



NELSON MANDELA BAY MUNICIPALITY (NMBM)

AIR QUALITY MANAGEMENT PLAN

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ABBREVIATIONS AND DEFINITIONS

AEL	Atmospheric emission licence
APPA	Atmospheric Pollution Prevention Act, 1965
AQA	Air Quality Act, Act 39 of 2004
AQM	Air Quality Monitoring
AQMP	Air Quality Management Plan
AQO	Air Quality Officer
CBA	Clay Brick Association
CDC	Coega Development Corporation
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
DEDEA	Department of Economic Development and Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DWEA	Department of Water and Environmental Affairs
EC	Eastern Cape
EIA	Environmental Impact Assessment
EDB	Emissions database
EU	European Union
GHG	Green House Gas
GIS	Geographic Information System
H ₂ S	Hydrogen Sulphide
HBr	Hydrogen Bromide
HCl	Hydrogen Chloride (hydrochloric acid)
HF	Hydrogen Fluoride (hydrofluoric acid)
HFO	Heavy Furnace Oil
IDP	Integrated Development Plan
IPWIS	Integrated Pollution and Waste Information System
LFG	Landfill gas
mg/ton	Milligrams per Ton
MJ/kg	Mega Joule per Kilogram

MSA	Municipal Systems Act
MSW	Municipal Solid Waste
NO	Nitrogen Monoxide
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NEMA	National Environmental Management Act
NGO	Non-Governmental Organisation
NMBM	Nelson Mandela Bay Municipality
PCB	Polychlorinated Bi-Phenyls
PM	Particulate Matter
PM ₁₀	Particulate Matter with aerodynamic diameter smaller than 10 micron
PM _{2.5}	Particulate Matter with aerodynamic diameter smaller than 2.5 micron
SAAQIS	South African Air Quality Information System
SA	South Africa
SAWS	South African Weather Service
SO ₂	Sulphur Dioxide
SO ₃	Sulphur Trioxide
THC	Total Hydrocarbon Content
tpa	Tons per Annum
TSP	Total suspended particulates
UPS	Uninterruptible Power Supply
USA	United States of America
USEPA	United States of America Environmental Protection Agency
VOCs	Volatile organic compounds

**NELSON MANDELA BAY MUNICIPALITY
AIR QUALITY MANAGEMENT PLAN**

EXECUTIVE SUMMARY

An extensive investigation into the state of air quality knowledge, capacity and management in the Nelson Mandela Bay municipal district was carried out with the support of all of the municipality and the Easter Cape's Department of Economic Affairs, Environment and Tourism (DEAET). The investigation was also supported by an extensive public participation process in which valuable inputs were provided by various members of the public and representatives of industries in the area.

The outcome of the investigation and the diversity of the region in general led to the development of an air quality management plan with the following vision and mission statements:

VISION

TO ENSURE SUSTAINABLE CLEAN AIR FOR ALL

MISSION STATEMENT

**TO MINIMISE THE IMPACT OF AIR POLLUTANT EMISSIONS ON THE
POPULATION AND THE NATURAL ENVIRONMENT
OF THE NELSON MANDELA BAY MUNICIPALITY**

To pursue the vision and mission of the plan thirteen objectives were set and are listed below:

Objective 1: Formalise air pollution control function in the NMBM

Objective 2: Compile an emissions inventory for the region

Objective 3: Define "uncontrolled" emission limits

Objective 4: Air quality and meteorological monitoring

Objective 5: Capacity building within the NMBM

Objective 6: Centre of expertise

Objective 7: Spirit of cooperation

Objective 8: Law enforcement

Objective 9: Dissemination of information

Objective 10: Air quality impacts in town and regional planning activities

Objective 11: Regional waste management strategy

Objective 12: Review of the air quality management plan

By pursuing these objectives diligently the air quality management plan will have a significant role to play in the reduction of air pollutants across the whole of the NMBM district. Of course the vision is something that will probably never be achieved, but a significant improvement in air quality and protection of people against harmful air pollutants will result.

NELSON MANDELA BAY MUNICIPALITY

AIR QUALITY MANAGEMENT PLAN

INTRODUCTION

Parliament saw fit to pass the Air Quality Act (AQA), Act 39 of 2004, in 2006. This Act resulted in a paradigm shift in air pollution control in South Africa as its main aim is the protection of ambient air quality, i.e. the air that all people are exposed to on a daily basis. At the onset of the Act, in Section 2b, it is stated that the object of the Act is

“2(b) generally to give effect to section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of people.”

Its basis lies, therefore, in the Constitution of South Africa. In support of the Act the Department of Environmental Affairs and Tourism (DEAT) formulated a National Framework for Air Quality Management in the Republic of South Africa. Both the AQA and the National Framework place great emphasis on public participation in the decision-making process.

The air quality management plan (AQMP) discussed in this document is the result of an extensive public participation process that consisted of three rounds of public meetings in the NMBM district, many e-mail messages between members of the public and C&M Consulting Engineers (C&M) and many telephone discussions with various members of the public.

The public involvement in the development of the AQMP plan and its future maintenance and development is of such importance that it plays a role in two of the objectives discussed in the plan.

The AQMP was compiled after an extensive investigation into the Nelson Mandela Bay region, the findings of which were given in four progress reports by C&M. These are:

Report No. 321/09 PR.1: Baseline assessment

Report No. 321/09 PR.2: Emissions inventory

Report No. 321/09 PR.3: Control options

Report No. 321/09 PR.4: Monitoring and modelling requirements

Together these reports provide the basis on which this proposed air quality management plan is based.

BACKGROUND

A substantial degree of diversity exists in the Nelson Mandela Bay municipal area.

The weather patterns in the region are hugely influenced by the sea and low mountains resulting in diversity in rainfall, wind speeds and direction, temperature and humidity in the region.

Its flora varies from typical shrubs and grasslands of the coastal regions to forests in mountainous regions. Agriculture plays a substantial role in land use in the area, being second only to natural areas.

Its scenery varies from approximately 100 km coastline through the rural farming region around Uitenhage to low mountains.

The region boasts an extensive network of roadways that connect the city to the rest of the province and the country.

Tourism to the city and the province in general is an important economic factor and has shown a steady increase over the last decade.

Nelson Mandela Bay is the largest city in the Eastern Cape Province and is home to approximately 1 million people. Its economic activities contribute roughly 44% of the

Province's gross geographic product. It is also the home of the Coega industrial development zone.

This unique diversity must be protected from abuse and exploitation if the region is to remain a tourist hub in years to come. A key step in this protection is management of the ambient air quality as it is a basic requirement for all living species. It is of sufficient importance to be included in Section 24 of the Constitution of South Africa.

This air quality management plan (AQMP) is aimed at achieving exactly that: the protection of the ambient air quality in the NMBM district. To guide the air quality management plan the following vision and mission statement have been formulated:

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NELSON MANDELA BAY AIR QUALITY MANAGEMENT PLAN

AIR QUALITY IN THE NMBM DISTRICT

An extremely limited level of information about the quality of the ambient air in the municipal area is available due to historical reasons. It is, therefore, not possible to make any clear deduction about any potential risk that may exist in the region. Nevertheless, the Department of Environmental Affairs and Tourism (DEAT) rates the air quality in the area as “poor” as a result of the combined urban and industrial activities in the region. DEAT defines “poor” air as “ambient air quality standards regularly exceeded”.

There is also a limited amount of data available about air pollutant emissions in general, specifically from automotive and residential sources. While huge gaps exist in industrial emission data, current information shows that significant quantities of particulate matter, sulphur dioxide, nitrogen oxides, carbon monoxide and greenhouse gases (mainly carbon dioxide) are emitted by industries on an annual basis.

An introductory emission inventory has shown that some areas exist where the concentration of air pollutants may be higher than expected, but no interpretation of potential risks can be determined due to a lack of credible air quality information.

There is, therefore, a dire need to obtain relevant and representative air quality data in some locations within the municipal district before any remedial steps can be taken.

OBJECTIVES

The Nelson Mandela Bay Municipality (NMBM) will pursue the vision and mission of the AQMP through a series of objectives, each aimed at enhancing the NMBM’s role as manager of the air quality in the city.

The various objectives detailed below must be regarded as the initialisation steps in the establishment of an effective air quality management system in the municipal district. The order in which the objectives are arranged is aimed at a systematic program for implementation of the AQMP.

As the objectives are met and the AQMP unfolds, it is quite probable that other objectives will be identified and prioritised. This is a natural process and will lead to regular review of the plan. In fact, scheduled review of the AQMP is the last objective listed below.

Objective 1: Formalise air pollution control function in the NMBM

Objective 2: Compile an emissions inventory for the region

Objective 3: Define “uncontrolled” emission limits

Objective 4: Air quality and meteorological monitoring

Objective 5: Capacity building within the NMBM

Objective 6: Centre of expertise

Objective 7: Spirit of cooperation

Objective 8: Law enforcement

Objective 9: Dissemination of information

Objective 10: Air quality impacts in town and regional planning activities

Objective 11: Regional waste management strategy

Objective 12: Review of the air quality management plan

Where possible time scales have been suggested for meeting various targets in each objective. The time scales refer to “short term”, “medium term” and “long term”. A short term time scale implies 1 to 2 years. A medium time scale implies 3 to 5 years and a long term time scale implies more than 5 years.

OBJECTIVE 1

FORMALISE AIR POLLUTION CONTROL FUNCTION IN THE NMBM

The AQA and the Municipal Systems Act (MSA) both delegate powers of responsibility for air pollution related issues to municipalities, but to different levels. While the AQA delegates powers to the District Municipality, the MSA delegates responsibilities to individual municipalities within a district. While the NMBM incorporates Port Elizabeth, Uitenhage and Despatch, a single municipality manages the whole region so that power delegated under the MSA does not play a role in air quality management.

A formal air quality management activity exists in the NMBM and the following is in place:

- Official responsibility for the carrying out the various duties defined by the AQA in the region has been handed over to NMBM.

- An Air Quality Officer has been appointed by NMBM in accordance with the Air Quality Act. This officer will be responsible for the day-to-day activities defined by the Act. This officer/s will be responsible for carrying out the various activities shown in the schematic diagram above. However, the AQO will require skilled manpower to assist him in his duties and the number and skills level of the manpower can only be determined once the air quality management system has been defined.

- Officers are being trained to carry out duties as environment management inspectors (EMI) (often referred to as “green scorpions”).

NMBM is slowly building its capabilities, but the activity of air quality management is of a low key and NMBM not capable of carrying out the functions required by the Air Quality Act. The primary reason is the fact that no formal air quality management system is in place.

The goal of this objective is, therefore, the definition and formation of an effective air quality management system for the NMBM as it forms the basis on which manpower requirements, skills requirements, infrastructure requirements, etc, are founded.

A schematic diagram of a typical system is given in Figure 1 below. It was obtained from the Air Quality Management Plan compiled for the City of Cape Town.

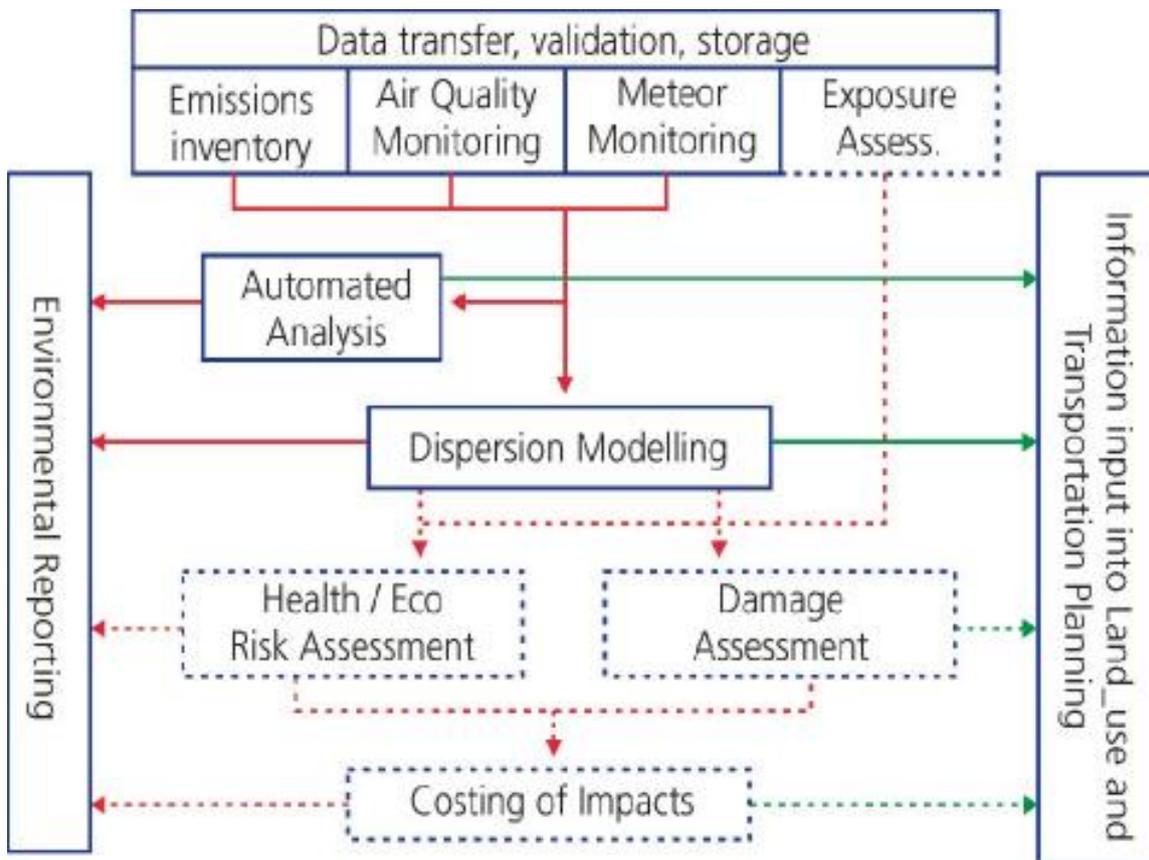
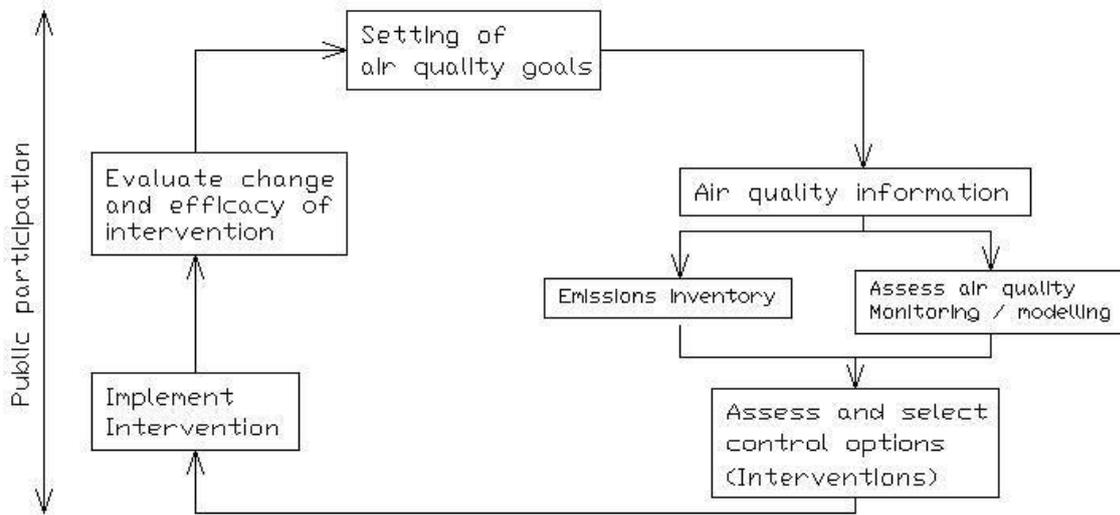


FIGURE 1: Schematic diagram of an Air Quality Management System

The Department of Environmental Affairs and Tourism (DEAT) defined a National Framework for Air Quality Management in the Republic of South Africa. In the section dealing with air quality management plans the National Framework suggests the generic air quality management process given in Figure 2 below.



Generic Air Quality Management Planning Process

FIGURE 2: Air Quality Management System suggested in the National Framework

Both processes shown above indicate that all decisions on air pollution control measures are based on the air quality in the region which is either measured directly or determined by modelling studies. Of particular note is the emphasis placed on public participation throughout the process.

As can be seen from Figures 1 and 2 an emissions inventory, air quality data, meteorological data and dispersion modelling capabilities form the corner stones of the air quality management system and are paramount in its execution. These requirements are discussed as individual objectives herewith.

The air quality management system must generate sufficient information to assess the impact on air quality of all future development plans, regardless of whether these plans are aimed at residential, industrial, land-use or road network development planning. This implies an inter-departmental approach to development planning in the region. Please see Objective 10 below.

It is possible to run a fairly comprehensive air quality management system with limited manpower, but it will require the input of specialist consultants in fields where the necessary expertise is lacking within NMBM.

This objective should, therefore, have the following targets:

- Definition of air quality management system
- Define the actions that will be handled within NMBM
- Identify suitably experienced consultants
- Define funding requirements
- Define requirements and implement air quality management system

This objective should be targeted with a degree of urgency and must be completed in the short term.

OBJECTIVE 2

COMPILE AN EMISSIONS INVENTORY FOR THE REGION

While attempts have been made to compile a preliminary emission inventory the result was severely limited by the fact that very little emission data exists. Where available, use was made of data provided by industry, but very little of this data has been verified by actual emissions measurements. Annual emission rates were subsequently calculated from the data provided by industry, but no sources of emissions were identified, e.g. fugitive emissions, stack emissions from non-combustion processes, etc.

Vehicle counts at many points in the region are available, but no useful data could be derived for motor vehicle emissions as no data on vehicle fleet composition and speeds are available. Furthermore not emissions from residential emissions could be derived and both of these sources are regarded as of major importance in the NMBM.

It is clear that a comprehensive emissions inventory is required for the whole region. Pertinent data must, therefore, be obtained through the use of questionnaires to industry, traffic counts, vehicle fleet composition, residential fuel usage, etc. In addition, industrial emission limits, where defined by DEAT, must be used to compile an extensive emissions inventory for the NMBM.

The inventory should be customised to suit the various demands defined by the air quality management system and should be GIS-based to facilitate dispersion modelling studies in the region. Due to population expansions, industrial development, traffic variations, etc., compiling the emissions database is not a finite project, but an on-going activity that must be maintained on a continuous basis.

From the emissions inventory and DEAT's emission limits, special air pollution control measures must be developed as and where necessary.

Compiling an emissions inventory is an ongoing activity. As it involves other municipal departments, e.g. traffic, housing, etc., it must be commenced with as early as is convenient in the short term.

Where industrial emissions are concerned, the power given to NMBM under the AQA must be used to refine to emissions inventory. The preferred step is to use plant operating data and emission limits as be set by NMBM during issuing of AELs to calculate annual emission rates.

OBJECTIVE 3

DEFINE EMISSION LIMITS FOR “UNCONTROLLED” SOURCES

A number of small emission sources are in operation in the NMBM region and specific emission limits for these industries have not been set by DEAT yet and can, therefore, be regarded as uncontrolled sources. These include, but are not limited to:

- Small boilers, i.e. smaller than 50 MW
- Drum reconditioning

The aim of this objective is twofold:

Firstly, the number and types of uncontrolled point sources must be identified and grouped according to activity. The types of emissions expected from the various sources must be identified and ranked in order of potential health risk.

Secondly, typical emission heights, mass emission rates, etc., must be determined from identified emission groups. Using their extensive dispersion modelling capabilities, NMBM must assess the maximum allowable emissions of the various pollutants so that ground-level concentrations of the pollutants pose no risk to human health in the vicinity of the sources.

The assessed emission limits must be compared with internationally accepted limits for similar industries and, if found comparable, be published in by-laws as local emission limits.

It must be borne in mind that the Air Quality Act makes provision for municipalities to set their own emission limits. The procedure described briefly above will provide a scientific approach to setting emission limits for uncontrolled sources.

This objective should be addressed in the short term.

OBJECTIVE 4

AIR QUALITY AND METEOROLOGICAL MONITORING

Reliable ambient air quality data is one of the corner stones of the air quality management system. The draft report dealing with Modelling and Monitoring Requirements (Report No. 321/09 PR.4: Monitoring and modelling requirements) took cognisance of the fact that NMBM is in the process of procuring six ambient air quality monitoring stations over the next 2 to 3 years.

The report recommends that some of these stations should be custom designed for specific monitoring purposes, e.g. residential emissions, motor vehicle emissions, etc.

The report also calls for dedicated meteorological monitoring in Uitenhage and Despatch so that sufficient data can be accumulated for dispersion modelling activities in these regions.

At the time of compilation of this draft AQMP NMBM has procured 2 AQM stations with the plan to locate one in the Uitenhage vicinity. This station will, therefore, also serve as meteorological monitoring site so that one requirement will be met.

Nevertheless NMBM should plan ahead and define an AQM strategy so that future AQM stations are specified and procured to meet an effective AQM strategy.

As the procurement of the AQM stations is in process definition of the strategy must be dealt with in the short term so that optimal application of available funds is achieved.

OBJECTIVE 5

CAPACITY BUILDING WITHIN NMBM

Except for only a few instances, municipal officials do not have the necessary skills level to deal with the variety and complexity of modern air pollution monitoring, modelling and control functions. In addition, officials are loaded with additional responsibilities, e.g. noise control, that consume much of their available time. As a result insufficient attention is being paid to air pollution control duties.

An accelerated training program must be established so that the officials can gain the level of expertise demanded by their functions. This will enable them to exercise their duties with more effectiveness, resulting in an improved level of air quality management across the NMBM.

As and when required, NMBM may appoint specialist consultants to assist the air quality officers to solve special problems that may arise. In this process the air quality officers will gain valuable expertise from the consultants and build up a substantial level of expertise over time.

Such a development will be beneficial to everybody concerned. The members of the public will be assured that the officials can operate effectively while members of industry will have access to a source of expertise that can provide pertinent and reliable input into air pollution control actions.

This objective should, therefore, have the following targets:

- | | | |
|----|--|------------|
| -- | Definition of accelerated training program | Short term |
| -- | Allocate officials to training program | As needed |

OBJECTIVE 6

CENTRE OF EXPERTISE

The Nelson Mandela Bay Municipality is surrounded by district municipalities that may need specialist advice on a diversity of air pollution issues that may arise from time-to-time. In some areas the problems may be more frequent than in others, but not of a scale that would warrant a dedicated air quality officer appointed by a specific district municipality.

The NMBM's air quality management department can serve as centre of expertise that will be accessible by all district municipalities in the region and can provide professional assistance to those district municipalities based on service-level agreements between NMBM and the district municipalities.

Such a service will be of great assistance not only to neighbouring district municipalities, but also to the provincial government of the Eastern Cape. Bearing in mind that air pollution knows no boundaries, assistance in controlling air pollutant emissions from neighbouring district municipalities will add to the management of air quality within the NMBM area of governance.

This centre of expertise will naturally reside with the NMBM's air quality officer/s. The establishment of the centre of expertise goes hand-in-hand with training and capacity building of NMBM officials. The time scale for this activity is, therefore, medium term.

OBJECTIVE 7

SPIRIT OF CO-OPERATION

The NMBM's air quality management department should try its utmost to create a spirit of co-operation between itself, members of the public and industry as such a spirit will provide the shortest route to effective air quality management in the region. Examples of steps that can be followed are:

- Frequent discussion forums
- Regular dissemination of information through the media (press, radio, etc.)
- Provision of an air quality hot-line for registering of complaints and concerns

Free and open discussion of all matters relating to air quality will give all interested and affected parties an opportunity to openly communicate their concerns in addition to being informed of the difficulties experienced by others.

Meeting this objective is of the utmost importance and must be pursued with vigour right from the onset.

OBJECTIVE 8

LAW ENFORCEMENT

The Air Quality Act charges the Municipality with the responsibility to issue atmospheric emission licences to industries listed in the Act and to enforce emission limits set on those industries by DEAT. These powers will be used to define emission verification measures that industry will have to employ to prove that their emissions comply with limitations set by DEAT and/or NMBM. It will also be used to define any specific air quality monitoring activities that a particular industry must embark on to show that its emissions do not result in an exceedance of ambient air quality limits or cause a nuisance to its neighbours.

DEAT is in the final stages of compiling an “emissions calculator” that will be used to determine a fee structure for the licensing process. The eventual fee structure will be developed by the relevant departments involved in the activity.

In addition, DEAT has compiled a set of generic municipal by-laws to aid local authorities in the process of formulating their own set of by-laws. DEAT’s set of by-laws is not meant to be definitive, but rather as a tool to be customised and expanded by local authorities. Modifying the generic set of by-laws to meet NMBM’s requirements will ensure effective implementation of the AQMP.

According to the Air Quality Act the AQMP must be incorporated into the region’s integrated development plans (IDP), thus becoming an enforceable entity.

The emissions inventory and emission limits defined by DEAT will indicate which industries exceed their limits. Furthermore, the ambient air quality monitoring stations and regional dispersion model will indicate if ambient air quality limits are exceeded, or in danger of being exceeded. Should this occur NMNM will exercise its powers under the Air Quality Act and set emission limits and air quality standards that are stricter than those imposed by DEAT.

In keeping with the principle of “polluter pays”, a penalty structure must be defined in consultation with DEAT and the Courts. This will not only cover industrial emissions, but all other illegal activity, e.g. open burning activities, etc.

In addition, NMBM should establish a diesel vehicle exhaust emission measuring facility that should be used to determine if diesel powered vehicle exceed emission limits set by the DEAT and the Department of Minerals and Energy. A suitable fines structure will be developed for application in this regard.

This objective should, therefore, have the following targets:

- | | |
|--|----------------------|
| -- Definition of licence fee structure: | Short term |
| -- Inclusion of AQM in municipal IDPs: | Short term |
| -- Definition of penalty structure: | Short to medium term |
| -- Establishment of diesel exhaust measuring facility: | Medium term |

OBJECTIVE 9

DISSEMINATION OF INFORMATION

The ambient air quality and meteorological monitoring stations discussed in Object 3 above are automated systems capable of recording air quality and meteorological parameters on a continuous basis. Automated stations lend themselves to automated data validation and reporting functions, including publication of summarised results.

A web site should be set up on the internet and linked to NMBM's web site so that summarised data can be reported on the web site as a continuous activity. The activity should be automated and the web site updated automatically so that all members of the public will be able to access the data and gain first-hand information about the air quality and prevailing meteorological parameters.

A sophisticated, automated data management system is incorporated as part of the two new AQM stations procured by NMBM. This system should be used to set up the internet-based data dissemination activity in conjunction with the IT management department of NMBM.

The availability of these tools imply that this Objective can be met in the short term.

OBJECTIVE 10

AIR QUALITY IMPACTS IN TOWN AND REGIONAL PLANNING ACTIVITIES

According to the Air Quality Act the AQMP must be included in the NMBM's Integrated Development Plan and it will, therefore, play a role in all future development activities in the region.

Therefore, the centre of expertise, as discussed under Objective 7 above, will provide an input into land-use and transport planning activities, not only within the NMBM, but in surrounding district as well.

The aim is to ensure that the relevant authorities, policies, strategies and plans take into account the potential impact of land use and transport planning on air quality. This implies that inter-departmental communication channels must be set up to facilitate proper planning activities.

Air quality impacts extend much further than the NMBM boundary. South Africa has ratified several multilateral environmental agreements, notably on greenhouse gases and cognisance must be taken of the NMBM region's contribution to those pollutant groups.

The formalisation of air quality impacts in all aspects of town and regional planning must receive high priority and must, therefore, be addressed in the short term.

OBJECTIVE 11

REGIONAL WASTE DISPOSAL STRATEGY

The Air Quality Act does not only apply to the private sector only, but also to all governmental activities. As such it is applicable to air pollution generated by, inter alia, activities carried out by town councils, district municipalities and provincial government activities.

As the NMBM and the surrounding district municipalities in the region cannot be players and referees at the same time, a concerted effort must be undertaken to ensure that municipal activities comply with all air quality limits imposed by DEAT, including all diesel vehicle exhaust emissions.

A large risk to human health is posed by medical waste generated at hospitals and clinics in the NMBM region and surrounding district municipalities. Currently this medical waste is removed by a contractor and transported to other provinces, e.g. Western Cape and Gauteng, with no clear guarantee of the eventual successful disposal of the waste. From time to time news broadcasts indicate that this waste may be dumped indiscriminately by unscrupulous contractors, thus forming a huge potential health risk to humans.

As a result it is suggested the regional medical waste management strategy is formed to meet modern medical waste handling and disposal practice. One option that should be considered is the establishment of a regional medical waste incineration facility, owned and operated by NMBM. This incineration facility will ensure safe and effective destruction of medical waste generated by the various medical services in the region. The costs for establishing and operating such a facility can be recovered by charging appropriate disposal costs for the service.

While this may not seem as an activity directly related to air quality management, it is only a matter of time before the establishment of such an incinerator becomes essential as waste management practices improve over time.

The destruction of medical waste by means of incineration is a controlled activity in terms of the Air Quality Act and the resulting emissions must, therefore, be controlled. By setting up and operating such a service “in-house” the NMBM can ensure the following:

- The incinerator is designed and constructed properly
- It is operated effectively and within design specifications
- The emissions are controlled to comply with legislation

It is no secret that the emissions from poorly designed and operated medical waste incinerators pose serious health risks to humans exposed to such emissions.

A further future option that can be considered is the establishment of a regional municipal waste incinerator, but only when available landfill options become limited. While it is accepted that such an incinerator will contribute to the release of carbon dioxide, a greenhouse gas, cognisance must be taken of the fact that landfill sites generate huge quantities of methane gas. This implies not only a huge waste of energy (methane is easily combustible), but uncontrolled release of a gas which is of significantly greater danger to global warming than the carbon dioxide.

A municipal waste incineration facility will have some advantages:

- The waste can be separated to provide streams that can be recycled, e.g. glass, paper, metals, etc., thus minimising the waste that must be incinerated
- The separation of waste is a labour-intensive activity, implying that jobs will be created
- The energy resulting from the incineration of the waste can be used to generate electricity, thus reducing the NMBM’s dependence on purchased electricity

- The need for a suitable landfill site is reduced to the handling of ash only, i.e. a significant decrease in the quantity of waste that must be dealt with.

Meeting this objective is an on-going activity with medium to long term time scale implications.

OBJECTIVE 12

REVIEW OF THE AQMP

This AQMP is only a plan according to which the NMBM will address air quality management in the region district. It will not, however, function in an ideal world where all forecasts and expectations meet the initial goals.

The AQMP will operate in an ever-changing environment as infrastructure, legislation, industrial development, tourism trends, etc., vary over time. As a result the plan must be adapted to meet the ever-changing air quality management requirements.

The objectives stated above are aimed at the initial setup and commencement of air quality management actions in the NMBM. Some can be met quite rapidly while others will take some time to be completed. It is also conceivable that meeting one objective may lead to the formulation of another.

In addition, the Eastern Cape Provincial Government will compile a Provincial regional development framework in due course as well as a draft provincial policy on climate change. Both of these processes may influence the way that air quality is managed in NMBM and surrounding areas and must be taken into account in future reviews of the AQMP.

This AQMP should, therefore, be reviewed initially on an annual basis as the NMBM finds its feet in air quality management. Once the function is operating smoothly the review period will be extended, but that decision should be taken when deemed appropriate by the NMBM City Council.

THE WAY FORWARD

Meeting the objectives described above is not a one-man task. From the discussions of the various objectives it will be seen that an enormous amount of work is involved. Maintaining an emissions inventory is a time consuming task. Ambient air quality monitoring stations require close supervision if reliable data is to be generated. Comprehensive dispersion modelling activities absorb time. Law enforcement, dissemination of information, providing input in town and regional planning activities are all manual activities and consume time.

While the Air Quality Act states that the NMBM must appoint an air quality officer, and this has been done already, it is clear that this officer and his department will require a substantial support base if they are to carry out the responsibilities of their positions effectively.

It is recommended, therefore, that a relatively small task team consisting of representatives of the NMBM, the Provincial government and, where necessary, suitable consultants, is formed.

This task team will form the core of the development work that is required to set up a functional air quality management activity and execute its duties effectively and responsibly.

CONCLUSION

The contents of the AQMP and supporting information as described in the Introduction have been tested against the general requirements for AQMPs as described in the AQA and National Framework and found to comply with both official documents. Pursuing the objectives defined in the AQMP will, therefore, result in an air quality management that meets the requirements of Government and the public in general.