



CASE STUDY | JUNE 2018

**PROMOTING
SUSTAINABLE BUSINESS
MODELS FOR CLEAN
COOKSTOVES
DISSEMINATION IN
HONDURAS**



COUNTRY AND REGION

Honduras, Central America

PROJECT TOTAL COST

USD 5.3 million

PROJECT DURATION

2014-2019

ORGANIZATIONAL COMMITMENT

- i) Improving clean cookstoves quality and performance
- ii) Strengthening clean cookstoves enterprises and supply chain
- iii) Increasing access to cookstove finance
- iv) Enhancing demand through marketing, promotion, and awareness raising
- v) Creating a knowledge and dissemination platform

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PROJECT DATA

PARTNER ORGANIZATION

Fundación Vida

ORGANIZATION TYPE

Honduran non-profit organization

DELIVERY CHALLENGES

- i) Cookstove market distortion due to donation programs
- ii) Lack of strategic project focus slowing down the strengthening of a private sustainable clean cookstove market
- iii) Lack of coordination between stakeholders in the cookstove market

DEVELOPMENT CHALLENGE

Reduce health risks associated with indoor air quality in poor and low-income households in Honduras, reduce time and costs associated with household fuel use.

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In Brief

DEVELOPMENT CHALLENGE

Reduce health risks associated with indoor air quality in poor and low-income households in Honduras, reduce time and costs associated with household fuel use.

More than half of Honduran households cook with fuelwood on rudimentary cookstoves that are highly inefficient and unhealthy. Indoor air pollutants emitted by these cookstoves cause respiratory disease and other major health issues. The use of traditional cookstoves not only impacts the health and well-being of poor families but it also impacts the environment, notably through the harvesting of biomass from natural forests and habitats and the emissions of greenhouse gases (GHG).

DEVELOPMENT SOLUTION

Enable the establishment of a sustainable clean cookstove market.

PROFOGONES, a clean cookstove program supported by CIF¹ and MIF² and implemented by

¹ Climate Investment Funds.

² Multilateral Investment Fund, part of the Inter-American Development Bank (IDB).

Fundación Hondureña de Ambiente y Desarrollo (Fundación Vida), seeks to transform the clean cookstove market by enabling market conditions to allow new business models to develop and by strengthening the existing private sector capacity in Honduras.

PROJECT SOLUTION AND RESULTS

The project established a National Clean Cookstove Quality Standard, created a solid coordination unit among a diverse range of value chain stakeholders, reinvigorated local cookstove manufacturing and implementation, created various knowledge products (market, gender, legal framework), and delivered over 10,000 cookstoves to beneficiaries between February 2014 and December 2017.

Executive Summary

Poor households in Honduras are highly dependent on fuelwood and in-house cookstoves. An estimated 1.1 million households use inefficient traditional cookstoves, which produce large amounts of smoke that severely affects children's and adults' health. Since the 1980s, international and Honduran aid agencies and public projects have invested resources in the adoption of effective and clean cookstoves as a way to reduce indoor air pollution and decrease fuelwood consumption and greenhouse gas emissions.

These scattered interventions have allowed for a small national clean cookstove sector to emerge, providing donor-subsidized clean cookstoves to poor Honduran households. PROFOGONES³ was designed in 2013 to foster a sustainable private market for clean cookstoves that would not depend on external donations. Supported by the Climate Investment Funds (CIF) and Multilateral Investment Fund (MIF), part of the Inter-American Development Bank (IDB) and implemented by Fundación Hondureña de Ambiente y Desarrollo (Fundación Vida), the project aimed to strengthen a commercial culture by supporting clean cookstove enterprises; enhance demand through marketing, promotion, and awareness raising; and increase access to cookstove finance (microloans).

³ Sustainable Rural Energization (ERUS, PROFOGONES) Part I & III: Promoting Sustainable Business Models for Clean Cookstoves Dissemination in Honduras, CIF, IDB, MIF and IBRD.

Soon after the project started, PROFOGONES experienced a series of delivery challenges related to competing donation-based cookstove programs (including the government funded Vida Mejor Program), a lack of strategic project focus, and a lack of coordination between the sector's stakeholders. This case study describes how PROFOGONES managed to overcome these challenges and establish the foundations of a sustainable demand-driven cookstove market within a culture of donor-driven interventions. This case study is guided by three delivery questions:

1. How did PROFOGONES mitigate the effects of the Vida Mejor Program on the emerging sustainable clean cookstove market?
2. Why and how did PROFOGONES abandon the pursuit of delivering 50,000 installed clean cookstove target in order to invest more resources in structural, long-lasting changes to the clean cookstove market in Honduras?
3. Why was coordination between value chain stakeholders an important aspect of structuring the Honduran clean cookstove value chain?

First, the PROFOGONES team refocused their attention on market segments comprising households with the purchasing power to acquire a quality cookstove, thus creating complementarity with programs donating free cookstoves to poor and extremely poor households. PROFOGONES also differentiated by offering the possibility for households to create additional revenue streams (e.g., making and selling *tortillas*) with the new cookstoves.

Second, the PROFOGONES team turned attention away from implementing large numbers of clean subsidized cookstoves, and refocused on creating strategic changes that would facilitate

the transformation of a donor-driven market to a demand-driven market.

Finally, as a joint effort of PROFOGONES and Netherlands Development Organization (SNV), the project filled a coordination gap between manufacturers, implementers, donors, and government organizations by creating the National Coordination Platform. It has facilitated effective clean cookstove delivery in different market segments and between different projects and programs and has coordinated promotion efforts and the exchange of technical and social information.

The principal factors that contributed to these successful management responses were the self-critical attitude of the PROFOGONES team, as well

as its capacity to identify and collaborate with complementary strategic partners. The project has been able to achieve the following results: establish a National Clean Cookstove Quality Standard, create a solid coordination unit among a diverse range of value chain stakeholders, reinvigorate local cookstove manufacturing and implementation, create various knowledge products (market, gender, legal framework), and deliver over 10,000 cookstoves to beneficiaries between February 2014 and December 2017.

The case study draws from project documents as well as interviews with relevant cookstove stakeholders, including the PROFOGONES team, the MIF team and clean cookstove manufacturers and users. ■

Introduction

Children in poor households in Honduras have a high probability of being affected by a respiratory illness at a young age. This is attributable to the cooking their families must do on traditional fuelwood stoves that often lack an efficient and airtight chimney. In recent decades, multiple national and international aid organizations have attempted to address this problem in some regions of Honduras. This has resulted a small, nascent clean cookstove value chain that is dynamic but dependent on external funds.

In 2014, PROFOGONES, a national project supported by the Climate Investment Fund (CIF) and the Inter-American Development Bank's (IDB) Multilateral Investment Fund (MIF) and implemented by Fundación Hondureña de Ambiente y Desarrollo (Fundación Vida), was launched to strengthen this value chain and foster a sustainable private market of clean cookstoves⁴ that would not depend on external aid. One confounding factor to the fostering of a sustainable market was a Honduran government program called Vida Mejor (VM)⁵, conceived in 2014 to donate a large number of free cookstoves to extremely poor households.

⁴ A sustainable private market is characterized by an expression of a demand or need by a user, and a fair payment for the fulfillment of this need with a quality product or service, as opposed to a market that is determined by the objectives of national and international aid programs. The latter is not considered to be sustainable because donor interventions are punctual and dependent on donor priorities and availability of funds.

⁵ <http://www.presidencia.gob.hn/index.php/sites/vida-mejor>

This case study describes how PROFOGONES managed to establish the foundations of a sustainable, demand-driven cookstove market within a culture of donor-driven interventions.

Hondurans are heavily dependent on fuelwood for household energy consumption. It is the largest energy source, representing 46 percent of the final energy consumption matrix. Nearly 47 percent of Honduran households rely on fuelwood for cooking, heating, and other domestic uses (Carneiro, 2013)⁶. Also, it is ingrained in the traditional culinary culture to cook foods with wood-fueled stoves, as this contributes to flavor.

In general, Hondurans in rural and periurban areas use artisanal cookstoves for heat generation and cooking. These traditional stoves come in multiple forms but are generally built of adobe. They lack an efficient combustion chamber, smoke exhaustion system, and chimney. Rapidly worn down and not airtight, they require large volumes of fuelwood. As a result, traditional cookstoves pose considerable fire and health risks due to in-house smoke and soot accumulation. According to the Institute for Health Metrics and Evaluations, household air pollution is the fifth risk factor leading to premature death and disability in Honduras, estimated to cause the death of 3,665 people every year (Global Burden of Disease Database (GBD), 2010).

Moving from traditional cookstoves to improved cookstoves, also called "clean" cookstoves, are among the most appropriate measures to improve the living conditions in these households. Although there are many models and sizes, improved cookstoves are basically an intelligent assembly of low-cost metallic and building materials, including a

⁶ 54.5 percent of the population in Honduras lives in rural areas, and 61.9 percent of the total population lives below the country's poverty line of which 41.6 percent in extreme poverty (Carneiro, 2013).

chimney, a combustion chamber, heat ducts, and a cooking surface (in Honduras this is mostly a plate, for *tortillas* preparation). When properly used, clean cookstoves improve energy efficiency and can lead to an 85 to 90 percent reduction of in-house toxic smoke generation, a 50 to 60 percent decrease in fuelwood expenses, and an overall increase in family health and respiratory capacities (Carneiro, 2013).

International aid organizations have been implementing clean cookstove projects in Honduras since the 1980s⁷. A large majority of these projects had been heavily subsidized by foreign aid agencies (donors), and implemented by national nongovernmental organizations (NGOs), municipalities, manufacturers, and other businesses (implementers).

PROFOGONES was designed in 2013 to steer the sector away from this donor-driven model towards a sustainable clean cookstove market. To achieve this goal, the project designers proposed to strengthen clean cookstove enterprises as well as the supply chain; enhance demand through marketing, promotion, and awareness raising; and increase access to cookstove finance (microcredit).

In the project conception phase (2013), the donation of free cookstoves by the government (the VM Program) was identified as a risk that could jeopardize the success of the PROFOGONES project as it could reduce consumer demand for purchased cookstoves. On the other hand, the clean cookstove sector actors assumed that the government donation program would call on the existing Honduran implementers and manufacturers to supply the new clean cookstoves, representing a

⁷ According to an estimation by Carneiro in March 2013 (a year before the PROFOGONES project started), 12% of all households (approximately 143,000) that use fuelwood, already had an improved cookstove at that time.

new opportunity to do business, albeit through the donor-driven model.

This was not the case. Instead of contracting Honduran manufacturers, the VM Program⁸ signed an agreement with a foreign supplier of clean cookstoves. Although the VM Program was created to alleviate (extreme) poverty and the cookstoves were intended for the very poor, they were actually distributed in all social classes. Honduran cookstove manufacturers and designers, extension officers, and implementers were concerned with this decision, as they saw their market flooded with free cookstoves.

By early 2015, Fundación Vida had been implementing PROFOGONES for over a year, having been selected in 2013 as the implementing entity because of their solid track-record in managing environmental and development programs in Honduras. Although their experience in the Honduran cookstove sector was limited, they had the advantage of a neutral, apolitical profile within this complex sector. Their lack of initial knowledge of the clean cookstove value chain would not have been a significant barrier if the Honduran cookstove sector was well documented and described. Their solid administrative and operational capacity was more than sufficient to guarantee a quick learning process and efficient implementation.

However, the PROFOGONES team soon realized that information on the cookstove market, models, quality, user preferences, fuelwood characteristics, and energy efficiency was scarce and fragmented among a large number of institutions. There was little information available, and in many cases, organizations were reluctant to share it.

⁸ Announced during the presidential electoral campaign of 2013 and operationalized in May 2015.

PROFOGONES had to double its efforts to gain a solid understanding of this complex sector while consolidating fragmented knowledge and information.

The lack of available data and evidence-based studies about the cookstove sector was partially related to a lack of coordination in the sector. Neither a formal scheme of coordination nor a representative body had ever been created, limiting contact between the value chain stakeholders.

This dearth of information and coordination did not favor the emergence of a sustainable, structured clean cookstove market that could be competitive and profitable for all manufacturers, distributors, and extension officers along the links of the value chain.

An additional delivery challenge became apparent in the first half of 2016. Instead of focusing on structuring the private cookstove market⁹, PROFOGONES was concentrating its efforts on the implementation of clean cookstoves through a subsidy scheme comparable to the one that had been used in the past¹⁰. In the project strategy, the installation of cookstoves is secondary to the main goal of structuring the cookstove market through finance, promotion, and marketing strategies. PROFOGONES had fallen into the same donor-driven market approach they were trying to change: build large numbers

⁹ Increasing access to cookstove finance; enhancing demand through marketing promotion and awareness raising; creating a knowledge and dissemination platform.

¹⁰ PROFOGONES implemented over 10,000 cookstoves by awarding a subsidy to cookstove implementers (municipalities, other cookstove projects, cookstove manufacturers) for a value of approximately 1/3 of the clean cookstove total cost. In general, implementers complemented this subsidy with resources from another donor (2/3 of the cookstove total cost). In the communities, households requesting a cookstove were required to contribute the building materials (adobe, bricks, cement, ceramics) in order to receive the rest of the cookstove. In the project design document, resources were provided for the installation of 50,000 cookstoves.

of subsidized cookstoves for poor and extremely poor households without creating long-lasting conditions for a sustainable cookstove market.

The main delivery questions guiding this case study are:

1. How did PROFOGONES mitigate the effects of the VM Program on the emerging sustainable clean cookstove market?
2. Why and how did PROFOGONES abandon the pursuit of delivering 50,000 installed clean cookstove target in order to invest more resources in structural, long-lasting changes to the clean cookstove market in Honduras?
3. Why was coordination between value chain stakeholders an important aspect of the structuring of the Honduran clean cookstove value chain?

Revisiting the implementation of the PROFOGONES project and analyzing these delivery questions contribute to gaining useful lessons learned which may be applied in the implementation of other development projects, as well as insights for the science of delivery.

This case study draws on project documents as well as interviews with relevant cookstove stakeholders, including the PROFOGONES team, the MIF team, and clean cookstove manufacturers and users. See Annexes A and C for complete list of reference materials and interviewees. ■

Context

Clean cookstoves are not a novelty in Honduras; international aid organizations such as FAO and USAID have invested substantial resources in clean cookstoves programs. Hondurans, especially the poor, rely on fuelwood for their domestic energy needs, mainly cooking. Sustained focus during the 1990s resulted in the development of a cookstove adapted to the Honduran market. The extremely popular and robust “Justa” cookstove¹¹, is a built-in improved cookstove made of brick or adobe with integrated metal components, as well as the “Rocket” combustion chamber (Carneiro, 2013).

Subsequently, a donor-driven cookstove market developed in Honduras, based on a variety of development objectives, including reducing deforestation and poverty and improving watershed management. The agreement between project implementers and beneficiaries was simple: beneficiaries would contribute most of the building materials (bricks, cement, adobe, and ceramics, for a total value of USD 15 to 40) while the development partner would subsidize the cost of the metal components, a trained cookstove builder, and any other materials the beneficiary could not provide (value of USD 80 to 120). According to numbers gathered among the interviewees (see Annex A for full list), approximately 400,000 cookstoves have been

installed over the last 20 years, of which an estimated 50 percent remain operational today¹².

Figure 1 illustrates this donor-driven model.

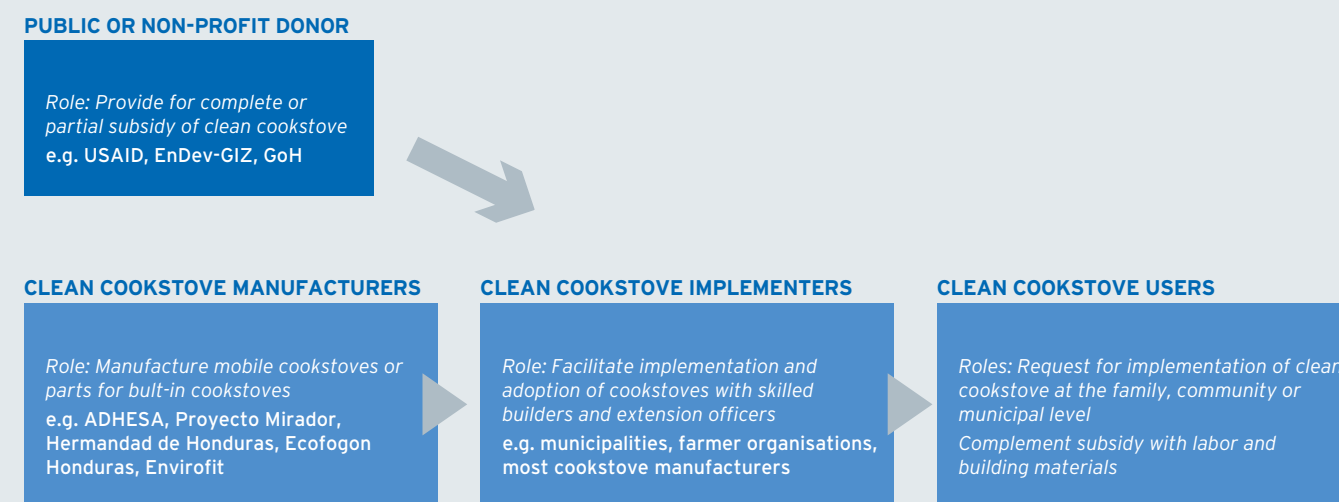
Although this donor-driven market model contributed to the establishment of a supply chain with a certain level of know-how and competitiveness, it displayed the following important weaknesses, especially in regard to final adoption rates by users and its economic sustainability:

- Dependency on subsidies and donations from external sources, mostly international aid agencies
- Deficient post-implementation support and follow-up of cookstove quality, use, and final adoption
- Poor adaptation of clean cookstoves to local and individual needs and preferences, especially with regards to women. The latter is related to the absence of conditions that favor proactive participation of women in the planning, design, and adaptation of the clean cookstoves to their individual houses and social realities, but also the lack of promotion of cookstove usage by men, in order to interrupt traditional gender patterns.
- Fluctuating demand based on availability of external funds leads to cookstove manufacturers opening and closing operations according to funding cycles, which is detrimental to building expertise and retaining workforce
- Inferior quality and durability of construction and parts.

¹¹ The Justa was named after Doña Justa Francisca Núñez Gómez, the head of family that facilitated the development of this Honduran model by opening her house for product testing and participating in product development essays.

¹² Based on a compilation of numbers provided by interviewees.

FIGURE 1 GENERALIZED IMPLEMENTATION PROCESS OF SUBSIDIZED CLEAN COOKSTOVES IN HONDURAS



Nonetheless, while international funds were available, manufacturers could design new cookstove models. In recent years, for example, mobile clean cookstoves such as the Ecofogon developed by EcoFogon Honduras and the HM-4000 and HM-5000 by Envirofit (Carneiro, 2013) have been marketed to Honduran households.

Despite this progress, the Honduran clean cookstove market (unserved households) is still far from saturated. According to an estimation by Carneiro in 2013, the market for improved stoves in Honduras consists of approximately 1,188,000 households. This represents the total number of households that use fuelwood as its sole or primary energy source.

Of this total:

- 721,000 households live in extreme poverty (on less than USD 1.25 a day).
- 277,000 households live in moderate poverty, generally combining fuelwood stoves with liquid petroleum gas (LPG) or electric stoves.
- 191,000 households are considered (lower) middle-class (Carneiro, 2013).

Additionally, small and medium enterprises (SMEs) also constitute a part of the cookstove market, notably *tortilleras*, women baking tortillas to sell in their communities. ■

Tracing the Implementation Process

In this section, the chronological process of project implementation is described in detail, including how and when the delivery challenges appeared to the PROFOGONES management team, as well as an account of the team's actions to tackle them.

Figure 2 illustrates this process and highlights the milestones. See Annex B for a more detailed project timeline.

THE FIRST DIFFICULT STEPS

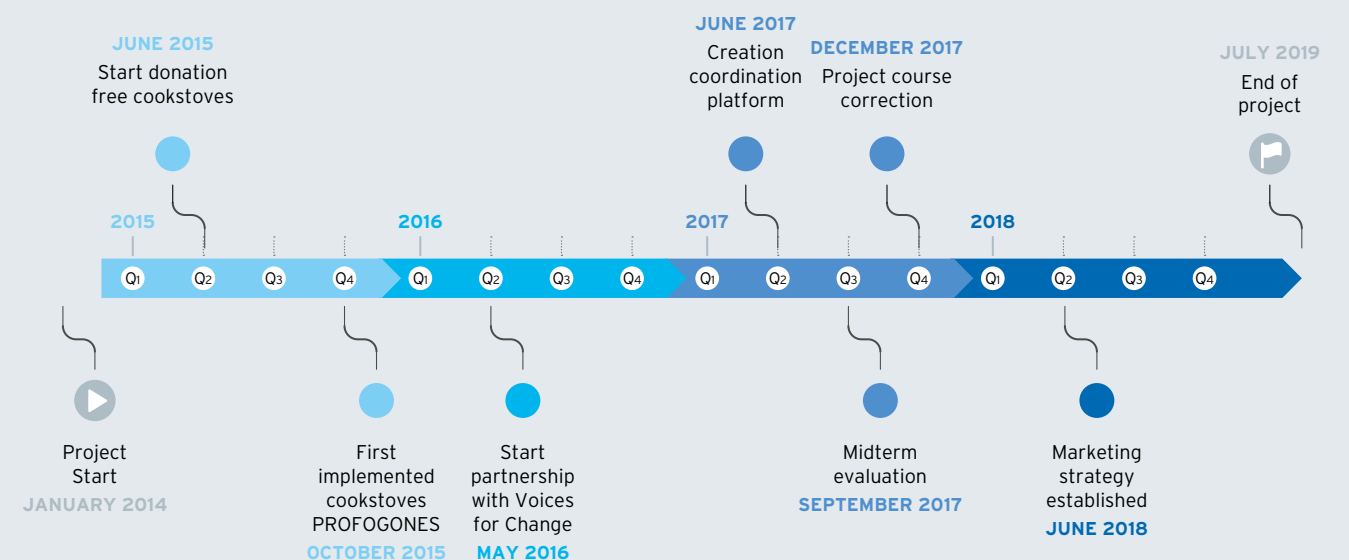
A team of international and national consultants designed PROFOGONES in 2013 to have a

transformative impact on the market for clean cookstoves by seeking to both leverage and strengthen the existing private sector capacity so as to create an enabling environment to allow the development of new, optimized business models. The five-year project intended to reduce health risks associated with indoor air quality in Honduran households, reduce time and costs in household fuel use, and reduce greenhouse gas emissions. Its main strategy is to scale-up the proper use and adoption of clean cookstoves in Honduras through sustainable, market-based initiatives.

The PROFOGONES project consists of five components:

1. Improve clean cookstove quality and performance
2. Strengthen clean cookstove enterprises and the supply chain
3. Increase access to cookstove finance
4. Enhance demand through marketing, promotion, and awareness raising
5. Create a knowledge and dissemination platform

FIGURE 2 TIMELINE OF THE PROFOGONES PROJECT IMPLEMENTATION PROCESS (JANUARY 2016 - JUNE 2018)



Fundación Hondureña de Ambiente y Desarrollo (Fundación Vida), a Honduran NGO with a substantial track-record in managing internationally funded projects, was selected by the CIF and MIF to take charge of the implementation of PROFOGONES. In terms of project management and administration, Fundación Vida had overseen a dozen of successfully implemented large projects and programs, especially in the areas of sustainable development and poverty reduction. In the cookstoves sector, however, this was Fundación Vida's first experience.

PROFOGONES was designed to structure a sustainable, private clean cookstove market that would respond to the needs of the rural, urban and suburban populations. The team of consultants designed four strategies to achieve this: i) expand the market to the segments that are not covered by international aid programs, ii) develop and apply a Honduran clean cookstove quality standard, iii) facilitate access to these technologies through different relevant financial incentives (e.g. credit lines, subsidies), and iv) strengthen Honduran manufacturers and implementers.

Soon after project launch in January 2014, Fundación Vida experienced a series of internal challenges that resulted in the slow release of project resources, which, in turn halted hiring procedures and impeded access to financial resources. In short, the internal challenges led to sluggish administrative processes and poor operational capacity for nearly three years (beginning 2014 to 2016).

At the same time, PROFOGONES was an entirely new player in the Honduran cookstove sector and expected to go through a substantial learning process to understand the many aspects of

this complex and diverse sector, including the following:

- Cookstove quality, models, new trends, and technologies
- Adoption rate and local preferences as a function of socio-cultural, gender, and geographical differences
- Value chain stakeholders, competitiveness, history, and politics
- Cookstove manufacturers and respective production capacity
- Clean cookstove marketing, price-setting (subsidies) strategies, and promotion
- Public policies and initiatives

From the start, Fundación Vida faced difficulties in obtaining access to the information needed to structure the market. Sector information was scarce and fragmented among many non-profit and public institutions. A number of implementers and manufacturers were reluctant to share information, mainly because they were competitors for the same funds from international aid agencies. **Figure 3** provides an overview of the main stakeholders in the Honduran clean cookstove sector with whom the PROFOGONES team eventually interacted, as described in the following sections.

VIDA MEJOR (VM) PROGRAM

In June 2015, the Government of Honduras, through VM Program, began to distribute free cookstoves among the population as part of ongoing efforts to raise the quality of life among the very poor. The program set an ambitious initial target of donating 100,000 cookstoves per year, potentially the largest clean cookstove implementation campaign in Honduras. The selected cookstove model was the HM-5000 or El Ahorrador (meaning "the saver" in Spanish), designed and produced by Envirofit, a

US-based business, and assembled in a new factory in Amaratéca, Honduras¹³.

Initially, the El Ahorrador was to be distributed among the extremely poor but soon, it became apparent that cookstoves were being distributed at every strata of society. This had a negative effect on the Honduran clean cookstove market. Potential clean cookstove buyers postponed their purchase and waited for the VM campaign to deliver clean cookstoves in their communities. Furthermore, people with less purchasing power were accustomed to being gifted clean cookstoves. According to interviewees, three small clean cookstove manufacturers and suppliers ceased their activities once distribution of the El Ahorrador began.

During the next months, cookstove manufacturers and implementers attempted to initiate a dialogue with the VM Program and SEDIS (Secretaría de Desarrollo e Inclusión Social or the Secretariat for Development and Social Inclusion) to discuss these concerns. In its role as technical coordinator of PROFOGONES, Fundación Vida had two meetings with the SEDIS Vice-Minister to raise awareness about the effect of the VM Program on the Honduran private cookstove market.

Not long after this, in October 2015, PROFOGONES signed its first agreement for the construction of 2x3 cookstoves¹⁴ with an implementer, Proyecto Mirador, and started working towards the project target of 50,000 installed cookstoves¹⁵. In the

¹³ The "El Ahorrador" parts are produced in Mexico and the United States and assembled in Amaratéca, Honduras. This factory was inaugurated in May 2015 by the President of Honduras, Juan Orlando Hernandez, and generates an estimated 200 direct jobs

¹⁴ The Estufa 2x3 or 2x3 cookstove is built and installed by Proyecto Mirador.

¹⁵ The PROFOGONES project set up a subsidy scheme based on an ex-post payment of one-third of the cookstove cost for the clean

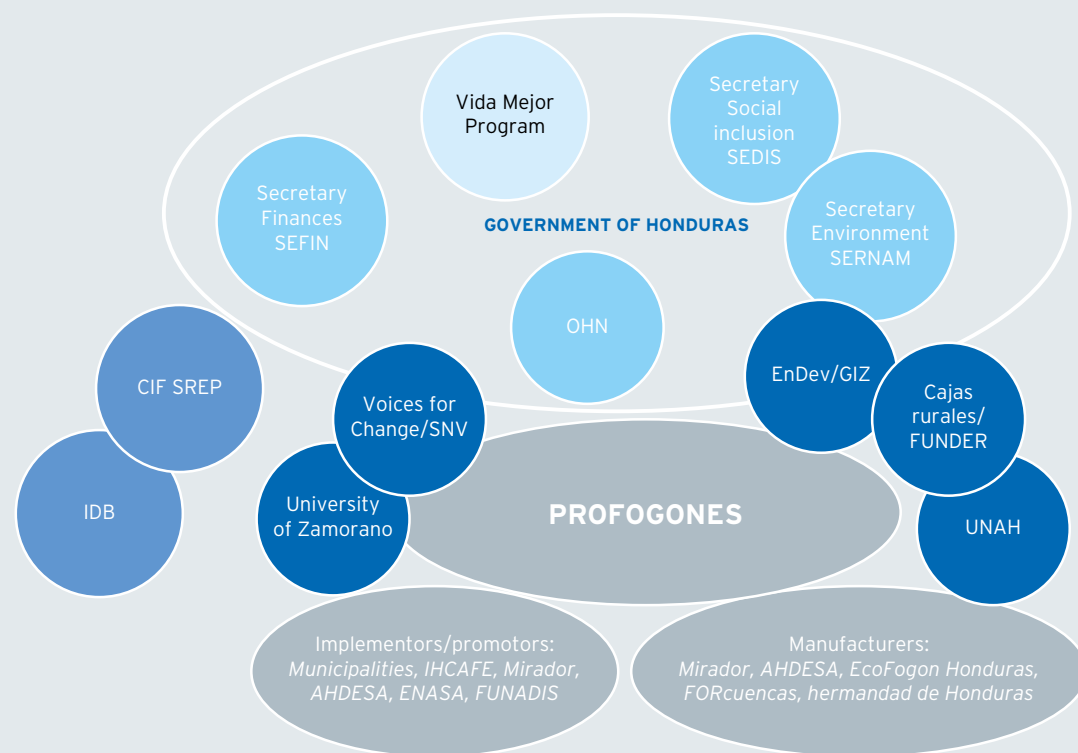
project design document, the implementation of cookstoves is secondary to the main goal of structuring the cookstove market through finance, promotion, and marketing strategies. Nonetheless, during the next two years, PROFOGONES invested considerable human and financial resources in implementing built-in cookstoves through known implementers, such as AHDESA, Proyecto Mirador, and the Municipality of Camayagua, neglecting the more important structural strategies related to private market development.

Opinions differ on why PROFOGONES dedicated such efforts to achieving this numerical target, rather than focusing on market strategies. One explanation is that PROFOGONES was under pressure to deliver. Honduran cookstove manufacturers counted on PROFOGONES funds to sustain their operations. Other stakeholders presume that the PROFOGONES team wanted to compensate for the slow project start by accelerating a tangible result: implementing cookstoves. A combination of these reasons drew PROFOGONES away from its role as a private market facilitator.

During this period, VM Program continued its campaign without major interruptions. By the beginning of 2016, it had gifted approximately 89,000 HM-4000 and HM-5000 cookstoves. The first echoes from the benefitting communities were not entirely positive: the Ahorrador model and its combustion chamber were efficient, but the metallic envelope and chimney were not robust and bent easily under high temperatures. As a consequence, the Ahorrador lost its air sealing quality and leaked considerable amounts of smoke in the house. There

cookstove implementer, who complemented the subsidy (the other two-thirds) by its own means or through co-financing from another donor. For the beneficiary, this subsidizing scheme boiled down to the same type of payment: in exchange for the building materials (even partial) and labor, the clean cookstove was subsidized by the project. Households with a liquefied petroleum gas (LPG) or electric stove were not eligible for this subsidy.

FIGURE 3 STAKEHOLDER MAPPING OF THE CLEAN COOKSTOVE SECTOR IN HONDURAS



Note: SEFIN (Secretaría de Finanzas); OHN (Organización Hondureña de la Normalización); SEDIS (Secretaría de Desarrollo e Inclusion Social); MIAMBIENTE (Secretaría de Enegría, Recursos Naturales, Ambiente y Minas); SNV (Stichting Nederlandse Vrijwilligers); EnDev (Energising Development); GIZ (Gesellschaft für Internationale Zusammenarbeit) Funder (Fundación para el Desarrollo Rural); UNAH (Universidad Nacional Autónoma de Honduras); IHCAFE (Instituto Hondureño de Café); AHDESA (Asociación Hondureña para el Desarrollo); ENASA (Energía, Ambiente y Salud); FUNADIS (Fundación Alianza para un desarrollo internacional sostenible).

were also complaints about rapid oxidation of materials and overheating of sidewalls (leading to a burn risk for users and children). Finally, the absence of training on use and maintenance, as well as a lack of follow-up, resulted in poor adoption rates.

A second dialogue between Honduran clean cookstove stakeholders and the institutions managing the VM Program was set up by the Secretary of Energy, Natural Resources, Environment and Mines (MiAmbiente) and, more specifically, the National Climate Change Directorate

(DNCC, Dirección Nacional de Cambio Climático). Subsequently, DNCC organized a roundtable in April 2016 to elaborate a Nationally Appropriate Mitigation Action (NAMA)¹⁶ on clean cookstoves

¹⁶ Nationally Appropriate Mitigation Action (NAMA) refers to a set of policies and actions that countries undertake as part of a commitment to reduce greenhouse gas emissions. The term recognizes that different countries may take different nationally appropriate action on the basis of equity and in accordance with common but differentiated responsibilities and respective capabilities. It also emphasizes financial assistance from developed countries to developing countries to reduce emissions.

between most of the cookstove sector actors, including SEDIS and the First Lady's Office.

The government institutions listened to the concerns of the Honduran cookstove businesses and agreed informally that the VM Program would focus its distribution exclusively on the very poor, in order to avoid interference with the cookstove market segments that could be addressed with subsidies and microcredits. Moreover, the VM Program committed to develop and share with other cookstove sector stakeholders a geographically-defined population database that also specified living conditions. This database was to be compiled and managed by a subdivision of SEDIS, the CENISS (Centro Nacional de Información del Sector Social or National Center for the Social Sector Information). This would facilitate mapping of cookstove interventions according to poverty indicators and avoid overlapping interventions.

However, none of this really crystalized. After the second meeting in June 2016, the NAMA process was halted due to lack of information needed to establish a national baseline scenario for greenhouse gas accounting. This was mainly due to the fact that Honduras does not have a standardized national register of operational clean cookstoves.

It was clear that a coordinated change of strategy was necessary to avoid potential negative overlap between the VM Program and the cookstove market segments that could be addressed with subsidies and microcredits.

BUILDING VALUABLE PARTNERSHIPS

In March 2016, PROFOGONES technical coordinator Fundación Vida, as a representative of the Honduran renewable energy sector, was invited to participate in the Voice for Change Partnership (V4CP) program, coordinated by the Dutch NGO SNV (Stichting Nederlandse Vrijwilligers). V4CP unites

representatives of the Honduran civil society in their efforts to create incidence (political influence) on government policies through evidence (factual data and studies). PROFOGONES found a valuable platform in V4CP, helping to accelerate its work documenting the cookstove market. Collaboration with V4CP produced several useful studies on the Honduran cookstove sector and, more importantly, allowed PROFOGONES to collect, structure, and share information with its growing number of partners¹⁷.

Additionally, the collaboration with V4CP and meetings with civil society organizations (CSOs) became a vantage point from which PROFOGONES could observe and reflect on the cookstove sector and its own strategies and challenges. In a way, this forum was the fertile soil from which grew the positive decisions the PROFOGONES team took later on in the project life cycle.

Increased involvement in V4CP coincided with the PROFOGONES team's realization that, despite the implementation efforts undertaken during the previous year, the project would not be able to achieve the target of 50,000 implemented cookstoves by 2019 due to these factors:

1. The target setting in the project design was very ambitious. It was based on an adequate estimation in 2013 of clean cookstove market potential in Honduras (Carneiro. 2013), but specific barriers to sales and implementation (see points 2 and 3) were underestimated. Moreover, the project designers set this target high to ensure sufficient financial resources

¹⁷ These studies covered the following themes: Context analysis of the clean cookstove sector in Honduras (October 2016); Legal framework of renewable energy in Honduras with a focus on clean cookstoves (January 2017); Use and consumption of firewood: Collection, formats, household preferences (Month 2017); Gender and clean cookstoves in Honduras (December 2017); Tax exemption for clean cookstove materials as a public incentive (January 2018); Cookstove market and sales strategies (June 2018).

for PROFOGONES to be active on different implementing fronts at the same time (micro-loans, subsidy, grants, innovation program, etc.).

2. Demand for a subsidized built-in clean cookstove was low after 2015 because users preferred a mobile cookstove gifted by the VM Program.
3. The rigorous nature of the PROFOGONES subsidy scheme discouraged some implementers from installing more cookstoves. According to this scheme, PROFOGONES provided only one-third of the total value of the cookstove and the subsidy was paid to the implementer only after a rigorous quality verification and effective adoption by the user (results-based finance method), which was an unusual practice for implementers.

CHANGE OF COURSE AT MIDTERM

By October 2016, PROFOGONES had identified the need to address the lack of coordination within the sector. The team decided to use an event to promote the publication of the National Clean Cookstove Quality Standard OHN-97001 in March 2017¹⁸ to launch a permanent National Coordination Platform for clean cookstoves. It comprised the same stakeholders as the initial National Peer Committee that conceived the OHN-97001 Standard. With a critical mass of sector stakeholders and support from V4CP, the platform succeeded in using the collaboration that had been established with the DNCC to engage in talks with the Vice-Minister of MiAmbiente in March and May 2017.

The platform brought to the Vice-Minister's attention the sector's challenges and the adverse effect of the VM Program. but it became more and more clear that VM had an independent status within the government apparatus. The

CENISS database would not be shared and there was no movement to coordinate efforts between the VM Program and the Honduran cookstove implementers and manufacturers. However, the talks between MiAmbiente and PROFOGONES lead to the conclusion that a structural link between them would contribute to the establishment of a national value chain strategy.

The midterm project evaluation (Troncoso, 2017) delivered in September 2017 by an external reviewer, was an important turning point for PROFOGONES. Not only did it accurately describe the elements leading to the initial slow implementation of the project, it clearly identified the excessive importance awarded by PROFOGONES to the 50,000 cookstove target as an obstacle toward achieving the main objective of the project: to strengthen a private sustainable cookstove market (Troncoso, 2017). **Box 1** summarizes the key findings of the midterm evaluation.

The insights of this external evaluation confirmed what the PROFOGONES team had suspected for over half a year, pushing them and the MIF to reconsider not only the implementation strategy but also the overall day-to-day approach of the project. By then, PROFOGONES had installed approximately 10,000 built-in cookstoves through agreements with various implementers.

While the midterm evaluation was validating, the tipping point was a request for a new agreement with Proyecto Mirador for another 16,000 cookstoves to be constructed according to the subsidy model. An internal PROFOGONES meeting between MIF

BOX 1 KEY FINDINGS OF THE PROFOGONES MIDTERM EVALUATION

- The 50,000 cookstove target is distracting the management team from the more important strategic activities of the project.
- Cookstoves were implemented with subsidies in households that can afford to buy a cookstove with a micro-loan. A market segmentation of different firewood user is necessary.
- PROFOGONES needs to find new strategies to create a dialogue with the government and coordinate clean cookstove promotion in Honduras.
- Strategic partnerships must be established to increase coordination between actors sharing similar views on the clean cookstove value chain.
- PROFOGONES must find mechanisms to increase the offer of mobile cookstoves in Honduras.

BOX 2 CORRECTIVE DECISIONS MADE BY THE MIF AND PROFOGONES TEAM AFTER THE MIDTERM EVALUATION

- The existing agreements with implementers will be respected but there will be a moratorium on new cookstove implementing agreements following the traditional subsidy model.
- The disregarded components of the original project design, such as the creation of micro-loan products for cookstoves, will be revived and executed.
- The potential of mobile cookstove sales and credits will be developed, initially by identifying and establishing new partnerships with manufacturers in Honduras and abroad.
- An up-to-date market study on clean cookstoves, including market segmentation and sales strategies, will be carried out in order to update and detail existing market information and identify unserved cookstove niches and segments.
- Excluding LPG and electrical cookstove owners from the PROFOGONES subsidy hinders cookstove sales in middle-class households and should be reconsidered.

and Fundación Vida staff put a moratorium on new cookstove implementation agreements¹⁹.

Fundación Vida and the MIF agreed to undertake an in-depth analysis of the recommendations contained in the midterm evaluation to develop concrete steps to adjust the course of the project (see **Box 2**).

¹⁹ The moratorium was set for new agreements for implementing cookstoves according to the old subsidy model. Through this moratorium, PROFOGONES wanted to increase the sales of either mobile or built-in cookstoves now, instead of subsidizing them. Before the midterm evaluation, PROFOGONES only implemented built-in cookstoves. After, it also started implementing (selling) mobile cookstoves.

It was decided that PROFOGONES would emphasize mobile cookstoves over the built-in cookstoves originally targeted as high-quality mobile cookstoves are easier to sell to households with greater means (see **Box 3**). In more affluent households, there is a demand for mobile cookstoves as a complement to an existing electric or LPG stove, or as a replacement for an older built-in cookstove.

These decisions had a liberating effect on PROFOGONES. Within a month, the project had established a micro-loan development agreement with FUNDER, a network of rural microloan banks. The collaboration between FUNDER and

¹⁸ The creation of the ISO/TC 285 National Quality Standard for Clean Cookstoves is considered by many stakeholders as one of the greatest achievements of PROFOGONES in the first half of project implementation.

BOX 3 ADVANTAGES AND DISADVANTAGES OF MOBILE COOKSTOVES

Mobile cookstoves are a logical step in product development as they offer several advantages over built-in static cookstoves, such as the Justa cookstove:

- Quality control can be carried out in the factory.
- Cookstoves are easier to transport and to exhibit in stores and market places.
- Lower installation cost (especially in manhours).
- Possible to move the stove in the house or between houses.
- Parts are easier to replace.

Mobile cookstoves also have disadvantages:

- Built in large numbers in factories, mobile cookstoves cannot be adapted to specific local needs, such as a specific cook plate or an alternative chimney.
- The metallic side walls of some models heat up, presenting burn risks for users and children.
- Depending of the quality of the metal parts, mobile cookstoves tend to corrode faster.
- More expensive than built-in models.

PROFOGONES sought to develop microcredit products specifically adapted to the purchase of clean cookstoves.

When PROFOGONES was conceived, five mobile cookstove manufacturers were active in Honduras. Some stakeholders believe that the donation of free mobile cookstoves by the VM Program caused three of them to fold. Two manufacturers maintained their places in the marketplace: Ecofogón de Honduras and Ecopán. According to the General Coordinator of PROFOGONES, Ecofogón was able to continue the production of its main product -a superior quality, improved cookstove- thanks to a substantial loan secured as a result of continuous support by PROFOGONES. To greater increase the availability of mobile clean cookstoves, the PROFOGONES team identified and visited these mobile cookstove manufacturers in Nicaragua in December 2017.

In general, the period after the midterm evaluation gave rise to a more dynamic approach to the PROFOGONES project. Many stakeholders agree that from September 2017 onwards, PROFOGONES

substantially increased its performance and began implementing structural measures at an accelerated pace.

TOWARDS A CLEAR MARKETING STRATEGY

In the beginning of 2018, it became clear that despite positive change, a well-articulated marketing strategy was still lacking. The donor-driven market needed to be transformed into a demand-driven market, but this demand was not well defined nor articulated in existing documents and market studies. In other words, the PROFOGONES team was aware they had to strengthen the private market but lacked insight on market elements, such as segments and corresponding quality requirements, sales opportunities and niches, promotion, price-setting and incentives, and micro loan product development.

PROFOGONES reached out to V4CP in January 2018 and, together, they decided that a comprehensive market study should be commissioned, characterizing market segmentation beyond what was already known

and described in the project design documents (see Table 1).

A second decision jointly taken between PROFOGONES and the MIF was the contracting of a market and sales specialist for the project. PROFOGONES organized interviews with various candidates and, by May 2018, the new market specialist was selected. Together with MIF, it was finally decided that this person would be responsible for the elaboration of the market study and sales strategy.

While the market segmentation was defined in the initial strategy, it was not applied during the project implementation. According to various stakeholders and PROFOGONES team members, the main underlying approach should be to address the underserved market in segments 2 and 3: providing high-quality products and after-sales services (both mobile and built-in cookstoves) to lower middle-class families, SMEs, urban, and suburban areas.

ACHIEVEMENTS

With three and a half years of its five-year planning completed (May 2018), the PROFOGONES team has re-established the project course. Although the concrete results at the time of writing are difficult to quantify, the project has realized a number of interesting structural changes in the clean cookstove sector.

The National Coordination Platform²⁰ created by PROFOGONES is now meeting every two months and continues to reach out to government organizations in order to advocate for the interests of the sector. For instance, at the beginning of 2018, the platform approached the newly created (May 2017)

²⁰ Members of the National Coordination Platform are: PROFOGONES, Zamorano University, VFC, GIZ-EnDev, AHDESA.

TABLE 1 CHARACTERIZATION OF MARKET SEGMENTS IN THE PROFOGONES PROJECT

Segment	Payment model
1. Households in extreme poverty (721,000 households)	Subsidy. Beneficiary contributes building materials and/or labor
2. Households in poverty (277,000 households)	Microcredit complemented with subsidy
3. Households from lower middle-class and middle-class (191,000 households)	Full price, possibly complemented with microcredit

Source: PROFOGONES project design team with data from INE, 2013

Presidential Climate Office (Clima+) to discuss the intentions of the sector and to follow-up on the intentions of SEDIS to coordinate cookstove implementation efforts through its population and geographic database. Moreover, the platform is conceiving the National Clean Cookstove Strategy with government officials from the MiAmbiente and the Health Ministry.

PROFOGONES has succeeded in activating the Honduran mobile cookstove supply chain through an agreement with the National Coffee Institute (IHCAFE, Instituto Hondureño del Café). Under an agreement which includes a subsidy and partial payment by the client, a first lot of 500 Ecofogones built by Ecofogon de Honduras were installed in the homes of small coffee farmers. IHCAFE has already requested an expansion of the collaboration to other territories. Part of the subsidy envelope will be used for a technological innovation program to help innovators develop and replicate new cookstove models. Four technology innovation projects are being developed: i) AHDESA (Asociación Hondureña para el Desarrollo), is developing stoves more resistant to coastal regions, ii) iDE (International Development Enterprises) is developing a TLUD (gasifier) stove suitable for rural areas of Honduras, iii) Aprovecho Research

Center is transferring forced draft technology to improve Justa stoves performance, and iv) Honduran mechanical engineer Leonardo Matute is introducing woodstove-based water heating technology for cooler areas in Honduras.

It is expected that by the end of the project, PROFOGONES will have implemented between 15,000 and 20,000 built-in cookstoves under the subsidy model²¹. Although too much effort was invested in this target, two appreciable positive effects were produced. First, the subsidy helped revive the Honduran supply chain of parts manufacturers, cookstove builders, implementers, and extension officers. Some of these businesses had suffered negative effects from a decrease in international funds and from the VM Program. Second, the modest subsidy, coupled with the quality and monitoring requirements imposed by PROFOGONES, pushed implementers to improve their overall efficiency and quality standards. In the medium term, this might prove useful as the sector continues its transition toward a demand-driven market.

The VM campaign is in its last year of implementation (2014-2018) and it may be extended with a new phase. PROFOGONES has learned to consider the VM Program as another player in the market, with its competitive advantages and disadvantages. Advocacy efforts with the National Coordination Platform are ongoing and PROFOGONES aims to complement the VM Program with its own interventions and sales. Some stakeholders are convinced that the VM campaign will eventually result in new demand for clean cookstoves in Honduras.

²¹ In spite of the moratorium on [new](#) built-in cookstove implementation agreements, PROFOGONES continued to execute its existing agreements with built-in cookstove implementers. These efforts, together with past implementation efforts, are expected to lead to a total of approximately 15,000 and 20,000 built-in cookstoves implemented under the subsidy model by the end of the project

The PROFOGONES team has established itself as a recognized facilitator in the cookstove sector. The team has steadily gained appreciation by public officers, implementers, and manufacturers as a valuable reference for evidence-based information, coordination, and joint initiatives. For example, at the Agrimarket (*Agromercados*), in May 2018, informal discussions between PROFOGONES and Envirofit opened doors to future collaboration on the commercialization of improved mobile cookstoves assembled in Honduras by Envirofit.

A number of interviewees mentioned that the current PROFOGONES team showed great determination and adaptive capacity to overcome the internal struggles within Fundación Vida. ■



Conclusions and lessons from the case study

The present case study highlights a number of lessons about project implementation and developing markets for clean cookstoves. These lessons are presented as responses to the three delivery questions formulated at the beginning of the case study.

How did PROFOGONES mitigate the effects of the VM Program on the emerging sustainable clean cookstove market?

To address the challenges related to VM Program cookstove donations, the PROFOGONES team focused on advocacy and lobbying to raise awareness among government officials and promote the interests of Honduran manufacturers and implementers. While contacts with Honduran government officials were initially informal and individualistic, these initiatives became more structured and coordinated over time. Initially, PROFOGONES used existing public initiatives, such as NAMA meetings, but the creation of the National Coordination Platform allowed for dedicated meetings with public organizations and agencies. Both strategies were valid and succeeded in raising awareness among government officials.

Several stakeholders mentioned that the National Coordination Platform has not been able to influence changes to the VM Program, but lobbying efforts were not in vain. SEDIS and the First Lady's Office

have been made aware of the sector's concerns about the long-term sustainability of the clean cookstove market. At the time of writing, this increased mutual understanding had not produced any tangible results, but the PROFOGONES team expected a concrete collaboration in the near future. Furthermore, continuous communication has allowed the sector to remain informed about advancements in the VM Program and to identify opportunities to coordinate, such as with ongoing development of the National Clean Cookstove Strategy.

Although the NAMA process has slowed down, PROFOGONES and DNCC interaction remains strong. In general, government structures created with climate change funding²² have proven to be a useful entrance to establishing coordination with national governments. In most cases, these structures have a specific mandate to coordinate and collaborate with civil society, private sector, and public sector. The new contacts with the Presidential Climate Office, Clima +, also illustrate this.

In terms of market strategy, the PROFOGONES team focused on a broad range of potential consumers, not just those already served by the VM Program. Their strategy consisted of increasing access to a high-quality product and service (mainly mobile cookstoves), either through direct sales or sales facilitated with micro-loans from cooperatives and farmer organizations.

Why and how did PROFOGONES abandon the pursuit of the 50,000 implemented clean cookstove target in order to invest more resources in structural, long-lasting changes to the clean cookstove market in Honduras?

²² From sources such as the Green Climate Fund, Global Environment Facility, Adaptation Fund.

Initially, the PROFOGONES team suffered from a lack of strategic project focus. Instead of focusing on fostering the private clean cookstove market, the team focused on the implementation of 50,000 cookstoves in Honduras following a conventional subsidy scheme. In doing so, the main strategy of the project, to establish a competitive clean cookstove market, was not effectively pursued initially.

This could have been avoided by strong leadership during the implementation phase. In the first two years of project implementation, the PROFOGONES coordination unit suffered from administrative burdens, partly ineffective leadership and limited regard to external oversight, which challenged its strategic and operational orientation.

This was eventually highlighted by the midterm evaluation. The subsequent corrections and improvements would not have been possible without a self-critical attitude and a dedication to improve by both PROFOGONES and the MIF.

One of the consultants responsible for project design confirmed that the goal to implement 50,000 cookstoves was not intended to be a primary target of PROFOGONES, but rather to serve as a means to factor in resources in order to work on several cookstove implementing fronts: subsidies, microcredits, sales, marketing of cookstoves, and cookstove parts (including training, technical follow-up, and other aspects).

The managerial decision taken by the MIF and the PROFOGONES' team at Fundación Vida in 2017 was simple but effective: abandon the pursuit of the 50,000 clean cookstove target and invest resources in structural, long-lasting changes to the clean cookstove market in Honduras. This decision was triggered by MIF but made in close collaboration at the end of 2017. As pointed out above, this flexibility was an

important catalyst for the progress PROFOGONES has made since the midterm evaluation. The decision not only removed the burden of striving to reach a very ambitious implementation rate but also allowed PROFOGONES to more effectively utilize human and financial assets to accelerate progress toward the project's main objective.

Why was coordination between value chain stakeholders an important aspect of the structuring of the Honduran clean cookstove value chain?

The unavailability of reliable information on the cookstove sector, compounded with the administrative burdens and ineffective leadership were the main reasons behind the slow project start, and significantly hindered PROFOGONES. By coordinating the National Cookstove Quality Standard working group and, at a later stage, through the National Coordination Platform itself, PROFOGONES has contributed to greater trust and knowledge exchange among relevant stakeholders in Honduras. Working in concert with well-chosen partners (V4CP and the Zamorano University, notably), the coordination vacuum has been addressed in a structured and sustainable manner.

Although the PROFOGONES project was generally well designed, in hindsight, it would have benefited from a coordination component. Indeed, the complexity of the Honduran clean cookstove sector demanded a systemic approach to foster better communication, negotiation, and consensus building among the different public, private, and non-profit actors and empower transformation of the cookstove market. A separate project component dedicated to value chain coordination would have bolstered PROFOGONES' role in supporting public and private stakeholders to share information and coordinate their projects and programs among different market segments.

Enhanced coordination in the clean cookstove sector has favored a nascent enabling environment for all actors. While this strengthened coordination is still incipient, it is promoting a change in the future of the clean cookstove sector, as well as the NAMA. Coordination between the value chain stakeholders has allowed PROFOGONES to acquire a thorough understanding of the technical, social, economic, and political aspects of the cookstove market, as well as the roles and relationships between different actors. In the following phase, the National Coordination Platform has brought together a critical mass of sector stakeholders in order to influence public policies. This crucial process is ongoing and growing in importance.

The alliance with V4CP provided the PROFOGONES team a forum in which to exchange ideas and seek neutral advice from external like-minded organizations with whom it could reflect and receive neutral advice during the most arduous moments of project implementation. This intangible support contributed to the positive changes that

were achieved during the second half of project implementation. It was instrumental in establishing the National Coordination Platform, creating the lobbying opportunities with different governmental stakeholders, and accelerating knowledge acquisition by PROFOGONES. It shows that well-chosen strategic alliances are useful to overcoming project barriers.

LIMITATIONS OF A CASE STUDY ON AN ONGOING PROJECT

This case study covers approximately three and a half years of PROFOGONES' five-year implementation period, during which the project management team has faced a number of important implementation challenges. At the time of writing, the management decisions made by the PROFOGONES team are producing the first positive effects. Although there is evidence that the decisions taken to overcome early delivery challenges have been successful, this case study can only provide partial conclusions and lessons learned, as the project is still ongoing until July 2019. ■

Insights for the science of delivery

MULTI-DIMENSIONAL RESPONSE

Coordination between stakeholders, especially in complex value-chain projects with many competing interests, is a crucial vector for positive change. It is important that sufficient resources are factored in at project design to establish well-structured, inclusive, and sustainable coordination bodies.

At project start, it is desirable that strategic project partners are identified to ensure their active involvement in the management of project risks. These partners could be selected based on five basic criteria: i) complementarity in role in civil society, ii) complementarity (differences) in terms of know-how, iii) added value of the partner's network, iv) the partner's contribution of resources, and v) the partner's neutrality with regards to the project resources and results.

EVIDENCE TO ACHIEVE RESULTS

Available evidence and information are a preliminary condition for project success. Projects should include a preliminary scan of available evidence: factual, reliable information on key processes and aspects which the project's success depends (social, technical, economic, political, and biological). If crucial information is unavailable, an initial data collection phase should be built into the project design.

Important quantified targets should always be contextualized, indicator by indicator. A simple indicator and number do not provide enough context to interpret the project designer's intent.

LEADERSHIP FOR CHANGE

Strong project ownership should be ensured by the implementing entity from beginning to end of project implementation. In the case of change in management personnel, enough time and resources should be provided to realize a complete and precise transfer of responsibilities, resources, and acquired knowledge.

ADAPTIVE IMPLEMENTATION

This project has demonstrated the importance allowing project managers space for strategic thinking. It is valuable to create conditions in which project managers and implementers can reflect with uninvolved colleagues and peers, be challenged, and, without pressure, be self-critical. ■

ANNEX A

Brief description of the methodology and list of interviewees

The methodology used for this case study consisted of an initial document review, followed by a first series of interviews with the main PROFOGONES team members by videoconference. During a seven-day field visit in Honduras in June 2018, semi-structured interviews were conducted with 26 stakeholders, as well as a small focus group with six clean cookstove users in the Community of San Juancito (indicated with an * in the following list). The writing process consisted of a series of iterations with in-depth reviews and editorial support from Jacob Bathanti, Rafael Ben, Sandra Romboli, and Rocio Sanz.

Institution	Representative	Function
Multilateral Investment Fund (MIF)	Ing. Fausto Castillo	Senior associate
Fundación Vida	Ing. Julio Cárcamo	Executive Director
PROFOGONES	Ing. Jorge Chi Ham	Project coordinator
PROFOGONES	PhD. Jorge Cárcamo	Technical Coordinator
PROFOGONES	Ing. Rogerio Carneiro	Permanent external consultant
PROFOGONES	Lic. Carlos Maradiaga	Project Administrator
Zamorano University, Centro de Evaluación de Estufas mejoradas (CEEM)	Dra. Victoria Cortés	Lab Coordinator and Professor
Universidad Nacional Autónoma de Honduras (UNAH)	Ing. Jairo Gómez	Lab Coordinator, Department of industrial engineering
Instituto Hondureño de Café (IHCAFE)	Ing. Omar Fúnez	Technical director
Fundación Alianza para un desarrollo internacional sostenible (FUNADIS)	Ing. Wilmer Henriquez	Director
Municipality of Comayagua	Carlos Miranda Canales	Mayor
Energía, Ambiente y Salud (ENASA)	Augusto Ramirez	Owner
AHDESA	Ing. Aníbal Osorto	Technical coordinator
SNV/Comité NAMA	Lic. Daisy Ávila	National Coordinator
EnDev	Ing. René Benítez	National Coordinator Nacional

Institution	Representative	Function
Consultant	Dra. Karin Troncoso	Midterm Evaluator
Organización Hondureña de la Normalización (OHN)	Lic. Sandra Gómez	Coordinator of standardization
Secretaría de Energía, Recursos naturales, Ambiente y Minas (MiAmbiente)	Ing. Roberto Aparicio	Director of Climate Change Department
Community of San Juancito	Carolina Rivera*	Improved cookstove user
Community of San Juancito	Ana Osorio*	Improved cookstove user
Community of San Juancito	Guadeloupe Felipe*	Improved cookstove user
Community of San Juancito	Fatima Lorena Molino*	Improved cookstove user
Community of San Juancito	Santos Celestina Pineda*	Improved cookstove user
Community of San Juancito	Jenny Leticia Aceituno*	Improved cookstove user
Community of Monte Redondo	Glenda Xiomara Reconco	Improved cookstove user
Community of Lepaterique	José Lucio Verde	Improved cookstove user

ANNEX B

Detailed timeline

Date	Event	Main actors
November-11	GoH approves its participation in SREP	Government of Honduras (GoH), WB, CIF
January-13	Preparatory workshops by consultants	IDB, IBRD, CIF, GdH, ONG
January-13	Proposal of Part II of ERUS (Public Policies for Clean Cookstoves Dissemination Public Sector Component)	GoH
June-13	Technical Cooperation Abstract Authorization	IDB, SREP, GoH, MIF
January-14	Project start	PROFOGONES
June-15	Government program "VM" initiates donation of clean cookstoves	GoH (SEDIS), EnviroFit, GACC
July-15	Kick-off work on National Quality Standard for Clean Cookstoves	PROFOGONES - Zamorano
October-15	First implementation of improved cookstoves by PROFOGONES. Beginning of period with big focus on 50k targetPRO.	PROFOGONES, Proyecto mirador
October-15	Agreement with UNAH	PROFOGONES - UNAH
December-15	Draft of National Clean Cookstove Quality Standard Finalized	PROFOGONES-ZAMORANO
February-16	Retirement of first Project Coordinator	PROFOGONES
April-16	First meeting of the NAMA Roundtable	PROFOGONES SNV, DCC, SEDIS, and many others
May-16	Partnership agreement with Voices for Change	Fundación Vida - SNV
June-16	Second meeting of the NAMA Roundtable	PROFOGONES SNV DCC, SEDIS, and many others
October-16	PROFOGONES team realized that 50k target would not be reached	PROFOGONES
March-17	Publication of Honduran Improved Cookstoves Quality Standard	PROFOGONES, Implementers and manufacturers, GIZ-EnDev, Zamorano University, OHN
June-17	Creation of clean cookstove sector coordination platform	PROFOGONES, Zamorano University, V4CP, GIZ-EnDev
June-17	Event nacional lanzamiento de normativa de estufas mejoradas	PROFOGONES - OHN
August-17	PROFOGONES concentrates on mobile cookstoves	PROFOGONES, BID-FOMIN, technical consultant

Date	Event	Main actors
September-17	Midterm evaluation	PROFOGONES, Evaluadora
September-17	Project management adjusted project course	PROFOGONES
September-17	Abandonment of pursuit of project target of 50,000 implemented cookstoves	IDB, PROFOGONES
October-17	Agreement with FUNDER on microloans for cookstoves	PROFOGONES - FUNDER
December-17	Prospection for high-quality mobile cookstove producers in Nicaragua	PROFOGONES
December-17	Gender analysis of cookstove sector	PROFOGONES - V4CP
May-18	Participation of Agromercados Exposition in San Pedro Sula	PROFOGONES - exhibitors
June-18	Detailed market analysis and market strategy	PROFOGONES - V4CP
July-19	End of project	PROFOGONES



ANNEX C

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