News
ASSAf publishes policy brief on air quality offsets as an air quality management instrument

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A policy brief on air quality offsets as an instrument for air quality management in South Africa has been published under the auspices of the Academy of Science in South Africa (ASSAf) (ASSAf, 2025). The brief explores the potential of air quality offsets to leverage resources and mitigate air pollution in historically neglected, predominantly low-income areas. It addresses legal and technical aspects, outlines societal benefits, and offers actionable recommendations for policymakers, communities, advocacy groups, and researchers.

Air quality offsets are 'interventions... implemented to counterbalance the adverse and residual environmental impacts of atmospheric emissions to deliver a net ambient air quality benefit within, though not limited to, the affected airshed where ambient air quality standards are exceeded (Department of Environmental Affairs, 2016). In practice, they have been implemented by large industrial and energy facilities in low-income areas in the national Air Quality Priority Areas, focusing on reducing emissions from household solid-fuel and waste burning.

The *Air Quality Offsets Guideline* (Department of Environmental Affairs, 2016), published in terms of the National Environmental Management Act (Act No. 107 of 1998), requires that air quality offset programmes be designed and implemented based on sound and relevant science. Effective offset projects require a structured approach to planning, developing, implementing, monitoring and evaluating offsets.

To support sustainable long-term sustainability, community participation is essential in the design and execution of offset projects. Establishing collaborative structures between communities and local governments is crucial to offset programme success.

Air quality offset programmes can deliver multiple societal benefits, including public health improvements, greater social equity, economic development and environmental sustainability. Improving indoor air quality can reduce the incidence of respiratory and cardiovascular disease and improve productivity. Energy justice can also be promoted by improving vulnerable communities' access to cleaner energy. Air quality offsets can reduce greenhouse gas emissions and support waste-to-energy projects. Developing appropriate indicators to measure the societal benefits of air quality offset programmes is essential.

To strengthen air quality offsets as a mechanism to improve air quality, the following actions are recommended:

- Develop a national standard for air quality offsets.
- Acknowledge indoor air quality improvement as a key component of air quality offsets, as most human exposure occurs indoors within dense, low-income settlements, which are the typical offset target areas.
- Mandate the collection of quality-of-life indicators as part of air quality offset programmes to ensure that end-users benefit.
- Expand the implementation of air quality offsets beyond Priority Areas to other non-compliant areas.
- Establish community and local government ownership to support long-term, sustainable, or at least maintainable air quality benefits after the offset programme formally ends.

Maximising benefits will require the government, industry, communities, and researchers to collaborate in designing and implementing air quality offsets.

The policy brief arose from a roundtable workshop on air quality offsets facilitated by ASSAf and held at the CSIR in Pretoria in July 2024. The policy brief can be accessed at: https://research.assaf.org.za/items/8e78c345-7757-406b-b50a-d8bd0556a915.

References

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