



# **AIR QUALITY MANAGEMENT STRATEGIC PLAN**

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***COUNCIL RESOLUTION A04/06/15***

## **AIR QUALITY MANAGEMENT STRATEGIC PLAN FOR UTHUKELA DISTRICT MUNICIPALITY**

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## **1. INTRODUCTION**

Healthy atmosphere supports a healthy population, healthy animals and a healthy environment. uThukela District Municipality is committed to playing its important role in addressing air pollution challenges in the district, utilizing multisectoral approach through interacting with key stakeholders in matters relating to air quality management in the district.

## **2. LEGISLATIVE MANDATE**

The Constitution of South Africa Act No.108 of 1996 (Section 24) states that, every person has a right to an environment that is not harmful to their health or wellbeing.

The National Environment Management Air Quality Act no. 39 of 2004 (Section 15) states that, each municipality must include in its integrated development plan, contemplated in Chapter 5 of the Municipal Systems Act, an air quality management plan.

## **3. GOAL**

The main goal for the development of the district air quality management plan is to minimize atmospheric pollutants and to work co-operatively and support other regulatory authorities, interested and affected parties in implementing strategies to reduce emissions thereby making a positive contribution towards the prevention of global warming phenomenon.

## **4. OBJECTIVES OF THE AQMP**

- Develop emission inventory in order to identify all sources of air pollution in the district.
- Assist identified air pollution emitters to develop and implement reduction strategies and measures to achieve air quality management goal.
- Minimize the negative impacts of air pollution on health and the environment.

## **5. EMISSION INVENTORY (BASELINE ASSESSMENT)**

UThukela District consists of 5 Local Municipalities namely, Emnambithi/Ladysmith, Indaka, Umtshezi, Imbabazane and Okhahlamba. The district is predominantly rural in nature with only two local municipalities having some form of industrial economic development namely, Emnambithi/Ladysmith and Umtshezi. There are four large industries in Umtshezi municipality namely, Nestle SA, Masonite Africa Limited, Eskort Limited and Clover Estcourt. There are two major industries situated in Emnambithi/Ladysmith municipality namely, Dunlop Tyres and Lasher Tools. Other light to medium size industries are situated at Pieters industrial area and are of minor significance as contributors to air pollution in the district.

**Table 1: Priority pollutants with associated health effects**

Pollutant	Characteristics
Sulphur Dioxide (SO <sub>2</sub> )	Colourless gas with a pungent odour. Ambient SO <sub>2</sub> results largely from sources such as coal and oil combustion, steel mills, refineries, pulp and paper mills and from nonferrous smelters. Sulphur dioxide can cause temporary breathing difficulties for people with asthma. It can also react with other chemicals to form sulphate particles that could be a cause of reduced visibility in many parts of the province. It is the main contributor to acid deposition.
Oxides of Nitrogen (NO <sub>x</sub> )	Oxides of nitrogen are believed to aggravate asthmatic conditions. It reacts with other pollutants to form nitrate particles that are a significant contributor to visibility reduction in many parts of the province. It is a contributor to acid deposition. The primary sources of NO <sub>x</sub> are motor vehicles and other industrial, commercial, and residential areas that burn fuels.
Volatile Organic Compounds (VOC)	The health effects depend on the specific composition of the Volatile Organic Compounds present, the concentration and the length of exposure. High concentrations of some compounds which may occur when working with materials or processes that emit VOCs could have serious health effects. These should be considered under the effects of the specific component. General effects of lower concentrations include eye, nose, and throat irritation; headaches, loss of coordination, nausea; damage to liver, kidney, and central nervous system. Industrial processes involving solvents, paints or the use of chemicals are major sources.
Particulate Matter (PM <sub>10</sub> )	Particulate matter is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulphates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particulate matter can come from tyre burning, fireplaces and cars driving on unpaved roads as well as the smoke from large industrial plants.
Carbon Monoxide (CO)	Carbon monoxide is an odorless, colorless gas produced by fuel combustion, particularly mobile sources. It may cause chest pain and aggravate cardiovascular diseases, affect mental alertness and vision in healthy individuals.

**Table 2 South African Standards** (Source: [www.environment/vaal/](http://www.environment.vaal/))

Pollutant	Averaging Period	Limit Value ( $\mu\text{g}/\text{m}^3$ )	Limit Value (ppb)
Sulphur dioxide $\text{SO}_2$	10-minute running average	500	191
	24-hour	125	48
	Annual average	50	19
Nitrogen dioxide $\text{NO}_2$	1-hour	200	106
	Annual average	40	21
Carbon monoxide $\text{CO}$	1-hour	30 000	26 000
	8-hourly running average	10 000	8 700
Particulate Matter $\text{PM}_{10}$	24-hour	75	-
	Annual average	40	-
Lead $\text{Pb}$	Annual average	0.5	-
Benzene $\text{C}_6\text{H}_6$	Annual average	5	1.6

Pollutant	Mass (tpa)	Percentage (%)
CO	35117.08	71%
VOC	6501.20	13%
NOX	5045.97	10%
PM10	1652.62	3%
SO2	1296.43	3%
LEAD	0.00	0%

**Pollutants contributing to atmospheric pollution (Unit measure tons per annum)**

	<b>Co</b>	<b>So2</b>	<b>Nox</b>	<b>PM</b>	<b>VOCs</b>
Pollutants from point source and area emissions	973.26	1029.42	358.05	655.66	105.24

Pollutants from mobile source	34143.82	750.1	4864.81	996.96	6395.96
<b>Total Emissions</b>	<b>35117.08</b>	<b>1779.43</b>	<b>5222.86</b>	<b>1652.62</b>	<b>6501.20</b>

Source: KZN Baseline Emissions Inventory Report 2007 compiled by Zanokuhle Environmental Services  
On behalf of DEA.

**6. PRIORITY SOURCES**

- Industries
- Vehicles
- Landfill Site Operations
- Waste Water Treatment Works
- Veld fire Burning
- Domestic Fuel Burning

**7. AIR QUALITY MANAGEMENT SYSTEM**

An integrated air quality management system which comprises components such as emission inventory, air quality monitoring and atmospheric dispersion modelling, form the basis of effective air pollution control and air quality management.

**8. EMISSION REDUCTION STRATEGIES****a) Industrial Sources**

- All industries identified as major contributors to air pollution to apply for atmospheric emission licence.
- Industries identified to be major contributors to air pollution to be requested to develop and implement institutional air quality management plans.
- Air quality monitoring readings to be taken on a regular basis within and outside the industrial premises.
- District Air Quality Officer to hold meetings with management of industries on a regular basis regarding the strategies to reduce emissions to the atmosphere.

**b) Vehicles**

- District Air Quality Officer to work together with Traffic Control Departments to reduce the number of smoking vehicles on the roads.
- District Air Quality Officer together with the relevant stakeholders to organize and conduct air pollution prevention awareness education to motorists.

**c) Landfill Site Operators**

- Landfill Site Monitoring Committee to be established to exercise an oversight role in landfill site operations.
- All landfill sites used in the district to be licensed by the Department of Environmental Affairs in line with the provisions of National Environmental Management Act and Environment Conservation Management Act.
- All landfill sites to be operated according to the requirements of the Waste Management Act.

#### **d) Waste Water Treatment Operations**

- All waste water treatment works to be registered with the Department of Water and Sanitation and to comply with Department of Water and Sanitation Waste Water quality standards.
- Monitor ambient air quality within and outside waste water treatment works on a regular basis.
- All waste water treatment systems to be operated and managed according to the requirements of the Department of Water and Sanitation Green Drop requirements.

#### **e) Veld fire Burning**

- District Air Quality Officer to work jointly with Working for Fire Association to plan and implement veld fire burning control measures
- The district municipality to develop Environmental Pollution Control By-laws that include measures relating to the control of veld fire burning.

#### **f) Domestic Fuel Burning**

- Educate households on refining combustion such as top-down ignition method (Basa njengoGogo).
- Discourage households from using environmentally unfriendly sources of fuel such as coal.

### **9. CAPACITY BUILDING**

- Training programme for Environmental Health Practitioners involved in air quality management to be developed and implemented in order to enhance their skills in air quality management.
- Appropriate air quality monitoring tools to be acquired and periodically calibrated and used in air quality monitoring.

### **10. CO-OPERATIVE GOVERNANCE APPROACH**

The noble goal of minimizing atmospheric emissions so as to enhance the climate change protection initiatives will not be achieved unless all role-players and stakeholders put the shoulder to the wheel. In particular the co-operation from Department of Environmental Affairs, Department of Water and Sanitation, Local Municipalities, Local Industrialists, Motorists and the community of uThukela District at large, is critical in the successful implementation of uThukela District Air Quality Management Plan. To this end uThukela District Municipality will establish uThukela District Environmental Management Forum as a structure that will be responsible for air quality management issues in the district.

### **11. AIR QUALITY MANAGEMENT PLAN REVIEW**

The implementation of the plan will be monitored, reviewed and updated annually in order to improve its effectiveness in the management of air quality in uThukela District. The evaluation of the effectiveness of this strategic plan will be done after five years.