
Report on Stoves Testing Discussion(s)

ETHOS meeting
January 2008

Summary of presentations (I)

- Jay Smith (IHC)
 - *Assessing health effects (Peru)*
- Nordica MacCarty (Aprovecho)
 - *India (WBT, KPT); wood moisture; global warming potential*
- Crispin Pemberton-Pigott
 - *Need for thermal efficiency from existing tests*
- Dana Charron (CEIHD)
 - *KPT to monitor fuel savings; new tool for calculating GHG savings*

Summary of presentations (II)

- Jim Jetter (EPA)
 - *Comparison of 7 different stoves with WBT*
- Morgan DeFoort (CSU)
 - *Parametric testing to reduce WBT variation*
- John Mitchell (PCIA)
 - *Proposal for involving formal standard-setting organizations*
- Jan Alders & Wiecher Kamping (Phillips)
 - *Phillips stove testing, lab & field*

Current uses of the WBT

- *Efficiency*
 - Colorado State: reducing variability
 - EPA, Aprovecho: many stoves
- *Emissions*
 - EPA, Phillips, Aprovecho, CSU
- *Parametric testing*
 - What produces variation in the WBT?

Beyond the WBT

- Kitchen performance test
 - CEIHD: fuel use
 - Apro: Compare emissions/efficiency
 - Phillips: Compare PM reductions
- Understanding baseline & actual practice
 - CEIHD: ~100 homes
- Needs beyond cooking
 - Heating stoves (Crispin)

Stove Standards

- Delayed for now; testing methods needed
- Involve standard-setting organizations (PCIA)
 - Needed by manufacturers, governments
- Need for different tiers of standards and testing

Technical Committee Meeting

Friday afternoon

Goals for the next year:

- Agree on a set of protocols that can be used for **standard setting**
- Engage additional voices
- Streamline issue handling and communication (Penn Taylor, Jim Jetter, Mark Bryden's web)

Agree on protocols

Start with water boiling test, controlled cooking test, kitchen performance test (WBT, CCT, KPT).

- Appropriate outputs (e.g. g/kg fuel; thermal efficiency)
 - 90% there?
- Guidance on emission testing
- Guidance on appropriate uses
- Safety testing protocol
- Feasibility

More engagement

- Identify and contact people (passing sheet around!)
- Use PCIA / HEDON to communicate

Uses of the water boiling test

Internal test to determine if your own stove is improved

- Comparison between stoves (maybe)
- Common response to criticism:
→ It's not for that anyway! ←

Define its utility & move on!

WBT meeting

Saturday morning

Produce accepted version 3.0 by 31 July 2008

- Modifications, “tweaks”, calculation fixes
 - Subcommittee: Morgan DeFoort + friends
 - *Existing changes only*
- Emission recommendations
 - Subcommittee: Tami, Morgan, Nordica, Wiecher, Jim, Victor (and seeking input)
 - Collect initial set of protocols by 2/10

Additional WBT 3.0 tasks

- Add required test outputs
- Clearly discuss utility and limitations
- Communicate what’s known about issues and variability
- Divide test into tractable sub-units for use in smaller applications

Beyond WBT 3.0

- **Operator variability** (feeding, loading, removing charcoal)
- **Environment variability** (humidity, altitude, temp)
- **Wood variability** (size, species, moisture content)
- **Variability due to pot** (top, shape, moisture loss)
- **Suitability for different fuels & tasks**
- **Formal uncertainty analysis**
- **Performance matrix/robustness**

Safety evaluation

- Protocol(s) developed
- Share standards
 - Calling participants! ←

Technical Committee Schedule

- 31-Jul Final protocol for WBT 3.0
- 31-Jul Select next test for friendly debate; tasks identified; set targets for 30-November
- 31-jan-09 ??T 3.0 complete

Interim meeting?

WBT schedule

- 31-Mar First drafts of **emission** and WBT **procedures**
- 31-May Modify test **outputs** to satisfy multiple uses
- 31-Jul Develop formal discussions of utility, limitations, known variability to include with WBT protocol

Emission subcommittee schedule

- 10-Feb Collect protocols from initial members; engage other testing labs
- 28-Feb Common and different methods identified
- 31-Mar Protocols from all participating labs collected. First draft: How to add emission testing to WBT
- 30-Apr Public draft posted for comment
- 15-Jun Final section

Gases we should measure...

Compound	In-field	Testing Lab	Comments
CO ₂	Yes	Yes	Makes it easy to relate all emissions to fuel burned
CO	Yes	Yes	Really important for all impacts
NO _x	Probably	Probably	Locally hazardous because of low temperatures
SO ₂	No	Probably not	If estimates are wanted, may be easier to correlate with fuel sulfur content
UHC	No	Probably	Helps in understanding of incomplete combustion
CH ₄	No	Limited	With help from outside lab
NM VOC	No	Limited	With help

January 12, 2002

No bang– just a lot of work!

- Parametric testing to understand WBT
- WBT to compare stoves

- Understanding real practice
- Real, solid recommendations; leadership