

**FIREWOOD CONTEXT and CFSP HISTORIC SINCE 1997**

Fuelwood and other biomass energy are the main sources of energy in Cambodia; it represents 96.3% of national fuel consumption (NIS, 1999). The fuelwood fulfills 97.7% of the energy demand for the household cooking of the whole country (NIS, 1997). The estimation of average fuelwood daily consumption by a household in Cambodia is around 3.5 kg.



In urban area, the choice of the energy sources for household cooking is broader; nevertheless the fuelwood and its derivative (charcoal) count for 83% of the domestic energy needs (RWEDP, 1998). Small enterprises such as brick kilns, bakeries, and food processing units also use fuelwood extensively.

Considering the lack of pragmatic action on wood energy policy, Cambodia Fuelwood Saving Project (CFSP) started on 1997 in the province of Kompong Chhnang. The main objective is to validate technological and socio-economical references on wood energy in Kompong Chhnang province.

Two main activities consuming wood energy have been specially identified: household cooking and palm sugar production. Wood and charcoal fueled improved cook stoves are yet in commercialization by the existing traditional cook stove distributor channels.



A number of palm sugar producers have been skillfully constructing and utilizing improved palm sugar stoves.

The "big bang" of the improved cook stove was then radiated to a number of provinces in Cambodia...

**Encouraging Results of CFSP phase I.....**

The achievement of CFSP I was also gained due to hand-in-hand works of CFSP and CEDAC (a national Cambodian NGO), gathering 18 institutions interested on wood energy to establish a national network on wood energy called WENetCam.

Through this network, CFSP has been enabled to train 58 ICS technicians and more than 100 extension workers.

Concerning the first phase impact, CFSP over passed the expected quantitative objectives with around 18,000 units of improved cook stoves disseminated, with an estimation of 70% usage level, 37,500 tons of fuelwood is saved annually, or 53,000 tons of CO<sub>2</sub> is not emitted to the environment.

Type of ICS	Users	Fuel	Dissemination	Amount
Twin Stove	Rural Household	Wood	Commercialization	4,789
New Lao Bucket Stove	Urban household	Charcoal	Commercialization	11,133
Palm Sugar Stove	Palm sugar producers	Wood / Biomass	Owner-built	2,198
Samaki Stove	Rural Household	Wood	Owner-built	334
Institutional Stove	Institutional	Wood	Technician-built	9

**OBJECTIVES OF CFSP Phase 2 - FACILITATE IMPLEMENTATION OF AN EFFICIENT NATIONAL WOOD ENERGY POLICY**

The defined objectives of CFSP [phase 2] is based on the achievement of the previous phase; a better knowledge on the context and national priorities, and a search of a greater impact of the selected available actions and means.

It was thus retained, in particular considering the three headlines of the external evaluation at the end of CFSP [phase 1]:

An accompaniment of a broad household improved cook stoves dissemination by the **network of the governmental and non-governmental structures in rural area** and by **commercialization towards the urban zones**.

The dissemination will be prioritized to the zones identified as critical (high density of population and local wood scarcity). The preset aim of the 4 years program is to equip 150,000 households with improved cook stoves through commercialization. We plan by this way in 10 years to save 2,210,000 tons of fuelwood, to create and consolidate 90 jobs of ICS producers that may generate an added value of 80,000 US\$/year.

A continuation of the efforts on R&D to improve the performance and reduce the production costs of household improved cook stoves, to validate the innovations to substantially reducing the specific consumption of wood burning equipment utilized in small scale industries, to facilitate substitution (LPG...) and fuelwood upgrading (efficient charcoal making process, small scale wood/ biomass gasification..).

An accompaniment of the setting up of an institution, and by that to recognize the importance of wood-energy sector in Cambodia (supply and demand), through training sessions, awareness of the decision makers, validation of key-actions in technological and socio-economical terms (in particular the valorization of wood energy within the forestry communities), the participation in making of a legislative framework, the implication of the various actors concerned by the topic at national scale and by supporting the introduction of validated outputs to the other South-East Asian countries.

Working area of CFSP - Phase 2



**EXPECTED OUTPUT**

- 1 Development of a national action plan on wood-energy by setting-up the priorities based on the project key-actions in particular.
- 2 A national steering committee accompanying the definition of the national action plan on wood energy.
- 3 An autonomous and effective capitalization entity, logical continuation of WENetCam (data base, lists of key- contacts, organization of "sectorial" meetings, communication tools, follow-up of the key-actions...).
- 4 "to give the government of Cambodia with the data on supply and demand of fuelwood as reference in developing appropriate legal instrument to regulate wood energy utilization in Cambodia".
- 5 Selling rate of improved wood fueled stoves by 20,000 unit per year (New Lao Kompong Chhnang model) and improved charcoal fueled stoves by 15,000 unit per year (New Lao Bucket model) at the end of year 4.
- 6 Accompaniment of the partner framing structures for the dissemination of 20,000 own-built stoves over the 4 years ("Samaki", palm sugar kilns, institutional stoves,...).
- 7 Diffusion of other improved cook stoves models by considering and conducting necessary steps of validation.



10 Taking into account the rate of ICS dissemination, 3,205,000 tons of CO<sub>2</sub> will be saved, 5,525 ha of forest will not be cut over 10 years.

11 Various pedagogical supports on the improved cook stoves and other wood energy related matters.



12 National Protocol on laboratory cook stove testing and field cook stove testing adapted to Cambodian context.

13 Improvement of the existing traditional cook stoves model (Lao Kompong Chhnang stove,...).

14 Develop and design the high capacity cooking stove for urban street food stalls and portable cook stove for mobile food vendor in urban areas.

15 Feasibility study on the firewood substitution for household and small scale business.

16 Validation of a specific kiln and process for an efficient charcoal making within the community forests (introducing the practice of pruning).

17 Study on the potency of biomass gasification and its applications for rural area (drying process, cooking, etc..).

18 Procedures and firewood saving equipment within small-scale enterprises in Cambodia.

19 Series of encouraging actions (credits, accompaniment, training sessions...) to facilitate the technological changes to reduce firewood consumption.

20 Innovating ways on wood-energy management for the Cambodian community forestry.



**PARTNERS & LINKAGE**

Centre d'Etude et de Développement Agricole Cambodgien (CEDAC) a Cambodian NGO based in Phnom Penh and is the host of WENetCam

Development and Appropriate Technology (DATE), a newly established Cambodian NGO, based in Kandal Province and working on appropriate technology development and dissemination.

Asia Regional Cookstove Program (ARECOP), an Asia regional network on the issue improved cook stove and its related matters, based in Yogyakarta, Indonesia.

Community Forestry Network of Cambodia, a network dedicated to the development of community forestry.

Government institutions in ministry levels (MIME, MoWFA, MoE, MoEYS, MRD) and its in-line offices in provincial level.

Educational institutions in Cambodia (ITC, Royal Agricultural University) as well as in other country (Prince Songkhla University, Had Yai, Thailand, Asian Institute of Technology, Bangkok, Thailand)

Other Non-Governmental Organizations and projects in Cambodia



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**អុសដីចារូបភាពថាមពលដ៏សំខាន់នៅក្នុងប្រទេសកម្ពុជា**  
 ការបញ្ចូលបច្ចេកទេស... គឺដើម្បីឆ្លើយតបនូវតម្រូវការស្តីពីថាមពលលើផ្ទះក្នុងតំបន់ជនបទដែលមានការបំផ្លាញព្រៃឈើ កាត់បន្ថយគ្រោះថ្នាក់ដល់សុខភាពអ្នកប្រើប្រាស់ ធ្វើអោយមាននិរន្តរភាពនៃការប្រើប្រាស់ថាមពលលើ... ។



