



# Climate

## Additional Policies Towards Sustainable Development

Alize le Roux and Jakkie Cilliers

Last updated 04 February 2025 using IFs v8.34

## Additional Policies towards Sustainable Development

Africa needs to develop much more rapidly (modelled in the [Combined scenario](#)), which will inevitably increase emissions given its young and growing population and current low levels of energy use. In addition to application to cement and fertiliser production plants, reducing illegal [gas flaring](#) in countries such as Nigeria, Algeria, Angola, Cameroon and Egypt should play an essential role. However, due to the associated costs and technical barriers, the widespread deployment and adoption of carbon capture and storage technologies in Africa is still in its infancy. Nigeria and South Africa, as Africa's largest carbon emitters, have the potential to become players in the carbon capture and storage markets, with South Africa currently having several pilot projects in the coal power sector.

Several scenarios on this website already include interventions to promote sustainability. For example, the [Agriculture](#) scenario includes interventions for forest protection (examined separately above). The [Demographics](#) and [Health](#) scenario includes greater contraceptive use in high fertility countries, which, by reducing population size, constrain total emissions. Better [Governance](#) and [Education](#) inevitably improve the effectiveness of mitigation and adaptation policies while raising awareness of the importance of keeping emissions in check. Numerous interventions that are part of the [Large Infrastructure](#) and [Leapfrogging](#) scenario improve the adaptive capacity of African populations through the provision of electricity and roads, as well as investing in and scaling up renewable energy production while simultaneously constraining coal production and exports.

On the other hand, regional trade (the [AfCFTA](#) scenario), the [Manufacturing](#) scenario, better [Health and WaSH](#) (although improved water and sanitation are also critical adaptive components) and more inward [Financial Flows](#) all increase emissions since they result in a larger African economy with more energy needs. Even improved [Gender](#) relations have this effect.

The Sustainable Africa scenario then complements the Combined scenario by including the Differentiated Pay global carbon tax set out in a previous section. The results indicate that although it will not be easy, Africa can embark upon a sustainable growth path to its own and global benefit but would need the rest of the world to create space for its carbon emissions while implementing a carbon tax and assisting the energy transition to renewables in exchange for its role as a global carbon sink. The analysis done in the [Energy theme](#) estimates that Africa would need up to 10% of global emissions from fossil fuels by 2050 and 14% in 2063.

Creating fuels from municipal solid waste is a significant opportunity that should get more attention than is provided with the hype around the need to reduce fossil fuels and increase non-fossil energy sources. In 2012, the world generates over 1.3 billion tons of municipal [solid waste](#) annually, which is expected to double by 2025. Most are generated in high-income countries, but low- and middle-income countries are experiencing the fastest growth. Only about 20% of municipal solid waste is collected and appropriately treated, while the rest is dumped in landfills, burned openly or littered. Informal waste picking and recycling sectors are widespread but often operate in unsafe and unhealthy conditions. Due to rapid urbanisation, Africa is likely to see an increase in projected urban waste of up to 200% in the next decade, of which 30 to 70% is [organic waste](#) (i.e. made up of food waste or biomass) that is not only non-recyclable but also produces methane (CH<sub>4</sub>), a potent greenhouse gas, on decomposition. Research published in Waste Management indicates that up to one ton (equivalent) of CO<sub>2</sub> can be saved per ton of waste combusted rather than sent to landfill due to the potency of CH<sub>4</sub> as a greenhouse gas. In 2016, Africa produced 174 million tonnes of municipal solid waste, [projected](#) to reach 269 million by 2030. According to [UNEP](#), Africa generates an average of 0.72 kg of municipal solid waste per person per day, with only about half collected and the rest often dumped in landfills, burned openly or littered.

One approach would be to explore the design of small-scale, decentralised waste-to-energy plants. The downscaling of the Fischer-Tropsch synthesis in a remote context, with priority given to low capital costs, simplicity and energy self-sufficiency, offers a potential pathway in this regard.<sup>[1]</sup>

## Endnotes

1. C L Tucker, Waste to Fuel: Designing a cobalt-based catalyst and process for once-through Fischer-Tropsch synthesis operated at high conversion, PhD Thesis, at the Department of Chemical Engineering, University of Cape Town, 2022.

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Alize le Roux and Jakkie Cilliers (2025) Climate. Published online at [futures.issafrica.org](https://futures.issafrica.org). Retrieved from <https://futures.issafrica.org/thematic/14-climate-change/> [Online Resource] Updated 04 February 2025.

## About the authors

Ms Alize le Roux joined the AFI in May 2021 as a senior researcher. Before joining the ISS, she worked as a principal geo-informatics researcher at the CSIR, supporting various local and national policy- and decision-makers with long-term planning support. Alize has 14 years of experience in spatial data analysis, disaster risk reduction and urban and regional modelling. She has a master's degree in geographical sciences from the University of Utrecht, specialising in multi-hazard risk assessments and spatial decision support systems.

Dr Jakkie Cilliers is the ISS's founder and former executive director. He currently serves as chair of the ISS Board of Trustees and head of the African Futures and Innovation (AFI) programme at the Pretoria office of the Institute. His 2017 best-seller *Fate of the Nation* addresses South Africa's futures from political, economic and social perspectives. His three most recent books, *Africa First! Igniting a Growth Revolution* (March 2020), *The Future of Africa: Challenges and Opportunities* (April 2021), and *Africa Tomorrow: Pathways to Prosperity* (June 2022) take a rigorous look at the continent as a whole.

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