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Introduction of local Air Quality Management in South Africa: overview and challenges

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ABSTRACT

Air pollution control in South Africa has undergone a shift from the best practicable means to an Air Quality Management approach. Previous legislation was out-dated and did not achieve acceptable air quality. Further, policy and legislative developments necessitated a change, in accordance with overarching environmental legislation. The National Environment Management: Air Quality Act (AQA) heralded a new era, introducing international best practice, including the devolution of responsibility to local government and effects-based management.

However, South African municipalities, as the incumbent local authorities, face several challenges in implementing AQA. Pollution control falls within the context of competing priorities for basic service provision and economic development in local government. Further challenges include the lack of political will, consultation and communication, the limited use of planning tools, and a non-strategic approach to Air Quality Management. The publication of a strategy document, the National Framework for Air Quality, provides guidance to all levels of government on implementation. Other developments include the publication of national ambient air quality standards, and listed activities and emission standards, development of an Air Quality Management Planning manual, and processes to issue atmospheric emission licenses. Several recommendations are included to address these challenges.

1. Introduction

Urban industrial pollution and general air quality issues characterised the state of air quality in South Africa in the period from 1960 to the late 1990s. Areas of concentrated industrial activity were identified as 'hotspots' of air pollution, and a growing body of epidemiological and anecdotal evidence supported this observation (UNEP/WHO, 1996). The Vaal Triangle and South Durban are two examples of identified air pollution 'hotspots' (DEAT, 2009; Gaustella and Knudsen, 2007). South Africa's unique history has also resulted in a control scenario where both developed and developing country issues contribute to air pollution. Industrial activities and private vehicle use are juxtaposed against domestic fuel burning and polluting agricultural practices, creating complexity in the development of controls. The Atmospheric Pollution Prevention Act (APPA) was regarded as an inadequate legislative measure to deal effectively with air pollution, and widely held as having caused the development of 'hotspots' (Barnard, 1999; UNEP/WHO, 1996). With the introduction of democratic rule in South Africa, policy and legislative changes were sweeping, incorporating best practice and international norms, and the approach to environmental management was also updated.

As a result of the fundamental policy changes, it became necessary to update air pollution control to incorporate the

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Fig. 1 – Timeline showing the progressive development of air quality legislation and related documents, leading up to the promulgation of the AQA and implementation of AQM. NB: Legislation is listed in bold, policy in regular font. The Air Quality Act was published in 2004 and brought into effect in 2005.

principles contained in broader policy, such as the South African Constitution. The National Environmental Management: Air Quality Act (AQA) was promulgated in 2005 as the updated approach to air pollution control, introducing air quality management (AQM) as the control strategy (Fig. 1). AQA introduced measures not previously legislated in pollution control, such as ambient air quality standards. A significant aspect is the devolution of responsibility to local authorities for aspects of air pollution control. Whereas under APPA, local authorities had limited powers and functions, AQA has acknowledged local government as the most appropriate government level to implement the majority of control measures. This regulatory shift echoes a similar transition in the United Kingdom from the 'best practicable means' approach to the use of ambient air quality standards in AQM, with AQM being the approach of choice in the United States and New Zealand as well (Longhurst et al., 2009). AQM at the local level is deemed appropriate to deal with localised air quality issues and provide holistic, proactive management, with accompanying strategic direction from national government (Longhurst et al., 2009).

Government in South Africa is structured as three autonomous spheres, with national, provincial and local government having exclusive areas of responsibility and legal independence in the operations within their jurisdiction (Fig. 2). Local government is further distinguished into

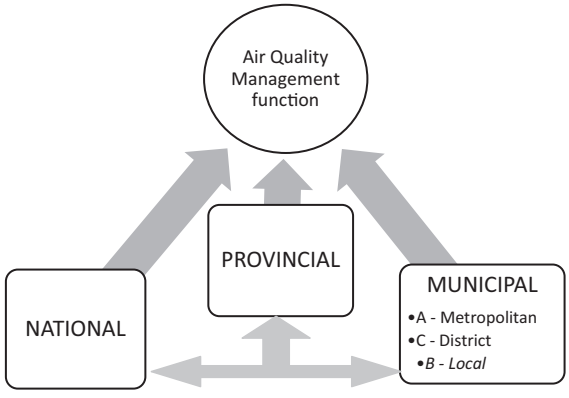

Fig. 2 – Structure of government in South Africa, showing the three different spheres, the inter-relationships, and their combined contribution to successful AQM.

category A, B and C municipalities, which correspond to metropolitan, local and district municipalities respectively (Republic of South Africa, 1998a). Metropolitan municipalities have large populations and urban settlements, of which South Africa has seven, corresponding to the major cities. District municipalities are composed of local municipalities, and are the areas that are not classified as metropolitan areas. The spheres of government work cooperatively to provide services and deliver government mandates, including air pollution control. National and provincial authorities have input and oversight responsibilities over the activities of local authorities (Republic of South Africa, 2007a). Strategic direction and guidance is provided from these higher-level authorities.

2. Previous legislative context

APPA was the original approach to air pollution control in South Africa, passed in 1965, to address primarily industrial sources, with limited influence over noise, dust and vehicle emission control. Emission standards, as part of the 'best practicable means' approach to pollution control, were employed with little success (Scott et al., 2005). APPA allowed for the possible appointment of a Chief Air Pollution Control Officer, with responsibilities of liaising with industries and determining the suitability of best practice standards set by industries (Barnard, 1999; Scott et al., 2005). Industrial control was implemented according to the list of 'Scheduled Processes' regarding the production of noxious and offensive gases. Emitters in this category were required to obtain registration certificates stating the conditions of operation, and were regulated by national government.

Smoke control was applied particularly to fuel-burning appliances, dust-related controls to mining and industrial activities, and vehicle control targeted malfunctioning engines (Barnard, 1999). APPA had strongly source-based controls, and air quality guidelines were in place for stack emissions of certain common pollutants (UNEP/WHO, 1996). APPA used a system of notices and fines as penalties; in extreme cases of Scheduled Process violations, operation cessation could be requested.

Several criticisms have been levelled at APPA, including the out-dated approach used and the lack of proactive management of air pollution to secure desirable environmental quality