



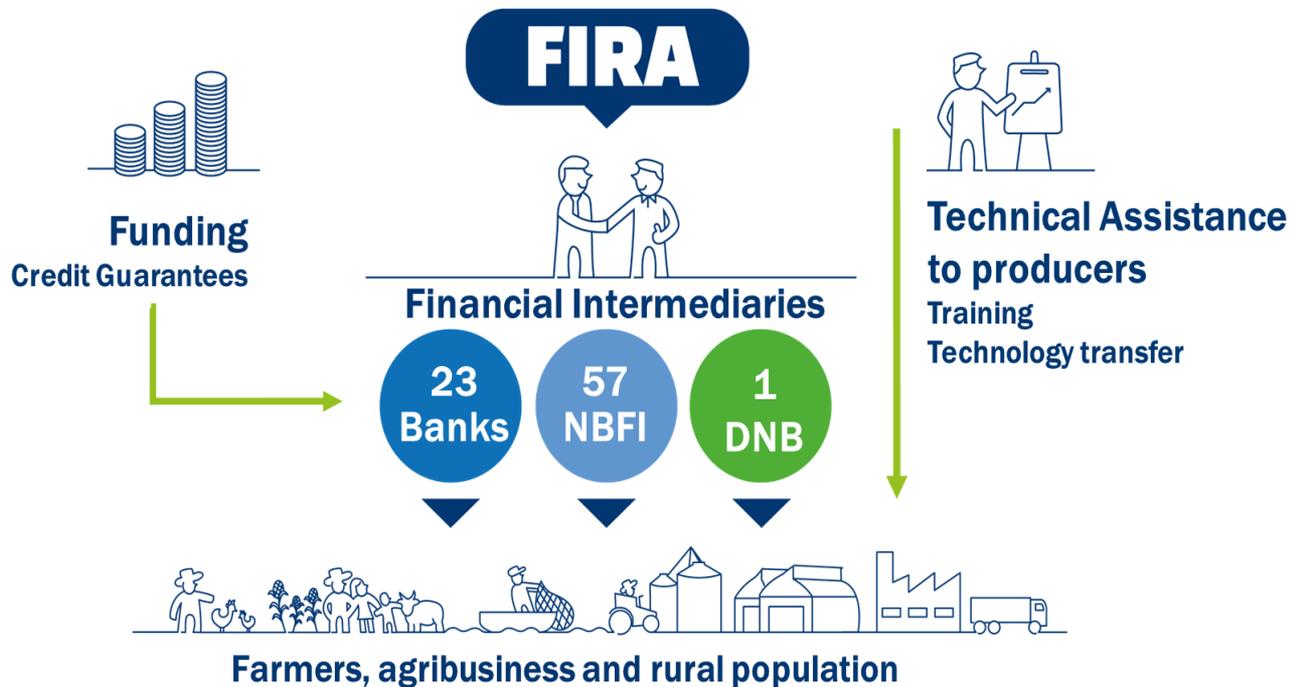
Panel: New sustainable financing sources and digital technology to mitigate high transaction costs and other agricultural development barriers

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FIRA's Business Model

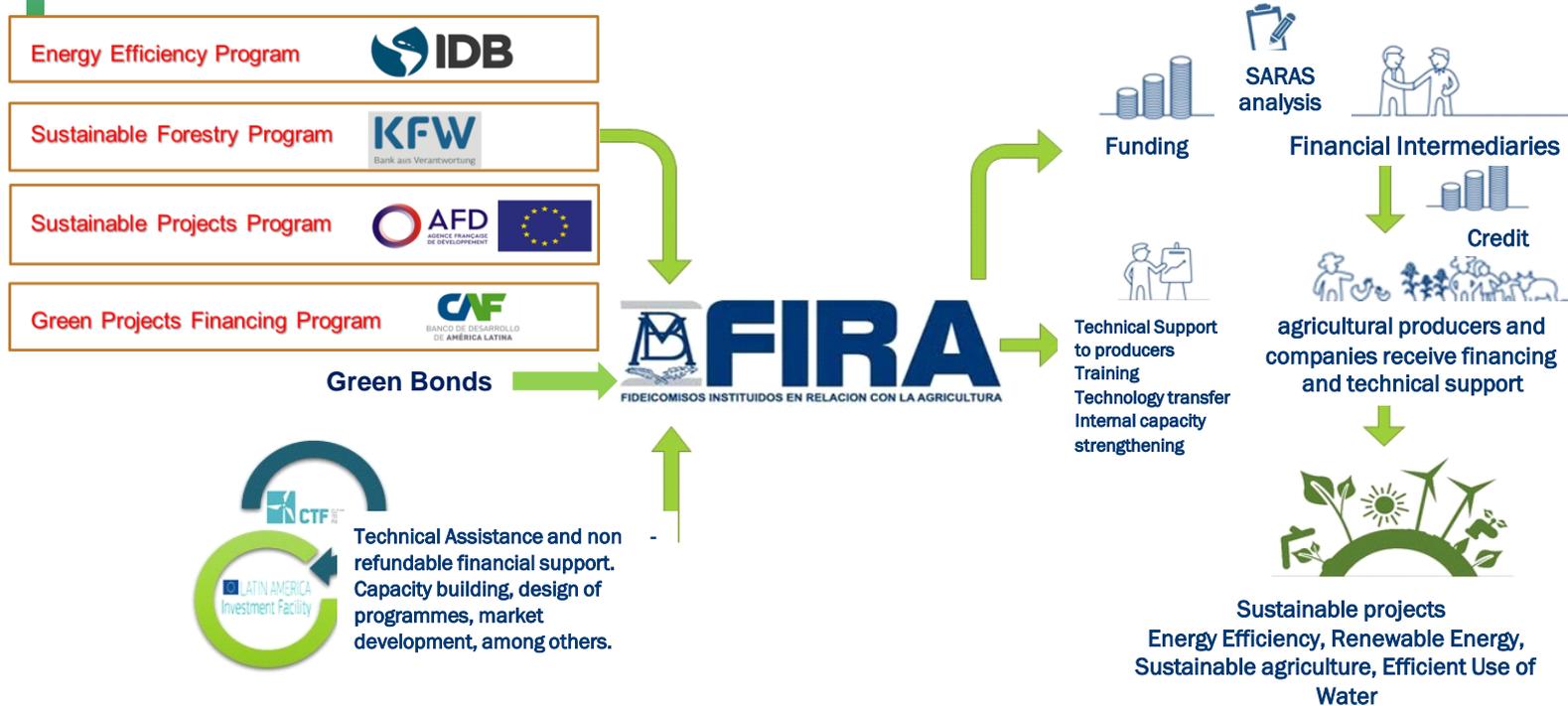
- FIRA is an institution managed by the **Central Bank of Mexico** and its capital is provided by the Ministry of Finance.
- FIRA supports **60% of total commercial loans** lent to the sector.
- FIRA reaches over **one million** small and medium size producers.
- FIRA does not count with the full faith and credit of the Government but is rated **mxAAA by S&P**.



Why do we need to finance sustainable projects?

- **Agriculture** is a main **contributor** to **climate change** and will be greatly **affected** by it.
- According to IPCC estimates, **agricultural activities produce 23%** of Green House Gas (GHG) emissions globally, making it a **leading contributor** to expected raising average temperatures.
- Agriculture in the **tropics** is **highly exposed** to the effects of **climate change**. Mexico, for instance, is expected to experience a temperature rise of 2.5° - 4.5° C and precipitation loss of 5% to 10% by 2050. That will result in:
 - ✓ **Decrease in yield** in crop production, particularly in maize,
 - ✓ Rise in sea levels potentially affecting agricultural lands by means of **saline intrusion**,
 - ✓ Increase in number and severity of **tropical storms** and **natural disasters**,
 - ✓ **Rise** in ocean temperatures that could lead to the **collapse** of fish stocks.

FIRA's Sustainable Finance Strategy



- ✓ Environmental protection and climate change mitigation are **increasingly** important to **FIRA** and developed in **partnership with allied institution**

In 2018 FIRA issued a Green bond for UD\$130 million dollars, to fund more than 500 Water Efficiency and Sustainable Agriculture Projects*.

- FIRA's green bond framework received a positive second opinion by Sustainalytics in order to meet the International Capital Market Association's (ICMA) Green Bond Principles and concluded that: "... **FEFA Green Bond Framework is credible and Impactful...**"
- FIRA, IDB and Climate Bond Initiative (CBI) collaborated to create protected Agriculture criteria specific to Mexico, making it the **first CBI certified Green Bond** in the world to include **Protected Agriculture projects**.
- FIRA will issue a second green bond the 20th of November 2019, for USD \$130 million dollars.

* Water efficiency: Dripping, sprinkling and micro-sprinkling irrigation systems.

Sustainable Agriculture: Including Protected Agriculture.



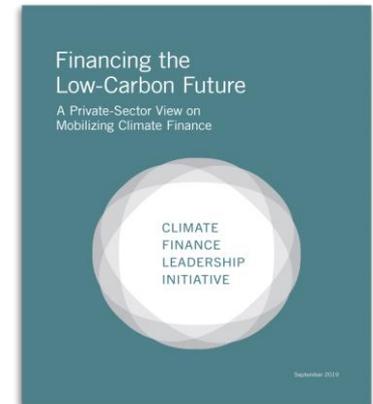
FIRA's Green Bond Framework is the first in the world to include Protected Agriculture Projects.

- FIRA's framework includes **Environmentally Sustainable Agriculture** (including protected agriculture¹), Water Efficiency, Energy Efficiency, and Renewable Energy.
- **Protected agricultural** projects has the following benefits (vs. open field agriculture)²:
 - ✓ Up to 49% lower Greenhouse gas emissions,
 - ✓ Up to 80% water saving,
 - ✓ Higher productivity: up to 35 times more production per ha.
 - ✓ Up to 12.5% less nitrogen used,
 - ✓ Up to 48.2% lower use of energy.

"Mexico's Trust Funds for Rural Development... became the first institution to issue a green bond for protected agriculture..."

Climate Finance Leadership Initiative, 2019.

<https://tinyurl.com/s644m2k>



1/ Protected agriculture is a mode of highly efficient development of modern agriculture that uses artificial techniques to change climatic factors such as temperature, to create environmental conditions suitable for the growth of animals and plants.

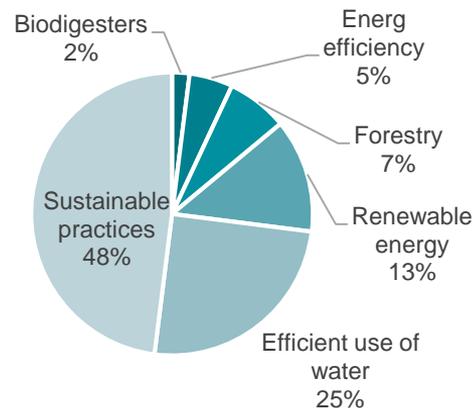
2/ Pratt L.Ortega J.M. 2018. Protected Agriculture in Mexico. Building the Methodology for the First Certified Agricultural Green Bond. Inter-American Development Bank . Available at: <http://dx.doi.org/10.18235/0001705>

FIRA's sustainable financed projects in 2018 reached USD \$430 million, surpassing its 6 year goal.

Sustainable Projects
(credit + guarantee balance at December of each year, numbers in millions of USD)



Sustainable Projects (%)



- ✓ FIRA's sustainable projects portfolio annual average growth rate from 2016 to 2018 was 14% (valued in Mexican pesos).
- ✓ Sustainable practices (such as protected agriculture) and efficient use of water (such as irrigation projects) represent 73% of the total sustainable portfolio.

Lessons learned in sustainable project financing

- **International Standards.** International organizations use different criteria to identify sustainable projects. The adoption of common standards would facilitate synergies and would be very helpful in scaling up sustainable projects and programs.
- **Multiple objectives.** International organizations often promote achieving simultaneous multiple goals (e.g. climate change, SMEs, indigenous rights, biodiversity, among others). Multiple goals increase the complexity of the sustainable financing programs.
- **Monitoring and supervision costs.** Monitoring and supervision costs are high for green projects. Digital technologies and the development of parametric approaches could greatly contribute to decreasing transaction costs.
- **Regulation.** Sustainable project financing cannot be a substitute for adequate national regulatory frameworks that require better climate conservation practices.

Why do we need to increase access to financial services?

- Close to **one-third of adults in the world, approximately 1.7 billion people, are still unbanked**, which limits their capacity to take advantage of opportunities that might help lift them from poverty.
- Access to financial products helps people in profound ways:
 - **Savings.** protects from theft and promotes better cash management. It fosters women's economic empowerment by offering control over their savings,
 - **Credit.** Allows people to invest in their businesses, generating more income which allow them to invest in education, health or generate savings for future shocks.
 - **Payment services** improve the efficiency, convenience and security of payments lowering the cost and increasing their speed; relevant when traditional financial services require long-distance mobilization.
 - **Insurance.** Provides protection from common risks faced by individuals in the same community, like extreme weather and where informal community mechanisms are often insufficient

There are several barriers to financial services access.

- Among the most relevant barriers for financial penetration in rural areas in Mexico are:
 - ✓ High number of small and medium size producers with low productivity and no geographically convenient access to financial markets.
 - ✓ Lack of collateral to back up financial resources,
 - ✓ Information **asymmetries**:
 - The borrower has much better information about his financial situation than the bank. (v.g. high level of informality in economic activities in rural areas leading to lack of accounting records, proof of income, and/or guarantees and collaterals.
 - The farmer has much better information about the risks associated with the production than the bank.

Digital technologies can help overcome information asymmetry.

Information asymmetry between borrower and lender.

- *Open Banking* is an alternative tool to solve this issue. It provides open access to financial and consumer data from banks and non-banks institutions to third-party service providers (e.g. FIRA).
- By applying big data modelling techniques new applications can be developed such as specialized financial services or credit scoring tools based on data on bank account activities.
- The recently approved Fintech law will allow information sharing starting march 2020 in Mexico.
- FIRA is developing an open banking strategy, aiming to improve credit scoring models based on the transactional data from our more than 1.3 million credit recipients, collected and shared by our network of 81 Bank and Non-Bank Financial Intermediaries.

Geospatial information to enhance supervision capabilities and risk management.

Information asymmetry regarding project risks.

- Geospatial information represents a cost effective opportunity to strengthen risk management as well as expand monitoring and supervision of projects in the agribusiness.
- These techniques, when coupled with historic field information, can help lower risks (v.g. climatic, biologic, geologic, among others) associated to producers and financial intermediaries.
- In this regard, FIRA currently works on a *Geographic Information System* (GIS) to provide its business partners and credit recipients with timely, relevant information for decision making.
- This information will be used in three main areas: 1) risk management (project tracking, early warning system), 2) technical support to producers, and in the medium term 3) price volatility mitigation (production nudging, crop reconversion and specialized climate risk prevention).

ANNEX 1

Green Bond success story: How a farmer in Mexico could transform a desert with sustainable techniques and green technologies and exported thousands of tons of tomatoes and employs more than 800 people?



- San Pablo Güilá, Oaxaca is one of the poorest towns in Mexico. Even though few things grow in this arid region, most of its predominantly indigenous population works in agriculture.
- Given the scarcity of economic opportunities, many migrate to the United States.
- One of those migrants was José Melchor Pérez, he decided to return to Mexico and create economic opportunities in his town. With the money he saved, he built his first 1,000 square meter greenhouse with drip irrigation, where he started to grow tomatoes.
- José Melchor carried out a series of reforestation and water collection activities to revitalize his land and to ensure the growth of his organization.
- His business began to flourish, and after a few years he turned to FIRA in search of resources to build new greenhouses.
- In the 12 years since he started his project, it has expanded from a single greenhouse to a 70-hectare farm, all grown with drip irrigation. The organization employs approximately 800 people. Over 70% of its workers are women

Video: Learn the story of Jose and how his life change with access to financing tools in Mexico.



Click the image to Access video or copy this link in your web browser:

<https://www.greenfinancelac.org/es/bid-oaxaca/>