

**REGIONAL TRAINING EVENT-STRENGTHENING PUBLIC SECTOR
CAPACITY TO MOBILIZE
DEPOLLUTION INVESTMENTS
AND
PRIVATE SECTOR PARTICIPATION**

Sustainable Water Integrated Management (SWIM) - Support Mechanism

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Financial modeling for PPPs

Financial Modeling for PPP

The Financial model is the main tool to obtain the economic analysis and the financing structure. Main ratios to measure the capacity of the project to face debt obligations:

➤ **Interest Coverage Ratio (“ICR”)**

$$\frac{\text{Cash Flow available for debt service}}{\text{interest}}$$

➤ **Debt Service Coverage Ratio (“DSCR”)**

$$\frac{\text{Cash Flow available for debt service}}{\text{Debt service (principal, interest \& commissions)}}$$

➤ **Loan Live Coverage Ratio (LLCR) during debt**

$$\frac{\text{NPV of Cash Flows available for debt service discounted at debt rate}}{\text{outstanding debt}}$$

Input to the Model 1/

1-Project duration:

- Construction period
- Operation period

2- EPC price split into:

- Main activity 1
- Main activity 2
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Input to the Model 2/

3- Financing Plan:

- Sponsors equity
- Senior loan amount
- Debt Service Coverage Ratio DSCR
- Lending interest rate
- Loan repayment period
- Interest during construction
- Cost and loan disbursement profiles

Construction Period Financing Plan

Construction Period

4 Years

Capital Expenditure

Zarqa PS Expansion	10	MUSD
New Pipeline from Zarqa to Samra	15	MUSD
Rehabilitation existing 1200	5	MUSD
Samra WWTP Expansion	100	MUSD
Project Management Costs	5	MUSD
Total CAPEX	135	MUSD

Financing

Grant Amount	0	MUSD
Sponsors' Equity	30	MUSD
DSCR Margin	200%	
Lending Interest Rate	10%	
Loan Repayment Period	12	years
Basic Senior Loan Amount	105.00	MUSD
Financial Interests during Construction	10.763	MUSD
Total Senior Loan Amount (including Construction Fin. Interests)	115.76	MUSD

Spread of Payments and Disbursement During Construction

2010	2011	2012	2013
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Payment Profile				Total	
20%	40%	35%	5%	100%	OK
20%	40%	35%	5%	100%	OK
20%	40%	35%	5%	100%	OK
20%	40%	35%	5%	100%	OK
20%	40%	35%	5%	100%	OK

Disbursement Profile of grant & equity				Total	
20%	40%	35%	5%	100%	OK
0%	0%	50%	50%	100%	OK

Loan Disbursement Profile				Total	
0%	0%	50%	50%	100%	OK
0.000	0.000	5.250	5.513	10.763	

Input to the Model 3/

4- Operational period data

- Project capacity, loads etc
- General inflation and local
- Fixed and variable operational expenditures
- Renewals as percentage of Capex or fixed early as calculated over project life time

Operation Period Data

<u>Operation Period</u>	22 Years
General Inflation	3%
Flow Capacity for Expansion	150,000 m3/day
Load Capacity for Expansion	135,000 KG BOD/day
Fixed Operation Expenditure	2.0 MUSD / Year
Variable Fees Unit Price (Q)	5 Fils/m3
Variable Fees Unit Price (BOD)	15 Fils/KG DBO5
Variable Operation Expenditure	1.4 MUSD/Year
O&M Margin	10% of OPEX
Renewals % of CAPEX	15%
Renewals Profile	100%
Renewals	0.920 MUSD / Year
Tax Rate	10%
Total Unit Price OPEX + Renewals (without Inflation)	61 Fils / m3

Input to the Model /4

5- Taxes and tax rates

Tax Rate	10%	
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6- Discount rate during the project life time

Net Present Values Discount Rate (Operation Period)	10%	
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Model Outputs 1/

- 1- Total project cost
- 2- Equity to Debt Ratio
- 3- Average Debt Service Ratio
- 4- Sponsors' IRR
- 5- Tariff or charges
- 6- Sponsors dividends
- 7- Loan repayment and interest
- 8- Opex and taxes

Financial Figures Model Output

Key Financial Figures

Total Project Cost (during Construction)	145.76	MUSD
Equity to Debt Ratio	21%	
Average Debt Service Ratio	1.18	
Sponsors' IRR	12.2%	
Payback Period	13	Years
Treatment Tariff	297	Fils/m3
Lenders	112	Fils/m3
Sponsors	88	Fils/m3
Operation	97	Fils/m3
Total Figures (Operation Period)		
Treatment Charges	505	MUSD
Sponsors' Dividends	150	MUSD
Loan Repayments + Interests	191	MUSD
OPEX + Taxes	164	MUSD
Net Present Values Discount Rate (Operation Period)	10%	
NPV Treatment Charges	213	MUSD
NPV Sponsors' Dividends	40	MUSD
NPV Loan Repayments + Interests	116	MUSD
NPV OPEX + Taxes	57	MUSD

Model Outputs 2/

9- Cash flow

Cash Flow Construction Phase

Year Quarter Year	Grand Total (MUSD)	Total CAPEX (MUSD)	Total OPEX (MUSD)	2010 1	2011 2 0	2012 3 0	2013 4 0
				1.000	1.000	1.000	1.000
<u>Cashflow Construction Phase</u>							
Financial Uses (CAPEX)	(145.763)	(145.763)	0.000	(27.000)	(54.000)	(52.500)	(12.263)
Zarqa PS Expansion	(10.000)	(10.000)	0.000	(2.000)	(4.000)	(3.500)	(0.500)
New Pipeline from Zarqa to Samra	(15.000)	(15.000)	0.000	(3.000)	(6.000)	(5.250)	(0.750)
Rehabilitation existing 1200	(5.000)	(5.000)	0.000	(1.000)	(2.000)	(1.750)	(0.250)
Samra WWTP Expansion	(100.000)	(100.000)	0.000	(20.000)	(40.000)	(35.000)	(5.000)
Project Management Costs	(5.000)	(5.000)	0.000	(1.000)	(2.000)	(1.750)	(0.250)
Financial Charges	(10.763)	(10.763)	0.000	0.000	0.000	(5.250)	(5.513)
Financial Sources	145.763	145.763	0.000	0.000	0.000	72.881	72.881
Grant (MWI/MCC)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Equity (Sponsors)	30.000	30.000	0.000	0.000	0.000	15.000	15.000
Senior Loan (Lenders)	115.763	115.763	0.000	0.000	0.000	57.881	57.881

Cash Flow Operation Phase

<u>Cashflow Operation Phase</u>				2014	2015	2016
Revenues	504.683	0.000	504.683	28.783	27.963	27.147
Fix F (Cap)	60.000	0.000	60.000	2.727	2.727	2.727
Fix (Cap)	212.231	0.000	212.231	9.647	9.647	9.647
Fix I (Cap)	84.893	0.000	84.893	11.576	10.612	9.647
Fix R (Cap)	28.951	0.000	28.951	0.948	0.977	1.006
Fix (Op)	69.196	0.000	69.196	2.266	2.334	2.404
Var (Op)	49.412	0.000	49.412	1.618	1.667	1.717
Expenses	(338.567)	0.000	(338.567)	(26.055)	(25.236)	(24.420)
Senior Loan Repayment	(115.763)	0.000	(115.763)	(9.647)	(9.647)	(9.647)
Senior Loan Interests	(75.246)	0.000	(75.246)	(11.576)	(10.612)	(9.647)
Renewals	(28.951)	0.000	(28.951)	(0.948)	(0.977)	(1.006)
Fixed OPEX	(69.196)	0.000	(69.196)	(2.266)	(2.334)	(2.404)
Variable OPEX	(49.412)	0.000	(49.412)	(1.618)	(1.667)	(1.717)

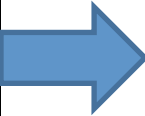
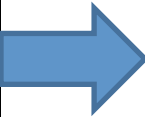


Model Outputs /3

- 10- NPV of dividends, loans and interest**
- 11- OPEX with taxes**
- 12- IRR and average DSCR**

Dividends, Taxes, IRR and Average DSCR

								2014	2015	2016
Dividends payable to shareholders								2.727	2.727	
Tax								(0.273)	(0.273)	
Balance								(27.000)	(54.000)	20.381 60.619
Cashflow								(27.000)	(81.000)	(60.619) 0.000
Cashflows Operation Period										
Cashflow 1 (after OPEX + Renewals)	357.124	0.000	357.124					23.950	22.986	
Cashflow 2 (after senior debt)	166.116	0.000	166.116					2.727	2.727	
Cashflow 3 (after taxes)	149.504	0.000	149.504					2.455	2.455	
Cashflow for Equity IRR	119.504	(30.000)	149.504	0.000	0.000	(15.000)	(15.000)	2.455	2.455	
Sponsors IRR after Tax	12.24%			0%	0%	0%	0%	0%	0%	
DSCR Average	(1.18)							(1.13)	(1.13)	
Payback Period (years)	13									



THANK YOU