

# Managing Air Quality in Developing Countries

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The previous reading packs highlighted the impacts of air pollution, the need to consider the different sources of air pollution and the importance of modelling to inform any interventions. However, the emerging trend in air quality management recommends that effective air quality management requires not only diagnosing and modelling air pollutants, but the development of a holistic approach where the spatial nature of air pollutants, socio-economic and institutional factors are integrated, through the development of cross-cutting policy interventions. Despite concerted efforts to manage air quality globally, air pollution still remains one of the World's largest environmental health risks (Longhurst *et al.*, 2016). The 2018 UN Climate Change Conference Report, stresses that "more than 90% of air pollution-related deaths occur in low- and middle-income countries, mainly in Asia and Africa". A holistic approach is required for effective intervention which considers the different sources of air pollution and addresses the related socio-economic and health problems.

Air quality management policies are expected to protect public health and to remove many of the adverse socio-economic impacts that are associated with air pollution. However, evidence continues to show that air quality management policies are failing even in developed countries despite strong commitments at different scales of government (Brunt *et al.*, 2016). For instance, Brunt *et al.*, (2016) state that about 62% of UK local authorities still experience serious air quality management problems. It has also been noted that about 52,000 deaths are recorded annually as a result of Nitrogen Oxide



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(NO<sub>2</sub>) and Particulate Matter (PM) while 3.7m deaths have been attributed to ambient air pollution globally (Longhurst *et al.*, 2016). It is important to note that if the current situation persists, the negative impacts of air pollution will continue to escalate irrespective of the wealth of knowledge about its causes, concentration and effects. Recent findings attest to the fact that breaches of air pollution were recorded in 23 out of 28 European Union member countries (Barnes *et al.*, 2018). This means that concerted efforts aimed at managing air quality must not only consider the diagnosis of air quality problems but the implementation of holistic actions targeted at both public health and wider environmental impacts. Moreover, the current situation raises cause for concern particularly in developing countries with alarming rates of air pollution problems yet poor air quality management practices. Many African countries, have developed comprehensive legislation requiring its control, but struggle to enforce the legislation effectively and link it to the other economic, urban and political challenges. Additionally, as identified by the 2018 UN Climate Change Conference Report, the continent suffers from a lack of data availability impeding remedial measures.

The key readings summarised below identify barriers that could hinder air quality management and the likely approaches to address them. Although the papers focus on the UK experience, they provide lessons to take on board in addressing air pollution and policy disconnect in developing and emerging countries (Lall *et al.*, 2017).

## Key Readings

**Reading 1:** Barnes et al. (2014). Air quality action planning: why do barriers to remediation in local air quality management remain?, *Journal of Environmental Planning and Management*, 57:5, 660-681, [DOI:10.1080/09640568.2012](https://doi.org/10.1080/09640568.2012).

Over the past 60 years, not only the nature of air pollution has changed but actions to manage the changing nature have improved significantly. However, despite all these developments, barriers still exist. The expectations of improved air quality have not been realised because of these persisting barriers despite concerted efforts to devolve responsibilities to local government authorities. Local authorities are faced with prioritising economic gains over environmental health of the people owing to the failure of national government to offer the required level of financial support. This has led to policy silos, a situation where departments that are supposed to key into the local air quality management policy are giving priority to their economic well-being to the detriment of environmental quality which affects public health. District level local authority lack required national support and direction to exercise their powers in some key issues affecting the implementation of local air quality action plans. Also intra-governmental co-operation and inter-governmental co-ordination have limited the effectiveness of air quality action plans. A lack of integrated guidance from central government and ineffective communication between environmental health and transport departments are major obstacles to intra-governmental co-operation. The absence of a co-ordinated approach to air quality management between key departments who should work together has compounded this silo-effect leading to separate actions by key departments. The fundamental issues undermining the effectiveness of local air quality action planning in the UK are flawed subsidiarity, absence of legal obligation and locus of local responsibility. This paper suggests that air quality should be considered to be a fundamental local government responsibility rather than ancillary and it is critical that air quality improvement is integrated across all policy areas for sustainable management of their jurisdiction. This can only be achieved when central government takes the lead by adequately addressing legal requirements undermining local authorities' ability to perform effectively.

**Reading 2:** Brunt et al. (2016a). Local air quality management policy and practice in the UK: The case for greater public Health integration and engagement, *Environmental Science & Policy*, 58, 52–6. <https://doi.org/10.1016/j.envsci.2016.01.009>

This paper critically reviews the literature on strengths and weaknesses of local air quality management policy in the UK with a view to provide in depth understanding of the inter-relationship between air quality management and public health. Exposure to air pollution affects life expectancy, increasing mortality and morbidity risks. The UK's air quality management regime designed to manage air quality and curtail the effects on the public is not achieving its intended potential outcomes. Current practice can be improved through the integration and engagement of public health aspects in to this policy area. Although the strengths of the local air quality management regime, differentiating between national and local action is acknowledged, the paper reveals that the

process is too centrally driven, cumbersome and process-heavy. Moreover, it fails to consider public health principles in plans and implementation. The public health aspects of air quality management in the UK has failed largely because of weakness inherent in the structure and process of local air quality management and policy development. The role of public health is poorly defined and because it is not specifically prescribed in the process, it fails to engage and contribute to local air quality management. This has led to problems of inter-departmental collaboration, consultation and contribution to the regime. Better integration and engagement of public health and local air quality management policies will not only add value to the existing policy regime but also solve the fundamental problems impacting on air quality management in the UK. The paper highlights the links between air pollution management and public health. It is worth noting that these links are similar irrespective to the socio-economic and institutional characteristics of a country.

**Reading 3:** Longhurst, et al. (2016). Progress with air quality management in the 60 years since the UK Clean Air Act, 1956. Lessons, failures, challenges and opportunities, *Int. J. Sus. Dev. Plann.* 11(4) 491–499.

**DOI: 10.2495/SDP-V11-N4-491-499**

The paper explores the challenges, opportunities and progress made with managing air quality since the UK Clean Air Act, 1956. Trends in air quality management in the UK show a reactionary approach occasioned by the 1952 London smog leading to the development of the pioneer Air quality management Act. However, since 1952, the increasing complexity of pollutants requires more comprehensive policies due to alterations in the location of sources, the intensity of the sources of emission and changes in air pollution composition. Air pollutants are more spatially distributed with direct and indirect impacts and externalities. The new Air Quality Plan (AQP) 2015 although, also reactionary in nature, is aimed at improving air quality in the UK. The plan evolved in response to the Supreme Court decision to draw up a plan before the end of the year as a result of previous exceedances. Although the plan is seen as a novel approach, it is criticised for its lack of political will and financial backing to succeed. In part, management of air quality has been successful in the UK, but current policies and interventions fail to recognise the scale and intensity of the public health challenge brought about by air pollution. Public health risks persist in the UK as efforts to effectively address the situation is undermined by political support, public awareness and inadequate resources. Concerted, collective and sustained action to confront behaviours and vested interest retarding effective air quality management is required. The evidence suggests that air quality challenges still abound in the UK and this is despite 60 years of air quality management. The paper provides an analysis that might inform air quality policy development in other countries especially developing and emerging economies.

**Reading 4:** Brunt et al. (2016b). Air pollution, deprivation and health: understanding relationships to add value to local air quality management policy and practice in Wales, UK. *Journal of Public Health* 39(3), 485–497

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Air pollution problems and solutions are rarely considered in the context of public health. This paper assesses associations between local-level air pollution problems, deprivation and poor-health status in relation to health outcomes. The study is focused on Wales, UK, with a view to providing empirical evidence to support the ongoing development of approaches to local air quality management in the UK and elsewhere. The authors argued that adopting more informed, targeted and co-ordinated actions based on a good understanding of air pollution and health relationships could add value to existing local air quality management arrangements resulting in greater reductions in air pollution and population-level risks and inequalities. The study reports high concentrations of air pollution in 'most' deprived areas while *deprivation-health associations* were stronger than *air-pollution-health associations* when assessed separately. When considered together, air pollution was found to add to *deprivation-health associations*. The results suggest that the future development of local air quality management should consider the significant, complex, interactions between air pollution problems and solutions holistically. Local public health priorities should take centre stage when addressing air pollution problems because they are closely connected with attitudinal, societal and environmental determinants of health. The authors argue that simply reducing air pollution and exposure potentials is not enough to manage air pollution problems, but the policy focus also must tackle broader health determinants in areas with greater health needs. Greater health gains can be achieved when priority is given to public health integration and engagement in local air quality management policies and practices. This study serves as a significant reference for developing and emerging economies where deprivation and poor policy integration-induced air pollution problems are common.

**Reading 5:** Barnes et al (2018). Policy disconnect: A critical review of UK air quality policy in relation to EU and LAQM responsibilities over the last 20 years, *Environmental Science and Policy* 85, 28–39  
<https://doi.org/10.1016/j.envsci.2018.03.024>

This paper develops a critique of the last 20 years of UK air quality management policy compared to European and local authority responsibilities and identifies various factors culminating in a policy disconnect between national and local government approaches to air quality management. The two-tier approach to national and local air quality management that has been developed in the UK is reported to have failed to meet European and the national ambient air quality regulations. In the last two decades, land use policy and plans and associated transport policies and strategies intended to provide context and guide the long-term management of air quality are not aligned to improve air quality and protect public health. These have been so because differing legislations operate between national and local governments making air quality management objectives not legally binding. Current UK policy lacks geographical 'nesting' as there is no alignment between the national air quality objectives and the EU limit values. The development of a suite of measures by the national government which considers the alignment of national and EU regulations, as well as giving priority to public health is needed to improve the devolution of air quality management already in place.

## Questions to guide reading

1. How does East Africa's air quality management policy impact on public health (and well-being), and vice versa?
2. How do socio-economic policies relate to indoor and outdoor air pollution exposure?
3. What lessons can be learnt from local air quality management studies that have been developed in other countries?
4. What level of and approach to air quality management is required for effective air quality management?
5. Can a systems approach to air pollution management improve air quality in East African cities whilst sustaining their social and economic activities?
6. What methods and interdisciplinary frameworks need to be used to deliver impactful results?

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