


## Use of a Performance Management Tool for Driving Improved Municipal Water Quality Management: Northern Cape Experience



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IMESA

SALGA


WATER RESEARCH COMMISSION

EMANTU




## Presentation Roadmap

- Background: South African WQM
- Considerations when implementing an IT based system: South African experience
- Levels of WQM practice
- eWQMS Benefits: Case Studies
- Conclusions



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## Background: SA WQM

- SA has good legislative framework
- Considerable success in addressing backlogs
- Challenge → sustainable, safe water services
- Many municipalities → inadequate water and effluent treatment and associated management
- Various sector initiatives to assist municipalities
- Need for a WQ data capture/information tool
  - Implementation of DWAF/IMESA/SALGA eWQMS at all 166 WSAs in SA

→ Sector utilise information to formulate strategies & implement actions to address issues of concern

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## Why are WSAs Struggling with adequate WQM?

Culture

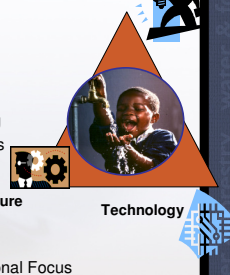
- Low awareness
- Low prioritization

Technology


- Poor data management handling
- Poor access suitable laboratories
- IT restrictions

Structure


- Weak WQM skills
- Service Backlogs
- Historical Water Supply Operational Focus
- Risk Oriented DWQM is relatively new



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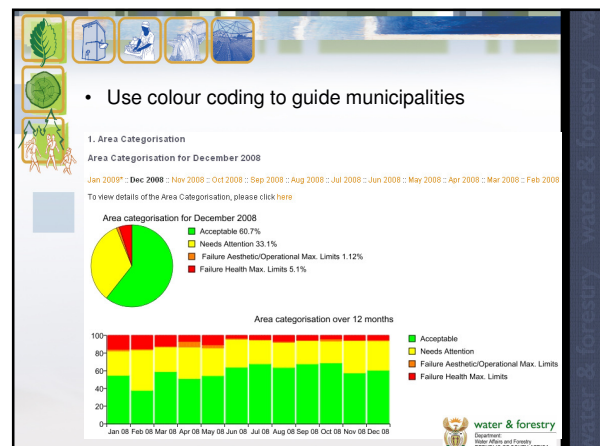
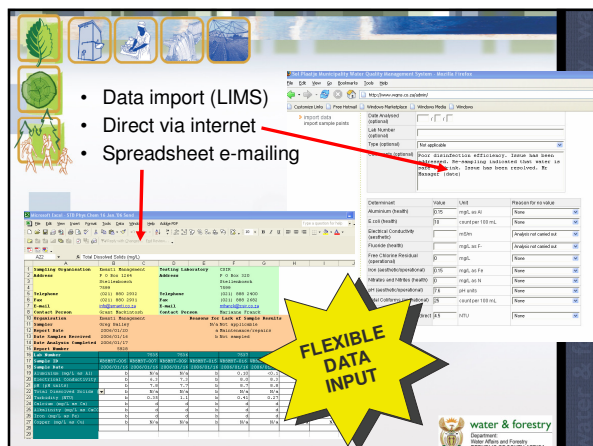
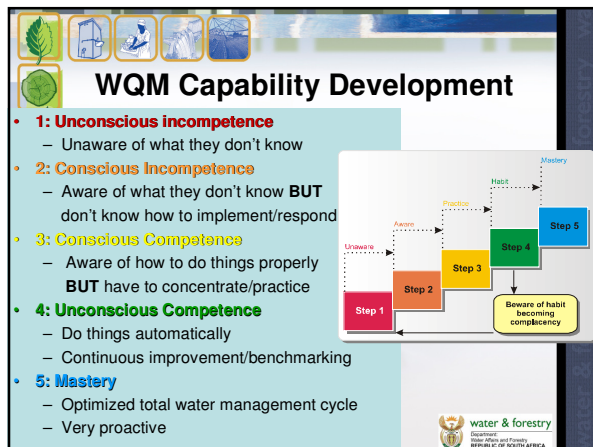
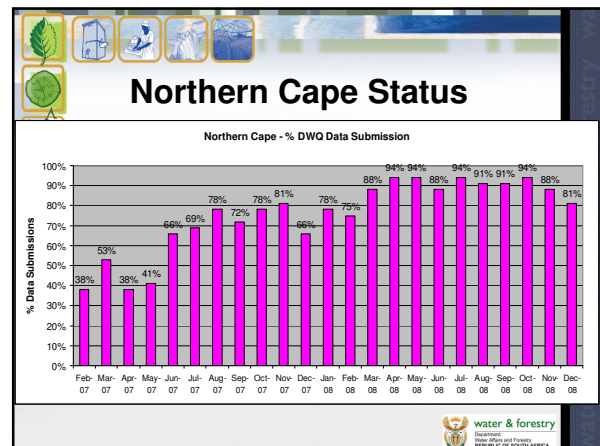
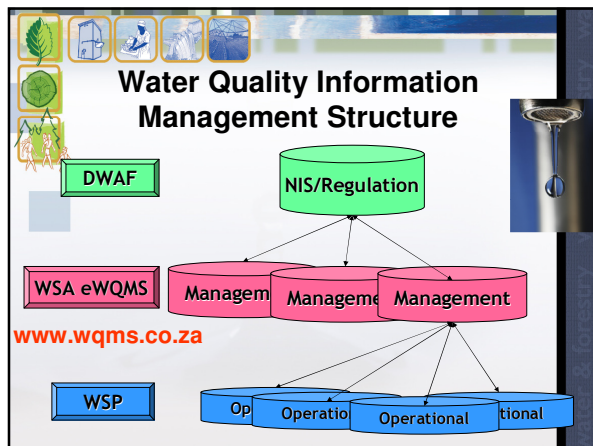



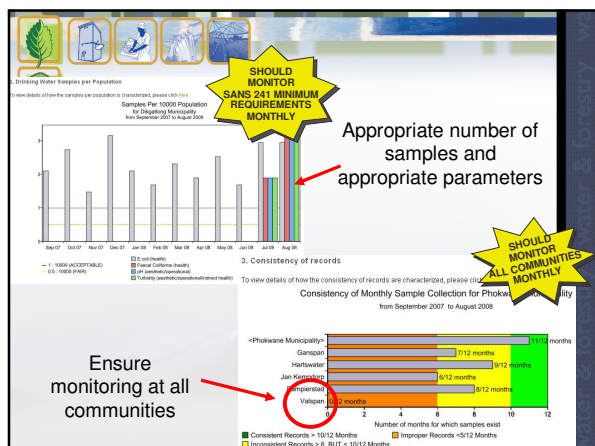
## IT based WQM System Implementation in SA



- Ensure raised awareness (e.g. increased budget)
- Build on existing Good Practice
- Bottom-up approach (i.e. useful to municipalities)
- Easy to use, robust, reliable and low cost (FOSS)
- Enable intervention in areas facing health threats
- Provide strategic data to municipalities, DWAF, etc
- Satisfy municipal Governance Requirements
- Support DWAFs & other role player requirements
- Undergo iterative enhancements (via feedback)

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Automatic reports

Official Drinking Water Reports

The following section is an archive of water quality management reports. All reports are available for download in PDF format.

Showing Reports for City of Johannesburg

Published in 2008

- DWQM - Summary Report - January 2008
- DWQM - Summary Report - December 2007

Published in 2007

- DWQM - Summary Report - November 2007
- DWQM - Summary Report - October 2007
- DWQM - Summary Report - September 2007
- DWQM - Summary Report - August 2007
- DWQM - Summary Report - July 2007
- DWQM - Summary Report - June 2007
- DWQM - Summary Report - May 2007
- DWQM - Summary Report - April 2007
- DWQM - Summary Report - March 2007
- DWQM - Summary Report - February 2007
- Drinking Water Quality - January 2007

Published in 2006

- Drinking Water Quality - December 2006
- Drinking Water Quality - November 2006

Compliance for last 12 months

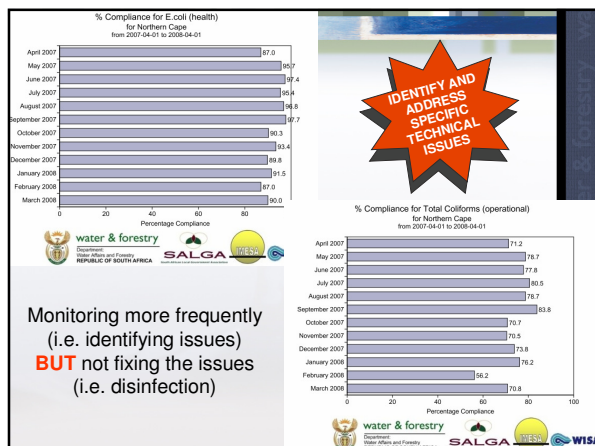
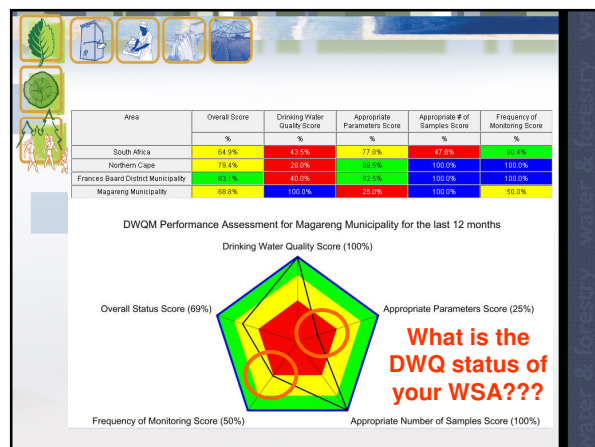
Benchmarking/tracking

Drinking Water Quality Summary

Microbiological Safety : Microbiological Operational : Physical : Chemical

Area	Population	Suggested Min Samples	Faecal Coliforms (health)	E.coli (health)
South Africa	4806640	56328	14467	57396
Northern Cape	1976830	2145	447	3727
Franses Baard District Municipality	381797	686	161	875
Pogogogog District Municipality	206620	372	54	909
Namakwa District Municipality	117344	732	31	679
Poley ka Same District Municipality	173865	660	160	776
Siyanda District Municipality	217203	766	41	488

Data Period: 2008/01/01 to 2009/01/01




Supportive Initiatives

- Provision of test equipment to WSAs
  - pH, turbidity, FCR, EC
- Early warning system
  - Operational monitoring (day-to-day)
  - Compliance monitoring (monthly)
  - Bacteriological failure response
  - Turbidity failure
  - Etc
- Improved wastewater management
- Ensure data alignment/transfer



## Supportive Initiatives

- Mobile phone application integration with eWQMS
  - Capture risk assessments
  - Capture test results from remote communities
  - Access to eWQMS without a PC
- Problematic Area Assessments
  - Site assessments including sample collection and analysis, utilisation of WRC Tools, provision of recommendations



## Where are the major risks at my water treatment plant?

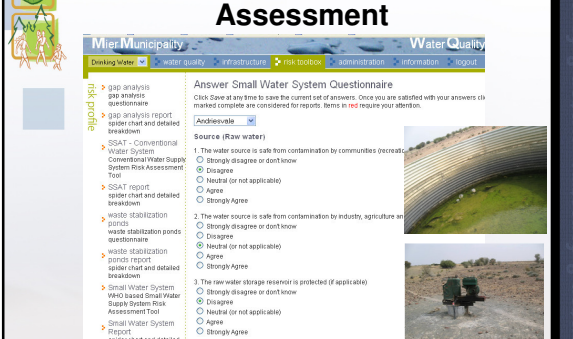


**Receive immediate feedback**


## Small Water Supply System Assessment




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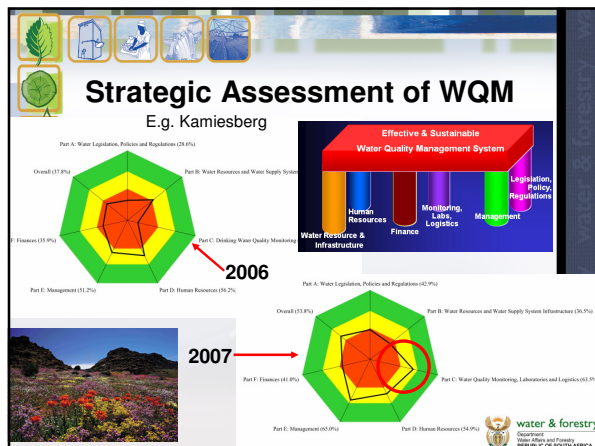


## Small Water Supply System Assessment



## Where are the major risks at my wastewater oxidation pond?





### E.g. Analysis of Improvements in the NC

Year	Part A: Water Legislation, Policies and Regulations				Part C: Drinking Water Quality Monitoring, Laboratories and Logistics			
	Accep	Mar	Poor	N/D	Accep	Mar	Poor	N/D
2006	25%	22%	47%	6%	6%	25%	63%	6%
2007	53%	25%	22%	0%	28%	66%	6%	0%

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### Blue Drop/Green Drop Certification

- Results from initial assessments show that most WSAs will need to put in considerable effort to attain Blue/Green Drop status

**→ i.e. significant progress but the situation is far from ideal!**

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### Conclusions

- eWQMS has:
  - Created improved awareness
  - Driven progressive improvement in WQ
  - Provided real-time reporting of WQ
  - Enabled early intervention
  - Provided strategic data for water services
- eWQMS alone cannot solve issues
  - Need awareness & prioritisation, on-going communications, operational test equipment & proficiency therewith, WQ data collection & assessment, & ongoing support
- eWQMS highlights issues → work “s”**

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### eWQMS Recognition Received

- National Science and Technology Forum Awards (NSTF) Awards
- IWA Project Innovation Awards 2008
  - Global winner!

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### Acknowledgements

**The entire water sector!!**

## THANK YOU!

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