# Phase 2 Research and Evaluation Roadmap

## *Public Health, Environment, and Climate*

GLOBAL ALLIANCE FOR CLEAN COOKSTOVES

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# The Global Alliance for Clean Cookstoves will create a thriving market for clean cookstoves and fuels.

## PROBLEM

Every day,
3 BILLION PEOPLE
(500 million households) rely on solid fuels to power their rudimentary stoves

which leads to…

- ~4,000,000 deaths annually
- Wasted productivity
- Climate, forestry & other environmental degradation
- 21% of global black carbon emissions
- Health & economic burdens that disproportionately impact women & girls

## MISSION

- SAVE LIVES
- IMPROVE LIVELIHOODS
- EMPOWER WOMEN
- PROTECT THE ENVIRONMENT

## GOAL

100 MILLION
HOUSEHOLDS ADOPT CLEAN AND EFFICIENT COOKSTOVES & FUELS BY 2020



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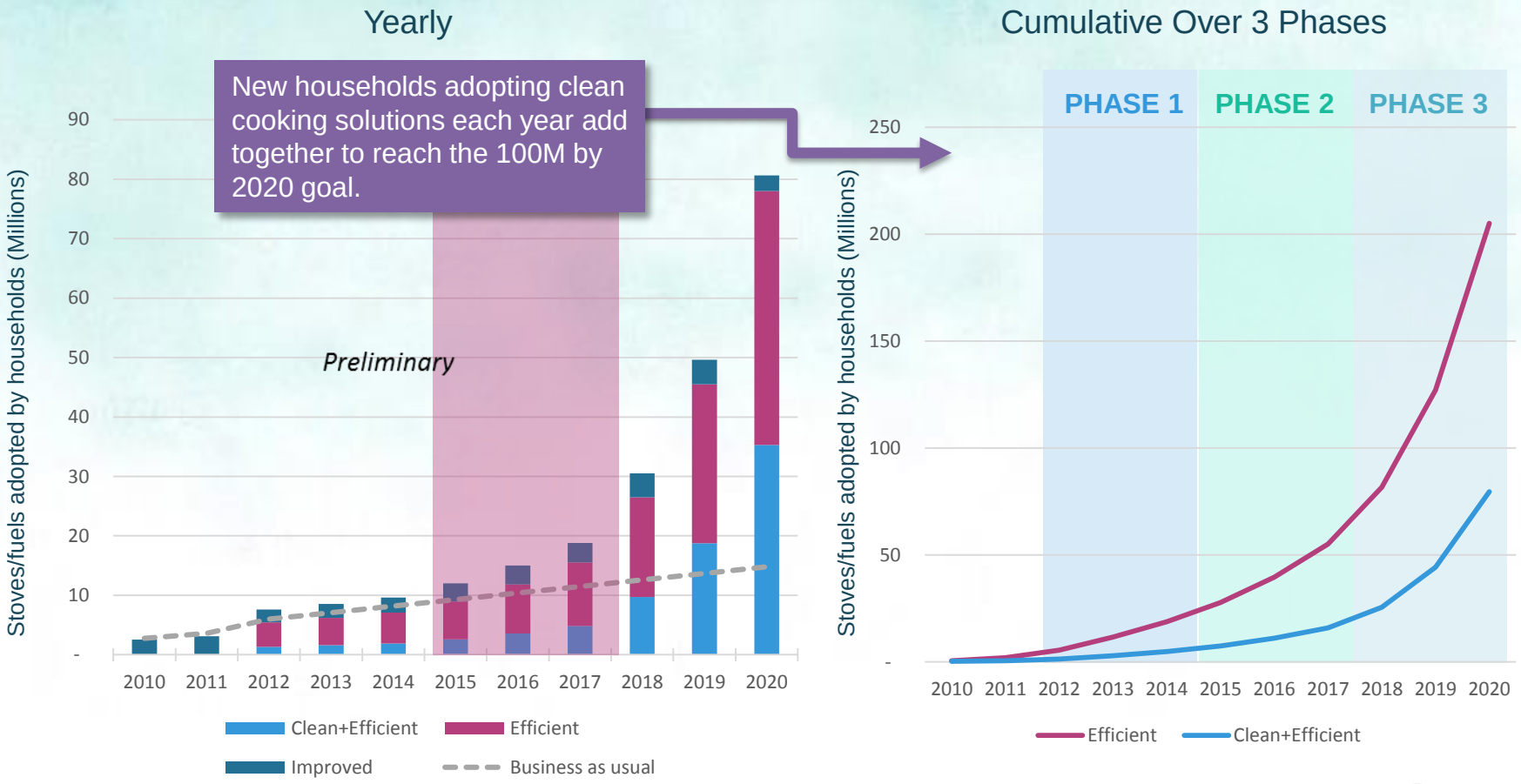
# Strengthening Supply, Increasing Demand, and Creating an Enabling Environment to Facilitate Access to Cleaner and More Efficient Cookstoves and Fuels

## Household Adoption of Stoves/Fuels



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# Challenge: Measuring Progress Towards Adoption of Higher Performing Options (and Associated Benefits)

## Transformative Tools for the Sector

- *Interim tiered performance standards ISO International Workshop Agreement (IWA)*
  - *Performance-based standards*

- *WHO Air Quality Guidelines*
  - *Emission rate targets needed to achieve exposure-based standards*

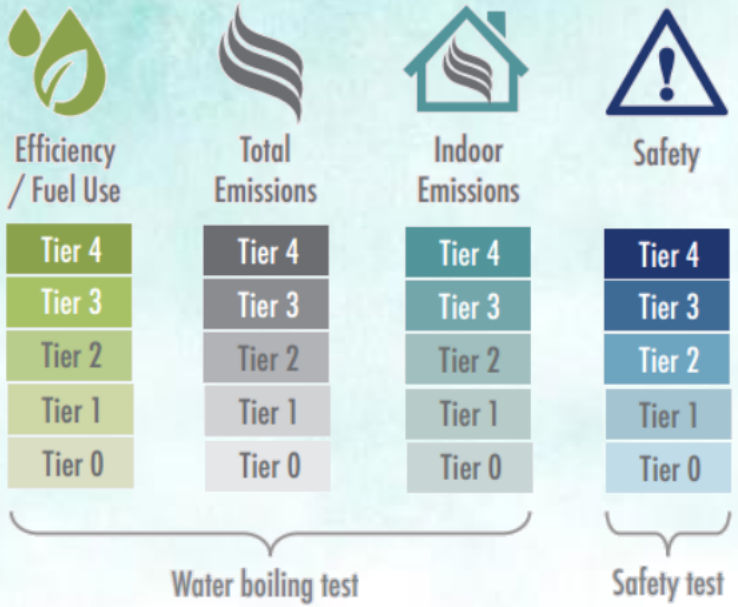


**Table R1.2: Emission rate targets (ERT) for meeting WHO air quality guidelines for $PM_{2.5}$, including a less stringent intermediate ERT for which 60% homes would meet the guideline**

| Emissions rate targets (ERT) | Emission rate (mg/min) | Percentage of kitchens meeting AQG (10 μg/m³) | Percentage of kitchens meeting AQG IT-1 (35 μg/m³) |
|---|---|---|---|
| Unvented | | | |
| Intermediate ERT | 1.75 | 6 | 60 |
| ERT | 0.23 | 90 | 100 |
| Vented | | | |
| Intermediate ERT | 7.15 | 9 | 60 |
| ERT | 0.80 | 90 | 100 |



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# Research and Evaluation

# Alliance Research Strategy by Phase

Public Health

Women & Children

Livelihoods

Environment

**Phase 1**
(2012-14)

Strengthen the evidence base on the impacts of traditional stoves

**Phase 2**
(2015-17)

**Demonstration and evaluation of benefits associated with sustained adoption**

**Phase 3**
(2018-20)

Evaluation research network and sustainable funding for research



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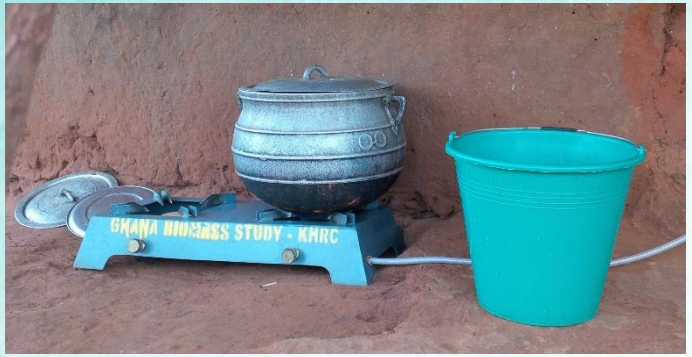
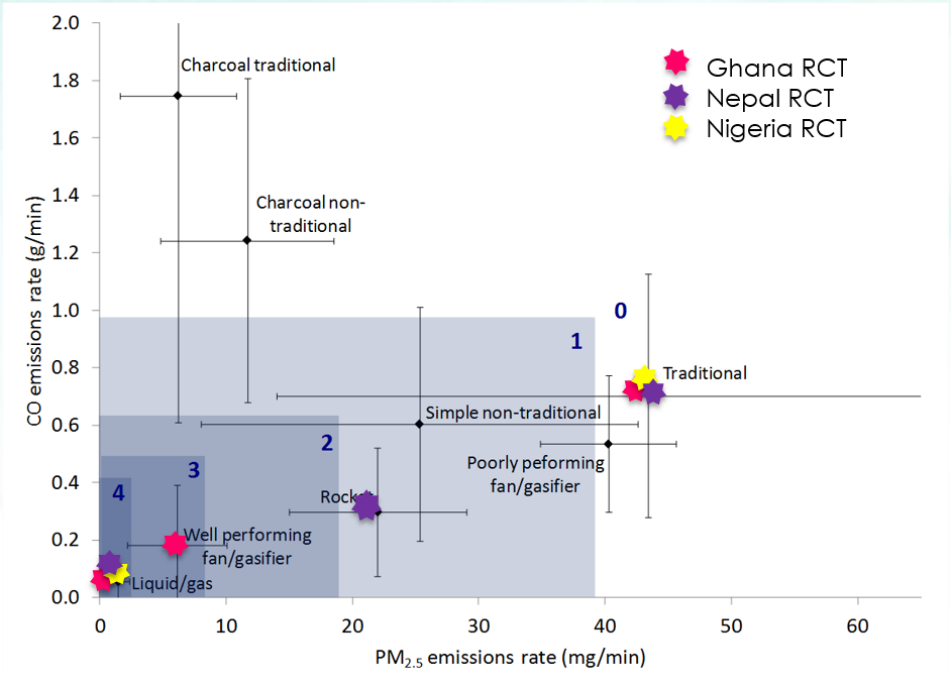
# Alliance Research by Phase

# Clean Fuels are Central to Alliance Public Health Portfolio




- 'Clean' for Environment ≠ 'Clean' for Health!
- Credible International Standards Development Bodies Inform Definition of 'Clean' Cooking Technologies

→ **Tier 4* for 'indoor emissions' will likely achieve the greatest health benefits**



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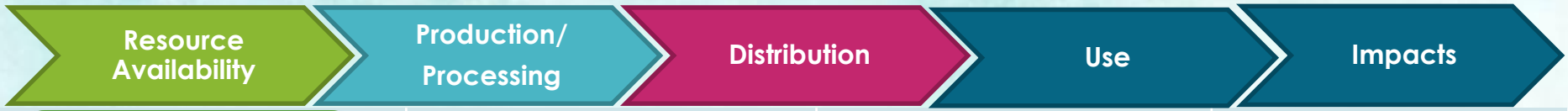
# Strengthening the Impact of Clean Fuels Across the Value Chain




Improve understanding of **global** clean fuels supply and demand

Expand access and affordability of **LPG** in **Ghana**, **India** and **Kenya**

**Improve access and scale to LPG and electricity in India through market research, awareness-raising and demand creation**

Coordinate activities, including capacity building, with bioenergy/ethanol global strategic partnership networks

**Evaluate social, economic and environmental impacts and research gaps across fuel value chain**

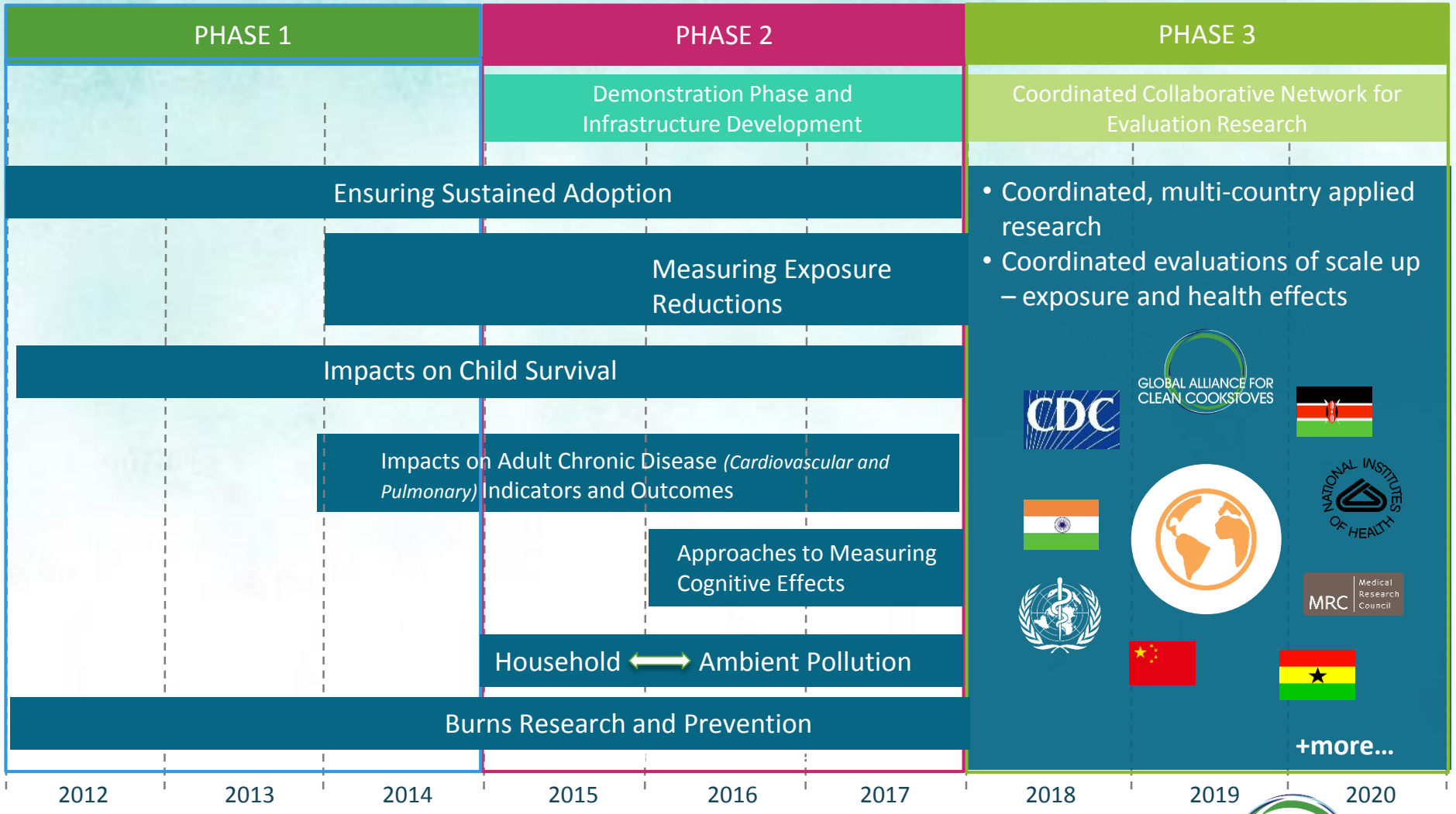
Fuel Enterprise Innovation, Scale, and Capacity Building

**Improve understanding of drivers of adoption of clean fuels and resulting impacts on pollution, exposure and health**

# Health & Adoption


# Key Challenge: demonstrating that adoption of clean cooking technologies can save lives

# Clean Cooking Exposure and Adoption: Network for Evaluation Research (CLEANER)



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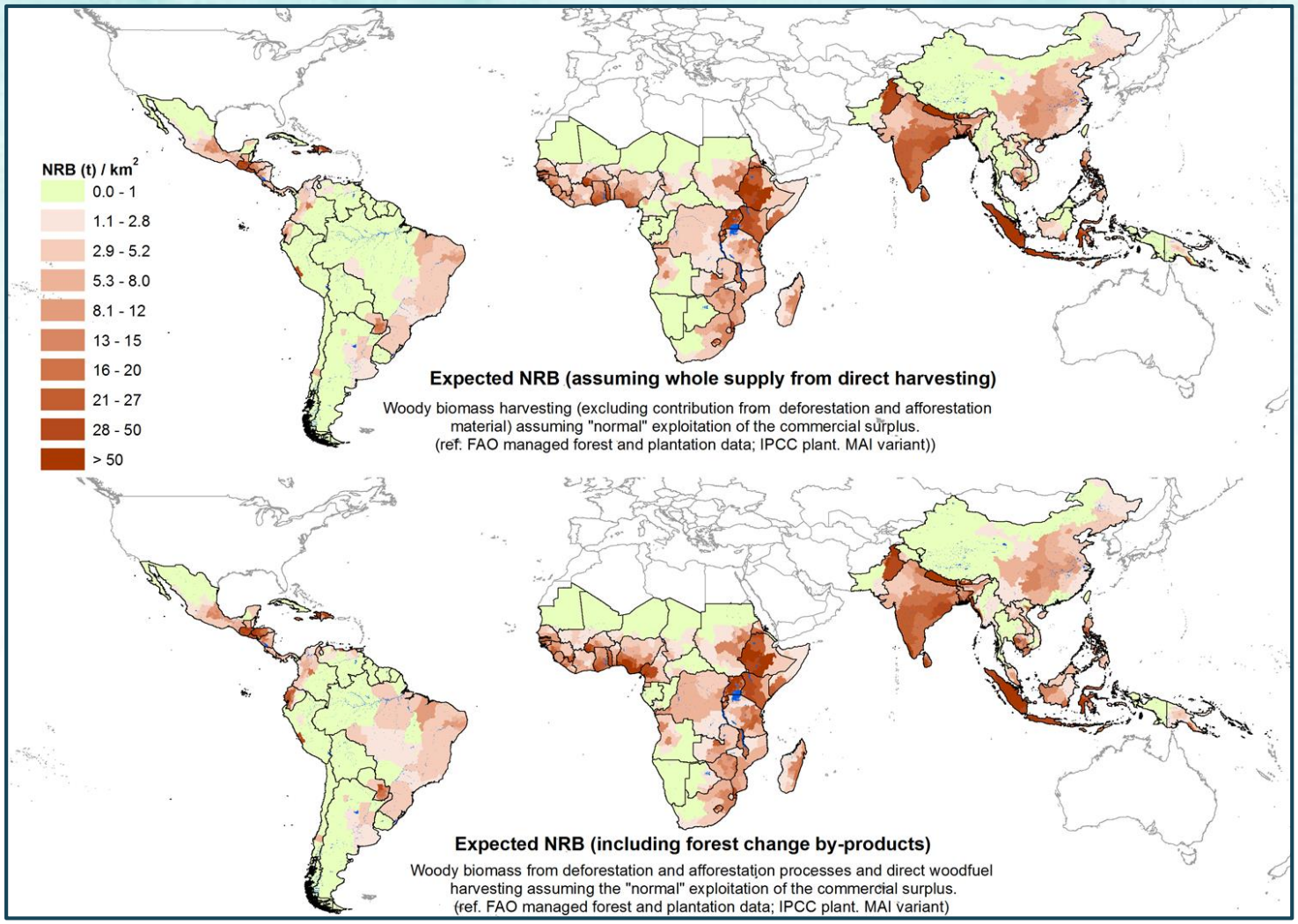
# Environment & Climate

# Phase 1 Climate Research Emphasis: Strengthening the evidence base on nonrenewability of biomass




276 million rural people experience scarcity of subsistence energy!

Widespread interest already expressed in applying these estimates within and beyond the sector!



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# Alliance Environment/Climate Research Activities in Phase 2: Minimizing Environmental Degradation

- Scaling up clean cooking in areas most vulnerable to environmental degradation
  - Wide communication of results from Phase 1 nonrenewable biomass mapping study
  - In progress: exploring the potential role of the international mechanism to reduce emissions from deforestation and forest degradation (REDD+) in scaling up financing for clean cooking
- Continued support for SPARK grantees focused on reducing carbon emissions, reducing wood fuel harvesting, increasing efficiency
  - Scaling up processed biofuels: char-briquettes (agriculture residue), ethanol gel (sawdust), biogas
  - Evaluating lifecycle impacts, including SLCP emissions reductions
- Evaluating fuel options for environmental impacts across the fuel production and distribution value chain



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# Black Carbon Research

- Supporting efforts to better determine black carbon emissions from a range of cookstoves and fuels in key geographic locations
- Recently released TORs:
  - *analyze existing, archived particulate samples to provide field-based BC emission factors for a range of cookstove technologies*
  - *conduct field studies to provide black and organic carbon emissions performance metrics of stove/fuel combinations during normal usage in homes*

Specific Technologies and Regions of Interest

| Location | Technologies | | |
|---|---|---|---|
| South America | Traditional wood | Biomass chimney | |
| Sub Saharan Africa | Traditional wood | Natural draft biomass | Forced draft biomass |
| South East Asia | Traditional wood | Natural draft biomass | Forced draft biomass |

# Ensuring Widespread Relevance of Research Results




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# Opportunities to Leverage Always Welcome!

- NIH Child Survival Studies in Nepal (Tielsch) and Ghana (Jack)
- EPA STAR Grant in India (Bailis) …
- Project Surya (N Ramanathan)
- GEOHealth Hubs (TBA)
- Adoption of Clean Cooking (with USAID)

  *http://cleancookstoves.org/funding-opportunities/85.html*

- and more…



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