

**Shifting the atmosphere:  
the changing conceptions of air pollution in South Africa (1948-1978)**

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South Africa is a major producer and exporter of coal throughout the world, but local and international public perception towards coal-based pollution in South Africa remains fraught with misrepresentation and prevarication. This environmental history of South African air pollution, with special reference to the Witbank Coalfield, serves to interrogate the nature of this phenomenon. Further, it seeks to contextualize the emergence of diverse discourses that ultimately resulted in the promulgation of the Atmospheric Pollution Prevention Act of 1965 (APPA).

The study assesses changing ideas of air pollution in South Africa's post-war period. It traces responses to these changing conceptions by the State, local industry, civil society, as well as Witbank's local residents, thereby opening up the enigma surrounding the appearance of atmospheric changes during South Africa's post-war industrial growth.

During this time, 'air perception' was largely conceived in light of visible environmental damage, and a growing public consciousness around scientific evidence linking industrial activity to the degradation of the atmosphere. Such conceptions of air pollution were instrumental in the formulation of legislation aimed at regulating the acute appearance of air pollution in post-war South Africa. The paper makes reference to early twentieth century legislation to show how pollution was conceived of in law, and how this directly influenced regulations over industrial emissions and effluent.

Archival research has revealed that there was a limited conception of the destructive capacity of industrial activity in the early twentieth century. The findings revealed in reports measuring the reaction of coal during combustion reflected a superficial understanding of its chemical composition. Such gaps in understanding during this time reveal the ways in which early signs of coal-based pollution were, to a large extent, ignored. Where attention was given to pollution in early legislation, regulations imposed were tentative, and rarely implemented.

An assessment of post-war conceptions of air pollution in South Africa reveals significant shifts in the way in which coal mining was associated with pollution. This was mainly a result of physical evidence of air pollution, destruction of land, and the indefatigability of underground fires. Fierce internal debates existed following the growing appearance of environmental changes as a result of ongoing coal mining activity. Coal-based pollution of isolated areas where underground fires raged beneath the sunken and desiccated land surface did not pose a problem to the local authorities of Witbank; it did not disrupt economic activity, warranting attention by state or industry. By contrast, the appearance of acute levels of atmospheric pollution by the early 1950s throughout South Africa was more difficult to ignore.

Following the intensification of local industry in the wake of the Second World War, the South African Council for Scientific and Industrial Research (CSIR) had placed pressure on

the South African government to ameliorate the steadily growing problem of air pollution visible throughout the country. By 1955, the state had appointed the first of numerous multi-stakeholder committees to investigate the accumulated scientific and empirical evidence geared toward addressing the steadily growing problem of air pollution.

These early efforts to define and monitor air pollution reflected a need for improved understanding of the phenomenon. Conceptions of air pollution (among other forms of pollution) were brought into the realm of public discourse through the work of the CSIR, as well as preliminary discussions on the APPA. During this time, 'air perception' became increasingly associated with social justice, providing momentum for the emergence of a small yet vocal South African environmental lobby within the context of a global movement against acute air pollution in the wake of the Second World War.

Passed in 1965, the APPA challenged implicit organizational structures within an industry which had never before been subject to state scrutiny. This anti-pollution legislation thus challenged industries such as mining and steel manufacturing to control smoke emissions, and tackle the problem of air pollution at its source. It also provided a means by which to categorize those industries considered to be major pollutants, including the coal-mining industry, as 'scheduled' industries.

The APPA was South Africa's first environmental legislation directly tackling issues of pollution. This had significant ramifications for the Witbank industry. Local collieries and factories were now required to conform to environmental control and monitoring by the State, and to introduce efforts geared towards environmental mitigation. The study thus draws attention to the relative efficiency of regulations introduced through the APPA, particularly in light of continued growth in the scale of Witbank coal production.

An assessment of the APPA reflects its success in obliging the South African coal industry to regulate its extraction methods, and more closely assess the chemical composition of coal. This did little to halt the exponential growth experienced by the coal industry by 1978, with the introduction of opencast mining methods in the Witbank Coalfield, along with the construction of Richard's Bay Coal Terminal in 1976.

The study thus concludes that changing conceptions of air pollution were strongly influenced both by the appearance of air pollution, and a significant growth in scientific understanding around its causes. However, this did little to affect significant change within a framework of rapid and intensive industrialization.