



The Effects of Health Promotion Campaign on Purchase of ACE-1 Cookstove - Final Report

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1. Abstract

This report provides the overview, key results and findings, and lessons learned of SNV Cambodia's action research on aggressive health promotion of clean cookstoves in Cambodia. Methods used throughout the project include baseline research, *Trigger Mapping*, field research, concept testing, in-depth interviews, focus group discussions, and endline research.

The study was conducted in 5 communes of Kampong Chhnang province, including 1 control group, and 4 test groups. The purpose was to determine whether health messaging is an effective purchase driver for the ACE-1 cookstove. As per the parameters of the project, two health concepts exploring a positive and negative tone were developed. Campaign results show that the key driver for the sale of the ACE-1 cookstove were the individual traits of sales agents. In addition, the project showed that the campaign was successful in shifting attitudes towards the health implications of cookstoves. However, the sales results showed no trend across the two variables, tone (+/-) and level of collateral (basic/full), tested for generating sales.

The report also investigates some of the challenges faced during project implementation and lessons learned in replicating the project. The main challenge was the varying level of implementation from one sales agent to another. Challenges were addressed immediately during the campaign implementation, but considerations for the future include recommendations regarding sales agent recruitment, the location, seasonality, and duration of the campaign, and the naming of the ACE-1 cookstove.

2. Introduction

In Cambodia, the percentage of the population cooking with solid fuels is slightly decreasing over time; however, with population growth, the number of people actually cooking with solid fuels is growing. And with continued significant reliance on solid fuels for cooking, this leads to public health issues as well as deforestation and natural resource degradation.

Cooking with solid fuels with traditional stoves has particular effects on the health of end-users as the smoke from cooking contributes to high levels of household air pollution (HAP) resulting in deadly diseases. It is currently estimated by the World Health Organization (WHO) that 89% of the Cambodian population is exposed to HAP leading to about 11,876 deaths per year¹. HAP related deaths are significant and often higher than deaths due to other illnesses and diseases, such as diarrhea, malaria, tuberculosis, and HIV/ AIDS. The Global Burden of Disease 2010² report estimated that household air pollution from cooking with solid fuels is the second leading risk factor for disease and premature death in Cambodia.

2.1 The Action Research

SNV Cambodia's Advanced Clean Cooking Solutions (ACCS) project aims to bring to scale the distribution of clean biomass cookstoves and cleaner fuels that are efficient, safe, and significantly reduce HAP. Clean biomass cookstoves and cleaner fuels have the potential to dramatically reduce exposure to harmful cooking smoke and to deliver much needed health benefits, but come at a much higher price than traditional stoves. Most of the households using harmful cooking methods have not made the behaviour changes required to transition to clean biomass cookstoves and cleaner fuels. This is in part due to lack of awareness and knowledge on the negative health impacts of their current cooking methods. Against this background, SNV contracted 17 Triggers and TNS to implement the action research project.

2.2 Objectives

The objective of this action research is to assess the effect of aggressive health promotion campaigns on the sale of clean biomass cookstoves. The results of the action research will inform SNV and other development practitioners, policy makers, and market actors:

1. On the most effective health promotion campaigns including related messages, tactics, and communication channels to drive adoption by households of clean biomass cookstoves and cleaner fuels.
2. How different consumer segments e.g. socio-economic status, ages, men and women, respond to different messages, tactics, and communication channels related to clean biomass cookstoves and cleaner fuels.

¹ Source: WHO's Global Health Observatory Data Repository

² [Global Burden of Disease Report 2010 Cambodia Country Profile](#)

2.3 Organization

The four parties involved in this project and their roles and responsibilities are outlined in the table below:

	SNV	17 Triggers	TNS	Lighting Engineering Solutions (LES)
Role	Client	Primary Creative Partner	Research Partner	Cookstove distributor
Responsibility	<ul style="list-style-type: none">- Management and quality oversight of the project and approval of the deliverables- Monitoring of progress of project- Linkage of consultant with local distributor- Coordinate partner relationships	<ul style="list-style-type: none">- Lead in development of campaign promotion material development- Produce campaign materials- Train sales agents for campaign- Implement campaign	<ul style="list-style-type: none">- Develop research design and methodology and tools- Conduct baseline survey, in-depth interviews with sales agents, focus group discussions with customers, and endline survey- Produce accompanying reports	<ul style="list-style-type: none">- Basic/regular marketing in one controlled location- Identify sales agents as determined by SNV and 17 Triggers- Ensure sufficient inventory of stoves and cleaner fuels in the control locations and trail locations during the campaign- Keep track of sale of stoves

3. Method

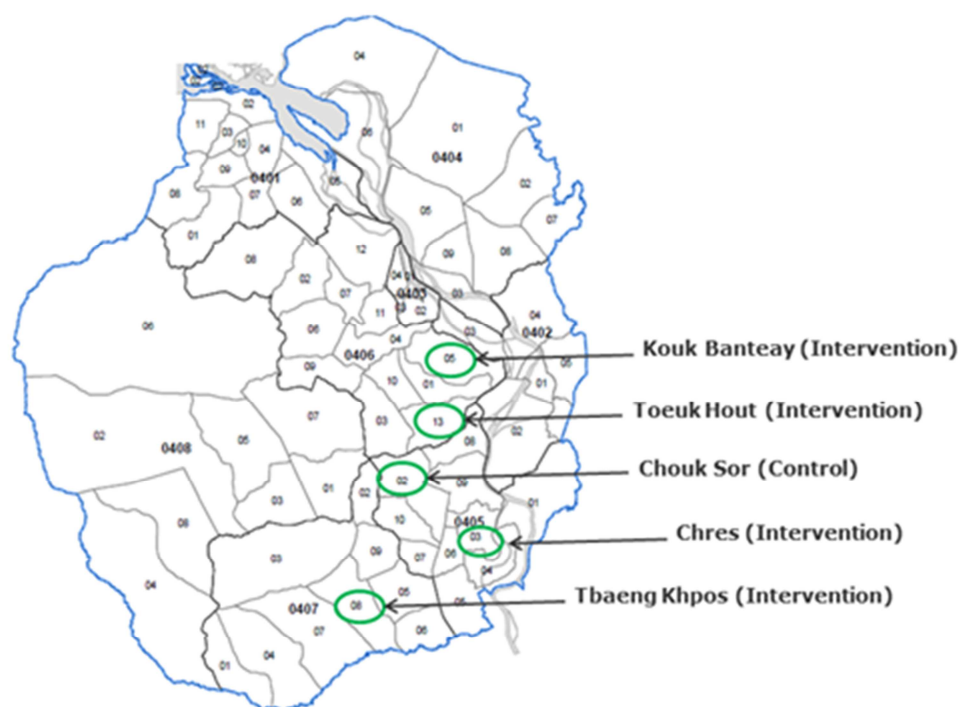
3.1. Study Site

The province Kampong Chhnang is just a 91 km ride from Phnom Penh, the capital city of Cambodia. The site selection was based on its close proximity to the capital city, where it allowed the project team to commute on a regular basis to conduct as well as to monitor the fieldwork and campaign. The province selection was also due to LES, SNV sales and distribution partner, already having a team present there. LES was charged with selecting five rural communes (**Figure 1**) similar in income, population, and household size. Further, all communes had no prior exposure to the ACE-1 cookstove.

Kampong Chhnang province is well-known for its fine clay pottery, which includes the production of traditional cookstoves. The name of the province says it all, as the province translates to "Port of Pottery"³.

³ http://www.tourismcambodia.org/provincial_guide/index.php?view=detail&prv=4

Figure 1: Map of target communes in Kampong Chhnang



After the site selections by LES, Chhouk Sar was assigned as the control commune and the remaining four communes were intervention.

3.2. Study Design

To address the objectives, the study included four phases of research (**Figure 2**). The research study design and rationale of each phase are described in the following sections.

Figure 2: Four phases of research



The study employed a 2x2 factorial design, with two independent variables, each with two levels:

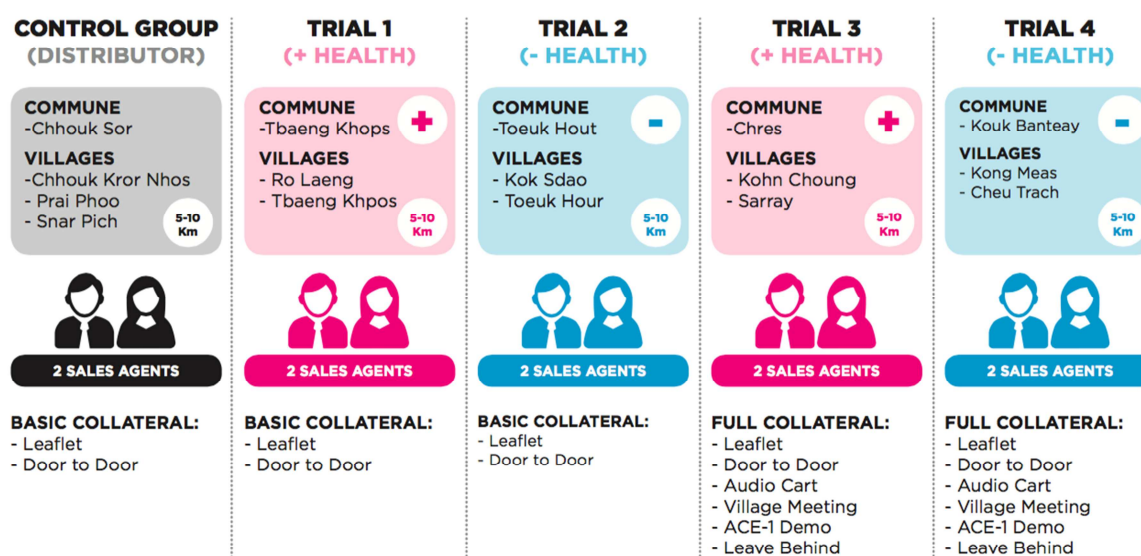
Independent variables:

- 1) Health message tone: positive, negative
- 2) Level of collateral: basic, full

The dependent variable was ACE-1 stove sales.

Four communes were assigned as intervention communes and a fifth as the control group (Figure 3). Among 4 intervention communes, 2 were positive health messaging and the other two were negative health messaging. Within each tone (+/-), full and basic collateral were applied. For example, among the positive health message communes, Tbaeng Khpos had basic collateral and Chres had full collateral. The control commune used only basic collateral and no health messaging.

Figure 3: Campaign dissemination plan



The ACE-1 Stove

Below is information, benefits, and price related to the ACE-1 cookstove, the product which the campaign was designed to promote.

Product information

- Modern stove with fan driven technology
- Includes battery and solar panel
- 1 year warranty
- Fuel agnostic / cooks with many types of fuel (e.g., rice husks, corn cobs, coconut shells, wood, etc.)

Product benefits

- Cooks faster than other stoves
- Better for health than other stoves:
 - Reduces smoke by 90%
 - Reduces risk of disease and illness
- Saves money: reduces fuel costs more than 50%
- Keeps your pots clean
- No explosion
- Easy to adjust
- Can charge phones and lights

Price

- \$100 and \$115 for installment plan

3.3. Baseline Study

3.3.1. Rationale

The baseline study (phase 1) was a scientific, structured, and standardized survey designed to quantify the upfront differences among cookstove consumers (e.g., education, awareness, health impact of traditional stoves) as a means of comparison to the endline survey (post-campaign). Data collected in this phase was used to understand which, if any, differences exist across the five communes, with particular interest in ACE-1 purchase intent. The baseline study was also used to inform the development and testing of the health campaign. The baseline method required a thorough and well-designed process, including the selection of the right sample frame and appropriate sample size that would ensure an acceptable level of confidence and careful analysis of data.

3.3.2. Baseline Study Design

The baseline survey entailed a one-hour, face-to-face, paper-and-pencil interview (PAPI) among 381 respondents across five targeted communes. Random sample recruitment was used to select consumers for the interview.

Target respondents:

- Cookstove consumers: The general public of household members that use cookstoves on a daily basis for at least 3 months prior.

Total sample size n=381

4 intervention communes

- Kouk Banteay: n=76,
- Toeuk Hout: n=76,
- Chres: n=77,
- Tbaeng Khpos: n=76

1 control commune

- Chhouk Sor: n=76

3.3.3. Data Analysis Results

An “Apples to Apples” Comparison

One of the primary reasons for conducting the baseline study was to understand if all communes were starting on similar ground prior to campaign commencement, in addition to comparing baseline to endline results. To do so, a new variable “ACE-1 affinity” (a derived metric comprised of three baseline survey questions: ACE-1 purchase intent, ACE-1 relevance and ACE-1 excitement) was created. This dependent variable (ACE-1 affinity) was used to run an ordinary least squares regression. The result confirmed that while there were differences observed across certain independent variables (e.g., age, income, etc.) by commune, all communes were starting at similar ACE-1 affinity levels. As a result of finding that all five communes exhibited similar ACE-1 affinity levels, the baseline research concluded that any sales differences observed across communes would be attributable to the health campaign as opposed to other variables driving sales results.

Purchase Intent and ACE-1 Barriers

From a purchase intent perspective, less than one-tenth of villagers in all communes stated that they would “definitely buy” the ACE-1 stove (both at \$125 and \$100). The majority of consumers stated that they:

- Could not afford the ACE-1 given their low household income per month, which ranged from \$159 and \$224 on average.
- Neither find the ACE-1 relevant to their household needs, nor exciting.

ACE-1 Stove Price

Prior to knowing the price of the stove, villagers across communes estimated the ACE-1 to cost between \$35 - \$50, which is one third to half its actual price. Consumers across communes did not report that the gender of a salesperson matters. They stated that above all, a good salesperson should be friendly and polite. Additional key findings in the baseline are discussed and compared in the endline survey section.

3.4. Campaign Design

3.4.1. Campaign Design Process

As per the parameters of the project, two health concepts exploring a positive and negative tone were developed. The campaign design process consisted of three main activities: field research, prototyping and testing, and final design and production, to ensure that the campaigns developed were solving the right problems and resonated with the target audience.

3.4.2 Field Research

The overall purpose of the field immersion was to (1) meet with sales agents and map their journey to identify what sales and marketing tools need to be created and (2) meet with the target audience and gather information to determine the best messages and channels to deliver health messages.

The *Trigger Mapping* activity with the sales agents was to map out the sales process and to find the biggest headaches along the path (for sales agents and customers - according to the sales agent) to determine the best points of intervention and possible channels and tools to reach the customer. This activity was conducted with four sales agents and a few areas were identified as needing sales and marketing tools. Sales agent headaches included the

difficulty of inviting villagers to the group event, not having any sales or marketing materials, not being able to demonstrate the stove, and not having anything to leave behind as the family took time to consider the purchase. The sales journey is attached in **Annex 4**.

Further field research was conducted with two existing and two potential customers to map the customer journey and learn the reasons a customer would say yes/no to a cookstove to determine what messages trigger them to buy.

The baseline results validated the key messages that were discovered through the culmination of the field research. Both the positive and negative health campaign concepts focused on the following three messages based on learnings from the field immersion as well as the findings from the baseline.

- Eye irritation - the research found that eye irritation was stated by the most people as a harmful effect of the smoke generated from cookstoves - many stating they themselves experienced this symptom.
- Lung disease - difficulty breathing was also a symptom experienced by villagers.
- Pneumonia in children under 5 - children are more likely than other family members to contract respiratory/lung diseases in test communes.

3.4.3. Concept Development Testing

A concept is a unifying theme that is applied to the marketing and sales tools. The strategy and key messages of the tools can stay the same, but the difference is in how they are designed and how the messages are communicated.

As the focus of the action research was to determine the effect of health messaging on the sale of cookstoves, messages regarding product benefits and features were intentionally not the primary focus.

The objectives of concept testing were to:

- determine which positive and negative approach generates more interest and
- learn why customers prefer one approach to the other.

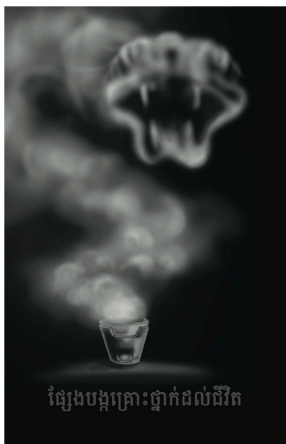
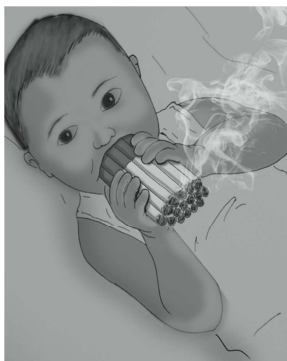


Testing was conducted through four group events of 15-20 people. The four different concepts that were tested during the events are outlined in the table below along with feedback and insights from the participants.

Two concepts were developed per health messaging direction: positive and negative.

Both negative concepts explored the idea of smoke being deadly, one through the use of a snake visual and another through a comparison of traditional cookstove smoke being equivalent to smoking two and a half packs of cigarettes a day.

The positive concepts focused on the benefits of the ACE-1 cookstove, one positioning the ACE-1 as a 'healthy' cookstove and the other with the message that the ACE-1 cookstove can make your family happy and healthy.

The following are some of the responses to the negative and positive messaging.

Negative Concepts		Positive Concepts	
 <p>ផ្សែងបង្កគ្រោះថ្នាក់ដល់ជីវិត</p>	 <p>កូនរបស់អ្នក ជក់បារី២កញ្ចប់ក្នុងមួយថ្ងៃ</p>	 <p>ចម្រ្កានដែលការពារគ្រួសាររបស់អ្នកឱ្យមានសុខភាពល្អ</p>	 <p>គ្រួសារដែលមានសុខភាពល្អនឹងរស់នៅបានយូរជាងគ្រួសារ "មាត់ខ្មៅ"</p>
<ul style="list-style-type: none"> - "Snake has venom and can die instantly if you get bitten." - "Snake is dangerous so it makes us have a lot of sickness and disease." - "Scary." 	<ul style="list-style-type: none"> - "I don't understand the connection between cigarettes and my cookstove." - "I don't want the next generation kids to smoke cigarettes." 	<ul style="list-style-type: none"> - "This stove is very hygienic/clean." - "No smoke makes us healthy." 	<ul style="list-style-type: none"> - "When healthy, my family and children can grow up." - "Unless you have this stove, you can't have a healthy family/life."

A voting exercise with the test groups determined that more people were attracted to the snake visual for the negative approach and the healthy cookstove for the positive approach. Through testing, it was discovered that the target audience wasn't able to make the connection between traditional cookstove smoke and cigarette smoke; however, the majority recognized the snake as being something dangerous even if they didn't necessarily see it as a snake. Both positive directions tested well with people being attracted to the idea that the ACE-1 could help make their family happy and healthy - the main point of feedback incorporated here was that without the ACE-1, the family wouldn't be happy and healthy.

Feedback from field testing were incorporated in further developing each campaign direction and their accompanying tools.

3.4.4. Rapid Prototyping

The two concepts that were further developed for the campaign were "Smoke is Deadly" and "Good For Your Health."

These concepts were incorporated in all the tools that were created for the campaign. The tools were created through a process called rapid prototyping. Rapid prototyping is a method where rather than spending days, weeks, or even months to develop and finesse a concept, readily available materials are used to mock up the ideas and create initial versions of tools in less than 30 minutes. The ideas are tested internally through role play, iterated on, improved, and are tested several times.

The following sections cover the final tools that were created for this project in more detail.

3.4.5. Negative Campaign Messaging Tools





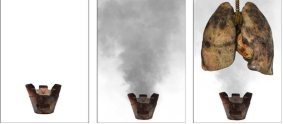
“Smoke is Deadly” - Negative Approach


It is our nature that to survive, we try to avoid things that threaten the survival of ourselves and the people we care about. Obvious dangers are often easy to avoid; predators, poison, etc. But it's the less obvious dangers, like smoke, that are the real threats to your health and survival, because you don't always know how to avoid them.

The goal with this concept will be to visualise how deadly smoke from traditional cookstoves can be, and why they should be very concerned about it. We are aiming to make the dangers of smoke as real as possible in every touch point.

This table outlines the full suite of tools that were developed for the negative campaign.

Tool	Reference	Description	Why was it created?
Audio Cart	<p><i>Scripts in English</i></p> <p><u>SCRIPT 1</u> SFX: Coughing ANNCR: Come to the village group event on Sunday. Your family's health depends on it. Ask the village chief when and where.</p> <p><u>SCRIPT 2</u> SFX: Wheezing ANNCR: Come to the village group event on Sunday. Your health depends on it. Ask the village chief when and where.</p> <p><u>SCRIPT 3</u> SFX: Baby Crying ANNCR: Come to the village group event on Sunday. Your children's health depends on it. Ask the village chief when and where.</p>	<p>Audio recordings to be played via speaker system by the sales agent on their moto 1-2 days prior to the group event.</p> <p>The audio recordings for the negative campaign allude at the harm that can be caused to you, your family, and your children's health from not attending the meeting.</p>	<p>During the <i>Trigger Mapping</i> with sales agent, recruiting people for a village group event came up as a headache.</p> <p>The audio recordings were created to alleviate that headache and provide an innovative way to invite people to the village group event and generate initial buzz around the event.</p>
Leaflet	<i>Outside Spread</i>	The negative campaign leaflet outlines the consequences of	As part of the campaign design, one of the negative campaign groups

	 <p>ឱកាសប្រើប្រាស់ ម៉ូដែល "ACE-1" តម្លៃទាបបំផុត 359000៛ តម្លៃដើមរំលែក 99750៛ តម្លៃដើមប្រាក់ 33250៛</p> <p>097 365 5561 097 365 5561</p> <p>Inside Spread</p> 	<p>breathing in smoke from a traditional cookstove as well as includes the bare minimum product feature information that was displayed in the distributor's leaflet.</p> <p>The leaflet also contains all the information needed to purchase an ACE-1 stove.</p>	<p>was to echo the control group's channels. The distributor was using a leaflet to promote the ACE-1 stove, so an equivalent leaflet with a primary messaging on health consequences was created as part of the tools to be used as a leave behind after a door-to-door event or village group meeting.</p>
Door-to-door sight seller	<p>Front Cover</p>  <p>Inside Page Example</p> 	<p>The sight seller is a tool that helps tell the story of the ACE-1 stove and needs to be effective in a one-on-one situation. It was designed to be easy to transport on a moto and durable enough to stand up to multiple uses.</p>	<p>The door-to-door house visits were designed for two purposes:</p> <ol style="list-style-type: none"> 1. As a follow-up to the group event to close a sale 2. As an opportunity to start a dialogue and invite people to the group event <p>The sight seller was created to help facilitate the conversation and reinforce the negative consequences of breathing in traditional cookstove smoke.</p>
Group event demo board	<p>Demo Visual</p> 	<p>The demo board was designed as an activity during which a sales agent asks for a volunteer to come up and draw the smoke their traditional cookstove creates. The smoke that was drawn transfers through</p>	<p>The demo is one of the three main components of the village group event.</p> <p>It helps the sales agent present information about the ACE-1 cookstove by demonstrating the harmful effects of</p>

		carbon paper to show what happens to healthy eyes, lungs, and children when exposed to smoke over a period of time.	traditional cookstove smoke on your eyes, lungs, and children's health. It is paired with a demonstration of the ACE-1 cookstove that addresses the most common objection people have to buying the stove: "I need to see it work."
Face mask leave behind		The face mask is a giveaway that is tucked inside the leaflet to reinforce the negative consequences of smoke.	This is for villagers to take with them after the presentation (village group event and door-to-door) as a reminder of the harmful effects of smoke. The leave behind is an opportunity to make a lasting impression after the sales pitch is over.

3.4.6. Positive Campaign Messaging Tools




"Good for Your Health" - Positive Approach

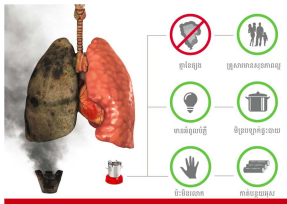


Unbeknownst to users, very serious medical conditions are directly caused by the smoke from traditional cookstoves. Pneumonia, caused from cookstove soot, is a leading cause of death of children under 5, and many adults are suffering from fatal heart and lung diseases directly caused from inhaling smoke on a daily basis.

This campaign positions the ACE-1 cookstove as a medically healthier option for your family and focuses on the positive health benefits that occur when you stop inhaling smoke. This cookstove is a safe and healthy item for your family.

This table outlines the full suite of tools that were developed for the positive campaign.

Tool	Reference	Description	Why it was created
Audio Cart	<i>Scripts included in English</i> <u>SCRIPT 1</u> SFX: Coughing ANNCR: There's a village group event on Sunday that can	Audio recordings to be played via speaker system by the sales agent on their moto 1-2 days prior to the group event.	During the <i>Trigger Mapping</i> with sales agent, recruiting people for a village group event came up as a headache. The audio recordings

	<p>improve your family's health. Ask the village chief when and where.</p> <p>SCRIPT 2 SFX: Wheezing ANNCR: There's a village group event on Sunday that can improve your health. Ask the village chief when and where.</p> <p>SCRIPT 3 SFX: Baby Crying ANNCR: There's a village group event on Sunday that can improve your children's health. Ask the village chief when and where.</p>	<p>The audio recordings for the positive campaign focus on improving you, your family, and your children's health.</p>	<p>were created to alleviate that headache and provide an innovative way to invite people to the village group event and generate initial buzz around the event.</p>
Leaflet	<p><i>Outside Spread</i></p>  <p><i>Inside Spread</i></p> 	<p>The positive campaign leaflet highlights the 3 health benefits of the ACE-1 cookstove as well as the includes the bare minimum product feature information that was displayed in the distributor's leaflet.</p> <p>The leaflet also contains all the information needed to purchase an ACE-1 stove.</p>	<p>As part of the campaign design, one of the negative campaign groups was to echo the control group's channels. The distributor was using a leaflet to promote the ACE-1 stove, so an equivalent leaflet with a primary messaging on health consequences was created as part of the tools to be used as a leave behind after a door-to-door event or village group meeting.</p>
Door-to-door sight seller	<p><i>Front Cover</i></p>  <p><i>Inside Page Example</i></p>	<p>The sight seller is a tool that helps tell the story of the ACE-1 stove and needs to be effective in a one-on-one situation. It was designed to be easy to transport on a moto and durable</p>	<p>The door-to-door house visits were designed for two purposes:</p> <ol style="list-style-type: none"> 1. As a follow-up to the group event to close a sale 2. As an

		<p>enough to stand up to multiple uses.</p>	<p>opportunity to start a dialogue and invite people to the group event</p> <p>The sight seller was created to help facilitate the conversation and highlight the health benefits of purchasing an ACE-1 cookstove.</p>
Group event demo board	<p><i>Demo Visual</i></p> 	<p>The demo board was designed as an activity to demonstrate how introducing the ACE-1 cookstove to your life can prevent the negative effects of smoke from traditional cookstoves on your eyes, lungs, and children's health.</p>	<p>The demo is one of the three main components of the village group event.</p> <p>It helps the sales agent present information about the ACE-1 cookstove by highlighting the benefits of the ACE-1 cookstove on your eyes, lungs, and children's health.</p> <p>It is paired with a demonstration of the ACE-1 cookstove that addresses the most common objection people have to buying the stove: "I need to see it work."</p>
Balloon giveaway		<p>The balloon is a giveaway that is distributed at the beginning of the group meeting. It is used to demonstrate the benefits of healthy lungs and leads into messaging around the benefits of eliminating traditional cookstove smoke from your life.</p>	<p>This is for villagers to take with them after the presentation (village group event and door-to-door) as a reminder of the benefit of healthy lungs.</p> <p>The leave behind is an opportunity to make a lasting impression after the sales pitch is over.</p>

3.5. Campaign Plan and Implementation

The campaign plan and implementation activities are outlined here as a list. A visual map of the implementation plan can be found in **Annex 3**. A few of the activities are included in more detail in the following sections of the report.

1. Identification of test communes
2. Background audit and secondary review
3. Quantitative baseline research
4. *Trigger Mapping* with sales agents
5. Field research with customers
6. Ideation and rapid prototyping
7. Review baseline survey report
8. Concept development
9. Field testing
10. Concept development and testing
11. Production of campaign tools
12. Identification of sales agents
13. Training of sales agents
14. Campaign launch
15. Follow-up calls with sales agents
16. In-depth interviews with sale agents
17. Observation of group sales event
18. Focus group discussions with customers
19. Presentation of qualitative research report
20. Endline survey
21. Presentation workshop
22. Final report

3.5.1. Identification of Sales Agents

The action research was designed to pair one male sales agent with one female sales agent per test village. The cookstove distributor was tasked with recruiting sales agents for the duration of the two month campaign.

With prior knowledge that sales agents tend to operate in a similar geographic location to where they live, this proved to be a challenge given a short time frame and a commission based scheme. These challenges were addressed by postponing the initial sales agent training as well as providing a 100USD salary incentive for the sales agents a few weeks into the campaign.

3.5.2. Sales Agent Training

The sales agent training was designed to inform sales agents of their roles and responsibilities during the test (including what geographical areas they will be working in and which days they are required to conduct which activities), show the sales agents the ACE-1 cookstove and do a product demo, teach sales agents the sales process (including information such as the characteristics of a good salesperson), and distribute the tools to the sales agents and teach them how to use the tools.

The main objectives of the sales agent training were for sales agents to have:

- reviewed the calendar activity,
- practiced the sales demo two times,
- received feedback on their sales pitch two times,
- adapted the scripts to the local context, sales agent's style and preference, and created a 'cheat sheet' of their own.

The initial training event was broken into two days - one to train the positive campaign group and another to train the negative campaign group and was facilitated by 17 Triggers trainers.

Upon arriving at the first training to discover that the sales agents recruited were not the profile that were requested, meaning they had no prior sales experience, weren't a mixed group of men and women, and weren't assigned to the correct health messaging group (positive vs. negative), the first day of training was adjusted to train the sales agents for the negative campaign group. The training for the positive group was held on the second day.

After it was brought to attention that a few of the sales agents who joined the first training weren't able to carry out the campaign activities, 17 Triggers conducted a second two-day training with three new sales agents, the sales agents for the negative campaign on the first day and the sales agents for the positive campaign on the second day.

Facing more sales agent dropouts, SNV staff provided a one-day technical refresher training for the control group.

Midway into the campaign, a fourth and final training was conducted with two new sales agents following more sales agents quitting.

A number of sales agents reported quitting because of various reasons ranging from customer complaints about the stove being too expensive, not being confident to sell from lack of prior sales experience, transportation issues, some areas being difficult to access because of flooding during rainy season, and having other priorities in general.

3.5.3. Campaign roll-out

As a result of some realities of implementation, campaign roll-out was delayed two weeks from its planned start date. This shortened the duration of the campaign from ten to eight weeks.

The following visual outlines the sales and marketing activities that were part of the campaign per test commune.

<div>✓: Campaign element</div> <div>X: Not part of campaign</div>					
Materials/ practices	Control commune	(+) Health message, full collateral commune	(+) Health message, basic collateral commune	(-) Health message, full collateral commune	(-) Health message, basic collateral commune
Leaflet	✓	✓	✓	✓	✓
Flipchart	x	✓	x	✓	x
Loud speaker	x	✓	x	✓	x
Leave behind ■ Mask for (-) ■ Balloon for (+)	x	✓	x	✓	x
Village meetings	✓	✓	✓	✓	✓
Door-2-Door	✓	✓	✓	✓	✓
Demonstration	✓	✓	✓	✓	✓
Control Group consists of: ■ Leaflet (no health related message) ■ Demonstration ■ Village meetings ■ D2D		Full Collateral consists of: ■ All materials and activities listed in the table		Basic Collateral consists of: ■ Leaflet ■ Demonstration ■ Village meetings ■ D2D	

As per follow-up during the campaign, some sales agents were not implementing certain tools and activities. For example, the sales agent for one of the negative test groups did not conduct any group events because the village chief did not approve. Some sales agents forgot to distribute leaflets during the group event and door-to-door visits.

3.5.4. Follow-up with Sales Agents

Three different monitoring activities were conducted to follow-up with sales agents during the campaign: weekly phone calls, door-to-door shadowing, and group meeting observation.

Weekly Phone Calls

Weekly phone calls with sales agents were made on Tuesday each week to check in with sales agents and track the number of events they conducted and cookstoves they sold.

Another aspect of the phone calls was to check in with sales agents regarding any challenges and headaches they were facing.

Door-to-Door Shadowing

One sales agent was selected for shadowing. The purpose was to explore whether the sales agent sold any cookstoves, to assess their sales ability, and to understand the villager's perspectives towards the stove.

Though the sales agent was very committed to the job, had a good introduction for the customer, and was prepared with materials and props to complete the demo well, she was

not calling the cookstove ACE-1 and was not able to explain the health messages regarding the stove very well. The customer ended up saying 'no' to the ACE-1 for being too expensive, not having disposable income, and living alone since most of his family members were away working in the factories. In the end, the sales agent forgot to give the leaflet to the customer before leaving his house.

Group Event Observation

The purpose was to explore whether the sales agent sold any cookstoves, to assess their sales ability, and to understand the villager's perspectives towards the stove.

The balloon activity planned for the positive campaign group event was thoroughly enjoyed by the participants and the sales agent and nurse who were leading the group even had a great dynamic and were able to answer all the participants' questions very well. The sales agent handed out the leaflet with the balloon giveaway as villagers left the event and one cookstove was sold with LES' in-house financing scheme.

Here, again, the sales agent wasn't calling the cookstove the ACE-1 and presented facing away from the participants. The tools for the group event had also been folded up prior to the meeting and as a result were difficult to stick on the walls.

Some questions that came up from the villagers during the event were centered around price (How much is the stove?), warranty (What happens if it breaks? How long is the warranty?), usage of the stove (How can we put in firewood? How do we throw out the ash?), and product features (How do we turn the fan on/off? Is there a bigger size?).

3.5.5. Sales results

A total of 34 ACE-1 cookstoves were sold for the duration of the 8-week campaign. Refer to **Figure 4** in **Section 3.8.3.1** to view the analysis of campaign reach and sales results.

- The control group with no health messaging and basic collateral sold 4 cookstoves through the door-to-door and village group event.
- The negative messaging group with basic collateral sold a total of 24 cookstoves.
- The positive messaging group with full collateral sold 6 cookstoves through the door-to-door and village group event.

3.6. In-depth Interviews (IDIs)

3.6.1. Rationale

In-depth interviews (IDIs) were conducted among the sales agents in the four intervention communes and one control commune. The IDIs were conducted during the campaign in order to:

- Gather insights regarding agents' sales approach and their feedback regarding consumers
- Assess consumers' attitudes toward the health campaign, message and collateral, from the agent perspective
- Delve into ACE-1 purchase drivers and barriers from an agent perspective

3.6.2. IDI Design

TNS conducted in-depth interviews with ten sales agents in total, two from each of the five communes. Each sales agent was interviewed individually to ensure confidentiality and enable them to freely express their opinions.

3.6.3. Key Findings

The Level of Campaign Implementation Varied by Sales Agent

Implementation of campaign collateral (e.g., leaflets, D2D visits, group events, etc.) was inconsistent across sales agents. The IDIs revealed that campaign implementation was not the priority task for most sales agents. The majority of sales agents were holding positions as either village chief or deputy village chief. In addition to that, their main income source was from farming. Therefore, working on village administration and farming were prioritized over their role as a sales agent, and exacerbated by the fact that the campaign coincided with one of the busiest seasons for farmers.

While some agents could not find time to sell the ACE-1, other agents went above and beyond. For example, sales agents in Chres (positive tone/full collateral) used the loudspeaker not only to recruit group event attendees, but to play music before and after the meeting to build excitement. In addition, the two sales agents in this commune helped each other conduct group event. Further, another sales agent from Toeuk Hout (negative health tone / basic collateral) also conducted additional group events wherever and whenever she could.

The IDIs also demonstrated that village chiefs should not in fact be recruited as sales agents. Not only do they have less time to devote to selling, but their differing roles represent a conflict of interest. For example, in one commune a sales agent who was also a village chief denied the sale of the ACE-1 on three separate occasions, citing that the consumers did not in fact have enough disposable income to purchase the stove.

Campaign Materials

According to sales agents, the leaflet was the most effective campaign tool. They cited that the health messaging leaflets were consumer friendly given the visual design, especially considering that some villagers are illiterate. The leaflet was also valuable as agents could leave their phone number for consumers to reach them with follow-up questions. However, among the five communes, the sales agents from negative tone communes mentioned that many consumers did not comprehend the image of the smoke snake on the cover, which they found too abstract.

The audio cart (loudspeaker), specifically used in full collateral communes, was not viewed by the sales agents as an effective means to recruit consumers for group events. Sales agents still had to go through the proper channels to organize the meeting (i.e., village chief approval, etc.)

The interviews revealed that some sales agents, particularly those in negative tone communes, did not fully understand the leaflet visual (e.g., one sales agent thought the smoke visual of a snake was a dog) and they met difficulties in answering questions when consumers posed questions.

Additional Activities of Some Sales Agents

The level of implementation and commitment varied from one sales agent to another. Some sales agents tried to conduct more than what they were required to do as they wanted to get good sales result, while others did not even fully implement the assigned tasks; therefore, there were also difference in the results of sales. From the interviews, the sales agents in positive health tone message full collateral were using provided loudspeaker to play music during the group event in order to attract villagers' attention. In addition, the two sales agents in this commune helped each other out on conducting group event, while this practice did not occur in other communes. Another sales agent from negative health tone message basic collateral also conducted additional group events wherever and whenever she could. For example, in addition to the assigned group event, she conducted another meeting with a health concern group that she was involved in. During the sales pitch, she used her special technique, emotional evoking, to motivate consumers to buy the ACE-1. She reported that she usually linked the health issue that she faced before when she was using traditional cook stove when she explained the negative health message to consumers.

Consumers' Attitudes Toward the Health Campaign, Health Message and Collateral from the Agents' Perspective

- Health message and collateral
 - Positive health message

Sales agents in positive health tone communes were more likely than other communes to state that consumers were receptive to the campaign as they found the message easy to understand.

The positive health tone materials, especially the visual in the leaflet and flipchart, delivered the message that the ACE-1 offers health benefits. (e.g., looks clean and hygienic).
 - Negative health message

The sales agents who implemented the negative tone campaign pointed out that some villagers had difficulties understanding the materials, particularly the cover page of the leaflet.
 - Message of control commune

Sales agents did not report any difficulties understanding the control commune's leaflet, though they did note that the stove pictured in the leaflet was not the same as the ACE-1 demonstrated by the sales agents.

ACE-1 Barriers and Drivers to Purchase

- Barriers

From the sales agent perspective, lack of disposable income, high price and previously being deceived by other sales agents were the key barriers that prevented consumers from purchasing the ACE-1.

Regardless of the tone of the messages, certain sales agents mentioned that some consumers expressed disappointment in the ACE-1's features due to a gap in expectations.

Because the stove appears modern, they did not anticipate that the ACE-1 would still require solid fuel, which is viewed as traditional.

- **Drivers**

Through observing consumer reactions throughout the campaign, most sales agents believed that time, money (through fuel reduction) and energy savings were ACE-1 purchase motivations among consumers. A few sales agents added that agents' personality and persuasiveness also played a role in ACE-1 purchases.

Additional Factors that Influenced Sales

In speaking with agents and then learning their ACE-1 stoves sales to date, it became clear how influential sales agents' personalities, influence in the community and trustworthiness were to stove sales. Further, the IDIs uncovered little evidence that health messages moved the needle on sales.

Besides agents' demeanor, five others factors also contributed to sales results in each commune.

- Availability of disposable money: most sales agents claimed that villagers did not have disposable income throughout the duration of the campaign. Most consumers were farmers and they had recently spent money to buy seeds, fertilizer and hire farmhands to help transplant rice.
- Availability of solid fuel resources in the community: there were differences across communes in the availability of wood and other solid fuels. Some sales agents stated that villagers who could easily source solid fuel were not as interested in buying the ACE-1, whereas communes where it's more time and resource intensive to find fuel found the fuel-saving benefits of the ACE-1 more relevant.
- Previous negative experience: a few sales agents faced difficulty gaining trust from villagers due to being previously deceived by other sales agents (e.g., selling poor quality products, bad warranties, etc.)
- Availability of electricity— consumers without electricity found the ACE-1 more valuable due to its functional features (e.g., phone charging port, light, solar panel).

3.7. Focus Group Discussions (FGDs)

3.7.1. Rationale

Focus group discussions (FGDs) were conducted among villagers who were exposed to the health campaign, including both ACE-1 buyers and non-buyers in order to:

- Assess consumer attitudes toward the message and collateral of the health campaign
- Delve into consumers' purchase drivers and barriers
- Collect rich insight surrounding consumers' perceptions toward sales agents

3.7.2. FGD Design

Initially, in total ten focus group discussions (FGD) were planned to be conducted in the five targeted communes, two in each commune. One FGD was to be carried out among ACE-1 purchasers and another among ACE-1 non-purchasers. However, due to low sales across communes, the design was revised as there were not enough respondents fitting the purchaser criteria to comprise an FGD. Given the higher sales volume in Toeuk Hout, it was

only feasible to conduct a purchaser FGD in this commune. For the remaining communes, both FGDs were primarily comprised of ACE-1 non-purchasers and a few purchasers. Ten FGDs were conducted in total, two per commune.

3.7.3. Key Findings

Consumers' perception of traditional stoves, biogas and the ACE-1

- **Traditional stoves**

In the FGDs across communes, consumers still perceived traditional stoves as being the most fitting and affordable for them. The popular traditional cook stoves that were commonly used and mentioned by consumers include the Lao, Siem, Kongrey and three-stone stoves. These cook stoves were the consumers' first choice despite many recognized disadvantages including high solid fuel consumption and health effects. Consumers acknowledged that there were health effects caused by traditional stoves; yet, many of them did not perceive them as serious. In their perception, the smoke from these stoves only caused short-term issues such as eye-irritation, coughing, etc. Nevertheless, consumers thought that the advantages of these stoves surpassed the disadvantages. Affordability was the most important benefit following by popularity and durability. According to consumers, most traditional stoves cost around 5000 to 15000 Riels equaled to \$1.25 to \$3.75 USD (note: the ACE-1 costs \$100 USD). And if well taken care of, a stove could be used up to 5 years or more.

"I think our traditional stove does not affect our health because it is just smoke. It won't cause any diseases. It just makes our eyes red and causes tears." – a male respondent from negative health message, full collateral commune.

- **Biogas**

Consumers considered biogas stoves as an economical stove option, but associated it with well-off households. There were a few households that built biogas stoves within the sample. Consumer showed interest in biogas stoves due to the following benefits: cost-efficient in the long term, and ability to use animal stool from the fuel remnants as fertilizer for farming. A biogas stove costs approximately 600 USD. An NGO had provided a 150 USD subsidy to villagers who built the stove, so a household only needed to pay approximately 450 USD. However, this amount of money was still considered expensive for the majority of respondents.

- **The ACE-1**

Even after exposure to the health campaign, there was no clear difference between the perceptions of villagers in control and treatment communes regarding the ACE-1. Most of the FGD respondents perceived the ACE-1 as an energy, money and time efficient stove and less associated it with health. Consistent to the findings from the IDIs with sales agents, villagers described the following ACE-1 benefits:

- Time saving: cooking rice and boiling water require less time
- Money and energy saving:
 - Consumes less solid fuel and can accommodate many types of fuel, hence, less money and effort required to find solid fuel
 - Pay less for electricity on a daily basis given the solar panel

- Convenience and ease of use: the fan generates less smoke; no longer have to blow into the flame
- Portability: could move it easily
- Clean: did not accumulate residue on pans/pots
- Accessories: lamp and phone charger port
- No fear of explosion like gas stoves
- Aspirational: look modern, associated with high social status
- Less smoke: does not cause eye irritation and coughing, and doesn't dirty the home

"If I used the ACE-1 stove, my neighbors would admire me for using modern appliances at home."— a male respondent from negative health message, full collateral commune.

"This stove is very economical as it is a 3 in 1 stove: able to cook, charge phones and has a lamp."— a female respondent from control group.

"I think the appearance of the stove does not fit with the fact that it uses firewood and charcoal as fuel,"— a male respondent from negative health message, full collateral commune.

Almost all non-purchasers considered the ACE-1 expensive but viewed it as an aspirational stove. Purchasers on the other hand stated that 100 USD was an appropriate price for the ACE-1 given the benefits that it provided. In general, both non-purchasers and purchasers agreed that 50 USD was a price that would make the stove more affordable for the general public. In addition to the price, some villagers felt the stove's modern exterior design conflicts with the antiquated solid fuel requirement.

"To me, I want to buy it but I need to wait until next dry or harvest season," – a female respondent from positive health message, full collateral commune.

Consumers' Attitudes Toward the Message and Collateral/Material of the Health Campaign

- Positive vs. negative tone in health messages

The analysis of consumers' attitudes toward the message and collateral/material of the health campaign was based on the level of comprehension and receptivity. This section does not incorporate the sales results of each commune as sales were strongly influenced by the sales agents' personality and persuasiveness.

Among all communes, positive tone communes were the most effective especially in the positive tone / full collateral commune. Many FGDs participants had higher comprehension and memory of the campaign's health message. They could recall the ACE-1 stove easily without being asked many questions. Furthermore, some of the respondents spontaneously called the ACE-1 the "health stove" contrary to other communes. During the FGDs, the respondents in positive tone communes were more enthusiastic and engaged while talking about benefits and features of the ACE-1. Additionally, they stated they had higher purchase intent if the price was lower.

The leaflet and leave behind contributed to the increased efficacy of the positive tone messages.

- The design of the positive tone leaflet was attractive to the villagers as the cover page contained a modern ACE-1 stove and clean surrounding with fresh vegetables which conveyed an aspirational kitchen.
- The visuals, pictures and symbols on the leaflet were easily understood, and they did not require a literate reader.
- Moreover, the picture of the health expert in the leaflet delivered the message that the ACE-1 cook stove was a trustworthy product as it had gone through experimental rigor to prove that it was good for health.
- Additionally, the comparison of the healthy and unhealthy lung was easy to understand.
- Not only did the leaflet contribute to the efficacy of the positive campaign but also the balloons leave behind, which was an engaging tool.

“A person from the nearby village asked me if there was a health checkup or doctor coming to provide treatment in my village when she saw the balloon with the red-cross sign,” a female respondent from positive health message, full collateral commune.

Negative health tone messages, in contrast, had lower efficacy based on lower comprehension, memory and level of ACE-1 interest shown during the interaction in FGDs. In addition, the findings from IDIs with sales agents and FGDs with consumers showed that both sales agents and consumers did not clearly understand the messages delivered via the negative health tone message leaflet. Further, many respondents in these communes still denied that smoke from traditional stoves could cause diseases. The mask leave behind for negative tone communes was not given away as initially instructed in the training and in some cases neither was the leaflet, making an exact comparison across tone difficult.

“I think this picture is about the lion,” – a male respondent from negative health message, basic collateral commune.

“I look at it. The pictures and background are so dark and I do not really understand. It looks like skull,” – a male respondent, negative health message, basic collateral commune.

- Audio cart/loudspeaker

The loudspeaker used in full collateral communes was viewed as less effective compared to the leaflet and leave behind. Most of the villagers mentioned that they participated in the group event through village chief invitation, not on account of the audio cart. Moreover, they said that they did not receive complete information from the loudspeaker as they could not hear the voice clearly, and some were not at home at the time of loudspeaker announcement.

- Group Event vs. Door-to-door

Both agents and consumers felt that group events were a more effective touch point than D2D visits for selling the stove. However, both group event and door-to-door complement

each other as door-to-door can close the sale for those considering purchase after attending the group event.

Group events are viewed as an appropriate sales channel for the following reasons:

- **Trustworthy** – legitimate products as they have gone through a local authority.
- Many villagers participate at the same time; the shared presence creates **bonding/trust**.
- **Questions being asked by others** help consumers build opinions.
- Pushes decision-making via the **group dynamic**, as there is an element of **social expectation and pressure**.

While D2D works well in conjunction with village group events, alone they may be less effective due to the following reasons:

- Villagers have **previously experienced deception** through the D2D sales method, hence less trust with unfamiliar sales agents.
- Results in **less questions and interaction**.
- **Delays the process** of decision making — consumers usually need to discuss the purchase first with family members, whereas family may join the village group event
- Less people, so less of a group dynamic that increases interest levels.

“It is fun to join a village group event as many people attend. We can also share comments and ask questions about the stove.” *a female respondent from negative health message, basic collateral commune.*

“Usually, those who come and sell things through D2D do not get any permission from the village chief and they are the swindlers,” *a female respondent from positive health message, full collateral commune.*

- Full vs. Basic Collateral

It was difficult to distinguish the difference in the campaign effectiveness between full and basic collateral due to implementation compliance inconsistencies across agents. However, consumers stated that the nurse who attended the village group events in the commune where the positive health tone message was implemented conveyed credibility and trust to attendees. Additionally, consumers stated that the flip charts used by the nurse aided the nurse’s explanation.

Consumers’ Purchase Drivers and Barriers

- Drivers

Consumers stated a combination of functional, health and aspirational purchase drivers:

- Less agitation caused by smoke (health)
- Time and fuel saving (functionality)
- Portability (functionality)
- Non-post purchase anxiety
- Modern / Social status (aspiration)

It appears that functional benefits may have an effect on sales, evidenced by the pitch used by the highest-converting sales agent in Toeuk Hout who sold the most stoves (24). This sales agent in particular went off script explaining both functional and health benefits of the

ACE-1, whereas all other treatment communes had a health-only focus. Her pitch focused on three main topics:

1. Fuel reduction (functional benefit)
2. Health impacts of traditional stoves through the use of **storytelling** about personal experiences; less smoke generated by the ACE-1 (health benefit)
3. Fast speed of cooking (function benefit)

Additionally, purchasers appreciated that they could use almost any type of fuel including coconut shells, dried cattle stool, etc. and that it saved almost 70% in fuel usage. Most respondents appreciated the lighting and charger features that the stove offers because they could use the light at night and charge the phone while cooking. Although villagers had experienced being deceived previously, the purchasers as well as non-purchasers stated that having a main contact person in their village would ease their post purchase anxiety. Another satisfying feature that was mentioned by both purchasers and non-purchasers was portability. Since there was no heat coming from stove's exterior, the users could move it whenever they desired.

For converted ACE-1 users, they were highly satisfied with their purchase. Besides consuming less fuel, fuel usage flexibility, portability, less time consuming and less smoke, the users were satisfied with the adjustable flame feature that the stove provided.

"I can have fast cooked food and it has a fan to control the flame, no need to blow,"— a male respondent from positive health message, full collateral commune

"I can light a fire with many kinds of fuel that I can find around my house."— a female respondent from negative health campaign, basic collateral commune.

"I bring the ACE-1 to the rice field so I can cook there,"— a female respondent from negative health campaign, basic collateral commune.

"I like the ACE-1 because I can turn on the lamp and charge my phone's battery while I am cooking."— a female respondent from control group.

- Barriers

Consistent with the IDI findings, consumers considered the price of the ACE-1 as the main barrier followed by other barriers including fear of being deceived on quality and service, lack of disposable income, no size options and not confident in using modern technology.

Since villagers do not have a consistent monthly income and they usually receive it seasonally after the harvest season, the villagers could not afford purchasing the ACE-1 in the middle of the farming season.

In the past, the villagers experienced being deceived on both quality and services of products including gas stove, watches, tents and lighting solar, which has made them hesitant to trust new products.

Some consumers were not satisfied with the ACE-1 size. Many of those who mentioned this dissatisfaction wanted to have a bigger option of the ACE-1 for different cooking needs.

Another concern of the ACE-1 was life expectancy. Many villagers questioned how long the ACE-1 could last. Additionally, a few villagers, especially the elders, were not confident about using the modern features (e.g., fan adjustment, phone charger and light).

- **Installment**

All ACE-1 purchasers paid via an installment plan instead of an upfront payment. Based on feedback in the FGDs and IDIs, most chose the installment option due to the following reasons:

- Pay as you go, which is better suited for consumers who don't have substantial savings
- Could use the ACE-1 before they paid the first installment at the end of the month.
- No benefit lost. Purchasers could learn the quality of the ACE-1 after using it and there was no loss if they were unsatisfied.
- They had more regular income than other villagers as some of their family members were working at garment factories.
- All ACE-1 buyers were ethnic Khmer. However, the installment payments did not appeal to Cham communities as paying via installment was believed to be sacrilegious and against their beliefs.

The Role of Sales Agents

Similar to the IDI results, the results of the research suggest that sales agents played the most important role in generating stove sales across communes. More specifically, sales agents play the biggest factor in sales due to how broadly they vary based on the following:

- Persuasiveness
- Personality and demeanor
- Age
- Eloquence
- Going on / off script
- Trustworthiness in the community
- Sales commitment (e.g., # of D2D visits)

For example, the highest converting sales agent in Toeuk Hout sold 24 stoves and was described as polite, friendly, charismatic, committed, creative, articulate, trusted and a good listener and speaker. Whereas for instance, one of the sales agents in Kouk Banteay, who did not generate any sales, was described as inarticulate, indirect, unfriendly and lacked passion. This contrast helps to illustrate the power of a sales agent's personality and disposition in the pitching process.

Consumers mentioned the extra effort and offers made by some sales agents to encourage consumers to purchase the ACE-1, which they interpreted as trust-building. For example, certain agents provided demonstrations, stove trials and experiments (e.g., stood on the stove to prove its durability), and others conducted follow ups and provided tips on how to

take care of the stove post-purchase. In one instance, an ACE-1 purchaser was converted after being allowed to trial the stove for several days. Trust was also built through providing an after sale service contact.

3.8. Endline Survey

3.8.1. Rationale

This method allows for the ability to calculate the delta from baseline to endline survey in awareness of the health impact of traditional cookstoves, and attitudes toward the ACE-1. Endline data was also needed in order to create a profile of ACE-1 buyers and non-buyers, and to provide actionable recommendations to inform future cookstove campaigns and sales implementations.

3.8.2. Endline Study Design

Mirroring the baseline survey, the endline survey entailed a one-hour, face-to-face, paper-and-pencil interview (PAPI) among respondents across five targeted communes.

Target respondents:

Cookstove consumers: The general public of household members that use cookstoves on a daily basis for at least 3 months prior. However, endline respondents must have been exposed to the ACE-1 campaign to qualify for the interview.

Total sample size n=311

4 intervention communes

- Kouk Banteay: n=39
- Toeuk Hout: n=77
- Chres: n=62
- Tbaeng Khpos: n=69

1 control commune

- Chhouk Sor: n=64

The sample size of the baseline was lower than the endline survey in certain communes due to a few reasons. First, the campaign exposure requirement severely limited the number of respondents that could be interviewed as many did not qualify due to the low reach of the campaign. In addition, a number of targeted respondents refused to participate in the endline survey. Finally, some respondents were occupied with farming (it was planting season during fieldwork) and could not be reached for an interview. TNS maximized the number of the interviewees in the endline by extending fieldwork and recruited 311 respondents in total.

3.8.3. Data Analysis Results

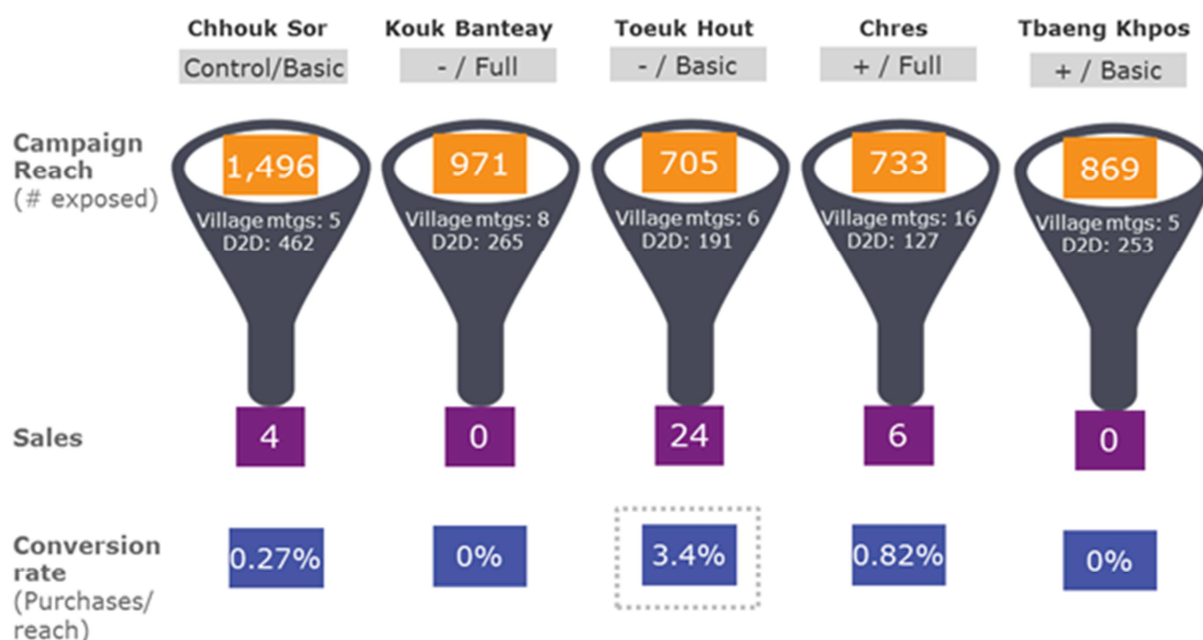
3.8.3.1. Campaign Reach and Sales Results

According to the sales agents in both control and intervention communes, they on average could reach 3 consumers per door-to-door (D2D) visit, and there were roughly 22 consumers on average joining each village group event.

After the campaign ended, data on sales numbers, D2D, and village group events were provided by both LES and 17T, which then were used by TNS to generate conversion funnel in **Figure 4**. Campaign implementation was inconsistent across communes, per

Figure 4. Sales agents in the control commune held the highest number of D2D visits and Chres held the most village group events. Campaign reach by commune was derived by multiplying the number of D2D visits conducted by the average number of consumers who attended (3). The same calculation was applied to village group events.

Figure 4: Conversion funnel



According to **Figure 4**, the control commune had the highest exposure (1,496) to the health campaign and purchased 4 ACE-1 cookstoves. On the other hand, Toeuk Hout (negative tone and basic collateral) had only 705 exposed consumers, yet 24 ACE-1 buyers, resulting in the highest number of sales across communes (3.4% conversion rate). **Figure 4** also illustrates that the two variables tested (tone and level of collateral) did not have a clear impact on sales as seen by no trend in positive tone communes over-or-under-performing against negative, and basic collateral communes inconsistently over-or-underperforming against full collateral. In addition to both variables not impacting sales, exposure levels also had no impact, demonstrated by the fact that Kouk Banteay and Tbaeng Khpos had the second and third highest exposure levels, yet no ACE-1 sales.

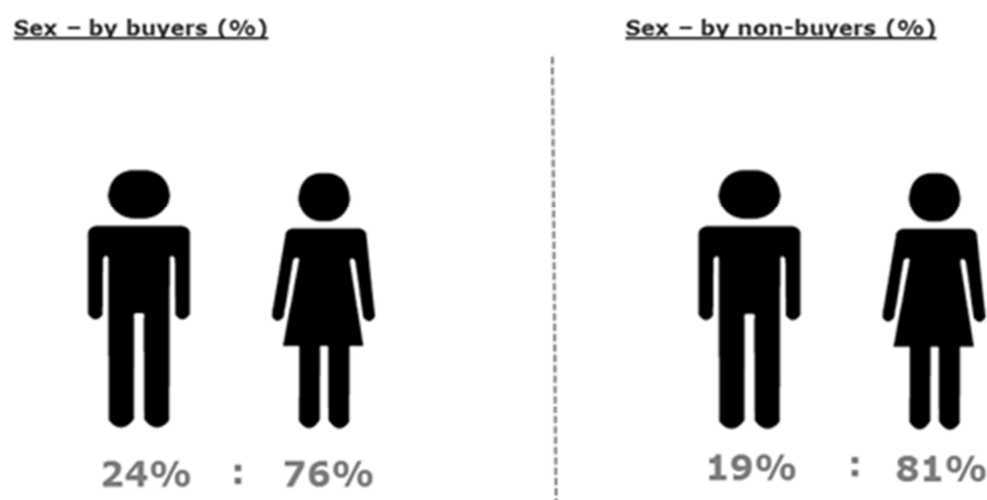
As illustrated in the qualitative findings, sales agents had the greatest impact on sales. Of the 34 total sales, a female sales agent in Toeuk Hout (-, basic) sold all 24 ACE-1 stoves. Her personality, persuasiveness and trust in the community set her apart from other sale agents. She is described as charismatic and went off script explaining both functional and health benefits of the ACE-1. Her commitment, creativeness, articulateness, and trustworthy also made her a champion in selling the stove.

3.8.3.2. Profile Summary of the ACE-1 Buyers

Per **Figure 5**, both ACE-1 buyers (76%) and non-buyers (81%) skew female as most rural Cambodian housewives cook more often than men, and using a cookstove daily was one of the criteria for target respondents. However, there is a higher composition of male buyers than male non-buyers (24% male buyers vs 19% male non-buyers). One plausible

explanation for this disparity could be that men typically take part in the decision-making process of large household purchases, such as a modern, expensive cookstove.

Figure 5: Sex - by buyers and non-buyers



Additionally, compared to non-buyers, ACE-1 buyers are:

- Younger
 - While 38% of ACE-1 buyers are less than 35 y.o., less than one-third (28%) of non-buyers are under 35 y.o.
- Wealthier
 - More than half of buyers (52%) earn a household income more than \$200/month while 32% of non-buyers earn more than \$200/month.
- More highly educated
 - While 28% of buyers have completed lower secondary school, a third of non-buyers (32%) have no formal education.

3.8.3.3. Drivers and Barriers to ACE-1 Purchase

In addition to sales agents who played the most important role in stove sales across communes, both functionality (phone charging, fuel consumption reduction, etc.) and health were cited as the top drivers for purchasing the ACE-1 among buyers. Similar to buyers, non-buyers also stated reduced fuel consumption and phone charging as top two product benefits.

Price, lack of spare parts and repairing services were the top three drawbacks of the ACE-1 among buyers. On the other hand, the top two purchase barriers among non-buyers across communes relate to monetary concerns: lack of money and high price. More than one-third (34%) of non-buyers did not buy the ACE-1 due to lack of enough knowledge about it as well.

When asked non-buyers' likelihood to buy the ACE-1 stove if it were \$50, a quarter or more of communes using positive tone (Chres and Tbaeng Khpos) were "very likely" to buy the stove. More than one-fifth were "very likely" to buy the ACE-1 if price was not an issue. These two communes also showed a higher propensity to buy the ACE-1 than the control and the negative tone communes.

More than half of non-buyers across communes mentioned that they would consider buying the ACE-1 if there was a warranty guarantee from their village chief, a week trial of the ACE-1, or a local service contact if the ACE-1 needed repairs.

3.8.3.4. Campaign Impacts on Health Awareness

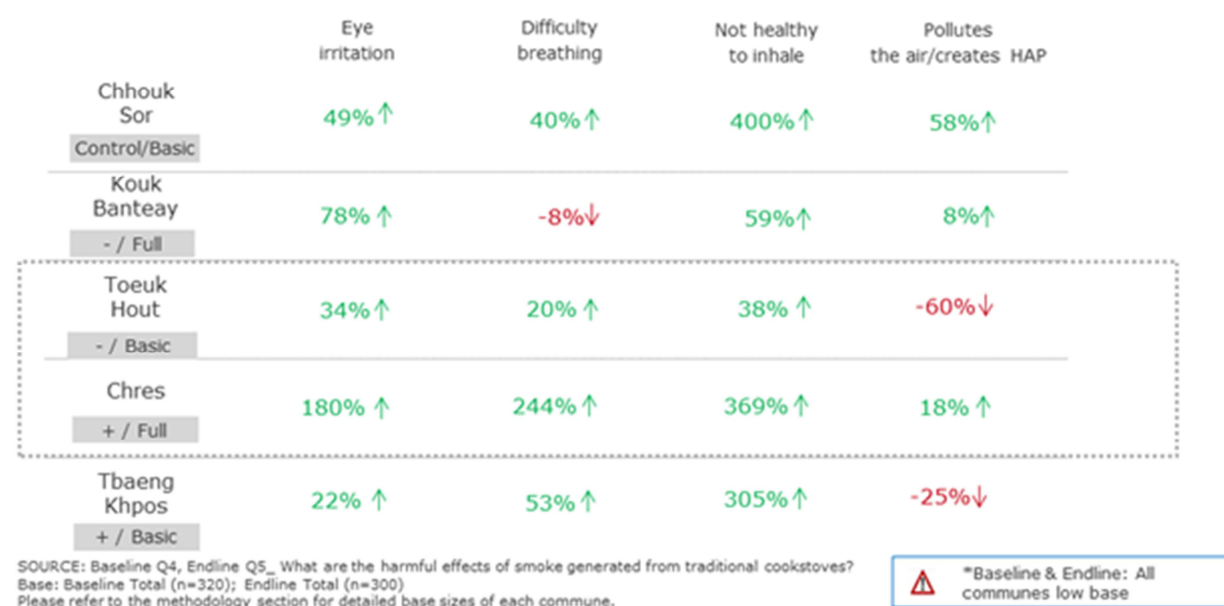
The campaign was successful in shifting attitudes toward the health implications of cookstoves. Per Figure 6, after the health campaign more consumers across communes were aware of the harmful effects of smoke generated from cookstoves. The greatest lift (% change) from baseline to endline was among positive tone communes (Chres and Tbaeng Khpos).

Figure 6: Baseline & Endline: % who feel there are harmful effects of the smoke generated from cookstoves



With a few exceptions (**Figure 7**), nearly all health related responses (e.g. eye irritation, not healthy to inhale) had positive lifts from baseline to endline across communes. Interestingly, while Toeuk Hout had the highest sales, it had the smallest shifts in awareness of the effects. This could be that functional benefits (the key ACE-1 benefit stated by the sales agent) were also driving their purchase decisions in addition to health. Chres, on the other hand, had the greatest lifts compared to the rest of the communes.

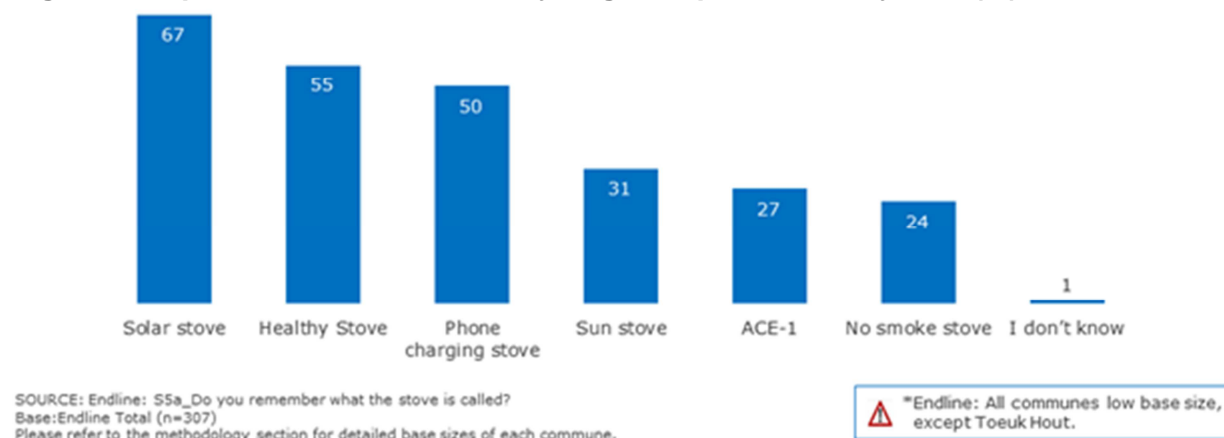
Figure 7: % change from baseline to endline: Harmful effects of the smoke generated from cookstoves



3.8.3.5. Attitudes toward the ACE-1

Surprisingly, only 27% of consumers correctly referred to the stove as the “ACE-1” (Figure 8). Half or more called the ACE-1 the “solar stove” (67%), the “healthy stove” (55%), or the “phone charging stove (50%),” which reflects both the functional and health benefits afforded by the ACE-1.

Figure 8: Top 6 ACE-1 names called by target respondents – by total (%)



ACE-1 stove relevance (54%) and excitement (84%) were highest for Toeuk Hout, which had the highest stove sales. Also, the three communes (Chhouk Sor, Toeuk Hout, Chres) that purchased the stove rated the ACE-1 as more affordable than the other two communes. In addition, the three communes with stove sales stated a higher “fair price” for the ACE-1, ranging from \$42 to \$44, than communes with no purchases, ranging from \$32 to \$37. Nevertheless, less than \$50 was stated as a fair price of the stove across communes, which is less than half of the actual price (\$100) highlighting a gap in consumers’ cost expectations of the ACE-1.

4. Conclusions

Of the two variables tested for generating sales, neither tone (+/-) nor level of collateral (basic/full) outperformed. The sales results showed no trend across either variable. In addition, the control commune did not underperform in sales in comparison to the four communes that ran a health campaign, concluding that health messaging is not a particularly effective purchase driver for the ACE-1 stove. The efficacy of sales agents was seen as the strongest factor affecting sales as illustrated by the sales agent in the high sales-generating commune, Toeuk Hout (-, basic), who sold all 24 ACE-1 stoves. IDI and FGD results revealed that she was charismatic and went off script explaining both functional and health benefits of the ACE-1. Her pitch included the following selling points:

1. Fuel reduction (functional benefit)
2. Health impacts of traditional stoves through the use of storytelling about personal experiences; and less smoke generated by the ACE-1 (health benefit)
3. Fast speed of cooking (function benefit)

Besides sales agents, a combination of functional, health and aspirational (e.g. makes my home look more modern) benefits were all noted as reasons for buying the stove.

Monetary concerns (lack of disposable income and high price) and product concerns (no service contact for maintenance) were deterrents to ACE-1 stove sales.

Although tone (+/-) and level of collateral (basic/full) did not translate into sales, they were effective variables for changing attitudes toward the health impacts of traditional stove. Nearly all communes, but especially communes receiving the positive tone messages, exhibited lifts from the baseline to endline across health metrics. On the other hand, negative communes, including Toeuk Hout that had the highest sales, attained the smallest lifts across health metrics, even smaller than the control commune. One explanation is that the star sales agent in Toeuk Hout appealed to consumers with not only health benefits of the ACE-1 but also functional benefits (e.g., fuel reduction and speed of cooking).

Village group events were reported as more effective than door-to-door, though they work best when complemented with door-to-door visits as one message reinforces the other.

5. Challenges and Lesson Learned

The level of project implementation varied from one sales agent to another. All sales agents were newly recruited and lacked sales experience. Some agents quit shortly after the training. Therefore, the tenure of sales agents fluctuated. During certain periods of the campaign there were inconsistent numbers of agents operating in each commune. As a result, the number of D2D and group events varied across communes.

Challenges were addressed immediately during the campaign implementation by recruiting new sales agents, conducting three additional trainings, and providing agents an incentive scheme.

The following provides a list of considerations to inform future sales initiatives:

- **Agent recruitment and incentives:** ensure all sales agents have prior sales experience and are provided incentives in order to maintain motivation and minimize attrition.

- **Location:** the campaign was mainly implemented in rural communes where the majority of consumers have low levels of disposable income. Implementing a campaign in urban or peri-urban areas might produce higher sales.
- **Seasonality:** Income fluctuates throughout the year for many Cambodian consumers, especially farmers. Respondents in the FGDs reported lower disposable income during the months in which the campaign ran as it was planting season and many had already spent their money on farming supplies. Therefore, launching a campaign after harvest season when consumers have greater income would increase the likelihood for ACE-1 purchases.
- **Campaign duration:** the campaign was live for less than 10 weeks, which may have been too short to see an impact on sales, particularly for a product viewed as expensive to the average consumer. Consider testing whether a longer campaign converts at a higher rate, given that it would allow consumers a longer window of time for purchase consideration.
- **Naming of the ACE-1 stove:** more than half of consumers tied the ACE-1 name to functionality or health and only a quarter referred to the stove correctly as the “ACE-1.” Therefore, a name related to the stove’s functionality may be easier to recall.

Annexes

Annex 1 - Terms of Reference

Annex 2 - Final Activity Timeline

Annex 3 - Implementation Plan

Annex 4 - Sales Journey Trigger Map

Annex 5 - Campaign Tools