

Clear the Air

Embracing tools for healthy communities

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Air pollution in South Africa is a major environmental health threat, particularly in urban and peri-urban metropolitan areas, but also in low income settlements where indoor air pollution from domestic fuel use is of serious concern.

A healthy population is an important prerequisite for economic growth and competitiveness. The Council for Scientific and Industrial Research (CSIR) seeks to address problems associated with environmental health risks and has a special interest in alleviating adverse health effects among vulnerable communities.

Recently, two research projects have been initiated. The first was to develop a series of questions to consider population exposure to air pollution, by finding out which communities in an area were most vulnerable based on health and socio-economic factors. In the second on-going project, the World Health Organization's 'Healthy Municipalities' framework was reviewed and is in the process of being implemented as a tool to bring together all stakeholders, including the community, to prioritize health promotion activities, forge multi-sectoral partnerships and maintain healthy environments for all.

Help for Air Quality Managers

Under the National Environmental Management: Air Quality Act No. 39 of 2004, all municipalities are required to develop and implement an Air Quality Management Plan (AQMP). AQMPs identify prioritized strategies independent of sufficient consideration of population vulnerability factors. This is seen as a major shortcoming, particularly in South Africa where resources, funding and capacity are scarce, and many vulnerable communities live on marginalized land. While ambient air pollution levels in excess of prescribed health standards are unacceptable, the exceedances are even more serious in areas where people live.

To help figure which communities needed the most help urgently, five main indicator categories were identified (Figure 1) and specific questions for each were developed. Input data (ward level) comes from the South African census database, as well as health data (for example, prevalence of respiratory diseases and HIV/AIDS), air quality monitoring records and emission inventory information. Communities (wards) are then ranked using a specially-designed and appropriate scoring system.

The key is to find out which community is most susceptible to high ambient air pollution levels and at the same time, is most vulnerable and struggling to cope. Then, focussed manage-

Vulnerability

Vulnerability to air pollution includes three elements: susceptibility, exposure and coping.

The WHO specifies vulnerable population groups based on inherent factors, acquired environmental, social or behavioural factors and unusually high exposures

Sub-populations regarded as vulnerable to air pollution include children, the elderly, people with certain underlying diseases such as cardiovascular-respiratory diseases, impaired immune systems, and communities who are socio-economically deprived.

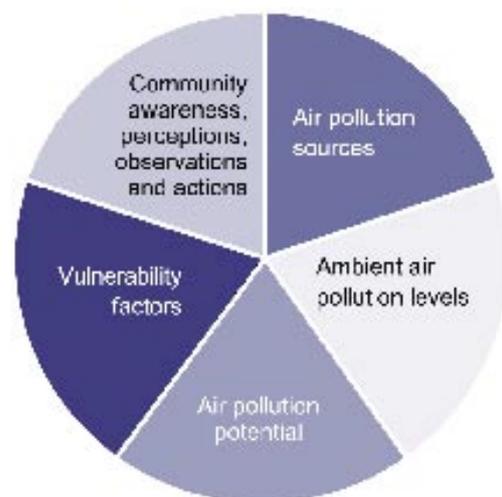


Figure 1. Main Indicator Categories for Air Pollution and Vulnerability Risk Prioritization

ment strategies and interventions to reduce vulnerability and more importantly the incidence of adverse health impacts may be developed.

‘Healthy Municipalities’

Exposure to high concentrations of pollution is not the only factor that influences a community’s total health risk. In an effort to understand and address other factors, CSIR Environmental Health Researchers carried out a household survey in a low-income community in eMbalenhle to assess the vulnerability of low-income communities to environmental pollution by finding associations between so-called vulnerability factors. These included, amongst others, nutrition, type of dwelling and environmentally-related health outcomes. This survey’s results have highlighted the need for novel methods that can more adequately address vulnerability.

Following preliminary analysis of the eMbalenhle survey data, public meetings, which included important stakeholders, were held to report on survey findings. Community perceptions about their vulnerability status were discussed to assist with identifying areas of concern regarding coping and adaptation, their strengths (or assets) and areas of need. They also identified ways in which they could optimise the usage of existing community assets and facilities towards vulnerability reduction.

A process is currently underway to establish a committee to work towards a ‘healthy municipality’. This committee will play an essential role in ensuring effective implementation of acceptable interventions in the community. Strategic planning and a systematic approach, together with sustained collaboration between government, industry, the local community, as well as the scientific community, are seen as essential for successful implementation of acceptable vulnerability interventions.

Factor	Technology examples*	Intervention Benefit
Residence	Thermal insulation, eg. Trombe wall, waterproofing technologies	Exposure
Solid waste	Techniques to do composting, re-use waste, recycling	Exposure, economic
Sanitation	Different types of toilets appropriate for different conditions	Exposure, coping, economic
Hygiene behaviour	Handwashing dispenser	Exposure
Nutrition	Vegetable/community gardens	Immunity
Energy use	Basa njengo magogo - fire Low maintenance light bulbs	Exposure, economic
Communication channels/ awareness/ education	Innovative ways need to be sought. Community buy-in, cooperation with local government. Using Healthy Municipalities principles. Networking with related organisations.	Exposure, behaviours

Figure 2. Examples of Intervention Technologies

Healthy Municipality

A process that requires strong political conviction and support together with equally strong community determination, participation and action.

