



Cambodia - Supporting Self-sustaining Commercial Markets for Efficient Cookstoves and Household Biodigesters



Jie Tang

East Asia and Pacific Region, The World Bank

February 11, 2012



Household Energy: where do we stand in Cambodia?

1. Rural household energy sources: **90% from wood and charcoal**
2. Household **expenditures** for cooking and lighting: **10%**
3. Time spending for energy-related activities (collecting wood, cooking, boiling water): **3-4 hours / day**





Neang Kongery Stove (NKS) in Cambodia

1. Neang Kongery Stove (NKS): developed in 2001 by NGO Energies Renouvelable, Environment et Solidarites (GERES-Cambodia)

- **energy efficient:** 60% less wood and 22% less Charcoal
- **Affordable:** \$0.47 production cost, \$0.54 bulk price, \$1.5 retail price
- **require the same skills and materials (clay) for production** - traditional skills & materials in Cambodia rural areas for stoves
- **fit with the stove carriers** of traditional distributors



2. In 2007-2008, ESMAP supported introduction of NKS in Cambodia. **8,000 NKS** were sold. Key challenges:

- **Mixed quality** of the NKS produced
- **Insufficient supply** to meet demand

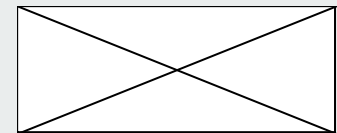




ASTAE-supported Cookstove Programs

2. To respond to high demand, in 2008 ASTAE-supported TA for creation of **Model Production Facilities** and **business model** in one province, for replication throughout Cambodia.
 - improving the quality, production capacity of NKS
 - Creating sustainable business models for production and distribution
 - Empowering women to participate

3. Source of funding:
 - **ASTAE** (\$90k + \$75k) and
 - **GAP** (\$45k)

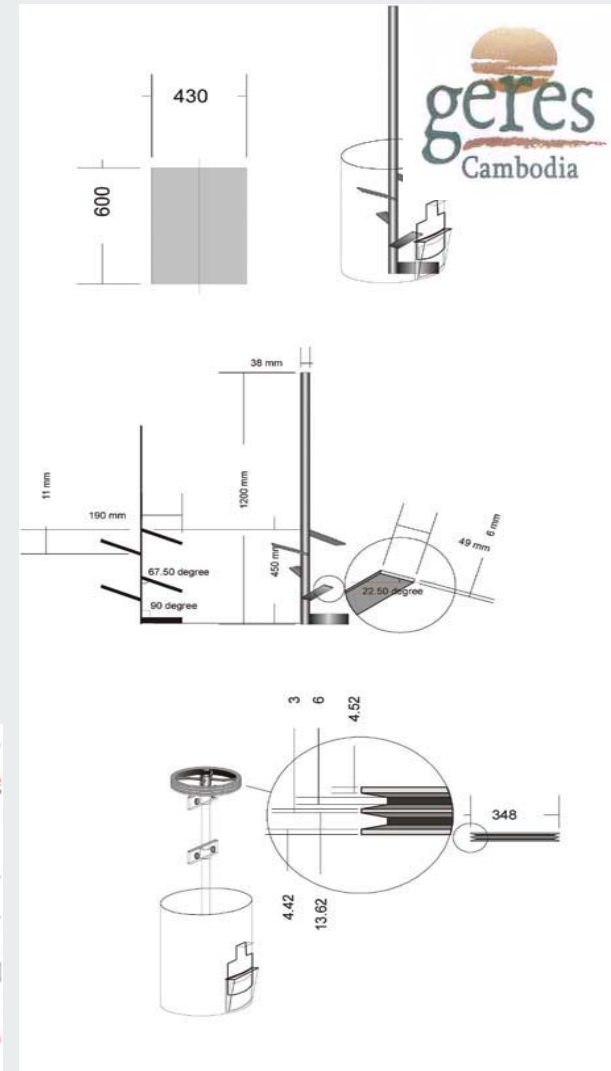
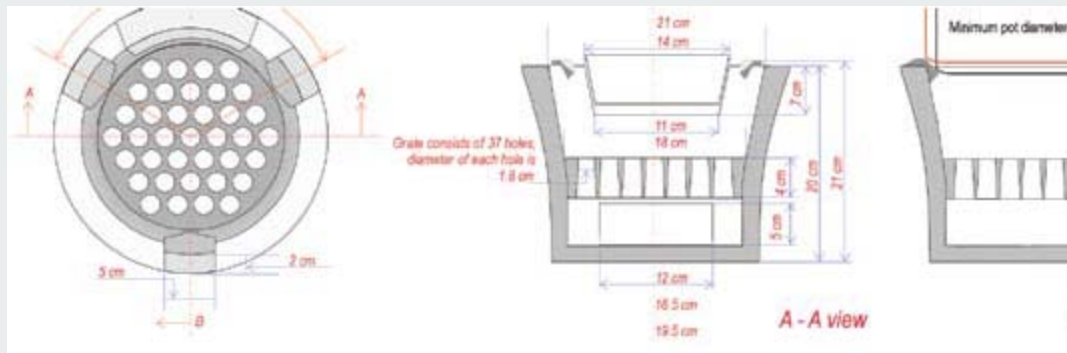




Improving Quality and Production Capacity

The TA supported:

- Develop and test **technologies** to increase productivity
- Develop **standards** for improved quality
- Create **model production facilities**
- Pilot **production** following the technologies and standards





Create Sustainable Business Model and Empower Women

The TA supported:

- train **SMEs/Producers**, especially **women producers**, in rural areas for management and marketing
- set up **microfinance mechanism** for the producers
- share **production facilities**
- **Share Knowledge** through learning, producing and sharing production documentations

Key elements

1. **Commercial operation** based on market mechanism
2. Active engagement with **NGOs**
3. Focusing on **Woman**





Pilot - Introduction of NKS in Rural Areas

Outcomes:

1. **Results:** 10 SMEs created and people trained are producing 3,000 NKS per month ;

- **Women** producer trained are producing 2,000 improved NKS per month, each making average **\$2.5/day (\$60-70/month)**

2. **Replication:** The Ministry of Industry, Energy and Mines formulated the **National Efficient Cook Stove Program**, following the pilot commercialization experience:

- **34 SMEs** created and operational and **204,000 NKSs** were sold since Jan 2010
- **31 SMEs** operational for selling **Lauv Cookstoves** in urban areas and **680,000 units** were sold since Jan 2010.





ASTAE-supported Biodigester Programs

Pilot Private Sector and Value Chain Development:

1. **Objective:** Strengthening the roles of **SMEs** in the Biodigester supply chain
2. **Build on existing efforts:** SNV and the Ministry of Agriculture Forests and Fisheries launched a **National Biodigester Program (NBP)** in 2006
3. **Co-financing:** SNV Netherlands Development Organization





Pilot Private Sector and Value Chain Development

The Pilot :

1. Supported establishment and operation of **private Biodigester Construction Companies (BCCs)** in 8 provinces
2. Provided a **business mode** for decentralized provision of Biodigester services
3. Devised a **micro-franchise system** that made replication much easier
4. Provided customized **training on business skills** of newly established BCCs and masons
5. Created a **trade association** among the BCCs for relay of business experiences and standards improvements





Technical Assistance to Cambodia NBP

Outcomes by 2009:

1. **21 Biodigester Construction Companies** were created in rural areas
2. **5,600 Biodigester** were installed at rural households, each avoiding burning 2 tons of wood annually.

Scale up by 2012:

1. adding **18,400 biodigesters** through the NBP.

