

# Exploratory Study on Household Energy Practices, Health Perceptions and Indoor Air Pollution in Southern Philippines: Preliminary Results and Lessons



Lisa Büttner and Lutfiyah Ahmed  
Winrock International  
ETHOS 2005, Seattle, Washington  
January 29-30, 2005



# Background: Objectives of Study

1. Determine whether a household energy and health intervention is recommendable, based on cooking practices, health perceptions and IAP levels.
2. Field test focus group, survey and IAP monitoring instruments for future intervention design and evaluation.



# Background: Context

- Large-scale USAID/Philippines off-grid rural electrification program in Southern Philippines (“AMORE”)
  - renewable energy in support of community development through productive applications (e.g. agricultural, fishing, aquaculture production and processing)
  - Household energy (cooking) not included in project scope
- Anecdotal evidence suggested IAP was a problem
- Opportunity for more holistic approach to rural energy and rural development through integration of HHE into large rural electrification program
- USAID/Washington interested in exploratory study to assess opportunity and pilot monitoring/evaluation methodologies





# Design Challenges

- Focus: What do we want to know?
  - What is primary use for data? How much is enough?  
Too much?
    - Intervention/no intervention decision *versus*
    - Establish baseline for intervention design and impact evaluation
  - Who is audience? (donors, implementers, researchers, local community)
- Logistics
  - Coordination of field staff, transport, data processing
  - Multiple dialects over three areas



# Methodology

- Quantitative and qualitative: combination of focus groups, survey and IAP monitoring
- Instruments: based largely on ITDG/Liverpool methods (maximize comparability of results and use methods appropriate for NGO capacities)
  - Modified survey, with input from WHO, Berkeley and other health experts
  - IAP monitoring with updated equipment: area concentrations of respirable PM (pump/cyclone/filters); area and personal CO (real-time, light-weight monitors)
- Scope: 120 household survey; 30 with IAP measurement
- Team: Local Winrock field staff, U. of Philippines, lab at Phil. Nuclear Research Center, East-West Center, IRG-Philippines, Winrock/U.S.



# Project area

Tawi-Tawi  
Zamboanga  
Maguindanao



- Dispersed island communities, some inland/more mountainous
- Conflict area
- Many dialects



# Preliminary Results: FGDs

- Women note head and back aches, bodily pains and exhaustion from fuel collection, as well as attacks from wild pigs and snakes
- Access to fuelwood often depends on who has ownership of biomass resources, and is generally scarce in many areas; mangrove harvesting is common. Coconut husks and fronds are a common fuel. Rubber slippers are used for igniting fires in some areas, despite the knowledge that burning rubber is detrimental to health
- Notable level of awareness of impact of smoke on health—e.g. belief that smoke causes “weak lungs”
- In one village, pregnant women are discouraged from cooking over open fire because smoke exposure may harm the unborn child and cause sickness (e.g. runny nose)
- Women appeared to be equally bothered by smoke *and* heat
- Dependence on herbal remedies, as government health centers are not commonplace





# Preliminary Results: Survey

A sample of results...

- Most women (74%) cook over open fires, 90% of whom use rebar pot supports (usually purchased).
- At the same time, 152 stoves of over 9 types are owned by the 120 households. Prices range from US\$1 to over US\$9.
- Fuelwood is the most common cooking fuel, followed by charcoal. LPG is used by a small percentage of households, and is considered expensive. Kerosene is rarely used for cooking but is frequently used for lighting.





# Preliminary Results: Survey

- 20% of households cook food for drink or sale, with the open fire being the most commonly used for this cooking (65%).
- Most women (84%) perceive smoke to be detrimental to health, including eye irritation and blurring of vision, coughing and chest problems. Less than 5% of respondents reported that infants are present near the fire during cooking.



# Preliminary Results: Survey

- Occurrence of respiratory symptoms for women and children were found to be associated with factors commonly known to increase risk: smoking, type of fuel, socio-economic status according to assets, and location of cooking facility.
- For respiratory symptoms of frequent cough and shortness of breath in the past 6 months among respondents, the most important variable was the location of the cooking area. A large majority (86%) cooks indoors, typically in a kitchen separate from the living space, with 1-2 windows.



# Preliminary Results: Survey

- For chest problems among children, risk factors identified were cooking location, presence of smokers and bigger household size.
- Safety concerns regarding open fire use was raised by more women (21%) who don't like to cook over open fires than women who do (1%).

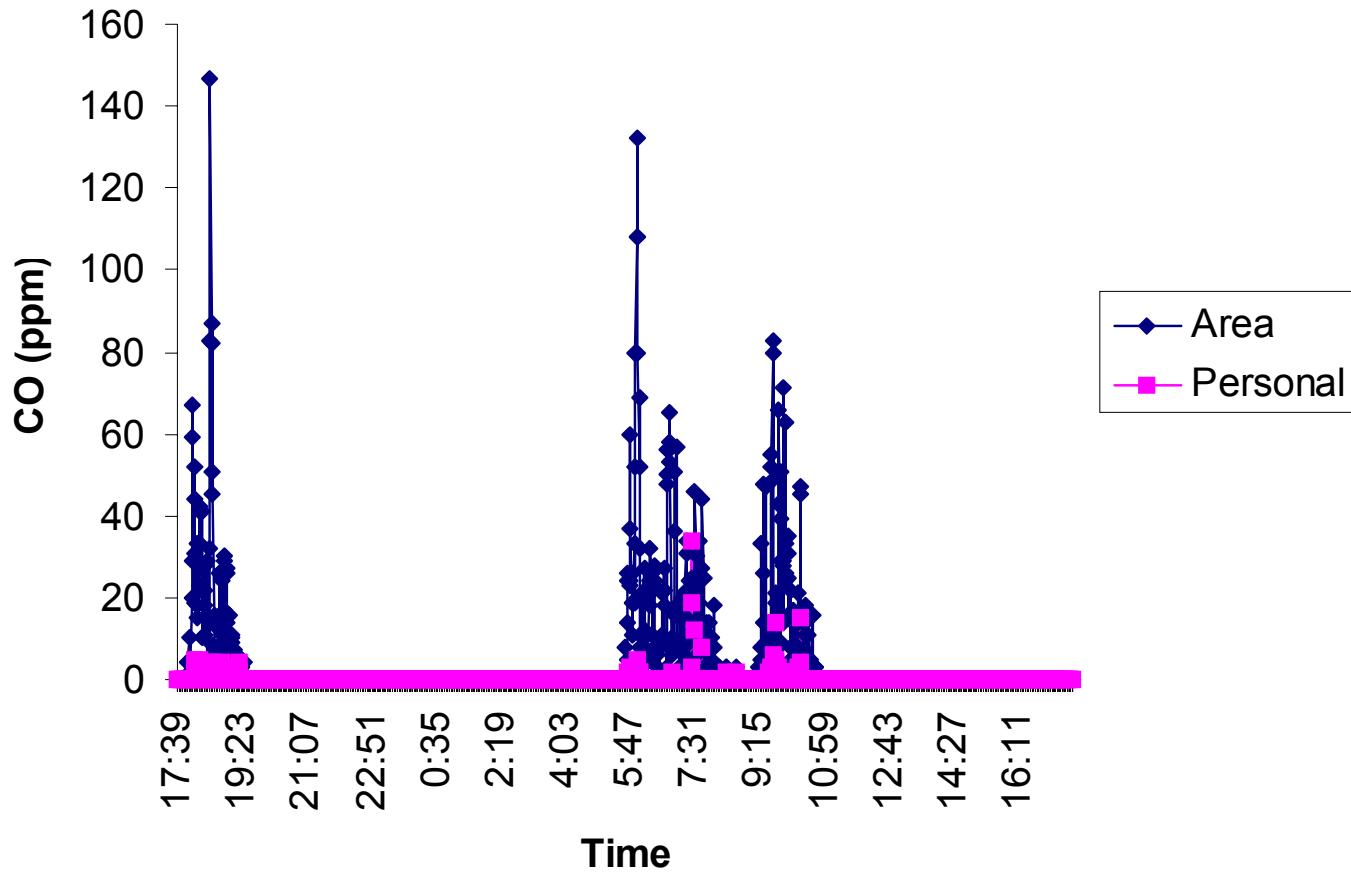




# Preliminary Results: IAP Monitoring

- 24-hour average area PM and CO levels very low.
  - Of 12 variables analyzed, only the number of meals cooked in a day had a significant effect on PM4
  - CO area levels were influenced significantly by kitchen location and number of doors in the kitchen
- None of the factors were found to have significant effect on personal CO levels
- Despite low 24-hour average CO levels, averages and peaks during cooking periods were not low.





**CO 24-hour time series profile (house #53)**  
**(24-hour average was 5ppm)**



# Lessons (a few of various)

- Combination of methods is important to capture broad profile of cooking practices, market conditions and women's perspectives, together with IAP data, for intervention decisions, intervention design, and impact evaluation.
- Intervention decision depends on which factors are most priority, and to whom. IAP may be driver for some audiences, while other aspects of "health" and household economy may be equally compelling.





# Lessons

- Local staff were good at managing IAP equipment, but less good at “simpler” aspects, such as accurately recording time, house codes and classification schemes. Future training should emphasize these aspects.
- 12 hour monitoring session does not enable capturing of background PM levels; sessions should be timed to have one session during which no cooking occurs.





*Thank You!*





# PHOTOS





