

5.074 Challenging the future of air pollution in southern Africa.

Presenting Author:

Roelof Burger, North-West University, South Africa, roelof.burger@nwu.ac.za

Co-Authors:

Stuart John Piketh, North-West University

Brigitte Language, North-West University

Farina Lindeque, North-West University

Ncobile Nkosi, North-West University

Luckson Muyemeki, muyemeki

Abstract:

Air pollution impacts in southern Africa are one of the region's largest environmental risks. However, other more immediate socioeconomic issues push efforts to address emissions into the background. The region is expected to see large growth in population and development in the foreseeable future and current global predictions of ambient air pollution trends estimates a bleak reality. This paper explores the results from a series of empirical and modeling studies done in the region that aims to characterize local drivers of air pollution. It further assesses available regulatory instruments to find solutions that could help challenge the future of air pollution in the region. With a coal-heavy energy mix, more than half the population living in poverty and a small stagnant economy, unique technological and regulatory solutions are needed. These regionally relevant strategies are being formulated using the best available methodologies to quantify and model source contribution. Poverty alleviation proves to be an important part of moving communities away from solid fuel and waste burning practices. A balancing act is required between addressing complex sources and poverty while honoring international agreements is needed. The most promising regulatory instrument seems to be a variation of air quality offsets. Scoping and auditing these projects remain a challenge. Results from this work show the benefit of close collaboration between scientific investigation to understand and policy-makers to address context specific sources. It highlights the importance of local context in managing air pollution. It demonstrates the benefit of high resolution global emission inventories that can illuminate regional priorities. Lastly, it illustrates the need of distributed ground based and remote sensing monitoring technologies that can help to detect and assess the success or failure of single strategies that could have marginal, but real impacts on ambient air pollution.