed to inform the Ministry of Irrigation within three months from the date of putting the regulations into effect with a statement including the following:

1- The name and address of the facility.
2- The name of the owner of the facility or the authority that it follows.
3- The activity practiced by the facility.
4- The granted license for establishing the facility.
5- The quality of the wastes that are discharged into the waterway.
6- The name of waterway into which the wastes are cast.
7- The license granted to the facility to discharge its wastes into the waterway.
8- The amount of liquid wastes authorized to be drained into the waterway.

The notification shall be done via a registered letter or by handing it with a receipt to the engineer of the irrigation district in whose area of jurisdiction the facility is located.

Article 32 - The Ministry of Irrigation shall create registers at the level of Irrigation Districts comprising data of the permanent or temporary facilities or the facilities licensed to be established under law 48 for the year 1982 referred to.

Article 33 - The Ministry of Irrigation shall revise the notifications submitted to it in accordance with article (31) by the facilities that currently exist, and the state of their drainage of their liquid wastes into waterways. The Ministry shall also perform the inspection necessary for

the process of draining liquid wastes produced by these facilities, demonstrate her observations regarding every location and send a copy of these data to the Ministry of Health for taking samples from the liquid wastes at the times scheduled by the ministry and conducting the analysis.

Article 34 - The Ministry of Health shall apprise the Irrigation Authority requiring the analysis and the owner of the facility with the result of the analysis of the samples accompanied with the final opinion of the Ministry of Health laboratories in their regard.

Article 35 - The owner of the facility should, within a year from the date of applying law 48 for the year 1982 referred to, provide a means for processing liquid wastes for removing the causes of violation to the stated standards and specifications.

Article 36- By the end of the duration referred to in the above-mentioned article, the Ministry of Health shall perform a new analysis of the samples of the processed liquid wastes from all the existing facilities previously informed with data according to article (33) from the regulations. The Ministry of Health shall apprise the Ministry of Irrigation and the owner of the facility with the result of the analysis and the opinion of the Ministry of Health laboratories in their regard.

Article 37- The Ministry of Irrigation shall withdraw the license and stop the drainage into waterways in the administrative way if the incompetency of the processing of the liquid wastes, conducted by the owner of the facility, is proven after the end of the duration referred to in article (35) from the regulations without prejudice to the sanctions stated in law 48 for the year 1982 referred to.

Article 38 - Starting from the date of the application of law 48 for the year 1982 referred to, the civil service and local government services shall not be allowed to authorize establishing facilities that would produce wastes to be drained in waterways. The Ministry of Irrigation

shall be exclusively responsible for giving the final license for instituting the facilities that would produce drainage wastes in waterways, after the owner of the facility receives approvals from the competent authorities and commits himself to provide units for processing liquid wastes in conformity with the standards and specifications stated in the regulations.

Section 4
About The Floating Facilities and Movable River Units
Chapter 1
About The Floating Facilities

Article 39- In the application of the provisions of article (5) from law 48 for the year 1982, a floating facility means every motorized or non-motorized floating establishment … whether it was residential or touristic…

Article 40- Starting from the date of application of law 48 for the year 1982 referred to, the Ministry of Irrigation shall have the jurisdiction over issuing licenses for establishing the new floating facilities and renewal of licenses of the existing floating facilities after the owner receives approvals from the competent authorities.

Article 41- The application of the license for establishing the facility shall be presented by its owner to the President of the Irrigation Sector of the Ministry in Cairo. The application form must bear the necessary governmental stamps with the following documents enclosed:

1- The document of ownership of the facility.
2- A certificate from the Public Authority for River Transportation proving the usability of the facility and compatibility with the conditions stated by the Authority.
3- A certificate from the Irrigation Engineer in charge proving availability of a unit for processing the wastes resulting from using the facility, his examination of the facility and its competency.

4- Approvals of other competent authorities.
5- The commitment of the owner of the facility of preventing the leaking of the fuel used for operation of the facility into the waterways.
6- The name of the waterway used for operating or berthing the facility.
7- Paying the fees of examination which amount to twenty pounds…

Article 42- The license shall be issued by the competent Irrigation General Director or the Nile Inspector within a month from the date of presenting the application. The granted license should include the following:

- The name of the facility.
- The name of the owner of the facility.
- The activity practiced by the facility.
- The name of the waterway authorized for the use of the facility.
- Commitment of the owner of the facility of preventing the leaking of the fuel used for operation of the facility in the waterways.
- The duration of the effectiveness of the license granted to the facility, which shall be as follows:

1- Three years for the facilities used for residential purposes.
2- One year for the facilities used for touristic purposes.

Article 43 - The application of the renewal of the license shall be presented after applying the measures stated in article 41 from the regulations to the authority issuing the license in three months before the expiry of the existing license.

Article 44 - In case of loss or damage of the license, the Irrigation Public Department or the Nile Inspection issuing the license should be immediately informed and the owner should receive a substitutive license after paying the charges amounting to ten pounds.

Article 45 - The machinery of the Ministry of Irrigation should conduct periodic inspection at least once every three months and when

necessary over the floating facilities anchoring within the district – to confirm its abiding by the conditions of the granted license and providing a means for processing their wastes or collecting them in specific places, draining and casting them away in sewage. If the facilities violated that, the Ministry of Irrigation would inform the owner of the facility with a registered letter to remove the causes of the violation in three months since the date of receiving the notification.

Article 46 - The Irrigation Engineer or Nile Inspector should reexamine the facility by the end of the three-month period in the above-mentioned article. If the processing undertaken by the owner of the facility for removing the causes of the violation is proven to be incompetent, the license of the facility shall be cancelled.

Article 47- The Ministry of Irrigation shall create records at the level of the Irrigation Districts and Nile Inspections comprising all the data stated in the license granted for each facility that anchors or operates at the waterway situated within its boundaries.

Article 48- All the owners of the existing facilities should apprize the Ministry of Irrigation on the date of effectiveness of the regulations, whatever the use of the facility, with a statement including the following:

- The name of the facility.
- The name of the owner of the facility or the authority it follows.
- The activity practiced by the facility.
- The license granted for establishing the facility.

The name of the waterway authorized for use by the facility.

- The quality of the wastes resultant from the use of the facility and the method of disposal.
- The availability of units for processing the wastes before disposal.

- The license given to the facility for draining its wastes in the waterway.

This notification should be sent in a registered letter or is handed by receipt to the competent Engineer of the Irrigation District or the Nile Inspector in whose area of jurisdiction the facility is located within three months from the date of putting the regulations in effect.

Article 49- The Ministry of Irrigation shall revise the notifications submitted by the owners of the existing facilities at the time of applying law 48 for the year 1982 referred to and shall perform an examination of the facilities and methods of processing and drainage of its wastes and shall report its observations regarding every facility, and shall send a copy of all these data to the Ministry of Health and the Sanitation Utility to furnish the Engineer of the Irrigation District or the competent Nile Inspector with the opinion in its regard.

Chapter 2
About the River Units

Article 50- In the application of the provisions of article 7 of law 48 for the year 1982 referred to, the movable River Unit stands for every floating facility in which the machine is a means for its operation even if it consists of a propeller and a propelled device or a trailing and a trailed device whatever is the purpose of its use.

Article 51- The provisions of the articles from 39 to 49 from these regulations shall apply to the movable river units with the exception that the duration of the effectiveness of the license shall be three years.

Article 52- The Nile Water Police following the Ministry of Interior shall assume monitoring floating facilities and the river units which cast their wastes into waterways as well as those which leak the fuel, report the necessary records and notify the Engineer of the Irrigation

District or the Engineer of the Nile Inspection in whose area of jurisdiction the floating facility or the river unit is situated to take the necessary actions according to the provisions of law, carry out the periodic and sudden inspection when these floating facilities and river units are in the anchorages and adopt the necessary measures.

Article 53- The Ministry of Irrigation shall inform the Nile Water Police for detecting the violation, reporting the necessary record and notifying the competent authority in the Ministry of Irrigation for application of the provisions of the law.

Article 54- The Ministry of Irrigation shall inform the Ministry of Health for taking the samples from the liquid wastes that the facility drains into waterways, analyzing the samples and notifying the competent Authority of the Ministry of Irrigation with the result of the analysis accompanied with the opinion of the Ministry of Health laboratories in this regard.

Section 5
About Taking the Samples and Conducting the Analyses

Article 55- Representatives from the Ministries of Irrigation and Health and from the competent Sanitation Utility shall be entitled to access real estates, shops, touristic, industrial and commercial facilities and other institutions that drain their wastes into the water bodies for purposes of taking the samples, and conducting regular and irregular investigation for examining the technique of draining the liquid wastes and the processing units in order to confirm the effectiveness of operation or discovering the wastes.

The owner of the facility should offer the assistance and facilities needed for the completion of their task in the best way possible.

Article 56- The sample should not be less than two liters, the samples are to be put in bottles with sealed smooth glass covers. The containers and the covers should be cleaned well before use. If the samples are taken from liquid wastes treated with chlorine, sterilized containers should be used.

Article 57- The analysis shall take place at the Ministry of Health laboratories immediately after taking the samples. If that is difficult to maintain or if the determined tests are delayed for over three hours, the sample must be kept inside a fridge, with the container surrounded by a layer of ice till the sample reaches the laboratory with some ice left.

Article 58- The sample should be identical to the nature of the liquid wastes as much as possible, and should be taken from a suitable place at the end of the purification process or the final point of connection of the facility wastes or the purification process and from the place where it is drained into the waterways. If the facility has more than one exit for the wastes, the samples should be taken separately from each and every exit. The container should be full and well-plugged after taking the sample. No bubbles or unfilled space should be allowed between the water level inside the container and the plug. While taking the sample, the opening of the container should be placed counter to the current. The sample should neither be taken from the surface nor from the deep water. After filling the container, the opening should be covered by gauze and sealed with wax (or any similar substance) as well as with the signet of the official commissioned to take the sample.

Article 59- The official commissioned with taking the sample should accurately and legibly fill the form specified for that purpose and make the owner of the facility or his representative sign the form. He should send the form immediately with the sample to the Public

Department of the Central Laboratories at the Ministry of Health in Cairo or the provincial laboratories in other governorates.

Section Six
The Regulations, Standards and Specifications regarding the Draining of Processed Liquid Wastes into Waterways

First: Regarding Drainage in Freshwater Bodies:

Article 60- Fresh waterways into which processed liquid industrial wastes are licensed to drain should be kept within the following standards and specifications:

Statement	Standards and Specifications (milligram/liter unless otherwise mentioned)
Colour	Not exceeding 100 degrees
Total solid substances	500
Temperature	Five degrees above the average
Dissolved oxygen	Not less than 5
Hydrogen exponent	Not less than 7 and not exceeding 8.5
Absorbed biotic oxygen	Not exceeding 6
Chemically consumed oxygen	Not exceeding 10
Organic nitrogen	Not exceeding 1
Ammonia	Not exceeding 0.5
Grease and oils	Not exceeding .01
Total Alkalines	Not exceeding 150 and not less than 20
Sulfates	Not exceeding 200
Mercury compounds	Not exceeding 0.001

Iron	Not exceeding 1
Manganese	Not exceeding 0.5
Copper	Not exceeding 1
Zinc	Not exceeding 1
Detergents	Not exceeding 0.5
Nitrates	Not exceeding 45
Fluorides	Not exceeding 0.5
Phenol	Not exceeding 0.02
Arsenic	Not exceeding 0.05
Cadmium	Not exceeding 0.01
Chromium	Not exceeding 0.05
Cyanure	Not exceeding 0.1
Lead	Not exceeding 0.05
Selenium	Not exceeding 0.01

Article 61- The standards concerning licensing for draining the processed liquid industrial wastes into freshwater bodies and groundwater reservoirs as determined by the Ministry of Health are as follows:

(All the standards are milligram/liter unless otherwise mentioned)

Statement	Maximal standards of processed liquid industrial wastes that are drained in	
	The Nile river from the borders of South Egypt till the Delta Barrages	The Nile branch , Rayahat, Canals and Groundwater Reservoirs
Temperature	35	35
Hydrogen exponent	6-9	6-9
Color	Free from colored	Free from colored

	substances	substances
Absorbed biotic oxygen	30	20
Chemically consumed oxygen (Dicromate)	40	30
Chemically consumed oxygen (Permanganate)	15	10
Total soluble solid substances	1200	800
Ash of soluble solid substances	1100	700
Suspended substances	30	30
Ash of suspended substances	20	20
Sulfides	1	1
Oils, greases and resins	5	5
Phosphate (non-organic)	1	1
Nitrates	30	30
Phenol	0.001	0.001

Fluorides	0.5	0.5
Residual chlorine	1	1

Statement	Maximal standards of processed industrial liquid wastes that are drained in	
	The Nile river from the borders of South Egypt till the Delta Barrages	The Nile branch , Rayahat, Canals and Groundwater Reservoirs
Heavy metals group which includes (×)	1	1
× Mercury	0.001	0.001
× Lead	0.05	0.05
× Cadmium	0.01	0.01
× Arsenic	0.05	0.05
× Chromium	0.05	0.05
× Copper	1	1
× Nickel	0.1	0.1
× Iron	1	1
Manganese	0.5	0.5

Zinc	1	1
Silver	0.5	0.5
Detergents	0.05	0.05
Potential number of the colonic group in 100 cm^3	2500	2500

Article 62- The Ministry of Irrigation has the right to disregard some of the standards referred to in the above-mentioned article without prejudice to the provisions of the regulations. That may apply to the cases where the amount of processed liquid industrial wastes drained into freshwater bodies are less than one hundred cubic meter per day on condition that it does not exceed the measurements set in the following table:

Statement	Maximal standards of processed liquid industrial wastes that are drained in	
	The Nile river from the borders of South Egypt till the Delta Barrages	The Nile branch , Rayahat, Canals and Groundwater Reservoirs
Absorbed biotic oxygen	40	30
Chemically consumed oxygen (Diacromat)	60	40
Chemically consumed	20	15

oxygen (permanganate)		
Total solid substances	1500	1000
Ash of solid substances	1000	900
Suspended substances	40	30
Oils, greases and resins	10	10
Nitrates	40	30
Phenol	0.005	0.002

Article 63- The processed liquid industrial wastes licensed to be drained into freshwater bodies must not be mixed with human or animal wastes.

Article 64- In implementation of the provisions of law 48 for the year 1982 referred to, the legislations organizing the standards regarding radiations and radiant substances shall be applied to make sure that they are in conformity with the liquid industrial wastes before draining them into freshwater bodies.

Article 65- The drains water before being pumped into freshwater bodies should fulfill the following standards:

statement	Standards(milligram/liter unless otherwise mentioned)
Color	Not exceeding 100 unit
Total solid substances	500
Temperature	5 Celsius
Odor	Free from colored substances
Dissolved oxygen	Not less than 5
Hydrogen exponent	Not less than 7 and not exceeding 8.5
Absorbed biotic oxygen	Not exceeding 10
Chemically consumed oxygen (Dicromate)	Not exceeding 15
Chemically consumed oxygen (permanganate)	Not exceeding 6
Ammonia	Not exceeding 0.05
Oils or greases	Not exceeding 1
Alkalines	Not exceeding 200 and not less than 50
Mercury compounds	Not exceeding 0.001

Iron	Not exceeding 1
Manganese	Not exceeding 1.5
Copper	Not exceeding 1
Zink	Not exceeding 1
Detergents	Not exceeding 0.5
Nitrates	Not exceeding 45
Fluorides	Not exceeding 0.5
Phenol	Not exceeding 0.02
Arsenic	Not exceeding 0.05
Cadmium	Not exceeding 0.01
Chromium	Not exceeding 0.01
Cyanide	Not exceeding 0.1
Tannin and lignite	Not exceeding 0.5 milligram/liter
Phosphate	Not exceeding 1 milligram/liter
Carbon-chloroform abstracts	Not exceeding 1.50 gram/liter
Potential number of the colonic group 100 C^3	5000

Second: Regarding Draining into Saline Water Bodies:

Article 66: The sewage water and liquid industrial wastes licensed to be drained into saline water bodies should fulfill the following standards and specifications:

Statement	Maximal Standards and Specifications (milligram/liter unless otherwise mentioned)	
	Sewage water	Liquid industrial wastes
Temperature	35 Celsius	35 Celsius
Hydrogen exponent	6-9	6-9
Absorbed biotic oxygen	60	60
Chemically consumed oxygen(Dicromate)	80	100
Chemically consumed oxygen(Permanganate)	40	50
Dissolved oxygen	Not less than 4	-
Oils and greases	10	10
Dissolved substances	2000	2000
Suspended substances	50	60
Colored substances	Free from colored substances	Free from colored substances
Sulfides	1	1
Cyanide	-	0.1
Phosphate	-	10
Nitrates	50	40
Fluorides	-	0.5
Phenol	-	0.005
Total heavy metals	1	1

Pesticides Potential number of the colonic group 100 C^3	None 5000	None 5000

Article 67- In case of draining the sewage water or liquid industrial wastes mixed with sewage water into saline water bodies, based on a request by the competent Health Authority, drained water should be processed with chlorine for purification before drainage so that the chlorine remaining in it after twenty minutes from adding should not be less than 0.50 milligrams. The devices and materials used for purification should be available and ready for action continuously for performing the processing upon request.

Article 68- Saline water bodies into which liquid industrial wastes are licensed to drain should remain within the limits of the following standards and specifications:

Statement	Standards and specifications
Temperature	Not exceeding 5 Celsius above the average
Dissolved oxygen	Not less than 4 milligrams/liter at any time
Hydrogen exponent	Not less than 7 and not exceeding 8.5
Detergents	Not exceeding 0.5 milligram/liter
Phenol	Not exceeding 0.005 milligram/liter
Sediments	Not exceeding 50 units

Soluble solid substances	Not exceeding 650 milligram/liter
Potential number of the colonic group in 100 C3	Not exceeding 5000

Article 69- In case the liquid wastes are drained into the lakes – the number of the colonic bacteria in fish traps should not exceed (70) per 100 cm^3, and does not exceed (230) per 100 cm^3 in tenth of the samples taken from the lakes water at fishing season, for fish conservation and preventing the effects of draining that these wastes may have on fish traps.

Section 7
The Fund of the Revenue of Charges and Fines

Article 70- In application of the provisions of article 14 of law 48 for the year 1982 a special fund shall be created with a special account in the Egyptian Central Bank under the name" The fund of charges and fines of law 48 for the year 1982 regarding the protection of the Nile river and waterways from pollution".

Article 71- The revenue of the charges, fines and costs resultant from the implementation of the provisions of law 48 for the year 1982 referred to shall go to the above-mentioned fund.

Article 72- The board of directors of the fund shall be selected via a resolution by the Minister of Irrigation, and shall convene at least once every month.

Article 73- The board of directors shall undertake the responsibility of drawing the policy of the fund, follow-up of the actions, and formulating the systems and measures necessary for accomplishing those actions.

Article 74- The budget of the fund including the collected revenues and the expenditures shall be prepared and reviewed by the board of directors long enough before the beginning of the fiscal year and should be approved by the Minister of Irrigation.

At the end of the fiscal year the final account of the fund shall be prepared to be ratified by the board of directors in preparation of review for the Accounts Monitoring at the Central Auditing Organization.

Article 75- The board of directors shall formulate its own measures without being restricted by the governmental laws and regulations and shall be ratified by the Minister of Irrigation.

Article 76- The revenues of the fund shall comprise the following:

a) The charges of issuing the licenses and insurances regarding establishing any facilities that would produce wastes to be drained in waterways.
b) The charges of issuing the licenses and insurances regarding establishing new floating facilities and river units and renewal of the licenses of existing floating facilities and units.
c) The value of violations and fines stipulated in article 16 from law 48 for the year 1982 referred to.
d) Other revenues that shall be collected via application of law 48 for the year 1982 referred to.
e) Credits and monetary aids designated by the government as a subsidy for the fund's revenues.
f) The grants, donations and legacies that may be accepted by the Minister of Irrigation.

Article 77- The yields of the fund are spent according to the regulations formulated by the board of directors and shall include particularly the following:

a) The costs of the administrative removal of the wastes.
b) The monetary aids for the authorities establishing units for processing the wastes before drainage.
c) The costs of conducting laboratories analyses, researches and studies.
d) The rewards given to the workers who exert unusual efforts in the operations of detection and removal of the wastes.
e) The rewards given to the officials responsible for reporting and detecting the crimes violating the provisions of law 48 for the year 1982 referred to.
f) The wages of occasional workers whose services are needed in removing the wastes or any other tasks required for the implementation of law 48 for the year 1982 referred to.

Article 78- The Public Departments of the Irrigation Authority shall assume collecting those charges and dues, and depositing them in the Fund's account. The charges and due expenditures, in implementation of the provisions of this law may be levied by way of administrative confiscation.

Article 79- The board of directors shall specify the rewards for the officials responsible for reporting and detecting the crimes with a ratio of the value of the collected fine, as well as its minimal and maximal level, and the measures for spending.

Article 80- The holders of the licenses for draining the processed liquid wastes into waterways shall be informed annually in July with a

statement including the amounts due for charges, laboratory analyses, expenditures, fines and costs of removal done throughout the year.

Section 8
General Provisions

Article 81- The owners of the facilities licensed to drain their processed liquid wastes into waterways shall be committed to deposit insurance at the Irrigation Authority Fund as a guarantee of applying the provisions of article 16 of law 48 for the year 1982 referred to in accordance with the following:

a) One thousand pounds for every facility that employs a pipe whose diameter is not more than twenty centimeters or several pipes with the same amount of drainage for the purpose of draining its processed liquid wastes into waterways.
b) Two thousand pounds for every facility that employs a pipe whose diameter reaches or exceeds twenty centimeters for draining its processed liquid wastes into the waterways.

The value of the fine as well as the costs of the removal shall be deducted from the insurance upon violation if the violator did not pay the value of the fine and costs of removal. The owner of the facility shall be committed to complete the sum of the insurance in two months from the date of notification by discounting the determined value of the fine and the costs of removal.

The receipt of depositing the insurance money is considered one of the documents necessary for obtaining or renewing the license.

The insurance shall be paid back at the expiry of the license unless the licensee is indebted to the Irrigation Authority with any other money.

Appendix-E Results of the Social Condition Survey

APPENDIX-E: Results of the Social Condition Survey

1. Outline of the Survey

The Social Condition Survey carried out to grasp social and economic condition, activities of Water Users' Associations, and situation of water shortage and drainage water usage as well as villagers' willingness to pay for a sewage treatment facility. The Survey conducted in 10 canals which were pilot project candidate sites. The Survey has three main components; 1) Profiling the Canals, 2) Farmers' interviews, and 3) Household Survey. The following table shows the summary of the Survey.

Table 1.1 Outline of the Survey

Category	Survey Items	Method	Quantity
Profiling Canals	Length of the canals, No. of farmers and WUA, Existence of BWUA and Water Board, No. of Pumps, list of WUA, etc.	Key informant interview	10 branch canals
Farmers' Interviews	Crop, land size, production, income, condition of drainage water usage and water shortage, etc.	Questionnaire survey	In total 400 farmers (40 farmers * 10 canals)
Household Survey	Income, expenditure, condition of sewage treatment, social activity, etc	Questionnaire survey	24 household (Khamseem Village)

With Regard to Farmers' Interviews, questionnaire survey conducted targeting 20 farmers in upper area of canals and 20 farmers in tail area. There is a sub village named Khamseen on Sandela drainage canal. This sub village is targeted site of construction of sewage treatment facility; thus, household survey conducted in this village to know village condition and their willingness to pay for the facility.

Table 1.2 Surveyed Canals

No	Site code	Irrigation Canal	Length (km)	Commend Area(fa)	Farmers	No. of Water ways*	WUA
1	E-1	Marsa Al Gamal	17.0	8,269	3,886	B:3, M: 26	○
2	E-4	Mekhazan	5.2	1,100	860	M:25	○
3	E-5	El Roken	1.7	250	350	M:4	○
4	E-6	Ariamon	8.9	2,500	4,000	M:32	○
5	W-5	El Moheet El Gharby	6.0	3,250	3,000	M:8	×
6	W-6	Abo Hamar	3.5	2,660	3,500	M:2	×
7	W-8	Manial Ismaeel	3.0	1,500	1,000	M:5	×
8	W-9	El Sherkah El Mostagadah	5.6	1,300	600	M:12	○
9	W-10	El Tarawy	5.0	1,200	800	0	×
10	W-14	El Koniesah	9.7	4,200	4,000	M:7	×

Source: JICA Project Team
Note: B: Branch Canal, M: Mesqa

2. Water Users Association

There are 5 WUAs at Branch canal level out of targeted 10 canals. Their activities and roles vary a great deal depending on size and major problems on the canals. According to the survey, WUAs on Mekhazan (E-4) and El Sherkah El Mostagadah (W-9) seem to be active compared to other associations. Table 2.4.1-3 shows the results of the condition of WUAs.

Table 2.1 Results of WUAs Survey

Code	E-1	E-4	E-5	E-6	W-9
Name of Canal	Marsa Al Gamal	Mekhazan	El Roken	Ariamon	El Sherkah El Mostagadah
Classification	Committee	Part of Abu Mustafa BCWUA	Part of Al MalahaBCWUA	Ariamon BCWUA	Part of Bahr Al Sheikh Ibrahim BCWUA
Establishment	2010	2005	2004	2003	2005
Board members	M:6, F:1	M:11, F:2	M:11, F:0	M:7, F:2	M:15, F:0
Internal Regulation	None	Yes	Yes	Yes	Yes
Main Activities	None	Rotation management	None	None	Conflict resolution
Regular meeting	None	Once a month	None	None	Once a month
Activeness	Not active	**Active**	Not active	Not active	**Very active**
Comments	There are no internal regulations and regular meetings.	The Association is active in problem solving and managing rotation on the canal.	There are no regular meetings and specific activities.	There are no regular meetings and specific activities.	The Association is very active and they have been involved in several projects.

Source: JICA Project Team
Note: M: Male, F: Female

Major findings are;

Size of the BCWUA varies from associations. BCWUAs on Mekhazan (E-4), El Roken (E-5), and El Sherkah El Mostagadah (W-9) canals consist of members from several different branch canals. For example, there is no WUA only for Mekhazan canals, but there is WUA on Abu Mustafa branch canal and Mekhazan is part of this Abu Mustafa canal. The situation is basically the same as El Roken (E-5) and el Sherkah El mostagadah (W-9).

The reason for this situation is that there is only one control gate in this area; thus, these areas are regarded as one irrigation area. The farmers' situation of these BCWUA integrated several canals and serving large areas seems to be more complicated than other BCWUA on small canals. As a result, interests of farmers are very different and situation of BCWUA will be more complicated.

In fact, water users committee on Marsa Al Gamal canal covers just only until 10km of the canal and rest of 7km is not included in the committee. The reason behind this is that farmers in tile area of the canal opposed to IIIMP and organize farmers association; hence, lower 7km of this canal excluded IIIMP and farmers association were not formed. This case indicates that farmers' interests are very different from areas and it is difficult to organize farmers' association which covers a large area.

On the other hand, variety of farmers' interests makes WUAs more active. According to the results of the survey, BCWUAs on Mekhazan and El Sherkah El Mostagadah are active. They have a regular meeting. Also, main activities of these BCWUAs are problem solving and rotation management; whereas members of other non-active BCWUAs (Marsa Al Gamal, and El Roken, Ariamon) told that they do not have regular meetings and any specific activities.

This situation indicates that interests of members in Mekhazan and El Sherkah El Mostagadah vary depending on areas. For example, water shortage situation is different between upper areas and tail areas on the canals due to extensiveness of these BCWUAs. Therefore, they need to discuss and coordinate among members problems such as water conflict and cropping adjustment. Whereas there

is no water shortage in upper area of Marsa Al Gamal canal (E-1). They mentioned that they do not need to have a regular meeting because there are not many problems need to be discussed.

Not only the WUAs, but also are there farmers organizations along the canals. Community Development Association (CDA) is one of the most major civil associations in rural areas. Table 2.4.1-4 summarizes community associations found in the survey canals. Main activities of these CDAs are to distribute bread, provide microfinance services for women and poultry, and collect garbage. Some of associations collect money from villagers to do these activities. In addition to CDAs, there are some local NGOs in El Moheet El Gharby Canal (W-5) and El Sherkah El Mostagadah (W-9).

Table 2.2 Community Organizations

No	Site code	Irrigation Canal	WUA	CDA	Other Organizations
1	E-1	Marsa Al Gamal	○	○	-
2	E-4	Mekhazan	○	○	-
3	E-5	El Roken	○	○	-
4	E-6	Ariamon	○	○	-
5	W-5	El Moheet El Gharby	×	×	・Zakat Committee ・Al Orman NGO
6	W-6	Abo Hamar	×	○	-
7	W-8	Manial Ismaeel	×	○	-
8	W-9	El Sherkah El Mostagadah	○	○	・Agricultural Development and Water Management NGO
9	W-10	El Tarawy	×	○	-
10	W-14	El Koniesah	×	×	-

Source: JICA Project Team

Active people and key persons in the areas seem to involve in these community activities. It is one of the practical ways for WUAs or farmers groups to work with these community organizations to get the whole community involved in activities like environmental campaign and cleaning operation on the canals.

3. Organic Fertilizer and Agricultural Wa The following tables show input application and their treating way of agricultural waste.

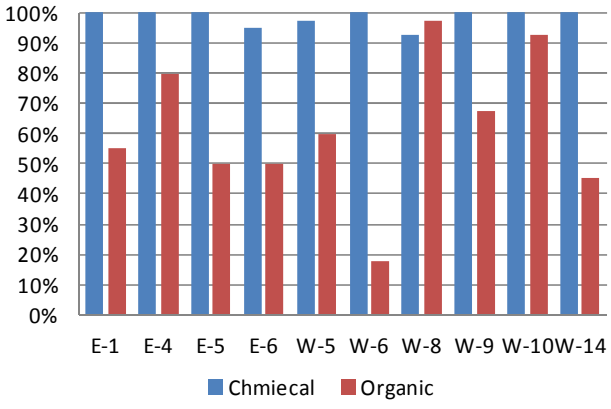


Figure 3.1 Input Applications

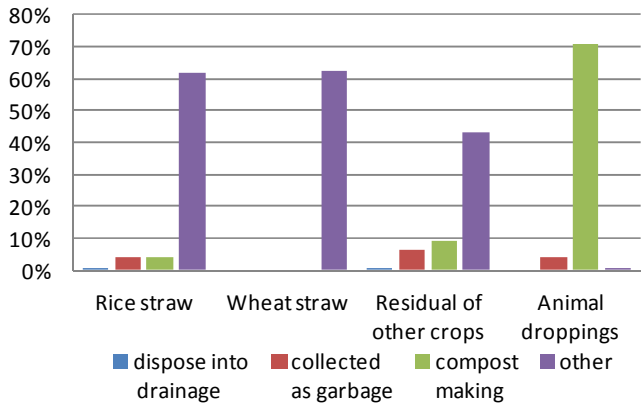


Figure 3.2 Agricultural Waste Treating

Source: JICA Project Team

Almost all farmers use chemical fertilizers for their farming. Most famers answered that they use 'Urea', 'Nitrates', 'Super phosphate', and 'Sulphate'. On the other hand, application of organic fertilizer is very different in each area. Only 20% of Farmers in Abo Hamar Canal (W-6) applies organic fertilizers; while more than 80% of farmers use organic fertilizers in Mekhazan (E-4), Manial Ismaeel (W-8), and El Tarawy (W-10).

Regarding agricultural waste treating, the biggest number of answers is 'Other' for rice straw, wheat straw, and residual of crops. The answer of 'Other' includes burning, usage in home, and animal feed. Around 70% of responses are 'Compost making' in terms of animal drops treating. This implies that animal droppings are commonly used for compost making in the target canals. Also, no one answered that they dispose these agricultural waste into drainage.

4. Situation of Water Shortage

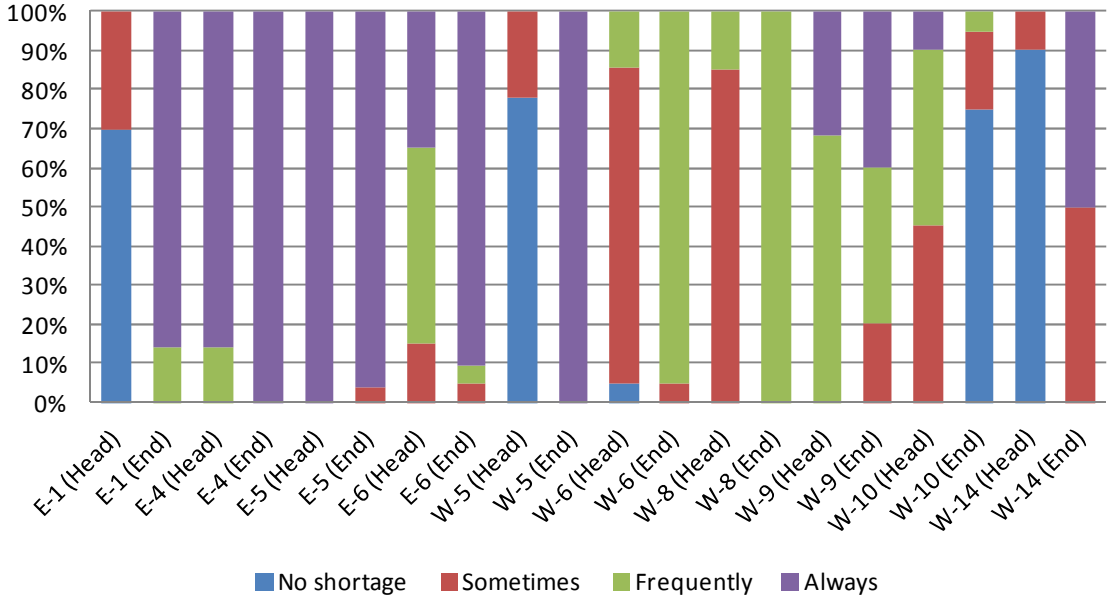


Figure 4.1 Water Shortage in Summer

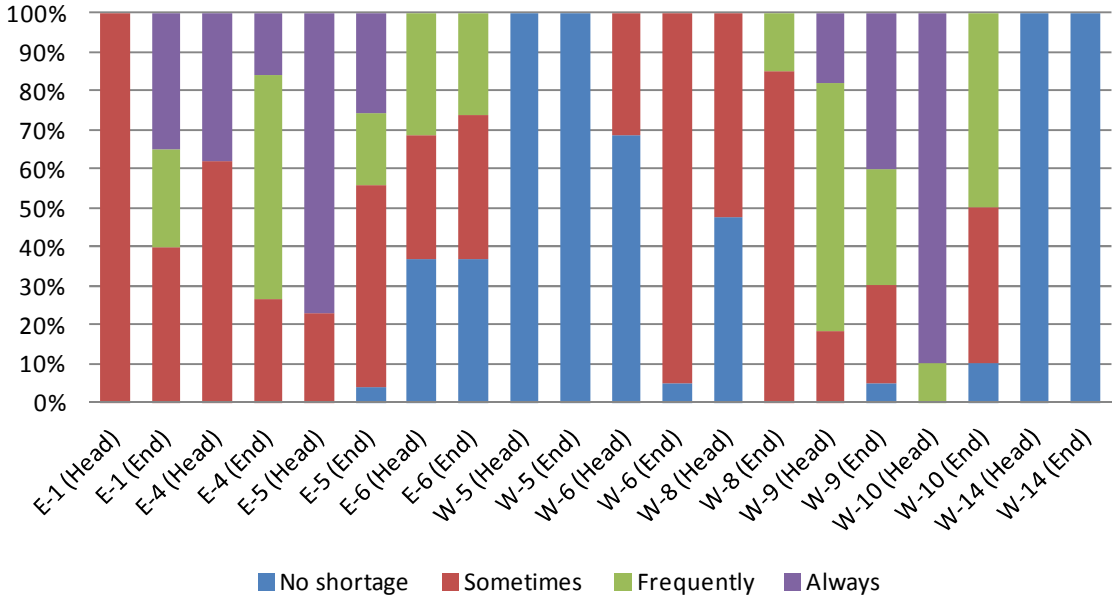


Figure 4.2 Water Shortage in Winter

Source: JICA Project Team

In all surveyed areas, there is water shortage in summer crop. However, situation of water shortage in some of the canals is different between tail areas and upper areas. For example, farmers in upper areas of Marsa Al Gamal (E-1), El Moheet El Gharby (W-5), and El Koniesah (W-14) answered that there is no water shortage even in summer crop. This means that water shortage is only a problem for farmers in tail area in these canals. In addition, all farmers in El Moheet El Gharby (W-5) and El Koniesah (W-14) told that there is no water shortage in winter crop; thus, water shortage problem in these areas seems to be limited.

By contrast, water shortage is a problem for the whole canals in Mekhazan (E-4), El Roken (E-5), Ariamon (E-6) because farmers in both tail and upper areas mentioned that water shortage happens 'Frequently' or 'Always'. Also, there is water shortage in both summer and winter in tail area of Marsa Al Gamal (E-1), Mekhazan (E-4), El Roken (E-5), and El Sherkah El Mostagadah (W-9). In short, water shortage is chronic problem in these areas.

5. Use of Drainage Water

In summer season, drainage water is used in all surveyed areas. Particularly, majority of farmers in Mekhazan (E-4), El Roken (E-5), El Moheet El Gharby (W-5), and El Sherkah El Mostagadah (W-9) depend on drainage water more than 20% of their total water usage in summer season. However, drainage water usage in winter is limited even in Mekhazan (E-4) and El Roken (E-5) where there is water shortage in winter season as well. It assumes that summer crops such as rice and cotton demand more water than corps in winter such as wheat and berseem.

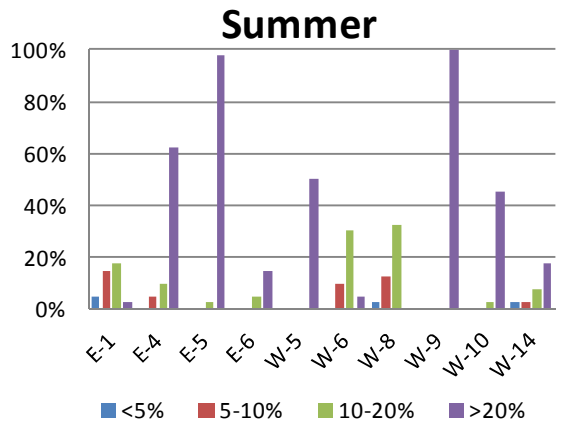


Figure 5.1 Drainage Water Usage in Summer

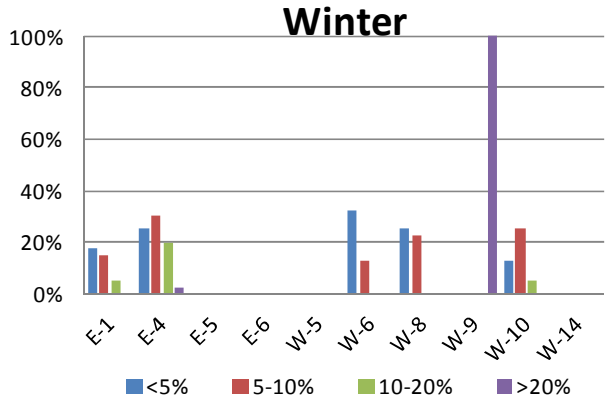


Figure 5.2 Drainage Water Usage in Winter

Source: JICA Project Team

6. Farmers' Awareness of Drainage Water Use

In this Social Condition Survey, farmers' concerns about drainage water explored. Main concern of drainage water usage is naturally water quality. Nearly 75% of farmers answered that they concerned about water quality. They also worried about adverse effect on their crops.

The following concern is "Other" with 11%. Most of the answers "Other" is about impact on health. In fact, more than 30% of total sample farmers mentioned that they or their family

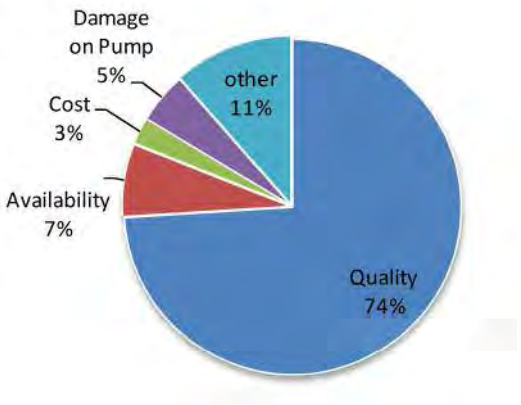


Figure 6.1 Concerning of Drainage Water

members had schistosomiasis disease in the past year. This survey revealed that farmers seem to tend to associate drainage water with their health problems.

Concerns of each canal are shown as Figure 2.4.2-8. Particularly, farmers in Ariamon (E-6) and El Moheet El Gharby (W-5) pay more attention to health problems than that in other canals. Also, main concern of Farmers in Abo Hamar (W-6) is about drainage water availability rather than health problems except water quality problem.

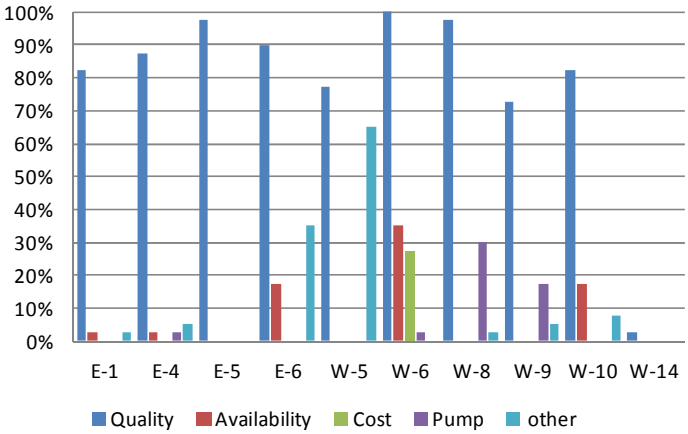


Figure 6.2 Concerning of Drainage Water Usage by Sites

7. Maintenance and Operation of Drainage Re-use Pump

Most of the farmers think that drainage re-use pump should be maintained and operated by the governmental officers. This is because existing drainage pumps are managed by the government in general; hence, farmers regard management of drainage pumps as a role of the government. However, majority of farmers in Abo Hamar (W-6) and Manial Ismaeel (W-8) agree that farmers' group operate and maintain drainage pumps. Besides, the main concerns of drainage water usage in these areas (see Figure 2.4.2-8) are water availability, cost, and damage on pumps. These are obviously different from other canals. This means that farmers in these areas are self motivated and they seem to be willing to involve in the management of drainage pumps.

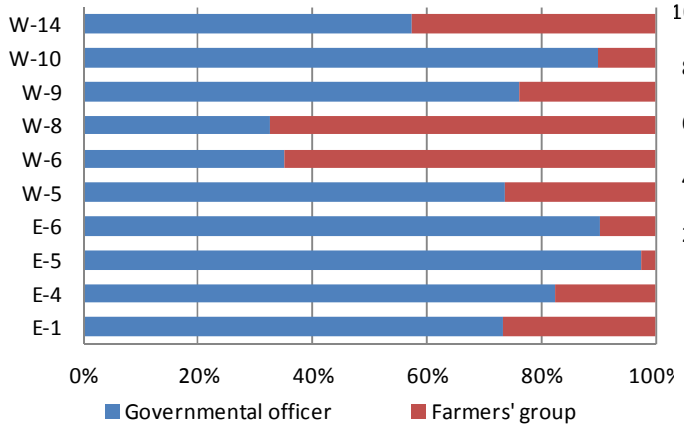


Figure 7.1 Responsibility for Drainage Pump

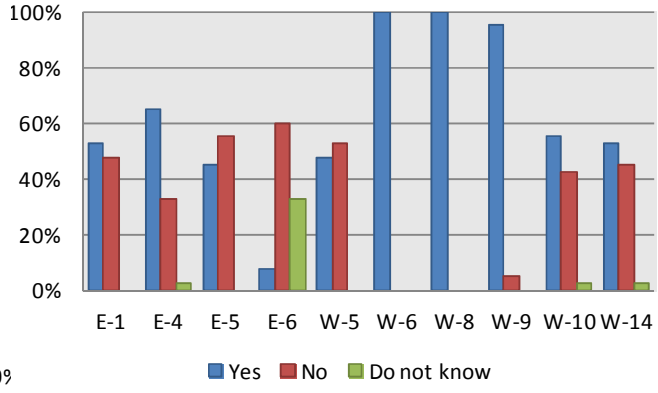


Figure 7.2 Willingness to Pay for Drainage Pump

Source: JICA Project Team

The number of farmers who agree to share operation cost of drainage pump and the number of farmers who do not agree to share the cost are approximately half in most canals. Farmers who agree to manage drainage pumps (see Figure 2.4.2-9) also agree to share the operation cost of drainage pumps. Figure 2.4.2-10 clearly shows that almost all farmers in Abo Hamar (W-6) and Manial Ismaeel (W-8) answered that they will agree to pay maintenance and operation cost of drainage pumps if the government install them. This result also supports that farmers in Abo Hamar (W-6) and Manial Ismaeel (W-8) are active to involve in the management of drainage pumps.

On the contrary, situation of water shortage in Marsa Al Gamal (E-1), El Moheet El Gharby (W-5), and El Koniesah (W-14) is different between upper areas and tail areas, and their interests in drainage

water pumps also vary. Therefore, the answer of willingness to pay for drainage pump operation is also divided in these canals.

8. Farmers' Awareness of Rural Sewage

The result of awareness survey on rural sewage is very different from each surveyed site. Farmers' concerning about cost in Marsa Al Gamal (E-1), Mekhazan (E-4), El Roken (E-5) is relatively higher that other areas. The reason for this is that farmers in Marsa Al Gamal (E-1), Mekhazan (E-4), El Roken (E-5), and part of Ariamon (E-6) have already been imposed charge for sewage treatment.

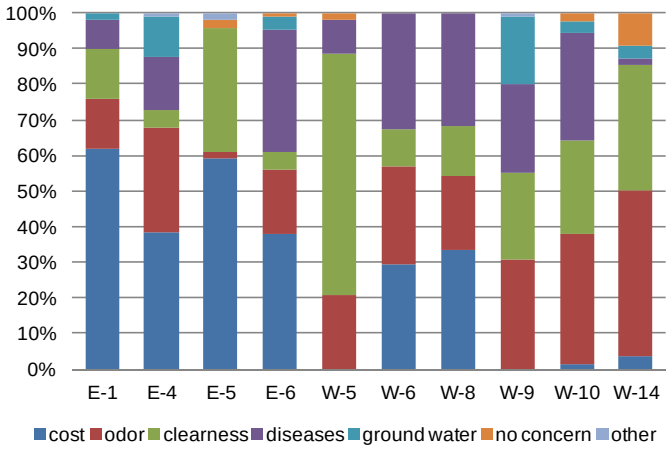


Figure 8.1 Concerning of Domestic Sewage
Source: JICA Project Team

Concerning of odor and diseases is high in the areas with farmers who do not pay any charge for sewage treatment. People on El Moheet El Gharby (W-5) are particularly interested in "clearness". It seems that people in this area have awareness of the importance of clean environment.

9. Farmers' Awareness of Sewage Treatment Facility

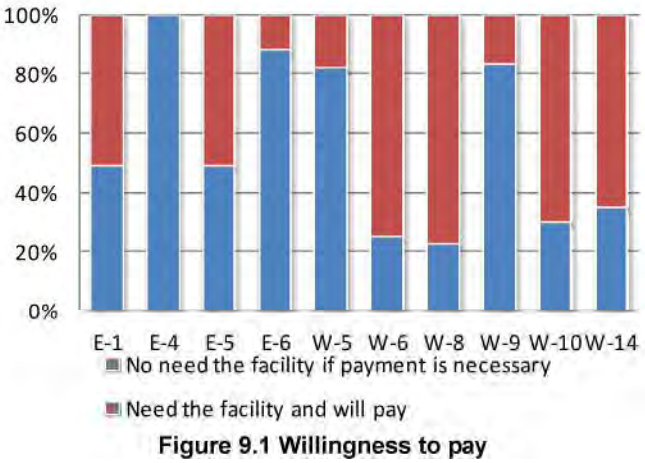


Figure 9.1 Willingness to pay

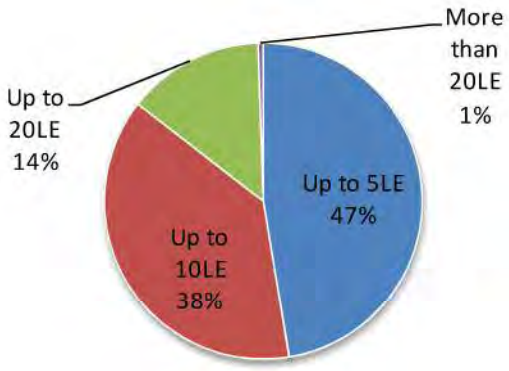


Figure 9.2 Amount of Willingness to pay

Source: JICA Project Team

With regard to willingness to pay for sewage treatment facility, there is a huge difference among the sites. Famers in Abo Hamar (W-6), Manial Ismaeel (W-8), El Tarawy (W-10), and El Koniesah (W-14) show willingness to pay for the sewage treatment facility; by contract, farmers in Mekhazan (E-4), Ariamon (E-6), and El Moheet El Gharby (W-5) disagree to pay for the facility.

One of the difference between these areas is concerning of diseases in terms of domestic sewage. For example, Abo Hamar (W-6), Manial Ismaeel (W-8), El Tarawy (W-10) shows stronger concerning of diseases than that of Mekhazan (E-4) and El Moheet El Gharby (W-5). It is difficult to conclude with limited number of samples; yet, concerning of diseases might be one of the aspects for farmers' willingness to pay for sewage treatment facility.

Up to5LE is the highest percentage of the willingness to pay with 47%. The following is up to 10LE

with 38%. In other words, farmers will be able to pay around 5 to 10 LE. It seems to be difficult to charge farmers more than 10LE as operation cost of sewage treatment facility.

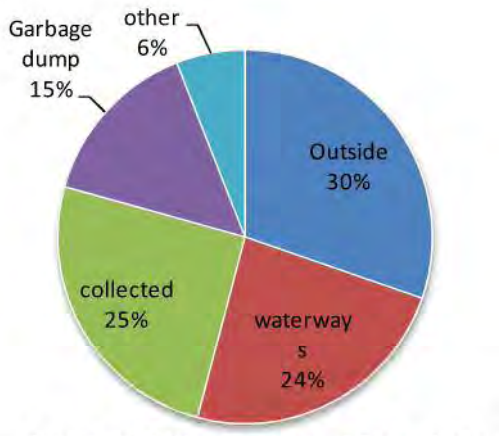


Figure 10.1 Disposal Way of Solid Waste

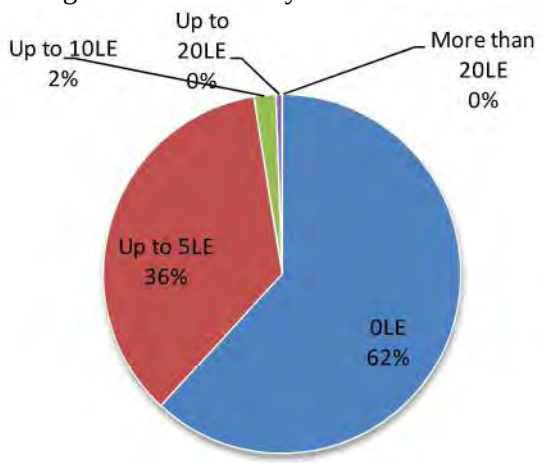


Figure 10.2 Cost of Solid Waste Disposal

Source: JICA Project Team

10. Situation of Solid Waste Treatment

Majority of answers of solid wasete are to dispose outside or waterways. Only one fourth of the total samples dispose solid waste by collection. Thus, most of farmres do not pay any cost for solid waste disposal. Only few villages have garbage collectio system, and farmers in these villages are charged up to 5LE in most cases. it assumes that demand of solid waste disposal system and willingness to pay are lower compared to the willingness to pay for sewage traetment facility.

11. Farm Economy

(1) Questionnaire Survey at Head and Tail of the Irrigation Canal

As mentioned above, the questionnaire survey was carried out to the farmers whose farmland is located at head (upper part) and tail (lower part) of the irrigation canal to grasp the production situation, particularly stress against water shortage along the canal. Here to examine the farm economy, the data were analyzed by location, namely head and tail of the canal.

(2) Farm Size and Crop Area

Table below summarizes the farming area, cropping intensity, share of cropped area by crop of the sample households in head and tail of each irrigation canal. The average farming areas of total sample households in the head and tail are 2.70 feddan and 2.35 feddan respectively. The total average cropping intensities in the head and tail are both as high as 198%, while the cropping intensity in the tail of W-6 is low, which may indicate the acute water stress in the tail of the canal. In summer crop season, rice occupies around 60% followed by cotton with around 30% and maize with 7%. In some canals, share of rice is higher in he tail than head, but there is no significant difference between head and tail. In winter crop season, wheat is thr major crop with the share of 45% to 49%. Sugar beet crop has been prevalent in Kafr El Sheikh and the share of it in the sample households reaches around 27% of winter crop.

Table 11.1 Cropping Pattern of the Sample Households (by Site and Location)

Site	Canal and Length	Category	Ave. Area (fed)	Share of Crop (%) in 2011									% of sample re-using water
				CI (%)	Summer				Winter				
					Rice	Maize	Cotton	Other	Wheat	Berseem	Sugar beet	Nile Maize	
E-1	Marsa Al Gamal 17.0 km	Head	3.24	200	60	15	22	0	49	22	29	0	39
		Tail	2.54	199	66	11	23	0	46	13	41	0	
E-4	Mekhazan 5.2 km	Head	2.46	200	55	18	27	0	46	33	19	2	80
		Tail	1.73	199	49	19	40	0	48	18	30	4	
E-5	El Roken 1.7 km	Head	1.88	194	59	11	30	0	41	14	45	0	100
		Tail	1.68	195	69	5	26	0	48	23	27	2	
E-6	Ariamon 8.9 km	Head	1.58	197	86	7	7	0	32	11	57	0	20
		Tail	2.15	202	87	4	9	0	36	21	43	0	
W-5	M. Belshasha El Gharby 6.0 km	Head	2.19	199	52	7	40	0	43	18	39	0	50
		Tail	2.27	210	53	4	43	0	45	17	37	1	
W-6	Abo Hamar 3.5 km	Head	4.89	192	61	0	39	0	53	22	25	0	45
		Tail	2.98	165	65	4	31	0	38	29	33	0	
W-8	Manial Ismaeel 3.0 km	Head	3.48	197	58	8	34	0	66	26	1	7	48
		Tail	3.11	227	57	20	23	0	31	28	3	19	
W-9	El Sherkah El Mostagadah 5.6 km	Head	1.88	196	44	0	56	0	40	33	28	0	100
		Tail	2.13	201	66	2	32	0	45	23	32	0	
W-10	El Tarawy 5.0 km	Head	2.95	200	59	2	39	0	50	31	19	0	48
		Tail	1.84	192	70	0	30	0	58	36	6	0	
W-14	El Koniesah 9.7 km	Head	2.43	203	68	0	32	0	71	27	2	0	50
		Tail	3.03	193	61	0	39	0	59	28	13	0	
	Average	Head	2.70	198	60	7	33	0	49	24	26	1	58
		Tail	2.35	198	64	7	30	0	45	24	27	3	

(3) Crop Yield

Average unit yield of the crops in the head and tail sample households are estimated to examine whether the water shortage or water quality issues of drainage water re-use would clearly occur in the difference of productivity of the crops between the locations. It is assumed that the productivity in the head location should be higher than the tail since they could more easily secure irrigation water than the tail.

Table below summarizes the average unit yield by crop in the head and tail of each canal (no. of data for maize was not enough to verify). In the 6 canals out of 10, the average unit yields of rice and wheat showed higher rate in the head. As for sugar beet, the yield in head is higher in 5 canals out of 9 and cotton shows the most significant difference as the yield of head was higher in 9 canals out f 10. In total average, unit yield in the head is higher than the tail for all the crops. The difference of the total average unit yield between head and tail is 8% for rice, 20% for cotton, 3% for wheat and 5% for sugar beet. It corresponds to the assumption that the water requirement in summer is high and the difference may become higher in summer. As for rice, the yield gap between head and tail showed more than 20% in 4 canals.

Table 11.2 Unit Yield by Crop and Location

Site	Canal and Length	Category	Ave. Yield (2009 - 2011) (t/fed)				% of sample re-using
			Rice	Cotton	Wheat	Sugar beet	
E-1	Marsa Al Gamal 17.0 km	Head	2.68	1.03	1.73	15.89	39
		Tail	2.63	0.89	1.42	18.05	
E-4	Mekhazan 5.2 km	Head	2.13	1.00	1.51	17.12	80
		Tail	1.73	0.86	1.50	15.45	
E-5	El Roken 1.7 km	Head	2.01	0.84	1.07	12.94	100
		Tail	2.17	1.10	1.38	15.26	
E-6	Ariamon 8.9 km	Head	3.09	1.53	2.21	20.22	20
		Tail	3.13	1.43	2.42	20.55	
W-5	M. Belshasha El Gharby 6.0 km	Head	3.79	1.34	2.49	24.33	50
		Tail	3.10	0.98	1.94	19.56	
W-6	Abo Hamar 3.5 km	Head	2.48	1.17	1.49	20.10	45
		Tail	2.05	0.75	1.22	18.15	
W-8	Manial Ismaeel 3.0 km	Head	2.93	1.39	1.64	18.36	48
		Tail	2.70	1.12	1.68	20.17	
W-9	El Sherkah El Mostagadah 5.6 km	Head	2.15	1.08	1.42	16.78	100
		Tail	2.21	1.07	1.49	15.20	
W-10	El Tarawy 5.0 km	Head	2.75	1.21	1.75	17.90	48
		Tail	1.81	0.85	1.69	14.67	
W-14	El Koniesah 9.7 km	Head	2.88	1.25	1.38	-	50
		Tail	2.98	1.01	1.25	14.48	
	Average	Head	2.68	1.19	1.63	18.44	58
		Tail	2.48	0.99	1.59	17.62	

For the canals in which the average yield in the tail is higher than the head, the difference is in a short range. The fact that the canal length of E-5 is 1.7km, much shorter than the other ones and also 1005 of sample households practice water re-use may contribute to higher productivity in the tail in this canal. For E-6, this canal (Ariamon) has two intakes at its upper part and lower part from the main canal (Mit Yazed). Water shortage is found actually in the middle part of the canal. This situation may have influenced the result of the survey.

(4) Farm Income

Based on the farming area, cropping intensity, share of crops of the total average sample households in the head and tail of the canals, the farm income level of each location was estimated. Farm-gate price of each crop and the income ratio were estimated from the field investigation by the Study Team and also reference to the statistics of the Ministry of Agriculture and Land Reclamation. The yield level of the sample households is significantly lower than the governorate average except for cotton. This may be due to that fact that the survey sites were selected as the severe water deficit area and also farmers would have been anxious about the survey and reported to the interviewer with lower state of their standard. Also in the recent years, the farm-gate price of rice and cotton are getting low.

With these backgrounds in mind, the income level of the sample farmers would come to lower side. The average annual net incomes of the sample farm households in the head and tail are estimated at LE13,800 and 10,500LE respectively. Net income per feddan is hence calculated at LE5,100 in the head and LE4,500 in the tail.

Table 11.3 Estimation of Farm Income of the Sample Households

Item	Category	Summer			Winter				Total
		Rice	Maize	Cotton	Wheat	Berseem	Sugar beet	Nile maize	
Share (%)	Head	60	7	33	49	24	26	1	
	Tail	64	7	30	45	24	27	3	
Area (fed)	Head	1.62	0.18	0.88	1.32	0.64	0.71	0.02	
	Tail	1.51	0.16	0.69	1.07	0.55	0.62	0.06	
Unit Yield (t/fed)	Head	2.68	3.00	1.19	1.63	40.00	18.44	3.00	
	Tail	2.48	2.50	0.99	1.59	39.02	17.62	2.50	
Price (LE/t)	Head	2,000	1,500	6,300	1,700	55	270	1,500	
	Tail	2,000	1,500	6,300	1,700	55	270	1,500	
Gross Income (LE)	Head	8,706	826	6,594	3,671	1,407	3,546	109	24,858
	Tail	7,482	606	4,331	2,879	1,188	2,958	229	19,673
Income Ratio (%)	Head	61	54	41	44	89	67	54	
	Tail	58	45	36	43	87	66	45	
Net Income (LE)	Head	5,310	446	2,704	1,615	1,252	2,376	59	13,762
	Tail	4,340	273	1,559	1,238	1,034	1,952	103	10,498

Category	Cultivated Area (fed)	Net Income (LE)	N. Income / fed (LE)
Head	2.70	13,762	5,101
Tail	2.35	10,498	4,475

12. Household Survey

(1) Outline of the Household Survey

The Household Survey conducted to grasp social and economic situation of Khamseem hamlet which is one of the potential sites for construction of sewage tratement facility. The Survey carried out with questionnaire survey targeting 24 household. The purpose of the questionnaire is to collect the informaiton about current sitaution of sewage treatment, residential awareness of sewage treatment, willingnes to pay for the facility, and awareness of facility management.

(2) Outline of Khamseem hamlet

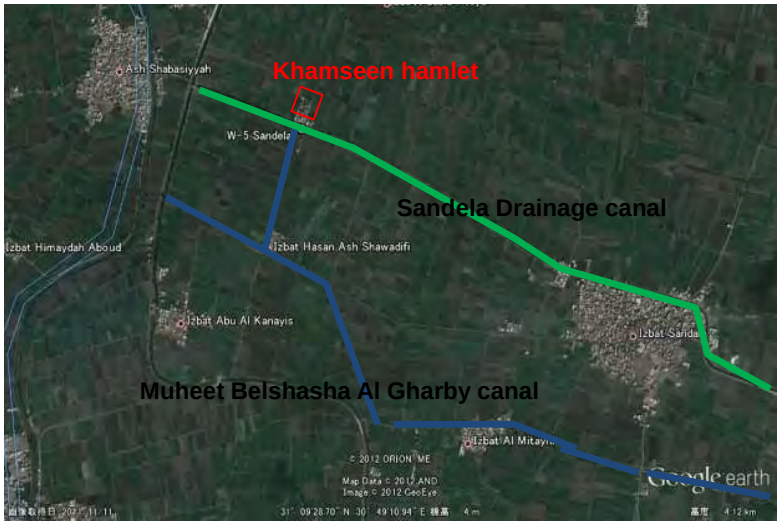


Figure 12.1 Map of Khamseem hamlet

Khamseem hamlet is located along Sandela drainage canal. Khamseem is a sub-vilalge of Sandela Village which is located in the upper area of the drainge canal. Most of the villagers have farm land along Muheet Belshasha Al Gharby canal, and most of them are working in agricutlural sector.

The area of the hamelt is about 12,830m2, and it has about 50 houses and 100 household. Population is about 450 people and average family members of one household is 4.5 members. This hamlet is residential village so that there are no commercial activities, no groceries ,schools, and hospitals in the hamlet. There are only two mosques and houses.

Drinking water is a major problem in this hamlet. Villagers get drinking water pipes connected with Sandela Village; however, water reaches the hamlet only twice a week. The villagers usally use tanks for storing drinking water. There are three wells at depths of 14 to 20 meters. These wells use only for domestic usage, but not for drinking and cooking because of its high salinity.

This hamlet has sewage collection system. According to the villagers, they collected money from each villager and put ina sewage collection pipe around ten years ago. Collected sewage is not treated, and it dicharges directly into drainge canal. One villager is designated to maintain this sewage collectio system. Each household gives 19 kg of rice in the winter and 12.5 kg of wheat in the summer to this villager. Reparing pipes are also shared with villagers.

Although there are no offical organizations in the hamlet, chairman of this hamlet is elected by villagers every five-year. There are around 6 families in this hamlet. Albarsi family and Shaheb family are major families in the hamlet, and current chairman is also from Shaheb family. According to the governmental officers and villagers, there are no conflicts between famlies in the hamlet and social condition seems to be very stable.

(2) Samples

Age		Gender		Education			
>40	<40	Male	Female	R&W	School	None	University
16	8	18	6	5	3	15	1

The household survey carried out to 24 household. 8 household out of 24 is more than age 40 and 8 are less than 40. Also, 6 female household head are included in the survey. Educational level is not high. Only one villager graduated University and most of them are non educated.

(3) Awareness of Sewage Treatment

All the surveyed villagers answered that they concern about diseases in terms of sewage treatment. It appeas that villagers has strong concerning about health problems. Also, around 80% of the villagers in this survey mentioned "Odor" and "Clearness" as their major concerns.

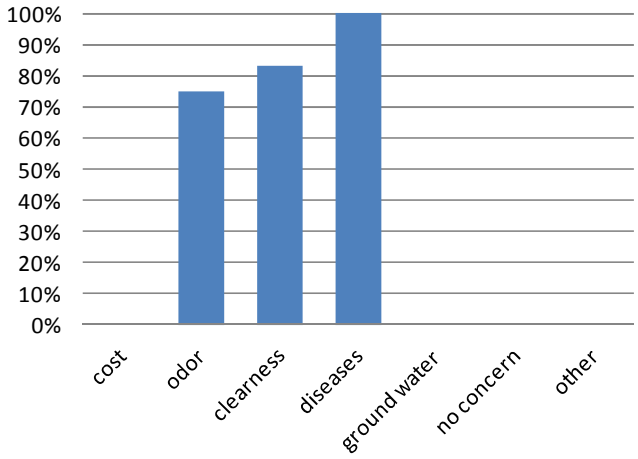


Figure 12.2 Concerning of Sewage Treatment

Sewage in this hamlet discharges directly into the drainage without any treatment. Therefore, no one concers about cost of treatment and effect on ground water.

In this household survey, willingness to pay for the sewage treatment facility has also studied. As a result, all 24 villagers agreed to pay operation and maintainace cost. 29% of the villagers answered that they accept the cost up 5LE and 63% of the villagers answered up to 10LE. The survey revealed that maroity of villagers agrre to pay up to 10LE, they do not pay any cost for sewage treatment at this moment, though.

(4) Awareness of Solid Waste Treatment

There is no garbage collection system in the hamelet. Villagers just throw their solid waste away outside of houses or dispose into the drainage canal. They also do not pay any charge forsolid waste. According to the interviews, villagers hope clearn environment, and yet they do not show posititive reaction of cost sharing about solid waste management.

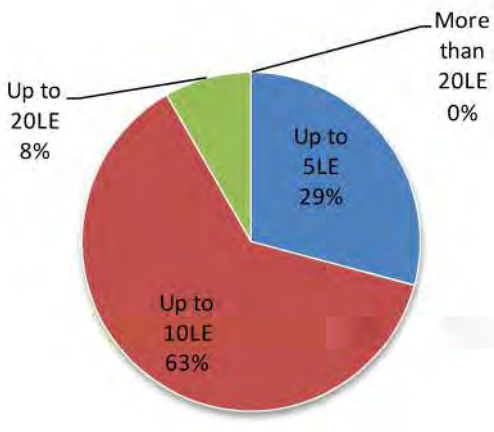


Figure 12.3 Amount of Willingness to Pay

(5) Household Expediture

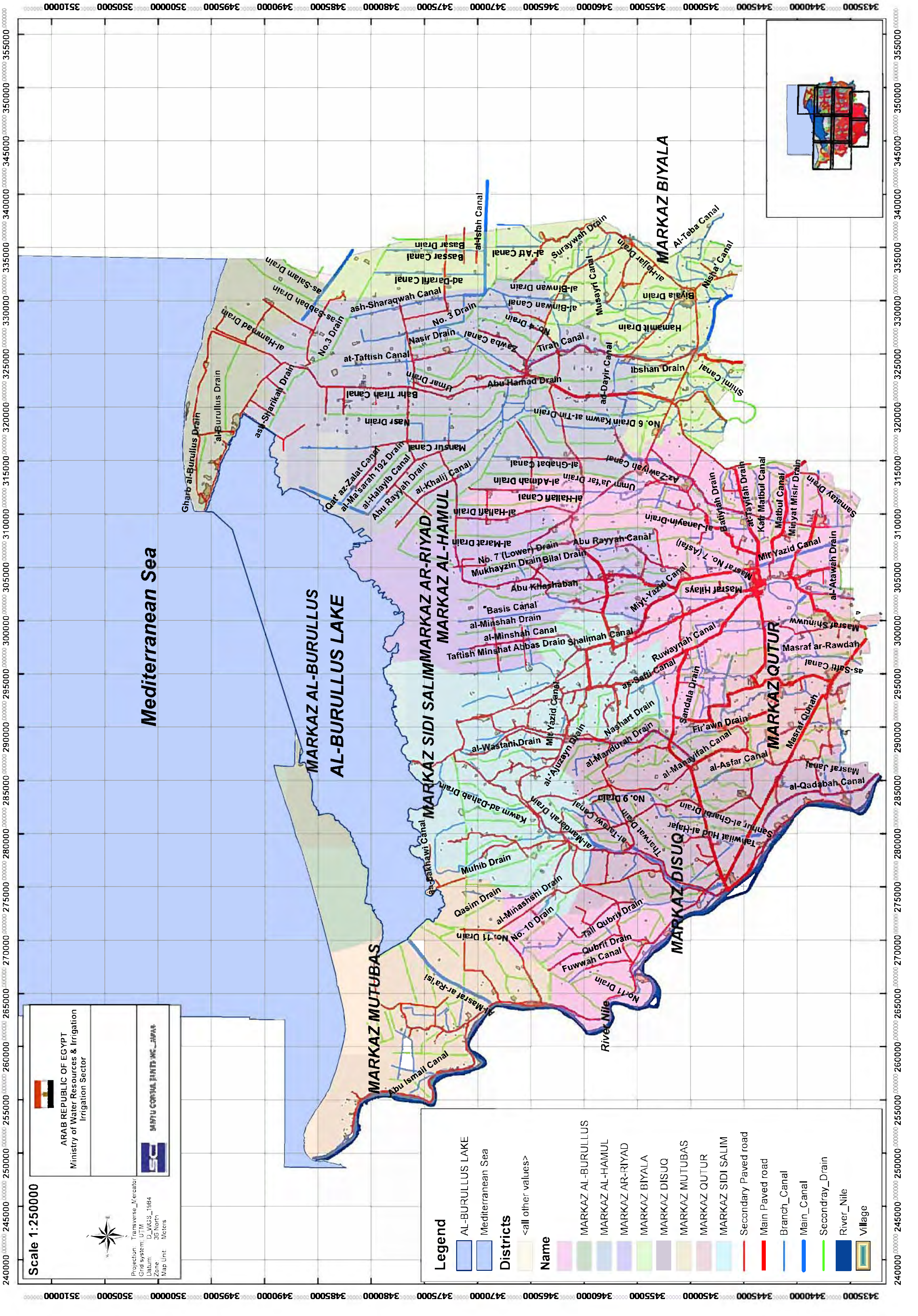
Expediture of most household ranges from 800 to 1,500LE per month. Only two villagers identified with spending more than 2,000 LE in a month. Minium amont is 510LE and Maxium expediture is 2,105LE. A meidan of monthly expediture is 1,185LE.

Food expenses occupied the most within the monthly expediture. Half of the household spend 40% to 60% of the total monthly expediture as food expenses. Although electrosical charge varies from 20LE to 70LE, 20LE appears the most often in a set of numbers. This is around 1% to 4% of total monthly expediture. Most household pay 10LE to 20LE per month as water expense, and more than

70% of the sample vilagers pay 10LE for water charge every month.

As mentioned, villager appears to accept around 10LE as a cost of sewage treatment facility. From the view point of household expediture, 10LE is only around 1% of total monthly expediture so that result of household expedirure also supports villagers' willingness to pay for the facility.

Appendix-F GIS Maps


Mediterranean Sea
MARKAZ AL-BURULLUS
AL-BURULLUS LAKE
MARKAZ SIDI SALIM
MARKAZ AR-RIYAD
MARKAZ AL-HAMUL
MARKAZ BIYALA
MARKAZ QUTUR
MARKAZ DISUQ
MARKAZ MUTUBAS
River Nile
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Irrigation Sector
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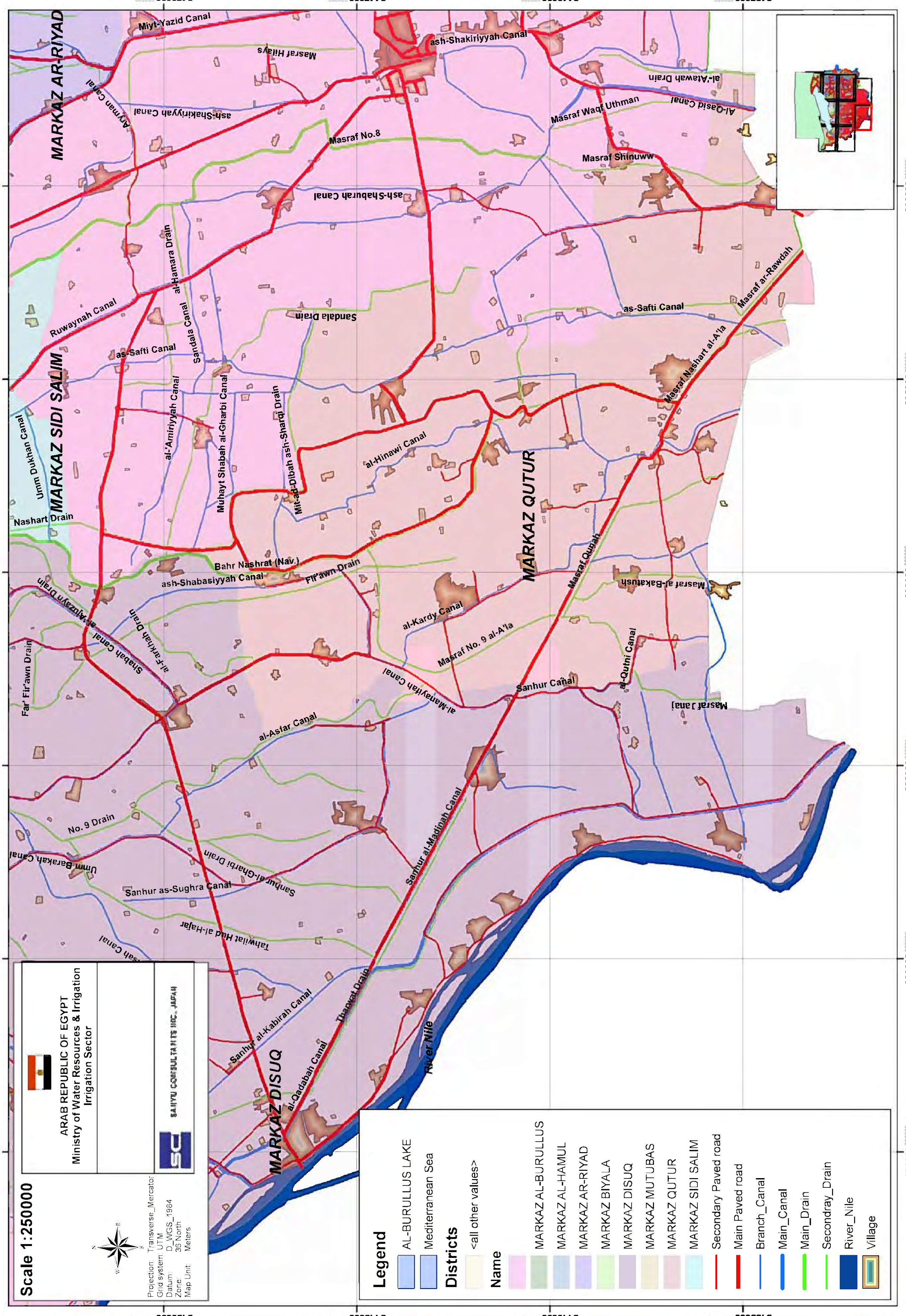
MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
MARKAZ BIYALA
MARKAZ DISUQ
MARKAZ MUTUBAS
MARKAZ QUTUR
MARKAZ SIDI SALIM
Secondary Paved road
Main Paved road
Branch_Canal
Main_Canal
Secondray_Drain
River_Nile
Village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Ministry of Water Resources & Irrigation
Irrigation Sector
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Map Unit Meters
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Mediterranean Sea
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MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
MARKAZ BIYALA
MARKAZ DISUQ
MARKAZ MUTUBAS
MARKAZ QUTUR
MARKAZ SIDI SALIM
Secondary Paved road
Main Paved road
Branch_Canal
Main_Canal
Main_Drain
Secondaray_Drain
River_Nile
Village
MARKAZ AR-RIYAD
MARKAZ SIDI SALIM
MARKAZ QUTUR
MARKAZ DISUQ
Miyt-Yazid Canal
Masraf Hilays
ash-Shakiriyyah Canal
Ayman Canal
Masraf No.8
ash-Shaburah Canal
al-Atawah Drain
Al-Qasid Canal
Masraf Waqf Uthman
Masraf Shinuww
al-Hamara Drain
Ruwaynah Canal
Sandala Canal
Sandala Drain
as-Safti Canal
Masraf ar-Rawdah
Masraf Nashart al-A'la
Umm Dukhan Canal
al-'Amiriyyah Canal
Muhayt Shabah al-Gharbi Canal
Mit-ad-Dibah ash-Sharqi Drain
al-Hinawi Canal
Nashart Drain
Bahr Nashrat (Nav.)
ash-Shabasiyyah Canal
Fir'awn Drain
Masraf Qunah
Masraf al-Bakatush
al-Kardy Canal
Masraf No. 9 al-A'la
Far' Fir'awn Drain
Shabah Canal
al-Farkhah Drain
al-Manayifah Canal
Sanhur Canal
al-Qutni Canal
Masraf Janaj
al-Asfar Canal
No. 9 Drain
Umm Barakah Canal
Sanhur al-Gharbi Drain
Sanhur as-Sughra Canal
Sanhur al-Madinah Canal
Tahwilat Hud al-Hajar
Sanhur al-Kabirah Canal
Thawrat Drain
al-Qadabah Canal
River Nile
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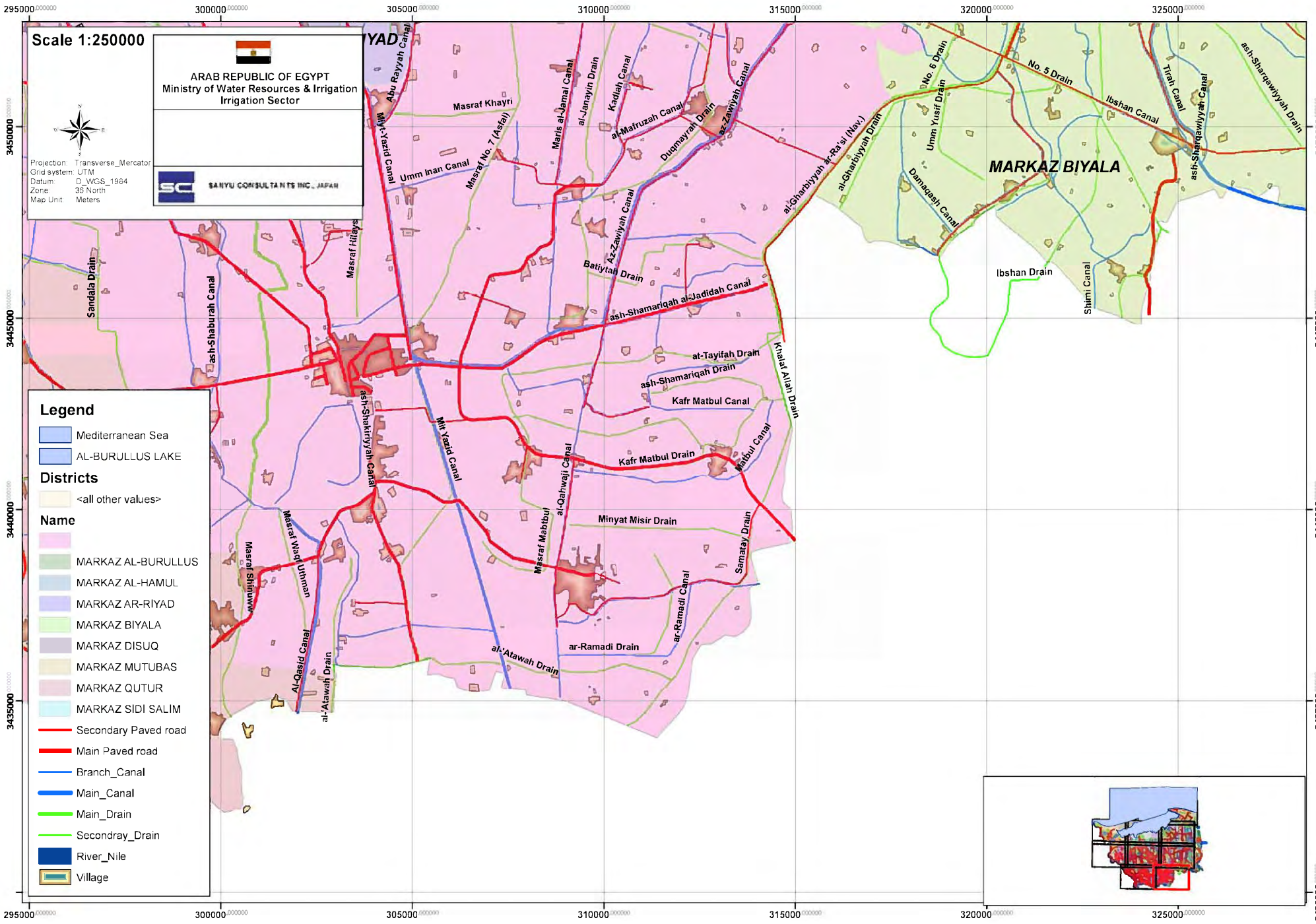
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Ministry of Water Resources & Irrigation
Irrigation Sector
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Datum: D_WGS_1984
Zone: 35 North
Map Unit: Meters
MARKAZ BIYALA
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Mediterranean Sea
AL-BURULLUS LAKE
Districts
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Name
MARKAZ AL-BURULLUS
MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
MARKAZ BIYALA
MARKAZ DISUQ
MARKAZ MUTUBAS
MARKAZ QUTUR
MARKAZ SIDI SALIM
Secondary Paved road
Main Paved road
Branch_Canal
Main_Canal
Main_Drain
Secondray_Drain
River_Nile
Village
Abu Rayyah Canal
Masraf Khayri
Mit Yazid Canal
Umm Inan Canal
Masraf No. 7 (Asfal)
Maris al-Jamal Canal
al-Janayin Drain
Kadiah Canal
al-Mafruzah Canal
Duqmayrah Drain
az-Zawiyah Canal
al-Gharbiyyah ar-Ra'si (Nav.)
al-Gharbiyyah Drain
No. 6 Drain
Umm Yusif Drain
No. 5 Drain
Ibshan Canal
Tirah Canal
ash-Sharqawiyyah Canal
ash-Sharqawiyyah Drain
Damaqash Canal
Ibshan Drain
Shimi Canal
Sandala Drain
ash-Shaburah Canal
Masraf Hilays
Batiytah Drain
Az-Zawiyah Canal
ash-Shamariqah al-Jadidah Canal
at-Tayifah Drain
ash-Shamariqah Drain
Kafr Matbul Canal
Khalaf Allah Drain
ash-Shakiriyyah Canal
Mit Yazid Canal
al-Qahwaji Canal
Kafr Matbul Drain
Matbul Canal
Minyat Misir Drain
Masraf Mabtbul
Samatay Drain
Masraf Shinuwy
Masraf Waqf Uthman
Al-Qasid Canal
al-'Atawah Drain
ar-Ramadi Canal
ar-Ramadi Drain
al-'Atawah Drain
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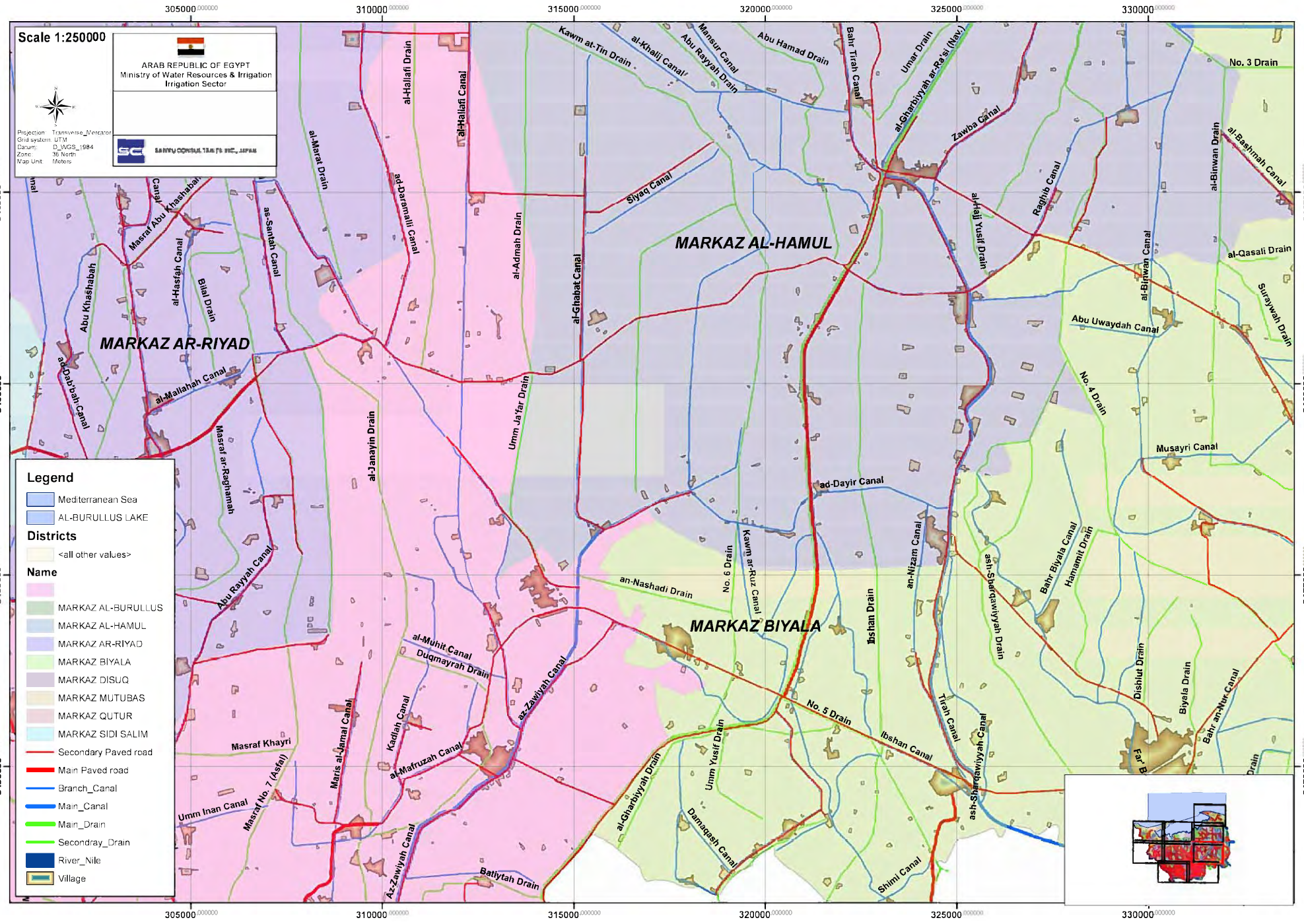
App-F 3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MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
MARKAZ BIYALA
MARKAZ DISUQ
MARKAZ MUTUBAS
MARKAZ QUTUR
MARKAZ SIDI SALIM
Secondary Paved road
Main Paved road
Branch_Canal
Main_Canal
Main_Drain
Secondray_Drain
River_Nile
Village
MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
MARKAZ BIYALA
Kawm at-Tin Drain
al-Khalij Canal
Mansur Canal
Abu Rayyah Drain
Abu Hamad Drain
Bahr Tirah Canal
Umar Drain
al-Gharbiyyah ar-Ra'si (Nav.)
Zawba Canal
No. 3 Drain
al-Bashmah Canal
al-Binwan Drain
al-Hallafi Drain
al-Hallafi Canal
al-Marai Drain
ad-Daramalli Canal
Siyaq Canal
al-Admah Drain
al-Ghabat Canal
al-Haji Yusif Drain
Raghib Canal
al-Binwan Canal
al-Qasali Drain
Surayiwah Drain
Abu Uwaydah Canal
No. 4 Drain
Musayri Canal
ad-Dayir Canal
Kawm ar-Ruz Canal
No. 6 Drain
an-Nizam Canal
Bahr Biyala Canal
Hamamit Drain
ash-Sharqawiyyah Drain
Ibshan Drain
Dishlut Drain
Biyala Drain
Bahr an-Nur Canal
Tirah Canal
No. 5 Drain
Ibshan Canal
ash-Sharqawiyyah Canal
Umm Yusif Drain
al-Gharbiyyah Drain
Damaqash Canal
Shimi Canal
an-Nashadi Drain
Umm Ja'far Drain
al-Janayin Drain
Masraf ar-Raghamah
Abu Rayyah Canal
al-Muhit Canal
Dugmayrah Drain
az-Zawiyah Canal
Kadlah Canal
al-Mafruzah Canal
Maris al-Jamal Canal
Masraf Khayri
Masraf No. 7 (Asfal)
Umm Inan Canal
Az-Zawiyah Canal
Batiytah Drain
Abu Khashabah Canal
Masraf Abu Khashabah
al-Hasfah Canal
Bilal Drain
as-Santah Canal
ad-Dabi'ah Canal
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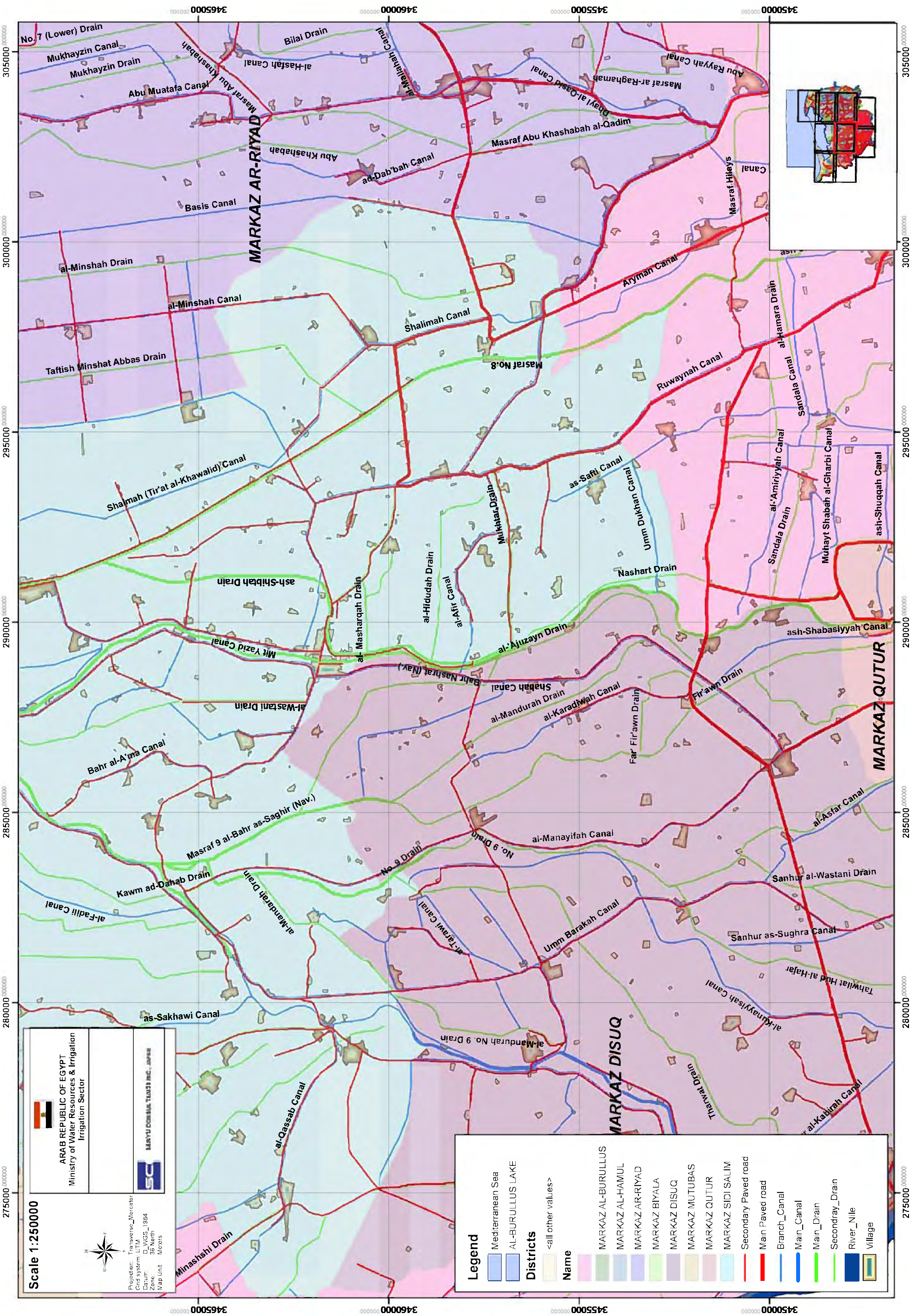
App-F 4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Irrigation Sector
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MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
MARKAZ BIYALA
MARKAZ DISUQ
MARKAZ MUTUBAS
MARKAZ QUTUR
MARKAZ SIDI SALIM
Secondary Paved road
Main Paved road
Branch_Canal
Main_Canal
Main_Drain
Secondray_Drain
River_Nile
Village
MARKAZ AR-RIYAD
MARKAZ QUTUR
MARKAZ DISUQ
No. 7 (Lower) Drain
Mukhayzin Canal
Mukhayzin Drain
Abu Muatafa Canal
Bilai Drain
al-Hastah Canal
Basis Canal
al-Minshah Drain
al-Minshah Canal
Taftish Minshat Abbas Drain
Shalmah (Tir'at al-Khawalid) Canal
ash-Shiblah Drain
Mit Yazid Canal
al-Wastani Drain
Bahr al-A'ma Canal
Masraf 9 al-Bahr as-Saghir (Nav.)
Kawm ad-Dahab Drain
al-Fadlil Canal
as-Sakhawi Canal
al-Qassab Canal
Minashshi Drain
Shalimah Canal
Masraf No.8
Aryman Canal
Ruwaynah Canal
as-Safti Canal
Umm Dukhan Canal
Nashart Drain
al-Hidudah Drain
al-Afir Canal
al- Masharqah Drain
al-'Ajuzayn Drain
Bahr Nashrat (Nav.)
Shabah Canal
al-Mandurah Drain
al-Karadiwah Canal
Far Fir'awn Drain
Fir'awn Drain
No. 9 Drain
al-Manayifah Canal
al-Mandarah Drain
Umm Barakah Canal
al-Tarawi Canal
al-Mandurah No. 9 Drain
Tharwat Drain
ash-Shabasiyyah Canal
al-Asfar Canal
Sanhur al-Wastani Drain
Sanhur as-Sughra Canal
Tahwilat Hud al-Hajar
al-Kunayyisah Canal
al-Kabirah Canal
Sandala Drain
Sandala Canal
al-'Amiriyyah Canal
Muhayt Shabah al-Gharbi Canal
ash-Shuqqah Canal
al-Hamara Drain
Masraf Hileys
Masraf Abu Khashabah al-Qadim
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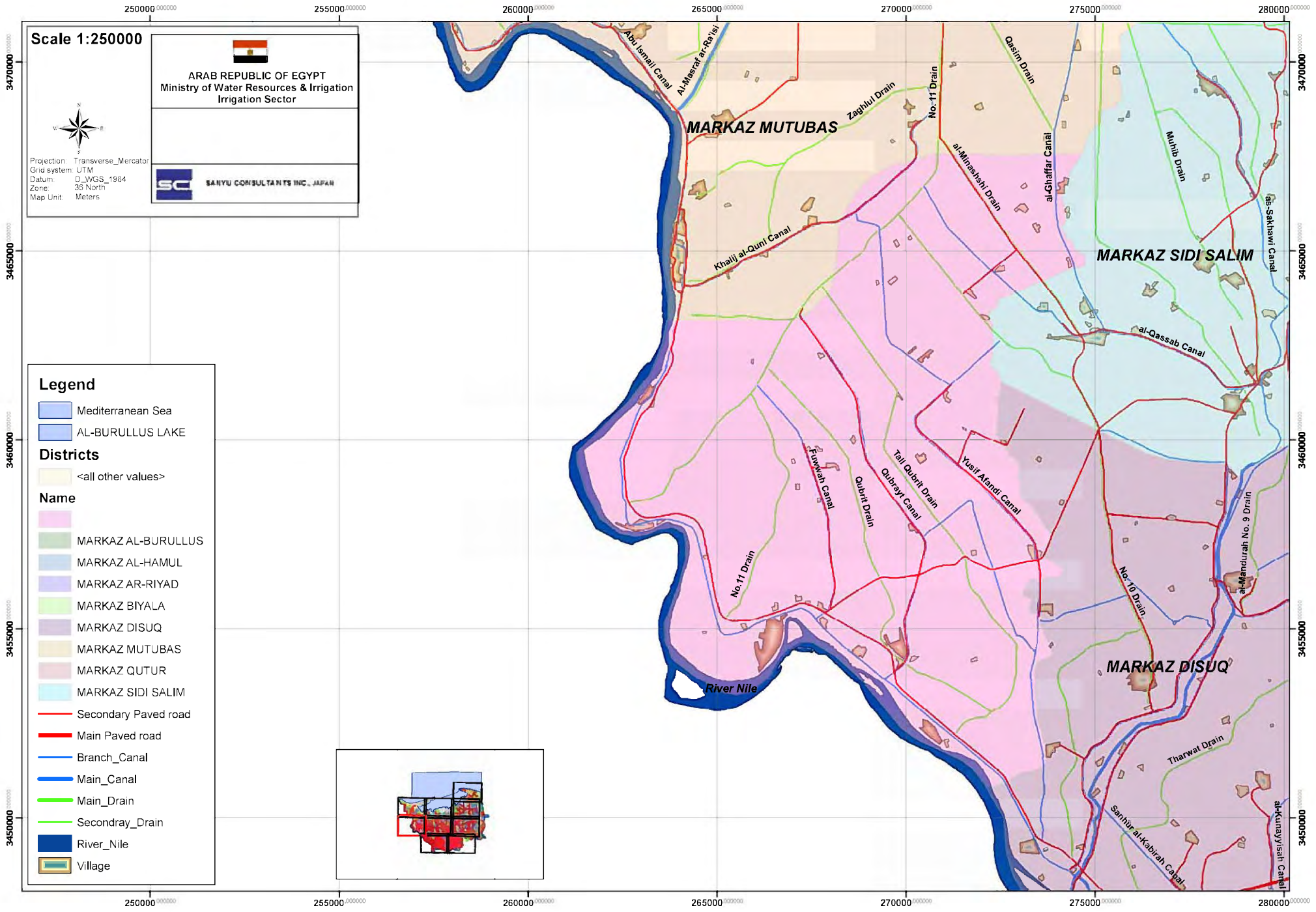
Abu Khashabah
Masraf ar-Raghamah
Abu Rayyah Canal
Masraf Abu Khashabah
Mukhtar Drain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Districts
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MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
MARKAZ BIYALA
MARKAZ DISUQ
MARKAZ MUTUBAS
MARKAZ QUTUR
MARKAZ SIDI SALIM
Secondary Paved road
Main Paved road
Branch_Canal
Main_Canal
Main_Drain
Secondray_Drain
River_Nile
Village
MARKAZ MUTUBAS
MARKAZ SIDI SALIM
MARKAZ DISUQ
River Nile
Abu Ismail Canal
Al-Masraf ar-Ra'isi
Zaghlul Drain
No.11 Drain
Qasim Drain
al-Ghaffar Canal
Muhib Drain
as-Sakhawi Canal
al-Minashshi Drain
Khalij al-Quni Canal
al-Qassab Canal
Fuwwah Canal
Qubrit Drain
Qubrayt Canal
Tall Qubrit Drain
Yusif Afandi Canal
No.11 Drain
No.10 Drain
al-Mandurah No. 9 Drain
Tharwat Drain
Sanhur al-Kabirah Canal
al-Kunayyisah Canal
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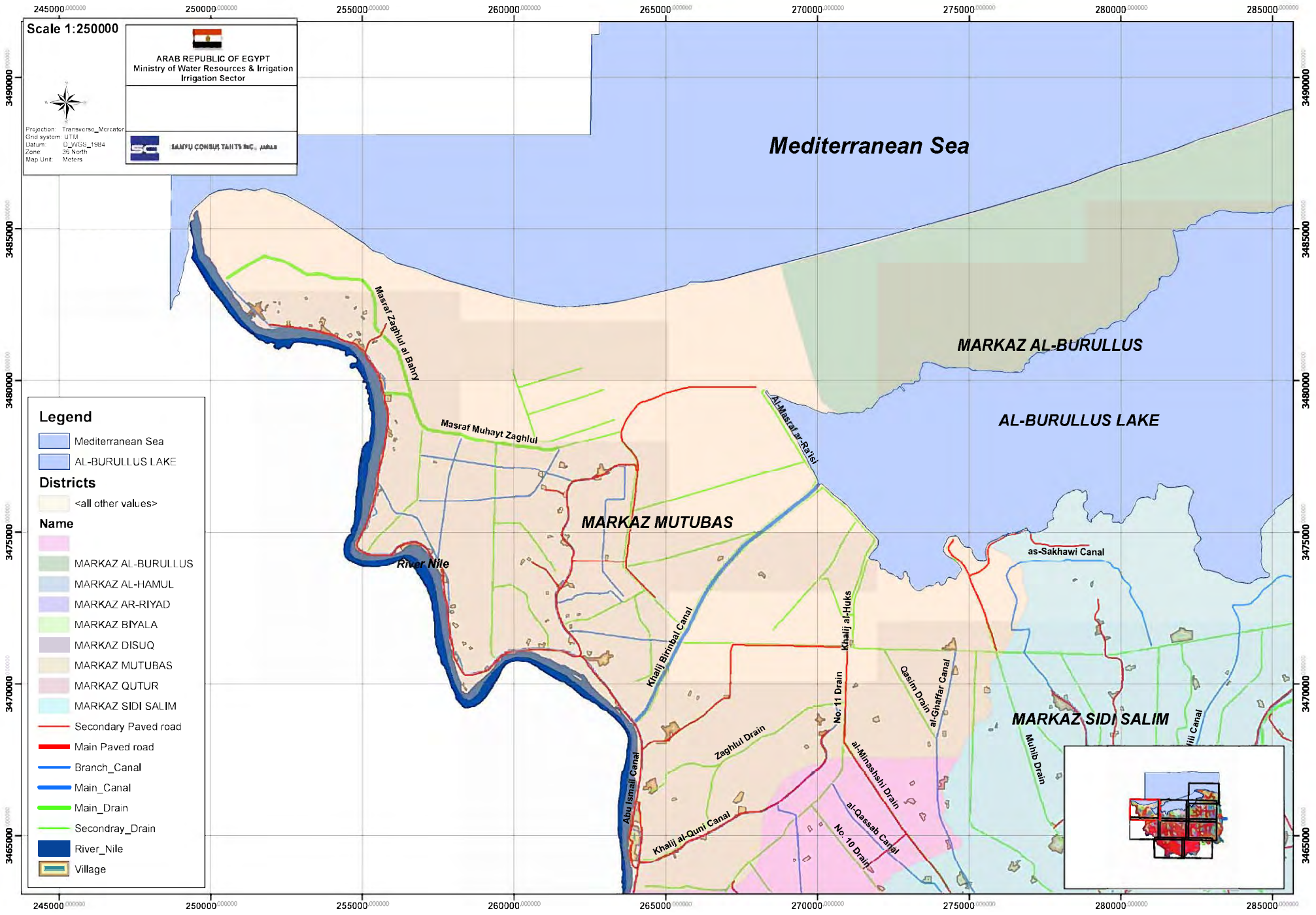
App-F 6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Irrigation Sector
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AL-BURULLUS LAKE
MARKAZ MUTUBAS
MARKAZ SIDI SALIM
River Nile
Masraf Zaghlul al Bahry
Masraf Muhayt Zaghlul
Al-Masraf ar-Ra'isi
Khalij Birinbal Canal
Khalij al-Huks
No. 11 Drain
Oasim Drain
al-Ghaffar Canal
as-Sakhawi Canal
Zaghlul Drain
Abu Ismail Canal
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Khalij al-Quni Canal
No. 10 Drain
Muhib Drain
Legend
Mediterranean Sea
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Districts
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MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
MARKAZ BIYALA
MARKAZ DISUQ
MARKAZ MUTUBAS
MARKAZ QUTUR
MARKAZ SIDI SALIM
Secondary Paved road
Main Paved road
Branch_Canal
Main_Canal
Main_Drain
Secondray_Drain
River_Nile
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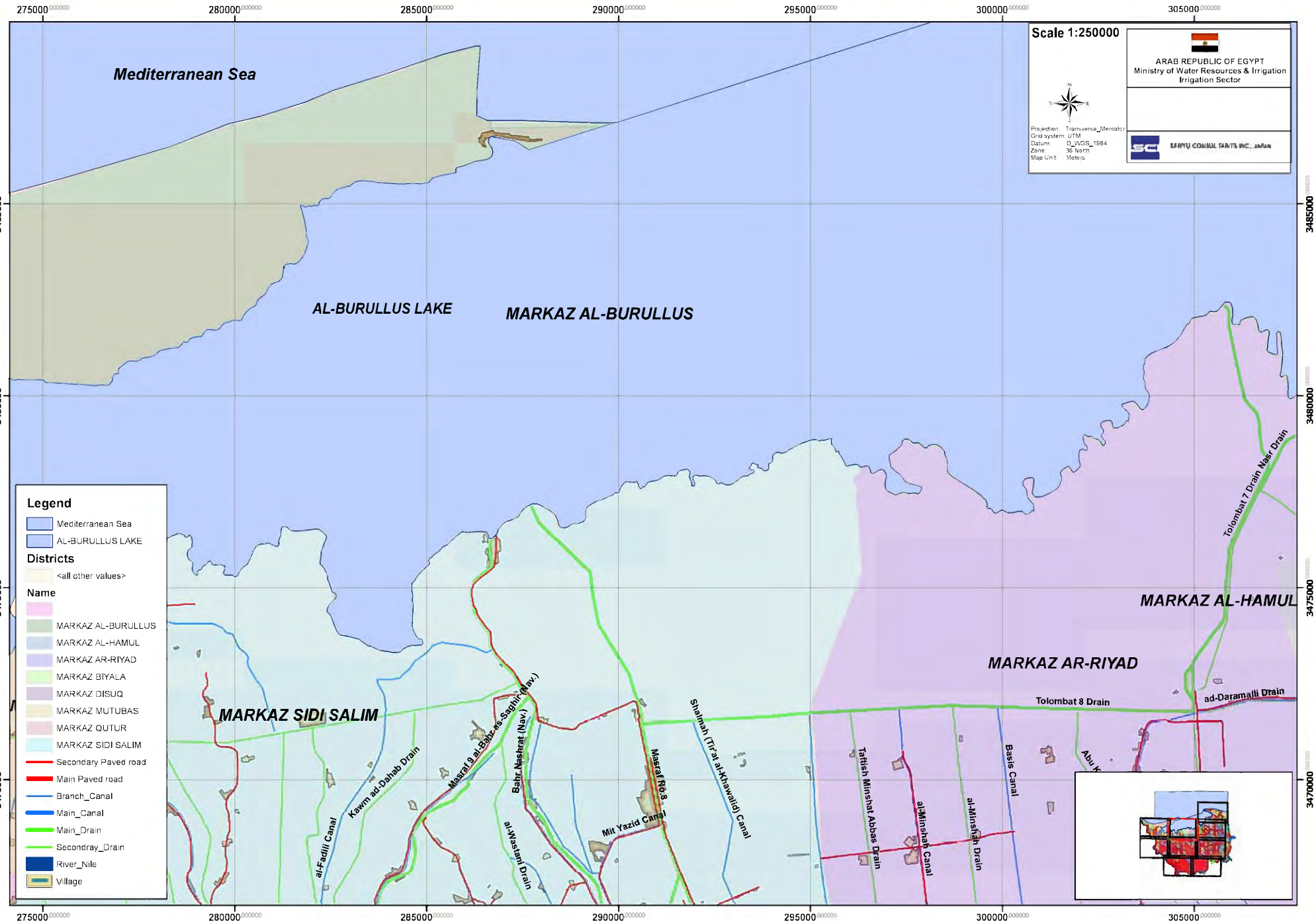
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Irrigation Sector
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AL-BURULLUS LAKE
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MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
MARKAZ SIDI SALIM
Legend
Mediterranean Sea
AL-BURULLUS LAKE
Districts
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MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
MARKAZ BIYALA
MARKAZ DISUQ
MARKAZ MUTUBAS
MARKAZ QUTUR
MARKAZ SIDI SALIM
Secondary Paved road
Main Paved road
Branch_Canal
Main_Canal
Main_Drain
Secondray_Drain
River_Nile
Village
Tolombat 7 Drain Nasr Drain
Tolombat 8 Drain
ad-Daramalli Drain
Shalmah (Tir'at al-Khawalid) Canal
Masraf 9 al-Bahr as-Saghir (Nav.)
Bahr Nashrat (Nav.)
Masraf No.8
Mit Yazid Canal
al-Wastani Drain
al-Fadili Canal
Kawm ad-Dahab Drain
Taftish Minshat Abbas Drain
al-Minshah Canal
al-Minshah Drain
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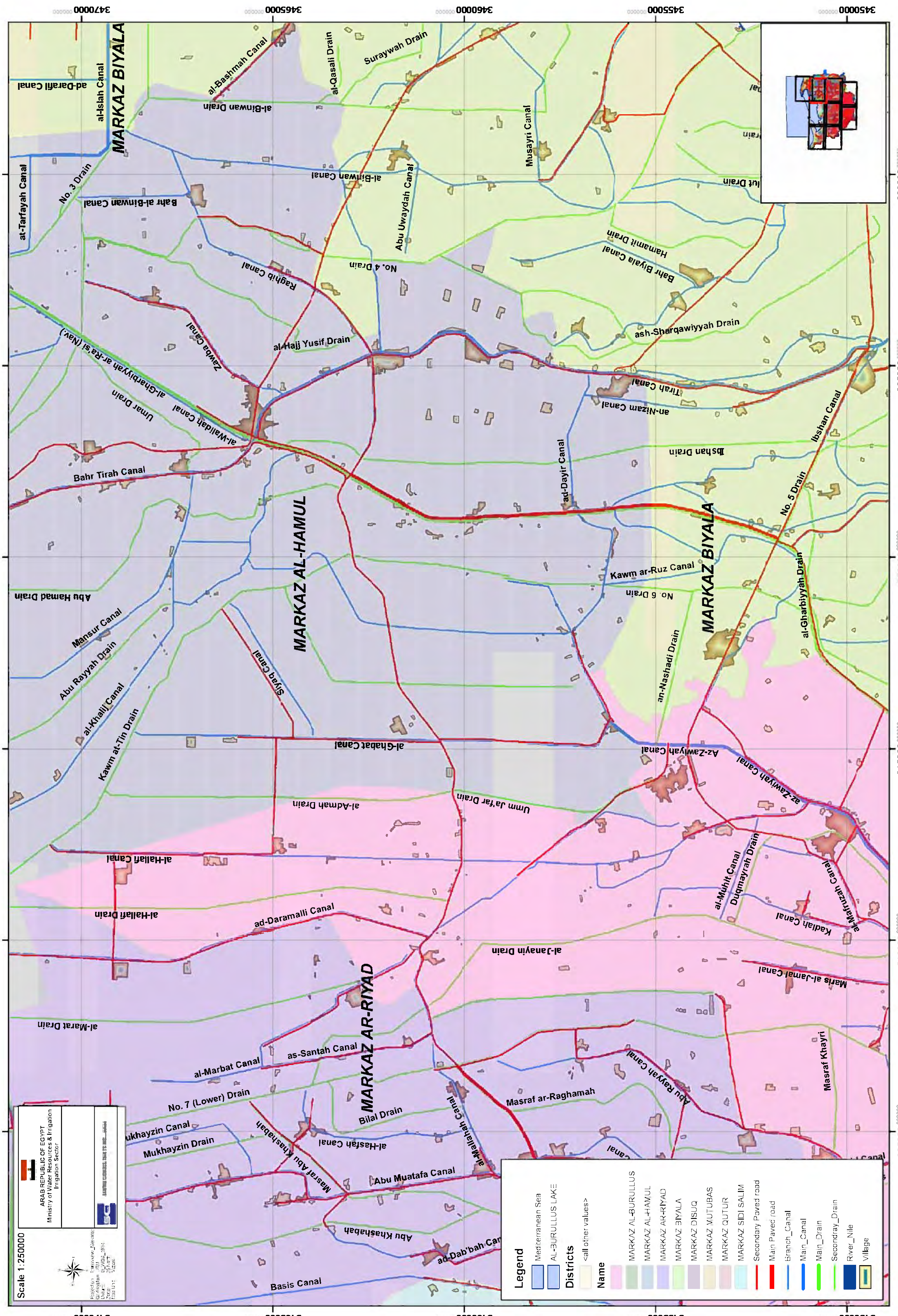
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MARKAZ AR-RIYAD
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al-Qasali Drain
Suraywah Drain
at-Tarfayah Canal
No. 3 Drain
Bahr al-Binwan Canal
al-Binwan Canal
Abu Uwaydah Canal
Musayri Canal
Hamamil Drain
Bahr Biyala Canal
No. 4 Drain
Raghib Canal
Zawba Canal
al-Hajj Yusif Drain
al-Gharbiyyah ar-Ra'si (Nav.)
ash-Sharqawiyyah Drain
Tirah Canal
an-Nizam Canal
Umar Drain
al-Walidah Canal
Ibshan Drain
Ibshan Canal
Bahr Tirah Canal
ad-Dayir Canal
No. 5 Drain
Kawm ar-Ruz Canal
No. 6 Drain
al-Gharbiyyah Drain
Abu Hamad Drain
Mansur Canal
Abu Rayyah Drain
al-Khalij Canal
Siyag Canal
an-Nashadi Drain
Kawm at-Tin Drain
al-Ghabat Canal
Az-Zawiyah Canal
az-Zawiyah Canal
al-Admah Drain
Umm Ja'far Drain
al-Hallafi Canal
al-Muhit Canal
Duqmayrah Drain
al-Matruzah Canal
al-Hallafi Drain
ad-Daramalli Canal
Kadiah Canal
al-Janayin Drain
Maris al-Jamal Canal
al-Marat Drain
Masraf Khayri
al-Marbat Canal
as-Santah Canal
Abu Rayyah Canal
No. 7 (Lower) Drain
Masraf ar-Raghamah
Bilal Drain
Mukhayzin Canal
Mukhayzin Drain
al-Hasfah Canal
Masraf Abu Khashabah
al-Mallahah Canal
Abu Muatafa Canal
Abu Khashabah
ad-Dab'bah Canal
Basis Canal
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MARKAZ AL-HAMUL
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MARKAZ BIYALA
MARKAZ DISUQ
MARKAZ MUTUBAS
MARKAZ QUTUR
MARKAZ SIDI SALIM
Secondary Paved road
Main Paved road
Branch_Canal
Main_Canal
Main_Drain
Secondray_Drain
River_Nile
Village
Scale 1:250000
ARAB REPUBLIC OF EGYPT
Ministry of Water Resources & Irrigation
Irrigation Sector


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Ministry of Water Resources & Irrigation
Irrigation Sector
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MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
AL-BURULLUS LAKE
Gharb al-Burullus Drain
ar-Rub' Drain
al-Burullus Drain
ash-Sharikah Drain
al-Hammad Drain
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Nasir Canal
Mansur Canal
Nasr Drain
No.3 Drain
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Mediterranean Sea
AL-BURULLUS LAKE
Districts
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MARKAZ AL-HAMUL
MARKAZ AR-RIYAD
MARKAZ BIYALA
MARKAZ DISUQ
MARKAZ MUTUBAS
MARKAZ QUTUR
MARKAZ SIDI SALIM
Secondary Paved road
Main Paved road
Branch_Canal
Main_Canal
Main_Drain
Secondray_Drain
River_Nile
Village

Appendix-G List of Villages and Status of Wastewater Treatment in Kafr El Sheikh Governorate

Appendix-G List of Villages and Sewarage Status of Kafr El Sheikh Governorate (As of 2012)
Data Dource: Holding Company for Water and Wastewater (HCWW)

District	Main village /Village	No	Population	Service attitude	Notes
Kafr Elsheikh	Abaadiat El Roda	1	2388	Under Implementation	FUNDED BY LOCAL DEVELOPMENT
Kafr Elsheikh	Abo Tamada	1	3695	Under Implementation	National Authority
Kafr Elsheikh	Adrega	1	2377	Under Implementation	National Authority
Kafr Elsheikh	Aryamon	1	8965	Only Network	
Kafr Elsheikh	Esehaka	1	8731	Only Network	
Kafr Elsheikh	Elbakhanees	1	1672	Only Network	
Kafr Elsheikh	El Hodood	1	840	Not Served	
Kafr Elsheikh	El Halaki	1	1571	Under Implementation	ISSIP WORLD BANK
Kafr Elsheikh	El Hamraa	1	4053	Only Network	
Kafr Elsheikh	El Khademiya	1	8666	Totally Served	
Kafr Elsheikh	El Khodary	1	1300	Only Network	
Kafr Elsheikh	El Shamarka	1	2763	Only Network	
Kafr Elsheikh	El Tayfa	1	3850	Only Network	
Kafr Elsheikh	El Trabyia	1	1301	Only Network	
Kafr Elsheikh	El Karda	1	6983	Only Network	
Kafr Elsheikh	El Kafer Elgedeed	1	4269	Under Implementation	FUNDED BY LOCAL DEVELOPMENT
Kafr Elsheikh	El Merabeen	1	6080	Only Network	
Kafr Elsheikh	El Nataaf	1	3971	Only Network	
Kafr Elsheikh	Beteeta	1	2559	Only Network	
Kafr Elsheikh	Belshasha	1	2337	Only Network	
Kafr Elsheikh	Halees	1	1460	Only Network	
Kafr Elsheikh	Defryiah	1	5293	Only Network	
Kafr Elsheikh	Dakalt	1	7087	Totally Served	
Kafr Elsheikh	Dekmirah	1	4558	Under Implementation	ISSIP WORLD BANK
Kafr Elsheikh	Rezket Elshennawy	1	3698	Only Network	
Kafr Elsheikh	Rezket Imamy	1	3385	Under Implementation	Holding Company
Kafr Elsheikh	Rowainah	1	9576	Only Network	
Kafr Elsheikh	Sidi Ghazy	1	14092	Totally Served	ISSIP WORLD BANK
Kafr Elsheikh	Sheno	1	5981	Under Implementation	National Authority
Kafr Elsheikh	Sandalah	1	4702	Only Network	
Kafr Elsheikh	Qraga	1	4472	Only Network	
Kafr Elsheikh	Kafer Abou Tabel	1	7251	Under Implementation	National Authority
Kafr Elsheikh	Kafer Elhamrawy	1	12053	Totally Served	
Kafr Elsheikh	Kafer Eltayfa	1	5000	Only Network	
Kafr Elsheikh	Kafer Elmerabeen	1	1509	Only Network	
Kafr Elsheikh	Kafer Elmanshi Elbahry	1	1372	Only Network	
Kafr Elsheikh	Kafer Dafryia	1	1571	Only Network	
Kafr Elsheikh	Kafer Asker	1	1125	Only Network	
Kafr Elsheikh	Kafer Matbool	1	5262	Only Network	
Kafr Elsheikh	Matbool	1	5563	Only Network	
Kafr Elsheikh	Mahalet El Kasab	1	9303	Only Network	
Kafr Elsheikh	Mahalet Mousa	1	5032	Under Implementation	National Authority
Kafr Elsheikh	Meseer	1	17091	Totally Served	
Kafr Elsheikh	Menyet Meseer	1	7429	Totally Served	
Kafr Elsheikh	Nasera	1	3995	Only Network	
Kafr Elsheikh	Menshat El Safaa	1	1315	Only Network	
Kafr Elsheikh	Mostafa Kamel (Eltawahna)	1	1392	Only Network	
Motobus	Ibianah	1	6101	Only Network	
Motobus	Elgezeera Elkhadraa	1	7807	Totally Served	
Motobus	Elqueny	1	5569	Only Network	
Motobus	Elqumsion Shark	1	1955	Totally Served	
Motobus	Elqumsion Gharb	1	1232	Totally Served	
Motobus	Bourg Meghazel	1	15445	Totally Served	
Motobus	Bortbal	1	11497	Only Network	
Motobus	Bridaah	1	1046	Totally Served	
Motobus	Bini Bakar	1	3174	Only Network	
Motobus	Ezbel Khaleeg	1	1091	Only Network	
Motobus	Ezbel Khaleeg Bahery	1	7148	Only Network	
Motobus	Ezbel Gharbe	1	1607	Totally Served	
Motobus	Ezbel Wakfe Bahery	1	4519	Not Served	
Motobus	Ezbel Wakfe Quibly	1	2747	Not Served	

District	Main village /Village	No	Population	Service attitude	Notes
Motobus	Ezbet Amero	1	4186	Only Network	
Motobus	Meadiet Mahdy wel Argan	1	1644	Not Served	
Motobus	Miniat Almorshed	1	14203	Totally Served	
Kaleen	Elbakatoosh	1	8502	Only Network	
Kaleen	Elshaqa	1	1827	Only Network	
Kaleen	Elghonamy	1	4791	Only Network	
Kaleen	Elkordy	1	1801	Only Network	
Kaleen	Elkafer Elbahery	1	3401	Only Network	
Kaleen	Elmanshat Elsoghra	1	3543	Only Network	
Kaleen	Elmanshat Elkobra	1	10852	Only Network	
Kaleen	Elmenshleen	1	4805	Only Network	
Kaleen	Balenkoma	1	1832	Not Served	
Kaleen	Heset Elghonamy	1	6946	Only Network	
Kaleen	Shabas Omare	1	22800	Totally Served	
Kaleen	Sarwa	1	5560	Totally Served	
Kaleen	Taweelet Nashart	1	3445	Only Network	
Kaleen	Kozman	1	4748	Totally Served	FUNDED BY LOCAL DEVELOPMENT
Kaleen	Quona	1	6018	Only Network	
Kaleen	Kafer Elgazayer	1	3058	Only Network	
Kaleen	Kafer Elmarazka	1	9490	Under Implementation	National Authority
Kaleen	Kafer Elmashaikh	1	2276	Only Network	
Kaleen	Kafer Yousef Heness	1	1507	Only Network	
Kaleen	Kafer Yousef Dawoud	1	986	Only Network	
Kaleen	Menshat Elshazly	1	1137	Only Network	
Kaleen	Menshat Shabrato	1	2779	Only Network	
Kaleen	Meniat Qaleen	1	2871	Only Network	
Kaleen	Meet Eldeeba	1	8863	Only Network	
Kaleen	Menshat Aglan	1	378	Only Network	
Kaleen	Nashrat	1	5774	Only Network	
Fouwah	Abou Draz	1	4733	Only Network	
Fouwah	El Salmiya	1	14543	Under Implementation	National Authority
Fouwah	El Manshiya	1	1621	Only Network	
Fouwah	El Fetouh	1	1640	Only Network	
Fouwah	Sendion	1	11607	Under Implementation	National Authority
Fouwah	Shamsheerah	1	5218	Under Implementation	Holding Company
Fouwah	Errian	1	2283	Only Network	
Fouwah	Qabreet	1	10965	Totally Served	
Fouwah	Mansheiet El Ashraaf	1	5387	Under Implementation	Holding Company
Dosouk	Ibto	1	3940	Only Network	
Dosouk	Abiuka	1	1231	Only Network	
Dosouk	Elibrahimiya	1	1602	Only Network	
Dosouk	Alshoun	1	2156	Only Network	
Dosouk	Alsafiya wa Meet elhameed	1	14021	Only Network	
Dosouk	Alagouzain	1	7785	Totally Served	
Dosouk	Almandoura	1	13811	Only Network	
Dosouk	Alnawaiga	1	4447	Only Network	
Dosouk	Gamgoum	1	12179	Only Network	
Dosouk	Damaro Salman	1	2319	Only Network	
Dosouk	Damankah	1	7267	Under Implementation	National Authority
Dosouk	Sanhour Elmadeena	1	28410	Totally Served	
Dosouk	Shabah	1	3418	Only Network	
Dosouk	Shabas Alshohadaa	1	25162	Totally Served	
Dosouk	Shabas Almalh	1	14305	Totally Served	
Dosouk	Azab Abou Mandour	1	4272	Only Network	
Dosouk	Azab Alzawamel	1	2356	Only Network	
Dosouk	Azab Alshabasiya	1	5120	Only Network	
Dosouk	Kafer Ibrahim	1	6738	Only Network	
Dosouk	Kafer Abou Zyadah	1	3897	Only Network	
Dosouk	Kafer Alkhair	1	2029	Only Network	
Dosouk	Kafer Alsudan	1	3741	Under Implementation	
Dosouk	Kafer Al Arab	1	4436	Only Network	
Dosouk	Kafer Om Yousef	1	2717	Only Network	
Dosouk	Kafer Abdel Rahman	1	520	Only Network	
Dosouk	Kafer Magar	1	8065	Under Implementation	National Authority

District	Main village /Village	No	Population	Service attitude	Notes
Dosouk	Kaneesat Elsaradosy	1	5477	Only Network	
Dosouk	Laseefr	1	4316	Only Network	
Dosouk	Mahalet Abou Ali Elgharbiya	1	11147	Only Network	
Dosouk	Mahalet Dayay	1	17627	Under Implementation	National Authority
Dosouk	Mahalet Malek	1	7885	Only Network	
Dosouk	Menshat Battah	1	853	Only Network	
Dosouk	Menshat Za	1	2541	Only Network	
Dosouk	Manshat Ali Agha	1	1015	Only Network	
Dosouk	Meniat Ganage	1	6671	Only Network	
Byala	Ibshan	1	11502	Totally Served	
Byala	Elshoutout	1	1626	Not Served	
Byala	Elalamyiah	1	2834	Only Network	
Byala	Elkoum Eltaweel	1	7997	Under Implementation	ISSIP WORLD BANK
Byala	Elnaseryiah	1	1317	Not Served	
Byala	Elhemmah	1	2021	Only Network	
Byala	Hazek	1	5787	Not Served	
Byala	Darel Salam	1	3896	Only Network	
Byala	Ezbet Badawy	1	3273	Only Network	
Byala	Kafer Elgaraydah	1	18556	Totally Served	
Byala	Kafer Elagamy	1	2987	Under Implementation	National Authority
Byala	Kafer Elkatah	1	3849	Under Implementation	National Authority
Byala	Koum Elhagnah	1	3309	Only Network	
Byala	Elhowah	1	7627	Under Implementation	
Balteem	Borg Elborolos	1	32994	Totally Served	
Balteem	Elbanaeen	1	8319	Under Implementation	National Authority
Balteem	Alhammad	1	5050	Not Served	
Balteem	Al robe *souk Eltalat)	1	6530	Not Served	
Balteem	Al Sahel El Bahry (Bloosh)	1	2137	Not Served	
Balteem	Al Sahel El Qibly (Alwahabiyah)	1	2968	Not Served	
Balteem	Al Shahaibah	1	4885	Not Served	
Balteem	Al Sheikh Mobarak	1	4979	Not Served	
Balteem	Al Aiash	1	1649	Not Served	
Balteem	Bar Bahry	1	2059	Not Served	
Balteem	Abou Rayiah	1	1970	Not Served	
Al Reyad	Aboi Mostafa	1	5061	Only Network	
Al Reyad	Albarryiah	1	2103	Totally Served	
Al Reyad	Alhasfa	1	4608	Totally Served	
Al Reyad	Al Raseef	1	4042	Totally Served	
Al Reyad	Al Raghamah	1	2580	Under Implementation	FUNDED BY LOCAL DEVELOPMENT
Al Reyad	Al Dabaah	1	1798	Only Network	
Al Reyad	Al Aqoulah	1	1013	Only Network	
Al Reyad	Al Abbasyiah	1	3047	Under Implementation	Holding Company
Al Reyad	Al Emdan	1	2284	Only Network	
Al Reyad	Al Mothalth	1	3676	Not Served	
Al Reyad	Al Wazeeryiah	1	4671	Totally Served	
Al Reyad	Bakloulah	1	2558	Only Network	
Al Reyad	Farage	1	1306	Under Implementation	National Authority
Al Reyad	Menshat Salamah	1	1285	Totally Served	
Al Reyad	Om Sen Elkobra	1	3950	Under Implementation	National Authority
Al Reyad	Al Bashayer	1	1299	Not Served	
Sidi Salem	Abou Ghaneemah	1	8214	Totally Served	
Sidi Salem	Abou Elawah	1	1592	Only Network	
Sidi Salem	Abou Ahmed	1	1391	Only Network	
Sidi Salem	Al Khawaled	1	2441	Only Network	
Sidi Salem	Al Haddadi	1	5764	Only Network	
Sidi Salem	Al Roudah	1	1008	Only Network	FUNDED BY LOCAL DEVELOPMENT
Sidi Salem	Al Salhat	1	11025	Only Network	
Sidi Salem	Al Fokahaa Al Bahry	1	3009	Only Network	
Sidi Salem	Al Fokahaa Al Quibly	1	2453	Only Network	
Sidi Salem	Al Kassabi	1	12847	Under Implementation	National Authority
Sidi Salem	Al Handasah	1	1207	Only Network	
Sidi Salem	Al Warak	1	5924	Only Network	
Sidi Salem	Barriat Laseefer	1	5077	Only Network	
Sidi Salem	Bareed Wa Kafer Yousef	1	1739	Not Served	

District	Main village /Village	No	Population	Service attitude	Notes
Sidi Salem	Teedah	1	3111	Only Network	
Sidi Salem	Damaro	1	21675	Only Network	
Sidi Salem	Sad Khamees	1	2287	Only Network	
Sidi Salem	Shamah	1	3377	Only Network	
Sidi Salem	Kom Eldahab	1	1818	Only Network	
Sidi Salem	Kafer El Masharkah	1	3539	Only Network	
Sidi Salem	Kafer Teedah	1	1857	Under Implementation	National Authority
Sidi Salem	Manshat Abou Ali	1	2430	Only Network	
Sidi Salem	Manshat El Masry	1	1382	Only Network	
Sidi Salem	Manshat Abbas	1	5620	Only Network	
Sidi Salem	Manshat Akle	1	1000	Not Served	
Sidi Salem	Al Esawyiah	1	1621	Only Network	
Al Hamool	Al Abadyiah Al Bahryah	1	2811	Under Implementation	National Authority
Al Hamool	Al Banna Wa Ezabeha	1	1447	Only Network	
Al Hamool	Al Zafaran	1	5801	Totally Served	
Al Hamool	Al Kafer Alsharky	1	6052	Under Implementation	FUNDED BY LOCAL DEVELOPMENT
Al Hamool	Kom Elhager	1	3424	Under Implementation	National Authority
Al Hamool	Kitaa Al Hamool	1	3367	Not Served	
Al Hamool	Kitaa Mansoor	1	3887	Not Served	
subtotal		208	1086971		

Appendix-H List of Cities and Villages along Main Drains

Appendix-H List of Villages along the Main Drains

Main Drain	No. of Residential Area by Category				No. of Branch Drain
	City	Village	Hamlet	Total	
Gharbia Main Drain (Upstream of Hamoul MPS)	2	69	220	291	12
Drain No.8 (Upstream of Mit Yazid Cross Point)	0	16	32	48	3
Nashart Drain (Upstream of Drain No.9 Cross Point)	4	43	155	202	5
Drain No.11	3	3	41	47	7
Total	9	131	448	588	27

Note: Category of residential area was judged basically by the size of the residential area, and name of the aerea.

Cities / Villages along Gharbia Main Drain

Map	No.	Gharbia Main Drain (from North to South)		1st Branch Drain (IN)	City / Village (from North to South)		2nd Branch Drain (IN)	City / Village (from North to South)		Branch (OUT)	Remark
		Category	Name		Category	Name		Category	Name		
BALTIM	1	Hamlet	Iz Abu Umayah Ash-Sharquiyah								
	2	Hamlet	Coast Gurd Housing								
	3	Hamlet	Iz As-Samannudi								
	4	Hamlet	Iz Bahari								
Al-HAMUL	5	Hamlet	Az Zahra								
	6			Drain No.3							
	7	Hamlet	Iz No. 65 (Al-Khashah)								
	8	Hamlet	Qaryah No.13								
	9	Hamlet	Qaryah No.11								
	10	Hamlet	Qaryah No.9								
	11	Hamlet	Qaryah No.7								
	12	Hamlet	Qaryah No.5								
	13			Binwan, Drain No.4, al-Haji Yusif							
	14	Hamlet	Timbari								
	15	Hamlet	Al-Ahmadiyyah								
	16	City	Al-Hamoul								Drain water mixed to Bahar Tera
	17			Ibshan							
	18				Village	Al-Kafr ash-Sharqi					
	19				Hamlet	Iz al-Arbain					
	20				Hamlet	Iz Salih					
	21				Hamlet	Iz Firyal					
	22				Village	As-Zafaran					
	23				Hamlet	Iz Fawziyyah					
	24				Hamlet	Iz Hitaybah					
	25				Hamlet	Iz Fathiyyah					
	26				Village	Iz Abu Badawi					
	27				Hamlet	Iz Mukhtar					
	28				Hamlet	Al-Burudayah					
	29				Hamlet	Iz Himmah					
	30				Hamlet	Iz Jurji					
	31				Hamlet	Iz al-Jazzar					
	32				Hamlet	Iz Sahban					
	33				Hamlet	Al-Izbah al-Hamra					
	34				Village	Ibshan					
	35				Hamlet	Iz Diyab					
	36				Hamlet	Iz al-Anani					
	37				Hamlet	Iz Khiristu					
	38				Hamlet	Iz Mazhat					
	39				Hamlet	Iz al-Jarhi					
	40				Hamlet	Iz al-Rawdah					
	41				Hamlet	Iz Raghib					
	42				Hamlet	Iz Warthat Barakat					
	43				Hamlet	Janaklis					
	44				Hamlet	Iz al-Badrawi					
	45				Hamlet	Iz Misihah az-Ziyadid					
	46	Hamlet	Iz Al-Antrawi								
	47	Hamlet	Iz Al-Fuqlah								
	48	Hamlet	Iz Al-Malki								
	49	Hamlet	Iz Mashriqi								
	50	Hamlet	Iz Al-Qulayah								GIZ DWMP implemented in 2009
	51	Hamlet	Iz Muh Ali								
	52	Hamlet	Iz Al-Manawfah Al-Bahariyyah								
	53	Hamlet	Abd Al-Karim Al-Qibiyah								
	54	Hamlet	Iz Artinah								
BIYALA	55	Hamlet	Iz Al-Ashriyyah								
	56	Hamlet	Iz Nabil								
	57	Hamlet	IzAbu Sulayman								
	58	Hamlet	Iz Al-Jazzarin								
	59	Hamlet	Al Mahdi								
	60	Hamlet	Iz Abu Qattah								
	61	Hamlet	Iz Al-Mahallawi								
	62	Hamlet	Iz Jurj Daghir								
	63			Drain No.5							
	64						Al-Gharbiyyah(Gharbia)				
	65							Village	Kawm al-Hajnah		
	66			Hamlet	Iz Salamah Ibrahim		Branch drain right bank (Map not clear but confirmed by Satelite image)				
	67			Village	Iz Yusif Muh		Branch drain right bank (Map not clear but confirmed by Satelite image)				
	68			Hamlet	Ash Shishini		Branch drain right bank (Map not clear but confirmed by Satelite image)				
	69			Hamlet	Iz al-Hakim		Branch drain right bank (Map not clear but confirmed by Satelite image)				
	70			Hamlet	Iz Antun		Branch drain right bank (Map not clear but confirmed by Satelite image)				
	71			Hamlet	Kafr al Bastawisi		Branch drain right bank (Map not clear but confirmed by Satelite image)				
	72			Hamlet	Iz al-Ushb						
	73			Hamlet	Iz Fahmi Mubarak						
	74			Hamlet	Iz Adli		Branch: Umm Yusif				
	75			Hamlet	Iz Amm Husayn						
	76			Hamlet	Iz al-Birins						

App-H 2

Cities / Villages along Gharbia Main Drain

Map	No.	Gharbia Main Drain (from North to South)		1st Branch Drain (IN)	City / Village (from North to South)		2nd Branch Drain (IN)	City / Village (from North to South)		Branch (OUT)	Remark
		Category	Name		Category	Name		Category	Name		
BIYALA	77							Hamlet	Iz Khamsah		
	78							Hamlet	Iz Darwish		Branch: Darwish
	79							Hamlet	Sisah		
	80							Hamlet	Iz Mustafa Darwish		
	81							Village	Ash-Shahidi		
	82							Hamlet	Iz Asian		
	83							Hamlet	Iz Imad ad-Din		
	84							Village	Dukhmays		
	85							Hamlet	Iz al-Basirah		Branc: Uthman
	86							Hamlet	Iz Huwshat ad-Dawwar		Branc: Uthman
	87							Hamlet	Iz Kustiyah		Branc: Uthman
	88							Hamlet	Iz as-Saidiyyah		Branc: Uthman
	89							Hamlet	Al-Kurama		Branc: Uthman
	90							Hamlet	Iz Ash-Shaykh Sulayman		Branc: Uthman
	91							Hamlet	Iz as-Thabit		Branc: Uthman
	92							Hamlet	Manshiyat al-Awqaf		
	93							Hamlet	Iz Abd Allah Mikhail		
	94							Hamlet	Iz al-Jimmayzah		
	95							Hamlet	Iz ash-Sharqiyyah		
	96							Hamlet	Tiraynah		
	97							Hamlet	Iz al-Habs		
	98							Village	Dimitnu		
	99							Village	Samul		
	100							Hamlet	Iz Shirif Sabri		
	101							Hamlet	Iz Umm Sittin		
	102							Hamlet	Iz Abd al-Qadir		
	103							Village	Sindsis		
	104				Hamlet	Iz Fahmi					
	105				Village	Ibshan					
	106				Hamlet	Iz al-Hart					
	107				Hamlet	Iz Abd al-Hamid Fudah					
	108						Sultan				
	109							Hamlet	Iz al-Jamiyah		Branch drain
	110							Village	Al Allamiyah		Branch drain
	111							Village	Sanabarah		Branch drain
	112							Hamlet	Iz al-Buhut		
	113							Hamlet	Iz Lutfi		
	114							Hamlet	Iz Sad Bughdad		
	115							Hamlet	Iz Karkur		
	116							Hamlet	Iz Sultan		
	117							Hamlet	Iz Awad Khattab		
	118							Village	Mit as Siraj		
	119							Hamlet	Iz Himaydah		
	120				Hamlet	Iz Abu Shadi					
	121				Hamlet	Iz al-Alayli					
	122				Hamlet	Iz Judah Abu Ghazi					
	123				Hamlet	Iz al-Jamal					
	124				Hamlet	Iz Bakhati					
	125						Fudah				
	126							Hamlet	Iz Sidi Umar		
	127							Hamlet	Iz Abu Basyuni		
	128							Hamlet	Iz Abu Badr		
	129						Lumarh				
	130							Village	Bashbish		
	131							Hamlet	Iz at-Tarzi		
	132							Hamlet	Iz Ahmad Hamdi		
	133							Hamlet	Iz at-Tarabulsi		
	134							Hamlet	Iz Hamid Abu al-Khayr		
	135							Hamlet	Iz Ali Sabrah & Shurakah		Branch: Mahallat al-Qasab
	136							Village	Mahallat al-Qasab		Branch: Mahallat al-Qasab
	137							Hamlet	Iz Himaydah		Branch: Mahallat al-Qasab
	138							Hamlet	Iz Mizrahi Bir		Branch: Mahallat al-Qasab
	139							Hamlet	Iz al-Waqf		
	140							Hamlet	Iz as-Sitt Zaynab al-Qabbaniyyah		
	141							Hamlet	Iz as-SittMustafiyyah		
	142						Branch drain				
	143							Hamlet	Iz Anwar al-Jindi		
	144				Hamlet	Iz Sidi Abd al-Majid					
	145				Hamlet	Iz al-Insha					
	146				Village	Al-Uthmaniyyah					
	147				Village	Abistu					
	148						No.5 al-Gharbi				
	149							Hamlet	Iz Abd Al-Qadir Hilmi		
	150							Hamlet	Iz Abd Allah ash-Shiraki		
	151							Hamlet	Iz Abdoh al-Babli		Branch: Al-Qasriyyah (Vicinity of El Mahalla El Kubra City)
	152							Hamlet	Iz Ali Kamil		Branch: Al-Qasriyyah (Vicinity of El Mahalla El Kubra City)
	153							Village	Al-Qasriyyah		Branch: Al-Qasriyyah (Vicinity of El Mahalla El Kubra City)
	154							Village	Bataynah		Branch: Al-Qasriyyah (Vicinity of El Mahalla El Kubra City)
	155							Village	Mahallat Abu Ali al Qantarah		Branch: Al-Qasriyyah (Vicinity of El Mahalla El Kubra City)

Cities / Villages along Gharbia Main Drain

Map	No.	Gharbia Main Drain (from North to South)		1st Branch Drain (IN)	City / Village (from North to South)		2nd Branch Drain (IN)	City / Village (from North to South)		Branch (OUT)	Remark
		Category	Name		Category	Name		Category	Name		
	156							Hamlet	Iz Riyad Rizq Allah		
	157							City	El Mahalla El Kubra		
	158			No.5 ash-Sharqi							
	159				Village	Banub					
	160				Hamlet	Iz Isawi Khidr					
	161				Village	Mahallat Zayyad (Local Unit)					
	162				Village	Ar-Rah bayn	Vicinity of El Mahalla El Kubra City				
	163	Hamlet	Al Karakat								
	164			Drain No.6							
	165	Hamlet	Kawm Ar-Ruzz								
	166			Kamil							
	167				Hamlet	Iz Fathi az-Zahi					
	168				Hamlet	Iz al-Waqf					
	169	Hamlet	Santimay								
	170	Hamlet	Iz as-Salihiyyah								
	171	Hamlet	Abu Kalbush								
	172	Hamlet	Iz Abu Rajab								
	173	Hamlet	Al-Umdah								
	174	Hamlet	Sitayrah al-Bayda								
	175	Hamlet	Sitayrah as-Samra								
	176			Bitaytah							
	177				Village	Bitaytah					
	178				Hamlet	Iz Abu al-Hasan					
	179				Hamlet	Ia Ibrahim Abd al-Halim					
	180				Village	Ishaqah					
	181	Hamlet	Iz Aziz Faltas								
	182	Village	Kafr Dukhmays								
	183			Khatat Allah			Drainage PS				
	184			Kafr at-Tayifah							
	185				Hamlet	Iz Sayyied Ismail					
	186				Village	Iz ash-Shamariqah					
	187				Hamlet	Is as-Sadi					
	188				Hamlet	Iz at-Turki					
	189				Hamlet	Iz al-Kaum					
	190				Hamlet	Iz al-Akhmas					
	191				Hamlet	Iz Layyin					
	192			Kafr Matbul							
	193				Hamlet	Iz ad-Dawwar	Branch: ash-Shamariqah				
	194				Village	Matbul					
BIYALA	195				Hamlet	Iz Shukr	Branch: Matbul				
	196				Village	Iz Khamis	Branch: Matbul				
	197			Minyat Misir							
	198				Hamlet	Iz Warathat Iskandar					
	199				Village	Minyat Misir					
	200				Hamlet	Iz al-Islah					
	201				Hamlet	Iz al-Islah					
	202				Village	Kafr Qiraytnah					
	203			Al-Atawah							
	204				Hamlet	Iz Abd Allah Abu as-Sayyid					
	205			Samatay							
	206				Hamlet	Iz Abbas Abdin					
	207				Hamlet	Iz Ghazi					
	208				Hamlet	Kafr Mahallat Misir					
	209				Hamlet	Kafr an-Ninai					
	210				Village	Samatay					
	211	Village	Dukhmays								
	212	Hamlet	Iz Ash-Sharikah								
	213			Attaf							
	214				Hamlet	Iz Sidi Hamid					
	215				Hamlet	Iz az-Ziyyadi					
	216				Hamlet	Iz Aziz az-Ziyyadi					
	217			Branch drain (no name)							
	218				Hamlet	Manshiyyat Tunbarah					
	219				Village	Damru					
	220				Village	Tunbarah					
	221				Hamlet	Iz ad-Dabah					
	222				Hamlet	Iz Manshiyyat Nasir					
	223				Hamlet	Al-Izbah al Qibliyyah					
	224				Village	Attaf					
	225				Village	Iz Abu Khamis					
	226			Mahallat Hasan							
	227				Hamlet	Iz al-Manshiyyah					
	228				Hamlet	Iz Ismail Fudah					
	229				Village	Mahallat Hasan					
	230				Village	Kafr al-Junayunah					
	231				Hamlet	Iz Abu al-Aynayn Fadus					
	232				Village	Mit al-Layt Hashim					
	233	Village	Al-Banawan								
	234	Village	Kafr Dimitnu								

Cities / Villages along Gharbia Main Drain

Map	No.	Gharbia Main Drain (from North to South)		1st Branch Drain (IN)	City / Village (from North to South)		2nd Branch Drain (IN)	City / Village (from North to South)		Branch (OUT)	Remark
		Category	Name		Category	Name		Category	Name		
BIYALA	235	Village	Nimrat Al-Basal								
	236			Ni-Shit							WWTP for Ni-Shit village
	237				Hamlet	Iz al-Islah					
	238				Hamlet	Iz al-Islah					
	239				Hamlet	Iz Mahir					
	240				Hamlet	Iz al-Arab					
	241				Hamlet	Iz Ali Abd Allah					
	242				Hamlet	Iz al-Batrikkhanah					
	243				Hamlet	Iz ad-Damayirah					
	244				Village	Mit ash-Shaykh					
	245				Hamlet	Iz Muh & Abd al-Munim Wahbi					
	246				Hamlet	Iz al-Madrasah al-Abidiyyah					
	247				Hamlet	Iz al Jazirah					
	248				Village	Nishit					
	249	Hamlet	Iz Al-Insha								
	250	Hamlet	Iz Jamilah								
TANTA EAST	251			Zifta							
	252				Village	Al-Amiriya					
	253				Hamlet	Iz Ratib					
	254				Amiriyyah						
	255				City	Al-Mahallah Al-Kubra	WWTP Mahalla Kubra				
	256				Village	Ad-Dawakh Iiyyah					
	257				Hamlet	Iz Dr. Ahmad Shafiq					
	258				Village	Bulgaynah					
	259				Shubra Malkan						
	260				Hamlet	Iz Al-Burullusi					
	261				Village	Shubra Malkan					
	262				Village	Minyat Shintna Ayyash					
	263				Hamlet	Iz Isawi Khidr					
	264				Village	Sidi Husayn Abu Wafi Shrine					
	265				Village	Iz Al Bank					
	266				Village	Safi Turab					
	267				City	Al-Mahallah Al-Kubra			culvert inside the city		
	268				Hamlet	Iz Hamad			Cross at Bahar Shebin		
	269				Hamlet	Iz Raghib Atlyyah					
	270				Umar						
	271				Village	Kafr Hijazi	Branch: Kafr Hajizi El Gharbi				
	272				Village	An-Nasiriyah	Branch: Kafr Hajizi Ash Sharqi - Mit an-Nasara				
	273				Village	Abu Sir Bana	Branch: Kafr Hajizi Ash Sharqi - Mit an-Nasara				
	274				Village	Shubra Babil	Branch: Shubra Babil				
	275				Hamlet	Iz Al Basha	Branch: Tariq Al-Wasat				
	276				Hamlet	Iz Subh	Branch: Tariq Al-Wasat				
	277				Hamlet	Iz Al-Iraqi					
	278				Village	Mit Habib ash-Sharaqiyyah					
	279				Village	Kafr Al-Aziziyyah					
	280				Kafr Fiyalah						
	281				Hamlet	Iz Shikarah					
	282				Village	Kafr Fiyalah					
	283				Hamlet	Iz Mumtaz					
	284				Hamlet	Iz al-Kadarwah					
	285				Village	Iz al-Kamaliyyah					
	286				Hamlet	Iz Adil-Silim					
	287				Hamlet	Iz Al-Insha(Al-Kadaiwah)					
	288				Hamlet	Iz Jubran Silim					
	289				Hamlet	Iz Abd al-Aziz Imarah					
	290				Hamlet	Iz-Dawud					
	291				Hamlet	Iz al-Qashlan					
	292				Hamlet	Iz Abu Jazira					
	293				Village	Kafr Shishta					
	294				Hamlet	Iz Anis					
	295				Shishta						
	296				Hamlet	Iz Bahjat					
	297				Village	Shishta					
	298				Hamlet	Kafr As-Sharaqwah					
	299				Hamlet	Iz Al-Islah					
	300				Village	Shubra Millis					
	301				Sunbat						
	302				Hamlet	Iz al-Mirshrawi					
	303				Hamlet	Minyat al-Mubashirin					
	304				Village	Sunbat					
	305				Village	Kafr Sunbat					
	306				Village	Hanut					
	307				Village	Kafr Hanut al-Qibil					
	308				Village	Mit Al-Biz					
	309				Hamlet	Kafr Husayn					
	310				Village	Shirshabah					
	311				Hamlet	Kafr As-Sinadiyah					
	312				Village	Kafr Shubra Qalluj					
	313			Al-Abshit							

Cities / Villages along Gharbia Main Drain

Map	No.	Gharbia Main Drain (from North to South)		1st Branch Drain (IN)	City / Village (from North to South)		2nd Branch Drain (IN)	City / Village (from North to South)		Branch (OUT)	Remark
		Category	Name		Category	Name		Category	Name		
TANTA EAST	314				Village	Al-Abshit					
	315				Village	Dinushar					
	316				Hamlet	Iz Hashish					
	317				Hamlet	Iz al-Arab					
	318				Hamlet	Iz Salim					
	319				Hamlet	Iz Abu Wali					
	320				Hamlet	Iz al-Qasabi					
	321			Al-Hayatim							
	322				Hamlet	Iz al-Islah No.1					
	323				Hamlet	Iz al-Islah No.2					
	324				Hamlet	Iz Muh					
	325				Hamlet	Iz Hasan Thabit					
	326				Hamlet	Iz Hilal					
	327				Hamlet	Iz Hasan Sadiq					
	328				Hamlet	Iz Muhib					
	329				Hamlet	Iz an-Nazlah					
	330				Hamlet	Iz al-Islah					
	331				Hamlet	Iz al-Rukn					
	332				Hamlet	Iz Bhagas					
	333				Hamlet	Iz Ali Uthman					
	334				Hamlet	Iz al-Islah					
	335				Hamlet	Iz Abd al-Aziz Kindr					
	336				Village	Al-Hayatim					
	337				Hamlet	Iz Ash-Shimi					

Drain No.8 Upstream Reached of Mit Yazid Canal Cross Over Point

Map	No.	Distance (km)	Drain No.8 from Mit Yazid cross		1st Branch Drain (IN)		City / Village (from North to South)		Branch (OUT)	Remark
			Category	Name			Category	Name		
Kafr Ash-Shaykh	1		Hamlet	Iz Sayyid Ahmad						
	2		Village	Kafr Tidah						
	3		Village	Buryad						
	4				Branch drain (no name)					
	5				Hamlet	Iz Turki Muh				
	6				Hamlet	Iz ad-Damatiyyah				
	7				Hamlet	Iz Ghazi Salamah				
	8				Hamlet	Iz Hasan Ibrahim				
	9				Hamlet	Iz Muh Atiyyah				
	10				Hamlet	Iz Idah				
	11				Hamlet	Iz Ibrahim Hanna				
	12		Hamlet	Kafr Yusif						
	13		Hamlet	Iz Basyuni Abduh						
	14		Village	Iz Ali Asf						
	15		Hamlet	Iz Yusif ash-Sharnubi						
	16		Hamlet	Iz as-Said Ali Labib						
	17		Village	Aryamun (has local unit)						
	18		Hamlet	Iz Ashur						
	19		Village	Al-Bakhanis						
	20				Hilays					
	21				Village	Hilays				
	22				Village	Kafr al-Manshi al-Bahan				
	23				Hamlet	Iz Abu Tamadah				
	24				Hamlet	Iz Shihatah Abu an-Naja				
	25				Village	Abu Tamadah				
	26				Hamlet	Iz Abd al-Fattah as Safti				
	27				Hamlet	Is Khalil Abu Zayd				
	28		Hamlet	Iz Warathat Muh Allam						
	29		Hamlet	Ia al-Awqat						
	30				Uryan					
	31				Hamlet	Iz Ahmad Hilmi				
	32				Village	Mihallat al-Qasab				
	33		Hamlet	Iz Muh Abd al-Wahid						
	34		Hamlet	Iz Ziraat Kafr al-Manshi						
	35		Hamlet	Iz al-Islah az Zirai						
	36		Hamlet	Manshyyat Mubarak						
	37		Hamlet	Iz Ahmad Mustafa						
	38		Hamlet	Iz Jurn Shamrukh						
	39		Village	Ruwaynah						
	40		Village	An Nattaf						
	41		Village	Mihallat Musa						
	42		Village	Rizgat Amay						
	43		Hamlet	Iz ai-Waqf al-Bahariyyahh						
	44		Village	Shinu						
	45		Hamlet	Al Manshiyyah						
	46		Hamlet	Iz Dar as-Salam						
	47		Hamlet	Iz Aziz al-Gharbiyyah						
	48		Hamlet	Iz an-Namakiyyah						
	49		Village	Kafr al-Maraziqah						
	50		Hamlet	Iz Bahjat al-Kubra						
	51		Village	Al Atwah al-Qibliyyah						

Nashart Drain

Map	No.	Village along Nashart Drain (from North to South)		1st Branch Drain (IN)	City / Village (from North to South)		2nd Branch Drain (IN)	City / Village (from North to South)		Irrigation Canal (IN)	Remark
		Category	Name		Category	Name		Category	Name		
Sidi Salim	1	Village	Qaryat ash-Shaklubah								
	2			Drain No.9							
	3	Hamlet	Iz al-Qawasim								
	4	Hamlet	Iz as-Sayyadin								
	5	Hamlet	Iz Jad Allah								
	6	Hamlet	Iz ash-Sharaqwah al-Quibilyyah								
	7	Hamlet	Iz Ahmad al-Ballasi								
	8	Hamlet	Iz Abu Husayn								
	9	Hamlet	Iz Al-Baharwahash-Sharquiyyah								
	10	City	Sidi Salim								
Kafr Ash-Shaykh	11	Hamlet	Iz al-Balabisah								
	12	Hamlet	Iz Abu Itha								
	13	Hamlet	Iz Ahmad Jamal ad-Din								
	14	Hamlet	Iz Mukhtar Abd al-Latif								
	15	Hamlet	Iz al-Islah								
	16	Hamlet	Iz an Najjar								
	17	Hamlet	Iz al-Qazazz								
	18	Hamlet	Iz Ali Salim								
	19	Village	Kafr Abu Ziyadah								
	20	Hamlet	Iz Nuwaysh								
	21	Village	Ash-Shabasiyyah								sandera drain(close) W-5 Pilot located
	22	Hamlet	Iz Himaydah Abbud								
	23	Village	Hissat al-Ghunaymi								
	24	Hamlet	Iz al-Muqattam								
	25		Iz al-Tuwal								
	26		Iz an-Nashw								
	27			No.9 al-Ala - Janaj							
	28				Hamlet	Iz Shihata Ajian					
	29				Hamlet	Iz Yusif Ajian					
	30				Hamlet	Iz Naji Ajian					Shabas Umayah Town with Swerage system
	31			p			Qunah				
	32							Village	Al-Bakatush		Branch: Al-Bakatush
	33							Village	Al-Minshilayn		Branch: Al-Bakatush
	34							Hamlet	Iz Abu Shuwaykah		Branch: Al-Bakatush
	35							Hamlet	Iz Mustafa ash-Shuri		Branch: Al-Bakatush
	36							Hamlet	Kafr Abu Naim		Branch: Al-Bakatush
	37							Village	Salamun		Branch: Al-Bakatush
	38							Hamlet	Iz ash-Shadhli		Branch: Al-Bakatush
	39							Village	Shubratna		Branch: Al-Bakatush
	40							Hamlet	Iz Al Alim		Branch: Al-Bakatush
	41							Village	Kafr al-Hamam		Branch: Al-Bakatush
	42							Hamlet	Iz Isa Abu Taha		Branch: Al-Bakatush
	43							Hamlet	Iz Kafrat Askar		Branch: Al-Bakatush
	44							City	Basyun		Branch: Al-Bakatush
	45							Hamlet	Iz Zahayirah al-Jadidab		Qunah main
	46							Village	Minyat Qillin		Qunah main
	47							Village	Siwah		Qunah main
	48							Hamlet	Iz Abu Hatab		Qunah main
	49							Hamlet	Iz Kafr Abu Tawr		Qunah main
	50							Hamlet	Iz al-Tantawi		Qunah main
	51							Hamlet	Iz Sharab		Qunah main
	52							Village	Qunah		Qunah main
	53							Hamlet	Balnakumah		Qunah main
	54							Hamlet	Iz az-Zawii		Qunah main
	55							Hamlet	Mishat Shubratu		Qunah main
	56							Hamlet	Iz Abd al-Ghaffar ash-Shadhli		Qunah main
	57							Hamlet	Iz Abd al-Mijid ash-Shadhli		Qunah main
	58							Hamlet	Kafr al-Iiw		Qunah main
	59							Hamlet	Kunayisat Shubratu		Qunah main
	60							Village	Shubratu		Qunah main
	61							Hamlet	Iz Wahbah		Qunah main
	62							Hamlet	Kafr al-Mabruk		Qunah main
	63							Hamlet	Baral-Hamam		Qunah main
	64							Hamlet	Iz Abd ar-Rahman Abu Shilayb		Qunah main
	65							City	Basyun		Qunah main
	66				Hamlet	Iz Kawrn Bilaydah					
	67				Hamlet	Kafr al-Jazayir					
	68				Hamlet	Minshat ash-Shadhli					
	69				Hamlet	Iz ash-Sharainah					
	70				Hamlet	Kafr al-Lubaydi					
	71				Hamlet	Kafr al-Muslimani					
	72				Hamlet	Iz Abd al-Latif ash-Shadhli					
	73				Hamlet	Iz ash-Shadhli (Abu Himayd)					
	74				Village	Kafr Salim					
	75				Hamlet	Iz Hasan Rashid					
	76				Village	Janaj					

Nashart Drain

Map	No.	Village along Nashart Drain (from North to South)		1st Branch Drain (IN)	City / Village (from North to South)		2nd Branch Drain (IN)	City / Village (from North to South)		Irrigation Canal (IN)	Remark
		Category	Name		Category	Name		Category	Name		
	77				Hamlet	Iz Muh Ismail					
	78				Village	Al-Qaddabah					
	79			Village	Al-Farastaq						
	80			Village	Mahallat al-Laban						
	81			Village	Qasta						
	82			Village	Daqrah						
	83			Village	Abbij						
	84			Hamlet	Iz al-Islah						
	85			Village	Qalib Ibyar						
	86			Village	Kufur Bilshay						
	87			Village	Kafr al-Mahruq						
	88			Hamlet	Iz al-Islah						
	89			Hamlet	Iz Ibrahim ash-Shura						
	90			City	Kafr Az-Zayyat						
	91	Hamlet	Iz Husayn al-Khubi al-Kubra								
	92	Hamlet	Kafr Yusif Hinnis								
	93	Hamlet	Iz Ilyas Nasif al-Qibliyyah								
	94	Hamlet	Kafr Yusif Dawud								
	95			Small branch drain							
	96			Village	Quzman						
	97			Hamlet	Al Kurdi						
	98			Hamlet	Iz al-Hinnawi						
	99			Hamlet	Iz Abu Rizq						
	100	Hamlet	Iz Ahmad Shaban								
	101	Village	Nashart								
	102	Hamlet	Iz Muh Ismail								
	103			Ar-Rawdah							
Kafr Ash-Shaykh	104			Village	Al Minshat as-Sughra						
	105			Hamlet	Kafr Silayt						
	106			Hamlet	Iz Darwish						
	107			Hamlet	Iz al-Hamra						
	108			Hamlet	Iz Abd al-Hamid						
	109			Hamlet	Iz ar-Rawadah						
	110			Hamlet	Iz al-Bayda						
	111			Hamlet	Iz Ahmad Nasif						
	112			Hamlet	Iz Abu Zikri						
	113			Hamlet	Iz Al-Waqf						
	114			Hamlet	Iz Abu Turab						
	115			Hamlet	Iz Ayn al-Hayah al-Bahariyyah						
	116			Hamlet	Iz Ayn al-Hayah						
	117			Hamlet	Iz Subhi Mikhahll						
	118			Village	Kafr al-Mazariqah						
	119	Hamlet	Iz Abd al-Fattah al-Lami								
	120	Hamlet	Iz Hasan Yakan								
	121	Hamlet	Iz ad Daramalli								
	122	City	Qilin								
	123	Hamlet	Iz Ali Misharrat								
	124	Hamlet	Iz Judah								
	125	Hamlet	Ia al-Atrash								
	126	Hamlet	Iz al-Maraziqah as-Saghirah								
	127	Hamlet	Iz Abd al-Fattah ad-Dardiri								
	128	Hamlet	Iz Uthman Shawai								
	129	Hamlet	Iz Abd al-Ghaffar as-Shadhli								
	130	Village	Ash-Shin								
	131	Hamlet	Iz Samir Khalil								
	132	Hamlet	Iz Rastum al-Bahariyyah								
	133	Hamlet	Iz Yusif								
	134	Hamlet	Iz as-Sanhuri								
	135	Hamlet	Iz al-Islah								
	136	Village	Najrij								
	137	Hamlet	Iz as-Sadawi								
	138			Branch drain (left)							
	139			Hamlet	Minshat al-Yaqubiyyah						
	140			Hamlet	Iz Mahmud al-Matayyit						
	141			Village	Mashal						
Tanta West	142			Hamlet	Iz Nabil al-Khuli						
	143			Hamlet	Iz Qaranshu						
	144			Hamlet	Iz Khalil as-Salahawi						
	145			Janabiyat al-Qasid							
	146			Hamlet	Iz Badr ad-Din Rafat						
	147			Hamlet	Iz Farkuh						
	148			Hamlet	Iz Musa						
	149			Hamlet	Iz Rushdi						
	150			Hamlet	Minshat al-Iyari						
	151			Hamlet	Iz Battah						
	152			Hamlet	Iz Nashid Saman Al-Kubra						

Nashart Drain

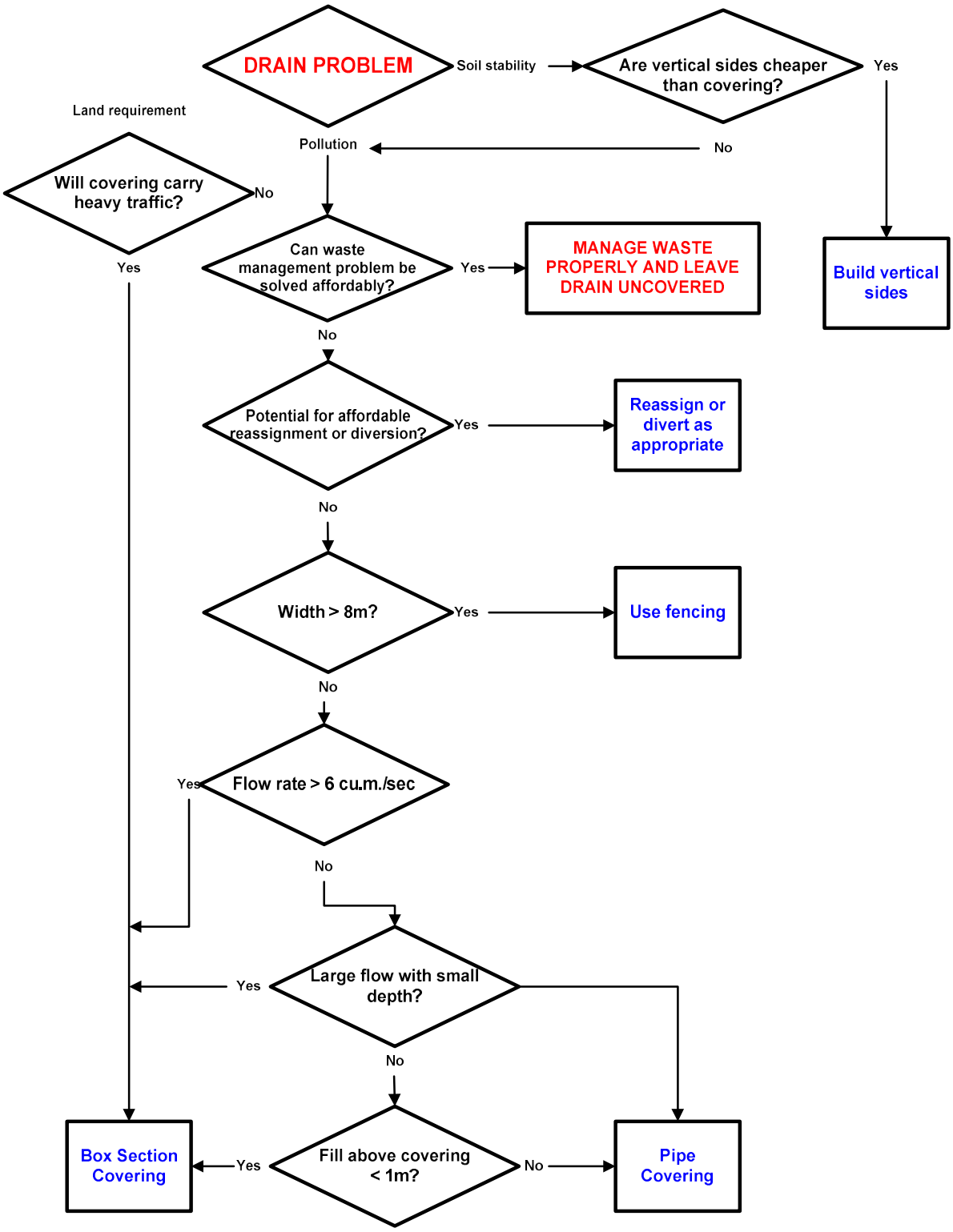
Map	No.	Village along Nashart Drain (from North to South)		1st Branch Drain (IN)	City / Village (from North to South)		2nd Branch Drain (IN)	City / Village (from North to South)		Irrigation Canal (IN)	Remark
		Category	Name		Category	Name		Category	Name		
Tanta West	153				Hamlet	Kafr al-Arab					
	154				Hamlet	Iz Nashid Saman					
	155				Hamlet	Iz al-Waqf al-Jadidan					
	156				Hamlet	Atf Abu Jindi					
	157				Hamlet	Iz al-Waqf					
	158				Hamlet	Iz Muh Ibrahim					
	159				Hamlet	Iz al-Madrasah al-Abidiyyah					
	160				Shubar						
	161				Hamlet	Iz Muh Yusif					
	162				Hamlet	Iz Amir					
	163				Hamlet	Iz al-Jazzar					
	164				Hamlet	Iz al-Islah					
	165				Hamlet	Iz Sulayman Tahir					
	166				Village	Mit as-Sudan					
	167				Village	Shubar					
	168	Village	Kawm an-Najjar								
	169			Ratib							
	170				Hamlet	Iz Nashid Saman					
	171				Hamlet	Iz al-Islah					
	172	Hamlet	Iz as-Salam								
	173	Hamlet	Iz Abd Allah Agha as-Saghrah								
	174	Hamlet	Iz al-Ishsh								
	175			Branch drain							
	176				Hamlet	Iz Muh Ashur					
	177				Village	Kutamat al-Ghabah					
	178	Hamlet	Iz As-Sayyid Shirif								
	179	Hamlet	Iz Muh Barradah								
	180	Hamlet	Kafr Nusayr								
	181			Branch drain							
	182				Village	Shifa & Qurun					
	183				Hamlet	Iz Ayyub					
	184				Hamlet	Iz Husuni ad-Dakhakhni					
	185				Hamlet	Iz al-Qabudan					
	186				Hamlet	Iz Abu Juad					
	187				Hamlet	Iz Muh Tayil					
	188				Hamlet	Iz al-Islah					
	189				Village	Tibant Qaysar					
	190	Hamlet	Iz Khalil as-Salahawi								
	191	Hamlet	Iz Abd al-Munim Mufid								
	192	Hamlet	Al Haddad								
	193			Branch drain							
	194				Hamlet	Iz al-Islah					
	195				Hamlet	Iz Qaysar					
	196	Hamlet	Kafr al-Arab								
	197	Hamlet	Iz al Minshawi								
	198	Hamlet	Iz Sami Hanna								
	199	Hamlet	Iz Tawfiq Ramzi								
	200			Minrat Ibyar							
	201				Village	Minrat Ibyar					
	202				Hamlet	Kafr as Saaydah					
	203				-	(Cattle breeding farm / Chicken farm)					
	204				Village	Kafr al-Manshi al-Qibli					
	205			Branch drain	Village	Birma					
	206				Hamlet	Iz Firdaws					
	207				City	Tanta					
	208			Branch drain							
	209				Village	Kafr ash-Shurbaji					
	210	Village	Kafr al=mansurah								
	211	Village	Khilwat Rishah								
	212	Village	Shubra an-Namlah								
	213	Village	Mahallat Marhum								
	214	City	Tanta			Petroleum Spinning Co. Factory					

Drain No.11

Map	No.	Village along Drain No.11 (from North to South)		1st Branch Drain (IN)	City / Village (from North to South)		Irrigation Canal (IN)	Remark
		Category	Name		Category	Name		
IDFINA	1	Hamlet	Iz Ghunaym					
	2			Zagulul				
	3				Village	Bani Bakkal		
	4				Village	Ibuyanah		
	5				Hamlet	Iz Al-Quni		
	6				Hamlet	IzUmar		
	7				Hamlet	Iz Qabil		
	8				Hamlet	Iz Ash-Shair		
	9				City	Mutubas		
	10	Hamlet	Iz Al-Fath					
	11			Al Minashshi				
	12				Hamlet	Iz Abu Dinah		
	13				Hamlet	Iz AL-Ghanaymah		
	14				Hamlet	Iz Al-Kashabah		
	15				Hamlet	Iz Al-Mahjuu		
	16				Hamlet	Iz An-Nadayrah		
	17				Hamlet	Iz Al-Tuwayubna		
	18				Hamlet	Iz Shukr		
	19				Hamlet	Iz Id Mansur		
	20				Hamlet	Iz Al-Ghanaymah		
	21				Village	Iz Abu Ghanmah		
	22				Bahr Al-Qassab			
	23			Drain No.10				
	24				Hamlet	Iz Al Manshiyyah Al-Qibiliyyah		
	25				Hamlet	Iz As-Zah		
	26				Hamlet	Iz Ad-Dawaydah		
	27				Hamlet	Iz Al-Bank		
	28				Hamlet	Iz Al-Khashadah		
	29				Hamlet	Iz Al-Masri		
	30				Hamlet	Iz Muh Surur		
	31				Hamlet	Iz Adil Abd Al-Al		
	32				City	Shabas Al Malh		
	33	Hamlet	Iz An-Nawasuriyyah					
	34	Hamlet	Iz Al-Saadah					
	35	Hamlet	Iz Al-Rawdah					
	36			Tera Yusif (Branch)				
	37			Tall Qubri				
	38							
	39							
	40							
	41							
	42							
	43				Qubrit (Kbreet)	Pilot Site (W-2)		
	44	Hamlet	Lz Al-Khayuri					
	45			Qbrit(Kbreet)				
	46							
	47							
	48							
	49							
	50				Fuwwah			
	51			Brach from Sindiyun				
	52				Hamlet	Iz Ashur		
DISUQ	53		Iz Al-Isiah Al-Bahariyyah					
	54			Small branch				
	55				Hamlet	Iz Al-Bakanah		
	56		Iz Al-Isiah Al-Qibiyyah					
	57		Iz AL-Hajar					
	58	City	Fuwwah			WWTP (to Drain No.11? It was OK)		

Appendix-I Decision Process for Drain Covering

Appendix-I Decision Process for Drain Covering (from "Covering of Agricultural Drains in Residential Areas in Egypt", Oct. 2005, BCEOM/DCE)

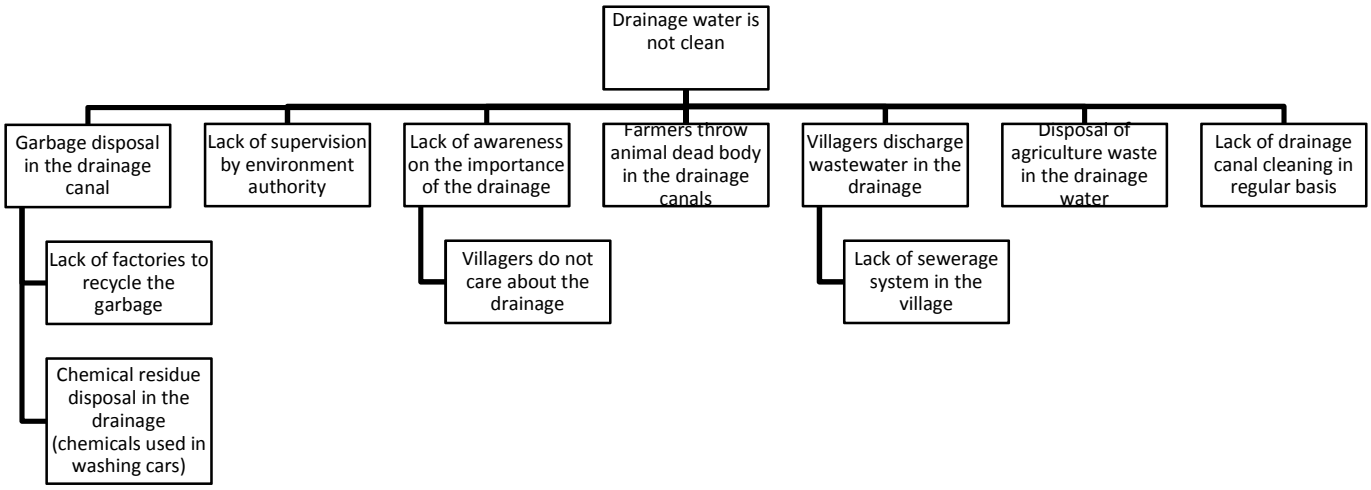


Remark from the Quoted Report: Figure shows diagrammatically an example of how the actual decision process should proceed. This is intended for guidance purposes, as a diagram of this kind cannot take account of every combination of circumstances that may be encountered and inevitably includes some oversimplification.

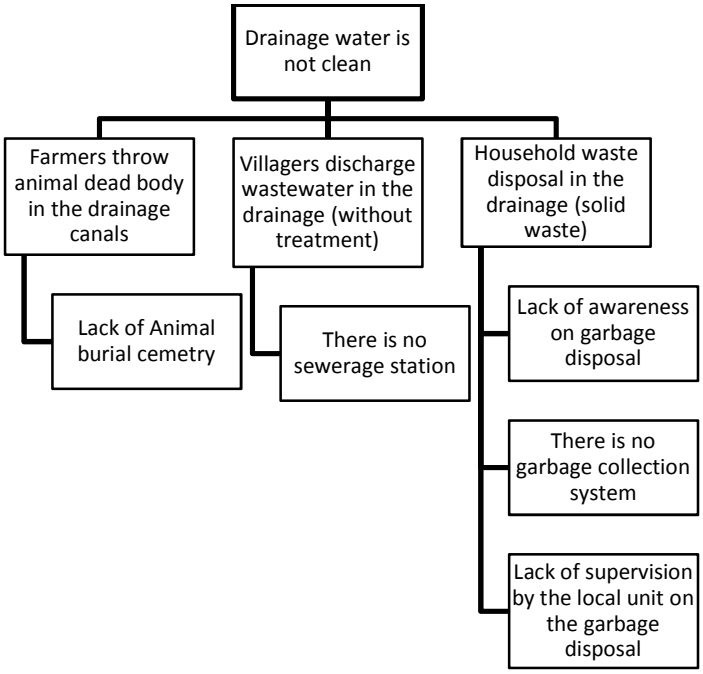
Appendix-J Results of Problem Analysis at the Pilot Project Sites

Appendix-J Results of Problem Analysis at the Pilot Project Sites

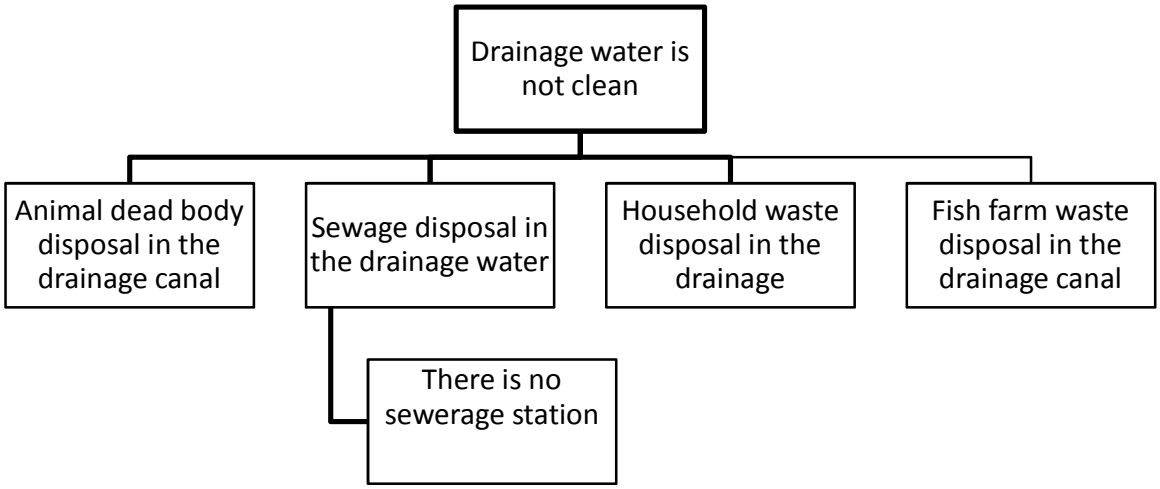
(1) W2 Problem Analysis



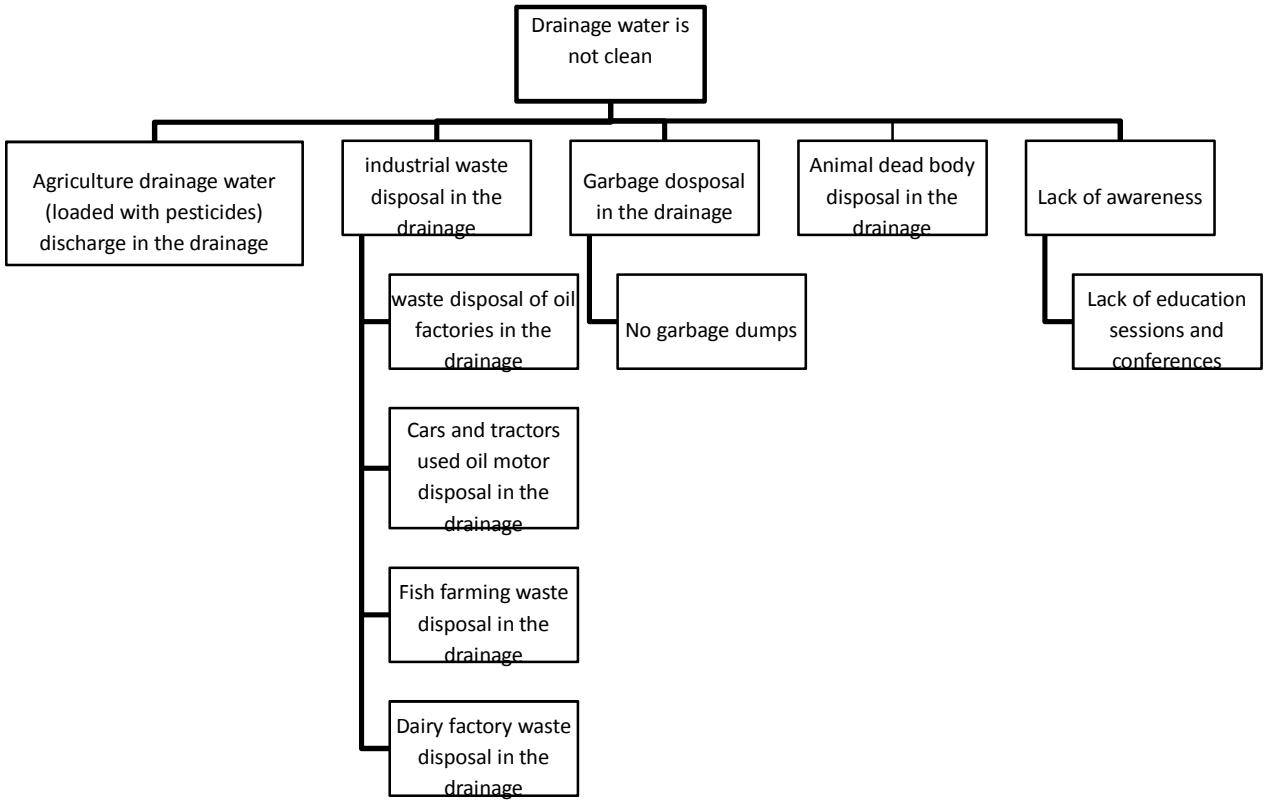
(2) E4 Problem Analysis



(3) E1 Problem Analysis



(4) W4 Problem Analysis



(5) W5 Problem Analysis