# Air Pollution Resulting from Biomass Combustion in Mozambique: Origins, Consequences, and Measures for Mitigation

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## Abstract

Air pollution caused by biomass combustion is a primary environmental concern in Mozambique. This poster offers an overview of the influence of biomass combustion on air quality in the country, concentrating on pollution sources, released pollutants, and health and environmental consequences. The substantial reliance on biomass for cooking, heating, and energy generation results in high levels of air pollution from the combustion of wood, agricultural leftovers, and charcoal. During biomass burning, particulate matter (PM), carbon monoxide (CO), nitrogen oxides (NOx), volatile organic compounds (VOCs), and hazardous air pollutants (HAPs) are emitted, posing health hazards and contributing to climate change. This poster emphasizes the critical need for actions to reduce biomass-related air pollution in Mozambique by promoting cleaner cooking technology, raising awareness, and improving access to alternative energy sources

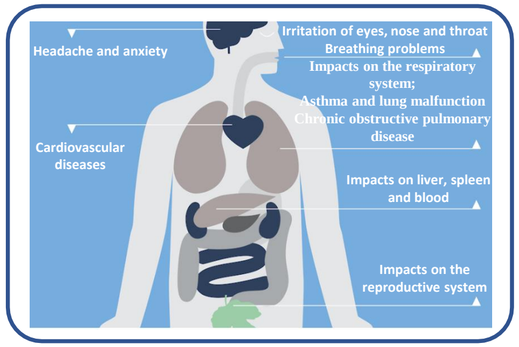
## Introduction

Air pollution is a significant worldwide environmental hazard that has far-reaching consequences for public health and ecosystems (McMichael et al., 2008). Burning combustion fuels such as wood, agricultural leftovers, and charcoal is ordinary in Mozambique for various energy demands. While biomass combustion produces necessary energy, it also has considerable air pollution, which poses health hazards and contributes to climate change.

## Sources of Biomass-Related Air Pollution

Mozambique's everyday operations rely primarily on biomass, resulting in the burning of wood, crop leftovers, and charcoal. Particulate matter (PM), carbon monoxide (CO), nitrogen oxides (NOx), volatile organic compounds (VOCs), and hazardous air pollutants (HAPs) are all released during biomass combustion. These toxins are dangerous to both human health and the environment.

## Health and Environmental Implications



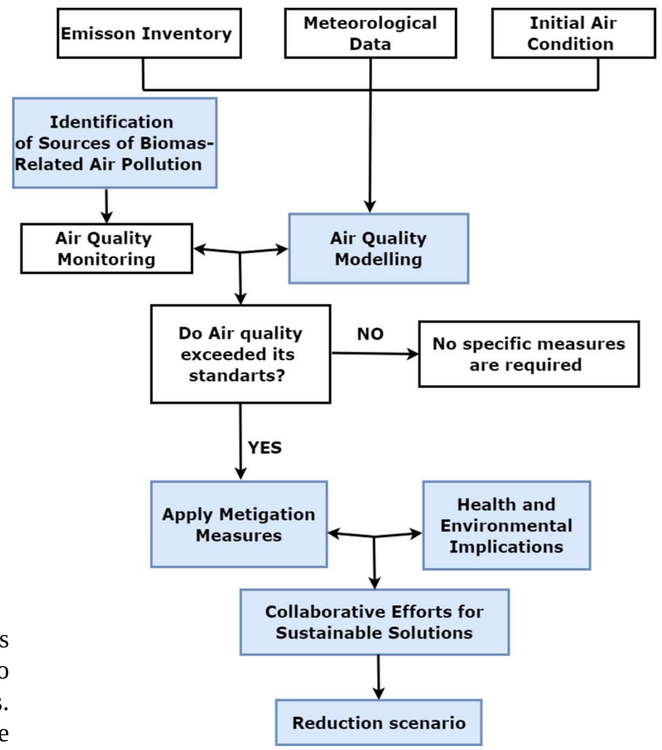

Air pollution caused by biomass burning emits fine particulate matter ($PM_{2.5}$) and other hazardous pollutants that, when breathed, can enter deep into the respiratory system. Prolonged exposure to these contaminants can cause respiratory illnesses such as asthma, chronic bronchitis, and chronic obstructive pulmonary disease (COPD). Vulnerable groups, such as children, the elderly, and people with pre-existing respiratory disorders, are more likely to suffer unfavorable health impacts. Furthermore, biomass combustion contributes to climate change by emitting greenhouse gases such as carbon dioxide ($CO_2$) and methane (CH4), influencing global warming and weather patterns (OECD & Union, 2020).

## Mitigation Measures

Cleaner cooking technologies, such as better cookstoves and biogas systems, are critical for combating biomass-related air pollution. Knowledge of the health dangers connected with biomass combustion can help influence behaviour. Furthermore, ensuring access to other energy sources, such as solar and wind power, can help to minimise reliance on conventional biomass combustion. However, encourage sustainable biomass activities such as reforestation, afforestation, and agroforestry to provide a continual supply of biomass without generating deforestation or environmental damage. Proper biomass management can aid in the preservation of ecological balance and the reduction of demand for forests.

## Challenges and Future Research

Addressing biomass-related air pollution requires overcoming hurdles such as restricted access to renewable energy choices and budgetary restrictions. Again, more study is needed to fully comprehend the particular effects of biomass combustion in Mozambique and establish appropriate long-term management measures.




Overall Structure of an Air Quality Plan

## Collaborative Efforts for Sustainable Solutions

To combat air pollution, the government, non-governmental groups, and foreign partners must work together. Policies and regulations must be implemented, clean energy programs must be supported, and pollution reduction projects must be funded.

## Conclusion

In Mozambique, air pollution caused by biomass combustion presents considerable threats to public health and the environment. Cleaner technology, more understanding, and improved access to alternative energy sources require immediate action. By working together, Mozambique can safeguard its population, enhance air quality, and contribute to long-term growth.

## Acknowledgements

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## Conflict of Interest

None declared.

## References

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