Employment & Investment Survey
Cambodia, March 2018
About the Context

- In Cambodia, Laos and Vietnam, over 65 million people\(^1\) still cook on traditional biomass stoves.

- According to the WHO, 60,000 people die annually\(^2\) in these countries as a consequence of inhaling smoke from cooking.

- A new generation of so-called Advanced Biomass Cookstoves (ABCs) can drastically reduce the health hazards associated with biomass cooking.

- While ABCs exist elsewhere, they were virtually unavailable to households in the Greater Mekong Sub-region at the on-set of this project.

---

\(^1\) WHO Global Health Observatory Data Repository

\(^2\) Global Burden of Disease Report 2010
About the Project

- The EnDev Results-based Financing (RBF) project aims to **kick-start and accelerate the market for ‘Advanced Biomass Cookstoves’** which are cleaner, safer, and more fuel efficient than other biomass stove alternatives.

- The project’s objectives are to:
  - **Increase** the number of private sector actors in the market
  - **Improve** access to cleaner and more efficient cooking energy services for end-users
  - **Demonstrate** a new innovative way of using RBF as a tool to accelerate energy access

![Advanced Biomass Cookstove user in Cambodia](image)
About the Project

- The main intervention to achieve the project objectives is the creation of an ‘Auction Platform’ in each country as a dynamic market-based mechanism to determine required RBF incentives for the development of self-sustaining markets for ABCs.

- In Cambodia, the project focusses on imported ABCs from overseas-based international manufacturers and on facilitating the vital business relationships to local clean energy distribution companies.

- The project significantly reduces market entry risk for international manufacturers, and gives local distributors the opportunity to purchase small quantities of ABCs to gain initial experiences with this new product, test the market, and develop business models.

- Through the dynamic RBF auction mechanism, wholesale prices paid by local distributors and retail prices paid by end-users become gradually more sustainable, creating a market that functions without RBF support.
Market Acceleration of Advanced Clean Cookstoves in the Greater Mekong Sub-region

About this Survey

- Key indicators for the project include the impact the project has on creating jobs, strengthening existing or creating new energy enterprises, and on leveraging private sector investments in the ABC sector.
- Initially, the project only gathered anecdotal information from project participants and personal observations from project staff on these indicators.
- To introduce a systematic assessment, this ‘Employment & Investment Study’ was conducted in March 2018 to formally measure and report on these impact indicators.

Key Performance Indicators
- Creating Jobs
- Generating private sector investments
- Strengthening existing or creating new last-mile energy enterprises
About this Survey

- In particular, the survey aimed to:
  - **Capture** information about the project participants’ journey in the project and how the project impacted their business operations
  - **Determine** the effect the project had on job creation in the project participants’ enterprises
  - **Quantify** the capital investments project participants made in the ABC sector
  - **Identify** the future outlook for project participants’ continued operation in the ABC sector after the project ends
About this Survey

- The following methodology was applied for the survey:
  - Key representatives from major project participants provided inputs via semi-structured in-person interviews following a questionnaire.
  - The ‘Most-significant-change methodology’ was used to prompt respondents to reflect on the changes that occurred in their enterprises as a result of their participation in the project.
  - Respondents were asked to consult their enterprise documentation to provide accurate estimations of jobs created and investments made.
  - Interviews were conducted by 3 EnDev/SNV project staff in March 2018 - 2 years after the project started in Cambodia.
Report Structure

- The report is divided into an ‘Executive Summary’ that presents the key findings of the study; followed by sections based on the role each stakeholder plays in the project and the ABC market.
  - International Manufacturers
  - Local Distributors
  - Sector Enablers
- Project participants share stories and experiences based on their participation in the project, as well as their outlook for their future engagement in the ABC sector.
- An annex includes underlying calculations, data sheets, questionnaire templates, and list of interview respondents.
Executive Summary
Key Findings

- **Employment:**
  - More than **600 jobs** have been created in the **2-year period** since the project began. This includes **115** full-time and **494** part-time jobs (incl. commission-based jobs).
  - **41%** of these jobs are held by **women**, and **23%** by **youth**.*
  - Jobs created occur in **different functions** in the supply chain, predominantly in **production, sales, accounting/finance** and management.
  - Jobs were created in **5 countries**, and in addition to **Cambodia** also include **Indonesia, Lesotho, Vietnam** and **China**.

- **Investments:**
  - Over **USD 660,000** in **private sector enterprise investments** were leveraged by the project.
  - Companies generated over **USD 1.3m** in **revenue** as a result of their participation in the project.

*Youth is defined as workers under 30 years old*
Key Findings

- **Strengthening of enterprises:**
  - 9 energy companies were strengthened and 2 were created as a direct result of the project.
  - Indicators for strengthened enterprises include:
Key Findings

- Future Outlook:
  - International Manufacturers emphasize the key role that the RBF project had in introducing them to the Cambodian ABC market & see great potential in the local ABC market post-project.
  - Local Distributors likewise see great business potential in the ABC sector, but voice concerns over future importation prices and lacking wholesale structures that could impair their continued operation in the ABC sector. However, they indicate potential solutions they are considering, such as ventures for local ABC production and/or assembly, to address this.
International Manufacturers
African Clean Energy B.V. is a Private Limited Company headquartered in the Netherlands. ACE manufactures and distributes the ‘ACE-1 Solar Biomass Cookstove’, a cookstove that has the power to save millions of lives, halt deforestation and help people break the poverty cycle.

www.africancleanenergy.com
“Congratulations on running a very very important programme. [...] we have made a range of very important learnings [about operating in this new market] and [project donors] need to understand that these things do not happen over night, but know that they have created something very very positive for the long-run [...].” – Ruben Walker, ACE

Our Participation in ‘The Stove Auction’

- The facilitated connection to local Cambodian distribution companies, as well as the fact that we can earn incentives based on our performance [rather than grants], is what convinced us to join the auction.
- After joining the project, we decided to establish a company branch in Cambodia to build a permanent presence in Cambodia, to ensure that our brand is well represented in this new market, and to eventually also expand regionally.
- The RBF incentives earned through the project provided us with the working capital we needed to offer in-house payment plans to our customers, allowing our customers to pay off their ACE stoves in small installments over time.
- By March 2018, we sold 3,225 units of the ACE-1 stove and have been able to claim end-user RBF incentives for 2,200 units so far.
- Thanks to this project, ACE is now present in a new market, our product is distributed by several local last-mile energy companies in Cambodia, and we’ve seen our revenue grow.

- The project assisted us to move forward in our mission to extend sustainable cooking solutions beyond the sub-Saharan continent. Cambodia, with its abundant biomass resources and without domestic fossil fuel production, is a prime market for ACE.
- We have grown our business network in Cambodia, quickly learned about relevant customer segments for our product, and made technical adaptations to our product to address local preferences.
- We also learnt about Cambodian buyers' decision-making processes and user behaviour, adapting our sales techniques accordingly.
Jobs & Investments

- The project enabled us to take the risk of entering the Cambodian market, allowing us to now be present in 3 countries besides Lesotho.
- Since our involvement in the project started, 28 new jobs have been created at our manufacturing facility in Lesotho (from 45 employees in 2015 to 73 employees by 2018) mostly due to the increased demand from Cambodia, and more than 20 new jobs were created at our branch in Cambodia.
- ACE has so far invested approximately USD $100,000 of its own capital to support its entry into and growth in the Cambodian market. The investment was used for raw materials, stove inventory, and end-user financing within our local distribution company.
- ACE was not able to quantify investments made in product R&D and enterprise database systems. However, it attributes an range of product improvements to the lessons learned from participating in the Cambodian ABC market.
- With an improved product, expanded international distribution, and growing sales and revenues, ACE has become an attractive case for potential investors and is currently in discussion with several large investors for a major debt/equity investment.

- ACE has already attracted an investment that allows it to develop and test a smartphone-based PAYGO system for its stove which is expected to resonate particularly well in Cambodia and to have a major impact on sales in Cambodia in future. This innovation in turn will contribute to ACE being a more investable company.
Our Future in Cambodia

- We are pleased with our growth and performance in the Cambodian market so far. We have successfully adapted to the Cambodian market which allows us to currently sell more than 200 units per month, with the prospect of selling 500 units per month by the end of the RBF project. An eventual sales volume of 700 units per month, enabled by local production, is feasible.

- We have placed a substantial effort into the Cambodian market. The market for the ACE-1 model is encouraging, as the stove is sold at 100% of its commercial landing price, an ideal price for distribution. Local production could make this price sustainable for ACE-1 distributors.

- This is the first project that supports the ABC market in Cambodia, and as is the case with many innovations, there have been a range of challenges. The market requires time to consolidate and develop robust distribution networks for the new stoves. ACE argues that stove sales figures tell part but not all the story behind the project and that they will continue working diligently as the opportunities in this market are promising.
Established in 2013, Prime Cookstoves is rapidly expanding its sales of highly-efficient ultra-clean biomass cookstoves to distributors in Asia and Africa.

www.primestoves.com
Prime Cookstoves

“We believe this project has been very useful in terms of opening the Cambodian market for us. We would not have come to Cambodia if it was not for this project. Cambodia has now become a priority market for us.”  – Kristian Tangen, Differ Group

Our Participation in ‘The Stove Auction’

- We joined the project from the start, because we wanted to sell more stoves, and the RBF looked attractive and reduced our risk of venturing into a new market.
- It has been a good experience so far. We sold quite a few stoves, and SNV and CQC [the Stove Auctioneer] have been very helpful. By March 2018, we sold 4,740 stove units through the auction and this provided us EUR 172,760 in revenue.
- There were large fluctuations in demand [from the local last-mile distributors] though. As we have gradually focused our business more on production and wholesale and less on own distribution, we had to take these fluctuations into account for our cash flow planning.

- As part of our business strategy, we are getting involved in several new markets. We believe this project has been very useful in terms of opening the Cambodian market for us. We would not have come to Cambodia if it was not for this project.
- Cambodia has now become a priority market for us, and we focus a lot of our energy and attention to this market. We also appreciate the new business relationships we were able to make in Cambodia.
Prime Cookstoves

Jobs & Investments

- The project has meant that we have maintained eight employees (warehouse, accounting, sales and management) that we otherwise would probably had been forced to terminate. The new demand for our stoves from Cambodia has indirectly created 16 permanent positions and 15 temporary positions at our manufacturing facility that produces our stoves in Indonesia.
- We invested approximately USD 500,000 in our company in total, of which USD 200,000 have been invested since the project started. The money has been spent mainly on staff and warehousing.

Our Future in Cambodia

- We will continue to operate in the Cambodian stove market and expect that this market will be central to us also in the future.
- We will expand the operations in Cambodia to also include production and assembly of stoves, sales, and production and distribution of fuel (biomass pellets).
- Expansion of our operations in Cambodia is planned for late 2018/beginning of 2019.

Achievements

- March 2016: Project Participant
- 4,740 Stove units sold
- 172,760 € Turnover from project participation
- 31 Jobs created (16 permanent + 15 temporary)
- $200,000 Investments made
Established in 2014, Mimi Moto B.V., headquartered in the Netherlands, engineered the first internationally recognised Tier 4 biomass cookstove. Mimi Moto stoves are sold in more than 20 countries, following the company’s mission to make clean cooking available to everyone.

www.mimimoto.nl
"We joined the Cambodian Stove Auction in September 2016 as we saw potential for our stove in this market. The project is very useful to develop the Cambodian market and RBF is a good instrument."

– Marius de Waard, Mimi Moto

Our Participation in ‘The Stove Auction’

- We joined the project in September 2016 because we saw potential in the Cambodian market. Our experience is that the auction is well run by CCQ [the Stove Auctioneer] but sales volumes are not yet at a level where we would like them to be.

- While we are selling the Mimi Moto in more than 20 countries, Cambodia is a very new market for us. By March 2018, we sold 1,241 units in Cambodia and made a turnover of EUR 101,236.

- The project has been very useful for us to develop our presence in the Cambodian market, and RBF is a good instrument.

- Two key impacts from the project on our company is that it helped us to learn more about the Cambodian market, and that we gained new business relations in Cambodia.
Jobs & Investments

- We are a lean company. We have three full time staff operating the company from Amsterdam. We have a contractor who produces our products in Shenzhen, China. There is indirectly impact from the project on jobs and investments, however so far the revenue generated in Cambodia did not justify the creation of new jobs within our company.

Our Future in Cambodia

- We will continue operating in Cambodia with a combination of cookstoves and fuel sales.

Achievements

- September 2016 Project Participant
- 1,241 Stove units sold
- €101,236 Turnover from project participation
- N/A Jobs created
- N/A Investments made
Established in 2009, Solar Serve is a social enterprise located in Da Nang, Vietnam, that specialises in the manufacturing, distribution and installation of products that utilise naturally provided energy. Solar Serve focusses on two core products - parabolic solar cookers and clean cookstoves.

www.vietnamsolarserve.org
Our Participation in ‘The Stove Auction’

- As a local cookstove manufacturer in Vietnam, Solar Serve entered the Cambodian market through this regional project.
- The project provided assistance to test Solar Serve’s stove in laboratories in Laos and Cambodia, which ultimately led to the company’s interest in joining the project in Cambodia.
- In November 2016, the company made a first shipment of 200 stoves to Cambodia. The enterprise began learning about international expansion by dealing with customs and shipping.
- The original stove model did not perform as hoped in the Cambodian market. The project studied customers’ perceptions on the stove and provided recommendations to Solar Serve on how to improve their product.
- As a result of improving the product, Solar Serve received increasingly bigger orders from Cambodia, where more than 1,000 of its stoves have now been sold, and the company’s turnover increased by 35%.
- Solar Serve sees this project as their main opportunity to expand their market into Cambodia and sees good potential in Cambodia. The company appreciates that it was able to build relationships with local distributors.
- According to Solar Serve, the project has transformed the company by refining its product, allowing them to expand into a new market, employ additional staff, invest in additional machinery, and understand more about the logistics behind cross-border trade.
- The CEO affirms that Solar Serve has become more mature in doing business and expresses his gratitude towards the project teams for running this valuable project.

“This is a very good project for me to test the market in Cambodia. I actually learned a lot through this project - how to deal with export, customs, transport. It help us make us stronger, make us more mature. We are now an internationally expanded company - now we want to go to Myanmar - now we know how to expand more.” – Bich Tan Nguyen, Solar Serve
Jobs & Investments

- The project has led the company to invest in new machinery to make more components of its stove in-house. Prior to this, Solar Serve had created jobs in other supplier companies to which it outsourced the production of some of its stove components.
- Currently, Solar Serve has 32 employees (25 full-time and 7 part-time), most of which work in production. Before joining the project, the company had 19 employees (12 FTE, 7 PT). It had to add more workers to service the bigger orders from Cambodia.
- Solar Serve’s investments of USD $44,000 have gone into buying new machinery which enabled the company to make improvements to the stove that the project required. Additionally, Solar Serve made investments in the training of new workers.
- Taking the risk to finance all costs upfront before seeing payment from stove sales in Cambodia, the company used a bank loan to purchase raw materials to fulfil the orders from Cambodia. The company acknowledges that it was not easy to obtain the capital it needed to expand to Cambodia.

Our Future in Cambodia

- Solar Serve has plans for Cambodia – the company envisions in future to sell components of its stove to then be assembled locally in Cambodia. It is planning to find a partner in Cambodia for local assembly.
- In addition, Solar Serve contemplates expanding into Myanmar with a similar concept of delivering stove components for local assembly.
Local Distributors
LES is a Cambodian last-mile distribution enterprise established by founder and CEO, Mr. Sum Sokun, in 2012. LES’s core business is to help rural communities to access sustainable energy. LES offers a range of products targeting BoP households across the country. Products include Solar Home Systems and off-grid appliances.

www.lightingengineeringsolution.com
Lighting Engineering Solutions

“Business success depends upon successful marketing [...] we found that the ABCs were complementary with our solar products in this market. Ever since joining the Stove Auction project, ABCs have become our second most important product.”

– Sum Sokun, CEO, Lighting Engineering Solution

Our Participation in ‘The Stove Auction’

- We were the first local last-mile distributor to join the RBF project. ABCs have since become our second most important product after Solar Home Systems.
- We were already able to gain some initial experiences with ABCs during the pilot project [prior to the RBF project], and found this market to be a big opportunity for us, and found the ABCs to be a product that complements our solar products, and fits well into our existing distribution network and our existing partnerships with local Microfinance Institutions (MFIs).
- We sell our solar products and the ABCs through the same channel: community-based sales agents managed by our provincial company staff. We also use the same financing mechanism for our customers – they include in-house financing, and our collaborations with MFIs and Leasing companies.
- The RBF incentives earned from the project allowed us to expand our geographical coverage areas from 4 to more than 10 provinces. The number of our sales agents increased from 130 to 300 in early 2018. The number of permanent staff also increased from 18 to 25.
- By March 2018, we were able to claim RBF incentives for 1,896 stoves. We were able to generate revenue of around USD 100,000 from sales of the stoves.
- The project enabled us to access new cookstoves products that were not available in Cambodia before. The project brought us a new competitive business.
- Our company grows, but we have also faced many external challenges. As a last-mile distributor, we had to change our strategies and approaches from time to time to adapt to competition. Our biggest achievement in this context is that enhanced our capacity to adapt to competition and adverse market conditions.
- We focussed our efforts on providing MFI financing in 2016 until early 2017. Our local MFI partners provided loans to our customers, which allowed our sales figures to increase positively by the end of 2016 and early 2017.
- When the National Bank of Cambodia imposed an interest rate cap, small product loans were no longer profitable for MFIs and our ability to work through these networks and extend credit to households was severely affected.
- Our cash-flow was not strong enough to cope with the shock. It took us a while to bounce back, by improving our financial management and distribution efficiency.
Jobs & Investments

- LES has steadily grown in terms of staff and sales agents. Back in 2015, LES was run by 18 permanent staff and employed 130 sales agents. Currently, the company employs 25 full-time staff and 300 commission-based sales agents.
- Among the full-time employees, most of them works as provincial sales coordinators (30% female and 50% youth) whereas for the commission-based agents, 30% are female and 10% are youth.
- We invested around USD 36,600 in the beginning to start the cookstove business. We created a very strong sales team [and developed sales] techniques [for the new products].

Our Future in Cambodia

- We see there is a good opportunity for us in the cookstoves market; however, our future strategy after the project ends will depend on further developments in the sector.
- We currently cannot afford to import cookstoves in a container by purchasing them directly from the international manufacturers. Without the auction and the project, there should be a master distributor or a local producer who LES could deal directly with.
- If the wholesale mechanism becomes available and the consumer price is around 100-120% of the stove’s landing price, we can sell the cookstoves at this price as long as there is consumer financing available.
FIC is a newly established private company registered in May 2015. FIC provides biomass cooking technology solutions, which can be used safely, efficiently and sustainably. The company provides three types of clean biomass cookstoves: ACE-1, Mimi Moto, and Prime to solve some of the most impending challenges on the health of women and children in Cambodia.

www.freshinnovation.biz
Fresh Innovation Cambodia

“Because of the RBF project, FIC has stoves to offer to the market. We have defined biomass cookstoves as our core product. That’s why we have been selling the products at a sustainable price since the beginning. This is our future. We are a market developer for cookstoves”. – Leakhena Yun, CEO, Fresh Innovation Cambodia

Our Participation in ‘The Stove Auction’

- The project enabled us to reach important milestones in our business. We are a last-mile distribution enterprise - our products are ABCs, LPG cookers, and water filters. ABCs were a new product for us, and they soon became a primary product for our company.

- We joined the project from the beginning. I bought around 3,115 stoves from the auction by March 2018 and sold them at a sustainable, profit-making price right from the start.

- By March 2018, we claimed RBF for 1,221 stoves that we sold for a turnover value of USD $71,329.

- I was able to build my distribution channels for the cookstoves because of the incentive offered by the project, and I was able to buy small quantities of stoves from the auction in line with my cash availability. Without the project we would have never been able to go into the cookstoves business.

- The project had an impact on me personally too. I’ve developed myself professionally coming from an NGO background to a businesswomen by starting this ABC business. I learned my skills in NGO administrative roles, and converted them into leadership skills.

- I have also become confident in communication with investors, bigger organisations, and MFIs. Though I feel there are many things I need to improve, I’m glad to see FIC’s success.

- But it has been a challenging journey too. We had to go through several iterations of our business model: in 2016, we had provincial offices with 2-3 staff on the ground. We were highly depended on our MFI partners to provide loans to our stove customers. It was lucrative, but later it hurt our cash-flow a lot when the MFIs reformed their loan products after a national interest rate cap was introduced. Many stoves had already been delivered to customers who were now not able to get a loan anymore. We took the financial burden and let households slowly pay back in instalments directly to our company. It took us a long time to recuperate the money. We then also developed an entirely new consumer financing model – leasing – which brought our cash-flow back on track and helped share the risk with our partners. By early 2018, most of our sales are done with this leasing model.
Fresh Innovation Cambodia

Jobs & Investments

- FIC created **10 full-time staff jobs** and **currently employs 200 sales agents** across the communities. In practical terms, my style of managing my staff is to train them well, and to very closely follow-up their performance while they are working in the field. We try to recruit people with right attitude, train them with the required skills, and make sure they put full effort to achieve their sales targets.

- We are **building an agent database** which is an online/mobile application to manage information of our sales agents and store **different support materials** that compliment their sales and marketing activities.

- FIC began its operations with a **small initial capital investment of USD $5,000** to buy cookstoves inventory. Additional **significant investments were made in sales agents mobilisation and training**, but the company is unable to quantify these expenses. They share their office and warehouse with another company to lower their monthly expenses.

Our Future in Cambodia

- For the future, we see a **big market opportunity for ABCs in Cambodia**. Cookstoves have become the **primary business for our company**. However, we are not fully prepared yet for stove importation and full pricing. Once the project ends, **we will still need an intervention** such as working with local wholesalers or local producers. We **will still need development assistance** for further market development.

### Achievements

- **March 2016**
  - Project Participant: 1.221
  - Stove units sold: 1.221
  - Turnover from project participation: $71,329
  - Jobs created: 10 + 200 PT
  - Investments made: $5,000
EcoSun is a social enterprise that works to provide energy solutions for people and communities in Cambodia. EcoSun was established in 2008 by a group of experienced individuals in energy; including renewable energy, energy efficiency, electrical engineering, as well as rural development, agricultural engineering, and climate change. EcoSun specialises in three main sectors: solar, biomass cookstoves, and micro-hydro.

www.ecosun.webs.com
EcoSun Cambodia

"EcoSun's vision states the importance of reliable renewable energy for sustainable development in Cambodia. This drove us to join the Stove Auction." — Sun Mao, CEO, EcoSun Cambodia

Our Participation in ‘The Stove Auction’

- EcoSun has participated in the project from the start, since March 2016. We wanted to continue our presence in the home energy sector by phasing out our work with household biogas digesters, and replace this product with ABCs.

- We joined the project and now sell cookstoves because of our company’s vision and mission, while the RBF incentives offered were only a secondary reason.

- We initially tried to distribute cookstoves through our existing channels that we use for our solar products, but later realized that we needed a separate sales agents system. We are working with commission-based sales agents for the cookstoves.

- Without the project, EcoSun would have never been able to enter the cookstove business.

- In 2017, cookstoves started to become an important product for our company, making about 10% of our total revenue plus good incentive from the project.

- By end of 2017, EcoSun was able to sell 960 stoves, primarily Prime and Mimi Moto models, at a revenue of USD $47,124. In peak months, our team can sell 120 stoves/month.

- We mobilised more than 100 sales agents at the commune level, especially in the more northern provinces further away from Phnom Penh.

- For 2018, EcoSun anticipates to open provincial offices and provide payment plans to customer if business continues to go as well as it did in 2017.

- We also faced some challenges with the ABCs when we realised that some stoves models require users to change their cooking behaviour. Unfortunately, EcoSun cannot afford to educate users to change their behaviour.
EcoSun Cambodia

Jobs & Investments

- Our engagement in the cookstove sector allowed EcoSun to keep our employees after phasing out our biogas work. Without this new ABC sector, most of these jobs would have been lost.
- Currently our company is run by 11 full-time staff (one female) and two part-time staff. This includes 02 staff for sales/marketing, 03 for stock and transport, 03 technicians and after-sale service providers, and 03 admin/finance staff.
- We also employ many commission-based sales agents. We have approximately 130 sales agents, 100 of which are for the cookstoves business. Among them, 45% are female and 20% are youth.
- We invested around USD $20,000 in stove inventory which allowed us to build up a stock of about 300 stove units. We found ways to save costs on marketing by producing our own materials which cost us only approximately USD $1,000.
- We bought a mini-van for USD $6,600 to transport the stoves, and to have a separate vehicle from our solar operations. Currently our new warehouse is under construction on the outskirts of Phnom Penh, which will house both our stove and solar product inventory.

Our Future in Cambodia

- Cookstoves is a big market [in Cambodia]. We will continue the cookstove business if the project presents a well thought-out exit strategy. However, if we need to purchase ABCs at full commercial wholesale prices, and if there are many products that require end-users to change their cooking behaviour, then EcoSun might not be able to stay in this business. It would be good if the project could help with establishing local production of stoves, and introduce less complex stoves which do not require behaviour change for end-users.
ACE Energy Solutions (Cambodia) Co. Ltd. (AES) is a recently established private company led by Daniel Walker. The enterprise is a subsidiary to international stove manufacturer African Clean Energy (ACE) and acts as its local distribution arm and after-sales service representative in Cambodia.

www.facebook.com/ace1cambodia/
ACE Energy Solutions Cambodia

"Our ACE-1 stove is an expensive stove. With the Stove Auction project, we can help users access to our excellent product because they can pay us in monthly instalments. Without the RBF, we could not have had users pay us little by little because we did not have an MFI partner."  

– Daniel Walker, ACE Energy Solutions Cambodia

Our Participation in ‘The Stove Auction’

- **Early 2016,** I came to Cambodia as an ACE Sales Representative. I wanted to see first-hand how our product performed in Cambodian kitchens, and make sure that our brand is well represented in Cambodia.
- This included making sure that our stove users in Cambodia have access to after-sales services and spare parts. I drove around myself to visit our customers across all provinces, and also fixed stoves myself where needed.
- That was during a time when the ACE stove sold a lot at the auction. In later auctions, demand dropped a bit, and we decided to incorporate our own business in Cambodia in July 2016 so that we could further drive our sales and expand our presence here in Cambodia.
- We started buying stoves from the auction to build up our inventory, and in January 2017 our full operations started to kick-off. We started recruiting staff and build systems for our company. We grew from 2 staff members to more than 20 in less than 2 years.
- A first major milestone was when we started selling 100 stoves per month on a consistent basis. This meant regular cash flow for our small company, which really allowed us to start growing.
- Shortly after we had a second sales team fully established. In the last few months, we started to consistently sell 200 units per month.
- Without the RBF project, we would have never formed AES. The project was the only platform allowing us to set up operations in Cambodia.
- Since early 2018, we have become a promising business with 20+ local staff, and more than 1,500 households have improved their energy situation with our product.
- With the project assistance we’ve learnt a lot in a short time. Our biggest achievement is our understanding of the Cambodian market. We developed an efficient marketing and direct sales approach which is seeing very good success rates.
- We are aiming to increase our sales force and sales volume to eventually open a stove factory in Cambodia. Therefore, we plan to expand our sales team to four groups to achieve sales of 400 units per month.
Market Acceleration of Advanced Clean Cookstoves in the Greater Mekong Sub-region

Jobs & Investments

- AES currently employs 1 country director, 2 foreign interns, 22 local staff (50% female and 100% youth), most of whom have no sales background but were trained to provide cookstove product information to rural households. We grew from 2 staff members to more than 20 in less than 2 years.
- The project is providing us with the opportunity to grow the team over the coming months as we expand to more provinces. Our current small office will be relocated to a larger building to accommodate the increasing number of employees.
- Our ambition is to grow our sales force and sales volume so that one day we can open a factory in Cambodia. If sales reach 700-800 units per month, a small production facility could be operated in Cambodia.
- AES required a small investment to commence its operations in Cambodia. With only USD $12,000 invested, AES acquired a vehicle and office equipment. The company also has access to the Salesforce CRM system and a cloud-based customer data and accounting system.
- AES and its parent company ACE also invested in R&D to modernise the stove’s electronics and incorporate PAYGO hardware. Sida (Swedish Development Cooperation) contributes USD $120,000 for this, while AES matched these funds with an additional USD $200,000. This innovation will provide new payment methods for ABCs for the first time.

Our Future in Cambodia

- AES is growing fast. We expect to sell 400 units per month by the end of the RBF project, but this is still shy of the 700 units per month required to operate sustainably.
- Without this project, the ACE-1 would be priced at USD $140 retail. Duties for importation and VAT are too high to continue importing the stove directly from Lesotho. We will therefore start to set up local production in Cambodia.
- We will also look to expand to Laos and Myanmar once local production in Cambodia is set up.
Sector Enablers
C-Quest Capital (Cambodia) Co. Ltd., a subsidiary of CQC LLC headquartered in Washington D.C., USA, was established in September 2016. CQC joined EnDev/SNV as a third party to run the day-to-day operation of ‘The Stove Auction’ trading platform. CQC and EnDev/SNV share the same vision of accelerating the market for ABCs. CQC works to increase the number of actors in the market and improve the access to cleaner and more efficient energy services for end-users.

www.cquestcapital.com
"I’ve witnessed ‘The Stove Auction’ to be a robust market mechanism bridging the big gap between the international supply and the local demand for ABCs. Most importantly, the project has a significant impact with regards to technology transfer and environmental, social and local private sector development. In short, the auction makes the impossible possible."

– Reaksmey Long, Director, C-Quest Capital Cambodia

Our Participation in ‘The Stove Auction’

- In October 2016, EnDev/SNV handed over the day-to-day operations of ‘The Stove Auction’ to CQC-C. Ever since, we have been able to implement a pay-for-performance model that allows our company to generate income from a fee-based structure in which market actors pay for their participation in the auction, in addition to receiving a commission from EnDev/SNV for RBF funds disbursed.

- We also explored further revenue streams for our company to increase our sustainability by adding business activities that would grow the distribution of ABCs, and by employing our own risk capital for these investments.

- Key investments were, for instance, providing lines of credit to the local stove distributors to help them grow their operations faster, piloting new consumer financing approaches with the local distributors to increase affordability and ultimately the uptake of stoves, and the launch of a line of sustainable biomass fuel called ‘Fastfire’ to help the local distributors sell a product that is complementary to the stoves and aids end-users’ adoption of ABCs.

- The most valuable impact for us so far has been the ability to manage this innovative state-of-the-art market trading platform and gain valuable experience in market development for ABCs, which is lacking in this sector.

- This has allowed us to expand our business to South East Asia and to test novel ideas that can be replicated in other locations.

- We have found that the auction mechanism has been pivotal to engage a range of actors in the new ABC sector in Cambodia and help players see opportunities in a nascent market.

- Furthermore, this project has allowed us to build close business relationships with a number of sellers and buyers that have the potential to sustain themselves after the project ends, for our further collaboration in the future.

- CQC-C’s biggest challenge has been to generate sufficient revenue to continue our role in the cookstove sector in Cambodia. Currently, we are operating at a financial loss and we are constantly looking for different alternatives to improve revenue streams. The demand for stoves from distributors is volatile, as they are financially and administratively weak and, in addition, pose a risk to creditors.
C-Quest Capital (Cambodia)

Jobs & Investments
- CQC-Cambodia has created new jobs for 8 employees, 2 contractors (security guard and cook), and 8 part-time sale agents (for Fastfire).
- We have also made a big investments to support ‘The Stove Auction’, including the provision of working capital lines of credit to distributors to buy stoves from the auction, piloting consumer financing to end-consumers with partner distributors to increase affordability and uptake of stoves; the launch of Fastfire sustainable biomass fuels. Our total investment was around USD 235,000.

Our Future in Cambodia
- CQC Cambodia has been active in this sector in Cambodia for over one year through managing the auction and launching the Fastfire business. Our experience indicates a clear, but price-sensitive, demand for fuel and stoves, and substantial potential for inexpensive stoves with reliable pellets supply.
- We aim to engage in Cambodia for the long-term to achieve 10% market penetration of stoves and fuels in the Phnom Penh market, expand to other urban centres in Cambodia, and to add other products such as solar lighting kits, providing a complete energy package to households in the face of unreliable and expensive electricity supply.

Achievements
- September 2016 Project Participant
- $171,000 Turnover from project participation (September ’16 - March ’18)
- 10 + 8 PT Jobs created (25% female)
- $235,000 Investments made (as of March ’18)
Conclusions
Conclusions

- **International ABC manufacturers** express that the RBF project assisted them and lowered their risk in venturing into a new unknown market which they may not have previously considered, allowing them to form new business relationships with local distributors, expand their international presence, consider future regional expansion, refine their products, introduce new product innovations, learn new skills, learn about the Cambodian stove market and consumer behavior, establish sustainable wholesale and retail prices for their products, increase their production outputs and sales revenues, grow their workforce, become more ‘investable’ companies, and has made Cambodia a priority market for them for further engagement that will also see future investments in local ABC production/assembly.

- **Local last-mile distributors** express that the RBF project enabled them to access a new product that was not previously available to them, build new business relationships, test the market for ABCs, learn about target groups for ABCs, include a new product in their portfolio (which for many has now become a key product), develop sales approaches and new competitive business models, establish sustainable and profit-making retail prices for ABCs, grow their revenues, improve their financial management and distribution efficiency, develop new consumer financing models, improve their leadership and confidence, grow their workforce and expand to new geographical areas. The distributors see a large business opportunity in the ABC market, anticipate further growth of their workforce, and consider future partnerships for local ABC wholesale and production/assembly.
Annexes
Annex: Data Sheets – International Manufacturers

African Clean Energy (ACE)

Jobs

- Full-time (Before SA): 45
- Full-time (After SA): 73
- 28 Full-time (50% female)

Stove Auction Impact

Investments made since joining SA

- Inventory/Stock: $50,000
- Local Distribution Company: $50,000

Total Estimated Investment: $100,000 USD
Annex: Data Sheets – International Manufacturers

- **Jobs**
  - 20 Full-time (Before SA)
  - 31 Full-time (After SA)
  - 16 Full-time
  - 15 Part-time

- **Stove Auction Impact**
- **Prime Stoves**

- **Investments made since joining SA**
  - Production Staff
  - Warehouses
  - Total Estimated Investment $200,000 USD
Annex: Data Sheets – International Manufacturers

Mimi Moto

Jobs

3 Full-time (Before SA)
3 Full-time (After SA)

Stove Auction Impact

Jobs Created from Project
None

Investments made since joining SA

Confidential Information

Total Estimated Investment Undisclosed
Annex: Data Sheets – International Manufacturers

Solar Serve

Jobs

Before Joining SA

After Joining SA

12 FTE
(10% female, 56% youth)
7 PTE
(40% female, 30% youth)

Production Management Stock, Warehouse, Transportation R&D Other Part-time

25 FTE
(10% female, 60% youth)
7 PTE
(40% female, 30% youth)

Stove Auction Impact

13 Full-time (10% female)

Jobs Created from Project

Production equipment

Investments made since joining SA

Raw materials

Total Estimated Investment
$44,000 USD

$30,000

$14,000
Annex: Data Sheets – Local Distributors

**Jobs**

*Before Joining SA*
- 18 FTE
- 130 PTE

*After Joining SA*
- 25 FTE
  - 45% female, 50% youth
- 300 PTE
  - 30% female, 10% youth

**Stove Auction Impact**
- 7 Full-time (45% female)
- 170 Part-time (30% female)

**Investments made since joining SA**
- Stove Inventory/Stock: $15,000
- Vehicles: $21,600

**Total Estimated Investment**
$36,600 USD
Annex: Data Sheets – Local Distributors

Fresh Innovation Cambodia (FIC)

Jobs
Before Joining SA
After Joining SA
Jobs Created from Project
Investments made since joining SA

2
12
200

10 Full-time
(30% female, 10% youth)
200 Part-time
(30% female)

Stove Inventory / Stock

$0
$2,500
$5,000
$7,500
$10,000

$5,000

Total Estimated Investment
$5,000 USD
Annex: Data Sheets – Local Distributors

**Jobs**

- **Before Joining SA**
  - 30 FTE
    - 9 FTE (50% female, 50% youth)
    - 30 PTE (10% female, 30% youth)

- **After Joining SA**
  - 30 FTE
    - 11 FTE (45% female, 50% youth)
    - 130 PTE (45% female, 10% youth)

**Stove Auction Impact**

- **Jobs Created from Project**
  - 6 Full-time (45% female)
  - 100 Part-time (45% female)

**Investments made since joining SA**

- **Inventory / Stock**: $20,000
- **Vehicles**: $6,600
- **Marketing**: $1,000
- **IT Systems**: N/A
- **Accounting Systems**: N/A

**Total Estimated Investment**: $27,600 USD

---

**EcoSun Cambodia**

- Energy & Environment

---

**Market Acceleration of Advanced Clean Cookstoves in the Greater Mekong Sub-region**

---

53
Annex: Data Sheets – Local Distributors

**AES Cambodia**

**Jobs**

- **Before Joining SA**
  - 0 Not yet formed

- **After Joining SA**
  - 17

**Stove Auction Impact**

- **Jobs Created from Project**
  - 25 Full-time (50% female)

- **Investments made since joining SA**
  - $10,000

**Before Joining SA**

- 0 Not yet formed

**After Joining SA**

- 25 FTE (50% female, 100% youth)

**Total Estimated Investment**

$12,000 USD
Annex: Data Sheets – Sector Enablers

C-Quest Capital Cambodia

Jobs
Before Joining SA | After Joining SA
--- | ---
0 | 1
Not yet formed | 1 | 1

Stove Auction Impact

Jobs Created from Project

10 Full-time (35% female)
8 Part-time (25% female)

Investments made since joining SA

- Business/Tax Reg.
- Office Equip.
- Office Renov.
- Staff (per month)
- Financial products
- Other Overheads
- IT Systems
- Acc. Systems
- Marketing Activities
- Transport/Flights
- Insurance

Total Estimated Investment
$235,000 USD
## Annex: Data Sheets – List of Respondents

<table>
<thead>
<tr>
<th>Company</th>
<th>Stakeholder Role</th>
<th>Representative</th>
<th>Interview Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>African Clean Energy</td>
<td>International Manufacturer</td>
<td>Ruben Walker</td>
<td>22 - 03 - 2018</td>
</tr>
<tr>
<td>Differ Prime</td>
<td>International Manufacturer</td>
<td>Kristian Camilla Fulland</td>
<td>09 - 04 - 2018</td>
</tr>
<tr>
<td>Mimi Moto</td>
<td>International Manufacturer</td>
<td>Marius de Waard</td>
<td>31 - 03 - 2018</td>
</tr>
<tr>
<td>Solar Serve</td>
<td>International Manufacturer</td>
<td>Bich Nguyen</td>
<td>27 - 03 - 2018</td>
</tr>
<tr>
<td>Lighting Engineering Solutions</td>
<td>Local Distributor</td>
<td>Sum Sokun</td>
<td>09 - 03 - 2018</td>
</tr>
<tr>
<td>Fresh Innovation Cambodia</td>
<td>Local Distributor</td>
<td>Leakhena Yun</td>
<td>14 - 03 - 2018</td>
</tr>
<tr>
<td>EcoSun Cambodia</td>
<td>Local Distributor</td>
<td>Sun Mao</td>
<td>22 - 02 - 2018</td>
</tr>
<tr>
<td>AES Cambodia</td>
<td>Local Distributor</td>
<td>Daniel Walker</td>
<td>26 - 02 - 2018</td>
</tr>
<tr>
<td>C-Quest Capital Cambodia Cleanfeed</td>
<td>Sector Enabler</td>
<td>Jason Steele Reaksmy Long</td>
<td>06 - 03 - 2018</td>
</tr>
</tbody>
</table>
Annex: Calculation ‘Jobs’

International Manufacturers | Local Distributors | Sector Enablers
---|---|---
ACE | Prime | Mimi Moto | Solar Serve | LES | FIC | EcoSun | AES | CQC
FT | 28 | 16 | 0 | 13 | 7 | 10 | 6 | 25 | 10
PT | 0 | 15 | 0 | 0 | 170 | 200 | 100 | 1 | 8
TOTAL: | 28 | 31 | 0 | 13 | 177 | 210 | 106 | 26 | 18
GRAND TOTAL: | | | | | | | | | 609
Annex: ‘Job Locations’
### Annex: Calculation ‘Project Cost per Job’

<table>
<thead>
<tr>
<th>Project Expenditures</th>
<th>EUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBF</td>
<td>507,561.80</td>
</tr>
<tr>
<td>TA</td>
<td>290,678.97</td>
</tr>
<tr>
<td><strong>Total project cost</strong></td>
<td>798,240.77</td>
</tr>
<tr>
<td><strong>Total jobs</strong></td>
<td>609</td>
</tr>
<tr>
<td><strong>Project cost per job:</strong></td>
<td>1,310.74</td>
</tr>
</tbody>
</table>
Annex: Calculation ‘Investments’

<table>
<thead>
<tr>
<th>Company</th>
<th>Investment (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE</td>
<td>100,000</td>
</tr>
<tr>
<td>Prime</td>
<td>200,000</td>
</tr>
<tr>
<td>Solar Serve</td>
<td>44,000</td>
</tr>
<tr>
<td>Mimi Moto</td>
<td>Confidential</td>
</tr>
<tr>
<td>LES</td>
<td>36,600</td>
</tr>
<tr>
<td>FIC</td>
<td>5,000</td>
</tr>
<tr>
<td>EcoSun</td>
<td>27,600</td>
</tr>
<tr>
<td>AES</td>
<td>12,000</td>
</tr>
<tr>
<td>CQC</td>
<td>235,000</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>660,200</strong></td>
</tr>
</tbody>
</table>
## Annex: Calculation ‘Turnover’

<table>
<thead>
<tr>
<th>Company</th>
<th>Turnover in USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE</td>
<td>396,284</td>
</tr>
<tr>
<td>Prime</td>
<td>211,303</td>
</tr>
<tr>
<td>Mimi Moto</td>
<td>123,821</td>
</tr>
<tr>
<td>Solar Serve</td>
<td>25,201</td>
</tr>
<tr>
<td>LES</td>
<td>102,306</td>
</tr>
<tr>
<td>FIC</td>
<td>71,329</td>
</tr>
<tr>
<td>EcoSun</td>
<td>47,124</td>
</tr>
<tr>
<td>AES</td>
<td>187,039</td>
</tr>
<tr>
<td>CQC</td>
<td>171,000</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>1,335,407</strong></td>
</tr>
</tbody>
</table>
Market Acceleration of Advanced Clean Cookstoves in the Greater Mekong Sub-region

Published by:
SNV Netherlands Development Organisation (Cambodia)
#184, Monireth Blvd.
Phnom Penh, Cambodia
www.snv.org

Authors:
Tepvichet Prak, Thary Sok, Dennis Barbian

Editor and Designer:
Daniel Salinas

March 2018