

WESTERN CAPE WATER SUPPLY SYSTEM

Reconciliation Planning Tool

Introduction

Explanation of how to use this tool

Explanation of terms used in this tool

Legends

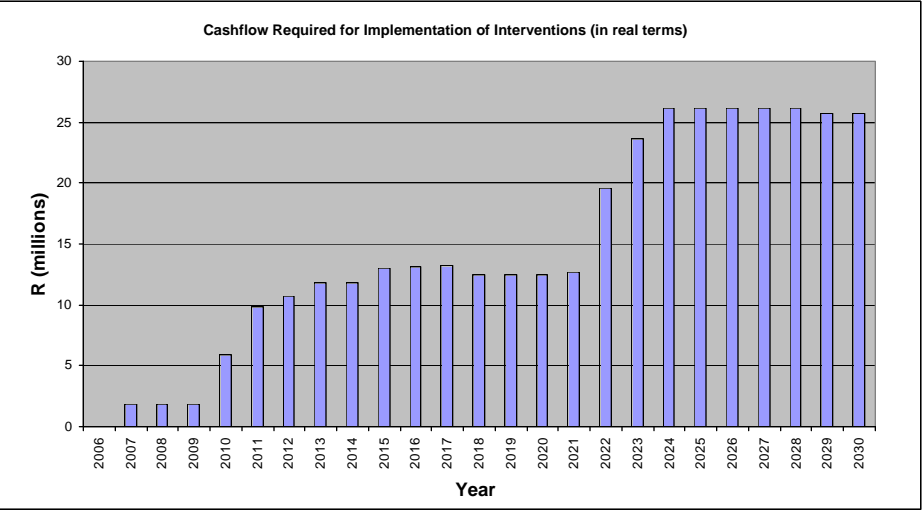
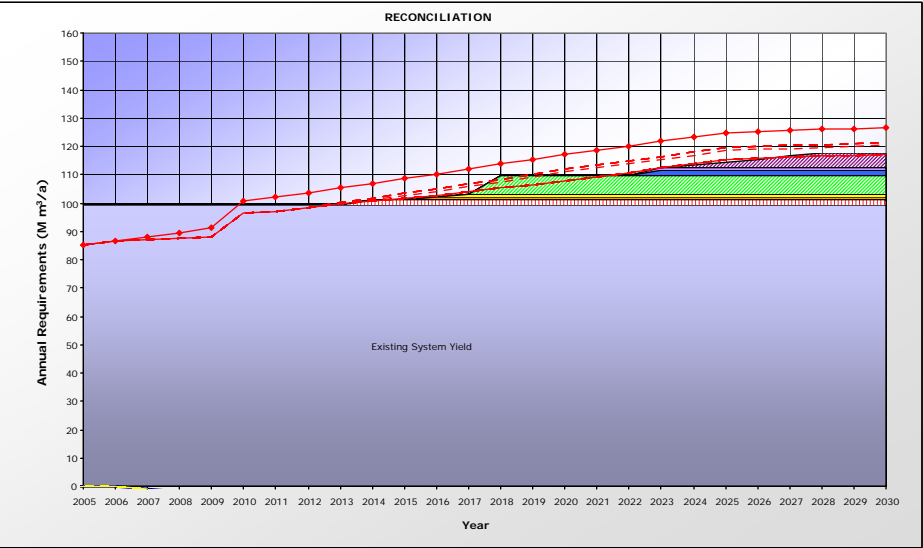
Etc

INTERVENTION PROGRAMMES		Reconnaissance (years)																		Pre-feasibility (years)			Feasibility (years)			Construction/Implementation (years)						
		max time						max time						max time						max time			max time									
		Ref No	Lag time (budget delay)	TOR / Appoint Consultant	Reconnaissance	Lag time (budget delay)	TOR / Appoint Consultant	Pre-feasibility	Lag time (budget delay) / Pilot study	TOR / Appoint Consultant	Feasibility Study/ EIA	DWAF Reserve determination	Lag time (budget delay)	TOR / Appoint Consultant	DWAF licensing process (Reserve)	DEA&DP approval process	Design / tender & award	Construct /Implement/ Council Bylaw	Warm up /First filling													
Select / de-select	Scheme																															
Selected	WC/DM- WATER USE REDUCTION: Water metering at "deemed to use households"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5													
Selected	WC/DM- WATER USE REDUCTION: Annual Water Audit	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0	0	0	0	0	0	1													
Selected	WC/DM- WATER USE REDUCTION: Comprehensive and effective metering, reading, billing and debt control	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0	0	0	0	0	0	4													
Selected	WC/DM- WATER USE REDUCTION: Enhancement to the current water use education programme	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0	0	0	0	0	0	1													
Selected	WC/DM- WATER USE REDUCTION: Structured response in respect of defaults in water payment or excessive use	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0	0	0	0	0	0	1													
	WC/DM- WATER USE REDUCTION: Support to private and public bodies to maintain water use installations	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0	0	0	0	0	0	1													
	WC/DM- WATER USE REDUCTION: Amendment to the current consumer tariff structure	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0	0	0	0	0	0	1													
	WC/DM- WATER USE REDUCTION: Use of " pour flush" or other water efficient type sanitation systems in place of free flush systems	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0	0	0	0	0	0	1													
	WC/DM- WATER USE REDUCTION: Attend to water wastage at public facilities	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0	0	0	0	0	0	2													
Selected	WC/DM- WATER LOSS DOWNSTREAM OF WTWs: Installation of area meters	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,4	0,4	0	0	0,4	3,8	0	4												
Selected	WC/DM- WATER LOSS DOWNSTREAM OF WTWs: Pressure reduction	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,4	0,4	0	0	0,4	5,8	0	7												
Selected	WC/DM- WATER LOSS DOWNSTREAM OF WTWs: Apply a management information system (MS)	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,4	0,4	0	0	0	0	0	3												
	WC/DM- WATER LOSS DOWNSTREAM OF WTWs: Water infrastructure asset management	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0	0	0	0	0	0	0	2												
	WC/DM- WATER LOSS DOWNSTREAM OF WTWs: Improve the monitoring of the quality of construction of water use installations	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0	0	0	0	0	0	0	3												
	WC/DM- WATER LOSS AT WTWs AND UPSTREAM: Recovery of process water at the remaining 7 WTWs	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0	0	0	0	0	0	0	4												
	WC/DM- WATER LOSS AT WTWs AND UPSTREAM: Reduction in abstraction losses	0	0	0	0	0	0	0	0,6	0,4	1	0	0,2	0,3	0,3	0,4	0,5	1,3	0	3												
Selected	WASTEWATER RETURN FLOW- Return flow from Upper and Middle Buffalo and Upper Kubusi to enhance the yields of dams	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
	WASTEWATER RETURN FLOW- Mdantsane East & Reeston: Return Flow to contribute to the EWR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1												
	WASTEWATER RE-USE- Mdantsane East & Reeston: Domestic	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,2	0,3	0,2	0,2	0,5	1,6	0	1												
Selected	WASTEWATER RE-USE- Mdantsane East & Reeston: IDZ/Industrial	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,2	0,3	0,2	0,2	0,5	1,6	0	1												
	WASTEWATER RETURN FLOW- Mdantsane West/Potsdam: Return Flow to contribute to the EWR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1												
Selected	WASTEWATER RE-USE- Mdantsane West/Potsdam: Domestic																			1												
	WASTEWATER RE-USE- Mdantsane West/Potsdam: IDZ/Industrial																			1												
	WASTEWATER RE-USE- Mdantsane West/Potsdam: Irrigation																			1												
	WASTEWATER RETURN FLOW- Central (From Reeston): Return Flow to contribute to the EWR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
Selected	WASTEWATER RE-USE- Central (From Reeston): Domestic	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,2	0,3	0,2	0,2	0,5	1,6	0	1												
Selected	WASTEWATER RE-USE- West Bank: IDZ/Industrial	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,2	0,3	0,2	0,2	0,5	1,6	0	1												
	WASTEWATER RE-USE- West Bank: Domestic	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,2	0,3	0,2	0,2	0,5	1,6	0	1												
	WASTEWATER RE-USE- East Bank: IDZ/Industrial	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,2	0,3	0,2	0,2	0,5	1,6	0	1												
Selected	WASTEWATER RE-USE- East Bank: Domestic	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,2	0,3	0,2	0,2	0,5	1,6	0	1												
	WASTEWATER RE-USE- Quinera (Gonubie): Irrigation	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,2	0,3	0,2	0,2	0,5	1,6	0	1												
Selected	WASTEWATER RE-USE- Quinera (Gonubie): Domestic	0	0	0	0	0	0	0	0,3	0,2	0,5	0	0,2	0,3	0,2	0,2	0,5	1,6	0	1												
	SUPPLY FROM WRIGLESWADE - Protection of the Yellowwoods River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1												
Selected	AUGMENTATION OF WATER SUPPLIES - Nahoon River: A dam at Stone Island Farm	0,1	0,1	0,3	0,15	0,15	0,7	0,15	0,225	1,05	0,075	0,1	0,2	0,1	0,1	0,4	1,1	0	0	5												
	AUGMENTATION OF WATER SUPPLIES - Keiskamma River: Transfer of water from Sandite and Binfield Park Dams				0,15	0,15	0,7	0,1	0,15	0,7	0,05	0,1	0,2	0,1	0,1	0,4	1,1	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Gqumube River: A dam at Grootheek/Waterfall	0,2	0,2	0,6	0,15	0,15	0,7	0,1	0,15	0,7	0,05	0,2	0,4	0,2	0,2	0,8	2,2	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Gqumube River: A dam at Umhalla's Kop	0,2	0,2	0,6	0,15	0,15	0,7	0,1	0,15	0,7	0,05	0,2	0,4	0,2	0,2	0,8	2,2	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Keiskamma River: A dam at Weeshaalok	0,2	0,2	0,6	0,15	0,15	0,7	0,1	0,15	0,7	0,05	0,2	0,4	0,2	0,2	0,8	2,2	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Kubusi River: A dam on the farm Maska	0,2	0,2	0,6	0,3	0,3	1,4	0,2	0,3	1,4	0,1	0,25	0,5	0,25	0,25	1	2,75	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Keiskamma River: A dam at Ravenwood Farm	0,2	0,2	0,6	0,3	0,3	1,4	0,2	0,3	1,4	0,1	0,25	0,5	0,25	0,25	1	2,75	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Keiskamma River: A dam at Thornwood Farm	0,2	0,2	0,6	0,3	0,3	1,4	0,2	0,3	1,4	0,1	0,25	0,5	0,25	0,25	1	2,75	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Great Kei River: A dam at nQutu	0,4	0,4	1,2	0,45	0,45	2,1	0,3	0,45	2,1	0,15	0,35	0,7	0,35	0,35	1,4	3,85	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Keiskamma River: A dam at the confluence of the Keiskamma and Tyume Rivers	0,2	0,2	0,6	0,3	0,3	1,4	0,2	0,3	1,4	0,1	0,25	0,5	0,25	0,25	1	2,75	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Thorn River: A weir at Blackpool (Clachan)	0,2	0,2	0,6	0,3	0,3	1,4	0,2	0,3	1,4	0,1	0,25	0,5	0,25	0,25	1	2,75	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Buffalo River: A dam on the farm Maska	0,1	0,1	0,3	0,15	0,15	0,7	0,15	0,225	1,05	0,075	0,1	0,2	0,1	0,1	0,4	1,1	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Toise River: A weir at North Slope	0,2	0,2	0,6	0,3	0,3	1,4	0,2	0,3	1,4	0,1	0,25	0,5	0,25	0,25	1	2,75	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Thomas River: A weir at Allendale	0,2	0,2	0,6	0,3	0,3	1,4	0,2	0,3	1,4	0,1	0,25	0,5	0,25	0,25	1	2,75	0	0	1												
	AUGMENTATION OF WATER SUPPLIES - Thomas and Thorn River: A weir at Blackpool (Clachan) as well as a weir at Stoneheath																			1												
	DESALINATION Domestic	1	0,1	0,3	0,1	0,3	0,3	0,1	0,3	0,6	0,1	0,2	0,5	0,5	0,5	1	1	0	0	0												
	DESALINATION Industrial	1	0,1	0,3	0,1	0,3	0,3	0,1	0,3	0,6	0,1	0,2	0,5	0,5	0,5	1	1	0	0	0												
	DESALINATION Irrigation	1	0,1	0,3	0,1	0,3	0,3	0,1	0,3	0,6	0,1	0,2	0,5	0,5	0,5	1	1	0	0	0												
	GROUNDWATER	0,2	0,1	0,2	0,1	0,2	0,5	0,2	0,2	0,3	0,1	0,2	0,5	0,2	0,2	0,5	0,5	0	0	0												

Scenario 1: Full WC/WDM interventions with the surface water asset creation

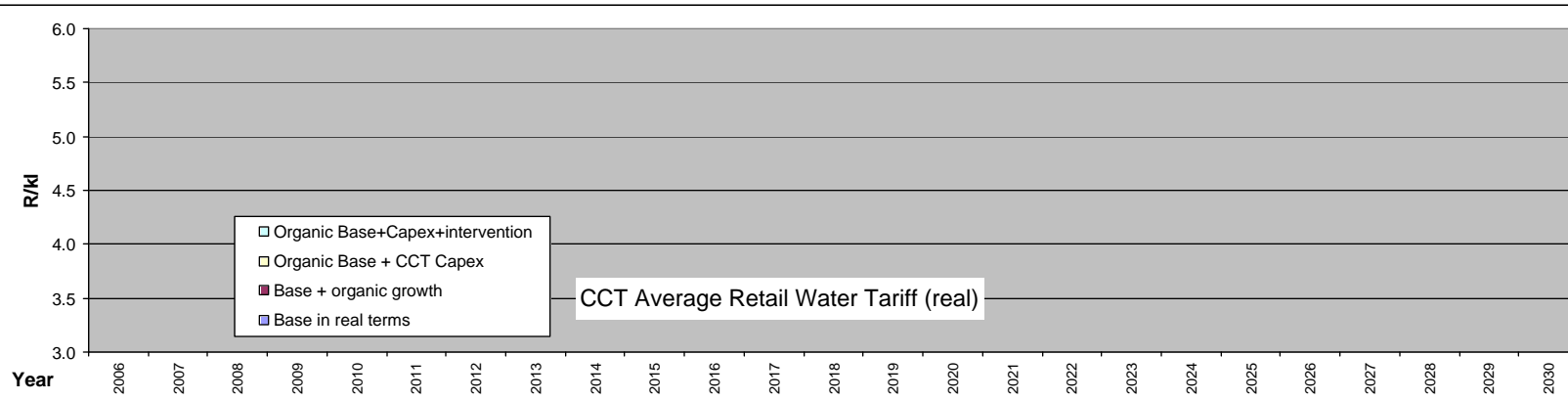
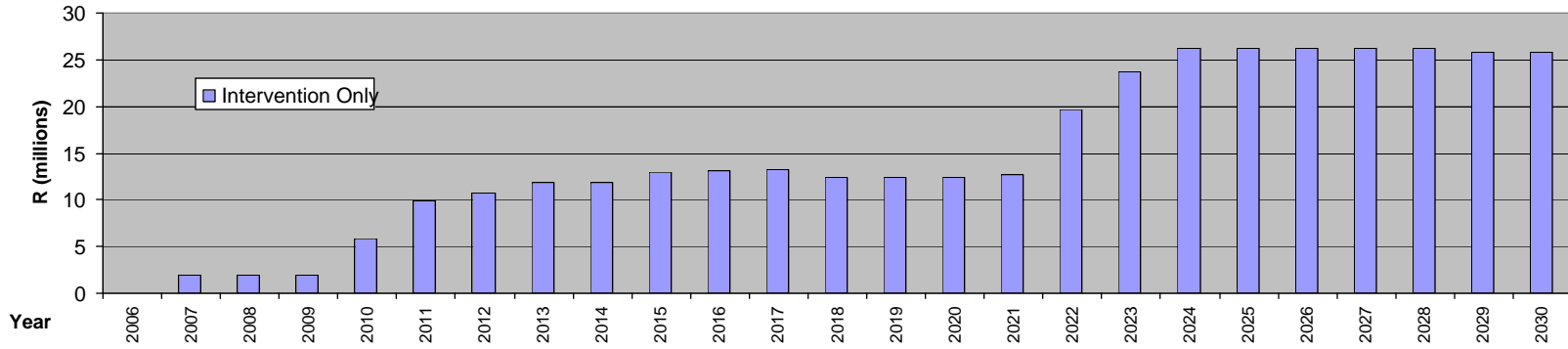
INTERVENTION SELECTION						
Intervention	Year of First Water or Saving	Yield	Total Lead Time	Study Start Date	Time to full yield / saving	Study Status Completed
WASTEWATER RETURN FLOW- Return flow from Upper and Middle Buffalo and Upper Kubusi to enhance the yields of dams	2005	5	0	2005	0	0
WC/DM- WATER USE REDUCTION: Water metering at "deemed to use households"	2007	5	5	2002	5	F
WC/DM- WATER USE REDUCTION: Annual Water Audit	2010	0	1	2009	1	0
WC/DM- WATER USE REDUCTION: Comprehensive and effective metering, reading, billing and debt control	2010	0	1	2009	4	0
WC/DM- WATER USE REDUCTION: Enhancement to the current water use education programme	2011	0	1	2010	1	0
WC/DM- WATER USE REDUCTION: Structured response in respect of defaults in water payment or excessive use	2011	0	1	2010	1	0
WC/DM- WATER LOSS DOWNSTREAM OF WTWs: Apply a management information system (MIS)	2012	0	4	2008	3	PF
WC/DM- WATER LOSS DOWNSTREAM OF WTWs: Installation of area meters	2013	1	3	2010	4	R
WC/DM- WATER LOSS DOWNSTREAM OF WTWs: Pressure reduction	2014	3	4	2010	7	R
WASTEWATER RE-USE- Mdantsane East & Reeston: IDZ/Industrial	2014	2	4	2010	1	0
WASTEWATER RE-USE- Mdantsane West/Potsdam: Domestic	2016	1	4	2012	1	0
WASTEWATER RE-USE- Central (From Reeston): Domestic	2017	1	4	2013	1	0
WASTEWATER RE-USE- East Bank: Domestic	2018	6.5	3.8	2014.2	1	0
WASTEWATER RE-USE- West Bank	2023	1.8	3.8	2019.2	1	0
WASTEWATER RE-USE- Quinera (Gonubie): Domestic	2023	1	4	2019	1	0
AUGMENTATION OF WATER SUPPLIES - Nahoon River: A dam at Stone Island Farm	2024	5	5	2019	5	0
	2017					
	2018					
	2019					
	2026					
	2021					
	2019					
	2020					

Scenario 1: Full WC/WDM interventions with the surface water asset creation



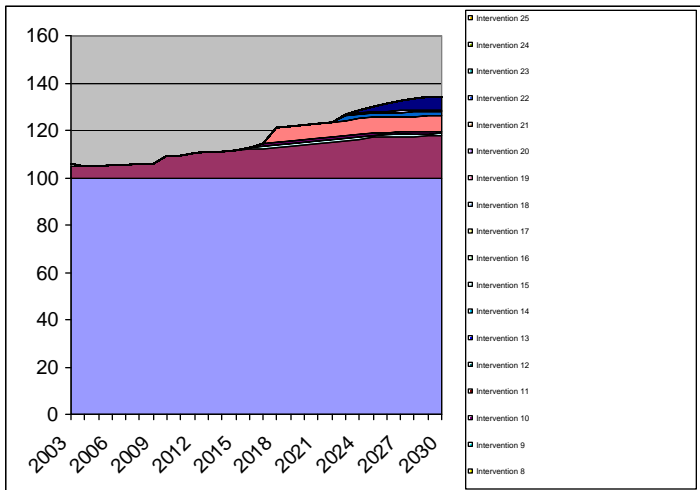
Net Present Cost of all Interventions Selected = R 229 Million

Cashflow Required for Implementation of Interventions (in real terms)



YEAR	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
% Real inc.	-8.82%	6.86%	4.81%	3.47%	2.83%	1.87%	2.44%	0.79%	0.58%	0.54%	0.64%	0.60%	1.65%	1.59%

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Existing System Yield	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44
40% Return Flows	5.40	5.40	5.40	6.00	6.18	6.36	6.54	6.88	7.11	7.35	7.60	7.86	8.13	8.41	8.70	9.00	9.31	9.63	9.96	10.30	10.65	11.01	11.38	11.76	12.15	12.55	12.96	13.38
WASTEWATER RE-USE- Mdantsane East & Reesto	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WASTEWATER RE-USE- Mdantsane West/Potsdam	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
WASTEWATER RE-USE- Central (From Reeston): D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
WASTEWATER RE-USE- East Bank: Domestic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8	1.8	1.8	1.8	1.8	1.8	1.8
WASTEWATER RE-USE- West Bank: IDZ/Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7
WASTEWATER RE-USE- Quimera (Gonubie): Dome	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.06	2.12	3.18	4.24	5.3	5.3	5.3
AUGMENTATION OF WATER SUPPLIES - Nahoon	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
Intervention 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	0	0
Intervention 9	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
Intervention 10	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
Intervention 11	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
Intervention 12	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
Intervention 13	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
Intervention 14	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
Intervention 15	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
Intervention 16	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
Intervention 17	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
Intervention 18	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
Intervention 19	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
Intervention 20	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
Intervention 21	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
Intervention 22	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
Intervention 23	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
Intervention 24	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
Intervention 25	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



INTERVENTION DATA NOTES

Blank area for notes.

SELECTION DATA NOTES

Transfer WDM program, to be implemented in 2007 or as required by strategy

Focus on non revenue demand (approx 40% of UAW)

Ongoing budget required for sustaining intervention

WATER REQUIREMENT DATA NOTES

RECONCILIATION SESSIONS

Save	Recall	Run	Name of Rur	Generated By	Notes
		1	Recon Session 1	jules	
		2	RS1	j1	
		3	RS3	j2	
		4	RS4	j3	
		5	RS5	j4	
		6	RS6	j5	
		7	RS7	j6	
		8	RS8	j7	
		9	RS9	j8	
		10	RS10	j9	

Session 1								
Name:		Recon Session 1			Generated By:		jules	
Selected	Order		First Water		Water Requirements			
1		1		2006				
1		2		2015				
1		3		2006				
1		4		2006				
1		5		2006				
0								

Session 2								
Name:		RS1			Generated By:		j1	
Selected	Order		First Water		Water Requirements			
1		1		2006				
1		2		2015				
1		3		2006				
1		4		2006				
1		5		2006				
0								

Session 3								
Name:		RS3			Generated By:		j2	
Selected	Order		First Water		Water Requirements			
1		1		2006				
1		2		2015				
1		3		2006				
1		4		2006				
1		5		2006				
0								

Session 4								
Name:		RS4			Generated By:		j3	
Selected	Order		First Water		Water Requirements			
1		1		2006				
1		2		2015				
1		3		2006				
1		4		2006				
1		5		2006				
0								

Session 5				
Name: RS5		Generated By: j4		
Selected	Order		First Water	Water Requirements
1	1		2006	
1	2		2015	
1	3		2006	
1	4		2006	
1	5		2006	
0				

Session 6				
Name: RS6		Generated By: j5		
Selected	Order		First Water	Water Requirements
1	1		2006	
1	2		2015	
1	3		2006	
1	4		2006	
1	5		2006	
0				

Session 7				
Name: RS7		Generated By: j6		
Selected	Order		First Water	Water Requirements
1	1		2006	
1	2		2015	
1	3		2006	
1	4		2006	
1	5		2006	
0				

Session 8				
Name: RS8		Generated By: j7		
Selected	Order		First Water	Water Requirements
1	1		2006	
1	2		2015	
1	3		2006	
1	4		2006	
1	5		2006	
0				

Session 9				
Name: RS9		Generated By: j8		
Selected	Order		First Water	Water Requirements
1	1		2006	
1	2		2015	
1	3		2006	
1	4		2006	
1	5		2006	
0				

Session 10				
Name: RS10		Generated By: j9		
Selected	Order		First Water	Water Requirements
1	1		2006	
1	2		2015	
1	3		2006	
1	4		2006	
1	5		2006	
0				

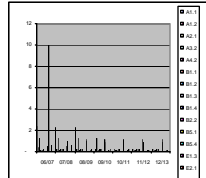
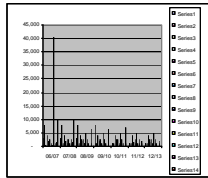
Session 11				
Name:		Generated By:		
Selected	Order		First Water	Water Requirements
1	1		2006	
1	2		2015	
1	3		2006	
1	4		2006	
1	5		2006	
0				

Session 12				
Name:		Generated By:		
Selected	Order		First Water	Water Requirements
1	1		2006	
1	2		2015	
1	3		2006	
1	4		2006	
1	5		2006	
0				

Table 1 -2: Summary cost of main projects indicating potential savings in Ml/day

Objective number	Programme	Budget x R 1000 & expected savir															Saving Period beginning	Saving Period End	Time to savings				
		05/06	Mm3/a	06/07	Mm3/a	07/08	Mm3/a	08/09	Mm3/a	09/10	Mm3/a	10/11	Mm3/a	11/12	Mm3/a	12/13				Mm3/a	Total		
Objective A1	A1.1 Pressure reduction	2,000	1.6	3,000	2.4	2,900	2.3	2,900	2.3	50	0.0	50	0.0	50	0.0	50	0.0	9,000	C	7.1	2006	2008	3
	A1.2 Establishment of leak detection task teams	1,400	0.4	1,400	0.4	1,000	0.3	1,000	0.3	1,000	0.3	1,000	0.3	1,000	0.3	1,000	0.3	7,400	O	2.0	2006	2012	7
Objective A2	A2.1 Comprehensive water supply management projects in previously disadvantaged areas	5,900	0.9	8,000	1.3	8,020	1.3	8,000	1.3	8,000	1.3	1,000	0.2	1,000	0.2	1,000	0.2	35,020	O	5.5	2006	2008	4
Objective A3	A3.2 Preventative maintenance	300	-	700	-	1,150	-	1,150	-	1,150	-	1,150	-	1,150	-	1,150	-	7,600	O	-	-	-	-
Objective A4	A4.2 Meter management /replacement programme	1,000	0.0	4,200	0.1	4,050	0.1	4,000	0.1	4,000	0.1	4,050	0.1	4,000	0.1	4,000	0.1	28,300	C	0.8	2006	2012	7
Objective B1	B1.1 Consumer awareness campaign	1,410	0.1	2,010	0.2	2,410	0.2	2,610	0.2	2,710	0.2	2,710	0.2	2,710	0.2	2,710	0.2	17,870	O	1.4	2006	2012	7
	B1.2 Consumer education campaign	-	-	2,040	0.3	2,040	0.3	1,790	0.2	1,790	0.2	1,590	0.2	1,590	0.2	1,590	0.2	12,430	O	1.5	2006	2012	7
	B1.3 School education	1,150	0.1	2,300	0.2	2,300	0.2	2,300	0.2	2,300	0.2	2,300	0.2	2,300	0.2	2,300	0.2	16,100	O	1.4	2006	2012	7
	B1.4 Special events	745	-	845	-	895	-	945	-	995	-	1,045	-	1,095	-	1,145	-	6,965	O	-	-	-	-
Objective B2	B2.2 enforcement of by-laws	780	-	705	-	705	-	860	-	715	-	715	-	715	-	715	-	5,130	O	-	-	-	-
Objective B5	B5.1 Implement a plumbing retro-fit programme	-	-	500	0.1	2,300	0.5	5,000	1.1	5,000	1.1	5,050	1.1	5,000	1.1	5,000	1.1	27,850	O	6.3	2006	2012	7
	B5.4 Implement an on-going support programme for large consumers	-	-	520	0.5	1,070	1.0	1,070	1.0	870	0.8	870	0.8	870	0.8	870	0.8	6,140	O	6.0	2006	2012	7
	Recycling of water from wastage plants to parks & industry	25,000	9.0	40,772	10.6	2,575	-	2,575	-	2,575	-	2,575	-	2,575	-	2,575	-	56,222	C	10.0	2006	2006	1
Objective E2	E2.1 Support working for water programme	-	-	950	-	950	-	950	-	950	-	950	-	950	-	950	-	6,650	O	-	-	-	-
Objective C1	C1.1 Establish District management areas	1,600	-	1,500	-	1,500	-	-	-	-	-	-	-	-	-	-	-	3,000	O	-	-	-	-
Objective C2	C2.1 Management Information System	500	0.0	10,000	0.6	10,000	0.6	1,000	0.1	1,000	0.1	1,000	0.1	1,000	0.1	1,000	0.1	25,000	C	1.6	2006	2007	2
	C2.2 Upgrading the telemetry system, remo communications (cell)	-	-	-	-	200	0.0	6,400	0.3	6,530	0.3	6,730	0.3	2,030	0.1	2,030	0.1	23,920	C	1.0	2006	2012	5
Total		41,782	12.2	79,442	16.1	44,062	6.8	42,552	7.1	39,632	4.7	32,782	3.5	28,032	3.3	28,082	3.3	336,382		44.8			
Total cumulative savings, Ml/day			12		28		35		42		47		50		54		57						

Note that A5.1 and A5.2 will not result in a significant reduction of demand, but can result in a significant increase in financial :



	06/07	07/08	08/09	09/10	10/11	11/12	12/13		Saving Period beginning	Saving Period End	Time
Pressure reduction	2	2	2	0	0	0	0	A1.1	1	2006	2008
Establishment of lea	0	0	0	0	0	0	0	A1.2	2	2006	2012
Comprehensive wate	1	1	1	1	0	0	0	A2.1	3	2006	2009
Preventative mainte	-	-	-	-	-	-	-	A3.2	4		
Meter management .	0.1	0.1	0.1	0.1	0.1	0.1	0.1	A4.2	5	2006	2012
Consumer awarene	0.2	0.2	0.2	0.2	0.2	0.2	0.2	B1.1	6	2006	2012
Consumer educatio	0.3	0.3	0.2	0.2	0.2	0.2	0.2	B1.2	7	2006	2012
School education	0.2	0.2	0.2	0.2	0.2	0.2	0.2	B1.3	8	2006	2012
Special events	-	-	-	-	-	-	-	B1.4	9		
enforcement of by-la	-	-	-	-	-	-	-	B2.2	10		
Implement a plumbir	0.1	0.5	1.1	1.1	1.1	1.1	1.1	B5.1	11	2006	2012
Implement an on-go	0.5	1.0	1.0	0.8	0.8	0.8	0.8	B5.4	12	2006	2012
Recycling of water fr	10.0	-	-	-	-	-	-	E1.3	13	2006	2006
Support working for	-	-	-	-	-	-	-	E2.1	14		
Establish District m	-	-	-	-	-	-	-	C1.1	15		
Management Inform	0.6	0.6	0.1	0.1	0.1	0.1	0.1	C2.1	16	2006	2007
Upgrading the telem	-	0.0	0.3	0.3	0.3	0.1	0.1	C2.2	17	2008	2012

	06/07	07/08	08/09	09/10	10/11	11/12	12/13		Saving Period beginning	Saving Period End	Time
Pressure reduction	3,000	2,900	2,900	50	50	50	50	A1.1	1		
Establishment of lea	1,400	1,000	1,000	1,000	1,000	1,000	1,000	A1.2	2		
Comprehensive wate	8,000	8,020	8,000	8,000	1,000	1,000	1,000	A2.1	3		
Preventative mainte	700	1,150	1,150	1,150	1,150	1,150	1,150	A3.2	4		
Meter management .	4,200	4,050	4,000	4,000	4,050	4,000	4,000	A4.2	5		
Consumer awarene	2,010	2,410	2,610	2,710	2,710	2,710	2,710	B1.1	6		
Consumer educatio	2,040	2,040	1,790	1,790	1,590	1,590	1,590	B1.2	7		
School education	2,300	2,300	2,300	2,300	2,300	2,300	2,300	B1.3	8		
Special events	845	895	945	995	1,045	1,095	1,145	B1.4	9		
enforcement of by-la	705	705	860	715	715	715	715	B2.2	10		
Implement a plumbir	500	2,300	5,000	5,000	5,050	5,000	5,000	B5.1	11		
Implement an on-go	520	1,070	1,070	870	870	870	870	B5.4	12		
Recycling of water fr	40,772	2,575	2,575	2,575	2,575	2,575	2,575	E1.3	13		
Support working for	950	950	950	950	950	950	950	E2.1	14		
Establish District m	1,500	1,500	-	-	-	-	-	C1.1	15		
Management Inform	10,000	10,000	1,000	1,000	1,000	1,000	1,000	C2.1	16		
Upgrading the telem	-	200	6,400	6,530	6,730	2,030	2,030	C2.2	17		

