Global green finance products, services and programs in rural areas

10 Case Studies

cooperación alemana
DEUTSCHE ZUSAMMENARBEIT

implementada por:

Sparkassenstiftung Alemana
LATINOAMÉRICA Y EL CARIBE

Introduction

German Sparkassenstiftung Latin America and the Caribbean carries out the project "Strengthening the agricultural sector and promoting rural development in Mexico by offering adequate financial services", financed by the German Federal Ministry for Economic Cooperation and Development (BMZ). The project considers new technologies to guarantee more stable income for rural and lower-income population, mainly micro and small enterprises in the rural sector and thus promote the increase of food security in the country.

Within the framework of this project, the consulting firm MicroEnergy International was hired to identify successful green finance products, services, and programs in rural areas around the world, select those with the highest potential for implementation in Mexico, and evaluate them individually to gather good practices and lessons learned.

This document summarizes the 10 most suitable case studies in terms of their potential for replication in the Mexican rural sector. The case studies are geographically diversified and cover Latin America, Africa, and Asia.

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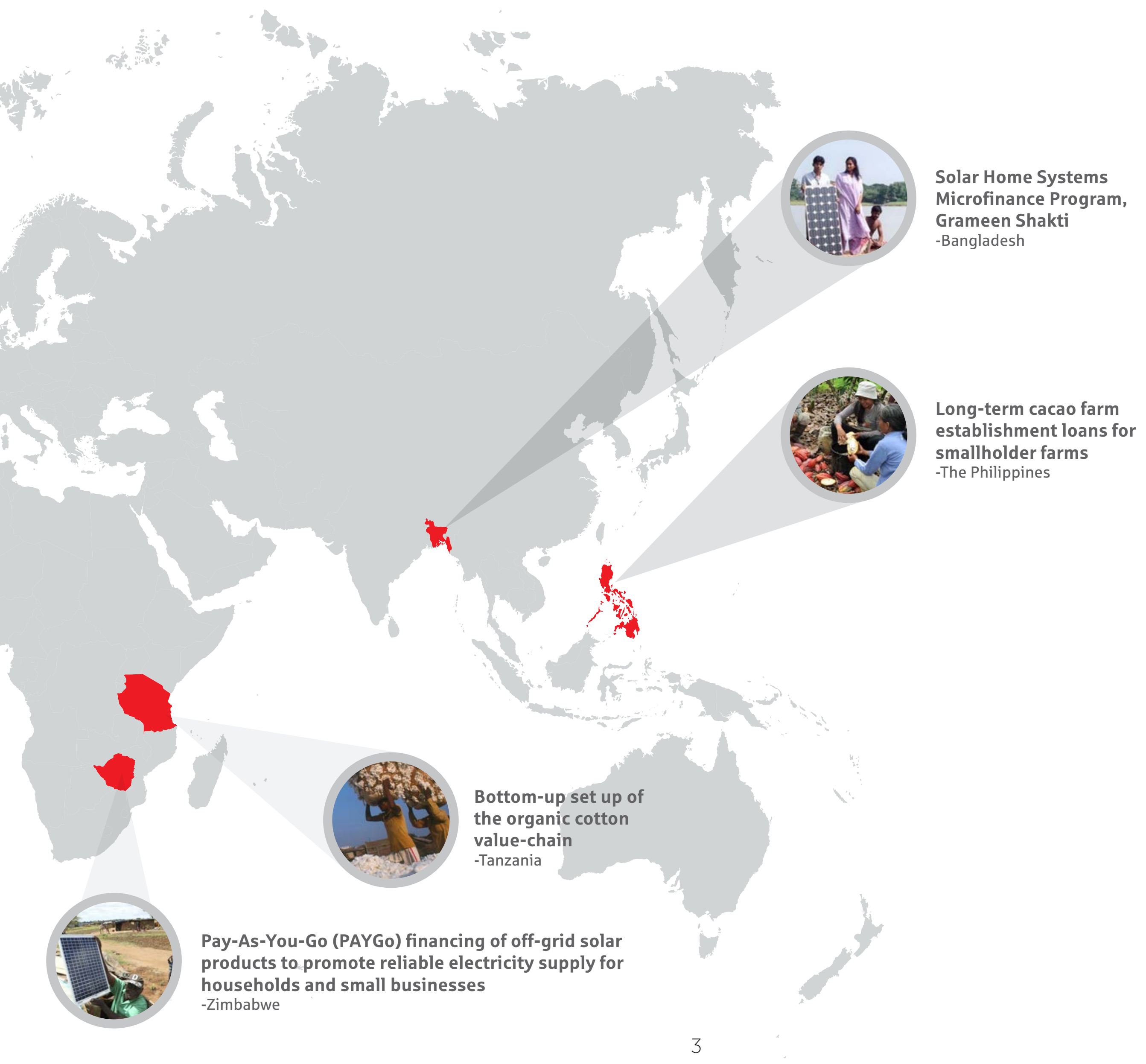

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List of abbreviations

AECF	Africa Enterprise Challenge Fund
AFC	Agronomika Finance Corporation (The Philippines)
BBVAMF	BBVA Microfinance Foundation
BMZ	German Federal Ministry for Economic Cooperation and Development
BSP	Central Bank of the Philippines
CABEI	Central American Bank for Economic Integration
CAMbio	Crédito ambiental cambio (FDL, Nicaragua)
CCA	Climate Change Adaptation
CFRI	Coffee Farmers Resilience Initiative (Root Capital, Honduras, Nicaragua, Peru)
DANIDA	Danish International Development Agency
ENA	National Agricultural Survey, Mexico (in Spanish: Encuesta Nacional Agropecuaria)
FIDE	Energy Savings Trust, Mexico (in Spanish: Fideicomiso para el Ahorro de Energía Eléctrica)
GB	Grameen Bank (Bangladesh)
GEF	Global Environmental Facility
IADB	Inter-American Development Bank
IBRD	International Bank for Reconstruction and Development
ICS	Improved cooking stove
IDCOL	International Finance Corporation
IFC	Infrastructure Development Company, Ltd. (Bangladesh)
MEbA	Sustainable Development Goal

MFI	Small and medium-sized enterprise
MMF	Microfinance for Environment-based Adaptation (Colombia)
MSME	Microfinance institution
PAYGo	Money Mart Finance (Zimbabwe)
PCIC	Micro, small and medium-sized enterprise
PES	Pay-As-You-Go
POs	Philippine Crop Insurance Corporation
PR	United Nations Environmental Program
PV	Partner organizations
R&R	Public Relations
SDG	Payments for Environmental Services
SENAMHI	Photovoltaic
SENER	Rehabilitation and renovation
SHS	National Service of Meteorology and Hydrology of Bolivia (in Spanish: Servicio Nacional de Meteorología e Hidrología)
SME	Secretariat of Energy, Mexico (in Spanish: Secretaría de Energía)
TA	Solar Home Systems
UN	Technical assistance
UNEP	United Nations
VIDECI	Vice-Ministry of Civil Defense of Bolivia (in Spanish: Viceministerio de Defensa Civil)
ZWRCN	Zimbabwe Women's Resource Centre and Network

Overview of the initiative

1

COFFEE FARMER RESILIENCE INITIATIVE IN LATIN AMERICA

Honduras, Nicaragua and Peru

The **Coffee Farmer Resilience Initiative**, implemented by Root Capital in Latin America, started in 2014. In this two-year initiative, Root Capital provided finance and capacity building services to farmer organizations in Honduras, Nicaragua and Peru. These farmer organizations were used as a channel to provide the same services (finance, capacity building, plus inputs) to small-holder farmers.

In 2011 and 2012 there was a plague of Puccinia Graminis, a fungus causing cereal rust, all over Latin America. The plague of natural origin, known as La Roya (stem rust, in English) attacks coffee plants, killing them with time. This event significantly reduced small farmers' productivity. At the beginning of 2013, it was estimated that more than 50% of the total coffee farming land in Central America was affected by La Roya.

Unfortunately, La Roya is not a short-term disease and there are no quick solutions to overcome the epidemic. Additionally, coffee plants affected by La Roya see their production capacity significantly reduced, which is translated into less income for small farmers at the moment they need liquidity to face the epidemic.

In response to that situation, Root Capital developed financial services to support smallholder farmers' fight the effects of La Roya in the short-term, as well as providing finance for farm renovation in general in the long term – it was also known that coffee plants should be substituted due to La Roya effects, and improvements could be done in order to prevent similar situations.

Root Capital created a network of local enterprises, such as agro-cooperatives and private coffee mills, to unite and reach smallholder farmers. Through this network, Root Capital offered short- and long-term finance to agriculture, as well as technical assistance to coffee farmers.

A key success factor of the initiative was to provide credit to coffee producers, so they could finance the direct cost of crop's rehabilitation and renovation (R&R) of sick, old or unproductive coffee plants. Crop rehabilitation and renovation is usually carried out by commercial and semi-commercial companies on a yearly basis, supported by trustable financial models.

The situation was totally different for smallholder farmers in Latin America: apart from agricultural knowledge and financial capacity (renovation costs range from 3,000-5,000 USD/ha); small farmers also need an alternative source of income during the plants' substitution period. This is the reason for separating financial products, in short- and long-term. On one hand, short-term finance was used to facilitate market access, to cover operational expenditures and to stabilize cash-flows. On the other hand, long-term loans were used to rehabilitate and renovate old and sick coffee trees.

Financial institution

Root Capital

Coffee plant and sustainably produced coffee grains in Peru. (Source: Root Capital)

Overview of the organisation

Root Capital is a non-profit social investment fund, founded in 1999, and focussed on the agricultural sector, composed by a team of more than 120 people with presence in Central America and Mexico, East Africa, South America, Southeast Asia, United States and West Africa. To date, it has worked with more than 1.3 million farmers, through farmer groups and farmer organizations.

Root Capital invests in the growth of agricultural enterprises that support these smallholder farmers. Root capital seeks out enterprises whose credit needs are too big for microfinance and too small or risky for commercial banks. Loans provided by Root Capital usually range from 200,000 to 2 million USD, tailored to harvest and sales cycles.

To help businesses grow over the long-term, Root Capital mixes financing with highly customized training to strengthen smallholder farmer's financial management and agronomic skills and capacity. Training is also provided at the farmer organization level.

Regarding the Coffee Farmer Resilience Initiative implemented in Honduras, Nicaragua and Peru, at the smallholder farmer level the financing provided by Root Capital translated into two types of finance products, differentiated by their duration in time. The short-term loan was, on average, not more than 800 USD, whereas a long-term loan could range from 15,000 to 25,000 USD, for a farmer with 5 ha of land.

Root Capital at a Glance

- Presence in Central America and Mexico, South America, Southeast Asia, East and West Africa and the USA.
- Staff members: 120+
- Beneficiaries: 1.3 million+ farmers and farmer organizations (2020)
- Year of foundation: 1999

Financial product

- Short- and long-term finance
- Coffee Farmer Resilience Initiative

Contact details

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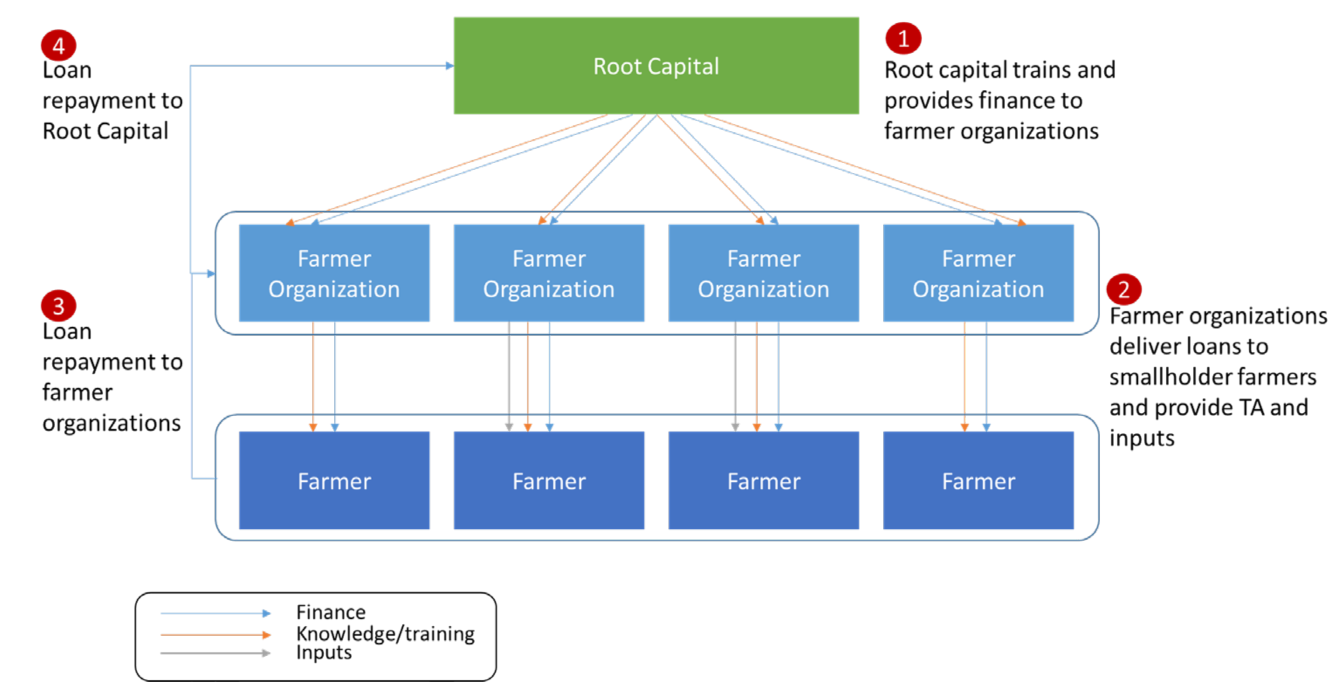
Financial product

Root Capital provides producer-driven finance to smallholder farmers. Finance is provided by the farmer organizations to individual farmers, usually in two different finance products. Both, short- and long-term, financial products provided to smallholder farmers, through farmer organizations, are financially structured in the same way:

- Root Capital provides financing to farmer organizations channelled by the Coffee Farmers Resilience Initiative (CFRI).
- Additionally, Root Capital provides training sessions to farmer organizations. Training sessions are on the following topics:
    - Financial training to ensure good loan management by the farmers and farmer organizations.
    - Agronomic assistance to promote climate-smart solutions.
    - Income diversification training at both enterprise and family/individual level.
    - Mobile technology services to help producer organizations digitize processes and modernize their operations.
- Farmer organizations, once trained, start the replication of the training received to smallholder farmers.
- Farmer organizations are usually recommended to divide into short-term and long-term loans to farmers.
- Short-term loans are around 800 USD on average. Their purpose is to "facilitate market access, cover on-going operating expenses, and stabilize cash flows so that producers can continue to generate income from coffee trees that have not been crippled by leaf rust." (Root Capital, 2016: 3)
- Long-term loans depend on the size of the land to which R&R measures are applied, usually are around 3,000 to 5,000 USD per ha of land. Long-term loans are used to "finance the rehabilitation and renovation of aging and diseased trees." (Root Capital, 2016: 3)
- The loans are collateralized, with requirements of 100% loan-to-value on a fully discounted basis over the entire life of the loan, offered in land, facilities or hard assets, or through a joint guarantee.
- Additionally, in some cases, farmer organizations also provided agricultural inputs to farmers.



Renovation and rehabilitation strategies involve both, substituting affected or old trees by new and young ones, as well as grafting or pruning those which have still potential to produce coffee.

A key success factor for Root Capital is to closely work with farmer associations, such as cooperatives or coffee mills, in order to ensure awareness of farmers and the availability of the financial service to them. Additionally, all these farmer groups acting as centralized nodes also facilitated the organization of capacity building programs for the organizations' staff, and for farmers.

As seen above, the three components of the financial service provided by Root Capital are finance, knowledge and agricultural inputs.

Spotlight on Partnerships

Root Capital partnered with different types of organizations to ensure the institutional structure of the initiative.

Project funds were provided by multilateral investment funds such as the Fomin, USAID, Starbucks, the Ford foundation, among others. Funding was channelled through Root Capital, who then distributed it to farmer organizations.

Farmer and producer organizations are the other type of actor with which Root Capital partnered to facilitate access to smallholder farmers. The Root Capital loans are made to producer organizations, private businesses or local financial institutions aggregating individual farmers. These institutions lend then to individual producers and bear the risk of repayment. The financial institutions are in charge with loan origination, disbursement, monitoring and repayment internally through an internal credit fund, for which a minimal mark-up is added to cover operational expenses (value and details of the mark-up interest rate are not public).

Spotlight on Beneficiaries

Beneficiaries of the Coffee Farmers Resilience Initiative are rural coffee farmers affected by La Roya plague (2011-2012), which affected around 50% of the total coffee growing areas in Latin America, significantly reducing the smallholder farmer production.

Root Capital provided loans to smallholder farmer organizations who then distributed to individual farmers to support the upfront costs of R&R. Root Capital also provided technical assistance (free to organizations and their members) in order to ensure the correct implementation of R&R programs.

Impacts Achieved

- Smallholder farmers have gained access to finance, allowing them to renovate crops, in order to increase coffee production.
- Smallholder farmers gained access to capacity building programs in the topics of finance, agriculture, income diversification and management and mobile technology services.

- Farmer associations received technical training to auto-administer and manage long credits and loans.

- Indirect impacts of the project include a general enhancement of the environment, due to a reduction of deforestation caused by the plague.

Relevance to Mexico

- This case study is relevant because coffee farming is also one of the most important agricultural activities that take place in Mexico. Additionally, La Roya disease is also affecting different Mexican coffee production areas such as Chiapas, Guerrero, Hidalgo, Oaxaca, Puebla or Querétaro, among others. Based on that, the actions taken by Root Capital as well as the procedures established with local organizations, and with farmers, might be of high interest for the case of Mexico.

- Additionally, the approach is also relevant to the case of Mexico as farmer organizations, if well managed, are a good partnership for a finance institution.

- The constraint of this case study at the time of implementation in Mexico is that products tend to be for export, unless there is a national company willing to set-up a similar pre-sales agreement with producer associations.

Good practices and lessons learned

- Leveraging blended finance structures enables lenders to partially de-risk R&R investments.

- Root Capital (2016: 4-5) also identifies the following as relevant lessons learned:
    - Identify and strengthen scalable aggregation points for channelling capital to smallholder farmers.
    - Investment in capacity building for aggregation points.
    - Expand risk management solutions to benefit individual producers.
    - Bundle financial and non-financial support to increase the absorptive capacity of enterprises and individual farmers to qualify for and manage credit.
    - Strengthen the overall enabling environment by ensuring consistent access to high-quality planting material and information about coffee varieties.

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Overview of the initiative

2

DESIGN OF A GREEN CREDIT LINE AND A TRAINING PROGRAM AT ODEF FINANCIERA

Honduras

The Green Credits financial service implemented at ODEF Financiera has been developed as a result of an analytical process carried out by ODEF Financiera in partnership with consultancy companies. Through this process, ODEF has been able to establish a green products direction with adapted financial services for its target customers.

Products financed by ODEF Financiera target small agricultural enterprises and commerce shops in Honduras, which represented 82,2% of the total number of loans disbursed in 2016.

Technologies were pre-selected based on their main functionalities, their savings characteristics and their green characteristics. In the context of this financial product, green technologies were defined as those that reduce or mitigate the negative effects of human activity on the environment and the population. These technologies were designed for waste reduction, use of renewable energy resources and efficient use of technology and then adapted to specific activities and products harvested in these sectors and in each different area of operation, resulting in the following technologies:

Agriculture	Commerce
• Solar dryer • Solar water pump • Coffee pulping machine	• Efficient refrigeration machines • Air conditioning systems • Illumination

Once technologies were adapted to the local context and demand, the supply side was analysed by ODEF Financiera and its partners to identify and create a network of potential suppliers that would be interested and able to provide the technologies to ODEF Financiera's customers. The network of suppliers was created by establishing working agreements with selected suppliers, which defined each party's duties and responsibilities, through working and communication processes. Finally, the technologies were included in already existing financial products, as the green or energy saving part of the financial product, in order to facilitate customer communication processes and manage customer information.

Two aspects of the green financial products implemented were later identified as key to success. First, the creation of an establishment agreement of procedures together with suppliers, which facilitated the disbursement of credits, distribution of technologies and follow-up with customers. Second, the creation of an Energy Technical Advisor in-house, with appropriate training, provided ODEF the ability to better communicate and provide support to customers.

Financial institution

ODEF Financiera

Figure 1: Image of a solar home system installed at a client's house. (Source: ODEF)

Overview of the organisation[1]

ODEF Financiera started operations in 1985 as a Development Private Organization focussed on implementing social projects in rural areas aiming at sustainable agriculture and environment, mostly targeting women.

In 1989 started providing a small credit program also targeting entrepreneurship within women (Mujeres de Negocio). In 1992, ODEF started a changed period towards auto-sustainability through expanding its credit products. During this period ODEF started offering credit to men.

In 2005, based on changes in the regulatory framework, ODEF decided to create its financial arm, named Organization for Entrepreneurial Development of Women (ODEF, in Spanish).

In 2007, ODEF Financiera had 22,401 clients within 9 Departments where they had 24 branch offices.

Since then, ODEF acts as an MFI that provides financial services to the SME sector in Honduras, as stated in their website green credit line combined with promoted sustainable agriculture practices in Honduras through farmer training and facilitated access to green products.

ODEF at a Glance

- Country of operation: Honduras
- Branch offices: 34
- Presence: in 9 departments
- No. employees: 445
- No. clients: 584 (2011-2013)
- Established in 1985. Microfinance activities started in 1989.

Financial product

Green Credifijo is one of ODEF's financial product which has been "greened" by adding a number of technologies with environmentally friendly characteristics.

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[1] Information retrieved from ODEF Financiera's webpage: https://odeffinancierasa.hn/resena-historica/

The financial product

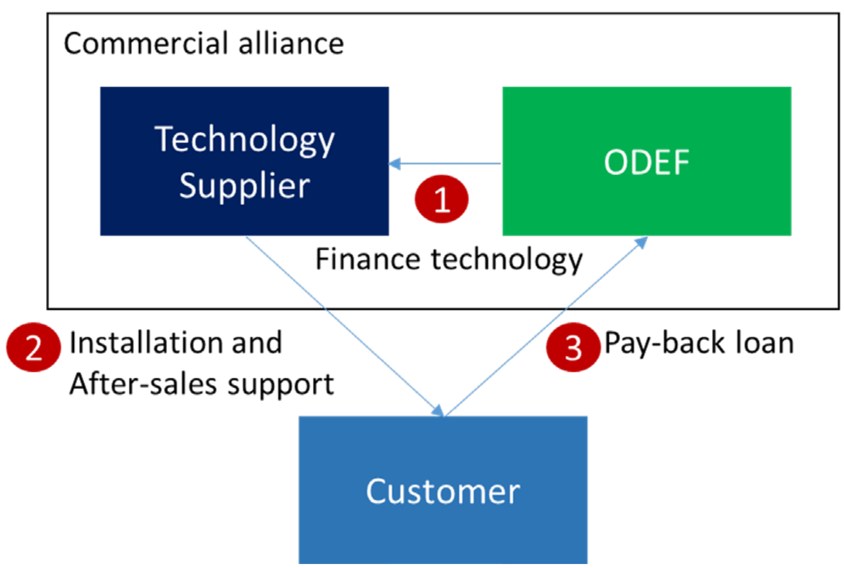
Green Microloan

ODEF Financiera created a green financial product by greening an existing one, in order to facilitate communication to clients and database adaptation of its internal system.

As the procedure followed by ODEF to implement the green financial product was preceded by an offer and demand side analysis, the products and suppliers were already selected before defining the green credit line, as it is the last step. Thus, since green technologies were already selected by ODEF, and according to their characteristics in terms of price, lifecycle, energy saving capacity, they are financed through a micro-entrepreneur green credit line based on “Credifijo” terms and conditions.

Credifijo is a credit line at ODEF Financiera designed to finance business equipment, machines, production workshops and vehicles. Loans range in size from 20 USD (500 L) to 20,000 USD (500,000 L) and are paid back in a period ranging from 6 to 60 months. Payments from customers are due every week, two weeks or monthly, depending on the type of technology or equipment financed and the agreement between ODEF Financiera and the micro-entrepreneur.

Based on the previous, the final working procedure internally at ODEF for the green microloan financial product is a two-hand business model, with a three-step operational process. First, once the loan application has been accepted and approved by ODEF, ODEF pre-finances the selected technology, which has previously been assigned a size of the green credit loan. Second, when the technology supplier receives the pre-financing of the technology from ODEF, he/she also receives the complete personal data of the recipient of the credit in order to install or distribute the product. Finally, also according to the loan terms, the customer pays-back the green loan in the form of instalments.



Spotlight on Partnerships

The operational triangle implemented at ODEF Financiera included the creation of multiple working-agreements between them and ODEF. These agreements clearly defined the duties and responsibilities of each party towards the client. With this partnership, ODEF enhanced the administrative work at the time of disbursing loans. The agreements include the following features:

- ODEF disburses the payment to the suppliers, while the suppliers deliver the product directly to the customer and provide training on the operation and maintenance of the product, taking care of after-sales service, including installation, maintenance, reparations and guarantee.
- During the product implementation phase, credit consultants and suppliers come closer to look for potential customers and promote the financial products offered by ODEF, therefore suppliers will also obtain potential customers for ODEF.
- ODEF provides the suppliers with informative flyers with contact data. The financial institution also has the option to facilitate the suppliers with copies of the authorization forms for the green loans, which and can be sent to ODEF via email to facilitate the appraisal of potential customers.
- ODEF and the supplier create and revise a joint marketing plan.
- ODEF receives the catalogue and price lists of the financed products by the supplier.
- Suppliers receive training on the green finance product, while suppliers train ODEF staff on their products.
- Suppliers open an institutional savings account with ODEF to optimise the disbursement process.

Spotlight on Beneficiaries

The typical beneficiary of ODEF Financiera belongs to a poor household (around the poverty line level), with very limited resources in order to set up a small enterprise. They are usually employed (or have a small enterprise) by the informal economy. Additionally, they do not usually have access to banking services.

Impacts Achieved

- Since it started, ODEF provided numerous inclusion and supporting services to women, which have served to foster entrepreneurship among women at a regional level.
- The green credit line offered by ODEF Financiera provided ODEF customers the possibility to adapt their workshop or household with sustainable measures. This has been fostered and supported by a raising awareness campaign, which promoted green technologies among its clients.
- ODEF also offered financial education in order to provide their clients the ability to understand what they exactly need, and to manage the adaptation to a loan procedure.

Relevance to Mexico

- Targeted customers at ODEF, rural farmers and other small agricultural enterprises, and small commerce shops, have also been identified as two main economic activities in rural Mexico.
- The initiative provides important aspects regarding the creation of a solid and resilient network of suppliers in order to be present in different regions of the country.
- Moreover, the initiative also provides interesting inputs that can be followed by a microfinance institution in order to better adapt and analyse customer's needs in terms of energy and efficiency aspects in technology.
- The initiative highlights the process followed by ODEF to create a green technology portfolio within a microfinance institution.

Good practices and lessons learned

- Creation of an establishment agreement of procedures together with suppliers, facilitated the disbursement of credits, distribution of technologies and follow-up with customers.
- Creation of an Energy Technical Advisor in-house, with appropriate training, provided ODEF the ability to better communicate and provide support to customers.

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Overview of the initiative

CONSOLIDATING QUALITY AND SCOPE OF CLIENT RESILIENCE THROUGH MULTI-ACTOR SYNERGIES TO INCREASE THE RESILIENCE OF TERRITORIAL ECOSYSTEMS

Nicaragua

The challenge of climate change and the dangers to biodiversity it entails, requires attention to local-global dynamics: combining high quality local interventions to increase clients' resiliency with multi-actor processes of sufficient scope to address the resilience of the ecosystem.

FDL's journey has shown them that the clients' resiliency achieved through the promotion and subsidy of pilot projects must be multiplied, interlinking microfinance initiatives to create self-sustaining dynamics that can regenerate ecosystems and weave territorial resiliency.

Since 2005, the water-harvesting practices, irrigation systems, silvopastoral and agroforestry system development, livestock intensification, pasture improvement, seed management, productive diversification of income, soil conservation and payment for environmental services activities implemented through FDL with international cooperation subsidies tended to lose their sustainability when projects finished. Not only does "the demand for and subsequent take-up of these technologies remain low due to barriers such as credit constraints, lack of information, high transaction costs, and behavioural biases"[1], but as the FDL Nitlapán Group analysis suggests, these barriers, when understood through territorial ecosystem development routes, are revealed as path dependent inertia systematically blocking resilience.

FDL's Green Microfinance-Plus 2019 program addresses the territorial focus, honing in on other key lessons:

- Reduces transaction costs.
- Increases customer loyalty more than any other mechanism.
- Requires combinations of technical assistance, payment for ecological service and adapted loans.
- Demands simultaneously lowering the cost and increasing quality of green technical assistance. The environment is a global and local public good mediated by ecological knowledge and cultural practices, thus requiring increasingly intelligent subsidies that can navigate these tensions and possibilities to create collective ecosystem resilience.

Additionally, FDL provides the following non-financial services:

- Agroforestry diversification technical assistance for coffee growers struggling against coffee rust generated by rising temperatures.
- Technical assistance for adaptation to climate change in the Dry Corridor.
- Silvopastoral technical assistance for cattle ranchers (meat-dairy).
- Technical assistance in agroforestry diversification in the buffer zone of the forest reserve Indio Maiz.
- Specialized services for promoting new employment for women.
- Addressing key territorial and ecosystem resilience.

[1] Brown, Zelenska and Mobarak, (2013)

Financial institution

Financiera Fondo de Desarrollo Local (FDL)

Two promotional images at FDL Financiera. (Source: FDL Financiera)

Overview of the organisation

According to the mission stated on their website, **Financiera FDL** is a regulated financial institution providing financial services to urban and rural people in Nicaragua. Special programs are developed to serve micro, small and medium enterprises as well as wage workers in order to promote financial sustainability and social and environmental development of its clients.

FDL operates in 14 of the 16 Departments of Nicaragua with 42 branch offices that cover 133 of the 153 municipalities in the country and 150 allied payment points.

To contribute to national development, FDL aims at the capitalization of (mainly rural) families, offering credit and non-financial services through a strategic alliance with Nitlapán (Institute for Research and Development of the Universidad Centroamericana).

FDL also provides technical assistance and training for production and commercialization, helping to secure a successful investment for the clients.

Financiera FDL at a Glance

- Country of operation: Nicaragua
- Staff members: 814
- Branches and sales points: 46
- No. customers (2018): 63.339
- Start of operations: 2016 (as a regulated institution)

Financial product (Green)

Investment and development products with environmental credits for climate change adaptation in agriculture, livestock, coffee, silvopastoral livestock, water conservation and harvesting, irrigation systems and productive diversification.

Contact details

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- Peter E Marchetti

Financial product

FDL's basic strategy for green financial products is as follows:

- The financial product must be accompanied by technical assistance with high levels of client participation so that it is increasingly perceived as tailored technical assistance.
- The financial product must be accompanied by payment for ecological services (bio-awards), with conditions specified in the financial product.
- The financial product involves signing an investment contract between FDL and the client.
- The goal is to combine a longer-term investment loan with a working capital loan.
- Interest rates can be used as incentives or sanctions.
- The strategy demands that products have a midterm viability of at least 5 years.
- The strategy entails avoiding excessive dispersion of clients to promote territorial synergies.

By following this strategy, FDL has developed some concrete green financial products. The first two are products for current clients of FDL or new clients who meet the detailed criteria of FDL's credit policies. The third financial product was designed for families without sufficient assets or income flow to meet FDL criteria, serviced by the "Nitlapán Trust for Inclusion and Resilience" with the dual goal of preparing clients for the FDL as well as taking the first steps towards resilience.

- **Green microfinance in the coffee/cacao highlands**
  This product was launched in 2009 from the FDL normal portfolio, co-financing the model with the Central American Bank for Economic Integration (CABEI) and the Global Environmental Facility (GEF) as "Crédito ambiental cambio (CAMbio)". The purpose of this financial product is to foment the adoption of agroforestry coffee and cocoa systems for diversification, increase productivity, reduced emissions, carbon sequester and integration of the commercial crops in the family economy. The conditions for this product include access to reduced interest rate in long term loan, conditioned upon payment for non-financial services. The terms of payment for non-financials were assumed 100% by CAMbio under contracts fined with the producer at 10% of technical assistance calculated against size of loan. In the current national economic crisis, FDL maintains this approach. Moreover, the indicators of results were concerted between producers and technical assistance officials prior to the contract.

  The product developed within this framework is called "Préstamo campesino" and has the following characteristics:

  - It is an individual credit, which targets rural smallholder farmers.
  - The amount ranges between 100 – 2,000 USD for working capital.
  - Livestock or crop are taken as collateral.
  - It is a specific microcredit product with reduced interest rate thanks to the cheap credit line for environmental impact adaptation and mitigation actions.
  - Credit's interest rate of the product is between 3-6%, depending on the clients' profile and income patterns.

- FDL conducts the client financial evaluation while the Nitlapan Institute, which specializes in rural development, assesses client potential and their needs concerning climate change adaptation and green investments.

- Credit duration is also longer than typical similar credit products. In this case the payback period is 3 years, with payments every 6, 8 or 10 months.

- The product also includes training to clients and follow-up during first crop. Training for FDL clients is offered by the rural development centre Nitlapan Institute, FDL's local partner in Nicaragua. Specialized customized training to enable clients to manage the new practices is developed by Nitlapan Institute.

- **Financial product for the Dry Corridor**
  The second financial product was launched in 2015, as Ecomicro, co-financed with IADB. Its purpose was to foment mitigation and adaptation practices to climate change while simultaneously facilitating increase in family income, by combining working capital loan with technical assistance. The conditions are reduction of interest rate against results in adaptive practices according to the contract.

- **Income diversification for permanent agroforestry in buffer zone of forest reserves**
  The third product was launched in 2013 through the Nitlapán Trust with the support of DANIDA (Danish International Development Agency). The purpose of this financial product is to forestall migration in the reserve. The conditions include lower interest rates for investment in establishing cocoa and coffee plantations with tree/shade balancing areas of corn and bean production. No reduction of rates for other diverse commercial, service, artisan activities. Payment for ecological services via bio-awards that reduced interest if agroforestry practices are adopted.

Spotlight on Partnerships

At the epicentre of FDL's multiple alliances stands the information consortium of (1) Nitlapán, the Institute of Research and Development of the Central-American University in Nicaragua which began the microfinance program (and currently provides technical assistance and applied research to the consortium). (2) The Local Development Fund Association, an NGO which separated from Nitlapán in 1997 to specialize in microfinance, leaving technical assistance, innovation in territorial development and other non-financial services with Nitlapán and (3) FDL Financiera, regularized in May 2016.

Spotlight on Beneficiaries

Most of FDL's clients live in rural areas working and are employed within the agricultural sector, either as agricultural producers, micro-entrepreneurs or wage workers.

Bio-Awards

FDL provides Bio-awards to its clients in order to incentivize and reward the enhancement of bio-diversity friendly practices. According to the procedures, bio-awards are a cash award to be shared between the client and FDL.

Bio-awards consist on following recommendations from FDL regarding the following:

- Use of bio-fertilizers (following the specific bio-fertilizer's instructions).
- Use of high quality seeds, also provided or accepted by FDL.
- Have and follow a crop rotation plan.
- Ensure water is efficiently used, avoiding misuse.

The average monetary bio-award amount given so far is 78 USD during a season.

FDL is 80% self-financed with profits, the remaining is financed through development assistance and innovative Payments for Ecosystem Services programs such as Proyecto CAMBio. In its implementation of Proyecto CAMBio, FDL combined credit, TA and the so-called biopremium. For the provision of credit, FDL had access to a credit line from CABEI at a 4.5% annual interest rate.

Conditions for eligibility to the biopremium were set on a farm-by-farm basis, as farmer and technician agreed on one or more targets, based on a list of options provided by CABEI. Upon ex post verification of the agreed transformations – chosen from a list of possibilities provided by CABEI – the producer would receive a cash premium equal to 14% of the loan. When a producer would successfully obtain the premium for the agreed transformations, FDL would also receive an amount equal to 6% of the loan; hence both the producer and FDL had an incentive to comply.

Impacts Achieved

In 2006, the FDL won the Central American Bank of Economic Integration's Central American prize for strengthening assets of microenterprises. Starting with an average loan of less than 80 USD, FDL has achieved an average loan of 1,500 USD with 5% of its clients having enough assets to receive commercial loans over 10,000 USD.

Additionally, FDL has incorporated the 21st century's crucial asset, carbon, into the strategies of its clients, sequestering 2.1 million tons of coal with 4,441 coffee growers, 2.3 million tons with 2,451 livestock, 4.1 million tons with 1,326 families in micro leasing programs in order to prepare them for being loan worthy, and 1.0 million tons with 2,434 families in experimentation and testing of GEF and IBRD projects on Payments for Environmental Services (PES), technical assistance (TA) "stand alone", and with CABEI and Hivos to analyse the combined impact of TA, PES and Credit in the CAMbio Project, with the IADB in its EcoMicro initiative to adapt to climate change in the dry corridor and finally with the IFC of the IBRD to discover how to incrementally service more clients per territory, simultaneously addressing ecosystem vulnerabilities and reducing the costs of green technical assistance.

Relevance to Mexico

- FDL's financial products, such as "green microfinance in the coffee and cacao highlands", aim at protection farming and other actors from the coffee and cacao supply chain, which is pertinent for the case of Mexico, as the same type of crops might need financing also in Mexico.
- Another interesting point of this case is that environmental impacts caused by farming are raised by FDL. Soil erosion and reduced fertility is also happening in Mexico, thus, could be incorporated. This is all supported by the Bio-awards structure.
- Technologies and technical solutions and assistance provided by FDL, such as irrigation systems, crop diversification, and TA to grow greener products can be of high interest in the Mexican context, in order to produce better quality products with lesser environmental impact.

Good practices and lessons learned

- Green Microfinance Plus initiatives lower the transaction costs because the technical assistance visits eliminate the financial institution's monitoring costs, while increasing effective loan monitoring.
- Bio-awards increase client loyalty both in terms of commitment to risk reducing environmental practices and in repayment obligations.
- Combining bio-awards with technical assistance and financial products attuned to clients demands increase producer resilience.
- Client participation in loan design and conditionality improves financial product quality.

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Overview of the initiative

MICROFINANCE FOR ENVIRONMENT-BASED ADAPTATION

Colombia

Bancamia's agricultural lending was initially done primarily through two credit products called "Agromía" and "Credimía" since 2008. Both credit products were designed according to the cash flow from the farmers' activities. Initially, Agromía was structured for a mono-crop cycle, in which the borrower had only one crop. The loans under Agromía were disbursed in a single tranche, with payments every two, three, or six months. The credit could be renewed if the client had paid the outstanding balance.

Credimía, in turn, was initially designed for farmers with multiple crop cycles or agricultural activities with regular cash flows. The initial interest rate was the same as that of Agromía. However, loans under Credimía required equal, regular payments.

In 2011 Bancamia was one of the MFIs participating in the Microfinance for Ecosystems-based Adaptation project (MEbA), implemented by the United Nations Environmental Program (UNEP) and the Frankfurt School for Climate & Sustainable Energy Finance.

The project aimed at increasing rural populations' resilience against climate change effects by promoting adaptation strategies and supporting the development of a financial instrument within the participating MFIs, to facilitate the clients' acquisition of technologies and products that help implement the ecosystems-based adaptation strategies promoted by the project. Additionally, Bancamia also offered technical assistance on the beneficiaries' activities.

Within this framework, Bancamia's credit products have evolved. Credimía stayed as a more general credit line for MSMEs, whereas Agromía was transformed into a green credit product. Nowadays, Agromía is generally used in the form of two products: CrediVerde Adaptación and CrediVerde Energía.

CrediVerde Adaptación finances climate change adaptation measures, whereas CrediVerde Energía is a credit product targeting the improvement of the client's energy efficiency.

Since the program began in 2011, over 2000 clients have been given MEbA solutions which discount their interest rates, thus providing an incentive for the clients to use green options. The number of clients buying this product in 2019 rose by 132% compared to 2018, and by around 143% in terms of volumes. Moreover, 100% of Bancamia's rural advisors have been trained on these measures and technologies.

The most important technologies and measures within Bancamia's green portfolio are the following:

- Organic fertilizer
- Soil nutrition products
- Conservation agriculture (equipment and training)
- Crop diversification (inputs and training)
- Family kitchen gardens
- Fish farming
- Water tanks
- Improved cooking stoves and ovens
- Solar home systems
- Refrigeration systems

In 2020, Bancamia received the Andesco Award for Environmental Sustainability, for the MEbA program.

Financial institution

Bancamia: Finance for smallholder farmers

Demo farm in Colombia. (Source: Bancamia, MEbA project)

Overview of the organisation

Bancamia was formed from the partnership of Corporación Mundial Mujer Bogotá and Corporación Mundial Mujer Medellín. These two entities, along with an investment stake by BBVA Microfinance Foundation (51%), became Bancamia in 2008.

Bancamia's mission is to improve the quality of life for low-income families. It is one of the members of BBVA Microfinance Foundation's network.

Bancamia has included lending operations to the agricultural sector since its founding and, with support from multilateral donors, has strengthened the development of its rural lending methodology. Bancamia finances a number of agricultural activities, including coffee, dairy cows, potatoes, and pigs. It also finances other types of livestock raising and plantains and beans, among other crops.

To be closer to its clients, Bancamia created a widespread network of offices and sales points. In total, there are 200 traditional offices in 29 Departments of Colombia. Additionally, there are 17 Puntos Expres (Express Points), divided within 16 Departments, providing Bancamia presence all over 92% of the Departments in Colombia.

Bancamia at a Glance

- Country of operation: Colombia
- Staff members: 3,197
- Crediverde Adaptación
  - 2017: 45 credits (38k USD)
  - 2018: 637 credits (500k USD)
  - 2019: 1309 credits (1.2m USD)
- Start of operations: 2008

Financial product

- CrediVerde Adaptación
- CrediVerde Energía

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Financial product

Bancamia's financial products are disbursed directly to clients, which will use the money from the loan for the purpose agreed with Bancamia. In order to determine the credit suitability, Bancamia carries out a credit analysis considering the cash flow of the household production unit, not just the financed agricultural activity using a semi-automated cash flow tool.

Credit officers enter the data in the field, using the bank's software system (Banca Portátil). This allows credit officers to consult the credit bureaus and the bank's reserve lists while in the field, and to respond quickly to clients regarding their credit application.

Bancamia also applies different interest rates regarding clients' fidelity. For new clients, the effective rate charged by Bancamia is 7 points less than the government-controlled rate for microcredit. For loan renewals, Bancamia charges 10 points less than the controlled rate, depending upon the client payment behaviour and number of renewals.

Based on the previous, Bancamia's financial products evolved over time resulting in four green financial products for its clients: two green credit lines, one for climate change adaptation and the second to foster the clients' energy efficiency. Additionally, in 2019 a climate insurance product was launched and a rural savings product (Ahorro Incluye Rural). From these products, the two credit lines are the most relevant.

One of Bancamia's current green credit lines is **Crediverde Adaptación**. This credit line targets smallholder farmers and producers, who would like to access clean and efficient energy technology, in order to mitigate their environmental impact. Typically financed technologies within this financial product are water pumping systems, irrigation systems, milking machines and illumination systems.

Additionally, other measures for climate change adaptation and mitigation, such as soil conditioning, organic agriculture, apiculture, organic fertilizers, biodigestors, solar dehydrators, improved cooking stoves, water tanks, among other solutions can be financed within the framework of this product.

The other main green credit line is **Crediverde Energía**. This green credit line is exclusive for micro-entrepreneurs willing to acquire an Eco-efficient type of technology. Typically financed technologies and solutions include efficient stoves and ovens, efficient refrigeration and illumination systems and solar home systems.

The average amount of the loans for these two products is 800 USD, which are paid back in a flexible scheme agreed between the client and Bancamia. This period usually ranges between 6 and 48 months, during which the clients pay fixed or adapted quotes. The bank requires a collateral in the form of clients' assets to guarantee the payment of the sum disbursed by Bancamía.

The distribution of the technologies and products is realized within Bancamia's distribution network of suppliers. Bancamia has a number of agreements with suppliers, which are divided by Departments. These suppliers distribute and install the technologies, and later follow-up with the client.

Bancamia has also set-up excellent customer service, including strong client management skills and a standard of service approach. They process loans from application to disbursement in an average of three days. To do so, they sometimes hold as many as two credit committees per day, but it is rare to have all advisors involved in each credit committee. The committees can take multiple forms: full office participation, one or two advisors and the branch manager. In this way, Bancamia maximizes the amount of time that each advisor spends in the field.

Regarding the field work, Bancamia has more than 1100 credit offers, 35% of whom have an agricultural profile, who then manage Agromía loans.

Spotlight on Partnerships

In 2008, the BBVA Microfinance Foundation (BBVAMF) became the biggest investor in Bancamia, and Bancamia became a member of the BBVAMF, which raised Bancamia's visibility among donors. This visibility helped Bancamia to secure financing to develop the financial products.

On the other side, Bancamia also created a sufficiently strong network of suppliers to distribute and provide a technical after-sales service to its clients.

Spotlight on Beneficiaries

Bancamia's beneficiaries of the Agromía line credit products are MSMEs, smallholder farmers, producers and households, mostly living in rural areas with no access to water and energy infrastructures.

The economy of the beneficiaries is usually a mix of agriculture for commercialization with subsistence agriculture. The crop-mix varies depending on the area and financial capacity of the rural population, which tends to be low.

Impacts Achieved

- Agro-credits designed, adapted and disbursed by Bancamia, provide beneficiaries with finance to acquire what they need. Thus, facilitating the day-to-day work of involved MSMEs and small farmers and producers at the same time they change to more environmentally-friendly techniques, equipment and technology.

- The switch to more environmentally friendly tools and knowledge is reducing the levels of soil erosion and desertification, as well as the soil quality, improved by crop-diversification practices. Additionally, water-stress levels have been reduced thanks to the construction of water tanks in different water-source points to be able to stock water.

Relevance to Mexico

- Bancamia's internal set-up in terms of number of field officers and internal training, not only focussing it on the financial products but also on the technical characteristics of the financed products, is of good help at the time of advertising the products offered by the finance institution and promoting green energy technologies. In the case of Mexico, similar technologies to those financed by Bancamia seem to have great potential.
- In terms of the economic sector and type of clients, this case seems to be similar to the reality of most financial institutions operating in rural areas of Mexico.

Good practices and lessons learned

- A smallholder's business is integrated into their household. Therefore, in order to provide an appropriate credit product to smallholders, it is necessary to develop a different manner of evaluating the household production unit.
- Adaptation of the financial institution's systems – such as human resources, marketing, and management information system – is important to deliver the most appropriate products.
- A logical form of deployment and respect for each credit officer's zones will result in more cost-effective and consistent service.
- To expand outreach to smallholders and provide more accessible service, they must be provided with more cost-effective ways of making transactions, such as agent networks and mobile banking.
- Lending to smallholders can involve different risks; it is important to be aware of these risks and to attempt to mitigate them through product adaptations, monitoring and pre-emptive management.
- Clients appreciate personalized attention and advice from staff.

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Overview of the initiative

AGRICULTURAL MICROINSURANCE AGAINST CLIMATE RISKS

Bolivia

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The beneficiaries of this product are the Sembrar Sartawi customers who request a microcredit with the institution. Their ability to repay the microcredits is threatened by the effects of climate change on their crops, thus, hindering their economic development and in some cases, their subsistence. A microinsurance product is offered in response to this situation, addressing the lack of insurance products that cover specifically smallholder farmers.

Farmers in Bolivia have access to microfinance, specially microcredits for agriculture development. The repayment of these credits depends on the seasonal harvest, as this is, in most cases, the only revenue source for farmers. However, the harvest is threatened by climate catastrophes, mainly droughts, floods, frost and hail, as reported by Sembrar Sartawi customers. The risk of crop failure and impossibility to generate income prevent the repayment of loans, and hence, also the uptake of microfinance.

The initiative is at a roll-out stage, with the pilot covering 50 smallholder farmers conducted in 2019, these farmers grow a large diversity of crops heavily exposed to climate risks, including potato, peach, soy, onion, corn, rice, coffee and peanut. The pilot was implemented by Sembrar Sartawi (Microfinance Institution) in partnership with CREDINFORM (Insurance Company) and Sudamericana (Insurance Broker).

The product is an agricultural microinsurance that covers exposure to climate risk, provides income stability and protects the beneficiaries from deepening their poverty situation in case of not being able to pay for a microcredit due to the effects of climate disasters.

This product features additional components: a wide outreach provided by the Microfinance Institution (MFI) agencies network; the availability of trained credit staff to offer the product and solve inconveniences; and risk assessment and technical assistance for the beneficiaries.

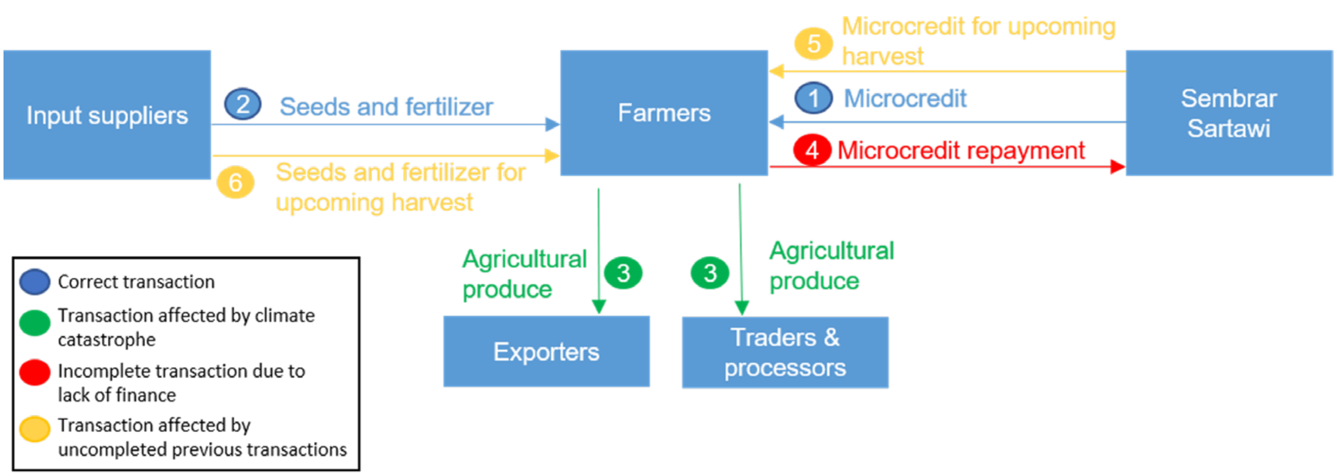

Figure 1 - Financing flows within the value chain before the implementation of the microinsurance. (Own elaboration)

Financial institution

Sembrar Sartawi IFD: Provide integral financial services to peri-urban and rural population with capacity to generate surplus, mainly from agricultural activities

Figure 2 - Sembrar Sartawi customer's sunflower crop affected by drought. (Taken during MEI field mission)

Overview of the organisation

Elements:

- Smallholder farmers in Bolivia lack purchasing power to grow their crops. In many cases they obtain loans from MFIs that are paid from the revenue from the harvest. However, if a climate catastrophe occurs and the harvest is damaged or lost, the farmers cannot pay the credit back which complicates the upcoming harvest at the same time jeopardizes their credit worthiness and the MFIs' portfolios.
- In order to solve this situation, Sembrar Sartawi offers a microinsurance for their customers; this product covers the repayment of instalments of their credit in case of flood, hydrological drought, hail or frost.
- The product is easily available due to the extensive network of Sembrar Sartawi and its trained personnel.
- Sembrar Sartawi is a development financial institution that aims to become a leader in financial services in the country by promoting development in the rural sector, especially agriculture activities.

Sembrar Sartawi at a Glance

- Country of operation: Bolivia, 7 out of the 9 departments
- No. employees: 350 (2019)
- No. customers: 28,500 (2019)
- Year of foundation: 1990

Financial product

- Agricultural microinsurance to secure climate risks (*Microseguro agrícola para asegurar riesgos climáticos*).
- Microinsurance to promote the up-take of microfinance and protect revenue and socioeconomic conditions of smallholder farmers.

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Financial product

The agricultural microinsurance is designed for smallholder farmers that contract microloans with Sembrar Sartawi, allowing them to uptake microfinance without risking their assets in case of crop failure due to climate catastrophes. The product protects the farmers from the effects of flood, hydrological drought, hail or frost. The insurance covers damage to the terrain and its coverage includes the minimum value unpaid instalment of the microcredit given by Sembrar Sartawi, although a higher quantity can be insured (capital + pending interest + additional charges associated). The interest rate of the microinsurance is 4.05% per year and the insurance is paid monthly during the period of the microloan provided to the customer.

The insurance is paid directly to Sembrar Sartawi upon municipal notice of a red alert of a maximum impact natural catastrophe and confirmation by Bolivia's National Meteorological and Hydrological Service (SENAMHI), the Civil Defense Vice-ministry (VIDECI) and certification of each one of the affected borrowers under sworn statement. In case of credits of minor amounts (<12,000 USD) insurance is paid upon the declaration of catastrophe by a local or national competent authority, while for larger credits (>12,000 USD) the payment will be subject to insurance company expertise confirming the "climate trigger".

The MFI utilises risk assessment tools to monitor climate threats affecting the beneficiaries and the level of negative impact of customers' agricultural practices in the environment and its factors (water, air, soil, fauna, flora and community). A survey is applied at the moment of credit request appraisal, as a result of monitoring, education strategies are developed, altogether with technical assistance for implementing good agricultural practices and manage climate risk.

This financial product is successful in promoting **availability**, **acceptance** and **resiliency** among its beneficiaries. Availability is provided thanks to the outreach of the financial institution among its already existing customer network, altogether with capacity building on their personnel to sell the microinsurance and provide assistance. Acceptance is promoted by facilitating the entrance of insurance companies to the rural setting and by adjusting the coverage and payment of the insurance to the uptake of the microcredit.

The main contribution of this product is the creation of resiliency by overcoming the challenge of the lack of purchasing power of Bolivian farmers while contributing to solve their finance gap. By providing an insurance to the farmers it protects their assets from being lost due to inability to pay their microcredit and having to repay it with interests.

Visualization of financial product

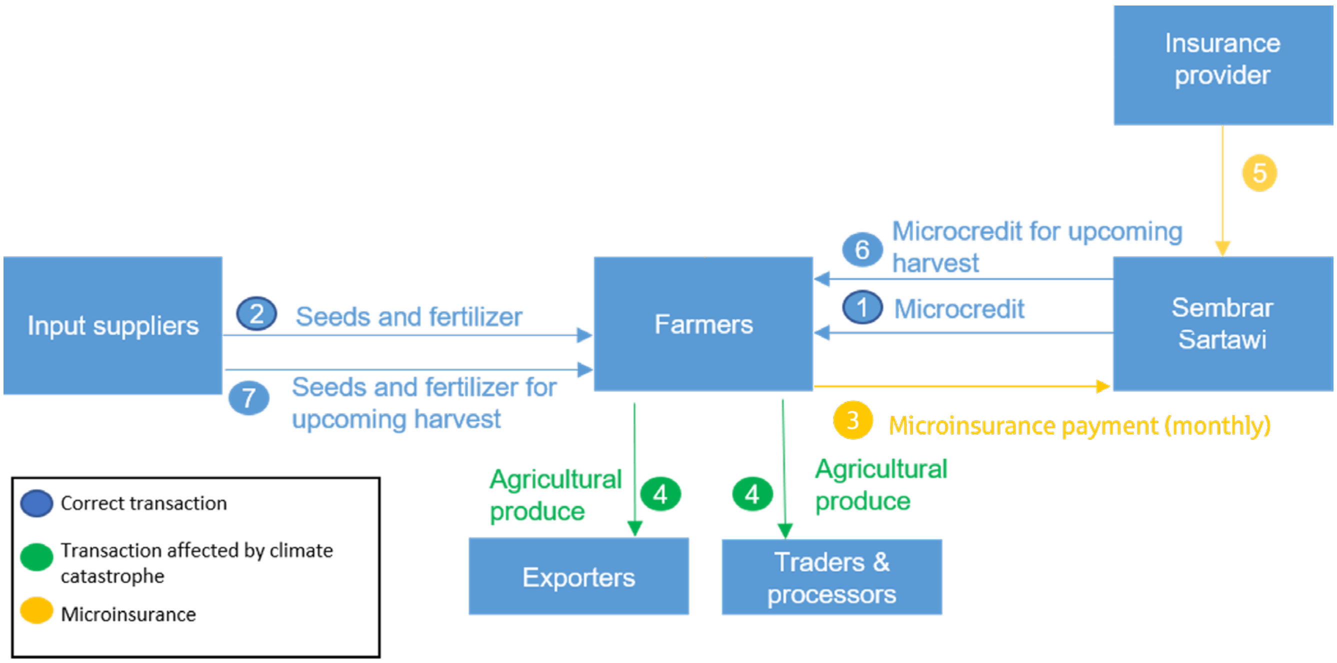

Figure 2 - Financing flows within the value chain after the implementation of the microinsurance showing how finance gaps are solved. (Own elaboration)

Spotlight on Partnerships

CREDINFORM is a Bolivian insurance provider. This institution provides the insurance to the farmers, and upon the catastrophe notice the insurance is paid directly to Sembrar Sartawi. Their cooperation features a two-hand business model in which the farmers pay the insurance premium directly to Sembrar Sartawi, who then pays the insurance company. This partnership will allow CREDINFORM to reach the rural productive sector and develop an offer of agricultural insurance.

Sudamericana acts as the insurance broker.

Spotlight on Beneficiaries

The beneficiaries of this project are 50 smallholder farmers living in rural settings with agriculture as their main source of income. They are distributed across the country and grow a diversity of crops the results of the pilot project include potato (42%), peach (22%), tomato (12%). These beneficiaries request credits to Sembrar Sartawi for growing their crops. 74% of the beneficiaries of the microinsurance were men, while 26% were female. Their crops are affected mostly by the impacts of haze and droughts.

Most of the beneficiaries of the pilot are located in the departments of La Paz, Cochabamba, Santa Cruz, Chuquisaca and Potosí.

Impacts Achieved

- The implementation of this project protects the farmers assets and revenue, therefore helping them to reduce poverty (SDG 1) while promoting decent work and economic growth (SDG 8) and reduced inequality (SDG 10). This insurance facilitates access to microfinance while assisting farmers in increasing their productivity through technical assistance, risk management and capacity building, which not only protects its income source, but also has the potential to increase its revenue.
- Positive environmental impacts are achieved by means of risk assessment and technical assistance in good environmental practices, which can increase productivity of the harvest, while ensuring the land is not exploited beyond what is sustainable (SDG 12).

Relevance to Mexico

- Sembrar Sartawi's microinsurance appeals directly to smallholder farmers, a sector predominant among Mexico's rural population, with 44% occupation in this activity (INEGI, 2014).
- Similar to the Bolivian case, Mexican farmers are highly vulnerable to the effects of climate catastrophes, which threatens their income and subsistence. According to the national agricultural survey (ENA in Spanish) the loss of harvest or animals due to climate causes was identified as the main problem in agricultural activity in almost 75% of the rural economic units (INEGI, 2017).
- A product such as Sembrar Sartawi's microinsurance represents an opportunity to increase the uptake of financial products among the rural sector, this possibility can be explored through synergies with local financial institutions such as the SOCAPs (*cajas de ahorro*), the main credit source among the rural economic units (CEDRSSA, 2019).

Good practices and lessons learned

- The integration of microinsurance with technical assistance and climate risk assessment and monitoring has the potential to improve the productivity and income of smallholder farmers while reducing their environmental impact.
- This product requires the establishment of partnerships with insurance and reinsurance companies to provide the microinsurance coverage. The involvement with local authorities is also required for the declaration of climate catastrophe.

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Overview of the initiative

UPSCALE OF A GREEN LOAN PORTFOLIO WITH RENEWABLE ENERGY AND ENERGY EFFICIENCY TECHNOLOGY

Colombia

The Green Microfinance Initiative developed at Contactar, in Pasto, Nariño (Colombia), started in 2011. As part of the first pilot of the initiative, Contactar donated 35 improved cooking stoves to rural families. One year later, in 2012, Contactar added the green loan “ConSuPlaneta”, benefitting 81 rural families. In 2013, the MFI initiated the Green Microfinance pilot program in the western Nariño regions, disbursing a total of 52 green credits (584 since 2011). The Green credit line is available on their website nowadays.

Through the Green Microfinance Initiative, Contactar created a green energy technology portfolio targeting rural families and rural SME, usually within the agricultural sector. The technologies included in the portfolio are:

- Improved Cooking Stove
- Solar coffee dryer
- Water tank
- Biodigester
- Water filter

The technologies included in Contactar’s Green portfolio, were firstly identified by the MFI based on client’s feedback and characteristics, as well as on the condition that selected technologies must not harm the environment. Additionally, the same selected technologies were assessed by external companies that provided support during some stages of the portfolio development. These technologies provided better efficiencies, security and adaptation towards climatic changes, ameliorated irrigation capacity, improved quality of harvest and reduced dependency on imported fuels (e.g. cooking gas) by shifting to locally produced biofuels.

All these combined with periodical technical assistance and capacity building for their rural clients resulted to be a good combination. Since then, rural people often approach Contactar’s loan officers to request green microcredits.

A key point of the initiative relies on Contactar’s relation with technology suppliers. In 2013, when the Green Microfinance Initiative started with the pilot, Contactar faced several issues with the suppliers. Geographical reach, number and compromise of suppliers, after-sales follow-up with clients, standardization of products and training were some of the reasons causing this supplier shortening at the beginning of the initiative. However, Contactar created an efficient organizational structure and adapted internal and external processes to create a win-win business model with technology suppliers, in which supply chains were optimized and adapted to each region. To reinforce even more the supply chain, suppliers often participated in training and technology demonstrations, which facilitated contact with potential clients.

Financial institution

Contactar: Green Microfinance Initiative

Figure 1: Image of a water basin created for irrigation in Colombia. (Source: Contactar)

Overview of the organisation

Contactar promotes sustainable agriculture practices in Colombia through farmer training and facilitated access to green products.

Contactar focuses on providing services to the rural poor. Some 83% of clients are rural and over 45% of clients are female. The MFI has a clear commitment to its double bottom line, with incentives linked to social objectives and a code of conduct and mechanisms in place to ensure a responsible treatment of clients.

In May 2012 MicroRate issued a social performance rating report assigning 4 stars (out of 5) to Contactar, grading its social performance as "Excellent".

The "Scale-up of Contactar Green Microfinance Initiative" aims at incorporating a holistic green strategy by enhancing the access to green loans for low-income households and microenterprises in southern Colombia and improving the internal capacities to commit to the integration of a triple bottom line.

ConSuPlaneta is a microloan developed by Contactar targeting those clients who are interested in acquiring more efficient and renewable technologies for both consumptive and productive use. The technologies included are five; improved cooking stoves (fixed and portable), solar crop dryers, biodigestors, water tanks and water filters.

Contactar at a Glance

- Country of operation: Colombia
- No. offices: 71
- Presence in eight departments
- No. employees: 445
- Established in 1991. Microfinance activities started in 1995.

Financial product

- Initiative name: "ConSuPlaneta"
- Also interesting:
  Green microcredit
  Agricultural microcredit

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Financial product

Contactar's green financial products aim at promoting environmentally friendly activities within its clients and borrowers. These green products implicitly aim at supporting the impact on the environment caused by productive activities, such as farming, recycling and waste management. On the other hand, the second objective of Contactar's financial product is to promote renewable energy technologies, such as photovoltaic (PV) systems, solar water heaters and biodigestors, and energy efficient technologies, such as improved cooking stoves, or efficient refrigeration systems.

In order to adapt and scale its green product, Contactar did the following:

- Elaborating a supplier profile that ensures the supplier's capability to distribute and install different technologies.
  - Profile 1: Improved cooking stoves + Water tank.
  - Profile 2: Biodigestors + Solar dryers.
- Identifying, training and validating other suppliers.
- Set up working agreements with suppliers.
- Standardize training provided to clients by suppliers and field officers.
- Organizing and standardizing after-sales services, in coordination with suppliers.
- Standardization (creation of portfolio) of the products offered by the financial product.
- Elaboration of guides and user manuals, in collaboration with suppliers, for the clients.

In regard to the microloan offered to clients for acquiring one of the technologies included within Contactar's portfolio, there are several sizes, which depend on the total amount:

Key Features	Stove	Solar Dryer	Biodigestor	Water Tanks	Water Filter
Amount (USD)	415	675	325	750	35
Term (month)	12				Cash purchase
Interest rate	27%	27%	27%	27%	na
Commission fee	4,5%	4,5%	4,5%	4,5%	na
Collateral	0,7%	0,7%	0,7%	0,7%	na

The products were promoted through three channels: 1) Social media (Facebook videos and messages); 2) Branch expos where products were displayed and promoted in the branches of the MFI and 3) Awareness raising through loan officers, as the loan officers were incentivized to become consumers/users of the respective technology, in order to get a better ownership and understanding of benefits and impact. The loan officers also received a minimal training that allowed them to explain the technology to the consumers.

A technical advisor in Energy, also made part of the staff, coordinating the green initiative, and who was able to gather feedback from consumers and discuss with suppliers for improvements.

Technologies included in Contactar's green energy technology portfolio have the following advantages for the client:

- **Improved cooking stoves**
  Lower consumption of wood, smoke eliminated through chimney, keeping the kitchen clean and the environment healthy, and improved cooking efficiency.

- **Biodigestor**
  Efficient use of the animal residual waste by producing biogas and organic fertilizer, and energy savings by decreasing the expenses in fuel.

- **Solar Crop Dryer**
  Increased efficiency in drying crops such as coffee, quinoa and fruits. Decrease in the physical labour required to process the crop. Higher crop quality.

- **Water tanks**
  Efficient method for conserving water with a long life cycle.

- **Water filters**
  Availability of clean drinking water. Easiness of handling and transportation and maintenance.

The payments were collected in two ways: 1) Through loan officers, who visit the clients weekly or monthly and 2) the clients themselves come to the branches.

Spotlight on Partnerships

The key partnership of Contactar is the network of suppliers, with which Contactar could clearly define the tasks of each supplier as well as the areas of operation, the local suppliers take care of the product's distribution. Also in collaboration with suppliers, Contactar created the training program for clients, the price of each technology and the after-sales services to be provided to clients.

Spotlight on Beneficiaries

Contactar's green credit beneficiaries live in rural populations with no access to grid electricity, nor stable and reliable water supply. They are mostly farmers or employed within the agricultural sector and, thus, have a small seasonal economy, which depends on fruits, vegetables and animals market prices (usually volatile).

Impacts Achieved

- Access to finance provided several rural communities the possibility to access a range of technology that help secure water and energy access at an individual level.
- Through renewable energy and energy efficient technologies not only beneficiaries benefit from its utilization, but also it has a positive impact on the environment as it reduces energy consumption coming from a non-renewable energy source.
- Contactar clients receive a quick and consistent after-sales service as well as monitoring visits from Contactar field staff, which assess and train the client on operational and maintenance tasks to be done to the acquired product.

Relevance to Mexico

- The case of Contactar is relevant to the Mexican context as the institution mostly focuses on rural households and farmer, or farmer groups, which is an interesting niche also in Mexico.
- Contactar's initiative shows the process of creating and scaling a Green Technology portfolio within a microfinance institution. Some key takeaways are the importance of creating a win-win situation with suppliers, an efficient supply chain, as well as being able to provide TA and training to clients.
- There are a number of technologies which potentially have great demand in Mexico, such as biodigestors, water tanks and solar dryers.
- Another relevant issue for the case of Mexico, where long distances have to be travelled to visit, control and assist rural customers, it is important to create an efficient supply chain, with suppliers for each technology assigned to different territories.

Good practices and lessons learned

- Solid business model – demonstrating the positive impact on economic efficiency, the energy and monetary savings, improved education and quality of life.
- Well-defined supply chain – involvement of all actors in the supply chain, whilst improving operational efficiency of all of them.
- Standardization of product development – A well-structured supplier and commercialization base, avoiding concentration on suppliers and/or clients.

- Clear-cut credit characteristics – transparent and clear tenors, dates, amounts, operational processes, payment, grace periods, etc.
- Clear and consistent training and incentives schemes for staff.

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Overview of the initiative

SOLAR HOME SYSTEMS MICROFINANCE PROGRAM, GRAMEEN SHAKTI

Bangladesh

7

Grameen Shakti has been implementing an electrification program throughout rural Bangladesh using solar PV technology since 1996, when it began as a non-profit organization.

Building on the demonstrations of the solar home microcredit business by non-profit pioneer's such as Grameen Shakti, the government of Bangladesh set up in 2003 a national program to provide dealer credit to households to purchase Solar Home Systems (SHS). The program was managed by the Infrastructure Development Company Ltd. (IDCOL).

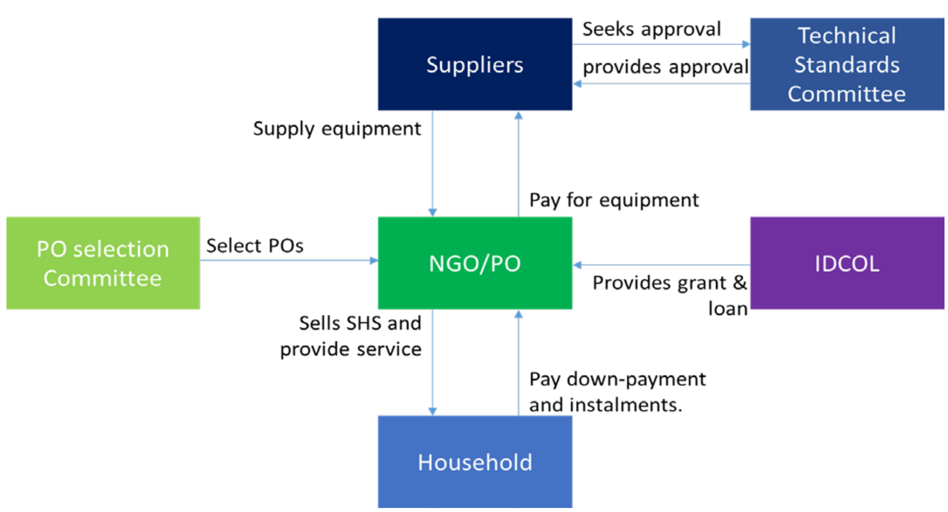
The program has set standards for equipment and provided loans, training, and support to Partner Organizations (POs), such as Grameen Shakti, which acted as equipment dealers and provided microcredit loans to individual poor households.

As a non-banking institution ICDOL was supplied with funds by the Government on the one hand, and by international donor organisations (World Bank, KfW), on the other hand. For the SHS program, IDCOL used these funds to provide loans at non-market conditions to the Partner Organisations (POs). The POs use these funds to pre-finance the required SHS provided by the suppliers and to set up affordable consumer loans for the targeted off-grid households.

This resulted in final loans to households with an 8-15 percent flat interest rate over one to five years. No collateral was required, and the repayment terms were designed so that monthly instalment payments were competitive with equivalent kerosene costs. At each step the margin on the interest rate acted as a subsidy to the cost of promoting and administering the program, such as training householders on routine maintenance and repairs.

POs competed to offer attractive credit packages which mitigate other risks. For example, Grameen Shakti offered additional warranties for a fee and will buy back the system if grid connection becomes available.

Until 2016, when it was stopped, the program had reached nearly six million beneficiaries, and received numerous prizes and awards.



Financial institution

Grameen Shakti

Solar home system distribution in rural Bangladesh. (Source: Grameen Shakti)

Overview of the organisation[1]

Grameen Shakti (Shakti meaning "energy" in Bengali) was created in 1996 as a not-for-profit company under the Grameen Bank.

The goal of Grameen Shakti is to promote and supply renewable energy technology at an affordable rate to rural households of Bangladesh. Thus, their work not only focuses on the technical and capacity-building sides of renewable energy promotion. They have also adopted the Grameen Bank's experience in microfinance to make renewable energy applications affordable for the poor rural people. In 2007, Grameen Shakti employed 1,500 field staff, and trained 1,000 engineers and 1,000 local technicians in renewable energy technology. These either work for Grameen Shakti or have started their own renewable energy business.

By 2012, Grameen Shakti had built up a network of 1,500 offices spread out across all of Bangladesh's 64 districts, reaching out to the rural areas where 70% of the country's 135 million inhabitants live. In these areas, there is no electricity grid and the population therefore often has no access to electricity. Through the village unit offices, Grameen Shakti promotes renewable energy technologies. By June 2007 Grameen Shakti had installed more than 110,000 SHS, with a total capacity of 5 MW peak, covering 30,000 villages. In November 2012, the number of beneficiaries reached 1 million. Currently, the program has nearly 6 million.

Grameen Shakti at a Glance
- Country of operation: Bangladesh
- No. of beneficiaries: 5,8 million
- Year of foundation: 1996

Financial product
- Microcredits for SHS

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[1] The information in this section is taken verbatim from: The Right Livelihood Foundation (2016). "Grameen Shakti." Available at: https://www.rightlivelihoodaward.org/laureates/grameen-shakti/

Financial product

Grameen Shakti, as the other POs, developed a number of financing schemes adapted to the client's needs and demand.

In order to introduce a certain level of competency in the market, each PO can determine the term and conditions for its financial product. According to Sarker et al. (2020: 6), among the most popular types of scheme proposed to the consumers, the following four options are at the top:

- Scheme 1: 15% is the down-payment, and the remaining 85% is 36 months' instalment payment at 8% flat interest rate service charge.
- Scheme 2: 25% is the down-payment, and the remaining 75% is a 24 months' instalment payment at 7% flat interest rate service charge.
- Scheme 3: 35% is the down-payment, and the remaining 65% is a 12 months' instalment payment at 5% flat interest rate service charge.
- Scheme 4: 6% discount on the price if 100% cash purchase.

Amongst these options, the majority of users choose Scheme 1.

Regarding the products financed, the following table provides "average package details and cost of stand-alone solar home systems" (Sarker et al., 2020: 6).

System Capacity	Package details	Back-up time	Price
20 W	- Solar panel (20 W) - Battery (15 Ah) - Solar inverter - 2-3 LED lights - Electric wiring and installation	3 – 4 hours	200 – 215 USD
30 W	- Solar panel (30 W) - Battery (30 Ah) - Solar inverter - 2-3 LED lights - Electric wiring and installation	3 – 4 hours	275 – 295 USD
40 W	- Solar panel (40 W) - Battery (40 Ah) - Solar inverter - 2-3 LED lights - Electric wiring and installation	4 – 4,5 hours	355 – 370 USD
50 W	- Solar panel (50 W) - Battery (55 Ah) - Solar inverter - 2-3 LED lights - Electric wiring and installation	4 – 5 hours	450 – 465 USD
130 W	- Solar panel (130 W) - Battery (55 Ah) - Solar inverter - 2-3 LED lights - Electric wiring and installation	4 – 5 hours	940 USD

The payments are collected through two channels: 1) Mobile money; and 2) Weekly or monthly visits from the loan officers to the villages. In case of delayed payments, the borrower is notified in several steps: 1) reminder of payment; 2) delay notification; 3) final warning; 4) repossession of the asset. The defaults on payment happen quite rarely, but when they do, the asset is repossessed, and the loan is written off after 3-6 months.

Spotlight on Partnerships

Local government support through the IDCOL program devoted to solar power. It is playing a major role in bridging the financing gap for developing medium- and large-scale infrastructure and renewable energy projects.

Assistance of Grameen Bank. Grameen Shakti has leveraged the assistance of GB to be able to appropriately design the microcredit financing scheme, which is unique, as it requires no collateral.

Spotlight on Beneficiaries

Grameen Shakti's customers are rural households and small businesses which previously relied on kerosene lamps and other carbon-based and not efficient technologies and tools. These people tend to live with very little money (less than 5 USD per day), and have irregular income patterns, usually based on agriculture crops, or some other seasonal business.

Impacts Achieved[2]

- Solar home systems also increase the use of television, radio, and mobile phones with internet, any of which can be used as a medium of entertainment as well as a collection of valuable information about the latest agricultural production process, market information, and credit facilities which develop the farm production system with income up-gradation.
- Solar home systems are considered an economically viable technology for rural people in Bangladesh. More than two-thirds of Grameen customers believe that this technology increases the probability of employment via new-income-generating activities.
- Most microenterprise owners say that solar home systems extended the business time up to 4 hours, and it brings more customers as well as more income.
- Solar home systems usually replace the kerosene lamp, which has a bad side effect on air, fires, and blasts. In comparison with a kerosene lamp, solar lighting systems are free from harmful releases with brighter lights to comfort eyes.
- Each household saves around 110 L of kerosene per year, which would produce 232 kg of CO_2 per household and year.

[2] The information in this section is retrieved from Starker et al. (2020: 11-12).

Relevance to Mexico

- In 2019, 1.8 million people Mexico lacked access to electricity from the national grid and still depended on candles and diesel lamps for lighting, which affects their health and contributes to air pollution. This segment of the population lives in marginalized communities, often in rural areas where the implementation of SHS could significantly contribute to improve the population's development and life quality by providing a reliable, clean and safe electricity source. Within this context, microfinance has the opportunity to make these solutions affordable.

- A model similar to Grameen Shakti could be applied in Mexico through the offer of SHS with flexible payment schedules that can be afforded due to the savings resulting from diesel replacement. This model has the potential to be especially successful in rural remote areas where a grid extension would not be feasible.

- Similar to Grameen Shakti, the case of Mexico features the possibility of establishing partnerships with public and private institutions. The program for development of the national electric system for the period 2018-2032 (PRODESEN in Spanish) contemplates the development of the remote non-connected rural areas through clean energy solutions. Partnerships with the Secretariat of Energy (SENER) and the Energy Saving Trust (FIDE in Spanish) could be successfully implemented, increasing the outreach and affordability of SHS.

- The case of Grameen Shakti highlights the importance of having a good reachability within the MFI and ensuring the quality of the service. This is also relevant for the case of Mexico, as the quality of service is crucial to ensure good popularity in rural communities.

- This case study also highlights the importance of having a well set-up supply chain that ensures quality of the products. Different quality assurance processes can be put in place, such as green or European labelling, among others.

- Finally, the transparency shown all over Grameen Shakti's processes made the MFI have a good relationship with its clients. This is also relevant within the Mexican context.

Good practices and lessons learned

- Its innovative financing makes the program cost-competitive with alternative energy sources.
- It offers free maintenance during the repayment period and a low-cost warranty afterwards.
- Utilization of community-based social engineers and entrepreneurs who understand rural people.
- Further integrating consumer friendly practices such as buy-back systems and removal of dead batteries and social commitment by creating jobs for local youth and specially women.
- Offering incentive programs such as scholarships for school children of SHS owners.

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Overview of the initiative

8

LONG-TERM CACAO FARM ESTABLISHMENT LOANS FOR SMALLHOLDER FARMS

The Philippines

Agronomika offers a "Farm Establishment Loan" for smallholder farmers which enables the farmers to start a new cacao farm in collaboration with Kennemer Food International. Through this loan, farmers get access to financing for all inputs and some labour services during the initial 2-3 years of gestation period of the crop and start the loan repayment in line with their harvest from the financed crops. The total loan duration is 6 years and it is fully integrated into the value chain:

- A joint assessment with Kennemer identified eligible farmers and ensures the suitability of their farm (marketing, selection and approval).
- Kennemer farm technicians work closely with the clients to order required inputs paid by the loan when needed and coach the farmers in the application of the same. This minimizes the risk of misuse of loan proceeds for unintended purposes (disbursement as supervised lending).
- Regular assessment of the farm status and the client's adoption of the recommended practices followed by shared monitoring reports function as early warning sign to Agronomika (monitoring).
- During harvest, when beans are sold to Kennemer, deductions for loan repayment are made automatically and remitted to Agronomika (repayment).

Given the complex land ownership history and structure in the Philippines, most of these farmers do not have land titles or any other assets which can be utilized as collaterals to secure the loan. Agronomika and Kennemer therefore introduced a joint risk mitigation approach in which farmers are organized in Cooperatives or Associations which support a joint liability among its farmers and members. This is combined with Kennemer providing professional farm management support to the farmer groups through which they can help manage the farms in case of (potential) default and secure crop production and with that loan repayment.

When starting their program, Agronomika and Kennemer were focusing on existing coconut farmers who would intercrop their farms with cacao. Soon the partners noticed the need for establishing a multiple crop system to create several advantages for the farmers. By adding local and indigenous crops into the system (such as different varieties of banana and abaca), farmers can generate a faster and more regular cash flow and it also helps to increase the acceptance and commitment of local farmers for whom cacao is often a new, unknown crop. Additionally, this approach of promoting multi-layered farming systems has many environmental and productivity advantages such as countering deforestation, supporting cross pollination between crops as well as cross-utilizing the crop's waste for other crops, which reduces the dependency on outside fertilizer for the farmers. Furthermore, different layered farms also help improve the health of the soil including its water storage capacity. All of these advantages help the farmer to improve his/her climate resilience and to manage sustainable and long-term farms. Compared to other crops grown in the Philippines, cacao is mostly grown by smallholder farmers and is known to be much more climate resilient than other more sensitive short term crops.

Through this program, Agronomika and Kennemer aim at increasing the income of participating smallholder farmers by around 200%. Further, this approach is beneficial to all genders: men are mostly involved during the planting and initial maintenance where hard physical work is required. Women, who are in the Philippines generally more educated than men and more involved in other income household level activities including financial management, take over during the productive stages of the trees where regular scheduled harvesting can be aligned with their other responsibilities.

Financial institution

Farm establishment loans in the Philippines, by Agronomika

Recipients of a farm establishment loan in The Philippines. (Source: Agronomika Finance)

Overview of the organisation

Agronomika Finance Corporation (AFC) is a non-bank finance company focused on financing agricultural production as well as value chain operations in the Philippines.

Agronomika started its operations in late 2016 by providing long-term cacao farm establishment loans to cacao farmers working with Kennemer Food International. Agronomika started diversifying its portfolio into other crops (including multi-crop systems around cacao but also short-term crops like corn) as well as asset and small business loans to micro and small enterprises in the agricultural and agri-related sector.

Agronomika's vision is to become the Philippines' number one finance company dedicated to agriculture production and rural enterprise financing.

Agronomika Finance at a Glance

- Country of operation: The Philippines
- Staff members: 12
- No. customers (2018):748
- No. of borrowers (2018): 672
- Start of operations: 2016

Financial product

- Farm establishment loans
- Farm productivity loans
- Short-term agri production loans
- Small business loans

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Financial product

The main target group of the farm establishment are small farmers who are organized in some form of group (e.g. cooperatives, associations). These farmers have on average 2-3 ha of land which they actively cultivate with several crops and their main household income depends on farming. These farmers often live around the poverty line while Philippines national average is 21%.

The farm establishment loan was Agronomika's first product and until now is the key product of the company. It is a 6-year long product which is designed based on the cash flow of the crop(s) to be financed. Together with Kennemer, Agronomika developed a complete "farm plan and budget" which includes all costs for inputs and labour as well as the expected productivity and with that income over 10 years for a farm (including multiple crops). Based on this budget, Agronomika and Kennemer identified those items which are most important to be financed through the loan (approximately 75% of the complete budget) and those can be provided by the farmer as equity, in the form of labour.

The selected items which are covered under the loan include labour for land preparation and planting as well as inputs and tools for the first two years or until the crop starts producing.

The disbursement follows the actual needs on the farm in order to minimize misuse of funds and also to decrease interest charges and interest will only be computed upon actual disbursement. For inputs and tools, Agronomika directly pays the respective amount directly to suppliers of these materials on behalf of the client budget for payment of labourers are directly paid on the client and/or his/her respective organization (cooperative or association).

Control and audit mechanisms are integrated in the process to assure each farmer receives the assigned inputs and budget according to his/her farm.

After the disbursement period, the loan follows a quarterly amortization schedule which is expected to be met through deduction and retention of part of the harvest revenue. Agronomika charges currently a 16% interest rate per annum (diminishing on actual outstanding amount, computed daily) which is cheaper than the rates of other financial providers (18-22%) for a similar loan.

Agronomika further includes initial soil analysis in the loan in order to allow the prescription of a customized fertilization protocol as well as the premium for crop insurance through Philippine Crop Insurance Corporation (PCIC) if such fees cannot be paid by the client upfront.

Currently all farmers with suitable farms in the areas of operation of Kennemer and Agronomika can apply for the loan. Individual farmer clusters of min 15 ha (between 3 and 20 ha per person) can avail of individual loans which must be secured by land title or other collateral. Cooperatives and associations can apply on behalf of their members if they can provide a minimum of 20 ha. Loans will still be in the name of the individual farmers with a joint liability among all group members instead of land titles as collateral.

To be eligible for a loan, farmers need to undergo both a financial and a technical appraisal; the financial appraisal, conducted by a loan officer, consists of an analysis of the farmer's credit history, farming experience, ability and willingness to grow cocoa, and other income sources. The technical appraisal, conducted by an agronomist, measure the farm's soil quality, access to water, shading or irradiation. To assure that once the loan is received the farmers become productive and can repay the loan, AFC and KFI combine joint liabilities among farmer groups, whilst Kennemer provides the professional farm management services.

The farm establishment loan is designed based on a financially sustainable business model. The key challenge remains the long gestation period of the crops and limited capacity of the farmers to pay for interest or other fees during this period. This leads to low liquidity of Agronomika in the initial years where most of the trees financed are not yet productive and with that a high dependency on outside funding for meeting operational expenses and costs.

In order to start this initiative, Agronomika was able to attract a long term loan from FMO (Dutch Entrepreneurial Development Bank) for 2m USD which can finance the first 1000 ha of establishment loans. For further expansion, Agronomika is looking for other investors. Additionally, Agronomika diversified its portfolio into other crops and value chains to improve its cash flow.

Spotlight on Partnerships

Agronomika's core partner in this initiative is Kennemer Food International. Kennemer is the largest cocoa exporter in a still small cacao sector in the Philippines and builds on the growing supply gap of cacao in the global market.

Spotlight on Beneficiaries

Typical client profile at Agronomika:

- Smallholder farmers with an average of 1-2 ha; active farmers who depend on agriculture as their main income source but are not linked in formal value chains.
- Mostly financially excluded: no bank accounts, no access to formal institutions (in rural areas only 19,5% of Filipinos have bank accounts; 35% of the municipalities do not have any banking facilities according to the Philippines central Bank (BSP)).

Impacts Achieved

- Most of the trees financed by Agronomika under this program are still in the gestation period or early harvest stage, so it is still too soon to see the impacts.
- Early uptake and expectation studies among farmers have shown that most farmers are looking for long-term solutions to avoid constant replanting of short-term crops, which often have very volatile prices and are high risk to climatic conditions. By planting new cacao trees, they expect a long-term increase of income which they will invest in their farm and businesses as well as improve education and food quality for their children.

- Farmers also expect to increase the number of workers and diversify their income through multiple crops.

Relevance to Mexico

- The interesting part of Agronomika's business model for the case of Mexico is that Agronomika tries to ensure long-term sustainability of its clients, and therefore of a big part of the local supply chain. Strengthening the supply chain of agricultural products seems to be relevant for the case of Mexico, as most of them are excluded from these formal chains.

- The approach of the product, targeting the producer, usually smallholder farmers which are financially excluded, seems to be the reality also in rural Mexico, thus very little adaptations in this regard should be done in Mexico. However, the products and later marketing has to be adapted. Ideally, a pre-sales agreement that ensures the sale of a certain percentage of the farmers' production.

Good practices and lessons learned

- Value chain integration: The key for Agronomika is to integrate its financing as much as possible into the actual agriculture value chain as this is where the production and added value for the clients happens. Joint product development and processes but also regular information and data sharing is core in its collaboration with Kennemer.

- Cash flow: An important lesson for Agronomika was that it was not sufficient to design a cash flow-based loan product, but also to include measures to fasten the cash flow (e.g. through multi-cropping) for the farmers to eliminate drop out risks due to cash flow constraints (e.g. farmers forced to take other jobs).

- Social structures: Building on existing social capital like through cooperatives and associations to improve the ownership of the communities and to be able to adjust collateral and risk management measures was another important factor. Additionally, this approach also helps in reaching relevant scale for Agronomika to become more operationally efficient.

- Flexibility: In order to be client-centric it is important to remain a certain flexibility to adjust products to changing realities in the farms (e.g. changing weather conditions leading to change in fertilization protocols, need for irrigations support, etc.).

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Overview of the initiative

BOTTOM-UP SET UP OF THE ORGANIC COTTON VALUE-CHAIN

Tanzania

This case study focuses on the rural and green financial product developed by BioRe and provided to smallholder cotton farmers in Meatu district, Tanzania.

Remei AG, a Swiss firm that produces and markets organically grown textiles, set up BioRe in Tanzania as a project in 1994 with just 45 farmers. In 2010, BioRe was already working with 2000+ cotton farmers. BioRe was converted from a project into a subsidiary of Remei AG in 2002 and in 2006 into an independent firm.

BioRe supports smallholder cotton farmers with financial services and providing training, tools, inputs and technical assistance during harvest. Specifically, BioRe contracts the farmers in September (when Meatu's cotton season starts), for a duration of up to 5 years, with the obligation of using only organic production methods. In exchange, BioRe supports the farmer with technical assistance (cultivation techniques, pest control), provides bio-pesticides and seeds, regularly trains the farmers through train-the-trainer approaches (a farmer is regularly trained on a demonstration farm and encouraged to transfer his knowledge to other farmers in the same location), supplies farmers with equipment to be used collectively (such as ox-drawn ridgers) and finally commits to acquiring the entire crop.

The farmers sow cotton in the rainy season, from November to February. BioRe's extension officers visit the farm twice a month to provide technical advice, check that the organic regulations are being followed, and estimate the expected yield. The organic certification agency also makes random inspections.

The harvest season is from May to July. The farmer stores the seed cotton at home waiting for the right price to sell. The farmer then gathers the cotton in cloth, usually 60-100 kg and takes the cotton to the BioRe village office, where it is sieved to remove sand and other foreign material, inspected for dryness and quality defects, and weighted. The farmer is then paid and goes back home.

Each BioRe village office can store up to 60 tons of seed cotton. A lorry takes the cotton to Bibiti Ginnery in a nearby town. This ginnery separates the seeds from the lint, presses the lint into tables, and transports them to the port in Dar Es Salaam. Part of the seed is kept for sowing the next season; BioRe sells the rest to mills that process it into oil and cake.

Financial institution

BioRe Tanzania Ltd: Finance to smallholder farmers in the organic cotton value chain

Farmers bringing their organic cotton to the purchasing centre of Sanga, Mwalugesha. (Source: Remei AG)

Overview of the organisation

BioRe Tanzania, created by Remei AG, started operating as an independent company in 2006. BioRe works in 15 villages within a 30 km radius of the company's head office in Mwamishali, in Meatu district. In each village BioRe has a local office with a supervisor and several extension workers, who each serve 50 farmers.

BioRe's main mission is to promote organic farming, fair trade and non-toxic textile production. The company provides environmentally sustainable solutions and practices, keeping biodiversity as the foundation for ecosystems to work productively and durably.

BioRe's operational philosophy believes that nature is being destroyed by agrochemicals and monocultures as well as massive environmental problems and deplorable social situations in cotton farming and the textile industry. By following these practices, BioRe brand stands for organic-cotton textiles and fair trade in agreement with the highest standards worldwide.

Organic farming and fair trade have a sustainable impact. Each of the measures taken by BioRe create some type of progress, for the benefit of health and the environment. Human beings see their social lives improve and their financial concerns and dependencies reduced significantly.

BioRe at a Glance

- Country of operation: Meatu district, Tanzania
- Staff members + extension officers: 66
- No. customers (YEAR): 2000+
- Start of operations: 2006 as an independent firm.

Financial product

- Financing, inputs and technical assistance for organic-cotton farmers

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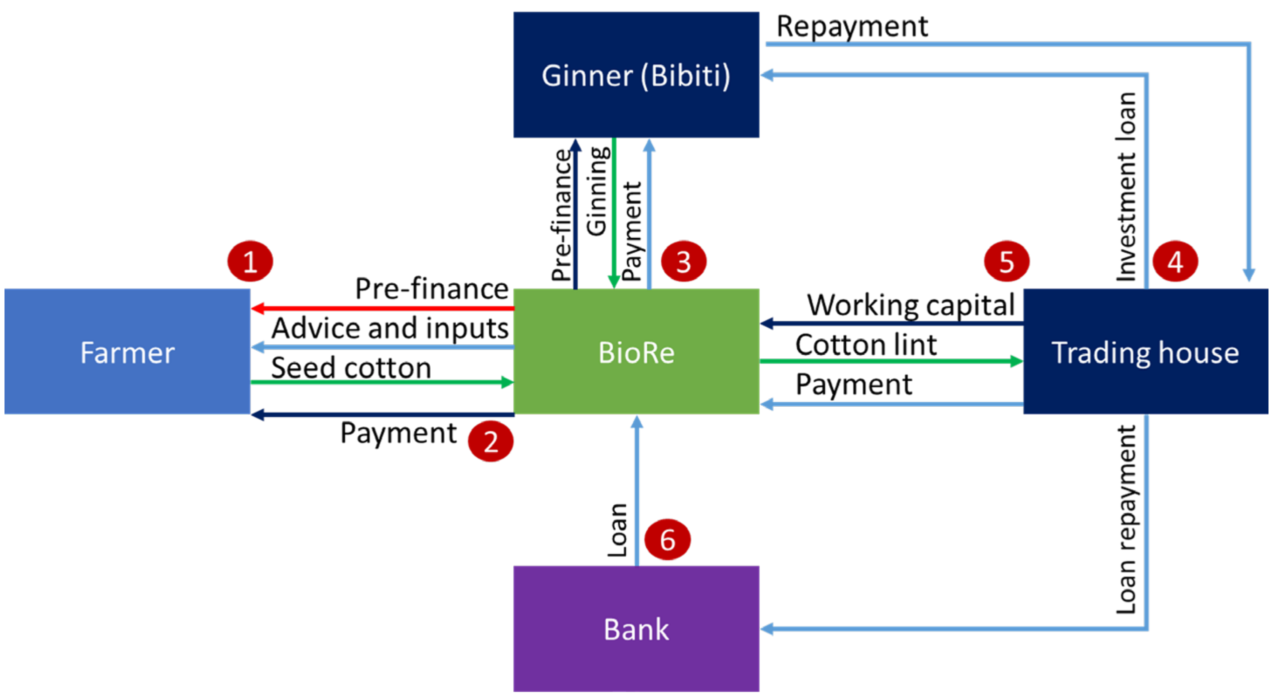
Financial product

The financial product developed and offered by BioRe targeting smallholder farmers is part of the agreement between farmers and BioRe. The product combines producer-driven finance to set up the farm, inputs in the form of bio-fertilizers, seeds, tools and equipment. Finally, advice and technical assistance are also provided, as regular follow-up visits and specific training on agricultural sustainable practices.

The financial product is renovated on a yearly basis, following the harvest and sales season of cotton, even if the contract between BioRe and the farmer usually has a duration of five years.

BioRe and Remei AG set up the supply chain for organic cotton as shown in the picture below.



During the establishment of a new farm, BioRe is wiling to pre-finance the crop through a loan at zero percent interest rate, the loan amount will differ for each farmer. The loans do not require a hard collateral from the farmers, since the loan is based on cash flow projections, rather than on securities from assets.

BioRe pre-finances the crop and pays a subsidy for each Kg of seed cotton that the farmer delivers. The payment is made into a special bank account and the farmers receive a passbook showing the funds of the account, the passbook can be used to buy seeds and bio-pesticides from the company.

The contract obliges the farmer to use only organic production methods, follow BioRe's advice and deliver the entire output to BioRe, while BioRe agrees to purchase the entire crop and provide seeds, bio-pesticides and technical assistance.

In Tanzania, the farm gate price for seed cotton is set before the harvest starts. Once it is set, the free market starts. For these reasons, farmers only sell little by little. BioRe's purchase price is an average of the prices offered by competing traders in the villages where the company operates, since the buying price needs to be public. On top of the average price, BioRe's adds a premium of 15%.

At the ground level, there are no financial institutions that serve the farmers directly; all payments are made in cash. If BioRe did not pay in cash, the farmers might sell their crop to other buyers - even at a lower price. The money is brought under police escort to BioRe's office, where it is divided among village supervisors, who take it on their motorbikes to their villages. At night they come back to the office to hand in the purchase slips.

Given the high financial burden of Remei AG, which finances its own operations, all cotton and textiles in stock in the chain and the operations of both BioRe and their Indian supplier, it became difficult for Remei AG to get enough credit to finance the entire value chain. As a consequence, a bank pre-finances the cotton operations in Tanzania, providing additional funding, and allowing for BioRe to operate independently from Remei AG. Both BioRe and Remei AG are jointly liable for the loan and Remei AG will repay it. The start of the loan period commences with the start of the cotton harvesting season and can continue until the last shipment of cotton has left Dar-es-Salam harbour.

Comparison of the income and expenses of organic and conventional cotton farmers - (USD per ha)

	Organic BioRe farmer	Conventional farmer
Income		
Sales of seed cotton	258.12	258.12
Organic premium	32.40	-
Total income	290.52	258.12
Expenses		
Seeds	5.00	5.00
Land preparation	25.00	25.00
Weeding	75.00	75.00
Harvesting	32.40	32.40
Inputs	3.13	8.00
Total cost	140.53	145.40
Input subsidy	8.10	-
Net expenses	132.43	145.50
Net earnings	158.10	112.72

Spotlight on Partnerships

BioRe has a partnership agreement with Bibiti to provide all post-harvest services, including ginning, transport and shipping. For these services, Bibiti receives a fixed fee per ton of cotton. Bibiti works exclusively for BioRe; a convenient arrangement for BioRe as it handles no other cotton, so there is no risk of contamination, guaranteeing the integrity of BioRe's organic cotton chain.

On the other side of the chain, BioRe also has a sales contract with Remei AG with fixed prices and volumes, which also includes a pre-finance of export for BioRe.

Spotlight on Beneficiaries

- All beneficiaries of BioRe's initiative are smallholder farmers from Meatu district. In Meatu, 94% of households depend on rain-fed agriculture for their livelihood. Each family has about 32 ha of land.

- Land crop is usually distributed as follows: 4-5 ha for cotton, yielding approx. 1250 USD/year, 2,5-3 ha for sorghum, maize and legumes for self-consumption and the rest of the land is left fellow for grazing.

Impacts Achieved

- BioRe created a win-win scenario for cotton farmers as well as for the trading company (Remei AG). On the one hand, BioRe's farmers had better numbers than conventional farmers and Remei AG had access to the requested amount of cotton at a competitive price.

- Environmentally-wise, sustainable agricultural practices have been adopted by farmers in order to improve soil fertility, such as change the type of fertilizers, alternate crops, etc.

- Farmers secured a sale of, at least, 80% of their total harvest, and they are paid on the spot, reducing liquidity issues.

Relevance to Mexico

- This case study provides interesting inputs regarding the set-up of a local value chain, from production to export, by putting together all necessary actors of a supply chain. This could be replicated in Mexico with different existing farming associations, and other interested organizations or companies.

- On the other hand, the creation of a farmer business plan, as presented before, is an action that will benefit the financial institution in terms of loan controlling, and can also be useful to use it to do recommendations to the farmers. As financial control in rural areas appears to be also inefficient in the case of Mexico, this strategy/tool could be replicated, adapted to the local context.

Good practices and lessons learned

- Strong relationship with the farmers and close monitoring enable BioRe to proactively tackle any issues that might come up, but also support the company in realistically forecasting expected yields.
- Multi-annual contracts for the crop which also provide technical assistance to the farmers.
- Sales contract with fixed prices and volumes with Remei AG.
- BioRe and Remei AG managed to ensure chain's liquidity, which easily facilitated operations of the different actors involved.

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Overview of the initiative

10

PAY-AS-YOU-GO (PAYGO) FINANCING OF OFF-GRID SOLAR PRODUCTS FOR HOUSEHOLDS AND SMALL BUSINESSES

Zimbabwe

Electricity access remains limited in Zimbabwe. In 2018, overall electricity access rate was 40%, with only a 20% access among the rural population. The productive sector in the country is particularly affected as it suffers from frequent and unscheduled load shedding with electricity outages that can last up to 18 hours. Zimbabweans rely on generators for electricity supply and kerosene for lighting. Generators are expensive and their utilisation is a threat to health.

Micro, Small and Medium sized Enterprises (MSMEs) require electricity for their processes. An unreliable grid connection and electricity outages disrupt their economic activities, compromising productivity, sales and revenue. In the case of households, daily life activities and wellbeing are deeply affected by the lack of electricity. A feasible solution for this problem is the purchase of solar lamps or solar home systems (SHS). However, the required upfront investment for off-grid solutions might be too difficult for the average household. Besides, the entry to the market of uncertified, low-quality products harms consumers' trust and makes their promotion more difficult.

Affordability of off-grid solar products is a challenge in the country, as several financial crises, altogether with currency devaluation have deeply affected the economy and the purchasing power of the population. Zimbabwe's informal sector includes more than 2.5 million businesses and more than 5 million employees, which represent over 80% of the working population. This sector of the population does not have access to a reliable electricity supply to develop its activities and generate income. At the same time, they do not possess enough capital to pay for solar products upfront. Pay-As-You-Go (PAYGo) business models (solar products combined with mobile money payments) provide this market segment the opportunity to gain reliable electricity access while combining a flexible repayment schedule with credit history development and lowering of the financial burden. PAYGo is a financing method that enables end-customers to finance a solar product while paying for electricity in instalments that are adapted to their financial liquidity, eliminating high upfront costs. PAYGo stimulates the repayment of the financed amount, as the devices (solar lights or SHS) are deactivated on non-repayment.

Money Mart Finance (MMF) has financed SHS using PAYGo technology since 2018, giving MMF a strong market position, with a pilot phase of 365 customers and a value of 13,000 USD, representing an average loan size of 100 USD. In its roll-out phase, sales of SHS have generated 77,475 USD from 1,300 loans disbursed. Solar loans represent 42% of MMF loan portfolio. This initiative is currently in a scale-up phase, aiming to reach 43,919 households and 1,576 microenterprises by 2023. During the scale-up phase an NGO-branch of MMF will handle the administration and logistics of the solar product, including payments, transportation, maintenance, customer care, marketing and PR.

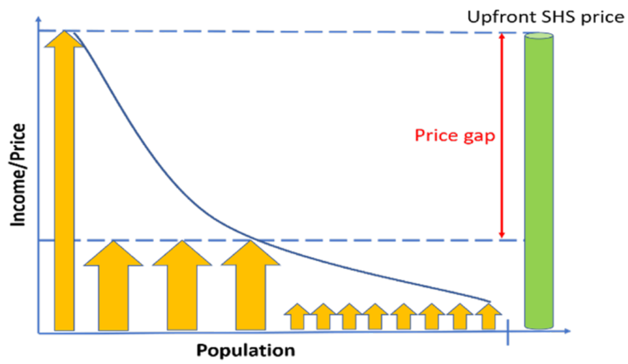

Figure 1 -Financing flows before the implementation of the PAYGo Energy Lending. (Source: Alliance for Rural Electrification)

Financial institution

MoneyMart Finance (MMF): Fighting financial exclusion of MSMEs, women and youths in Zimbabwe through unique tailor-made solutions.

Solar panel in a Zimbabwean off-grid area. (Source: AP Photo/Tsvangirayi Mukwazhi)

Overview of the organisation

- Access to electricity is still limited in Zimbabwe, light and power are required for the daily activities of households and to promote the productivity of MSMEs, solar lighting and SHS represent a solution to this problem. However, the initial investment required for these systems is too high to be paid upfront, so the uptake of these solutions requires finance.
- MMF offers microloans for the purchase of Solar Home Systems SHS with the use of PAYGo technology as a lease-to-own instrument to increase affordability through a flexible repayment schedule.
- This product has the potential to benefit micro-entrepreneurs and micro-enterprises operating in Zimbabwe's informal sector in agriculture, manufacturing, mining, commodity-broking, retail, and services.

MMF at a Glance

- Country of operation: Zimbabwe (7 branches nationwide)
- No. employees: 30
- No. customers: more than 2,000
- Year of foundation: 2014

Financial product

- Solar Home Systems Loans
- Tailored Micro-business loans

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Financial product

PAYGo Energy Lending

MMF's borrowers are situated in areas in which there is no grid connection as well as areas with a very weak grid connection. Lack of electricity or unstable connections diminish income generating opportunities for borrowers, and hence exclude them from access to financial support such as microloans or saving accounts, trapping them into a vicious circle of energy and economic poverty.

A major challenge facing the uptake of clean energy technologies is consumer financing. High up-front costs pose the biggest obstacle for rural customers. The PAYGo Energy Lending provides a highly innovative credit system that eliminates the financial barriers to access solar energy and allows customers to make regular payments and buy time units (per day, per week) for using solar electricity, by utilizing their mobile phones (via SMS or mobile money).

PAYGo allows end-customers to gain ownership of the solar systems through incremental payments; each payment made towards unlocking the solar system adds to the total cost of ownership. Additionally, by monitoring the repayment behaviour of the consumer, his or her credit history is slowly built, allowing microfinance institutions to diversify the service offering. In the case of MMF, the institution buys in bulk the solar products from national distributors and then lends them to their borrowers; at a down payment of 25% of the total price and a 6 months tenure with 5% interest per month.

In its scale up phase, in order to diversify the range of products and services, MMF will split into two separate entities: an NGO handling the distribution, awareness raising and training of customers, and the MFI itself, in charge of the lending, credit scoring and financial appraisal for its customers. As such, each entity will be able to focus on its core business, while allowing for the operational flexibility to grow. Moreover, as part of its strategy, MMF will introduce productive use appliances. For those borrowers who finished repaying their solar systems, appliances such as mobile phone charging stations, irons, small fridges, TVs, hair cutting machines will be available on a lease-to-use or lease-to-own model, enabling borrowers to generate income through the usage of electricity. The lending of appliances will be accompanied by business entrepreneurship from loan officers who will support borrowers in either diversifying existing businesses or starting new ones, and teaching them skills such as bookkeeping, customer care, marketing and business planning.

The payment collection usually takes place through mobile money. However, in the particular case of MMF, the PAYGo platform is not linked with the country's only mobile money operator due to contractual limitations. Hence, the loan officers collect the payments by visiting the clients and using their personal mobile money accounts to unlock the SHS. In case of non-payment there are several escalation steps: 1) the SHS is locked, hence no appliances can be used; 2) the borrowers receive an SMS, where they are notified that a payment should be made (minimum 1 day of electricity); 3) borrowers receive a phone call from the loan officer and are informed about the urgency of payment; 4) the SHS is collected, refurbished and allocated to a different borrower.

Visualization of financial product

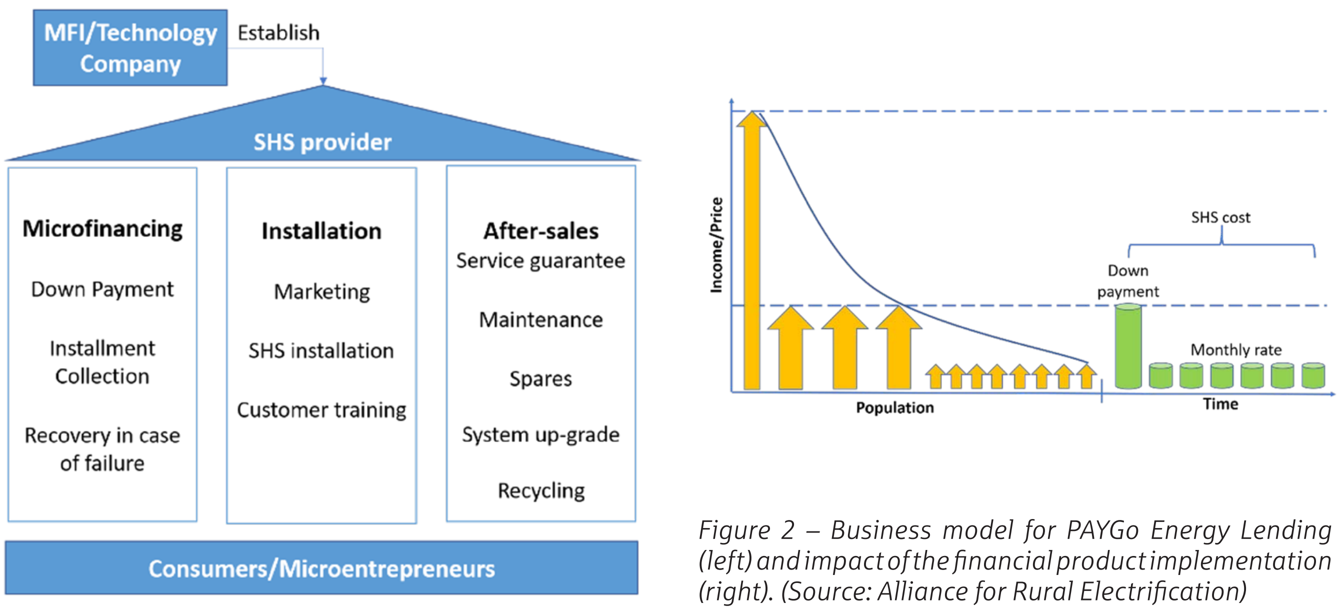

Figure 2 – Business model for PAYGo Energy Lending (left) and impact of the financial product implementation (right). (Source: Alliance for Rural Electrification)

Spotlight on Partnerships

MMF partnered with local distributors of quality approved (based on international standards) solar systems, appliances and mobile money operators. Additionally, MMF benefitted from technical assistance from the Africa Enterprise Challenge Fund (AECF) to improve its roll-out and increase its outreach within the farming sector.

MMF partnered with NGOs and other community organizations which are active in rural sending to improve its outreach to women, farmers and rural entrepreneurs; these organizations include Zimbabwe Farmers Union, EXTRA, ZWRCN and Munakiri Leaf Tobacco.

Spotlight on Beneficiaries

MMF's beneficiaries are primarily households in off-grid areas or areas with an unreliable grid connection lacking access to basic electricity services, as well as micro-entrepreneurs from different economic sectors operating mostly in high density suburbs, while others are based in peri-urban and rural areas and including productive use of energy for rural farmers in need of small-scale solar irrigation systems and rural businesses in need of solar refrigerators.

Women are the majority lenders with 54% of the solar loan portfolio, the solar loan is strongly favoured in households, with 93% of the sales, with the remaining 7% of businesses.

Impacts Achieved

This initiative promotes access to safe, sustainable, reliable, and modern solar energy (SDG 7) while promoting access to affordable credit terms which make solar-solutions affordable, access to reliable electricity will increase the productivity and revenue of MSMEs in Zimbabwe (SDG 8), reducing poverty among the population (SDG 1), besides the replacement of diesel generators and kerosene, contributes to improve the health of MMF's customers (SDG 3) and reduce carbon dioxide emissions (SDG 13).

Relevance to Mexico

- A possible solution for the farmers living in remote areas, where the national grid is either unstable or does not reach, financing solar systems and productive appliances (such as solar water pumps) in combination with mobile money can support the beneficiaries in; I) accessing cleaner, more sustainable and modern energy; II) building their credit history and unlocking access to other financial products (e.g. savings, microloans).
- Although Mexico does not have a similar mobile money penetration as Zimbabwe, a large proportion of MMF's clients also do not utilize mobile money. In such a case, MMF loan officers visit the clients and utilize their own mobile devices to activate the solar systems and collect the loan repayments.
- Strategic partnerships with farming cooperatives, NGOs and certain crop growers (in the case of Zimbabwe, tobacco) could also be considered in Mexico, as an infrastructure for awareness raising and capacity building on productive use of energy.

Good practices and lessons learned

- Beneficiaries are incentivized to repay their loans through incremental product schemes; as a loan is repaid, access to other appliances is unlocked, hence offering the beneficiaries the opportunity to diversify their energy consumption and to generate money by starting small businesses (e.g. hair cutting services, irrigation of neighbouring farms, storage of drinks and food).
- The financial institution regularly conducts demonstration sessions, capacity building and awareness raising campaigns with farming cooperatives and unions, crop growers and NGOs. Such institutions have the ability to further pass on to and to aggregate for their members the knowledge acquired.
- When promoting its products and services, the financial institution targets women as they are the main beneficiaries of the solar products and the appliances. Their household chores and opportunity cost with gathering traditional fuel are heavily reduced.

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