

Requirements for Effective Data and Assets Management for the National Ambient Air Quality Monitoring Network:

10th National Air Quality Governance Lekgotla 2015
Bloemfontein, Free State
Patience Gwaze: Session 2.3



Climate Change and Air Quality



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Presentation Outline

- Objectives of Presentation
- Status of NAAQMN
- NAAQMN Requirements
 - Asset Management
 - Data Management
- NAAQMN Strategy Overview
 - Breakaway Session Focus Areas



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Air Quality Acronyms

- **AQ** – Air Quality
- **AQI** – Air Quality Index
- **NAAQMN** – National Ambient Air Quality Monitoring Network
- **NMISA** – National Metrology Institute of South Africa
- **SAAQIS** – South Africa Air Quality Information System
- **SANAS** – South African National Accreditation System
- **SAWS** – South African Weather Service



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What are we trying to **ACHIEVE?**

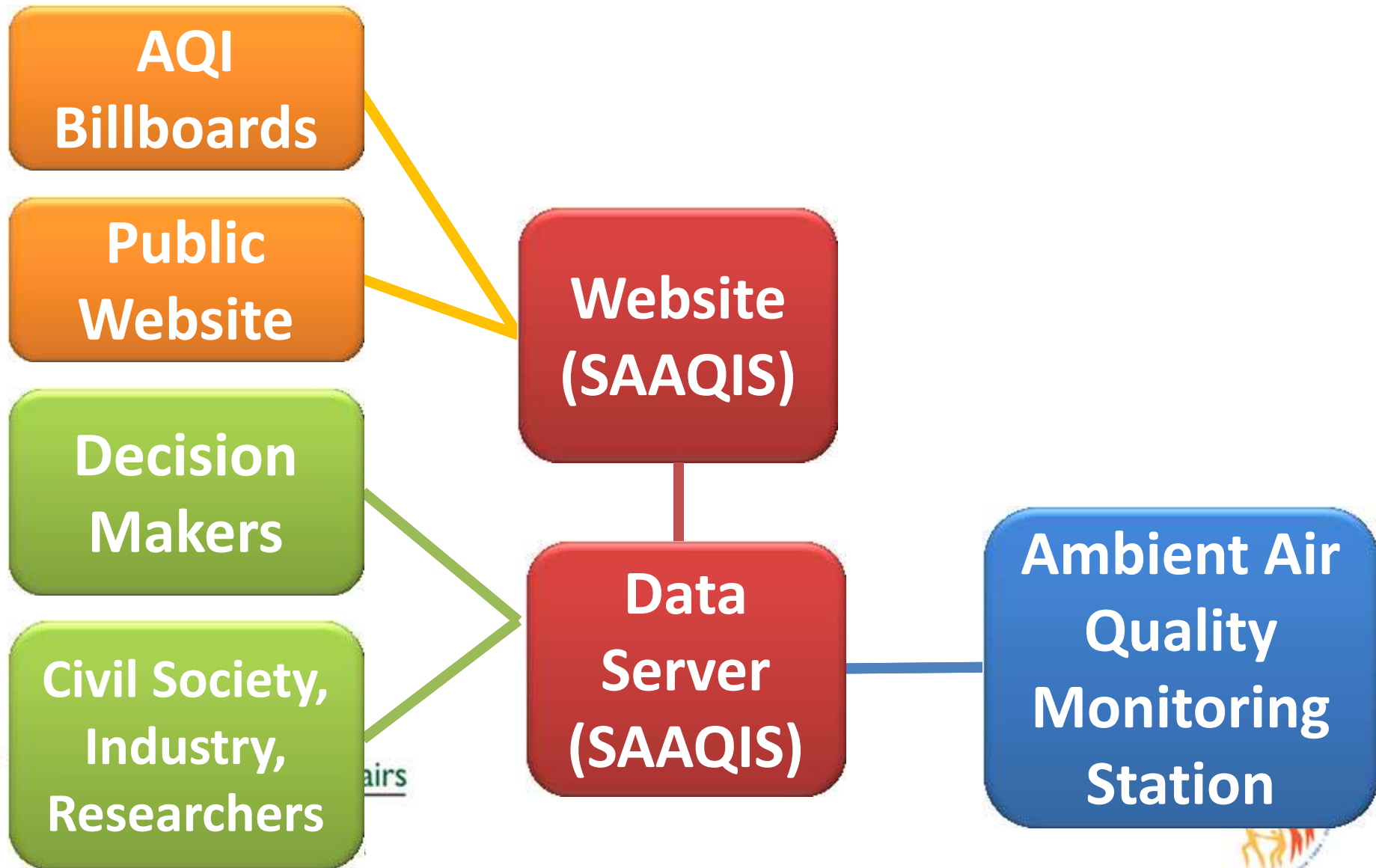


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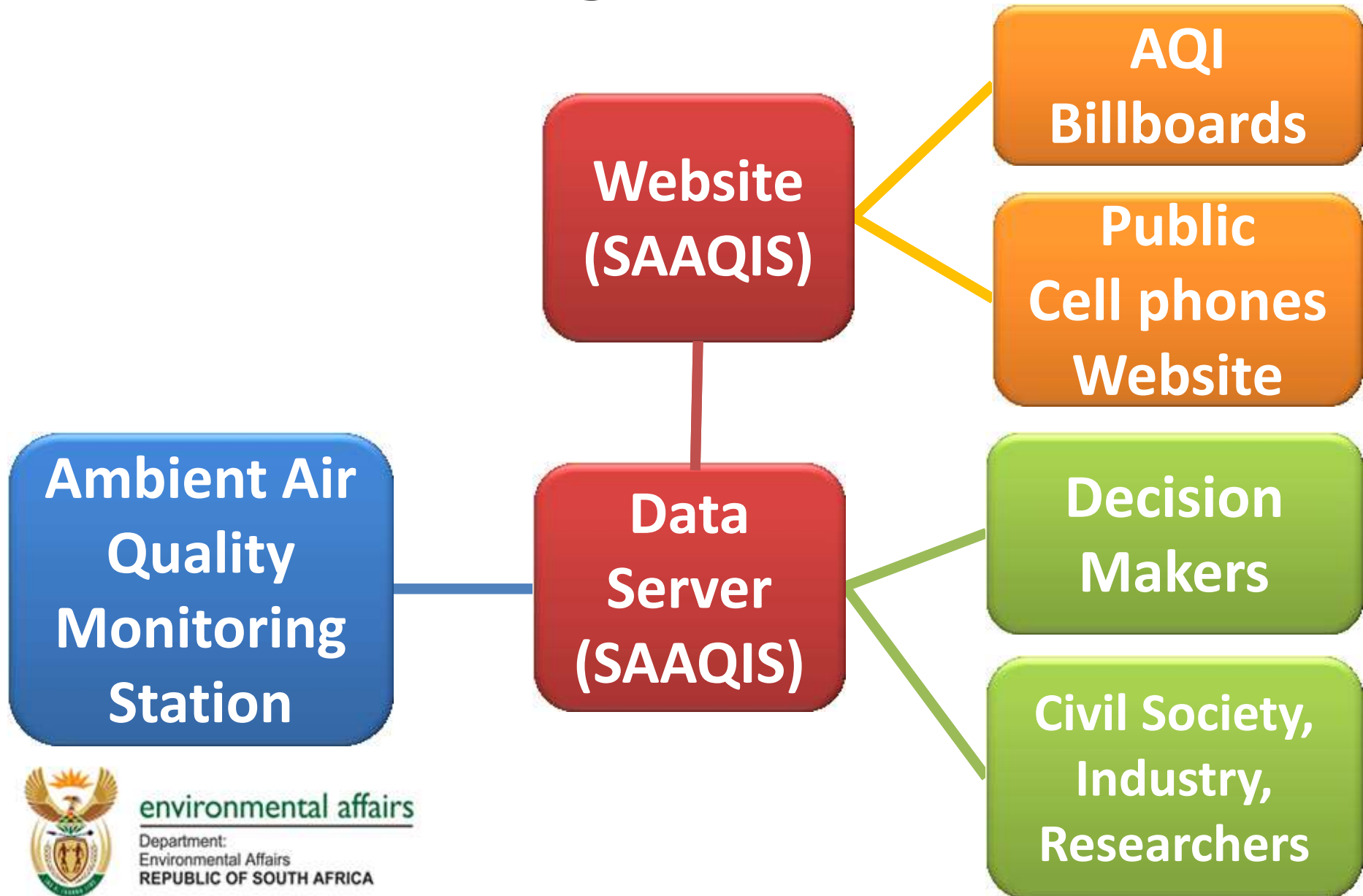
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AQ Monitoring Data Flow



AQ Monitoring Data Flow



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Balance Score Card

Indicators	Baseline	2019/20
Fully developed SAAQIS infrastructure meeting the needs of all stakeholders	Upgrading	Continuous improvement
AQ monitoring stations reporting data <u>LIVE</u> to SAAQIS	14	112
AQ stations reporting data to SAAQIS and meeting 80% verified data recovery	43	60
Number of government stations effectively managed by authorities	<30	112
Networks having AQ Monitoring Plans	None	ALL



Current NAAQMN Baseline

- **112** government owned stations
- **43** government stations reporting to SAAQIS (one month delay)
- **14** stations reporting to SAAQIS live
- **Do we have sufficient tools to support NAAQMN?**
 - **Management of ASSETS and DATA**

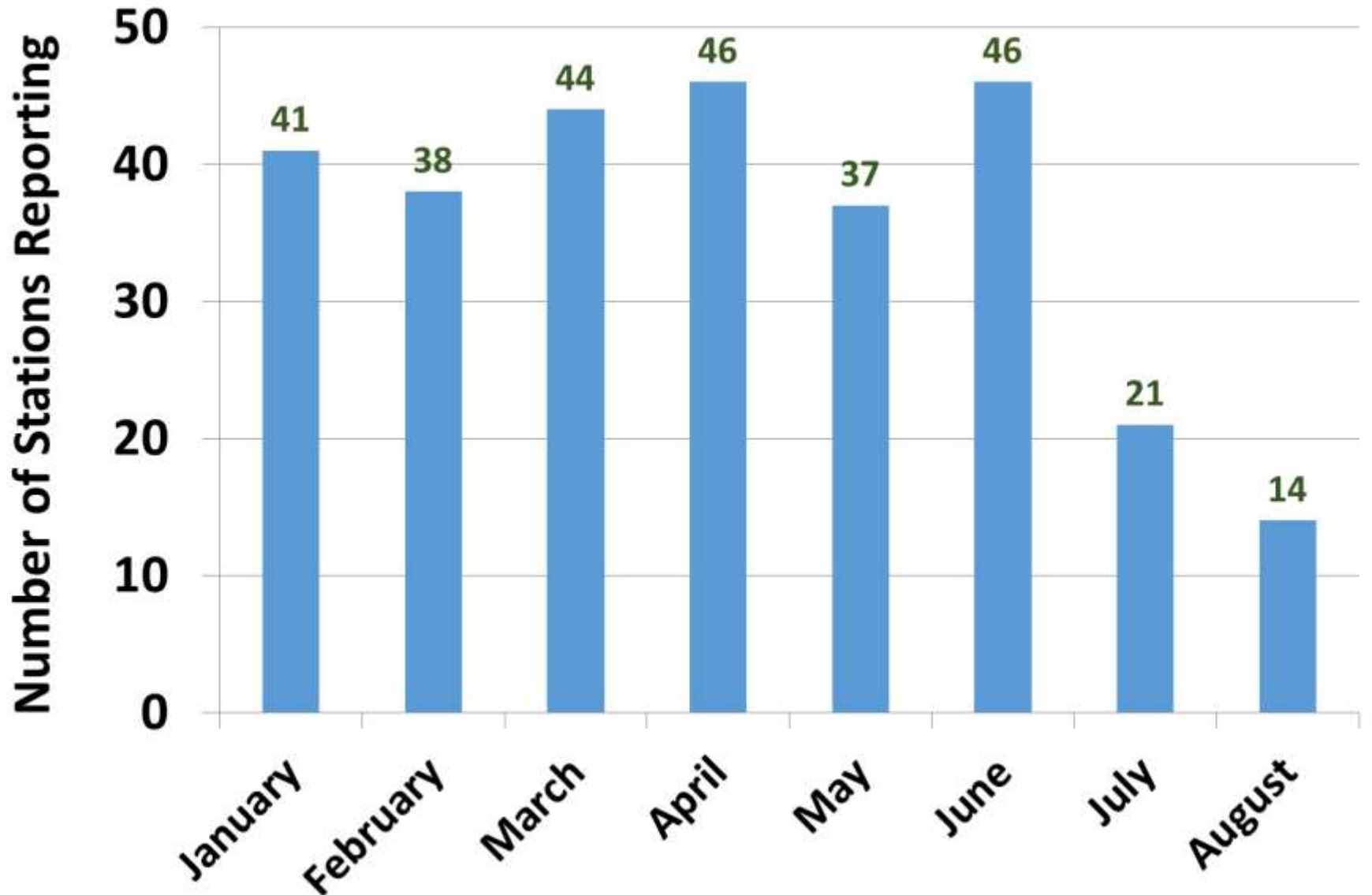


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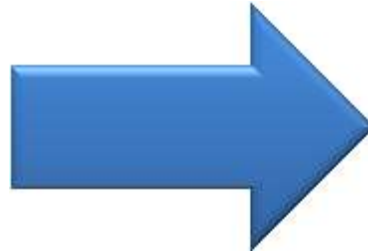
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Number of Stations Reporting to SAAQIS



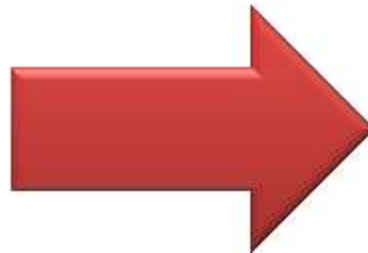
**Ambient Air
Quality
Monitoring
Station**



**Asset
Management**

**Data
Servers
(SAAQIS)**

**Website
(SAAQIS)**



**Data
Management
and
Dissemination**



Strategy Key Focus Areas

1. Design and implementation of **Nation-wide AQ Monitoring and Management Systems**
2. Development of **Norms and Standards** for Air Quality Monitoring in South Africa
3. Development and Implementation of **Comprehensive Training Programmes** in Air Quality Monitoring
4. Improvement of **Governance and Administration** supporting air quality monitoring
5. Identification and responding to **Emerging Issues** that require air quality monitoring

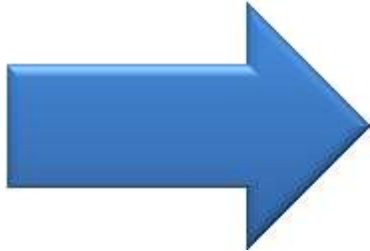


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**Ambient Air
Quality
Monitoring
Station**



**Asset
Management**



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Inside a Monitoring Station



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**GOVERNMENT IMMOVABLE
ASSET MANAGEMENT ACT**

REPUBLIEK VAN SUID-AFRIKA

**WET OP DIE BESTUUR VAN
ONROERENDE
REGERINGSBATES**

No 19, 2007

Government Immovable Asset Management Act of 2007



Asset Management Act: Principles

- An immovable asset must be used efficiently
- In relation to an acquisition, it must be considered whether
 - an immovable asset currently used by the state is adequate to meet a change in its service delivery objectives;
 - the cost of the immovable asset as well as operational and maintenance cost throughout its life cycle justifies its acquisition in relation to the cost of the service;



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Asset Management Act: Principles

- Immovable assets that are currently used must be kept **OPERATIONAL** to **FUNCTION** in a manner that supports efficient service delivery;
- **Asset Management Plans** must be developed for all immovable asset management plan
- **8.** A user immovable asset management plan must consist of at least—
 - (a) a strategic needs assessment;
 - (b) an acquisition plan;
 - (c) an operations plan; and
 - (d) an immovable asset surrender plan.
- **Document on SAAQIS**



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Asset Management – Breakaway Session Questions

- How do we ensure that AQ Monitoring assets are managed effectively?
 - Following the Government Immovable Asset Act Principles
- How do we assist stranded stations?
- How do you define a **OPERATIONAL STATION/INSTRUMENT?**



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Asset Management – Breakaway Session Questions

- **Financial Management of Networks**
 - How can authorities achieve effective procurement of monitoring equipment?
 - How can the Business Case Model assist authorities in budgeting for AQ monitoring?
 - How do we ensure that AQ Monitoring Plans financial commitments are adhered to?
 - How can stranded stations be supported? Who should provide this support?



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Asset Management and Auditing - Breakaway Session Questions

- How do we develop quality auditing systems informed by standards?
- Who should perform the ambient monitoring networks auditing of **Assets Management**?
- How often should auditing be done? (*Draft Norms and Standards are proposing annual auditing*)
- How should audit reports be presented and to whom? (*Draft Norms and Standards are proposing will provide standard auditing templates*)
- How should we measure continuous improvement of networks from these audits? (**feedback loop**)
- How would entities such as NMISA, SANAS and SAWS support?



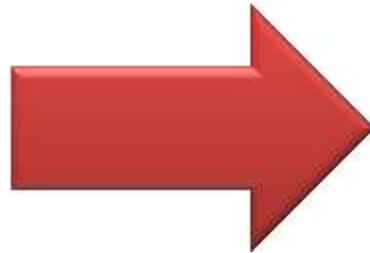
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**Data
Servers
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**Data
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South African
Weather Service

ISO 9001 Certified Organisation

- AQ Index
- Cell phones
- Website
- Radio
- TV



Air Quality Index

Date: 06 October 2014
10:00 AM



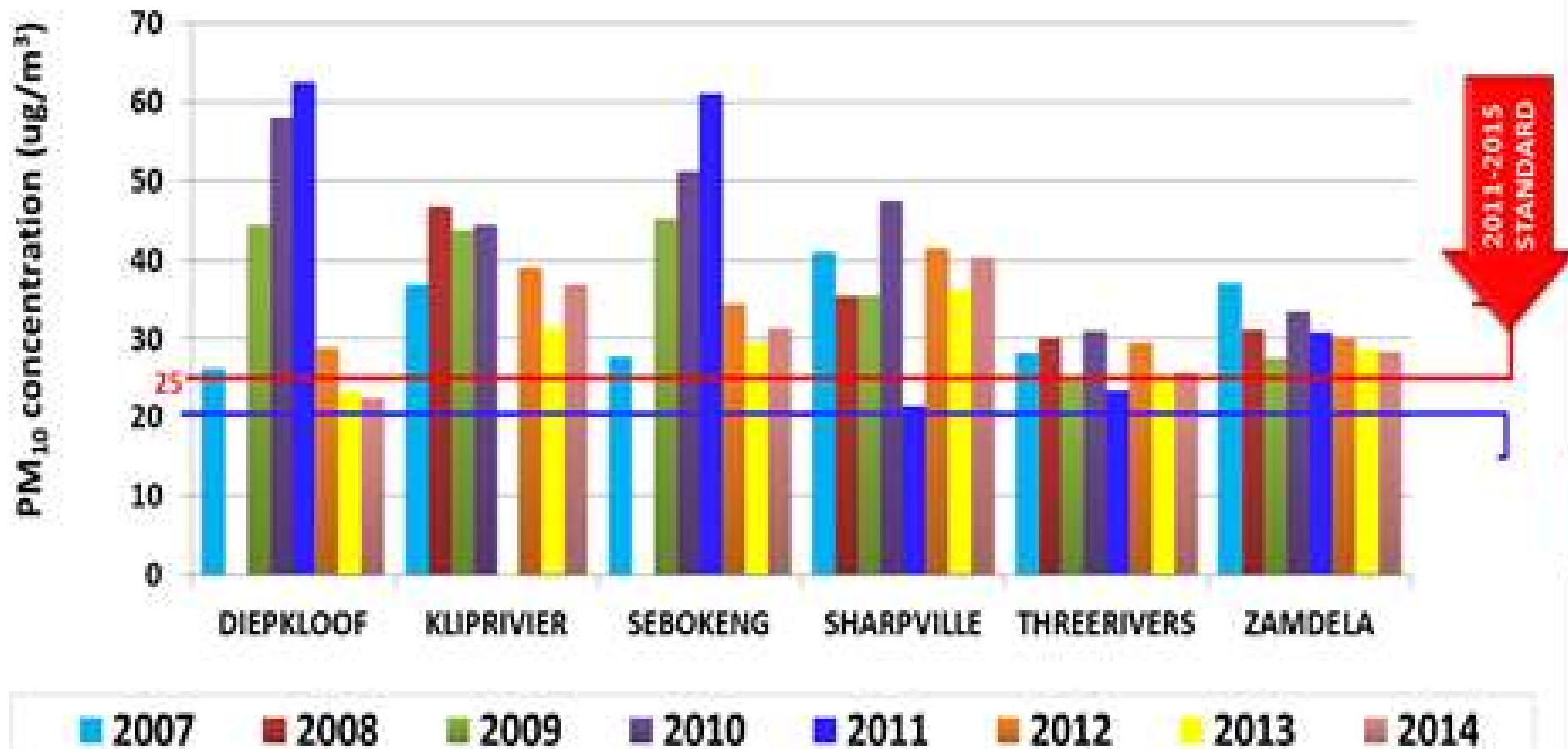
[For details on the AQI click here](#)



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Vaal Triangle Priority Area

PM_{2.5} - 8 YEAR TREND



NAAQMN Management Systems

- Effective Data Management System
- SAAQIS Upgrade to support NAAQMN
 - ✓ Station operation and management
 - ✓ Data management
 - ✓ Data reporting
 - ✓ Data reporting to all stakeholders
 - ✓ Data archiving
 - ✓ AQ Monitoring Quality Systems



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Data Management and Dissemination

– Breakaway Session Questions

- What is the most effective way of managing data (data processing and dissemination) in SAAQIS?
- How should data dissemination be handled from SAAQIS?
- **WHO OWNS AMBIENT MONITORING DATA GENERATED IN THE NAAQMN?**



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Data Management and Dissemination

Auditing – Breakaway Session Questions

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NAAQMN Oversight – Breakaway Session Questions

- The AQA prescribes oversight roles in ambient monitoring, Sections 8(a) and 17, for provinces and national spheres of government.
 - **What is this OVERSIGHT regarding NAAQMN?**
 - How can provinces provide effective AQ monitoring functions oversight to municipalities?
 - How can DEA provide effective oversight of AQ monitoring functions?
 - How can SAWS support municipalities in the NAAQMN?



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Outcomes of Breakaway Sessions

- NAAQMN Strategy overview focus areas clarity for drafting by DEA in 2015/16
- Strategy to inform the NAAQMN Implementation and Reporting of the State of Air
- Assist in the identification of stations to use in the NAQI



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Breakaway Sessions Questions

- **How do we ensure that AQ Monitoring assets are managed effectively?**
 - Effective Procurement and Lifetime Plans
 - Effective Asset Registers
 - Stranded Stations
- **How do we effectively manage data from NAAQMN (data processing and dissemination)?**
 - Reporting to SAAQIS
 - Data Dissemination Principles
 - Data Ownership
- **Overarching Principles**
 - Oversight
 - Auditing
 - Quality Systems

Thank You!

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Proposed banding of AQI (2012)

Levels of		AQI										
AQ Level	Health Concern	Band	NO ₂ (µg/m ³)	SO ₂ (µg/m ³)	O ₃ (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)					
Low	Good	1	0-66	0	0-115	0	0-26	0	0-25	0	0-22	0
		2	67-133	67	116-231	116	27-53	27	26-50	41	23-43	22
		3	133-200	133	232-350	232	54-80	54	51-75	81	44-65	44
Moderate	Moderate	4	201-267	201	351-400	351	81-107	81	76-85	121	66-75	66
		5	268-334	268	401-450	401	108-134	108	86-95	131	76-85	76
High	Unhealthy	6	335-400	335	451-500	451	135-160	135	96-105	141	86-95	86
		7	401-467	401	501-550	501	161-187	161	106-115	151	96-105	96
Very High	Very Unhealthy	8	468-534	468	551-600	551	188-213	188	116-125	161	106-115	106
		9	535-601	535	601-650	601	214-240	214	126-136	171	116-125	116
Hazardous	Hazardous	10	>602	602	>651	651	>241	241	>136	181	>126	126