

# Polluted SA air killed 42,000 in 2023, study finds — yet loopholes persist

*Julia Evans*

## **Air pollution cost South Africa more than R960bn and 42,000 lives in 2023, a new report finds, but the government keeps extending emissions exemptions.**

In 2023 alone, 42,000 South Africans died from exposure to fine particle pollution (PM2.5), including more than 1,300 children under five, according to a new report released on 3 June by Greenpeace Africa and the Centre for Research on Energy and Clean Air (CREA).

The report, [Unmasking the Toll of Fine Particle Pollution in South Africa](#), estimates that PM2.5 pollution cost the country more than R960-billion in 2023 – equivalent to 14% of GDP – through premature deaths, illness, lost productivity and overburdened health systems.

PM2.5 refers to airborne particles smaller than 2.5 micrometres, mainly formed by burning coal and fuel. These particles, as CREA analyst Lauri Myllyvirta [previously explained to Daily Maverick](#), are “small enough to pass from lungs to the bloodstream and wreak havoc on all our internal organs”.

Communities in the Highveld region and Gauteng and Mpumalanga provinces, which are home to the country’s largest coal-fired power plants and industrial zones, are hardest hit.

Professor Rajen Naidoo, head of Occupational and Environmental Health at the University of KwaZulu-Natal, said that the report adds to reports over the years which have emphasised the serious health risks faced by South Africans due to air pollution and its inadequate regulation.

“While the headlines are likely to be grabbed by the number of deaths (rightly so), it must be borne in mind that for every death, there are those with disabling chronic conditions caused by air pollution,” said Naidoo. He highlighted that the report captured this through the measure called years lived with disability (YLD).

According to the report, in 2023, exposure to PM2.5 particles led to more than 100,000 years lived with disability in South Africa, due to chronic diseases like lung and heart conditions, strokes, and diabetes:

“Exposure to PM2.5 also contributes significantly to chronic diseases and disabilities of the overall population. Annual exposure to PM2.5 is associated with 26,000 years lived with disability (YLDs) due to chronic obstructive pulmonary disease; 20,000 YLDs due to stroke; 64,000 YLDs due to diabetes; and 19,000 due to Alzheimer’s and other dementias.”

“The real burden lies in the most disadvantaged communities near coal-fired power stations, already marginalised and now also carrying the health burden,” said Naidoo.

He said children in these areas were affected even before birth, with pollution and poverty combining to weaken immune systems, stunt development and trap families in cycles of poor health.

**Read more:** [How climate change will impact us through our lifetime: Part 1 \(maternity and](#)

[newborns\)](#)

## **A call to end exemptions**

“Science is unequivocal,” said Cynthia Moyo, climate and energy campaigner at Greenpeace Africa. “The air South Africans breathe is toxic, and the corporations driving this crisis must no longer be protected by silence or inaction.”

Greenpeace Africa is calling for:

- An immediate end to air pollution exemptions for major emitters;
- Full enforcement of national air quality standards;
- A just transition to renewable energy that centres affected communities; and
- Public access to real-time pollution data.

The report also shows that if South Africa were to follow the World Health Organization (WHO) air quality standards guidelines for PM<sub>2.5</sub>, it could prevent up to 33,000 deaths a year.

The WHO’s guideline for PM<sub>2.5</sub> is five micrograms per cubic metre (µg/m<sup>3</sup>) as an annual average.

South Africa’s existing national standards for PM<sub>2.5</sub> are pretty weak at 20 µg/m<sup>3</sup> annual average, but it isn’t even meeting those. The report found that South Africans were breathing air with 26 µg/m<sup>3</sup> PM<sub>2.5</sub> on average.

The report points out that if South Africa were to meet existing national standards (20 µg/m<sup>3</sup> annual average), it could save more than 9,000 lives annually.

## **Why do we emit more than the law allows?**

The National Environmental Management: Air Quality Act sets both Minimum Emission Standards (MES), which industries are allowed to emit, and Ambient Air Quality Standards, the pollution limits for outdoor air.

In 2020, the MES for total particulate matter was updated to 50 milligrams per cubic meter (mg/Nm<sup>3</sup>), down from 100 mg/Nm<sup>3</sup>. Even with a decreased limit, this remains far higher than global benchmarks. Even so, Eskom could not comply.

Instead, it applied for and received exemptions. As [Daily Maverick has reported](#), Eskom has repeatedly secured postponements and exemptions from complying with MES.

In March 2025, the government granted further exemptions for several power stations, citing the need to avert deepening the country’s electricity crisis.

**Read more:** [Eskom granted air quality exemptions under ‘strict’ conditions](#)

While the exemptions come with “strict conditions” – including pollution controls, air quality monitoring and emissions reporting – critics say these are seldom enforced with rigour or transparency.

The 2022 high court ruling in the “Deadly Air” case found that the government’s failure to enforce air quality standards in the Highveld Priority Area violated residents’ constitutional rights. Yet, the latest exemptions suggest energy security continues to trump environmental and health concerns.

The CREA/Greenpeace report argues that these exemptions have enabled major polluters, particularly Eskom, to delay emissions reductions, prolonging dangerously high pollution levels.

The report urges the government to end exemptions, tighten enforcement and align air quality standards with the WHO's latest guidelines.

“South Africa’s Constitution guarantees the right to a healthy environment, but that right is being violated every day by polluters,” added Dr Jamie Kelly, health impact assessment team lead at CREA. “Communities deserve clean air, not corporate impunity.”

### **How do we know PM2.5 kills?**

The report’s estimates are based on globally recognised models that link PM2.5 exposure to premature deaths from heart disease, stroke, respiratory illness and more.

Dr Rosa Gierens, data scientist and co-author of the report, explained that these integrated exposure-response functions, endorsed by the WHO, use decades of large epidemiological studies to estimate “excess deaths” – lives lost due to unsafe air. Research consistently shows that when PM2.5 levels fall, mortality also decreases.

The report combined PM2.5 concentrations (sourced from satellite data, ground monitoring and atmospheric models) with population and health data from the [Global Burden of Disease \(GBD\)](#) database to calculate health impacts.

This approach, used in peer-reviewed global health research, allows researchers to estimate disease risk across age groups and conditions while adjusting for factors such as smoking and income.

### **Profits over people**

“Behind these deaths lies a simple truth: polluters are poisoning our air and putting profits above people,” said Greenpeace Africa.

As Jesse Burton from the Energy Systems Research Group at UCT [previously told Daily Maverick](#), “Air pollution control might seem like a ‘nice to have’, but pollution has very real impacts on people’s lives and livelihoods, including sickness, premature deaths and work days lost.”

Naidoo also questioned who truly benefited from “cheap” coal power. “Coal provides cheap electricity for the major industrial enterprises with their tax privileges, while the state then has to take care of those who suffer the health consequences of air pollution.” **DM**

