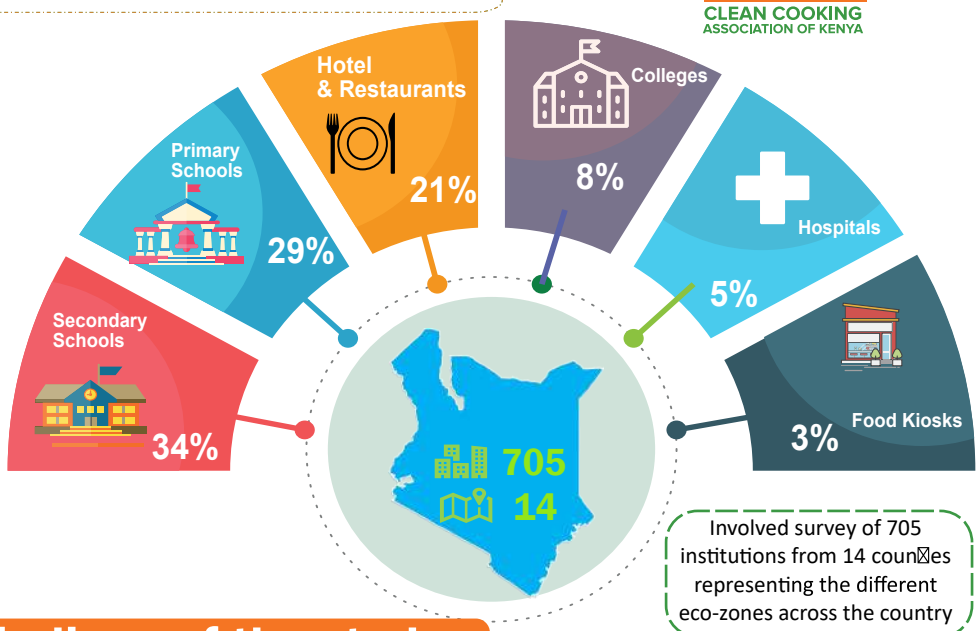
SURVEY FINDINGS OF THE BIOMASS COOKSTOVES AND FUELS USE IN KENYAN INSTITUTIONS

CCAK
CLEAN COOKING ASSOCIATION OF KENYA

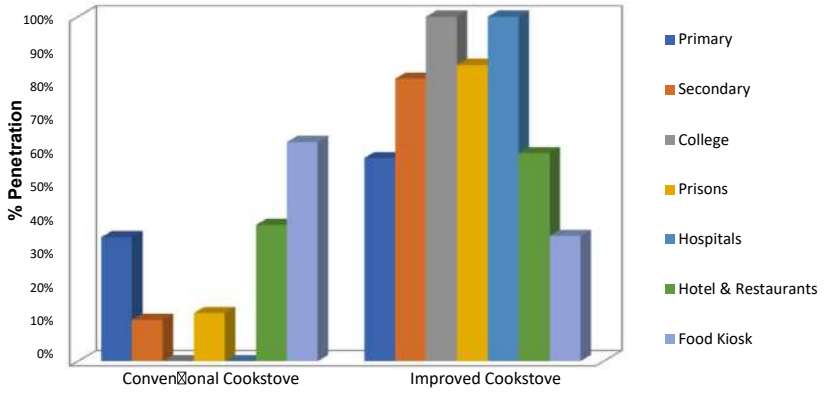
The objective of the study was to provide insight into the impact of use of improved and efficient biomass cook-stoves in institutions in Kenya under regulated and unregulated environments with all related effects



Involved survey of 705 institutions from 14 counties representing the different eco-zones across the country

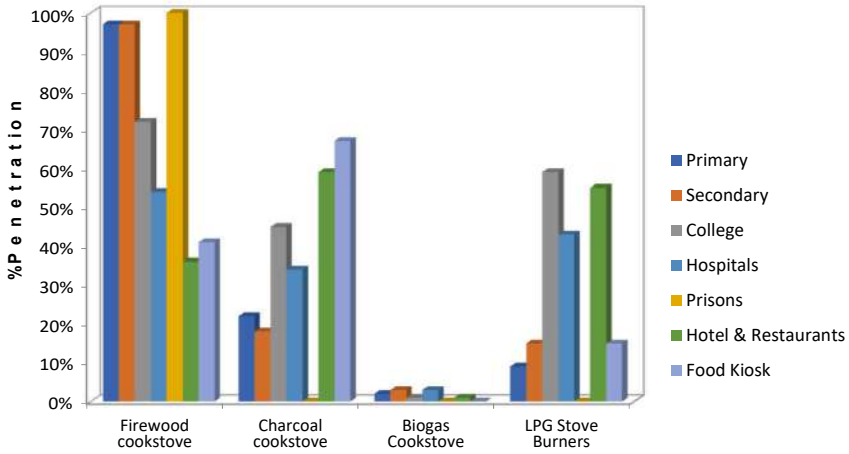
Findings of the study

Percentage of institutions using improved firewood cookstoves and conventional firewood cookstoves.



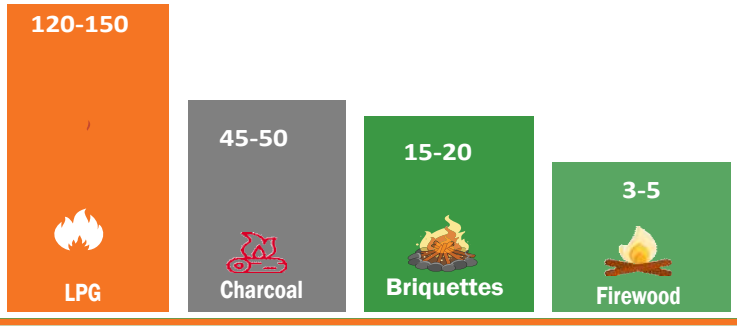
97% ofinsti tutions surveyed use firewood.The penetration rate of improved firewood cookstoves in secondary schools,colleges and prisons is above 80%

The prevalence of different types of cookstoves in institutions

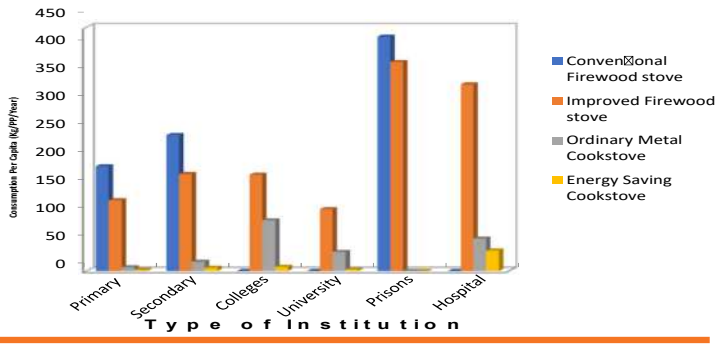


Firewood cookstoves are the most prevalent followed by charcoal cookstoves.

The average costs of different fuels used in institutions {kshs/KG}

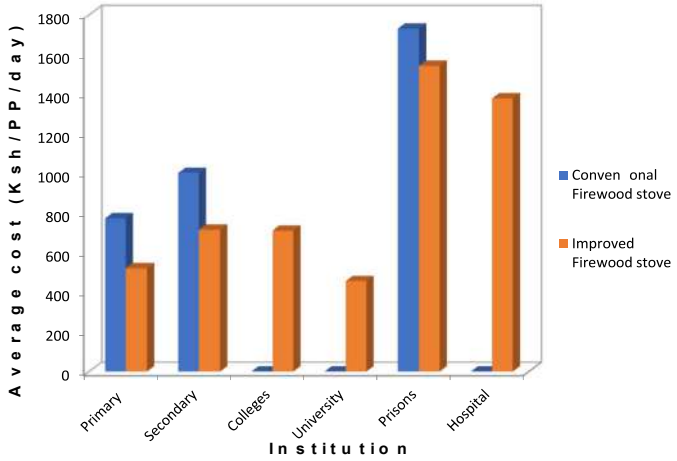


The fuel consumption per capita obtained from use of different technology

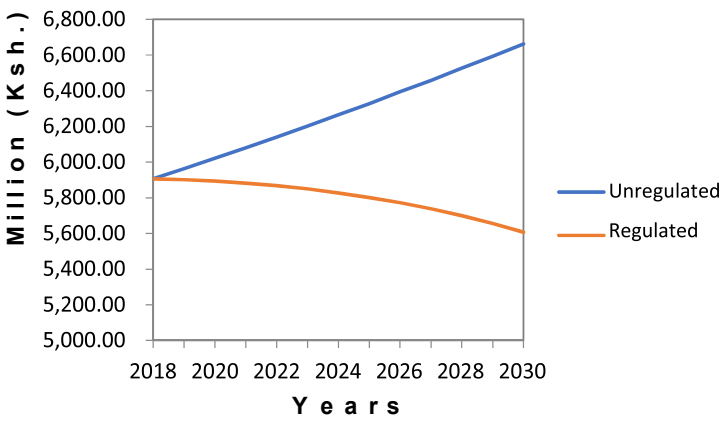


Comparative analysis of the current average operational costs associated with the use of improved cookstoves and conventional cookstoves in institutions

Average Operational Cost per Person per year for improved and conventional firewood cookstoves

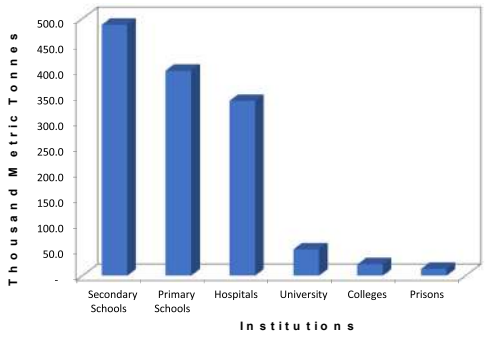


Comparative analysis of the average operational cost for institutions using firewood under the regulated and unregulated Scenarios

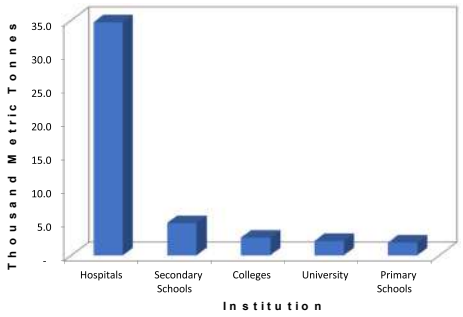


Comparison of institutional fuel consumption for 2018

Institutional firewood consumption

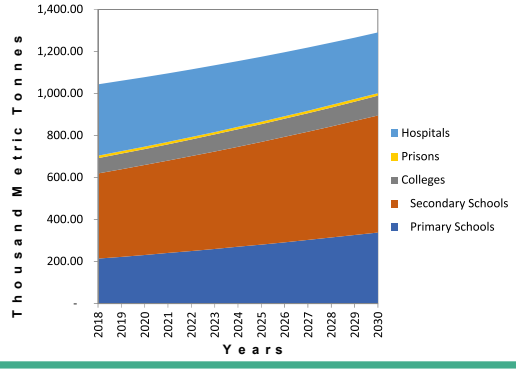


Institutional charcoal consumption

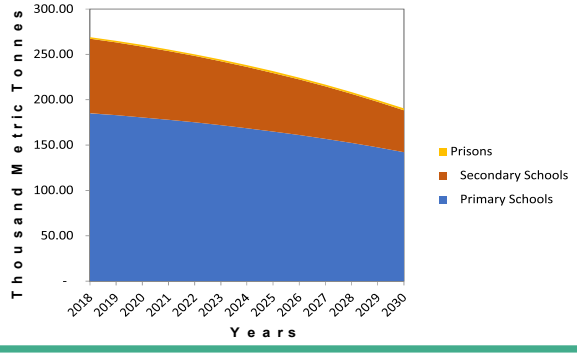


Analysis of the current and projected average tonnage of firewood used in institutions:

Using improved firewood cookstoves

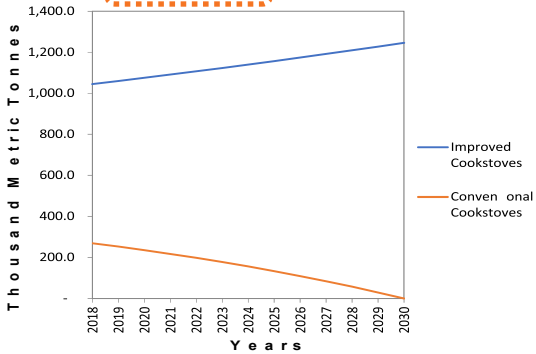


Using conventional firewood cookstoves

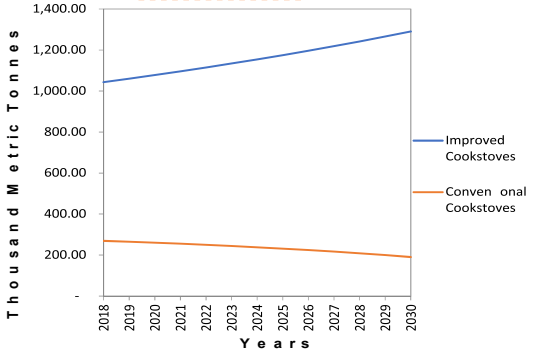


Comparative analysis of the average tonnage of firewood use under regulated and unregulated scenarios projected for a 10 year period.

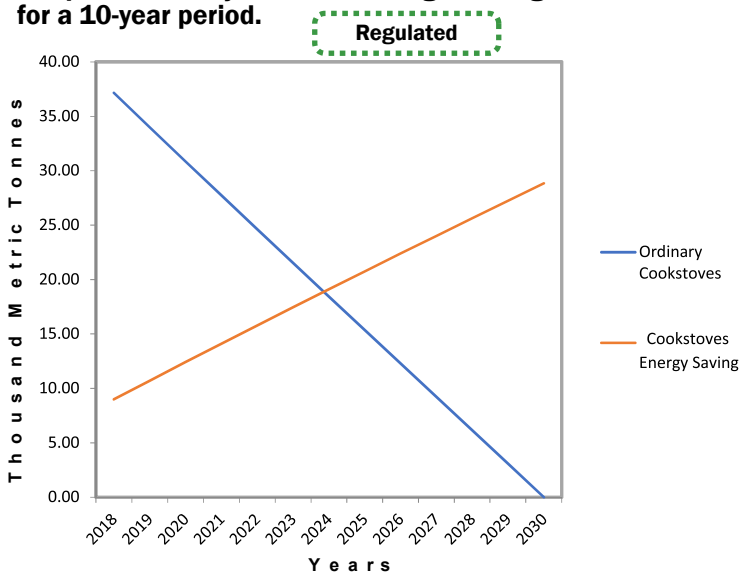
Regulated

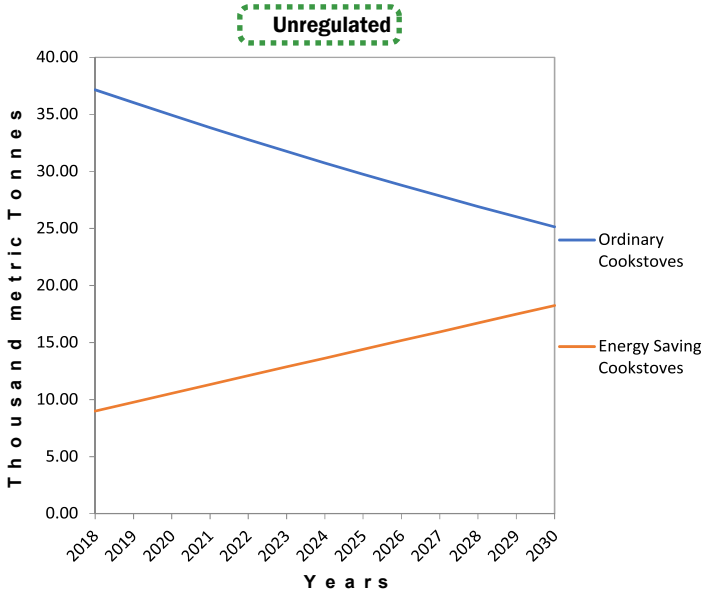


Unregulated

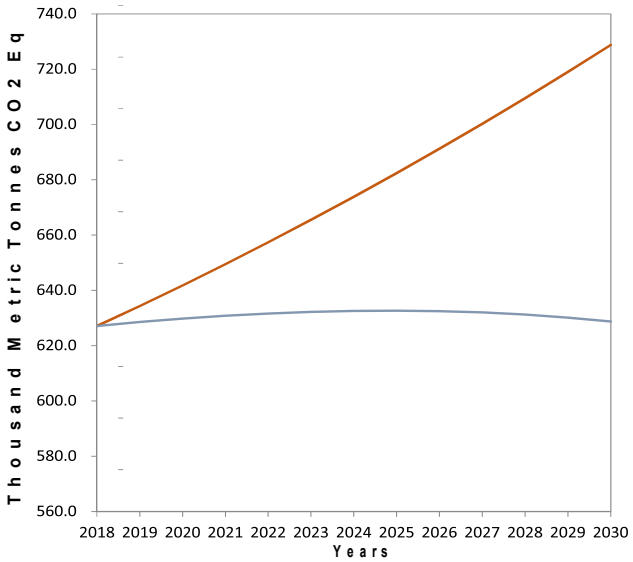


Comparative analysis of the average tonnage of charcoal use under regulated and unregulated scenarios projected for a 10-year period.





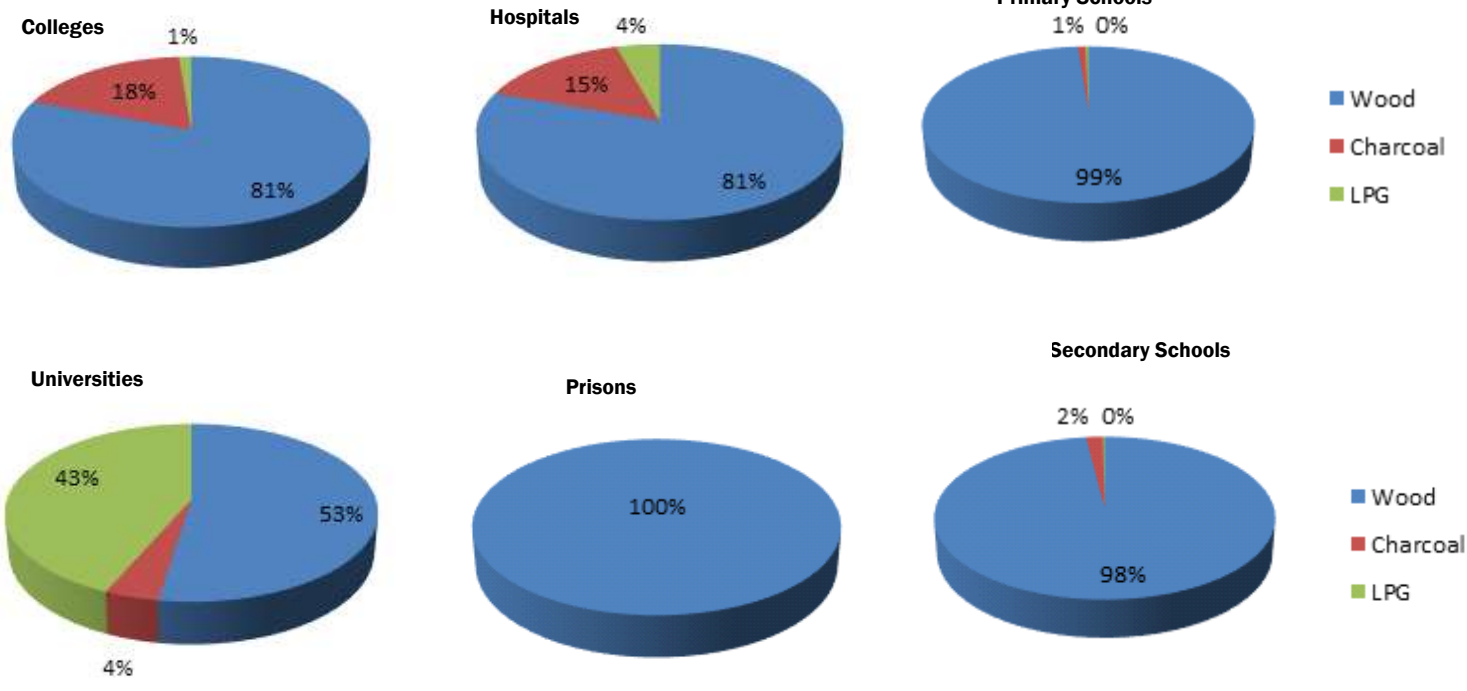
Cost benefit analysis of the proposed Energy (Improved Biomass Cookstoves) Regulations, 2013



The addi onal amount of money that requires to be invested for the regulated scenario is $7.4 Million, discounted to 2018 at a 10% discount rate. However, this investment can be recovered from the saving accrued from reduced purchases of the fuels. The savings expected for the period (2018-2030) if the regulated scenario is implemented is $33.9 million.

There will be a cumula ve reduc on of 581.1 Thousand Tonnes of CO2 equivalent Greenhouse Gases (GHG) if the regulated scenario is implemented.

Fuel mix in the different institutions



Factors that will influence the adoption of the improved cookstoves under regulated environment

Positive Factors

- Elimination of poor quality products from the market
- Elimination of counterfeit from the market
- Efficient use of fuel and cost
- Reduce pressure of wood fuel demand
- It will open up markets for stove manufacturers resulting in creation of jobs.
- Give value for money
- Protect the investment
- Improve innovation
- Health and welfare benefits for the users

Negative Factors

- For consumers it is cost and accessibility/availability
- Cost of compliance by the manufacturers (Testing and Certification by ERC and KEBS)
- Cost of compliance on the users particularly the food kiosks (cost of cookstoves, record keeping)
- Inadequate facilities for testing of cookstoves
- Inadequate field technical capacity
- Poor utilisation of the technology by the user (poor maintenance, wet fuel).
- Users of improved institutional cookstoves inability to follow manuals which results in short life spans.
- Raw materials are centralised in major urban centres (Nairobi) hence the cost of technology increases as one moves to remote areas

Non regulatory factors that affect the adoption of improved cookstoves

Cost of improved biomass cookstoves, this is a crucial factor, which is dependent upon

- Number of people or students in an institution, which determines the size of cookstove and ultimately the price
- Number of meals prepared in the institution also determine the type and hence of cookstove
- Location of institution, if it is in a remote place the costs to consider include transportation costs, installation and maintenance costs
- Materials used for the cookstoves e.g. Fire proof cement, pottery clay, Insulation
- Type of cookstoves i.e. Rocket- no casing, use industrial bricks, different fire chambers-smaller), less smoke, higher efficiency, expensive fibre glass
- Specification of the kitchen (slabbed kitchen, rough floor kitchen)

Challenges facing the supply chain and manufacture of improved biomass cookstoves

Being dominated by manufactures and supply chain, participants discussed challenges that manufacturers of institutional biomass cookstoves face and passive role of the regulations in solving the challenges:

- Finances-institutions have low buying/paying capacity. Others delay their payment hence affecting businesses.
- Local artisans are not stable financially to deliver large scale installations. They end up using cheap materials which compromise the quality of cookstoves installation/poor workmanship.
- Use of poor quality materials comprises the quality of the end products
- Institutions not following manuals and O&M instructions by using different maintenance and may be unqualified personnel due to changes in school's management. Warranty of stoves is 5 years, but most institutions do ignore it

Mechanisms that could be used to improve the adoption of Improved cookstoves other than regulations.

- Practical demonstration of the benefits of improved cookstoves.
- Behaviour Change Communication Awareness for stove users.
- Financing – creation of a revolving fund to make the upfront cost

Lessons learnt from the study.

Create Awareness

Create awareness targe□ng heads of ins□tu□ons from management and procurement (staff in charge of procuring cookstoves and fuel).

Record Keeping

Keep records on procurement and daily fuel consump□on to determine financial savings, health implica□ons and fuel emissions.

Innovative Financing

Innova□ve consumer financing in the form of credit or revolving funds will address the prohibi□ve cost thus encouraging the uptake of efficient improved stoves.

Manufacturers Credit

Create sources of credit for small scale businesses and ar□sans enabling them to deliver affordable and quality large scale installa□ons of improved cookstoves.

Discussion Forums

Organize forums between educa□onal ins□tu□ons and stove manufacturers to discuss common energy concerns which will address supply chain needs and regulatory concerns.

Training

Carry out training on cookstoves standards and regula□ons to improve maintenance and durability.

Our Contacts

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SNV through the V4CP project funded by Directorate-General for Interna□onal Coopera□on (DGIS) works with clean cooking Civil Society Organisa□ons (CSOs) i.e. CCAK and GROOTS Kenya to intervene at both na□onal and county levels on; increasing government commitment to clean cooking by an increase in budgetary alloca□on; inclusion of clean cooking in plans and policies; support to the development of clean cooking standards, guidelines and regula□ons; and capacity building of clean cooking champions.