


Day 5


Applying Testing,
Making More Effective Stoves that Use
Less Wood, Make Less Smoke



Day 5 -- Making and Disseminating Better Stoves

- What Is A Commercially Successful Stove?
 - A.) What makes stoves desirable by consumers?
 - B.) How much can stoves cost?
 - C.) How long should a stove last?
 - D.) How are stoves manufactured?
 - E.) How are stoves distributed?
 - F.) How can quality be assured?

Manufacturing Stoves

- The teams and group share their manufacturing strategies:
 - Stove Materials
 - Clay/Sand?
 - Metal?
 - Refractory Ceramic?
 - Manufacturing Stoves
 - Potters?
 - Workshops?
 - Factories?
 - Quality Control
 - NGO oversight?
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Cook Stoves and Climate Change



Three-Stone



Rocket



Gasifier



Fan



Charcoal

Goal was to investigate differences in Global Warming Potential of five different types of combustion.

Gases measured at CSU, particles studied at Aprovecho and analyzed at UIUC. Water Boiling Test was used with 2.5L standard pot and 30 minute simmer.

Studied these emissions because CO_2 is not the only concern for the climate – Products of Incomplete Combustion may play a large role as well.

Global Warming -- Findings

➤ Products of Incomplete Combustion and their GWP

(as CO₂ on 100-year timeframe)

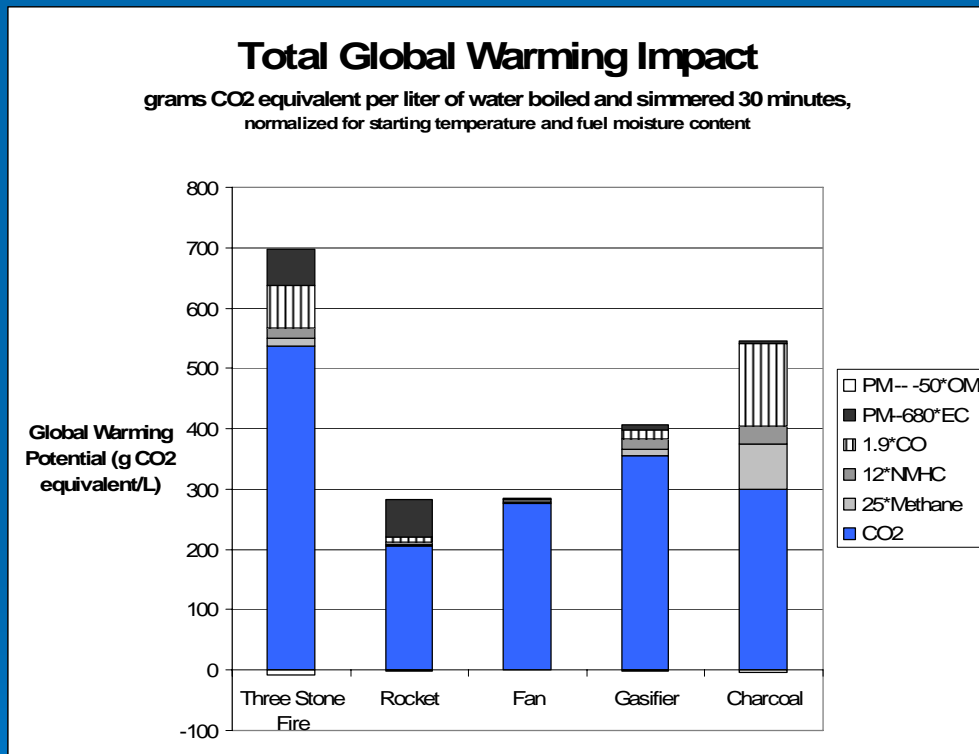
• CO ₂	1
• CO	1.9
• Non-Methane HC	12
• CH ₄	25
• N ₂ O	298
• Particulate Matter:	
• EC (Black)	680
• OM (White)	-50

➤ The products of incomplete combustion (PIC) contribute 22% to the overall GWP of the open fire, 27% of the rocket stove, and 45% of the charcoal stove.

➤ Black carbon and CO provide major contributions, other gases may be negligible for wood burning.

➤ Carbon reduction estimates based on fuel use (CO₂) alone may be a missed opportunity.

➤ Field data is required.



Carbon Credits

- Currently, most voluntary carbon markets are based on fuel use alone.
- Fuel savings are predicted, then monitored in-field on a yearly basis.
- If fuel savings are less than predicted, some deals call for reimbursement of the credit \$ with 30% interest!
 - It is extremely important to be sure your stove will definitely save fuel before making carbon deals.

To Be Continued....

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