EDEN 2nd Generation AQMP
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INTRODUCTION

AIR POLLUTION PREVENTION ACT, 1965

• Administered at National government level
• Seven inspectors
• Control of industrial emissions
• No or little emphasis on receptor environment
• Municipalities had no power
• Addressed air pollution issues with “nuisance” by-laws
AIR QUALITY ACT, 2004

• Gives all power to municipalities, specific power to metro & district municipalities
• Requires municipal air quality management plans
• Requires listed industries to obtain atmospheric emission licences (AELs)
• National Framework, 2007
• Country’s AQMP
• Guides municipalities
• Provincial AQMP
VISION AND MISSION

VISION

• TO HAVE AIR QUALITY WORTHY OF THE NAMES “EDEN” AND “THE GARDEN ROUTE”

MISSION STATEMENT

• TO MINIMISE THE IMPACT OF AIR POLLUTANT EMISSIONS ON THE POPULATION AND THE NATURAL ENVIRONMENT OF THE EDEN MUNICIPAL DISTRICT
STATUS QUO
DEMOGRAPHICS AND STATUS QUO

- Total area approximately 23 330 km$^2$
- Total population about 574 300 (2011 census)
- AQ Officers in all municipalities except Bitou, Kannaland
- AQOs generally well qualified
- AQM small part of daily duties
- Eden, George, Mossel Bay and Hessequa have AQM by-laws
- None of B-authorities had AQMPs
THE PROJECT

• Need for AQMP`s within B- municipalities
• Funding is always an issue
• Structured through Eden Air Quality Officers Forum
• Joint project- cost saving initiative
• R70 000 per authority
• Terms of Reference- input from various authorities
• Tendered
• LAQS - Chris Albertyn
• Implementable
• Public participation
COMPLIANCE WITH AQMP

• EDM largely met objectives
• Focus of 1st AQMP was to establish the Air Quality unit within Eden
• Limitations due to budget constraints
• Screening monitoring methods used
• Lack modelling capacity
• Lack sufficient human resources
THE REVISED AQMP

Objective 1: Set Air Quality Goals
Objective 2: Set Up Air Quality Management System
Objective 3: Carry Out Risk Assessments
Objective 4: Assess and Select Control Measures
Objective 5: Implementation of Intervention and Monitoring Effectiveness
Objective 6: Revise Air Quality Goals
Objective 7: Integrate the AQMP into the IDP
Objective 8: Compliance Monitoring, Enforcement and Control
Objective 9: Review the Air Quality Management Plan
OBJECTIVE 1: AIR QUALITY GOALS

• No control actions can be considered without knowing if any air quality goals are being exceeded
• Official emission limits defined by DEA
• Official ambient air quality standards defined by DEA
• Identify goals according to the needs in each town e.g. Knysna vehicle emissions
• Limits for H2S

Eden Air Quality by-Law: The Municipality may, by notice -

– **identify substances or mixtures of substances** in ambient air which, through ambient concentrations, bioaccumulation, deposition or in any other way, **present a threat to health**, well-being or the environment in the Eden District Municipality or which the Air Quality Officer reasonably believes present such a threat; and

– in respect of each of those substances or mixtures of substances, **publish local standards** for emissions from point or non-point or mobile sources in the Eden District Municipality.

SHORT TERM OBJECTIVE
H$_2$S - OUDTSHOORN
OBJECTIVE 2: SET UP AIR QUALITY MANAGEMENT SYSTEM

• Maintain & expand emissions database (What is needed, how to get it, who will get it)

• Air quality monitoring (What to measure, where it must be done, how to do it)

• Dispersion modeling (Set up facility, get training & experience)

• Report air quality information (What to report, to whom, how often, what format) Monitoring results to DEADP, DEA and communities (Dana Bay example)
Dispersion modeling

- Identified all sources within Eden and individual municipalities- also shipping activities, cattle emissions, airport and vehicle emissions
- AIRSHED modeled it
- Future programme
- Questionnaires for each Air Quality sector
Excel Emission calculator- AP42

• **Bitumous Coal for Spreader Stoker Feed**
• AP-42 Section 1.1 Emissions Calculations for Bitumous Spreader Stoker feed boiler

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Dispersion modeling

Eden District Municipality
Predicted Maximum Daily SO$_2$ Concentration due to
George
Local Municipality
All sources

30 $\mu$g/m$^3$ 10 $\mu$g/m$^3$ 5 $\mu$g/m$^3$

NAAQS SO$_2$ Daily = 125 $\mu$g/m$^3$

Map compiled by:
Airshed Planning Professionals (Pty) Ltd
for:
Lethabo Air Quality Specialists cc
The only way to determine the impact of air pollutants on living species is through risk assessments.

- Assess dosage (monitoring results to determine concentration)
- Assess health risks (through dosage communities are exposed to)
- Assess ecological risks (long term exposure to non human environment fauna and flora).

MEDIUM TO LONG TERM OBJECTIVE
Requires long-term data
OBJECTIVE 4: INTERVENTIONS

IF HEALTH OR ECOLOGICAL RISKS EXISTS AND/OR BASED ON RESULTS OF MONITORING STATIONS:

- Investigate potential intervention measures
- Evaluate potential application of each
- Rank in order of preference
- Select most appropriate
  (Some may be technological, others may be political)
  Involve public and industry

MEDIUM TO LONG TERM OBJECTIVE
INTERVENTIONS
INTERVENTIONS

Flaring incident at a refinery
OBJECTIVE 5: IMPLEMENT INTERVENTION

• Implement preferred objective
  May take some time
  If technological: requires design, budgeting, construction, commissioning, optimisation
  If political: requires political will, budgeting, design, etc.

• Monitor intervention effectiveness
  Monitor impact of intervention on air quality
  Will take some time as much data is needed

LONG-TERM OBJECTIVE
OBJECTIVE 6: REVISE AIR QUALITY GOALS

If interventions do not have sufficient impact, OR DUE TO INDUSTRIAL GROWTH, URBANISATION revise air quality goals as set under Objective 1

• Requires substantial motivation, scientific input, etc.
• Implies essentially reduction of air pollutant emissions
OBJECTIVE 7: INCLUDE AQMP IN IDP

Requirement of the AQA

Necessary so that ALL departments are aware of the fact that an air quality input is require before any development is undertaken

Significant implication!

SHORT-TERM OBJECTIVE
Objective 8: COMPLIANCE MONITORING

INCLUDES ENFORCEMENT AND CONTROL

• Definition of AEL protocols (being done with great success ELECTRONIC A.Q. INFORMATION SYSTEM)
• Pollution prevention plans
• Administrative enforcement- By-Laws, etc).
• Inspection and complaints (already being done)
• Audits

CONTINUOUS OBJECTIVE
MUNICIPAL AQMP

Municipal AQMPs modelled on EDM’s Plan

• States all of the legal requirements as objectives
• Provides human resources requirements
• Provides time scales
• Provides outsourcing potential for each objective
• Promotes close co-operation with EDM’s AQO
• Incorporation into IDPs essential

Either that or enter into service-level agreement with EDM (as has been done by Hessequa)
CHALLENGES

• Public attendance was poor
• Municipalities have appointed AQOs
• AQOs generally well-qualified, BUT have no or very small budgets and spend at most 10% of their time at air quality management issues; rest taken up with other (apparently more important) tasks

This is not really a problem in Bitou, Knysna, Hessequa and Kannaland due to low industrial activity, but is potentially serious in George, Mossel Bay and Oudtshoorn
CONCLUSIONS

• Learning curve for Eden
• Needs to progress to next level; aim of revised AQMP
• Needs to expand staff complement
• Individual municipalities must formalise AQ management activities
• Must allocate AQ responsibilities and budgets
• At least now each B-authority within Eden have AQMP`s!
• Authorities must set the example to industry
• We must change peoples perceptions!

**Compliance with AQMPs will result in effective air quality management**

**Impacts will, however, not be noticeable immediately**

**AIR QUALITY IS TEAMWORK!!**
THANK YOU!!