



MICROFINANCE SECTOR STUDY

Advances and challenges of green financing in
Central America and the Caribbean

Sector Analysis No. 7 / December 2021



Presentation



The following document is part of the series “Sectorial Studies of Microfinance in Central America and the Caribbean”, an initiative created by the Central American and Caribbean Microfinance Network (REDCAMIF), with the purpose of highlighting the state of progress and challenges of the microfinance and inclusive finance sector in the region. The document is part of the joint effort that REDCAMIF and Appui au développement autonome (ADA) have undertaken over the last 10 years promoting financial and social inclusion of micro and small entrepreneurs and particularly the advancing of green finance in the region, especially in a context where micro,

small and medium enterprises (MSMEs) and microfinance institutions (MFIs) are increasingly vulnerable to the effects and impacts of climate change and the degradation of natural resources.

The study carries on the effort of promoting green finance by capitalizing on relevant experiences in the region, identifying ways of scaling up green finance, and analyzing the limitations and opportunities of green finance in the microfinance sector.

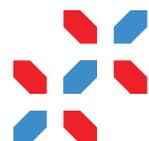
The survey methodology allowed the collection of information from a representative sample of the microfinance sector having implemented the approach in the region.

REDCAMIF thanks Appui au développement autonome ADA and the Ministry of Foreign and European Affairs, Directorate for Cooperation for Development and Humanitarian Action of the Grand Duchy of Luxembourg for the cooperation provided for the preparation of this study.

With the support of:



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Acronyms

ADA: Appui au Développement Autonome

CABEI: Central American Bank for Economic Integration

ECLAC: Economic Commission for Latin America and the Caribbean

CAR: Portfolio at Risk

ENSO: El Niño Southern Oscillation

FDL: Financiera Fondo de Desarrollo Local

GHG: Greenhouse Gases

MFIs: Microfinance Institutions

MSMEs: Micro, Small and Medium-Sized Enterprises

NGO: Non-Governmental Organization

GDP: Gross Domestic Product

REDCAMIF: Central American and Caribbean Microfinance Network

I. Introduction

Central America is one of the most vulnerable regions of the world to the effects and impacts of climate change, which translates mainly into extreme periods of drought and shorter but more intense rainy seasons. It is estimated that at least 60% of the population of Central America and the Caribbean is exposed to some kind of climate risk, with the populations living in dry areas and in the Caribbean coast being the most exposed. We have witnessed in the last decade how the increase in natural phenomena (droughts, floods, hurricanes) has affected the life cycle of the region's low-income families.



This vulnerability to climate risks is intrinsically related to the management of natural resources, which in turn is worsened by structural difficulties in accessing

capital and assets to reinforce the productive capacities and resilience of millions of micro and small family businesses. To this end, it is important to provide adequate financial resources and technical support in order to reinforce management capabilities, improve productive capacities and the use of suitable technologies to increase productivity and the sustainable use of available resources.

The inclusive finance sector, specifically the microfinance institutions affiliated to the National Networks that make up REDCAMIF, have promoted actions aimed at incorporating a green approach in their internal operations and in the delivery of products and services to promote appropriate environmental practices in MSME businesses.

The following study aims at compiling and disseminating the current state of the financing of green initiatives that small and medium entrepreneurs are implementing. At the same time, it highlights successful experiences of MFIs in Central America and the Caribbean having adopted a green approach, and how this has helped to improve the resilience of client families, mainly rural.



The document is divided in three parts: the first one outlines the context of the region and how climate change is affecting it; the second one describes the findings obtained from a consultation process carried out with different MFIs in the region having directly or indirectly undertaken environmental initiatives; the third one outlines the experience of four institutions that are implementing green financial products in their service portfolios.

Both the survey results and case studies show how the microfinance sector plays an active role in the transformation of MSME businesses through sustainable approaches. The financing experiences go beyond the mere supply of credit and adopt the finance-plus approach incorporating technical assistance for productive and technical improvement. This includes establishing alliances or partnerships with appropriate actors to help incorporate new knowledge and implement techniques and practices best suited for productive and business processes. Furthermore, personnel capacity building at every level and institutional commitment are key to the promotion of any green initiative.





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Biophysical Conditions of Climate Change

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The Central American isthmus has unique climatic characteristics as it links the two great continental masses of North and South America, and is also a “point of tropical climatic change due to its location between two main bodies of water: the Pacific Ocean and the Caribbean Sea” (Andrade et. al. 2021:2). The geography of the Isthmus combines low altitude zones, and sea-level areas with mountain ranges (Lazo. 2020). The predominant climate in the region is known as dry tropical winter with intense rainfall in the rainy season (idem). In the Caribbean the climate is categorized as tropical dry winter with rainfall occurring in bimodal seasonal patterns: early in the year in April-June and later in August-November (idem).



Over the last four decades, Central America and the Caribbean have experienced high climatic variability that reflects mainly in rainfall patterns and increased temperatures. A strong reduction in precipitation levels is observed in the Western region of the Isthmus, with a relevant difference between precipitation levels in the Pacific region and the Caribbean region are mainly due to geographical and wind conditions (CCAD and SICA. 2019). “Climate variability in Central America and the Caribbean translates into the occurrence of droughts and floods caused by tropical storms or hurricanes” (CCAD and SICA. 2019:36). The Dominican Republic specifically faces rising sea levels affecting food production and energy production.



the 21st century, a slight decrease in average annual precipitation levels is expected throughout the entire region. However, this depends on the specific geographic zone; for instance, the Caribbean areas are expected to be the most affected. Simulations show pessimistic scenarios where rainfall periods will be significantly reduced in the months of May and June, with an increase in heat wave periods, and where the months of October and November will have the highest rainfall intensity (ECLAC, 2012). At the same time, an increase in the frequency of hurricanes and cyclones is forecast: "Tropical cyclones are among the most important causes of disasters in this region, with direct impact on different agricultural sectors and on the population" (Velázquez, et. al. 2021:12).



Rainfall forecasts show an increase in drought periods, which will be more severe. One factor contributing to drought in the region is the El Niño Southern Oscillation (ENSO) phenomenon in the Pacific Ocean, which is increasingly frequent and shows a positive correlation with reduced precipitation levels and increased temperatures (Andrade, et. al. 2021). The El Niño phenomenon has a stronger impact on the Central American Dry Corridor, which is a strip of land extending across the Pacific and Central regions. Rainfall periods are reduced to just about 4 months in an unstable pattern with precipitation levels between 800 to 1,200 millimeters. In addition, it is necessary to take into account the increase of arid zones in Central America (IPCC. 2021). It is estimated that the cost of increased hurricanes and droughts will represent up to 15% of the region's gross domestic product.



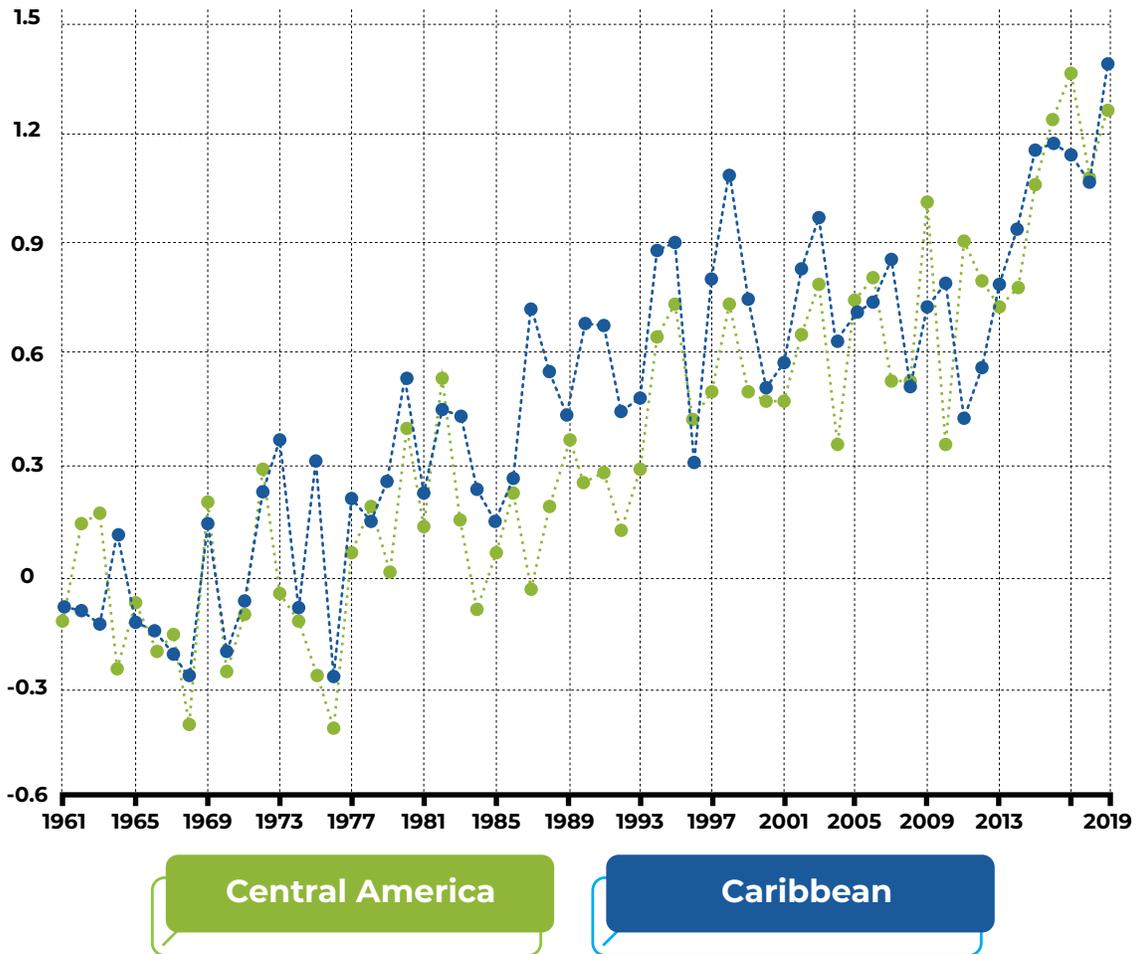
ECLAC forecasts point to a gradual but steady reduction of 32% of the region's forest cover, combined with a 50% increase in agricultural areas and a 401% growth of urban areas (ECLAC. 2012), plus a 25% to 50% reduction in rainfall and freshwater availability (Idem. 2012).



The various models that have been made show a sustained and increasing trend of the average monthly temperature in the region. These scenarios range from optimistic forecasts of increases of 0.5 Celsius to more pessimistic scenarios where the average increase is 4.73 degrees Celsius for the year 2100 (ECLAC.2012). In addition to this, the intensity varies according to the geographical zone (sea level, lowlands or mountainous). The following graph shows the evolution of average annual temperature variations for the region.

Environmental/Physical conditions/Atmosphere, climate and meteorological conditions

Average temperature variation
degrees Celsius

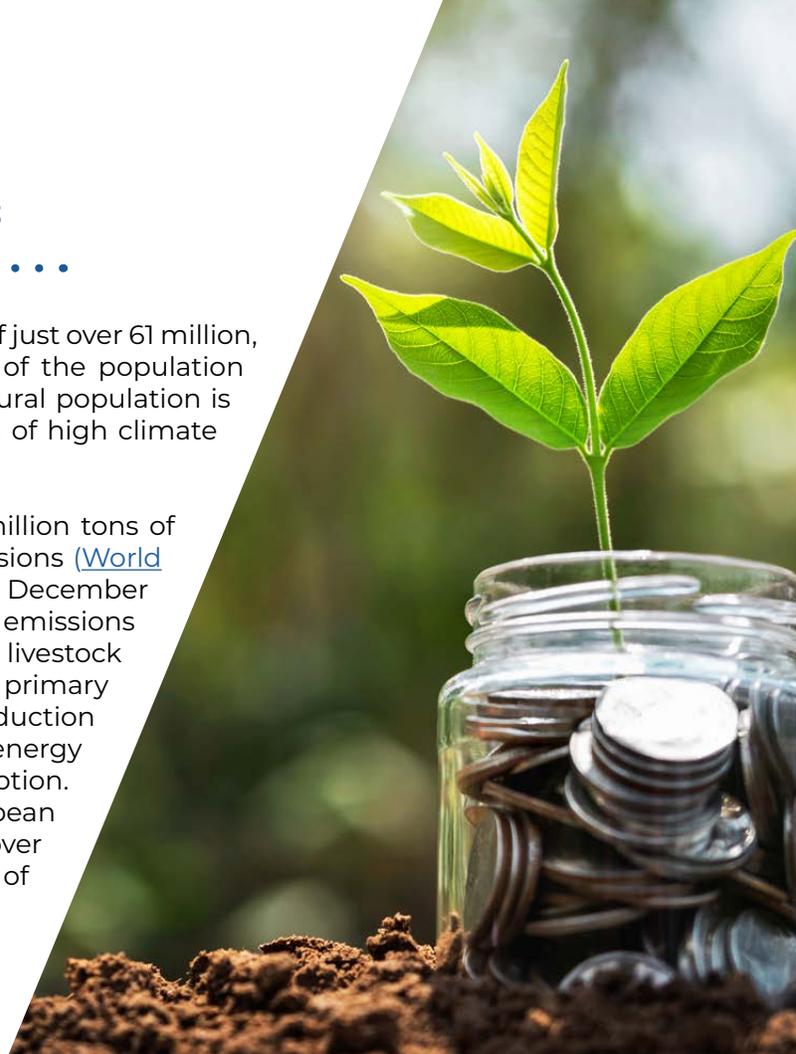


Source CEPALSTAT- ECLAC UNITED NATIONS

Socioeconomic Implications

Central America and the Caribbean have a population of just over 61 million, of which 50.6% are women. It is estimated that 32% of the population survives on less than US\$5.5 per day, and 50% of the rural population is deemed to be poor. The region is considered “an area of high climate change impact” (Jimenez. 33).

The countries of the region contribute just over 162 million tons of GHGs annually, equivalent to 0.53% of worldwide emissions ([World Bank Open Data | Data](#)), according to last update of December 2021. The economic sectors producing the most GHG emissions are: agriculture (use of fire for crop preparation, livestock methane emissions); land use change (substitution of primary and secondary forest by agricultural and livestock production activities), energy (use of oil and derivatives for energy production, transportation), and firewood consumption. At the same time, Central America and the Caribbean represent 12% of the world’s biodiversity with a forest cover in relation to territory much higher than the average of Latin American countries (Bamaca and Miotello. 2018).



In this scenario, the increase in temperatures and the reduction in water availability have direct effects on agricultural production yields, crops such as basic grains, or exportable crops such as sugar cane, bananas and coffee, which are highly sensitive to climate variability, affecting food security and stability of rural employment.

On the other hand, in terms of health, an increase in respiratory and pulmonary diseases is expected, as well as an increase in pathogens and vectors with the capacity to reproduce in dry climates. These implications generate greater pressure on social investment and spending.

In the worst-case scenario, the economic cost of climate change impact on agricultural production, biodiversity, access to drinking water, and the increase in extreme weather events, could represent 32% of Central America’s GDP.

In this context, the **strategies identified** by micro and small entrepreneurs and producers to cope with the effects and impacts of climate change include diversification of income via non-agricultural activities, diversification of crops or implementation of new crops or varieties more resilient to climate change, maintaining emergency funds (savings) in case of natural disasters, national, intra- and extra-regional migration, among others.



However, in many cases these strategies are of a stop-gap or palliative nature and do not bring about the resilience required to adequately cope with climate change. These strategies can be improved with appropriate risk and vulnerability management through capacity building, training, and provision of financial services to implement adequate infrastructure and creating productive assets that increase yields, reduce costs and generate the surpluses required to improve quality of life. This is where green finance has a role to play.





Approaches to green finance in Central America and the Caribbean

There is no single definition of green finance. However, based on the review of various sources it is possible to define it as the financing of any private or public sector initiative, through various financial instruments for the implementation, development, and support of projects and initiatives with positive impact on the environment and the sustainability of businesses being financed. This includes among others: use and promotion of renewable energy sources, promotion of energy efficiency, sustainable management of water resources, sound practices and investments for climate change adaptation and mitigation. Therefore, green finance is considered as a set of financial products and services aiming at improving and supporting the environmental condition of micro, small and medium entrepreneurs, through the financing of more sustainable and environmentally friendly practices related to climate change adaptation and mitigation (Lindenberg. 2014; Rosseto. 2017; www.unep.org).

Data available in MIFIndex² as of June 2021, show that 27 Microfinance Institutions are financing green products —22% of the total number of institutions reporting to MIFIndex— with a portfolio of USD 155 million and 80,515 clients, making up 6% of the total portfolio and number of clients in the region.

Table 1

Green Financing in Microfinance Institutions Data as of June 2021

ACTIVITY	PORTFOLIO AMOUNT (USD)	NUMBER OF CUSTOMERS	AVERAGE AMOUNT (USD)
Good Agricultural Practices	117,943,179	66,926	1,762
Others	34,170,990	12,117	2,820
Energy Efficiency	2,054,231	506	4,060
Water and Sanitation	819,417	929	882
Water Resources Management	52,315	37	1,414
TOTAL	155,040,131	80,515	1,926

Source: MIFIndex

² MIFIndex is the platform containing the information system of microfinance markets in Central America and the Caribbean. It is a unique and comprehensive platform with a collection of historical information and frequently updated to improve the analysis, reporting, decision making and bargaining power of microfinance operators and stakeholders. For more information, please see <https://www.mifindex.org/portada.aspx>.



In order to validate what microfinance institutions are doing to adopt the green approach, REDCAMIF conducted a survey in November 2021 with a sample of 30 microfinance institutions in the region, selected from MFIs reporting to MIFIndex and currently financing green products. Also included in this survey were MFIs that ADA and REDCAMIF have supported in the design and implementation of green products. The survey was responded by 26 institutions and it was complemented by interviews conducted in some cases with executive directors, general managers, credit managers or project managers. The geographical distribution of the microfinance institutions was as follows:

Table 2.

Distribution by country of participating Microfinance Institutions in Green Finance sectoral study

COUNTRY	MFI	GEOGRAPHICAL DISTRIBUTION
Costa Rica	2	8%
El Salvador	4	15%
Guatemala	4	15%
Honduras	4	15%
Nicaragua	2	8%
Panamá	4	15%
Dominican Republic	6	23%
TOTAL	26	100%

Source: Own calculations based on the green finance sectoral study survey. November 2021.

The survey was structured in two sections: the **first one** analyzes the institutional strategy to find out whether the MFI has incorporated green concepts in its strategic plans, if it has an environmental policy in place, what are the environmental risks the MFI and its clients face; as to the staff, the survey inquires whether it has been trained in environmental issues; the second section focuses on financing to find out if the polled MFI has green financial products, what type of practice or technology it finances, the financing terms and conditions and sources of funding.



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Strategy: promotion of the green concept

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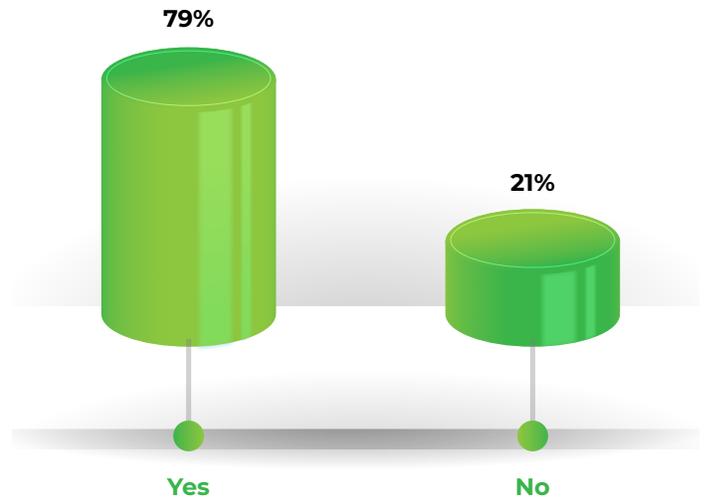
Business strategy

The first finding is that 79% of the 26 MFIs participating in the survey already include the green concept in their business strategy. This represents a remarkable finding taking into account that even if a large majority of Microfinance Institutions were born as microcredit programs within non-governmental organizations (NGOs) with a clear development focus, very few of them embrace the environmental or green concept at their strategic and operational level.

One way of translating the green concept into practice is through the creation and implementation of an environmental policy, serving as a guideline for the operationalization of the green concept, and providing coherence to the actions carried out by the institution, both at the internal management level and at client level. Graph 2 shows that 52% of the surveyed institutions have an environmental policy.

Graph 1

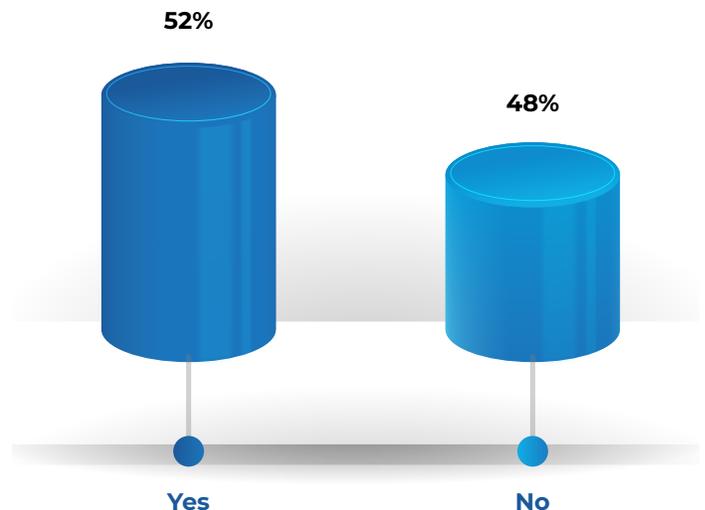
Does the current strategic plan incorporate green/environmental concepts?



Source: Own calculations based on the green finance sectorial study survey. November 2021.

Graph 2

Does your institution have an environmental policy?

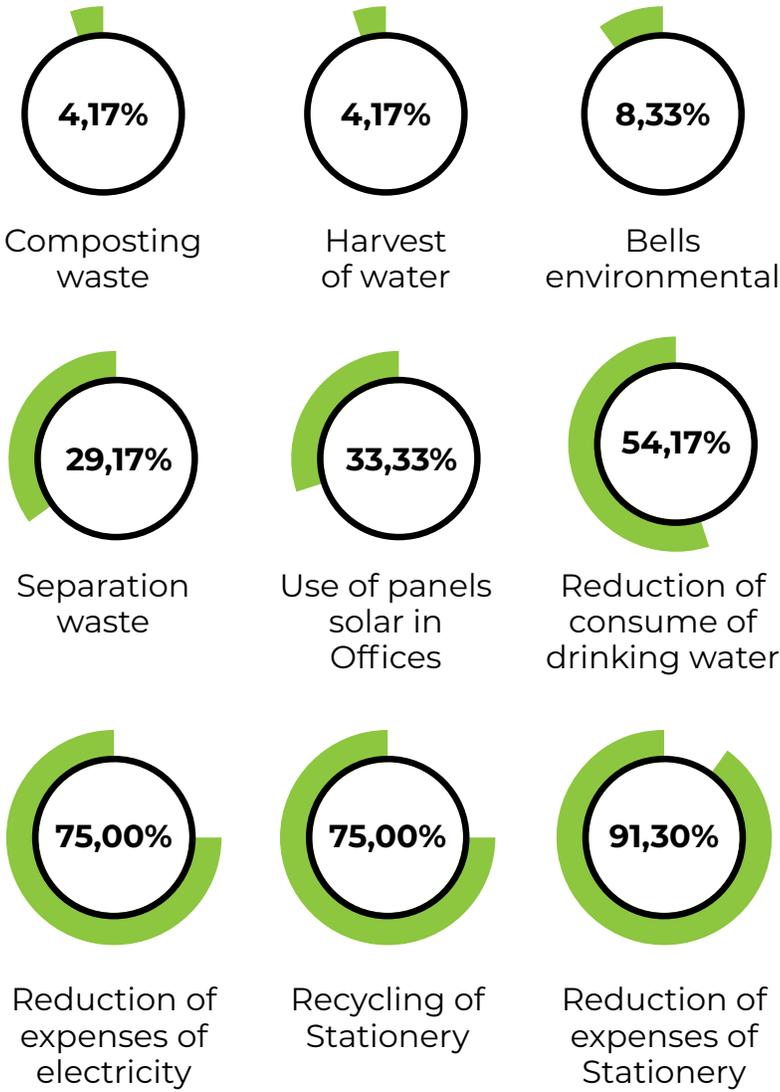


Source: Own calculations based on the green finance sectorial study survey. November 2021.

Graph 3

Regarding the type of environmental practices that microfinance institutions are implementing internally, the most common have to do with reducing and recycling stationery and reducing electricity consumption. Even if these are quick win actions to implement, they have immediate effect on the MFIs' costs and on the efficient management of resources in the office. There is also a variety of other internal actions such as reducing the consumption of drinking water, using solar panels and sorting waste that call for a strong initial investment that is compensated in the medium term. The graph below shows the frequency of implementation of the main environmental practices in the Microfinance Institutions surveyed.

Environmental Practices implemented within the companies. Microfinance Institutions



Source: Own calculations based on the green finance sectorial study survey. November 2021

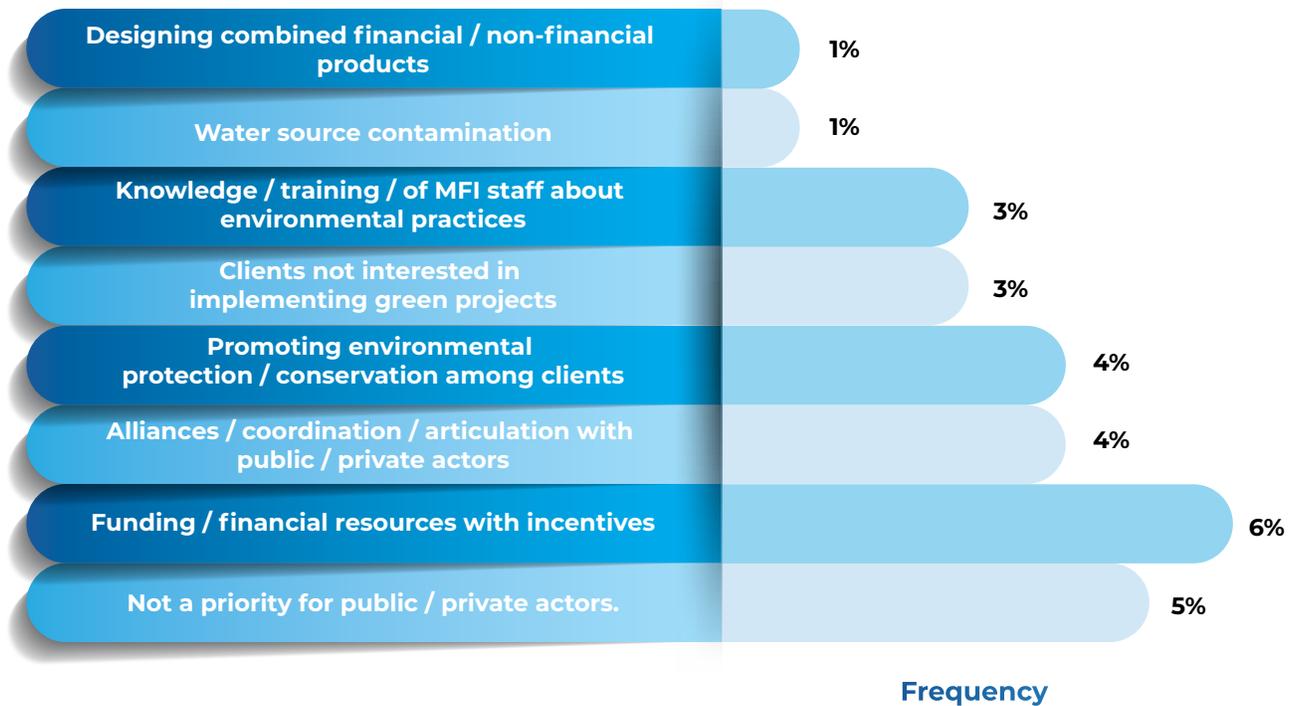




The challenges faced by MFIs in implementing the green concept in their business strategy are broad and diverse, but six MFIs mentioned that the main challenge is obtaining financial resources adapted to a green financial offering. Five MFIs indicate that the green issue is not a priority in the agenda of private and public stakeholders, and that this is related to the difficulty in developing alliances around these issues and identifying incentives at country level to support initiatives developed by MFIs. Finally, four MFIs point out that these types of initiatives require convincing clients about conservation and environmental education issues.

Graph 4

Challenges in implementing a Green Agenda



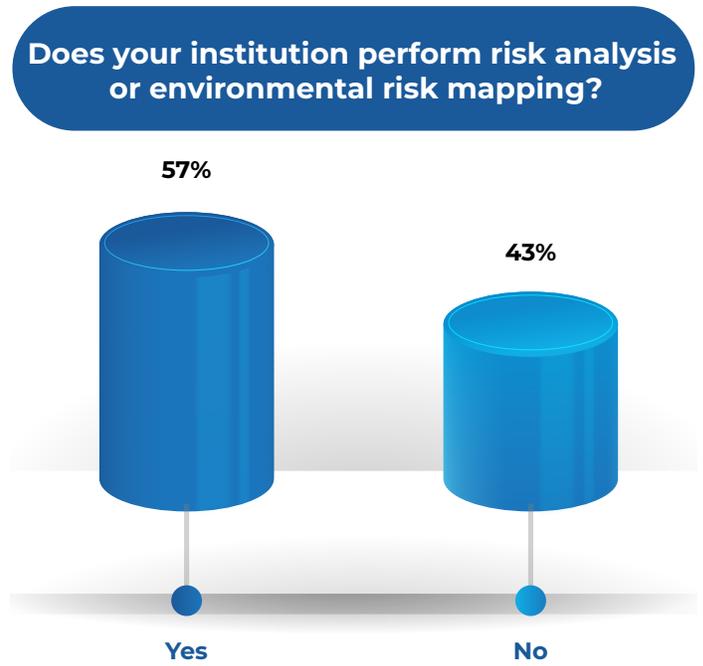
Source: Own calculations based on the green finance sectorial study survey. November 2021.



Environmental risk management

The survey also highlights that an important group of Microfinance Institutions have incorporated environmental risk management and mapping in their internal analysis. Fifty-seven percent of the Microfinance Institutions surveyed already carry out this type of practice in their internal analysis; this may be due to the mapping of the geographical areas of intervention, the vulnerability of current and potential clients, the risk of financing according to climate trends and their effect on the items being financed, among others. One possible justification for this change is the growing difficulty clients (mainly rural) face to repay their loans, due to the direct effects of extreme weather which affects yields and therefore income. However, it is noteworthy that a sizable proportion of MFIs still fail to include environmental risks in their environmental analysis processes.

Figure 5



Source: Own calculations based on the green finance sectorial study survey. November 2021.

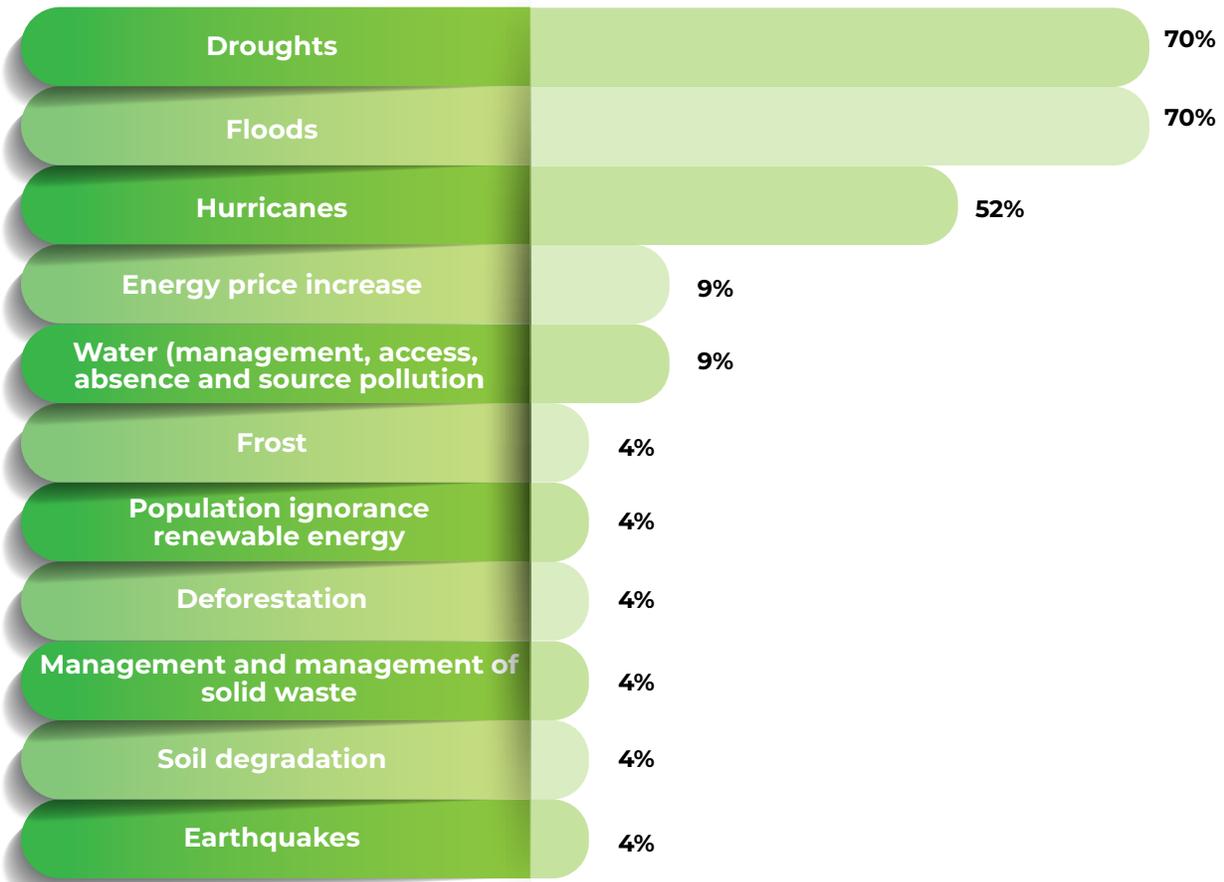


The main environmental risks in the survey

When asked about the main environmental risks that MFIs are currently facing, droughts and floods stand out (both with 70%), followed by hurricanes with 52% of answers, and 9% citing higher energy prices and issues related to access to and use of drinking water. It should be noted that volcanic eruptions were included in the survey, but were not identified as a risk by respondents. The effects that these environmental risks have on the MFIs are mainly reflected in the portfolio via the repayment of loans, but there are also effects on the infrastructure of offices, both at communication and physical infrastructure level, and the personnel is also affected, both in their homes and at the family level with the occurrence of natural phenomena.

Figure 6

Main environmental risks faced by institutions



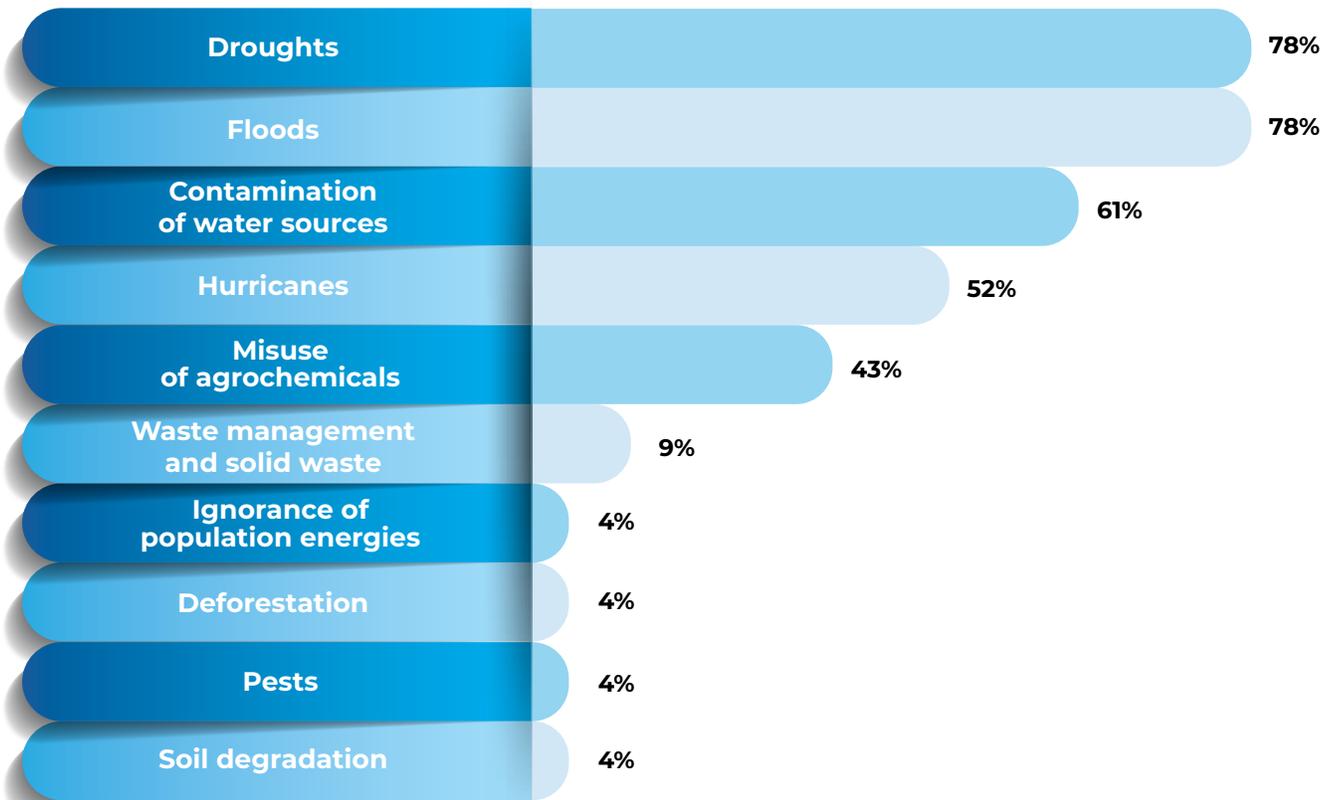
Source: Own calculations based on the green finance sectorial study survey . November 2021.



When asked about the environmental risks affecting their clients (MSMEs), 78% of the Microfinance Institutions surveyed agree again on droughts and floods as being the main risks. It is striking to see contamination of water sources in third place, affecting the availability of water for human consumption and animal and vegetable production. To some extent, poor management of water resources is recognized as a cause, and its effects are already observable in communities where microfinance institutions operate. In fourth place came the hurricanes, and in fifth place it was the inadequate use of agrochemicals with 43% of mentions. Deforestation and soil degradation are rarely mentioned by respondents, given the importance given to the preservation and management of forest resources in ecosystems and the preservation of biodiversity, which is the basis for small and medium-scale agricultural production. These environmental risks mainly affect the clients' productive capacity, leaving the soil unusable for long periods of time.

Figure 7

Environmental risks faced by customers (MSMEs)

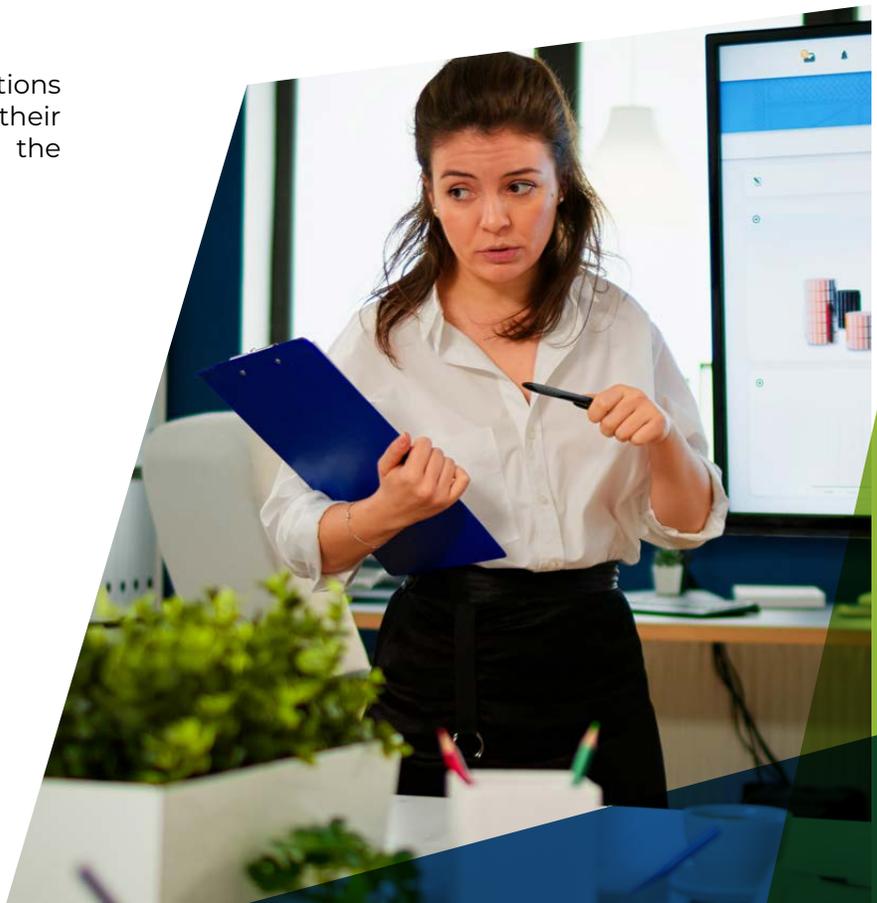


Source: Own calculations based on the green finance sectorial study survey, November 2021.

Staff training

74% of the Microfinance Institutions surveyed state that they have trained their personnel on environmental issues, the training topics are the following:

- Climate change
- Green financial products
- Recycling
- Risk management
- Water and sanitation
- Renewable energies
- Waste management
- Agricultural practices
- Pesticide use
- Carbon footprint
- Climate-smart agriculture, energy saving, reforestation, environmental education, MEBA, composting.



Financing: green initiatives for micro and small entrepreneurs

Uses of green finance

81% of the MFIs surveyed stated that their institution has included green financial products in their portfolio, based on geographical criteria, prioritized economic activities, knowledge of the practice or technology, among other factors. The main items being financed are solar panels mentioned by 10 MFIs; in second place are agricultural production management, irrigation systems and biodigesters mentioned by 7 MFIs; in third place, the establishment of water reservoirs and forest management activities mentioned by 6 MFIs.

Table 3.

Green financial product applications

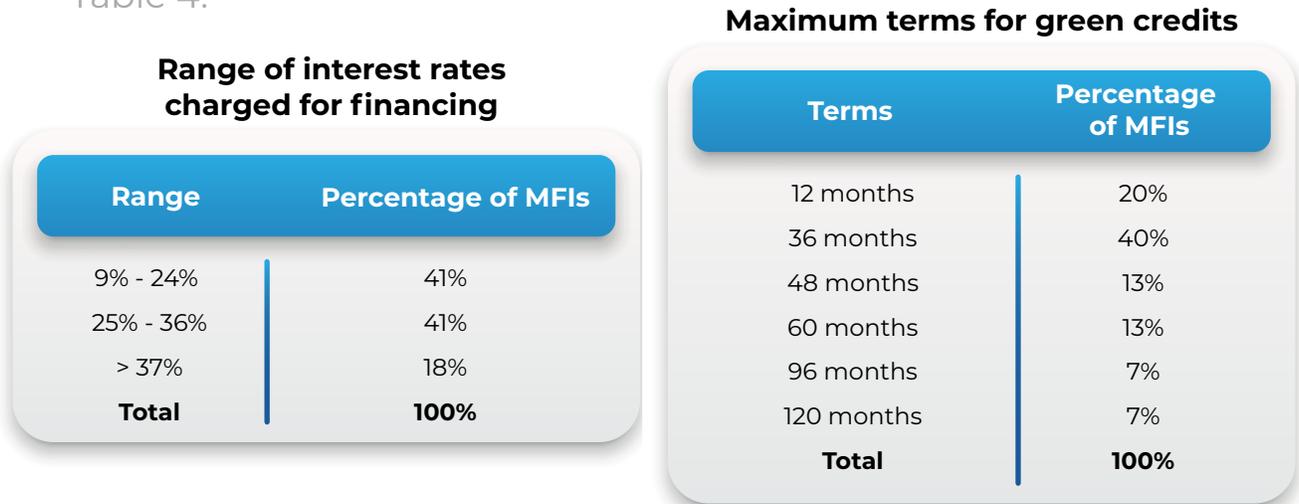
Items	No. of MFIs financing each item
Solar panels	10
Conservation agriculture / crop rotation / crop diversification	7
Irrigation / fertigation / efficient irrigation / drip irrigation systems	7
Biodigesters	7
Water harvesting / reservoirs	6
Forest management / reforestation of native species / live fences / windbreaks	6
Greenhouses / net houses / protected agriculture	5
Water management / sanitation / rainwater management	5
Soil management / agricultural terraces	5
Agriculture/forestry/grazing systems	4
Efficient cooking / refrigeration equipment	4
Organic agriculture / fertilizers	4
Solar heaters	3
Energy efficiency	3
Construction of water basins / tanks	2
Pesticide management	2
Fodder banks / improved pasture	2
Organic bananas	1
Ecological benefits of coffee	1
Sustainable cocoa production	1
Sustainable production macadamia	1
Seed banks	1
Solar pumps	1
Electric fences for apartments	1
Toilet construction	1
Solar dehydrators	1
Septic tanks	1
Tedding and haymaking	1
Waste management	1
Herd genetic improvement	1
Electric mobility	1
Siloing practices	1
Sustainable housing	1

Source: Own calculations based on the green finance sectorial study survey. November 2021.

Financing terms and conditions

Just like the uses of green financing, the terms and conditions are also diverse and depend on MFI priorities and the context of each country. The most frequent responses concerning interest rates fall between 9% and 36%, and amounts range between 1,000 and 5,000 USD.

Table 4.

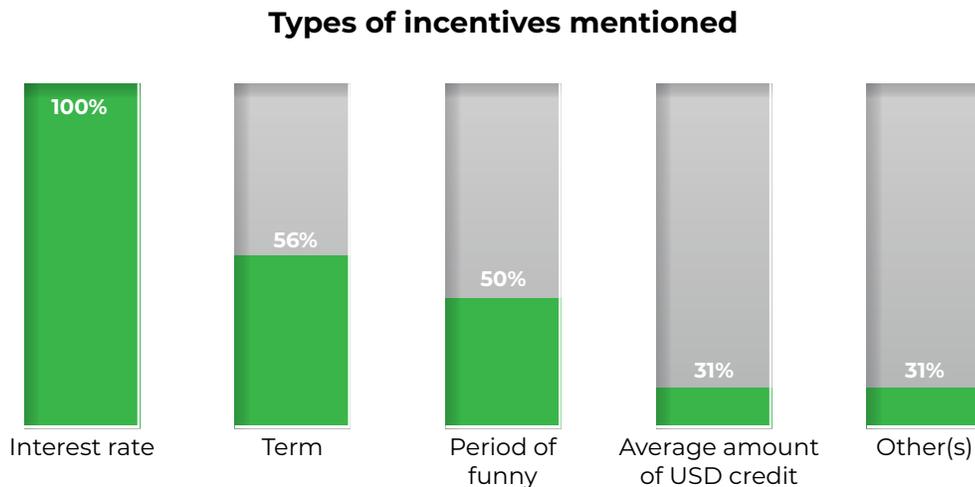


Source: Own calculations based on the green finance sectorial study survey. November 2021.

Incentives

It is important to highlight that terms and conditions of green financial products differ from the rest of the products MFIs have in their portfolio because of the incentives being offered. In fact, all MFIs include incentives in the credit terms and conditions to encourage the use of these products and to make them different from the rest of their financial offering. The incentive most frequently used by MFIs are lower interest rates, ranging from 9% to 18% per annum in comparison to interest rates for similar economic activities. Other incentives are longer terms and the granting of grace periods.

Figure 8.



Source: Own calculations based on the green finance sectorial study survey. November 2021.

Non-financial services

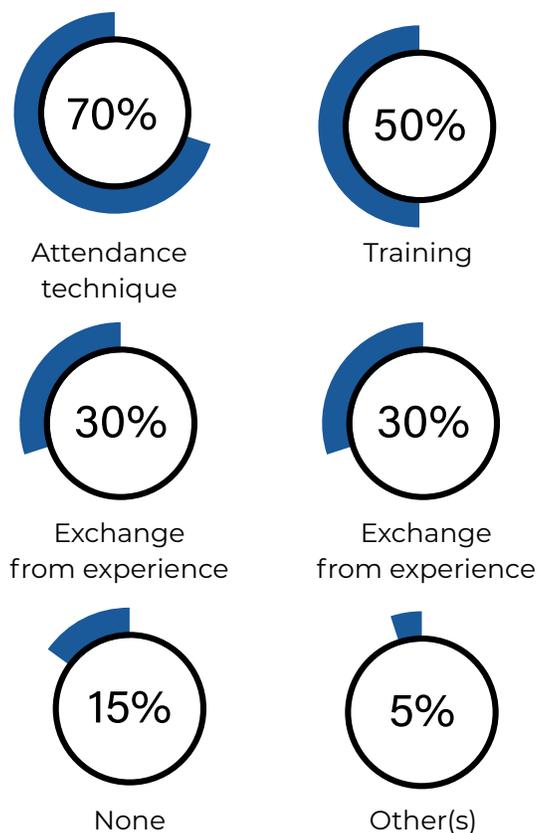
Green finance belongs to the conceptual framework of so-called Finance Plus, which goes beyond the provision of credit to include non-financial services. Microfinance Institutions that are implementing green finance are aware that credit alone is not a game changer and that additional efforts are required in training, coaching and technical assistance to MSMEs, mainly because in most cases these types of investment are new to clients.

The majority of MFIs surveyed provide some kind of non-financial service as a complement to green finance, 70% of MFIs provide technical assistance that includes training and direct monitoring of the implementation of some environmental practices, 50% offer training on various topics such as climate and phenological information, nature-based adaptation solutions, financial education and business management skills, 30% share experiences through visits to clients or model farms and 30% provide training on best practices not including the monitoring of implementation; see Figure 9.

The provision of non-financial services to clients may be performed directly by the microfinance institution having specialized technical staff, a partnership with technical assistance providers or with development agencies working in the institution's area of influence.

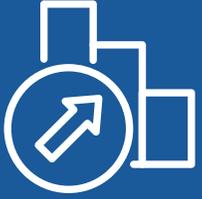
Figure 9

Non-financial services offered by the institution



Source: Own calculations based on the green finance sectorial study survey. November 2021.



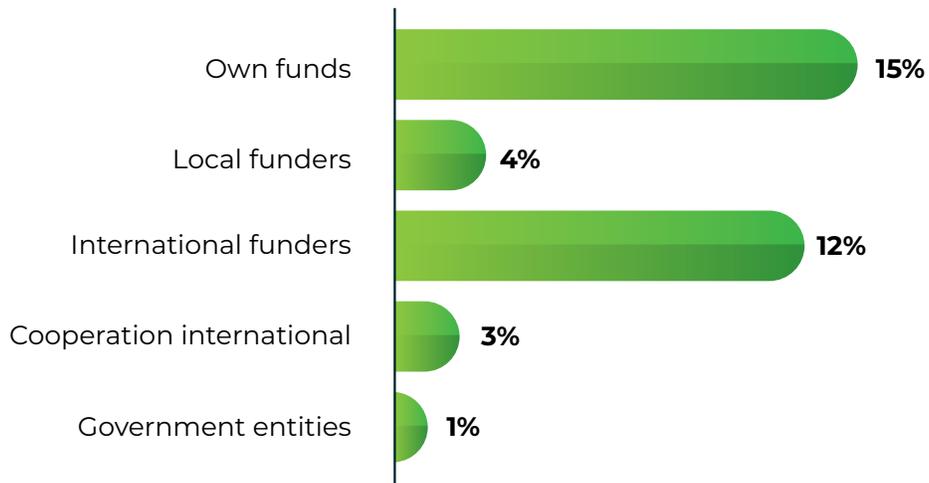


Source of funding

Regarding the funds needed for the implementation of green financial products, 15 out of the 26 MFIs surveyed indicated they use their own resources, 12 MFIs mentioned receiving support from international funders. However, it is worth noting that greater resources are needed to further expand the number of clients and the types of economic activities.

Graph 10

Source of Funding for Green Financing by number of MFIs



Source: Own calculations based on the green finance sectorial study survey. November 2021.

IV. CASE STUDIES



Case No 1
PILARH OPDF - Honduras

“The rural microfinance
entity of Honduras ”



Context



The population of the Republic of Honduras is **9.3 million inhabitants, 48% of which live below the poverty line and 40% live in rural areas.** The main environmental problems are related to the increase of urban population; deforestation is the result of logging and land clearing for agricultural purposes; land degradation and soil erosion is accelerated by uncontrolled development and inappropriate land use practices, such as the cultivation of marginal lands, mining activities that pollute Lake Yojoa (the country's largest freshwater source), as well as several rivers and streams carrying heavy metals. Honduras contributes 0.05% of global greenhouse gas (GHG) emissions, of which the energy sector accounts for 41% of emissions. Honduras ranks 44th in the climate risk index for the period 2000-2019.

The Institution



PILARH OPDF is one of the leading organizations in the economic and social development of rural Honduras. As of June 2021, it had an outstanding portfolio of close to US\$25 million and served 14,727 clients, 47% of which are women and 57% were located in rural areas. Agricultural financing accounts for 41% of its portfolio. PILARH OPDF is a benchmark of development of rural communities in Honduras. Its work focuses on improving the quality of life of the families it serves through a diversified range of services, including financing, savings accounts, microinsurance, and remittances, among others, plus non-financial services such as technical assistance, training and financial education.



Due to its rural origins, its service model seeks to improve the quality of life of the MSMEs being served and their environment, including the inhabitants of the communities and the biophysical space. This is why in recent years PILARH OPDF has promoted a transformation in the agricultural sector, given the effects that climate change is having on the farms' ecosystems and therefore on the yields and quality of life of producers. Here it is worth remarking the importance of having a team with lots of work experience with the communities being served, highly trained in agricultural and forestry matters and having the skills and knowledge to innovate in green issues. This facilitates the process of identifying the potential and investment needs of producers, and recommending the types of practices, investment or assets their farms require. In addition, another success factor has been the identification of key allies, mainly for the supply of productive assets: businesses offering equipment and technologies for the rural sector that share PILARH-OPDF's philosophy.

Relevant experiences

PILARH OPDF has succeeded in incorporating an environmental approach to its portfolio of financial products in terms of sustainability, to enhance the production of better-quality agricultural products and to bring producers closer to more competitive markets so they have access to better prices thus contributing to the increase of their income. As of September 2021, PILARH OPDF had 4,543 green loans outstanding worth 8,091,300 USD.

The following three financial products that PILARH OPDF has designed and implemented with the technical and financial support of ADA and REDCAMIF, include the green approach:

1. Environmentally productive credit line:

This is a product combining working capital financing with investment financing. It is mainly —but not exclusively— oriented to economic activities related to: i) coffee growing, particularly for the implementation of agroecological practices and the acquisition of eco-friendly machinery and equipment; ii) livestock production, including genetic and feed improvement, biodigester infrastructure and implementation; and iii) horticultural production, including indoor agriculture, construction of macro and micro tunnels, and the preparation of organic composting, among others. The term depends on the type of financing with a maximum of 60 months, and amounts going up to 40,000 USD, depending on the producer's experience and the number of loan cycles with PILARH.

2. Renewable energy credit:

It is aimed primarily at communities with limited or no access to the national energy system, or where MSMEs wish to improve energy efficiency and savings. The product supports the purchase of solar panels, with maximum terms of 24 months and amounts of US\$8,200.

3. Microleasing:

This is one of the most innovative financial products to be found in the market for MSMEs. This type of financing provides rural producers the possibility of capitalization through the access to productive technologies for their operations allowing them to increase their productivity by using a lease with the option of purchasing the asset at the end of the contract. The term is up to 60 months and amounts available for fixed assets go up to US\$20,000. Thanks to this product, PILARH OPDF has financed small-scale agricultural machinery adapted to small and medium-sized farms, ecological benefits and livestock feed processors.



PILARH-OPDF's most recent initiative is the adoption of the "Rural Family Enterprise" concept, incorporating a holistic approach to the support of rural producers. This initiative aims at improving the economic conditions of rural families affected by the coffee crisis and promoting the comprehensive development of communities. The objective is to provide families with resources to reinvest in their economic activities and increase their family income. This scheme makes it possible to meet families' basic needs, in addition to generating employment. To this end, the financing includes a farm analysis comprising economic activities (agricultural or otherwise) carried out by family members and the way they are connected to the markets where they operate.

This approach supports the capitalization of farms, promotes diversification of production and the use of new technologies. It is combined with productive training adding good environmental practices and financial education.



Case No 2
Financiera FDL -
Nicaragua

“Green Finance for
the Deep Rural “



Context



Nicaragua has a population of about 6.2 million inhabitants, with an estimated 40% living in rural areas (<https://statistics.cepal.org>) and 25% of the population below the poverty line (<https://www.cia.gov>). The country's main environmental issues are deforestation, soil erosion, water pollution, and extreme drought. Nicaragua is the source of 0.02% of global greenhouse gas (GHG) emissions (MARENA, 2020), with the agricultural sector (79% of emissions) being the largest contributor. This is directly related to deforestation: in the period going from 2010 to 2020 the natural forest area was reduced by 20% (<https://statistics.cepal.org>). Nicaragua ranks 35th in the climate risk index for the period 2000-2019 (<https://germanwatch.org>).

The Institution



Financiera Fondo de Desarrollo Local (FDL) began operations in 1993, as a credit project on behalf of Universidad Centroamérica for rural farmers given the absence of rural credit at that time. Over the years, FDL has developed and expanded its operations to become in 2016 a regulated entity as a Financiera. FDL is an institution widely recognized at nationally and internationally for its innovation and service to the rural sector. It has been granted numerous awards; among them, the award for excellence in microfinance, in the category of non-regulated entities granted by the Inter-American Development Bank (IDB) in 2005; the award for microfinance management granted by the Central American Bank for Economic Integration (CABEI) in 2006 and a second place in the European Microfinance Awards in 2019 for strengthening resilience to climate change.

Relevant experiences

As of June 2021, it had 47,724 clients, with 80% in the rural sector and 50% women. The outstanding portfolio is worth 57.78 million USD with 31% going to agricultural and forestry activities. As of September, 70 green loans had been granted with a total outstanding amount of US\$136,799.56, focused mainly on the promotion of agricultural, forestry and grazing systems, risk systems, ecological coffee benefits, and soil management and water reservoirs.

Since its inception, it has been one of the pioneering organizations in the implementation of environmental policies linked to positive discrimination criteria, such as refusing to grant loans for cattle raising 10 km or less from the country's main forest reserves, or for the purchase of chainsaws; rather, to encourage producers to intensify production through the use of appropriate technologies instead of using large tracts of land; and internally, with policies focusing on the management and saving of electricity, water and stationery in all branches. Financiera FDL makes practical and effective use of risk management analysis, for instance in the so-called risk mapping, where credit promoters in conjunction with branch-level teams characterize the outlook of communities in terms of socioeconomic and environmental risks.

Financiera FDL is one of the pioneering Microfinance Institutions in Nicaragua and the Central American region in the promotion of finance plus. In its beginnings, it implemented innovations that combined productive loans with actions to promote good environmental practices: one of the most noteworthy being “los árboles valen” (trees are valuable) in 1994 - 1997, aimed at consolidating micro smallholder farmers who were beneficiaries of the agrarian reform. The product reached 315 clients with two alternative uses: the first one was meant for the construction of living fences to define and protect the plots of land, and the second one was productive financing conditioned to the planting and maintenance of trees with high commercial and environmental value. In both cases, the loan included an interest rate subsidy and was combined with productive technical assistance and support for the farm registration process.

Another important model initiative was the project financed by the Central American Bank for Economic Integration (CABEI) in the period 2010-2012. FDL had access to a non-reimbursable technical assistance fund, along with a line of credit with an interest rate of 4.5% which allowed FDL to develop a financial product with interest rate incentives including technical assistance for the adoption of sound environmental practices aimed at the preservation or improvement of biodiversity on farms. Loans were directed towards coffee growing and livestock production supporting good agricultural, forestry and grazing practices. In addition, an ex-post verification process was carried out to certify the adoption of the practices with the client receiving a “biopremium”, consisting of a reimbursement equivalent to 14% of the loan amount. At the same time, FDL received an incentive equivalent to 6% of the loan from CABEI. A total of 1,995 producer clients were served.



A key element is the alliance with the Nitlapan-UCA Research and Development Institute (applied research, research in action), which has made it possible to structure a service model for the rural peasant sectors combining financing (applying a plus-green finance approach), technical assistance aimed at promoting changes in agricultural production units, and research and development.



During the 2015–2020 period, FDL promoted the Microfinance for Climate Change Adaptation program, “ECOMICRO”, aimed at financing climate change adaptation measures. A total of 343 producers were assisted in the implementation of climate change adaptation and mitigation strategies in dry areas of western Nicaragua. In addition to financing with interest rate incentives, these clients received technical assistance for the implementation of environmentally friendly techniques, particularly focused on the management and resilience of agricultural production to periods of extreme drought combined with income stabilization for producers in the most vulnerable

areas of the country. Six climate change adaptation measures were promoted: water harvesting, irrigation systems, forestry and grazing systems, seed management, diversification of production, and soil and water conservation works.

In 2018-2020 Financiera FDL implemented a technical assistance program focused on climate-smart agriculture and livestock production in which 1,538 clients were served. The initiative included the development of climate-smart financial products and the expansion of technical assistance channels for producers.



Financiera FDL is currently implementing a project with the technical and financial support of ADA and REDCAMIF, seeking to contribute to reduce the vulnerability of 338 producers in central Nicaragua through the adoption of climate-smart practices to mitigate the effects of climate change. The project includes validating a new technical assistance model incorporating the use of digital tools to diversify and increase technical assistance for the promotion and adoption of climate-smart practices.





Case No. 3
FUNDECOOPERACION -
Costa Rica

**“The Green
Finance and
Sustainable
Development
Lab”**



Context



Costa Rica has a population of 5.2 million, of which an estimated 21% live below the poverty line and 19% live in rural areas. The country suffers from deforestation and land use change, largely as a result of land clearing for livestock and agriculture production; soil erosion, coastal marine pollution, fisheries protection, solid waste management, and air pollution. Costa Rica originates 0.06% of GHGs worldwide, the sector that contributes most to GHG emissions is transportation (40% of emissions), which is directly related to the deforestation of primary forest, but in the period from 2010 to 2020 the area of natural forest recovered at a rate of 5%. Costa Rica ranks 89th in the climate risk index for the period 2000-2019.

The Institution



Since its inception in 1994, Fundecooperación para el Desarrollo Sostenible can be characterized as being an organization of permanent innovation using a comprehensive approach based on a multidimensional vision inspired on the Sustainable Development Goals. This approach has allowed it to be part of national and international programs aimed at resilience, mitigation, and adaptation to climate change and sustainable development of the communities where it intervenes. The key has been to have a highly trained and experienced technical staff. Its mission is to manage financing for sustainable development through innovative, inclusive and tailor-made programs that meet the economic, social and environmental needs and opportunities of micro, small and medium-sized producers in Costa Rica. The way the Foundation operates is remarkable

because of the participation of stakeholders from the public, private and civil society sectors.

FUNDECOOPERACION is known as “the Laboratory of green microfinance”. It is one of the organizations of the Central American Isthmus and the Caribbean that transcends with innovation and a comprehensive approach in support of rural peasant families. This means combining financial investment products (with terms and interest rates adapted to long-term investment) with technical assistance to ensure farms invest in innovations and implement them thus turning them into agroforestry systems. The technical assistance model accompanies clients and adds value to the Foundation’s role.

Among the awards the Foundation has received are the accreditation as a National Implementing Entity by the United Nations Adaptation Fund in Costa Rica. The UNOSSC Partnership Award and the recognition of the “South-South Cooperation Program” as one of the best solutions in the category of climate change by the High-Level Committee on South-South Cooperation of the United Nations General Assembly; and, in the last two years it has been accredited by the Global Network for Disaster Reduction (GNDR) as a National Coordinating Organization for Views From the Frontline, a program funded by the European Union.

Relevant experiences

In 2006, given the need for financial resources to promote their clients’ transformations, the Foundation started a credit program. The Foundation currently offers its clients financial products combining climate change adaptation and mitigation, resilience and sustainability. The results achieved include a loan portfolio worth \$700,000 for climate change adaptation, 72% of which is made up of clients in the agricultural sector. Over 5,000 clients have been directly trained.

Under the PRO+CLIMA concept, the following financial products have been designed and implemented:

1. Personalized loan

It is the oldest FUNDACOOOPERACIÓN product, an investment loan combining long-term financing with interest rate incentives also including a technical assistance component for investments requiring it. The purpose of the product is the capitalization of clients according to the nature of each productive activity and line of business. This product includes investments in agricultural activities, renewable energies and energy efficiency, clean technologies, productive linkages, sustainable tourism, and industrial and commercial activities.

2. PRO+CLIMA Agriculture

is aimed at agricultural transformation through the implementation of climate actions in accordance with the needs of producers and their soil and climatic conditions. One aspect to be highlighted is the range of investment purposes included in the product, in addition to the promotion of environmental practices such as organic fertilizers, conservation agriculture, board ditches, seed banks, windbreaks, water reservoirs and agricultural terraces. It also incorporates new and innovative practices for small and medium-sized producers in the region, such as precision agriculture and indoor farming practices (net houses, greenhouses). This product includes interest rate incentives as well as specialized technical assistance and agricultural insurance.

3. PRO+CLIMA Livestock

Its purpose is to finance environmental transformation in the livestock production sector through climate actions adapted to the investment needs of each farm. The ultimate goal is to increase the availability of water and feed, as well as to improve farm conditions and the health of livestock farmers in times of scarce resources. Some of the kinds of investment financed are: the implementation of fodder banks, fertigation systems (use of manure as fertilizer), electric fences, technologies, livestock genetic improvement, haymaking, siloing, and live fencing, among others. Just like with Agricultura PRO+CLIMA, Fundecooperación includes technical assistance for investment support and monitoring of animal health management, and offers interest rate incentives.

4. Green City

is aimed at MSMEs for urban transformation promoting urban agriculture, green architecture, eco-design, productive linkages, sustainable tourism and their subareas. In addition to the follow-up and technical assistance, the incentive is mainly represented by maximum terms and amounts granted, due to the characteristics of the type of investment supported.

5. Crédito Mujeres Natura

focuses on integrating the gender perspective, equality and women's empowerment in biodiversity management, where gaps still persist at the national level.

This set of financial products and non-financial services are part of a broader agenda that connects local solutions with global impact, an example of which being the types of programs currently implemented by FUNDECOOPERACION. As a reference, there is the Adapta2+ project, which supports climate change adaptation programs in developing countries that are vulnerable to its adverse effects. The initiative aims at reducing the vulnerability of communities to the impact of climate change and improving resilience in the following areas categorized as critical: agriculture, water resources and coastal zones, and capacity building.

Another initiative is the Green City Fund, which promotes "green" initiatives within the Inter-urban Biological Corridors of Costa Rica in the fields of reforestation, rehabilitation of green spaces, tourism, recreation, urban agriculture and gardening, and green architecture, among others. This is aimed at valuing, conserving and making use of the benefits of biodiversity and ecosystem services in cities.

Moving forward, the goal is to strengthen risk analysis and management processes to ensure that financing is adapted to the actual situation and needs of agricultural clients and their environment, through the use of technological platforms allowing real-time assessment of the degree of exposure to agro-climatic risks to which a producer is exposed on his/her farm, depending on the crop or livestock, and at the same time proposing tailored solutions adapted to the climate and soil conditions and the socioeconomic conditions of the clients.





Case No. 4
Banco ADOPEM -
Dominican Republic

**“The school of
inclusive finance
in the region”**



Context



The Dominican Republic has a population of 10.6 million, of which an estimated 21% live below the poverty line and 17% live in rural areas. The main environmental problems are related to water scarcity, sea floor erosion damaging coral reefs, and deforestation. The Dominican Republic accounts for 0.06% of global greenhouse gas (GHG) emissions, of which the energy sector accounts for 62% of emissions, followed by the rural sector with 20%. The Dominican Republic ranks 50th in the climate risk index for the period 2000-2019.

The Institution



Banco de Ahorro y Crédito ADOPEM, is one of the leading and most experienced institutions in financial inclusion in the Dominican Republic.

The institution has evolved through various stages from its inception as a non-profit organization to becoming a bank, including its incorporation in 2012 to the BBVA Microfinance Foundation Group. These changes have helped to expand its coverage, depth and reach in low-income population segments in the Dominican Republic, and have brought in innovation in terms of financial and non-financial services. As of June 2021, it had 153,209 credit clients, of which 40% were

in the rural sector and 67% were women. The portfolio outstanding is 110.8 million USD. Currently, its mission is to promote the development of Dominican families, through their incorporation into the formal economic and credit system, which socially and economically less favored sectors need to achieve within a framework of ethical values, seeking to give back to society at large. This process of constant innovation has made it stand out internationally, with awards for Excellence as the Best Microfinance Institution in Latin America and the Caribbean granted by the IDB in 2007 and 2010.

ADOPEM has also been recognized for its work in promoting green finance. Examples of this are the “Inter-American Prize for Financial and Business Innovation” in 2017, in the category “Financial Services for Small Producers”, awarded to the product “Agro Crédito ADOPEM” by IDB-MIF, and the recognition of being among the 10 best initiatives in the “Sustainable Finance” category, within the “500 best Socio-Environmental Projects” of the “Green Latin America Award” in 2019.

Relevant experiences



Banco ADOPEM is part of a group of financial institutions that started the process of adopting the green approach. As of September 2021, it had granted 1,060 green loans with a portfolio outstanding of USD 735,012 financing mainly sustainable cocoa production, organic bananas, sustainable rural housing, sustainable macadamia plantations, and sustainable family livestock (forestry and grazing systems).

Back in 2015 Banco ADOPEM decided to start adopting the green approach. With the technical and financial support of ADA and REDCAMIF it developed through a phased process 3 financial products:

1. ECO-Crédito ADOPEM

Was created as part of the family of products for the rural sector. It seeks to reduce the pressure on ecosystems with the services it provides, to increase the social or economic resilience of rural populations vulnerable to climate change, to reduce risks associated with climate events in productive activities, to protect, restore or use biodiversity and ecosystems in a sustainable manner, and to contribute to achieve positive impacts on people's economies in the short term.

2. ECO-Vivienda ADOPEM

This product has an innovative design that incorporates the concept of livelihood. It was structured as a comprehensive solution to the housing deficit in rural areas, and is adaptable to the housing conditions of MSMEs. The product has three options:

I) **Water and sanitation:** It aims at providing solutions for permanent and safe access to drinking water for human and animal consumption, including water filters, water storage tanks, roof installations, rainwater collection, septic tanks, grease traps and drag pipes, irrigation systems connected to septic tanks, biofilters with wetland release (connected to septic tanks);

II) **Lighting and energy:** focused on promoting energy savings, energy efficiency and the use of renewable energy sources. Among the types of investment supported are: LED or low-consumption light bulbs, transparent roofs for natural light, windows, polycarbonate doors, electrical installations and adaptations, solar panels, use of an inverter and two batteries, solar panel and a water heater;

III) **Infrastructure and livelihood:** for improved wood-saving and low smoke generating stoves, construction of polished concrete floors, ceramic tile floors, construction-based cladding, block kitchen structures (plumbing and furniture), plumbed bathrooms and basic furniture, physical expansion of businesses.

One key element has been the partnership established with Habitat for Humanity, which allows us to combine financing with constructive technical assistance for clients, and the follow-up by ADOPEM's team.

Depending on the credit cycle in which a client is, investment types and amounts vary. For instance, in a first round of credit the purchase of water filters or storage tanks can be financed, while the construction of bathrooms or expansion of a physical space takes four financing cycles.

3. Sustainable Family Livestock Production:

This is the latest in the family of green products. The objective is to disseminate the use of friendly and easy to replicate improved livestock production practices and technological innovations, which will increase production and reduce negative environmental effects. The ultimate goal is the capitalization of micro and small producers through a change from traditional herd management to environmentally sustainable livestock production management.

The latter product combines financing with training and education of livestock producers for the implementation of new techniques and investment in backyard animal husbandry, animal feeding and nutrition techniques, animal health and added value. Furthermore, another innovation included in the product is the use of EbA (Ecosystem-based Adaptation) measures, for which a group of 18 technical measures for adaptation to climate change are being promoted, such as: organic manure production, soil conservation/soil restoration, organic agriculture, family farming, among others.

The three financial products are incentivized via interest rates. Loan amounts depend on the purpose and type of investment, with a maximum of US\$17,300 and terms of up to 36 months for agricultural activities and up to 60 months for housing financing. In addition, the application of incentives is conditioned to the effective use or implementation of the loan together with environmental practices, the technologies to be used or the building to be built with the investment. A key factor in Banco ADOPEM's experience is the commitment of management to develop initiatives



and having highly trained human resources with agricultural and environmental experience, a factor that has accelerated the process of adopting the green approach.

In the medium term, Banco ADOPEM is committed to keep scaling-up processes and making a qualitative leap in internal and external environmental management, risk management, and ensuring demonstrable environmental changes in financed MSMEs. Part of this route has to do with the adoption of MEBA³ tools (including, among other aspects, the implementation of risk indicators, the preparation of reference sheets, the use of adaptive capacity indexes on farms and verification indexes); the adoption of climate vulnerability maps for risk analysis and the georeferencing of clients. In addition, new products such as agricultural insurance and client carbon footprint measuring system will be developed.

³ Microfinance for Adaptation Based on Ecosystems

Challenges and opportunities for green finance in Central America and the Caribbean

A representative group of Microfinance Institutions is developing green initiatives in Central America and the Caribbean. The experiences have been diverse and evolve at different speeds, depending on the institutional philosophy and availability of resources to adopt the green approach.

Some institutions that are in their initial phases of action implementation related to savings and management of available resources; others, such as those presented in the case studies, where sustainable development is the axis around which the organization revolves.

Main challenges:

Internal management and board of directors' support

to commit the necessary capabilities and resources to adopt a green approach. As a relatively new topic, there is still resistance and conservative positions. However, in those institutions where the support has been clear, progress has been swifter to implement specific actions both internally within the MFI, and with clients.

Identifying allies

matching the institutional dynamics and outlook, not only in terms of technical assistance to clients, but also in supporting them with the appropriate know-how to adopt environmental management. The offer usually available at country level often makes it difficult to combine the financial logic with environmental promotion. This has been changing in recent years as financial institutions have gained knowledge and experience.

Financial resources

under adequate conditions to catalyze green microfinance initiatives in the region. Most MFIs having started financing green products have done so by using their own resources, or have been funded by international organizations. In any case, funds are very limited so very often the strategy of MFIs is to implement cross-subsidies in order to create incentives for green products. This scarcity of funds reduces the possibility of having

more institutions enter green finance, and this stymies the growth and scaling of existing initiatives and models. Esta insuficiencia de fondos reduce la capacidad de que más instituciones entren en el tema y que las existentes puedan masificar sus servicios o escalar en los modelos implementados.

For those MFIs more advanced

in the institutionalization of the green approach, the next challenge is to **demonstrate the effectiveness** of support for the productive and environmental transformation of MSMEs, including the adoption of an integrated approach to risk management in the MSMEs being financed.

Complementary services

because financing alone is not enough, the combination of non-financial services adapted to MSME business investments is required; this concept is known as Finance Plus. We are talking about a new approach that needs to be properly channeled. This implies an investment in staff training on environmental issues.

Regulatory frameworks

although public policies are not addressed in the study, the importance of advocacy for regulatory frameworks facilitating and accelerating financial and social inclusion, and thus the development of products and services that promote greater adaptability and resilience to climate change of the lower segments of the population, cannot be overlooked.

Main opportunities:

- **Knowledge of the dynamics of the markets where MSMEs operate**, Microfinance Institutions have a deep understanding of the socioeconomic dynamics of their clients and the environmental conditions that affect them and impact their growth. This knowledge is very valuable and can be capitalized exponentially with the adoption of tools and practices to take advantage of it.

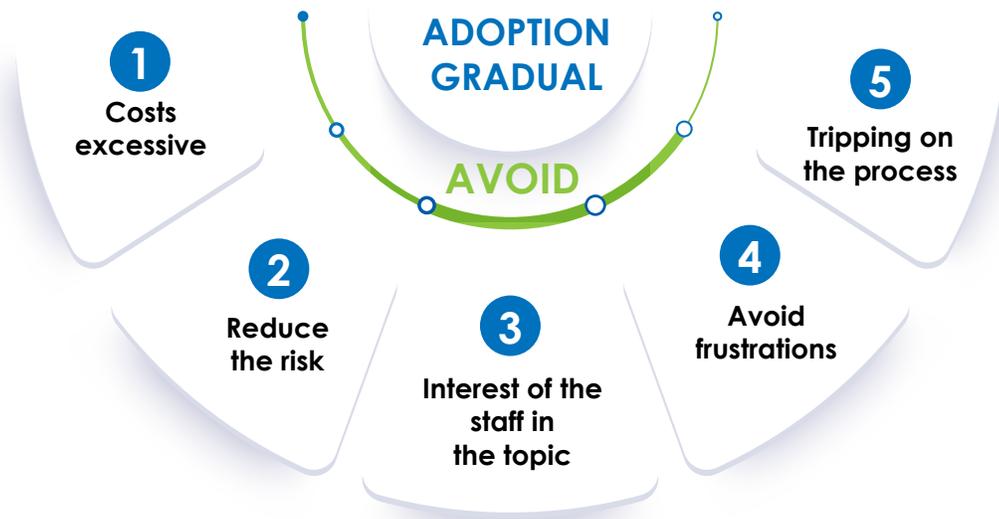
- **MSME transformation process for climate change adaptation and mitigation** is a market opportunity in both urban and rural sectors. ECLAC data suggests that investment required to transform the region's economies is between 20 and 30% of GDP. If we take into account that 85% of businesses in the region are categorized as MSMEs, we can get an idea of the opportunity of supporting this change process to greater resilience and adaptability levels, and to take advantage of new green markets in the sector.

- **Green agenda in the coming years**, issues such as water resource management, the transformation of small industrial enterprises to cleaner production processes and forest resource management will dominate the green agenda in the coming years. Those MFIs with smart and innovative approaches, incorporating cross-subsidies combined with trained personnel and key allies, will likely have an opportunity to expand their markets.



VI. Conclusions

Gradual adoption of the approach is important to avoid excessive costs, reduce risk, maintain staff interest in the matter and avoid frustrations and stumbling blocks in the process. Both the case studies and the survey results show how a gradual process starting with simple, easy to understand and implement actions (such as establishing positive discrimination lists, designing an environmental policy, implementing internal savings measures, etc.) has given the institutions very good results, they have managed to train their personnel, innovate with products and improve their risk analysis processes.



It is key to have **trained and knowledgeable personnel** in these subject matters. They are the ones who will champion the initiatives to adopt the green approach in their institutions, provide recommendations to management and the board of directors, propose tools, identify the type of investment that can be supported in MSME businesses, and have the capacity to design financial products compatible with the required types of investment in environmental practices, infrastructure and technologies. They must also speak the same language as the providers of productive technical assistance services and technologies.



The selection of **strategic partners** must be very well analyzed. In practice, most Microfinance Institutions that have succeeded in establishing solid alliances with suppliers started out with a good market analysis,

and an appropriate selection process of suppliers identifying with the institution's philosophy. There are experiences in the region where the partners did not meet the expectations of the clients and the MFIs are the ones who bear the losses in loan repayment and reputational risk terms.



Other elements to consider are the **causal and concatenated processes**. The cases studied show how the identification of a specific problem affecting a segment of the population being served (for example, recurrent droughts) is the basis for an analysis leading to the proposal of solutions combining credit and non-financial services. Here again it is key to have a specialist within the organization. This process defines very well the target group, the geographical areas to be served and the items to be prioritized.



Based on the gradual adoption of the green theme, it is recommended to **start out with one or two products in areas and segments in which the institution is already**

experienced. A very common example is the financing of livestock production activity for the implementation of live fences using plant species that improve livestock feeding and shade restoration, or those institutions financing segments of the rural population without access to land, the financing of intensive backyard agriculture (organic fertilizer, hydroponics for more advanced cases, etc.).



In the medium term, for those institutions more advanced in this area, **the next step is the incorporation of digital and communication technologies**

facilitating more complex processes in the analysis of environmental risk management of both the MFIs and their clients, quantifying their carbon footprint with the purpose of designing financial products and technical assistance to support activities to reduce GHG emissions.



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