

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

Wadi Esse (Taref 28 River)															
Hydrologic Analysis (in 'm')															
Item	Allocation	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Water Produced		0	0	0	0	0	0	0	0	0	0	0	0	0	
Infrared Water	0.00	0.8	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Physical Losses (%)	0.34	0.23	0.22	0.21	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.15	0.15	0.15	
Physical Losses	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
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	
Administrative/Managerial Losses	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Quantity Delivered	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Quantity Water Bills are Collected	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Market Water	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	
Physical Losses (%)	0.34	0.23	0.22	0.21	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.15	0.15	0.15	
Physical Losses	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
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	
Administrative/Managerial Losses	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Quantity Delivered	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Quantity Water Bills are Collected	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Financial Analysis (ID at 2008 Prices)															
Item	Period	Amount	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Costs															
Local Components	100%	42,900	0	0	0	0	0	0	0	0	0	0	0	0	
Foreign Components	0%	0	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	
Total Capital Costs		42,900	0	0	0	0	0	0	0	0	0	0	0	0	
Cumulative Costs		0	0	0	0	0	0	0	0	0	0	0	0	0	
Q & M Costs		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	
Revenue															
Instantaneous Usage (Q' m³)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Instantaneous Tax (ID/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	
Instantaneous Revenue (ID)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Irrigation Usage (Q' m³)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Irrigation Tax (ID/m³)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Irrigation Revenue (ID)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Revenue (ID)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Net Cash Flow (ID)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Disworking (ID/m³ 5%)		1,93087	0.00195	0.00205	0.00205	0.00205	0.00205	0.00205	0.00205	0.00205	0.00205	0.00205	0.00205	0.00205	
Total Q' Whose Bills are Collected (m³)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Taxes															
MEPV (ID)		57585	0	0	0	0	0	0	0	0	0	0	0	0	
PV of Total Costs (ID)		61599	0	0	0	0	0	0	0	0	0	0	0	0	
PV of Total Bills Collected (Q' m³)		1,136,801	0	0	0	0	0	0	0	0	0	0	0	0	
Total Water Taxes (ID/m³)		30													
Economic Analysis (ID at 2008 Prices)															
Item	Period	Amount	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Costs															
Local Components	100%	42,900	0	0	0	0	0	0	0	0	0	0	0	0	
Foreign Components	0%	0	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	
Total Capital Costs		42,900	0	0	0	0	0	0	0	0	0	0	0	0	
Cumulative Costs		0	0	0	0	0	0	0	0	0	0	0	0	0	
Q & M Costs		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	
Benefit															
Instantaneous Usage (Q' m³)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Use Benefits of Industrial Water (ID/m³)		2,740	1,740	1,740	2,740	2,740	2,740	2,740	2,740	2,740	2,740	2,740	2,740	2,740	
Instantaneous Benefit (ID)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Irrigation Usage (Q' m³)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Use Benefits of Irrigation Water (ID/m³)		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 Benefit (ID)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Benefits (ID)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Net Cash Flow (ID)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Disworking (ID/m³ 5%)		1,93089	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045	
Total Q' Delivered (m³)		0	0	0	0	0	0	0	0	0	0	0	0	0	
Taxes															
MEPV (ID)		175,377	0	0	0	0	0	0	0	0	0	0	0	0	
PV of Total Costs (ID)		30,345	0	0	0	0	0	0	0	0	0	0	0	0	
PV of Total Q' Delivered (m³)		1,476,893	0	0	0	0	0	0	0	0	0	0	0	0	
Total Water Taxes (ID/m³)		21													

Wadi Hassan (Year-18 Project)		Hydrology Analysis (m³/yr)																					
Item	Allocation	2001	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Water Produced		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30,634	33,490	370,847	302,533	333,466	
Industrial Water	1.1%	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 (%)	1.24	1.22	1.22	1.23	1.22	1.28	1.19	1.18	0.17	0.18	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	
Physical Losses	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	
Administrative/Managerial Losses (%)	1.25	1.19	1.16	1.14	1.12	1.18	1.08	1.08	0.07	0.08	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	0.8	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 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 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 Whose Bills are Collected	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	
Irrigation Water	1.8%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
Physical Losses (%)	1.24	1.22	1.22	1.23	1.22	1.28	1.19	1.18	0.17	0.18	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	
Physical Losses	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	
Administrative/Managerial Losses (%)	1.21	1.19	1.16	1.14	1.12	1.18	1.08	1.08	0.07	0.08	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	0.8	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 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 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 Whose Bills are Collected	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	
Financial Analysis (IDR at 2000 Prices)																							
Item	Percent	Amount	2001	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cost																							
Local Components	30%	25,748	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25,740	0	0	0	0	
Foreign Components	20%	60,088	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68,860	0	0	0	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	
Total Capital Costs		85,836	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85,800	0	0	0	0	
Construction Costs		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25,208	25,808	25,808	25,808	25,808	
D&M Costs		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,138	9,138	9,138	
Total Costs		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Revenue																							
Industrial Usage (Qs (m³))		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Industrial Turnoff (IDR/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	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Industrial Revenue (IDR)		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
Irrigation Usage (Qs (m³))		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
Irrigation Turnoff (IDR/m³)	1,138	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	1,038	56,427	59,552	61,677	64,833	66,930	
Irrigation Revenue (IDR)		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
Total Revenues (IDR)		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
Net Cash Flow (IDR)		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	-45,800	12,394	13,394	14,394	15,394
Decreasing (IDR/m³)		1,03697	1,03168	1,03168	1,03168	1,03168	1,03168	1,03168	1,03168	1,03168	1,03168	1,03168	1,03168	1,03168	1,03168	1,03168	1,03168	34,281	32,239	30,324	28,320	26,320	
Total City Whose Bills are Collected (m³)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56,427	59,552	61,677	64,833	66,930
EIRR		1%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
HPIV (IDR)		-42,000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	-31,225	4,489	4,297	4,225	4,220
PV of Total Costs (IDR)		9,381	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31,225	3,599	2,759	2,439	2,439
PV of Total Bills Collected (Qs (m³))		346,249	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34,278	39,415	46,317	52,142	57,230
Unit Water Price (IDR/m³)		24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Economic Analysis (IDR at 2000 Prices)																							
Item	Percent	Amount	2001	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cost																							
Local Components	30%	25,748	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25,740	0	0	0	0	
Foreign Components	20%	60,088	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68,860	0	0	0	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	
Total Capital Costs		85,836	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85,800	0	0	0	0	
Construction Costs		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25,208	25,808	25,808	25,808	25,808	
D&M Costs		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,138	9,138	9,138	9,138	9,138
Total Costs		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Benefits																							
Industrial Usage (Qs (m³))		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Unit Benefits of Industrial Water (IDR/m³)	2748	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	2,740	2,740	2,740	2,740	2,740	
Industrial Benefits (IDR)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Irrigation Usage (Qs (m³))		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
Unit Benefits of Irrigation Water (IDR/m³)	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	0	0	0	0	0	
Irrigation Benefits (IDR)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Benefits (IDR)		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)		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
Decreasing (IDR/m³)		1,03903	1,03151	1,03151	1,03151	1,03152	1,03152	1,03152	1,03152	1,03152	1,03152	1,03152	1,03152	1,03152	1,03152	1,03152	1,03152	0	0	0	0	0	
Total City Delivered (m³)		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
EIRR		9.3%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
HPIV (IDR)		103,343	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	
PV of Total Costs (IDR)		27,281	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15,072	1,006	1,642	1,252	1,252
PV of Total Bills Collected (Q																							

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