



The Necessity to Account for Air Quality in Climate Change Strategies in Africa

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October 2022 / No.CCEDA-008

The issue

The process of economic development and urbanization in Sub-Saharan Africa is accompanied with worsening air quality in urban cities. Most of the time (90%) during a typical year, concentration of particle matters remain above the WHO thresholds, as a result of emissions from cooking energy (biomass), industries, and transport. These high pollution levels lead to relatively high costs to the society and the economy, in the forms of health burden from respiratory illnesses and premature



deaths on one hand, resource misallocation, reduction in effective labor supply, and growth drag on the other hand.

These adverse effects of air pollution are exacerbated by climate change or global warming. For instance, there is a high correlation between ozone concentration and temperature in regions with high air pollution levels. In addition, the number of pollution-related deaths is significantly larger in the context of increased temperatures.

With the general aim of realizing sustainable development, which requires a reconciliation between economic, environmental and social processes, mechanisms underlying economically-generated air pollution need to be accounted for in the broad strategy to combat climate change and its adverse impacts on the economy and the society. Understanding individuals' awareness of and attitude towards air pollution and its various economic and health consequences on one hand, and the extent to which air quality enter their preference and valuation scheme, on the other hand, have the potential to garner collective support to climate change policies. As a result, the latter will benefit from greater legitimacy and more involvement of the general public, leading to more effectiveness in, for instance, improving air quality.

Main results

A contingent valuation survey of 427 residents of Dakar (Senegal), a typical metropolitan sub-Saharan African city which account for only 0.28% of the country's landmass, but 22% of the whole population and more than half of non-agricultural activities, suggests that urban residents do indeed value air quality and exhibit positive attitude towards it. More specifically:

- **70%** of the urban population are willing to contribute financially to any policy initiative aiming at combatting air pollution;
- Individuals' average **willingness to pay** amounts to **CFA37,380** per year (or US\$68), which falls in the broad scheme of values found elsewhere;
- The gains in terms of **3-month increase in life expectancy** as a result of improved air quality is estimated at **CFA49,578** per year (US\$90);
- While **highly educated, wealthy individuals** and those with positive perception of air pollution tend to value air quality the most, age, gender, pollution-related illnesses, children in the household or labor market status are not significant discriminants of individual preferences and valuation of air quality;

- Preferences and valuation of air quality are more pronounced during the period with peak pollution levels (dusty months of **March and April**), and **voluntary contribution** is the payment vehicle associated with highest willingness to pay

Implications and policy actions

Urban populations in Africa are no more, no less sensitive to air pollution than other parts of the world, despite significant pollution levels. Overall, the positive attitudes towards air quality and the large extent to which the latter enter the preference and valuation schemes suggest greater potential for improved public policy effectiveness. As such, climate change policies, in the context of hotter temperatures, urbanization and the quest for economic development, should:



- **Raise awareness of air pollution**, or climate change issues in general, with a focus on groups such as less educated and poor individuals, and preferably during months with higher pollution levels (March and April);
- **Better involve the population** in the design and implementation of air quality improvement initiatives, or climate change policies in general;
- **Mobilize resources from the populations**, mostly through voluntary contributions, with a greater focus on the more educated and wealthier segments of the population.

Reference

Diallo, S.M. and A. Seck (2022). Qualité de l'Air en Milieu Urbain Africain dans un Contexte de Changement Climatique: Comprendre les Attitudes et Valorisation dans le cas de Dakar, Sénégal. AERC Collaborative Research Project on *Climate Change and Economic Development in Africa*. Nairobi: AERC.



Mission

To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

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