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Methane emissions from coal mines may be far higher than official estimates

New report highlights major opportunity for South Africa to cut methane emissions and drive a just transition

A new report by the Minerals to Metals Initiative at the University of Cape Town (UCT) and Swaniti Global has found that methane emissions from South Africa's coal mines may be far higher than currently reported. However, cutting these emissions represents one of the fastest, most affordable and most impactful opportunities for climate action in the country.

The report, *"A Climate Blindspot? Coal Mine Methane in South Africa,"* shows that actual emissions may be seven to 14 times greater than official estimates. Yet, with proven technologies and supportive policies, South Africa could capture or eliminate up to 90% of these emissions at low cost, delivering climate benefits while supporting coal communities.

"This is not only about plugging a data gap," said Professor Jennifer Broadhurst, deputy director of the Minerals to Metals Initiative at UCT. "It's about seizing an opportunity to create economic value, strengthen local communities and show leadership in tackling one of the world's most pressing climate challenges."

Opportunities for action

The report highlights several areas where action could deliver immediate benefits:

- **Cost-effective emissions reductions**: Up to 90% of methane from active mines could be mitigated at less than USD $20 per ton CO_2e.
- **Safer, healthier communities**: Capturing methane lowers explosion risk, reduces toxic air pollution and improves public health.
- **New livelihoods in coal regions**: Mitigation projects can create skilled technical and engineering jobs, provide transitional employment for mineworkers and support community resilience.
- **Revenue generation**: Opportunities exist to tap into carbon credits, energy sales and avoided carbon tax liabilities.
- **Global leadership**: By addressing coal mine methane, South Africa can position itself as a leader in delivering integrated climate and development solutions in the modern era.

"Coal mine methane mitigation is a win-win," said Joey James, associate director at Swaniti Global, a nongovernmental organisation working on coal mine methane in India, South Africa and the United States. "It reduces greenhouse gases quickly, creates jobs in regions that need them most, and strengthens the foundation for a Just Energy Transition."

Policy pathways

The report urges policymakers to integrate methane mitigation into the national climate agenda, including South Africa's Just Energy Transition Investment Plan. Specific recommendations include:

- Strengthening monitoring and reporting systems through on-site and satellite data;
- Mobilising financial support to de-risk early-stage projects;
- Including abandoned mine methane in closure and liability frameworks;
- Embedding methane abatement into Just Energy Transition planning and finance.

Brett Cohen, director of Enuity Consulting and an honorary professor at UCT, said: "Methane, and particularly coal mine methane, has not been extensively considered in looking at South Africa's short- and long-term policy pathways, with the focus having been on carbon dioxide given its overwhelming contribution to the country's emissions.

"The increasing global focus on non-CO_2 emissions, however, is providing an impetus for broadening the mitigation agenda in South Africa. Developing a sound understanding of the scale of the challenge and opportunity is a critical departure point."

About the report

"A Climate Blindspot? Coal Mine Methane in South Africa" was co-authored by the Minerals to Metals Initiative at the University of Cape Town and Swaniti Global. It provides the most comprehensive assessment to date of coal mine methane in South Africa, outlining emissions levels, mitigation opportunities and policy pathways.

Access the full report.

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