

Supporting Report for Chapter 8

“Evaluation of Proposed Management Plans”

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**ANNEX to 8.1.4
Wastewater Reuse**

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Aha Naser (Tafif-10 Block) Hydrolic Analysis in (cm)		Item	Allocates	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Year	Allocates			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Water Product (Industrial Water)	0.61		8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Physical Losses (%)	0.24	0.23	0.22	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.15	0.15	0.15	0.15	0.15		
Physical Losses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Administrative/Managerial Losses (%)	0.21	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	0.06	0.05	0.05	0.05	0.05	0.05		
Administrative/Managerial Losses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Quantity Delivered	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Quantity Whose Bills are Collected	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Indirect Water	1.01	0	0	615,828	676,435	717,041	797,447	850,168	892,688	935,209	1,007,729	1,060,258	1,096,901	1,133,553	1,176,294		
Physical Losses (%)	0.24	0.23	0.22	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.15	0.15	0.15	0.15	0.15		
Physical Losses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Administrative/Managerial Losses (%)	0.21	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	0.06	0.05	0.05	0.05	0.05	0.05		
Administrative/Managerial Losses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Quantity Delivered	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Quantity Whose Bills are Collected	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Indirect Water	1.01	0	0	615,828	676,435	717,041	797,447	850,168	892,688	935,209	1,007,729	1,060,258	1,096,901	1,133,553	1,176,294		
Physical Losses (%)	0.24	0.23	0.22	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.15	0.15	0.15	0.15	0.15		
Physical Losses	0.0	0	136,384	144,968	152,641	159,529	161,531	162,484	162,385	161,237	159,018	164,555	170,033	175,531	181,021		
Administrative/Managerial Losses (%)	0.21	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.07	0.06	0.05	0.05	0.05	0.05	0.05		
Administrative/Managerial Losses	0.0	0	181,181	94,683	89,477	79,485	74,515	72,215	68,685	51,013	54,345	56,676	58,510	61,175	64,725		
Quantity Delivered	0.0	0	409,484	551,475	584,800	638,118	681,618	718,204	792,625	846,933	981,213	953,386	963,520	894,874	1,025,827		
Quantity Whose Bills are Collected	0.0	0	371,383	434,811	494,923	558,533	611,121	607,988	716,829	841,289	877,521	900,942	936,183	945,484	1,086,981		
Financial Analysis (JD at 2000 Prices)		Item	Percent	Amount	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Item		Costs			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Components	74%	105,872		81,784	0	0	0	0	0	0	0	0	0	0	0	0	
Foreign Components	26%	37,128		31,258	0	0	0	0	0	0	0	0	0	0	0	0	
Duty & Taxes	0%	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Capital Costs	143,008			114,140	0	0	0	0	0	0	0	0	0	0	0	0	
Construction Costs	114,140			114,140	114,140	114,140	114,140	114,140	114,140	114,140	114,140	114,140	114,140	114,140	114,140	114,140	
G & M Costs	0	0		9,350	9,350	8,358	8,350	9,350	9,350	8,358	8,350	9,350	9,350	9,350	9,350	9,350	
Total Costs	114,140			9,350	9,350	8,358	8,350	9,350	9,350	8,358	8,350	9,350	9,350	9,350	9,350	9,350	
Revenues				Industrial Usage Qty (m³)	0	0	0	0	0	0	0	0	0	0	0	0	
Industrial Tariff (JD/m³)				1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Industrial Revenue (JD)				0	0	0	0	0	0	0	0	0	0	0	0	0	
Irrigation Usage Qty (m³)				371,383	434,811	494,923	558,533	611,121	607,988	725,059	786,829	841,289	877,521	900,942	936,183	945,484	
Irrigation Tariff (JD/m³)				0.018	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	
Irrigation Revenue (JD)				0	0	3,733	4,348	4,949	5,544	6,121	6,688	7,280	7,880	8,482	9,084	9,686	
Total Revenues (JD)				0	0	114,140	114,140	114,140	114,140	114,140	114,140	114,140	114,140	114,140	114,140	114,140	
Net Cash Flow (JD)				-114,140	-5,848	-6,854	-7,343	-8,401	-7,985	-11,628	-11,884	-12,434	-13,188	-14,004	-14,718	-15,432	
Discounting (R=1%)	0.9909	0.93465		0.75131	0.83301	0.83972	0.85047	0.85138	0.85063	0.85110	0.85140	0.85164	0.85196	0.85233	0.85264	0.85295	
Total Qty Delivered (m³)	0	0	479,484	551,475	584,800	638,118	681,618	718,204	792,625	846,933	981,213	933,386	963,520	894,874	1,086,981	1,130,559	
HRR	65%																
NPV (JD)	732,958			0	-94,331	43,958	44,978	45,540	45,691	45,285	44,508	43,612	42,575	41,418	39,863	36,784	
FV of Total Costs (JD)	175,928			0	94,331	7,825	5,388	5,278	4,798	4,382	3,985	3,805	5,277	12,775	2,781	2,962	
FV of Total Qty Delivered (m³)	642,385			0	360,383	383,814	382,865	380,301	353,379	345,311	336,204	315,899	317,831	298,897	261,929	245,575	
Unit Water Price (JD/m³)	77																

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Annual Cashflow (\$ Millions)			
Item	Allocation	2000	2001
Water Provided		4,845,553	5,483,588
Industrial Water	0.00	0.0	0.0
Physical Losses (%)	0.24	0.23	0.22
Physical Losses	0.0	0.0	0.0
Administrative/Managerial Losses (%)	0.21	0.19	0.18
Administrative/Managerial Losses	0.0	0.0	0.0
Quality Collected	1.0	0.9	0.9
Quality Water Bills are Collected	1.0	0.9	0.9
Industrial Water	1.00	0	0
Physical Losses (%)	0.24	0.25	0.22
Physical Losses	0.0	0	0
Administrative/Managerial Losses (%)	0.21	0.19	0.16
Administrative/Managerial Losses	0.0	0	0
Quality Delivered	0.0	0	0
Quality Water Bills are Collected	0.0	0	0
Financial Analysis (LJD at 2000 Prices)			
Item	Percent	Amount	2000
Costs			
Local Components	39%	2,887,950	
Freight Components	41%	4,523,350	
Duty & Taxes	0%	0	
Total Capital Costs	7,411,300		
Operational Costs			
D&M Costs			
Total Costs			
Revenue			
Industrial Usage Qty (m³)	0	0	
Industrial Tariff (DJD/m³)	1,000	1,000	
Industrial Revenue (JD)	0	0	
Irrigation Usage Qty (m³)	0	0	
Irrigation Tariff (DJD/m³)	0.038	0.038	
Irrigation Revenue (JD)	0	0	
Total Revenue (JD)	0	0	
Net Cash Flow (JD)	0	-1,043,700	
Decreasing (DR=1%)	0.92897	0.93186	
Total Qty Water Bills are Collected (m³)	0	3,251,793	
EBIT			
NPV (JD)	-2,968,530		
PV of Total Costs (JD)	5,521,154		
PV of Total Bills Collected Qty (m³)	75,044,116		
User Water Price (Pence)	76		
Economic Analysis (LJD at 2000 Prices)			
Item	Percent	Amount	2000
Costs			
Local Components	39%	2,887,950	
Freight Components	41%	4,523,350	
Duty & Taxes	0%	0	
Total Capital Costs	7,411,300		
Operational Costs			
D&M Costs			
Total Costs			
Revenue			
Industrial Usage Qty (m³)	0	0	
User Benefits of Industrial Water (JD/m³)	1,240	1,240	
Irrigation Usage Qty (m³)	0	0	
User Benefits of Irrigation Water (JD/m³)	0.142	0.142	
Irrigation Benefits (JD)	0	0	
Total Benefits (JD)	0	0	
Net Cash Flow (JD)	0	-1,043,720	
Decreasing (DR=1%)	0.90809	0.92845	
Total Qty Delivered (m³)	0	3,241,011	
EBIT			
NPV (JD)	2,253,213		
PV of Total Costs (JD)	4,758,147		
PV of Total Qty Delivered (m³)	47,543,176		
User Water Price (Pence)	94		

