Cookstoves for Productive Uses

March 16, 2017
Today’s Speakers

• **John Mitchell**, U.S. Environmental Protection Agency, Webinar Facilitator

• **Julie Gaston**, Initiative Développement

• **Adam Creighton**, Institutional Stove Solutions (InStove)

• **Benedicta Avega**, SNV Netherlands Development Organisation
Purpose of the Webinar

• Share 3 case studies of how improved stoves can be used for productive use applications
• Demonstrate the benefits that can be gained through these approaches
• Provide important lessons learned and recommendations from organizations working on productive use applications in the field
Agenda

• Ylang-ylang oil distilling in Comoros (Initiative Développement)
• Shea butter and palm oil processing in Ghana (InStove)
• Fish smoking in Ghana (SNV)
• Questions and Answers
Questions to Consider

• What commercial applications in my community are highly dependent on biomass use?

• How might the use of improved stoves for productive uses enhance my business or program?
Ylang-Ylang supply chain efficient stove distillation
4 Energy efficiency projects

- 4 cookstoves supply chain projects (Congo, Tchad, Comoros, Senegal)
- 1 cookstove for productive use project
Distillation: Principles and Uses
Ylang Ylang Distillation

- From 1990 to 2014, 85% of forest cover disappeared.
- Ylang-Ylang distillation accounts for 15% of deforestation.
- Ylang-Ylang exportation contributes to 20% of GDP and 10% of the working population.

**Disadvantages of traditional stills:**

- Wood consumption
- Heat/ fumes exposure
- Workload
Improved Technology Overview

Total cost: ± 2000 €
Efficient Stove Benefits

✓ Wood consumption: -50%
✓ Flowers needed: -25%
✓ Distillation costs: -25%
✓ 4 times less time loading wood
✓ Distillers’ margins: x4
✓ Improvement in oil quality: 30%
Project Overview

Build a sustainable Ylang-Ylang distillation supply chain in the Comoros

– Reduce impacts on natural resources
– Improve production conditions
– Perpetuate impacts
Project Results

3,000 flowers pickers
200 flowers producers
240 workers
80 distillers
40 Efficient stoves

5 craftsmen trained
Degrees increase:
30%
Lessons Learned

Technology success = Field adaptation

- Users’ practices
- Raw materials and know-how availability
- Investment habits/capabilities

Technology success ≠ State-of-the-art
Recommendations

Transfer production skills to locals

Ruggedness and maintenance

• Users side
• Local business side
Next Steps

Sustainability plan

• Autonomous efficient stoves’ production supply chain
• Reinforce our work on the supply chain
• Spread technology in sub-region
One Stove, a world of solutions!
What is InStove?

- Reduces fuel use by 75-90%
- Produces 90-98% fewer harmful emissions
- Reduces cooking time by 50%
InStove’s background

Fred and Damon

2007: Invent InStove;
2012: Launch 501(c)3 InStove.org
2014: Launch Benefit Corporation
InStove Applications
Traditional Shea Processing
InStove Shea Butter Processing

- Reduces wood for Shea Butter processing by 75-90%
- Reduces rendering time by 20-50%
- Safer for cooks
- Can be operated sustainably using crop waste (shea cake briquettes)
- Primary beneficiaries are traditional Shea butter processors (women and young girls)
Palm Nut Oil Processing

- Used to boil palm nuts
- Runs on small wood or biomass
- Complete cycle in 30 minutes
- Safer, faster, more sustainable than traditional methods
Palm Nut Oil Economic Value

• Each batch produced by 60L stove has Ghana value of $30

• Several batches can be produced each day

• Amortizes stove cost in a matter of weeks

• Like shea, primary beneficiaries are women and young girls
Palm Nut Oil Video, Ghana

https://www.youtube.com/watch?v=VQCz9YI1xmQ
Thank you!
FISH SMOKING IN GHANA
SNV

- Founded in 1965
- Established in Ghana in 1992
- Works in Agriculture, Energy and WASH
- Extensive experience in cookstoves; institutional and household
- Implemented 2 fish smoking projects in Ghana
Fish Smoking Background

• ~80% of landed fresh water and marine fish in Ghana is smoked
• 120,000 baseline ovens counted along the coast and fresh water regions
• SNV’s interest in reducing deforestation through promotion and adoption of efficient ovens
## Baseline Technology Options

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<tr>
<th>Barrel Traditional Oven</th>
<th>Chorkor Oven</th>
<th>Morrison Oven</th>
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<td>Efficiency; Baseline</td>
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<td>Efficiency; 37% over chorkor</td>
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<td>BaP 15; PAH4 72</td>
<td>BaP 22; PAH4 84</td>
<td>BaP 30; PAH4 110</td>
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<td>Where EU limit is BaP 2; PAH 12</td>
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Winrock & EPA Cook Stoves & Indoor Air
Sustainable Fisheries Management Project

- Funded by USAID
- Implemented by Coastal Resource Center, University of Rhode Island
- Partners:

THE UNIVERSITY OF RHODE ISLAND
GRADUATE SCHOOL OF OCEANOGRAPHY

Henn Mpoano

Winrock & EPA Cook Stoves & Indoor Air
Ahortor Oven

Designed by SNV, FRI, FC, Morrison Energy Services, Best Performance, consultant Crispin Pemberton-Pigott

- Reduces PAH deposit levels on smoked fish.
- 32% more fuel efficient than Chorkor
- Similar to baseline design and user friendly
- Standard double unit costs ~$500
- 30% discounted for early adopters
- Users are trained on the use and maintenance of the oven
Fish Quality Impacts

Chorkor Oven

Ahotor Oven
What Ahotor Users Say…

“My family and I can now cook in the kitchen whilst smoking my fish without having to deal with a smoky environment”

“I currently make savings on the firewood cost, because I use about half of what I previously used for the Chorkor oven”

“I haven’t been to the hospital in the past three months since I started using the Ahotor oven”
Lessons Learned and Recommendations

- Research & baseline
- Pilot new concept
- Stakeholder involvement & knowledge sharing
- Technology development
- Periodic monitoring

Winrock & EPA Cook Stoves & Indoor Air
Next Steps – Sustainability Model
Open Q&A session

To ask a question, please type in your question in the Questions/Chat pane on your webinar console.
Next Steps

Following the webinar…

• The presentation and answers to your questions will be posted to www.pciaonline.org/webinars
• Please complete the Survey Monkey Evaluation you will receive shortly

Let us know…

• What surprised/interested you most about what you heard from the presenters?
• What information would you like to hear more about?
• What other topics would you like to see presented in the future?