

Promoting Clean Household Energy Practices: What is the Role of Monitoring and Evaluation?

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So much more than just the UCB particle monitor...

CEIHD Household Energy and Health

- Integrated approach to monitoring and evaluation (M&E)
- Commercialization & market development activities

Our 12 Minutes

- Overview of CEIHD's involvement in M&E to promote clean household energy practices
- Range of options for IAP monitoring, including status of UCB particle monitor
- Hot topics in monitoring and evaluation
- Our vision for a practical collaborative approach

UCB's Recent M&E Activities

- 4 Shell Foundation HEH pilot projects needed appropriate monitoring tools
- University of California-Berkeley, University of Liverpool, Aprovecho, Shell Foundation
- Near-final development of standard, collaborative protocols for monitoring and evaluation
 - stove testing (WBT protocol finalized)
 - IAP monitoring (particles, CO)
 - study design (sample size, statistical significance, etc.)
 - socioeconomic effects
- Development of UCB particle monitor
- Dissemination and training mandate for CEIHD

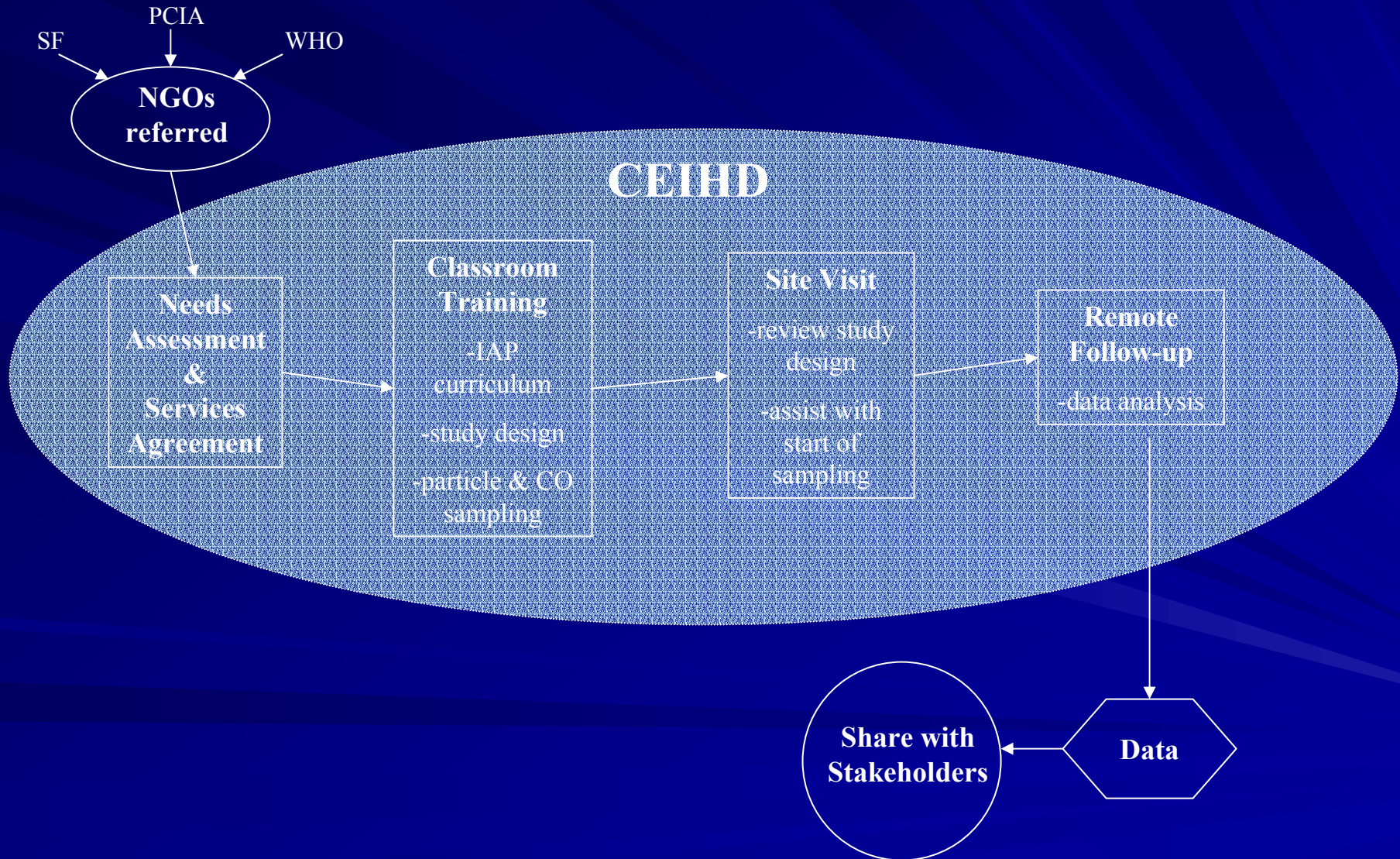
CEIHD: Current M&E Activities

- Providing customized technical assistance services
 - Classroom training
 - On-site study design
 - Sampling and surveying
 - Remote data analysis

Current clients:

- Enterprise Works-Ghana
 - Urban Community Development Association-Uganda
 - Dometic AB/AG and Iacona Engineering, Ethiopia
- Collaborating to offer a series of regional HEH trainings
(with WHO, PCIA, Aprovecho)

CEIHD: Delivery of M&E Services



CEIHD: IAP Measurement Options

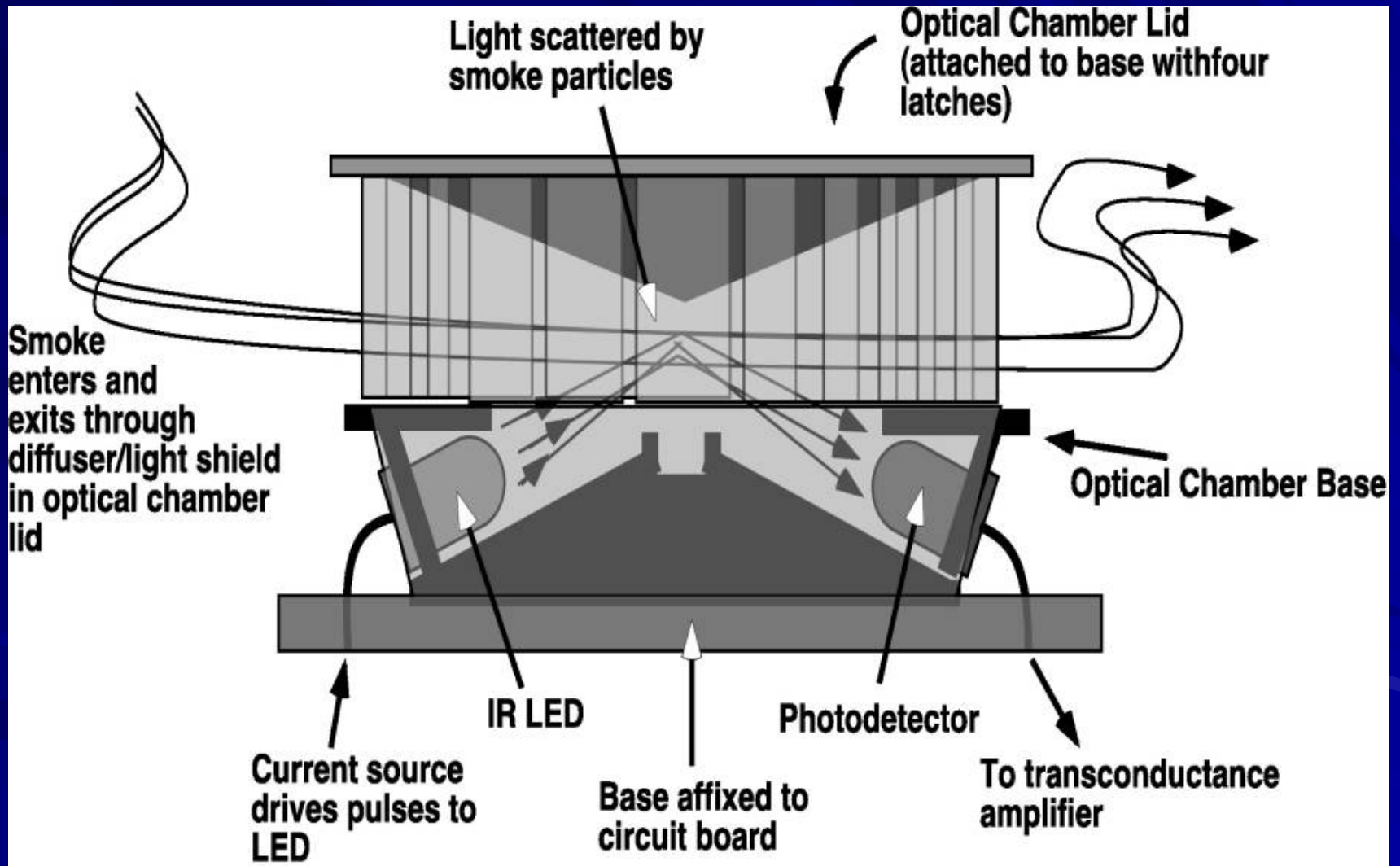
- UCB particle monitor is one option
 - Real-time, datalogging, relatively inexpensive & simple, small, ~PM_{2.5}
 - Not a standard method
 - Available but not fully commercialized

- Pump and filter
 - Standard method, accurate
 - Gives only one average concentration, time-consuming, requires lab analysis, data not immediately available, expensive

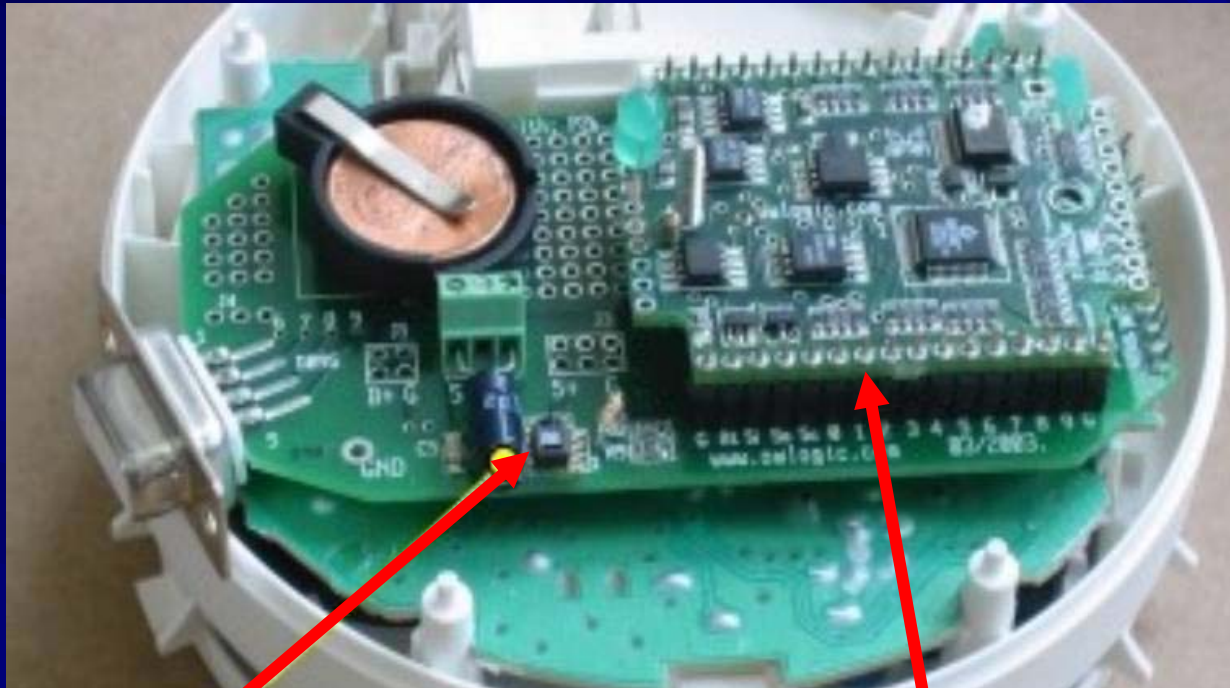
- Other light-scattering, datalogging monitors (DataRAM, DustTrak, Casella, etc.)
 - Not a standard method
 - Commercially available, expensive

- Other options??

UCB Monitor: Photo-electric (light-scattering) Chamber



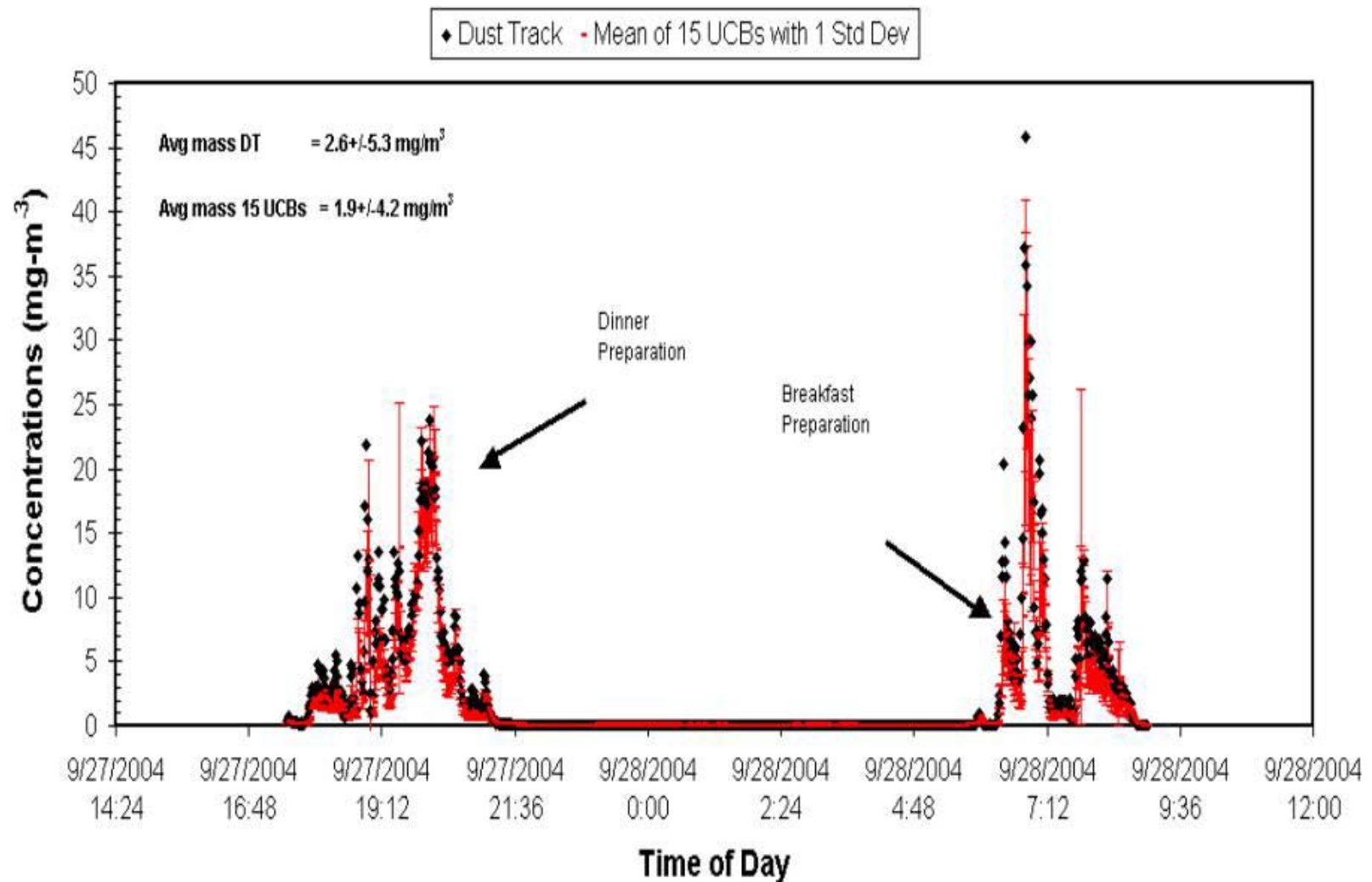
UCB monitor: inside



Temperature and Humidity Sensor

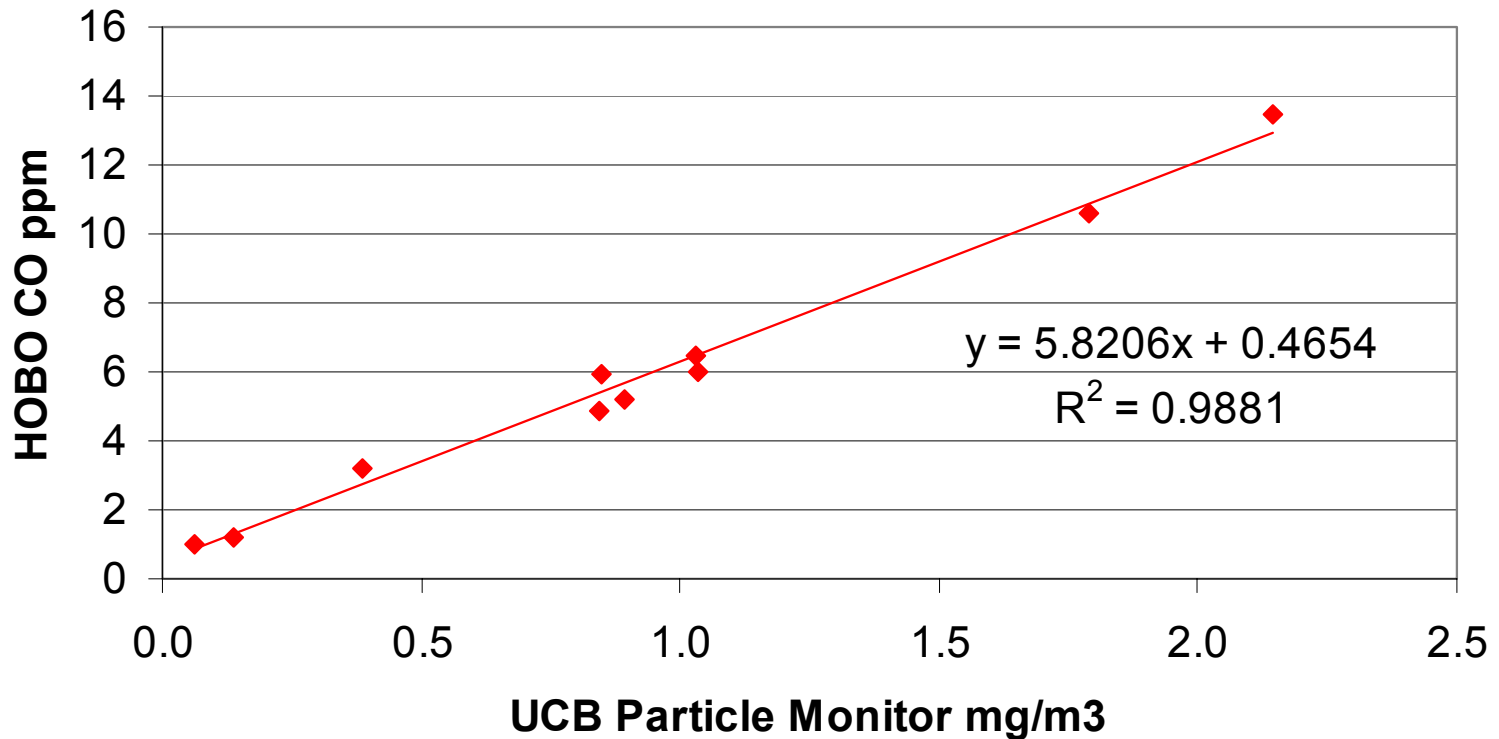
Data Logger

Dust Track and UCB Measurement in Guatemala (minute by minute comparison in an Open Fire House)



Correlation of UCB monitor and Hobo CO monitor in ten Mexican households

UCB Particle Monitor and HOBO CO Correlations



Current status of UCB monitor

- Production status
 - Not fully commercialized, but available
- Software upgrade
 - Streamlined display
 - Debugged
- Other user-friendly features on the way
 - Remove ionization chamber
 - Customize for different fuel/particle types
 - More functional case, longer-life battery pack

M&E Issues – 1

Why do IAP Monitoring?

- Expensive and labor-intensive
- Doesn't provide data on health outcomes (may not even accurately reflect exposure)
- Can eyes and nose provide the information we need?

M&E Issues - 2

Determining Health Benefits of Clean Air

- Exposure-response relationships not well defined
 - First-world outdoor studies
 - Guatemala Highlands study (ARI)
 - Causality vs. association

- More difficult to determine other benefits of clean household energy practices (time-savings, poverty reduction, empowerment of women, reduction of GHG emissions, etc.)

M&E Issues – 3

What Should NGOs Measure?

- Need to know that we're being effective
- Quality assurance
 - Expected in developed world
 - Can't always rely on eyes & nose
- Different data needs
 - Policymakers
 - Marketing
 - Publication (research)
 - Funders

Conclusion

M&E activities should:

- Use resources efficiently
- Provide a good match between data needs and tools
- Contribute to the bigger picture of exposure-response and cost-benefit relationships

One way forward:

- A Global Household Energy M&E Consortium
 - Provide a global forum for M&E activities
 - Support the development of additional methodologies, technologies, and equipment
 - Build regional capacity to provide consistent quality support for M&E; and
 - Collect, aggregate, and publicize the data that results from M&E activities to inform best practices

Thank you!

Panel Discussion on Testing

What is “our” collective mandate?

- Alleviate poverty, prevent suffering and death?
 - what testing is really necessary?
- Promote a universal right to clean air?
 - need to monitor indoor air concentrations
- Reduce exposure to indoor air pollution?
 - need to monitor exposure to air pollution
 - implies behavior interventions to reduce exposure
- Other?

Methods of assessing exposure to IAP (exposure pyramid)

