# Behavioural change promotion toward cleaner cooking solutions

endev

Learning & Innovation

# Preface by the author

The goal of this paper is to identify, systematize and disseminate inspirational **best practices, successful tools, strategies, activities and approaches** to **promote behavioural change** towards the adoption and sustained use of **cleaner cooking solutions** among **low-income households and communities** in developing countries.

Cooking behaviour in a specific place or community is determined by many and often interconnected variables that include social, economic, cultural, and legal **drivers**, **barriers** and **obstacles** – i.e. **behaviour determinants** – in addition to the availability, acceptability, affordability, and awareness of cleaner and sustainable cooking solutions.

Experience shows that it is crucial **to identify** these determinants **before designing, planning and performing** any activity / project related to cooking behavioural change promotion.

This practical guide aims to address the following questions:

**Which are the most common behavioural determinants** – including, if possible, the reasons for their existence – to be considered when designing, planning or implementing a project / activity aimed at promoting behavioural change in cooking?

**Which are the main tools to assess the cooking behaviour determinants** of specific communities, household or individuals?

**How to promote behavioural change** towards a widespread, sustainable and sustained adoption / use of cleaner cooking solutions by communities, households, and individuals?

To achieve this goal the guide focusses on:
(i) A critical examination of the existing literature;
(ii) An analysis of project documents, reports and case studies both within and outside of the EnDev programme; (iii) Practitioners' contributions and experiences. Emphasis will be given to the presentation of inspirational examples concerning drivers and the determinants assessment, awareness and behavioural change promotion.

An explicit definition of behavioural change depends on the **specific project / programme objectives, technologies and targets**. Behavioural change (communication) targets and definitions could also heavily vary according to the **different local contexts**. The focus of this guide is on the promotion of **behavioural change** toward the **sustained use of cleaner cooking solutions / technologies** – i.e. fuels and cookers / stoves, including Tier 1 and 2 improved cook stoves (ICSs), e-cooking, biofuels, LPG (Liquefied Petroleum Gas), biogas etc. – conceived as a component of the broader concept and approach of the Cooking Energy System (CES).[1]

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1   EnDev developed the so-called Cooking Energy System (CES) that comprises two parts. The first assesses the "quality" of a cooking energy system from the perspective of the user. The second part, which has not yet been developed, will focus on the climate relevance of cooking. CES takes into account the transitional character as well as the complexity of improving access to cooking energy services. Improving the cooking situation in the sense of CES means: considering fuel quality or even switching fuel, improving cooking devices and equipment, adjusting user behaviour and cooking practices as well as increasing ventilation and modifying the kitchen.

# Contents

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## Illustrative examples

Blue boxes provide illustrative cases
from the countries

## Recommendations

Turquioise boxes highlight general
recommendations or critical success factors

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**Main abbreviations**

| | |
|---|---|
| **ADES** | Association pour le Développement de l'Energie Solaire |
| **BCC** | Behaviour change communication |
| **BMZ** | German Federal Ministry for Economic Cooperation and Development |
| **CLASP** | Collaborative Labeling and Appliance Standards Program |
| **CSO** | Civil society organization |
| **EnDev** | Energising Development |
| **GIZ** | German Corporation for International Cooperation |
| **HIVOS** | Humanist Institute for Social Change |
| **ICS** | Improved cookstoves |
| **MSME** | Micro, Small and Medium-sized enterprises |
| **RBF** | Results-based financing |
| **SNV** | Netherlands Development Organisation |

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# EnDev at a glance

Around 4 billion people have no access to electricity or modern cooking technologies. This has a dramatic impact on quality of life, environment, health, education and income opportunities. EnDev's involvement focuses on providing access to modern, renewable energy. This is a pivotal factor in strengthening socio-economic development and combatting climate change. EnDev's drive is to improve the lives of the most vulnerable people, ensuring no one is left behind. Economic opportunities and green jobs are created by building markets for modern, renewable energy. EnDev con-tributes to reducing greenhouse gas emissions to protect our planet's climate. Its approach is to empower structural, selfsustaining change; kickstarting market and sector development that evolves further without support by EnDev.

EnDev's work is about people. Results are monitored and reported rigorously. EnDev's achievements on helping people, schools, health centres, and companies gain access to electricity or improved cooking technologies can be found in this report. This report also presents EnDev's impacts on gender, job creation, and reduced carbon emissions. EnDev is a strategic partnership. Dedicated donors, partners and individuals work together to support social development and economic growth by providing access to modern, renewable energy in more than 20 countries around the globe. The driving force behind EnDev is the partnership of Germany, the Netherlands, Norway, and Switzerland; donors who are committed to accelerating energy access and socio-economic development.

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# Learning & Innovation Agenda

EnDev, as one of the largest on-the-ground technical assistance programmes for energy access in the sector, strives to further develop and structure its learning and innovation agenda whose results are to be shared with the wider SDG7 community, and in particular shall lead to both a higher pace and impact of the EnDev programme and other implementers in the field.

Through the EnDev Learning & Innovation (L&I) agenda, EnDev wishes to support implementers in the collection, analysis and sharing of findings and experiences of the implementation of energy access activities – this includes GIZ and RVO, and other implementing partners such as SNV, HIVOS, Practical Action, AVSI, Ades Solaire and CLASP.

AVSI is leading the L&I agenda on Clean Cooking and Behaviour Change (CC & BC), which entails the development of this knowledge product and the coordination of a Community of Practice (CoP). The aim of the CoP is to bring together EnDev implementers and other organisations with an interest in Clean Cooking and Behaviour Change to share and exchange about successful approaches to a) identify and assess behavioural determinants and to b) promote behavioural change towards a widespread, sustainable and sustained adoption / use of

cleaner cooking solutions by communities, households, and individuals.

This knowledge product aims to:

- Contribute to a higher pace of implementation and impact of the EnDev programme and other interventions in the field of behavioural change towards Cleaner Cooking.

- Expand the knowledge and understanding of innovative and successful approaches

- Actively feed into new programmes and pilots of EnDev and other interventions

# Executive summary

Behavioural change campaigns are essential for driving the disuse of traditional cooking methods and the adoption and sustained use of clean cooking solutions. According to empirical studies and practitioners' experience, cooking behaviour change is enabled or prevented by the following **determinants (barriers and drivers):** affordability; technology (acceptability, availability); awareness; socio-demographic factors (education, gender, culture, habits and shared values); regulation, legislation and policies.

These determinants are **interconnected**. Their concrete shape and intensity depend on local contexts and project targets. The conception and implementation of an effective Behaviour Change Campaign (BCC) starts with the identification of the main barriers to be addressed and drivers to be enabled within a **specific target group**. This identification can be performed through household surveys and key informant interviews, user surveys, and through the evaluation of lessons learnt by projects.

Case studies show that the most impactful instruments to promote cooking behaviour change are **peer to-peer** initiatives in which awareness of non-clean-cooking-solution-users is raised by

neighbours, community pioneers, friends, and relatives through word of mouth; **demonstration meetings** or permanent sites (animation meetings, games, food preparation, movies, billboards etc.); **trustworthy advocates** (influencers); **above the line communication** (e.g. radio, television, road shows, advertising billboard, and fairs); **trainings and aftersales services** used to reassure new users about an unfamiliar technology; and **below the line communication** (e.g. flyers, brochures, catalogues). The most successful BCC initiatives are based on an integrated and consumer-centred combination of the above instruments.

A common challenge is on one side to elaborate a **detailed Theory of Change (ToC)** exclusively focused on behavioural change interventions (problems, barriers, activities, outputs, outcomes and impacts) establishing specific indicators (e.g. % of people that knows at least 2 clean cooking benefits); on the other side to **measure the direct impact** of awareness raising campaigns and other BCC initiatives while addressing specific barriers and leaning on specific drivers: the results would help to improve consumer behaviour knowledge, optimise BCC instruments and inform future interventions.

Introduction

## The heart of the matter

- More than 2.8 billion people worldwide lack access to clean cooking facilities, relying instead on solid biomass, kerosene or coal as their primary cooking fuel.[2]

- Under the business as usual scenario of the International Energy Agency, the number of people without access to clean cooking facilities decreases only to 2.3 billion in 2030.[3]

- 3.8 million deaths and 50% of pneumonia deaths in children under 5 are attributed to household air pollution annually[4] – much more than malaria and AIDS.

- Unsustainable charcoal production and fuelwood collection currently constitute the main cause of forest degradation, particularly in Sub Saharan Africa.[5]

- The poorest families in African urban settlements can spend up to 20% of their monthly income to buy traditional cooking fuel, especially charcoal.[6]

- In rural areas, women and children devote many hours to procure firewood, exposing themselves to the risks of sexual assaults, animal attacks and injuries.

- Sustainable Energy for All estimates that finance for clean cooking solutions is far below the estimated USD 4.4 billion required annually until 2030 to ensure universal access.

These figures show that despite great efforts so far, the clean cooking sector requires further investments and attention from policy makers, international agencies, academia, the media, local authorities, NGOs, families and individuals. Beyond that, it also requires a change in perception on the demand-side. This is where behaviour change elements can play a key role to transform a sector and leverage the positive benefits of clean cooking.

It is important to raise some relevant and interconnected topics that on one hand can affect the choice of tools to promote clean cooking / behaviour change, and on the other hand can help us better understand this complex sector.

## Need for a holistic and integrated approach

Cooking behaviour results from a combination of complex factors tangible and intangible: personal and community values, languages, cultures and stories; challenges, opportunities and aspirations. Moreover, "the actors in the sector are part of an interconnected, dynamic ecosystem, and therefore, we cannot think of these actors and various barriers as siloed components but as parts of a broader system."[7] This is the reason why a truly holistic approach is needed to address the variety of behavioural determinants.

## Urban vs rural areas

Families in many poor urban settlements spend a significant percentage of their monthly income to buy cooking charcoal. In rural areas, women spend many hours to collect firewood. In urban areas, households generally have choice among different cleaner cooking solutions, whilst in rural areas their availability is very limited. The average level of income and education in the two environments can be extremely different, influencing the perception of the risks and costs associated with traditional clean cooking solutions.

These facts demonstrate that there is little space for a common strategy to promote cooking behaviour change in both the rural and urban contexts. Normally, it is considered more challenging to promote a sustainable clean cooking market in rural areas.

2    https://trackingsdg7.esmap.org/data/files/download-documents/03-sdg7-chapter2-accesstocleanfuelsandtech4cooking.pdf

3    International Energy Agency, "Access to clean cooking", Flagship report – November 2019

4    https://www.who.int/airpollution/household/en/

5    Sustainable woodfuel for food security (FAO, 2017)

6    AVSI, Surveys on socioeconomic development within Maputo and Pemba (Mozambique) informal settlements (Chamanculo C, 2012 – George Dimitrov, 2015 – Pemba, 2017)

7    Clean Cooking Alliance / Dalberg. Clean Cooking Sector Strategy, October 2020

8    Global Alliance for Clean Cookstoves: Gender and Livelihoods – World Bank BBL

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## The gender factor

Women can play a primary and fundamental role in influencing the adoption of a specific cook stove and fuel,[8] but we must note that in many countries men are generally considered the ultimate decision makers concerning family expenditures and money management.

Women and children suffer the most from the negative effects of household air pollution associated with traditional cooking methods. Additionally, women are often in charge of collecting firewood, which requires a significant amount of time and effort and can produce injuries and risks of attacks. This task could also lead to significant negative educational impacts for girls, who may miss school because of fuel collection duties. Furthermore, environmental degradation also affects women's lives: rural women are particularly vulnerable to these effects since the time they spend gathering fuels constantly increases.

Studies and experiences have demonstrated how women could be the central element around which clean cooking interventions revolve. As evidence of the interdisciplinarity of clean cooking, it is now clear that access to cooking energy contributes directly to increased gender equality.[9] Female-lead households are more inclined to adopt clean cooking solutions than male-lead households are and additionally, "women play a critical role in increasing awareness and generating demand for clean cooking solutions, partly as a result of their networks and community relationships."[10] Finally, "as consumers and users of cook stoves, women are not just victims but a critical component of the sector's ability to scale. Women must be fully integrated into the process of designing products and solutions because without their opinions and input, products will not meet their needs and will not be used."[11]

8    Global Alliance for Clean Cookstoves: Gender and Livelihoods – World Bank BBL

9    UN Women, The World Survey on the role of women in development 2014: Gender equality and sustainable development

10   Clean Cooking Alliance, 2020

11   Ibidem

**First purchase vs substitution market**

The determinants associated with the first pur-chase / adoption of a cleaner cooking solution by households and individuals can be significantly different from the determinants that lead to the substitution of a broken or obsolete one. Although this study is mainly focused on supporting and promoting the first purchase, it is important to keep in mind these differences because the substitution market is the one that grants the "sustained use" and could allow families to move gradually up the clean cooking ladder.

**Behavioral change targets: clean cooking, improved cook stoves, high and low tiers**

The sector's players use different targets for behav-ioural change promotion toward "clean cooking". Some of them consider cooking devices to be "clean" only when powered by electricity from renewable energies and biogas; the WHO includes LPG and gas in general due to its very low indoor emissions; others also include high-tier ICSs (tiers 3, 4 and 5) that can still use "unclean" fuels such as charcoal and firewood; others still consider it a prior-ity to promote low tier ICSs (tiers 1 and 2).

EnDev recognizes that higher-tier options represent the best solution for the overall strategy of the sector but acknowledges that there is scope for lower-tier stoves in the market as a first or intermediate step toward clean cooking. By focusing only on leapfrog-ging from tier 0 (e.g. open firewood) to high-tier solutions – generally less affordable and less tech-nologically accessible than low-tier – millions of vulnerable communities, households and individuals risk being left behind. For those not able to make this jump, support is needed to help them move gradual-ly up the clean cooking ladder **(transitional context)**. In fact, the sector should also support social inclu-sion, with specific attention for disadvantaged groups. Ultimately, it is the consumer who decides which clean cooking solution to purchase and use.

# Overview of the most common behavioural change determinants

Developing a base of knowledge about human behaviour around cooking has been essential to improving the effectiveness of clean cooking interventions. This has led institutions, organisations and agencies to develop studies built on psychological theories, policies and case studies that together create a very large body of literature.

This chapter, relying on relevant publications and on contributions from the Working Group members, introduces the most common cooking behaviour determinants (drivers, obstacles and barriers) practitioners should take into account when designing or implementing a specific behavioural change promotion activity.

## 2.1.  Method

The selection of the external sources involved three main steps: (i) research and gathering of available publications, (ii) selection through shared criteria and (iii) analysis.

After collecting and screening publications and documents, we evaluated their reliability to the purpose of the present study by applying the CRAAP test.[12] Contributions from the Working Group members have also been included, either to better describe a determinant or to broaden the analysis adding their field experience and expertise. In the below "Additional information and comments" section, we also highlight interconnections between the different determinants.

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12  https://library.csuchico.edu/sites/default/files/craap-test.pdf
An approach developed by Sarah Blakeslee and her team at California State University, Chico.
Please refer to **Annex 1 for the CRAAP test result and the list of the selected external sources for Chapter 2**.
The selected sources are assigned with a number as detailed in Annex 1, and are shown in brackets in the following tables.

## 2.2.  Most common behavioural change determinants

| Economic (Affordability) | |
|---|---|
| **Description** | **Additional information and comments** |
| • This determinant includes factors like household income (socio-economic status), the price of clean cooking solutions, and consumers' financial situation. | • Most of the studies convey that the economic determinant is the most influential one. Of course, it does not act by itself, and it is especially linked with awareness and availability. *Source (1) p.6, (6).*<br><br>• Within vulnerable communities, most households usually hold a daily or weekly income, rarely monthly. This situation, connected with a poor savings attitude and possibility, turns the economic factor (insufficient income) also into a financial factor (money unavailability at a certain time). *Source (1) p.6, (2) p.40.*<br><br>• The price of a CCS can act as a barrier for expensive Tier 3 and 4 products, while for Tier 1 and Tier 2 the price can act as a driver. The same happens with fuel prices: it acts as a driver when traditional fuels are very expensive (e.g. charcoal in urban areas) or when collecting them takes time and efforts (e.g. firewood in rural areas); it acts as a barrier when and where charcoal and firewood are less expensive than cleaner fuels/energy. *Source (1) p.6, (2) p.83, (4) p.28.*<br><br>• The economic/financial factors are also linked to a poor perception of the cleaner cooking solution value due to lack of education. In fact, many targeted households are not able to measure their return on investment (i.e. fuel cost savings vs purchase cost of the cleaner cooking solution). Moreover, the lack of awareness can lead families to undervalue clean cooking devices adoption in terms of reduced costs for health care and environment (e.g. more time to reach the forest to procure firewood due to deforestation). Consequently, awareness raising campaigns can increase households' willingness to pay. Source *(2) p.103, (4) p.44, (5).*<br><br>• Economic factors are also influenced by the availability of cleaner cooking solutions within a specific market: high competition among producers and distributors may reduce prices for consumers. *Source (2), p.76.* |

## Technology (Acceptability and Availability) **T**

| Description | Additional information and comments |
|---|---|
| • Cookers / Stoves characteristics and specifications can influence adoption.<br><br>• The current or potential source of energy is one of the most relevant cooking behaviour determinants.<br><br>• Energy sources and cook stoves should be adequate to the context (acceptability) | • Cleaner cooking solutions (cookers / stoves and fuels) technology, design and construction strongly influence consumer's behaviour, primarily in terms of their availability / accessibility on the market. This factor is also related to logistic issues; raw material availability, costs and quality; producers' technical skills and access to credit; etc. *Source (1) p.8, (2), (3) p.28, (4) p.10, (6) p.14.*<br><br>• In terms of acceptability, very often, consumers from the poorest areas are not prepared or reluctant to adopt LPG, electric cookers or other modern and clean cooking technologies. Nevertheless, further studies demonstrated that poorer households are more keen to abandon traditional technologies than economically stronger ones (ref. to clean cooking devices as a social status) and confirmed the importance of promoting new and innovative products. In any case, it is crucial that the proposed technology meets consumers' expectations, needs and capabilities. *Source (1) p.8, (2), (4).*<br><br>• Case studies indicate that free access to firewood (especially in rural areas) significantly decreases the effectiveness of behavioural change activities and can act both as driver (lack of free of charge fuel) and as a barrier. *Source (1) p.8.*<br><br>• Urban communities are generally more inclined to adopt cleaner cooking solutions than rural communities due to the lack of free and easy-accessible fuels (firewood) that leads households to spend significant amounts for cooking energy. *Source (1) p.8, (2) p.60.*<br><br>• The local (un)availability and potential access to gas, electricity, biofuels, pellets and briquettes from vegetable or agricultural waste, strongly influences cleaner cooking solutions adoption. |

## Awareness **A**

| Description | Additional information and comments |
|---|---|
| • Includes several factors related to the perception and consciousness of health and environmental risks; economic and financial impacts; cleaner cooking solutions' benefits, value proposition, use, maintenance and safety; fuel availability, performance and costs, among others. | • Awareness is a broad and comprehensive determinant that could support or prevent behaviour change. Moreover, the level of awareness among individuals, households and communities affects almost all other behaviour determinants.<br><br>• The identification of the right means is fundamental to effectively increase awareness. Case studies demonstrate the importance of word-of-mouth and testimonials (parents, neighbours and other trustworthy people), among other means. They can help individuals, families and communities shape the path toward behaviour change in a way that is considered convenient, safe and clear. *Source (2), (4), (6)*<br><br>• The effectiveness of any awareness creation initiative is deeply influenced by: the level of education (e.g. to calculate possible savings of cleaner cooking solutions adoption – ref. Economic determinant); the self-perception value (e.g. to valuate health benefits – ref. Culture, habits and shared values); the perception of the greater good (e.g. to evaluate environmental benefits – ref. Culture, habits and shared values); the resistance to change (ref. Culture, habits and shared values). *Source (1), (2), (3), (4), (5), (6)* |

## Education (Socio-demographic) **E**

| Description | Additional information and comments |
|---|---|
| • The level of education and general knowledge is an important determinant | • Generally, people with a higher level of education / knowledge are more inclined to adopt cleaner cooking solutions. *Source, (1), (2), (4)*<br><br>• The lack of basic education can prevent people from reading flyers, billboards, instructions for maintenance and use, and from calculating savings related to the use of cleaner cooking solutions. *Source (1), (4) p.20*<br><br>• Education also acts as a crucial amplifier for the other behaviour determinants (barriers and drivers), especially gender, awareness, economic, culture, habits and shared values. *Source, (3) p.25, (5), (6)* |

**G**

## Gender (Socio-demographic)

| Description | Additional information and comments |
|---|---|
| • A gender approach is crucial in supporting the adoption of cleaner cooking solutions to prevent inequalities and understand the needs of women in a specific context. | • Gender plays a significant role in the adoption of cleaner cooking solutions. In some areas (e.g. Africa), women cook more often than men, but they seldom participate in the decision-making process. For this reason, interventions should target both women and men. *Sources (1), (2), (3) p.15, (4) p.20, 39–40, (5) p.27, (6)*<br><br>• Women's empowerment interventions can indirectly promote the adoption of cleaner cooking solutions by a household. In fact, the more they are educated/empowered, the more they strive to improve all aspects of their life, including changing the traditional cooking solution that leads to health problems for them and their children; the better can they assess the economic savings potential by adopting a clean cooking device; the more they are aware about the importance of the environment … *Sources, (2), (3) p.25, (4), (5) p.27, (6)*<br><br>• See also Chapter 1, "The gender factor". |

**C**

## Culture, habits and shared values (Socio-demographic)

| Description | Additional information and comments |
|---|---|
| • Local culture and history, habits, practices, personal and community values, fashion, interconnected with geographical factors, positively or negatively affect any behaviour change activity. | • Cultural influences have a strong impact on human behaviour. For example, traditional cooking habits can be perceived as a cultural identity to be preserved. Cooks can fear losing the traditional flavour of food when changing fuels or cookers. Another aspect that the proposed cleaner cooking devices should consider concerns the cook's position: standing, sitting on the floor, kneeling … *Source (1) p.9–10, (2), (3) p.35, (4), (6) p.14*<br><br>• Age can act as a barrier (old couples or head of household) or as a driver (young couples or young head of the household). *Source (1) p.7*<br><br>• "Location has a significant effect on the type of cooking fuel adopted and differences are particularly evident between urban and rural areas". Habits and culture can be very different between the two areas. *Source (1) p.9.*<br><br>• Clean cooking solutions could also be considered as social/economic status symbols. Practitioners' experiences confirm how consumer taste can affect both the aesthetics and the specifications of a product: an ICS can be bought for its colour or "modern" design within an urban settlement; in rural areas, cooking with charcoal could be perceived as a more fashionable cooking practice; the same could happen with gas or electricity in urban areas. *Source (1) p.13, (6).* |

**R**

## Regulation, legislation and policies

| Description | Additional information and comments |
|---|---|
| • Policies, laws and regulations can dramatically influence the adoption of cleaner cooking solutions by households and communities. | • Policies, laws and regulations have a strong influence on human behaviour. They can affect the fuel choice (e.g. ban on coal-based fuels) and they can have an important impact on the environment (e.g. deforestation or afforestation laws). *Source (2) p.75, (6) p.14*<br><br>• Policies, laws and regulations can also support (or obstruct) the availability and dissemination of cleaner cooking solutions by supporting the value chain (e.g. subsidies, tax reduction, financial support, technological support); increasing the population awareness (e.g. governmental sensitisation campaigns to promote ICSs or LPG use); promoting consumers' affordability (e.g. Households access to credit). *Source, (3) p.59, (4)*<br><br>• Cooking stoves/fuels standards and labelling are very powerful tools in influencing consumer behaviour (certified efficiency, savings). |

## 2.3    Main barriers according to EnDev practitioners

In order to perform a first step toward a more specific and context-driven analysis of cooking behaviour determinants, we asked EnDev clean cooking practitioners to fill out an on-line structured questionnaire highlighting the 3 main barriers they have to overcome to achieve the adoption of cleaner cooking solutions.

For EnDev practitioners, 36% of the overall barriers they have experienced concern availability factors; 24% poor awareness about clean cooking solutions and 21% affordability problems.

**Figure 1: Main barriers according to EnDev practitioners**

*Online survey – November 2020 (41 respondents)*
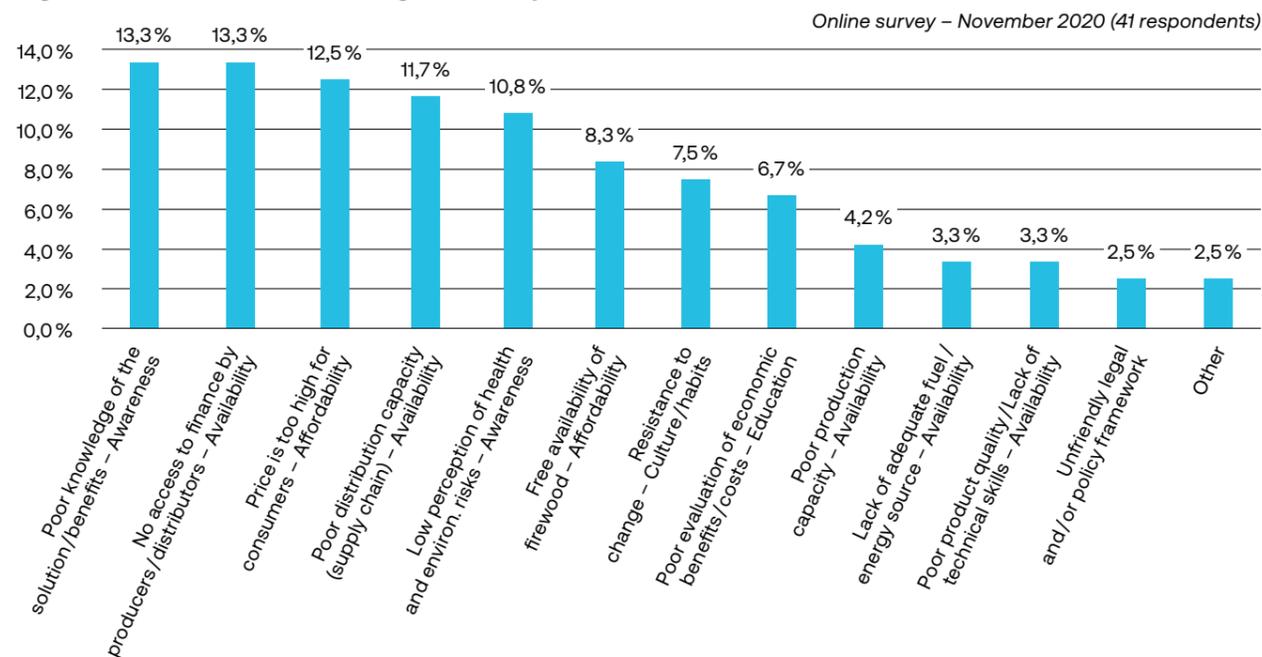


## 2.4    Observations

The list of determinants presented in this chapter can only inspire clean cooking sector practitioners toward the design and implementation of a **mandatory and comprehensive assessment of the ultimate, real, local cooking behaviour barriers and drivers** related to their specific context and project.

Whilst the introduction of the behaviour change determinants is in an early conceptional stage, the exercise already helps to highlight two main points:

**Determinants (barriers and drivers) are connected** and it is not advisable to consider each one as a stand-alone determinant.

"The cooking preferences and needs of end users are highly localized, based largely on geography, culture, and income level."[13]

13   Clean Cooking Alliance / Dalberg. Clean
      Cooking Sector Strategy. Presentation of
      the Insights on the Current State of the
      Sector – October 2020.

Identifying the specific cooking behaviour determinants – examples from the field

According to a recent assessment by the Clean Cooking Alliance, "the sector still does not have a good understanding of what motivates significant dis-use of dirty fuels alongside the adoption and sustained use of cleaner solutions."[14]

This chapter aims at providing practitioners with inspirational practices to identify and assess specific **behaviour barriers and drivers towards the adoption of more sustainable and cleaner cooking energy solutions**. The findings from such an assessment – possibly rendered through a behaviour map – should inform the theory of change of the intervention they are designing or implementing as well as the instruments to be applied (see Chapter 4)

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14  Clean Cooking Alliance / Dalberg. Clean Cooking Sector Strategy. Presentation of the Insights on the Current State of the Sector – October 2020.

## 3.1　Identifying specific cooking behaviour determinants

**Uganda – GIZ**

**Goal: support the adoption of ICSs and increase awareness of the related health aspects**

**Approach:**
With the support of a consultant, 500 semi-structured interviews were conducted in households not using an ICS. These interviews included qualitative and quantitative parts and assessed the household background, the current cooking situation and the perception of ICS with the aim of identifying barriers and possible motivators (i.e. drivers) towards the adoption of ICSs.

**Examples of useful open-ended questions:**
- *I see you are not completely satisfied with your current stove.*
  *What would you change?*

- *You are happy with your stove. Yet, if there was something you could change,*
  *what would it be?*

- *Can you describe what you like / do not like about these stoves*
  *(Ed. ICSs pictures or samples)?*

**Examples of useful multiple choice closed-ended questions:**
*How strongly do you agree with the following statements: "The stove would be interesting for me, because …" "of less smoke", "needs less wood / charcoal" and 10 other statements based on literature review and preceding discussions. (Possible answers: agree, neutral, disagree)*

*When you think about the stove you just selected (show ICS picture again), this stove is not as attractive as it could be because … "I don't have the money to pay for it", "I don't think it really saves fuel" and 14 other statements based on literature review and previous discussions. (Possible answers: agree, neutral, disagree)*

**Barriers:**
1. **Economic (Affordability):** too expensive

2. **Technology:** it is too heavy; breaks too easily; and cannot fit large saucepans

3. **Awareness:** General disbelief and distrust about ICS benefits (Is not worth the price, unsure about benefits, don't trust salespeople, does not allow to save fuel).

4. **Culture, habits and shared values:** "it's not our way", the food tastes different.

**Drivers:**
1. **Economic:** ICS consumes less fuel / Savings;

2. **Culture, habits and shared values:** It looks good, it is modern, aesthetics, other people use it, social status

3. **Technology:** Keeps heat longer; is more durable

4. **Awareness:** Less smoke is healthier

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## Mozambique – AVSI

**Goal: market prospection for gas and electric stoves within urban and suburban areas of Pemba (Cabo Delgado)**

**Approach:**
Households semi-structured interviews with 2 specific questionnaires addressing Households that already use a gas (19) or electric stove (3) and Households that still rely on traditional cooking methods (85) in the informal settlements of Pemba. Moreover, 3 focus groups were conducted, and 10 key informants (gas/electric cooker retailers, local authorities, and local leaders) interviewed.

**Examples of useful open-ended questions:**
Questionnaire for families that already use a gas or electric cooker:

- *How could other people be convinced to introduce a CCS in their house?*

- *Why did you choose to buy the gas cooker and not the electric one?*

- *Who was involved in the purchasing decision process for this cooker and how?*

Questionnaire for families that rely on traditional cooking methods:

- *Would you prefer to cook with gas or electricity? And why?*

- *Have you ever had the opportunity to talk to someone in the area who uses electric cookers? If yes, what were your impressions*

**Examples of useful multiple choice closed-ended questions:**
Questionnaire for families that already use a gas or electric cooker:

- *What motivated the decision to buy a gas or an electric cooker? (Possible answers: quicker preparation of food, use inside the house and other statements based on previous experiences).*

- *Which is the stove that you use more frequently and why? (Possible answers: habits and culture, save money and other statements based on previous experiences).*

- *Where did you hear about your cooker? (Possible answers: TV, radio and other 9 options based on previous experiences).*

Questionnaire for families that rely on traditional cooking methods:

- *What could motivate you to adopt a gas/electric cooker? (Possible answers: Save on fuel, quicker food preparation and other 18 statements based on previous experiences).*

**Barriers:**
1. **Economic (Affordability):** high cost of cookers, bill for electricity too expensive, huge cost of the gas bottle (50% gas; 55% e-cooker).

2. **Culture, habits and shared values:** satisfaction with the traditional cooking habits and fuels (21% gas; 16% e-cooker)

3. **Awareness:** the technology is perceived as unsafe (4% gas; 6% e-cooker).

**Drivers:**
1. **Technology:** quicker food preparation (Non-users: 30% gas; 24% e-cooker. Users: 21% gas).

2. **Economic (Affordability):** fuel cost savings (Non-users: 21% gas; 13% e-cooker)

3. **Technology:** smoke reduction during cooking, fewer problems with breathing and eyes (Non-users: 12% gas; 11% e-cooker. Users: 21% gas).

4. **Awareness:** I heard about gas/electric cooking from friends/family/neighbours (50% non-users; 49% users); at the marketplace (22%; 10%); Television (17%; 28%).

**Additional information:** alessandro.galimberti@avsi.org


Copyright: Mauno / AVSI

## Cambodia – SNV

**Goal: BCC for clean cooking (technologically agnostic)**

**Approach:**
Interviews were conducted with 301 adults who are the primary cooks in their household. These came from randomly chosen households of two rural Cambodian rural provinces (Siem Reap & Kampong Speu) in order to identify the motivating factors (drivers); the perceived barriers influencing the adoption of Cleaner cooking solutions; the baseline knowledge, attitudes, and practices (KAP) related to cook stove and fuels in order to develop an effective BCC campaign.

**Barriers:**
1. **Awareness:** Over 80% of the Households had never heard about CCS, hold false beliefs on safety issues and are not persuaded about CCS' real benefits.

2. **Economic (Affordability):** "ICSs are too expensive, I do not have the money", 65% of the interviewed people agree or strongly agree with this statement. 46% strongly disagree or disagree with the sentence "My family will approve if I buy a CCS >40$"

3. **Technology (Availability):** 59% agree or strongly agree about not knowing where to find a CCS, and 61% about being too far away from a refill LPG station.

**Drivers:**
1. **Awareness:** around 70% of cooks believe traditional cooking smoke is dangerous for their health, mostly mentioning short-term effects. LPG is considered safe.

2. **Affordability:** ICS below 40 USD or credit access

3. **Awareness:** The most efficient channel of information about clean cooking solutions in rural Cambodia are friends, relatives, neighbours ("peer effect") and NGO's; social media.

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**Hivos – Kenya**

**Goal: promoting biogas plants for cooking purpose**

**Approach:**
Barriers to adopt a biogas plant for cooking and fertilizing purposes have been identified through the analysis of previous experiences from regional programmes (case-studies); cross-learning from partners within the same programme; interactions with farmers (600 farmers trained per month on bio-digester benefits) and with private sector (suppliers) providing evidence of the affordability problems and possible drivers; surveys on users (why farmers are using – including their business case – and why they are not).

**Barriers:**
1. **Affordability:** "Bio-digester is too expensive" especially if suppliers ask for upfront payments.

2. **Awareness:** Lack of trust and knowledge of the new technology (Quality: a bad experience with a new technology would be a definitive barrier).

3. **Technology / Availability:** 70% of the quality problems are due to lack of users skill and training

4. **Awareness / Education:** It is perceived as an expense and not as an asset for the household: they only see as a cost and they don't know how to calculate its benefits / economic impact: fertilizers and clean fuel for cooking at no cost.

**Drivers:**
1. **Affordability:** Credit access

2. **Awareness:** Disseminate knowledge about biogas plant; building trust in the technology.

3. **Technology (Availability):** Known places where to find technical assistance

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## 3.2   Observations

In all the case studies presented, different approaches were used to identify behaviour determinants. While the appropriateness and effectiveness of the approach depends on the specific project and context, the general intention is to reach a fair knowledge of the local cooking behaviour determinants and to also identify possible barriers and drivers for behaviour change.

Availability, affordability, and awareness appear to be the most important barriers and drivers toward the promotion of the sustained adoption of clean cooking solutions.

# Successful case studies and best practices to address behavioural change

Following the different examples presented in Chapter 3 of how to identify the specific determinants and drivers / barriers for behaviour change, the purpose of Chapter 4 is to provide practitioners with inspirational cases of interventions to address these barriers and drivers toward the adoption of cleaner cooking solutions.

Commonly used instruments to address such behaviour change have been clustered as follows:

## Peer-to-peer

The awareness of non-clean-cooking-solution-users is raised by neighbours, community pioneers, friends, relatives, other members of the association, etc. through word of mouth, etc. The main role of the peer is making the new path convenient, safe, clear and simple for the non-user. The desire for imitation is also a motivating factor.

**Mostly suitable to address the following determinants:**

(A) (G) (C) ($)

## Trustworthy advocates, opinion leaders, experts, influencers

Awareness is raised by people that are authoritative and trustworthy because of their social status, role, expertise, popularity, authority, age, etc. The main role of the advocate is making the new path fashionable and convenient for the non-user. The desire for imitation is also a motivating factor. A peer can also be a trustworthy advocate.

**Mostly suitable to address the following determinants:**

(A) (C) (G) ($)

## Demonstration meetings or permanent sites / Animation meetings

Traditional cooking risks and benefits of clean cooking solutions are shown during a meeting organized within the community (in a public building or spaces like squares), in a dedicated show-room or in an actual context (private house, farm, restaurant, etc.). Gamification, food preparation, animation, movies, billboards etc. might also be used. Peers, experts or advocates can lead meetings, or they can be invited to give testimonials.

**Mostly suitable to address the following determinants:**

(T) (A) (C) (E)

## Trainings / Aftersales services

The awareness of non-clean-cooking-solution-users is raised by neighbours, community pioneers, friends, relatives, other members of the association, etc. through word of mouth, etc. The main role of the peer is making the new path convenient, safe, clear and simple for the non-user. The desire for imitation is also a motivating factor.

**Mostly suitable to address the following determinants:**

(T) (E) (A) (C)

## Above the line communication

Above the line, or ATL marketing, refers to generally untargeted, massive campaigns to raise awareness and reach more people. Example: radio, television, road shows, advertising billboard, fairs … Can involve or be leaded by peers, advocates, or experts.

**Mostly suitable to address the following determinants:**

(A) (C) (G) ($)

## Below the line communication

Below the Line, or BTL marketing, refers to the smaller and highly targeted communication, aimed at individuals and with easy to track returns on investment and a definitive audience. Examples: flyers, brochures, catalogues.

**Mostly suitable to address the following determinants:**

(A) (C) (G) (E) ($)

## 4.1   Case 1: ICSs promotion in rural villages of Nepal

**Behaviour change instruments**
- Peer-to-peer
- Trustworthy advocates – influencers
- Above the line communication

**Addressed determinants**

(A)  (G)  (C)

From 2016 to 2020, *Hivos / Energia* Network and Indoor air pollution and health forum Nepal implemented a technology agnostic project in rural Nepal with the objective of improving women's economic empowerment and promoting access to energy for both domestic and productive energy use enhancing the livelihoods of Households and marginalized groups.

Specific behaviour determinants were identified through focus groups with suppliers together with households and others with women (users) only.

**Barriers:** affordability (e.g. people like LPG but it is not available and is expensive); availability (electricity is not reliable and access still not too disseminated); awareness (poor knowledge about clean cooking benefits and wrong beliefs concerning food flavour); gender dynamics (women do not have enough decision power to introduce a cleaner cooking technology in the household).

**Drivers:** sustainable source of energy and fuels; affordable price of cleaner cook stove.



Copyright: HIVOS

## The most impactful instruments

**Peer-to-peer / Trustworthy advocates**
The project mobilized Female Community Health Volunteers (FCHVs) that were already visiting pregnant women and women who had recently given birth within the framework of a service offered by the local Ministry of Health. Their original task was to raise awareness in rural villages about pregnancy, childcare and nutrition. Once trained by the project, FCHVs also contributed to raise awareness about health risks associated with traditional cooking methods (domestic pollution, intoxications) and to suggest the adoption of cleaner cooking solutions. Other main supporting arguments: economic benefits (fuel savings), possible financial assistance (subsidies and loans), impact on the environment and higher social status granted by the use of a more modern cooking method. FCHVs did not have explicit agreement with existing retailers, but they indirectly promoted their sales. FCHVs also monitored the cooking method change.

**Above the line communication / Trustworthy advocates**
The project produced and broadcasted on the radio thematic discussions between experts concerning health, domestic savings and nutrition etc. indirectly supporting CCS adoption.

**Peer-to-peer**
CCS adoption was also promoted by word of mouth among neighbours (e.g. during interactions within focus groups).

## Impact

In the two-year period of 2018 – 2019, 5.000 households adopted an ICS in the project area.

## Challenges and lessons learnt

- It is important to provide potential users with permanent and accessible information sources (e.g. in local government buildings or in CSOs offices) concerning cleaner cooking solutions including prices, benefits, use and maintenance, where to buy and get a loan.

- Involving women in the local supply chain.

- Local authorities should include CCS in their annual plan (budget for awareness, targets).

## Additional information

info@indoorair.org.np,
iaphforum@gmail.com,
http://www.indoorair.org.np/projects-new/

Copyright: EnDev

## 4.2   Case 2:
## ICS distribution in the suburban areas of Mozambique

**Behaviour change instruments**
- Demonstration meetings
- Peer-to-peer
- Trustworthy advocates – Influencers

**Addressed determinants**

(A) (G) (C) ($)

From 2015 to 2020, AVSI promoted the distribution of two ICS models in the suburban areas of Maputo and Pemba: one imported and industrialized, the other one locally produced. The intervention was originally conceived as measure for poverty reduction within the framework of an integrated slums regeneration programme. Households were spending up to 20% of their monthly income on charcoal. The proposed cleaner cooking solutions were identified through a study on local cooking behaviour. The main barrier concerned affordability of the imported model ($25) while the local model cost less than $10. The vertical integration of the value chain (direct sales to consumers by producers / importer) helped to restrain ICSs final price, at least in the market start-up phase. By engaging sales agents from the community and local leaders, it was possible to manage an instalment payment scheme.

**Barriers:** affordability; availability (poor production and distribution capacity); awareness (poor knowledge about ICSs benefits); gender dynamics (women did not have enough decision power); poor basic education.

**Drivers:** Fuel costs savings (although end-users experienced difficulties in calculating the amount and in perceiving the return on investment); cooking time saved and burning control increased; health benefits (argued although not fully perceived); deforestation reduction, (argued but even less perceived); fashionable / attracting colour of the ICS.

## The most impactful instruments to promote behaviour change

**Peer-to-peer / Trustworthy advocates**
Door to door sales and awareness raising by youths, especially young women, from the same communities. They were only paid by commissions.

**Trustworthy advocates /
Above the line communication**
Road shows with famous singers, dancers and comedians that clarified ICSs benefits and raised awareness about health and environmental risks connected with traditional cooking methods; involvement of traditional leaders and people from local authorities.

**Demonstration meetings**
Organized at neighbourhood level showing use, maintenance and benefit of the ICS and involving some neighbours already using it.

## Impact

Over 60% market penetration (starting from 2%) in communities where other interventions (education, slum upgrading, job creation) were implemented compared to 10% – 20% penetration in communities only targeted by ICSs project.

## Challenges and lessons learnt

- Cooking behavioural change promotion is easier when integrated with other human development interventions because of possible broad synergies, awareness raising campaigns, and extensive range of holistic inputs that can enhance self-development among targeted communities and individuals, including a more conscious approach to consumption, to health and environment protection.

- Sales agents' motivation, reliability, expertise and loyalty are key to reach quantitative sales targets and for the sustainability of the door-to-door business model.

- Lack of retails shops could prevent the sustained use (difficulties in ICS substitution) but also distribution (e.g. some ICS can be too heavy for door to door sales).

## Additional information

https://www.youtube.com/watch?v=dt_FIGgANlw
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## 4.3 Case 3: Biogas market development in Kenya

**Behaviour change instruments**
- Peer-to-peer
- Trustworthy advocates – Influencers
- Demonstration sites
- Trainings / Aftersales services

**Addressed determinants**

(A) (T) (C) ($)

The Kenya biogas programme was initiated by a public-private partnership between Hivos, SNV and the Directorate General for International Cooperation of the Dutch Ministry of Foreign Affairs. The project aims at developing a national bio-digester market for cooking, lighting (biogas) and fertilizing crops (bio-slurry). The project operates at a national level, targeting rural areas and especially farmers with livestock. Minimum requirements: availability of at least two excrement buckets (e.g. cows, chickens, pigs) per day. The project supports the private sector (technology providers) and demand activation.

The bio-digester prices are the first barrier for domestic sized plants: 4m3 = $550; 6m3 = $650; 8m3 = $750; 12m3 = $1.200. The most adopted sizes were 6 and 8 m3. Prices refer to construction costs based on standard bill of quantities. The project offers credit access (24 months payment) through SACCOs (Savings and Credit Cooperative Organisations). For other specific barriers and drivers, please refer to Chapter 3.


Copyright: Torfinn / HIVOS

## The most impactful instruments to promote behaviour change

**Peer-to-peer / Demonstration sites / Training**
Extension service providers train farmers. Different demonstration units are established in real farms that become peer-to-peer advocates for potential users and ensure the technology performs at a high level.

**Trainings and Technical assistance**
- All users are trained on how to repair and maintain the plants. In the past, 70% of the failures and quality problems (unsatisfied consumer) were due to lack of user skills.

- Business training for plant suppliers (good technicians but poor business managers).

**Trainings / Trustworthy advocates**
Nobody knew where to find technical information about biogas plants. The project trained farmers group leaders creating Marketing Hubs with the aim to build confidence in the technology. Farmers trust their long-time leaders.

- The customer service centre ensures data capture, impact monitoring, and quality check on technology providers. The staff calls all customers to verify functionality of the plant, user's satisfaction, proper use and maintenance and eventually mark the plant eligible for incentives (RBF programme). Information is also used to upgrade BCC to better meet consumers' needs and gaps.

## Impact

Over 21.000 domestic bio-digesters installed across the country between 2009 and 2019.

## Challenges and lessons learnt

- Finance institutions did not know anything about domestic bio-digesters.

- Linking domestic biogas with bio fertiliser is a main trigger for increased adoption.

- Failed bio-digesters hindered the adoption of the technology. Rapid response to user queries is a critical factor in safeguarding the reputation of the technology.

- Artificial intelligence and automation tools could be used for trouble shooting functionality issues of installed systems, reducing time and money spent on technical assistance.

- Bio-digester sector in Kenya would benefit from a well-coordinated multidisciplinary and multi-sectoral cooperation and partnerships.

## Additional information

info@kbp.co.ke
https://kenyabiogas.com/resources/

Copyright: SNV

## 4.4    Case 4:
## ICSs promotion in Tanzania

**Behaviour change instruments**
- Demonstration meetings
- Peer-to-peer
- Below and above the line
- Trainings / Aftersales services

**Addressed determinants**

(A)    (G)    (C)

SNV informed its BCC strategy by an in-depth research on customers, non-customers and producers, to understand the behavioural drivers that move cooks away from a 3-stone-fire and increase adoption of the locally produced ICSs (Jiko Matawi model).

**Barriers:** non-ICS-users prefer firewood for food flavour, and because it is "free"; do not prioritize updating design / tools of cooking area; do not trust ICSs benefits; do not see the value compared to similar models on the market ("fake" ICSs) that are cheaper and sometimes perceived as sturdier.

**Drivers:** non-users are looking for a stove that uses less fuel (*financial savviness*), lights and cooks fast, produces less smoke, does not waste heat (*utility*), is sturdy and can handle intense activity for a long period (*durability*); they are influenced by neighbours who can vouch for a product; appeal to their budget, consciousness / awareness.

## The most impactful instruments to promote behaviour change

**Demonstration meetings**
Community demonstrations, including community events at marketplaces and meetings with women's groups, to highlight ICSs key value proposition (fuel savings and warranty / durability) and to convince non-users about their utility. Messages are carefully studied to address barriers especially in terms of awareness.

**Peer-to-peer / Training**
Women trained as door-to-door clean cooking advocates, are trained on BCC tools, kitchen enhancements (e.g ventilation), and on Matawi ICS features.

**Trainings**
Train Matawi producers and distributors on BCC strategy and tools with a specific focus on how to communicate the value proposition to end users. The "Pitch video" allow producers and sellers to refine their sales pitch.

**Below the line**
Promotional tools, advertising material based on brand unification and identity to increase product's attractiveness and highlight the Matawi stove value proposition compared to other models. Branding tools are designed to make a traditional item, such as a clay ICS, looked more modern. SMSs and social media are used to share valuable information with producers and to monitor activities.

**Above the line**
Radio announcements, bus stop displays, fairs.

## Impact

Average quarterly Matawi sales in the BCC area have tripled as compared to the period prior to the intervention.

## Challenges and lessons learnt

- Benefits but not purchase drivers: Pride (ICS convenience to showcase to friends); Health is a realized benefit after the ICS is in use. Matawi users appreciate the comfort of cooking with less smoke. For purchasing, health factors were not cited as a priority or a qualifying factor. This aligns with findings across behaviour change initiatives in other countries.

- End users are influenced by branding materials which professionalize and modernize these locally made cook stoves. Success came when sales agents have branded ID cards, wear t-shirts / aprons / hats as uniforms and place the stove within a counter-top display box.

## Additional information

YouTube Video Series on the EnDev TZ Cooking Programme:
https://www.youtube.com/watch?v=nhrFTjpuI0o
hbussiga@snv.org

## 4.5 Case 5:
## Solar cooking in Madagascar

**Behaviour change instruments**
- Demonstration meetings
- Above the line
- Trainings / Aftersales services

**Addressed determinants**

(A) (T) (C) (E)

This project implemented by Ades Solaire, started in 2001 targeting the promotion of locally produced ICSs and solar cookers / stoves. ICS firewood and charcoal cost $5 – $20, while solar cookers cost $19 and (solar) parabolic cookers cost $38. Specific behaviour determinants were identified through monitoring assessment and constant interactions with field staff:

**Barriers:** *awareness* (people do not know the technologies); *education* (no internet access and illiteracy in rural areas); *technology* (a parabolic cooker needs sunny space and minimal technical knowledge; is heavy to move every day; cooks slow and for a maximum of four people); *acceptability* (false beliefs like "solar devices cannot boil water and cook food"); *economic – affordability* above all for solar cooking vs free firewood; *culture, habits and shared values* (poor perception of climate change risks, fuel savings not valued).

**Drivers:** Fuel costs savings in urban areas and in rural areas where firewood (forests) is not accessible close by; awareness of technology effectiveness and benefits.


Copyright: ADES

## The most impactful instruments to promote behaviour change

**Demonstration meetings / Peer-to-peer**
Culinary demonstration at community level showing that the technology works and inviting users from the same community to confirm and speak about their positive experience. Meetings occur also in schools with parents and in churches. Staff follows up with participants for several weeks after the meeting. Apart from permanent demonstration centres (movies, cooking simulation, show room), mobile centres ensure that awareness campaigns reach all remote communities.

**Above the line / Demonstration meeting**
Animation and advertising for ICSs or solar cooking devices through loudspeakers at markets and squares. Interested people are invited to demonstration meetings. Staff follows up with participants for several weeks.

**Trainings**
Due to the little or no attention paid to maintenance, things break and then are left unused. To promote the sustained use of cleaner cooking solutions, producers, distributors, influencers and users are provided with constant and meticulous technical training on use, maintenance and repairs. Moreover, aftersales services and guarantees allow the organization to remain in touch with clients. People that buy a solar cooker are offered a cooking course with a professional chef.

## Impact

Over 290.000 ICSs sold; over 14.500 solar cooking devices sold (to date).

## Challenges and lessons learnt

- Behaviour change requires long term, active and possibly integrated interactions between communities and development actors. The process would be boosted by extensive media campaigns, a widespread environmental education programme especially among children and by massive women empowerment initiatives.

- Management and staff must be convinced of the benefits of the overall concept.

- All products must be of stable and simple design. Technological steps must not be too big

- The measurement of the results (by the $CO_2$ monitoring team and the animators' team) before and after the introduction of the new technologies (ICS) provide crucial information about cooking behaviours and the effectiveness of all the BCC implemented.

## Additional information

https://ades-solaire.org/en/ades-in-madagascar-en/our-programme-en

## 4.6    Other inspirational practices

### RBF to strengthen improved cook stoves sustainable market in in Nepal

Practical Action has conceived and implemented since 2014 a long-term intervention with the aim of establishing a sustainable market for improved cook stoves and hood stoves and strengthening their value chain in Nepalese rural households. A participatory market system development approach helped to understand the market and the *systems thinking approach*[15] was used to identify systemic barriers and leveraging opportunities to create impact at scale. Affordability is promoted through local financial cooperatives (loans to families) and direct sales (reduced number of commercial intermediaries). Availability, i.e. quality and quantity of clean cooking solutions, is promoted through the RBF scheme. Approximatively 50.000 low-tier cook stoves (ICS and hood stoves) and 5.000 high-tier (including 500 electric cooking) were sold to date; 221 financial institutions provided consumer financing.

It is interesting to note the following approaches that have increased the effectiveness of the behaviour change initiatives implemented by the project:

- During awareness raising meetings at community level, messages are focused on fuel savings and health benefits putting in value **existing networks and influencers** (forest users groups, women health volunteers, teachers, leaders from financial institutions and local cooperatives) and influencers (teachers). Participants receive a voucher to be submitted to a credited producer / distributor to get a discount on the ICS price. Neighbours already using the ICS give testimonials.

- **Women** from the community are trained as sales agents (door-to-door). Extra support and investments are provided to promote women as the investors and entrepreneurs on ICSs market.

- Guaranteed warranty and a feedback collection mechanism help to increase households' **trust in the technology**.

### BCC to stimulate clean cooking adoption and sustained use in Cambodia and Vietnam

The WASH approach[16] inspired SNV to design a BCC campaign emphasising the health risks associated with traditional cooking behaviour and the benefits related to the adoption of cleaner cooking solutions. A study[17] realized by SNV Vietnam shows that the sustained and full adoption of clean cooking solutions is significantly higher (65%) among users that received BBC then among users that received the technology but not BCC (15%).

The most effective tools to achieve these results were the **animation meetings** based on the "BCC for **smoke free villages**" manual which main objective is to turn household air pollution relatable to families. The manual foresees seven steps to go through during the community meetings (duration 50 – 60 minutes, approx. 50 participants; facilitated by a clean cooking expert with outreach and influence, involving authoritative people such as local leaders and / or CSOs directors):

- Introduction and *puzzle game* with pictures of the main sources of smoke (harmful emissions) within the community;

- *Village mapping* where participants design their village map on the floor (e.g. with chalk or pieces of wood) and each one locates his / her house indicating their current cooking solution though paper with different colour or other means of differentiation;

- **Cost calculation and danger analysis** valuating the time spent in a year for cooking in terms of number of cigarette smoked (WHO's studies found that one hour of cooking with smoke equals one cigarette smoked), discussion about diseases caused by cooking smoke and about the cost of medical treatment;

- *Walking gallery* organized for the participants to observe 5 pictures and provocative comments about smoke dangers;

- *Clean cooking informed choices and solutions* to introduce some specific cleaner technologies and discuss about benefits;

- *The four behaviours to be practiced before and during cooking* introduced by A2 or A3-size pictures;

- *Quiz, gift and close* where the facilitator asks questions about the topics discussed during the meeting to the participant distribute gadgets for correct responses.

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15  https://learningforsustainability.net/systems-thinking/

https://practicalaction.org/pmsd-toolkit/tools-directory/

info@practicalaction.org.np – pooja.sharma@practicalaction.org.np

16  https://snv.org/cms/sites/default/files/explore/download/snv_behaviour_change_communication_guidelines_-_april_2016.pdf

17  https://snv.org/cms/sites/default/files/explore/download/reducing_emissions_with_behavioural_change_final_version_pamphlet.pdf

For more information, please contact bteune@snv.org

## BCC impact evaluation

In November 2020, EnDev Uganda promoted an independent evaluation of their 2-month awareness campaign on clean cooking by interviewing 500 households and 50 stove selling hubs and cook stove companies. Results are noteworthy not only because they provide information concerning the most effective BCC instruments and impact indicators, but also because they allowed EnDev Uganda managers to fine-tune their BCC activities.

Results from HH interviews:

- 65% had heard or seen information about the clean cooking campaign.

- Messages they remember: using improved stoves saves charcoal and money, followed by not lighting a stove using bags or any other plastics, switching to good improved stoves and cooking in open and well ventilated areas. Lastly, these messages are followed by healthy, clean and efficient cooking, changing the way we cook and improved cooking.

- Behaviour change in cooking practices: Those who heard and saw the messages during the clean cooking awareness campaign started using split wood to light stoves, stopped using bags and other plastics to light stoves, others bought improved stoves and others started cooking from outside.

- Purchase of ICS: **40% of the households bought improved stoves as a result of hearing or seeing the clean cooking awareness campaign's messages**

- The most convincing reason why households bought improved stoves after hearing and seeing the clean cooking awareness campaign was that they wanted to **save fuel**. This was followed by improved stoves emitting **less smoke**, especially if it uses firewood, improved stoves **cooking faster** than traditional stoves and saving money. Lastly, households bought improved stoves because they are **more durable** than traditional stoves, save energy and can cook for a longer time when compared to traditional stoves.

- The biggest reason why households did not buy improved stoves is that they are expensive followed by the reason of lack of money. These two reasons are followed by the reasons of not being aware of improved stoves, households

being contented with what they have as cooking appliances and improved stoves not being accessible.

Results from interviews with Stove Selling Hubs and companies

- People who sell improved stoves were asked if they had heard or seen any information about the Kyuusa Enfumba Yo campaign (BCC). Results showed 49% had seen or heard about the campaign and 51% said they had not.

- When asked if customers talked about the campaign, only 13% of the stove sellers said that their customers talked about the clean cooking awareness campaign. They further said that customers wanted to get the stoves they saw on television and others said they wanted to know if the stoves really save fuel and money.

- Increased sales: People who sell stoves were asked if the campaign had an impact on the sale of improved stoves. For the majority of people who sell stoves, equivalent to 64%, the campaign had a positive impact on their sales. This is followed by the 20% who said that the campaign did not have any impact on their sales, while 13% said that they were not sure. Lastly, 3% said that the impact was slight.

## 4.7   Most effective BCC instruments according to EnDev practitioners

All the above best practices carry out a combination of BCC instruments in order to reach their targets. We asked EnDev clean cooking practitioners to fill an on-line structured questionnaire highlighting the 3 most effective instruments (based on their field experience) to promote behaviour change toward the adoption of clean cooking solutions. Not surprisingly, the five most mentioned BCC instruments are also the most recurrent ones in the exemplified cases studies.

**Figure 2: Most effective BCC instruments according to EnDev practitioners**

*Online survey – November 2020 (41 respondents)*



| | |
| --- | --- |
| 28% | Peer-to-peer (neighbors, community pioneers, friends, relatives) |
| 24% | Community meetings (demonstration and animation) |
| 14% | Trustworthy advocates, opinion leaders, experts, influencers |
| 13% | Above the line/widespread communication (radio, television, road shows, advertising billboard, social media) |
| 11% | Techincal trainings/technical assistance |
| 8% | Below the line/targeted communication (flyers, brochures, catalogues, social media) |
| 2% | Other |
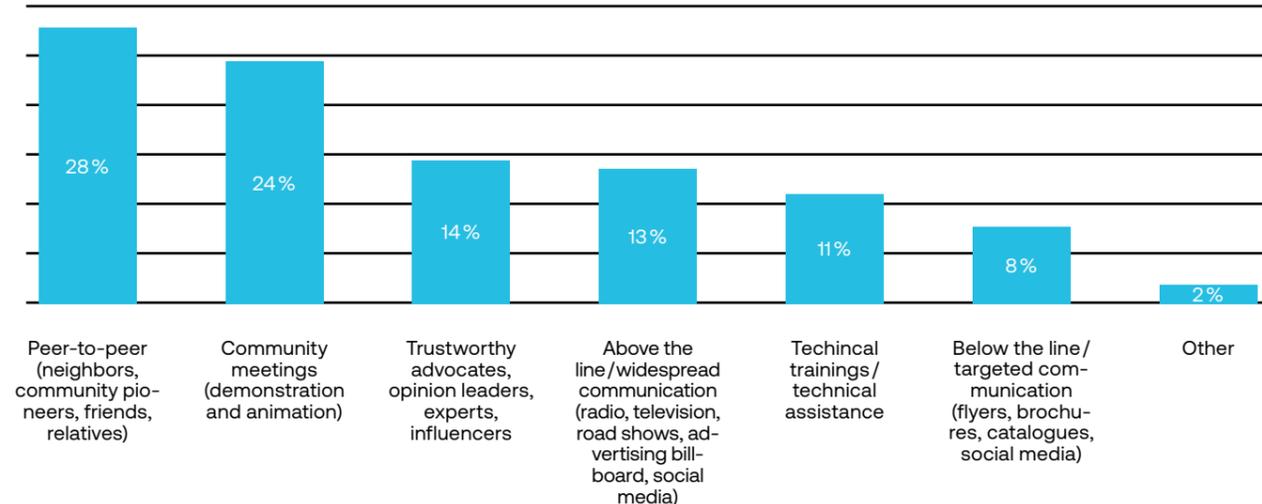
## 4.8   Findings and endorsements from the case-studies

The case studies show that a whole range of instruments are being applied to address context-driven barriers and/or drivers for behavioural change. A common challenge is to measure the direct impact of awareness raising campaigns and other BCC initiatives. The results of such measurement would help to understand and optimise future instruments even better.

It is clear that leveraging synergies and coordination with other programmes, activities and players (ministries, local authorities, other NGOs, local initiatives, private sector, etc.) may boost outputs and outcomes of behaviour change activities. The same could happen when addressing crosscutting aspects such as women empowerment, participation, education about economic and health impacts, environmental protection, aspirations (status symbol), etc.

The case-studies show that an effective behavioural change communication can be based on one main message/driver (e.g. health – Cambodia and Vietnam; fuel/cost savings – Mozambique) or a combination of them.

Best practices should always be interpreted as an inspirational set of factors that were deployed in a specific context – and hence should be adjusted carefully to any new context they are being used for (geographically, culturally, economically, etc.).

Recommendations toward a more structured approach to behavioural change within the clean cooking sector

Being aware that (i) "Behaviour change campaigns are often important for driving adoption and disuse (of traditional cooking methods – Ed.), but cannot drive sustained usage if products do not start with a **solid value proposition;"**[18] and that – as we saw in chapter four – (ii) **there is not a secret formula** for behavioural change promotion, as it strongly depends on context and targets as demonstrated by some **inspirational case studies**, in this chapter we will try to provide some **concrete recommendations** concerning the **design and implementation of impactful behaviour change initiatives**.

18   Clean Cooking Alliance / Dalberg. Clean Cooking Sector Strategy, Presentation of key findings: Systemic challenge #1, October 2020

## Recommendations

### A   Perform a comprehensive consumer behaviour assessment

**A true market-driven approach can only be end-user (consumer) centred**. Accordingly, before selecting a specific clean cooking solution (technology – i.e. acceptability and availability) and developing a behavioural change strategy, it would be advisable to perform a study to assess not only the market situation (players, prices, technologies) but also the local consumer behaviour. Apart from the tools from the examples provided in chapter three, practitioners can perform a rapid consumer behaviour appraisal through the following steps:

Household and / or focus group interviews with **sustained users** of clean cooking solutions – semi structured questionnaire / check list to understand why they did adopt and are still using a clean technology.

Household and / or focus group interviews with **former users** to understand why they are not using anymore.

Household and / or focus group interviews with **non-users** to understand why they have never adopted / used.

Data analysis and definition of a **local cooking behaviour map** with barriers and drivers.

A realistic and comprehensive knowledge of consumer behaviour within a specific context should inform not only the design of any interventions but also the implementation phase. It is therefore recommended to establish procedures to constantly inform project operations with lessons learnt and consumers' knowledge acquired while implementing activities.

Information will be useful also to establish specific indicators for the outcomes and impacts of the intervention. An empirical approach to monitoring and evaluation is more consistent with the nature of the phenomenon (cooking behaviour, drivers and barriers) that strongly depends on specific contexts.

Knowing

Planning

Impacting
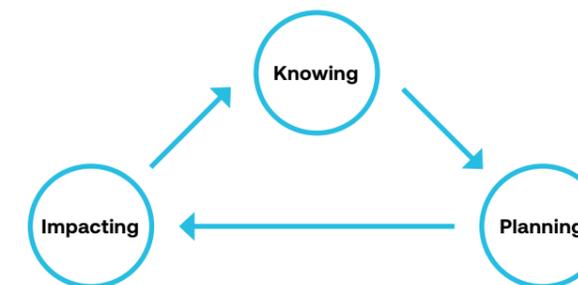
### B   Elaborate a theory of change (ToC) for your behaviour change strategy

Based on the consumer behaviour map, practitioners should design a detailed and structured ToC that focusses on behaviour change: from behavioural problems and barriers requiring specific interventions, leading to behaviour change outputs and outcomes.

It is crucial to clearly identify precise root causes, barriers, assumptions, interventions, results and outputs, expected outcome and impact for example in terms of consumer trust and / or awareness about clean cooking benefits and use, and / or traditional cooking risks and costs. The **EnDev ToC format**[19] can be adapted to that purpose.

19   Refer to the EnDev Strategy, page 12, accessible via: https://endev.info/ wp-content/uploads/2020/11/EnDev_ Strategy_2019-2021.pdf

## C   Elaborate a behaviour change strategy and plan

Practitioners should develop a precise BCC strategy and plan considering cooking behaviour determinants (barriers and drivers) as well as behaviour change instruments. The strategy must be **consumer centred**. Simple, realistic and pragmatic indicators of success should be identified, monitored and evaluated.

### Minimal contents of a behavioural change strategy

| | |
|---|---|
| **1 – Barriers to address** | *Specific barrier/obstacles concerning clean coking solutions awareness and acceptability by local households and communities as discovered through the consumer behaviour assessment* |
| **2 – Driver** | *Enablers, motivators, triggers, message/s (health, savings, convenience, etc.) – identified through the consumer behaviour assessment – to lean on to remove the barrier* |
| **3 – Tools** | *Specific channels, detailed initiatives and tools (demonstration meetings, peer-to-peer, branding, trainings, radio …) for addressing the message to the targeted consumers/beneficiaries* |
| **4 – Inputs** | *Detailed resources needed by the project or intervention* |

### Indicators of success

Practitioners should build structured evidence on cause-effect links and fix clear, quantitative and realistic indicators concerning the effectiveness (impact) of behavioural change initiatives.

Practitioners should build structured evidence on cause-effect links and fix clear, quantitative and realistic indicators concerning the effectiveness (impact) of behavioural change initiatives.

The identification of possible indicators can be based on the specific analysis of the characteristics of sustained users, former users and non-users, i.e. through the research mentioned above. The focus of any indicator would need to reflect the context in which it would be applied:

**Outputs**
- No. of clean cooking solutions sold in a particular period or area or group of people
- No. of discount vouchers presented when buying a clean cooking solution
- No. of visit to a demonstration unit
- % Of people that knows all clean cooking benefits (baseline vs impact evaluation)
- % Of people that knows how to use and maintain the newly adopted solution
- Other indicators identified through the market research

**Outcome**
- % Of people that use a clean cooking solution for more than 3 years
- Other indicators identified through the market research

**Impact**
- Specific indicator identified through the market research

Annex

# Annex 1 – External sources for Chapter 2

## Selected external sources for Chapter 2

1. Vigolo et al., "Drivers and Barriers to Clean Cooking: A Systematic Literature Review from a Consumer Behaviour Perspective", 2018.

2. Puzzolo et al., "Systematic Review – Factors influencing the large-scale uptake by households of cleaner and more efficient household energy technologies", 2013.

3. Bianca van der Kroon, "Climbing the African energy ladder – Internal and external factors influencing household demand for improved cook stoves and modern fuels in Sub-Saharan Africa", 2016.

4. Ed Brown and Jon Sumanik-Leary, "A review of the behavioural change challenges facing a proposed solar and battery electric cooking concept", 2015.

5. Clean Cooking Alliance, Evaluation of Clean Cooking Behavior Change Communication Interventions, 2019.

6. GIZ, "Practitioner's Guide – Social and Behaviour Change", 2019.

## Other external sources analysed:

- Goodwin et al., "The Use of Behaviour Change Techniques in Clean Cooking Interventions"

- World Bank, ESMAP, "Uganda Clean Cooking Behavioral Diagnostic Report"

- Shankar et al., "Everybody stacks Lessons from household energy cacase studies to inform design principles for clean energy transitions"

- GSDRC, "Methods and approaches to understanding Behaviour Change"

- Abhishek Kara, Hisham Zerriffi, "From cookstove acquisition to cooking transition: Framing the behavioural aspects of cookstove interventions"

- Clean Cooking Alliance, "Changing Behaviors Around Clean Cooking: Our Work to Date and Key Lessons Learned"

- Ed Brown et al., "eCook: what behavioural challenges await this potentially transformative concept?"

# Annex 2 – Additional documentation concerning Chapter 3 and 4

| Document and hyperlink (when available) | Main topics / Valuable contribution |
|---|---|
| World Bank Group, *World development report 2015: Mind, society and behaviour.* WB – 2015 https://www.worldbank.org/en/publication/wdr2015 | Inspirational report with description of the principles of the human decision-making process and theories. Provision of examples that consider psychological and social patterns. Can support and inspire approaches and projects implementations. |
| National Bureau of Economic Research, *Up in smoke: the influence of household behaviour on the long-run impact of improved cooking stoves.* NBER – 2012 https://www.nber.org/papers/w18033 | Research on the effects of air pollution of lab tested stoves. Focus on the need to test technologies in real-world settings and over a long period, to understand how the behavioural effects evolve over time. |
| World Bank, ESMAP, *Uganda Clean Cooking Behavioral Diagnostic Report.* WB – 2019 https://openknowledge.worldbank.org/handle/10986/31283?locale-attribute=es | Detailed description of barriers in urban Uganda. Examples of specific behaviour change techniques to face every single barrier that can inspire interventions. |
| People In Need, *Behaviour Change Toolkit for international development practitioners.* PIN – 2017 https://www.behaviourchange.net/document/33-behaviour-change-toolkit | Guidance for practitioners on how to achieve behaviour change in development contexts. Insights on principles for an effective behaviour change intervention. Provision of knowledge and skills for behavioural change programming. |
| Laura Kim Yeat, *Do awareness campaigns influence the individual behavior of Cambodian rural households in favor of cleaner cook stoves and cooking behavior: baseline study.* Master thesis University of Montpellier – Aug. 2020 | Details on case study at pag.15 and Case 7: BCC campaigns in Cambodia and Vietnam (SNV). Description of the current knowledge, practice and attitude towards cooking behaviour and awareness on HAP. Review of clean cooking sector barriers and drivers. Aims to represent the clean cook stove context of the Cambodian rural areas. |
| Winrock International, USAID, *Clean and efficient cooking technologies and fuels.* USAID – Sep. 2017 https://www.usaid.gov/energy/cookstoves/complete | Inspirational report on recent years development of the CC sector. Overview of the evolution of clean cooking sector, best practices and key challenges concerning clean and efficient stoves and fuels. |
| Clean Cooking Alliance, Dalberg, *Clean cooking sector strategy.* CCA – Oct. 2020 | Summary of perspectives and insights from 70 CC stakeholders. Overview of pillar sections of the sector to develop strategy for the next years. |
| Dr. Florian Kutzner *Recommendations for the marketing of ICS in Uganda.* GIZ Uganda, Apr. 2018 | Details on case study in chapter 3 at page 13. Narrative analysis of the research conducted in semi-rural Uganda to assess behaviour determinants. |
| EnDev, GIZ *Interview sheet for the Households survey.* GIZ Uganda, 2018 | Specific tool of the case study analyzed in chapter 3 at page 13. The tool consist in a semi-structured interview that supported the implementers to identify the behaviour determinants of the area. |

| Document and hyperlink (when available) | Main topics / Valuable contribution |
|---|---|
| SNV<br>*Behaviour Change Communication Guidelines* – Sustainable Sanitation & Hygiene for All (SSH4A).<br>SNV, Apr. 2016.<br>https://snv.org/cms/sites/default/files/explore/download/snv_behaviour_change_communication_guidelines_-_april_2016.pdf | Documentation on the current thinking of the SSH4A programme to provide guidance to practitioners engaged in the process of capacity development in BCC.<br>Despite the main focus is the WASH sector, it can be adapted also in the CC sector as seen in chapter 4: Case 7: BCC campaigns in Cambodia and Vietnam (SNV). |
| EnDev, Practical Action<br>*EnDev Results-based Financing Facility (RBFF) [Cook-stoves, Nepal/South Asia].*<br>EnDev, Jun. 2017<br>http://www.endev-nepal.org/sites/default/files/publications/2018-02/RBF-project-factsheet.pdf | Details on Case 6: Nepal (Practical Action) – RBF for Improved cook stoves.<br>Insights on the project approach, achievements and lessons learnt. |
| EnDev, SNV<br>*Reducing Emissions by Increasing the Adoption of Clean Stoves with Behavioural Change Techniques.*<br>EnDev, Jun. 2019<br>https://snv.org/cms/sites/default/files/explore/download/reducing_emissions_with_behavioural_change_final_version_pamphlet.pdf | Details on Case 7: BCC campaigns in Cambodia and Vietnam (SNV).<br>Summary of the study conducted in Vietnam.<br>The results highlights the effectiveness of specific BC techniques strategies and can inspire specific interventions. |
| EnDev, SNV<br>*Changing Behaviour: One clean cookstove at a time.*<br>EnDev, Jun, 2019<br>https://snv.org/update/changing-behaviour-one-clean-cookstove-time | Details on Case 7: BCC campaigns in Cambodia and Vietnam (SNV).<br>The article highlights the importance of user-oriented solutions in the clean cook stove sector and how approaches, such as behavioural change, can contribute to sustaining its adoption over time. |
| 17 Triggers, SNV Tanzania<br>*Jiko Matawi BCC Strategy and Tool Brief.*<br>17 Triggers, SNV Tanzania, Jul. 2019 | Details on Case 4: Tanzania (SNV) – Improved cook stoves.<br>Focus on the specific BCC strategy, tools, triggers and indicators.<br>Specific details on the toolkits to promote the Jiko Matawi stove.<br>Inspirational document that can inspire practitioners to develop successful BC interventions. |
| 17 Triggers, SNV Tanzania<br>*Situation Analysis and BCC Strategy.*<br>17 Triggers, SNV Tanzania, Jul. 2019 | Specific details on Case 4: Tanzania (SNV) – Improved cook stoves in terms of context and TOC.<br>Presentation of initial quantitative data gathered from the field (producers and costumers) of the first year of the intervention and how the product (Jiko Matawi) is affecting the local market and cooking habits. |
| Clean Cooking Alliance<br>*Market Research in the Clean Cooking Sector: TOOLS & TIPS.*<br>CCA, 2015<br>https://www.cleancookingalliance.org/resources/411.html | Useful tips on how to design a market research in the clean cooking sector.<br>Quick guide on the process and key research topics and questions.<br>Provision of tips and examples on the application of the tools to gather information. |
| Clean Cooking Alliance<br>*Scaling Adoption of Clean Cooking Solutions through Women's Empowerment* – A resource Guide.<br>CCA, 2013<br>https://www.cleancookingalliance.org/resources/223.html | Examination of successful women inclusion projects and best practices on the importance of integrate women in every clean cooking value chain segment.<br>Provision of case studies, stories and best practices to increase the number of women engaged in market activities and to address gender issues which prevent the adoption of clean cooking solutions |

| Document and hyperlink (when available) | Main topics / Valuable contribution |
|---|---|
| wPower<br>*BEST PRACTICES in Accelerating Access to Household Energy* – A collection of evidence from wPOWER's partners.<br>wPower, Sept. 2018<br>https://www.globalwomennet.org/wp-content/uploads/2019/02/Best-Practices-in-Accelerating-Access-to-Clean-Household-Energy..pdf | Provision of best practices in the acceleration to household clean energy access.<br>Highlights the involvement of women across the clean energy value chain.<br>Solutions provided by 34 implementing organizations who are working to close the last mile gap between energy access, women's empowerment and entrepreneurship. |
| USAID, URC<br>*Behaviour Change approaches for Clean Cooking.*<br>USAID, URC, TRAction, 2015<br>https://www.cleancookingalliance.org/binary-data/CMP_CATALOG/file/000/000/87-1.pdf | Definition of BC main challenges and provision of communication strategies to promote CCSs, project examples, recommendations and potential solutions. |

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