PRESENTATION

APPROACHES AND SYSTEMS IMPLEMENTED BY EKURHULENI METRO ON AIR QUALITY MANAGEMENT
OVERVIEW OF THE PRESENTATION

• INTRODUCTION- VALUE PROPOSITION

• KEY STRATEGIC LEGISLATIONS/POLICIES GUIDING AIR QUALITY MANAGEMENT BY EKURHULENI METRO

• DEPARTMENTAL ALIGNMENT TO STRATEGIES

• BRIEF BACKGROUND ON SITUATIONAL ANALYSIS OF EMM THAT IMPACT ON AIR QUALITY

• APPROACH OF AIR QUALITY MANAGEMENT BY EMM

• ALIGNMENT OF AIR QUALITY FUNCTIONAL AREAS

• SYSTEMS DEVELOPED BY EMM AROUND AIR QUALITY MANAGEMENT
OVERVIEW CONTINUES

• SYSTEMS DEVELOPED AROUND AELS
• COMPLIANCE AND REFERRALS OF LISTED ACTIVITY COMPLAINTS
• EMM AIR QUALITY MONITORING NETWORK DEVELOPMENT
• AIR QUALITY IMPROVEMENT SYSTEMS TO BE UNDERTAKEN
• AIR QUALITY IMPROVEMENT PROJECTS IMPLEMENTED AND UNDERWAY
• CONCLUSION
INTRODUCTION - VALUE PROPOSITION

EKURHULENI METRO IS THE INDUSTRIAL HUB OF AFRICA WITH MANUFACTURING AND PROCESSING INDUSTRIES
EKURHULENI IS PART OF HIGHVELD PRIORITY AREA
FACTORS ABOVE HAS MADE EKURHULENI METRO TO PRIORITISE AIR QUALITY AND CLIMATE CHANGE CHALLENGES

AIR
LIFE
FOOD
WATER
SOME KEY STRATEGIC LEGISLATIONS/POLICIES GUIDING AIR QUALITY ISSUES FROM EMM

- NEMA AND RELATED ENVIRONMENTAL LEGISLATIONS- NEMAQA ON AIR QUALITY
- GROWTH AND DEVELOPMENT STRATEGY 2055
- ARETROPOLIS CITY GROWTH STRATEGY
- HIGHVELD PRIORITY AREA PLAN- GAUTENG AIR QUALITY PLAN AND EMM AIR QUALITY MANAGEMENT PLAN
- ACCUPUNCTURE POLICY DOCUMENT ON SERVICE DELIVERY IMPACT
BASIC PILLARS ADDRESSED BY GDS 2055 AND ARETROPOLIS STRATEGY

DESTINY FOR INVESTORS
- Keep and maximise business/industries
- Respond to the needs of our customers

SOCIAL TRANSFORM
- Reduce Poverty within communities
- Enhance healthy lifestyle

HUMAN CAPITAL
- Enhance skills development through partnerships
- Maximise opportunities

GDS 2055 AND ARETROPOLIS GROWTH STRATEGY
KEY PROGRAMMES AND INTERVENTIONS TO REALISE ENVIRONMENTAL WELLBEING BY 2055

CURRENT CONSTRAINTS
- Degraded eco system
- Mine dumps
- Limited developable land
- Industrial structure and performance
- Low income resource usage

PROGRAMMES AND SUB-PROGRAMMES
- Deployment of renewable energy regimes
- Incentives for use of waste
- Promote re-use of waste
- Increase usage of sustainable stormwater
- Rehabilitation of damaged ecosystems and biodiversity
- Waste land rehabilitation
- Acid mine water rehabilitation
- Conserve existing ecosystem and biodiversity
- Develop, implement, and enforce by-laws on carbon reduction
- Integrated green and food production
- Convertion of waste urban spaces for urban agriculture

EMERGING TRANSITIONAL REQUIREMENTS
- Sustainable natural resource usage
- Reduction of carbon emissions
- Protection of poor from resource price hikes
- Bio diversity and eco systems protection

SUSTAINABLE RESOURCE USE
Biodiversity and ecosystem management
Improved environmental governance
Agriculture

POSITION PAPER
Ekurhuleni 2055 Growth and Development Strategy
DEPARTMENTAL ALIGNMENT TO STRATEGIES AND LEGISLATION

**Legislation**
- Implementation of legislations to align to GDS 2055
- Policies, By laws to support GDS 2055
- Alignment to National Outcomes and Indicators

**IDPs**
- Community Consultation
- Translation of community needs into programmes
- Review of IDPs for adequacy and suitability

**SDBIPs**
- Provision of Budget to align to SDBIP Activities and Indicators
- Development of SMART targets/Outcomes
- Medium reviews for performance assessment and achievements
BRIEF BACKGROUND OF EMM SITUATIONAL ANALYSIS

• EMM HAS 120 INFORMAL SETTLEMENTS OF WHICH 60% HAVE NO ELECTRICITY COAL AND WOOD DEPENDENT
• MORE THAN 20 TOWNSHIPS SEASONAL COAL USERS
• MORE THAN 8 CATEGORIES OF LISTED ACTIVITIES AND OTHER AIR POLLUTION SOURCES
• 3 NATIONAL ROADS CROSSING AND MORE THAN 5 REGIONAL ROADS CARRYING +- 1.2 MILLION VEHICLES PER DAY ON AVERAGE
• BIGGEST AIR PORT IN AFRICA O.R TAMBO AIRPORT
• SOME MINE DUMPS AND ON GOING AGRICULTURAL ACTIVITIES
• MORE THAN 200 WETLANDS, SOME POLLUTED
## Relationship of Air Pollution Sources, Ambient Standards in the Environment

### Sources
- What pollutants are present in the air?
- At what concentrations?
- Are these concentrations acceptable?
- Who is responsible?

### Receptors
- Where is all this smoke and dust coming from?

### Table: Criteria Pollutants, Emission & Ambient Standards

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Standards</th>
<th>Ambient Standards</th>
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<tbody>
<tr>
<td>Nitrogen Dioxide</td>
<td>As per Sector/Process Normalised at STP and O2</td>
<td>200 µg/m³ per 1 Hr Aver</td>
</tr>
<tr>
<td>PM10</td>
<td>As per Sector/Process Normalised at STP and O2</td>
<td>120 µg/m³ per 24 Hrs Aver</td>
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<tr>
<td>Sulfur Dioxide</td>
<td>As per Sector/Process Normalised at STP and O2</td>
<td>125 µg/m³ per 24 Hrs Aver</td>
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<tr>
<td>Carbon Monoxide</td>
<td>As per Sector/Process Normalised at STP and O2</td>
<td>30 mg/m³ per 1 Hr Aver</td>
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<tr>
<td>Benzene</td>
<td>As per Sector/Process Normalised at STP and O2</td>
<td>10 µg/m³ per year</td>
</tr>
<tr>
<td>Ozone</td>
<td>As per Sector/Process Normalised at STP and O2</td>
<td>120 µg/m³ per 8 Hrs Aver</td>
</tr>
<tr>
<td>Lead</td>
<td>As per Sector/Process Normalised at STP and O2</td>
<td>0.5 µg/m³ per year</td>
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**Ekurhuleni Metropolitan Municipality**

*A partnership that works*
TYPE OF FUEL USED IN INFORMAL SETTLEMENTS FOR ENERGY

Coal stove with 0.002 m³ Capacity - Coal Yard
PARAFFIN USE IN INFORMAL SETTLEMENTS

Paraffin Heater of 2L Capacity – Primus stove of 1,2 L
SOME WINTER SITUATIONS (2010-2011)

- Air quality management needs to be integrated into municipal services.
- We need to find ways and mechanisms to adapt to climate change impacts while working hard to reduce emissions.
SOME CHALLENGES BEFORE AEL IMPLEMENTATION - HCRW INCINERATOR
LISTED ACTIVITY PROBLEMS BEFORE
APPROACH ON AIR QUALITY BY EMM

• BASED ON COMPLEXITY OF DIFFERENT SOURCES SPECIALIZATION SERVICE DELIVERY MODEL WAS ADOPTED

• AIR QUALITY WAS DIVIDED INTO TWO MAIN FUNCTIONAL AREAS- AEL/FUEL BURNING APPLIANCES AND AMBIENT MONITORING

• THE APPROACH ENHANCE SKILLS DEVELOPMENT IN A SPECIFIC AIR QUALITY FUNCTIONAL AREA

• THE APPROACH ENHANCE PROGRESS IN TERMS OF TARGETS ACHIEVEMENT

• TRAINING SCHEDULES COMPLIMENT STAFF AVAILABILITY

• THE APPROACH ENABLE AIR QUALITY TO PLAY A STRATEGIC ROLE WITHIN OTHER DEPARTMENTS IN COUNCIL
ALIGNMENT OF FUNCTIONAL AREAS

AMBIENT AIR QUALITY MONITORING FUNCTIONS INCLUDE:

• Management of 10 Ambient Stations (Repairs, maintenance, calibrations, zero spans and Data management and reporting)
• Passive Sampling and Fallout dust monitoring in hotspots areas
• Vehicular Emissions Monitoring (Diesel tailpipe testing)

ATMOSPHERIC EMISSION LICENSING FUNCTIONS INCLUDE:

• Physical inspections of listed activities and drafting of AELs
• Inspections and permitting of Fuel Burning Appliances
• Dealing with air quality complaints related to listed activities and boilers
• Accompany EMIIs during Strategic Compliance Monitoring of listed activities

IMPLEMENTATION OF AIR POLLUTION REDUCTION PROJECTS IS DONE BY ALL AIR QUALITY STAFF DIRECTLY AND BY OTHER STAKEHOLDERS HAVING SIGNIFICANT IMPACT IN THE ATMOSPHERE
SYSTEMS DEVELOPED AROUND AELS

• Electronic provision of AEL Application Form
• Assessment and acknowledgement of completed application in writing to the applicant
• Proof of advertisement to apply for AEL by the Applicant in local newspapers- if any objection is received is dealt in a meeting with the concerned parties (applicant, authority and objector/s)
• Conducting of physical inspection of a listed activity and draft AEL if all information is provided
• Review of the AEL by Corporate Office
• Sending the reviewed copy to the Applicant for comments and any differences are addressed with a reasonable air pollution reduction strategy or plan
• Issue of the Provisional AEL or Final AEL
COMPLIANCE AND REFERRALS OF LISTED ACTIVITY COMPLAINTS

- EMM SIGNED A PROTOCOL ON EMI DEVOLVEMENT
- THE METRO IS DEVELOPING ITS COMPLIANCE AND ENFORCEMENT DIVISION
- GOOD WORKING RELATIONS WITH GDARD EMI’s
- ALL REFERRALS TO GDARD EMIS ARE DILIGENTLY ADDRESSED INVOLVING METRO AIR QUALITY OFFICIALS
- ADEQUATE SUPPORT FROM GDARD IS RECEIVED
PROPOSED AQM NETWORK SYSTEM BY EMM

ETD Central Base Monitor

ECOSTAT Verification Process

Reports
- DEAT CSIR SAWs
- GDACE
- EMM: - % report - Internet - GIS report
- External Reports: - Forums - Industries

Back-up Storage
- Air Quality Data Server
Air Quality Improvement Process to be undertaken (The Big Picture)

1. Air Monitoring
   - Source Apportionment
2. Emissions Inventory
   - Identification of the Sources, Magnitude, and Effects of the Air Pollution Problem
3. Air Quality Modeling
4. Control Strategy Development

- Implement Air Quality Improvement Plans
- Evaluate Effectiveness of Implemented Controls
- Cost Benefit Analysis
- Health Study and Impact Analysis

Iterative Feedback
SOME AIR QUALITY IMPROVEMENT PROJECTS IMPLEMENTED AND UNDERWAY BY EMM

• CLEAN AND GREEN PROJECT
• FLARRING OF LANDFILL METHANE GAS
• WASTE MINIMISATION PROJECTS
• RETROFITTING OF ENERGY SAVING LIGHTS IN COUNCIL BUILDINGS
• PROPOSED BRT PROJECT
• SYNCHRONIZATION OF TRAFFIC LIGHTS
AIR QUALITY IMPROVEMENT PROJECTS

- REHABILITATION OF WETLANDS TO REDUCE ODOURS/SMELLS
- RETROFITTING OF SOLAR ENERGY GEYSERS
- ROLLOUT OF METHANOL STOVE AT DUKATHOLE INFORMAL SETTLEMENT
- BASA NJENGO MAGOGO AT INFORMAL SETTLEMENT
- IMPLEMENTATION OF CLEANER TECHNOLOGY BY SOME INDUSTRIES THROUGH AEL AS A TOOL
- O.R TAMBO PRECINCT GREEN BUILDING
- PROPOSED CITY DIGITIZATION TO REDUCE PAPERS
CLEAN COOKING DOUBLE PLATE STOVE - METHANOL CLEAN ENERGY
FLARRING OF METHANE FROM LANDFILL
### NAME OF THE PROJECT

<table>
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<th>OR Tambo/Leeupan project</th>
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### BRIEF DESCRIPTION

The OR Tambo/Leeupan project is a Multiyear project that covers a wide scope of work including environmental education facility, regional park and wetlands rehabilitation. Environmentally friendly construction methods are being used and the completed project will be a pioneer in Ekurhuleni.

**Phase 1:** which is now finalised included the development of:

- an amphitheatre
- narrative centre (museum)
- multi-purpose arts and crafts centre
- environment education centre
- caretaker’s cottage

**Phase 2: 2012/13**

- Upgrade of the Tamboville Cemetery
- Start using Environmental Education Centre

**Phase 3: 2013/14**

Environmental and Recreational Park. The Park will include:

- Conservation Zones
- Urban Agriculture areas
- Formal Gardens
- Picnic and Braai areas
- Bird hides
- Nature trails
- Sports fields
- Walkways
- Piers
PUBLIC DEMONSTRATIONS
CONCLUSION

AIR QUALITY FORMS THE INTEGRAL PART OF CLIMATE CHANGE AND NEGATIVE CLIMATE CHANGE ISSUES CANNOT BE DEALT IN ISOLATION OF AIR QUALITY

DEVELOPING COUNTRIES AND CITIES NEED TO ADAPT TO CLIMATE CHANGE AND MAXIMISE GREEN ECONOMIC GROWTH
THANK YOU

WITH COMPLIMENTS FROM EKURHULENI AIR QUALITY MANAGEMENT TEAM

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