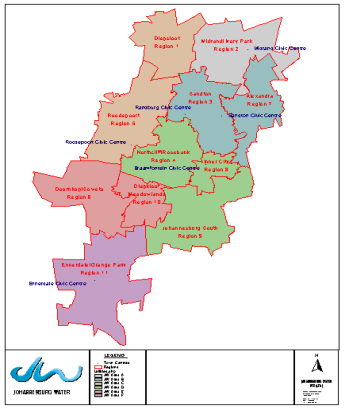
Vaal River System SSC Progress: WC/WDM October 2011

Core Business

- Distribution of potable water and the collection and treatment of wastewater on behalf of the City of Johannesburg.
- Infrastructure provision and maintenance and quality control.
- Excludes the purification of raw water which is an activity undertaken by Rand Water (Bulk Water Supplier).

Key Statistics



Johannesburg Water

- 1.652 km2
- 6 Operational Regions
- 10 Regional Depots
- 4 Electro-mechanical depots

Infrastructure

Water Networks	11 300 km's
Reservoirs	86
Towers	33
Bulk Supply Meters	108
Average Daily Demand	1400 Mℓ

Water Demand Management Plan

Direct Measurable Interventions	Indirect Measurable Interventions
➢**Distribution Management** - Pressure Management - Mains Replacement -Active and passive leakage control -Effluent Reuse (revised strategy)	➢**Distribution Management** - Sectorisation - Management Meters -Consumer Meters -Management/Monitoring performance targets
➢**Consumer Demand Management** - Retrofitting & removal of wasteful devices	➢**Consumer Demand Management** - Tariff Structures - Accurate meter reading, billing & cost recovery -Legislation -Water Audits General Education and public involvement (School Education)

Budget Requirements

The table below indicates the budget required to implement the WDM interventions and the actual budget allocated from both CAPEX and OPEX.

NB: The City of Johannesburg has drafted a revised WC/WDM strategy (awaiting approval) to align it with the Project 15% requirements.

Budget	09/10	10/11	11/12	Revised strategy (11/12)
Allocation	195,400,000	287,300,000	130,000,000	130,000,000
Implementation requirements	307,630,000	302,980,000	302,980,000	447,945,000

5

Available budget

- Based on the budget available for WDM for the 11/12 FY only the following interventions are implemented:
- Water Mains Replacement
- Soweto Infrastructure Upgrade project

Existing programmes are maintained through O&M budget:

- Pressure Management
- Active and passive leakage control
- Reservoir and Tower Monitoring

6

PROGRESS

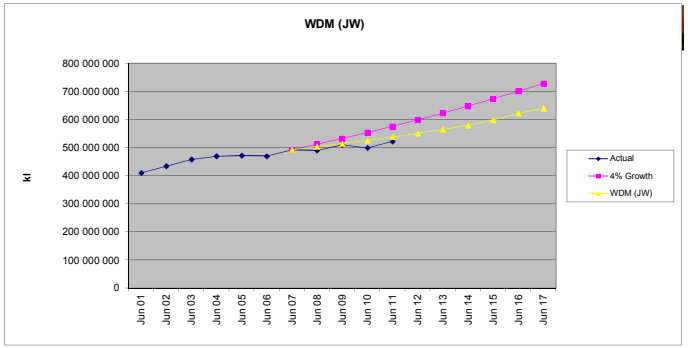
7

Water balance

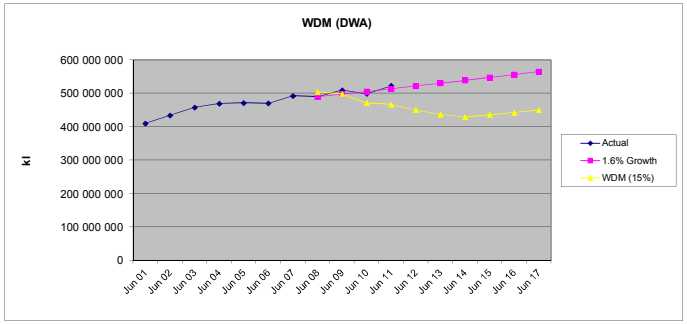
			Year ending	Jun-07	Jun-08	Jun-09	Jun-10	Jun-11
Water Balance Calculations	Revenue water	kl/annum		324,949,204	321,039,752	313,823,724	310,677,660	315,132,024
	Non-Revenue water	kl/annum		164,204,433	171,999,735	191,526,520	192,278,493	207,427,770
	% Non-revenue water			33.6%	34.9%	37.9%	38.2%	40%

8

Demand Projections JW



Demand Projections DWA



Demand Projections - comments

- JW developed and implemented a Water Demand Management Strategy from 07/08 financial year. This strategy is based on a 90 000Ml reduction on a 4% growth over 10 years. (Current actual demand is well below this target)
- The Gauteng region will potentially suffer from water shortages during the period 2013 -2018 if no effort is made to reduce the current growth demand.
- This implied that the JW strategy should be implemented over a 5 year period from the 08/09 financial year. The reductions should also be measured against a growth of 1.6%. (Current actual demand is well above this target)
- Currently demand will exceed supply capacity of the current system by 2014, implying that no growth in demand can be accommodated between 2013 and 2018.

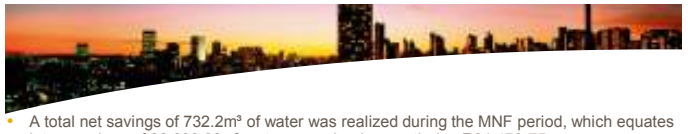
(1) Water Mains Replacement

(2) Pressure Management
case study

The pressure setting of the dual stage control valve is set to operate from 23:00 and then switch off at 05:00 (6 hours) - i.e. at 23:00 the valve will change its outlet pressure from 70meters to 58meters.

At 05:00 the valve will then change this setting from 58meters to the original setting of 70meters. This operation will continue, until the set points have been changed.

..Pressure Management
case study



- A total net savings of 732.2m³ of water was realized during the MNF period, which equates into a savings of 22 698.20m³ water per calendar month. i.e. R91 473-75

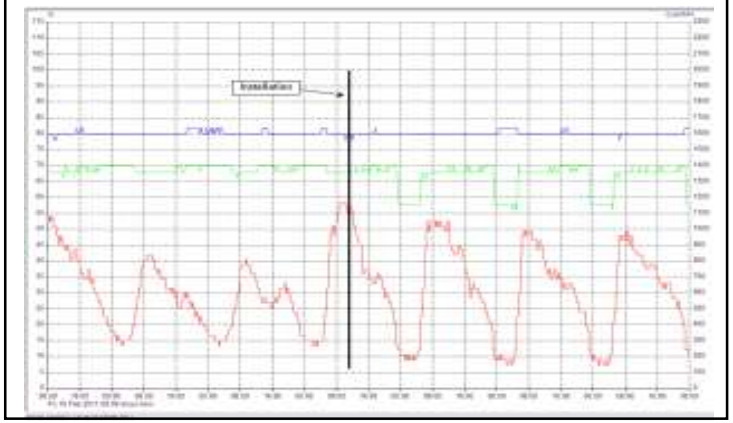
- Pay back period:

  Initial capital investment / total water savings = pay back period (in months)

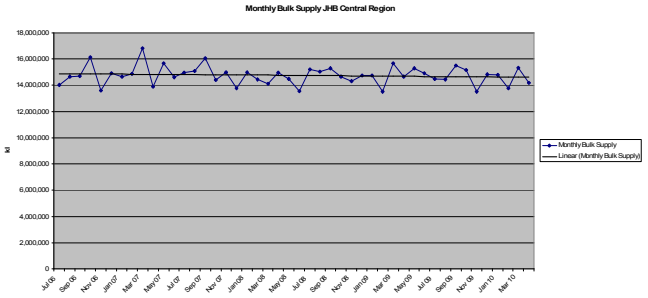
  = R1 600 000

    R91 473-74 = 17 months

..Pressure Management
case study



(3) Active & Passive Leakage Control



Bulk Water Supply into Johannesburg Central Operational Region (4 years)

(4) Monitoring of Reservoirs and Towers

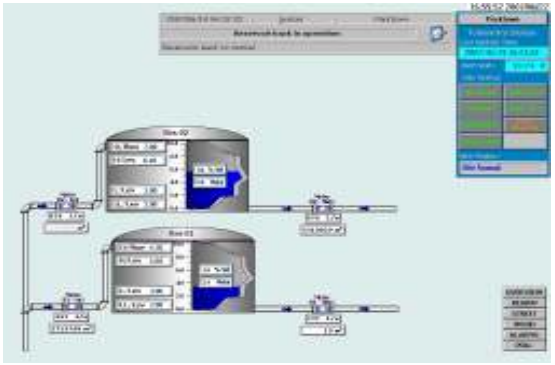
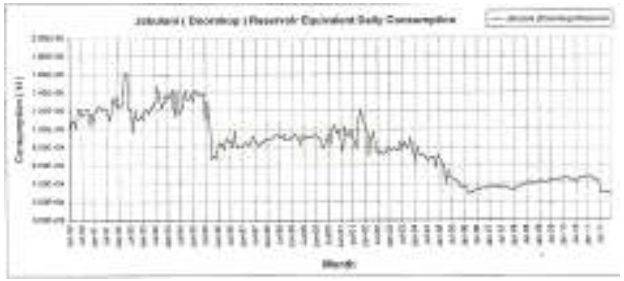


Figure 7: Typical screen shot of reservoir mimic

17

(5) Soweto Infrastructure Project



18

SOCIAL AWARENESS & EDUCATION

- Medial campaigns including print, radio and TV media
- Development of promotional material such as broachers, leaflets
- Establish partnerships with corporate major water users
- Creating water stewardship and a culture of conservation through environmental education programme
- Extend awareness campaigns in areas of high water losses and usage
- Design and implement innovative programmes to enhance behavior change

19

Conclusion

- The programmes and interventions put in place to limit or reduce real losses with in the water reticulation system is contributing to the reduction in the water demand of the City in an effort to contribute to the overall 15% reduction.
- Budget allocation is still a problem and the required money for WDM is not available. Business plans for alternative funding opportunities are being prepared.
- If funding is not available it will be difficult to achieve the required savings to contribute to the 15% reduction that's required in the upper Vaal System
- Efforts to reduce deemed areas in Johannesburg should be priority incase water restrictions are enforced. This will then enable the CoJ to implement the restrictions equally to all customers.

20