



Table 8.1.5.8.1 Overall Financial/Economic Evaluation of Wastewater Reuse Projects - Water Price=38 Filsh/m<sup>3</sup>

Financial Analysis		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020							
<b>Net Cash Flow (JD)</b>																					
Alva Haizer	0	-114,140	5,826	7,173	5,457	11,867	13,911	16,034	18,236	20,519	22,882	-4,964	25,110	26,224	27,338	28,453	29,569	31,966	32,373	33,690	34,937
Aqaba	0	0	-1,643,720	-1,643,720	18,243	32,085	-933,925	-991,135	85,432	104,657	124,600	144,765	-645,229	-629,085	1,70,857	1,90,825	-183,959	-265,830	247,939	288,537	295,486
Filaja	0	0	0	0	0	0	0	0	0	0	0	0	0	-19,240	18,700	19,440	20,800	22,125	23,289	24,483	
Mad (Central and West Arab)	0	0	0	0	-808,988	26,080	35,977	-45,326	-90,695	66,215	77,275	78,163	79,051	79,939	80,827	-123,126	81,714	81,714	-176,986	81,714	81,714
Karak	0	0	0	0	-1,69,948	10,820	12,769	14,854	16,994	19,191	-51,416	22,276	23,819	25,361	26,904	28,195	29,496	30,778	32,869	33,360	
Kafra	0	0	0	0	0	0	0	0	0	-227,500	41,620	45,936	50,252	54,569	58,885	63,202	67,606	72,810	76,414	-146,882	85,222
Mizra	0	0	0	0	0	0	0	0	0	0	-194,064	4,357	6,195	8,034	9,872	11,710	13,599	15,868	17,847	20,827	-47,730
Madaba	0	0	-311,930	310	3,585	8,265	14,170	20,335	26,762	33,451	40,401	-44,652	-190,946	51,284	55,525	59,767	66,139	83,196	70,604	76,604	83,889
Madaba	0	0	0	-274,846	-18	2,685	4,288	5,943	7,649	9,407	11,216	12,551	13,886	-86,943	16,325	17,670	19,120	20,671	22,621	24,272	25,822
Sanaba	0	0	0	0	0	0	-278,824	7,873	12,195	16,690	21,357	24,660	27,962	31,264	34,566	37,869	42,120	-186,290	90,865	54,316	58,567
Tafila	0	0	0	0	0	0	-178,542	-974	1,471	4,015	4,911	6,810	9,708	12,606	15,504	18,402	21,300	24,198	27,096	-141,137	13,847
Wadi Arab	0	0	0	0	-808,988	26,074	36,000	115,766	-10,738	156,058	177,403	198,955	204,507	210,059	215,611	-199,787	262,947	280,332	29,317	315,901	333,886
Wadi Eilat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-42,900	11,917	12,638	13,359	14,081	14,802	15,523
Wadi Hasana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-85,800	12,394	13,349	14,304	15,259	16,214	
Wadi Mezza	0	0	0	0	0	-105,560	-3,140	3,201	10,382	17,201	24,660	16,480	27,540	28,980	30,419	31,859	33,412	34,965	36,517	38,070	39,623
Al-Jezza	0	0	-378,280	1,483	4,044	6,758	9,900	15,514	19,885	23,966	26,356	-193,285	29,341	32,322	35,322	38,487	41,851	44,815	-47,880	51,144	
Dar Abu Saad	0	0	0	0	0	0	0	0	0	0	0	0	0	-572,280	18,772	20,248	21,725	23,223	24,799	26,883	
Dar Abu	0	0	0	-432,881	23,724	27,831	31,995	36,071	39,960	43,562	-47,776	50,400	53,023	55,646	-84,259	58,423	61,974	65,824	68,975	71,125	73,581
Kafa Arad	0	0	0	0	0	0	0	0	-354,120	34,832	37,814	80,775	81,736	86,698	91,628	93,867	96,515	99,440	101,371	104,799	
Aqaba South Coast	0	0	0	0	-138,518	-12,330	-11,794	-11,116	-10,477	-9,816	-9,134	-8,590	-8,046	-7,502	-6,958	-6,414	-5,819	-5,224	-4,629	-4,085	
Naar	0	0	0	0	0	0	0	0	0	-194,180	21,673	23,855	26,074	28,214	30,294	32,318	35,283	37,687	40,131	-42,566	
North Queen Alia Airport	0	0	0	0	0	-411,450	113,209	134,266	146,228	157,846	-32,826	175,094	185,008	194,662	203,116	-213,382	173,294	223,917	244,194	254,451	
North Jordan Valley	0	0	-546,754	-14,692	-11,025	-7,244	-1,824	3,810	9,655	15,714	21,985	25,515	28,325	30,499	32,979	35,509	38,173	40,925	-11,723	47,942	47,550
Sanna South	0	0	0	-484,840	687	3,188	5,552	7,985	10,489	13,064	15,709	17,342	18,975	-16,112	20,639	22,312	24,207	26,102	27,997	30,892	
Terra	0	0	0	0	0	0	0	0	0	0	0	0	0	-496,300	17,141	18,828	20,515	22,232	23,989	25,736	
Wadi Shalala	0	0	0	0	-597,285	-49,040	-55,478	-62,131	-69,002	-76,088	-83,391	-88,572	-93,752	-98,932	-104,113	-109,294	-114,474	-119,655	-124,836	-130,017	-135,197
Mazar, Miza, Adzartia	0	0	0	0	0	0	-173,160	5,752	6,640	7,528	8,394	6,696	10,838	12,021	13,183	14,345	15,374	16,404	17,433	18,462	-44,989
Dead Sea East Coast	0	0	0	0	0	0	0	-330,783	-6,884	-4,245	-1,301	86	1,873	3,660	5,447	7,235	9,022	10,810	12,597	14,385	
Av-Sanna	0	0	0	-664,867	-668,667	-666,667	175,600	181,200	-2,144,533	-2,136,933	-2,129,333	914,000	914,000	914,000	914,000	914,000	914,000	914,000	914,000	-1,146,887	-1,146,887
<b>Total</b>				-2,794,696	-2,623,583	-2,961,379	-1,106,146	-512,409	-440,029	-1,802,145	-1,877,746	-1,490,135	1,899,188	338,425	388,207	1,574,234	1,455,861	1,538,802	-48,786	283,936	583,733
<b>FIRR</b>				7%																	
<b>NPV</b>																					
Item	NPV (JD)	PV of Total Costs (JD)	PV of Total Bids Collected Qty (m <sup>3</sup> )																		
Alva Haizer	132,858	224,591	9,380,231																		
Aqaba	-2,548,530	5,820,854	75,040,116																		
Filaja	189,360	52,818	4,394,138																		
Mad (Central and West Arab)	-249,410	1,322,811	23,226,340																		
Karak	81,191	235,183	3,322,469																		
Kafra	299,377	31,817	16,268,194																		
Mizra	-11,876	258,179	6,271,124																		
Madaba	80,710	794,428	21,024,676																		
Madaba	-115,477	491,311	9,364,057																		
Sanaba	83,325	598,217	15,068,904																		
Tafila	-84,700	321,864	6,231,407																		
Wadi Arab	1,196,620	1,322,811	66,279,771																		
Wadi Eilat	57,885	61,589	2,136,401																		
Wadi Hasana	42,883	74,293	3,061,840																		
Wadi Mezza	383,479	358,825	8,797,390																		
Al-Jezza	-38,327	784,189	17,522,667																		
Dar Abu Saad	-81,280	948,454	7,057,213																		
Dar Abu	-28,956	698,899	22,915,238																		
Kafa Arad	454,157	333,890	20,789,657																		
Aqaba South Coast	-283,113	324,131	3,079,175																		
Naar	344,941	349,430	7,722,914																		
North Queen Alia Airport	1,282,948	786,398	52,350,149																		
North Jordan Valley	-428,817	1,384,494	34,855,060																		
Sanna South	-277,536	821,877	14,324,642																		
Terra	-57,580	346,369	7,999,692																		
Wadi Shalala	371,388	953,551	34,866,796																		
Mazar, Miza, Adzartia	-13,882	289,277	5,157,722																		
Dead Sea East Coast	-21,5825	445,432	6,079,669																		
Av-Sanna	248,218	18,512,871	283,212,867																		
<b>Total</b>	-18,385	25,478,661	783,404,501																		
<b>NPV (JD)</b>	1423,829																				
<b>Unit Water Price (Filsh/m<sup>3</sup>)</b>	38																				



**Table 8.1.5-9 Overall Financial/Economic Evaluation of All Projects**

**Financial Analysis**

Item	Completed	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Net Cash Flow (M JD)</b>																						
Water Development Projects	-33	-79	-151	-193	-188	-157	-88	-70	6	3	50	71	57	37	40	29	47	73	72	72	72	71
Wastewater Treatment Projects	-94	-47	-33	-71	-83	-64	-50	-56	-46	-38	0	1	4	5	5	6	6	6	7	7	7	8
Wastewater Reuse Projects	0	0	-3	-4	-3	-2	-1	-1	-3	-3	-3	-1	-2	-2	-1	-2	-1	-1	-3	-3	-3	0
<b>Total</b>	<b>-127</b>	<b>-126</b>	<b>-187</b>	<b>-268</b>	<b>-274</b>	<b>-223</b>	<b>-140</b>	<b>-128</b>	<b>-43</b>	<b>-38</b>	<b>47</b>	<b>71</b>	<b>60</b>	<b>60</b>	<b>44</b>	<b>33</b>	<b>52</b>	<b>78</b>	<b>76</b>	<b>76</b>	<b>77</b>	<b>79</b>

**EBRR**

2%

Item	NPV (M JD)	PV of Total Costs(M JD)	PV of Total Bills Collected (Jy(M m <sup>3</sup> ))
Water Development Projects	-278	1,374	3,224
Wastewater Treatment Projects	-380	525	983
Wastewater Reuse Projects	-22	30	788
<b>Total</b>	<b>-680</b>	<b>1,929</b>	<b>4,995</b>
<b>NPV (M JD)</b>	<b>-680</b>		
<b>Unit Water Price (Jy/m<sup>3</sup>)</b>	<b>386</b>		

**Economic Analysis**

Item	Completed	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Net Cash Flow (M JD)</b>																						
Water Development Projects	-33	-79	-149	-183	-152	-99	-12	59	172	170	246	268	254	254	236	225	247	307	307	307	307	306
Wastewater Treatment Projects	-94	-47	-29	-67	-79	-58	-42	-43	-31	-21	22	23	28	29	30	31	32	33	34	35	36	37
Wastewater Reuse Projects	0	0	-3	-3	-2	1	3	4	3	3	4	11	10	10	12	12	13	13	12	12	13	19
<b>Total</b>	<b>-127</b>	<b>-126</b>	<b>-181</b>	<b>-253</b>	<b>-233</b>	<b>-156</b>	<b>-50</b>	<b>20</b>	<b>144</b>	<b>152</b>	<b>273</b>	<b>302</b>	<b>291</b>	<b>293</b>	<b>277</b>	<b>268</b>	<b>291</b>	<b>353</b>	<b>352</b>	<b>354</b>	<b>356</b>	<b>361</b>

**EBRR**

14%

Item	NPV (M JD)	PV of Total Costs(M JD)	PV of Total Bills Collected (Jy(M m <sup>3</sup> ))
Water Development Projects	366	857	1,447
Wastewater Treatment Projects	-215	428	580
Wastewater Reuse Projects	46	21	470
<b>Total</b>	<b>197</b>	<b>1,306</b>	<b>2,497</b>
<b>NPV (M JD)</b>	<b>197</b>		
<b>Unit Water Price (Jy/m<sup>3</sup>)</b>	<b>523</b>		

**ANNEX to 8.2.1**

**Evaluation of Institutional and  
Legislative Measures for  
Privatization**

## **Modern Management Theory**

Privatization attempt can prove to be successful if it is accompanied by the introduction of the modern management theory as presented below:

### **(1) Implementation of Performance-Based Remuneration System**

Under the performance-based remuneration system salaries/wages are paid not for the number of work years and ability, but for the results of the work.

The crucial point to make it successful is the introduction of management by objectives. It is to set up one's own work objectives in consultation with one's superior, and manage one's own work in order to achieve the objectives.

An independent-minded worker's will and action bring about a higher corporate income, and the remuneration in accordance with the extent of the contribution to corporate income in turn makes him more independent-minded. This way, a favorable circle is created.

An individual desired is not a salaried man making a living subservient to the company, but a business man willing to create his own job from the cost-benefit perspective.

In the management by objectives, emphasis is placed on the development of employees' ability and willingness, which will ultimately result in the overall elevation of corporate performances.

Differences between daily work and management by objectives

Item	Daily work	Management by objectives	
		Ability development	Performance elevation
Objectives	Execute work smoothly	Elevation of employees' ability	Elevation of corporate performances
State of work	Repetitive work	Improvement of work	Renovation of work
How to decide work	Given by superior	Decide by oneself	Connect with superior's objectives
How to proceed with work	Maintaining status quo	Improvement of the current status	Breakthrough of the current status
Management of work	Checked and followed by superior	Self-management, self-decision	Self-management plus superior's advice

In the management by objectives, options are prepared by the company, the choices are left to the individuals and the individuals are responsible for the results.

(2) Nurturing of Motivation

To lead the management by objectives to a successful end, the nurturing of motivation is very important.

To nurture employees' motivation, the investment in education for an elevation of skills and capacity is necessary.

A high motivation is generated in an organizational climate where there are mutual trust, respect and warmth between a leader and subordinates.

In a motivated/activated organization, its members share the same objectives/values, and together try to actively realize them.

In a good organizational climate, plus-oriented evaluation like "appreciating the challenges" is positively adopted.

In an advanced organizational climate, self-operating ability and corporate synergy are maximized.

5 requirements for a competent person:

Creativity, flexibility, decision-making ability, professionalism and specialty.

(3) Profitability Focused Management

The salient point of the performance-based remuneration system is that it is connected to the managerial indices such as the current profit to the total assets ratio, capital efficiency and cash flow.

A water company is required to first set the price of water and then calculate materials, personnel, distribution and other cost accordingly (subtraction management) instead of determining the price of water by adding materials, personnel, distribution and other costs (addition management).

(4) Organizational Renovation

Reorganization should be carried out to do away with the pyramid-type personnel system by making an organization slimmer and flatter.

Specifically, business unit system as a typical tool of decentralization should be realized, where the role of the head office is limited to the formulation of corporate strategy, resources allocation and outside relations, and business units are formed as profit centers based on the contents or territories of activities.

Under the system the organizational strata are lessened, the central management functions are diminished (making indirect functions slimmer) and middle management personnel are reduced.

Each business unit is a complete one having production and sales functions. Therefore, this system can adapt itself to the individual market in a quick and most appropriate manner.

The system thus contributes to quicker decision-making, more profit and less organizational cost.

To bring about management renovation it is sometimes useful to create a new organization separated from the routine work. The planning department is often created to realize such renovation.

A representative business unit system is that under the management, planning department, administrative department and several business units are formed, and each business unit is composed of planning/administrative, production and sales divisions.

(5) Consumers' Satisfaction

It is now an established theory that the growth of a company is achieved by the multiplier effects of consumers' satisfaction and employees' satisfaction, both of which are closely connected.

Among the most important management concepts are the best customer services or thinking from the side of customers and a positive contribution to the society.

In short the point is to sell what clients want.

(6) Strategic Management

Strategic management consists of management vision, management strategy, management plan, execution of management and daily work.

Corporate vision is followed by corporate strategy, which is followed by individual strategies based on strategic business units.

5 functions of an organization:

Planning, decision-making, coordination, execution and evaluation. A strategy fails sometimes because of insufficient evaluation and feedback.

(7) Integration of IT Revolution

Through the prevalence of the IT, the source of corporate values has changed from operational efficiency to innovation.

This "informationalization" must be integrated into organizational renovation.