Integrating Household Air Pollution Into Health Strategies and Policies in Ethiopia

ENABLE Project Policy Brief

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Ethiopian Public Health Institute

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Vital Strategies

List of Contributors

Ethiopian Public Health Institute (EPHI)
Dr. Mamuye Hadis

Harari People Health Bureau
Jewahir Mohammed

Ministry of Health
Tajebe Kumela

Oromia Regional Health Bureau
Aknaw Bayisa Lenjisa

Vital Strategies
Ashenafie Bereded
Dr. Sumi Mehta
Akanksha Rai
Dawit Siraw

Key Messages

- Over 90% of Ethiopian households rely on traditional biomass fuels as their main source of cooking (1), making this a leading source of exposure to household? air pollution in the country.
- Air pollution is a significant public health concern in Ethiopia, contributing to approximately 76,000 deaths annually (2).
- Household air pollution also causes a substantial economic burden, costing an estimated 281 billion ETB annually, equivalent to 4% of GDP (3).
- The main contributing factors to this high health burden is the reliance on traditional solid fuels in poorly ventilated homes continues due to the lack of affordable clean cooking solutions, cultural factors and low awareness of the health risks.

We recommend integrating air pollution-related disease prevention into health sector policies and strategies to increase awareness of the impacts of household air pollution as well as the health benefits of clean household energy, thereby reducing preventable deaths, improving public health and reducing the economic burden from air pollution.

Problem Statement

Despite the evidence of the harms of air pollution, health protection, health promotion and disease prevention related to air pollution exposure has not been adequately integrated into health policies and strategies that can contribute to preventing illness and death.

In Ethiopia, household air pollution remains a major health problem, especially for women and children who live in rural areas. Over 90% of households in Ethiopian use biomass fuels, primarily firewood, charcoal, cow dung and agricultural residues, for cooking and heating (4). The use of inefficient stoves in poorly ventilated spaces lead to high concentrations of household air pollutants such as particulate matter and carbon monoxide. Close to 100% of rural households use solid fuels, compared to about 76% in urban areas (1).

Ethiopia recorded the highest number of deaths associated with household air pollution due to the use of solid fuels for cooking in East Africa and Nile Basin countries, with over 76,000 deaths in 2021. Most of these deaths were due to acute lower respiratory infections in children under 5, as well as chronic diseases such as chronic obstructive pulmonary disease (COPD), ischemic heart disease, stroke, and lung cancer (5). Half of these deaths can be attributed to household air pollution (6).

	Unsafe Water Sanitation and Hygiene (WASH)	Air Pollution
% of Deaths	11	14
# of Deaths Caused	59,700	77,000

Table 1: Comparing the burden of disease due to unsafe WASH and air pollution (Source: National Health Atlas, 2019)

Local studies have shown that use of biomass fuels is significantly associated with health problems. Those who used charcoal and wood were about seven times more likely to have had pneumonia compared with those using electricity, while those using dung as a fuel were about six times more likely to develop pneumonia (7).

In rural Ethiopia, 24-hour average household concentrations of particulate matter ($PM_{2.5}$) are around 340 µg/m^3, 10-fold higher than the WHO threshold (8). Another study, from Adama city, central Ethiopia, shows that about 75% of women rely on solid fuels. Another study, from Jimma city, southwest Ethiopia, showed that children living in households using solid fuel are three times more likely to have multiple illnesses compared to those living in clean-fuel homes (9). Women, who normally do most of the cooking, suffer from high household air pollution exposure levels, which increase the risk of respiratory and cardiovascular illnesses, and adverse pregnancy outcomes such as low birth weight and stillbirths (10).

The economic costs of household air pollution in Ethiopia are high. Each year, household air pollution in Ethiopia causes a loss of 281 billion ETB (US$8 billion) to the economy, equivalent to 4% of GDP and 53% of the 2023 government budget in Ethiopia. Based on global estimates, switching to clean household energy will return $2.7 billion in 10 years and prevent 6,000 premature deaths (3). A cost-effectiveness study using local data inputs is needed to show the potential benefits of clean household energy.

Root cause of the problem: There is limited focus on air pollution as a critical risk factor within the health sector, leading to limited prioritization and policy integration, and inadequate allocation of resources.

Air Pollution and Health: A Legal Analysis for Ethiopia

According to a recent legal analysis, Ethiopia's legal framework for air pollution management remains fragmented, with limited emphasis on household air pollution. Strengthening the health system's response to public health risks due to exposure to household air pollution requires integrating targeted interventions into health service guidelines, improving data collection, enhancing health care provider training, and revising policies to address regulatory gaps. The analysis highlights highlight opportunities to integrate clean cooking solutions into national health policies and strategies. Legal mechanisms leverage existing national laws such as: Ethiopian Public Health Proclamation, Environmental Pollution Control Proclamation, and the National WASH and Environmental Health Strategy. This will provide a legal basis for regulating air quality and environmental health promotion.

This integration would narrow the gap by ensuring household air pollution reduction is prioritized and included across major health policy documents such as the Ethiopian Essential Health Service Package (EEHSP), Health Sector Transformation Plan II (HSTP-II), Antenatal Care Guidelines, National Early Child Development plan, and Water Sanitation and Hygiene (WASH) and Environmental Health Strategy. The proposed recommendations indicate where household air pollution reduction measures may be integrated within key policy and strategic documents.

Table 1: Integration of Policy and Strategy Documents for Household Air Pollution Reduction

Policy and Strategy Document	Current Status	Recommended Approach to Integrating Household Air Pollution
Ethiopian Essential Health Service Package (EEHSP)	Insufficient cross-sectoral integration of energy, environment and health sectors.	• Incorporate household air pollution reduction interventions into health service guidelines to the EEHSP. • Include a focus on household air pollution in preventive services such as counseling and general health advice. • The EEHSP defines what health services are essential and cost-effective. Emphasize reduction of household air pollution (e.g. promoting clean cookstoves) as a standard health service.
Antenatal Care (ANC) Guidelines	The risk from household air pollution for pregnant women not given enough attention in ANC counseling or screening protocols.	• Recommend routine assessment of cooking practices, indoor smoke exposure and ventilation during ANC visits. • Provide targeted guidance on reducing exposure to household air pollution to pregnant women. • Include indicator to track exposure to household air pollution within routine ANC monitoring.
National Health Sector Strategic Plan for Early Childhood Development (ECD)	The ECD plan focuses more on early childhood health, but household air pollution is not clearly integrated as a determinant of development in early childhood.	• Include focus on how household air pollution affects developmental outcomes. • Provide guidance on specific household air pollution interventions (clean cooking and ventilation) within the ECD framework.
HSTP-II (Health Sector Transformation Plan II)	Clear focus on household air pollution lacking.	• Include specific, measurable targets for household air pollution reduction. • Mainstream household air pollution into service delivery (e.g., ANC). • Develop clear capacity-building plan to sensitize health workers on household air pollution. • Increase multisectoral coordination mechanisms.

		• Develop structured behavior change strategy to reduce exposure to and impacts of household air pollution
National WASH and Environmental Health Strategy	Limited implementation guidance on promoting clean household energy.	• Provide implementation guidance on cleaner fuels, ventilation, separate kitchens or structural modifications. • Address cultural and behavioral barriers to adoption of cleaner household energy and practices. • Strengthen monitoring and data systems for household air pollution. • Integrate health focus into financing for clean energy, including incentives for scaling clean household energy adoption and use

Considerations for Implementation

Scope: The primary implementation of proposed recommendations will be at the MOH level, with effects cascading to the regional health bureaus and down to the lower health system levels.

Roles and responsibilities: The WASH and Environmental Health Desk, under the coordination of the Community Engagement and PHC Lead Executive Office, will lead the process in close collaboration with the Maternal Health Desk, Child Health Desk and Health Strategic Affairs. After integration at the MOH level, the revised policy documents will be cascaded to Regional Health Bureaus, and further down to zonal and woreda levels, where capacity building, monitoring and evaluation, data collection, and community engagement will be implemented in line with the health system hierarchy.

Compliance and enforcement: Compliance will be obtained through directives issued by the Ministry of Health, mandating the integration of household air pollution reduction measures into all relevant policy and strategic documents. Enforcement will depend on performance agreements between the MOH and Regional Health Bureaus, with accountability cascading down to zonal and woreda levels. Routine

monitoring and reporting through eCHIS and DHIS-2 will be used to track progress and ensure adherence.

Reporting and documentation: Progress will be documented through routine health information systems, eCHIS and DHIS-2 reviews. Regional Health Bureaus, zonal and woreda health offices will compile reports and submit them to the MOH to ensure consistent documentation and reporting at all levels of the health system.

Resources required: Skilled personnel at the MOH and Regional Health Bureaus, guiding documents such as the National WASH and Environmental Health strategy, community engagement strategies and finance for implementation through government and development partners' support.

Procedures: Steps including developing directive, integrating household air pollution into all major health policy documents, and cascading implementation through Regional Health Bureaus. The approval process requires technical desks (WASH, Maternal, Child Health, Strategic Affairs) to revise documents, with final approval by the Minister of Health.

Authorities: The Minister of Health through the Community Engagement and Primary Health Care Lead Executive office has the ultimate authority for the integration of household air pollution measures into policy and strategy documents. Technical desks, including WASH and Environmental Health, Maternal Health, Child Health and Strategic Affairs, will provide coordination and inputs. Regional Health Bureaus and lower-level health offices will take the responsibility of implementation and compliance and development partners will play a supportive role.

Timeline: It will take one to three years to incorporate household air pollution measures into upcoming strategies (e.g., Health Sector Strategic Plan for Early Childhood Development, WASH and Environmental Health Strategy updates, HSTP-II revisions and EEHSP updates). Institutionalizing implementation across all levels of the health system will take three to five years.

Expected Impacts

Integrating air pollution into health sector policies and strategies will result in measurable reductions in preventable deaths, improve public health, and reduce the economic burden from air pollution.

This policy brief is part of the Enabling Environments for Noncommunicable Disease (NCD) Risk Reduction in Ethiopia (ENABLE) Project. It aims to reduce the burden of NCDs in Ethiopia by reducing the lifelong prevalence of major NCD risk factors among pregnant women in low- and middle-income countries through multi-level actions to promote healthy diets, physical activity and reduce air pollution in a clean and supportive urban environment.

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