Regulating Incense and Biomass Fuel Burning in Food and Drinking Establishments in Ethiopia

ENABLE Project Policy Brief

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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

- In Ethiopia, high levels of indoor air pollution from incense burning during traditional coffee preparation and serving is a major public health problem (1).
- Incense burning, broadly used for cultural or aromatic purposes, particularly during the coffee ceremony, releases harmful pollutants including fine particulate matter, polycyclic aromatic hydrocarbons (PAHs), and volatile organic compounds (2).
- Evidence from Ethiopia shows that traditional coffee ceremonies produce fine particulate matter and carbon monoxide levels that exceed WHO limits (3).
- In enclosed houses or poorly ventilated spaces, the problem is more severe, and the exposures increase the risk of respiratory illness and cardiovascular disease (4), dementia (5) and cancer (6).

Without regulatory action, food and drinking establishments, such as roadside coffee brewers, restaurants, cafeterias and bars will remain the main sources of indoor air pollution exposure. Therefore, we recommend adoption of regulations to restrict incense and biomass fuel burning in food and drinking establishments. We also recommend raising public awareness on the health impacts of biomass fuel smoke by drawing parallels with secondhand tobacco smoke.

Problem Statement

Traditional practices such as coffee ceremonies and incense burning, when combined with poor ventilation and enclosed space especially indoors, significantly increase the risk of respiratory illness. This indicates the urgent need for regulation.

Indoor air pollution is a major public health problem in Ethiopia, which contributes to respiratory illness, cardiovascular disease, and premature mortality for people who spend time in poorly ventilated spaces. Incense burning contributes to high indoor air pollution in Ethiopia due to cultural traditions like the coffee ceremony, low public awareness of health risks, and poorly ventilated buildings. In food and drinking establishments, all these factors combined can produce harmful smoke indoors, exposing workers and customers to preventable health risks.

The burning of incense in food and drinking establishments including hotels, coffee houses, restaurants, and beauty and health therapy centers like “woiba chis”- emits fine particulate matter ($PM_{2.5}$), carbon monoxide, and polycyclic aromatic hydrocarbons, making it a major modifiable contributor to indoor air pollution in public spaces. Exposure to these emissions has been associated with both acute and chronic health effects, including acute lower respiratory infections, asthma, cardiovascular disease, dementia and an increased risk of cancer (7-9). Global evidence further confirms that burning incense significantly degrades indoor air quality in public setting (7, 10). Exposure to these pollutants is linked to a range of health issues, and frequent use of incense can lead to or worsen conditions such as asthma and bronchitis, as the small particles can easily enter and damage the lungs (2, 8). Local evidence shows that emissions from incense burning can reach rapid concentration levels exceeding air-quality standards in typical indoor settings when incense is burned (11).

In Ethiopia, cultural practices such as the coffee ceremony usually involve charcoal burning and incense use in enclosed rooms. A pilot study in Addis Ababa found that indoor concentrations from coffee ceremonies generate particulate matter exposures in the 1,000–2,000 μg/m³ range and carbon monoxide levels above WHO safety limits, which clearly shows that incense use worsens exposures (3). Another study from Ethiopia found that using stoves indoors increases in fine particulate matter and harmful polycyclic aromatic hydrocarbons. When incense is burned indoors, pollutant levels rise even further, creating hazardous conditions, particularly for women, who are most exposed to smoke during cooking (12). Poor housing conditions such as small windows and inadequate ventilation aggravate the exposures, particularly among women and children, who spend more time indoors (9).

Primary cause of the problem: The primary cause is the predominant daily and country-wide practice of burning incense and biomass (especially during traditional coffee ceremonies and in enclosed establishments) in poorly ventilated indoor spaces. One person can be exposed multiple times a day for multiple hours.

Policy Recommendation

The introduction of regulations governing incense burning in enclosed food and drinking establishments is critical to minimize indoor air pollution and protect the health of customers and workers.

Considerations for Implementation

Scope: Food and drinking establishments, including hotels, coffee houses, restaurants, and traditional beauty and health therapy ("woiba chis") will be regulated in Addis Ababa and regional city administrations. The Ministry of Health (MOH) will take the lead and work with the Ethiopian Food and Drug Authority (EFDA), regional health bureaus, and city administrations to develop a regulation similar to the Tobacco Control Proclamation.

Standards Development: To develop a standard, MOH should organize a stakeholder consultation with the Ministry of Tourism, the Ministry of Trade, environmental health experts, and city administrations. Potential standards for public spaces to be developed may include indoor air quality limits for combustion source pollutants (e.g., $PM_{2.5}$ and carbon monoxide) and requirements for ventilation and air exchange.

Roles and Responsibilities: The MOH leads policy development and public health messaging, whereas the EFDA will monitor compliance and enforce standards related to air quality, including issuing business licensing criteria. City administrations will have a role in inspecting and licensing the establishments.

Compliance and Enforcement: City administrations, the Food and Drug Administration and Health offices from Woreda to Federal level will include control of incense and biomass fuel burning as part of their regular health and safety inspections. These inspections will check that burning practices follow safety rules to protect public health.

Reporting and Documentation: Health and health-related departments at woreda, zonal, regional and federal levels within the Ministry of Health are responsible for enforcement and reporting. The EFDA receives the report from the MOH.

Resources: Budget for: training of inspectors to maximize their technical capacity; enforcement of the regulation; and communication to the public about the regulation.

Procedures: A multi-step process will be used, including drafting the regulation for incense burning, followed by stakeholder consultation with authorities and experts. The implementation will be cascaded through city administrations, which will be responsible for

integrating incense smoke control measures (such as keeping smoke away from the customers) into health and safety inspections and business licensing. The approval process requires the development of standards and regulations by the MOH and EFDA, followed by the approval by the council of ministers and house of peoples' representatives.

Authorities: The ultimate authorities for this policy are the MOH and EFDA, jointly responsible for development of the regulation, enforcement and compliance monitoring. The Ministry of Tourism and city administrations at each level can also advance implementation.

Timeline: The MOH with the EFDA might need one to two years for drafting the proclamation, stakeholder engagement and implementation of this policy option.

Legal Mechanism: Draft incense and biomass fuel burning control proclamation under the Ministry of Health and EFDA, similar to the Tobacco Control Proclamation (Proc. No. 1112/2019). This regulation should set standards for incense and biomass fuel use, ventilation and indoor air quality in food and drink establishments. Review existing business licensing and registration proclamations and refine and/or create a new proclamation including indoor air quality compliance.

Expected Impacts

Restricting incense and biomass fuel burning in food and drinking establishments, along with public awareness campaigns, can reduce indoor air pollution and promote healthier indoor environments. Customers can also take these messages home, encouraging such practices in their own households.

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This policy brief is part of the Enabling Environments for Noncommunicable Disease (NCD) Risk Reduction in Ethiopia (ENABLE) Project. ENABLE 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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