

## GERES (Group for the Environment, Renewable Energy and Solidarity)

[www.geres.eu](http://www.geres.eu); <http://www.cambodia.geres.eu/>



### Improved cook stoves in Cambodia

**History of organization:** GERES is an NGO created in 1976, specializing in the implementation of efficient energy solutions adapted to developing countries. Since 1997, GERES has been running a program in Cambodia to disseminate improved cook stoves (ICS) using market-based approaches. After several attempts and studies, in 1999 GERES decided to select a stove design developed in Thailand that could easily be adopted by local manufacturers and whose design and functions resembled traditional Cambodian cooking habits. GERES then trained selected producers all over Cambodia into making the “New Lao Stove” (NLS). Sales picked up in 2001-02, when GERES helped organizing, structuring and consolidating the whole supply chain for its ICS, piggybacking on existing industrial clusters and networks, and promoting the creation of a professional and regulated association of producers and distributors called the Improved Cookstove Producers and Distributors Association of Cambodia (ICOPRODAC). Following donors’ requests, GERES launched a pilot of a cheaper version for rural areas in 2007 – the Neang Kongrey Stove (NKS) – whose design and manufacturing is still being improved.<sup>2</sup> It plans to scale-up production for this cook stove in 2013 thanks to grants and carbon credits.

Since 2008, GERES has financed its NLS program exclusively through carbon credits.<sup>3</sup> The additional income also allowed GERES to launch related initiatives such as sustainable fuel-wood supply/harvesting in villages, production of char-briquettes made of agro-waste, and introducing more energy-efficient charcoal production practices and technologies. Starting in 2013, GERES will take the lead in the Global Stove Program/Academy, to replicate the Cambodian success in South East Asia and West Africa.

**Product offering and value proposition:** The NLS is an improved cook stove for both charcoal and wood, adapted to local cooking habits, with an improved design and more efficient fuel consumption than traditional Cambodian cook stoves (22% fuel savings in average).<sup>4</sup> The cook stoves follow quality standards (which GERES helped establish and endorse by the Institute of Standards of Cambodia). The NLS is priced at \$3.5-5 (vs. \$1.5-2 for a traditional cook stove), while the rural version (the NKS) costs around \$1.5-2. The product does not come with a guarantee but the NLS lasts longer on average than traditional cook-stoves<sup>5</sup>, looks better, and induces significant charcoal savings (-\$7 per year for households using firewood, and more than \$12 for households using charcoal).

#### Value chain:

- GERES played a critical role in organizing and professionalizing a sustainable supply chain for the production of NLS. In 2002-03, clashes opposed producers and distributors due to miscommunication, mismatch between production capacity and demand, unhealthy price wars and payment delays. GERES helped set-up ICOPRODAC, an industry association grouping producers, wholesalers and distributors. This association meets every quarter to address coordination issues, and set/adjust minimum selling price at producers’ gate (distributors and retail price is not regulated). GERES is not part of this association, but has delegated one staff as secretary and facilitator. It does not impose any regulations either, with the exception that a) members adhere to strict quality standards, and b) all transactions be recorded.<sup>6</sup> GERES is now also training the association on quality control, with the goal

2 This version has no metallic envelope, bringing down the production cost significantly.

3 However, the registration of the carbon credits has been a lengthy process, lasting from 2003 to 2007. The money received through carbon credits was not directly returned to the users (as subsidies) but rather used to fund marketing, R&D, quality control, etc. To do so, GERES sought explicit recognition from the government to utilize the carbon revenue to develop its programs in Cambodia (at least 95% must be reinvested).

4 This is achieved thanks to the design of the cook stove mostly: the thickness of the ash grid, the size and shape of the combustion chamber, and the isolation layers.

5 The NLS lasts 4 years with maintenance, 1.5 years without, vs. 1 year max for traditional stoves.

6 GERES closely monitors quality compliance in the network. Non-compliance is reported to the ICOPRODAC Executive Committee and a warning is sent to the producer. A producer may receive two warnings before being removed from the organization.

of handing over this aspect of the work to them. Furthermore, it is currently trying to engage the government to endorse the ICS standard countrywide and help with enforcement.

- As of 2011, GERES is supporting 35 production centers (of which 33 for NLS and 31 NKS) in 9 provinces, with varying ICS production capacity (between less than 1k to over 60k stoves per year). Producers used to manufacture traditional cook stoves, and were selected by GERES according to their interest in learning about a new design and business opportunity, and their production capacity. NLS are distributed all over the country via a network of existing wholesalers, distributors (over 170) and retailers (over 110).<sup>7</sup>
- Since 1999, GERES has trained 124 NLS producers, and 63 NKS producers. Through the ICOPRODAC, GERES also trains distributors. Retailers do not receive formal training, but are coached by the GERES team on how to best explain the advantages of the stoves to potential buyers, when the team goes and collects sales data.
- Producers earn ~\$0.50 per NLS sold, compared to \$0.13-0.18 for a traditional cook stove. Distributors buy NLS from producers at \$2.12 minimum (price is set by ICOPRODAC). Retailers buy from distributors at 2.63-\$3.00 per unit, while customers buy at \$3.50-5.00. For NKS, the producers' profit margin is only slightly higher than for a traditional cook stove, i.e. \$0.31 per unit.
- GERES has also been experimenting with providing loans for producers to invest into equipment, through a savings cum credit cooperative scheme. Ten producers were supported in 2012 for a total of \$14k, and are in the process of repayment.

#### Results:

- Between 2003 and September 2012, the supply chain that GERES helped set-up had sold 1.9m NLS in urban and semi-urban areas. In addition, 363k NKS have been sold since 2004. GERES achieved an impressive penetration in urban areas where 40% of households have at least one of its stoves. The production averages at 28k NLS/month and 8-9k NKS/month. In 2011 and 2012, NLS yearly sales amounted to around \$1.6m.
- As of 2011, the NLS project had created more than 1.1k jobs, saved 500k tons of CO<sub>2</sub>, 5k ha of wood, and \$9m fuel expenses for households (generating \$4m in carbon credit revenues).
- In 2011, GERES budget (\$444k) was fully financed by carbon credits. In 2012, to expand its support to NKS, GERES increased its budget to \$668k (including donor grants).

**Exchange rate:** 1 USD= 4000 KHR

**Sources:** [www.geres.eu](http://www.geres.eu); Interview with Iwan Baskoro on 10th and 28th of May 2012; GERES, *Dissemination of Domestic Efficient Cookstoves in Cambodia*, 2009; GERES, *The success story of improved stoves*, 2010

**Contact person for the project:** S. Yohanes Iwan BASKORO, ICS Program Director & Technical Advisor: [i.baskoro@geres.eu](mailto:i.baskoro@geres.eu)

7 There are 171 distributors and 114 retailers formally collaborating with GERES to help monitor sales, among other tasks. There are more distributors channeling GERES' ICS to an estimated 2,000 retailers nationally, but the latter are not willing or able to record transactions for GERES.