



Cluster Biocombustibles
Solides

Towards Universal Clean and Affordable Cooking Energy: The need for Integrated Multi-fuel/device Programs

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”Pathways to Clean Cooking II Workshop, Wexford, May 28-31 2019”



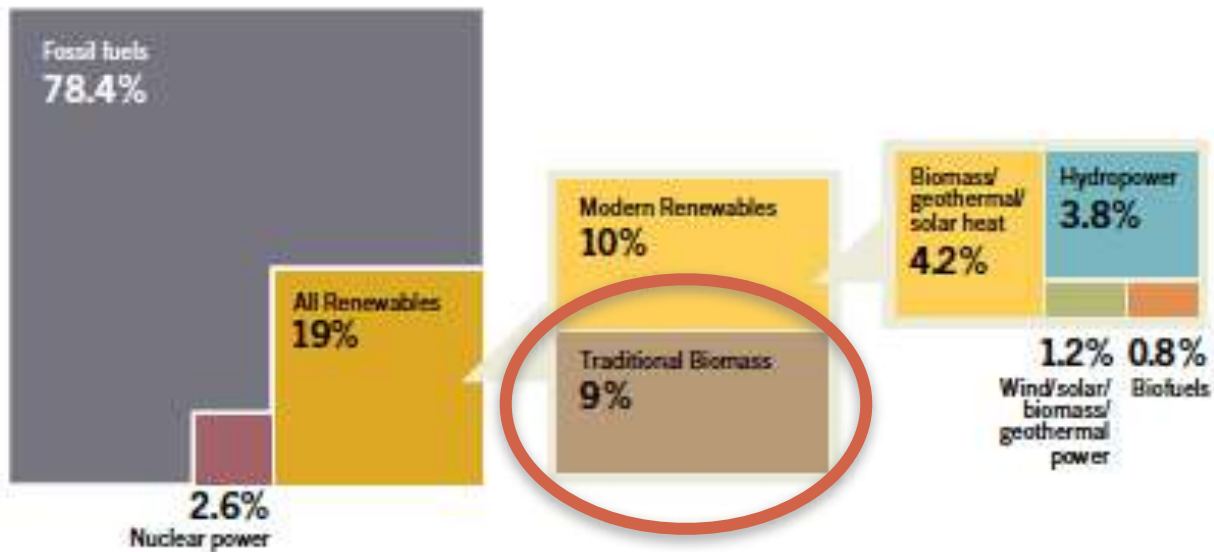
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Importance of Traditional Bioenergy Use

Estimated Renewable Energy Share of Global Final Energy Consumption, 2012



Traditional Bioenergy use represents
9% of global energy and 60% of renewable energy use
2.5 billion users
55% global Wood harvest
2% GHG emissions
20% black carbon emissions
4 million excess deaths

+ Conventional Paradigm on Household Energy Transition

- Traditional biomass use is inefficient, polluting, and leads to large scale deforestation
- Traditional fires/stoves are only used for cooking. Single-stove interventions can fully displace them.
 - Stove lab performance provides a good parameter on their field performance
- Health impacts (as defined by WHO) should be the only criteria to rank alternative cooking options
- Solid biomass fuels/improved –or modern- stoves are not “clean” enough and should not be promoted. Also, they cannot be scaled up as needed.
- Clean fuels (LPG, electricity) are the only real alternatives to open fires: only exclusive use assures health benefits
- Success of stove programs is measured by the number of new connections or stoves disseminated/purchased

Rapid displacement of traditional fires, huge health benefits and large reduction in deforestation rates expected

But.. large-scale clean fuel programs (LPG) are not delivering as expected



Why A Village In Rajasthan Is Still Using 'Chulha' Over LPG Cylinder

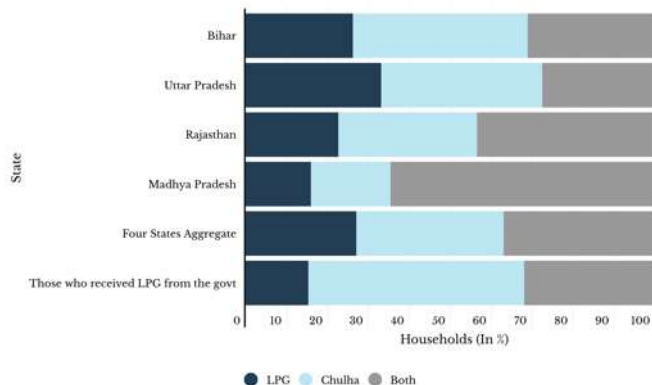
Swagata Yadavar, IndiaSpend

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Chulha Still Widely Used For Cooking



Ujjwala Program India

Brazil- Largest LPG penetration in Latin America



20% woodfuel users (27% more -previously LPG users- since 2016-2018)

Promoting exclusive use of clean fuels without making efficient biomass options available is a MISTAKE

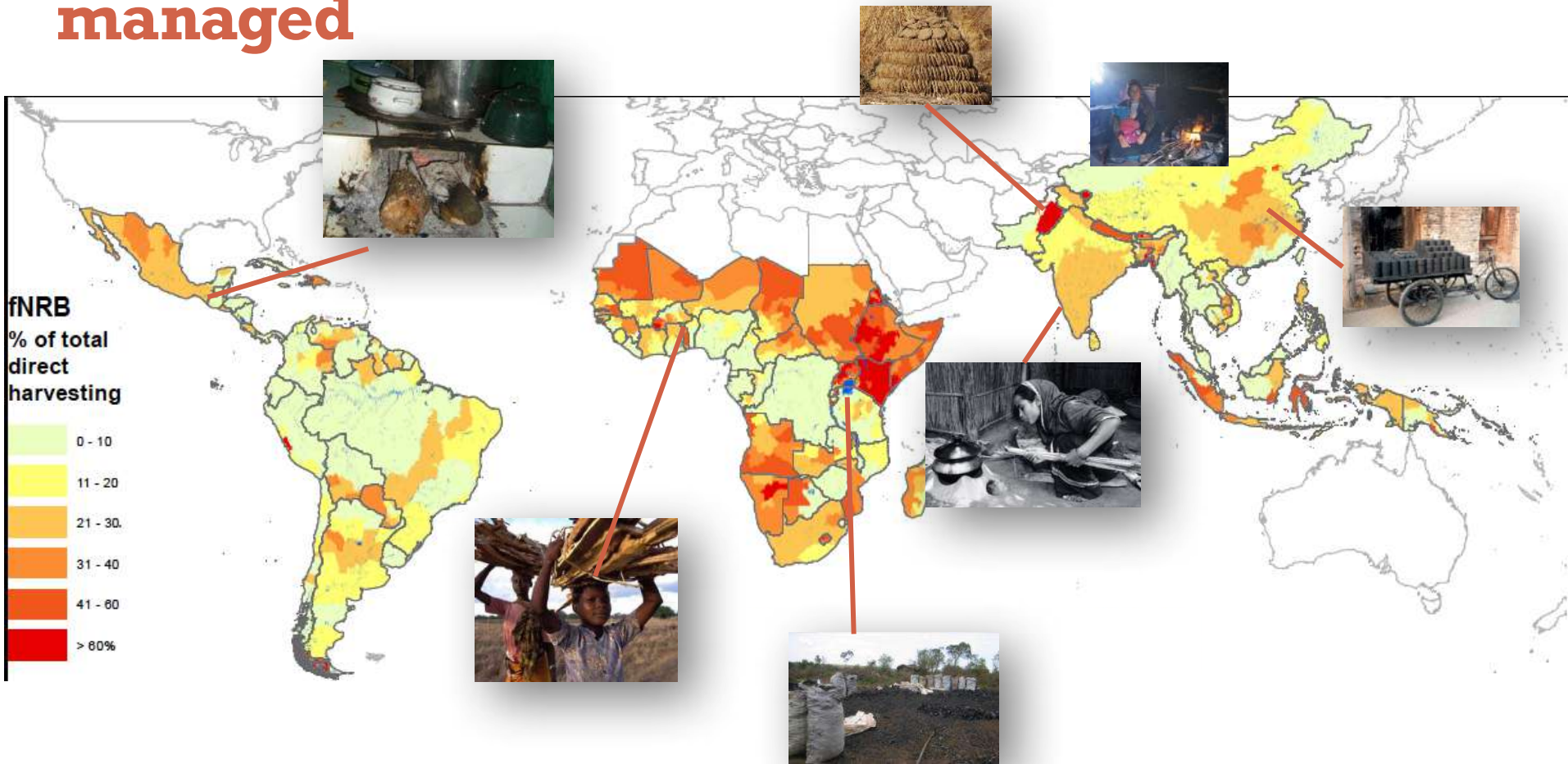
A new paradigm is needed

“Pathways to clean/sustainable cooking”



- Woodfuel use is currently mostly renewable and solid biomass resources can be managed sustainably
- Solid biomass stoves can be clean and can be produced at scale
- Traditional fires satisfy several needs, cooking is a mix of diverse tasks, users are key determinants of stove performance
- Integrated multi-fuel/device interventions (clean stacking) are needed that cope with the diversity of situations around the world **-no-one should be left behind!**
- Programs should focus on adoption and sustained use of clean devices (results-based approaches)

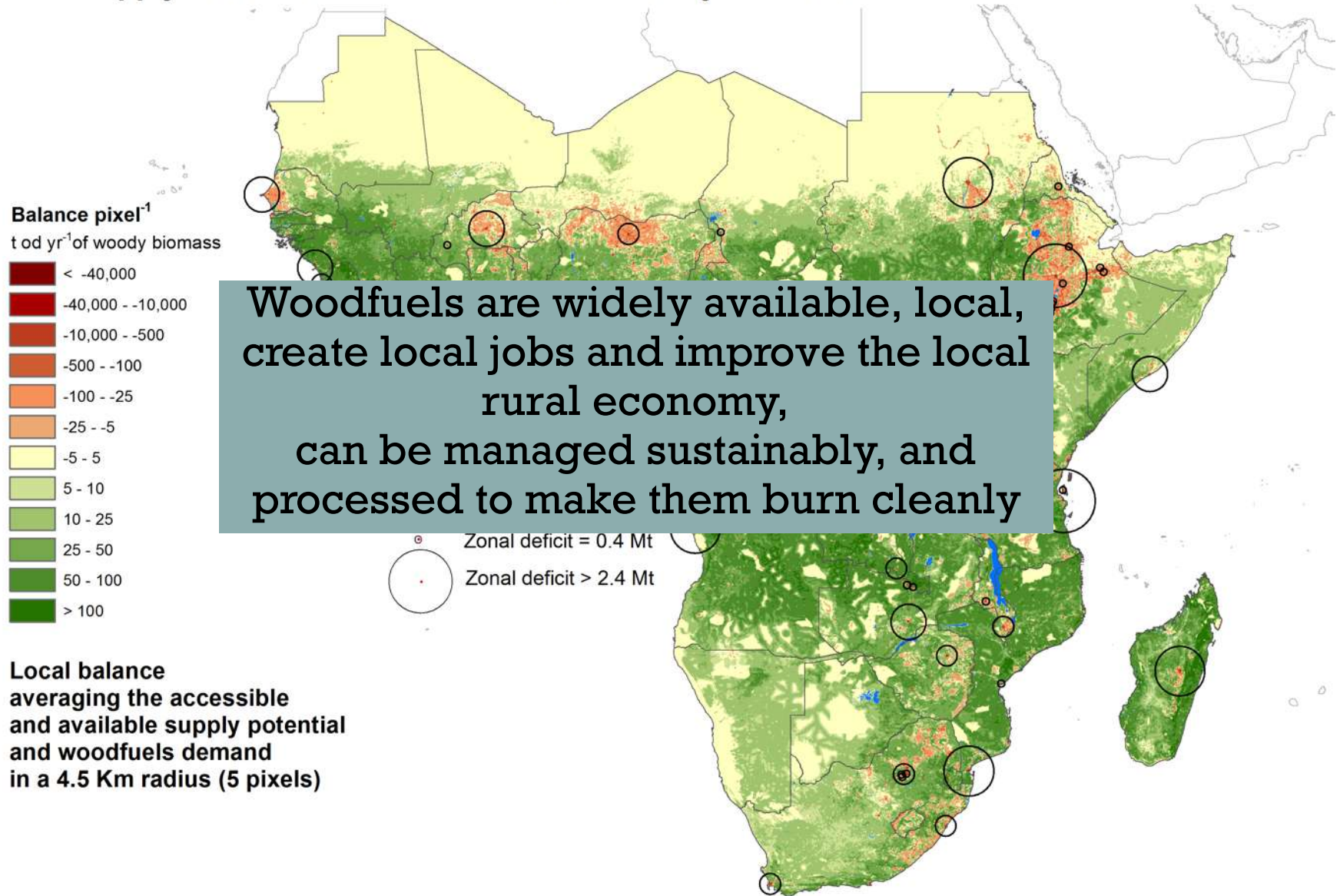
Woodfuels are largely a renewable energy source that could be sustainably managed



From 24-35% global harvesting is non renewable, affecting 275 million people

Biomass Supply-Demand Balance - Africa

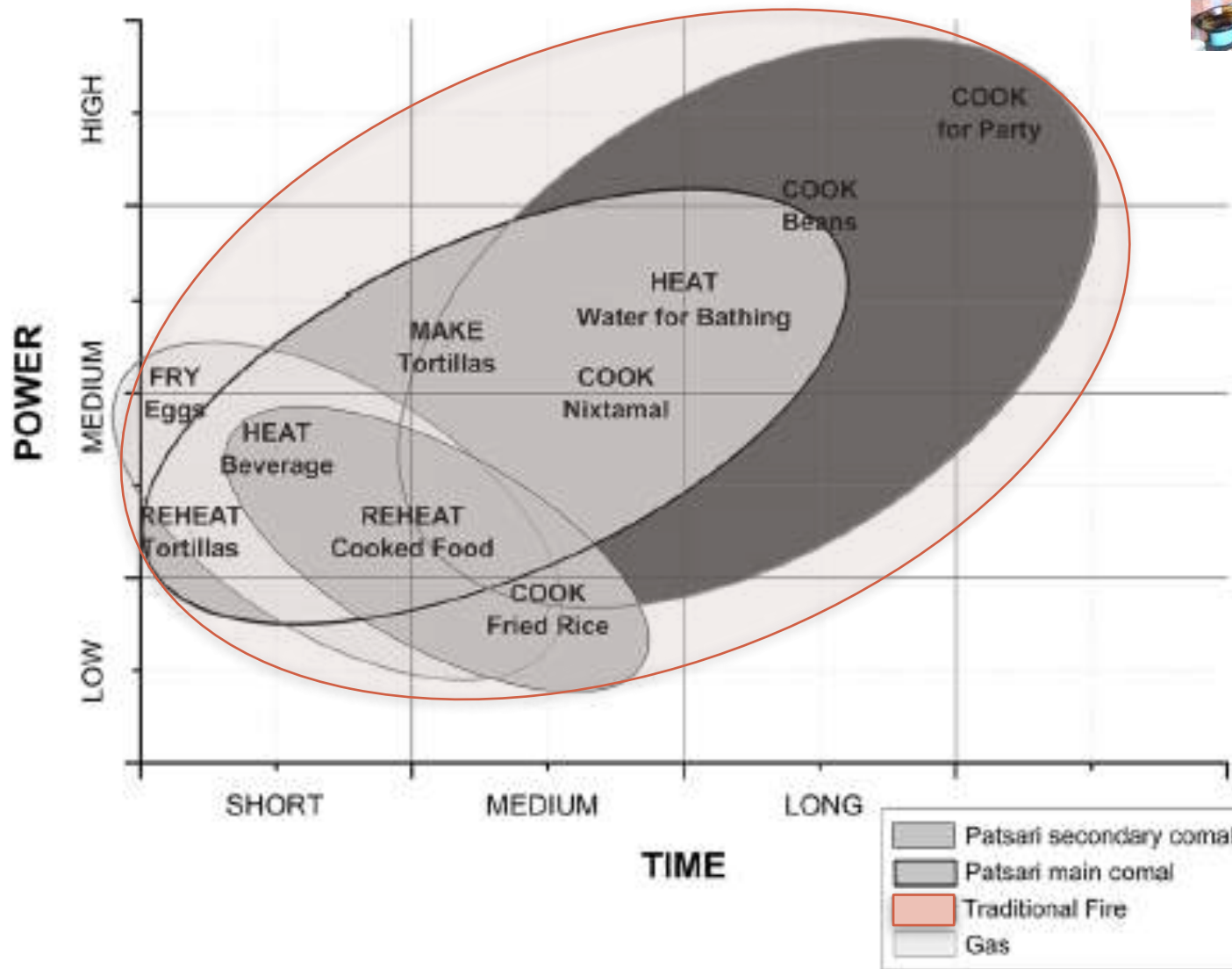
Local supply/demand balance and location of major deficit sites



Drigo et al.; Bailis et al. Masera et al.

2015

A single stove cannot cover all the tasks performed by traditional fires



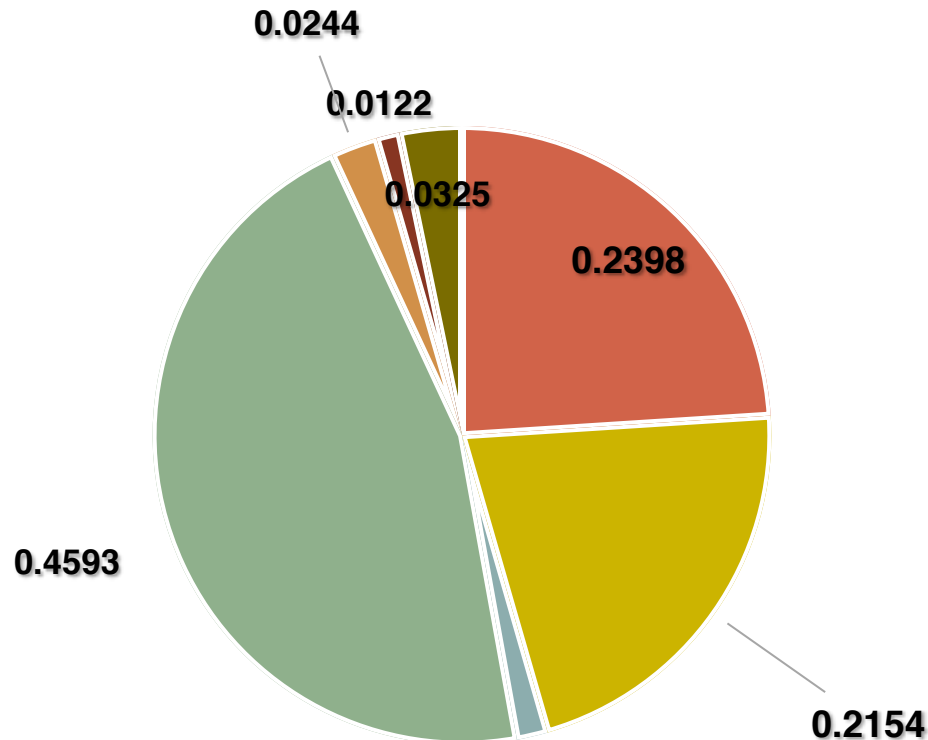
Source: Ruiz-Mercado and Masera, 2015

Stove Stacking is the norm

Multiple Options are Needed to Displace Traditional Fires



- Patsari
- TSF
- GLP
- Patsari-TSF
- Patsari-GLP
- TSF-GLP
- Patsari-TSF-GLP

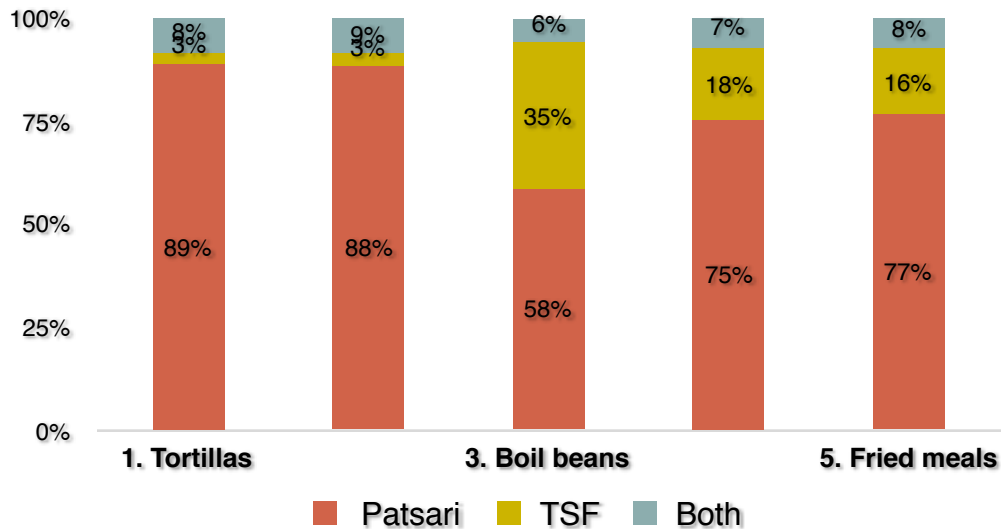


Why stacking: Households do not have enough cash available to consume the fuel on a sustained basis/ Physical clean fuel accessibility may be seasonal/Modern stoves are not adequate/preferred for some traditional meals

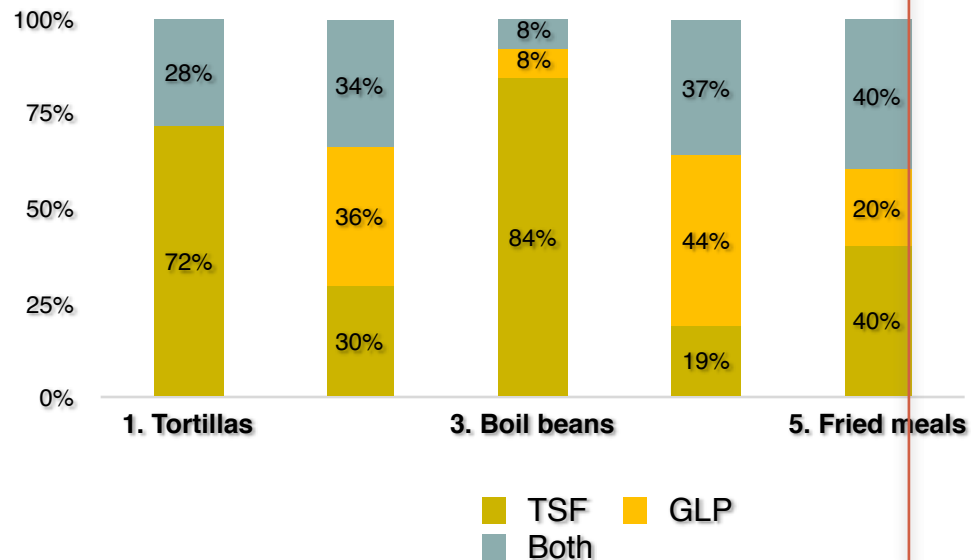
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+ Different stoves are used for different tasks

Patsari-TSF, Average N=92, 2005-2012

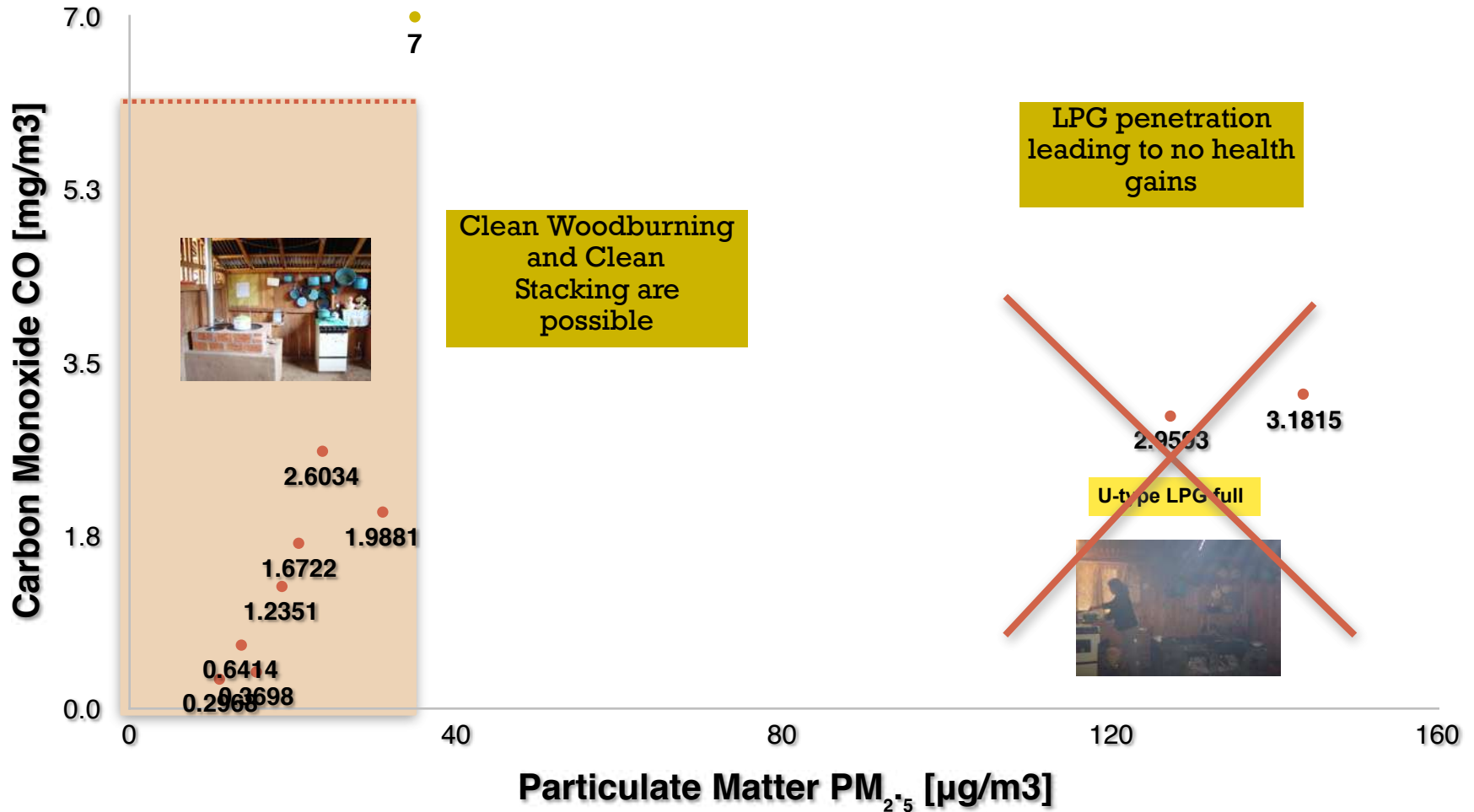


TSF-GLP, Average N=8, 2005-2012



Clean Biomass Use and Clean Stacking are Possible

24h Concentrations

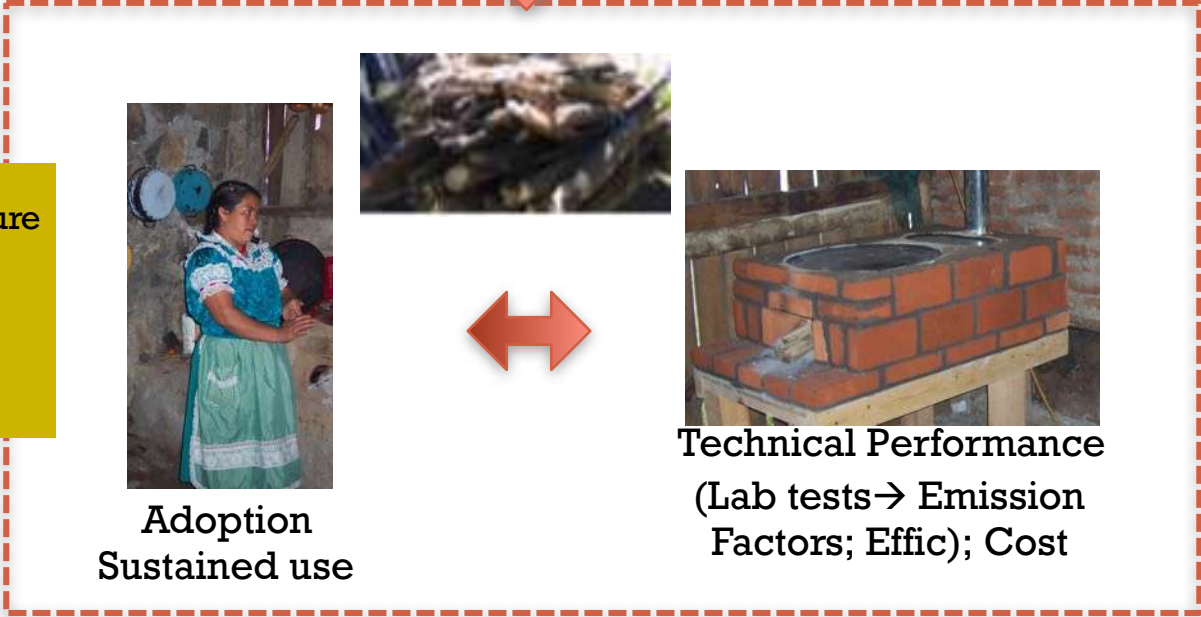


Notes: U-type is an open fire; “full” means all tasks performed in this stove

A New Pathway to Clean Cooking From Cookstoves to Cooking (Household) Energy Systems



Landscape Effects
(Non-Renewable
Biomass)



Compatibility with
traditional practices and culture
Comparative Advantages
with competing devices
Synergies with other uses
Access Constraints
(price, availability fuel)

Actual HH GHG
Emissions
& Exposure



A New Pathway to Clean Cooking

- From promoting “single devices” to **integrated portfolios of options** including:
 - **improved practices** (moving the open fire outside, drying wood, use of pressure cooker),
 - **devices** (stoves, water heaters, space heating)
 - **fuels** (biomass, other)



A New Pathway to Clean Cooking



- Understanding users needs and priorities
 - *Cooking practices, other needs and cultural aspects;*
- Solutions tailored to socio-environmental context
 - Segmentation of users –*there is no “silver-bullet” : urban-rural, income level, biomass availability;*
 - *User-centred design*
- Focus on the adoption and sustained use of clean(er) devices and the displacement of traditional fires
 - *Appropriate program duration and targets*
 - *Results-based and financing*
 - *Program funding for M&E activities*

+Broadening perspectives... from fuels/cookstoves



to sustainable energy services, kitchens
and households



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Thank you!

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