



Air quality information system for Gauteng

IMPLEMENTATION LESSONS

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**NACA conference
October 2006**



Introduction

Gauteng Strategy for Sustainable Development, 2006

Air pollution is one of the challenges for sustainable development (Joburg being rated fifth worst in the world)

One of nine agreed strategies: “Improvement of Air Quality (reduce emissions from vehicles, industry, mines/tailing dams and domestic fuel usage”



Project history

- GDACE donated 7 AQ monitoring stations -2004
- Installation and training – 2005
- Upgrade by DEAT to ensure connectivity –early 2006
- Extension of DEAT NAQMP to establish pilot AQ information system – May 2006 (managed by PSC of DEAT and GDACE)



Project Objectives

- Establish connectivity between GDACE and donated air quality monitoring stations at municipalities.
- Establish an air quality team at GDACE to run the project.
- Initiate appointment of responsible persons for each monitoring station (Data custodians) at the municipalities.
- Establish forums to address air quality issues
- Provide opportunities for training
- Establish monthly and quarterly reports on air quality in the province.
- Expand monitoring network by involving LG, industries and other stakeholders with already established Air Quality monitoring stations



Existing GDACE network

- Tshwane Rosslyn: point gas analysers
- Ekurhuleni Springs: point gas analysers
- Ekurhuleni Leondale: open path gas analyser
- Sedibeng Emfuleni: an open path gas analyser
- Sedibeng Meyerton: point gas analysers
- West Rand Mogale: point gas analysers
- West Rand Randfontein: point gas analysers



Emfuleni station(open path)



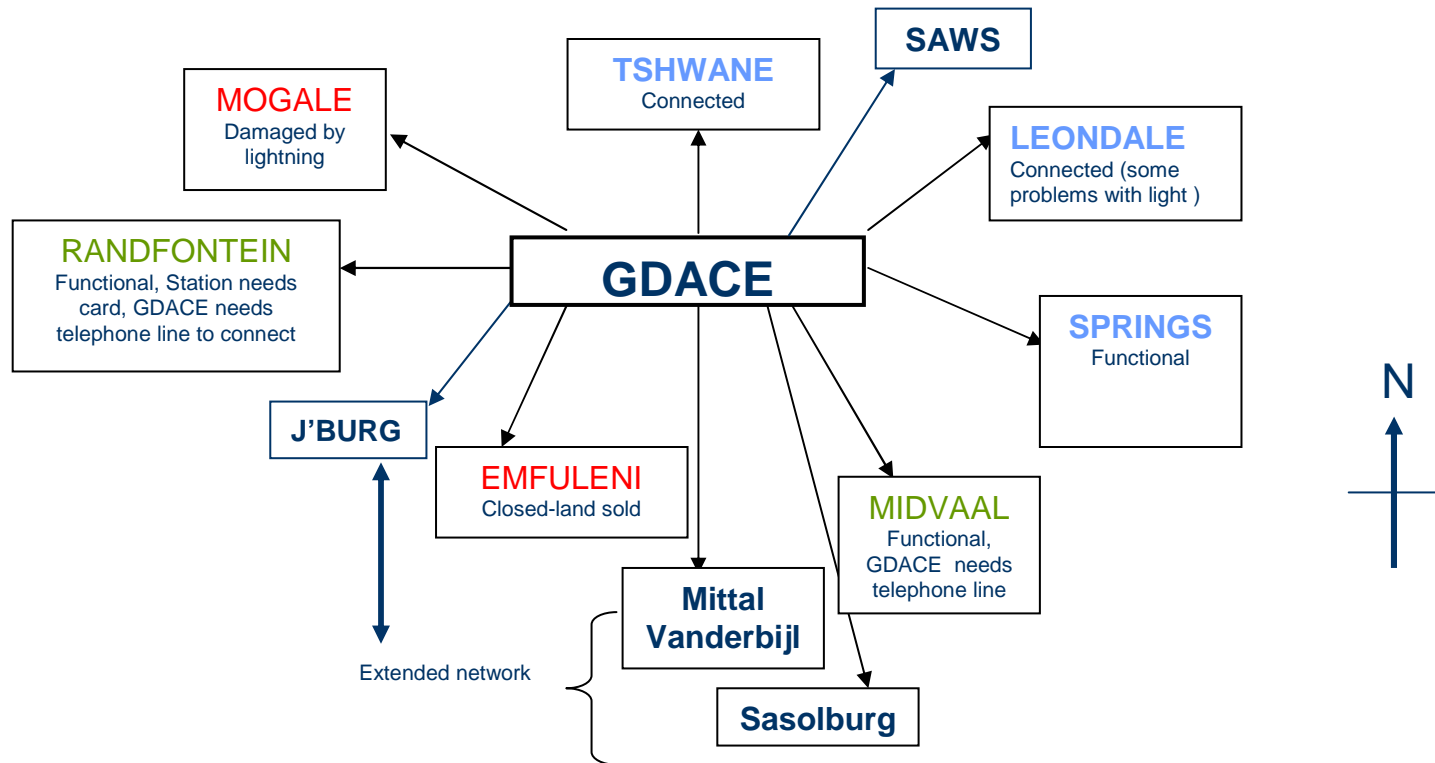
Light emitter



Randfontein station(point analysers)



GDACE Expanded Network and Connectivity Status



- **KEY:** Blue – Connected with GDACE; Green – Operational, but not connected;
- Red – Not Operational; Black – Included in expanded network.



Achievements (connectivity and capacity)

- GDACE air quality team established and trained.
- Connectivity established at GDACE with 3 stations.
- Data custodians for each station appointed and monthly forum for addressing air quality issues established.
- 3 days training on use of software provided.
- Roles and responsibilities for data custodians have been defined (to be agreed and finalised)
- Reporting **formats** for monthly reports has been developed and in process of being implemented.
- CSIR provides technical support.



Achievements (2)

- Political buy in at MEC/MMC level
- Commitments from municipalities (Johannesburg, Ekurhuleni and Tshwane) to provide data from additional 14 stations
- Commitment from two industries and SA Weather Services to the provide data and participate in the project.
- Memorandum of Understanding for data sharing has been drafted and being discussed
- 13 stations georeferenced for the GIS interface



Problems and challenges (1)

- The Mogale station was damaged by lightning
- Randfontein had problem purchasing SIM card (prevented connectivity)
- Connectivity to some stations with SIM card (no land line) is still unsuccessful
- Emfuleni station has been closed because the land was sold



Problems and challenges (2)

- Underestimation in required budget (calibration, tech support, security, software licenses, etc.)
- Capacity constraints at both local and province (highly specialised knowledge for maintenance of open path analysers, such as light adjustment)



Data management problems

- Data provided in variety of formats (from CSV to Word) – need uniform format (Excel)
- Data quality should be responsibility of data custodians (e.g. recording of instrument checks)

Dependency on consultants for data processing and validation



Lessons learnt

- Plan long term empowerment of LG to operate monitoring stations (12-18 months)
- Ensure that annual budgets include maintenance, calibration and **insurance** of equipment
- Select sites with secure land ownership (preferably government)
- Establishment of telephone connectivity could be a problem (need to negotiate and agree upfront). Land lines are preferable.
- AQO forum meetings (quarterly) must be held on the same day as Data Custodian meeting (monthly)



Way forward

- Re-establish Mogale station (equipment ordered)
- Find new site and re-establish Emfuleni station
- Connectivity to all GDACE stations
- Finalise monthly reporting (space on server needed)
- Negotiate with SAWS requirements for uptake into NAQIS
- Due diligence of further industrial stations