Final report

February 10th 2023

Review of the Norwegian support to Clean Cooking Alliance 2019-2021

SAKSNR. 1900902 X-REF 2100697

DEM

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List of abbreviations

AEF	Africa Europe Foundation
AEPC	Alternative Energy Planning Centre (Nepal)
BSP-N	Biogas Sector Partnership Nepal
CAP	Country Action Plan
CCA	Clean Cooking Alliance
CCAK	Clean Cookstoves Association of Kenya
CCE	Clean Cooking Explorer
CCT	Conditional cash transfers
CEO	Chief Executive Officer
CFDP	Community Forestry Development Project (Nepal)
CO2	Carbon dioxide
COP27	United Nations Climate Change Conference 27
DAC	Development Assistance Committee (a group of countries with OECD)
DC	Demand Catalyst
DGIS	Dutch Ministry of Foreign Affairs
DUN	Delivery Units Network
ECF	Ethanol cooking fuel
EnDev	Energising Development
ESG	Environmental, Social, and Governance (standards for sustainability)
ESMAP	Energy Sector Management Assistance Program
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FP2030	Family Planning 2030
GACC	Global Alliance for Clean Cookstoves (previous name of the CCA)
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoN	Government of Nepal
ICIMOD	International Centre for Integrated Mountain Development
ICS	Improved cooking stoves
IEA	International Energy Agency
IRENA	International Renewable Energy Agency
ISO	International Organization for Standardization
Kg	Kilograms
KNBS	Kenya National Bureau of Statistics
KOSAP	Kenya Off-Grid Solar Access Project
KSh	Kenyan shilling
kWh	Kilowatt hour
LPG	Liquified Petroleum Gas
MC	Market Catalyst
MECS	Modern Energy Cooking Services
MEL	Monitoring, evaluation and learning
MG	Mini Grids
MoEWRI	Ministry of Energy, Water Resources, and Irrigation (Government of Nepal)
MoF	Ministry of Finance (Government of Nepal)
MoU	Memorandum of Understanding
NDC	Nationally Determined Contributions

NEFCO	Nordic Environment Facility Cooperation
NGO	Non-Governmental Organisation
NICSP	National ICS Programme (Nepal)
NOK	Norwegian Krone
Norad	Norwegian Agency for Development Assistance
NPC	National Planning Commission (Nepal)
NREP	National Renewal Energy Program (Nepal)
OECD	Organisation for Economic Co-operation and Development
RBF	Results-Based Financing
RBFA	Results Based Financing Accelerator (renamed to the Catalytic Finance Accelerator)
RoK	Republic of Kenya
RVO	Netherlands Enterprise Agency
SDG	Sustainable Development Goals
SE4All	Sustainable Energy for All
SEFA	Sustainable Energy Fund for Africa
SHS	Solar home system
SSN	SouthSouthNorth
ToC	Theory of Change
ToR	Terms of Reference
UIL	User Insights Lab
UN	United Nations
UNF	United Nations Foundation
UNFCCC	United Nations Framework Convention on Climate Change
UNSD	United Nations Statistics Division
USD	U.S. Dollar
VAT	Value Added Tax
VC	Venture Catalyst
WHO	World Health Organization

EXECUTIVE SUMMARY

The Clean Cooking Alliance (CCA) is the central actor in the clean cooking sector or clean cooking ecosystem. It has received core funding from the Norwegian Development Agency (Norad) to serve in this capacity in the period 2019-2022. This review sees CCA playing two roles: One as **convener and advocate** for the clean cooking sector and one as supporting **market building** of clean cooking in developing countries. In this capacity, CCA convenes the stakeholders, advocating for the sector, supporting research that connects science to policy, capacity building stakeholders, supporting clean cooking companies with technical assistance and small grants, supporting governments, multilateral organisations, and private investors to engage in clean cooking. There is no other entity on the global scene that fulfils this role.

One of the most critical contributions CCA has made to the sector in this period has been its strategy process which was a response to a recommendation from the previous review by Norad in 2018. Despite COVID-19, CCA managed to conduct a participatory process involving more than 200 stakeholders in the sector, which is viewed as a success by most people interviewed during this review.

Most interviewees see the sector (or the ecosystem) as less siloed now, not only in terms of less division within the industry but also towards other sectors such as finance. CCA has played a big part in that change, and the strategy process has helped lay a foundation for that.

Assuming a neutral role, CCA strategically focuses on areas where it can make the most impact. Several initiatives currently being pursued were developed through the strategy process where CCA mapped out the sector and subsequently translated the findings and priority areas into its annual implementation plans.

Stakeholders generally view CCA as the best party to represent clean cooking as many other actors, such as ESMAP and SE4All also promote access to electricity. In its capacity as a representative of clean cooking, CCA participates in multiple global initiatives, like the climate summits, where it is experiencing increased interest in the issue. Stakeholders in the ecosystem agree that CCA has raised the sectors profile and created traction.

Access to clean cooking is increasing globally but by far with the pace needed to reach universal access by 2030 as set out in the Sustainable Development Goals. Companies selling clean cooking solutions face many difficulties of which the most important one is a lack of equity financing. CCA's most significant contribution to fulfilling this need has been the creation of the Spark+ Africa fund, the world's first impact investment fund dedicated to clean cooking.

CCA's Market Strengthening program bundles most of its other market building activities and the activities are generally appreciated by the companies supported. Of the current market building activities in CCA's portfolio are the User Insights Labs, which seeks to understand user adoption better; the Catalytic Finance Accelerator, which is an initiative that aims at unlocking investments to clean cooking; and the Delivery Units Network, which aims to create dedicated clean cooking units within national governments in developing countries.

Norad has several engagements to promote access to clean cooking. This review finds that the core funding given to CCA in this period, has added unique value to the clean cooking sector as a whole and, thus, has added value to all Norad's engagements in clean cooking. Especially the long-term nature of the support and flexibility given to define activities annually has been essential for CCA's ability to go through with the consultative strategy process and subsequently implement the initiatives that came out of that process.

1. INTRODUCTION

Like money, we do not have a direct need for energy; we use energy to satisfy all other needs. Energy for cooking is the most basic and most important need for energy shared by all people on this planet. However, we do not all share equal access to clean energy for cooking. 2.4 billion people worldwide rely on traditional biomass fuels to prepare their food, and the potential health benefits and climate mitigation impact of transitioning these people to modern and clean cooking solutions are staggering: 3.2 million deaths and 1 Giga tonnes of CO_2 emissions could be avoided per year.

The recognition of the urgency of the issue led to the creation of the Global Alliance for Clean Cookstoves in 2010, an organisation today called the Clean Cooking Alliance (CCA). In 2015, the importance of clean cooking was also recognised in the Sustainable Development Goals which include reaching universal access to clean cooking fuels by 2030[1]. However, advancement in this area is far from sufficient to achieve this ambitious goal. Between 2015-2020, access to clean cooking fuels has only advanced from 63% to 69%. By comparison, access to electricity has increased from 87% to 91%[2]. Globally, a more substantial commitment to promote clean cooking is needed, which does not necessarily need to be made at the expense of advancements in other areas like access to electricity, but in conjunction with improvements in energy goals generally, health, climate, gender, and food security among others.

This report reviews the Norwegian support of the Clean Cooking Alliance in 2019-2021, including recent developments in 2022. The Norwegian Agency for Development Assistance (Norad) commissioned it as a follow-up review to a similar evaluation conducted on Norwegian support in 2015-2017. Since the beginning of 2010, Norway has been among the most substantial donors of the CCA and remains so to this day.

Like any other review of an ongoing activity, the purpose of this review is to evaluate if the CCA is making progress, is effective, is making an impact, is efficient, and to provide recommendations to the CCA and Norad for improvement. Due to the urgency to take action on the clean cooking issue, Norad would also like to increase the commitment from other international donors. We have therefore included this aspect in the report as well by providing recommendations to other international donors interested in engaging strongly in promoting access to clean cooking.

This report is structured into the following chapters:

1. Introduction

2. The context provides a basic understanding of clean cooking, the current global situation, the purpose of the CCA, and the achievements gained from its relationship with the Norwegian Government and Norad.

3. The assignment describes how we, as reviewers, have carried out this assignment in terms of methodology and approach, including a description of the evaluation questions and timeline of this review.

4. Analysis and findings are the central piece in this report where observations, findings, and recommendations are presented. This chapter is organised based on the primary expected outcomes of the Norwegian support to CCA formulated as i) Universal access to clean cooking by 2030 and ii) Building a dynamic, financially sustainable clean cooking industry. These formulations should not be understood literally: It is not expected that CCA will attain universal access by 2030 on its own or that CCA can build a clean cooking industry. CCA has taken the role of "thought leader" or "steward" of the ecosystem. During this review, other formulations such as "the face of the sector," "information spreader", or "convener of the

[1] Indicator 7.1.2 is the proportion of population with primary reliance on clean fuels and technology.

[2] Ritchie, R. M. O.O. (2018). Measuring progress towards the Sustainable Development Goals. sdg-tracker.org

sector" have been used by people interviewed to express a similar perception of the role CCA is playing in contributing to universal access to clean cooking.

The sub-chapter: **4.1 CCA as a convener and advocate for clean cooking** describes how CCA works as a "thought leader" for the sector. In comparison, **4.2 CCA as a market builder** describes CCA's support to clean cooking companies both through direct support in various forms and indirectly by addressing policy level market-related questions such as duties and VAT at the country level and assisting investors with tools and information.

The following two subchapters describe **CCA's engagement in Kenya** and **4.4 CCA's engagement in Nepal,** which zoom in on the activities and impacts of CCA's work in these two countries. The subchapters include descriptions of country contexts more generally to understand better the importance of CCA's contributions and, equally important, the range of clean cooking-related issues that are not addressed by CCA, whose role is primarily to be a global-level initiator.

The last subchapter, **4.5 Efficient use of the Norad grant**, bundles a variety of efficiency-related questions ranging from the financial management of the Norwegian funding to monitoring and evaluation practices and how CCA responded to COVID-19 which had a significant effect on the way CCA worked in 2020 and 2021.

5. Conclusion and **6. Recommendations** include summaries of the findings and recommendations presented in chapter 4 in a more condensed and structured form that concludes on the four main evaluation questions for this assignment:

1. What has the progress against outcomes set out in the cooperation agreement with Norway 2019-2021 been?
2. To what extent have recommendations from the previous review been incorporated?
3. To what extent is CCA acting as an ecosystem leader for clean cooking?
4. What is the added value of CCA as a development partner for Norway?

Interested readers, who do not have the time to digest a 40-page evaluation report, can jump to the conclusion for an abridged version of the main messages in this report and focus on the recommendations for international donors to inspire on how they can improve their engagement in increased access to clean cooking.

This report only expresses the evaluators' viewpoints and not those of Norad nor CCA.

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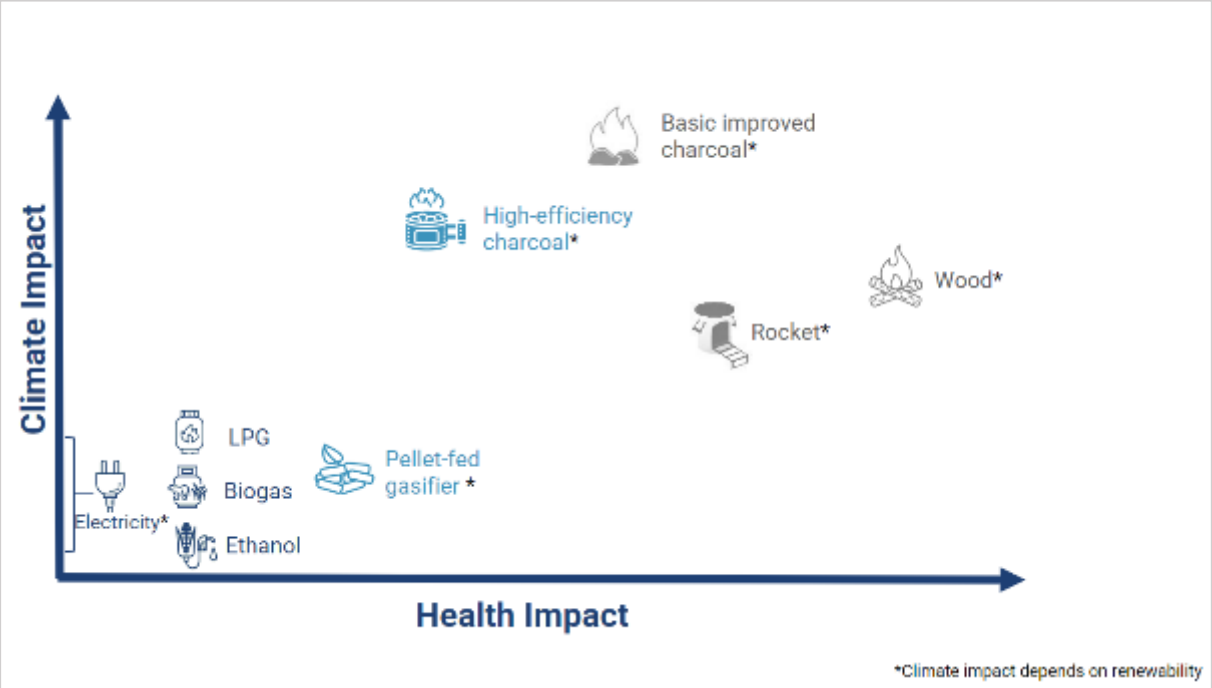
2. THE CONTEXT

Access to clean cooking is part of the first target under Sustainable Development Goal 7 – "Ensure access to affordable, reliable, sustainable, and modern energy for all". The other indicator concerns access to electricity.

Clean cooking is composed of a range of different cooking technologies that can be clean on different dimensions; here "clean" in terms of a few polluting particles and "clean" in terms of low CO_2 emissions are the two most important. The cooking solutions that use electricity, gaseous fuels (LPG or biogas) and ethanol are by far considered the cleanest, and these are measured statistically as "clean cooking fuels and technologies," also referred to as "modern cooking solutions." In addition, the best wood pellet stoves are considered equally clean. "Transitional cooking solutions" or "improved cookstoves" is a term often used to describe clean cooking solutions that use wood or charcoal, like open fires and rudimentary stoves but are more efficient and less polluting. Compared to the cleanest cooking solutions, this technology category is more affordable and, therefore, more accessible to a considerable proportion of the world's population.

Figure 1: Overview of cooking solutions in terms of health and climate impacts



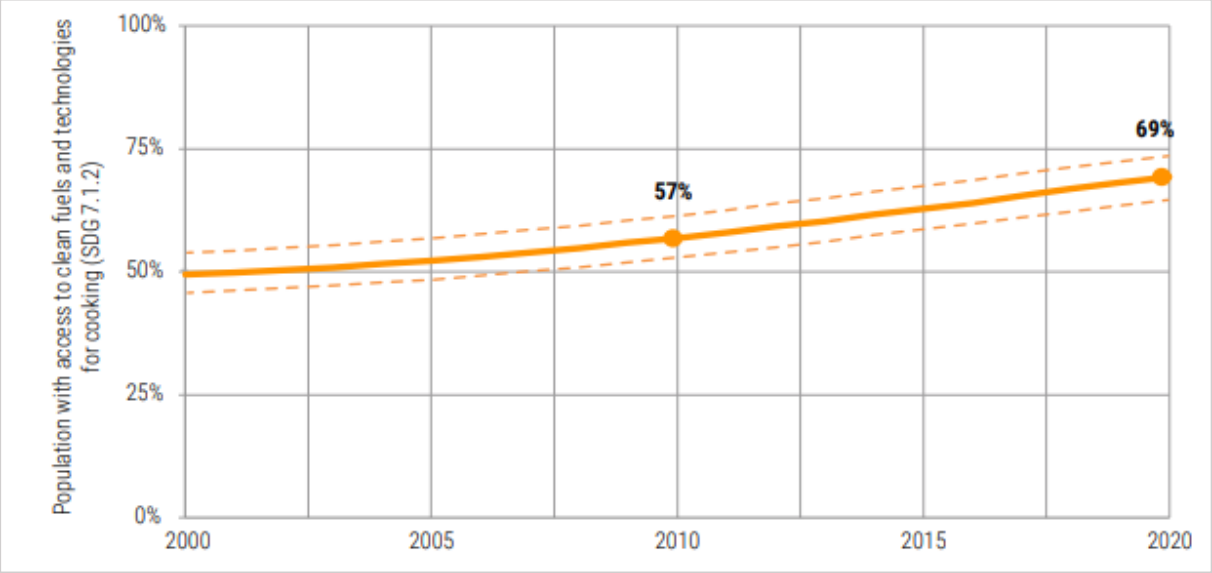
Source: Clean Cooking Alliance

2.1 Access to clean cooking globally

2.4 billion people use open fires[3] or rudimentary stoves that burn solid fuels such as wood, animal dung, and charcoal to cook their food. This is time-consuming and inefficient, generates black carbon emissions[4], and causes nearly 3.2 million deaths annually.[5] Therefore, there are numerous reasons to support this cause.

In the SDG7 tracker, the World Health Organization (WHO) reports on the Sustainable Development Goal (SDG) indicator that evaluates access to clean cooking. The most recent available data for this indicator (SDG 7.1.2: Percentage of the population with primary reliance on clean fuels) is from 2020, indicating that, unlike the goal relating to access to electricity, the cookstove and fuels sector is lagging, unable to keep pace with population growth, and is far from achieving universal access to clean cooking by 2030 (see Figure 2 below). If the current trend continues, 2.3 billion people will continue to cook in traditional ways in 2030.

Figure 2: Percentage of the global population with access to clean cooking fuels and technologies



Source: SDG7 tracker.

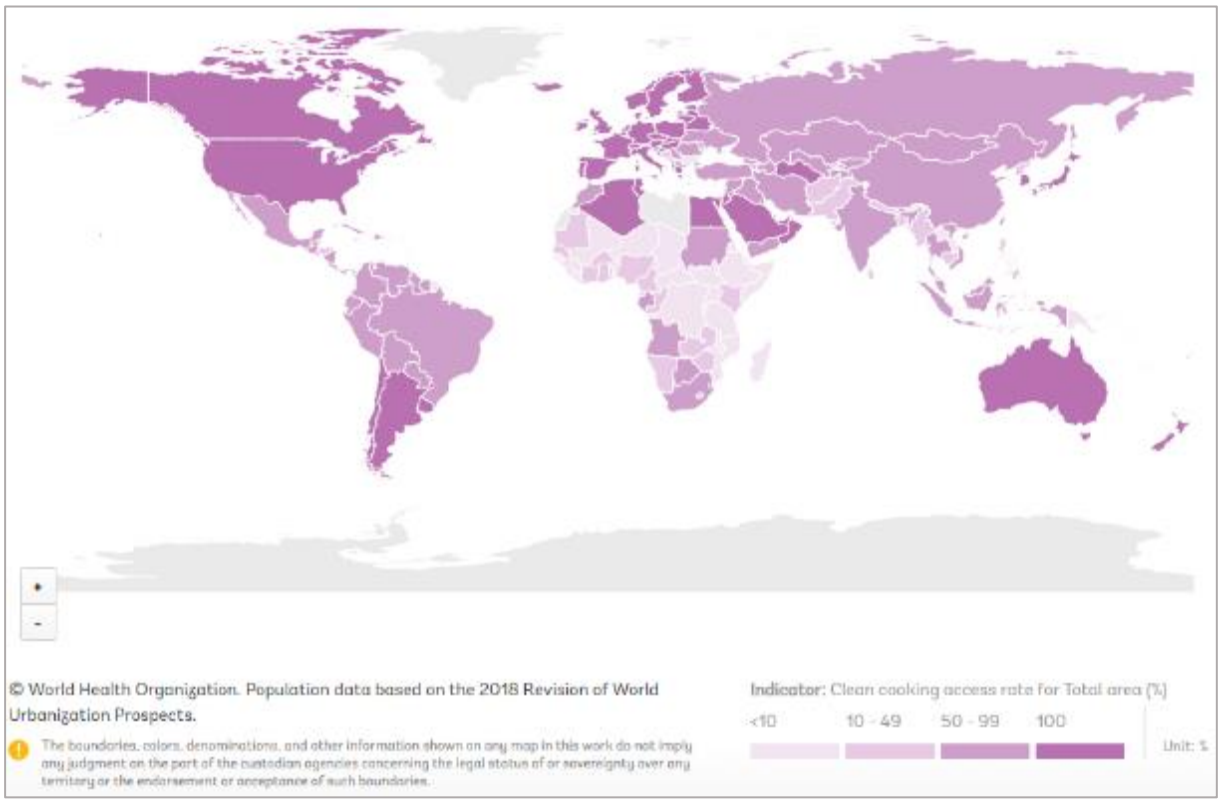
It is in the developing countries, the low-income and – to a lesser extent – middle-income countries, that lack of access to clean cooking is most widespread. Figure 3 below illustrates the global divide in access to clean cooking fuels.

[3] IEA, IRENA, UNSD, World Bank, WHO (2022)

[4] Household fuel combustion leads to over 50% of man-made black carbon emissions according to the latest figures from the Climate Clean Air Coalition (www.ccacoalition.org)

[5] IEA, IRENA, UNSD, World Bank, WHO (2022)

Figure 3: Percentage of the population with access to clean cooking fuels and technologies



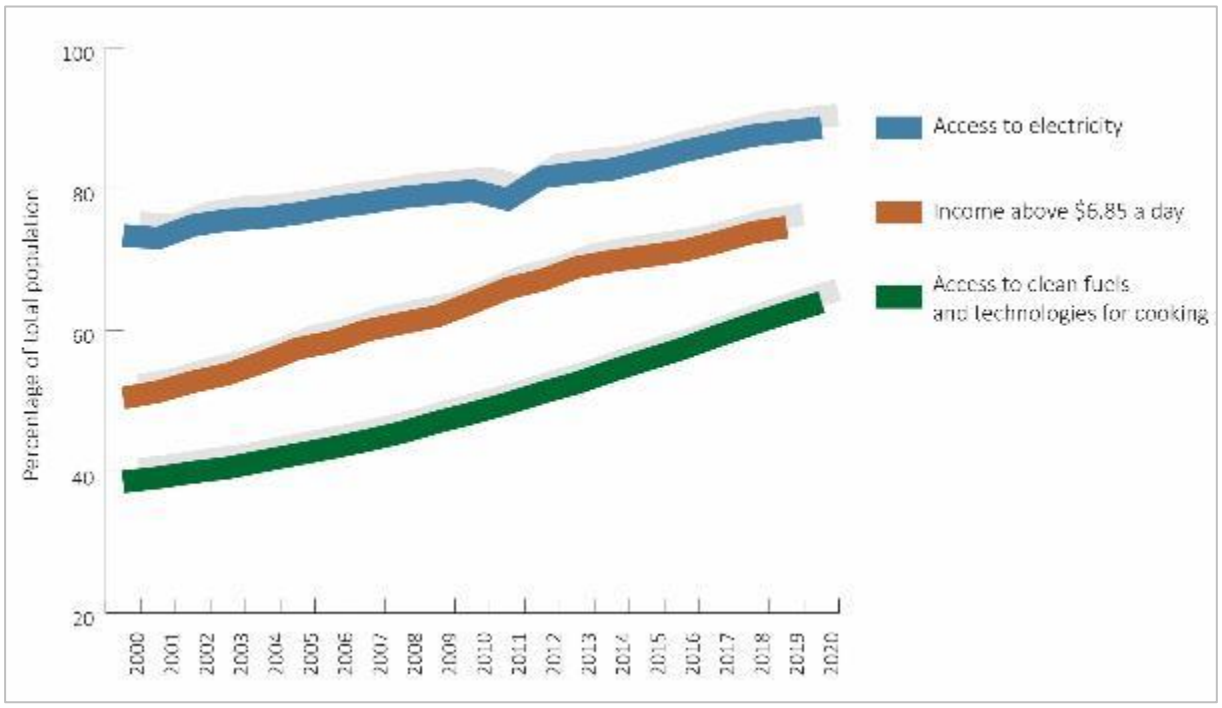
Source: https://trackingsdg7.esmap.org

While all development indicators are less progressed in developing countries than in developed countries, access to clean cooking is a special case, lagging behind the progress made in other areas. Figure 4 below compares the development in access to electricity and access to clean cooking fuels in low- and middle-income countries during the last 20 years, showing the progress of both: While access to electricity is on a path to reach 100% in 2030, access to clean cooking is still far from that goal.

Household income is one of the most determining factors for access to energy: If a household can afford a better energy provision, it will be prioritised. In figure 4 below, energy access rates are compared with the share of the population that has a daily income below the poverty line[6], and there is a clear correlation between poverty and access to energy. Developing of low-cost solar products and the high political priority that rural electrification enjoys in many countries, partly explain why access to electricity has progressed to the current level.

[6] International statistics operate with several poverty lines. Here, the share of the population with an income above 6.85 USD a day has been chosen. The other poverty lines follow a similar trajectory as this one.

Figure 4: Energy access in low- and middle-income countries



Source: data.worldbank.org

The lack of political priority and investments in clean cooking is likely the most significant reason access to clean cooking is not at the same level. The failure to promote access to clean, modern cooking is costing the globe 2.4 trillion USD per year in damages to health, local economies, and the climate.[7]

The issue of clean cooking continues to be underfunded compared to other development goals, and the ecosystem has long suffered from private and public sources. Universal access to clean cooking would require an annual expenditure of at least 4.5 billion USD but the current level of support for clean cooking is only 134 million USD, or less than 3% of the required amount.[8]

To accelerate progress toward universal access, the clean cooking ecosystem will need extensive commitments from funders, investors, partners, and governments, among others, to guarantee that solutions reach the required scale to achieve SDG 7.

2.2 The Clean Cooking Alliance

The Clean Cooking Alliance (CCA), then called The Global Alliance for Clean Cookstoves (GACC), was established in 2010 as an initiative under the UN Foundation. The initiative got its current name in 2018.

Today, CCA has 41 employees and headquartered in Washington, DC. CCA is not an industry organisation like Gogla (the industry association for off-grid solar appliances). Nor is it part of a larger multilateral organisation like the UN or the World Bank. It is an independent initiative hosted by the UN Foundation

[7] World Bank Group et al. (2020) The State of Access to Modern Energy Cooking Services

[8] IEA, IRENA, UNSD, World Bank, WHO (2022).

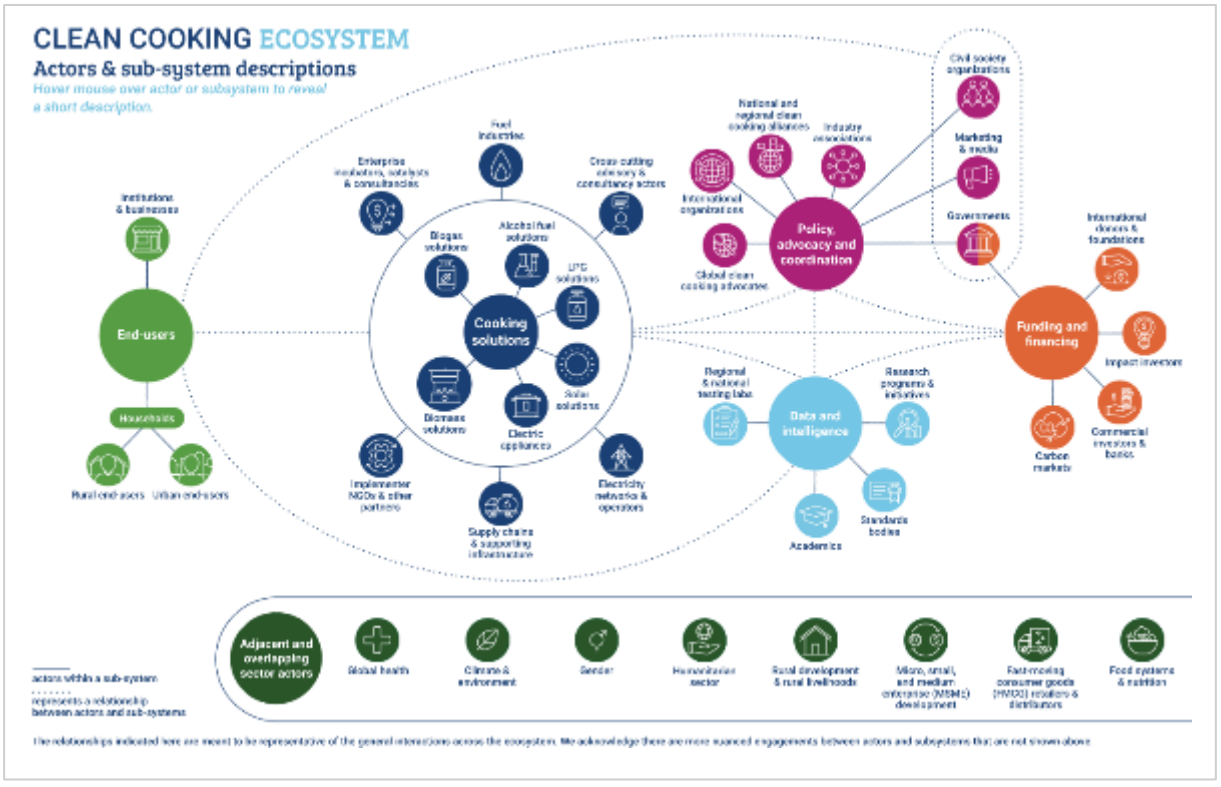
that receives financial support from different funders – currently mostly donor agencies – who wish access to clean cooking on a global and sector-wide scale.

CCA collaborates with a global network of partners to create an industry that makes clean cooking accessible to the 2.4 billion people who live without it. CCA is supporting consumer demand, mobilizing investment to establish a pipeline of scalable companies, and building an environment conducive to the sector's growth. CCA is trying to ensure universal access to clean cooking by 2030, in accordance with the Sustainable Development Goals (SDGs) and Net Zero Agenda.

CCA prioritizes actions at the global market for the most significant impacts. The activities at the country level are most substantial in Nepal and Haiti and – to a lesser extent – CCA also has direct engagements in Kenya, Rwanda, Uganda, Ethiopia, Ghana, and Nigeria. These countries provide critical learning and demonstration cases for different integrated energy transitions, business models, and market systems. At the same time, CCA indirectly engages in a wide range of developing countries through its global activities.

CCA led the development of a Clean Cooking Systems Strategy for 2020-2030. A part of the process was to define the landscape of stakeholders and the relationships between them through multi-stakeholder consultation: the ecosystem for clean cooking that can collectively deliver universal access to clean cooking as part of SDG7. The clean cooking ecosystem includes national governments, civil society and market actors, donors, investors, multilateral institutions, and clean cooking enterprises.

Figure 5: Clean Cooking Ecosystem



Source: Clean Cooking Alliance

Figure 5 above is the "ecosystem map" developed in this strategy process that describes the clean cooking landscape with the "Cooking solutions"-providers in the centre (dark blue) supported by "Policy, advocacy and coordination", "Funding and financing", and "Data and intelligence" sub systems (purple, orange, and

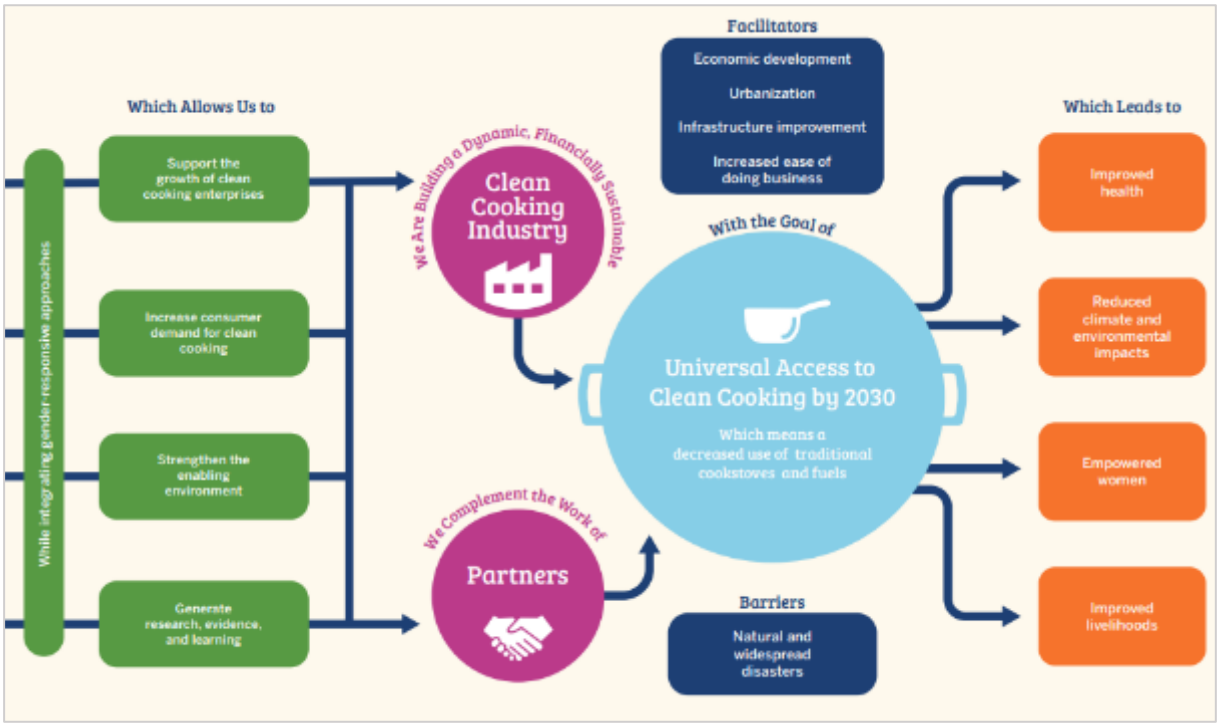
light blue) to supply the end users (light green). As clean cooking affects many other sectors ("health" and "climate", to name a few), adjacent and overlapping sectors are placed at the bottom (dark green).

National clean cooking associations are part of the "Policy, advocacy and coordination" subsystem (purple). These might share the name and logo with CCA but are independent organisations and often act as industry associations in their respective countries.

CCA's engagement in clean cooking is summarized in the sector-wide Theory of Change that focuses on the following[9]:

- Supporting the growth of clean cooking enterprises
- Increasing consumer demand for clean cooking
- Strengthening the enabling environment through advocacy, communications, and ecosystem-building services, and
- Generating research, evidence, and learning.

Figure 6: Clean Cooking Alliance Theory of Change



Source: Clean Cooking Alliance

Since 2010, CCA and its partners have supplied an estimated 116 million stoves and fuels, including 80.9 million clean and/or efficient stoves. In addition, over 400 million people now have access to clean cooking options, and almost 4.6 million lives have been saved by reducing the adverse health effects of indoor air pollution.[10]

[9] The Theory of Change (ToC) was developpe din 2019. During 2020-2021, CCA has been developing a new strategy and the above ToC is planned to be revised in 2023.

[10] Norad (2022) Terms of Reference: Review of the Norwegian support to Clean Cooking Alliance 2019-2021

2.3 Past and present partnership between Norad and CCA

The Clean Cooking Alliance (CCA) is one of the key international entities that promote clean cooking solutions in developing countries. Norad has been one of the key donors of the organisation for more than a decade, and CCA is just one of several initiatives Norad supports to promote clean cooking worldwide. In addition to the support to CCA, Norad is one of the funders of Energising Development (EnDev), managed jointly by RVO and GIZ, and ESMAP within the World Bank Group. Both EnDev and ESMAP are two of the most prominent programs globally to promote clean cooking as part of their general efforts to promote energy access. In addition, Norad is – through the Sustainable Energy Fund for Africa (SEFA) – an investor in the Spark+ Africa fund that invests in clean cooking enterprises.

Norad has partnered with and financially supported CCA since the latter's establishment in 2010. The rationale for Norad's support includes various Norwegian aid priorities, such as clean energy, climate, environment, health, and gender, as well as local private sector development.

Norway's political commitment has been steady, with high-level participation at high-level CCA summits. The Ministry of Foreign Affairs has underscored its continued support for CCA in multiple strategic notes.

Multiple short-term agreements totalling around 127 million NOK have been signed as aid from Norway:

- QZA-10/0979; 2011- 2013: NOK 3 million (support to Igniting Change: A Strategy for Universal Adoption of Clean Cookstoves and Fuel) plus an addendum for (QZA-12/758) 2013-2014 of NOK 4.14 mill (particular focus on the implementation of the country action plans).
- QZA-14/0567; 2014: NOK 7,5 million (supporting GACC in the transition between phase I and II)
- QZA-15/030; 2015: NOK 8 million (supporting GACC in the transition between phase I and II)
- QZA-16/0357; (2016 – 2018; ongoing): NOK 31 million, with an additional grant of NOK 3 mill. Core support but with emphasis on some strategical, prioritized areas.
- QZA-19/0241 (2019-2022): NOK 127,000,000 million, Core support increases investment in and builds global support for the industrialization of the clean cooking sector through key priorities that reflect the Alliance's overall strategy and revised Theory of Change.

The current agreement is organised to provide core support to CCA, whereas previous agreements were more particular, thematically driven, or shorter in duration. In 2018, a review of the Norwegian contribution to CCA (previously the Global Alliance for Clean Cookstoves) between 2010 and 2017 was conducted.

As a long-standing partner, Norway has contributed significantly to CCA's global achievements through tangible financial support amounting to about 48% of overall funding currently (2021) and as an early and leading donor to access to clean cooking in general.

3. THE ASSIGNMENT

The current assignment reviews Norad's support to CCA in 2019-2021 and can be considered a follow-up of a similar evaluation conducted in 2018. The evaluation questions presented in the Terms of Reference (ToR) are detailed and follow four main objectives that serve as the main evaluation questions for this review:

1. What has the progress against outcomes set out in the cooperation agreement with Norway 2019-2021 been?
2. To what extent have recommendations from the previous review been incorporated?
3. To what extent is CCA acting as an ecosystem leader for clean cooking?
4. What is the added value of CCA as a development partner for Norway?

In addition to the evaluation questions, Kenya and Nepal were selected for field missions in the ToR. This choice allows the evaluation to address especially on country specific level. However, the evaluation concerns all aspects of CCAs work that Norad supports and not only Kenya and Nepal.

3.1 Methodology and approach

The review team consisted of four team members who have applied a mix of data collection techniques to gather the most relevant, valuable information with which to address the evaluation questions.

Data collection activities included i) a literature review of documents shared by Norad and CCA and other relevant documents and reports; ii) interviews of stakeholders who are all part of the ecosystem mentioned above (see Figure 5 above). The stakeholders interviewed were partly identified by Norad and CCA and partly by the review team independently.

Data identified in documents and through interviews have been coded according to a detailed evaluation matrix that has been developed by reviewing the evaluation questions in the ToR and the OECD/DAC criteria for evaluations: Relevancy, Coherence, Efficiency, Effectiveness, Impact, and Sustainability, and analysed to produce this report.

The evaluation matrix and questionnaire used for interviews are included in the annex 1.

During the review process, three consultations were held with representatives from Norad and CCA:

1) A kick-off meeting in October 2022 where a mission preparation note was presented.
2) A progress meeting in December 2022 where preliminary findings were shared and discussed.
3) A presentation of the draft report took place in January 2023.

During these meetings, CCA and Norad shared their perspective. None the less, the review team has independently assessed all the data available, established findings, and arrived at the conclusions and recommendations presented in this report.

3.1.1 Data collection

Data collection consisted of a literature review and interviews.

A standard approach for conducting interviews has previously been to perform these during field missions. However, COVID-19 has changed the mainstream way of stakeholder consultations and currently, virtual interviews are more frequently used than before. In this review, physical interviews were held with stakeholders participating in the Clean Cooking Forum in Ghana. In Kenya and Nepal, interviews were held

with stakeholders active in the clean cooking ecosystems in these two countries. In addition, online interviews were conducted with a wide range of stakeholders active on the global scene and with stakeholders in Kenya who were unavailable at the time of the field mission in Nairobi.

The national experts in Kenya and Nepal allowed for interviews in languages other than English when necessary and for flexibility in scheduling physical interviews.

During 2019-2022, Norad supported CCA through core funding. A review of the Norwegian support of CCA is a considerable extent, a review of CCA itself as CCA is one of the key stakeholders in the global clan cooking sector, which makes anyone writing or anything written about clean cooking relevant for this review; however, impossible to cover within the scope.

A total of 56 documents have been reviewed, and 76 people have been interviewed. A list of literature reviewed, and persons interviewed are found in annexes 2 and 3.

Figure 7: Photos from field missions. Upper left: Team leader Kresten Sorensen with Dymphna van der Lans and Mohammed Irfan from CCA in Ghana. Lower left: Kresten Sorensen and Indira Sthapit Shakya during an interview with participants in CCA's demonstration project in Nepal. Right: Young girl using a Koko Networks vending machine in Kenya.

3.1.2 Timeline

The review has taken place over the course of four months, beginning in October 2022, and ending in February 2023.

- October 1st Commencement of contract
- October 6th: Kick off meeting. Presentation of mission preparation note
- October 11th – 14th: Interviews during the Clean Cooking Forum in Ghana

- October 30th – November 11st: Field missions in Kenya and Nepal
- October – November: Online interviews and literature review
- December 8th: Presentation of preliminary findings
- January 23rd: Presentation of draft report
- February 10th: Submission of final report

4. ANALYSIS AND FINDINGS

4.1 CCA as a convener and advocate for clean cooking

This subchapter concerns the following evaluation questions from the Terms of References:

- To what extent has CCA been able to contribute to reaching universal access to clean cooking by 2030?
- To what extent are CCA's strategy and programs coordinated and complementary with other development partners?
- How effectively is CCA providing information, data, and analytical resources to stakeholders in the clean cooking ecosystem?
- To what extent is CCA providing unique value-add and thought leadership to clean cooking and climate approaches in the ecosystem?
- What role has CCA played in support of the SDG7, the Agenda 2030, and the Paris Agreement?
- To what extent are the outcomes sustainable?

As described in chapter 2, access to clean cooking has advanced from 2015 to now where the most recent statistics up to 2020 show a 69% access to clean cooking fuels and technologies worldwide. Considerable progress is taking place, but still, the world is far from reaching the ambitious goal set out in the Sustainable Development Goals. Very few stakeholders interviewed believed that the goal would be achieved by 2030 and there are no apparent signs that not reaching the target is a significant obstacle to continued progress. On the contrary, the fact that the world is not progressing quickly enough to reach the goal agreed upon by all 193 member countries of the United Nations, contributes to creating the sense of urgency that the issue requires. The extent of which CCA has been able to contribute to this goal should therefore not be measured against the current lack of sufficient progress but against how relevant and complementary CCA's contributions are to other stakeholders' efforts.

Interviewees gave many reasons as to why progress is lagging, all related to the complexity of clean cooking, which does not belong strictly to any given sector. Clean cooking is an energy issue but also a health, climate, environmental, and gender issue and not at least a poverty issue, as there is a straightforward relationship between lack of access to clean cooking and income. In addition, cooking is not just technology and affordability but also behaviour that links to cultural preferences that vary significantly between countries and within countries.

4.1.1 The complexity of clean cooking is a challenge

The complexity of clean cooking could, in principle, be an advantage, as supporting clean cooking contributes to so many other development agendas. However, the people interviewed saw it more as an impediment: "Who owns the problem?" one person who regularly participated in high-level discussions on clean cooking rhetorically asked during an interview as the main reason for the lack of attention and funding clean cooking receives compared to other issues. This impediment is not only present on the global stage and at the government level in developing countries where clean cooking does not have a natural home in any ministry or agency: "They think of it as a woman's issue," like one person expressed it, seeing this as a significant obstacle to advance the clean cooking agenda within national governments.

In addition to the complexity of the issue, the landscape of stakeholders in the sector is also complex. The main divisions and fault lines exist between:

- big companies that are perhaps better suited to attract financing and grow the market vs smaller companies that can be very innovative and national producers and retailers who are deeply embedded in the economies,
- supporting biomass technologies that are better than rudimentary stoves and three-stone fires vs modern cooking also at the expense of these improved biomass solutions,
- supporting LPG stoves that have many advantages but also use fossil fuel.

The Clean Cooking Alliance (CCA) has taken the role of a neutral party in this landscape, not choosing sides but strategically focusing on the areas where the most impact can be made. One of the most critical contributions made to the sector in the period 2019 -2022 is CCA's strategy process which was a response to a recommendation from the previous review by Norad in 2018. Despite COVID-19, CCA managed to conduct a participatory process involving more than 200 stakeholders in the sector that is viewed as a remarkable success by most people interviewed. CCA managed to map out the sector, "the Clean Cooking Ecosystem," and translate the findings and priority areas from this process into its annual implementation plans.

In general, most people interviewed see the sector (or the ecosystem) as less siloed now, not only in terms of less division within the industry but also towards other sectors such as finance. An illustration of this is a comparison of the CCA forum in Nairobi in 2019, where many participants experienced an almost hostile atmosphere at times between stakeholders on different sides of the fault lines mentioned above, and in Ghana in 2022, where most participants experienced a much more constructive atmosphere and much more representation of adjacent sectors (especially finance) which was appreciated. CCA has played a big part in that change and the strategy process has helped lay a foundation for that.

4.1.2 Main strategic contributions as convener and advocate in the period 2019-2021 (and 2022)

Besides the strategy and successful inclusion of stakeholders in that process, **CCA has raised the profile of clean cooking.** "It is not a tacky issue anymore," one interviewee said. In this period, CCA has been able to package the sector better than before, making it more attractive to donors, private investors, and stakeholders from adjacent sectors. A lot more could be done in this area, as clean cooking is still not receiving the attention it deserves.

The recent creation of a "Global Networks and Partnerships" team in CCA appears to be a relevant strategic response to the sector's need for strategic communication and advocacy directed towards increased interest in and support for clean cooking. CCA experienced growing interest; for instance, at the recent COP27 in Sharm El-Sheik, CCA participated in 17 sessions on clean cooking and in multiple donor meetings, compared to 2019 in Madrid, where there was little interest in the issue. Some of these events are happening because CCA takes the initiative and lobbies for them to get more invitations. Stakeholders view CCA as the best party to represent clean cooking as many other actors in clean cooking, for instance, ESMAP or SE4All, also promote access to electricity.

For interested donors and private investors, CCA serves as a "think tank" where they can acquire up-to-date information on the scientific evidence and the pros and cons of different technologies and policy choices. In this role, CCA is highly appreciated. For example, the Africa-Europe Foundation was formed in 2020 following a European Union-African Union summit. It quickly realised that clean cooking was a thematic area that cuts across its focus areas: Health, climate, and youth. Thanks to the assistance CCA has provided, they felt equipped to advocate for clean cooking as part of the strategic areas they work within.

Figure 8: CCA intergenerational roundtable. Photo: CCA.

In parallel, the CEO of CCA, Dymphna van der Lans, has joined The Women Leaders Network – an initiative started by the AEF, a position that CCA actively uses in cooperation with their participation in the Global Women's Network for the Energy Transition with whom they initiated the Women in Clean Cooking Mentorship program in 2021 in partnership with SE4All. CCA strategically chooses these gender activities to promote the gender aspect in ways where "Women are not the victim", as Dymphna van der Lans expresses it. This approach is very relevant, as clean cooking is often perceived as a women's issue but where women play the role of "the end users". Few women own or manage clean cooking companies or make decisions at the government level concerning clean cooking. Interestingly, an interviewee remarked that in high-level events like the recent COP 27, men were often the minority in the room when the debate was about clean cooking, which was not the case in discussions about access to electricity and other climate-related challenges. Ideally, more even participation of men and women at all levels would be beneficial to the sector.

The contributions that the CCA has provided to the Clean Cooking Ecosystem in this period are many and generally characterised by its collaborative nature. A few examples are listed below:

CCA is part of the technical committee for the ISO standards for clean cooking[11]. It has in the period 2019-2022 funded a round-robin test showing the alignment between testing centres around the world which is strategically crucial for the creditability of the sector in the eyes of donors and private investors interested in climate and health impacts of clean cooking solutions.

CCA and the Modern Energy Cooking Services (MECS) programme co-authored a report on fundamental design principles for Results Based Financing based on 12 case studies that was launched jointly at the Clean Cooking Forum in Ghana in 2022.

CCA strategically sponsors research in areas that connect science to policy and, before 2019, has funded studies on the climate impact of biomass-fuelled cooking. Based on these results, the UNFCCC has adopted a new default value for "the fraction of non-renewable biomass" and sets this value to 0.3[12]. This sounds very technical but has vast implications for policy and climate finance as it effectively will approximately half

[11] Lukorito, Z., Ebong, R., Ibido, M., & Rivera, F. (n.d.). ISO/TC 285 Clean cookstoves and clean cooking solutions.

[12] UNFCC. (2022). *Methodological tool Default values for common parameters. 02.0.*

the estimated climate benefit of promoting clean cooking solutions. And this is good news for the sector, as this assumption is better scientifically founded than the current default values being applied, thereby ensuring that credibility is maintained, underpinning the sustainability of the recent progress in the clean cooking sector.

4.1.3 The main challenges and recommendations for the CCA as convener and advocate

CCA is held in high regard by many stakeholders in the clean cooking sector. However, there are also critical voices, and that critique can come in various forms. One critique is that CCA is disproportionally supporting LPG. As reviewers who have looked through several documents and conducted several interviews, we cannot find compelling evidence to support such a claim. As an example: CCA has in this period: 1) Assisted the Indian and Ghanian governments in a collaboration concerning an **LPG program** in Ghana; 2) Supported a range of companies through the Venture Catalyst program, where the majority have products that use **solid biomass** as fuel, 3) had a Nepal-country program focussed on replacing LPG with **electric cooking.**

The LPG issue is one of the fault lines in the clean cooking sector, and critique of the CCA can also concern some of the other main fault lines, namely big vs small companies or biomass fuels vs modern cooking solutions. It is our interpretation – not necessarily how the people interviewed see it – that critique is often motivated by a need not being fulfilled coupled with the fact that CCA is the central actor in the clean cooking sector. For example, a person strongly invested in "solution x," rightly believes that "solution x" is not getting the support it needs and deserves. This person will look to someone for more substantial support, and in the clean cooking sector, that someone will often be the CCA. Lacking support for solution x becomes "why doesn't the CCA support solution x?" and that can be expressed as "CCA is supporting solution y too much."

As we interpret it, the challenge for the CCA is not the critique itself – as an entity in the central position the CCA is in, will receive some portion of criticism no matter what they do – but that the CCA cannot fulfil all the needs of the ecosystem which in some indirect way becomes expected of the CCA in the absence of sufficient financial and political support to clean cooking in general. **There is a risk that the CCA will always be playing catch-up with a demand that they can never fulfil.**

The CCA staff interviewed was aware of this challenge and several strategic choices the CCA has made in this period, revolve around trying to focus on areas where they can add unique value. For example, in 2019, the CCA was taking leadership in promoting access to energy in the humanitarian sector but felt they added more value for effort, taking an advisory role uniquely on clean cooking instead.

It is recommended that the CCA **focuses on what it believes it does best**, communicates the choices it can fulfil, and highlights what it believes it is best suited for. Consumer awareness campaigns, for instance, could be an area that the CCA feels is important but can be fulfilled better by someone else while the CCA focuses on expanding the knowledge base on consumer behaviour which is one of the priority areas that came out of the strategy process.

While CCA has been able to package the sector better and has been able to attract new actors to the issue, CCA does not have the mandate or political power needed to advance clean cooking to the level where it belongs. **Norad is recommended to seek pathways to engage political decision-makers**, for example, through a collaboration with the Dutch Agency, RVO, to engage the Norwegian and Dutch foreign ministries in rallying more international donors to the issue. CCA could assist in such a process.

The CCA appears to be making the **most significant impact in collaboration with others**. In recognition of the scarce resources of the CCA compared to the magnitude of the issue, it is recommended that the CCA focuses on how it can support other actors to fulfil the sector's needs to the broadest extent possible, and the less the CCA does independently, the better.

While the CCA is very aware of the fault lines and positions in the sector and is conscious of not being biased, two observations speak for becoming **more explicit on what the right solutions** are:

1. We are rapidly moving towards an SDG target that requires financial and political engagement on an unprecedented scale if that is to be met by 2030, 2040 or even 2050.
2. The sector is less siloed today than previously, and in more agreement than before (even though the positions along the fault lines are still present).

Being more explicit can take many forms. For example, the CCA cannot define a road map towards clean cooking for the world or a given country – it does not have that mandate – but the CCA can define the main choices that need to be made and the pros and cons of each.

It is also recommended that the CCA **communicates clearer who they are**. Through the many interviews, it has become clear that there is some confusion concerning the legal status of the CCA: Is it part of the UN? Is it an industry association? Is it a membership-based alliance? The CCA is neither of these, it is an initiative hosted by the UN Foundation (UNF), an NGO set up to host various initiatives e.g. Family Planning (FP2030). The CCA has no members (which will surprise many of the actors in the sector, including the ones that meet with the CCA), and the national clean cooking alliances are, thus, not members of the CCA.

Previously, CCA had 2400 registered "partners" including governments, foundations, entrepreneurs, non-governmental organisations, researchers, carbon project developers, and investors. To avoid confusing CCA with a membership association, CCA now has a "sector directory" on its website instead, where stakeholders in the sector can register their entity.

The CCA has a leadership council and an advisory board (that is, a subgroup of the council) composed of selected members. Legally, the board of the CCA is the UNF's Board of Directors, and its legal mandate is the contractual agreements between CCA's donors and the UNF. It is unclear if donors are organised in a steering committee, but if that is the case, CCA should communicate that too.

While in most cases, the legal status of the CCA is of no concern to the actors in the sector, it is our analysis that the current lack of clarity provides too ample room for interpretation. For instance, if someone believes the CCA is too supportive of LPG, they might believe that this is because the CCA is an industry association sponsored by oil companies. And this is not true; CCAs annual reports clearly show that the prominent donors of the CCA are governments and multilateral organisations: More clarity on this would be beneficial.

4.2 CCA as a market builder

This subchapter addresses the following evaluation questions from the Terms of References:

- How has CCA's Market Strengthening program adopted a comprehensive approach to building sustainable market systems for clean cooking?
- To what extent is CCA building a dynamic, financially sustainable clean cooking industry?
- How has the Market Strengthening program established proof points for sustainable business models and market systems?
- How has CCA engaged existing and new partners to spur innovation and crowd-in additional financial and nonfinancial resources? What are the results of these engagements?
- To what extent has CCA's support for clean cooking enterprises pivoted and adapted to the scarce resources in the ecosystem?
- What activities and engagements have CCA commenced to mobilize investment to support clean cooking enterprises? How is CCA working towards a sustainable 'exit' from the clean cooking ecosystem?

The general situation of the clean cooking sector globally, described through the many interviews held, is that there are very **few investments and few companies to invest in**: A handful of companies are currently attracting the lion's share of investments in the sector, and the various supporting programs to increase investment in the sector are assisting the same roughly 50 companies according to several people interviewed.

Clean cooking companies are often supplying urban markets in developing countries. Reaching rural markets is inhibited by last-mile issues related to long value chains and high distribution costs. Clean cooking solutions that reduce firewood- or charcoal consumption as well as modern cooking solutions (LPG, electricity, biogas, and pellet-stoves) face the additional challenge of competing against an alternative – firewood – that to some extent is "free" in monetary terms[13]. In addition, what is often labelled as "lacking consumer awareness" or "low willingness to pay" to explain the slow uptake of clean cooking solutions that can be documented to have a very short return on investment for the end user, makes it difficult for companies to prove their concept in terms of sales numbers, which in turn, makes the investment risky in the eyes of investors. The catch-22 of clean cooking markets is a situation with many companies needing equity financing to invest in production and distribution capacity but very few investors who believe they are ready for that.

There is a significant need for investors who understand the clean cooking sector. According to several interviewees, the Clean Cooking Alliance's most important contribution to fulfilling this need has been the creation of the Spark+ Africa fund which is the world's first impact investment fund dedicated to clean cooking. The final financial raise of Spark+ Africa reached 54 million USD in 2022. Twelve development finance institutions invest in Spark+ Africa (including the Sustainable Energy Fund for Africa that Norad also supports financially among many others) and the fund is managed jointly by a private investment company and a private foundation. CCA has played an instrumental role in its creation, and while the initiative for Spark+ Africa originally came from CCA, CCA has no formal role in it today. However, Spark+ Africa regularly exchanges information with CCA's Market Strengthening program, and Spark+ Africa actively uses the studies and knowledge products developed by CCA, such as the annual Clean Cooking Industry Snapshot.

On national level, the legislative framework and policies pursued by governments, vary significantly from country to country. In some countries, there is a tendency of government institutions seeking to steer the sector through public procurement, thereby effectively embedding themselves in the market instead of building it, but other sectors than clean cooking are more prone to those challenges. The main challenge for national governments concerns the lack of resources: Insufficient staff dedicated to clean cooking and knowledgeable about the sector which has ramifying effects on the regimes chosen for duties and taxes for clean cooking products, lacking synergies with e.g. health or electrification policy.

During CCA's consultative strategy process, the need for support to local governments came out strongly, and this has led to a new initiative by CCA called the Delivery Units Network (DUN). The idea is inspired by the support provided to governments for infrastructure programs by the World Bank: Dedicated staff within ministries or across ministries, who can propel the actions needed to advance the sector. In CCA's concept, which differs from World Bank's "Project Implementation Units" the delivery units will form a network where they can exchange experiences and sparring. So far, the DUN is still under development. Kenya is the most advanced while other countries with a signed Letter of Interest in the pipeline are Ghana, Côte d'Ivoire, and Sierra Leone, and 16 countries have expressed a demand for a delivery unit so far. CCA is cautious about how the delivery unit is established, under what mandate etc. On the other hand, national governments also have conditions and expectations. If the DUN concept proves successful, it has a potential of being

[13] Rural populations in developing countries collect a large share of their fuel wood, paying with their time, not money.

funded by international donors with a country specific program. After Spark+ Africa, the DUN could become the next innovation CCA develops which other actors can take over.

4.2.1 The market strengthening program

The Market Strengthening program is CCA's main line of activity in the market building area during 2019-2022. The Market Strengthening program began in May 2019 and its leading donor is the Netherlands' Ministry of Foreign Affairs (DGIS). The program is designed around three pillars called the Cooking Industry Catalysts:

The Venture Catalyst (VC) supports the supply side actors in the market, the companies, focusing on increasing their ability to raise capital, scale their business and innovate. The VC selects companies on several criteria. The main idea, as we have understood, is to support companies that can improve the market for everyone, e.g. where there is a prospect of a ripple effect. This can either be larger companies with a proven business model and a potential to "bust doors open" to new markets where others can follow through, or innovative companies, with a product or business model that can easily be replicated. For example, PayGo solutions are widely adopted in off-grid solar solutions but are not yet common in clean cooking. If a few companies prove the business model in clean cooking, other companies will duplicate that to the benefit of the market as a whole.

The companies that are or have been part of the VC portfolio, include all the major companies in the clean cooking sector and a few larger companies from the off-grid solar industry that include clean cooking in their product portfolio. Smaller companies are also present, but generally, the portfolio is characterised by well-established companies. VC supports through small grants and technical assistance based on the needs of the companies. The companies interviewed appreciated the assistance from CCA and the fact that it was very tailored. The support is tailored based on a joint analysis of the companies and CCA; however, CCA decides which needs it can assist with, and not all companies are in perfect agreement with that decision.

Several interviewees describe a synergy of action between different business catalyst programs, and there seems to be minimal duplication of effort even though many companies are the same. But none of these programs provide the equity that is in high demand; they aim to support companies to be able to attract investment themselves. As described earlier, there is also a need for more investors being willing to engage in the clean cooking sector, and there is a gap in the investment landscape: "Where do the ideas go, when they have proven successful?" as one interviewee rhetorically expressed it. Recent developments in voluntary carbon markets might change that situation, elaborated further below, but not necessarily for the ticket sizes needed to scale up an innovative product or business model.

The Demand Catalyst (DC) aims to increase consumer demand. In 2019 – 2020, the initial ambition was to increase consumer awareness and run behaviour change campaigns, but in 2021 emphasis changed towards better understanding consumer behaviour and supporting enterprises and governments to adopt a user-centric approach instead of a product-centric approach. DC's main initiative is the User Insights Lab (UIL) which published its first report in 2022. Several people interviewed had high expectations of the UIL, especially among the companies, who believed it addressed a central need for them: "If we can shift from sales data to usage data, we can solve the sales problem" as explained by one of the companies interviewed.

The Market Catalyst (MC) works on the enabling environment of the market with a wide range of activities. Our interpretation is that the main areas of work are 1) to **facilitate investment and financing** in the sector supporting future investors with data tools and publications that could help increase knowledge and decrease perceived risks of investment, and 2) to **influence policy** mainly on the national level through capacity building, studies, and support to advocacy.

As mentioned in the previous subchapter, CCA's market studies and reports were valued by many people interviewed and the work on technical standards. Concerning the data tools and information portals, a few people interviewed were not sure to what extent such tools were used and updated. CCA is recommended

to gather experiences from the usage of existing tools and communicate how often the data are updated. As an example: On the recently developed Clean Cooking Explorer such information is not easily identifiable.

4.2.2 Carbon financing and impact investment

Carbon financing was a key focus area in CCA's strategy process in 2020-2021. In 2022, there has been a recent increase in carbon credit financing of clean cooking companies on the voluntary markets such as Gold Standard and Verra. According to CCA, the recent surge is driven by the ESG framework recently adopted by the EU. The ESGs are a set of Environmental, Social, and Governmental conditions with which financial investments must comply. And one way is to integrate carbon financing. Clean cooking solutions are by many perceived as "charismatic carbon" as they in addition to climate impacts contribute to several other Sustainable Development Goals. In the carbon market, the multifaceted nature of clean cooking comes to the sector's advantage.

Currently, only the most prominent clean cooking companies are successfully benefitting from these new possibilities and are yet to start implementing the new projects. But the recent development is creating much debate among clean cooking actors: Some see it as a godsend that can solve the financing problem of the sector. Others are concerned on several levels:

- Will the new projects be able to deliver or instead miscredit the industry?
- Will carbon financing drive the smaller players out of the market?
- Will carbon financing result in massive distribution of ICS and skew the market to the disadvantage of clean cooking technologies?
- Will carbon revenue benefit national countries and end users or only the companies?
- Will carbon revenue make companies more attentive to investor needs than their end users?

No one knows yet if these concerns are valid or exaggerated. CCA is aware of the discussion and is currently launching a study as a first step to begin building recommendations for a sustainable carbon credit market as part of the Market Catalyst component on the Market Strengthening program. In addition to this work, CCA has initiated a Catalytic Finance Accelerator[14] and studies with the aim of enabling monetization of the "charismatic" impacts of clean cooking just like CO_2 emissions are. CCA is taking several initiatives in this area that are in demand by the sector and, concerning the carbon financing, has very quickly adapted to the new situation.

4.2.3 Recommendations to strengthen clean cooking markets

The fundamental challenge for the CCA is, as mentioned in the last subchapter, that the eco system's needs supersede what CCA can do. The success of the Spark+ Africa fund is an excellent example of an initiative created to a large extent by the CCA, which then continues independently. New initiatives like the DUN and the Catalytic Finance Accelerator can hopefully repeat the same process.

International donors are recommended to support these initiatives financially through CCA or independently. Through blended finance mechanisms or public-private partnerships, international donors can help private equity into the Catalytic Finance Accelerator.

Many of these ideas have come out of CCA's consultative strategy process and are focussed on particular needs of the sector. **CCA is recommended to follow up on this participatory approach** to ensure a steady stream of initiatives that address the eco system's needs.

[14] Previously, this initiative went under the title: "Results Based Financing Accelerator" (RBFA)

Country level engagements

The following two subchapters, CCA in Kenya and CCA in Nepal, address the two evaluation questions below from the Terms of Reference:

- To what extent is CCA strengthening national and local capacities/partners/governments/ NGOs etc. to promote clean cooking and achieve results?
- To what extent is CCA providing thought leadership to inspire and influence transformational change in partner countries and in the global energy access agenda?

CCA has country-level engagements in other countries too, Haiti, for instance, though these countries are not dealt with in detail in the review. Norad has selected Kenya and Nepal for case study, and they provide two good examples of how CCA can support market building on the national level. They are also two cases that differ substantially on two main dimensions:

CCA's activities are very different in Kenya and Nepal: In Kenya, CCA has a long track record and a working relationship with the Kenyan Clean Cooking Association, but no local CCA office. Kenya is also a country where most companies supported in the Market Strengthening program conduct their activities and where CCA is most progressed in establishing a delivery unit. In Nepal, on the other hand, CCA has a country program and a CCA representation. CCA collaborates closely with the coordinating government entity for clean cooking, Alternative Energy Planning Centre (AEPC). In Nepal, CCA supports the government in transitioning to electric cooking with several initiatives and has for instance been a critical partner in developing a Country Action Plan for clean cooking. In short, CCA is currently focused on supporting supply-side actors in Kenya, while in Nepal, CCA is in close collaboration with the government.

Kenya and Nepal are two very different countries when it comes to access to clean cooking: Kenya is the home of several successful clean cooking companies in Sub-Saharan Africa and perhaps the most advanced clean cooking market among those countries: In Kenya, any type of clean cooking technology or business model exists in the market. Kenya also has a sizeable artisanal cooking sector selling improved cooking stoves (ICS) for wood and charcoal. Concerning the main "fault lines" described in subchapter 4.1, LPG is not a big issue in Kenya. The divide between small and big players in the market is an issue, and the extent to which transitional solutions (ICS) using biomass as fuel should be supported is also an issue.

Nepal is very segmented for geographical reasons and clean cooking technologies are not widely adopted. On the other hand, Nepal has had good experiences promoting biogas and has recently made great strides in rural electrification. Clean cooking in Nepal is very much about LPG, as LPG is imported from India, and the government is very interested in replacing part of that consumption with hydro-powered electricity. It is more the relationship with India and the potential for the national budget that drive the interest, than concerns over fossil fuels. Local governments play a significant role in implementing clean cooking programs and the role of national and local governments is another issue that concerns actors in the Nepali clean cooking sector actors. The previously mentioned fault lines concerning small vs big companies and the transitional biomass-based technologies vs. clean solutions, present globally and in Kenya, are not discussed much in Nepal.

Going from the global stage to the country-level involves navigating new fault lines or tension-areas and that can prove difficult in practice for CCA, which has a global outlook and no strong in-country presence. CCA is recommended to build a **country-level approach that focuses on capacitating other actors from a neutral position in the ecosystem** and on **adding unique value to the global perspective of how universal access to clean cooking can be achieved.**

4.3 CCAs engagement in Kenya

The Clean Cooking Alliance (CCA) has a long history in Kenya, one of the few countries where the CCA has had a country office. In 2020, however, CCA closed its office due to a shifted strategy regarding country-specific engagements. Currently, three team members live and work in Kenya but are members of a global team within the global Market Strengthening group, and there is no Kenya-specific team as such today.

Kenya is an interesting case in terms of understanding how the CCA supports companies – the market's supply side. Kenya is regarded as the sandbox for energy access companies in Sub-Saharan Africa, and often, companies engaged in several African countries today have started in Kenya.

4.3.1 The historical and current relevance of clean cooking in Kenya

Kenya became a middle-income country in 2014. Despite the country's considerable economic growth, only 13% of its population has access to clean cooking options such as LPG, electricity, solar and ethanol stoves[15]. Wood fuel (charcoal and firewood) is the primary cooking fuel used by 75% of Kenyan households. Similarly, 93.2% of rural households use wood fuel (fuelwood or charcoal) as their primary fuel[16].

Approximately 42 million Kenyans still rely on traditional biomass fuels for cooking, with 30–40% of this population owning improved biomass stoves and the rest depending on rudimentary and traditional open fires for cooking (i.e., three-stone fires)[17]. However, urban households are rapidly shifting their primary cooking fuels from kerosene and charcoal to cleaner fuels like liquid petroleum gas (LPG); in contrast, rural households continue to use firewood primarily.

In the past ten years, Kenya increased the annual consumption of LPG to 371,400 tonnes in 2022 from a paltry 92,900 tonnes in 2013. More than half of the households living in urban areas – 52.9% – rely on LPG as the primary fuel[18], and the per capita consumption rose to 7.5 kgs in 2020 from 2.5 kgs in 2012[19]. Lower taxes, the rising cost of kerosene to combat the adulteration of diesel, and the prohibitive cost of charcoal due to a ban on logging in government forests were among the factors driving the increase in the use of LPG. The 2009 LPG regulations also played a vital role following the formation of the LPG cylinder exchange pool, which enabled consumers to refill their cooking gas from any marketer or retailer, irrespective of the brand. The regulations, however, had the unintended impact of increasing illegal refilling and saw the government scrap the exchange pool in 2019 by implementing new regulations.

While LPG has been on a steady rise, Kenyans have recently reduced their use of cooking gas significantly as prices soared in 2022. Just before the international crisis in Ukraine, the Kenyan government introduced a 16% VAT on cooking gas (July 2021) and combined with the prohibitive cost of LPG in the global markets in 2022, the new tax led to a sharp rise in prices. Consequently, consumption of LPG dropped by 34.8% over the first six months of 2022 compared to a similar period in 2021, reaching the lowest level since 2018 (KNBS, 2022).

[15] World Bank, 2017

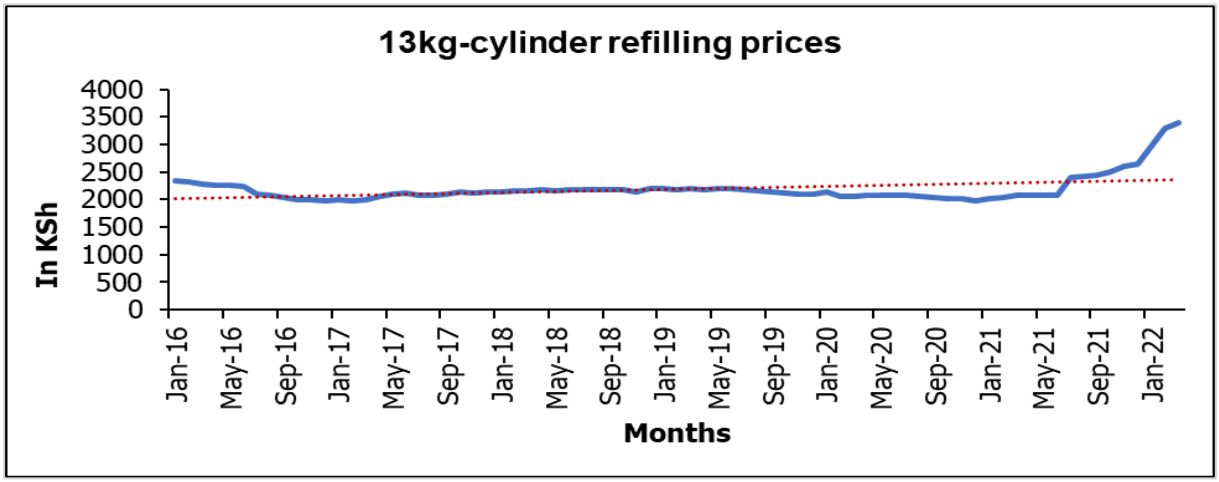
[16] Republic of Kenya & the Clean Cooking Association Kenya, 2019

[17] Karanja et al., 2019

[18] Kenya National Bureau of Statistics. (2019). 2019 Kenya Population and Housing Census: Volume II

[19] Energy and Petroleum Regulatory Authority

Figure 9 Trend of LPG prices in KSh from 2016-2022



Data source: KNBS (2021 and 2022) Economic Survey. Kenya's inflation rate was approximately 5% annually from 2016-2021.

The increased LPG prices are forcing people back on their reliance on charcoal and firewood. To mitigate this development, VAT on LPG was cut by half in June 2022, which resulted in a slight decline in retail prices (2,800-3,000 KSh compared to the 3,200 KSh before the VAT cut) however, prices are still much higher than in 2021 (2000 KSh). The inflated cost of cooking gas could erode Kenya's gains over the past decade in getting Kenyans to adopt LPG if it prevails.

Clean cooking alternatives to LPG – electric cooking, ethanol, and biogas – are also gaining traction in Kenya but still rely heavily on public programs and projects:

Broader energy sector programmes focussed on electrification have started to include clean cooking components alongside solar home systems (SHS) and mini-grids (MG). Such programmes include the Kenya Off-Grid Solar Access Project (KOSAP) and the solar-hybrid MG RBF in Northern Kenya, which supported energy access for refugees in the Kalobeyei Integrated Settlement, an extension of the Kakuma refugee camp in Northern Kenya, as clean cooking interventions are also becoming an emerging topic in the humanitarian context (SNV, 2020). However, although recent clean cooking RBFs have primarily been part of broader energy access programming, the clean cooking component of the programmes is often detached from the electricity access component. As a result, the integration of clean cooking solutions into broader electricity access strategies and as part of a more integrated approach towards the energy sector is at a very nascent stage (Stritzke et al.,2021).

Ethanol cooking fuel is still at a nascent stage in Kenya. The Ethanol Cooking Fuel (ECF) Masterplan was commissioned by SouthSouthNorth (SSN) to support the establishment of an ECF industry in Kenya, to provide potential investors, policymakers, and researchers with an evidence base to guide the development of ECF infrastructure and distribution systems in Kenya. Ethanol Cooking Fuel (ECF) is a viable alternative for clean and affordable cooking fuel. While still nascent, there has been significant investment in increasing access with Vivo Energy – a major distributor of Shell products in Africa, and KOKO Networks - a venture-backed, technology-based distribution company installing distribution systems and networks to increase national access (Dalberg Advisors, 2020).

Biodigesters producing biogas have a significant upfront cost but are free once the equipment is installed. A basic home biogas unit costs between 50,000 KSh ($500) and 80,000 KSh – which is prohibitive for many. Nevertheless, more Kenyan farmers can now afford it, as they are being offered one-year loans for biogas kits by the development agencies of the German and Japanese governments.

4.3.2 CCA as a convener and advocate for the clean cooking sector in Kenya

In 2019-2022, the main convener/advocacy activity in Kenya was the Clean Cooking Forum 2019 in Nairobi, co-hosted by the CCA and the Kenya Ministry of Energy. Under the "Investment. Innovation. Impact" theme, the Forum featured interactive plenary and breakout discussions with global leaders in the sector, business-to-business matchmaking, site visits, and an innovation expo highlighting some of the most state-of-the-art clean cooking solutions. The three-day Clean Cooking Forum brought together over 550 people from 50 countries. BURN Manufacturing, Proto Energy, KOKO Networks, biogas cooking home visits, and MECS displayed innovative clean cooking solutions.

While the forum was a global event, it set the stage for various essential announcements and commitments specific to Kenya:

- The Kenyan government committed to achieving universal access to clean cooking by 2028, two years ahead of schedule.
- The Kenya Ministry of Energy unveiled the Kenya Household Cooking Sector Study and committed to petitioning the United Nations to establish an International Day of Clean Cooking.
- Nairobi-based Equity Bank pledged to invest $100 million in the clean energy sector over the next two years, with the majority going to clean cooking.

In addition to the forum, Kenya is one of the priority countries for CCA's Delivery Units Networks (DUN) and the country where the process is most progressed with a "Letter of interest" being submitted to CCA by the Kenyan Government. The DUN is being established with the perspective of supporting government leadership and action that will (i) unlock public and private sector funding, (ii) facilitate equitable clean cooking transitions, (iii) enable markets to function for the private sector and more.

The vision for the DUN is that creating a clear owner for the issue inside the government, will empower government leaders to incorporate clean cooking as a critical piece of the country's climate and SDG agenda, leveraging its cross-sector nature as an asset rather than an inhibitor. It is still too early to tell how the delivery unit in Kenya will be constructed. CCA is comprehensive in its preparation of the DUN, managing stakeholder's expectations and building on the experiences of delivery units from other sectors. The unit in Kenya is currently planned to commence in 2023.

Despite the numerous clean cooking options (both domestic and imported) in the Kenyan market, their large-scale adoption and sustained use have been slow and marred with complications. Many stakeholders operating in the Kenyan clean cooking sector hold radically different perceptions and agendas of catalysing the large-scale adoption of clean cookstoves and improving the sector's sustainability resulting in uncoordinated and fragmented actions, curtailing the effective large-scale adoption of clean cooking options in the country.

There is an increasing concern about the competition between small artisanal businesses of improved stoves and the large companies that can get carbon credits. A unified response to this challenge from the cooking sector, would be constructive. It is not the role of CCA to play a coordinating role in Kenya or any other country in the current strategy, and it is recommended that the CCA keeps with that strategy: It is difficult to see how the CCA could do better than the CCAK could in Kenya, for instance.

However, CCA is a repository of knowledge where stakeholders can acquire up-to-date information on various clean cooking technologies based on scientific evidence, clarifying multiple concerns. There could, thus, be a role for CCA in supporting CCAK with knowledge and capacity. It is recommended that **CCA defines the types of relationships it can have with country-level clean cooking associations** to align the expectations and collaboration better.

Figure 10: Industrial production facility (BURN Manufacturing) and Artisanal cookstove production in Kenya. Photos: CCA

4.3.3 CCA as a market builder for the clean cooking sector in Kenya

Most companies supported by CCA's Venture Catalyst program are active in Kenya, and many are Kenya-based. The venture catalyst program gives grants and technical assistance that address the company's specific challenges. Among the companies interviewed during this review, CCA support was regarded as flexible and prioritised their needs with a lean and unbureaucratic process. Many companies considered the grant support and technical assistance from CCA helpful, and general engagement by CCA has connected the companies to diverse industry partners. CCA has, for instance, facilitated connections to grant or financing partners and helped with accessing carbon credit markets.

Companies strongly agreed that they depended on the resourcefulness of the management to acquire the necessary funding. Lacking financing was one of their most urgent constraints; this support has been beneficial. CCA's main contribution has not been to provide funding to the companies but to support them in becoming better-performing companies that are more attractive to investors.

Income from sales of clean cooking products is the best strategy for the sustainability of clean cooking companies, and the companies interviewed in Kenya were also highly interested in future learnings coming from CCA's User Insights Lab.

CCA's engagement in Kenya is primarily through the venture catalyst program that directly supports companies. In addition, the CCA contributed to developing the enabling environment of the market during the period under review:

Engaging in the Tax Policy: The Clean Cooking Association in Kenya coordinated with partners to petition against the reintroduction of a VAT on cooking fuels and products. Following this action by CCAK, CCA released a Request for Proposals to develop a strategic, evidence-based advocacy plan to present to the Kenyan government on global best practices in the taxation of social goods (such as clean cooking fuels).

Funding Research into Clean Cooking's Impact on Women's Empowerment: CCA, in June 2020, funded a study exploring how the introduction and adoption of improved cookstoves affected family time use and gender dynamics in rural Kenya. The results of this research were published in the "Energy Research & Social Science journal." This research showed that most of the women in the study used time freed up because of reduced cooking times to engage in economically productive jobs, suggesting that improved cookstoves significantly impact time-poverty in households reliant on inefficient fuels.

Highlighting Leadership in the Clean Cooking Sector: CCA launched the "Leadership Series" and "Woman Energizing Change Series" in January 2020 to promote innovation and success in the clean cooking sector and highlight women entrepreneurs' essential roles. Both series include interviews with stakeholders from across the sector and focus on business expansion, pioneering technology, investment strategies, and addressing the challenges of the COVID-19 pandemic.

Developing Investment Cases for Nairobi and Kathmandu: CCA and Duke University worked to finalise an urban cost-benefit and policy analysis for Nairobi and Kathmandu in 2020. For each location, the analysis modelled partial uptake and use of cleaner cooking choices and the corresponding net benefits of each transition. The results were meant to inform policymakers about the relative merits of these different strategies for accelerating clean cooking transitions in the respective settings and included a menu of options based on policymakers' priorities and recommendations for other governments.

4.3.4 Recommendations related to Kenya

While Kenya hosts several companies for clean cooking, it lacks effective policies to create an enabling environment. The Kenyan government is making good strides in policy formulation related to various aspects of clean cooking, e.g., the e-cooking policy and has agreed to continue collaboration with CCA on establishing the world's first delivery unit for clean cooking in Kenya.

The following proposals and ideas for the enabling environment could be integrated:

Collaborative perspective: In Kenya, there has been a lack of robust collaboration between the government and the players in the clean cooking industry. Establishing a permanent, responsible institution and collaborative planning process for the cooking sector could ensure that policies, strategies, and data are better aligned among the various stakeholders, including the Ministries of Environment and Forestry, Energy and Health, local authorities, and critical non-state actors. The CCA is recommended to integrate a collaborative dimension into the delivery unit: both in terms of collaboration with civil society and the private sector and in exploring synergy effects between sectors: For instance, the synergy effects of linking

the clean cooking policy and electricity policy by having variable tariffs that favour cooking at off-peak hours.

Data and monitoring: In Kenya, there is also a lack of data for planning. An improved system for data collection and analysis in the cooking sector could be developed to improve the accuracy of projections and the quality of policy formulation in the future. CCA tools like the Clean Cooking Explorer or the mapping end user categories[20] done in 2021 show pathways for improvement in this area.

Taxation and financing: CCA has provided research and arguments for the government to remove the cookstoves taxes and this. On the other side, carbon credits have the potential to drive the whole industry, and CCA can help ensure that there are supportive policies for making viable carbon markets that have integrity, which begs for the establishment of the Cookstove Integrity Council.

Updated Country Action Plan: A dedicated, comprehensive long-term strategy for the transition of the cooking sector could guide policymakers and all relevant stakeholders. Such a strategy ideally defines clear and realistic targets for the sector's future development in line with other relevant national planning documents. The current Country Action Plan from for clean cooking from 2013 does not fulfil this need.

According to the CCA, these ideas are already integrated into the development of the delivery unit in Kenya.

4.4 CCAs engagement in Nepal

The Clean Cooking Alliance (CCA) has been working in Nepal since 2017. It formally started working through the Nepal Health Demonstration Project (2017-2019), the first of its kind, demonstrating the possibilities of electric cooking in Nepal. CCA has worked closely with the main government agency for renewable energy, the Alternative Energy Promotion Centre (AEPC), and other stakeholders in the clean cooking sector in Nepal since 2017 in this process.

A dedicated unit of CCA was established at the International Centre for Integrated Mountain Development (ICIMOD) in 2018. Nepal is an exciting example of how the CCA can support the enabling market environment, especially the policy environment for clean cooking.

4.4.1 The historical and current relevance of clean cooking in Nepal

Traditionally, people in Nepal have used various kinds of locally made traditional cooking stoves by burning fuelwood. Even today, nearly 70% of households still depend on fuelwood for cooking meals (MoF, 2021-21)[21]. As a result of the incumbent indoor pollution, an annual mortality of 22,000 people, predominantly women and children, has been stipulated by the WHO 2015[22].

Concerted improved cookstoves (ICS) programs were initiated in the country as early as the 1950s with the introduction of Indian models called "Hyderabad and Magan stoves" through Tribhuvan Village Development Program. Then several sporadic efforts were made by various institutions like Agriculture Engineering in 1981, with Food and Agriculture Organization, FAO, supporting the Community Forestry Development Project (CFDP) in disseminating prefabricated ceramic stoves (ICS). In 1996, the ICS-related programs became more systematically managed and coordinated with the establishment of the Alternative Energy Promotion Centre (AEPC), The Government of Nepal (GoN) and several other renewable energy-

[20] https://cleancooking.org/news/visualizing-the-market-opportunity-for-clean-cooking-in-sub-saharan-africa/

[21] Government of Nepal Ministry of Finance. (2021). *Economic Survey 2020/21*

[22] World Health Organisation, & UNFCCC. (2015). *Climate and Health Country Profile-2015 Nepal Demographic Estimates*.

related activities. In 1999, the 'National ICS Programme (NICSP)' supported by the Kingdom of Denmark, was initiated with a redefined approach to the dissemination of ICS. The critical approaches adopted by programs in Nepal such as the 'National ICS Programme (NICSP), include:

- participation of central, regional, and local level partners,
- targeted to rural women,
- information dissemination and awareness campaigns to create demand,
- built-on-site ICS designs to suit users' demands,
- skill transfer at the local level,
- no direct subsidy to the users,
- regular follow-up, monitoring and field testing,
- and integration of ICS in other rural development programmes related to energy, environment, health, gender etc.

Also, metallic ICS stoves have been promoted in Nepal since the early 1970s under the Swiss Development Program to meet both cooking and heating needs. A systematic approach towards metallic stove promotion commenced in 2009, especially targeting the Tarai (the southern flat lands of Nepal) where portable stoves are prevalent.

Figure 11: Map of Nepal. Tarai is the light grey belt furthest to the south. The yellow circle places the Kavre district on the map.

One of the main actors in Nepal's clean cooking sector in the Dutch NGO, SNV. SNV initiated the promulgation of biogas in 1992. SNV also supported the establishment of the Biogas Sector Partnership Nepal (BSP-N) in 2003 to further develop and disseminate the use of biogas as a low-cost and sustainable energy source in rural Nepal. The program furthermore focused on strengthening the private sector to help

boost and provide quality service to the beneficiaries. SNV is still actively promoting biogas in Nepal, and Nepal is one of the countries in the world with the highest percentage of biogas digesters for domestic use.

Electric cooking received prominence in Nepal in 2018, after the Ministry of Energy, Water Resources, and Irrigation (MoEWRI) published the White Paper announcing the 'Electric stove in every house campaign'. Similarly, Nepal's 15th Development Plan (2019/20-2023/24[23]) highlights the government's vision of a 'Smokeless kitchen', and strategy to replace solid biomass with electrical energy (NPC 2019). The Government of Nepal has set a target to achieve universal access to electricity and increase per capita electricity consumption to 700 kWh by 2023 (compared to the current level of 20 kWh; NEA 2019[24]). Household cooking, which accounts for the major fraction of the total energy consumed in Nepal, is expected to play a key role in improving the country's per capita electricity consumption.

In 2018, the Clean Cooking Alliance (CCA) initiated a pilot program in the Kavre district close to the capital, Kathmandu. Closely following this initiative, the electric cooking program conducted by EnDev, began in another part of the Kavre District. The two large international NGOs, Practical Action and SNV are also active in clean cooking alongside the National Renewal Energy Program, NREP, AEPC (naturally), and MECS together with several NGOs. The World Bank has furthermore plans to initiate an electric cooktop promotion programme soon.

One of the main energy development strategies of the government is to improve the effectiveness and reliability of the distribution networks and to improve access to electricity (NPC 2019[25]; MOEWRI 2018[26]). These goals indicate the government's growing interest in promoting electric cooking in the country. GoN has still not defined concrete targets and conducive laws and regulations to make electric cooking an attractive choice for the people on a national level. On a regional level, AEPC has formulated plans for promoting electric cooking focusing especially in the Tarai areas on replacing the rampant direct use of animal dung which is highly polluting[27].

There are no specific policies that deal with electric cooking. Promoting electric cooking is aligned with the government's clean cooking programs and the Sustainable Development Goals Initiatives. Both programs encourage tier 3 and above cooking systems. The Energy White Paper too emphasises the use of clean cooking and states the need to promote e-cooking. This emphasis arises due to increasing stress on national expenses from the import of LPG from India on one side, and growth in the national electricity generation on the other side which is expected to exceed the electricity consumption in the coming years.

4.4.2 CCA as a market builder in Nepal 2019-2022

CCA's engagement in Nepal has been closely coordinated with AEPC, the coordinating entity of renewable energy and energy access in Nepal. In 2019, the CCA entered a Memorandum of Understanding with AEPC that describes the roles and tasks of the two parties.

AEPC agrees to support the efforts of CCA concerning the project through the following:

- Share expertise and understanding of the clean cooking sector to support the development and implementation of the Country Action Plan (CAP).

[23](NPC) Government of Nepal National Planning Commission. (2020). The Fifteenth Plan (Fiscal Year 2019/20 - 2023/24)

[24]http://www.lawcommission.gov.np/en/archives/12917#. Accessed in July 2020

[25](NPC) Government of Nepal National Planning Commission. (2020). The Fifteenth Plan (Fiscal Year 2019/20 - 2023/24)

[26] Ministry of Energy Water Resources and Irrigation. (MOEWRI). (2018). Energy White Paper.

[27] According to Mr Nawa Raj Dhakal, Deputy Director and Mr Mukesh Ghimire, Chief of Biomass Component

- Support the assembling of required information for the CAP development.
- Facilitate and lead consultations with the GoN and others for the CAP development.
- Support CCA to obtain funding for implementing the CAP from the GoN and other donors.
- Collaborate with CCA in the development and implementation of the Clean Cooking Explorer, CCE.

CCA agrees to support the efforts of AEPC with respect to the project through the following:

- In close coordination with AEPC, hire and manage all necessary consultants to assemble the required information for the development of the CAP.
- Provide a robust evidence base to inform policy planning and implementation of GoN programs.
- Facilitate the development and implementation of the CCE.
- Provide technical support for standards and testing development for various clean cooking solutions and technologies, support for implementation of the standards developed as well as support for laboratory setup for testing.
- Share experiences from other countries to support AEPC and ministries with planning and decision-making.

CCA's activities come in three main parts: Behaviour change campaigns, a Demonstration project and the development of the online tool, the "Clean Cooking Explorer".

Behaviour-change campaigns: In collaboration with the GoN and other partners, the CCA launched the Modern Cookstoves behaviour change campaign to promote smoke-free kitchens that are part of the GoN strategy. The program included community events with celebrities, social media messages, radio jingles, kitchen demonstrations, text messages, brochures, and stories in local newspapers. Of the closely targeted households, nearly 50% have purchased a clean stove.

Demonstration project: In 2019, CCA completed the two-year demonstration project "Maximizing the Health Benefits of Clean Household Energy in Peri-Urban Nepal," designed to support the Government of Nepal's objective to establish smoke-free kitchen communities and improve health outcomes through clean cooking. The project was implemented by Leadership of LEADERS-Nepal together with Junkiri Interactive, Ajummery Bikas Foundation, the Schatz Energy Research Centre at Humboldt State University, RTI International, and the University of Houston, with support from Rooster Logic, Keivtech Technology, Mountain Air Engineering, and other experts and local partners. The project also identified clean fuels and technologies that meet local needs and explored the best means of increasing access and encouraging their use.

The demonstration project included behaviour change campaigns, induction cook-stove market promotions, biogas repairs, electrical wiring upgrades, blood pressure screenings, lifestyle counselling by female community health volunteers, and a pilot conditional cash transfer program. Through the project, most of the direct users of the stoves in the intervention areas experienced significant reductions in systolic blood pressure, and substantial decrease in the use of traditional biomass stoves. The project also highlighted actions stakeholders could undertake to scale up electric cooking, biogas, and LPG. The initiative reached more than 600,000 people.

The project has increased access to and encouraged clean fuels and technologies. According to the highlights of the report in November 2020, the participants purchased and widely used electric induction stoves, leading to a significant reduction in the use of LPG and traditional stoves; community-based outreach activities were effective in increasing purchases and consistent use of clean cooking solutions; conditional cash transfers (CCT) where households were rewarded for not using their traditional stoves, had a significant impact on both the use of traditional stove (decrease) and LPG (increase).

Figure 12: Induction stove piloted in the demonstration project. Photo: CCA

The Clean Cooking Explorer: In 2021, CCA provided multiple forms of support to the government to help achieve its ambitious targets. In partnership with the World Resources Institute, Kartoza, KTH Royal Institute of Technology, the AEPC, and Nepal Open University, CCA made substantial progress in building the Clean Cooking Explorer—an online, open-source, and interactive data platform that is the first of its kind focused on clean cooking. The platform integrates geospatial data related to the potential demand and supply of clean cooking services and empowers users to visualize, interpret, and analyse these datasets. This enables data-driven and region-specific planning, coordination, and decision-making to support the uptake and adoption of clean cooking. Using Nepal as a test case, CCA and its partners will expand the Clean Cooking Explorer to additional countries.

Substantial progress was made in building the Clean Cooking Explorer (CCE), which was launched in March 2021. Among Nepali stakeholders, however, there is some scepticism concerning the CCE: The first concern is about the sensitivity of the information collected, where it was expressed that it was important that a national Nepali organisation collected this information. The second concern is about the tool's effectiveness where many stakeholders expressed the need for a dedicated organisation to monitor the authenticity of the information that various sources will provide. The CCE was viewed as a tool in the making that if the issues were correctly addressed, could help GoN advance its strategies on clean cooking.

Standards for electric cooking: CCA also led the development of Nepal electric cook stoves standards for electric induction stoves, which have been acclaimed nationally. However, as it is only a voluntary process, it remains to be seen whether it will influence the quality of induction cooking stoves in the market.

The collective results of the baseline assessments, demonstration project and results, and standards work will inform future behaviour change, market development, and policy efforts to support sustained and widespread access to and adoption of clean cooking in Nepal.

The CCA and AEPC view the project's results as successful and will continue the partnership. The following steps are:

- CCA and AEPC will both work towards building a Memorandum of Understanding (MoU) in 2022 to formalize the relationship between the two parties.
- AEPC will continue to support CCA in obtaining funding for the Country Action Plan, CAP; CCA will continue collaborating with AEPC to implement the CAP in Nepal.
- CCA will continue to provide technical support to AEPC to maintain the CCE.
- AEPC will involve other stakeholders in Nepal to make use of the CCE.

4.4.3 CCA as a convener and advocate for clean cooking in Nepal

The demonstration project was much appreciated by the GoN (AEPC and the National Planning Commission) and the NGOs that are engaged in promoting clean cooking technologies in Nepal. The initiative was acclaimed as a timely intervention aligned with the Government's plans and programs for achieving Clean Cooking Solutions for all by 2030 and effectively implementing the Biomass Energy Strategy 2017.

The basic requirements for the using e-stoves on electricity capacity, reliability, and safety, together with comparative costs (electricity versus LPG) highlighted in the project, provide the proof points needed for advocating for the need to strengthen the electrical distribution network and internal electrical wiring within households. This is especially important, as it enables Nepali stakeholders to promote electrical cooking sustainably integrated with rural electrification planning. The evidence of comparative costs is also a vital factor in convincing potential users.

Nepali stakeholders felt very engaged in the process and there is a significant extent of ownership to the results. Nepali stakeholders performed many of the studies in the project. In contrast, the Clean Cooking Explorer (CCE) is viewed with more scepticism and where Nepali stakeholders felt less involved.

In Nepal, CCA's role as a convener and advocate for the sector is not evident; AEPC, which has the legal mandate, performs this role. In addition, COVID-19 made it difficult for CCA to convene activities. Therefore, in Nepal, CCA's role currently is to support AEPC. One of the most valuable contributions CCA has made in this period has been the support to the formulation of a Country Action Plan (CAP) for clean cooking that for the first time has included substantial focus on electric cooking with targets, budgets, institutional plan for market development, and necessary inputs concerning electric infrastructure and post project repair and maintenance. Among the people interviewed, the realisation of the CAP was seen as one of CCA's main contributions to the clean cooking sector in Nepal.

In Nepal, an NGO must be registered as an NGO in the country, and CCA is not registered in Nepal. The legality of CCA's presence in the country has been questioned by many of the people interviewed, also national level stakeholders. In general, many stakeholders are concerned that unless CCA formalises its presence in the country, all its activities to date may become invalid: The CAP will undoubtedly be adopted, but will it be implemented? Implementation will require coordination with the electricity company and local governments, how will this be ensured? The Clean Cooking Explorer, how will that be updated and maintained? The technical standards are there, but how will they be implemented?

The CCA is aware of all these needs and are currently addressing them in the planning. The CCA is also considering if a delivery unit could be established in Nepal to follow up on present achievements and future needs for follow-up and implementation of the CAP.

4.4.4 Recommendations related to Nepal

As with many other countries, Nepal is unlikely to reach universal access by 2030; however, the year is unimportant. Regardless of the timeline, universal access is an ambitious target, and several factors inhibit the possibility of achieving the set goals. The CCA can address some of these by **continuing to play a key role upstream concerning policy and regulation matters and play a role in developing efficient mechanisms governing the clean cooking sector** specifically in monitoring achievements towards the target. National stakeholders can perform the work if capacitated.

Business as usual is not the pathway for achieving universal access to clean cooking; it requires implementation arrangements where a more significant number of stakeholders can have their own space to work; it requires effective alignment with gender aspects, health, and economic development; and it requires that roles and responsibilities in the governance framework are specified.

Support is required to capacitate both national and local level government. Without good governance and accountability practices, universal access cannot be achieved, which could be a future focus area for CCA in Nepal. Activities such as community awareness, capacity building and awareness raising via community mobilisation can be left to the other stakeholders.

It is recommended that CCA reconsiders its legal status in the country, weighing the pros and cons towards formalising its presence in Nepal in line with the requirements of the government. It is possible that a delivery unit in Nepal could serve in the same capacity.

4.5 Efficient use of the Norad grant

This subchapter will address the following evaluation questions in the Terms of References:

- Assess UN Foundation's system to assure that Norwegian funds are spent on agreed CCA activities.
- How effectively are CCA's management and operational structures set up to successfully achieve the outcomes under Norway's support?
- To what extent has CCA strengthened its monitoring, evaluation, and learning (MEL) systems?
- How successfully has CCA adapted some of its core programs (Market Strengthening program, communications and advocacy, research, standards, and testing, etc.) to adjust to a rapidly changing ecosystem?
- How has CCA responded to Covid? How has Covid impacted CCA's work and progress towards its goals? And what are the lessons learned/adaptations that CCA made during Covid? What permanent changes have these led to?

4.5.1 Management of the Norwegian support to the CCA

The current core agreement with Norad leaves it to the discrepancy of CCA to define the activities under the agreement each year. This takes place each year in the annual implementation plan. During the development of this plan, CCA plans its annual budget, flagging specific activities to the Norad agreement. Subsequent expenditure on these activities is then accounted to the Norad funding. CCA submits an annual financial report and budget for the next year following these principles.

CCA uses Norwegian support to finance its core activities, and supplement activities funded by other donors. The activities are complementary and CCA appears to be able to manage the different expectations of donors. In the latest budget overview, Norad covered 30% of CCA's budget in 2020-2022.

Through analysis of the annual implementation plans and annual reports of the period, it is clear how the CCA plans activities in detail including risk assessment and anticipated milestones, which then are implemented. However, several activities are discontinued for various strategic reasons –lack of sufficient interest among key stakeholders or lack of funding. This was undoubtedly the case during 2020-2021 when the COVID-19 pandemic changed everything.

CCA is constantly exploring various funding opportunities and is also considering what might not be achievable if funds cannot be secured. As an example, in the 2022 plan, in the circumstance that planned funding sources do not materialise, the following areas were considered for decrease: the Nepal and Innovation programs, the work related to implementing the latest research, and the work on the gender strategy, which will either be downsized or expanded, depending on the availability of funding.

It is our interpretation that while the CCA develops very well-thought-through activity plans, a high degree of adaption to circumstances is needed in the implementation of these, both in terms of estimating whether an innovative activity is as promising as initially thought (and if not, change plans), and in terms of having to plan for anticipated funding of a relevant initiative, while at the same time being able to adapt in case that funding does not materialise. At the CCA level, the various program managers, supported by an internal grants and contracts team, examine finances monthly and make choices regarding when and how to release funds to facilitate the efficient execution of the agreed upon work plan.

This way of having to organising the work is likely to make it difficult for CCA to communicate clearly what it can achieve when, and there is a risk of disappointing expectations among stakeholders, In that situation, CCA must understand the needs of the eco system well and prioritise beforehand as the example above shows CCA practices. In addition, we recommend that CCA **connects activities to indicators in the MEL framework** (forthcoming) in the implementation plans to support the prioritisation.

4.5.2 CCAs financial administration

CCA is hosted by the United Nations Foundation (UNF) and adheres to the various administrative and financial policies and regulations in place within the UNF. The previous review from 2017 discusses the CCA and UNF's structure, routines, and procedures and finds that good systems are in place to ensure sound and efficient management of the organisation's funds. For example, contracts under CCA are primarily based on a competitive procedure through reliable systems with pre-set criteria and routines that follow UNF guidelines.

As the CCA annually defines the activities under the core agreement, there is little risk that funds are not used on agreed actions. CCA will also provide additional information on the various budget lines relevant to Norwegian funding during annual and casual bi-monthly/quarterly meetings. This is considered acceptable, particularly when considering the task's normative nature, the assistance's high relevance, and the partner's demonstrated effectiveness in the past.[28]

The many services offered by UNF back-office support are highly beneficial and cost-efficient for CCA. However, CCA is not a legal entity, and there is no dedicated financial audit of the CCA but of UNF as a whole. The same goes for other alliances hosted by the UNF. Concerning the financial transparency of CCA, the annual reports include a page on expenditures, and these are publicly available through CCA's website.

We find UNF's financial and administrative management under the new core agreement adequate to ensure that Norwegian funds are spent on agreed activities. If Norad needs more certainty, there is always the option of financing a financial audit dedicated to the CCA activities managed by UNF.

[28] Norad (2018) Decision document for CCA core funding.

4.5.3 How did CCA respond to Covid challenges? What did CCA learn from Covid?

CCA, like many others, was forced to implement activities online due to the outbreak of COVID-19. The previously described strategy process, took place online and training sessions in technical standards for Spanish and French speakers were conducted online, etc.

CCA expenditure was below budget in 2020 and 2021 as many activities were put on hold. However, the CCA team was not idle during the period. The companies supported in the marketing strengthening project felt that CCA understood their situation and able to meet their needs for flexibility.

Another COVID-19-response from CCA was two studies that examine the linkage between household air pollution exposure and COVID-19 infection. Both studies are still ongoing and try to uncover whether individuals who are chronically exposed to air pollution may be disproportionately affected by the ongoing pandemic.

Data from CCA's monitoring and the interviews concluded that COVID-19 did not set the clean cooking sector back. With LPG there was an issue concerning retail chains, but for many other solutions some companies even experienced an increase in demand. The fact that men were more in the kitchen during lockdowns may have increased household's willingness to pay for cleaner cooking solutions. A future study could inform strategies that include this gender aspect.

4.5.4 CCA as a learning organisation

In 2020, CCA developed a new Monitoring and Evaluation Framework with assistance from an external firm. This was one of the recommendations from the previous review from 2017. The framework includes 31 Standard Indicators that are connected to the Theory of Change[29].

Data collection for 2020 and 2021, was executed in 2020 and 2022, and CCA has these data to follow progress on lines of output and outcomes of those. For example, there is an indicator for CCA-authored publications (output) and number of citations of CCA publications (outcome). The framework also includes sector-level indicators like "Percent change in US$ investment in the clean cooking industry" that indirectly track the impact of CCA's work. Even though it is nearly impossible to attribute sector development to the CCA, it is the kind of impact CCA seeks to create, and they are therefore relevant to monitor, if not for evaluation purposes, then for learning and "business intelligence" purposes.

The Market Strengthening program has additional indicators that monitor sector development, for instance, "mobilised multilateral investments" and "mobilised private investments". Data on sector development are collected through industry surveys attempting to cover all clean cooking companies, also companies not supported by the CCA.

CCA's impact report uses established methodologies to estimate the impact of its programs building on the data collected in the monitoring system and additional data. These methodologies will be further refined as future reports are produced. The impacts related to health, climate, environment, and gender articulated in this report result from the efforts of diverse stakeholders with whom CCA partners to promote clean cooking.

The impact report is intriguing. However, only the last page covers the main contributions to the ecosystem that interviewees saw as the unique added value of CCA. There are many clean cooking interventions, and many reports about the number of people reached, CO_2 emissions reduced etc. But there is only one CCA, and it is a pity to measure the impact of CCA as if it was a cookstove program even though that could be easier to communicate to donors. Hopefully, the methodology developed can help set a standard for how

[29] In the initial framework from 2020, there were 37 indicators. These were revised in 2021, and there are now 31.

clean cooking interventions quantify their results, and the work could, in that way, also contribute to integrating health and gender impacts in results data.

CCA is developing an organisation-wide learning agenda to ensure a systematic approach to learning, which is planned to be finalized in 2022. CCA staff appreciates the MEL system and experiences that it has increased the efficiency of CCA's knowledge at the program and organisation levels. Annual implementation plans and annual reports in the period also clearly show that CCA gives reflection and learning high priority. CCA is planning to revise its Theory of Change which is another evidence of CCA being an organisation that emphasises learning and applying learning in practice.

All the reports mentioned above are accessible on CCA's website.

4.5.5 Recommendations concerning future Norwegian support to CCA

How CCA is managed and can operate partially depend on the agreements made with its donors. Norad is one of CCA's prominent donors and has been the supporter of the Theory of Change, the Systems Strategy and the MEL framework. In this unique relationship CCA has with Norad, it is relevant to propose a few recommendations concerning how Norad could support CCA in continuing on its current path.

It is recommended that **future support continues as longer-term financing agreements** as it creates unique added value to the clean cooking ecosystem that, in turn, significantly contributes to the achievement of several development goals.

It is recommended that a future financial agreement between Norway and the UNF concerning the financing of the CCA **integrates selected standard indicators from CCA's monitoring framework and indicators from the Market Strengthening program as targets or objectives** in the agreement. Several indicators are well suited to evaluate CCA's contributions to the sector even though sector-wide developments can never be attributed directly to CCA.

However, CCA is also revising its Theory of Change, and caution should be taken only to contractualise indicators that have proven relevant. It is recommended that the indicators chosen measure sector development or outcomes, not output.

5. Conclusion

This report has reviewed the Norwegian support to the Clean Cooking Alliance (CCA) during 2019-2021, including activities in 2022 where possible. It is a repetition of a similar review of the Norwegian support to the Global Alliance for Clean Cookstoves (GACC) in 2017. The alliance changed its name in 2018, and GACC and CCA are the same entity.

The CCA is the central stakeholder in the clean cooking ecosystem composed of clean cooking companies, governments and government entities, multi-lateral organisations, research institutions, NGOs, financial institutions, not to forget the end users.

The Norwegian support in the period has been a three-year core funding that has left it to the discrepancy of CCA to define activities annually. The absence of "ring fencing" of the assistance and the long-term nature of the agreement has significantly contributed to CCA's ability to convene the stakeholders in the sector and advocate for clean cooking.

The main findings and conclusions in this report are summarised below, structured on the main evaluation questions of this review.

5.1 What has the progress against outcomes set out in the cooperation agreement with Norway 2019-2021 been?

The two outcomes of the cooperation agreement with Norway are: 1) Universal access to clean cooking in 2030 and 2) Building a sustainable clean cooking market. In both areas, there is progress and CCA has contributed to that progress.

Concerning universal access to clean cooking, access to clean cooking fuels and technologies is steadily increasing. The rate of increase will need to rapidly accelerate to reach 100 % by 2030 and most people interviewed do not find that realistic. Nor do they find the exact year very important. Seventy governments have integrated clean cooking in their Nationally Determined Contributions (NDCs), and there is generally increased awareness among governments in developing countries.

Concerning building a sustainable market, clean cooking companies are increasingly attracting investments. Carbon credit markets are increasingly interested in clean cooking credits, especially for improved cooking stoves (ICS) that use solid biomass as fuel, and the recent surge of carbon credit is currently debated in the sector. Another indication of market progress is the Spark+ Africa fund that was launched in 2021 as the world's first clean cooking impact investment fund.

5.2 To what extent have recommendations from the previous review been incorporated?

CCA has largely incorporated the recommendations from the previous review. The strategy development was a key recommendation from the last review that the CCA has extensively adopted, perhaps more ambitiously than envisaged in the previous review. CCA developed The Clean Cooking Systems Strategy through an inclusive process involving more than two hundred stakeholders in the clean cooking ecosystem. Several stakeholders have valued the process, and CCA currently pursues many of the ideas that came out of it.

Developing a Theory of Change and a Monitoring and Evaluation framework are two other vital recommendations the CCA has adopted. The Monitoring and Evaluation framework is actively used for monitoring and learning today. One of the recommendations from the previous review was that CCA should focus on high impact, and CCA is using the MEL system for assessing the unique added value it contributes.

5.3 To what extent is CCA acting as an ecosystem leader for clean cooking?

While clean cooking is progressing, the overall situation is dismal: 2.4 billion people do not have access to clean cooking solutions, resulting in an estimated 3.4 million deaths and 1 Giga tonnes of CO_2 emissions annually. The annual cost of damages to health, local economies, and the climate is estimated at 2.4 trillion USD per year compared with the "only" 4.5 billion USD annually it is estimated to require achieving universal access to clean cooking. The current level of support for clean cooking is only 134 million USD or less than 3% of the estimated required amount.

The CCA does not have a mandate to literally "lead" the ecosystem. The CCA is an initiative hosted by the United Nations Foundation, which is an NGO, and the CCA is not a membership-based alliance or industry association. Nor is it a multilateral organisation. CCA is leading the ecosystem from a neutral position in the landscape by convening the stakeholders, advocating for the sector, supporting research that connects science to policy, capacity-building stakeholders, supporting clean cooking companies with technical assistance and small grants, supporting governments, multilateral organisations, and private investors to engage in clean cooking. There is no other entity on the global scene that fulfils this role.

The strategy process is an excellent example of the role CCA is playing, and it has been one of CCA's significant successes in the period. CCA also host a Clean Cooking Forum on a biannual basis and in October 2022, CCA hosted the forum in Ghana in collaboration with the Ghanian Government with more than 700 participants from all other the world. In 2019, the forum was organised in Kenya in partnership with the Kenyan government. The CCA participates in multiple global initiatives as the representative of clean cooking, for instance the climate summits, where the CCA is experiencing increased interest in the issue. Stakeholders in the ecosystem agree that CCA has raised the sector's profile and created traction.

CCA also supports market building, and the initiative for the Spark+ Africa fund initially came from CCA. Spark+ Africa is a good example of the impact CCA can have as a thought leader for clean cooking. Current promising activities in CCAs portfolio are the User Insights Labs that have been developed based on companies' expressed needs to understand user adoption better. Other initiatives that came out of the strategy process are the Catalytic Finance Accelerator which is an initiative that aims at unlocking investments to clean cooking and the Delivery Units Network, which aims to create dedicated clean cooking units within national governments in developing countries.

5.4 What is the added value of CCA as a development partner for Norway?

The financial bill that finances the Norwegian support to the CCA, has access to energy and reduction of global CO_2-emissions as its objectives. All activities carried out by the CCA contribute to these objectives, but the contribution is difficult to quantify. In addition, CCA achieves the most impact in collaboration with other stakeholders and in providing the groundwork that enables other actors to contribute directly to energy access and reduce CO_2-emissions. This way, the support given to CCA offers unique added value to Norway's development objectives.

During the period 2019-2022, CCA has served as a "think tank" for clean cooking for Norad and other development partners such as the Africa Europe Foundation (AEF) and the Nordic Environment Facility Cooperation (NEFCO), among others. Increasingly, the CCA is also being invited to serve for private investors in this capacity.

Long-term financial commitment in the clean cooking sector can take many forms and supporting the CCA. as Norad has done in 2019-2022, is one form that adds unique value to the sector as a whole. In the context of the Norwegian support to energy access more broadly, for instance the support given to EnDev and ESMAP, there is a high synergy of action with the support given to CCA. CCA is the thought leader of clean cooking, and the entity other initiatives look to for guidance for instance concerning technical standards and definitions of clean cooking vs. transitional solutions. Ensuring alignment between the science behind

clean cooking, and the policies and financial instruments such as carbon credits that can accelerate access to clean cooking, is instrumental in ensuring credibility and trustworthiness in the sector and the effectiveness of action.

The contributions from CCA to advance clean cooking are valued by far most in the clean cooking ecosystem even though all stakeholders do not take the same positions as CCA does and have needs not fulfilled by the CCA. In this period, CCA has become better at collaborating with the stakeholders in the ecosystem and has raised the sector's profile as a whole.

6. Overview of recommendations

The following recommendations have been presented in this report:

6.1 Recommendations to the Clean Cooking Alliance

CCA1: It is recommended that the CCA focuses on what it believes it does best, communicates the choices it can fulfil, and highlights what it believes it is best suited for. Consumer awareness campaigns, for instance, could be an area that the CCA feels is important but can be fulfilled better by someone else, while the CCA focuses on expanding the knowledge base on consumer behaviour which is one of the priority areas that came out of the strategy process.

CCA2: In general, the CCA appears to be making the most significant impact in collaboration with others. In recognition of the scarce resources of the CCA compared to the magnitude of the issue, it is recommended that the CCA focuses on how it can support other actors to fulfil the sector's needs to the broadest extent possible.

CCA3: While the CCA is very aware of the fault lines and positions in the sector and is conscious of not being biased, it is recommended that CCA becomes more explicit on what the right solutions are: Being more explicit can take many forms. For example, the CCA cannot define a road map towards clean cooking for the world or a given country – CCA does not have that mandate – but can determine the main choices that need to be made and the pros and cons of each of these.

CCA4: It is recommended that the CCA better communicates what type of organisation it is. While in most cases, the legal status of the CCA is of no concern to the actors in the sector, it is our analysis that the current lack of clarity provides too ample room for interpretation.

CCA5: Many of the most promising ideas in CCA's portfolio have come out of the consultative process that was an integral part of the "Clean Cooking Systems Strategy". CCA is recommended to follow up on this participatory approach to ensure a steady stream of initiatives that address the ecosystem's needs.

CCA6: Concerning carbon financing, it is recommended that the CCA seeks to coordinate with the stakeholders in the ecosystem to avoid duplication of effort and, worst case, conflicting recommendations. Besides carbon programs like Gold Standard, key actors to collaborate with could be EnDev, MECS, and ESMAP.

CCA7: CCA is recommended to build a country level approach that focuses on capacitating other actors from a neutral position in the ecosystem and on adding unique value to the global perspective of how universal access to clean cooking can be achieved. In some countries, a clean cooking delivery unit could be part of the approach.

CCA8: It is recommended that CCA defines the type of relationships it seeks on the country level with clean cooking associations to align the expectations and collaboration better. In Kenya, there could be a role for CCA in supporting CCAK with knowledge and capacity giving clarity on various concerns.

CCA9: The following proposals and ideas could be integrated into the development of the world's first delivery unit for clean cooking in Kenya[30]:

- **Collaborative perspective:** The CCA is recommended to integrate a collaborative dimension into the delivery unit: both in terms of collaboration with civil society and the private sector and in

[30] According to the CCA, these ideas are already integrated in the design of the delivery unit in Kenya.

exploring synergy effects between sectors: For instance, synergy effects of linking clean cooking policy and electricity policy by having variable tariffs that favour cooking at off-peak hours.

- **Data and monitoring:** An improved system for data collection and analysis in the cooking sector could be developed to improve the accuracy of projections and the quality of future policy formulation. CCA tools like the Clean Cooking Explorer or the mapping end user categories done in 2021 show pathways for how improvement can be made in this area.
- **Taxation and financing:** The CCA has provided research and arguments for the government to remove the cookstoves taxes. On the other side, carbon credits have the potential to drive the whole industry, and CCA can help ensure that there are supportive policies for making viable carbon markets that have integrity, which begs for the establishment of the Cookstove Integrity Council.
- **Updated Country Action Plan:** A dedicated, comprehensive long-term strategy for the transition of the cooking sector could guide policymakers and all relevant stakeholders. Such a strategy ideally defines clear and realistic targets for the sector's future development in line with other relevant national planning documents. The current Country Action Plan for clean cooking from 2013 does not fulfil this need.

According to the CCA, these ideas are already integrated in the development of the delivery unit in Kenya.

CCA10: In Nepal, support is required to capacitate national and local governments. Activities such as community awareness, capacity building awareness creation community mobilisation can be left to the other stakeholders.

CCA11: It is recommended that CCA reconsiders its legal status in Nepal weighing the pros and cons towards formalising its presence in line with the requirements of the government. It is possible that establishing a delivery unit could serve in the same capacity and fulfil the needs mentioned in the recommendation above (CCA10).

CCA12: It is recommended that CCA connects activities to indicators in the MEL framework in the implementation plans to support prioritising activities in cases where funding does not materialise as anticipated.

6.2 Recommendations to Norad

NOR1: While CCA has been able to package the sector better and has been able to attract new actors to the issue, however, to advance clean cooking to the level where it belongs, requires engagement from stakeholders with substantially heavier legal mandates and political power. Norad is recommended to seek pathways to engage political decision-makers, for example, through a collaboration with the Dutch Agency (RVO) to engage the Norwegian and Dutch foreign ministries in rallying more international donors to the issue. CCA could assist in such a process.

NOR2: It is recommended that future support continues as longer-term financing agreements as it creates unique added value to the clean cooking ecosystem that, in turn, significantly contributes to the achievement of several development goals.

NOR3: It is recommended that a future financial agreement between Norway and the UNF concerning the financing of the CCA integrates selected standard indicators from CCA's monitoring framework and indicators from the Market Strengthening program as targets or objectives in the agreement. Several indicators are well suited to evaluate CCA's contributions to the sector, even though sector-wide developments can never be attributed directly to CCA.

However, CCA is also revising its Theory of Change, and caution should be taken only to contractualise indicators that have proven relevant. It is recommended that the indicators chosen measure sector development or outcomes, not output.

6.3 Recommendations to international donors

ID1: International donors are recommended to support clean cooking financially either through CCA or independently. The current level of financing is insignificant compared to the scale of the issue: 130 million USD compared to the estimated 150 billion required to reach universal access by 2030, which is the target that all countries in the world have accepted.

ID2: Through blended finance mechanisms or public-private partnerships, international donors can also help private equity into initiatives such as the Catalytic Finance Accelerator which has the potential to unlock significant investments in the sector.

ID3: Once the delivery unit concept has been developed and tested in Kenya, country-level delivery units could also become prime candidates for internal funding for donors with country-level engagements in energy, climate, health, gender, youth, poverty alleviation, private sector development, etc.

ANNEX 1: EVALUATION MATRIX

EQ		OECD/DAC		Interview question/question-theme
	CCA as a market builder		**A**	
3.5	How has CCA's Market Strengthening program adopted a comprehensive approach to building sustainable market systems for clean cooking?	Relevance	a1	What are the main challenges for investors and companies? How can CCA mitigate these? What are the main challenges for governments? How can CCA mitigate these?
		Coherence	a2	Is CCA coordinating activities with other business catalysts/market builders? Are there overlapping activities?
1.1	To what extent is CCA building a dynamic, financially sustainable clean cooking industry?	Effectiveness	a3	What is working well for CCA business building efforts; what is challenging?
3.6	How has the Market Strengthening program established proof points for sustainable business models and market systems?			
3.7	How has CCA engaged existing and new partners to spur innovation and crowd-in additional financial and nonfinancial resources? What are the results of these engagements?		a4	To what extent is CCA achieving its intended results? What are the key reasons for this?
2.4	To what extent has CCA's support for clean cooking enterprises pivoted and adapted to the scarce resources in the ecosystem?	Impact	a5	Where is CCA making a big difference for the market? What would be missing if we did not have CCA?
			a6	Are there unintended effects of CCA's support?
2.5	What activities and engagements have CCA commenced to mobilize investment to support clean cooking enterprises? How is CCA working towards a sustainable 'exit' from the clean cooking ecosystem?	Sustainability	a7	Can the companies continue if CCA stops its support? [Alternative: Can you continue without CCA's support] How can CCA exit its activities?
			a8	What are the risks for the clean cooking market? How can CCA mitigate these?
	CCA as a convener and advocate		**B**	
1.2	To what extent has CCA been able to contribute to reaching universal access to clean cooking by 2030?	Relevance	b1	Universal access to clean cooking in 2030 - are we on track? What is needed, and what can CCA do?

4.2	To what extent are CCA's strategy and programs coordinated and complementary with other development partners?	Coherence	b2	Is CCA coordinating activities with other actors? (Governments, agencies, programs, financial institutions, research institutions, NGOs?) (national or global)
2.3	How effectively is CCA providing information, data, and analytical resources to stakeholders in the clean cooking ecosystem?	Effectiveness	b3	In what way are the actors in the ecosystem benefitting from CCA's activities (see ecosystem map) [Alternative: How are you benefitting from CCA?]. (dimensions: national or global)
3.2	To what extent is CCA strengthening national and local capacities/partners/governments/ NGOs etc. to promote clean cooking and achieve results?		b4	To what extent is CCA achieving its intended results? To what extent is CCA using local capacities?
3.3	To what extent is CCA providing thought leadership to inspire and influence transformational change in partner countries, in particular those listed in the background of these ToRs, and in the global energy access agenda?	Impact	b5	Is CCA making a big difference in the ecosystem? What would be missing if we did not have CCA?
3.8	To what extent is CCA providing unique value-add and thought leadership to clean cooking and climate approaches in the ecosystem?		b6	Are actors picking up on CCA learning?
4.1	What role has CCA played in support of the SDG7, the Agenda 2030, and the Paris Agreement?		b7	Are there unintended effects from CCA's activities? (dimensions: national or global)
1.4	To what extent are the outcomes sustainable?	Sustainability	b8	Can the actors continue the initiatives supported by CCA? [Alternative: Can you continue the initiative supported by CCA?]
			b9	What are the risks to reach universal access? How can CCA mitigate these?
	Efficient use of the Norad grant		**C**	
4.4	Assess UN Foundation's system to assure that Norwegian funds are spent on agreed CCA activities.	Efficiency	c1	What is Norad specifically funding? Is Norwegian funding used towards those activities?
1.5	How effectively are CCA's management and operational structures set up to successfully achieve the outcomes under Norway's support?		c2	Are management and operational structures efficient and effective?
2.2	To what extent has CCA strengthened its monitoring, evaluation, and learning (MEL) systems?		c3	Are activities and target achievement well monitored? Are monitoring results used and has it led to changes?

3.4	How successfully has CCA adapted some of its core programs (Market Strengthening program, communications and advocacy, research, standards, and testing, etc.) to adjust to a rapidly changing ecosystem?		c4	To what extent is CCA reflecting on what works and learning from past successes and failures? To what extent is CCA adapting activities based on learning?
1.6	How has CCA responded to Covid? How has Covid impacted CCA's work and progress towards its goals? And what are the lessons learned/adaptations that CCA made during Covid? What permanent changes have these led to?		c5	How did CCA respond to Covid challenges? What did CCA learn from Covid?
	Other questions		D	
		Relevance	d1	What are the right clean cooking solutions for the following segments: Urban steady income; urban and peri-urban irregular income; rural? [Alternative: What is the role of biomass? Is it clean cooking - what role should it play?]
			d2	To what extent is CCA promoting gender equality in relation to access to clean cooking?
			d3	To what extent is CCA working for access to clean cooking in humanitarian settings?
			d4	To what extent is CCA working for access to clean cooking in rural areas?
4.3	How relevant is CCA's work seen in relation to the following goals of grant scheme 162.72 Renewable energy (-share of people with access to clean cooking; CO2 emission reductions in developing countries)		d5	To what extent do you think CCA contributes to increase access to clean cooking and CO2 emission reductions?
MQ1	What has the progress against outcomes set out in the cooperation agreement with Norway 2019-2021 been?			
MQ2	To what extent have recommendations from the previous review been incorporated?			
MQ3	To what extent is CCA acting as an ecosystem leader for clean cooking?			
MQ4	What is the added value of CCA as a development partner for Norway?			

ANNEX 2: PEOPLE INTERVIEWED

- **Amita Dabla** - Senior Manager MEL - CCA
- **Andrew Axelrod** – Former COO - UNF
- **Anil Shakya** - Director (Physical Standard Reduction) - Nepal Bureau of Standards and Meteorology
- **Arun Raut** – Engineer – Nepal Bureau of Standards and Metrology
- **Badri Nath Baral** – Director- Winrock International Nepal
- **Ben Jeffreys** – CEO - ATEC
- **Bhushan Adhikari** - Program Advisor - GIZ/EnDev Nepal
- **Catrine Schroff** - CEO & Founder - Mwangaza Light
- **Colm Fay** – Senior Director Marketing Strengthening – CCA
- **Dana Charron** - Managing Director - Berkeley Air Monitoring Group
- **Daniel Busche** - Project Lead – GIZ/EnDev Nepal
- **Donee Alexander** - Chief Science and Learning Officer - CCA
- **Durga Sanjel** - Female Voluntary Health Worker – Department of Health (Kavrepalanchowk)
- **Dymphna van der Lans**- CEO - CCA
- **Ed Agnew** - Corporate Development Lead - Koko Networks
- **Ed Brown** - Research Director – Modern Energy Cooking Services (MECS)
- **Esther Altorfer** - Md Kenya - Sistema.bio
- **Faith Wandera** - Senior Deputy Director of Renewable Energy - Ministry of Energy, Kenya
- **Feisal Hussain** – Senior Director, Innovative Finance - CCA
- **Gajana Hedge** - Team Leader - UNFCCC
- **Gathoni Kimani** - Senior Associate Market Strengthening and Venture Catalyst – CCA
- **Hans Olav Ibbrek** - Special Advisor Climate and Security - MFA Norway
- **Heather Adair Rohani** - Technical Lead on Energy and Health - WHO/HEPA
- **Henrik Lunden** - Senior Advisor Section for Energy - Norad
- **Ilham Talab** - Senior Advisor - GET.Invest
- **Inger Dahlen** - Transmission and Distributions Lines - Norwegian Directorate Water and Energy
- **Jan Cloin** - Coordinator – RVO/EnDev
- **Jan Erik Studsrød** - Counsellor/Energy and Climate - Norwegian Embassy in Nepal
- **Jean Louis Racine** – CPO Market Strengthening – CCA
- **Jeconiah Kitala** – Chair – Clean Cooking Association Kenya.
- **Jillene Belopolsky** - Chief of Staff & Chief External Affairs - CCA
- **John Mitchell** - Household Energy & Clean Indoor Air - US EPA
- **Jon Leary** - Country Lead - Modern Energy Cooking Services (MECS)
- **Kandeh Yumkella** - Founder/CEO - The Energy Nexus Network (TENN)
- **Karuna Bajracharya** - Country Manager (Nepal) - CCA
- **Kat Harrison** - Director - 60 decibels
- **Kenny Pankey** - Senior Director Finance and Operations - CCA

- **Lindsay Umala** - Senior Portfolio-Manager - CCA
- **Mabel Rubadiri** - Public Affairs - KOKO Networks
- **Madhusudhan Adhikari** - Executive Director - AEPC
- **Mahendra Chudal** - Program Officer - NACEUN
- **Manju Giri** - Female Voluntary Health Worker - Department of Health (Kavrepalanchowk)
- **Manoj Khadka** - Sales Manager - CG Company
- **Marcel Raats** - Manager Global Public Goods, Energy and Climate Team - RVO
- **Mariam Karanja** - Former Interim-CEO - Clean Cooking Association of Kenya
- **Matt Siller** - Director of Business Development Planning - CQuest Capital
- **Mattias Olsen** - CEO - Emerging Cooking Solutions
- **Min Malla** - Project Manager - Practical Action Nepal
- **Mohan Das Manandhar** - Executive Director - NITI Foundation
- **Nathan Bogonko** - Research Scientist Renewable Energy - KIRDI
- **Nick Kingsley** - Business Development Lead - Whitten Roy Partnership
- **Nirmala Dahal** - Female Voluntary Health Worker - Department of Health (Kavrepalanchowk)
- **Nisha Jaiswal** - Program Officer - Winrock International Nepal
- **Paul Walton** - Executive Director - Africa Europe Foundation
- **Peter George** – Co-Investment Director and ESG Director– Spark+ Africa
- **Peter Scott** - CEO & Founder – Burn Manufacturing
- **Pooja Sharma** – Energy Advisor – Practical Action Nepal
- **Pramod Shrestha** - Owner - Golma Devi Bhaada Pasal
- **Pushkar Manandhar** - Senior Project Officer (Energy) - Asian Development Bank in Nepal
- **Rob Bailis** – Senior Scientist – Stockholm Environment Institute
- **Robert McIver** – Infrastructure/Energy Innovation Adviser – FCDO Research and Evidence Division
- **Sailesh Shrestha** - Senior Marketing Executive - Prizma Electronics Company
- **Samiksha Nair** - Chief Strategy Officer - CCA
- **Saraswoti Bhedwal** - Female Voluntary Health Worker - Department of Health (Kavrepalanchowk)
- **Shrikant Avi** - Director, Venture Programs - CCA
- **Shveta Sarin** - Business Development Advisor - Shell Foundation
- **Simon la Cour** - CEO & Co-founder- Pesitho
- **Sita Baniya** - Female Voluntary Health Worker - Department of Health (Kavrepalanchowk)
- **Subarna Kapali** - Managing Director - Ajummery Bikas Foundation
- **Surendra Labh Karna** - Honourable Member (Energy) - Nepal Planning Commission
- **Surya Prasad Hada** - Renewable Energy Expert - Sana Kisan Bikas Laghubitta Bittiya Sanstha Ltd. (SKBBL)
- **Tara Pradhan** – Chief of Project Management Department – Nepal Electricity Authority
- **Verena Brinkmann** - Energy Advisor - GIZ / EnDev
- **Xavier Pierluca** - Co-Founder & Managing Partner - Enabling Qapital
- **Yabei Zhang** - Senior Energy Specialist - WB/ESMAP

- **Yamanendra Gurung** – Marketing Officer – Prizma

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