Monitoring, Evaluation and Learning Framework 2022 Report
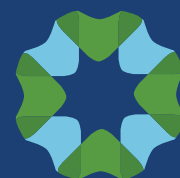
CLEAN
COOKING
ALLIANCE

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Executive Summary

The Clean Cooking Alliance (CCA) collaborates with a worldwide network of partners to foster an inclusive industry capable of ensuring universal access to clean cooking. Our commitment to effective Monitoring, Evaluation, and Learning (MEL) plays a pivotal role in accelerating transition to clean cooking, amplifying impact, and fostering ongoing improvement. By prioritizing MEL, CCA strives to make the most significant contribution to the advancement of the clean cooking ecosystem.

Report Purpose

CCA's MEL Framework is a foundational tool that aims to systematize measurement and learning across CCA's work. This *MEL Framework 2022 Report* builds upon the *2020* and *2021 Monitoring and Evaluation (M&E) Framework Reports* and includes the following components:

- CCA's Theory of Change (ToC) (see Annex F).

- A three-level approach comprised of guidance and requirements at the project, organization, and sector levels.

- A list of Standard Indicators (SI) tracking against the Theory of Change (see Annex A).

- Data on the impact of CCA's support to enterprises.

- A learning agenda to help CCA become an efficient and effective learning organization that generates, disseminates, and acts upon learning to achieve universal access to clean cooking by 2030.

Standard Indicators are pivotal in effective MEL practices. They serve as fundamental metrics for gauging progress and impact in various sectors of the clean cooking industry. With 2022 marking the MEL Framework's third year in action, this report delves deeper into the yearly progression of SI and their correlation with enterprise growth. The trends observed underscore that enterprises operating within the clean cooking sector have not only sustained their growth but have also shown remarkable expansion since the beginning of CCA's assistance and tracking. This consistent pattern of enterprise expansion throughout the duration of CCA's assistance highlights the significance of CCA in driving the industry's overall growth trajectory.

Methodology

The set of CCA SI in the MEL Framework pertain to various levels of the organization's work, including four Impact-level Indicators (IL) that measure CCA's impact on improving health, reducing climate and environmental degradation, and promoting gender equality.

By leveraging established data management systems, a robust set of methodologies was used to estimate increased access to clean cooking solutions[1] in countries where CCA-supported enterprises operate. CCA also conducted analysis on its direct impact on averted deaths and averted disability life adjusted years (ADALYs), carbon dioxide equivalent (CO_2e) and black carbon equivalent (BCe) emissions reductions, woody biomass use averted, and time savings.

2022 Highlights and Impact

In 2022, CCA developed an organization-wide learning agenda, shifting from traditional M&E methods to an MEL framework. In 2023, the learning agenda's three components (a set of key organizational long-term questions, a learning system, and MEL guidelines and resources) was implemented, enabling the organization to not only generate and apply learnings but also address critical questions emerging in the clean cooking sector.

The indicator data presented in this report demonstrate the breadth and impact of the work carried out by CCA in both 2021 and 2022. There are approximately 163 active enterprises in the clean cooking sector, 26 of which were supported by CCA in 2022. Information gathered indicated a **78% increase in fundraising** between 2021 and 2022, resulting in a total of over US$ 211 million in investment in 2022. Among surveyed enterprises, clean cooking derived **revenues increased by almost 89%** from 2021 to 2022.

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1. Clean cooking solutions are defined broadly as any cooking solution that is either a transitional or clean cookstove/fuel. Transitional fuels and technologies are those that provide some health benefit, although the fuel and technology combination does not achieve WHO recommended levels.

Other SI Data Highlights

- Total growth from 2021 to 2022 was positive for enterprise employee size, with over 70% growth since 2021, marking nearly 6,000 people employed—40% of them female—across 25 countries.

- Total growth from 2021 to 2022 was positive for sales of both stoves and fuels, with almost 70% growth in stove sales and 149% growth in fuel sales. Grants made up 20% of total investment in CCA-supported enterprises in 2022, representing a 13% increase from 2021.

- CCA's data on strengthening the enabling environment indicates that there are 31 national policies in place that support the clean cooking sector in CCA-supported countries in 2022.

- In 2022, CCA engaged stakeholders from key governmental ministries, national standards bodies, stove-testing laboratories, and other stakeholders from 11 countries.

- In 2022, 4,379 people attended 36 CCA-hosted events or workshops. This included CCA's flagship event, the Clean Cooking Forum, in which 3,200 individuals from around the world participated.

- CCA's engagement rates per post (by followers) outperformed 2022 all industry benchmarks on Facebook by 1.72 percentage points, Instagram by 0.34 percentage points, and X (formerly Twitter) by 0.62 percentage points.

- CCA's data on generating research, evidence, and learning reveals there was an increase of nearly 28,500 views of CCA's resources page between 2021 and 2022—a 450% increase over 2021.

For the bigger players in the industry, these data show that fundraising is going well, indicating increased resilience among those enterprises.

CCA's IL 1–4 impact data show that, for activities in 2022, **767,687 households increased their access to clean cooking solutions**. Of those households, 606,003 adopted clean fuels, 160,255 adopted transitional fuels, and 1,430 adopted improved biomass. Households that increased their access with support by CCA programs contributed to:

- Over 17,000 ADALYs and over 300 averted deaths.

- A reduction of almost four million tons of CO_2e emissions. This is equivalent to taking almost 844,000 gasoline powered cars off the road for one year.

- Over 1.8 million metric tons of woody biomass use averted. If all woody biomass used came from live trees (i.e., no harvesting from felled or dead trees), this would equate to over 9.3 million saved trees.

- Almost 485 million hours saved after gaining access to clean cooking solutions. By monetizing these savings, CCA estimates that this has led to time savings of almost US$ 90 million.

Lessons Learned and Next Steps

The past three years, characterized first by the COVID-19 pandemic and, more recently, the global energy crisis, have posed significant challenges for clean cooking enterprises. CCA's support, in the form of technical and financial assistance, played a crucial role in assisting enterprises address a challenging global environment. CCA's support enabled enterprises to not only maintain their operations but also grow, as demonstrated by their increased revenues and sales. Despite the challenging operating context, the clean cooking sector has also experienced significant progress which CCA has observed through the innovation, diversification, and growth of the sector.

In 2023, CCA will continue using the MEL Framework to collect data for its SI, including further improving and expanding on the calculations to measure the health, climate/environment, and gender impact of its work. The forthcoming MEL Framework implementation will include and be influenced by:

- Continued engagement with internal teams and external partners on potential MEL workstreams.

- Refined data collection and management systems and practices.

- Further disaggregation of direct and indirect impact data.

- Honing of calculation methodologies to better measure the direct and indirect impact of CCA's work, especially for IL 1–4.

- Expanding CCA's role in the clean cooking ecosystem.

CCA will also begin the implementation of its learning agenda—tracking and measuring progress related to learning across activities—to improve its ability to learn from its work and address the most critical questions in the clean cooking ecosystem. The learning agenda will help CCA advance in its mission to achieve universal access to clean cooking.

Introduction

The Clean Cooking Alliance (CCA) works with a global network of partners to build an inclusive industry that can make clean cooking accessible to all. CCA is driving consumer demand, mobilizing investment, and supporting policies that allow the clean cooking sector to thrive. In 2019, CCA developed its Monitoring and Evaluation (M&E) Framework to serve as a foundational tool that defines CCA's strategic approach through its Theory of Change (ToC). The M&E Framework provides clear, systematic guidance about how to measure CCA's work and was designed with three distinct levels—project, organization, and sector—to meet various goals:

- **Project Level:** Demonstrate CCA's commitment to systematically monitor its work using standardized indicators, and to incorporate indicator data into improvements in project management and implementation.

- **Organization Level:** Provide the opportunity for CCA to develop stronger feedback loops and learning associated with its ToC.

- **Sector Level:** Supply a systematic and prioritized approach to learning, through both standard indicators and evaluations to contribute to the broader clean cooking sector.

Under the M&E Framework and using the ToC as a reference, CCA developed a set of Standard Indicators (SI) to track its work and effects on the industry. SI had to meet the following three criteria to be selected:

1. **Measurable.** Selected indicators must clearly represent countable concepts and are traditionally numerical measurements.

2. **Valuable.** Selected indicators must provide valuable information and be worth the resources required for reporting, avoiding indicators that are overly burdensome to collect and that provide little value.

3. **Important.** Selected indicators must measure elements of CCA's work that are important and central to its approach, not smaller components of that work.

In 2022, CCA revised its original M&E Framework to become the Monitoring, Evaluation and Learning (MEL) Framework to include the impact of CCA's support to enterprises and an organizational learning agenda. The impact calculations provide quantitative data on the climate, health, environment, and time-saving benefits of CCA-supported work, which are calculated using established methodologies.

This *Monitoring, Evaluation, and Learning Framework 2022 Report* features CCA's 31 current SI across seven categories:

1. **Impact-level Indicators (IL 1–4):** CCA tracks impact on averted deaths and ADALYs, CO_2e and BCe emissions reductions, woody biomass use averted, and time savings. *This section is new to CCA's framework reporting.*

2. **Universal Access-level Standard Indicator (UA1):** This is a Sustainable Development Goal (SDG) indicator that measures access to clean cooking.

3. **Clean Cooking Industry-level Standard Indicators (CCI 1–3):** CCA tracks various aspects of the clean cooking industry, such as the number of enterprises in the industry, and these enterprises' investments and revenue.

4. **Clean Cooking Enterprise-level Indicators (CCE 1–10):** These indicators describe CCA-supported enterprises, including enterprise financials, demographics, and details of cookstoves and/or fuels sold.

5. **Consumer Demand-level Indicators (CD1–3):** These indicators report on consumer demand generation work specific to areas where CCA operates.

6. **Enabling Environment-level Indicators (EE1–6):** CCA internally tracks its work on the strengthening the enabling environment with indicators such as number of policies and countries receiving CCA support, number of CCA workshops, and number of workshop attendees.

7. **Research, Evidence, and Learning-level Indicators (REL 1–4):** To show the critical role CCA plays as a thought leader in the clean cooking ecosystem, CCA tracks the number of reports published and reach of CCA's resources and publications.

The new MEL Framework also includes the newly developed learning agenda—a systematic and integrated approach to learning across the organization. The learning agenda addresses the most pressing questions for CCA and the clean cooking ecosystem and provides a continual feedback loop. CCA's learnings will inform its future strategy and programs, and the path forward for the ecosystem. The three components of the learning agenda are:

1. Answer a set of questions addressing the sector's and CCA's priorities.

2. Implement a system to track and monitor CCA's learning and research activities and host their learning outputs.

3. Provide MEL guidelines and resources to support CCA teams learning activities.

In addition to the activities and progress represented by the SI data in this report, CCA leads the clean cooking ecosystem by convening stakeholders; advocating for the sector; supporting research that connects science to policy; building capacity of stakeholders; supporting clean cooking companies with technical assistance and small grants; and supporting governments, multilateral organizations, and private investors to engage in clean cooking. However, the results achieved from CCA's ecosystem work cannot be solely attributed to CCA's role; rather, these results are seen as areas to which CCA contributes, in collaboration with its partners. (See highlight boxes in this report for examples of CCA's ecosystem-building work in action.)

CCA has learned important lessons from the three rounds of MEL Framework implementation already completed. CCA continues to act on the lessons through activities such as internal engagement with teams, refinement of data collection and management systems and processes, and honing impact calculation methodologies. Additionally, most of CCA's projects are multiyear projects, and many associated activities were in the design or development phase in 2021 and 2022. Therefore, the SI data collection and aggregation for these years, on which this report is based, offers only a partial picture of the MEL Framework's objectives. While the trends presented in this report are useful, future cycles of SI data collection will show more meaningful trends.

Future versions of the MEL Framework reports will continue to incorporate the progress and learnings of CCA's programmatic work and role in the sector more broadly. CCA will improve data collection processes through further disaggregating direct and indirect impact data. CCA will continue to improve on its methodologies to measure the impact of its work, especially for IL 1–4. CCA will also strengthen its ability to learn from its work and address the most critical questions in the clean cooking ecosystem with the implementation of the organization-wide learning agenda. Other elements that will comprise and influence the forthcoming MEL Framework implementation include engagement with external partners on potential MEL workstreams and CCA's expanding role in the clean cooking ecosystem.

This report is structured in the following manner:

- Section 2 provides an overview of the new SI data collection methods that were incorporated in 2022.

- Section 3 provides CCA's annual SI data for 2022.

- Section 4 introduces CCA's learning agenda and the emphasis on learning in 2023.

- Section 5 highlights the lessons learned from the MEL Framework's third year of implementation.

- Section 6 discusses future steps that will comprise and influence the forthcoming *MEL Framework 2023 Report*.

2022 Clean Cooking Forum

CCA and the Government of Ghana welcomed more than 700 in-person and 2,500 virtual attendees from over 60 countries to the global Clean Cooking Forum 2022 in Ghana from October 11–13. The landmark event showcased both the need and the path forward for mobilizing the necessary investment, innovations, partnerships, and policies to achieve clean cooking for all and to accelerate progress toward global climate and development goals.

Mrs. Rebecca Akufo-Addo, First Lady of The Republic of Ghana, remarked at the opening of the forum, "It will be impossible to meet global climate goals, achieve a just clean energy transition, protect our environment, achieve gender equality, and provide a future for the next generation, without changing the way people cook."

The Forum featured high-level plenaries and 24 highly curated breakout sessions. This included an Innovation Expo in which 40 organizations—many from Ghana—showcased the latest developments in clean cooking technologies and business models. More than 150 business-to-business networking meetings were held. The gathering fostered discussions on financing and investment, technology and business innovation, climate funding and results-based financing, national policymaking for market growth, youth, and women's empowerment.

With the 2030 target date of the Sustainable Development Goals quickly approaching, the Forum served as a crucial catalyst for progress toward global energy, health, gender, and climate goals.

MEL Framework Data Collection Methodology Overview

In 2022, CCA calculated the impact of the work it supports using the best available methodologies and data collection methods. Concurrently, CCA streamlined methods for calculating other SI data using a combination of self-reported and publicly available data. The primary data included in this report were collected using the following tools:

- A household survey conducted on a random sample of customers from CCA-supported enterprises. This survey is called the household survey throughout the rest of the document.

- An online, web-based survey CCA administered with clean cooking enterprises, including CCA-supported enterprises. This survey is called the Enterprise Survey throughout the rest of the document.

- Two web-based forms CCA developed for internal tracking of SI data.

The secondary data are based on peer-reviewed academic articles and non-peer-reviewed publications, such as World Bank reports, CCA's Clean Cooking Catalog, and other publicly available data. An overview of the specific methodologies is provided below. CCA uses best-available and, where possible, context-specific data as part of the overall methodology. Further details are provided in the Indicator Methodology Reference Sheet (IMRS) for the SI and in Annex B.

Methodology for Impact-level Indicators (IL 1–4)

CCA utilizes three methodological approaches to calculate IL 1–4. The first approach is applied when measured data are available for calculation. This approach is based on best practices in the field, which are described in the IMRS. The second approach relies on best estimates from literature and is applied when measured data are not available. The third approach is a hybrid of the first and second approaches, where for any given calculation, measured data are used when available but may be supplemented by best estimates from literature when

necessary. Since measured data were not available for all input parameters for IL 1–4, CCA used a combination of the second and third methodology approaches for this report.

It is also important to note that all impact calculations were made under the assumption that one stove is equal to one household, as a household may have several stoves, but are all from separate manufacturers. All households included in the impact calculations were part of CCA-supported programs and determined per the methods described in Annex B as having increased access to clean cooking solutions. These data on increased access, presented in the box "CCA's Supported Enterprises Increase Access to Clean Cooking Solutions" in the IL data section below, serve as the basis for calculating CCA's Impact-level Indicators.

The following sections detail a high-level overview of the methods used. Further details can be found in Annex B.

IL 1: Number of Averted Disability-Adjusted Life Years (ADALYs) from changes in exposures to household air pollution in target population

As a proxy for measured exposure levels, CCA uses baseline data from a peer-reviewed systematic review and meta-analysis, which provide pre- and post-intervention exposure levels for a range of stove and fuel technologies across various geographies. ADALYs and averted deaths from CCA-funded interventions in each country were estimated using the Air Pollution Burden of Disease Explorer (ABODE). For a user-selected country, ABODE estimates health changes from transitioning to transitional and/or clean fuels and technologies that lower exposure to household air pollution for household members. To make these estimates, ABODE relies on methods used by the Institute for Health Metrics and Evaluation (IHME) Global Burden of Disease and Comparative Risk Assessment. The tool applies exposure response relationship curves between exposure to household air pollution in terms of $PM_{2.5}$ and the relative risk for different health outcomes to estimate burden of disease attributable to household $PM_{2.5}$ pollution exposure, pre- and post-intervention.[1]

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1. Visit the Documentation tab on the ABODE webpage to view the methodology and data sources in more detail.

IL 2: Change in emissions of climate pollutants from cooking in target population

Calculating the carbon dioxide equivalent emissions (CO_2e) reductions (tons per year) and black carbon equivalent emissions (BCe) reductions (kg per year) involves three types of data: (1) input parameters, (2) baseline scenario, and (3) intervention scenario.

CCA used the following input parameters for this indicator:

- Intervention population (number of households who increased access to clean cooking solutions).

- Fraction of Non-Renewable Biomass (fNRB) value for each country represented.[2]

- Useful energy needed (MJ/household/year).[3]

CCA aims to use sound methodologies, realistic parameters, and conservative assumptions that reflect integrity, transparency, and accountability for each input parameter to obtain realistic emissions reductions.

IL 3: Change in metric tons of biomass used annually for cooking in target population

Woody biomass saved is estimated by taking the difference between the woody biomass consumed per household at baseline (prior to increased access) and the woody biomass consumed per household at intervention (after increased access). It should be noted that the use of charcoal plays a considerable role if this is the fuel households are adopting because it is more woody-biomass-intensive than wood and clean fuels. For example, if comparing 100 households that cooked with wood at baseline and now cook with charcoal, a decrease in woody biomass use averted is expected.

IL 4: Change reported by women in time spent engaged in productive and/or leisure time since the introduction of clean or more efficient fuels or technology

There is an expanding body of literature attempting to quantify and monetize the time saved by households that switch to improved or clean technologies. CCA continues to research and refine the methodology for this indicator, and as such adapted the time savings equation from Jeuland and Tan Soo,[4] with households in the sample base from the two data sources used throughout the IL Indicators from the increased access data.

A detailed description of this method and the equations used can be found in Annex B. CCA utilized secondary data from cooking-related activities to analyze this indicator, as large-scale, robust data are resource-intensive and currently unavailable. Results from this analysis are presented in hours per month. CCA converted these values to hours per year. Additionally, Jeuland and Tan Soo's analysis only included four fuel types (wood, charcoal, LPG, and electric). CCA includes biogas, ethanol, and pellets in the LPG category, as they are clean fuels that face a similar time expenditure compared to electricity for which households do not need to spend time procuring fuel. Finally, CCA also used the *opportunity cost of time* variable from Jeuland and Tan Soo to be able to monetarily quantify these time savings in hours per year.

Methodology for other SI[5]

CCA collected enterprise-specific data for 2022 using the Enterprise Survey conducted in Q2 of 2023. The survey was sent to 166 contacts in CCA's network. A total of 64 enterprises, of which 51 were eligible for inclusion (Enterprises need to be for-profit and directly or indirectly selling clean or improved cooking products to customers living in developing countries.) The survey also included custom questions for CCA-supported enterprises around enterprise finances, employee demographics, and stove and fuel sales information. In addition to informing impact calculations, data from this survey were used to update the Clean Cooking Industry (CCI) and Clean Cooking Enterprises (CCE) SI.

In 2022, CCA improved its internal tracking systems by introducing two web-based forms for data collection. These forms were shared with CCA teams that track data on CCA's Enabling Environment (EE) and Research, Evidence and Learning (REL) SI. Setting up these new systems contributed to streamlining CCA's internal data collection and analysis processes and ensured that respondents were providing the required data systematically.

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2. Bailis, R., Drigo, R., Ghilardi, A., & Masera, O. (2015). The carbon footprint of traditional woodfuels. Nature Climate Change, 5(3), 266–272.

3. Based on Gold Standard 0.5t/capita/year with firewood NCV of 15.6MJ/kg, 15% thermal efficiency of open fire, and HH size of 5 we get: 6,000 MJ/HH/year. See also CDM-MP88-A19 for more data on baseline biomass consumption.

4. Jeuland, Marc, and Jie-Sheng Tan Soo. "Analyzing the costs and benefits of clean and improved cooking solutions." Global Alliance for Clean Cookstoves: Washington, DC, USA (2016): 459–1.

5. See Annex B for details on the MEL Framework methodology and Annex C for the MEL Framework implementation workplan.

United Nations Framework Convention on Climate Change (UNFCCC): Improved Technical Policies, Standards, and Methodologies

In conjunction with its Clean Cooking and Climate Consortium partners, CCA provides a holistic suite of technical support options to harness the potential of the carbon market and build awareness for market-oriented solutions. Key areas of support include:

- **Baseline-setting.** CCA supports evaluation of context-specific options for baseline-setting, as the credibility of the claimed emissions reductions depends on accurate estimates and/or conservative baselines.

- **Stove performance data and interpretation.** CCA provides technical support for identifying the type of testing required in determining emissions reductions and programmatic performance. As a result, several countries have adopted and adapted new International Organization for Standardization (ISO) stove performance standards, which are being integrated into carbon offset methodologies.

- **Measurement, reporting, and verification (MRV).** CCA supports the development of comprehensive, sound frameworks to guide determination of emissions reductions.

- **Key Performance Indicators (KPIs).** CCA assists in identifying and advising on data sources and collection for KPIs, which are used to demonstrate progress towards programmatic goals.

- **Greenhouse gas (GHG) emissions reductions calculations.** CCA advises in employing a clear and sensible approach to help ensure that calculating emissions reductions from cookstoves is transparent (e.g., fuel consumption, fuel efficiency, emissions factors, etc. are addressed) for external review and reduces errors in their calculations.

- **Locally appropriate values for fNRB estimates in lieu of default values.** CCA helps in determining and disseminating best practices for estimating fNRB, such as using detailed local data. The magnitude of emissions reductions estimates often depends heavily on fNRB, which can be highly variable depending on the approach used in its calculation.

- **Target-setting.** CCA offers guidance on how to characterize the impact of different technologies and fuels, programmatic capacities, and local contexts, which in turn assist in determining the range of realistic emissions reduction targets.

- **Co-benefits.** CCA provides guidance on measuring and quantifying potential co-benefits of cooking and heating technologies that mitigate climate pollutants. These can include health benefits, time savings, gender/social benefits, and climate and environmental benefits.

- **Due diligence.** CCA supports due diligence around each of the above themes with a focus on transparency, quality, and additionality to reduce transaction risks.

Standard Indicator Data

CA's SI are a set of 31 quantitative metrics to monitor performance, measure progress, and determine accountability of CCA's work. The SI data for the 2022 reporting period presented in this section, are organized according to the components of the Theory of Change they measure. The sample size value (n) for all data—and the disaggregation where applicable—is specified for each SI.

Impact-level Indicators (IL 1–4)

The following Impact-level data have been analyzed using CCA's data on increased access to cooking solutions in countries where CCA operates. A high-level background on this metric can be found in the box below and a detailed methodology can be found in Annex B.

Note that all the Impact-level Indicators in this section have increased in 2022 from the previous years (2019–2021) due to an increase in (1) data received (i.e., more enterprises are complying with CCA reporting requirements) and (2) enterprises' stove sales.

CCA's Supported Enterprises Increase Access to Clean Cooking Solutions

From 2019 to 2022, CCA has supported increased access to clean cooking solutions for 1,635,347 households (based on data from the enterprises to which CCA has given financial and/or technical support). A household is considered to have increased access to clean cooking solutions when primarily cooking with a stove that produces fewer emissions and/or is more efficient today than what the household was cooking with at baseline. Increased access has grown since CCA support to enterprises began, with 924,343 households[a] increasing their access from 2019 to 2021, and 767,687 households increasing their access in 2022 alone. Figure 1 shows this increased access by country, Figure 2 shows increased access by fuel type, and Figure 3 shows increased access year-over-year.

Of the over 767,000 households that have increased their access to clean cooking solutions in 2022:

- Fuel type is broken down into those that use: biogas (10,834), charcoal (160,255), electric (423,520), ethanol (163,264), LPG (7,922), pellets (463), and wood (1,430).

- Those that adopted—and now primarily use—electric stoves make up 55% of the total that increased their access.

- Clean stoves (i.e., biogas, electric, ethanol, LPG, and pellets[b]) make up 79% of stoves that facilitated an increased in access, with 606,003 total stoves. This is a switch from previous years where, from 2019–2021, 75% of stoves that facilitated an increase in access were not clean (charcoal and wood).

Methodology and data collection strategy is covered in detail in Annex B. These data are relevant to the UA1 SI but should not be directly compared to this SI, as they represent only CCA-supported enterprises' customers in the enterprises' respective countries of operation.

a. CCA has previously reported 762,590 households from 2019 to 2021, and since the last reporting additional back dated data have been retrospectively added.
b. Pellet stoves in this instance are specifically the Mimi Moto stove which has been tested and proven to burn cleanly.
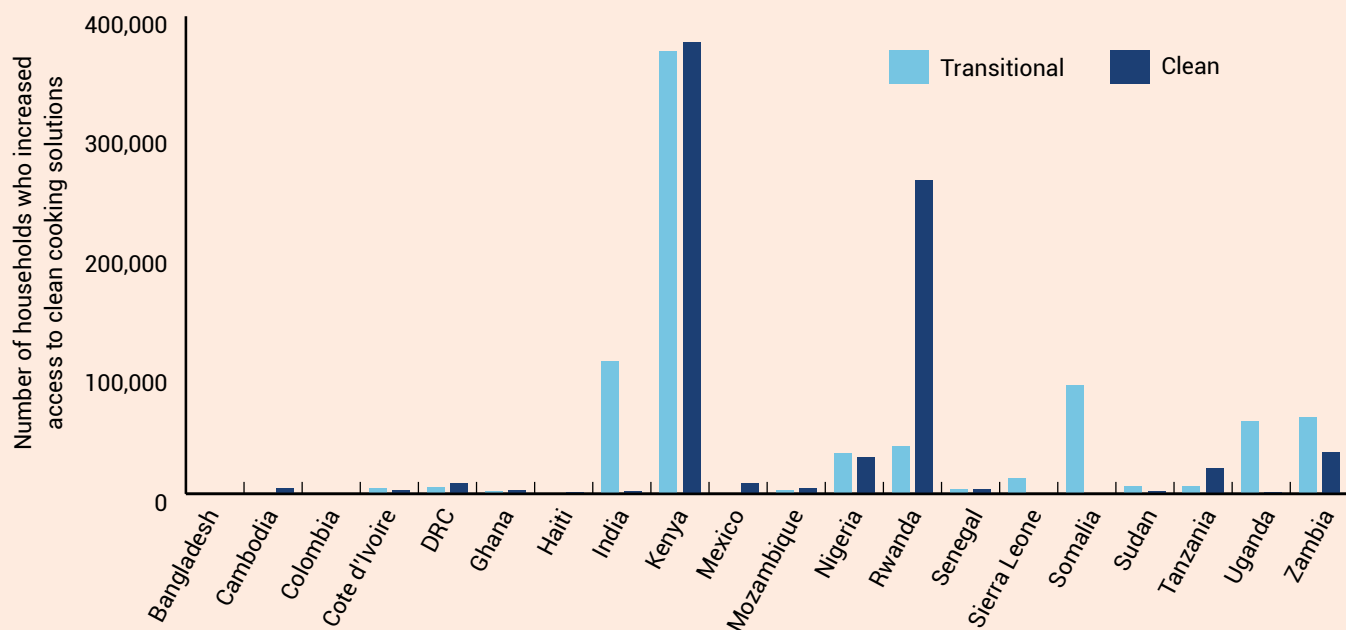
Figure 1. Increased Access to Clean Cooking Solutions, Clean and Transitional, Year-Over-Year[a]
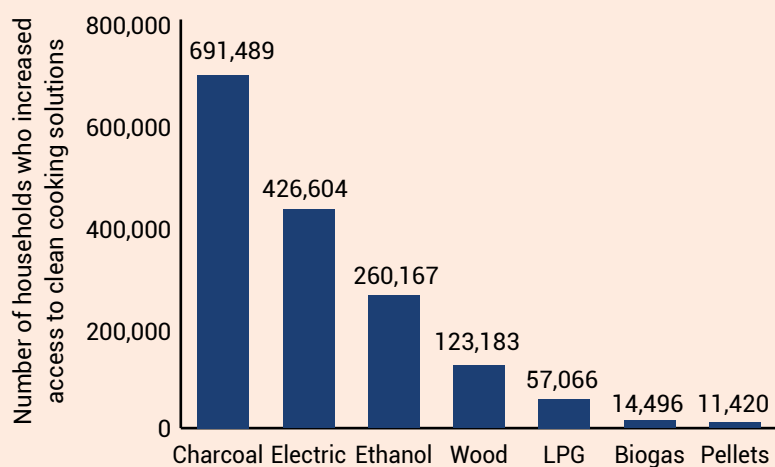

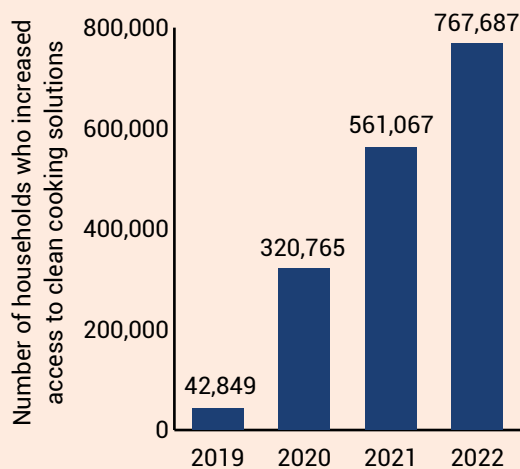**Figure 2.** Increased Access to Clean Cooking Solutions, By Fuel Type, Year-Over-Year

Figure 3. Increased Access to Clean Cooking Solutions, Year-Over-Year

a. CCA uses the WHO definitions for clean and transitional fuels, which can be found at: https://www.who.int/tools/clean-household-energy-solutions-toolkit/module-7-defining-clean

Number of Averted Disability Adjusted Life Years (ADALYs) from changes in exposure to household air pollution in target population (IL 1)

Exposure to household air pollution from burning solid fuels and kerosene over inefficient stoves is a leading risk factor for diseases, including: childhood pneumonia, chronic obstructive pulmonary disease, ischemic heart disease, stroke, life threatening issues for pregnant women and infants, and lung cancer.[1] Globally, as many as 3.2 million people in 2020 died prematurely from illnesses attributable to household air pollution.[2] Access to clean cooking is therefore essential to saving lives, especially among vulnerable populations such as women and children, by improving the quality of air that families breathe both in the home and outside.

Between 2019 and 2022, increased access to clean cooking solutions supported by CCA programs contributed to almost 35,000 ADALYs and almost 600 averted deaths (Figures 4 and 5, respectively). For 2022, health impacts driven by increased clean cooking access from CCA programs accounted for over 17,000 ADALYs and over 300 averted deaths. The largest health impacts, both in terms of reduced morbidity and reduced mortality, from CCA programs in 2022, were seen in Rwanda, Kenya, Nigeria, and Somalia. Figure 6 shows cumulative morbidity by country and Figure 7 shows cumulative mortality by country.

Evidence suggests that health and economic development
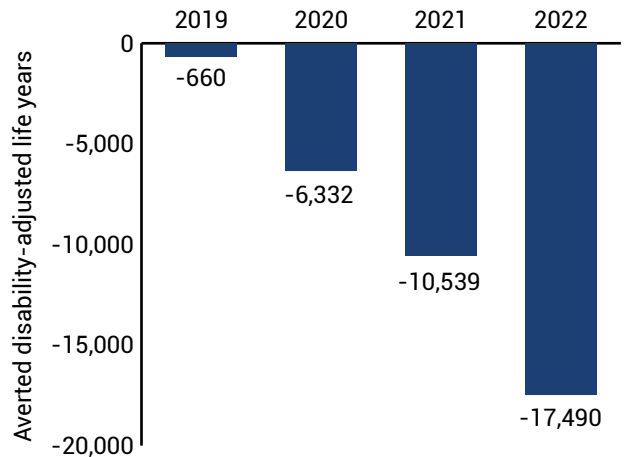
Figure 4. Total Morbidity Reductions Estimates from CCA Programs, Year-Over-Year
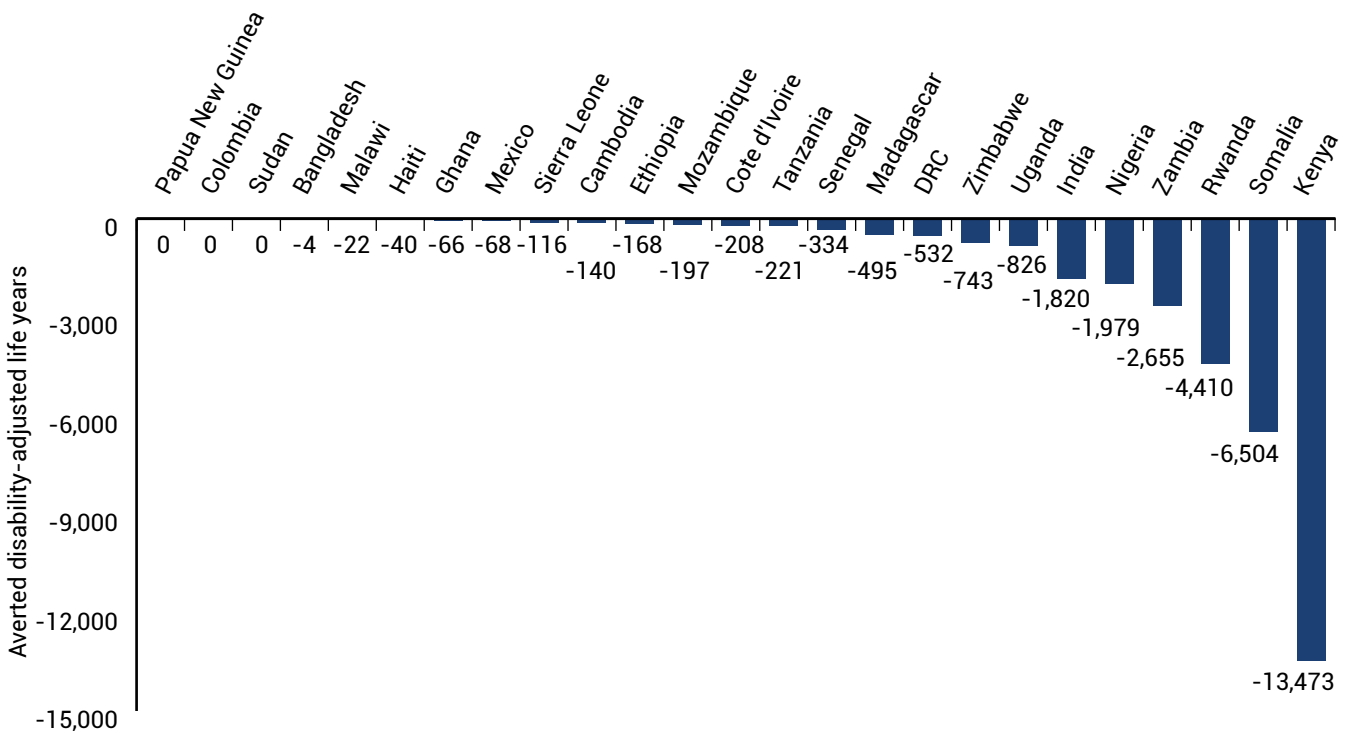
Figure 5. Year-Over-Year Country-level Morbidity Reduction Estimates from CCA Programs

1. WHO. 2022. "Household air pollution and health."
2. Ibid.

are closely intertwined. A study led by the World Health Organization (WHO) found that total ADALYs accrued across the African continent in 2015 could have led to a loss in productivity amounting to nearly US$ 2.5 trillion in the WHO African Region's GDP that year.[3] Further, negative externalities

from health-related impacts associated with lack of access to clean cooking are estimated to cost US$ 2.4 trillion per year.[4] Morbidity and premature mortality associated with exposure to household air pollution play an essential role in promoting economic development, as healthy members of society are more likely to participate in labor, socialization, and education.
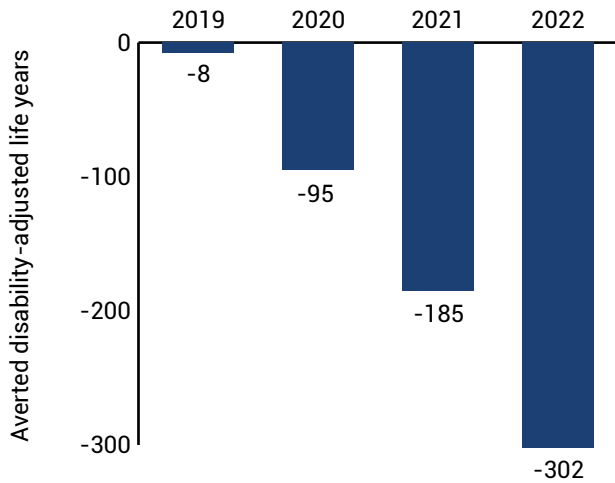
Figure 6. Total Mortality Reductions Estimates from CCA Programs, Year-Over-Year

Change in emissions of climate pollutants from cooking in target population (IL 2)

Cooking over open fires or inefficient stoves typically entails the burning of fuels, such as wood, charcoal, coal, and kerosene, that release powerful climate-warming emissions. The use of wood and charcoal for cooking emits greenhouse gases, such as CO_2, due to the combustion of woodfuel that is harvested unsustainably. In fact, a gigaton of CO_2e is produced every year from burning woodfuels. Meanwhile, short-lived climate pollutants (SLCPs), such as black carbon (BC), result from the incomplete combustion of kerosene and solid fuels that occurs when cooking with these fuels. More than half of man-made black carbon emissions come
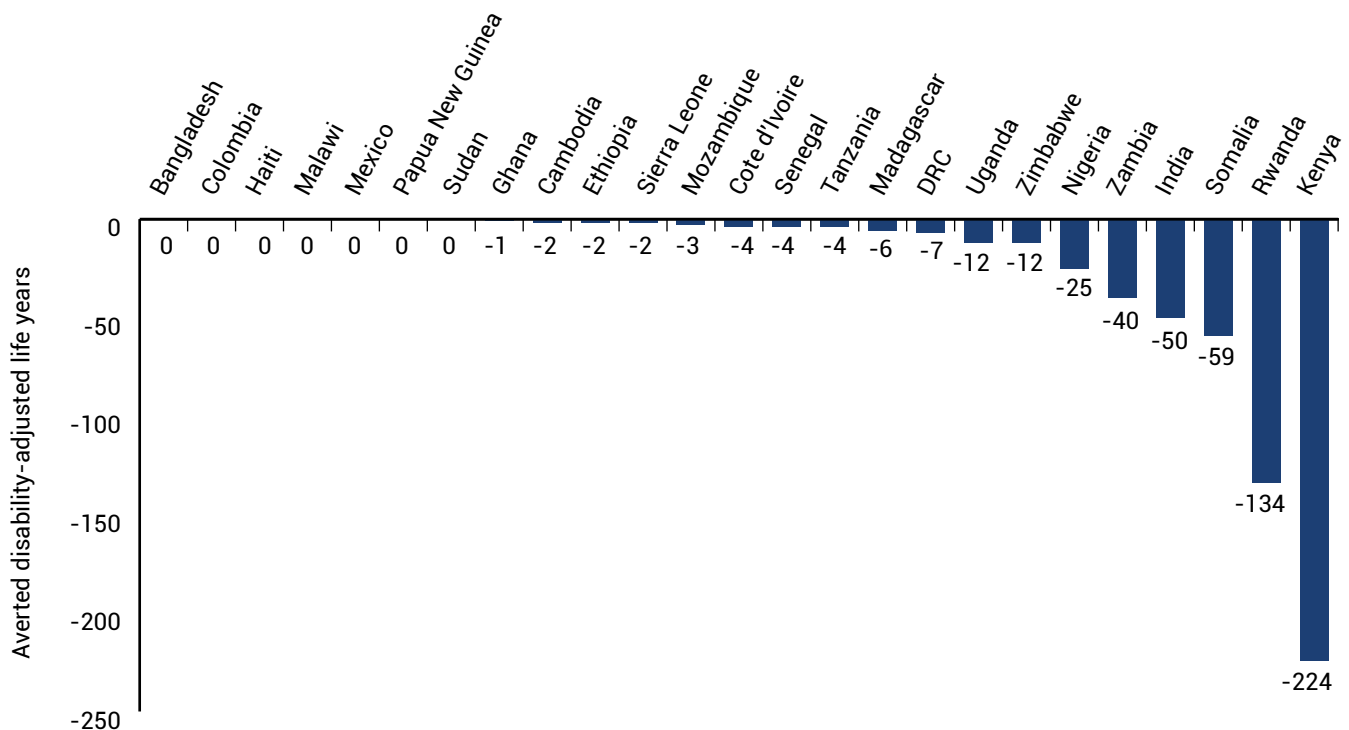
Figure 7. Year-Over-Year Country-level Mortality Reduction Estimates from CCA Programs

3. A heavy burden: the productivity cost of illness in Africa. Brazzaville: WHO Regional Office for Africa; 2019. License: CC BY-NC-SA 3.0 IGO.
4. ESMAP.2020. The State of Access to Modern Energy Cooking Services (English). Washington, D.C.: World Bank Group.

from household fuel combustion. Clean cooking is therefore a vital means of reducing emissions and combating global climate change. More information on greenhouse gases (GHGs), including CO_2, BC, and other SLCPs, in relation to the clean cooking sector can be found in Annex B.

Cumulatively, from 2019 to 2022, increased access to clean cooking solutions supported by CCA programs amounted to a reduction of over 7.8 million tons of CO_2e emissions (Figure 8). This is equivalent to taking over 1.6 million gasoline powered cars off the road for one year.[5] In 2022, CO_2e emission reductions accounted for almost four million tons, which equates to almost 850,000 cars taken off the road.

Similarly, increased access to clean cooking solutions resulting from CCA programs amounted to a reduction of over almost 5.7 million kg of BCe emissions from 2019 to 2022 (Figure 9). In 2022, BCe emissions accounted for over 2.6 million kg.

According to the Climate & Clean Air Coalition (CCAC), cooking and heating on a household level account for over 50% of manmade BC emissions. Reducing global GHG and SLCP emissions will help ensure that CCA's climate goals are met to combat the continued climate crisis.

Tables 9 and 10 in Annex B show CO_2e and BCe reductions by year and cumulatively.

## Change in metric tons of biomass used annually for cooking in target population (IL 3)

Woodfuel demand for cooking leads to woody biomass loss, forest degradation, and net carbon emissions, as noted in Section 2. One study found that, in 74 tropical countries, the amount of carbon released because of forest degradation was found to be equivalent to 4.3% of total global emissions.[6]

Cumulatively, from 2019 to 2022, increased access to clean cooking solutions supported by CCA programs amounted to 2.3 million metric tons of woody biomass use averted (Figure 10). If all the woody biomass used came from live trees (i.e., no harvesting from felled or dead trees), this would equate to almost 11.6 million trees[7]—over 230,000 acres of forest[8]—saved. In 2022, woody biomass use averted

5. This is calculated by taking the CO_2e reductions and dividing by 4.7.
6. Pearson, T. R., Brown, S., Murray, L., & Sidman, G. (2017). Greenhouse gas emissions from tropical forest degradation: an underestimated source. Carbon balance and management, 12(1), 1–11.
7. This assumes an average tree weight of 200kg.
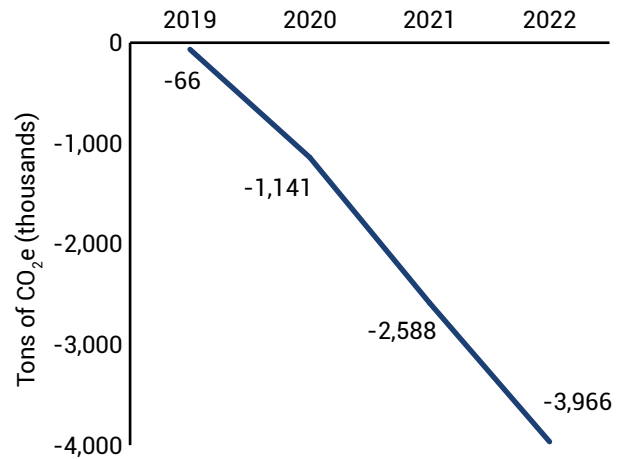8. This assumes the average forest contains 50 trees per acre.

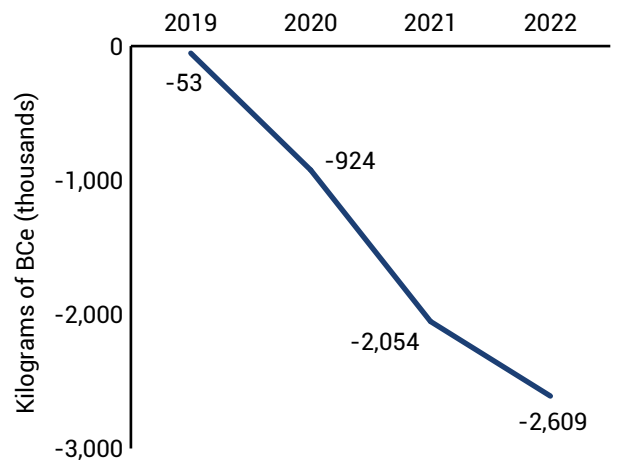**Figure 8.** Total CO_2e Reduced (tons) Year-Over-Year

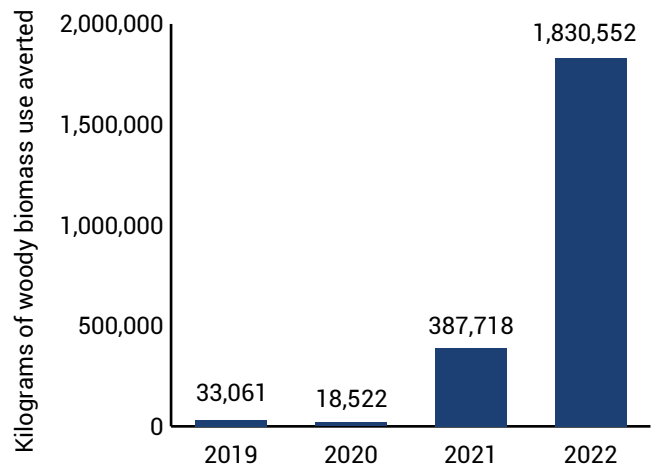**Figure 9.** Total BCe Reduced (kg) Year-Over-Year

Figure 10. Woody Biomass Use Averted, Year-Over-Year

accounted for over 1.8 million metric tons of wood, which equates to over 9.3 million trees saved.

Forest degradation from non-renewable fuelwood harvesting also reduces many of the benefits that communities and the planet enjoy from forest ecosystems, namely, biodiversity, erosion control, flood control, and reduced desertification.

Although all IL indicators have increased, there has been a significant and notable increase in woody biomass use averted in 2022 compared to previous years specifically due to a shift in the type of stove and fuel adopted—from predominantly improved charcoal to electric. Charcoal is a woody-biomass-intensive fuel, whereas electric cooking is not (depending on the national grid in each country).[9]

Country level details of woody biomass use averted are provided in Table 11 in Annex B, by year and cumulatively.

Change reported by women in time spent engaged in productive and/or leisure time since the introduction of clean or more efficient fuels or technology (IL 4)

Around the world, daily cooking responsibilities, including fuel collection and preparation, are largely held by women and girls. This means women and girls often spend up to 20 hours per week gathering fuel, which also exposes them to increased risk of gender-based violence, especially in conflict settings.[10] Providing households with clean cooking solutions

and reducing the gendered time burden of cooking directly contributes to SDG 5: Gender Equality, which includes a target to recognize and value unpaid care and domestic work.

Cumulatively from 2019 to 2022, solutions supported by CCA programs contributed to households saving over 810 million hours after gaining access to clean cooking solutions. Broken down further, this equates to almost 31 million hours for improved biomass stoves (wood stoves), over 544 million hours for transitional fuels (charcoal stoves), and almost 236 million hours for clean stoves (biogas, electric, ethanol, LPG, and pellets) (Figure 11). In monetary savings, this equates to over US$ 150 million cumulatively since 2019 (Figure 12). For each fuel type, this breaks down to over US$ 5.7 million for improved biomass stoves (wood stoves), almost US$ 101 million for transitional fuels (charcoal stoves), and over US$ 43.7 million for clean fuels (biogas, electric, ethanol, LPG, and pellets).

In 2022, cumulative savings accounted for almost 485 million hours, with clean fuels accounting for approximately 36% of those hours. In monetary savings, this equates to almost US$ 90 million. It is important to note that in Figure 12 for 2022, money saved and hours saved are not proportional, as they are from 2019—2021 (i.e., monetized time and time in hours per year do not follow the same trend in 2022 as they do in 2019—2021). This is because most stoves are
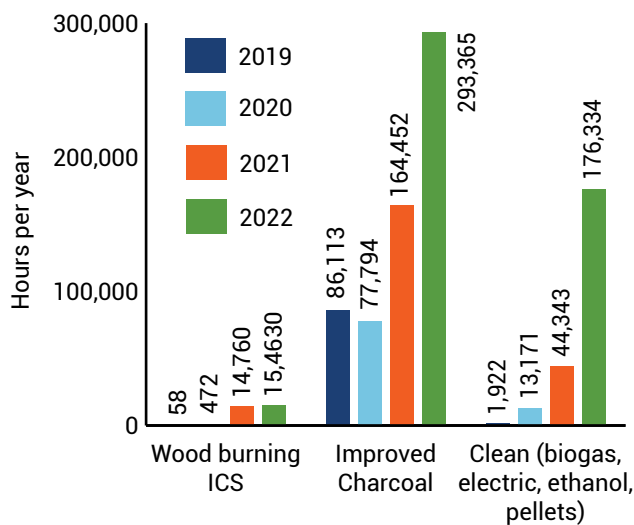
Figure 11. Time Saved by Fuel Type and Year (hours/year)
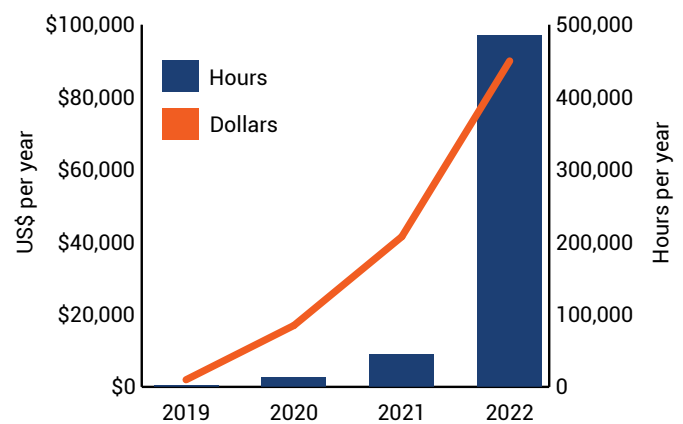
Figure 12. Time and Money Saved Year-Over-Year

9. CCA's current impact calculations do not take grid emissions into account at time of reporting.

10. Jagoe, K., Rossanese, M., Charron, D., Rouse, J., Waweru, F., Waruguru, M., … & Ipe, J. (2020). Sharing the burden: Shifts in family time use, agency, and gender dynamics after introduction of new cookstoves in rural Kenya. Energy Research & Social Science, 64, 101413.

clean in 2022, but the highest amount of savings comes from transitional stoves and fuels (i.e., charcoal).

With clean cooking technologies, women can cut down on cooking time and eliminate or reduce the number of trips to collect fuel. These time savings can be reinvested in productive economic activities, educational opportunities, or simply rest.

Findings by year and fuel type, for time saved in hours and monetized in U.S. dollars per year, can be found in Annex B.

Universal Access-level Standard Indicator (UA1)

UA1 is the Sustainable Development Goal (SDG) indicator that measures access to clean cooking and is reported on by the WHO in the ESMAP tracker. The latest available figures for this indicator (SDG 7.1.2: Percent of the population with primary reliance on clean fuels) are from 2021 and show the disparate progress made on achieving universal access to clean cooking in CCA-supported countries[11] (Figure 13).
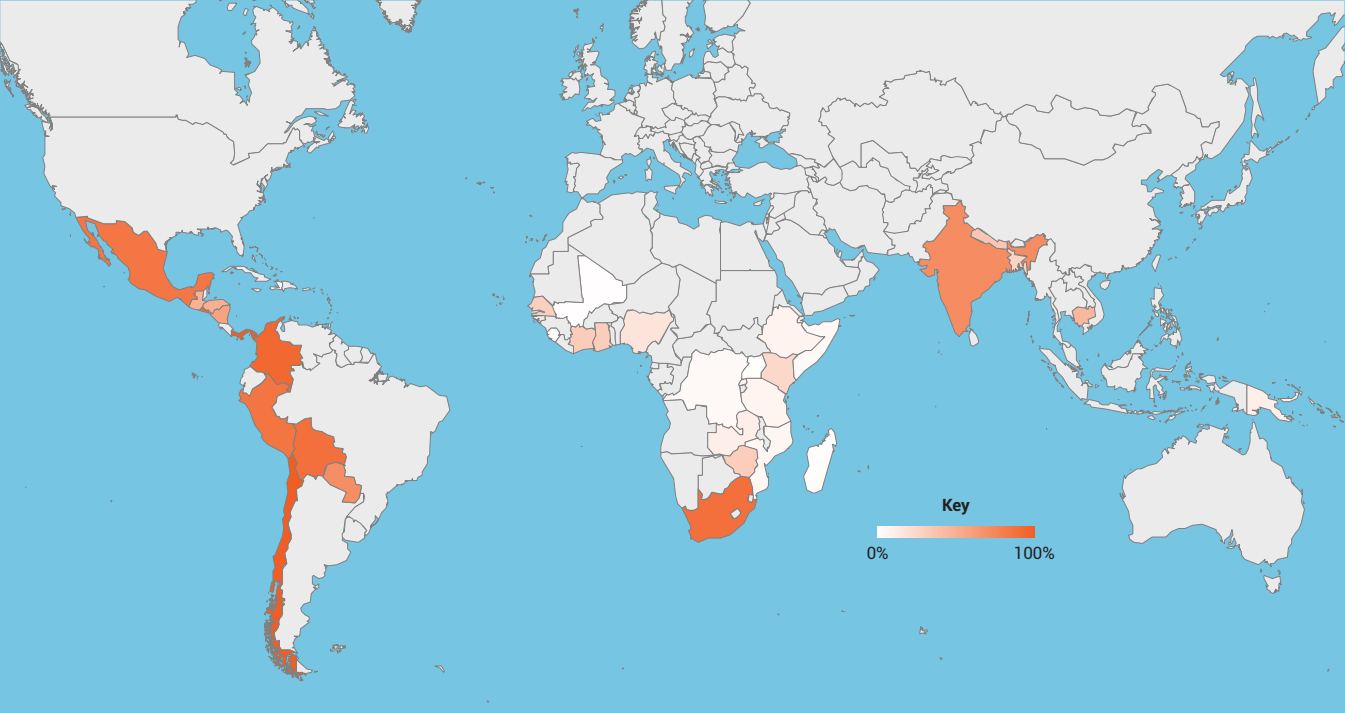
Figure 13. Percentage of the Population with Primary Reliance on Clean Cooking Fuels and Technologies in Countries with CCA Activities

Table 1

Universal Access to Clean Cooking by 2030	Data	Disaggregation
UA1. Percent of the population with primary reliance on clean fuels [SDG 7.1.2]	71.1% (2021)	**Countries CCA supported through its activities in 2022** (2021 data): See Figure 13

Data Source: ESMAP tracker

11. A CCA-supported country is a country of operation for an enterprise receiving financial or technical support from CCA, or a government receiving financial or technical support either directly from CCA or through non-governmental organizations supported by CCA.

Table 2

Build a dynamic, financially sustainable clean cooking industry	Data 2022	Disaggregation 2022
CCI1. Number of enterprises in the clean cooking industry	163 (2022)	**Profitable:** 51 of 64 survey respondents in 2022
CCI2. Percent change in US$ investment in clean cooking industry enterprises year-over-year	+83% (2021—2022, n[a]= 42 of 61)	**Investment type:** Debt: 113% (2021—2022, n=42) Equity: 15% (2021—2022, n=42) Grant: 142% (2021—2022, n=42) **Investor type:** Public: 177% (2021—2022, n=42); Other: 25% (2021—2022, n=42)
CCI3. Percent change in US$ revenue of clean cooking industry enterprises year-over-year	+88.6% (2021—2022, n=34)	None

a. The sample size value (n) represents the number of enterprises that provided data for a specific SI and is mentioned against pertinent SI values throughout this report.

While the global average for this indicator is 71.1%, which reflects a 1.2% increase since 2020 and a 2.4% increase since 2019, individual nations' indicators range from under 5% (Haiti and several African countries) to as high as 100% (Chile and Panama). CCA's major countries of focus within the supported countries include Haiti (4%), Kenya (24%), and Nepal (35%).

Clean Cooking Industry-level Standard Indicators (CCI 1–3)

Clean Cooking Industry-level SI describe various aspects of the clean cooking industry and the enterprises that comprise it. Table 2 above presents the three indicators CCA tracks to measure its impact on building a dynamic, financially sustainable clean cooking industry. Data for these SI are obtained from a CCA-administered survey sent out to clean cooking industry enterprises and from CCA internal reporting.

CCA has a good understanding of the clean cooking industry and the enterprises that are representative of it. However, determining the exact number of clean cooking enterprises in the industry each year is challenging, as new enterprises emerge while other enterprises end their operations. In 2022, CCA estimated there were 163 active enterprises in the clean cooking industry. These are the enterprises that applied to CCA for funding or had other interaction with CCA within the previous three years. Previous reporting noted that there were 167 active enterprises in 2021; however, between 2021 and 2022, seven enterprises became inactive and three new companies were added to CCA's network. These 163 enterprises (in 2022) do not comprise the full industry and provide a conservative estimate of the size of the clean cooking industry.

Data received from a subset of 51 enterprises shows an 89% increase in fundraising between 2021 and 2022, resulting in a total of over US$ 211 million in investment in 2022. This increase could be the rebound effect in funding after seeing year-on-year decreases from the COVID-19 pandemic in investor activity in 2020 and 2021.

Equity, debt, and grant investments saw an increase in 2022 compared to 2021 by 4%, 113%, and 142% respectively. Investment from public sector sources increased by 177% compared to investment from all other investors, which increased by 25%. This shows that public sector funding is rebounding following the previous declines seen during the COVID-19 pandemic, which caused many multilateral institutions and development finance institutions (DFIs) to critically reassess and redeploy aid in service of the global health crisis.

In addition to increases in investment, revenues of clean cooking industry enterprises saw an increase of 88.6% from

2021 to 2022,[12] which is an improvement over the 25% growth rate reported between 2020 and 2021. Achieving universal access to clean cooking solutions by 2030 will require a major acceleration in the pace of change, as clean cooking enterprises continue to emerge from the economic fallout of the COVID-19 pandemic.

Clean Cooking Enterprise-level Indicators (CCE 1–10)

Clean Cooking Enterprise-level SI describe various aspects of CCA-supported enterprises, including enterprise financials, demographics, and details of cookstoves and/or fuels sold. Please refer to Tables 3, 4 and 5 for disaggregation of CCE 1–10 data.

The values presented here are based on CCA-supported enterprises' 2022 data, which were collected in 2023. Indicators that provide a rate of change (e.g., revenue growth rate) capture percentage difference in values between 2021 and 2022. Assessing year-on-year trends can be challenging in many instances because CCA may provide support to certain enterprises in one year and different enterprises in another year. To accurately assess year-on-year trends, the sample size has been limited to the enterprises that received support from CCA since 2019 and have provided relevant data. For the figures showing change over time in this section, the sum of values for this subset of enterprises is referred to as the *adjusted total.*[13]

In 2022, CCA supported 26 enterprises across 25 countries with an overall revenue of US$ 92.9 million. In 2021, CCA supported 19 enterprises across 20 countries with an overall revenue of US$ 41.2 million.

The total revenue for supported enterprises increased from 2021 primarily because of an increase in the number of supported enterprises that reported data for this SI, from 12 enterprises in 2021 to 19 enterprises in 2022. A more accurate assessment of the trends involves comparing data for the subset of enterprises CCA has supported throughout 2019, 2020, 2021, and 2022. Comparing these adjusted revenues for the four companies CCA has supported from 2019 through 2022 shows a steady increase in total revenue from 2019 to 2021, but a larger increase from 2021 to 2022 due
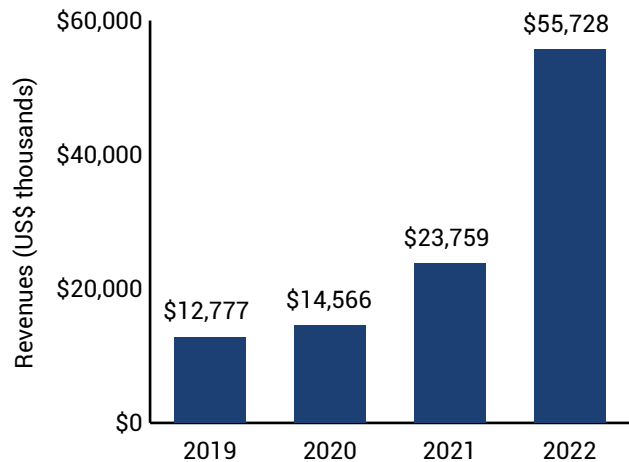
Figure 14. Adjusted Revenues for Enterprises Supported by CCA, Year-Over-Year (n=5)
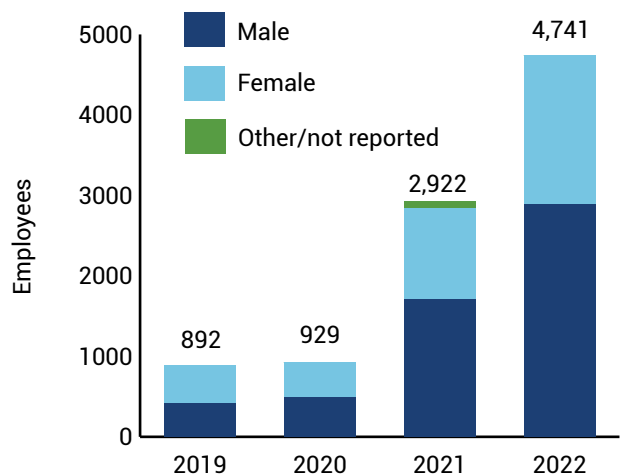
Figure 15. Adjusted Employee Data for Enterprises Supported by CCA, Year-Over-Year (n=7)

to significantly increased revenues of one CCA supported enterprise (Figure 14).

In 2022, 21 CCA-supported enterprises employed 5,981 people across 25 countries. Overall employment of supported enterprises was 40% female. Management was 37% female, and part-time employment was also 37%

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12. This amount only looks at data from 2021 to 2022 and is different from what is reported in CCA's Industry Snapshot 2021, which looks at changes in revenue since 2012.

13. In some instances, the supported enterprises did not provide the data required for certain SI, which means that the sample size used for year-on-year analysis may be smaller than the actual number of enterprises supported since 2019.

Figure 16: Geographical Spread of CCA-Supported Enterprise Operations (Locations of Clean Cookstove and Fuel Distribution)

female. Comparing the total number of employees for the six enterprises CCA has supported since 2019 shows a sharp increase between 2020 and 2022 (Figure 15). This is likely because of the corresponding increases in revenues, allowing enterprises to invest more in human resources and hire additional personnel to meet their emerging operational needs.

The disaggregation of staff by gender looks different in 2022 than before the COVID-19 pandemic (around 40% female employment in 2022 and 2021 versus 61% in 2019). This could be due to the disproportionate impact of the COVID-19 pandemic on female employees. Working mothers were more likely than working fathers to be out of work due to pandemic-related childcare issues, thereby reducing the proportion of female employees at supported enterprises.

In terms of the geographical spread, supported enterprises operate mainly in Africa, which is consistent with reporting in the prior years (Figure 16).

The total number of stoves sold by supported enterprises increased from approximately 834,843 in 2021 to 1,727,537 in 2022. After adjusting for the difference in sample sizes by looking only at the five enterprises CCA has supported since 2019, the number of stoves sold per year has continued to increase, with a large increase from 2021 to 2022 due to

significantly increased stove sales by one CCA-supported enterprise (Figure 17).

The quantity of fuel sold also increased from approximately 170 million MJ in 2021 to over 564 million MJ in 2022. (This is primarily due to the increase in the number of supported enterprises that reported data for this SI.) Approximately 0.1 million liters of alcohol, 2.6 million kg of briquettes, and 11 million kg of LPG were sold by eight enterprises in 2022. After adjusting for the difference in sample sizes by looking only at the three enterprises CCA supported since 2020, the quantity of fuel sold has more than doubled (Figure 18).

The highest stove sales were recorded in Rwanda, while the highest fuel sales were recorded in Kenya. Average growth from 2021 to 2022 was positive for sales of both stoves and fuels, with almost 70% growth in stove sales (Figure 19) and 149% growth in fuel sales. The rate of growth of stove sales from 2021 to 2022 also increased. (These rates only apply to enterprises that provided data, sold the same fuel type, and were supported by CCA in both 2021 and 2022.) The data are encouraging, as the overall quantity of stoves and fuel sold in 2022 increased.

Grants made up 20% of total investment in CCA supported enterprises, showing a 13% increase from the 2021 reporting. Although the proportion of investment represented by

Figure 17. Adjusted Number of Stoves Sold by CCA Supported Enterprises, Year-Over-Year (n=8)

Figure 18. Adjusted Quantity of Fuel Sold by CCA Supported Enterprises, Year-Over-Year) (n=4)

Figure 19. Average Growth Rate in Stove Sales, Year-Over-Year

Figure 20. Grants as a Proportion of Total Investment, Year-Over-Year

grants steadily decreased from 2019 to 2021, this proportion increased in 2022 as the total capital raised decreased from US$ 222,417,901.61 in 2021 to US$ 146,394,455 in 2022. while the total grants increased from US$ 15,173,144.61 in 2021 to US$ 29,455,819 in 2022. (Figure 20).

The final two SI in this section focus on the integration of gender programming into enterprise business models and the total number of enterprises supported by CCA—including details on the type of assistance received—respectively. CCE 9 (CCA's Gender Diagnostic Assessment tool)

measures how enterprises integrate gender within their business models and approaches. Two CCA-supported enterprises have taken the Gender Diagnostic Assessment and both enterprises plan to take the second round of the assessment in 2023.

CCA supported 26 enterprises in 2022 and 19 in 2021. CCA provided a total financial assistance of US$ 698,572 in 2022 and US$ 586,009 in 2021. Disaggregation by enterprise role in the value chain was not available for 2021 and 2022 and will be reassessed for reporting in 2023.

Table 3

Support the growth of clean cooking enterprises	Data 2022	Disaggregation 2022
CCE1. US$ revenue of supported enterprises	US$92,913,424.76 (2022, n[a]=19 of 26 enterprises)	None
CCE2. Number of employees of supported enterprises	5,981 Employees (2022, n=21 of 26 enterprises)	40% female in total 293 in management, 36.9% female 3,718 full-time, 37% female 2,263 part-time, 44.7% female
CCE3. Number of countries of operation for supported enterprises	25 (2022, n=21 of 26 enterprises)	**Countries of operation:** Australia, Bangladesh, Cambodia, Cote d'Ivoire, Democratic Republic of the Congo, Ethiopia, Ghana, Haiti, India, Kenya, Madagascar, Mali, Mexico, Mozambique, Nigeria, Papua New Guinea, Rwanda, Senegal, Somalia, South Africa, Tanzania, Uganda, United Kingdom, Zambia, Zimbabwe **Region:** East Asia and Pacific, Europe, Latin America and the Caribbean, South Asia, Sub-Saharan Africa **Countries by income level:**[b] 32% low income, 52% lower middle income, 8% upper middle income, 8% high income

a. The sample value (n) varies across different SI because certain SI only apply to specific enterprises, and not all enterprises provide complete data on the SI.
b. Source: World Bank country classification by income level.

KOKO Networks

In January 2022, ethanol vendor KOKO Networks announced plans to expand operations beyond its base in Kenya to six additional African countries and accelerate production of its clean fuel stoves, with the goal of manufacturing five million stoves annually. KOKO Networks and Dalberg Ventures reached an agreement with the government of Rwanda to invest $25 million toward a network of dispensers that will replace charcoal with ethanol. This venture—KOKO's first outside Kenya—will establish a network of cooking fuel distribution points in Rwanda. The Rwandan government will waive VAT and import duties on the cookers and the fuel. KOKO expects the project to be running in 2023, serving nearly 1.1 million households nationwide.

Table 4

Support the growth of clean cooking enterprises	Data 2022	Disaggregation 2022
CCE4. Number of stoves sold by supported enterprises	1,727,537 stoves sold (2022, n=14 of 26 enterprises)	**Country data:** Bangladesh 3,052, Cambodia 222,473, Cote d'Ivoire 14,079, Democratic Republic of the Congo 34,286, Ethiopia 79,938, Ghana 7,138, Haiti 4,657, India 1,196, Kenya 328,248, Madagascar 58,181, Mali 1,419, Mexico 16,776, Mozambique 10,446, Nigeria 69,908, Papua New Guinea 144, Rwanda 588,362, Senegal 8,584, Somalia 76,415, Tanzania 56,009, Uganda 58,812, Zambia 52,534, Zimbabwe 34,880 Sales to customers: 515,139; Sales to distributors: 1,174,618; Unreported: 37,780 **Stove type:** Art Solid Fuel 89,837, Biogas 20,776, Electric Cooker 1,253,673, Gel 6,010, Induction 5,240, LPG 211,257, Manu Solid Fuel 92,362, Other 42,982, Resistive 5,400
CCE5. Average of company growth rates in stove sales year-over-name year for supported enterprises	70% (2021−2022 values for enterprises supported in 2022, n=8 of 26 enterprises)	None
CCE6. Quantity of fuel sold by supported enterprises	564 million megajoules (2022, n=8 of 26 enterprises)	**Fuel type (MJ)[a]:** Alcohol 3.8 million, Briquettes 50.2 million, LPG 510 million **Country (MJ):** Ghana 0.1 million, Haiti 1.8 million, Kenya 454.3 million, Mozambique 1.8 million, Nigeria 61.3 million, South Africa 15.1 million, Tanzania 29.6 million
CCE7. Average of company growth rates in fuel sales year-over-year for supported enterprise	149% (2021−2022 values for enterprises supported in 2022, n=3 of 26 enterprises)	None

a. A megajoule (MJ) is a unit of energy and is used to standardize different fuel types.

Table 5

Support the growth of clean cooking enterprises	Data 2022	Disaggregation 2022
CCE8. Grants as a proportion of total investment for supported enterprises	20% (all years of investment for enterprises supported in 2022, n=13 of 26 enterprises)	None
CCE9. Percent of supported enterprises that show improvement on the Gender Diagnostic assessment	Not available	None
CCE10. Number of enterprises supported by CCA	26 (2022)	**Total financial assistance:** US$ 698,572.55 Technical assistance for capital raising, financial structuring, growth strategy, impact, operations, partnership development, and product R&D **Enterprise role in the value chain:** Not available

Consumer Demand-level Indicators (CD1–3)

Consumer Demand-level SI report on the consumer demand generation work conducted in 2022. CCA has done this work in only its Haiti project, but there are no data to report for 2022. CCA aims to engage with partners in 2023 and beyond to design and develop gender-responsive social and behavior change communication campaigns in Haiti. Data from these campaigns will be provided in future MEL Framework reports.

Apart from the Haiti project, CCA's demand work in 2023 and beyond will primarily be organized under the User Insights Lab (UIL), a new initiative emanating from CCA's clean cooking system's strategy (CCSS). The UIL aims to increase demand and sustained use of clean cooking by working with clean cooking enterprises, policymakers, and implementers to design and develop clean cooking solutions, policies, and programs that have the end user at the center, and are informed by deep insights into their preferences, constraints, and behaviors. In 2022, nine UIL projects and innovations were developed. Of these, one project was launched in the market.

Enabling Environment-level Indicators (EE1–6)

Enabling Environment-level SI report on the various ways CCA works to strengthen the enabling environment for the clean cooking sector. These include policy and standards work, events, dissemination of research and evidence on clean cooking, and advocacy and awareness-raising through social media. CCA tracks the data for these SI internally.

In the countries where CCA works and is aware of the policy environment, there are currently 31 policies supporting the clean cooking sector. Gender appears in just over half of these policies. More than 80% of the policies are fully adopted into law, but approximately 60% are not fully funded. This includes the Bioenergy Strategy in Kenya, the Renewable Energy Master Plan in Ghana, and the Energy Sector Strategic Plan (2018–2024) in Rwanda.

One of the two new policy initiatives launched in 2022 was the Nigeria Clean Cooking Policy. This is a standalone clean cooking policy that covers multiple tools, interventions, and priorities related to clean cooking in Nigeria. This built upon the foundation laid in 2021, when CCA supported

CCA's Support to the Clean Cooking Industry

CCA provides indirect and invaluable support to the clean cooking industry as highlighted by the following examples.

Spark+ Africa Fund

In 2022, Spark+ Africa Fund launched in partnership with 12 development finance institutions, foundations, family offices, and pension funds as the world's first impact fund financing clean and modern cooking solutions in developing markets. CCA played a key role in supporting the development of Spark+ Africa Fund.

CCA began to explore the feasibility of developing a sector-focused investment fund in 2015–16 and assembled a steering group with experienced fundraising/investment professionals from development banks, the International Finance Corporation (IFC), and other public/private institutions. In 2017, CCA began discussions with the African Development Bank (AfDB) around the concept of a sector-focused fund in which they might invest and formalized a partnership with Enabling Qapital (which was launched by an ex-SIMA member and other impact asset management mangers) to continue developing Spark+ Africa Fund and bring in new investors.

In 2022, Spark+ Africa Fund announced its first close at US$ 41 million and made a US$ 8.5 million investment in three clean cooking companies. CCA supports two of these companies (BURN Manufacturing and Bidhaa Sasa) through the Market Strengthening project.

Kenya-based BURN specializes in the design and manufacture of biomass, electric, and LPG cookstoves. Spark+ Africa Fund's US$ 4 million investment in BURN will enable the enterprise to increase the capacity of its industry-leading, industrial-scale manufacturing facility in Nairobi, and finance the expansion of its business in new markets including Somalia, Ghana, Nigeria, Mozambique, and the Democratic Republic of Congo. BURN has plans to serve 47 million customers over the next seven years, which will create over 2,000 jobs and offset 72 million tons of CO_2e. Peter George, Spark+ Africa Fund Investment Director stated, "We're incredibly pleased how the BURN team has leveraged a $500,000 start-up grant from the Clean Cooking Alliance in 2013 to become a true leader in its space."

Modern Cooking Facility for Africa (MCFA)/Nordic Environment Finance Corporation (Nefco)

Nefco, founded in 1990 by the five Nordic countries, finances small- and medium-sized green projects through its own investments and trust funds. Nefco's Special Funds unit manages the MCFA. MCFA aims to accelerate access to modern cooking solutions for urban and peri-urban customers in Sub-Saharan Africa and began providing investment of 30.8 million Euro in six countries (DRC, Kenya, Mozambique, Tanzania, Zambia, and Zimbabwe).

In 2022, CCA provided MCFA with assistance in various areas, including:

- Advice during MCFA's first call for proposals (MCFA1) and technical due diligence on MCFA1 applicant reports.

- Technical inputs on market overview, reverse auction mechanism, and other key operational aspects of MCFA programs.

- Consumer Protection Guidelines for clean cooking consumers for MCFA programs.

- Clean-cooking-sector-wide unit economics study to inform MCFA programs incentive structures.

MCFA also supported CCA's round robin lab testing program to include an additional testing center, CERERK in DRC.

establishment of the Nigerian inter-ministerial committee to lead the development of a new clean cooking policy.

In 2022, in response to an identified need, CCA pivoted from assisting low- and middle-income countries (LMIC) governments in establishing specific, actionable language related to clean cooking or household energy in their Nationally Determined Contributions (NDCs) to also providing technical support to facilitate the implementation and measurement, reporting, and verification (MRV) of those NDC-related clean cooking goals. This included virtual support to the government of Uganda around data sources for the necessary inputs for the many fuel types included in their NDC, and in-person and virtual support to the government of Ghana around both MRV and potential technical assistance funding related to stove testing.

CCA's policy work moving forward will focus on developing and disseminating knowledge products that clearly lay out the costs and benefits of various policy interventions, provide clear recommendations for decision makers, develop tools and resources that are useful for both policymakers and investors, and support countries in developing clean cooking policies driven by self-determination. CCA will also continue to capture global learnings about the policy process and serve as a knowledge hub for developing actionable policies supportive of clean cooking.

Another approach CCA uses to support the enabling environment is through standards implementation and policymaker training for relevant stakeholders on what international standards are and how they can be used to achieve policy goals. In 2022, CCA engaged stakeholders from key governmental ministries, national standards bodies, development organizations, and stove testing laboratories from 11 countries in Latin America, helping them to develop national action plans for clean cooking including through adopting as national policy the ISO international voluntary performance standards for cooking technologies and fuels. This work

Round Robin Testing Program

The ability of testing labs to confidently and accurately test and report against new protocols and reporting frameworks is the key to successful implementation of international voluntary performance standards for cooking solutions published by the International Organization for Standardization (ISO). To ensure testing labs have this ability, CCA launched a Round Robin Testing Program to deepen the capacity of testing centers and ensure that they are standardized in their abilities. This ensures that stakeholders receive similar results regardless of where they send their stove to be tested. The 2022–2023 Round Robin Program includes nine labs in eight countries: CERER-K (DRC), CSIR-IIR (Ghana), CERER (Senegal), CREEC (Uganda), and KIRDI (Kenya) in sub-Saharan Africa; LINEB/UNAM (Mexico) and CPC (Bolivia) in Latin America; and Aprovecho Research Center and Berkeley Air Monitoring Group (in conjunction with Colorado State University) in the United States.

CCA commissioned stove testing through direct contracts with these labs to provide the labs with more testing practice than market demand alone is generating. The testing practice strengthens the capabilities of the labs. Contracts completed with the labs included three rounds of testing the same three cookstoves and fuels, plus additional testing of local stove models in each country. This additional testing, commissioned in 2022 and to be completed in 2023, includes 42 tests from Ghana, Kenya, Senegal, and Uganda on stoves with the following fuels: biogas, briquettes, charcoal, ethanol, kerosene, pellets, and wood. The testing from this program will be uploaded to CCA's Clean Cooking Catalog and will also assist stove manufacturers in having the latest testing data (under the ISO protocol) for their clean cooking technologies.

The labs form a community of practice, coming together after each round of testing the same stove/fuel/pot combination to compare results, identify inconsistencies, and discuss any challenges. Testing experts from the United States Environmental Protection Agency (EPA) help to fill any gaps in knowledge or practice among the testing centers.

Initial results show the labs were largely standardized in their emissions and efficiency test results. These labs, or Regional Testing and Knowledge Centers (RTKCs), act as hubs in each of their regions. This work builds regional testing capacity in addition to national capacity.

aims to strengthen the policy environment to enable the clean cooking market to thrive. In addition, CCA, in 2022, worked directly with a smaller cohort of policymaker stakeholders in six countries to help them integrate research with policy implications into clean cooking-related national action planning and worked with key climate stakeholders in three countries to support their efforts to build clean cooking into their national climate commitments.

CCA regularly holds events and workshops related to various aspects of the sector, including private sector investment, research, and strategy development. In 2022, CCA hosted thirty-six events, which were attended by 4,379 people. CCA continued adaptations initiated during the COVID-19 pandemic, including virtual events. For example, the Clean Cooking and Climate Consortium (4C) Expert Consultations meetings and webinars were hosted virtually. The total number of participants who attend CCA-hosted events or workshops has continued to increase since 2020, when CCA started tracking these data (Figure 21).

In 2022, CCA hosted an important kick-off webinar for the Women in Clean Cooking Mentorship Program. This event gathered 35 virtual participants and marked the beginning of the second cohort of the mentorship program for early to mid-career women working in the clean cooking sector in Africa, Asia, and Haiti.

CCA's feature event in 2022 was the Clean Cooking Forum in Accra, Ghana, which included numerous in-person and virtual events and was attended by 3,200 individuals from over 60 countries. Other events CCA hosted during the forum included the State of the Evidence Base Conference,
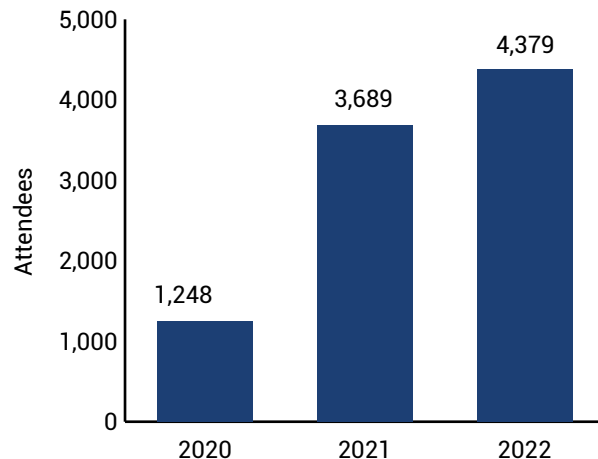
Figure 21. Number of Participants at CCA Organized Workshops and Events, Year-Over-Year

the UIL field visit, and several networking meetings to connect donors, governments, and clean cooking enterprises from across the industry. The Clean Cooking Forum 2022 sessions were well received by attendees, who appreciated in-depth meetings with partners, networking sessions, and panel discussions.

In terms of communications metrics on social media, CCA measures average engagement rate per post (by followers), broken down by month and channel (Figure 22). Engagement rate is a measure of a channel's activity (e.g., likes, shares, reactions, etc.) over a reporting period relative to its total audience, divided by the number of posts in that period. Spikes in engagement are often explained by

Achieving climate goals through clean cooking

In 2023, CCA will expand its role to provide technical support to donor governments intending to use international market mechanisms to achieve climate goals through clean cooking. This support around technical due diligence will include baseline setting, evaluating and interpreting stove testing data, and conducting risk assessments and GHG emissions reduction calculations. CCA support will ensure the clean cooking credits bought by donor governments will deliver the desired climate and environmental impacts.

Additionally, CCA will work closely with UNFCCC, Gold Standard, Verra, and other key stakeholders to develop a new modular methodology for crediting emissions reductions from cookstove projects. This methodology will be available for utilization under Article 6.2 and potentially Article 6.4, as well as the voluntary carbon market (subject to approvals) and will be applicable to a variety of transition scenarios. This work will ensure that clean cooking carbon projects are grounded in sound methodology and realistic assumptions that reflect integrity, transparency, and accountability.
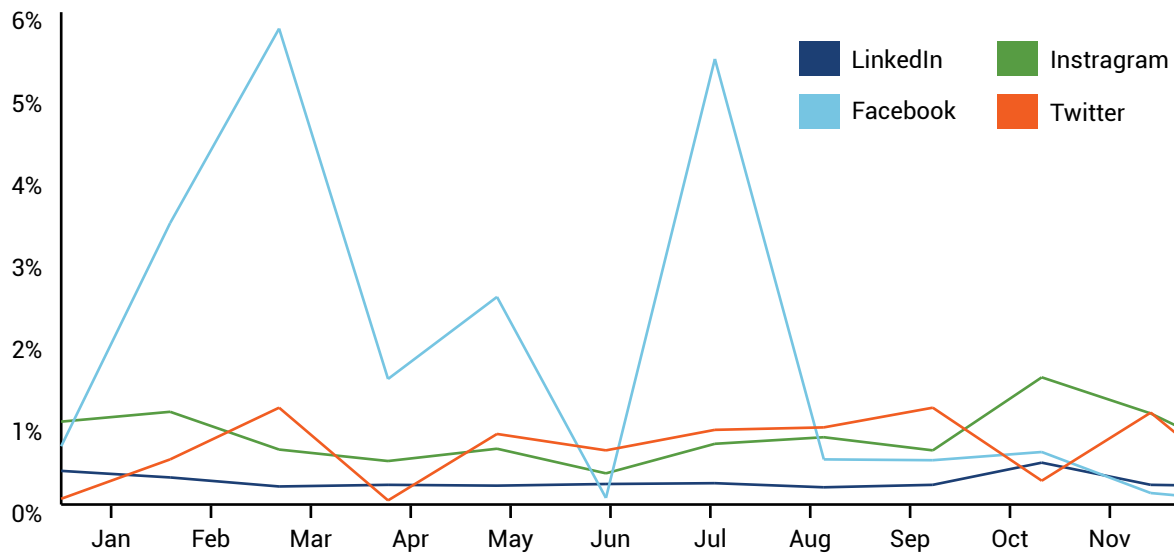
Figure 22. Average Engagement Rate Per Post (by Follower) by Social Media Channels, 2022

increased activity and advertising spending around major announcements, international days, and events. CCA's engagement rates per post (by followers) outperformed 2022 all-industry benchmarks on Facebook by 1.72 percentage points, Instagram by 0.34 percentage points, and X (formerly Twitter) by 0.62 percentage points. CCA's Facebook posts in particular saw an increase in 2022 over 2021 results. In 2023, CCA will leverage learnings from its social media/advertising strategy to inform advertising spending planning around key international, partner, and campaign moments, as well as to balance advertising optimization between engagement, link clicks, and audience growth.

User Insights Lab (UIL) Project to Enhance the First Time User Experience of Electric Cooking Devices

In 2022, the User Insights Lab worked with a Venture Catalyst enterprise to create a quick reference guide for customers of its Pay As You Go (PAYGO) electronic clean cooking device in two languages. The guide included setup, operations, and how to interact with the device's payment system. The UIL team went through several design iterations on the quick reference guide, including testing and refining the text and illustrations with the enterprise. Two versions of the guide were delivered in each language, to allow the enterprise to test reactions to the guide via different platforms. The testing was carried out by the enterprise's country offices. The outcome of this work was a high quality, branded, customer-facing communication tool to help the enterprise's customers navigate their new clean cooking device, and to encourage brand loyalty and engagement. Prior to deployment of the quick reference guide, only 20% of customers were able to begin using the device without support from the company. Since the introduction of the guide, this has increased to between 60–70% of users.

Table 6

Strengthen the enabling environment	Data	Disaggregation
EE1. Number of national policies and strategies supportive of the clean cooking sector in countries receiving CCA support	31 (2022)	**Gender content:** 17 have gender content, 12 unclear if policy contains gender content, 2 not applicable **Adoption status:** 24 fully adopted, 4 drafted, 3 unclear adoption status **Funding status:** 1 fully funded, 19 not fully funded, 10 unclear funding status, 1 not applicable **Policy type:** 2 consumer subsidies, 1 tariff, 28 other **Country:** Bangladesh 3, Colombia 1, Ghana 3, Haiti 4, India 2, Kenya 6, Nigeria 1, Nepal 3, Rwanda 4, Uganda 3, Joint (Ghana/Uganda) 1
EE2. Number of countries receiving CCA support for standards related to cookstoves and fuels in countries	11 (2022)	**Status by country:** 7 enacted into law, 4 unknown **Enforcement:** 5 voluntary, 6 unknown **ISO relationship:** 2 based on 285, 4 not based on 285, 5 unknown **Target tech:** 2 Biomass stoves, 1 Malena stoves, 22 unknown
EE3. Number of people who attend CCA events or workshops	4,379 (2022)	**Role in sector:** Researchers 344, Government policymakers 259, Implementors 420, Enterprise employees 442, Donors 70, Investors 103, CSO/NGO Staff 347, Other 309, Not captured 2085 **Gender:** 25% female at events with gender captured (n=23 events)
EE4. Number of CCA events or workshops	36 (2022)	**Policy focus:** 11 policy-focused, 25 not policy-focused
EE5. Number of research translation products disseminated by CCA	37 (2022)	None
EE6. Average engagement rate per post of CCA social media content	Twitter: 0.65% Facebook: 1.78% Instagram: 0.81% LinkedIn: 0.28%	See Figure 22 (above)

Science to Policy Academy

In 2022, CCA partnered with the National Institutes of Health (NIH) Clean Cooking Implementation Science Network (ISN) to complete a series of training and policy development workshops, launched in 2021, with LMIC stakeholders, called the Science to Policy Academy (SPA). The intent was to build upon the lessons and scientific findings that have emerged in recent years in a focused effort to use this evidence to guide policy formulation that supports access and use of clean household energy for health promotion. The first cohort of the SPA brought together key stakeholders from six East African countries. The series began in Q3 2021 and concluded in Q1 2022. Ultimately, the goal of the SPA was to equip national and, in some cases, subnational policymakers and their colleagues with knowledge of evidence-based approaches and tools that will empower them to advance locally relevant and effective clean cooking policies and programs in their respective countries. Following the conclusion of the series, country delegations presented their country action plans, which detailed how they plan to implement their series learnings within their respective ministries.

State of the Evidence Base Workshop

In the lead-up to the Clean Cooking Forum in October 2022, CCA convened over 50 stakeholders from across the clean cooking research community for a Clean Cooking State of the Evidence Base Workshop. The day-long workshop showcased the advances made in the clean cooking evidence base in the last decade. The workshop theme related to co-benefits of clean cooking, including climate, health, women's empowerment, livelihoods, and more.

In discussions across workshop sessions, participants identified a need to review the evidence base to date and identify remaining research questions. As a result, CCA and its partners agreed to develop a collaborative review paper in 2023. The review paper will focus on knowledge and gaps in key areas, including health, gender, and climate. The paper will summarize existing scientific evidence for and gaps in research on the benefits of clean cooking transitions in pre-determined areas as well as poverty alleviation, emerging research areas, and more. Each of these sections in the review paper will include a discussion of both what is known and the priority unsettled questions related to each topic. The review paper will serve as a guide to researchers in the clean cooking and adjacent sectors to ensure that critical remaining knowledge gaps are prioritized.

Research, Evidence, and Learning-level Indicators (REL 1–4)

Research, Evidence, and Learning-level SI measure CCA's role as a knowledge hub for research and learning in the clean cooking sector.

The research, evidence, and learning indicator data for 2022 show the critical role CCA plays in leading the ecosystem to develop a robust evidence base for clean cooking by fulfilling its three research objectives: (1) translating evidence to action and providing practitioners with easily digestible findings they can use for evidence-based decision-making, (2) funding research to fill critical research gaps in the ecosystem, and (3) enabling research by serving as a convener of ecosystem actors and implementing an integrated approach to learning across the organization.

CCA's website, which is visited by users globally, maintains an active database of resources for the sector, including research translation products such as policy briefs, blogs, StoryMaps, etc., that make critical sector research findings digestible and actionable to different audiences. There was a nearly 450% increase in 2022 over 2021 in the number of views of CCA's resources page (the majority who viewed the resources were users whose IP addresses were based in Asia). For example, CCA authored a blog about its pilot study on using direct cash transfers to incentivize clean cooking in households in Nepal, and the post received over 500 views the month it was published.

CCA also widened its diversity of research communication mediums. For example, CCA published an ArcGIS StoryMap that interactively and visually communicates the

global health toll of household air pollution. The StoryMap received over 5,000 views throughout 2022 and won the 2022 ESRI ArcGIS StoryMap competition in the *Health and Safety* category.

CCA also contributed to major reports, authored or directly funded 19 peer-reviewed academic publications, provided inputs to five reports which were published, and measured the traction of its authored and funded publications over social media. One of many notable CCA-funded academic articles published in 2022 includes a study published in *Pediatric Pulmonology* that examines the relationship between household air pollution exposure, child lung function, and childhood growth. The study highlights the harmful and far-reaching impacts of household air pollution on child health.

Table 7

Generate research, evidence, and learning	Data	Disaggregation
REL1. Number of views of CCA resources page	34,836 (2022)	**Continent:** Americas 21.5%, Europe 21.1%, Africa 20.7%, Asia 35.6%, Oceania 1.0%, Not defined 0.1% **Average session duration:** 1:14 minutes **Visit platform:** Desktop: 85.7%, Mobile: 13.9%, Tablet: 0.4% **Landing page:** Home: 6.4% Reports & Tools: 1.9% Other: 91.7%
REL2. Number of reports published with CCA input	5 (2022)	**Topic:** Markets 2, Sector Status 2, Other 1, scientific or technical research 0, MEL 0 **Regional focus:** Covering multiple regions 1, Not regionally specific 4 **Authors:** CCA, REN 21, MECS
REL3. Number of CCA-authored publications	19 (2022)	**Topic:** Markets 3, Sector status 5, Country status 1, Scientific or technical research 8, Monitoring, Evaluation, and Learning 1, Tools 1
REL4. Number of mentions of CCA publications	666 (2022)	575 X (formerly Twitter) mentions, 91 other mentions

Nepal Country Action Plan (CAP)

The Government of Nepal (GoN) is committed to achieving universal access to clean cooking by 2030. To achieve this goal, the GoN has set ambitious targets, including ensuring that 25% of households nationwide adopt electric cooking by 2030. Since 2018, CCA has worked closely with the GoN, providing tailored support to help them achieve their ambitious goals.

In 2021, in close collaboration with the Alternative Energy Promotion Centre (AEPC), CCA launched the development of the Country Action Plan (CAP) for Transforming the Cookstoves and Fuels Market in Nepal. The CAP development was based on a rigorous methodology; consultations with stakeholders; key insights from CCA-commissioned foundational research, including the Health Demonstration Project; and various activities by partner organizations in Nepal. In 2022, CCA finalized the CAP, which involved working extensively with the AEPC and subsequently with the National Planning Commission (NPC). The CAP provides the GoN with a clear, strategic, and evidence-based roadmap with an actionable list of prioritized interventions to support Nepal's energy access goals, especially those related to the promotion of electric cooking.

In 2023, AEPC is leading the formal process of presenting the CAP to the AEPC board. Once approved by the AEPC board, CCA and AEPC will present the CAP to the Ministry of Energy, Water Resources and Irrigation (MoEWRI) to formalize the CAP as a national plan. In parallel, CCA will collaborate with the NPC and AEPC to develop a Coordination Guideline. The Guideline was requested by local leaders during the provincial consultations conducted by NPC and CCA. The Guideline will define the mechanism for effective coordination and cooperation among key stakeholders in the clean cooking sector (especially the three levels of the government: federal, provincial, and local) and inform the CAP implementation framework. CCA will also continue to support AEPC to obtain funding for the CAP implementation.

Learning Agenda and Learning Activities

In 2022, to integrate a systematic approach to learning, CCA targeted two main areas: (1) developing an organization-wide learning agenda and (2) implementing and planning a series of learning activities addressing CCA's work to provide a more robust picture of the outcomes, results, challenges, and course corrections needed. The emphasis moving forward will be to implement the learning agenda and to conduct learning activities to truly evolve into a learning organization that expands the knowledge base for the clean cooking sector.

Learning Agenda

CCA aims to become an efficient and effective learning organization that generates, disseminates, and acts upon learning to inform decision-making, improve its work, and expand the sector's knowledge base to help achieve universal access to clean cooking. The learning agenda has the following intended results:

- Integrate systemic learning to address CCA's Theory of Change, strategic approach, programs, and projects, and the most pressing learning needs of the clean cooking sector to inform decision-making and the path forward.

- Contribute to creating an enabling learning environment for CCA teams to become more agile and nimble in their work.

- Enhance the clean cooking knowledge base and share it across the ecosystem.

The learning agenda's results framework is shown in Figure 23 below. See Annex E for more details to manage and implement the learning agenda.

The learning agenda has three components:

The first component (component I) focuses on prioritizing and answering a set of key organizational long-term questions within a strategic timeframe (2023–2030). The answers to these questions will address CCA's Theory of Change, strategic approach, programs and projects, and critical knowledge gaps across the clean cooking sector. CCA will finalize a set of prioritized long-term questions,

incorporating inputs from partners and stakeholders, and determine a sequence for answering these questions based on budgets and the timeframes needed to address them.

A critical aspect of the learning agenda is to ensure that the learnings derived from the prioritized long-term questions systematically inform CCA's evidence-building and decision-making, and the sector as a whole. It is CCA's expectation that relevant learnings will drive course correction where applicable. CCA team leads, with support from the MEL team, will develop plans to disseminate the learnings and develop robust action plans based on the learnings.

The learning agenda's second component (component II) includes a learning system to track and monitor the prioritized long-term questions and CCA's teams' other learning activities; and to host their learning outputs. The learning system will also track the implementation, dissemination, and steps taken to act on learnings gleaned from the learning activities across CCA. The MEL team will design the learning system, with external technical support as needed, and adapt it based on annual feedback from CCA teams. The learning system will be implemented iteratively to become a platform that serves as a repository of CCA's learning activities and a resource for CCA teams.

The learning agenda's third component (component III) will support CCA teams with MEL guidelines and resources, which will be hosted in the learning system and reviewed and updated on an annual basis.

Learning Activities

In 2022, CCA conducted a series of learning activities, examples of which include:

- **High Level Engagement (HLE).** The main goal of CCA's HLE, aligned with the CCSS, is to accelerate progress toward universal access to clean cooking by elevating it in the ecosystem. The learning activity's main objective was to examine how effectively CCA's leadership (Chief Executive Officer and Chief of Staff/Chief External Affairs Officer) engaged within the clean cooking sector and the broader ecosystem to promote the goal of the

Activities*	**Intermediate Results**	**Results**	**CCA Learning Goal**

Prioritize and answer a set of long-term learning questions addressing knowledge gaps in the clean cooking sector and across CCA's Theory of Change, strategic approach, and programs/projects

Develop and implement a system to track and monitor CCA's learning activities; and share the system with CCA teams**

Provide guidelines and resources to support CCA teams learning activities

Answer a set of key long-term learning questions

CCA teams conduct more rigorous and structured learning activities

Learning system acts as a resource and repository for CCA teams

Systemic learning addressing pressing needs in the clean cooking sector and CCA's Theory of Change, strategic approach, and programs/ projects

Enabling learning environment for CCA teams to become more agile and nimble in their work

Enhanced clean cooking knowledge base shared across the ecosystem

An efficient and effective learning organization that generates, disseminates and acts upon learning to achieve universal access to clean cooking by 2030

* These activities along with CCA's other activities and organizational leadership inputs will lead to the expected results.
** CCA teams have been conducting some learning activities for their programs/projects.

Figure 23. Learning Agenda Results Framework

HLE. The findings of the learning activity helped guide CCA's leadership's strategic decision-making on future approaches to external relationships. See the "HLE" box below for more details.

- **CCSS Initiative: UIL.** The UIL aims to increase demand and sustained use of clean cooking by working with clean cooking enterprises, policymakers, and implementers to design and develop clean cooking commercial solutions, policies, and programs. The UIL conducted a series of learning and research activities, including:

  ◦ Engaging directly with end users to understand the barriers and constraints that limit adoption of clean cooking solutions.

  ◦ Reviews of existing literature and interviews with enterprises to map the customer journey for clean cooking solutions and to identify a framework for understanding enterprise user-centric capabilities.

  ◦ Holding an in-person workshop with actors from across the ecosystem to identify key learning questions that can inform the UIL's learning activities.

- **CCSS Initiative: Delivery Units Network (DUN).** The DUN consists of small, high-performing teams embedded in national governments to enable country-level clean cooking transitions. The DUN conducted a series of learning and research activities, including six country missions (Kenya, Ghana, Rwanda, Tanzania, Cote d'Ivoire, Sierra Leone), to sensitize government and market stakeholders on the DUN and to assess market opportunities. Stakeholder workshops were held in Kenya and Ghana to solicit feedback and insight on shaping the DUN to the local context. Learnings from activities in each country have been taken into the next phase of the DUN, including iterating on workshop format and content, refining the strategy for stakeholder engagement, templatizing key materials, and approaching how to integrate DUN

Clean Cooking Catalog

To optimally design and implement standards policies, as well as other clean cooking interventions, data on the availability and performance of cookstoves and fuels are critical. CCA's Clean Cooking Catalog is an online resource of stoves, fuels, and testing data that can be used by policymakers, researchers, implementers, and other stakeholders. The Catalog's 2022 upgrade resulted in a more streamlined platform with increased user functionality, added features, and more automated submission of data. Having a global repository of test data supports CCA's climate and standards implementation activities by helping countries to identify the best available technologies, in each context, around which to structure their national policies. These may include tax and tariff policies that favor clean cooking products; require minimum performance standards, which protect consumers and drive research, development, and innovation; and the development of consumer labels, which can increase consumer awareness and demand. Access to publicly available high-quality testing data also supports climate finance, especially in the carbon market, and other results-based financing initiatives.

activities with other CCA activities taking place in each country.

- **CCSS Initiative: Catalytic Finance Accelerator.** This initiative aims to attract a significant amount of additional and catalytic finance to the clean cooking sector. A series of learning and research activities commenced, including results-based financing (RBF) research focused on developing key design principles for better RBF programs, outcome buyer research to enable outcome-based finance programs to better align with market demand, unit economic research focused on understanding the fundamental unit cost and unit revenue potential of clean cooking businesses, and the initiation of a digital RBF platform focused on data and insights aggregation to help design and improve RBF programs.

Examples of other learning activities, which were planned in 2022 and will be completed in 2023 or continue beyond 2023, include:

- **Circle Gas Gender Smart Advisory Support (GSAS).** CCA seeks to support small- to medium-sized clean cooking enterprises in integrating gender into their business models. The GSAS will increase staff and management's understanding of basic gender concepts, and how and why gender-informed business approaches can strengthen their business model. The main objectives of this learning activity are to better understand and learn how gender-informed approaches are integrated in one CCA-supported enterprise, Circle Gas, and recommendations for future GSAS. Data collection for the learning activity was conducted in 2022 and will be completed in 2023.

- **Nepal Country Action Plan (CAP).** A learning activity will be designed to examine the mechanisms employed for the successful development of the CAP in close collaboration with the Government of Nepal (GoN), the effectiveness of the approaches employed to gain input and secure buy-in and formalization of the CAP from the GoN (federal, provincial, and local governments) and other relevant in-country stakeholders, and how learnings from the CAP and Nepal's country-level clean cooking transitions inform the CCSS's DUN initiative. The learning activity will be completed in 2023.

- **UIL, DUN, and Catalytic Finance Accelerator.** The UIL will continue to develop and obtain data for learning questions to guide the development of its strategy and measure the effectiveness and impact of its activities. The DUN will develop specific country action plans, which will include objectives, workplans, and success metrics that will drive the DUN implementation processes and help to refine the DUN's value proposition. The Catalytic Finance Accelerator will initiate landscape research on responsible carbon to understand key risks in carbon markets for clean cooking; test and promote the use of a standardized unit economics framework for clean cooking technologies; run innovation challenges around digital solutions for clean cooking finance and investment; and launch an integrated digital platform for investors, project developers, and clean cooking enterprises to efficiently capture and distribute data and insights. These activities will continue in 2023 and beyond.

- **Informal working group on failure in energy access.** The Market Strengthening project has set up a working group to identify and discuss failures in energy access. Learnings from the working group will be shared annually with the Market Strengthening project team with the goal of reducing the likelihood of similar failures occurring in the future. Participants in the group include Acumen, University College London, Efficiency for Access, 60 Decibels, Upya, D-light, GOGLA, and Shell Foundation. This activity will continue in 2023 and beyond.

CCA teams will also continue to develop specific learning activities for their programs and projects. For example, the Market Strengthening project will launch an Agile learning framework to help track and prioritize developments, frame concepts, test quick iterations, and integrate lessons into the design of project interventions. The project's learning activities will identify new insights, integrate these insights into revised project activities, and disseminate the learnings to other stakeholders. Illustrative learning questions include: Which interventions are most effective in increasing the investment readiness of companies? What are the factors that influence demand for clean cooking with respect to the user, the product, the customer experience, and the customer relationship over the full lifecycle of a clean cooking solution?

CCA's HLE Learning Activity

CCA's leadership's prominent HLE approaches in 2021–22 include developing and engaging with a priority list of stakeholders in both the clean cooking sector and adjacent ecosystems (e.g., climate, gender, trade, nature-based solutions), reaching out to almost all SDG7 technical working and advisory groups, strengthening relationships with key partners (e.g., MECS, ENERGIA, SEforALL, EPA, WHO), and providing evidence-based content to raise awareness and generate support across the ecosystem.

The main results of these approaches include:

- Clean cooking was further prioritized in the UN HLDE report, events, and roadmap.

- SDG7 policy briefs included more interlinkages with clean cooking.

- An increase in clean cooking sessions and events from one in COP26 to 15 in COP27.

- CCA became the co-lead of the clean cooking track with the World Food Program (WFP) on the UN Food Systems Summit Climate Resilient Development Pathways Coalition.

- Engagements commenced with gender-lens investors through the 2x Collaborative, with the WTO on clean cooking trade issues, and with Nature4Climate.

- Evidence-based messaging was provided on the role of LPG leading to the inclusion of exceptions for LPG cooking by finance institutions (i.e., UK Official Development Assistance, FMO, and US Treasury).

The relationship that CCA's leadership built with the Africa Europe Foundation (AEF) was especially fruitful. CCA's CEO joined AEF's Sustainable Energy Strategy Group and elevated clean cooking as one of AEF's primary focus areas. AEF and CCA co-authored the *Clean Cooking Manifesto*, which was endorsed by 70 high-level signatories. CCA's CEO and AEF's Women Leader's Network (WLN) also led a joint effort to establish a clean cooking working group. Through the WLN, CCA further developed a relationship with Irish Aid, which resulted in Irish Aid providing CCA a one-year funding agreement to implement five projects in Sub-Saharan Africa, which will be completed in 2023.

Lessons Learned from 2022 MEL Framework Implementation

While the broader themes for lessons learned, as articulated in the 2021 M&E Framework report, remained relevant in 2022, new developments generated additional insights for CCA. For instance, CCA calculated and reported on its impact for the first time and developed an organization-wide learning agenda. These developments, combined with CCA's efforts at improving internal and external data collection and management systems, informed CCA's lessons learned in 2022 (see Table 8 for details).

Youth Engagement

CCA is committed to ensure meaningful, equitable, and sustainable youth engagement in clean cooking. In 2022, CCA significantly increased its youth engagement as part of its Global Networks & Partnerships (GN&P) program. Some of the key achievements in 2022 include:

- Initiating and completing a youth consultation process to build CCA's youth engagement strategy.

- Sending a youth clean cooking delegation to the One Young World Summit in the UK.

- Partnering with Student Energy and supporting 20 young delegates to participate in the 2022 Clean Cooking Forum in Ghana.

- Engaging youth throughout CCA's activities at COP27 and joining the Youth Energy Transition Commission launched at the SDG7 Pavilion at COP27.

- Co-hosting the Commission on the Status of Women (CSW) event, Unlocking the Agency of Women and Youth as Solution Makers.

Table 8

	Challenges and Lessons Learned	Addressing Challenges and Lessons Learned
Internal Process Improvements	CCA's program teams needed more time to discuss and engage with the MEL Framework and the SI. SI data that relies on internal tracking required a systematic and more efficient method of data collection.	The MEL team conducted a process review with various CCA teams to discuss improvements to the 2022 data collection process, review the *M&E Framework 2021 Report*, and collect feedback on the SI and their disaggregation values and on the other MEL Framework components. The review generated useful insights on improving SI and their disaggregation values and refining CCA's internal data tracking and collection processes. For example, following the review, CCA developed two web-based forms to collect data on the EE and REL SI, ensuring a more systematic and efficient method of data collection. Other insights generated from the review will inform future adjustments to the SI as CCA's strategy and programmatic work evolve.
Enterprise-Specific Process Improvements	Enterprise-specific data were previously collected through two separate online surveys sent out at separate times, resulting in survey fatigue for respondents and duplication of effort for CCA. Some enterprises declined to complete the survey, and others either partially completed it or completed it with contradictory data (some enterprises are not tracking SI disaggregation, others have had recent personnel changes). New approaches were required to address these issues.	To increase efficiency, CCA combined the two online surveys into one online, web-based survey. The new combined survey has improved data validation, resulting in fewer data quality issues. Despite survey adjustments, obtaining complete data from each supported enterprise remained a challenge when collecting 2021 data. To address this issue (and to get updated 2022 data for this, report), CCA gave advanced notice to enterprises before launching the survey in Q2 of 2023, which led to an increase in enterprise data received by CCA at the deadline. CCA will also re-examine each SI and its disaggregation values and prioritize only essential data points (e.g., stove sales, fuel sales, enterprise revenues) from enterprises that CCA has struggled to receive data from in 2024.

	Challenges and Lessons Learned	Addressing Challenges and Lessons Learned
Addressing Data Limitations	Trends could not be established with just two years of the MEL Framework implementation (resulting in the 2020 and 2021 reports) due to limited data. For enterprise-specific SI, the sample size of survey respondents varies across different years, making assessing trends challenging.	CCA has started seeing some trends with the latest round of data collection (as presented in this report). To address the issue of differences in sample size, SI trends are reported by narrowing down the sample to enterprises CCA has supported consistently since 2019. However, for certain SI, the sample size is too small and trends cannot be established. CCA will consider other methods, such as obtaining year-on-year data or projections, to address this issue. Continued implementation of the MEL Framework is also critical to realizing its full value in the future.
Calculating and Reporting on CCA's Impact	The initial two years of the MEL Framework implementation did not include calculating and reporting on impact data. The methodologies to calculate impact based on best practices in the field are resource-intensive and require dedicated studies. There was a need for an approach that relied on, or could be supplemented by, the best estimates from literature, which could be applied when measured data were not available.	Using established methodologies, CCA introduced new approaches to estimate the impact of its work.[a] These approaches are applied when measured data are not available due to resource limitations. Using these approaches, CCA produced a separate impact report in September 2022. Data from the impact report has been included in this report. Updated impact data for 2022 is also included in this report. CCA will engage further with its partners in the clean cooking sector to share these approaches and expand on them where possible.
Learning	The learning agenda will need to be implemented iteratively. The list of prioritized questions (component I) should encompass the most important questions for both CCA and the clean cooking ecosystem to ensure the greatest impact. CCA will need to understand how its program teams can use the learnings to make course corrections in their work, and how learnings will be most effectively shared both internally across CCA and externally with the clean cooking sector.	A rigorous selection process will ensure the most pertinent and significant questions for CCA and the clean cooking ecosystem are prioritized and answered in the learning agenda. External learning consultants will support the learning agenda's implementation and provide concrete steps and activities to enable CCA program teams to make use of learnings in their work. The consultants will also provide resources and directions on how learnings can be better shared internally and externally.

a. Details of these approaches are provided in the IMRS for SI (1–4).

Looking Forward

The MEL Framework will be regularly revisited to reflect the ways in which CCA's strategy and role in the sector evolve. Future versions of the MEL Framework reports will incorporate updated progress and learnings of the CCSS initiatives, CCA's programmatic work, and CCA's role in the sector more broadly. CCA will continue to improve on its methodologies to measure the impact of its work, strengthen its ability to learn from its work, and address the most critical questions for the organization and the clean cooking ecosystem with the implementation of the organization-wide learning agenda. The MEL Framework 2023 Report will therefore maintain inclusion of the CCSS, impact data, and the learning agenda.

Elements that comprise and influence the forthcoming MEL Framework implementation include:

- **Internal Engagement.** Internal engagement with CCA programmatic teams will continue to be a priority in 2023. The MEL team will disseminate the findings from this report to CCA teams to inform strategic conversations and to refamiliarize teams with the SI and how they are used. The MEL team will continue collecting feedback on the value and usefulness of the SI and their disaggregation, how data collection and analysis can be improved, and what other data are important to track. This engagement will help teams to consider the relationship between the SI, the Enterprise Survey, and SI data hosting, all of which are important for the data aggregation and analysis process to become more robust and pertinent to CCA's work.

- **Data Management.** Various data-related issues will continue to be addressed. CCA will continue to work on honing data collection methods and adopt new approaches to address any issues related to data quality. For example, for this report, CCA launched the data collection process in Q2 instead of Q3 of 2023, to address the issue of incomplete SI data. CCA staff members who work with supported enterprises also prioritized data collection in their conversations with the enterprises, as well as hosted office hours to provide technical assistance to enterprises while the data collection survey was live. Going forward, CCA will explore instituting mandatory data reporting within any grant or contract with all supported enterprises. While internal tracking of data improved substantially in 2022, further consolidation is required to bring together some SI data sources, allowing for more streamlined data collection, storage, analysis, and reporting processes. CCA will explore employing more sophisticated platforms for this purpose.

- **Impact-level Indicators (IL 1–4).** CCA will further refine the methodologies used to calculate the impact of its programs and engage with its partners in the clean cooking sector to share the methodologies. Additionally, CCA will explore the indirect impact through the advisory services and support it provides as a normative organization.

- **Learning Agenda.** The learning agenda will serve as a living document that will be revised and updated to remain relevant to CCA's Theory of Change, strategy, programs, and projects and the pressing learning needs of the clean cooking sector. Importantly, the learning agenda cannot be implemented holistically from its inception and will require a gradual, iterative process to become systemically ingrained across CCA. Metrics will be developed and tracked to measure the progress and success of the learning agenda. Updates on the learning agenda's implementation will be provided regularly to CCA teams and full reporting on its implementation will be reported in the forthcoming annual MEL Framework reports.

- **Evaluations.** External evaluations provide deeper learning opportunities to address CCA's Theory of Change, strategy, programs, and projects. An external evaluation of the Norwegian Agency for Development Cooperation (Norad) support of CCA from 2019–2021 was conducted in 2022. Other external evaluations in the future will provide avenues to determine how CCA is making progress, is efficient and effective, and is making an impact; and provide recommendations to CCA and donors while also providing learnings to the clean cooking sector.

- **CCA's Role in the Ecosystem.** CCA conducts various activities to help develop and expand the clean cooking ecosystem. Though this work is intangible and difficult to measure, it is essential to the sustainability of the ecosystem and growth of the clean cooking industry, and has an indirect impact on health, climate, environment, and gender equality. CCA will continue to gather information on its ecosystem activities, establish ways to track indirect impacts, and highlight them in future reports.

- **External Engagement.** In 2023, CCA will continue to expand on its high-level engagement activities conducted by the CEO, CoS, and the GN&P team, elevating clean cooking within global climate and energy agendas. This work will build on 2022 efforts with the AEF, UN High-level Climate Champions, and the WTO; and seek to initiate new cross-cutting partnerships, including with WRI Africa and World Economic Forum, to extend CCA's reach and ability to influence. Efforts will also focus on raising awareness and ambition within adjacent ecosystems, including building on the momentum generated by the 2022 *A Call to Action: Accelerating clean cooking as a nature-based climate solution* report to mainstream clean cooking into nature and biodiversity agendas, and expanding this evidence-based, strategic engagement to reach wider audiences focused on food systems and sustainable cities..

- **Sectoral MEL.** At the sector level, knowledge sharing and adaptive learning to better inform evidence, policy making, funding priorities, and technology/solutions remain important issues. CCA will continue to define its role to inform these issues, and the implementation of CCA's learning agenda (which will answer questions that are of the highest value to the sector) will aid in these efforts. CCA will also consider sharing the methodologies it is using to calculate the impact of its work as mentioned earlier in this report.

In 2023, CCA will continue using the MEL Framework to collect data for its SI, including further improving and expanding on the calculations to measure the health, climate/environment, and gender impact of its work, and commence the implementation of the learning agenda to better advance its mission to achieve universal access to clean cooking.

Catalytic Finance Accelerator

CCA's CCSS highlighted that at least US$ 10 billion per year is required to achieve universal access to clean cooking, yet the current level of funding lags far behind at about US$ 130 million annually. In response, CCA has established the Catalytic Finance Accelerator with a mission to catalyze significant growth in funding and investment in the clean cooking sector within three years. It will do so by addressing challenges that lie in the way of high-growth catalytic capital—most notably, carbon finance and public funded results-based finance, by leveraging these pools of funding to catalyze larger pools of traditional capital (e.g., guarantees, debt, equity, early-stage equity), and by laying the groundwork to unlock future pools of capital (e.g., social value finance at scale).

Annex A. MEL Framework Components

The MEL Framework includes the following components:

- CCA's Theory of Change.

- A three-level approach comprised of guidance and requirements at the project level, organization level, and sector level.

- A list of standard indicators (SI) tracking against the Theory of Change.

- An indicator methodology reference sheet (IMRS) for each SI. The IMRS enumerates data sources, data providers, and data collection methods for the SI.

- A learning agenda to help CCA become an efficient and effective learning organization that generates, disseminates, and acts upon learning to achieve universal access to clean cooking by 2030.

The **Theory of Change** depicts CCA's strategy and the context in which it operates. It is the central point around which the rest of the MEL Framework is designed. The Theory of Change depicts the core pillars of CCA's work, which constitute the organization's approach to addressing clean cooking at scale through building a dynamic, financially sustainable clean cooking industry. CCA hypothesizes that only with a fully developed clean cooking industry can the sector reach the scale necessary to achieve universal access and the resulting co-benefits of clean cooking. These co-benefits capture the way clean cooking transforms lives: improving health, reducing the climate and environmental impacts of traditional cookstoves and fuels, empowering women, and improving livelihoods. The Theory of Change is the best depiction of CCA's current approach and is subject to revision with organizational changes and new or adapted strategies.

The MEL Framework provides guidance and requirements at **three levels**:

At the **project level**, the MEL Framework provides guidance for work that CCA supports or directly implements by requiring two components: (1) the development of project-level logic models, and (2) the use of applicable SI. CCA and the organizations that it supports will continuously collect data on the SI, per the frequency requirements detailed in the IMRS for each SI.

At the **organizational level**, the MEL Framework requires the aggregation of SI data and the use of evaluations and learning activities. By tracking the SI across multiple programs and projects, CCA can better understand its progress. CCA will also conduct evaluations according to three main objectives: (1) validating components of the Theory of Change, (2) filling knowledge gaps in the sector, and (3) evaluating approaches to project-level implementation. In addition, learning activities will be integrated across CCA.

At the **sector level**, the MEL Framework will provide guidance for how CCA contributes to tracking and learning for the clean cooking sector.

The remaining components of the MEL Framework (i.e., **SI**, **IMRS**, and **learning agenda**) are discussed in detail throughout this report and in the following annexes.

Annex B. MEL Framework Detailed Data Collection Methodology

In 2022, the third year of implementing the MEL (previously M&E) Framework, CCA continued to develop and refine its data collection and analysis systems. Both new methods and methods previously developed in 2020 and 2021 were used. CCA employed multiple approaches for data collection and analysis due to the varied nature of the SI. Details on these approaches and supplementary data not covered in the report for the different categories of SI are provided in this annex.

Data Collection Tools

CCA used three main methods to collect primary data for this MEL Framework Report: (1) a household survey (referred to as the household survey) conducted by an external firm contracted by CCA; (2) a survey sent to enterprises (referred to as the Enterprise Survey) in CCA's networks, including CCA-supported enterprises, to report their finances, employee demographics, and stove and fuel sales information; and (3) web-based forms CCA developed to track data on CCA's EE and REL SI.

Household survey. CCA's Market Strengthening team contracted an external firm to conduct a household survey with customers of supported enterprises in one country of each enterprise's operations. Each supported enterprise gave the external firm a random selection of customers from their own customer database, from which the firm randomly selected approximately 200 customers.[1] Due to this being a two-part random sample, this is to be assumed to be a representative sample. One customer is assumed to represent one household. Additionally, this external firm used a 95% accuracy confidence interval across all their survey results. CCA used the data from this representative random sample to scale up results to the entire customer database.

Work with the external firm is ongoing, with data collection continuing over the coming months and next few years, with the Market Strengthening team.

Enterprise Survey. In prior years, data for the enterprise-specific SI were collected through two separate surveys—the Industry Snapshot Survey and the Supported Enterprises Survey. The Industry Snapshot Survey addressed the clean cooking industry and had a broader reach. The Supported Enterprises Survey was narrower in scope and was shared with a smaller subset of enterprises that receive technical or financial assistance from CCA. To increase efficiency and reduce survey fatigue for the respondents, CCA combined the two surveys into one online, web-based survey in early 2022. This report is the second time CCA is utilizing this combined survey approach.

The survey was sent to 166 contacts in CCA's network. Sixty-four enterprises responded to the survey. Respondents included 22 of the 27 enterprises that were CCA-supported in 2022. To ensure timely and accurate responses from the supported enterprises, CCA team members who work directly with these enterprises also provided support. Data collected using this survey informed calculations for IL 1–4, CCI SI, and CCE SI. If any CCA-supported enterprises did not comply with data reporting requirements, publicly available data from the enterprises were used.

Web-based forms for internal tracking of SI data. CCA developed two web-based forms to track data on CCA's EE and REL SI These include data from internal CCA staff, such as event tracking from CCA events and workshops, and participant tracking from these convenings. Details on these forms are provided against the specific methods for EE and REL SI below.

Increased Access Methods

From 2019—2022 household survey data was collected from 16 companies in nine countries—two in Southeast Asia and seven in Sub-Saharan Africa. Stove sales data was provided from 18 companies in 28 countries—one in South America, one in the Caribbean, four in Southeast

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1. Sometimes the external firm was able to get in contact with more than 200 customers, and sometimes were only able to contact just under 200 households.

Asia, one in North America, and 21 in Sub-Saharan Africa.

As described under the *Data Collection Tools* section, CCA took the data from the representative random sample and scaled up the results to the entire customer base. For example, if the external firm surveyed 200 customers and found that 50% increased access to clean cooking solutions, scaling the 50% to a customer base of 10,000 would result in CCA reporting that 5,000 households[2] increased access to clean cooking solutions.

This strategy was also applied to stove sales data from the Supported Enterprises Survey in place of customer base data for each company and country. For example, if CCA had data from the household survey for company A that sells charcoal stoves in Kenya and data from the Supported Enterprises survey for company B that also sells charcoal stoves in Kenya, CCA assumed that these increased access rates would be similar, and applied the rate from company A to company B.

Finally, CCA has ensured that there are no households being double counted by excluding enterprise data from the same company and country as was reported for the stove sales data. For example, if a CCA-supported enterprise participated in data collection with the external firm conducting the household survey in Kenya and also reported to CCA stove sales numbers via the Supported Enterprises Survey in Kenya, the latter was excluded.

Impact-level Indicators (IL1–4)

Overview of Methods

As discussed in the report's body, CCA used a combination of analyses methods. For example, measuring $PM_{2.5}$ (particulate matter of less than 2.5 microns in size) exposures for household members, both at baseline (pre-intervention cooking practices) and post-intervention, provides the best estimates of health changes resulting from adoption of a clean cooking solution.[3] However, given that CCA's enterprise-level support is provided without pre-determined geographic bounds and that households are not pre-determined but freely make their own purchasing decisions, obtaining baseline and post-intervention $PM_{2.5}$ levels is not feasible. As a proxy for measured exposure levels, CCA uses data

found in peer-reviewed literature, which provides pre- and post-intervention exposure levels for a range of stove and fuel technologies across various geographies. These estimates are conservative yet realistic for the inputs needed to estimate health changes due to gaining access to clean cooking solutions. The sub-sections for IL 1–4 in this annex include information to elaborate on the specific methodology used to estimate the impact data.

IL 1: Number of Averted-Disability-Adjusted Life Years from changes in exposures to household air pollution in target population

ABODE features three input data categories: (1) exposure-related inputs, (2) population-related inputs, and (3) intervention-related inputs. The data sources used in each category to estimate ADALYs and averted deaths from CCA-funded interventions are described below:

1. **Exposure-related inputs.** ABODE's default pre-intervention exposures to $PM_{2.5}$ were used. ABODE includes exposure values estimated by IHME at the country level for women, men, and children, as well as ambient air pollution concentrations. Post-intervention exposures to $PM_{2.5}$ were estimated by applying percentage reductions in household $PM_{2.5}$ pollution described in Pope et al.'s review of household air pollution exposure across different improved and clean cooking interventions.[4]

2. **Population-related inputs.** ABODE's default population-related inputs, such as household size and composition, were used. (These inputs come from the UN Population Division.) In addition, the number of households that received clean cooking solutions was entered for each country.

3. **Intervention-related inputs.** ABODE requires users to indicate what percentage of households that participate in a clean cooking intervention actually adopt the intervention technology. A 100% adoption rate was used because CCA knows that the households included in these calculations purchased a clean cooking technology through CCA's programs. Those who were included in

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2. This is under the assumption that one cookstove equals one household.
3. See IMRS SI 1 for suggested methodology
4. Pope, D., Johnson, M., Fleeman, N., Jagoe, K., Duarte, R., Maden, M., ... & Lewis, J. (2021). Are cleaner cooking solutions clean enough? A systematic review and meta-analysis of particulate and carbon monoxide concentrations and exposures. Environmental Research Letters, 16(8), 083002.

the household survey responded that this clean cooking technology is their primary stove.

IL 2: Change in emissions of climate pollutants from cooking in target population

Greenhouse gases (GHGs) are the primary driver of human-caused climate change. Carbon dioxide (CO_2), specifically, accounts for 76% of global anthropogenic emissions. The use of polluting stoves and fuels to cook is a major driver of GHG emissions due to the unsustainable harvesting of woodfuels. When biomass is harvested and burned for cooking, it releases previously sequestered CO_2. Some of that biomass will be renewed as a forest regrows. However, when woodfuel is harvested at a rate that exceeds the forest ecosystem's ability to renew itself, that harvesting is considered "non-renewable." The harvesting of non-renewable fuelwood is a major driver of climate-warming emissions, causing a net increase of CO_2 in the atmosphere through the emission of approximately one gigaton of carbon dioxide equivalent (CO_2e) per year—the equivalent of around 2% of global emissions.

Per unit of mass, BC has a warming impact on climate that is 460–1,500 times stronger than CO_2. Although black carbon has a lifetime of only days to weeks after release in the atmosphere, during this short period of time it can have significant direct and indirect impacts on the climate, the cryosphere, agriculture, and human health; therefore, reductions of this magnitude are important.

Black carbon particles absorb sunlight, thereby warming the atmosphere. While black carbon remains in the atmosphere for only a short period of time, it falls back to Earth with precipitation, where it darkens the surface of snow and ice and reduces their reflecting power, which contributes to the melting of sea ice and glaciers. More than half of manmade BC emissions come from burning solid fuels for cooking and heating in homes.

Emissions mitigation potential was estimated using the most relevant and high-quality data available, providing realistic yet conservative CO_2e savings estimates. Baseline and intervention stove and fuel types were obtained from the household survey to measure increased access. Useful energy needed per household per year was estimated using data from a Clean Development Mechanism (CDM) methodology, which estimates this to be 6,000 MJ-del per household annually.[5,6] The fraction of non-renewable biomass (fNRB) used was country-specific and estimated from an earlier Bailis et al.[7] work.[8] Technology-specific CO_2 and CH_4 emission factors[9,10] for wood, charcoal and LPG stoves were applied to the respective lower fuel consumption estimate ranges to calculate baseline CO_2e emissions. Thermal efficiency for stove type was taken from an internal CCA repository of stove testing data.[11] Biogas and electric/induction stoves are not widely tested, so their thermal efficiency estimates were taken from Itodo, Agyo, and Yusuf[12] and Cadavid et al.,[13] respectively. Displacement scenarios obtained from CCA-collected survey data of the intervention stoves were applied to estimate the mitigation potential of increased access.

At time of this report's publication, the methodology used to estimate CO_2e reductions due to increased access, *Technologies and Practices to Displace Decentralized Thermal Energy Consumption* (TPDDTEC), is currently available in its

5. This is based on default biomass consumption of 500 kg/capita/year from the Gold Standard TPDDTEC methodology, a thermal efficiency of 15% for 3 stone fire, NCV value of 15.6 (IPCC guideline 2006) and a household size of 5.
6. Review of default baseline assumptions applied in AMS-I.E, AMS-II.G and TOOL30. Clean Development Mechanism, CDM-MP88-A19
7. Bailis, R., Drigo, R., Ghilardi, A., & Masera, O. (2015). The carbon footprint of traditional woodfuels. Nature Climate Change, 5(3), 266–272.
8. fNRBB2 expected was used for countries where deforestation is driven by smallholder agriculture like soy, oil palm, cattle, timber, etc., and fNRBA expected values for countries where deforestation was driven by forces greater than smallholder agriculture, generally in major tropical deforestation hotspots (i.e., Democratic Republic of the Congo).
9. Johnson, M. A., Garland, C. R., Jagoe, K., Edwards, R., Ndemere, J., Weyant, C., ... & Pennise, D. (2019). In-home emissions performance of cookstoves in Asia and Africa. Atmosphere, 10(5), 290.
10. Weyant, C. L., Chen, P., Vaidya, A., Li, C., Zhang, Q., Thompson, R., ... & Bond, T. C. (2019). Emission measurements from traditional biomass cookstoves in South Asia and Tibet. Environmental science & technology, 53(6), 3306–3314.
11. Much of this data is available in the Clean Cooking Catalog, however some is unpublished at the request of the manufacturer.
12. Itodo, I. N., Agyo, G. E., & Yusuf, P. (2007). Performance evaluation of a biogas stove for cooking in Nigeria. Journal of Energy in Southern Africa, 18(4), 14–18.
13. Cadavid, F. J., Cadavid, Y., Amell, A. A., Arrieta, A. E., & Echavarría, J. D. (2014). Numerical and experimental methodology to measure the thermal efficiency of pots on electrical stoves. Energy, 73, 258–263.

Table 9. Intervention Impacts by Country for CO_2e (tons) reduction by year and cumulatively

Country	2019	2020	2021	2022	Cumulative
Bangladesh	0	34	882	1,364	2,280
Cambodia	69	294	1,134	4,560	6,057
Columbia	0	0	23	23	46
Cote d'Ivoire	0	0	6,902	10,587	17,489
DRC	0	805	8,006	16,544	25,355
Ethiopia	0	0	0	18,151	18,151
Ghana	0	0	3,027	6,020	9,047
Haiti	0	0	211	4,514	4,725
India	94	232	133,982	134,949	269,257
Kenya	65,043	889,812	1,791,199	2,126,137	4,872,191
Madagascar	0	0	0	4,067	4,067
Malawi	0	0	0	411	411
Mexico	0	0	0	14,474	14,474
Mozambique	0	0	6,940	12,489	19,429
Nigeria	9	1,677	10,244	40,146	52,076
Papa New Guinea	0	0	0	13	13
Rwanda	0	647	143,394	941,317	1,085,358
Senegal	0	0	8,868	14,191	23,059
Sierra Leone	0	3,208	3,208	6,416	12,832
Somalia	0	141,504	278,456	339,944	759,904
Sudan	0	56	56	112	224
Tanzania	0	3,876	9,055	22,806	35,737
Uganda	540	13,874	39,626	67,411	121,451
Zambia	618	84,755	145,573	174,502	405,448
Zimbabwe	0	0	0	11,388	11,388
TOTAL	66,373	1,140,774	2,590,786	3,969,272	7,767,205

Table 10. Intervention Impacts by Country for BCe (kg) reduction by year and cumulatively

Country	2019	2020	2021	2022	Cumulative
Bangladesh	0	27	756	1,059	1,842
Cambodia	120	511	2,024	4,530	7,185
Columbia	0	0	46	46	92
Cote d'Ivoire	0	0	10,517	13,394	23,911
DRC	0	2,040	20,338	26,028	48,406
Ethiopia	0	0	0	12,373	12,373
Ghana	0	0	5,416	6,047	11,463
Haiti	0	0	440	1,548	1,988
India	123	303	138,093	139,000	277,519
Kenya	51,458	650,576	1,237,954	1,391,787	3,331,775
Madagascar	0	0	0	15,280	15,280
Malawi	0	0	0	1,545	1,545
Mexico	0	0	0	12,831	12,831
Mozambique	0	0	8616	9,449	18,065
Nigeria	10	3,997	24,311	68,060	96,378
Papa New Guinea	0	0	0	37	37
Rwanda	0	444	98,606	340,866	439,916
Senegal	0	0	10,465	11,227	21,692
Sierra Leone	0	5,555	5,555	11,110	22,220
Somalia	0	124,051	244,112	250,899	619,062
Sudan	0	66	66	132	264
Tanzania	0	7,459	17,236	21,018	45,713
Uganda	421	10,799	30,842	69,962	112,024
Zambia	1,085	118,386	204,116	208,782	532,369
Zimbabwe	0	0	0	3,098	3,098
TOTAL	53,217	924,214	2,059,509	2,620,108	5,657,048

Table 11. Intervention Impacts by Country for woody biomass (kg of wood) use averted by year and cumulatively

Country	2019	2020	2021	2022	Cumulative
Bangladesh	0	-7	668	1,076	1,737
Cambodia	114	475	1,874	9,294	11,756
Columbia	0	0	43	43	86
Cote d'Ivoire	0	0	-2,554	4,432	1,878
DRC	0	-467	3,044	20,044	22,621
Ethiopia	0	0	0	13,098	13,098
Ghana	0	0	-1,315	6,539	5,224
Haiti	0	0	407	4,488	4,895
India	114	280	152,069	153,468	305,931
Kenya	32,679	76,854	373,484	668,834	1,151,852
Madagascar	0	0	0	1,667	1,667
Malawi	0	0	0	169	169
Mexico	0	0	0	19,734	19,734
Mozambique	0	0	-2,092	8,268	6,176
Nigeria	11	-969	-5,089	74,778	68,730
Papa New Guinea	0	0	0	4	4
Rwanda	0	-106	-23,935	719,440	695,399
Senegal	0	0	-2,541	6,944	4,403
Sierra Leone	0	-1,349	-1,349	-2,698	-5,395
Somalia	0	-30,122	-59,274	25,173	-64,223
Sudan	0	13	13	26	51
Tanzania	0	-1,631	-3,726	32,803	27,446
Uganda	-102	-2,622	-7,371	-282	-10,377
Zambia	246	-21,829	-36,068	21,988	-35,662
Zimbabwe	0	0	0	38,548	38,548
TOTAL	**33,061**	**18,522**	**386,286**	**1,827,880**	**2,265,750**

Table 12: Time savings by year (hours/year, rounded to the nearest hour)

Year	Improved Biomass (wood)	Transitional (charcoal)	Clean (biogas, electric, ethanol, LPG, and pellets)	Cumulative
2019	58,393	8,611,324	1,921,687	10,591,403
2020	471,600	77,794,377	13,170,735	91,436,712
2021	14,760,389	164,451,685	44,343,414	223,555,488
2022	15,463,057	293,364,705	176,333,909	485,161,671
TOTAL	**30,753,439**	**544,222,091**	**235,769,745**	**810,745,275**

Table 13: Monetized time savings by year (US$/year, rounded to the nearest dollar)

Year	Improved Biomass (wood)	Transitional (charcoal)	Clean (biogas, electric, ethanol, LPG, and pellets)	Cumulative
2019	$10,832	$1,597,401	$356,473	$1,964,705
2020	$87,482	$14,430,857	$2,443,171	$16,961,510
2021	$2,738,052	$30,505,788	$8,225,703	$41,469,543
2022	$2,868,397	$54,419,153	$32,709,940	$89,997,490
TOTAL	**$5,704,763**	**$100,953,198**	**$43,735,288**	**$150,393,249**

fourth version (revised July 10, 2021) from the Gold Standard Foundation (Gold Standard).

At time of this report's publication, the methodology used to calculate black carbon equivalent (BCe) reductions due to increased access, *Quantification of climate related emission reductions of Black Carbon and Co-emitted Species due to the replacement of less efficient cookstoves with improved efficiency cookstoves*, is currently available from Gold Standard and is reported in kg of BCe.

IL 3: Change in metric tons of biomass used annually for cooking in target population

To estimate the woody biomass consumed per household per year, the useful energy needed per household per year, the net calorific value (NCV) of the fuel, and the thermal efficiency of the stove, Water Boiling Test (WBT) data was used.[14]

Country level details of woody biomass use averted are provided in Table 11 by year and cumulatively.

IL 4: Change reported by women in time spent engaged in productive and/or leisure time since the introduction of clean or more efficient fuels or technology.

Jeuland and Tan Soo (2016) utilized peer-reviewed studies and non-academic sources related to improved cookstoves to put together a cost-benefit analysis for four types of stoves: improved wood, improved charcoal, LPG, and electric. For this indicator's purposes, CCA will be only using a modified version of the time savings equation. Jeuland and Tan Soo's analysis uses Equation 1 as part of the benefits

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14. The calculations are as follows: Woody biomass consumed = Useful energy needed per HH per year (MJ/HH/YR) / [(net calorific value of the fuel (MJ/Kg)) x (thermal efficiency of the stove (%))].

of switching to clean cooking solutions for time savings. However, CCA modified Equation 1 to adapt for wood users (Equation 2) and other fuel users (Equation 3) because Equation 1 does not account for the relative fuel efficiency of the stove for wood users nor the fraction of fuel collected. Based on the adaptation of this method, CCA has used the Global Mid values, also provided in Jeuland and Tan Soo's report, and will look to refine this method for future reports with more robust data inputs.

Finally, CCA used Equations 4 and 5 to quantify the monetary savings per month by adding back in the opportunity cost of time (vt) variable.[15]

Equation 1 (original):

$Timesav = 30 * time_0 * x * (1-te_i) * v^t$, where:

- $time_0$ is average daily cooking time with traditional stove (hrs/day)

- x is rate of use of non-traditional stove (%)

- te_i is time efficiency of stove i relative to traditional stove

- v^t is the opportunity cost of time where $v^t = k^t * W$; k^t is the shadow value of time spent cooking (fraction of market wage) and W is the unskilled market wage (US/hr)

Equation 2 (adapted for wood stove users):

$Timesav = 30 * x * (time_0 * (1-te_i) + collt_0 * (1-f) * fe_i)$, where:

- $collt_0$ is the average daily wood fuel collection time (hrs/day)

- fe_i is the relative fuel efficiency of the stove

- f is the fraction of fuel collection

Equation 3 (adapted for all other users):

$Timesav = 30 * x * (time_0 * (1-te_i) + collt_0 * (1-f))$

Equation 4 (for wood stove users):

$Timesav = 30 * v^t * x * (time_0 * (1-te_i) + collt_0 * (1-f) * fe_i)$

Equation 5 (for all other users):

$Timesav = 30 * v^t * x * (time_0 * (1-te_i) + collt_0 * (1-f))$

Universal Access SI

The only UA SI relies on publicly available data reported on by the World Health Organization (WHO) in the ESMAP tracker for data collection and reporting.

Clean Cooking Industry SI

All three CCI SI use the data from the CCA's annual Enterprise Survey. As mentioned earlier in this report, this survey was conducted in Q2 2023 and was sent to 166 contacts in CCA's and its partners' networks. Many of these contacts overlapped and worked at the same enterprise, which relieved the reporting burden from any one contact and helped ensure the survey would be completed. A total of 64 enterprises responded to the survey, of which 51 were eligible for inclusion. (Companies need to be for-profit and directly or indirectly selling clean or improved cooking products to customers living in developing countries to be considered part of the industry.) The number eligible for inclusion in 2023 is a slight drop from the previous report (58 enterprises previously); however, seven companies became inactive in that time, and CCA added an additional three contacts to their partner network.

Clean Cooking Enterprises SI

The data for the 10 CCE SI, particularly CCE 1–8, were also collected through the Enterprise Survey, which had custom questions for the 27 CCA-supported enterprises. Data collection took place in Q2 2023, with support from the CCA team members who work directly with these enterprises. Relying on these relationships helped ensure timely and accurate responses from enterprises.

Consumer Demand SI

The data for the three CD SI report on the consumer demand generation work CCA does in its various programs and rely on surveys administered by third parties hired for this purpose. This report does not contain any data on these SI.

Enabling Environment SI

All six EE SI involve internal tracking by CCA. In 2022, CCA's MEL team worked with relevant team members to create two web-based forms to collect data on these SI. The first form captured data on some of EE and REL SI more systematically.

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15. Table 12 shows the time savings breakdown by year and technology type for hours saved per year (Equation 2 and 3). Table 13 shows the same savings as Table 12, but translated into monetized benefits reflected in Equation 4 and 5.

Representatives from all CCA teams completed this form. The second form was developed to capture events data for EE4 and event attendees' data for EE3 and was completed by all CCA teams that organized events in 2022. The MEL team will consider consolidating the two forms into a single form in 2023 to further streamline internal data collection processes.

Research, Evidence, and Learning SI

All four of the REL indicators involve internal tracking by CCA. CCA's MEL team worked with relevant team members to create a web-based form to collect data for the REL SI (and some of EE SI as explained above). Representatives from all CCA teams completed this form to ensure that complete data were provided for all REL SI.

SI Data Analysis

The MEL team reviewed the collected SI data for accuracy and completeness, with steps taken as necessary to improve data quality. For example, data that came from the Enterprise Survey were sometimes found to be incomplete and efforts were made to go back to the enterprises for clarification. The MEL team calculated the indicator values, including any applicable disaggregation, after the SI data were considered final. The MEL team also reviewed the indicator definitions and the values from 2020 and 2021 reports to carefully calculate the values for 2022, accounting for any major differences and providing explanations where relevant. Data were also used to assess elements of the Framework itself, evaluating which data were difficult to obtain and/or did not add value. In 2022, CCA worked with OrangeHouse, LLC, an external firm specializing in data management, to automate some of the analysis for the SI, especially for CCE SI.

Annex C. MEL Framework Implementation Workplan

Table 14. MEL Framework implementation plan (2020–2023)

	2020		2021				2022				2023			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
SI data collection: CCA internal tracking	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SI data collection: Industry Snapshot Survey & Supported Enterprises Survey		●	●			●				●	●			
SI data management and analysis		●	●			●				●	●			
CCA-wide learning activities	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Clean Cooking Systems Strategy Implementation								●	●	●	●	●	●	●
Learning Agenda Development and Implementation								●	●	●	●	●	●	●
MEL Framework reporting			●				●				●			●
Evaluations									●	●				

Annex D. Indicator Methodology Reference Sheet (IMRS) Example

The detailed IMRS enumerating data sources, data providers, data collection methods, etc. for each SI can be found here. Below is an example IMRS for reference.

Table 15. IMRS example

Indicator name	**CCE1. US$ revenue of supported enterprises**
Theory of Change component	**Indicator measuring:** Support the growth of clean cooking enterprises
Disaggregation	None
Indicator definition	**Revenue:** Monetary inflows to the enterprise, including grants, awards, donations, and earned revenue such as sales revenue for goods and services (including carbon finance and results-based financing). The revenue calculation should include only deductions for returned merchandise.
	Supported enterprises: Entities that are part of the clean cooking value chain and focus on industrially produced cookstoves, processed fuels for cooking, or other devices associated with the use of cookstoves or fuels, such as pay-as-you-go meters. ("Supported" means to have received funding or technical assistance from the Clean Cooking Alliance.)
Rationale and learning questions for indicator	Measures the growth of supported enterprises and of markets within the clean cooking sector. The disaggregation provides insight into the success of enterprises in balancing income from their business operations with grants, an indicator of their resilience and sustainability.
	Learning question: How robust is the economic health of the clean cooking industry?
Provider of primary data	The supported enterprise
Primary unit of measure	US$
	Please use the UN Operational Rates of Exchange for December 31st of the reported year.

Measurement interval (primary data)	January 1 to December 31 If partial year data, start with earliest available date and record start date explicitly. Data should be collected covering the year before support, for every year the enterprise is supported, and for up to three years after support when feasible.
Methods for primary data collection	Continuous comprehensive tracking of all revenue sources, including data necessary to meet disaggregation requirements within the required reporting interval. Enterprises must ensure record-keeping is adequate to support reported numbers.
Sources for primary data	Best practice is for the supported enterprise to generate data from an electronic accounting system. Other sources can include sales logs, purchase order records, copies of sales receipts, and full records for all monetary grants, loans, investments, awards, and donations.
Reporter of aggregated data	Not applicable
Aggregated unit of measure	The Clean Cooking Alliance
Reporting frequency (aggregated data)	US$
Sources for aggregated data	Annually
Guidance for estimation/ analysis	The source for the aggregated data will be the output of the collected primary data for this indicator.
Known data limitations	CCA will aggregate the primary revenue data from each enterprise to report on this indicator.
Known data limitations	Non-monetary loans, equity investments, and support are not included. Revenue alone is not an indicator of profitability or financial sustainability. Data accuracy is dependent on the willingness and ability of supported enterprises to provide robust timely primary data.
Other considerations and related links	

Annex E. Learning Agenda Components

The learning agenda's first component includes prioritizing and answering a set of key organizational long-term questions within a strategic timeframe (2023–2030).

CCA will compile a preliminary list of long-term questions through the following process:

- Review questions in CCA's programs and projects workplans, AIPs, and learning plans to incorporate:

  - Questions that address gaps in CCA's Theory of Change and strategy and that address CCA's programs and projects main objectives and outcomes.

  - Questions that address shifts in CCA's strategy and programmatic work and projects.

- Incorporate pertinent questions addressed in external evaluations of CCA's work.

- Consult with CCA's leadership and team leads to develop additional questions.

- Consult with CCA's partners, donors, and stakeholders to solicit additional questions.

CCA's leadership, teams leads, and the MEL team will jointly finalize a set of prioritized long-term questions based on the following criteria:

- Have the highest value in addressing gaps in the sectors knowledge, CCA's Theory of Change, strategy, and the programs and projects objectives and outcomes.

- Provide the highest overall value based on the following:

  - How learnings from questions will be used by CCA.

  - How learnings from questions will influence clean cooking markets transitions.

  - Critical demand to address the question in the clean cooking ecosystem.

CCA will determine a sequence for answering the questions based on budgets and timeframes, including whether:

- CCA teams have allocated budgets to address any questions requiring a short timeframe.

- CCA teams have allocated budgets to address any questions requiring a longer timeframe.

- CCA's programs and projects budgets or CCA's organizational budget can be allocated to address any questions requiring either a short or longer timeframe.

- Additional donor funding is required to address any questions requiring either a short or longer timeframe.

The MEL team will oversee the progress in answering the prioritized questions and will annually update the list of questions as the need for other questions emerges. In addition, there will be continuous interaction between the LA Committee and the CCA teams to ensure that any future questions addressed by the teams as part of their workplans and learning activities are aligned with the prioritized long-term questions. This will help to ensure that CCA's programs and projects are coordinated with component I of the learning agenda, and further help CCA teams to allocate budgets to address any prioritized long-term questions.

The learning agenda's second component includes a system to track and monitor the prioritized long-term questions (component I) and other CCA teams' learning activities; and host their learning outputs The following will be included for each learning activity in the learning system:

- A summary document.

- Learning and knowledge outputs (e.g., reports, PPTs, analytical summaries).

- Documents and presentations on how teams have acted on the learnings.

CCA teams will be responsible for developing plans to disseminate and act on the learnings from their learning activities. Guidelines and resources will be provided to aid the teams in these areas (component III). The learning system will be implemented iteratively to become a platform that serves as a repository of CCA's learning activities and a resource for CCA teams.

The learning agenda's third component will support CCA teams with guidelines and resources for their learning activities. Examples of guidelines to be provided to CCA teams include:

- When to conduct learning activities (e.g., for large programs and projects, when a new or novel approach or strategy is incorporated which CCA has not employed before).

- Budgeting for learning activities.

- Disseminating and acting on learnings.

Examples of categories of resources to be compiled and shared with CCA teams include:

- Processes for developing learning questions, key learning questions to ask, and methodologies to answer the learning questions.

- Types of learning/knowledge products and their appropriate uses.

- Mechanisms to act upon learning.

- Best learning practices of international NGOs.

The MEL team will administer a survey to CCA teams to solicit information on the guidelines and resources they need for their learning activities and solicit annual feedback.

Annex F. Theory of Change

At the time that data was collected for this MEL Framework 2022 report, CCA was utilizing its Theory of Change (ToC) that was developed in 2019 under the organization's early Monitoring and Evaluation Framework. In the Fall of 2023, CCA unveiled a new ToC that reflects CCA's adoption of a holistic systems approach to building the clean cooking ecosystem. CCA's new ToC is a comprehensive roadmap illustrating the organization's strategic approach towards achieving its mission of universal access to modern, affordable clean cooking solutions. It reflects CCA's current activities and the theory behind how those activities lead to universal access and ultimately, to empowered women, improved livelihoods, reduced climate and environmental impacts, inclusive economic growth, and improved health.

In late 2023, CCA began conducting an internal assessment of its organizational-level standard indicators with the intent to develop stronger feedback loops and learning associated with its ToC. The MEL Framework 2023 Report will reflect these changes.

See Figure 24 for CCA's new Theory of Change.

CLEAN COOKING ALLIANCE

Theory of

WHAT MAKES CCA DIFFERENT:

The Clean Cooking Alliance takes a holistic systems approach to building the clean cooking ecosystem.

OUR WORLDVIEW
- CCA believes in self-determination for governments and individuals.
- CCA prioritizes justice and equity, recognizing the fundamental right for all to cook with healthy, safe, and affordable solutions.

OUR APPROACH
- CCA is a learning organization with a multidisciplinary team, using insights gained to evolve our programs.
- CCA strives for long-term, exponential growth in clean cooking access.
- CCA is stove and fuel agnostic, supporting a full suite of context-specific clean cooking transitions.
- CCA focuses on a single issue—clean cooking—with a broad toolkit of activities.

OUR ROLE
- CCA is the global steward of the clean cooking ecosystem.
- CCA delivers an outsized impact by capacitating our global network of partners.

Visit CCA at cleancooking.org for more information.

CONDUCT RIGOROUS RESEARCH AND GENERATE ROBUST EVIDENCE. TRANSLATE EVIDENCE INTO ACTION.

ACTIVITIES

TRANSFORMATIVE GOVERNANCE
- Establish and support national Clean Cooking Delivery Units
- Deliver top-tier technical and policy advisory support
- Establish and promote global standards, testing facilities, and testing procedures

ENTERPRISE EMPOWERMENT
- Deliver grant funding, technical assistance, and partnership facilitation to pioneering clean cooking enterprises
- Uncover and disseminate insights on barriers and opportunities to scale business models

INNOVATIVE FINANCING
- Develop and promote market infrastructure including shared norms, standards, and carbon methodologies
- Develop partnerships with financial institutions to design and deploy new financing structures
- Generate and disseminate leading market intelligence

USER CENTRICITY
- Conduct human-centered design and behavioral science research to uncover user insights
- Develop case studies, tools, and marketing plans to integrate customer insights into the ecosystem

GLOBAL OUTREACH AND INFLUENCE
- Elevate clean cooking within global dialogues and steward a functioning global ecosystem of actors
- Advocate for the prioritization of clean cooking in adjacent sectors to activate new leaders
- Deliver targeted communications and engagement

Figure 24. Theory of Change

Change

Globally, 2.3 billion people still lack access to clean cooking. The Clean Cooking Alliance is a global organization that enables, influences, and accelerates local transitions to clean cooking solutions according to the following Theory of Change.

OUTCOMES

IMPACT

BUILD POLITICAL COMMITMENT AT THE HIGHEST LEVELS OF GOVERNMENT

STRENGTHEN GOVERNMENT CAPACITY TO ENHANCE POLICIES

Governments activate and foster ambitious local clean cooking transitions.

STRENGTHEN AND DEMONSTRATE MARKET VIABILITY

UNLOCK AND DIVERSIFY FUNDING

Clean cooking markets are thriving, diverse, competitive, and are serving users.

THE GOAL

Universal access to modern, affordable clean cooking solutions.

CATALYZE USER-CENTERED SOLUTIONS AND APPROACHES

The ecosystem is collaborative, resilient, and supportive of continued sector advancement.

GLOBAL INSTITUTIONS MAINSTREAM CLEAN COOKING INTO THEIR AGENDAS AND ALLOCATE FUNDING
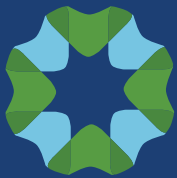
Empowered women

Improved livelihoods

Reduced climate and environmental effects

Inclusive economic growth

Improved health

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