



ETHOS Conference 2023

Plenary 1: Climate-related overview of major initiatives and research happening in the clean cooking sector

28 January 2023

During the panel...

- Each panelist will provide a 5-7 min presentation
- Following this we will open to Q&A and discussion



CCA Highlights and Forum Recap

Presented by: Shannon Lloyd



Overview

1

Highlights of CCA's Ongoing Work

2

Clean Cooking Forum 2022

1

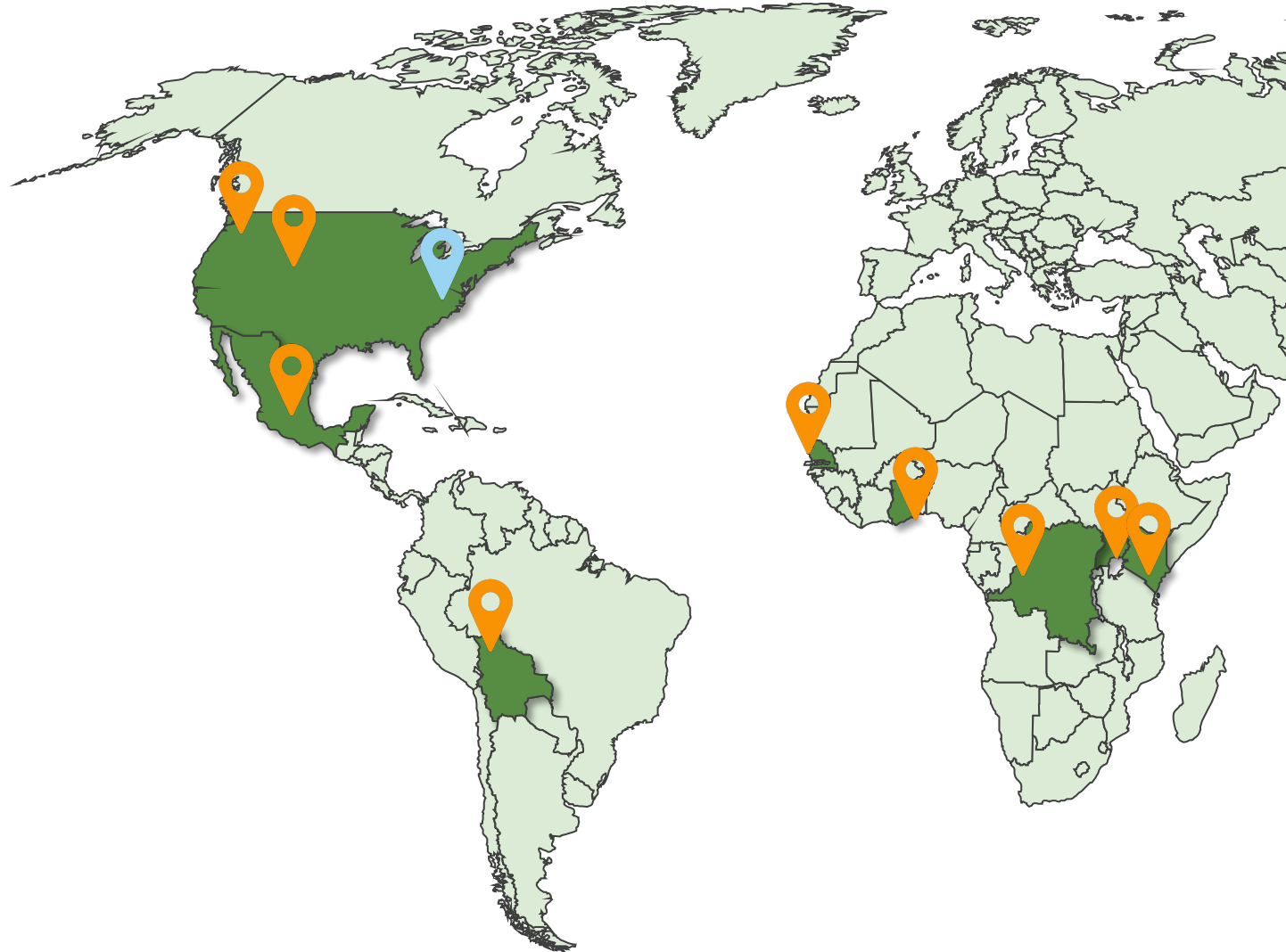
Highlights of CCA's Ongoing Work



Round Robin Testing Program

- 9 labs participating
- + oversight from the US EPA
- 3 Rounds testing stoves in CCA's Ventures Portfolio
 - ACE One stove with Pellets
 - Greenway Jumbo Stove with Wood
 - Biolite Jiko Malkia with Charcoal

Result: Additional ISO Testing Data for the *Clean Cooking Catalog*



Clean Cooking Catalog Upgrade

catalog.cleancooking.org

What's New?

- Updated design
- Additional ISO data
- Easier to filter stoves by characteristics

**CLEAN COOKING ALLIANCE**

NEWSLETTER SIGN-UP    

WHAT IS CLEAN COOKING? | WHAT WE DO | SECTOR RESOURCES | ABOUT US 

DONATE

LEARN MORE

CLEAR ALL FILTERS

Keyword Search:

Text Search

FILTER BY COUNTRY **SEE ALL** FILTER BY REGION

Characteristics:

Portable vs Built-in Stoves

PORTABLE **ALL STOVES** BUILT-IN

Household vs Institutional Stoves

HOUSEHOLD **ALL STOVES** INSTITUTIONAL

CLEAN COOKING CATALOG

◀ CLICK TO VIEW VOLUNTARY PERFORMANCE TARGET ICON LEGEND ▶

MIMI MOTO
Mimi Moto Holding B.V.



ISO Tiers

 **4**

 **5**

 **4**

 -

 -

PHILIPS HD4012
Philips



ISO Tiers

 **3**

 **4**

 **3**

 -

 -

ENVIROFIT G-3300
Envirofit International



ISO Tiers

 **3**

 **3**

 **1**

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KENYAN CERAMIC ...
Sanivation



ISO Tiers

 **3**

THREE STONE FIRE
-



ISO Tiers

 **1**

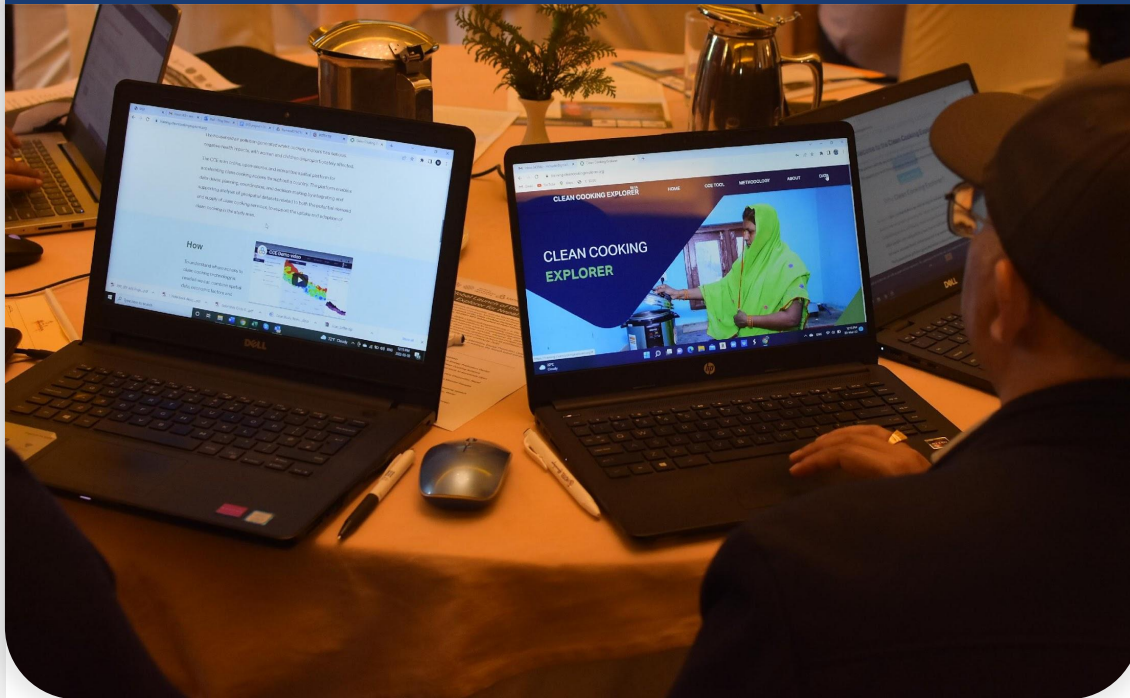
CLEANKOOK ALUM...
Dometic (Pty) Ltd.



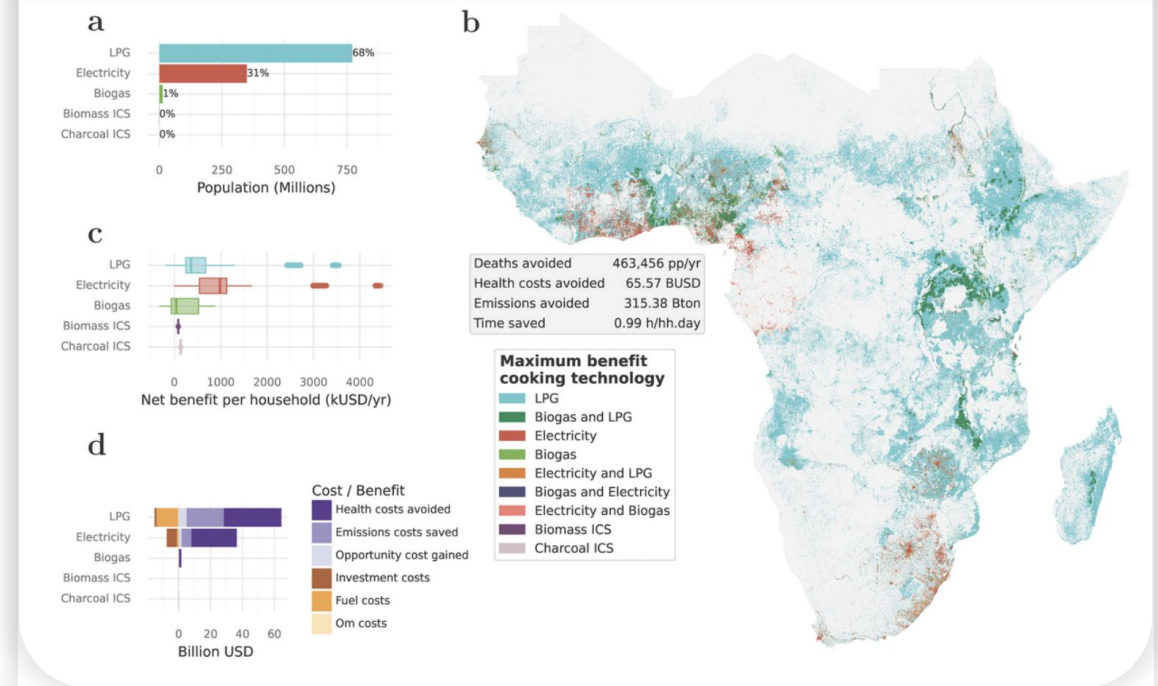
IWA Tiers

CCA is partnered with WRI and others to develop spatial clean cooking planning tools

Clean Cooking Explorer



OnStove



2



**CLEAN
COOKING**
FORUM 2022

PRESENTED BY



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COOKING
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**CLEAN
COOKING**
FORUM 2022

Key Stats:

- 700+ in-person attendees with over 2,500 virtual participants
- 60+ countries represented in-person; 100+ countries represented total
- 24 highly curated sessions
- 40 organizations at the Innovation Expo
- 150+ B2B Networking meetings with 200+ participants from 47 countries
- 60M+ people reached through social and traditional media

#CCF2022

New Investments, Reports, and Partnerships Announced

- 2022 Clean Cooking Women Leaders of the Year Awards
- The UN Capital Development Fund (UNCDF) and CCA launched a partnership to promote financial innovation and investment to deliver greater levels of finance to clean cooking solutions. Both organizations will focus in particular on markets in Africa and Asia.
- Project by Netherlands Enterprise Agency (RVO) in association with EnDev launched, titled “Strengthening the Entrepreneurial Environment for Clean Cooking” (SEE-Clean Cooking), which aims to increase the access to clean cooking solutions in Africa and Asia via over-the-counter clean cooking technology and bio-digesters.
- World Bank/ESMAP launch online course: “Applying a Gender Lens to Clean Cooking: The Hidden Side of Energy Access 2.0”



Introduction to 4C and COP27 Highlights

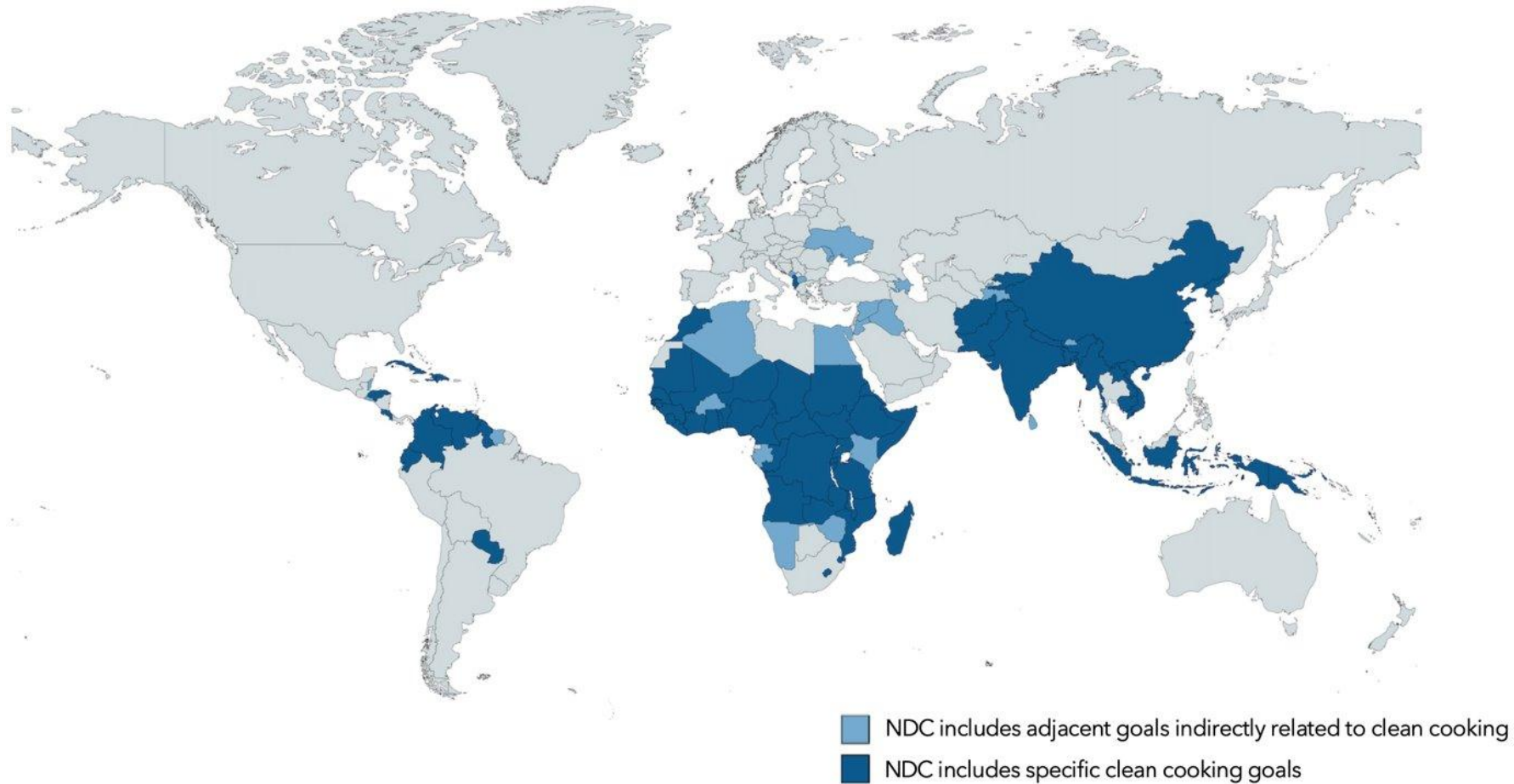
Presented by: Jessica Vargas

4C provides technical support to governments intending to use cooking energy interventions to achieve climate goals

The Clean Cooking and Climate Consortium (4C)



4C applauds the 95 LMICs* that have included clean cooking or household energy in their NDCs.



This preliminary analysis was conducted by 4C. If you know of a country that has household energy or clean cooking measures in their NDC and is not listed here, please contact us at climate@cleancooking.org.

4C provides technical support to LMICs at multiple levels:

Guidance Materials

- Roadmap for National Clean Cooking Programs to Achieve Emission Reduction Targets.
- Introductory MRV Framework for Clean Cooking Initiatives.

Technical Consultations

- Multi-country expert consultations.
- In-depth, country-specific technical consultations.

(Both on topics requested by countries we work with)

4C will expand its role in 2023 to provide technical support to:

- Donor governments intending to use international market mechanisms to achieve climate goals through clean cooking.
- Examples of support:
 - Baseline setting
 - Risk assessments
 - GHG emissions reductions calculations
 - Stove testing data interpretation
- Standards bodies to ensure their methodologies for clean cooking carbon offsets are robust, transparent, and conservative.

Highlights and Key Takeaways from COP27



Clean cooking was showcased at multiple spaces at COP27...

SDG Pavilion UN Climate Innovation Hub
Nordic Pavilion **SDG7 Pavilion**
U.S. Center Bloomberg Green
UN Climate Change Pavilion 4th Capacity Building Hub
Health Pavilion

...and across different sectors.

Gender equality

Ecosystems

Finance

Food security

Climate Change

SDGs

Economic empowerment

Health

Productive employment

Integrated energy planning

COP27 Highlights: U.S. Center



Reducing Emissions from Cooking to Achieve NDCs

- Featured U.S. EPA Administrator Regan, CCA, UNFCCC, USAID, and the Governments of Uganda and Ghana.
- Representatives from Ghana and Uganda described their cooking implementation activities, and speakers discussed how clean cooking is essential to achieving climate goals.

For future reference

- Health Pavilion: [Health and Energy Platform of Action \(HEPA\): Tackling the Health-Energy-Climate Nexus Through Increased Capacity, Finance, and Actions on the Ground to Accelerate Clean Cooking](#)
- Bloomberg Green: [Innovating for Clean Cooking and Food Security](#) featuring CCA, the World Resources Institute, and KOKO Networks
- Nordic Pavilion: [Clean Cooking Around the World](#) explored the actions Nordic institutions are taking to scale ambition and finance for clean cooking
- 4th Capacity Building Hub: [Just Transition and the Future of Work](#) was led by the UN High-level Champions, ITUC, Skill lab, and CCA and addressed currently available solutions that can be scaled to ensure a just transition for a net zero resilient future.
- Blue Zone: [The Role of Gender Equality for a Just, Sustainable, and Climate Resilient Energy Transition](#). Hosted by UNIDO, WFP, FAO, and UN WOMEN, this event discussed the interconnected relationships between climate action, sustainable energy, gender equality, food security, and clean water.
- UN Climate Change Pavilion: [Clean Cooking: Delivering a Just Transition and Climate Wins](#). Discussed the co-benefits of clean cooking and the need for coordination.
- UN Climate Change Global Innovation Hub: [Achieving NDC Targets Through Clean Cooking Action](#). Focused on the work of state and non-state actors to support country-level efforts to achieve climate goals through clean cooking.

CLIMATE AND CLEAN AIR COALITION – CCAC

HOUSEHOLD ENERGY HUB

ETHOS 2023 Presentation



MECS e-cooking demonstration in Accra, Ghana
(October 2022)

CLIMATE AND CLEAN AIR COALITION

- The Climate & Clean Air Coalition is a global, voluntary partnership dedicated to reducing short-lived climate pollutants (SLCPs) to achieve multiple benefits for health, agricultural crop production, slowing the rate of climate change and achieving SDGs. Focus on methane and black carbon.
- 77 State Partners and 78 Non-State Partners
- Network of 400+ governments, IGOs, financial institutions & civil society organisations

ADDRESSING THE MAIN SLCP EMITTING SECTORS



AGRICULTURE



BRICKS



HOUSEHOLD
ENERGY



HEAVY-DUTY
VEHICLES



OIL & GAS



HFCs



WASTE



ASSESSMENTS



FINANCE



SNAP



HEALTH

SLCPS FROM HOUSEHOLD ENERGY

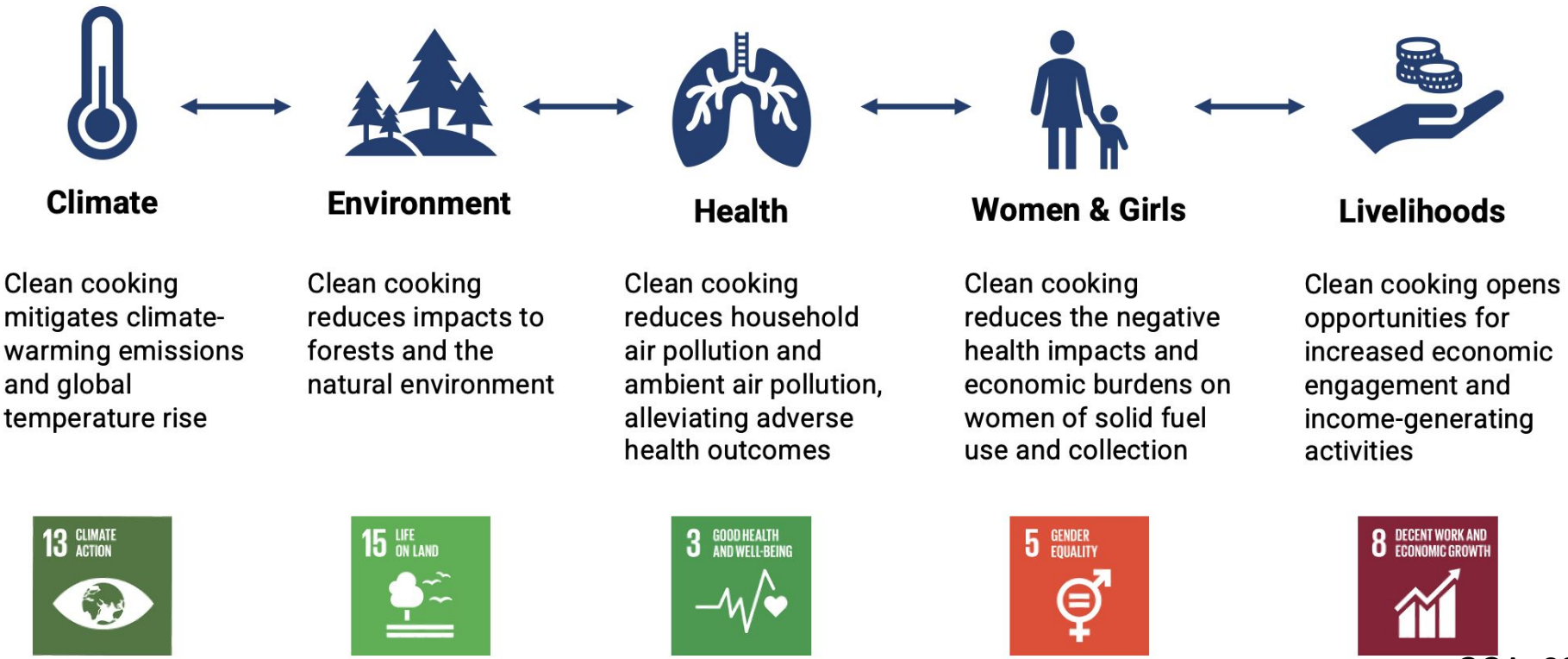


- Burning woodfuels produces ~1 Gt CO₂e / year (2% of global emissions)
- >50% of anthropogenic black carbon emissions come from household energy use

CCA, 2022

MULTIPLE BENEFITS FROM SLCP MITIGATION

The co-benefits of clean cooking contribute to multiple Sustainable Development Goals



CCA, 2022

OPPORTUNITY IN ASIA AND THE PACIFIC REGION

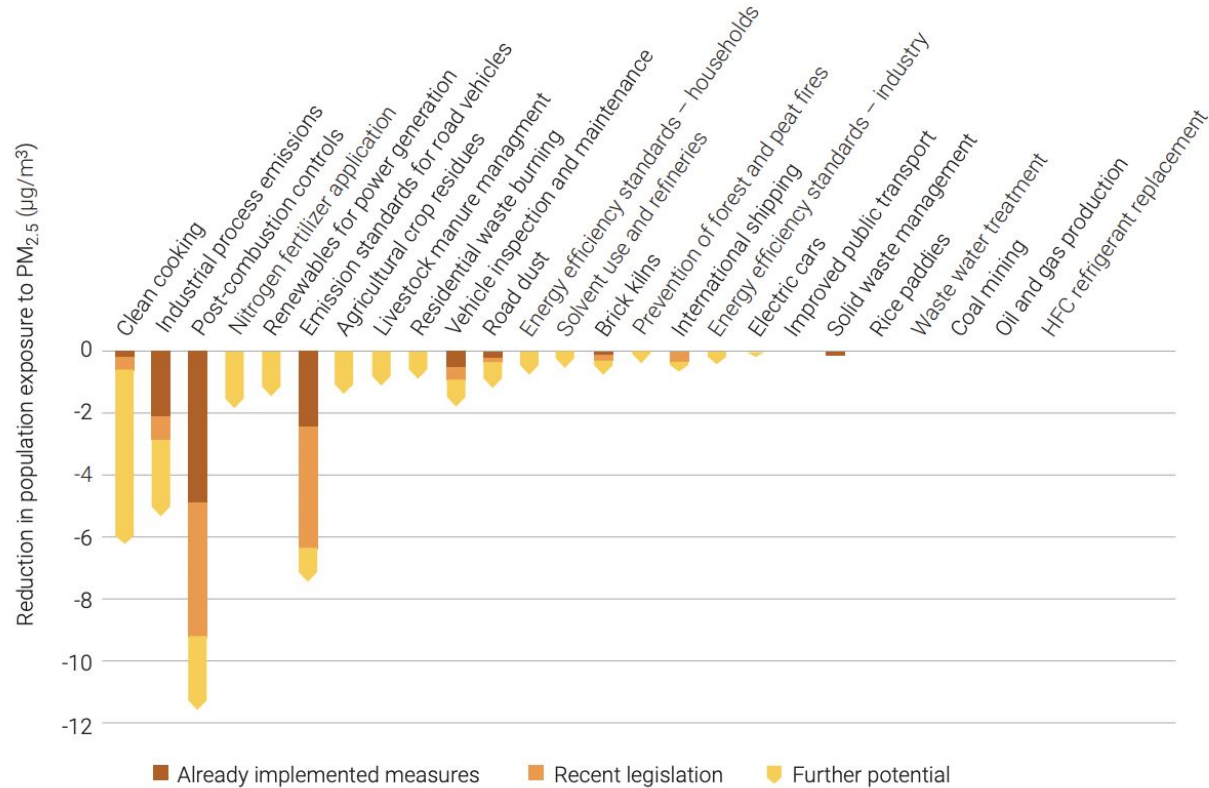
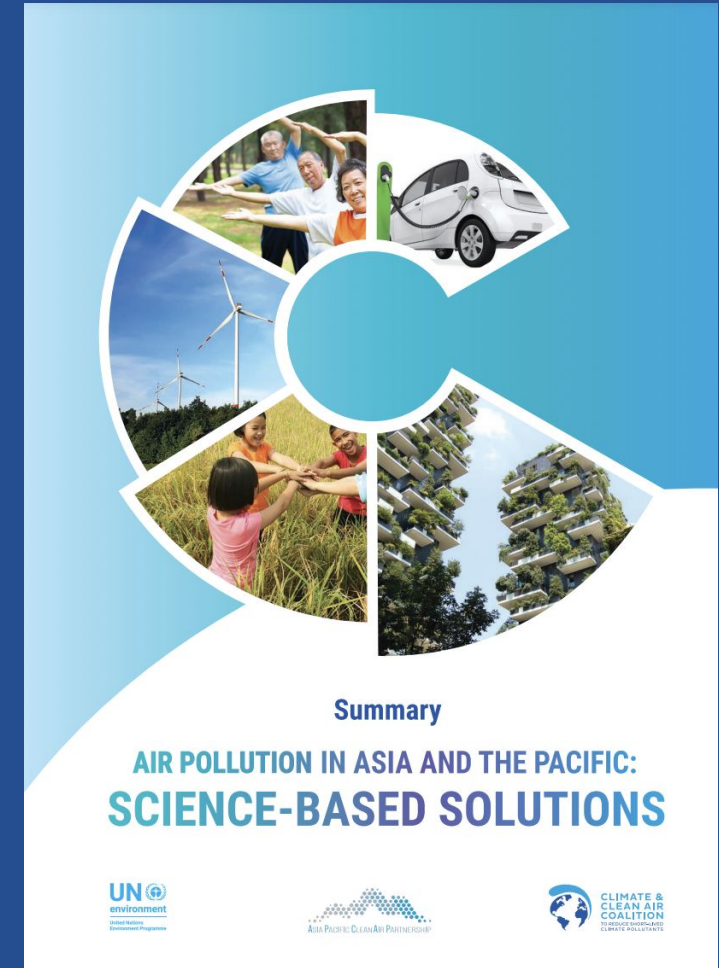
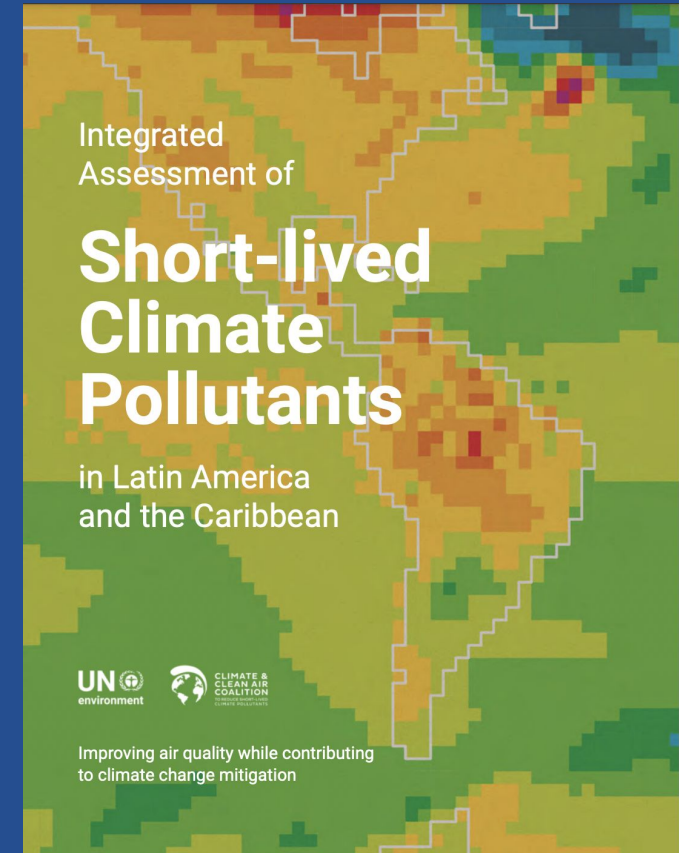
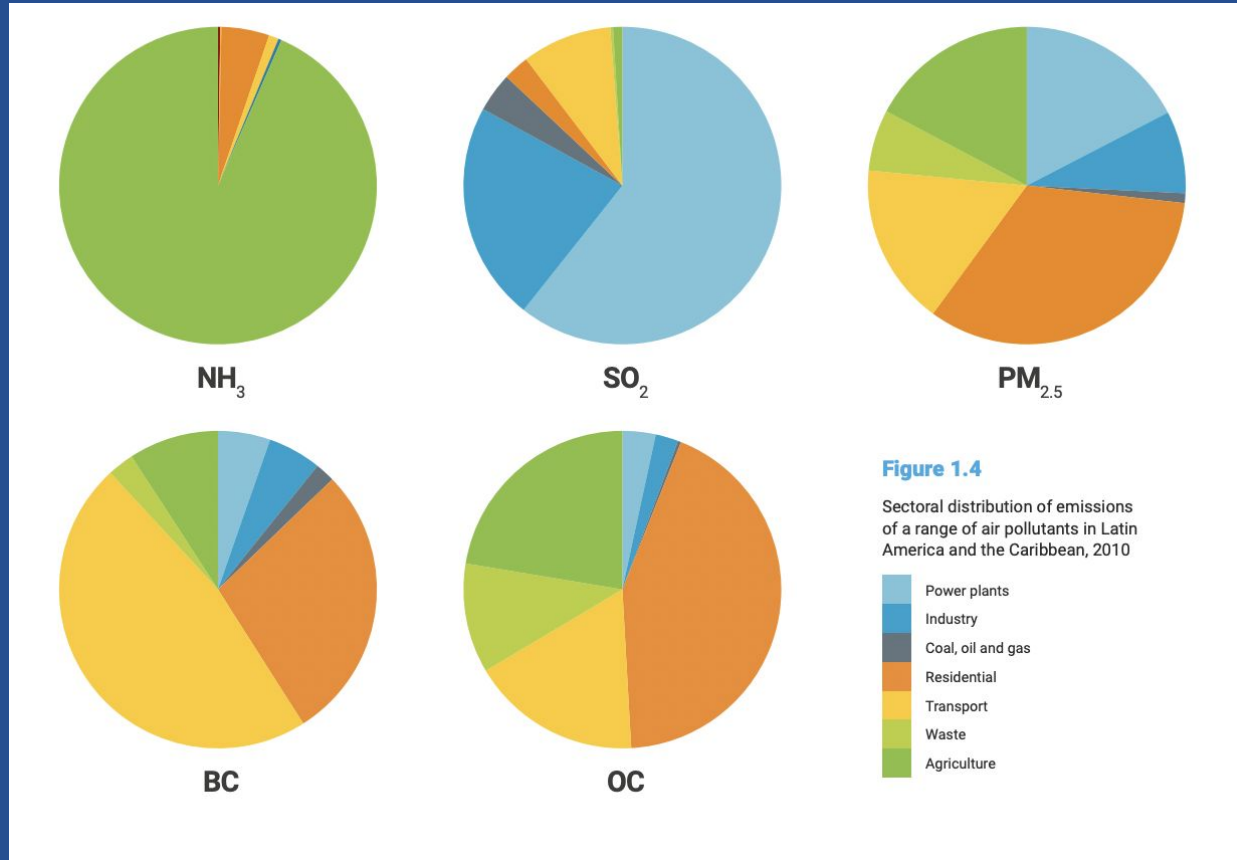


FIGURE 2.4: IMPACTS ON POPULATION-WEIGHTED EXPOSURE TO PM_{2.5} IN 2030 FROM IMPLEMENTATION OF 25 CLEAN AIR MEASURES, RANKED BY FURTHER POTENTIAL



OPPORTUNITY IN THE LATIN AMERICAN REGION



OPPORTUNITY IN THE AFRICAN REGION

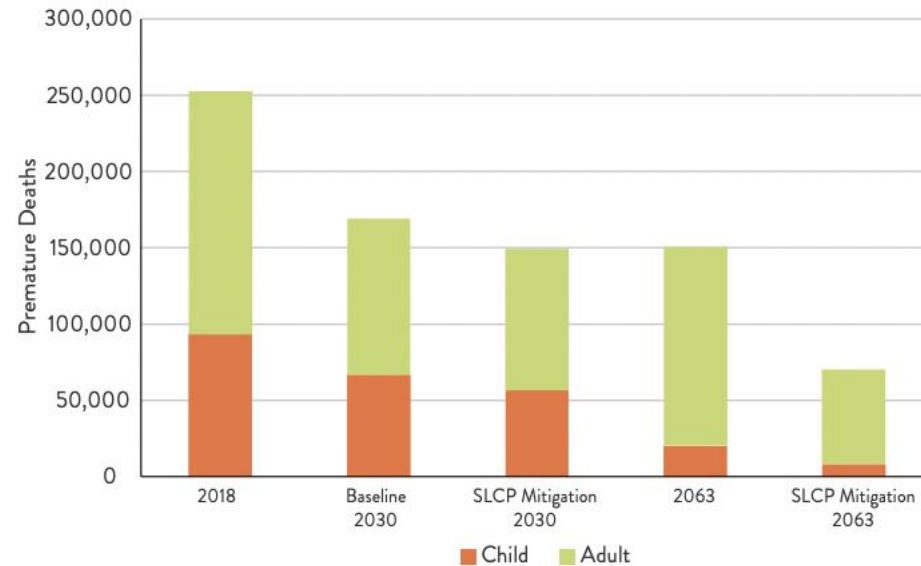


Figure S4 Premature deaths attributable to household air pollution from solid fuel combustion in 2018, 2030 and 2063 for baseline and SLCP mitigation scenarios disaggregated by children and adults.



INTEGRATED ASSESSMENT OF AIR POLLUTION AND CLIMATE CHANGE FOR SUSTAINABLE DEVELOPMENT IN AFRICA

SUMMARY FOR DECISION MAKERS



UN
environment
programme

CLIMATE &
CLEAN AIR
COALITION
TO REDUCE SHORT-LIVED
CLIMATE POLLUTANTS

African
Union

CCAC SUPPORTS NATIONAL ACTION

1. Support development of national and sub-national strategies and plans that include household energy measures;
2. Develop guidance and build capacity to track progress by developing baselines and monitoring and reporting;
3. Support development of funding submissions, such as, to the GCF, NAMA Facility, development agencies, and Article 6 under the Paris Agreement.

PROGRESS: SCALE UP THROUGH NDCS

95 LMICs include some reference to clean cooking or household energy in their NDC.

More specifically, 72 countries include a direct reference to clean cooking in their NDC, and 23 include an indirect reference (e.g., household energy in general; household heating, lightning, and/or cooling; and/or reduction in fuelwood use without specifically mentioning fuelwood for cooking).

4C work dovetails with CCAC's support of national strategies and tracking progress through monitoring, reporting and baseline development.

OPPORTUNITY: CCAC HOUSEHOLD ENERGY HUB

- The Household Energy Hub is a community of practice: it provides peer-to-peer exchange, allows for technical discussions on best practices, and promotes the latest science and analysis. There is also an opportunity to work across Hubs, such as planning, waste, and agriculture.
- The Household Energy Hub brings together governments, inter-governmental, and non-governmental organizations along with private sector leaders to drive action in the sector and tackle SLCPs from every angle.
- Members of the Household Energy Hub share a common vision and work to increase visibility of the urgency of SLCP reductions.
- As a unit, the Household Energy Hub aims to raise ambition, strengthen political will, and inform Ministerial engagement.
- The Household Energy Hub is designed to be inclusive and also function to implement the CCAC Household Energy Engagement Strategy to reduce emissions in target sectors.

CCAC HOUSEHOLD ENERGY HUB – PROJECTS 2022

New projects starting from EOI 2022 Process:

- ❖ Eswatini - Deliver training and awareness raising material on SLCPs from household energy use and their impacts (\$75,000)
 - ✓ Target audience reports adoption of electric cooking technology in final project survey
 - ✓ The government of Eswatini has increased capacity to raise awareness among the population of the multiple benefits of clean household fuels and technologies to increase uptake of electric cooking among households
 - ✓ The public awareness-raising materials are shared with interested countries in the region with the aim of increasing the percentage of cooking with electricity in countries with similarly high levels of access and countries interested in increasing access to electricity.
- ❖ Uganda - Support for integrated national clean cooking strategy (\$75,000)
 - ✓ Outcome: Uganda's government has a coordinated integrated National Clean Cooking strategy to achieve clean cooking targets with a clear process to measure and monitor the extent to which these interventions are meeting Uganda's Third National Development Plan Target by 2025.

TRANSFORMATIVE ACTION – CALL FOR PROPOSAL

2022 Spotlight for the Transformation Action Proposals (27 Household Energy proposals received; decisions in Q1 2023)

- Phase out kerosene fuel for lighting. Scale up the lessons learned in Lighting Africa to build a similar effort across Asia. Using best practices from the systematic ban on leaded gasoline, work to systematically remove subsidies for kerosene and enact bans by 2030.
- Improve clean fuel mix to increase electricity and decrease charcoal and wood. Recognizing that the World Health Organization defines clean fuels for health results as solar, electric, biogas, natural gas, liquefied petroleum gas (LPG), and alcohol fuels including ethanol, as well as environmental sustainability considerations, work to significantly increase the percentage of clean fuels for household energy use at the national and regional level by 2030.

NEXT STEPS

1. Join CCAC Household Energy Hub
2. Countries can request Technical Expert Consultation with 4C – Clean Cooking & Climate Consortium
 - 4C “Large-group” topics have included how to conduct successful MRV and how to access funding for clean cooking programs.
 - 4C “Small-group” consultations allow us to work one-on-one with countries—such as Uganda, Ghana, and Rwanda—based on their current clean cooking plans.

THANK YOU



A biodigester is installed in a community in Kenya. (Photo: Sistema.bio)

Contact: secretariat@ccacoalition.org

Scaling up Gas and Electrification for Clean Cooking in Low- and Middle-Income Countries

Climate Threat or Mitigation Strategy with co-Benefits?

Rob Bailis – SEI US

Andrew Grieshop – NCSU

Dan Pope – Univ. of Liverpool

Elisa Puzzolo – Univ. of Liverpool

Emily Floess – NCSU

Katherine Landesman – SEI US

Annelise Gill-Wiehl – UC Berkeley



Motivation

- ~600M people in LMICs gained access to clean cooking from 2010 to 2020
 - LPG accounts for over $\frac{3}{4}$ of this growth
 - Grid electricity, generated mainly by fossil fuels, accounts for most of the rest
- By 2040 millions more will adopt LPG
 - But in sub-Saharan Africa polluting fuel use could grow by > 400 million people
 - Many countries are betting on LPG to buck that trend



A lot of **fossil-based** “clean” cooking options are coming online

Is this a good thing?

Aren't we trying to reach “**net-zero**”?

So, what happens if 2.4 billion people...



go from this... to this... or this?

To answer this question...

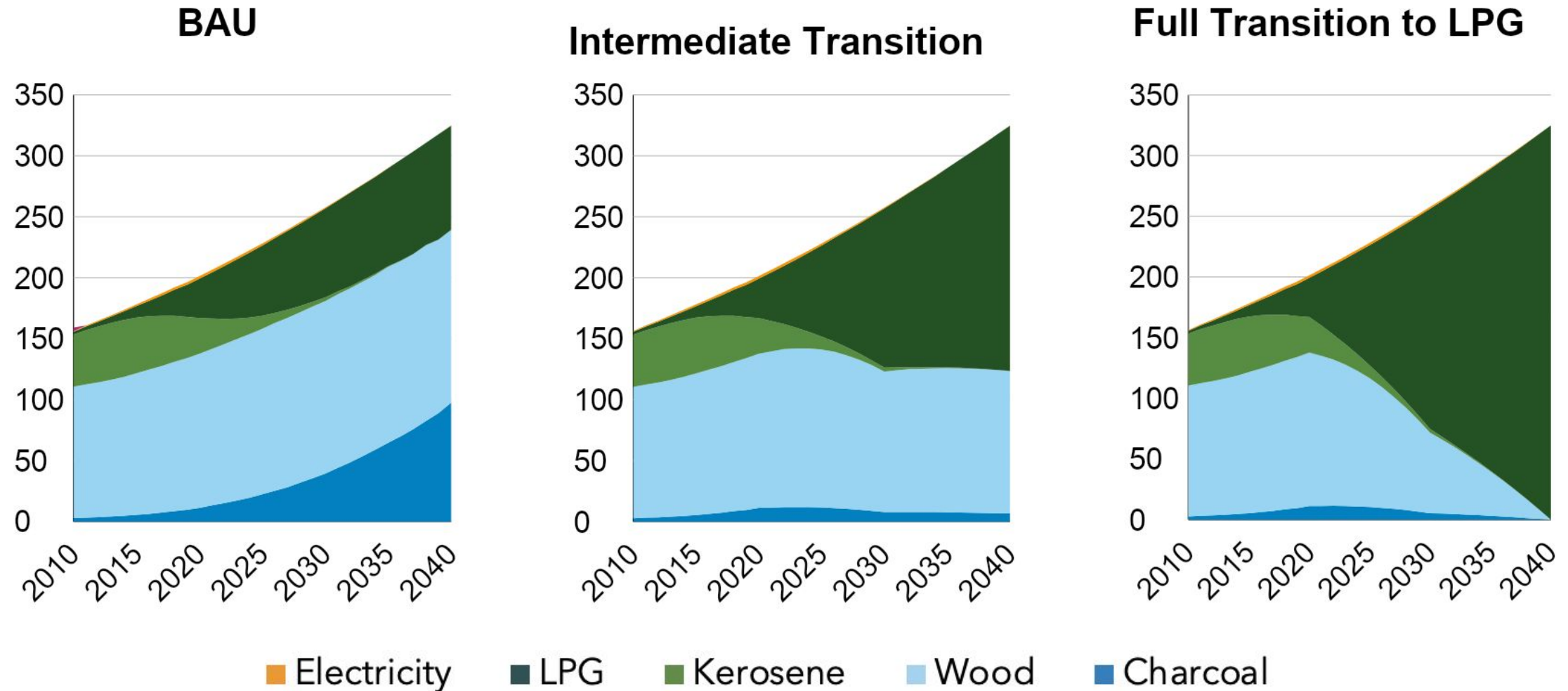
We gathered fuel-specific LCA data and developed 3 groups of scenarios applied to 77 LMICs:

- BAU - based on current trends
- Full Transitions to:
 - LPG
 - Electricity / LPG
 - All Electricity
- Intermediate Transitions
- LCA uses global mix of production sources
- Electricity mix follows WEA's 'SP' scenario

And modified existing models to estimate impacts on:

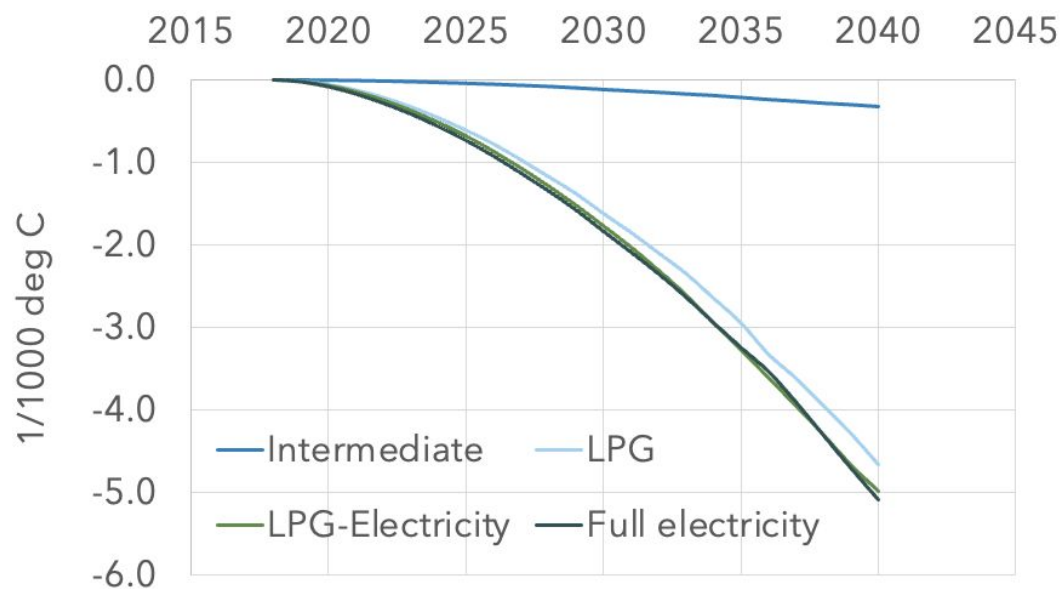
- Climate: [FAIR - Smith et al](#)
- Health: [ABODE - Pillarisetti et al](#)
- Add'l costs/benefits: [BARHAP \(WHO\)](#)
 - New infrastructure
 - Fuel costs
 - Time savings
 - Forest cover

Example: HH fuel choice in Nigeria to 2040

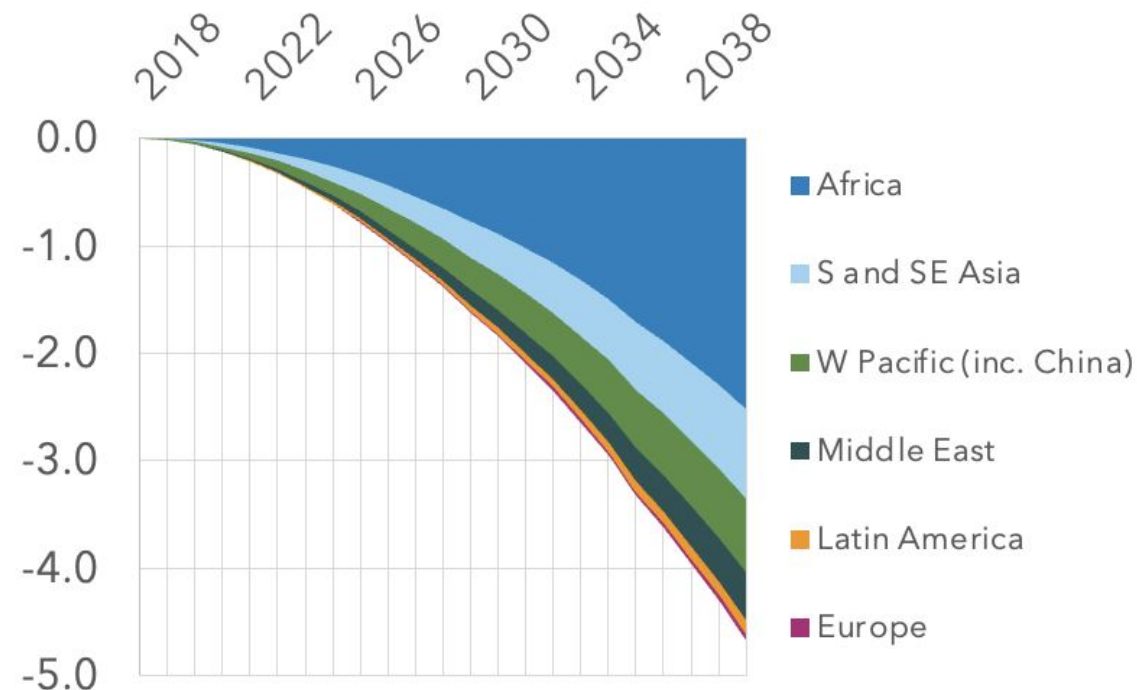


Results: Temperature change relative to BAU scenario

Projected temperature difference between BAU and full transitions to LPG or electric cooking (mC)



Regional contributions to overall temp change for full transition to LPG (mC)



Other key findings



Propane tanks, Nairobi Kenya by GioRan licensed under [CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/)

A full transition to **clean HH energy** in LMICs by 2040 results in:

- >95% reduction in CO, PM_{2.5}, BC, OC and NMVOC emissions from cooking
- BC declines by ~1 Mt / yr by 2040
- OC declines by 2.7 Mt / yr
- Cumulative well-mixed GHGs decrease by ~3 Gt CO₂e
- Global mean temperature is ~5 mK lower than in “business-as-usual”

So, is this a good thing?

“Net zero” may be an aspirational goal...

But we should try to be more nuanced...

Is a transition to LPG worse than BAU?

No! It's better for health and climate

Is LPG the most climate-friendly option?

Probably not

By favoring LPG now, are we creating path-dependencies that could close off other options in future?

Possibly (and we shouldn't ignore this)



MRV for Clean Cooking

Michael Johnson



Measurement, reporting, and verification (MRV)

MRV is the mechanism that creates the value or the tradeable asset by quantifying and ground truthing the emissions reductions

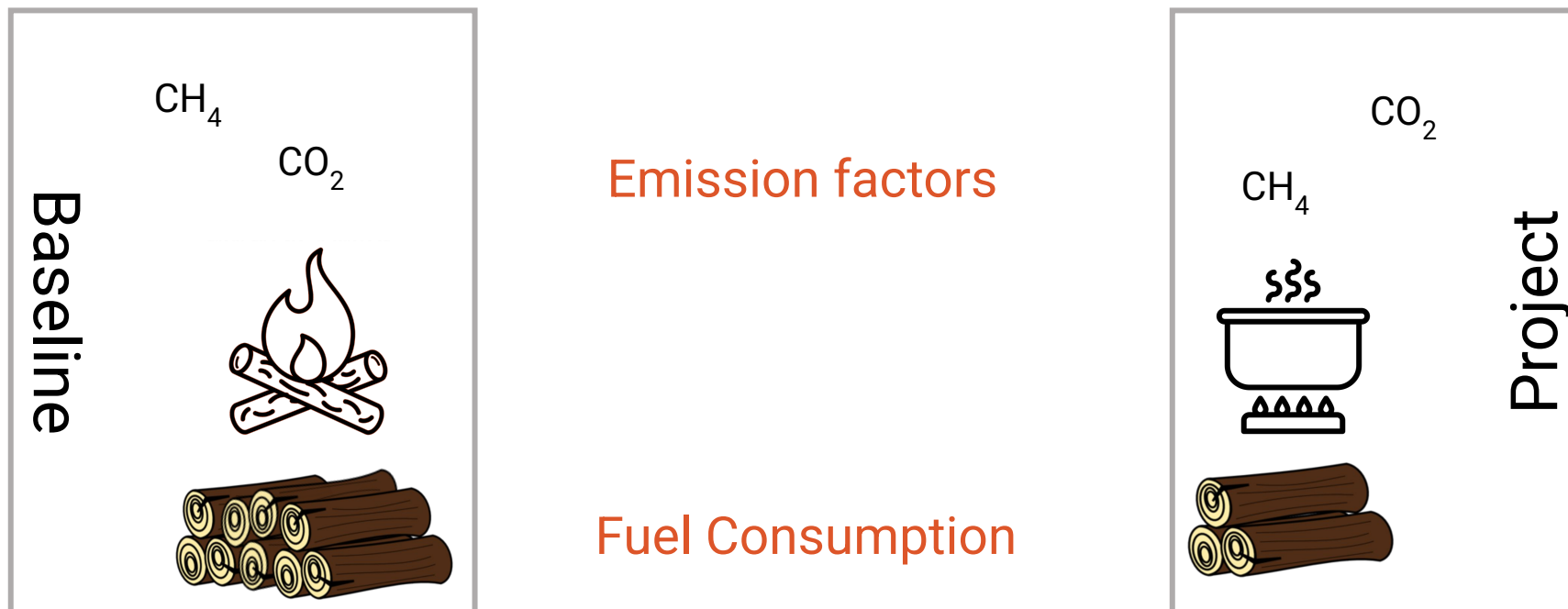
Important that emission reductions are real and credible

A system which allows us to quantify progress towards climate goals

Gives national implementers valuable feedback on the effectiveness of mitigation activities

Provides guidance for countries to meet measurement and reporting

Main **inputs** for estimating emission reductions



When biomass is used, only the non-renewable fraction contributes to CO_2 emissions (**fNRB**)



Best practices for MRV systems and approaches

Applying best practices for MRV systems and approaches is crucial because...

- Emissions result from many distributed point sources in homes
- Substantial variation in fuel and stove use patterns in homes across regions, user characteristics, and time

Key performance indicators are an important tool for reporting on progress towards NDC targets.

They are simple, informed by existing data, and an easy starting point.

Best Practices

Robust baseline data collected

Stove testing conducted in the lab or field to ascertain information on fuel consumption

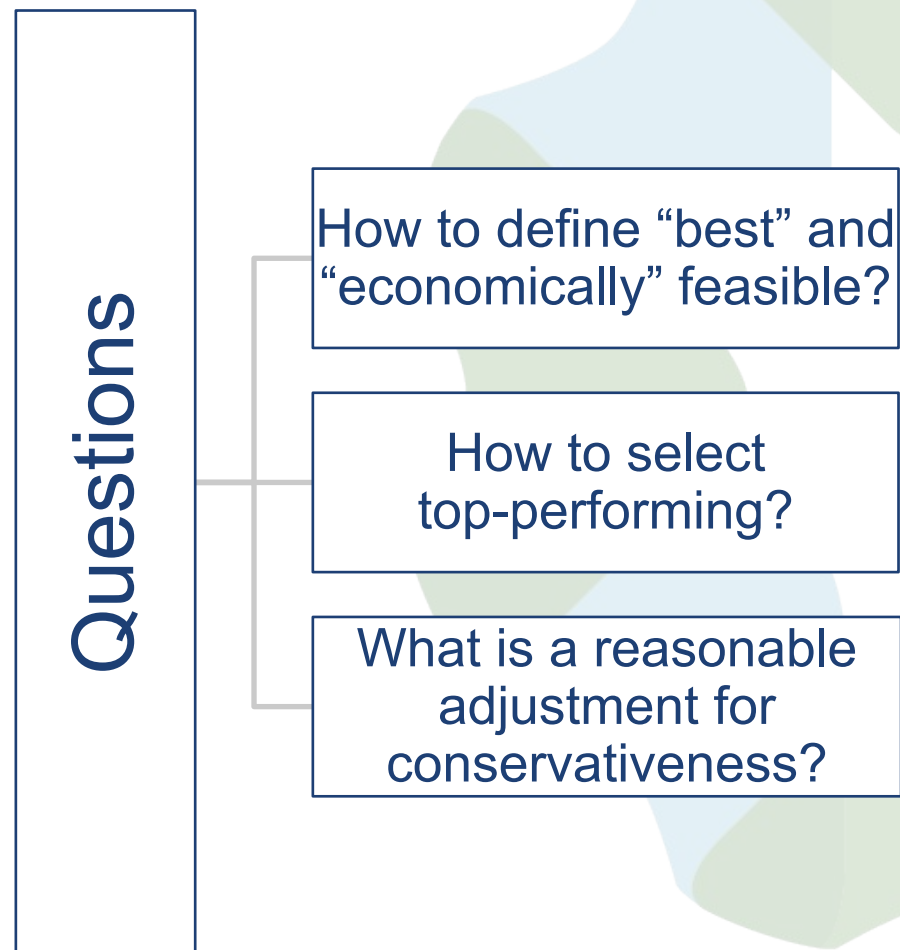
Data collection from the field on stove use

Conservative estimates used for biomass renewability

Setting baselines

Three approaches allowed

- Assume the best available (and economically feasible) technologies are being used
- Use top-performing technologies as benchmarks
- Adjust historical emissions estimates conservatively



High-quality MRV leads to confidence in emissions reductions



High-quality MRV entails:

- Sound science
- Best practices
- Robust emissions estimates
- Common framework
- Harmonized approaches
- Consistency in application