Southern Africa

Actions taken by governments to improve air quality

1.0 Introduction

In June 2014 the United Nations Environment Assembly (UNEA) adopted resolution 1/7 *Strengthening the Role of the United Nations Environment Programme in Promoting Air Quality*. As requested in paragraph 4 and 7 of the resolution, which requested UNEP to develop a report detailing actions taken by governments to promote air quality, this report details some of the major actions being undertaken by governments in Southern Africa to improve air quality.

This report summarises ten actions being undertaken in the sub-region to improve air quality. In selecting these ten actions, consideration was given to their replicability, global appropriateness to address particular air pollution challenges and potential impact. For more details, please refer to the methodology document.

These actions are: *For Industrial activities:* 1) establishing incentives that promote investments in renewable energy, pollution control technologies, energy efficiency and clean production mechanism; and 2) increasing industrial energy efficiency. *For road transport:* 3) reducing sulphur content in diesel and petrol; 4) tightening vehicle emission standards to at least Euro 4/IV-equivalent; and 5) increasing investments in public and non-motorized transport infrastructure and systems. *For open waste burning:* 6) reducing open burning of both agricultural and municipal waste through provision of legislation, monitoring, enforcement and municipal waste management systems. *For Indoor air pollution:* 7) improving access to cleaner cooking and heating fuels; and 8) improving access to cleaner, more efficient cook/space heating stoves. *For general legislative efforts:* 9) establishing and continuously tightening ambient air quality standards to meet WHO recommendations; and 10) establishing laws and regulations to support efforts to meet ambient air quality standards, and strengthen monitoring and enforcement. Figure 1 provides a summary of these actions for the sub-region.



SOUTHERN AFRICA POLICIES AND ACTIONS TO IMPROVE AIR QUALITY

Figure 1: A summary of actions, programmes, policies, laws and regulations undertaken by governments in the sub-region to improve air quality (green = progressing to best practice; red = action still required).

2.0 Regional Overview

The Southern Africa sub-region includes Angola, Botswana, Lesotho, Madagascar, Mauritius, Malawi, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Zambia and Zimbabwe. Governments in the sub-region have enacted laws and regulations on air pollution which are at different stages of implementation. At least one out of the thirteen countries in the sub-region has a comprehensive ambient air quality standard with accompanying air quality laws and regulations. Although much has been done to improve air quality in this sub-region, it still remains an issue of concern: WHO estimates that it causes approximately 97,000 premature deaths annually, with most of those resulting from indoor air pollution exposure.

Use of poor quality fuels to meet household energy demand is the most important driver of deteriorating air quality, and it is responsible for around 95% of all premature deaths linked to air pollution in the sub-region. Even though poor quality cooking and heating fuels are responsible for indoor air pollution, they are also a considerable contributor to outdoor air pollution. Therefore to effectively manage air quality in the sub-region, governments and their partners have to enact policies and regulations that promote access to clean energy for both rural and urban households. In the past, governments in this sub-region have initiated programmes that were aimed at increasing access to clean burning fuels. However, only three countries in the sub-region have an electrification rate and non-solid fuels access rate greater than 75%.

Emissions from other sectors such as transport and industry are also significant especially in urban areas and major mining and mine processing zones. The current contribution of vehicular and industrial emissions to the overall air quality in countries within the subregion is marginal compared to indoor air pollution. However, due to the projected rate of economic and population growth, transport will become more important in the foreseeable future, as more people will be able to afford vehicles. These countries therefore have an opportunity to minimise the impact on air quality from the projected growth in vehicle numbers. This can be achieved by increasing investment to expand public and non-motorised transport infrastructure and systems, and by enacting laws that will ensure vehicles (both new and second hand) being imported into the sub-region have at least Euro 4/IV emission standards and fuel is low sulphur. Major industrial facilities that alter air quality in the sub-region are mining and energy production. Power production is particularly important as most of the power generated in the sub-region is derived from coal combustion. Although nine out of the thirteen countries produce more than 30% of their electricity from renewable sources, industrial energy efficiency¹ in the sub-region is low with four countries having a GDP per unit of energy use above nine. This indicates that older, less efficient technology is still in use in industrial production.

Open burning of waste is also a major source of air pollution. Open burning of both agricultural and municipal wastes occurs in eleven out of the thirteen countries, while in the other two countries at least one form of waste (agricultural or municipal) is burnt in open fires.

Progress has been made in different areas in different countries, and there are several positive case studies to be found across the sub-region. There are however specific areas in each country that can be improved, while standards need to established and continuously tightened, public transport expanded, the use of best practice increased etc. In addition, for policies and legislation to lower air pollution, countries must also improve implementation and enforcement, without which actions to improve air quality will not achieve their potential impact.

3.0 Actions Taken to Improve Air Quality

3.1 National air quality standards & regulations

Five out of thirteen countries in Southern Africa have Ambient Air Quality Standards (AAQS): Mauritius, Malawi, Mozambique, South Africa and Swaziland. At least three countries – Botswana, South Africa and Zimbabwe – have a nationwide Law or Act specifically for air pollution control. Figure 2 below shows the number of countries in the sub-region that have established laws and regulations on air quality management. In most of the countries, air pollution is regulated under the larger framework of environmental protective laws.

¹ Estimated as GDP per unit of energy use at constant 2011 purchase Power Parity (PPP) \$ per kg of oil equivalent



Figure 2: Number of countries in the sub-region that have enacted national air quality laws and regulations, and the number of countries that have enacted and promulgated Ambient Air Quality Standards (AAQS).

South Africa has a comprehensive system of air quality laws, regulations and standards. The Air Quality Act (Act 39 of 2004) includes: a national air quality framework; the establishment of national, provincial and local ambient air quality and emission standards; declaration and management of priority areas for areas where air quality is of particular concern; listed activities that require an atmospheric emissions license; listing of controlled emitters and controlled fuels; and a range of new criminal offences. A 2010 amendment to the Act established a list of emission sources to be regulated, and the minimum emission standards for each of these emission sources. However, air pollution, especially in the coal mining regions and urban centres, is still significant.

Although Botswana and Zimbabwe have specific air quality laws/regulations, these laws/regulations are not supported by a comprehensive ambient air quality standard. In Botswana for example air pollution is regulated under the Atmospheric Pollution Prevention Act. Under this Act, the contribution of individual emission sources to the overall air quality within its locality is not considered. However, individual operating permits may have provisions regarding air emissions or effluents, but not as part of a regional air quality management plan. The same case also applies in Zimbabwe, where air pollution is regulated under the Environmental Management Act of 2002 and the Atmospheric Pollution Prevention Act of 1971, with no nationwide AAQS.

3.2 Transport

Vehicle ownership for the sub-region is expected to increase considerably in the coming years. Given the increasing congestion experienced in many urban areas, maintaining and increasing the modal share of public transport is essential to increasing mobility while decreasing transport emissions. Actions and policies being implemented in the sub-region to reduce vehicular emission include the expansion of public and non-motorised transport infrastructure and systems.

Some of the initiatives being undertaken in the sub-region to improve public transport include investments in Bus Rapid Transit (BRT) system and light rail systems (Figure 3). Several urban areas in South Africa have or are in the process of developing bus rapid transit systems, and investments have been made in intercity train services.

In addition, renewal of buses has been prioritised by Mauritius, where the regulatory body for vehicle registration and licensing (National Transport Authority) has a yearly bus replacement programme. Public transport buses will have their license revoked on reaching 16 years of age, and be replaced by a semi-low floor bus using Euro II emission standards. To further encourage the renewal of the bus fleet, the government provides grants and subsidies. Bus operators are also exempted from the Value Added Tax (VAT).

Expanding non-motorised transport infrastructure is also a key action that can greatly limit emissions from the transport sector. Several cities are making investments in non-motorised transport. The City of Johannesburg for instance is constructing two cycle lanes as a pilot in promoting walking and cycling.



Figure 3: Number of countries in the sub-region that have initiated programmes and initiatives to significantly expand public transport.

Other actions being implemented in the sub-region to mitigate against emissions from the transport sector include the establishment of vehicle emission standards (Figure 4). In the sub-region, none of the countries has a Euro 4 (or equivalent) vehicle emission standard, and only three out of thirteen countries - Mauritius, Seychelles and South Africa - have any vehicle emission standards. However, some of the countries are in the process of developing vehicle emission standards. For instance, Zimbabwe has a draft vehicle emission standard.



Figure 4: Number of countries in the sub-region that regulate vehicle emission at Euro 4 (or equivalent) standards.

Fuels and vehicles work as a system; in order to benefit from improved vehicle standards, low sulphur fuels are needed as these allow the advanced pollution control devices to work optimally. Another action necessary to minimize vehicular emissions is the establishment of low sulphur fuel standards. In the sub-region, only Mauritius has a national low sulphur fuel standard at 50ppm. Seven other countries in the sub-region have a sulphur standard set at a maximum of 500ppm (Figure 5).

Although Mauritius has the best fuel standard in the sub-region, its vehicle emission standard is at Euro 1, which means that it cannot fully reap the benefits of the available clean fuels with outdated vehicle emission control technology. The country is also implementing a national fuel economy project, which aims at improving the average vehicle fuel economy. As part of this initiative, the number of hybrid cars in the country doubled annually between 2010 and 2013. South Africa has also made some efforts towards limiting vehicle emissions under the Energy Efficient Motors Program, which issues direct subsidies to the purchase of new buses.



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