

*The Study on Water Resources Management in The Hashemite Kingdom of Jordan  
Final Report/Supporting Report Part-A "Master Plan"*

Total Tariff-38 Flows <sup>2</sup> Hydraulic Analysis (m <sup>3</sup> /yr)		Item	Allocation	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Water	Flows			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Industrial Water	0.83	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8			
Physical Losses (%)	0.34	0.13	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21			
Physical Losses	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3			
Administrative/Managerial Losses (%)	0.21	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05			
Administrative/Managerial Losses	0.2	0.18	0.16	0.14	0.12	0.11	0.1	0.08	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05			
Quality Delivered	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8			
Quality Water Bills are Collected	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9			
Domestic Water	1.83	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Physical Losses (%)	0.34	0.13	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21			
Physical Losses	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3			
Administrative/Managerial Losses (%)	0.21	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05			
Administrative/Managerial Losses	0.2	0.18	0.16	0.14	0.12	0.11	0.1	0.08	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05			
Quality Delivered	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8			
Quality Water Bills are Collected	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9			
Financial Analysis (JD at 2000 Prices)		Item	Percent	Amount	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cash																									
Local Components	88%	15,382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Foreign Components	28%	3,983	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Duty & Taxes	1%	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total Capital Costs	19,243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Chancery Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
O & M Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Revenues																									
Total Usage Qty (m <sup>3</sup> )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Industrial Tariff (JD/m <sup>3</sup> )	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000			
Irrigation Usage Qty (m <sup>3</sup> )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Irrigation Tariff (JD/m <sup>3</sup> )	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388	0.0388			
Total Revenues (JD)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Net Cash Flow (JD)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Discounting (JD=10%)	0.95287	0.95168	0.95045	0.94921	0.94798	0.94675	0.94552	0.94429	0.94306	0.94283	0.94160	0.94037	0.93914	0.93791	0.93668	0.93545	0.93422	0.93299	0.93176	0.93053	0.92930	0.92807	0.92684		
Total Qty Whse Bills are Collected (m <sup>3</sup> )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
EIRR	10.7%																								
NPV (JD)	109,140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-4,481	6,830	6,804	6,776	6,648	6,503		
PV of Total Costs (JD)	52,018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,481	3,340	3,042	2,856	2,516	2,305	
PV of Total Qty Collected Qty (m <sup>3</sup> )	4,244,135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	264,998	259,110	252,955	246,585	240,846	235,372
Unit Water Price (Flats <sup>3</sup> )	12																								
Economic Analysis (JD at 2000 Prices)		Item	Percent	Amount	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cash																									
Local Components	88%	15,382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Foreign Components	28%	3,983	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Duty & Taxes	1%	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total Capital Costs	19,243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Chancery Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
O & M Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Revenues																									
Total Usage Qty (m <sup>3</sup> )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
One Benefit of Industrial Water (JD/m <sup>3</sup> )	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748	2,748			
Industrial Benefits (JD)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Irrigation Usage Qty (m <sup>3</sup> )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
One Benefits of Irrigation Water (JD/m <sup>3</sup> )	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142			
Irrigation Benefits (JD)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total Benefit (JD)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Net Cash Flow (JD)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Discounting (JD=10%)	0.90949	0.90845	0.90741	0.90637	0.90534	0.90431	0.90328	0.90225	0.90122	0.90019	0.89916	0.89813	0.89710	0.89607	0.89504	0.89401	0.89398	0.89394	0.89381	0.89368	0.89351	0.89338			
Total Qty Delivered (m <sup>3</sup> )	1,295,334	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
EIRR	52%																								

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Initial Capital (Central/Wadi Arab Together (Tadif) 38 Firms)																								
Hydrokin Analysis (in '000)																								
Item	Period	Allocation																						
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
Water Produced																								
Internal Water	1.0E	8.0	8.8	9.0	9.0	8.8	9.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		
Physical Losses (%)	0.24	1.23	1.22	0.21	1.21	1.20	0.19	1.18	1.17	0.16	1.15	0.15	1.15	0.15	1.15	0.15	1.15	0.15	1.15	0.15	1.15	0.15		
Physical Losses		1.0	8.8	9.0	9.0	8.8	9.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		
Administrative/Managerial Losses (%)	0.21	1.18	1.18	0.14	1.12	1.10	0.09	1.08	1.07	0.08	1.05	0.05	1.05	0.05	1.05	0.05	1.05	0.05	1.05	0.05	1.05	0.05		
Administrative/Managerial Losses		1.0	8.8	9.0	9.0	8.8	9.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		
Quality Delivered		1.0	8.8	9.0	9.0	8.8	9.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		
Quality Where Bills Are Collected		1.0	8.8	9.0	9.0	8.8	9.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		
Retention Rate	1.0E	0	4	0	0	1	2,861,883	2,994,339	3,124,324	3,474,940	3,744,325	4,014,978	4,544,177	4,871,335	4,103,288	4,161,300	4,161,300	4,161,300	4,161,300	4,161,300	4,161,300	4,161,300		
Physical Loss (%)	0.24	1.23	1.22	0.21	1.21	1.20	0.19	1.18	1.17	0.16	1.15	0.15	1.15	0.15	1.15	0.15	1.15	0.15	1.15	0.15	1.15	0.15		
Physical Losses		0	4	0	0	1	331,799	597,481	576,779	596,672	391,181	612,349	608,637	611,809	415,268	619,796	634,150	624,159	634,150	624,159	624,159	624,159		
Administrative/Managerial Losses (%)	0.21	1.18	1.18	0.14	1.12	1.10	0.09	1.08	1.07	0.08	1.05	0.05	1.05	0.05	1.05	0.05	1.05	0.05	1.05	0.05	1.05	0.05		
Administrative/Managerial Losses		0	4	0	0	1	266,389	246,670	256,346	241,218	224,045	280,749	262,289	285,189	266,280	288,099	288,099	288,099	288,099	288,099	288,099	288,099		
Quality Delivered		0	4	0	0	1	2,311,194	2,316,628	2,477,594	2,383,985	3,145,399	3,412,725	3,435,590	3,442,375	3,497,208	3,511,075	3,518,850	3,536,858	3,536,858	3,536,858	3,536,858	3,536,858		
Quality Where Bills Are Collected		0	4	0	0	1	1,864,725	2,112,558	2,371,208	2,041,689	2,911,039	3,211,977	3,231,700	3,232,071	3,232,071	3,232,071	3,232,071	3,232,071	3,232,071	3,232,071	3,232,071	3,232,071		
Financial Analysis (IDR at 2000 Prices)																								
Item	Period	Amount	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Costs																								
Local Components	30%	1,133,860	0	0	0	1	564,900	0	0	0	182,375	0	0	0	0	0	0	385,465	0	0	0	381,069	0	
Foreign Components	30%	485,940	0	0	0	1	241,970	0	0	0	43,675	0	0	0	0	0	0	121,485	0	0	0	77,618	0	
Duty & Taxes	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Capital Costs	1,619,800	0	0	0	0	1	808,880	0	0	0	146,250	0	0	0	0	0	0	404,958	0	0	0	258,708	0	
Operational Costs																								
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Capital Costs		0	1,619,800	0	0	0	1	808,880	0	0	0	146,250	0	0	0	0	0	0	404,958	0	0	0	258,708	0
Operating Costs		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	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	1,000	1,000	1,000	1,000	1,000	1,000	1,000		
Net Cash Flow (IDR)		0	1,000	1,000	1,000	1,000	1																	

Final Report/Supporting Report Part-A "Master Plan"

