1.112 What level of air quality monitoring data is needed to support effective policy action to reduce pollution?.

Early Career Scientist

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Abstract:

Atmospheric pollution is a global problem which has taken on particular significance in Africa in recent years because of its growing impact on human health, climate and vegetation; this is likely to increase if steps are not taken to reduce emissions. Assessment of air pollution through measurement and modelling provides information on the degree of pollution, supports formulation of evidence-based policies for abatement and assessment of the effectiveness of these policies when implemented. In Africa, these country assessments are generally short term, sparse and infrequent, and therefore, provide little data on emission source, pollution levels or the extent of impacts on human health or ecosystems. In most African countries, the context relevant approach to mitigate emissions is absent in national environment planning and is generally not informed by robust analysis.

We present a framework for air pollution assessment relevant for African countries that integrates analyses at different scales to apply it in evaluating effectiveness of mitigation strategies. Firstly, at the macro-scale, national air quality monitoring for four countries- Botswana, Benin, Ethiopia and Kenya – are mapped and the institutional arrangements examined to assess the status of air pollution policy in national planning. At the meso-scale, urban air quality monitoring for Gaborone, Cotonou, Addis Ababa and Nairobi is mapped and major emission sources identified. Review of urban plans for these cities assesses the inclusion of these major emissions sources in historical and emerging air quality policies. At the micro-scale, emerging technologies for personal exposure to air pollution are assessed in the context of identifying local emission sources, trends and hotspots. Analysis from the distinct scales, illustrates the linkages from the local to the urban and national scale and the high temporal, spatial measurements provides new insights into the potential role and contribution that personal exposure monitoring can make towards mitigating air pollution.