



DIE / GTZ: Pro-Poor Innovation Workshop
April 15, 2010

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Get the best available improved cook stoves to the people that need them.



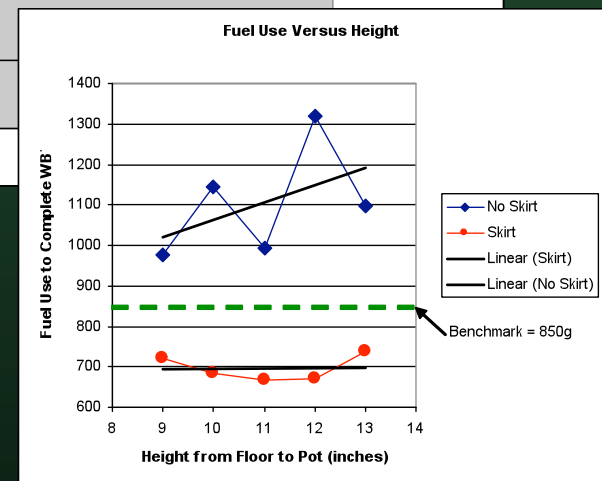
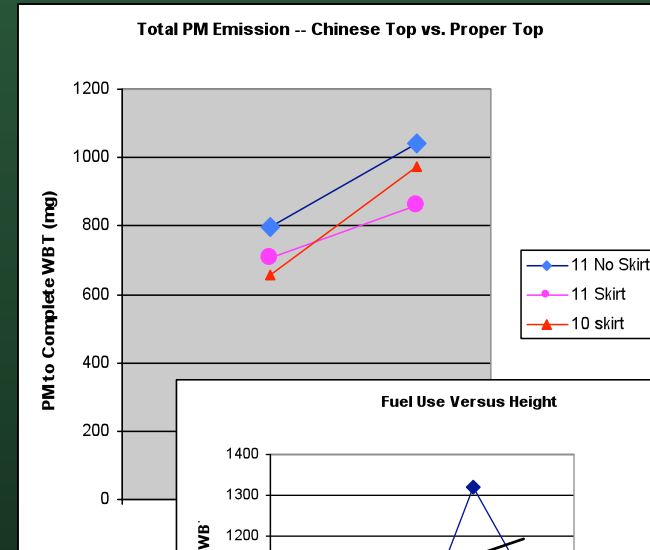
StoveTec Wood Stove



StoveTec Wood-Charcoal Stove



- 100s of tests completed with varying stove diameter, height, insulation, fuel entrance, gap under pot, etc.
- Tested with cooks and adjusted to specifications
- Re tested in the lab to ensure performance





Research



“Create the Cure”

- Research
- Design
- Testing



Royalty

“Deliver to Those in Need”

- Sales & Marketing
- Partnerships
- Manufacturing
- Distribution





STOVETEC

Why StoveTec? – The Best Stoves

Independently Tested & Verified

Efficient & Healthier

Safe

Flexible

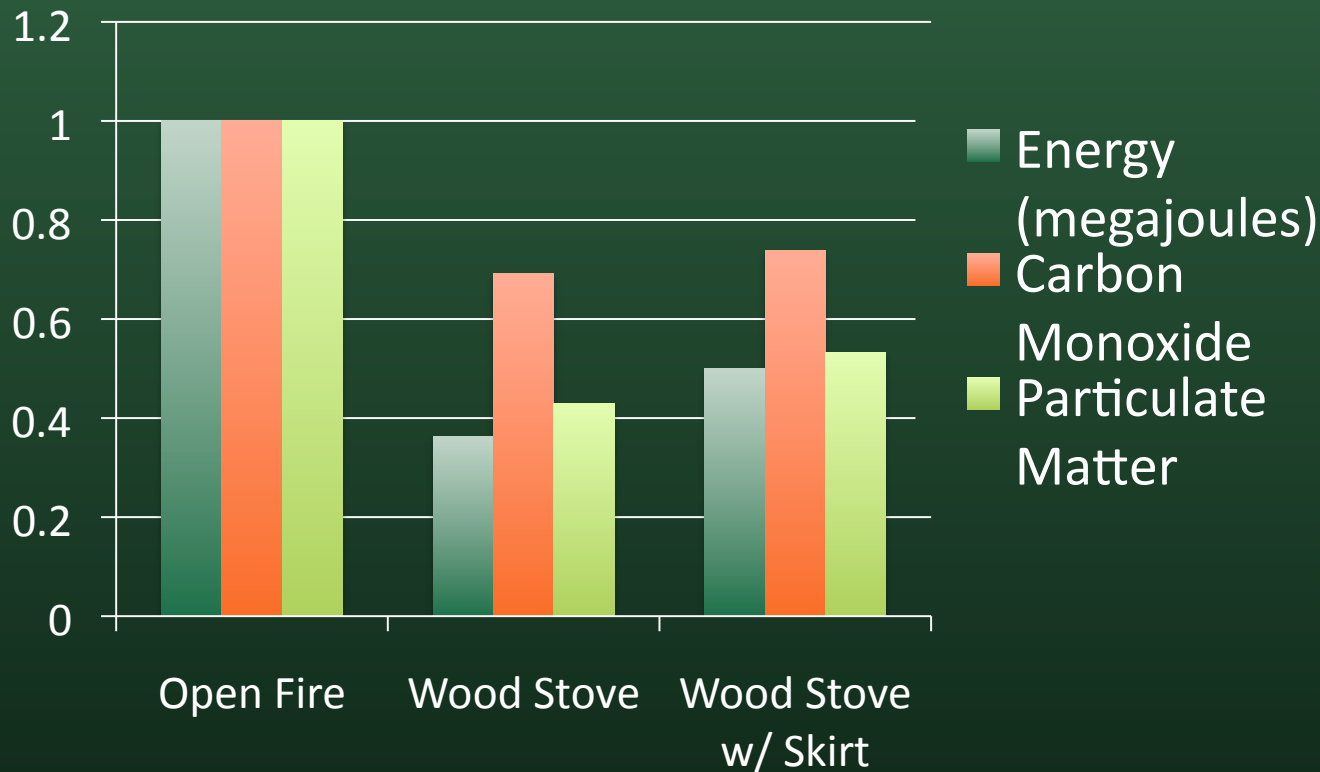
User Preferred

High Quality

Low Cost

Scalable





Each wood stove saves 1-2 tons of carbon emissions per year, uses 50% less fuel and is 70% cleaner burning



Performance of commercially manufactured stoves

	(units)	OF	EF	ST	PH	VE	S80
# of Tests	na	54	38	38	38	24	22
Specific consumption	g wood/ kg food	295 (70)	143 (32)	136 (40)	159 (43)	202 (43)	110 (36)
Specific consumption	% diff. vs. OF	NA	-52%	-54%	-46%	-32%	-63%
Cooking time	min	54 (10)	49 (8)	50 (9)	56 (8)	47 (8)	52 (6)
Cooking time	% diff. vs. OF	NA	-8%	-7%	+4%	-12%	-2%
Burning rate	g wood/ min	30 (7)	16 (4)	15 (4)	16 (3)	23 (3)	12 (4)

The UNHCR reports that 15,000 children are burned per year in South Africa alone.



The StoveTec stove delivers a stable yet portable stove with a contained fire that allows for safe waste removal.



Mbarara, Uganda



Marshall Islands



Bolivia & Chile

Product
Alterations



Private Labeling

Envirofit Stove

Focus group results among performance categories and overall preference



	Dagahaley camp	Ifo camp	Hagadera camp
Most fuel efficient	Envirofit and StoveTec	StoveTec	Save80
Safest	StoveTec	StoveTec	StoveTec
Most durable	StoveTec	StoveTec	StoveTec
Easiest to use	Envirofit	StoveTec	StoveTec

Stove Rank	Dagahaley camp	Ifo camp	Hagadera camp
1	Envirofit	StoveTec	StoveTec
2	StoveTec	Envirofit	Envirofit
3	Philips	Philips	Vesto
4	Save80	Save80	Philips
5	Vesto	Vesto	Save80

Quality Assurance



Every stove is the same

Durable



2.5 years in use

Large Scale
Manufacturing



Container
Deliveries



Quick
Dissemination



A scalable solution is key for carbon credit projects and to mitigate the problems associated with open fire cooking.



Stoves are \$8 - \$13 FOB for projects in LDCs

FOB Prices Wood Stove



**Price Per
Stove 20'
Container**

\$8.84

**Price Per
Stove 40'
Container**

\$8.74

**Total Cost 20'
Container
(1567 stoves)**

\$13,850

**Total Cost 40'
Container
(3134 stoves)**

\$27,930

Landed Prices Wood Stove



**Price Per
Stove 20'
Container**

\$18

**Price Per
Stove 40'
Container**

\$17

**Total Cost 20'
Container
(1567 stoves)**

\$23,500

**Total Cost 40'
Container
(3134 stoves)**

\$40,700



Urban Wood & Charcoal Stove

FOB Prices Wood & Charcoal Stove



**Price Per
Stove 20'
Container**

\$10.77

**Price Per
Stove 40'
Container**

\$10.67

**Total Cost 20'
Container
(1344 stoves)**

\$14,570

**Total Cost 40'
Container
(2688 stoves)**

\$28,280

Landed Prices Wood & Charcoal Stove



**Price Per
Stove 20'
Container**

\$22

**Price Per
Stove 40'
Container**

\$20

**Total Cost 20'
Container
(1344 stoves)**

\$26,880

**Total Cost 40'
Container
(2688 stoves)**

\$48,380

Landed Prices Wood & Charcoal Stove



**Price Per
Stove 20'
Container**

\$16

**Price Per
Stove 40'
Container**

\$15

**Total Cost 20'
Container
(1344 stoves)**

\$21,504

**Total Cost 40'
Container
(2688 stoves)**

\$40,320

Landed Prices Wood Stove



**Price Per
Stove 20'
Container**

\$14

**Price Per
Stove 40'
Container**

\$13

**Total Cost 20'
Container
(1567 stoves)**

\$21,938

**Total Cost 40'
Container
(3134 stoves)**

\$40,742

Two Markets

Developed Market : \$49

LDCs: \$8 - \$13



- Emergency Preparation
- Backyard Cooking
- Camping

- Aid Agencies
- Nonprofits
- Social Ventures

StoveTec works with partners to connect the dots and bring opportunities to the table.

- Marketing
- Advertising
- Logistics & Distribution
- Outside Investment
- Carbon Credits
- Sales Opportunities
- Partnership Opportunities

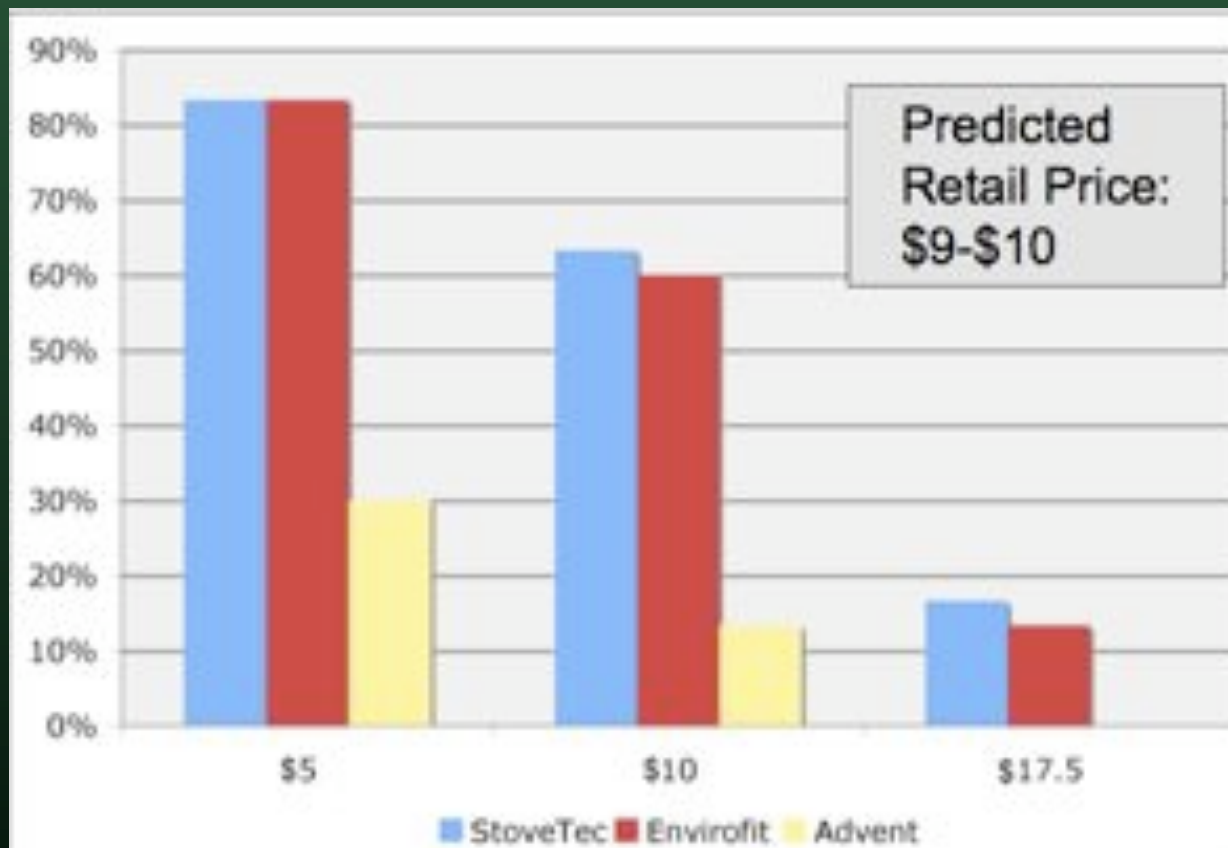




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Purchase and Subsidy Models

Research done by Dr. Vijay Modi for the Millennium Villages Project in coordination with the UNDP and Columbia University suggest 60% saturation with \$10 sales price.



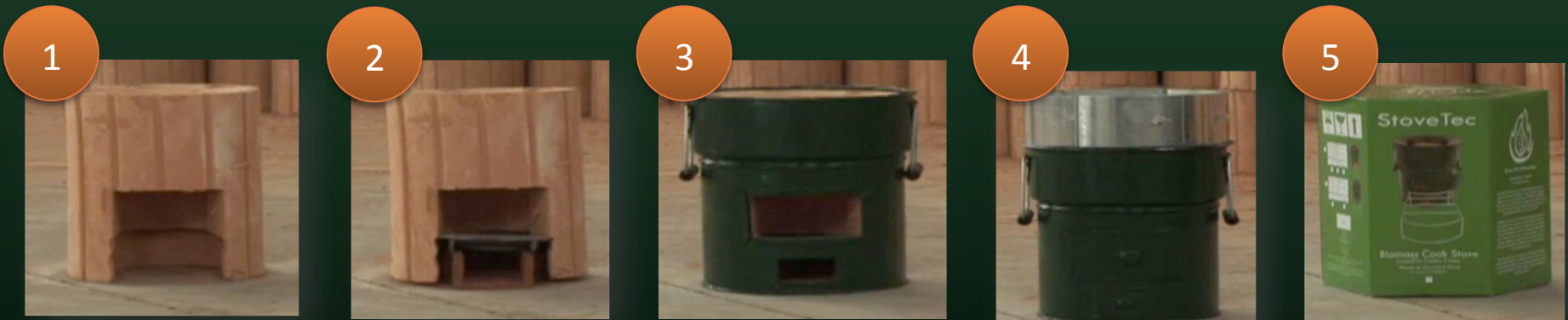
Subsidizing a \$20 stove to sell for \$10 and reach > 60% of the population:

- **Carbon Credits:** Stove saves 1.5 tons of CO₂ per year with 2-year life is \$39 for cost offset and additional income
- **Donor and Aid Support:** Support from organizations promoting humanitarian or development opportunities
- **Government Support:** Green energy promotion, increased employment and reduced burden on cooks
- **Premium Market Offsets:** Selling to local population with wealth to average out costs and create profitable incomes
- **Microfinance:** Stove efficiency saves money and time for cooks

Stove Kit: In-country labor and reduced duties and taxes



Knocked Down Kit: Local finishing and reduced duties and taxes



5 Year Stove: Increasing durability for carbon credit projects

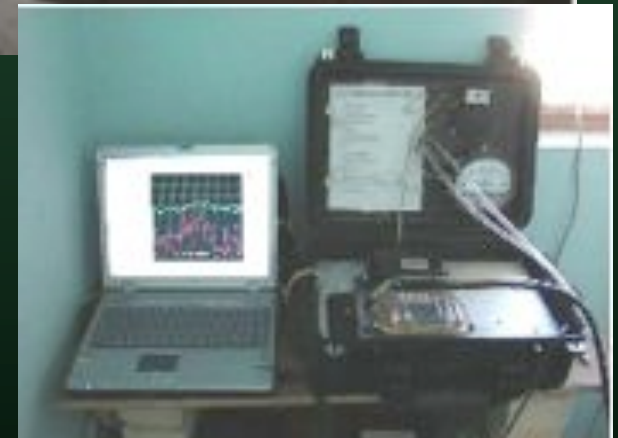
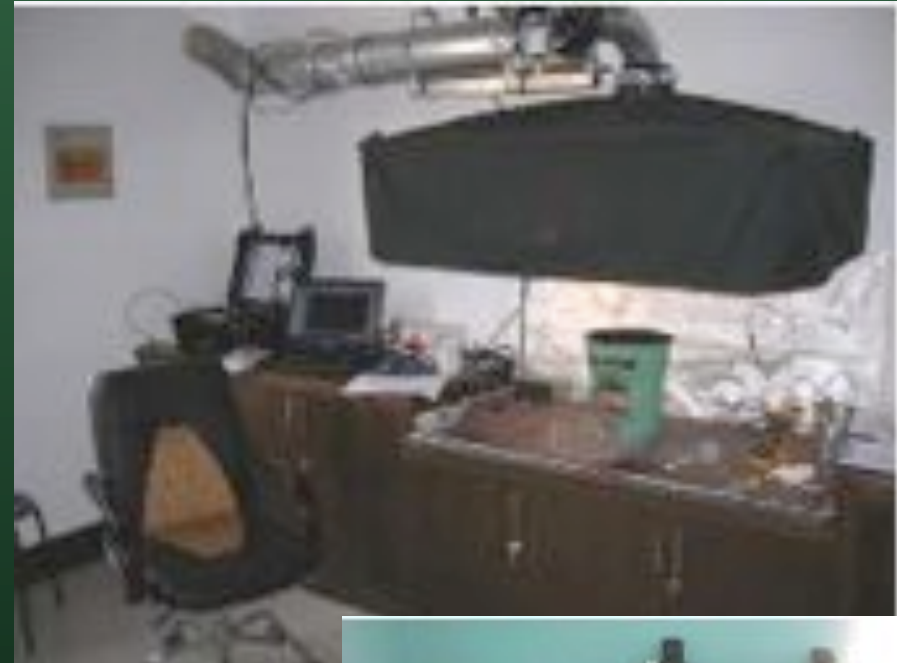


Fan Stove: Burning clean for better health and less GHGs

2 Pot Stove: Increased efficiency and ease for cooking with two burners. One to simmer, one to boil.



- Many stove projects claim very high efficiency levels without lab or field testing
- Proper testing is required to ensure improved cook stoves performance
- Utilize an experienced and renowned testing team
- **3rd party testing of StoveTec stoves show a 40-50% efficiency gain while burning 50-70% cleaner in the lab and the field!**

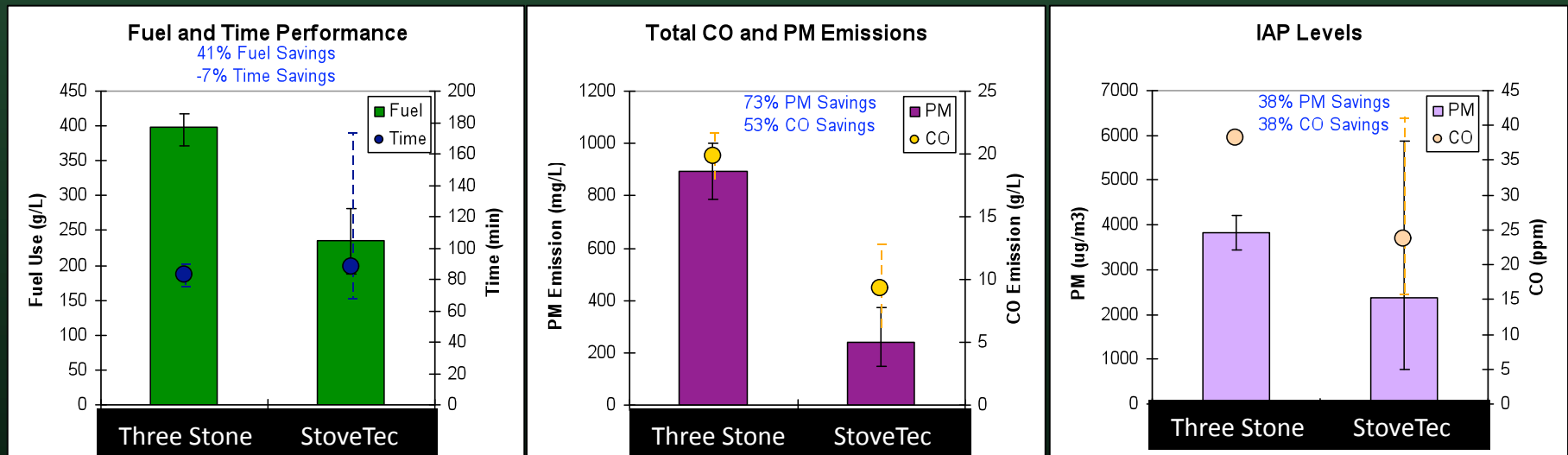


StoveTec Rocket Stoves



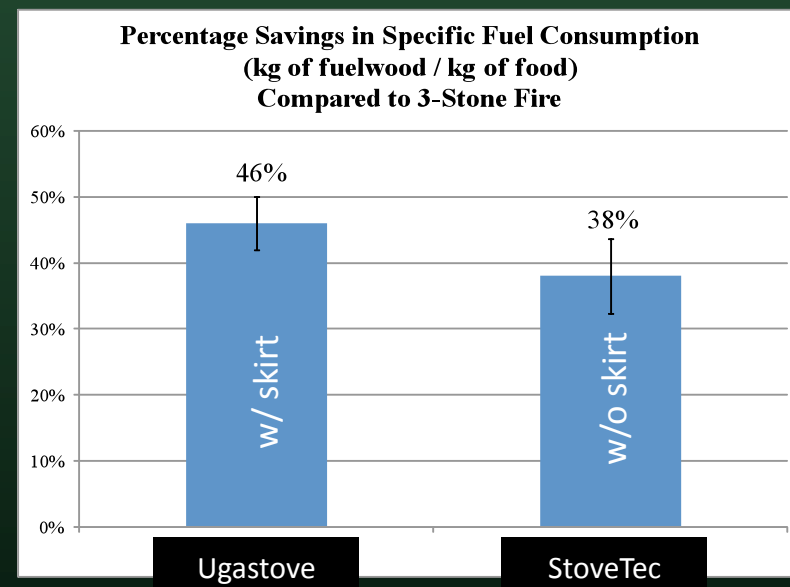
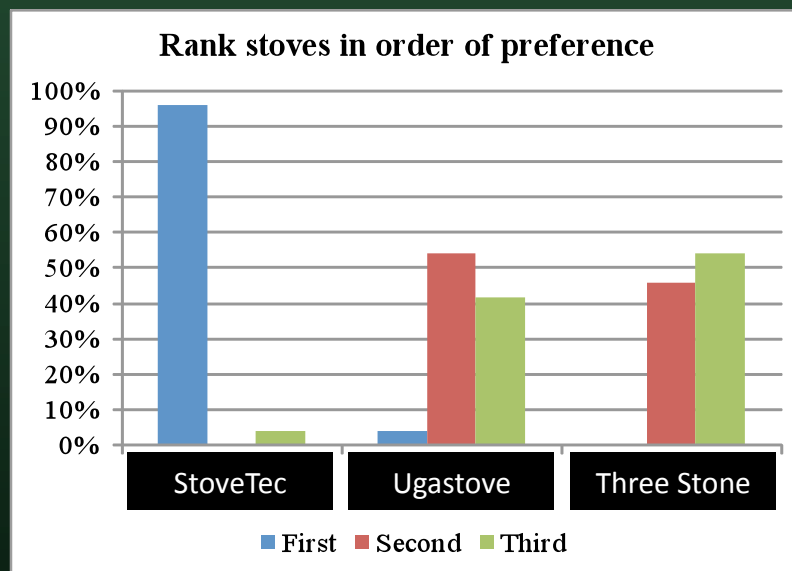
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- Controlled Cooking Tests in India determined the fuel and emission savings when used for typical Indian cooking.
- Without a skirt, the stoves saved 40% of the fuel and 40-75% of harmful emissions over the three stone fire.



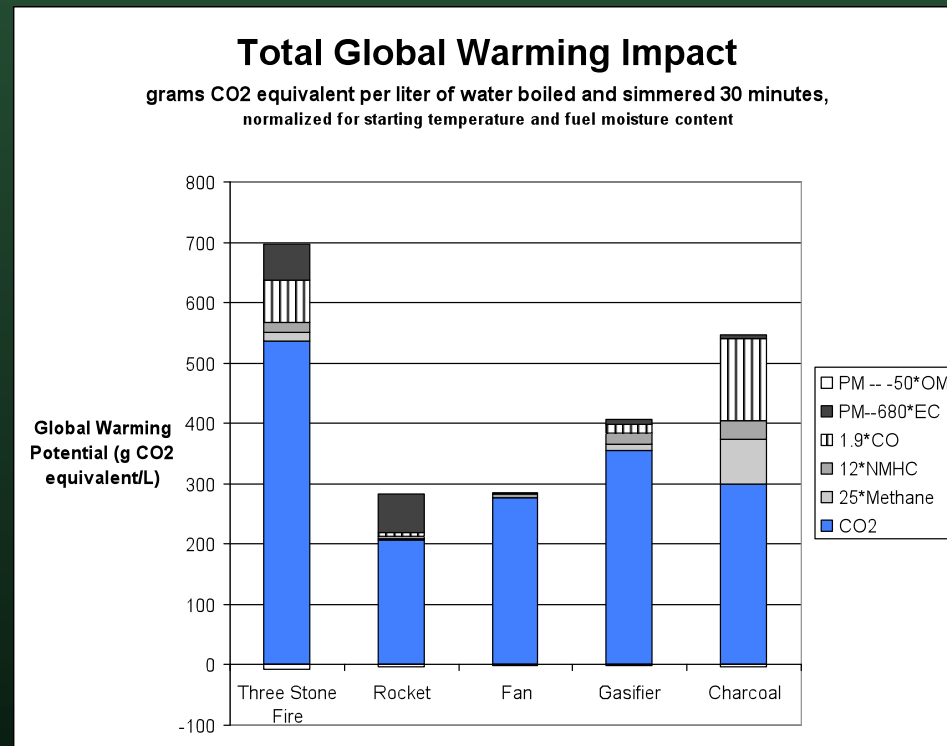
Results of a Controlled Cook Test series by Columbia University showed a **38% fuel savings w/o skirt** and a **95% preference of the StoveTec stove**.

Cooks did not want to give the stove back after testing!



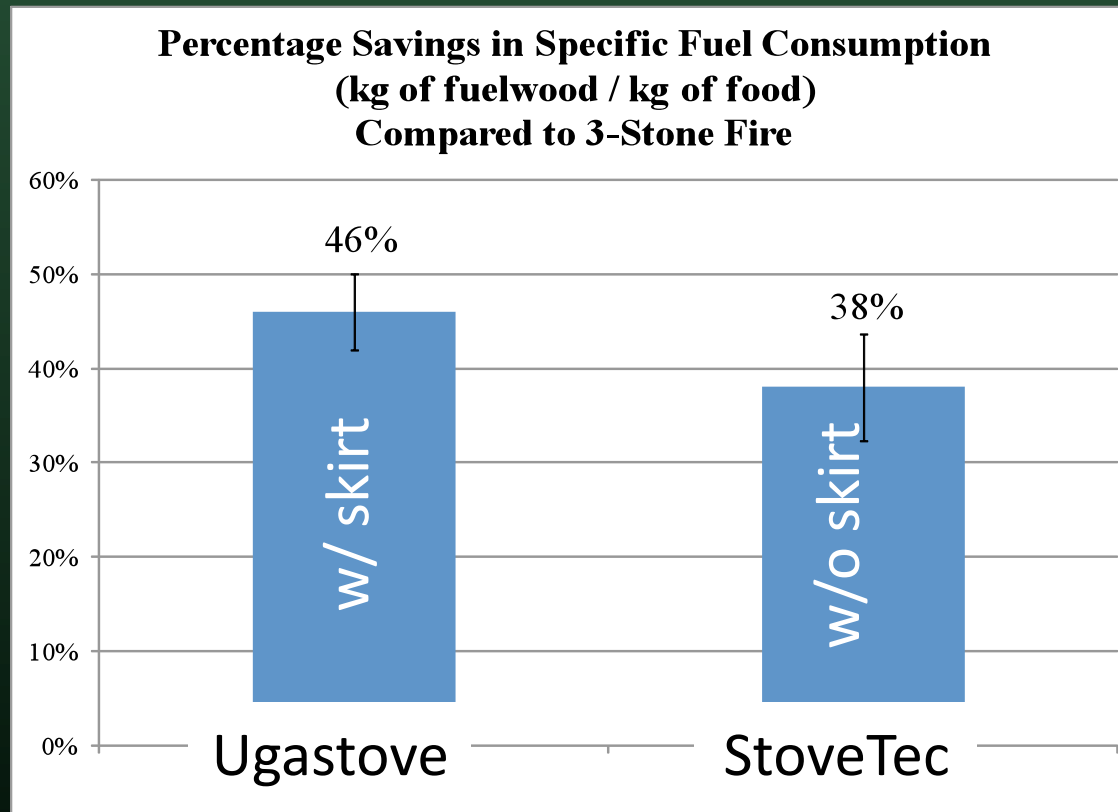
StoveTec stoves significantly reduce climate changing emissions
 Estimates project the StoveTec stove saves **1-2 Tons** of CO_{2eq.} per year

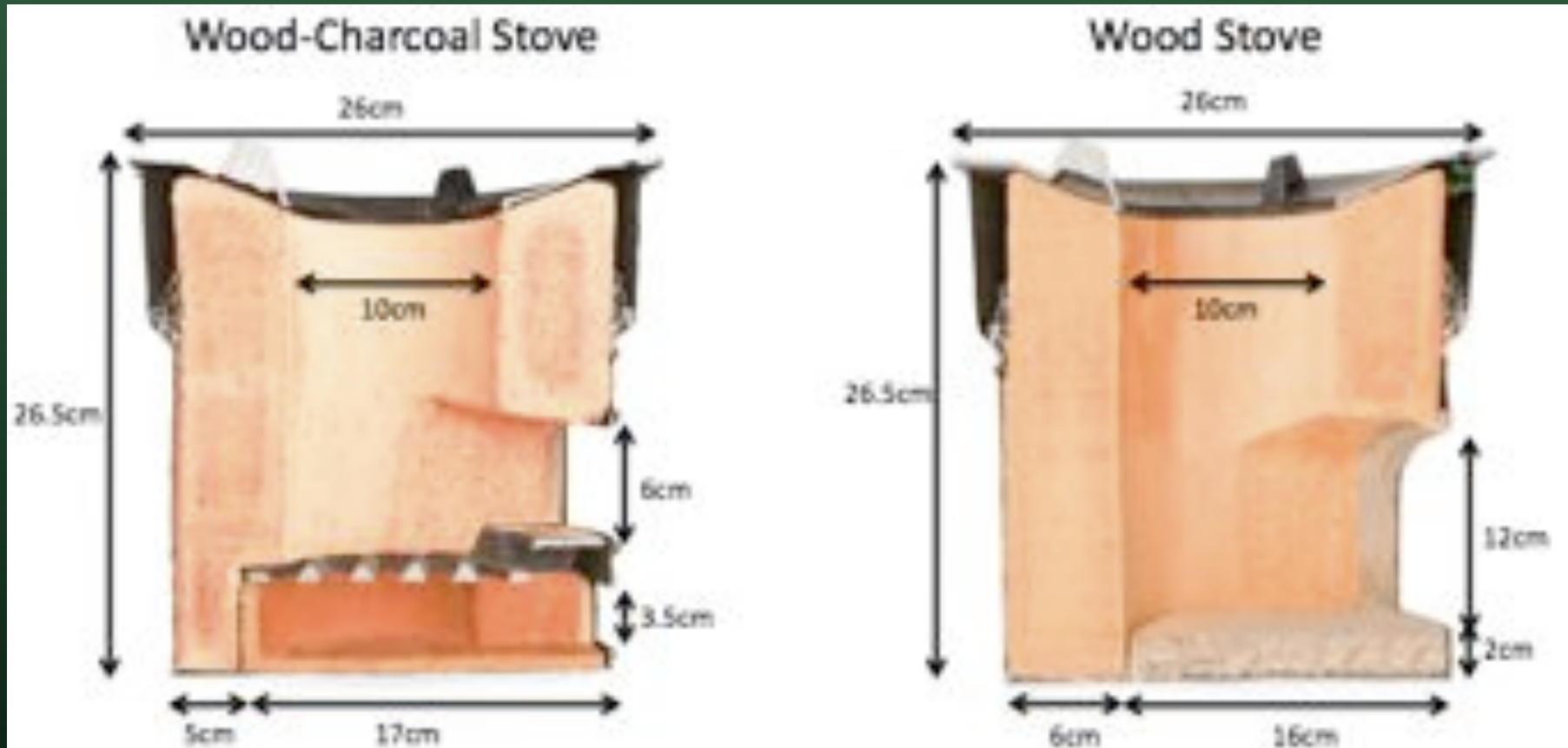
Aprovecho Research Center and UIUC published a journal article in *Energy for Sustainable Development, June 2008* in which the StoveTec stove reduced the total CO_{2eq.} emissions by **60%** compared to the three-stone fire.



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Publicity and Awards



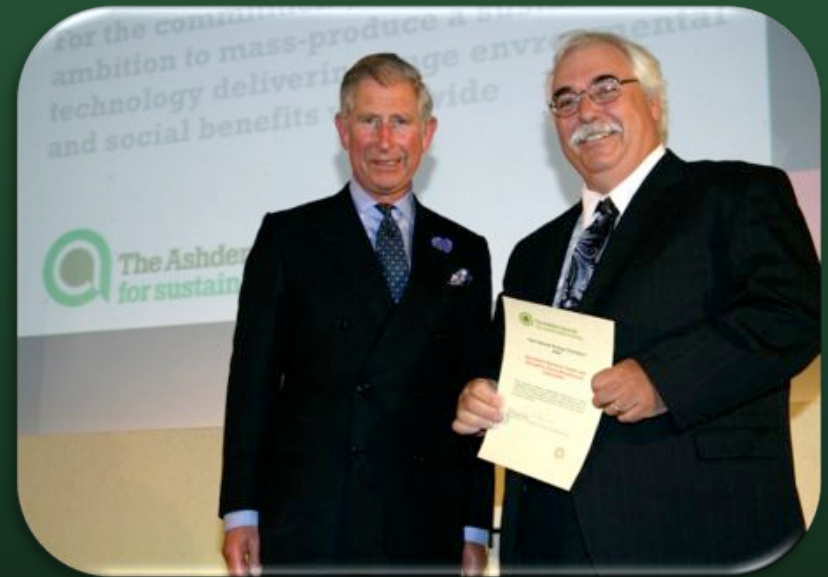
THE NEW YORKER

theguardian

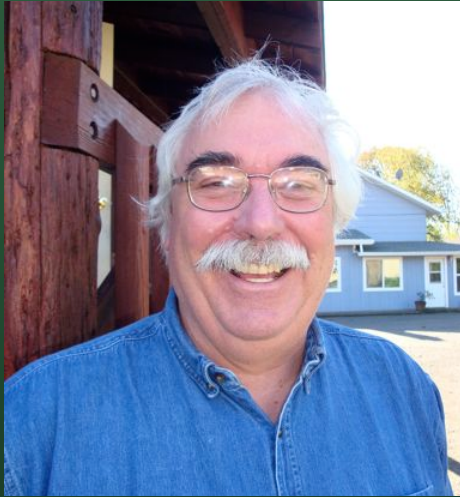
The Oregonian



The Ashden Awards
for sustainable energy



Dean accepting the Ashden Award from Prince Charles



Dean Still - President

- ARC Founder
- 30 years in industry
- 140 projects, 50 countries
- Recipient of Ashden Award
- Featured in the New Yorker
- Pioneer of cook stove technology



Ben West - CEO

- US Xpress - \$22M sales growth
- Oregon MBA: Entrepreneurship & Sustainable Business
- Leads growth in sales and business development

StoveTec is the business resulting from the joint venture between Aprovecho Research Center and the Shengzhou Stove Manufacturer

Aprovecho Research Center

- 30 years of stove experience
- Completed over 100 projects in 60 countries
- Evaluation of over 60 cook stove designs for EPA, PCIA, Shell, Philips, etc.

Shengzhou Stove Mfgr.

- Family owned factory making stoves for over 100 years
- Making 3 million combustion chambers and 500,000 stoves annually
- \$1.2 million investment for equipment and warehousing