

Table F.14.107 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Sahr Tora, Downstream+Midstream) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Downstream															
After MPS															
Mixing	39,055	11,136	13,951	13,357	8,234	8,377	31,690	39,544	37,142	23,545	6,279	6,304	9,104	208,065	
Drainage only	3,250	927	1,111	1,112	685	697	2,637	3,291	3,091	1,959	523	525	759	17,314	
Drainage (Mixed)	6,600	1,892	2,238	2,227	1,391	1,416	3,353	6,683	6,277	3,979	1,061	1,065	1,538	35,161	
El Mansour	45,700	13,031	15,823	15,630	9,635	9,803	37,082	46,273	43,482	27,552	7,348	7,377	10,653	243,466	
Before MPS															
Fresh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Drainage (Mixed)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total of D.S.(Drainage)	9,850	2,809	3,367	3,369	2,077	2,113	7,993	9,973	9,368	5,938	1,584	1,590	2,296	52,476	
Total of D.S.(Ex. Drainage)	94,755	24,167	28,974	28,987	17,869	18,190	68,772	85,917	80,604	51,097	13,827	13,681	19,757	451,531	
Total of D.S.	94,605	28,975	32,341	32,358	19,946	20,293	76,765	95,790	89,971	57,035	15,211	15,270	22,053	504,007	
Midstream															
Fresh	64,360	21,753	26,773	25,899	14,932	16,017	72,266	87,385	81,767	54,576	14,145	11,795	16,938	444,246	
Drainage (Mixed)	4,700	1,589	1,955	1,891	1,090	1,170	5,277	6,381	5,971	3,886	1,039	861	1,237	32,442	
Total (Drainage)	14,550	4,397	5,322	5,260	3,167	3,283	13,220	16,355	15,330	9,924	2,617	2,451	3,533	94,918	
Total (Ex. Drainage)	149,115	45,920	55,747	54,886	32,801	34,197	141,039	173,202	162,371	105,673	27,772	25,476	36,695	895,778	
Total (<+0.0W)	149,115	45,920	55,747	54,886	32,801	34,197	141,039	173,202	162,371	105,673	27,772	25,476	36,695	895,778	
Total	163,665	50,317	61,069	60,146	35,968	37,480	154,308	189,557	177,710	115,587	30,388	27,927	40,228	990,695	

Table F.14.108 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Raiah Bilqas, Downstream+Midstream) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Downstream															
El Eshah															
Drainage only	11,420	3,258	3,924	3,908	2,408	2,450	9,268	11,563	10,661	6,865	1,636	1,843	2,682	60,840	
Fresh	18,981	5,412	6,489	6,492	4,002	4,072	15,402	19,219	18,051	11,443	3,052	3,064	4,425	101,121	
El Nile															
Drainage only	23,990	6,838	8,188	8,201	5,056	5,144	18,459	24,280	22,805	14,457	3,658	3,871	5,590	127,753	
Fresh	11,621	3,314	3,973	3,975	2,450	2,493	9,430	11,767	11,052	7,006	1,868	1,876	2,709	61,911	
Total of El Nile (Drainage)	35,490	10,094	12,102	12,102	7,463	7,692	28,724	36,644	33,666	21,342	5,692	5,714	8,252	189,692	
Total of El Nile (Ex. Drain)	30,602	8,726	10,461	10,466	6,452	6,564	24,831	30,985	29,103	18,449	4,920	4,940	7,133	163,032	
Total of El Nile	66,002	18,819	22,563	22,573	13,915	14,158	53,556	66,829	62,769	39,791	10,612	10,654	15,385	351,625	
B. Hafir Shehab	6,700	1,910	2,290	2,291	1,413	1,437	5,437	6,784	6,372	4,039	1,077	1,091	1,582	35,894	
Total of D.S. (Drainage)	35,490	10,094	12,102	12,102	7,463	7,692	28,724	36,644	33,666	21,342	5,692	5,714	8,252	189,692	
Total of D.S. (Ex. Drainage)	37,302	10,636	12,752	12,758	7,864	8,001	30,288	37,769	35,475	22,489	5,997	6,021	8,695	198,726	
Total of D.S.	72,792	20,730	24,854	24,865	15,328	15,695	58,992	73,613	69,141	43,831	11,689	11,735	16,947	387,319	
Downstream	18,161	5,178	6,208	6,211	3,829	3,896	14,736	18,389	17,271	10,946	2,920	2,931	4,233	96,753	
Midstream															
B. Hafir Shehab	6,620	2,238	2,754	2,664	1,536	1,647	7,433	8,988	8,410	5,814	1,455	1,213	1,742	45,695	
Total of B. Hafir (Drainage)	35,490	10,094	12,102	12,102	7,463	7,692	28,724	36,644	33,666	21,342	5,692	5,714	8,252	189,692	
Total of B. Hafir (Ex. Drain)	62,063	18,052	21,714	21,633	13,229	13,545	52,437	65,146	61,157	39,051	10,372	10,166	14,671	341,173	
Total of B. Hafir	97,483	28,146	33,816	33,740	20,692	21,138	81,162	100,990	94,823	60,393	16,064	15,880	22,323	523,766	
Raiah Bilqas	14,248	4,816	5,927	5,733	3,306	3,546	15,988	19,345	18,102	12,082	3,131	2,611	3,750	96,347	
B. E. Massara	37,978	12,836	15,798	15,283	8,811	9,451	42,643	51,565	48,250	32,205	8,347	6,960	9,995	262,144	
Total of M.S.	58,946	19,890	24,479	23,690	13,653	14,644	66,075	79,899	74,762	49,900	12,933	10,785	15,487	408,186	
Total (Drainage)	35,490	10,094	12,102	12,102	7,463	7,692	28,724	36,644	33,666	21,342	5,692	5,714	8,252	189,692	
Total (Ex. Drainage)	114,309	35,704	43,439	42,649	25,346	26,542	111,079	136,057	127,508	83,338	21,850	19,737	28,415	701,664	
Total (<+0.0W)	114,309	35,704	43,439	42,649	25,346	26,542	111,079	136,057	127,508	83,338	21,850	19,737	28,415	701,664	
Total	149,709	45,798	55,541	54,756	32,809	34,135	139,804	171,900	161,174	104,680	27,542	25,451	36,667	890,257	

Table F.14.109 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Basandila, Downstream+Midstream) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Downstream															
Drainage only	11,694	3,334	3,998	3,999	2,465	2,508	9,489	11,941	11,121	7,050	1,890	1,888	2,726	62,300	
Downstream	29,066	8,298	9,936	9,841	6,128	6,235	23,585	29,430	27,642	17,523	4,673	4,992	6,775	154,849	
Midstream	18,377	6,211	7,845	7,395	4,264	4,573	20,635	24,951	23,347	15,583	4,039	3,368	4,836	126,848	
Total (Drainage)	11,694	3,334	3,998	2,465	2,508	9,489	11,941	11,121	7,050	1,890	1,888	2,726	2,726	62,300	
Total (Ex. Drainage)	47,443	14,499	17,581	17,336	10,392	10,808	44,219	54,382	50,990	33,107	8,712	8,060	11,612	281,686	
Total (+0.0mD)	47,443	14,499	17,581	17,336	10,392	10,808	44,219	54,382	50,990	33,107	8,712	8,060	11,612	281,686	
Total	59,137	17,833	21,579	21,335	12,857	13,317	53,708	66,222	62,111	40,157	10,592	9,947	14,338	343,996	

Table F.14.110 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Balamoun, Downstream+DS+Midstream) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Downstream															
Fr. Damietta	6,608	1,894	2,259	2,260	1,393	1,417	5,362	6,891	6,284	3,984	1,062	1,067	1,540	35,204	
After K. Saad PS	29,381	8,378	10,044	10,049	6,194	6,302	23,841	29,749	27,942	17,713	4,724	4,742	6,849	156,527	
Before K. Saad PS	14,895	4,190	5,024	5,026	3,098	3,152	11,924	14,879	13,975	8,859	2,363	2,372	3,425	78,287	
Midstream															
Before K. Saad PS	8,165	2,760	3,397	3,288	1,894	2,032	9,168	11,086	10,373	6,924	1,794	1,496	2,149	56,359	
Total (Fr. Damietta)	12,008	3,424	4,105	4,107	2,532	2,576	9,744	12,158	11,420	7,239	1,931	1,938	2,799	63,972	
Total (Fr. Balamoun)	60,852	17,783	21,408	21,305	13,002	13,334	51,920	64,433	60,480	38,888	10,266	10,001	14,430	337,049	
Total (+0.0mD)	60,852	17,783	21,408	21,305	13,002	13,334	51,920	64,433	60,480	38,888	10,266	10,001	14,430	337,049	
Total	72,860	21,206	25,513	25,412	15,534	15,909	61,663	76,592	71,900	45,927	12,196	11,939	17,229	401,021	

Table F.14.111 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: El Sahel, Downstream+DS+Midstream+Upstream) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Balamoun (Fr. Damietta)	12,008	3,424	4,105	4,107	2,532	2,576	9,744	12,153	11,420	7,239	1,931	1,938	2,799	63,972	
Balamoun (Fr. Balamoun)	60,852	17,783	21,408	21,305	13,002	13,334	51,920	64,433	60,480	38,888	10,266	10,001	14,430	337,049	
Balamoun (+0.0mD)	60,852	17,783	21,408	21,305	13,002	13,334	51,920	64,433	60,480	38,888	10,266	10,001	14,430	337,049	
Balamoun (Total)	72,860	21,206	25,513	25,412	15,534	15,909	61,663	76,592	71,900	45,927	12,196	11,939	17,229	401,021	
Downstream															
After B. PS	13,004	3,708	4,445	4,448	2,742	2,789	10,552	13,167	12,367	7,840	2,091	2,099	3,031	69,279	
Before B. PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total of DS	13,004	3,708	4,445	4,448	2,742	2,789	10,552	13,167	12,367	7,840	2,091	2,099	3,031	69,279	
Midstream															
Total at Bndry (Fr. Damietta)	26,878	9,085	11,181	10,816	6,238	6,889	30,180	39,494	34,148	22,792	5,907	4,926	7,074	185,526	
Total at Bndry (Fr. Balamoun)	12,008	3,424	4,105	4,107	2,532	2,576	9,744	12,153	11,420	7,239	1,931	1,938	2,799	63,972	
Total at Bndry (+0.0mD)	106,738	32,972	39,908	39,443	23,752	24,615	92,523	120,173	112,704	72,939	18,263	17,026	24,535	591,853	
Total at Bndry	112,742	33,999	41,139	40,675	24,511	25,389	102,395	126,252	118,414	76,559	20,194	18,964	27,334	655,826	
Upstream															
Total (Fr. Damietta)	8,020	2,943	3,752	3,913	2,290	2,138	8,034	10,286	9,969	6,598	1,913	1,653	2,286	55,773	
Total (Fr. Balamoun)	12,008	3,424	4,105	4,107	2,532	2,576	9,744	12,158	11,420	7,239	1,931	1,938	2,799	63,972	
Total (Ex. Damietta)	108,754	33,518	40,786	40,481	24,269	24,950	100,665	124,380	116,963	75,916	20,177	18,679	26,822	647,626	
Total (+0.0mD)	108,754	33,518	40,786	40,481	24,269	24,950	100,665	124,380	116,963	75,916	20,177	18,679	26,822	647,626	
Total	120,762	36,942	44,891	44,588	26,801	27,526	110,428	136,538	128,383	83,155	22,107	20,617	29,621	711,599	

Table F.14.112 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Bahr El Mallah, Upstream)

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Upstream	67,080	24,618	31,390	32,729	19,150	17,893	67,184	86,030	83,390	55,174	16,003	13,829	19,124	466,491	

Table F.14.113 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Bahr Shebin)

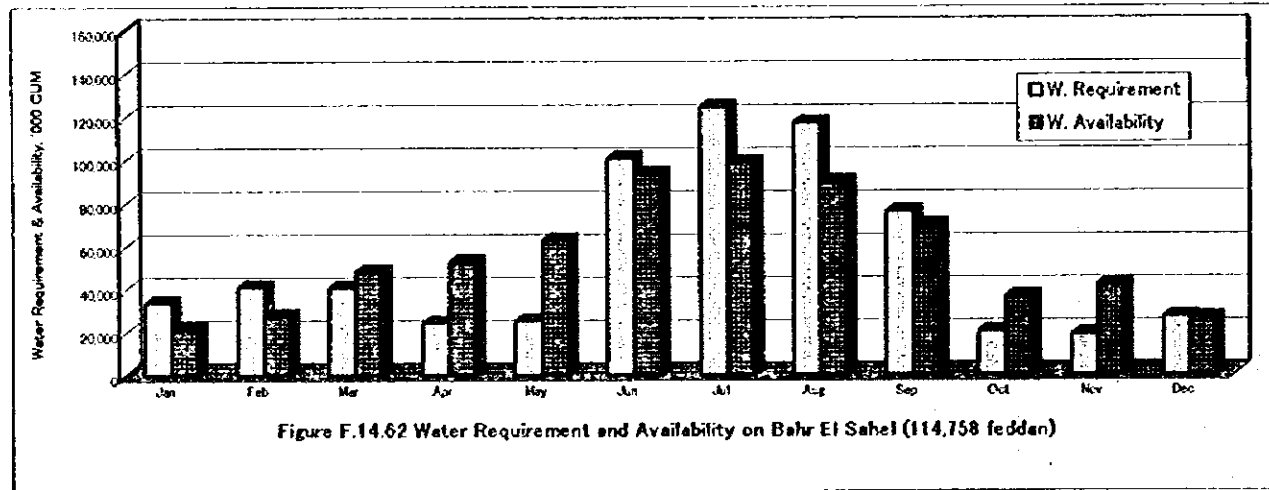
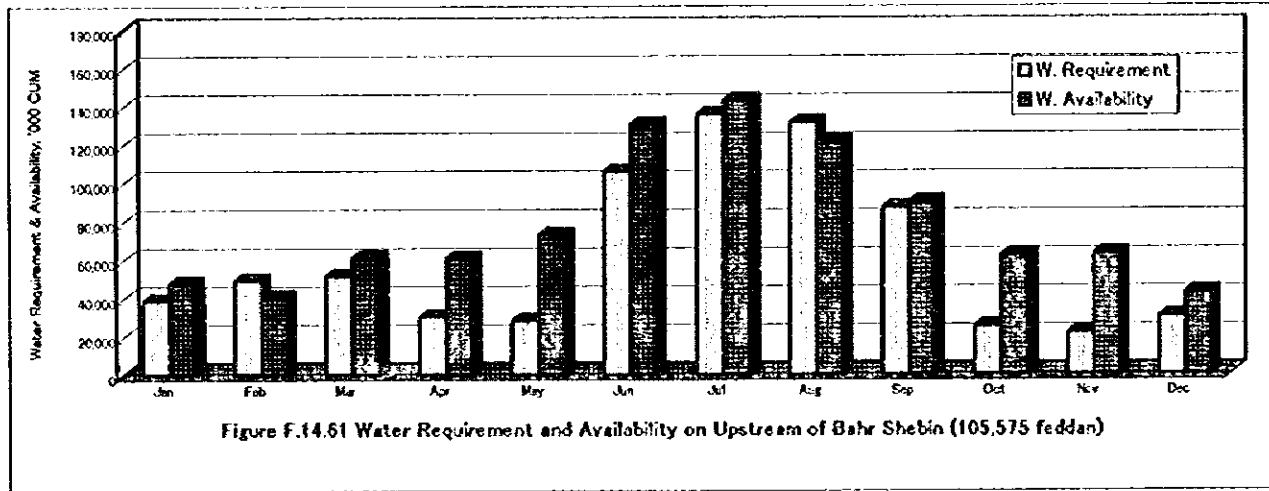
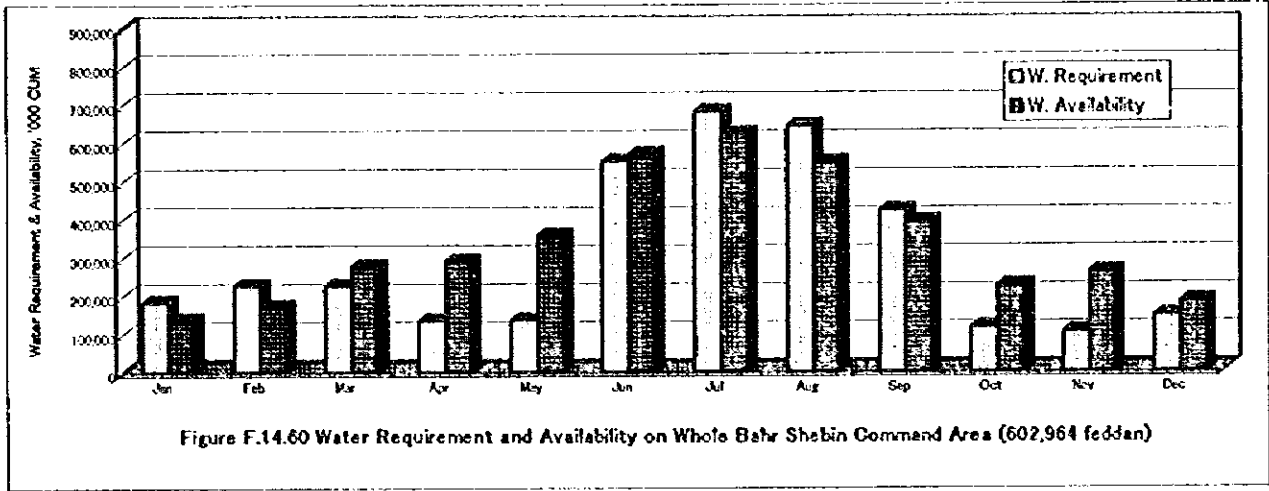
Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
<i>Basandila (Drainage)</i>	11,684	3,334	3,093	3,892	2,465	2,509	9,482	11,841	11,121	2,050	1,882	1,688	2,242	62,302	
Basandila (Ex. Drainage)	47,443	14,499	17,581	17,336	10,392	10,808	44,219	54,392	50,990	33,107	8,712	8,060	11,612	281,664	
Bahr Shebin (MS)	5,025	1,698	2,090	2,022	1,166	1,251	5,942	6,823	6,384	4,261	1,104	921	1,322	34,695	
<i>Raiah Bilqes (Drainage)</i>	35,402	10,694	12,102	12,102	7,463	7,593	28,724	35,844	32,666	21,342	5,692	5,714	8,252	188,592	
Raiah Bilqes (Ex. Drainage)	114,309	35,704	43,439	42,649	25,346	26,542	111,079	136,057	127,508	83,338	21,850	18,737	28,415	701,664	
Bahr Shebin (MS)	35,545	12,014	14,786	14,303	8,247	8,848	39,912	48,261	45,159	30,141	7,812	6,514	9,355	245,350	
<i>Bahr Tera (Drainage)</i>	14,550	4,397	5,322	5,260	3,167	3,253	13,270	16,355	15,339	9,924	2,617	2,451	3,533	84,918	
Bahr Tera (Ex. Drainage)	149,115	45,920	55,747	54,896	32,801	34,197	141,039	173,202	162,371	105,673	27,772	25,476	36,695	895,778	
Bahr Shebin (MS)	1,979	669	823	796	459	492	2,222	2,687	2,514	1,878	435	363	521	13,660	
<i>Total of Above (Drainage)</i>	61,644	17,825	21,422	21,367	13,036	13,394	51,493	64,039	60,126	38,316	10,188	10,053	14,511	335,810	
Total of Above (Ex. Drainage)	353,416	110,504	134,467	131,992	78,410	82,135	344,113	421,412	394,926	258,198	67,686	61,071	87,920	2,172,834	
Total of Above	415,060	128,330	155,889	153,359	91,505	85,520	395,597	485,451	455,052	296,514	77,874	71,124	102,430	2,508,644	
Bahr Shebin (US)	18,470	6,778	8,640	9,012	5,273	4,924	18,501	23,688	22,958	15,192	4,408	3,808	5,268	128,445	
Bahr Sahel (Fr. Damietta)	12,008	3,424	4,105	4,107	2,532	2,576	9,744	12,198	11,420	7,239	1,931	1,938	2,799	63,972	
Bahr Sahel (Ex. Damietta)	108,754	33,518	40,766	40,481	24,269	24,950	100,685	124,360	116,963	75,916	20,177	18,679	26,822	647,626	
Bahr El Mallah	67,080	24,618	31,390	32,729	19,150	17,893	67,184	86,030	83,390	55,174	16,003	13,829	19,124	466,491	
Bahr Shebin (US)	20,025	7,349	9,368	9,770	5,717	5,338	20,059	25,682	24,881	16,471	4,777	4,128	5,709	139,259	
Total (Fr. Damietta)	12,008	3,424	4,105	4,107	2,532	2,576	9,744	12,158	11,420	7,239	1,931	1,938	2,799	63,972	
<i>Total (Drainage)</i>	61,644	17,825	21,422	21,367	13,036	13,394	51,493	64,039	60,126	38,316	10,188	10,053	14,511	335,810	
Total (Ex. Above both)	567,745	182,768	224,642	223,984	132,818	135,231	550,552	681,190	643,118	420,950	113,048	101,514	144,839	3,554,654	
Total (Ex. Damietta)	629,389	200,593	246,063	245,351	145,914	148,615	602,035	745,229	703,244	459,266	123,237	111,567	159,350	3,890,464	
Total of Bahr Shebin	641,397	204,017	250,168	249,458	148,445	151,191	611,779	757,388	714,864	466,505	125,167	113,505	162,149	3,954,437	
+0.0 * Drainage															
Basandila	47,443	14,499	17,581	17,336	10,392	10,808	44,219	54,392	50,990	33,107	8,712	8,060	11,612	281,666	
Bahr Shebin (MS)	5,025	1,698	2,090	2,022	1,166	1,251	5,942	6,823	6,384	4,261	1,104	921	1,322	34,695	
Raiah Bilqes	114,309	35,704	43,439	42,649	25,346	26,542	111,079	136,057	127,508	83,338	21,850	18,737	28,415	701,664	
Bahr Shebin (MS)	35,545	12,014	14,786	14,303	8,247	8,848	39,912	48,261	45,159	30,141	7,812	6,514	9,355	245,350	
Bahr Tera	149,115	45,920	55,747	54,896	32,801	34,197	141,039	173,202	162,371	105,673	27,772	25,476	36,695	895,778	
Bahr Shebin (MS)	1,979	669	823	796	459	492	2,222	2,687	2,514	1,878	435	363	521	13,660	
Total of Above	353,416	110,504	134,467	131,992	78,410	82,135	344,113	421,412	394,926	258,198	67,686	61,071	87,920	2,172,834	
Bahr Shebin (US)	18,470	6,778	8,640	9,012	5,273	4,924	18,501	23,688	22,958	15,192	4,408	3,808	5,268	128,445	
Bahr El Sahel	108,754	33,518	40,766	40,481	24,269	24,950	100,685	124,360	116,963	75,916	20,177	18,679	26,822	647,626	
Bahr El Mallah	67,080	24,618	31,390	32,729	19,150	17,893	67,184	86,030	83,390	55,174	16,003	13,829	19,124	466,491	
Bahr Shebin (US)	20,025	7,349	9,368	9,770	5,717	5,338	20,059	25,682	24,881	16,471	4,777	4,128	5,709	139,259	
Total of Bahr Shebin	567,745	182,768	224,642	223,984	132,818	135,231	550,552	681,190	643,118	420,950	113,048	101,514	144,839	3,554,654	

Table F.14.114 Comparison between Present Cropping Pattern Water Requirement based on Modified Penman Method and Availability, '000 CUM Irriga. Efficiency= 0.66

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Bahr Tera (Required)	148,115	45,920	55,747	54,886	32,801	34,187	141,039	173,202	162,371	105,673	27,772	25,476	36,695	895,778	
Bahr Tera (Available)	28%	32,127	41,973	78,222	88,432	104,322	151,922	185,290	153,839	120,257	71,373	74,712	52,990	1,133,458	
Surplus or Deficit, %		-43	-33	30	62	67	7	-5	-6	12	61	86	31	21	
Rahbeen (Required)	353,416	110,504	134,487	131,992	78,410	82,135	344,113	421,412	394,926	258,198	67,686	61,071	87,920	2,172,834	
Rahbeen (Available)	62%	65,958	100,550	165,646	175,730	221,416	344,977	379,982	336,172	232,179	125,132	155,318	112,741	2,415,802	
Surplus or Deficit, %		-88	-34	20	55	63	0	-11	-17	-11	48	61	22	10	
Bahr El Sahel (Required)	108,754	33,518	40,786	40,481	24,269	24,950	100,885	124,380	116,963	75,916	20,177	18,679	26,822	647,626	
Bahr El Sahel (Available)	19%	21,386	27,318	47,985	52,629	62,817	93,264	98,446	89,747	69,368	36,356	41,932	26,150	667,199	
Surplus or Deficit, %		-57	-49	16	54	60	-8	-28	-30	-9	45	55	-3	3	
Bahr Shebin (Required)	567,745	182,768	224,642	223,984	132,818	135,231	550,552	681,190	643,118	420,950	113,048	101,514	144,839	3,554,654	
Bahr Shebin (Available)	100%	135,169	168,264	274,616	289,145	356,904	568,640	621,467	547,233	391,532	223,846	260,253	181,803	4,026,117	
Surplus or Deficit, %		-35	-34	18	54	62	3	-10	-18	-8	49	61	20	12	
After Bahr Tera (Raiha Biliqas & Baandilla)															
Required	202,322	63,916	77,897	76,310	45,150	47,448	200,853	245,522	230,041	150,847	39,479	35,292	50,704	1,263,398	
Available	36%	33,162	57,754	86,828	88,838	116,602	190,833	212,005	179,820	110,244	53,324	80,243	59,230	1,268,683	
Surplus or Deficit, %		-93	-35	12	49	58	-5	-16	-28	-37	26	58	14	0	
Before Sahel-Rahbeen (Upstream of Bahr Shebin)															
Required	105,575	38,745	49,388	51,511	30,139	28,145	105,754	135,399	131,229	86,836	25,186	21,764	30,088	724,194	
Available	19%	47,825	40,386	60,985	60,787	72,871	130,399	143,039	121,314	89,985	62,357	63,003	42,911	943,117	
Surplus or Deficit, %		19	-22	18	50	61	19	5	-8	3	60	65	30	22	
Irrigation Efficiency=	0.66														
Total of Bahr Shebin DS	303,927														
Total of Bahr Shebin MS	223,875														
Total of Bahr Shebin UP	113,595														
Total of Bahr Shebin	641,397														
Total of Other US	53,826														
Total	695,223	Excluding New Reclamation Area of 56,000 feddan													
Total of Upstream	167,421														
Total of Midstream	223,875														
Total of Downstream	303,927														
New Reclamation area	56,000														
Total	751,223	695,223 (excluding New Reclamation Area of 56,000 feddan)													

Table F.14.11.0 Unit Water Requirement based on Modified Panman Method in CU/M per Feedton (Midstream Area)

Crop	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
ET _o , mm/month	78	70	66	62	57	51	45	39	34	30	28	27	69	1,749
ET _o , mm/10days	26	23	22	21	19	17	15	13	11	10	9	9	23	58
Smart Greenstem	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net W. Req. QUM/10days	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wheat	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Net W. Req. QUM/10days	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Long Greenstem	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Net W. Req. QUM/10days	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Broad Beans	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net W. Req. QUM/10days	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Winter Crop	0.78	0.87	0.95	0.98	1.00	1.00	0.80	0.70	0.65	0.65	0.65	0.65	0.65	0.65
Flax	0.63	0.70	0.78	0.87	0.95	0.98	1.00	0.80	0.70	0.65	0.65	0.65	0.65	0.65
Winter Vegetable	0.70	0.75	0.82	0.89	0.95	0.98	0.92	0.90	0.73	0.66	0.65	0.65	0.65	0.65
Onion	0.65	0.65	0.70	0.75	0.82	0.89	0.95	0.92	0.90	0.73	0.66	0.65	0.65	0.65
Net W. Req. QUM/10days	0.65	0.65	0.70	0.75	0.82	0.89	0.95	0.92	0.90	0.73	0.66	0.65	0.65	0.65
Cotton	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Net W. Req. QUM/10days	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Summer Maize	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Net W. Req. QUM/10days	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Potato	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Net W. Req. QUM/10days	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Net W. Req. (Eto) QUM/10days	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Lent Preparation, QUM/10days	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Panicle, QUM/10days	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Net W. Req. QUM/10days	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Tomato	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Net W. Req. QUM/10days	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Tree Onion	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net W. Req. QUM/10days	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Total, mm	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, QUM/10days	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, mm	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, QUM/10days	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, mm	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, QUM/10days	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, mm	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, QUM/10days	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, mm	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, QUM/10days	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, mm	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, QUM/10days	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, mm	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246
Net Total, QUM/10days	184	163	153	143	133	123	113	103	93	83	73	63	163	4,246



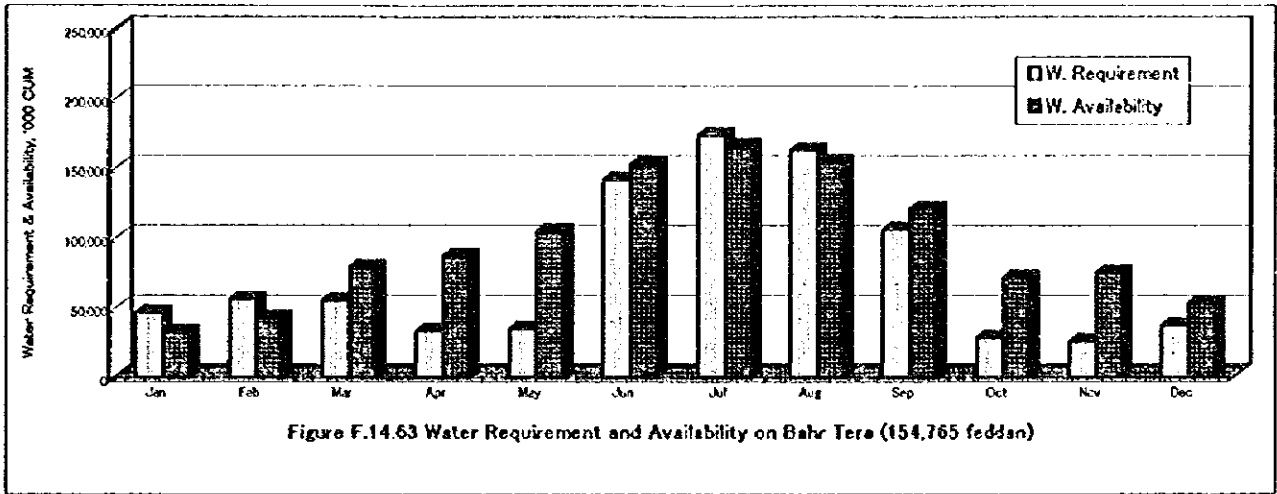


Figure F.14.63 Water Requirement and Availability on Bahr Tera (154,765 feddan)

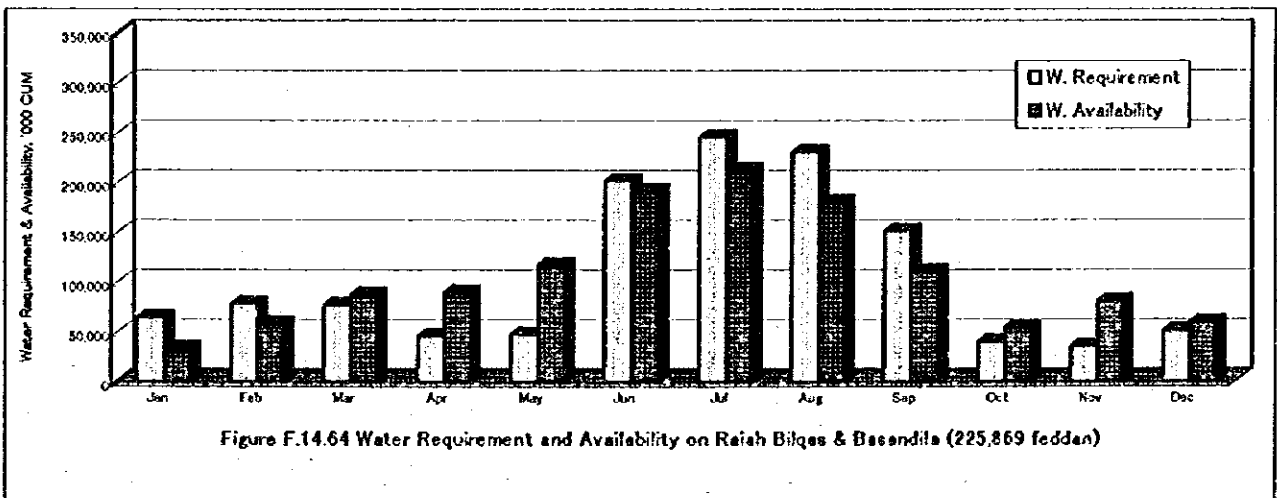


Figure F.14.64 Water Requirement and Availability on Raiah Bilqas & Basandila (225,869 feddan)

Table F.14.120 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Bahr Tera, Downstream+Midstream) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Downstream															
After MPS															
Mixing	39,055	11,136	13,351	13,357	8,234	3,377	31,890	39,544	37,142	23,545	6,279	6,304	9,104	208,065	
Drainage only	2,650	927	1,111	1,412	665	692	2,627	3,291	3,091	1,899	522	526	768	17,314	
Drainage (Mixed)	6,600	1,882	2,259	2,257	1,301	1,416	5,355	6,603	6,277	3,979	1,061	1,065	1,539	35,161	
El Mansour	45,700	13,031	15,623	15,630	9,635	9,903	37,082	46,273	43,462	27,552	7,348	7,377	10,653	243,466	
Before MPS															
Fresh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Drainage (Mixed)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total of D.S.(Drainage)	9,650	2,802	3,367	3,669	2,027	2,113	7,993	9,923	9,369	5,928	1,594	1,590	2,298	52,478	
Total of D.S.	84,755	24,167	28,974	28,987	17,869	18,180	60,772	85,817	80,604	51,087	13,627	13,681	19,757	451,531	
Total of D.S.	84,805	26,975	32,341	32,356	19,948	20,293	78,765	95,790	89,971	57,035	15,211	15,270	22,053	504,007	
Midstream															
Fresh	64,360	21,753	26,773	25,989	14,932	16,017	72,286	87,385	81,767	54,576	14,145	11,795	16,898	444,246	
Drainage (Mixed)	4,700	1,599	1,955	1,991	1,090	1,170	5,277	6,367	5,971	3,968	1,033	861	1,237	32,442	
Total (Drainage)	14,550	4,392	5,322	5,260	3,167	3,283	13,270	16,355	15,339	9,924	2,617	2,451	3,533	84,918	
Total (Ex. Drainage)	149,115	45,920	55,747	54,886	32,801	34,197	141,039	173,202	162,371	105,673	27,772	25,476	36,895	395,778	
Total (+0.7 or 0.5+D)	154,765	48,349	58,695	57,790	34,538	36,007	146,355	179,734	168,495	108,625	28,819	26,825	38,637	943,100	
Total	163,665	50,317	61,089	60,148	35,968	37,480	154,309	189,557	177,710	115,597	30,388	27,927	40,228	980,695	

Table F.14.121 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Raiah Bilqas, Downstream+Midstream) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Downstream															
El Eshah															
Drainage only	11,420	3,258	3,804	3,906	2,409	2,450	9,268	11,563	10,861	6,885	1,836	1,843	2,682	60,840	
Fresh	18,981	5,412	6,489	6,492	4,002	4,072	15,402	19,219	18,051	11,443	3,052	3,084	4,425	101,121	
El Nile															
Drainage only	23,980	6,838	8,188	8,201	5,058	5,144	18,458	24,280	22,805	14,457	3,658	3,671	5,590	127,763	
Fresh	11,921	3,314	3,973	3,975	2,450	2,493	9,430	11,767	11,052	7,006	1,868	1,876	2,709	61,911	
Total of El Nile (Drainage)	35,400	10,084	12,102	12,107	7,493	7,593	28,724	35,844	33,689	21,342	5,692	5,714	8,292	189,593	
Total of El Nile (Ex. Drain)	30,802	8,726	10,461	10,466	6,452	6,564	24,831	30,985	29,103	18,449	4,920	4,940	7,133	163,032	
Total of El Nile	66,002	18,819	22,563	22,573	13,915	14,158	53,556	66,829	62,799	39,791	10,612	10,854	15,395	351,625	
B. Hafir Shehab	6,700	1,910	2,290	2,291	1,413	1,437	5,437	6,784	6,372	4,039	1,077	1,091	1,582	35,694	
Total of D.S. (Drainage)	35,400	10,084	12,102	12,107	7,493	7,593	28,724	35,844	33,689	21,342	5,692	5,714	8,292	189,593	
Total of D.S. (Ex. Drainage)	37,302	10,636	12,752	12,758	7,864	8,001	30,288	37,769	35,475	22,498	5,997	6,021	8,695	198,726	
Total of D.S.	72,702	20,790	24,854	24,865	15,328	15,595	58,992	73,613	69,141	43,831	11,689	11,735	16,947	387,319	
Downstream	18,161	5,178	6,208	6,211	3,829	3,896	14,736	18,389	17,271	10,949	2,920	2,931	4,233	96,753	
Midstream															
B. Hafir Shehab	6,620	2,238	2,754	2,864	1,536	1,647	7,433	8,988	8,410	5,814	1,455	1,213	1,742	45,695	
Total of B. Hafir (Drainage)	35,400	10,084	12,102	12,107	7,463	7,593	28,724	35,844	33,689	21,342	5,692	5,714	8,292	189,593	
Total of B. Hafir (Ex. Drain)	62,083	18,052	21,714	21,833	13,229	13,545	52,437	65,146	61,157	39,051	10,372	10,166	14,671	341,173	
Total of B. Hafir	97,483	28,146	33,816	33,740	20,892	21,138	81,162	100,990	94,823	60,393	16,064	15,980	22,923	529,766	
Raiah Bilqas	14,248	4,816	5,927	5,733	3,306	3,546	15,998	19,345	18,102	12,082	3,131	2,811	3,750	98,247	
B. E. Meneera	37,978	12,836	15,798	15,283	8,911	9,451	42,843	51,585	49,250	32,205	8,947	8,990	9,995	262,144	
Total of M.S.	58,848	18,890	24,479	23,890	13,653	14,644	66,075	79,839	74,762	49,900	12,933	10,785	15,487	408,186	
Total (Drainage)	35,400	10,084	12,102	12,107	7,463	7,593	28,724	35,844	33,689	21,342	5,692	5,714	8,292	189,593	
Total (Ex. Drainage)	114,309	35,704	43,439	42,649	25,346	26,542	111,079	136,057	127,508	83,338	21,850	19,737	28,415	701,664	
Total (+0.7 or 0.5+D)	132,008	42,770	51,911	51,124	30,570	31,857	125,441	153,978	144,341	94,000	24,896	23,737	34,192	808,626	
Total	149,709	45,798	55,541	54,756	32,808	34,135	139,804	171,900	161,174	104,680	27,542	25,451	36,667	890,257	

Table F.14.122 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Baeandila, Downstream+Midstream) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Downstream															
Drainage only															
	11,694	3,334	3,998	3,999	2,465	2,508	9,469	11,841	11,121	7,050	1,889	1,888	2,728	62,300	
Downstream	29,066	8,288	9,936	9,941	6,128	6,235	23,585	29,430	27,642	17,523	4,673	4,692	6,775	154,849	
Midstream	18,377	6,211	7,845	7,395	4,264	4,573	20,835	24,851	23,347	15,933	4,039	3,368	4,936	126,848	
Total (Drainage)	11,694	3,334	3,998	3,999	2,465	2,508	9,469	11,841	11,121	7,050	1,889	1,888	2,728	62,300	
Total (Ex. Drainage)	47,443	14,499	17,381	17,336	10,392	10,808	44,219	54,382	50,950	33,107	6,712	6,060	11,812	281,696	
Total (+0.7 or 0.5#D)	53,290	16,833	20,379	20,135	12,117	12,564	48,964	60,302	56,550	36,632	9,652	9,381	13,520	317,030	
Total	59,137	17,833	21,579	21,335	12,857	13,317	53,708	66,222	62,111	40,157	10,592	9,947	14,338	343,988	

Table F.14.123 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Balamoun, Downstream+DS+Midstream) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Downstream															
Fr. Damietta	6,608	1,894	2,259	2,260	1,393	1,417	5,362	6,691	6,284	3,984	1,062	1,067	1,540	35,204	
Balamoun	8,611	2,455	2,944	2,945	1,815	1,847	6,987	8,719	8,189	5,191	1,384	1,390	2,007	45,875	
Downstream															
Fr. Damietta	5,400	1,540	1,846	1,847	1,138	1,158	4,382	5,488	5,136	3,256	868	872	1,259	28,768	
After K. Saad PS	29,381	8,378	10,044	10,049	6,184	6,302	23,641	29,749	27,942	17,713	4,724	4,742	6,846	156,527	
Befor K. Saad PS	14,695	4,190	5,024	5,026	3,098	3,152	11,924	14,879	13,975	8,859	2,363	2,372	3,425	78,287	
Midstream															
Befor K. Saad PS	8,165	2,760	3,397	3,286	1,894	2,032	9,168	11,086	10,373	6,924	1,794	1,496	2,149	56,350	
Total (Fr. Damietta)	12,008	3,424	4,105	4,107	2,532	2,576	9,744	12,158	11,420	7,239	1,931	1,938	2,799	63,972	
Total (Fr. Balamoun)	60,852	17,783	21,408	21,305	13,002	13,334	51,920	64,433	60,480	38,688	10,266	10,001	14,430	337,049	
Total (+0.7 or 0.5#D)	66,856	20,179	24,281	24,180	14,774	15,137	56,791	70,513	66,190	42,307	11,231	11,358	16,390	373,331	
Total	72,960	21,208	25,513	25,412	15,534	15,909	61,663	76,592	71,900	45,927	12,196	11,938	17,229	401,021	

Table F.14.124 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: El Sahel, Downstream+DS+Midstream+Upstream) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Balamoun (Fr. Damietta)	12,008	3,424	4,105	4,107	2,532	2,576	9,744	12,158	11,420	7,239	1,931	1,938	2,799	63,972	
Balamoun (Fr. Balamoun)	60,852	17,783	21,408	21,305	13,002	13,334	51,920	64,433	60,480	38,688	10,266	10,001	14,430	337,049	
Balamoun (+0.7 or 0.5#D)	66,856	20,179	24,281	24,180	14,774	15,137	56,791	70,513	66,190	42,307	11,231	11,358	16,390	373,331	
Balamoun (Total)	72,860	21,208	25,513	25,412	15,534	15,909	61,663	76,592	71,900	45,927	12,196	11,939	17,229	401,021	
Downstream															
After B. PS	13,004	3,708	4,445	4,448	2,742	2,789	10,552	13,167	12,367	7,840	2,091	2,099	3,031	69,279	
Befor B. PS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total of DS	13,004	3,708	4,445	4,448	2,742	2,789	10,552	13,167	12,367	7,840	2,091	2,099	3,031	69,279	
Midstream															
Total at B'ndry (Fr. Damietta)	26,878	8,085	11,181	10,816	6,236	6,689	30,190	36,494	34,148	22,792	5,907	4,928	7,074	185,526	
Total at B'ndry (Fr. Balamoun)	12,008	3,424	4,105	4,107	2,532	2,576	9,744	12,158	11,420	7,239	1,931	1,938	2,799	63,972	
Total at B'ndry (Fr. Balamoun)	100,734	30,575	37,024	36,568	21,980	22,812	92,651	114,094	106,994	69,320	18,263	17,028	24,535	501,853	
Total at B'ndry (+0.7 or 0.5#D)	106,738	32,972	39,908	39,443	23,752	24,615	97,532	120,173	112,704	72,939	19,229	18,383	26,495	628,136	
Total at B'ndry	112,742	33,989	41,139	40,875	24,511	25,388	102,395	128,252	118,414	76,559	20,184	18,964	27,334	655,828	
Upstream															
Total (Fr. Damietta)	8,020	2,943	3,752	3,913	2,290	2,138	8,034	10,286	9,669	6,596	1,913	1,653	2,286	55,773	
Total (Ex. Damietta)	108,754	33,518	40,786	40,481	24,268	24,950	100,685	124,380	116,963	75,916	20,177	18,679	26,822	647,626	
Total (+0.5 or 0.7#D)	114,758	35,915	43,680	43,356	26,041	26,753	105,557	130,456	122,673	79,536	21,142	20,036	28,781	683,909	
Total	120,762	36,942	44,891	44,588	26,801	27,528	110,428	136,538	128,383	83,155	22,107	20,817	29,821	711,599	

Table F.14.125 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Bahr El Mollah, Upstream) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Upstream	67,080	24,818	31,380	32,729	19,150	17,883	67,194	86,030	83,380	55,174	18,003	13,829	19,124	466,491	

Table F.14.126 Present Cropping Pattern Water Requirement in '000 CUM based on Modified Penman Method (Canal: Bahr Shebin) 1/1

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
<i>Beandilia (Drainage)</i>	11,684	3,234	3,888	3,688	2,662	2,508	8,408	11,841	11,121	7,050	1,880	1,688	2,128	62,300	
Beandilia (Ex. Drainage)	47,443	14,489	17,581	17,336	10,382	10,808	44,219	54,382	50,990	33,107	8,712	8,060	11,612	281,698	
Bahr Shebin (MS)	5,025	1,698	2,090	2,022	1,168	1,251	5,842	6,323	6,384	4,261	1,104	921	1,322	34,685	
<i>Rajah Bilgas (Drainage)</i>	33,402	10,094	12,102	12,102	7,463	7,593	26,124	35,844	33,666	21,342	5,692	5,714	6,242	188,593	
Rajah Bilgas (Ex. Drainage)	114,308	35,704	43,439	42,649	25,346	26,542	111,078	136,057	127,508	83,338	21,850	19,737	28,415	701,684	
Bahr Shebin (MS)	95,545	12,014	14,786	14,303	8,247	8,946	39,912	48,261	45,159	30,141	7,812	6,514	9,355	245,350	
<i>Bahr Tera (Drainage)</i>	14,550	4,327	5,322	5,280	3,167	3,263	13,270	16,365	15,339	9,924	2,617	2,451	3,533	84,918	
Bahr Tera (Ex. Drainage)	149,115	45,920	55,747	54,366	32,801	34,197	141,039	173,202	162,371	105,873	27,772	25,478	36,695	895,778	
Bahr Shebin (MS)	1,979	689	823	796	459	492	2,222	2,687	2,514	1,678	435	363	521	13,660	
<i>Total of Above (Drainage)</i>	61,644	17,625	21,422	21,367	13,098	13,384	51,483	64,039	60,126	38,318	10,188	10,053	14,511	332,810	
Total of Above (Ex. Drainage)	353,416	110,504	134,467	131,992	78,410	82,135	344,113	421,412	394,926	258,198	67,686	61,071	87,920	2,172,834	
Total of Above	415,060	128,330	155,889	153,359	91,505	95,520	395,597	495,451	455,052	296,514	77,874	71,124	102,430	2,508,644	
Bahr Shebin (US)	18,470	6,778	8,640	9,012	5,273	4,924	18,501	23,688	22,958	15,192	4,406	3,903	5,266	128,445	
Bahr Sahel (Fr. Damietta)	12,008	3,424	4,105	4,107	2,532	2,576	9,744	12,158	11,420	7,239	1,931	1,938	2,789	63,972	
Bahr Sahel (Ex. Damietta)	108,754	33,518	40,786	40,481	24,269	24,950	100,895	124,380	116,963	75,916	20,177	18,879	26,822	647,626	
Bahr El Mollah	87,080	24,618	31,380	32,729	19,150	17,883	67,194	86,030	83,380	55,174	18,003	13,829	19,124	466,491	
Bahr Shebin (US)	20,025	7,349	9,368	9,770	5,717	5,338	20,059	25,682	24,891	16,471	4,777	4,128	5,708	139,259	
Total (Fr. Damietta)	12,008	3,424	4,105	4,107	2,532	2,576	9,744	12,158	11,420	7,239	1,931	1,938	2,789	63,972	
<i>Total (Drainage)</i>	91,644	27,622	33,222	33,098	19,384	18,960	61,483	76,197	71,538	43,557	11,119	10,053	14,511	335,810	
Total (Ex. Above both)	567,745	182,768	224,842	223,984	132,818	135,231	550,552	681,190	643,118	420,950	113,048	101,514	144,639	3,554,854	
Total (Ex. Damietta)	628,389	200,593	246,093	245,351	145,914	148,615	602,035	745,228	703,244	459,266	123,237	111,567	159,350	3,890,464	
Total of Bahr Shebin	641,397	204,017	250,188	249,458	148,445	151,191	611,779	757,388	714,664	466,505	125,167	113,505	162,149	3,954,437	
+0.7 or 0.5 * Drainage															
Beandilia	53,280	16,833	20,379	20,135	12,117	12,584	49,964	60,302	56,550	36,632	9,652	9,381	13,520	317,030	
Bahr Shebin (MS)	5,025	1,698	2,090	2,022	1,168	1,251	5,842	6,323	6,384	4,261	1,104	921	1,322	34,685	
Rajah Bilgas	132,009	42,770	51,911	51,124	30,570	31,857	125,441	153,978	144,341	94,009	24,696	23,737	34,192	808,626	
Bahr Shebin (MS)	35,545	12,014	14,786	14,303	8,247	8,946	39,912	48,261	45,159	30,141	7,812	6,514	9,355	245,350	
Bahr Tera	154,765	48,349	58,695	57,790	34,538	36,007	146,855	179,784	168,495	109,655	28,819	26,825	38,637	943,100	
Bahr Shebin (MS)	1,979	689	823	796	459	492	2,222	2,687	2,514	1,678	435	363	521	13,660	
Total of Above	382,613	122,333	148,695	146,171	87,087	91,017	368,537	451,786	423,443	276,376	72,518	67,740	97,547	2,362,451	
Bahr Shebin (US)	18,470	6,778	8,640	9,012	5,273	4,924	18,501	23,688	22,958	15,192	4,406	3,908	5,266	128,445	
Bahr El Sahel	114,758	35,915	43,660	43,356	26,041	26,753	105,557	130,459	122,973	79,536	21,142	20,036	28,781	683,909	
Bahr El Mollah	67,080	24,618	31,380	32,729	19,150	17,883	67,194	86,030	83,380	55,174	18,003	13,829	19,124	466,491	
Bahr Shebin (US)	20,025	7,349	9,368	9,770	5,717	5,338	20,059	25,682	24,891	16,471	4,777	4,128	5,708	139,259	
Total of Bahr Shebin	602,946	196,993	241,733	241,038	143,271	145,915	578,947	717,844	677,346	442,748	118,846	109,541	156,426	3,780,554	

Table F.14.127 Comparison between Present Cropping Pattern Water Requirement based on Modified Penman Method and Availability, '000 CUM Irriga. Efficiency= 0.88
Remarks

Location	Area, f	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Remarks
Bahr Tera (Required)	154,785	48,349	58,695	57,790	34,338	36,007	148,355	179,734	168,495	109,655	28,819	26,825	38,637	943,100	
Bahr Tera (Available)	28%	32,127	41,973	78,222	86,432	104,322	151,922	165,290	153,839	120,257	71,373	74,712	52,990	1,133,458	
Surplus or Deficit, %		-50	-40	26	60	65	4	-9	-10	9	60	64	27	17	
Rahbeen (Required)	382,613	122,333	143,635	146,171	87,097	91,017	388,537	451,786	423,443	276,376	72,518	67,740	97,547	2,362,451	
Rahbeen (Available)	63%	65,958	100,550	165,646	175,730	221,416	344,977	379,892	336,172	232,179	125,132	155,318	112,741	2,415,802	
Surplus or Deficit, %		-85	-48	12	50	59	-7	-19	-26	-19	42	56	13	2	
Bahr El Sahel (Required)	114,758	35,915	43,690	43,356	26,041	26,753	105,557	130,459	122,673	79,536	21,142	20,036	28,781	683,909	
Bahr El Sahel (Available)	19%	21,386	27,318	47,985	52,829	62,617	93,264	98,446	89,747	69,368	36,356	41,932	28,150	667,199	
Surplus or Deficit, %		-68	-60	10	51	57	-13	-33	-37	-15	42	52	-10	-3	
Bahr Shebin (Required)	602,946	196,993	241,733	241,038	143,277	145,915	579,847	717,644	677,346	442,748	118,846	109,541	156,428	3,780,554	
Bahr Shebin (Available)	100%	135,169	168,264	274,616	289,145	356,904	568,640	621,467	547,233	391,532	223,946	260,253	181,803	4,026,117	
Surplus or Deficit, %		-46	-44	12	50	59	-2	-15	-24	-13	47	58	14	6	
After Bahr Tera (Raiah Bilqas & Basandila)															
Required	225,869	73,315	89,167	87,585	52,100	54,517	219,959	269,364	252,434	165,043	43,265	40,553	58,389	1,405,691	
Available	37%	33,162	57,754	86,628	88,838	116,602	190,833	212,005	179,820	110,244	53,324	59,243	59,230	1,268,623	
Surplus or Deficit, %		-121	-54	-1	41	53	-15	-27	-40	-50	19	49	1	-11	
Before Sahel-Rahbeen (Upstream of Bahr Shebin)															
Required	105,575	38,745	49,388	51,511	30,139	28,145	105,754	135,399	131,229	86,836	25,186	21,764	30,098	734,194	
Available	18%	47,825	40,396	60,995	60,787	72,871	130,399	149,039	121,314	89,985	62,357	63,003	42,911	943,117	
Surplus or Deficit, %		19	-22	16	50	61	19	5	-8	3	60	65	30	22	
Irrigation Efficiency=	0.88														
Total of Bahr Shebin DS	303,927														
Total of Bahr Shebin MS	223,875														
Total of Bahr Shebin UP	113,595														
Total of Bahr Shebin	641,397														
Total of Other US	53,826														
Total	695,223														
															Excluding New Reclamation Area of 56,000 feddan
Total of Upstream	167,421														
Total of Midstream	223,875														
Total of Downstream	303,927														
New Reclamation area	56,000														
Total	751,223														695,223 (excluding New Reclamation Area of 56,000 feddan)

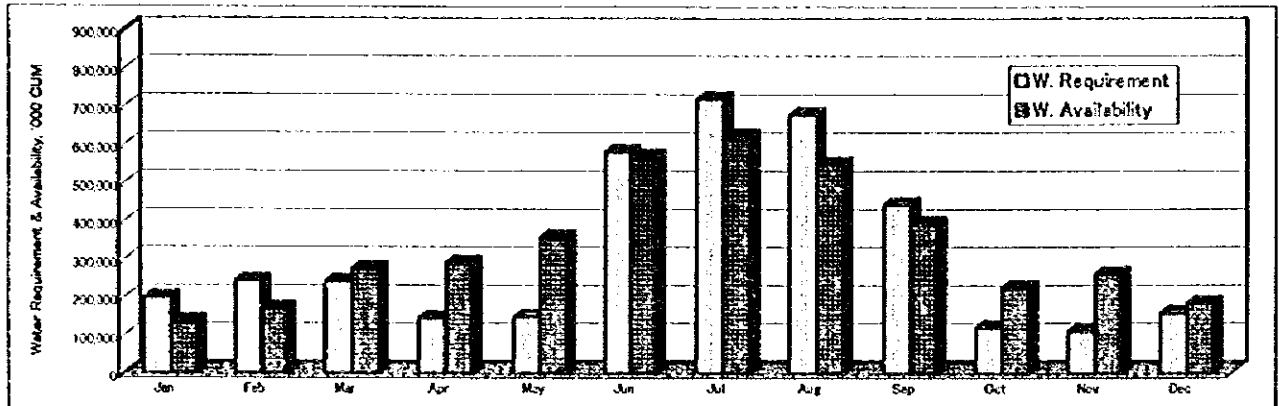


Figure F.14.65 Water Requirement and Availability on Whole Bahr Shebin Command Area (602,964 feddan)

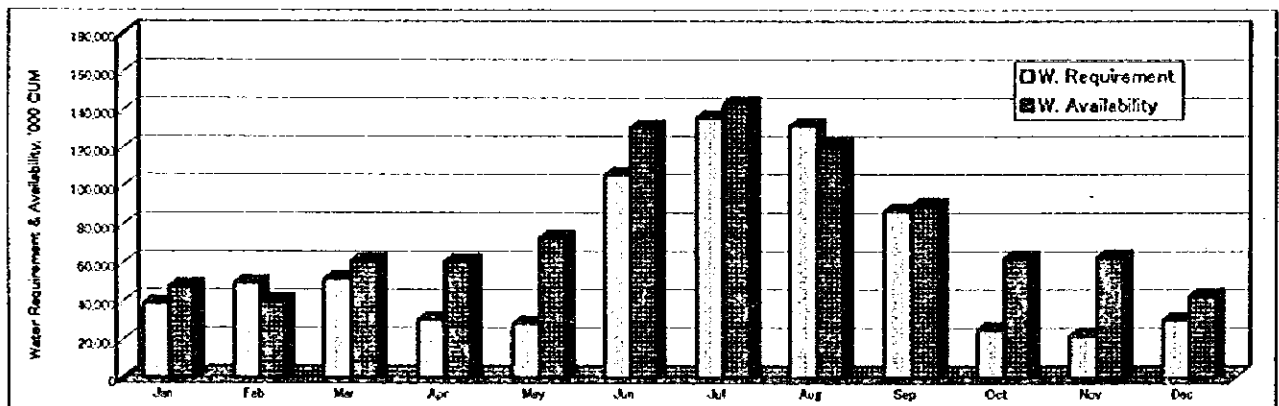


Figure F.14.66 Water Requirement and Availability on Upstream of Bahr Shebin (105,575 feddan)

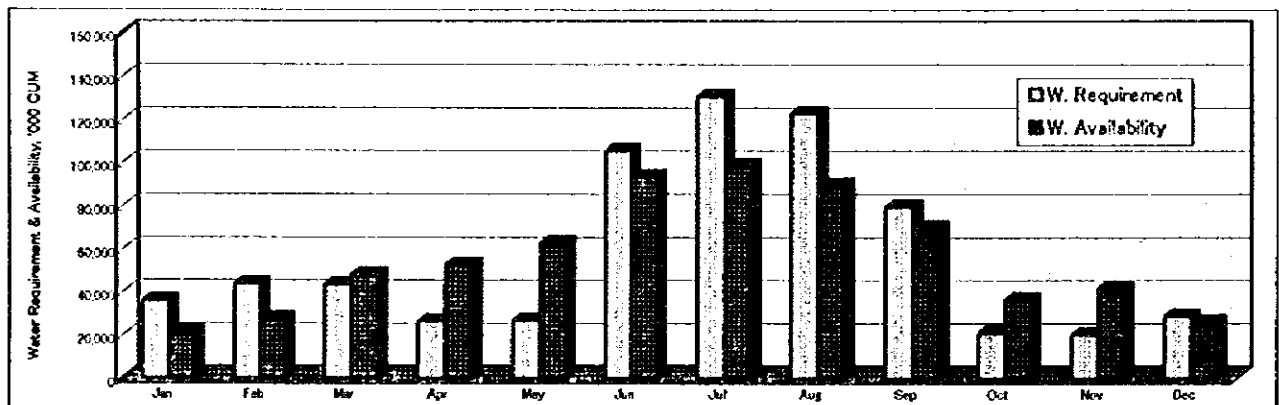
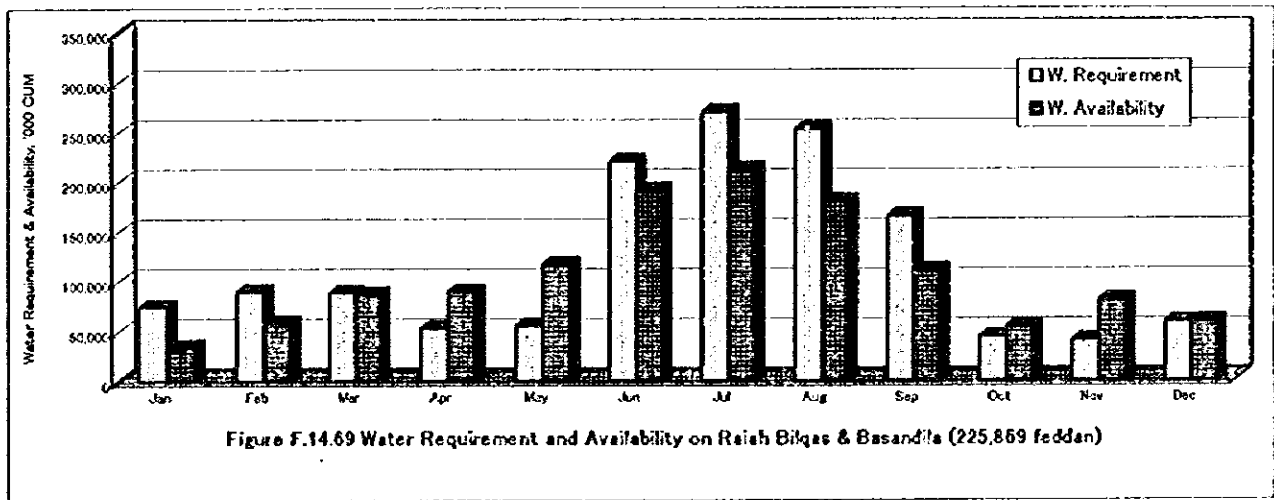
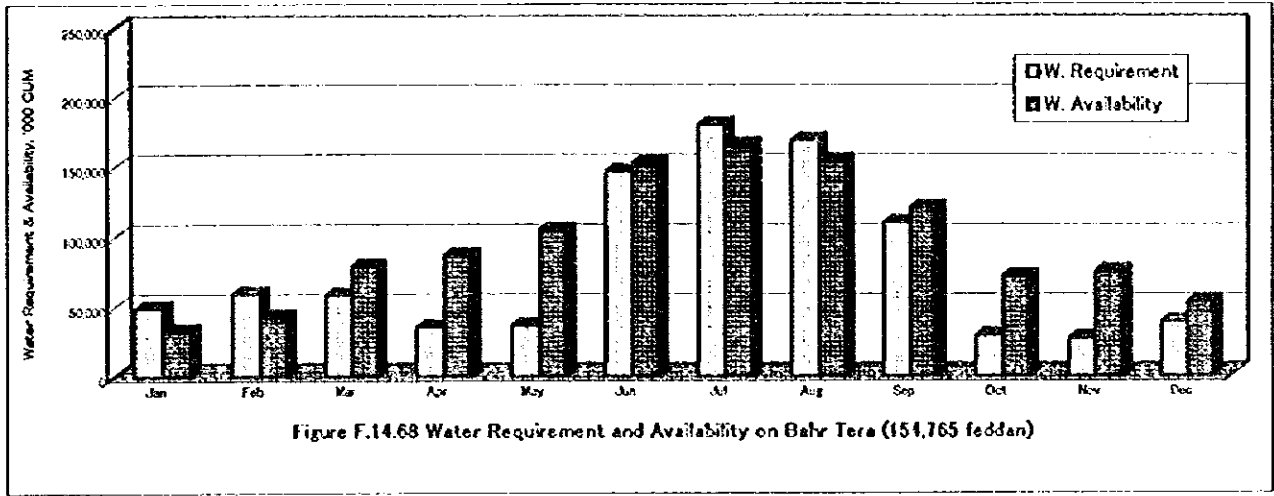


Figure F.14.67 Water Requirement and Availability on Bahr El Sahel (114,758 feddan)



F.15 Canal and Meska Inventory in the Feasibility Study Area

F.15.1 Canal Features and Area Served

The priority area is composed of whole Biyala and a part of Hamoul Water Districts, both of which fall in Biyala Irrigation Inspection under Kafr El Sheikh Irrigation Directorate. The main canal is Bahr Tera. The canal's total length is 63.7 km, of which 35.5 km is in the priority area. The service area in the priority area is 56,930 feddans (total Bahr Tera command area is 163,665 feddans).

There are 29 delivery canals being operated under rotational irrigation. Of the 29 delivery canals, 8 canals are categorized in 2nd delivery branching from such 1st deliveries as Bahr Biyala, Abshan and El Banawan El Asfal. Also, 10 deliveries are Ganabias which run in parallel to the main canal of Bahr Tera. The area served by delivery ranges between 300 and 5,470 feddans with the average of 1,800 feddans (760 ha). The length of delivery varies from 0.5 to 17.4 km with the average of 4.83 km (See Table F.15.1 & Table F.15.2).

F.15.2 Meska Information

A survey had been carried out during Phase II study in collaboration with IAS field agents, inquiring length, area served, water shortage, night irrigation, tail conditions and spillage, and so on for all Meskas in the Feasibility Study (priority) area (See Tables F.15.3 to F.15.14).

There are total 194 Meskas, and the total area served is 27,060 feddans which occupies 48 % of the whole irrigation area of 56,930 feddans. The remaining area, about half the whole area, is served by direct irrigation practiced either legally or illegally. The area served by Meska varies widely between as small as 13 feddans and as large as 1,000 feddans. The average area per Meska is worked out at 139 feddans (58 ha). Summing up the length of the 194 Meskas, a total of 246 km is worked out, giving an average length per Meska of 1.3 km.

Meska is supposed to be equipped with gate at the intake. However, since rotational irrigation is controlled at delivery canal level, no need is arisen to control the discharge into Meska. With this situation, only 34 Meskas (18%) have operational gate at those intakes, while others have only pipes taking water from the delivery canal.

Meska maintenance is carried out by either manually or dredger or the both. Of the total 194 Meskas, farmers reported that 30 Meskas (15%) had been maintained manually. However the maintenance work has not been regularly carried out and has not engaged all farmers concerned. Thus, the maintenance level remains somewhat poor. On the other hand, 152 Meskas (80%) were reported to have been regularly maintained by dredger (small excavator). The dredger is owned by agricultural cooperative to which farmers belong. Farmers request the cooperative of maintaining the Meska at their cast, mostly rehabilitating some parts and taking out weeds. The maintenance by dredger is usually carried out once a year.

(1) Tail Condition of Meska

The tail condition for the total 194 Meskas is categorized as below (See Table F.15.15, Figures F.15.1 & F.15.2);

Stop;	129 (66%)
Open;	29 (15%)
Connected to another canal/Meska;	25 (13%)
Connected to drain;	4 (2%)
Pipe/Aqueduct;	36 (19%)
Connected to another canal/Meska;	17 (9%)
Connected to drain;	19 (10%)

Summarizing above situation, 42 (25+17) Meskas (22% of total) are connected to another canal or Meska. These Meskas give water to the downstream Meska when excess water comes, or take water from the Meska downstream when there is water shortage. No waste spillage is expected for these Meskas. The Meskas, which were reported to have had waste spillage, are 9 and 14 in number during summer and winter respectively. Most waste spillage are not so often, just one or twice a week. Thus, it can be, as a whole, concluded that waste spillage from Meska tail are very less. This somewhat contrasts to what has been commonly believed.

(2) Water Shortage of Meska

An inquiry for water shortage was made to each farmer at upstream, midstream and downstream for all Meskas. The result clearly shows that the more one goes to downstream, the more water shortage the one encounters especially during summer season. Given an example for summer water shortage, number of Meskas which rarely suffer from water shortage is 54 (28%) for upstream and 17 (9%) for downstream, and in contrast the number which suffer always water shortage is 4 (2%) for upstream and 75 (39%) for downstream (See Table F.15.16 & Figures F.15.3 and F.15.4).

Farmers reported that the reasons of water shortage are; long off-period given by rotational irrigation in most cases for upstream, long-off period plus upstream's much pumping for midstream, and upstream and midstream's much pumping plus to the lesser extent long-off period for downstream. Other reasons besides those are high bed level of Meska, low water level in Meska, lack of continuous maintenance, Meska slope collapse, etc.

(3) Night Time Irrigation Practice Along Meska

It is well known that farmers practice night time irrigation. An inquiry was made to each farmer at upstream, midstream, and downstream how much irrigation the farmers do in night. The answers clearly correspond to the result of water shortage. Especially during summer season, farmers at downstream area suffer from water shortage so that they have to depend on night irrigation rather than daytime irrigation (See Table F.15.17 & Figures F.15.5 and F.15.6).

48 % farmers at downstream areas reported they practiced night time irrigation more than

60 % (6 times in every 10 times) during summer, while only 3 % farmers each at upstream and midstream practiced the same frequent night irrigation. Same trend can also be seen during winter season, but to the lesser extent. Night irrigation practice decreases during winter season. No farmers for all up, mid and down streams reported night irrigation more than 60 % during winter. However, 27% of the downstream farmers still practice night irrigation of 40 - 60% (say once in every tow times).

(4) Excessive Irrigation and its Return Flow

Excessive irrigation dosages have been sometimes reported, but not experimentally confirmed. Field observation during this Study confirmed that some excessive irrigation water ran into filed drain and/or returned into Meska or canal from which the irrigation water had been pumped up. Farmers usually make small field open drains to catch excessive irrigation water, then the excessive water goes to open drain downstream constructed by Drainage Directorate or in some cases returns into Meska.

A questionnaire was done to farmers if there was excessive water for rice cultivation and then where the excessive water goes to; namely, Meska or Canal, next field, or drain. The questionnaire was done at total six places per Meska such as; upstream, midstream, downstream just near Meska and the same three locations but away from the Meska.

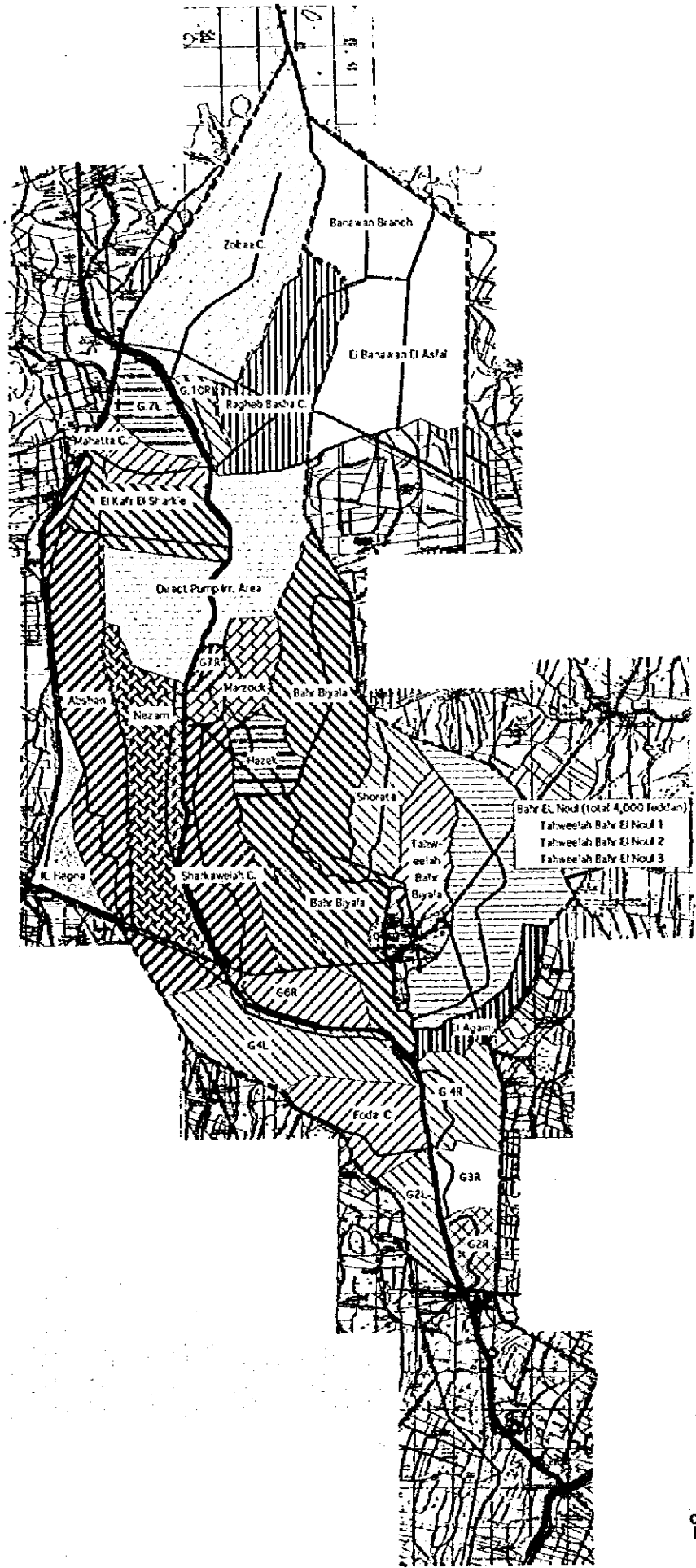
The result shows that fields not only near Meska but also away from Meska have some excessive irrigation dosages that return to Meska and/or canal and the return has a possibility to be reused. Although about 20 to 60 % farmers reported that they had not any excessive irrigation dosages, 13 – 23 % and 6 – 10 % farmers at “near Meska” and “away from Meska” respectively recognized some excessive dosages going back to canal and/or Meska. Also, 31 – 56 % farmers had reported that excessive dosages went to drain, giving possibility of on-farm irrigation improvement (Table F.15.18 & Figures F.15.7 and F.15.8).

Table F-16.1.1 Canal Inventory in the Feasibility Area of Ripra & Naupur Water Districts under Kerr E. Sheikh Damowners

Main Canal	Branch Canal (Delivery)	Location	Length (m)	Area (hectares)	No. of Areas by Stake	% of Stake	Water Shortage	Reasons of Water Shortage	Tail Condition	Leakage	Infiltration	Remarks		
													km	L/R
Dhyala District Bahr Tara	Directly from Bahr Tara		21.50	4200	7	476	3	Low water level at Bahr Tara (high level intake)	Feeder to Bahr Tara			Men from El Abesse Men from intake of Bahr Tara		
	Canal No.3 Right	1.0 R	2.80	1400	3	434	1		Feeder to Fide					
	Canal No.2 Left	6.2 L	940	380	3	420	1		Feeder to C & R					
	Canal No.3 Right	7.0 R	880	351	4	400	1		Tail escape					
	Fide	10.8 L	1,080	338	12	1,462	1		Feeder to Bahr Tara					
	Canal No.3 Right	10.8 R	1,440	207	8	1,029	1		Feeder to Bahr Tara					
	Canal No.3 Left	11.8 L	300	0.78	1	500	1		Feeder to Bahr Tara					
	Bahr Dhyala	11.8 R	5,470	13,279	20	5,197	1	High flow & long canal (11.8km)	Stop			Small MPS at the tail dropping in June/July, 10 hrs/day		
	Bahr Dhyala E.S. Hour	0.0 R	1,104	168	4	507	1		Feeder to Bahr Dhyala					
	El Ajayir	0.8 R	960	400	2	170	1		Tail escape (used rehabilitation)					
Bahr Tara	Bahr E. Hour (Total 4000beddams)	1.2 R	2,780	7,471	14	1,777	1		Stop (connected to Hakkah)			Total intake around 7/5, T.O.A. 4000, intake (4000) named "El Khataybi", Km from intake of Bahr E. Hour		
	Tennessee Bahr E. Hour 1	0.8 R	180	105	0	0	0		Feeder to Bahr E. Hour			Named "El Chabbar", Km from intake of Bahr E. Hour		
	Tennessee Bahr E. Hour 2	2.4 L	750	146	1	13	0		do			Named "El Soud", Km from intake of Bahr E. Hour		
	Tennessee Bahr E. Hour 3	4.4 R	840	187	5	386	40		Feeder to Bahr E. Hour			Passing through residential area, much domestic wastage		
	Tennessee Bahr Dhyala	3.8 R	840	439	3	240	1		Stop			Unofficial drainage cause from Drain No.1 during water shortage		
	El Shabab	7.2 L	790	239	1	100	1		Pipe with gals to Drain No.1 (need rehabilitation)					
	Health	13.5 L	1,980	384	6	690	1		Access with Marzab					
	Canal No.4 Left	13.5 R	1,180	389	4	870	1		Feeder to Alahban					
	El Shabab Right	18.2 R	1,719	448	9	894	1		Feeder to El Chakaweth					
	Alahban	17.4 L	2,780	1740	12	1,500	40		Feeder to Bahr Tara			Unofficial drainage cause from Charles Drem during water shortage		
Kan El Hagwa	27 L	700	534	2	460	64		Feeder to Alahban						
El Nazam	17.4 L	2,660	539	18	1,908	50		Feeder to Bahr Tara						
Marzab	26.4 R	1,020	318	0	0	0		Tail escape						
Canal No.7 Right	26.4 R	460	84	0	0	0		Feeder to Bahr Tara						
30,300	94,200	140	14,808	49										
Naupur District Bahr Tara	El Yahr E. Hour	29.5 L	1,475	708	4	800	1		Tail escape			No gals (gals only for the intake), Unofficial drainage cause		
	El Rouman E. Hour	31.2 R	5,020	12,320	19	3,142	2	Lined at Tail End of Rouman	Asphalt with E. Hour					
	Rouman Branch	8.5 L	2,000	330	5	880	46		Pipe with gals to Coumaney drain (need rehabilitation)					
	Rouman Dhyala	31.7 R	2,000	500	7	827	51		Pipe with gals to Drain No.1, Overage from both into in canal					
	El Marwan	31.7 L	2,600	287	3	500	20		Stop					
	Canal No.7 Left	31.8 L	1,160	336	3	472	37		Do not Irrigation & Coumaney					
	Canal No.10 Right	31.8 R	500	248	0	0	0		Feeder to Zahab					
	Zahab	34.0 R	3,800	618	13	1,488	46		Pipe with gals to Coumaney drain					
			18,495	40,271	94	6,262	46							
			66,200	170	134	27,080	48							
<p>Unofficial drainage cause, Bahr Dhyala has small rising pumping station at the tail, lifting drainage water from Drain No.1 and working 10 hours a day in June and July. Unofficial drainage cause El Shabab having about 2% drainage irrigation area from Drain No.4 at its tail. Ashraf having about 10% drainage irrigation area using Charles Drain.</p>														
<p>Notes: Water Shortage shown by Rainwater Irrigation Engineers [Very often, as always], include Condition (L=Good, R=Fair, D=Displacement)</p>														

Table F.15.2. Summary of Canals in the Feasibility Study Area

Total Area served by Bahr Tera, feddan	163,665	
Total Length of Bahr Tera, km	63.70	
Feasibility Study Area		
Total Area Served, feddan	56,930	
Direct, feddan	4,253	
Deliveries, feddan	52,677	
in Biyala Water District, feddan	38,505	
in Hamoul Water District, feddan	18,425	
Length of Bahr Tera, km	35.50	
in Biyala Water District, km	27.50	
in Hamoul Water District, km	8.00	
Number of Deliveries	29	
1st Delivery	21	
2nd Delivery	8	
Ganabia	10	
Length of Deliveries, km	140.04	
1st Delivery	108.95	
2nd Delivery	31.09	
Ganabia	24.31	
Average Area per Delivery, feddan	1,816	
Minimum Area, feddan	300	Ganabia No.3 Left
Maximum Area, feddan	5,470	Bahr Biyala
Average Length per Delivery, km	4.83	
Minimum Length, km	0.51	Ganabia No.3 Right
Maximum Length, km	17.40	Abshan



Survey Name	Old Area	New Area	No. of Survey Points	Area (sq. km)	Length (km)	Width (km)	Location		Connections		Remarks			
							U-TM	Projected in	Condition	Remarks				
Cantabula No.2 N	1,400	Tribunal B'Alqab	1	0.5	R	R	R	0.5	0.5	4	Drain	2	2	Connected to drain by aqueduct, they open it when they need to drain it.
		Tribunal B'Alqab	2	0.5	R	R	R	0.5	0.5	4	Drain	2	2	Same as above on day time
		Tribunal B'Alqab	3	0.7	R	R	R	0.7	0.7	4	Drain	2	2	Same as above on day time
		Tribunal B'Alqab	4	0.5	R	R	R	0.5	0.5	4	Drain	2	2	Same as above on day time
		Tribunal B'Alqab	5	0.7	R	R	R	0.7	0.7	4	Drain	2	2	Same as above on day time
		Tribunal B'Alqab	6	1.1	R	R	R	1.1	1.1	4	Drain	2	2	Same as above on day time
		Tribunal B'Alqab	7	0.5	R	R	R	0.5	0.5	4	Drain	2	2	Same as above on day time
		Tribunal B'Alqab	8	0.5	R	R	R	0.5	0.5	4	Drain	2	2	Same as above on day time
		Tribunal B'Alqab	9	0.5	R	R	R	0.5	0.5	4	Drain	2	2	Same as above on day time
		Tribunal B'Alqab	10	0.5	R	R	R	0.5	0.5	4	Drain	2	2	Same as above on day time
		Tribunal B'Alqab	11	0.5	R	R	R	0.5	0.5	4	Drain	2	2	Same as above on day time
		Cantabula No.2 Luff	640	B'Alqab	1	NA	L	L	1.0	1.0	2	2	Canals No. 2 L	1
B'Alqab	2			NA	L	L	1.0	1.0	2	2	Canals No. 2 L	1	1	Water does not reach it
B'Alqab	3			NA	L	L	1.3	1.3	2	2	Canals No. 2 L	1	1	Water does not reach it
B'Alqab	4			0.3	R	R	1.2	1.2	2	2	Canals No. 2 L	1	1	Water does not reach it
B'Alqab	5			0.3	R	R	0.8	0.8	2	2	Canals No. 2 L	1	1	Water does not reach it
B'Alqab	6			0.3	R	R	0.8	0.8	2	2	Canals No. 2 L	1	1	Water does not reach it
B'Alqab	7			0.8	R	R	1.0	1.0	2	2	Canals No. 2 L	1	1	Water does not reach it
B'Alqab	8			0.3	R	R	1.1	1.1	2	2	Canals No. 2 L	1	1	Water does not reach it
B'Alqab	9			0.3	R	R	1.0	1.0	2	2	Canals No. 2 L	1	1	Water does not reach it
B'Alqab	10			0.3	R	R	1.1	1.1	2	2	Canals No. 2 L	1	1	Water does not reach it
B'Alqab	11			0.3	R	R	1.0	1.0	2	2	Canals No. 2 L	1	1	Water does not reach it
Cantabula No.3 Right	1,640			Masjed B'Alqab	1	0.3	R	R	2.0	2.0	3	3	Same as above	1
		B'Alqab	2	1.3	R	R	4.0	4.0	3	3	Same as above	1	1	Water does not reach it
		B'Alqab	3	1.3	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
		B'Alqab	4	1.3	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
		B'Alqab	5	1.3	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
		B'Alqab	6	1.3	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
		B'Alqab	7	1.3	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
		B'Alqab	8	1.3	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
		B'Alqab	9	1.3	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
		B'Alqab	10	1.3	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
		B'Alqab	11	1.3	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
		Cantabula No.3 Left	300	Masjed B'Alqab	1	NA	L	L	1.0	1.0	3	3	Same as above	1
B'Alqab	2			0.5	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
B'Alqab	3			0.5	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
B'Alqab	4			0.5	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
B'Alqab	5			0.5	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
B'Alqab	6			0.5	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
B'Alqab	7			0.5	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
B'Alqab	8			0.5	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
B'Alqab	9			0.5	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
B'Alqab	10			0.5	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
B'Alqab	11			0.5	R	R	2.0	2.0	3	3	Same as above	1	1	Water does not reach it
Bahr B'yane & Ghayef	1,160			Tribunal B'Alqab	1	0.1	R	R	0.7	0.7	4	4	Drain	1
		Tribunal B'Alqab	2	0.1	R	R	1.0	1.0	4	4	Drain	1	1	It is connected to drain by aqueduct they open it when they need to drain
		Tribunal B'Alqab	3	1.3	R	R	2.8	2.8	4	4	Drain	1	1	No waste because there is no rough water
		Tribunal B'Alqab	4	1.3	R	R	2.8	2.8	4	4	Drain	1	1	Same as above
		Tribunal B'Alqab	5	1.3	R	R	2.8	2.8	4	4	Drain	1	1	Same as above
		Tribunal B'Alqab	6	1.3	R	R	2.8	2.8	4	4	Drain	1	1	Same as above
		Tribunal B'Alqab	7	1.3	R	R	2.8	2.8	4	4	Drain	1	1	Same as above
		Tribunal B'Alqab	8	1.3	R	R	2.8	2.8	4	4	Drain	1	1	Same as above
		Tribunal B'Alqab	9	1.3	R	R	2.8	2.8	4	4	Drain	1	1	Same as above
		Tribunal B'Alqab	10	1.3	R	R	2.8	2.8	4	4	Drain	1	1	Same as above
		Tribunal B'Alqab	11	1.3	R	R	2.8	2.8	4	4	Drain	1	1	Same as above
		Bahr B' Nahr	2,780	Tribunal B'Alqab	1	0.6	L	L	1.3	1.3	1	1	Drain	1
Tribunal B'Alqab	2			2.8	R	R	1.8	1.8	2	2	Drain	1	1	Retention and sewage off period
Tribunal B'Alqab	3			3.8	R	R	2.6	2.6	4	4	Drain	1	1	Retention and sewage off period
Tribunal B'Alqab	4			4.1	R	R	2.6	2.6	4	4	Drain	1	1	Retention and sewage off period
Tribunal B'Alqab	5			4.2	R	R	0.3	0.3	4	4	Drain	1	1	Retention and sewage off period
Tribunal B'Alqab	6			4.2	R	R	0.3	0.3	4	4	Drain	1	1	Retention and sewage off period
Tribunal B'Alqab	7			4.4	R	R	0.7	0.7	4	4	Drain	1	1	Retention and sewage off period
Tribunal B'Alqab	8			4.4	R	R	0.7	0.7	4	4	Drain	1	1	Retention and sewage off period
Tribunal B'Alqab	9			4.4	R	R	1.9	1.9	4	4	Drain	1	1	Retention and sewage off period
Tribunal B'Alqab	10			6.5	R	R	1.2	1.2	160	160	1	1	Retention and sewage off period	
Tribunal B'Alqab	11			6.9	R	R	1.2	1.2	160	160	1	1	Retention and sewage off period	
Tribunal B'Alqab	12			7.4	R	R	1.5	1.5	83	83	1	1	Retention and sewage off period	

Table P-11.5. Summary of Insect Inventory Survey for Priority Areas (Priority/Army)

Priority Area	Sub-Priority Area	Sub-Priority Area Name	No. of Insects	No. of Males	No. of Females	Sex Ratio (M:F)	Length (mm)	Area (sq. cm)	Area (sq. ft)	Area (sq. m)	Connected to	Drainage	Water	Summer	Winter	Reason	
Tennessee River (B) Area	Tennessee River (B) Area	160	0	160	0	0.0	0.7	13	0.3	0.3	clies at end	1	1	1	1	Same reason as dry line	
		220	1	219	1	0.5	1.2	130	0.5	0.5		1	1	1	1		
		640	6	634	6	0.9	0.7	44	1.3	1.3		1	1	1	1		
Tennessee River (B) Area	Tennessee River (B) Area	690	3	687	3	1.0	0.8	40	1.3	1.3		1	1	1	1		
		780	1	779	1	1.0	0.8	35	1.3	1.3		1	1	1	1		
		1,330	1	1,329	1	1.0	0.8	100	1.4	1.4	Bath Exhaust Canal	4	1	1	1	1	No water spillage because it leaks water from Commission Bath Exhaust
		840	3	837	3	1.0	0.8	70	1.1	1.1		1	1	1	1	1	
		1,000	5	995	5	1.0	0.8	140	1.0	1.0		1	1	1	1	1	
Tennessee River (B) Area	Tennessee River (B) Area	1,180	4	1,176	4	1.0	0.8	100	1.0	1.0		1	1	1	1	1	
		1,712	6	1,706	6	1.0	0.8	170	1.0	1.0		1	1	1	1	1	
		3,780	12	3,768	12	1.0	0.8	300	1.0	1.0		1	1	1	1	1	
		760	2	758	2	1.0	0.8	180	1.0	1.0		1	1	1	1	1	
		2,480	16	2,464	16	1.0	0.8	200	1.0	1.0		1	1	1	1	1	
		1,000	0	999	0	0.0	0.8	100	1.0	1.0		1	1	1	1	1	
		480	0	479	0	0.0	0.8	60	1.0	1.0		1	1	1	1	1	
		1,420	4	1,416	4	1.0	0.8	120	1.0	1.0		1	1	1	1	1	
		6,000	19	5,981	19	1.0	0.8	500	1.0	1.0		1	1	1	1	1	
		1,000	6	994	6	1.0	0.8	100	1.0	1.0		1	1	1	1	1	
Tennessee River (B) Area	Tennessee River (B) Area	1,180	4	1,176	4	1.0	0.8	100	1.0	1.0		1	1	1	1	1	
		1,712	6	1,706	6	1.0	0.8	170	1.0	1.0		1	1	1	1	1	
		3,780	12	3,768	12	1.0	0.8	300	1.0	1.0		1	1	1	1	1	
		760	2	758	2	1.0	0.8	180	1.0	1.0		1	1	1	1	1	
		2,480	16	2,464	16	1.0	0.8	200	1.0	1.0		1	1	1	1	1	
		1,000	0	999	0	0.0	0.8	100	1.0	1.0		1	1	1	1	1	
		480	0	479	0	0.0	0.8	60	1.0	1.0		1	1	1	1	1	
		1,420	4	1,416	4	1.0	0.8	120	1.0	1.0		1	1	1	1	1	
		6,000	19	5,981	19	1.0	0.8	500	1.0	1.0		1	1	1	1	1	
		1,000	6	994	6	1.0	0.8	100	1.0	1.0		1	1	1	1	1	

Table # 15.2 Summary of Insects Inventory Survey for Priority Areas (Feasibility Area)

Delivery Name	IGDF Area location	IGDF Area Name	No. of Males	Sex Ratio	Location		Length (m)	Area (sqm)	Status	Condition	Collected to	Water	Summer	Winter	Reason		
					GA	RA											
Barnswallow	2,000	Norwich no. 3A	7	NA	R	R	1.3	113	1	1		1	1	1			
		Norwich no. 16	9	NA	R	R	1.3	120	1	1		1	1	1			
		Norwich no. 12	10	NA	R	R	1.9	164	1	1		1	1	1			
		Norwich no. 1, 2, 3, 4	11	NA	R	R	2.0	180	1	1		1	1	1			
		Alibi Street	12	NA	R	R	0.2	80	1	1		1	1	1			
		El-Ghazal	13	NA	L	L	1.8	200	1	2		1	1	1			
		El-Ghazal	14	NA	L	L	1.8	80	1	4		1	1	1			
		El-Haggar	15	NA	L	L	2.0	300	1	4		1	1	1			
		Head Walled Street	16	NA	L	L	1.5	52	1	4		1	1	1			
		Head Walled Street	17	NA	L	L	0.5	30	1	2		1	1	1			
		Head Walled Street	18	NA	L	L	0.5	30	1	2		1	1	1			
		Head Walled Street	19	NA	L	L	1.3	290	1	4		1	1	1			
		Head Walled Street	20	NA	L	L	1.0	160	1	4		1	1	1			
		Head Walled Street	21	NA	L	L	1.3	280	1	4		1	1	1			
		Head Walled Street	22	NA	L	L	1.3	300	1	4		1	1	1			
		Head Walled Street	23	NA	L	L	0.8	90	1	4		1	1	1			
		Head Walled Street	24	NA	R	R	0.8	108	1	1		1	1	1			
		Magdhab Dam	2,000	Alibi Street El-Ghazal	1	0.8	L	L	0.4	75	1	1		1	1	1	
				Alibi Street El-Ghazal	2	0.5	L	L	0.8	40	1	1		1	1	1	
Alibi Street El-Ghazal	3			NA	L	L	0.5	60	1	1		1	1	1			
Alibi Street El-Ghazal	4			NA	L	L	0.4	130	1	1		1	1	1			
Alibi Street El-Ghazal	5			0.4	R	R	0.4	128	1	1		1	1	1			
Alibi Street El-Ghazal	6			0.8	R	R	1.0	92	1	1		1	1	1			
Alibi Street El-Ghazal	7			5.1	R	R	0.3	150	1	1		1	1	1			
El-Hajjeh	2,000	El-Ghazal	1	1.0	R	R	1.7	300	1	4		1	1	1			
		El-Ghazal (Aldoor)	2	NA	L	L	0.8	100	1	2		1	1	1			
		El-Ghazal (Aldoor)	3	NA	L	L	1.0	100	1	1		1	1	1			
Gharbia No. 7 Left	1,100	Alibi St	1	0.3	L	L	1.8	180	2	4		1	1	1			
		El-Ghazal	2	NA	L	L	2.1	178	2	4		1	1	1			
		El-Ghazal	3	NA	L	L	1.2	94	1	2		1	1	1			
Gharbia No. 10 Right	3,000	No insects	0						1	3		1	1	1			
		El-Ghazal	1	1.0	R	R	0.8	90	1	1		1	1	1			
		El-Ghazal	2	1.2	R	R	1.0	90	1	1		1	1	1			
		El-Ghazal (Tina)	3	3.2	R	R	0.8	88	1	1		1	1	1			
		Alibi Street	4	3.9	R	R	2.0	106	1	1		1	1	1			
		Suburban	5	4.0	R	R	1.8	100	1	1		1	1	1			
		Alibi Street	6	4.0	R	R	2.0	130	1	1		1	1	1			
		Alibi Street	7	5.0	R	R	1.8	90	1	1		1	1	1			
		Alibi Street	8	NA	R	R	1.0	120	1	1		1	1	1			
		Alibi Street	9	NA	R	R	1.0	120	1	1		1	1	1			
		Alibi Street	10	0.0	R	R	1.0	120	1	1		1	1	1			
		Alibi Street	11	3.1	L	L	0.8	110	1	1		1	1	1			
		Alibi Street	12	6.0	L	L	3.0	800	1	1		1	1	1			

Note: Coordinates turn and the address (12, 13, 14) are attached for clarity.

T. Length	245.34	77,960	160	179	186	180	196	190
Total Number of Insects	137	138	34	26	6	9	8	7
Mean	0.11	13	1	1	0	1	1	1
Max	400	1000	36	36	1	4	4	4

Table F-13.18 Summary of Issues Priority Survey for Priority Area (Feasibility Area)

Category	Issue	WSPR	WSPR	WSPR	WSPR	WSPR	WSPR	WSPR	WSPR
Category	Issue	WSPR	WSPR	WSPR	WSPR	WSPR	WSPR	WSPR	WSPR
Water	Waterhead Bar #1 (Hour No. 1)	1	1	1	1	1	1	1	1
	Waterhead Bar #2 (Hour No. 2)	2	2	2	2	2	2	2	2
	Waterhead Bar #3 (Hour No. 3)	3	3	3	3	3	3	3	3
	Waterhead Bar #4 (Hour No. 4)	4	4	4	4	4	4	4	4
	Waterhead Bar #5 (Hour No. 5)	5	5	5	5	5	5	5	5
	Waterhead Bar #6 (Hour No. 6)	6	6	6	6	6	6	6	6
	Waterhead Bar #7 (Hour No. 7)	7	7	7	7	7	7	7	7
	Waterhead Bar #8 (Hour No. 8)	8	8	8	8	8	8	8	8
	Waterhead Bar #9 (Hour No. 9)	9	9	9	9	9	9	9	9
	Waterhead Bar #10 (Hour No. 10)	10	10	10	10	10	10	10	10
Sewer	Sewerage Bar #1 (Hour No. 1)	1	1	1	1	1	1	1	1
	Sewerage Bar #2 (Hour No. 2)	2	2	2	2	2	2	2	2
	Sewerage Bar #3 (Hour No. 3)	3	3	3	3	3	3	3	3
	Sewerage Bar #4 (Hour No. 4)	4	4	4	4	4	4	4	4
	Sewerage Bar #5 (Hour No. 5)	5	5	5	5	5	5	5	5
	Sewerage Bar #6 (Hour No. 6)	6	6	6	6	6	6	6	6
	Sewerage Bar #7 (Hour No. 7)	7	7	7	7	7	7	7	7
	Sewerage Bar #8 (Hour No. 8)	8	8	8	8	8	8	8	8
	Sewerage Bar #9 (Hour No. 9)	9	9	9	9	9	9	9	9
	Sewerage Bar #10 (Hour No. 10)	10	10	10	10	10	10	10	10
Storm	Stormwater Bar #1 (Hour No. 1)	1	1	1	1	1	1	1	1
	Stormwater Bar #2 (Hour No. 2)	2	2	2	2	2	2	2	2
	Stormwater Bar #3 (Hour No. 3)	3	3	3	3	3	3	3	3
	Stormwater Bar #4 (Hour No. 4)	4	4	4	4	4	4	4	4
	Stormwater Bar #5 (Hour No. 5)	5	5	5	5	5	5	5	5
	Stormwater Bar #6 (Hour No. 6)	6	6	6	6	6	6	6	6
	Stormwater Bar #7 (Hour No. 7)	7	7	7	7	7	7	7	7
	Stormwater Bar #8 (Hour No. 8)	8	8	8	8	8	8	8	8
	Stormwater Bar #9 (Hour No. 9)	9	9	9	9	9	9	9	9
	Stormwater Bar #10 (Hour No. 10)	10	10	10	10	10	10	10	10

Name of A.S.G. Secretary of Health Inventory Subject and Priority Area (Possibility Area)		Vaccines		CERTIFIED HEALTH CARE		Sustained Vaccines, Etc.		Maintenance		Wood		Weedings		Needs to Clean		Remarks	
Category	Sub-category	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
General Health	Tuberculosis (Tb) (Mycobacterium tuberculosis)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Scarlet Fever (Streptococcus pyogenes)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Diphtheria (Corynebacterium diphtheriae)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Whooping Cough (Pertussis)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Polio (Poliovirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Measles (Morbillivirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Mumps (Paramyxovirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Smallpox (Variola)	4	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year		
	Cholera (Vibrio cholerae)	4	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year		
	Shigellosis (Shigella)	4	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year		
	Typhoid (Salmonella typhi)	4	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year		
	Paratuberculosis (Mycobacterium avium)	4	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year		
	Brucellosis (Brucella)	4	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year		
	Leptospirosis (Leptospira)	4	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year		
	Q fever (Coxiella burnetii)	4	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year		
General Health Left	Measles (Morbillivirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Mumps (Paramyxovirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Scarlet Fever (Streptococcus pyogenes)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Diphtheria (Corynebacterium diphtheriae)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Whooping Cough (Pertussis)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Polio (Poliovirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Measles (Morbillivirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Mumps (Paramyxovirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Scarlet Fever (Streptococcus pyogenes)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Diphtheria (Corynebacterium diphtheriae)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Whooping Cough (Pertussis)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Polio (Poliovirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Measles (Morbillivirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Mumps (Paramyxovirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Scarlet Fever (Streptococcus pyogenes)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
General Health Right	Tuberculosis (Tb) (Mycobacterium tuberculosis)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Scarlet Fever (Streptococcus pyogenes)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Diphtheria (Corynebacterium diphtheriae)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Whooping Cough (Pertussis)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Polio (Poliovirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Measles (Morbillivirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Mumps (Paramyxovirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Scarlet Fever (Streptococcus pyogenes)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Diphtheria (Corynebacterium diphtheriae)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Whooping Cough (Pertussis)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Polio (Poliovirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Measles (Morbillivirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Mumps (Paramyxovirus)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Scarlet Fever (Streptococcus pyogenes)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			
	Diphtheria (Corynebacterium diphtheriae)	4	4	4	4	4	4	4	4	4	4	1	1	By designator every year			

Table P-1.13 Summary of Match Inventory Survey for Priority Area (Remediability Area)

Priority Area	Name	ES&S No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100				Match	Vend	Wastage	How is Chain	Remarks
		Upstream	Downstream	Upstream	Downstream					
Tributaries (Left of River No. 1)	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	1	1	1	1	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
Tributaries (Right of River No. 1)	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
Tributaries (Left of River No. 2)	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
Tributaries (Right of River No. 2)	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	
	El Kattama	4	4	4	4	1	2	NA	By dredger once every year	

Table F.15.15 Meska's Tail Condition and Waste Spillage from the Tail

Tail Condition	Total No	% BFK Dwn	Summer					Winter			Remarks	
			1-2/week	3-4/week	5-6/week	Always	1-2/week	3-4/week	5-6/week	Always		
Stop	129	66										
Open	29	15										
To Meska/Canal	25	13										
To Drain	4	2		1		1						Works as Feeder if excessive water
Pipe/Aqueduct	36	19										
To Meska/Canal	17	9										
To Drain	19	10	6		1		3		1			Works as Feeder if excessive water
Total	194		7	0	0	2	7	5	1			
Total No. of Feeder =	42											
% of Feeders	22											

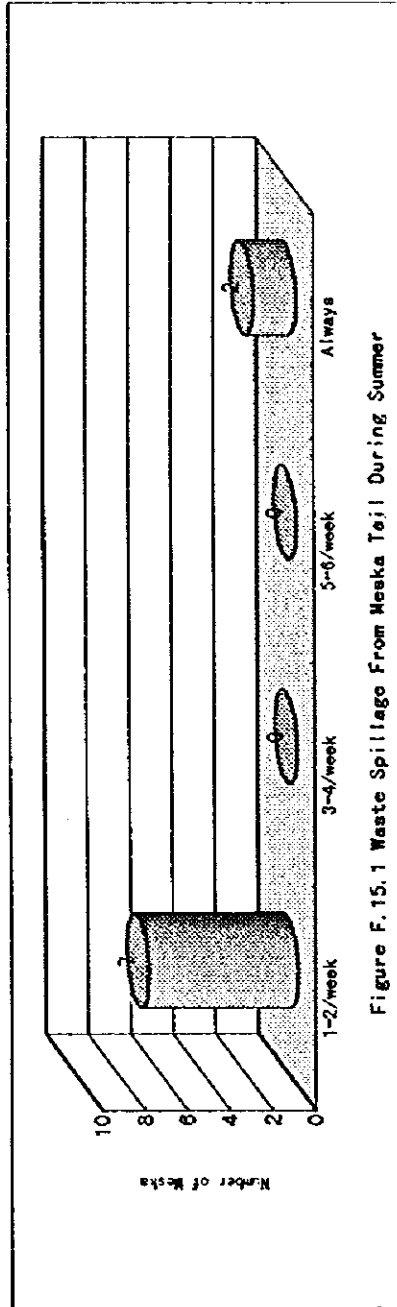


Figure F.15.1 Waste Spillage From Meska Tail During Summer

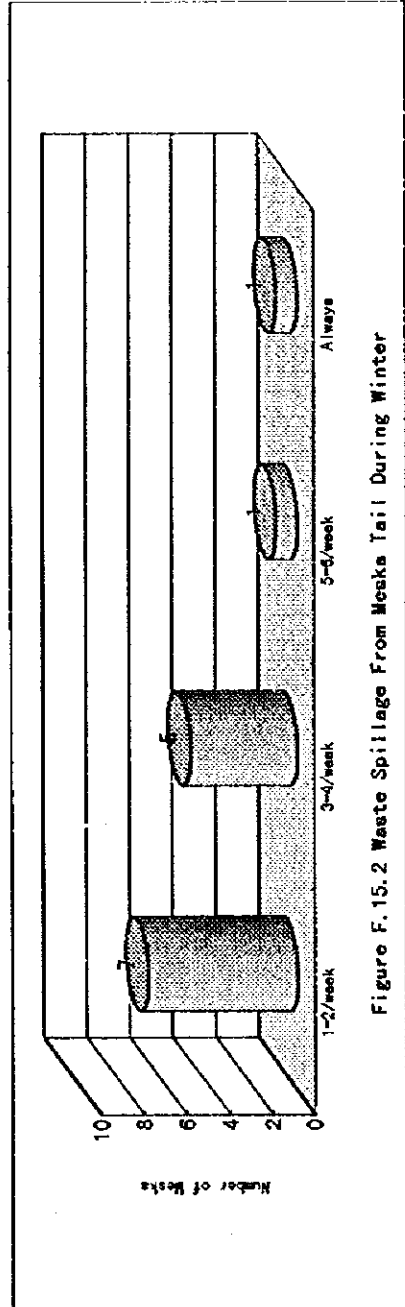


Figure F.15.2 Waste Spillage From Meska Tail During Winter

Table F.15.16 Farmers' View on Water Shortage by Location along Meska

Water Shortage	Upstream		Midstream		Downstream		Remarks
	Summer	Winter	Summer	Winter	Summer	Winter	
Number of Meska							
Rare	54	99	15	41	17	29	
1-2/week	55	69	29	68	12	32	
3-4/week	73	17	75	74	31	73	
5-6/week	8	7	71	9	59	53	
Always	4	2	4	2	75	7	
Percent to 194 Meska							
Rare	28	51	8	21	9	15	
1-2/week	28	36	15	35	6	16	
3-4/week	38	9	39	38	16	38	
5-6/week	4	4	37	5	30	27	
Always	2	1	2	1	39	4	

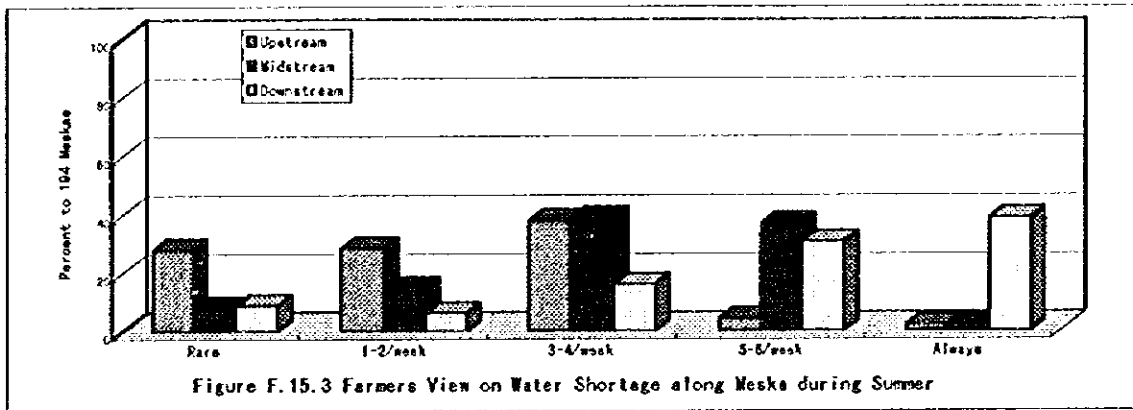


Figure F.15.3 Farmers View on Water Shortage along Meska during Summer

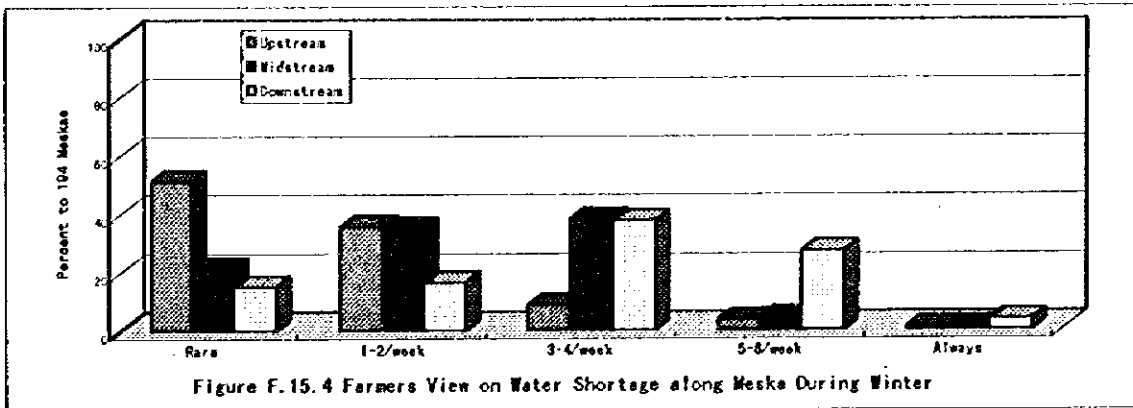


Figure F.15.4 Farmers View on Water Shortage along Meska During Winter

Table F.15.17 Night Irrigation Practices by Location along Meska

Night Irrigation	Upstream		Midstream		Downstream		Remarks
	Summer	Winter	Summer	Winter	Summer	Winter	
Number of Meska							
Rare	42	134	10	54	13	45	
10-20%	91	53	25	79	8	35	
20-40%	52	3	78	56	24	62	
40-60%	3	4	75	5	56	52	
>60%	6	0	6	0	93	0	
Percent to 194 Meskas							
Rare	22	69	5	28	7	23	
10-20%	47	27	13	41	4	18	
20-40%	27	2	40	29	12	32	
40-60%	2	2	39	3	29	27	
>60%	3	0	3	0	48	0	

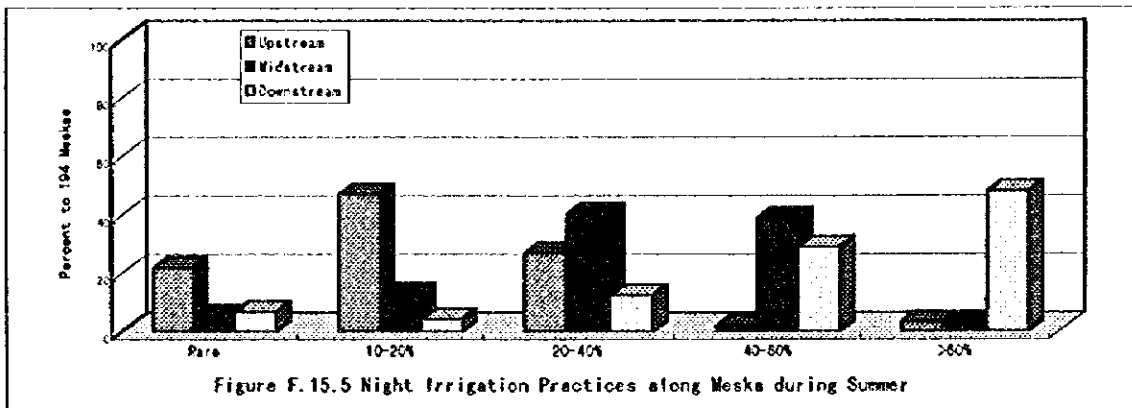


Figure F.15.5 Night Irrigation Practices along Meska during Summer

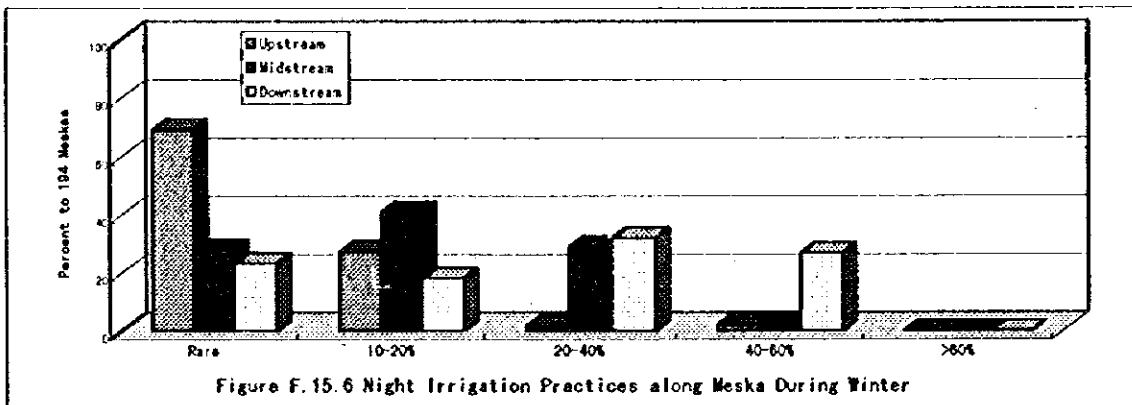


Figure F.15.6 Night Irrigation Practices along Meska During Winter

Table F.15.18 Excessive Rice Irrigation Water and Its Returning Place

Excwssive Water	Upstream		Midstream		Downstream		Remarks
	Near	Far	Near	Far	Near	Far	
Number of Meska							
No Excessive	40	68	91	109	106	117	
Canal/Meska	44	19	37	20	25	12	
Next Field	2	2	2	4	0	0	
Drain	108	105	64	61	63	65	
Percent to 194 Meskas							
No Excessive	21	35	47	56	55	60	
Canal/Meska	23	10	19	10	13	6	
Next Field	1	1	1	2	0	0	
Drain	56	54	33	31	32	34	

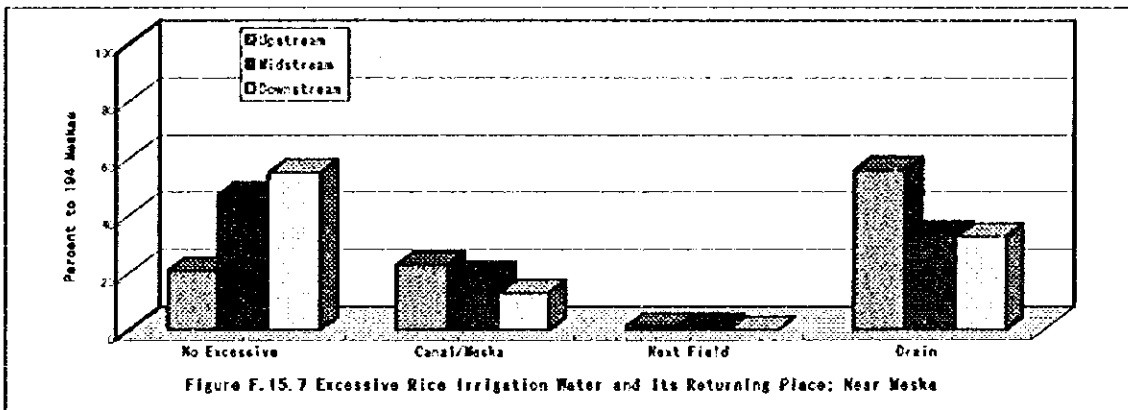


Figure F.15.7 Excessive Rice Irrigation Water and Its Returning Place; Near Meska

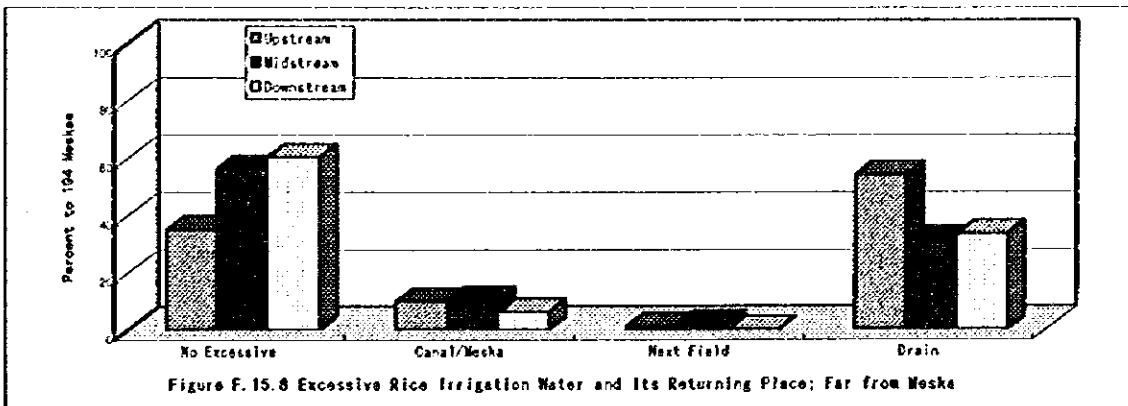


Figure F.15.8 Excessive Rice Irrigation Water and Its Returning Place; Far from Meska

F.16 1998 Water Levels at Gates/Regulators in Biyala Water District

Water levels at gates and representative regulators within Bahr Biyala Water District had been collected from Biyala Inspectorate (located just beside Biyala Water District) and these are shown in the following figures;

- Figure F.16.1 Water Levels of Biyala Water District Canals in January, 1998**
- Figure F.16.2 Water Levels of Biyala Water District Canals in February, 1998**
- Figure F.16.3 Water Levels of Biyala Water District Canals in March, 1998**
- Figure F.16.4 Water Levels of Biyala Water District Canals in April, 1998**
- Figure F.16.5 Water Levels of Biyala Water District Canals in May, 1998**
- Figure F.16.6 Water Levels of Biyala Water District Canals in June, 1998**
- Figure F.16.7 Water Levels of Biyala Water District Canals in July, 1998**
- Figure F.16.8 Water Levels of Biyala Water District Canals in August, 1998**
- Figure F.16.9 Water Levels of Biyala Water District Canals in September, 1998**
- Figure F.16.10 Water Levels of Biyala Water District Canals in October, 1998**
- Figure F.16.11 Water Levels of Biyala Water District Canals in November, 1998**
- Figure F.16.12 Water Levels of Biyala Water District Canals in December, 1998**

Figure F.16.1 Water Levels of Bivala Water District Canals in January, 1998.

Date	Tahweelah & El-Nour	Bahr Biya	El Agamy Canal	Bahr El-Nour		Bahr El-Nour at km 500		End	End of Agamy	Hazeq Regulator	Km 10		Tahweelah Bahr Bivela km 3.250		El-Shoreia Canal		El-Shoreia Hazeq Branch		End of Hazeq	
				End	1.70	9.00	1.70				9.00	End	1.00	9.00	5.50	1.20	1.15	1.10		End
1	2.50	1.80	1.80	1.75	0.00	1.75	0.00	1.70	9.00	1.00	1.00	9.00	5.50	1.20	1.15	1.10	5.00	1.00	1.00	4.50
2	2.50	2.45	2.45	2.40	1.00	2.35	1.40	2.40	2.35	1.35	1.35	1.15	7.00	1.75	1.70	1.65	7.00	1.35	1.35	6.00
3	2.20	1.40	1.35	9.00	7.00	8.50	6.50	1.30	8.00	4.50	4.50	4.00	3.00	7.00	6.00	3.50	0.00	4.50	4.50	2.50
4	2.16	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.13	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	2.10	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	2.10	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	2.10	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	2.10	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	2.10	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	2.20	1.80	1.80	1.75	8.00	1.70	1.60	9.00	0.00	1.65	1.60	8.00	4.00	1.40	1.35	1.30	8.00	5.00	9.00	4.00
12	2.70	2.00	2.00	1.95	9.00	0.00	1.95	1.60	9.50	0.00	9.50	8.50	4.50	1.45	1.40	1.35	8.50	5.50	9.50	4.50
13	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	2.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	2.30	2.00	1.95	1.90	0.00	1.90	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	1.85	1.80	1.75	1.70	0.00	1.70	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure F.16.2 Water Levels of Biyala Water District Canals in Februray, 1998.

Date	Tahweelah Bahr Biye & ELNour	El Agamy Canal	End of Agamy	Bahr El-Nour	Bahr El-Nour at km 500	End	Bahr Biyala	Hazek Regulator	Km 10	End	Tahweelah Bahr Biyala km 3.250	End	El-Shorafa Canal	El-Shorafa End	Hazek Branch	End of Hazek
1	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	2.55	2.50	2.45	2.40	1.80	0.00	2.40	1.30	1.20	0.70	1.80	1.75	1.70	0.65	1.30	0.90
5	2.55	2.50	2.45	2.40	1.80	0.00	2.40	1.30	1.20	0.70	1.80	1.75	1.70	0.95	1.30	0.90
6	2.55	2.50	2.45	2.25	1.60	0.00	2.40	1.35	1.25	0.75	1.85	1.80	1.75	0.75	1.35	1.00
7	2.60	2.55	2.50	2.10	0.75	0.00	2.45	1.40	1.30	0.80	1.90	1.85	1.80	0.50	1.60	1.05
8	2.45	1.70	1.60	0.80	0.55	1.55	1.40	0.70	0.60	0.30	0.90	0.60	0.00	0.00	0.70	0.40
9	2.50	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	2.50	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	2.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	2.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	2.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	2.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	2.55	2.50	2.50	2.45	1.15	2.45	2.40	1.35	1.25	0.70	1.85	1.80	1.75	0.75	1.35	1.10
17	2.55	2.50	2.50	2.45	1.15	2.45	2.40	1.40	1.30	0.90	1.85	1.80	1.75	0.75	1.40	1.10
18	2.57	2.52	2.47	1.20	2.47	1.90	2.42	1.45	1.35	0.85	1.90	1.85	1.80	0.95	1.40	1.15
19	2.55	2.50	2.45	1.20	2.45	1.90	2.40	1.45	1.35	0.95	1.85	1.80	1.75	0.95	1.45	1.15
20	2.50	1.60	1.50	1.00	0.90	1.45	1.00	0.80	0.60	0.25	1.10	0.70	0.40	0.25	0.80	0.00
21	2.50	1.50	1.45	0.90	0.50	1.40	0.90	0.00	0.00	0.00	0.70	0.50	0.30	0.45	0.00	0.00
22	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	2.35	2.30	2.25	2.20	0.80	2.25	2.20	0.90	0.80	0.30	1.65	1.60	1.55	0.60	0.90	0.55
29	2.35	2.20	2.15	2.10	0.75	2.15	2.10	1.10	1.00	0.50	1.60	1.55	1.50	0.60	1.10	0.60

Figure F.16.3 Water Levels of Bivala Water District Canals in March, 1998.

Date	Tahweelah Bahr Biya & El-Nour		El Aghmy Canal		Bahr El-Nour		Bahr El-Nour at km 500		Bahr Biyala		Hezek Regulator		Km 10		Tahweelah Bahr		El-Shorafa Canal		El-Shorafa Hezek Branch		End of Hezek	
	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End		
1	2.35	2.20	2.20	2.15	2.15	2.10	0.70	0.00	0.00	2.10	2.05	1.10	1.10	1.00	0.50	1.60	1.55	1.50	0.60	1.10	1.10	0.60
2	2.35	2.30	3.25	2.20	2.20	2.10	0.90	0.00	0.00	2.20	2.15	1.10	1.10	1.00	0.50	1.60	1.55	1.50	0.70	1.10	1.10	0.75
3	2.35	2.30	2.25	2.20	2.20	2.10	0.90	0.00	0.00	2.20	2.15	1.10	1.10	1.00	0.50	1.60	1.55	1.50	0.70	1.10	1.10	0.75
4	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	2.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	2.50	2.45	2.45	2.40	2.35	2.30	1.40	0.00	0.00	2.35	2.30	1.10	1.10	1.00	0.00	1.75	1.70	1.65	0.40	1.10	1.10	0.50
13	2.50	2.45	2.45	2.40	2.35	2.30	1.40	0.00	0.00	2.35	2.30	1.10	1.10	1.00	0.50	1.75	1.70	1.65	0.40	1.10	1.10	0.50
14	2.50	2.45	2.45	2.40	2.35	2.30	1.40	0.00	0.00	2.35	2.30	1.10	1.10	1.00	0.50	1.75	1.70	1.65	0.40	1.10	1.10	0.50
15	2.50	2.45	2.45	2.40	2.35	2.30	1.40	0.00	0.00	2.35	2.30	1.10	1.10	1.00	0.50	1.75	1.70	1.65	0.40	1.10	1.10	0.50
16	2.55	2.50	2.50	2.45	1.00	2.45	2.40	1.60	0.00	2.40	2.35	1.20	1.20	1.10	0.60	1.80	1.75	1.70	0.65	1.20	1.20	0.60
17	2.60	2.55	2.55	2.50	1.05	2.50	2.40	1.60	0.00	2.50	2.45	1.25	1.25	1.20	0.80	1.85	1.80	1.75	0.65	1.25	1.25	0.80
18	2.40	1.80	1.70	1.00	0.75	1.65	1.00	0.85	0.00	1.65	1.50	0.90	0.90	0.80	0.35	1.50	1.40	1.40	0.35	0.90	0.90	0.40
19	2.40	1.70	1.60	1.00	0.75	1.55	1.00	0.85	0.00	1.55	1.45	0.80	0.80	0.70	0.35	1.05	0.90	0.90	0.25	0.80	0.80	0.40
20	2.45	1.70	1.50	0.90	0.65	1.50	0.90	0.70	0.00	1.55	1.40	0.85	0.85	0.80	0.25	1.00	0.85	0.85	0.20	0.85	0.85	0.25
21	2.40	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	2.55	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	2.55	2.50	2.50	2.45	1.20	2.45	2.40	1.60	0.00	2.40	2.35	1.20	1.20	1.10	0.60	1.75	1.70	1.65	0.65	1.20	1.20	0.70
24	2.55	2.00	2.00	1.95	0.85	1.95	1.90	1.00	0.00	1.90	1.85	0.95	0.95	0.90	0.45	1.60	1.55	1.50	0.55	0.95	0.95	0.65
25	2.75	2.00	2.00	1.95	0.85	1.95	1.90	1.00	0.00	1.90	1.85	1.30	0.80	0.80	0.45	1.60	1.55	1.50	0.55	1.35	1.30	0.80
26	2.95	2.30	2.30	2.15	1.00	2.25	2.10	1.40	0.00	2.25	2.20	1.30	0.70	0.60	0.40	1.70	1.65	1.60	0.75	1.30	1.30	0.80
27	2.95	2.30	2.30	2.15	1.00	2.25	2.10	1.40	0.00	2.25	2.20	1.30	0.70	0.60	0.40	1.70	1.65	1.60	0.75	1.30	1.30	0.80
28	2.65	2.40	2.40	2.35	1.45	2.30	2.25	1.85	0.00	2.30	2.25	1.50	1.50	1.30	0.65	1.80	1.75	1.70	0.85	1.50	1.50	1.15
29	2.65	2.40	2.40	2.35	1.45	2.30	2.25	1.85	0.00	2.30	2.25	1.50	1.50	1.30	0.65	1.80	1.75	1.70	0.85	1.50	1.50	1.15
30	2.65	2.40	2.40	2.25	1.30	2.40	2.25	1.65	0.00	2.35	2.25	1.40	1.40	1.25	0.65	1.75	1.70	1.65	0.85	1.40	1.40	1.10
31	2.90	2.00	1.95	1.90	1.00	1.90	1.85	1.20	0.00	1.90	1.85	0.95	0.95	0.80	0.40	1.30	1.25	1.20	0.75	0.95	0.95	0.60

Figure F.16.4 Water Levels of Biyala Water District Canals in April, 1998.

Date	Tahweelah & El-Nour	Behr Biya	El Agamy Canal	End of Agamy	Behr El-Nour	Behr El-Nour at km.500	End	Bahr Biyala	Hazek Regulator	Km 10	End	Tahweelah Behr	End	El-Shorafa Canal	End	El-Shorafa Hazek Branch	End of Hazek								
1	2.70	2.00	2.00	1.95	1.20	1.95	1.90	1.40	0.00	0.00	1.90	1.85	1.45	1.35	1.20	0.70	1.60	1.55	1.10	1.55	1.50	0.65	1.35	1.35	1.10
2	2.55	2.00	2.00	1.95	1.20	1.95	1.90	1.40	0.00	0.00	1.90	1.85	1.45	1.45	1.20	0.70	1.60	1.55	1.10	1.55	1.50	0.65	1.35	1.35	1.10
3	2.70	2.30	2.30	2.25	1.60	2.20	2.15	1.80	0.00	0.00	2.20	2.15	1.55	1.55	1.35	0.75	1.75	1.70	1.40	1.70	1.65	0.95	1.55	1.55	1.25
4	2.40	2.30	2.30	2.25	1.60	2.20	2.15	1.80	0.00	0.00	2.20	2.15	1.55	1.55	1.35	0.75	1.75	1.70	0.00	1.70	1.65	0.95	1.55	1.55	1.25
6	2.40	2.30	2.30	2.25	1.60	2.20	2.15	1.80	0.00	0.00	2.20	2.15	1.55	1.55	1.35	0.75	1.75	1.70	0.00	1.70	1.65	0.95	1.55	1.55	1.25
6	2.60	2.35	2.35	2.30	1.65	2.25	2.20	1.85	0.00	0.00	2.25	2.20	1.60	1.60	1.40	0.80	1.80	1.75	0.00	1.75	1.70	1.00	1.60	1.60	1.30
7	2.60	2.35	2.35	2.30	1.65	2.25	2.20	1.85	0.00	0.00	2.20	2.20	1.65	1.65	1.45	0.90	1.85	1.80	0.00	1.80	1.75	1.05	1.65	1.65	1.30
8	2.60	2.35	2.35	2.30	1.65	2.25	2.20	1.85	0.00	0.00	2.25	2.20	1.65	1.65	1.45	0.90	1.85	1.80	0.00	1.80	1.75	1.05	1.65	1.65	1.30
9	2.60	2.35	2.35	2.30	1.70	2.25	2.20	1.90	0.00	0.00	2.25	2.20	1.60	1.70	1.50	0.95	1.85	1.80	0.00	1.80	1.75	1.15	1.70	1.70	1.35
10	2.60	2.35	2.35	2.30	1.70	2.25	2.20	1.90	0.00	0.00	2.25	2.20	1.60	1.70	1.50	0.95	1.85	1.80	0.00	1.80	1.75	1.15	1.70	1.70	1.35
11	2.50	2.45	2.45	2.40	1.80	2.40	2.35	2.00	0.00	0.00	2.35	2.30	1.75	1.75	1.60	1.15	1.90	1.85	0.00	1.80	1.80	1.25	1.75	1.75	1.40
12	2.50	2.45	2.45	2.40	1.80	2.40	2.35	2.00	0.00	0.00	2.35	2.30	1.75	1.75	1.60	1.15	1.90	1.85	0.00	1.85	1.80	1.25	1.75	1.75	1.40
13	2.30	1.70	1.70	1.00	0.75	1.65	1.10	0.90	0.00	0.00	1.60	1.40	1.20	1.20	1.00	0.75	1.20	1.00	0.00	1.15	1.00	0.90	1.20	1.20	1.00
14	2.30	1.80	1.80	1.30	0.75	1.75	1.25	0.90	0.00	0.00	1.70	1.65	1.25	1.25	1.50	0.80	1.25	1.05	0.00	1.20	1.05	0.90	1.25	1.25	1.05
16	2.35	1.80	1.80	1.30	0.75	1.75	1.20	0.90	0.00	0.00	1.70	1.60	1.20	1.25	1.05	0.80	1.25	1.05	0.00	1.20	1.05	0.90	1.25	1.25	1.05
16	2.35	1.80	1.80	1.30	0.75	1.75	1.25	0.80	0.00	0.00	1.70	1.65	1.00	1.00	0.90	0.50	1.05	0.90	0.00	1.00	0.95	0.60	1.00	1.00	0.50
17	2.40	1.80	1.75	1.10	0.00	1.70	1.05	0.00	0.00	0.00	1.65	1.65	1.00	1.00	0.90	0.50	1.05	0.90	0.00	1.00	0.95	0.60	1.00	1.00	0.50
18	2.50	1.80	1.75	1.10	0.00	1.70	1.05	0.00	0.00	0.00	1.65	1.65	1.00	1.00	0.90	0.50	1.05	0.90	0.00	1.00	0.95	0.60	1.00	1.00	0.50
19	2.50	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	2.50	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	2.50	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	2.70	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	2.65	2.60	2.60	2.55	1.60	2.50	2.45	1.85	0.00	0.00	2.50	2.45	1.00	1.00	0.80	1.10	1.85	1.80	0.00	1.80	1.75	1.00	1.00	1.00	0.85
24	2.70	2.65	2.65	2.45	1.50	2.55	2.40	1.80	0.00	0.00	2.65	2.50	1.30	1.30	1.10	1.00	1.90	1.85	0.00	1.85	1.80	1.20	1.30	1.30	0.90
25	2.75	2.70	2.70	2.35	1.15	2.60	2.40	1.80	0.00	0.00	2.65	2.60	1.50	1.50	1.40	1.10	2.05	2.00	0.00	2.00	1.90	1.55	1.50	1.50	1.25
26	2.70	2.65	2.65	2.60	1.30	2.60	2.55	1.90	0.00	0.00	2.55	2.50	1.45	1.45	1.35	1.00	1.90	1.85	0.00	1.85	1.80	1.30	1.45	1.45	1.20
27	2.60	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	2.70	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	2.75	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	2.85	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure F.16.5 Water Levels of Biyala Water District Canals in May, 1998.

Date	Tahweelat Bahr Biya & El-Nour	El Agamy Canal	End of Agamy	Bahr El-Nour	Bahr El-Nour at km 500	Bahr El-Nour End	Bahr Biyala	Hazek Regulator	Km 10 End	Tahweelat Bahr Biyala km 3,250	End	El-Shorafa Canal	El-Shorafa End	Hazek Branch	End of Hazek
1	2.90	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.85	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2.85	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	2.85	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.40	2.35	2.35	2.30	1.00	0.00	2.25	2.20	1.00	0.90	0.70	1.55	1.50	1.00	1.00
6	2.80	2.75	2.70	2.65	1.80	0.00	2.65	2.60	1.50	1.30	1.00	1.95	1.90	0.90	1.50
7	2.80	2.75	2.70	2.65	1.90	0.00	2.65	2.60	1.60	1.40	1.15	1.95	1.90	1.15	1.90
8	2.60	1.60	1.30	1.55	1.25	0.95	1.50	1.00	1.00	0.80	0.60	0.90	0.70	0.45	0.80
9	2.80	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	2.90	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	2.85	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	2.85	2.80	2.70	2.75	1.00	2.75	2.70	2.60	1.40	1.20	1.00	1.95	1.90	1.10	1.40
13	2.50	2.45	2.45	2.35	2.30	1.50	2.35	2.30	1.30	1.15	1.00	1.70	1.65	1.10	0.95
14	2.50	2.45	2.45	2.35	2.30	1.50	2.35	2.30	1.30	1.15	1.00	1.70	1.65	1.10	0.95
15	2.45	2.40	2.40	2.30	2.25	1.50	2.35	2.30	1.30	1.15	1.00	1.50	1.65	1.10	0.95
16	2.45	2.40	2.40	2.30	2.25	1.50	2.35	2.30	1.40	1.30	1.20	1.50	1.65	1.10	0.95
17	2.65	2.60	2.55	2.50	2.45	1.85	2.50	2.45	1.60	1.40	1.30	1.85	1.80	1.30	1.60
18	2.65	2.60	2.55	2.50	2.45	1.85	2.50	2.45	1.60	1.40	1.30	1.85	1.80	1.30	1.60
19	2.60	2.55	2.50	2.45	2.40	1.85	2.45	2.40	1.60	1.40	1.30	1.85	1.80	1.30	1.60
20	2.55	2.50	2.45	2.40	2.35	1.75	2.40	2.35	1.55	1.35	1.25	1.80	1.75	1.25	1.55
21	2.55	2.50	2.45	2.40	2.35	1.70	2.40	2.35	1.55	1.35	1.25	1.80	1.75	1.25	1.55
22	2.55	2.50	2.45	2.40	2.35	1.70	2.40	2.35	1.55	1.35	1.25	1.80	1.75	1.25	1.55
23	2.50	2.45	2.40	2.35	2.30	1.60	2.40	2.35	1.50	1.30	1.20	1.80	1.75	1.25	1.50
24	2.50	2.45	2.40	2.35	2.30	1.60	2.40	2.35	1.50	1.30	1.20	1.80	1.75	1.25	1.50
25	2.50	2.45	2.40	2.35	2.30	1.60	2.40	2.35	1.50	1.30	1.20	1.80	1.75	1.25	1.50
26	2.30	2.25	2.20	2.15	2.10	1.40	2.15	2.10	1.30	1.10	1.00	1.50	1.45	1.00	1.00
27	2.40	2.00	2.00	1.95	1.85	0.90	1.90	1.85	0.90	0.90	0.60	1.40	1.35	0.00	0.90
28	2.35	2.65	2.60	2.55	2.50	1.10	2.55	2.45	1.00	0.90	0.70	1.70	1.65	0.30	1.00
29	2.60	2.57	2.55	2.50	2.45	1.80	2.40	2.40	1.40	1.20	1.00	1.80	1.75	1.25	1.40
30	2.60	2.55	2.55	2.50	2.45	1.80	2.45	2.40	1.45	1.30	1.10	1.80	1.75	1.25	1.45
31	2.60	2.55	2.55	2.50	2.45	1.80	2.45	2.40	1.45	1.30	1.10	1.80	1.75	1.25	1.45

Figure F.16.6 Water Levels of Biyala Water District Canals in June, 1998.

Date	Tahweelah & El-Nour	Behr Biyala	Behr El-Nour at km 500	End of Agamy	Behr El-Nour	Behr El-Nour at km 500	End	Hazek Regulator	Km 10	End	Tahweelah Behr Biyala km 3.250	End	El-Shorafa Canal	El-Shorafa Canal	End	Hazek Branch	End of Hazek						
1	2.45	2.40	2.40	2.35	1.00	2.30	2.25	1.50	0.00	0.00	2.30	2.25	1.25	1.25	1.10	0.70	1.65	1.60	1.55	0.70	1.25	1.25	0.80
2	2.45	2.40	2.40	2.35	1.00	2.30	2.25	1.50	0.00	0.00	2.30	2.25	1.25	1.25	1.10	0.70	1.60	1.60	1.50	0.70	1.20	1.25	0.80
3	2.45	2.40	2.40	2.35	1.00	2.30	2.25	1.50	0.00	0.00	2.30	2.25	1.25	1.25	1.10	0.70	1.65	1.60	1.50	0.70	1.25	1.25	0.80
4	2.75	2.70	2.70	2.65	1.40	2.60	2.55	1.90	0.00	0.00	2.60	2.52	1.60	1.60	1.40	1.30	1.90	1.85	1.80	1.30	1.60	1.60	1.35
5	2.75	2.70	2.70	2.65	1.40	2.60	2.55	1.90	0.00	0.00	2.60	2.52	1.60	1.60	1.40	1.30	1.90	1.85	1.80	1.30	1.60	1.60	1.35
6	2.75	2.70	2.70	2.65	1.50	2.65	2.60	2.00	0.00	0.00	2.65	2.60	1.70	1.70	1.45	1.35	2.00	1.95	1.85	1.40	1.70	1.70	1.40
7	2.70	1.70	1.70	1.65	0.00	0.00	0.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	2.78	1.70	1.70	1.65	0.00	0.00	0.00	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	2.88	1.70	1.70	1.65	0.00	0.00	0.00	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	2.92	1.70	1.70	1.65	0.00	0.00	0.00	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	2.93	1.70	1.70	1.65	0.00	0.00	0.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	2.95	1.70	1.70	1.65	0.00	0.00	0.00	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	2.75	2.70	2.70	2.65	1.00	2.60	2.55	1.75	0.00	0.00	2.60	2.50	1.10	1.10	0.90	1.00	1.90	1.85	1.80	0.60	0.70	1.10	0.85
14	2.77	2.70	2.70	2.65	1.15	2.60	2.50	1.75	0.00	0.00	2.60	2.50	1.40	1.40	1.20	1.00	1.90	1.85	1.80	0.70	1.40	1.40	1.05
15	2.70	2.95	2.65	2.90	1.10	2.55	2.40	0.00	0.00	0.00	2.55	2.45	1.35	1.35	1.15	0.95	1.75	1.70	1.65	0.65	1.35	1.35	1.05
16	2.70	2.65	2.65	2.60	1.10	2.55	2.40	0.00	0.00	0.00	2.55	2.45	1.35	1.35	1.15	0.95	1.75	1.70	1.60	0.65	1.35	1.35	1.00
17	2.80	1.70	1.70	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	2.90	1.90	1.90	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	3.00	1.90	1.90	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	3.90	1.90	1.90	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	3.00	1.90	1.90	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	3.00	1.90	1.90	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	2.77	2.70	2.70	2.65	0.90	2.60	2.55	0.00	0.00	0.00	2.60	2.50	1.10	1.10	1.00	0.30	1.85	1.80	1.75	0.65	1.10	1.10	0.40
24	2.77	2.70	2.70	2.65	1.15	2.60	2.55	0.00	0.00	0.00	2.60	2.50	1.45	1.45	1.10	0.60	1.85	1.80	1.75	0.75	1.45	1.45	0.90
26	2.70	2.65	2.65	2.60	1.15	2.55	2.50	0.00	0.00	0.00	2.55	2.45	1.35	1.35	1.00	0.60	1.80	1.75	1.70	0.75	1.35	1.35	0.90
26	2.70	2.60	2.65	2.60	1.15	2.55	2.50	0.00	0.00	0.00	2.55	2.45	1.35	1.35	1.00	0.60	1.80	1.75	1.70	0.75	1.35	1.35	0.90
27	2.90	1.90	1.90	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	2.90	1.90	1.90	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	2.90	1.90	1.90	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	2.90	1.90	1.90	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure F.16.7 Water Levels of Biyala Water District Canals in July, 1998.

Date	Tahweelah Bahr Biye & El-Nour	El Agamy Canal	End of Agamy	Bahr El-Nour	Bahr El-Nour at km 500	End	Bahr Biyala	Hazek Regulator	Km 10	End	Tahweelah Bahr Biyala km 3,250	End	El-Shorafa Canal	El-Shorafa Canal End	Hazek Branch	End of Hazek
1	2.90	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.90	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2.65	2.60	2.55	2.50	2.45	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.65	1.60	1.00	0.45
4	2.70	2.65	2.65	2.60	2.55	2.50	1.85	0.00	0.00	0.00	0.00	0.00	1.70	1.65	1.30	0.90
5	2.70	2.65	2.65	2.60	2.55	2.50	1.85	0.00	0.00	0.00	0.00	0.00	1.70	1.65	1.30	0.90
6	2.65	2.60	2.55	2.50	2.45	1.85	0.00	0.00	0.00	0.00	0.00	0.00	1.60	1.55	1.40	0.90
7	2.95	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	2.95	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	2.95	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	2.95	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	2.95	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	2.97	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	2.60	2.55	2.50	2.45	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.65	1.60	1.00	0.40
14	0.00	2.60	2.55	2.50	2.45	1.70	0.00	0.00	0.00	0.00	0.00	0.00	1.65	1.60	1.20	0.40
15	0.00	2.70	2.65	2.60	2.55	1.75	0.00	0.00	0.00	0.00	0.00	0.00	1.75	1.70	1.40	0.60
16	0.00	2.70	2.60	2.60	2.55	1.80	0.00	0.00	0.00	0.00	0.00	0.00	1.80	1.75	1.45	0.10
17	0.00	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	2.55	2.55	2.50	2.40	1.30	0.00	0.00	0.00	0.00	0.00	0.00	1.60	1.55	1.00	0.60
24	0.00	2.60	2.65	2.60	2.55	1.80	0.00	0.00	0.00	0.00	0.00	0.00	1.70	1.65	1.20	0.70
25	0.00	2.70	2.70	2.65	2.60	1.85	0.00	0.00	0.00	0.00	0.00	0.00	1.75	1.70	1.30	0.85
26	0.00	2.70	2.70	2.65	2.60	1.85	0.00	0.00	0.00	0.00	0.00	0.00	1.75	1.70	1.35	0.85
27	0.00	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure F.16.8 Water Levels of Bivala Water District Canals in August, 1998.

Date	Tahweelah Bahr Biye & El-Nour		El Agamy Canal		Bahr El-Nour		Bahr El-Nour at km 500		Hazeq Regulator		Km 10		Tahweelah Bahr Biyala km 3.250		El-Shorafa Canal		El-Shorafa End		Hazeq Branch		End of Hazeq	
				End of Agamy																		
1	2.70	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.35	2.30	2.25	2.15	1.20	0.00	0.00	0.00	0.00	1.10	0.80	0.55	1.40	1.35	0.00	1.30	0.45	1.10	1.10	1.10	1.10	0.45
3	2.65	2.60	2.60	2.55	1.15	2.50	2.45	1.80	0.00	0.00	2.50	2.40	1.25	1.05	0.70	1.70	1.65	0.00	0.90	1.25	1.25	0.95
4	2.65	2.60	2.60	2.55	1.15	2.50	2.45	1.80	0.00	0.00	2.50	2.40	1.25	1.05	0.70	1.70	1.65	0.30	0.90	1.25	1.25	0.95
5	2.65	2.60	2.60	2.55	1.15	2.50	2.45	1.80	0.00	0.00	2.50	2.40	1.25	1.05	0.70	1.70	1.62	0.50	0.90	1.25	1.25	0.95
6	2.60	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	2.65	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	2.65	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	2.65	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	2.60	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	2.60	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	2.35	2.30	2.30	2.25	1.10	2.20	2.15	1.10	0.00	0.00	2.20	2.10	1.10	0.90	0.60	1.60	1.55	0.70	0.60	1.10	1.10	0.50
13	2.65	2.60	2.60	2.55	1.40	2.50	2.45	1.75	0.00	0.00	2.50	2.40	1.50	1.25	0.70	1.80	1.75	0.95	0.85	1.50	1.50	0.90
14	2.70	2.65	2.60	2.60	1.40	2.55	2.50	1.80	0.00	0.00	2.55	2.45	1.50	1.25	0.70	1.80	1.75	0.95	0.85	1.50	1.50	0.90
15	2.70	2.65	2.65	2.60	1.40	2.55	2.50	1.80	0.00	0.00	2.55	2.45	1.50	1.25	0.70	1.80	1.75	0.95	0.85	1.50	1.50	0.90
16	2.60	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	2.60	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	2.60	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	2.55	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	2.60	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	2.60	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	2.55	2.50	2.50	2.45	0.80	2.40	2.35	1.30	0.00	0.00	2.40	2.30	1.00	0.80	0.00	1.65	1.60	0.40	0.60	1.00	1.00	0.00
23	2.65	2.60	2.55	2.50	1.15	2.50	2.45	1.70	0.00	0.00	2.50	2.40	1.30	1.10	0.60	1.80	1.75	0.90	0.85	1.30	1.30	0.90
24	2.65	2.50	2.55	2.45	1.15	2.40	2.30	1.70	0.00	0.00	2.40	2.30	1.40	1.20	0.70	1.70	1.65	1.00	0.95	1.40	1.40	0.90
25	2.70	2.50	2.50	2.45	1.20	2.40	2.35	1.75	0.00	0.00	2.40	2.30	1.40	1.20	0.70	1.70	1.65	1.00	0.95	1.40	1.40	0.90
26	2.55	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	2.55	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	2.55	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	2.60	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	2.60	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	2.60	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure F.16.9 Water Levels of Biyala Water District Irrigation Canals in September, 1998.

Date	Tahweelah Bahr Biye & El-Nour	El-Agemy Canal	End of Agemy	Bahr El-Nour	Bahr El-Nour at km 500	End	Bahr Biyala	Mazek Regulator	Km 10	End	Tahweelah Bahr Biyala km 3 250	End	El-Shorafa Canal	El-Shorafa Canal End	Mazek Branch	End of Mazek				
1	2.35	2.30	2.25	1.00	2.25	2.15	1.30	0.00	0.00	2.15	2.10	1.10	1.00	0.60	1.40	1.35	0.50	1.10	1.10	0.50
2	2.40	2.35	2.30	0.90	2.25	2.20	1.60	0.00	0.00	2.25	2.15	1.15	1.05	0.65	1.45	1.40	0.55	1.15	1.15	0.55
3	2.40	2.35	2.30	0.90	2.25	2.20	1.60	0.00	0.00	2.25	2.15	1.35	1.25	0.70	1.45	1.40	0.55	1.35	1.35	0.65
4	2.60	2.50	2.45	1.15	2.40	2.35	1.70	0.00	0.00	2.40	2.30	1.40	1.30	0.80	1.65	1.60	0.95	1.40	1.40	1.00
5	2.65	2.50	2.45	1.15	2.40	2.35	1.70	0.00	0.00	2.40	2.30	1.40	1.30	0.80	1.65	1.60	0.95	1.40	1.40	1.00
6	2.40	2.35	2.30	0.85	2.25	2.20	1.40	0.00	0.00	2.25	2.10	1.15	1.00	0.65	1.50	1.45	0.65	1.10	1.15	0.75
7	2.35	2.30	2.25	0.85	2.20	2.15	1.35	0.00	0.00	2.20	2.05	1.10	0.95	0.60	1.50	1.45	0.60	1.15	1.10	0.70
8	2.35	2.30	2.25	0.85	2.20	2.10	1.35	0.00	0.00	2.20	2.05	1.10	0.95	0.60	1.50	1.45	0.60	1.10	1.10	0.70
9	2.35	2.30	2.25	0.85	2.20	2.15	1.30	0.00	0.00	2.20	2.05	1.10	0.95	0.60	1.50	1.45	0.60	1.10	1.10	0.70
10	2.35	2.25	2.20	0.85	2.15	2.10	1.30	0.00	0.00	2.15	2.05	1.10	0.95	0.60	1.45	1.40	0.60	1.10	1.10	0.70
11	2.40	2.35	2.30	0.90	2.25	2.20	1.35	0.00	0.00	2.25	2.20	1.20	1.05	0.70	1.55	1.50	0.85	1.20	1.20	0.80
12	2.30	2.25	2.20	0.90	2.20	2.15	1.35	0.00	0.00	2.20	2.15	1.20	1.05	0.70	1.60	1.55	0.85	1.20	1.20	0.80
13	2.30	2.25	2.20	0.90	2.20	2.15	1.35	0.00	0.00	2.20	2.15	1.20	1.05	0.70	1.60	1.55	0.85	1.20	1.20	0.80
14	2.30	2.25	2.20	0.90	2.20	2.10	1.30	0.00	0.00	2.20	2.15	1.20	1.05	0.70	1.60	1.55	0.85	1.20	1.20	0.80
15	2.30	2.25	2.20	0.90	2.20	1.15	1.30	0.00	0.00	2.20	2.15	1.20	1.05	0.70	1.60	1.55	0.85	1.20	1.20	0.80
16	2.35	2.30	2.25	1.00	2.25	2.20	1.60	0.00	0.00	2.25	2.20	1.40	1.10	0.75	1.65	1.60	0.90	1.40	1.40	0.95
17	2.35	2.30	2.20	1.05	2.25	2.20	1.60	0.00	0.00	2.25	2.25	1.40	1.10	0.75	1.65	1.60	0.90	1.40	1.40	0.95
18	2.65	2.30	2.25	1.60	2.25	2.20	1.80	0.00	0.00	2.25	2.20	1.50	1.30	1.05	1.10	1.65	1.00	1.10	1.50	1.15
19	2.70	2.20	2.15	1.60	2.10	2.00	1.80	0.00	0.00	2.10	2.00	1.40	1.20	0.95	1.60	1.55	1.00	1.40	1.40	1.05
20	2.60	2.20	2.15	1.60	2.10	2.05	1.80	0.00	0.00	2.10	2.00	1.40	1.20	0.95	1.60	1.55	1.00	1.40	1.40	1.05
21	2.60	2.20	2.15	1.60	2.10	2.50	1.80	0.00	0.00	2.10	2.00	1.40	1.20	0.95	1.60	1.55	1.00	1.40	1.40	1.05
22	2.60	2.00	1.95	1.60	1.95	1.90	1.80	0.00	0.00	1.95	1.90	1.40	1.20	0.95	1.60	1.55	1.00	1.40	1.40	1.05
23	2.60	2.00	1.95	1.60	1.95	1.90	1.80	0.00	0.00	1.95	1.90	1.40	1.20	0.95	1.60	1.55	1.00	1.40	1.40	1.05
24	2.60	2.30	2.25	1.60	2.20	2.15	1.80	0.00	0.00	2.20	2.10	1.40	1.20	0.95	1.60	1.55	1.00	1.40	1.40	1.05
25	2.60	2.30	2.25	1.60	2.20	2.15	1.80	0.00	0.00	2.20	2.10	1.40	1.20	0.95	1.60	1.55	1.00	1.40	1.40	1.05
26	2.70	2.00	1.95	0.80	1.90	1.85	0.75	0.00	0.00	1.90	1.85	0.90	0.70	0.60	1.40	1.30	0.40	0.90	0.90	0.50
27	2.70	2.10	2.05	0.90	2.00	1.95	0.90	0.00	0.00	2.00	1.90	1.00	0.80	0.70	1.50	1.45	0.60	1.00	1.00	0.60
28	2.70	2.10	2.05	0.90	2.00	1.95	0.90	0.00	0.00	2.00	1.90	1.00	0.80	0.70	1.50	1.45	0.60	1.00	1.00	0.60
29	2.70	2.10	2.05	0.90	2.00	1.95	0.90	0.00	0.00	2.00	1.90	1.00	0.80	0.70	1.50	1.45	0.60	1.00	1.00	0.60
30	2.70	2.20	2.15	1.00	2.10	2.05	0.95	0.00	0.00	2.05	2.00	1.20	0.90	0.80	1.55	1.50	0.80	1.20	1.20	0.75
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure F.16.10 Water Levels of Biyala Water District Canals in October, 1998.

Date	Tahweelah Bahr Biya & El-Nour	El Agamy Canal	End of Agamy	Bahr El-Nour	Bahr El-Nour at km 500	End	Bahr Biyala	Hazek Regulator	Km 10	End	Tahweelah Bahr Biyala km 3.250	End	El-Shorefa Canal	End	El-Shorefa Hazek Branch	End of Hazek
1	2.70	2.30	2.25	1.10	2.20	2.15	2.20	2.15	1.30	1.30	1.65	1.60	1.55	0.85	1.30	0.95
2	2.70	2.30	2.25	1.10	2.20	2.15	2.20	2.15	1.30	1.30	1.65	1.60	1.55	0.85	1.30	0.95
3	2.70	2.30	2.25	1.10	2.20	2.15	2.20	2.15	1.30	1.30	1.65	1.60	1.55	0.85	1.30	0.95
4	2.60	2.00	1.95	0.90	1.90	1.85	1.90	1.85	1.00	1.00	1.25	1.20	1.15	0.55	1.00	0.80
5	2.60	1.80	1.75	0.80	1.70	1.65	1.70	1.65	0.80	0.80	1.00	0.95	0.90	0.40	0.80	0.40
6	2.60	1.80	1.75	0.75	1.70	1.65	1.70	1.65	0.80	0.80	1.00	0.95	0.90	0.40	0.80	0.40
7	2.30	1.80	1.75	0.75	1.70	1.65	1.70	1.65	0.80	0.80	1.00	0.95	0.90	0.40	0.80	0.40
8	2.30	1.80	1.75	0.75	1.70	1.65	1.70	1.65	0.70	0.70	0.95	0.90	0.85	0.40	0.70	0.40
9	2.30	1.80	1.75	0.75	1.70	1.65	1.70	1.65	0.70	0.70	0.95	0.90	0.85	0.40	0.70	0.40
10	2.30	1.80	1.75	0.60	1.70	1.65	1.70	1.65	0.70	0.70	0.95	0.90	0.85	0.40	0.70	0.40
11	2.30	1.80	1.75	0.60	1.70	1.65	1.70	1.65	0.70	0.70	0.95	0.90	0.85	0.40	0.70	0.40
12	2.40	2.30	2.25	0.80	2.25	2.20	2.20	2.15	1.30	1.30	1.55	1.50	1.45	0.80	1.30	0.85
13	2.45	2.30	2.25	0.80	2.25	2.20	2.20	2.15	1.30	1.30	1.55	1.50	1.45	0.80	1.30	0.85
14	2.40	2.35	2.30	0.80	2.30	2.20	2.30	2.25	1.25	1.25	1.55	1.50	1.45	0.80	1.25	0.85
15	2.50	2.45	2.40	1.00	2.40	2.35	2.40	2.35	1.30	1.30	1.65	1.60	1.55	0.95	1.30	0.70
16	2.45	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	2.45	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	2.50	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	2.50	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	2.45	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	2.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	2.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	2.50	2.45	2.40	1.15	2.40	2.35	2.40	2.35	1.50	1.50	1.75	1.70	1.65	0.80	1.50	0.90
26	2.50	2.45	2.40	1.15	2.40	2.35	2.40	2.35	1.50	1.50	1.75	1.70	1.65	0.80	1.50	0.95
28	2.45	2.45	2.40	0.95	2.30	2.25	2.30	2.25	1.40	1.40	1.65	1.65	1.60	0.80	1.40	0.75
27	2.75	2.70	2.65	1.30	2.60	2.50	2.60	2.50	1.50	1.50	2.00	1.95	1.90	0.95	1.50	0.80
28	2.65	2.60	2.55	1.40	2.50	2.45	2.55	2.45	1.60	1.60	1.75	1.75	1.70	0.95	1.60	1.20
29	2.30	2.25	2.20	1.10	2.25	2.20	2.20	2.15	1.40	1.40	1.65	1.60	1.55	0.75	1.40	1.00
30	2.55	1.80	1.70	1.65	1.70	1.65	1.60	1.55	0.85	0.85	1.05	1.00	0.95	0.50	0.85	0.55
31	2.60	1.80	1.78	0.70	1.75	1.65	1.75	1.65	0.95	0.95	1.45	1.45	1.40	0.50	0.95	0.55

Figure F.16.11 Water Levels of Biyala Water District Canals in November, 1998.

Date	Tahweelah Bahr Biya & El-Nour	El-Agamy Canal	End of Agamy	Bahr El-Nour		Bahr El-Nour at km 500	End	Bahr Biyala	Hazek Regulator		Km 10	End	Tahweelah Bahr Biyala km 3,250		End	El-Shorafa Canal		End	Hazek Branch		End of Hazek
				Bah	El-Nour				Hazek	Regulator			Bah	El-Nour		Bah	El-Nour		Hazek	Branch	
1	2.60	1.80	1.78	0.85	1.75	1.65	0.90	0.00	0.00	1.75	1.70	0.95	0.85	0.53	1.40	1.35	0.65	0.95	0.95	0.95	0.45
2	2.70	1.80	1.78	0.85	1.75	1.65	0.90	0.00	0.00	1.75	1.70	0.95	0.85	0.53	1.30	1.25	0.55	0.95	0.95	0.95	0.45
3	2.65	1.80	1.78	0.95	1.75	1.65	0.90	0.00	0.00	1.75	1.70	1.00	0.85	0.70	1.45	1.40	0.65	1.00	1.00	1.00	0.60
4	2.65	1.80	1.78	0.95	1.75	1.65	0.90	0.00	0.00	1.75	1.70	1.00	0.85	0.70	1.45	1.40	0.65	1.00	1.00	1.00	0.60
5	2.65	2.60	2.55	1.60	2.25	2.45	1.70	0.00	0.00	2.55	2.50	1.65	1.40	1.15	2.00	1.95	1.90	1.15	1.65	1.65	1.20
6	2.65	2.10	2.05	1.40	2.05	1.95	1.50	0.00	0.00	2.05	2.00	1.50	1.25	1.00	1.50	1.45	1.40	0.90	1.50	1.50	1.00
7	2.65	2.10	2.05	0.90	2.05	1.95	1.00	0.00	0.00	2.05	2.05	1.25	0.95	0.65	1.60	1.55	1.50	0.85	1.20	1.25	0.75
8	2.65	2.30	2.25	1.10	2.25	2.15	1.30	0.00	0.00	2.25	2.15	1.30	1.00	0.65	1.70	1.65	1.60	0.95	1.30	1.30	0.80
9	2.55	1.80	1.75	0.65	1.75	1.65	0.75	0.00	0.00	1.75	1.70	0.95	0.75	0.55	1.40	1.35	1.30	0.65	0.95	0.95	0.65
10	2.35	1.80	1.75	0.65	1.75	1.65	0.75	0.00	0.00	1.75	1.70	0.95	0.75	0.55	1.40	1.35	1.30	0.65	0.95	0.95	0.65
11	2.40	1.80	1.75	0.65	1.75	1.65	0.75	0.00	0.00	1.75	1.70	0.95	0.75	0.55	1.40	1.35	1.30	0.65	0.95	0.95	0.65
12	2.30	1.80	1.75	0.65	1.75	1.65	0.75	0.00	0.00	1.75	1.70	0.95	0.75	0.55	1.40	1.35	1.30	0.65	0.95	0.95	0.65
13	2.20	1.60	1.55	0.65	1.55	1.45	0.75	0.00	0.00	1.55	1.50	0.95	0.75	0.55	1.00	0.95	0.90	0.55	0.95	0.95	0.45
14	2.25	1.60	1.55	0.65	1.55	1.45	0.75	0.00	0.00	1.55	1.50	0.95	0.75	0.55	1.00	0.95	0.90	0.55	0.95	0.95	0.40
15	2.25	1.60	1.55	0.80	1.55	1.45	1.05	0.00	0.00	1.55	1.50	1.05	0.85	0.65	1.00	0.95	0.90	0.55	1.05	1.05	0.75
16	2.25	1.60	1.55	0.80	1.55	1.45	1.05	0.00	0.00	1.55	1.50	1.05	0.85	0.65	1.00	0.95	0.90	0.55	1.05	1.05	0.75
17	2.50	2.20	2.15	1.25	2.15	2.05	1.50	0.00	0.00	2.15	2.10	1.35	1.15	0.75	1.60	1.55	1.50	0.75	1.35	1.35	0.95
18	2.50	2.30	2.25	1.35	2.25	2.15	1.60	0.00	0.00	2.25	2.25	1.40	1.20	0.80	1.65	1.60	1.55	0.80	1.40	1.40	1.10
19	2.35	2.30	2.25	1.40	2.25	2.15	1.70	0.00	0.00	2.25	2.15	1.40	1.25	0.90	1.65	1.60	1.55	0.80	1.40	1.40	1.10
20	2.35	2.30	2.25	1.40	2.25	2.15	1.70	0.00	0.00	2.25	2.15	1.40	1.25	0.90	1.65	1.60	1.55	0.80	1.40	1.40	1.10
21	2.40	1.60	1.55	1.00	1.55	1.45	1.20	0.00	0.00	1.55	1.50	0.85	0.75	0.65	1.00	0.95	0.90	0.55	0.85	0.85	0.75
22	2.45	1.60	1.55	1.00	1.55	1.45	1.20	0.00	0.00	1.55	1.50	0.85	0.75	0.65	1.00	0.95	0.90	0.55	0.85	0.85	0.75
23	2.40	1.70	1.65	1.05	1.65	1.55	1.35	0.00	0.00	1.65	1.60	0.95	0.80	0.70	1.10	1.05	1.00	0.65	0.95	0.95	0.90
24	2.40	1.70	1.65	1.05	1.65	1.55	1.35	0.00	0.00	1.65	1.60	0.95	0.80	0.70	1.10	1.05	1.00	0.65	0.95	0.95	0.90
25	2.50	1.70	1.65	1.00	1.65	1.55	1.35	0.00	0.00	1.65	1.60	0.95	0.80	0.70	1.10	1.05	1.00	0.65	0.95	0.95	0.90
26	2.50	1.70	1.65	1.00	1.65	1.55	1.30	0.00	0.00	1.65	1.60	0.95	0.80	0.70	1.10	1.05	1.00	0.65	0.95	0.95	0.90
27	2.50	1.70	1.65	0.90	1.65	1.55	1.15	0.00	0.00	1.65	1.60	0.95	0.80	0.70	1.10	1.05	1.00	0.65	0.95	0.95	0.90
28	2.50	1.70	1.65	0.90	1.65	1.55	1.15	0.00	0.00	1.65	1.60	0.95	0.80	0.70	1.10	1.05	1.00	0.65	0.95	0.95	0.90
29	2.50	2.30	2.25	1.25	2.25	2.15	1.55	0.00	0.00	2.20	2.20	1.50	1.20	0.95	1.80	1.75	1.70	0.95	1.50	1.50	1.10
30	2.50	2.30	2.25	1.25	2.25	2.15	1.55	0.00	0.00	2.25	2.20	1.50	1.20	0.95	1.80	1.75	1.70	0.95	1.50	1.50	1.15
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure F.16.12 Water Levels of Biyala Water District Canals in December, 1998.

Date	Tahweelah Bahr-Biya & El-Nour	El-Agamy Canal	End of Agency	Bahr El-Nour	Bahr El-Nour at km 500	End	Bahr Biyala	Hazek Regulator	Km 10	End	Tahweelah Bahr Biyala km 3.250	End	El-Shorafa Canal	El-Shorafa Canal End	Hazek Branch	End of Hazek						
1	2.30	2.30	2.25	1.30	2.25	2.15	1.70	0.00	0.00	2.25	2.20	1.60	1.60	1.30	1.05	1.70	1.70	1.05	1.60	1.60	1.25	
2	2.50	2.30	2.25	1.30	2.25	2.15	1.70	0.00	0.00	2.25	2.20	1.60	1.60	1.30	1.05	1.70	1.70	1.05	1.60	1.60	1.25	
3	2.45	1.70	1.65	0.75	1.65	1.55	0.90	0.00	0.00	1.65	1.60	1.00	1.00	0.90	0.80	1.20	1.15	0.65	1.15	1.10	0.85	
4	2.40	1.70	1.65	0.75	1.65	1.55	0.90	0.00	0.00	1.65	1.60	1.00	1.00	0.90	0.80	1.20	1.15	0.65	1.15	1.10	0.85	
5	2.40	1.70	1.65	0.70	1.65	1.55	0.80	0.00	0.00	1.65	1.60	0.90	0.90	0.80	0.70	1.20	1.15	0.60	1.15	1.10	0.75	
6	2.40	1.70	1.65	0.70	1.65	1.55	0.80	0.00	0.00	1.65	1.60	0.90	0.90	0.80	0.70	1.20	1.15	0.60	1.15	1.10	0.75	
7	2.40	1.70	1.65	0.70	1.65	1.55	0.80	0.00	0.00	1.65	1.60	0.80	0.80	0.70	0.60	1.20	1.15	0.55	1.15	1.10	0.70	
8	2.40	1.70	1.65	0.70	1.65	1.55	0.80	0.00	0.00	1.65	1.60	0.80	0.80	0.70	0.60	1.20	1.15	0.55	1.15	1.10	0.70	
9	2.55	1.70	1.65	0.70	1.65	1.55	0.85	0.00	0.00	1.65	1.60	0.90	0.90	0.75	0.60	1.20	1.15	0.60	1.15	1.10	0.75	
10	2.55	1.70	1.65	0.70	1.65	1.55	0.85	0.00	0.00	1.65	1.60	0.90	0.90	0.75	0.60	1.20	1.15	0.60	1.15	1.10	0.75	
11	2.50	2.20	2.15	1.25	2.15	2.05	1.65	0.00	0.00	2.15	2.10	1.55	1.55	1.25	1.05	1.70	1.65	0.95	1.65	1.60	1.10	
12	2.52	2.20	2.15	1.25	2.15	2.05	1.65	0.00	0.00	2.15	2.10	1.55	1.55	1.25	1.05	1.70	1.65	0.95	1.65	1.60	1.10	
13	2.40	2.20	2.15	1.30	2.15	2.05	1.70	0.00	0.00	2.15	2.10	1.60	1.60	1.35	1.15	1.70	1.65	0.95	1.65	1.60	1.20	
14	2.40	2.20	2.15	1.30	2.15	2.05	1.70	0.00	0.00	2.15	2.10	1.60	1.60	1.35	1.15	1.70	1.65	0.95	1.65	1.60	1.20	
15	2.40	1.60	1.55	0.90	1.55	1.45	0.95	0.00	0.00	1.55	1.50	0.90	0.90	0.80	0.70	1.10	1.05	0.70	1.05	1.00	0.75	
16	2.40	1.60	1.55	0.90	1.55	1.45	0.95	0.00	0.00	1.55	1.50	0.90	0.90	0.80	0.70	1.10	1.05	0.70	1.05	1.00	0.75	
17	2.50	1.60	1.55	0.95	1.55	1.45	1.00	0.00	0.00	1.55	1.50	0.95	0.95	0.85	0.75	1.10	1.05	0.75	1.05	1.00	0.75	
18	2.50	1.60	1.55	0.95	1.55	1.45	1.00	0.00	0.00	1.55	1.50	0.95	0.95	0.85	0.75	1.10	1.05	0.75	1.05	1.00	0.75	
19	2.50	1.60	1.55	0.95	1.55	1.45	1.00	0.00	0.00	1.55	1.50	0.95	0.95	0.85	0.75	1.10	1.05	0.75	1.05	1.00	0.75	
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