
OBJECTIVES

- Validating actual gas and particle emissions from Improved Cookstoves (ICS) vs. Traditional Cookstoves (TCS)
- Characterization and optimization of biomass combustion equipments
- Promoting and monitoring standards for ICS and biomass fuels
- Facilitating the emergence of biomass energy based development models in the region

BENEFICIARIES

- Cookstove users – in Cambodia and Regionally
- Institutions/Associations involved in the development and the implementation of standards of ICS
- Stove producers
- The Royal Government of Cambodia through capacity building and fame for this innovative Laboratory concept in the Region

BACKGROUND

Most Asian nations still rely on the forests to supply energy, and in Cambodia, 96% of rural households use biomass, commonly either fuelwood or charcoal, for their cooking energy. Usually, the biomass used for cooking is sourced unsustainably, and the technologies employed are largely outdated and inefficient. As a result, there is severe environmental degradation contributing significantly to CO₂ emissions and occurrence of indoor air pollution. Based on a UNICEF report in 2005, 1.6 million deaths occur every year because of indoor air pollution caused by the use of inefficient biomass cookstoves and poor quality biomass fuel.

Nevertheless with appropriate inputs on sustainable supply and efficient end use, biomass can become affordable, clean and efficient energy for the poorer, maintaining biodiversity and jobs source in rural areas.

Improved cookstoves (ICS) have proven to reduce fuel consumption, last longer and reduces exposure to smoke, thereby saving money, saving carbon, and saving forests. Standards and characteristics of stoves and related biomass need to be established.

A laboratory is thus needed, linking modern knowledge of combustion and thermal exchange with fuel efficient stoves that leads to widespread adoption to communities; have accurate measurements of emissions and performance and

testing of current and new prototype of stoves. Because creating industrial standards requires extensive testing, GERES and ISC (Institute of Standards of Cambodia) have partnered to build a new, state-of-the-art laboratory for equipment testing, capacity building and standardization. The lab will not only validate the standards of locally and regionally produced stoves and new prototypes of stoves to conform to the strict standards of renewable energy technology, but encompasses the function to perform tests on materials and characterization of biomass technologies and combustibles.



TOPIC / INTERVENTION LOGIC

There is limited attention on biomass energy development and research is geared on advanced and sophisticated technology such as co-generation, instead of cookstove technologies. An integrated laboratory is necessary to facilitate materials testing, combustion analysis, emissions analysis and biomass fuel analysis to support biomass equipment and fuel promotion in Cambodia and developing countries, as well as to validate scientifically claims of ICS. The success of Cambodia in promoting ICS has

inspired neighboring countries to restart their own ICS programs that have been idle for several years. These new emerging activities in the region require strong support to improve the performance, materials and combustion (to reduce pollutant emissions).

The role of the laboratory is vital in assuring the success of ICS dissemination, therefore the laboratory is aiming to be ISO 17025 certified as fully credible and competent in providing quality testing services.

ISSUES AND EXPECTED OUTCOMES

Economical and Social Impacts:

- More efficient and durable stoves translate to savings from fuel and replacement of stoves.
- Less polluting stoves mitigates exposure of hazardous gases while cooking and saves carbon.
- Consumers are aware of a standard (eg Energy label) and able to obtain a reliable stove that conforms to safety, health and technical performance standards.
- Supporting quality manufacturing from the producers.
- The energy label is an effective communication and promotion tool to boost the sales of the ICS, which in turn provides benefits to the entire supply chain (producers, distributors and retailers).

Environmental impacts:

- Less pressure on the forests with less demand on fuelwood and other renewable sources, leading to sequestration of carbon.
- Mitigation of GHG which also has a positive impact on other environmental problems such as bio diversity, flash floods, siltation).



ACTION PLAN

Year 1: Summary

- Develop procedure and management tools to conform to ISO17025 and to obtain ISO certification
- Benchmarking existing ICS production and identifying areas for improvement
- Defining compulsory parameters to form the basis for ICS standards
- Standardization of cookstoves and sustainable supply
- Capacity building of local technicians

Year 2: Summary

- Start the process of ICS certification
- Promotion of the laboratory regionally to increase consultancy services
- Training modules developed for South-South cooperation
- ISC is responsible to support the development of quality service management and ISO 17025 certification application.

PARTNERS

- The Department of Industrial Standards of Cambodia (ISC) of the Ministry of Industry, Mines and Energy (MIME)
- Planète Bois
- University of Technology of Tarbes (IUT), STER Faculty (France)

CONTACT GERES CAMBODIA

David BERITAULT, Charcoal Expert
d.beritault@geres.eu
Mobile: +855(12) 687 206

Groupe Energies Renouvelables, Environnement et Solidarités Group for the Environment, Renewable Energy and Solidarity

House no.350, Street 350, Sangkat Boeung Keng Kang 3, P.O.Box 2528, Phnom Penh 12304, Cambodia
Tel: +855(23)986 891, Fax: +855(23)221 314
www.geres-cambodia.org – cambodia@geres.eu