The 3rd Bioenergy Week
Study Tour for Capacity Building
Working Group on Capacity Building

Indonesia, Medan (Sumatra), 25-29 May 2015

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Part 1: Overview of Energy uses in Lao PDR

Part 2: Participation of MAF in Clean Stoves Promotion

Part 3: Conclusion
Overview of Energy uses in Lao PDR

- Primary Energy Consumption in Lao PDR by 2011

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Consumption (%)</th>
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</thead>
<tbody>
<tr>
<td>Fuel Wood</td>
<td>56.00%</td>
</tr>
<tr>
<td>Coal</td>
<td>3.00%</td>
</tr>
<tr>
<td>Charcoal</td>
<td>12.00%</td>
</tr>
<tr>
<td>Fuel Oil</td>
<td>17%</td>
</tr>
<tr>
<td>Electricity</td>
<td>12.00%</td>
</tr>
</tbody>
</table>

Energy consumption by type

Energy consumptions by sectors

Economic growth: ~7% a year

Energy Demand increase
Overview of Energy Development in Lao PDR

- Energy Demand Projection in Lao PDR by 2025 (kTOE)

- Lao Renewable Energy development strategy in Lao portrays a road maps for 2011-2015 to implement promotion and development of improved cookstoves
The objective is to help scale up access to clean and efficient stoves in Lao PDR through capacity building, policy development and supporting selected government action plans.

Key finding of desk and field studies on cooking practices in Lao PDR:
- Majority of households still rely on fuelwood as their main source of cooking energy using inefficient cookstoves.
- To reduce firewood consumption
- Utilize agriculture residue for bioenergy
- To promote Lao women union improve cookstove utilization
Traditional Cook stove
Cook stove available in Lao PDR

Saw dusk cookstove
• **Fastest Biochar Stove**

• **Good points:**
  1. Husks can be collected at rice mills free of charges
  2. *Fastest heat as you like*
  3. After cooking you get *Biochar* for soil improvement at home garden

Rice husks stoves at wine and noodle factories Fast and Efficient Stoves produce bioenergy and Biochar and ash for veggies plots and rice fields Save money 200-300$ /month to buy firewood

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Organic vegetable
Cook stoves Market
Fuel wood plantation

Fast growing species
4-5 years can be
harvested and new
gen. Good quality for whit
charcoal making

Fast growing species
4-5 years can be
harvested then can
cut year by year

Nursery

Cassia semia cutted for fuel wood

Cractocylon

Cassia semia
Biomass feedstock

- Sugar stalk
- Fuel wood
- Rice husk
- Saw dust
- Charcoal
- Rice straw
- Chip wood
Cook stove Demonstration
Part2 Participation of MAF in Clean stove promotion

Rocket stove principle for experiment

- Small-residue of wood: branches, biomass etc
- Use 0.4 Kg it can heat over 30-40 min.
- Very fast heating – 2 liters of water can be boiled only 8 min.
- Save time and money
Original of tool and Equipment for Making Stove Mold

Cement

Wood
Research and Development of Tools and Equipment for making Stove Mold

- Internal Mold
- Stove Body Table Mold
- Pot Rest Mold
- Butterfly Mold
- Grate Mold
MAF experience of Improved Cookstoves

- Soaking Clay
- Clay mixed with biochar
- Forming of body stove
- Stove assembling
- Firing (kiln) stove body and grate
- Carving of the stove
Firing kiln cookstove body

Fuel wood

Rice husk
Lessons learned

- Users behavior
- Cooking traditions and customs
- People awareness and knowledge
- Education is essential
Charcoal Improve Cook stove

- Use lesser charcoal, heat is much longer
- Save charcoal 40%
- Can make Grilled and Baked Food
- Durable if care undertaken
- Easy to move
- Can use difference size of pot
Highly Efficient Firewood Stove

- Use only 0.5 kg of firewood, it can cook meals: rice, soup, fried, grilled food
- Save money
- Lesser work for firewood collection
- Continuous cooking
- Durable over two years
- Save firewood 40%
To promote Women Union to sale ICS
On-Job training
Target out-reach/coverage: 42% *program*

Simple user-assessment by field staff & LWU:
- Like ability of ICS (improve cook stoves- 3 sizes: small, medium and big)
- Save fuel 40% - save time and money – efficiency
- Save labor for firewood collection
- Affordable prices (except metal biomass stoves and rice husks stoves)
- Durability and safety (good quality and appropriate standards)
- Lesser smoke and heat lasts longer and better than Tao
Thank you

Save Energy Save Our Earth

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