



adapta

cocoa, honey, future

START

PROYECTO ADAPTA

*Building resilience to climate change
in the cocoa and honey sectors*



Index

- 1 Supporting organisations *p.3 y 4*
- 2 Proyecto Adapta *p.5 y 6*
- 3 People involved *p.7, 8 y 9*
- 4 Scientific background *p.10, 11 y 12*
- 5 Training and workshops *p.13*
- 6 International trade fairs *p.14*
- 7 Achievements *p.15*
- 8 Next steps *p.16 y 17*

Proyecto Adapta is a four-year project supported by **Ingemann**, a Nicaraguan company of Danish origin, and co-developed with the Nicaraguan non-governmental organisation **Centro Humboldt** and the international development agency **Christian Aid**.



It has been made possible thanks to financing from **FOMIN**, the Multilateral Investment Fund and a member of the Inter-American Development Bank group (IDB).

Supporting organisations

Dreams come true

Walt Disney said: 'All our dreams can come true, if we have the courage to pursue them.' If, in addition to courage, you also have experience, support, and a great team, success is guaranteed. The starting point for **Proyecto Adapta** is three participating organisations with a common dream: to achieve adaptation to climate change for small and medium producers of cocoa and honey in Nicaragua, with profitable and sustainable businesses.



Lars Saquero Møller
Ingemann General Manager

Climate change is real and we are all experiencing it. We are affected economically because incomes will fail. We are affected socially because people won't be able to do the things they know how to do – the majority will have to diversify and learn new, unknown skills. We are also affected because incomes could fail to a point where a producer cannot provide for his/her family, and potentially to a point where the bank takes the farm as payment for the debt they cannot pay, and the family has to move from the only place in the world they know. The situation is serious – it is a threat to the producer's business, and as a result, to Ingemann's business.

The idea of creating an early warning system, combined with a toolkit to be used according to weather forecasts, links perfectly with Ingemann's vision of working cooperatively with producers. The partnership between the three organisations and the support of FOMIN and IDB for **Proyecto adapta** means we can find alternative solutions.

Since 2007, Ingemann has invested in the development of value chains, firstly with honey and then cocoa. We have invested in creating partnerships where success for one party means success for the other, where relationships are sustainable over time, where everyone is a winner, as it should be.



Víctor Campos
Director of Centro Humboldt

Centro Humboldt has been active as a non-profit civil society organisation in Nicaragua since 1990, contributing to regulation, policy and environmental practices which support the sustainable development of the country. We have worked alongside communities to access clean water, reduce the impact of mining activity and reduce the risk of natural and manmade disasters, as well as carrying out studies and proposals so Nicaragua can adopt the necessary measures to face up to the challenges of climate change.

In this context, and with its experience of earth sciences, Centro Humboldt is participating in **Proyecto adapta** by helping to gather scientific information about climate change, supporting the process of climate and phenological data generation, organising an agrometeorological information system (AIS), and providing training to reduce the impact of climate change in the cultivation of cocoa and honey, both for technicians and producers.

Our most important contribution will be effective forecasting, so producers can take planned measures to reduce the impact of climate change. By having the information and skills they need to adopt best practice and adapt, ultimately producers may have business plans which will stand up to climate change.

Entidades impulsoras

Sueños que se hacen realidad



Moisés González
Head of Christian Aid, Central America

Christian Aid has been working for more than 70 years to improve people's lives. Climate change is one of the biggest threats today. Together with our partners, we have gained a great deal of experience in the establishment of resilient livelihoods and in helping vulnerable communities adapt in the face of climate change. We give power to local organisations to anticipate, organise and react to the changes which affect the communities where we work. Our objective is resilience and wellbeing for all community members.

Proyecto adapta will help to improve not only the lives of the producers we work with, but also all those Nicaraguan producers who want to strengthen their coping mechanisms and face up to the challenges brought by a changing climate.

What we learn from this project will be shared with other groups interested in climate change adaptation. **Proyecto adapta** will allow dialogue and mutual benefit between science and the actual lived experiences of communities directly affected by climate change.

Without doubt, none of this would have been possible without the help of FOMIN, the Multilateral Investment Fund, the IDB and its ProAdapt programme.

ProAdapt is an international programme which identifies and guides the development of innovative business methodologies, tools and models which help small and medium-sized businesses in Latin America and the Caribbean to increase their resilience to climate change and take advantage of related business opportunities. It is a project created in association with the Nordic Development Fund.

El Proyecto Adapta

Una gran solución para un gran problema

The problem

Nicaragua is fourth on the list of countries in the world most affected by climate change. 80% of the population depends on agriculture, but the producers are losing their yields due to changes in weather patterns, an increase in insect infestations and animal infections, droughts and torrential rainfall and other impacts of climate change. Yields, production and the quality of life of producers are all at risk.

Our solution

To offer quality scientific and phenological information and direct training so that producers can take their own decisions based on verified forecasts to meet their needs. Over four years, with producers' participation, we will collect the necessary data to understand how the climate is changing, measure how it affects the production of cocoa and honey in three target areas of Nicaragua, and advise the producers to adjust their practices accordingly.

We will be able to anticipate changes and reduce the risks of the impacts of climate change. This will not only secure, but also increase the production of cocoa and honey in Nicaragua. It is a project which will revolutionise agriculture and apiculture (beekeeping) in the whole country, and possibly further afield.



Methodology

4 years of work and dedication, 20 producers who will carry out climatic and phenological observations.

3 ORGANISATIONS WITH EXPERIENCE AND TOTAL INVOLVEMENT IN THE PROJECT.



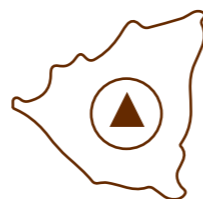
1000

producers who will benefit from useful, adapted and reliable information.



2

specific crops: cocoa and honey



3

provinces of Nicaragua: Nueva Segovia, Jinotega y Matagalpa.

20 weather stations, 8 phenological observation locations for cocoa and 5 phenological observation points for honey production.

One big problem: Climate change.

One big solution: **Proyecto Adapta**

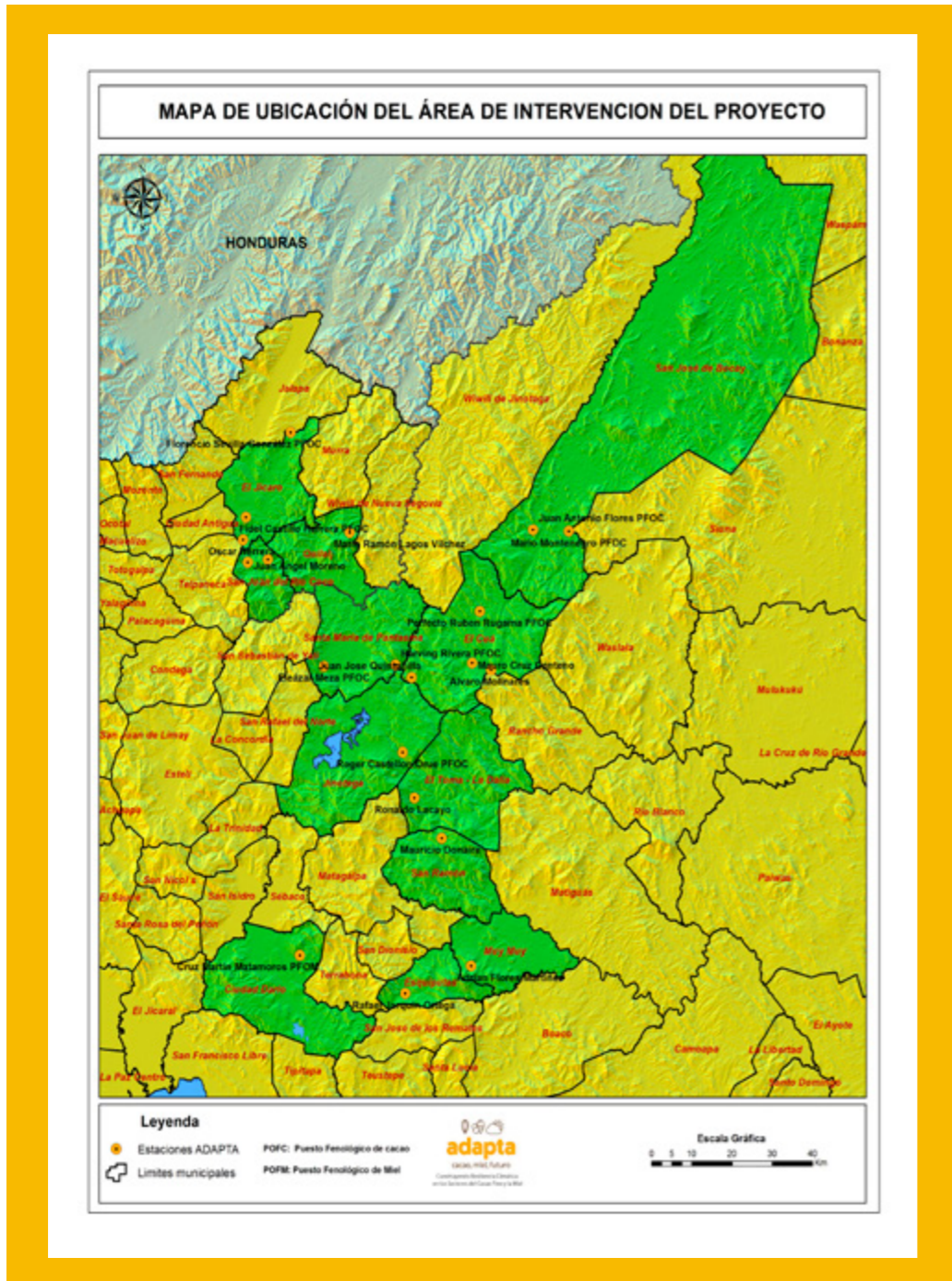
- 1 **Quality scientific information** adapted to specific crops and zones taken from daily data collection and producers' experiences.
- 2 **Direct training** based on scientific data.
- 3 **A boost to production and business success** for producers.

4 PHASES:

1. **Climate research and analysis of the vulnerability** of cocoa and honey in the target areas.
2. **Empowerment of producers and establishment of a business model:** technological and practical solutions in the face of the effects of climate change.
3. **Access to credit for the financing** of new, resilient models.
4. **Circulation** of knowledge acquired.

The main participants

Experience: the basis of knowledge



“Three years ago, the rains were so heavy that I lost 10 hives that year. As we Nicaraguans say, I almost hung up my gloves because we had only 20 hives that year, and I lost half of them. If we have a low honey yield then we will certainly not have the necessary income to maintain our families”.

Juan Jose Quitanilla, honey producer from El Cua, Jinotega province.

80% of the population of Nicaragua depends on agriculture. However, climate change is putting their survival and quality of life at risk. Small and medium producers feel the impact of climate change the most. The lack of information to predict the weather prevents them from being able to take the right decisions for their crops and hives.

Our aim is to reach a point where producers of fine cocoa and organic honey in Nicaragua can better cope in the face of weather events, learn to use better and more useful climatic information, and to train them to develop more productive business models.

Over four years, we will reach out to 1,000 small and medium producers. Twenty of these producers will directly collect and disseminate climate and phenological data and information. They already have weather stations installed on their land, and phenological observation points for cocoa and bees.

They are the main participants in **Proyecto Adapta**, and their experience before and after the project is the basis for its sustainability.



Rubén Perfecto Rugama:

Enterprise, responsibility and ecology



THE MAIN PARTICIPANTS

La Simbolica, the smallholding where Ruben and his family live, is, without doubt, a miniature paradise.

“[It is] a symbol of the wonders which await us after this life” Ruben says, when he recalls with pride how he felt when his father left him the land.

Ruben and his daughter Erika will be among the observing producers who will lead **Proyecto adapta**. He has a cocoa plantation of six different varieties in the El Cua area of Jinotega province. Climate change is nothing new to him.

“In 2011, summer arrived early, I had to water the plants and I had a 20% loss,” he says. *“Then we had an attack of June beetles (phyllophaga), and we had to try to get rid of them. It was difficult, but we managed to save 80% of the plantation”*.

Climate change brings new effects which producers cannot control. That’s why Ruben has decided to participate in **Proyecto adapta**.

“This project will directly benefit not only my family, but the whole town,” he adds. *“With the weather stations, we will have a clear perspective of which crops will be seen to be most affected and how. The empirical and technological knowledge which the project gives us will enable us to predict what each year will be like and tailor our needs as they grow with the climatic problems which come our way”*.

Thanks to **Proyecto adapta**, Ruben has a weather station installed on his farm. Every day, he will go and collect data such as the amount of rainfall, the air and soil temperatures, and humidity levels. At the same time, he will collect data about the condition of his cocoa plantations and their growth patterns: budding, flowering, fruiting, ripening, as well as the value of the harvest and the output of the different varieties of cocoa.

Proyecto adapta will offer Ruben training and information so that he can find out how to better manage his crops in the face of climate change.



SEE PHOTO GALLERY

Uriel Jarquín:

100% natural born beekeeper



THE MAIN PARTICIPANTS



In his house in Muy Muy municipality, Matagalpa province, Uriel has a wood workshop where he makes the boxes for his bees and teaches others how to make them too.

Both biologist and craftsman, Uriel is a great entrepreneur in one of Nicaragua’s greatest growth sectors, beekeeping.

For Uriel, knowing how the climate is changing is essential. *“The good thing about Proyecto Adapta is that they are working with the climate. There are other projects which work with yield and production, but they have forgotten that if the climate is not right, there is no production or reproduction. If you have prior warning of where you should move the beehives to, this can help us improve production.”*

Nicaragua is fourth on the list of countries in the world most affected by climate change, and its beekeepers know this better than anyone: *“During this last year, we have had long droughts in the dry zone,”* says Uriel. *“We used to move the hives to the Huaco zone, but we can’t do it any more because it hasn’t rained for three years. This is a 50% production loss. Last year, I extracted 20 barrels of honey in the summer. If it had been a good year, I would have got 40. Sometimes we have to get into debt in order to keep going. Many beekeepers are no longer there. They haven’t coped. You have to put up with difficult times because of the climate.”*

However, Uriel is determined to cope, and to ensure that his hives and production continue to grow.

“With this project, we will be able to monitor the climate,” he adds. *“We will know how dry the Huaco and Nagarote zones will be, and move the hives accordingly. Because if you move a hive without knowing how the zone will be, it can be lost”.*

Proyecto adapta will provide quality climate information, analysis and training for the management of cocoa and honey production with the impact of climate change and training in business administration. It is hoped that within four years, beekeepers like Uriel may be able to increase their production by 2.5%.

[SEE PHOTO GALLERY](#)



Scientific basis of the project

Information is the future

The methodology and key to success of **Proyecto adapta** is based on rigorous scientific studies and analysis of all the variables which may affect the production of cocoa and honey in Nicaragua, paying particular attention to the instability of the climate, how this affects production, and the phenological characteristics of each crop.

During the first year, numerous studies have been carried out which have allowed us to guarantee that our actions and recommendations are trustworthy. Three areas of our research are highlighted here:

OUR EARTH

We carried out a study of the main soil characteristics. We wanted to know what their chemical and physical characteristics were, what the soil was being used for, and what potential the project zones have to be used for giving the best adaptation advice. We also carried out a study to decide where to place our 20 weather stations and 14 cocoa and honey species phenological observation posts.

OUR CROPS

We carried out three different studies to find out what the current cocoa, coffee and honey species outputs are in each one of the project zones and answer questions such as:

What will happen to Nicaraguan coffee due to climate change?

What is the current state of cocoa cultivation and honey production?

Which cocoa varieties have the best yield? And which honey species?

What are the best conditions to improve yields?

THE CLIMATE

Studies on climate information. **Proyecto adapta** is supported by the generation of real, localised climatic information from the project production zones and for the specific needs of the producers. **To this end, we have completed:**

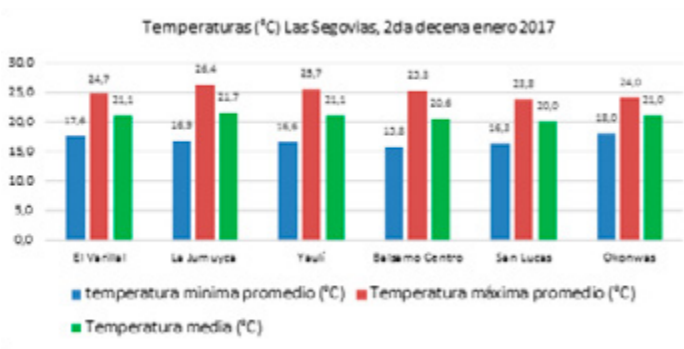
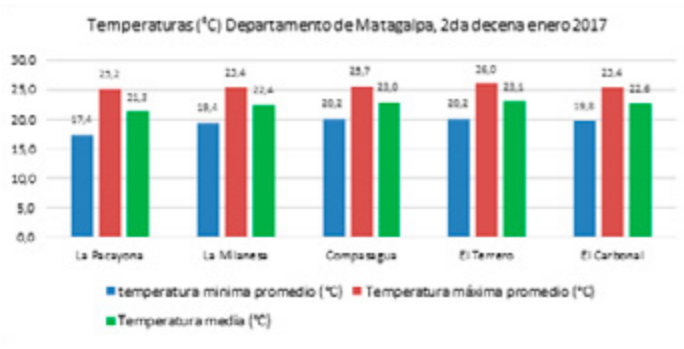
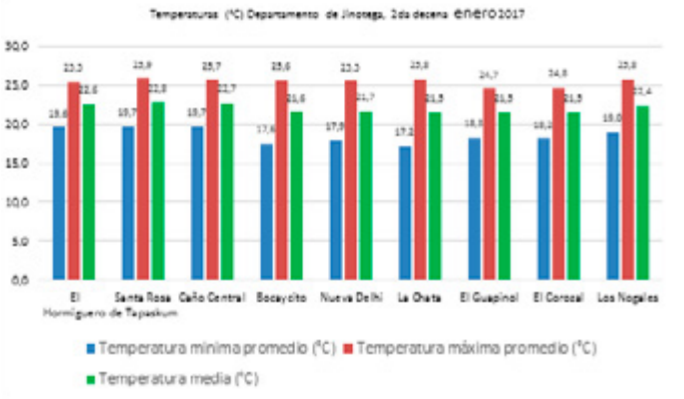
-**An analysis** of the world weather database and the national Nicaraguan weather database to establish the parameters and indicators associated with the weather and growth patterns of cocoa and plants used by bees. This is to populate our own database for **Proyecto adapta** and to assess the technical accuracy of current climatic information, so it can be taken into consideration within our own information and forecasting system for the long and medium-term.

-**Detailed climatic reports** on the areas in which **Proyecto adapta** is being developed using data as a reference to determine the principal weather characteristics and to make a detailed assessment of the weather patterns in each zone.

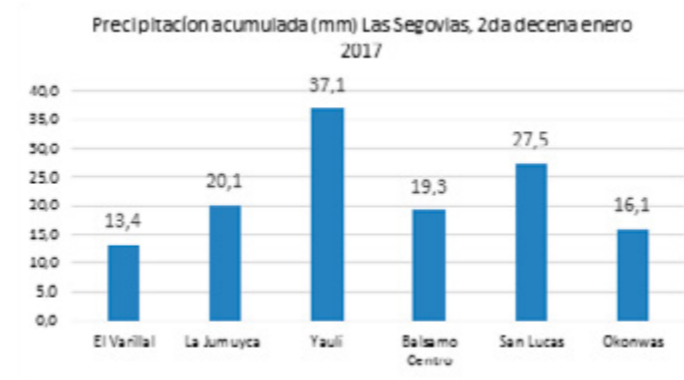
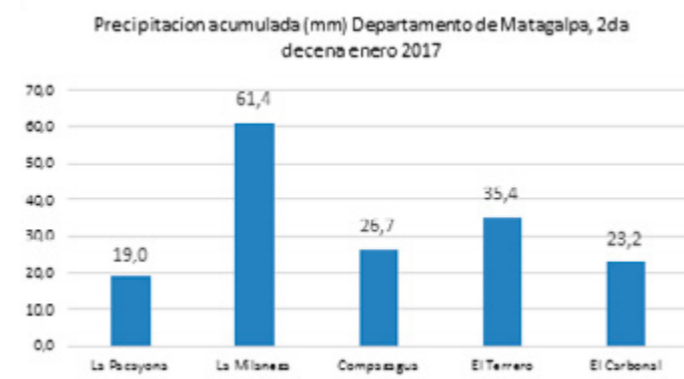
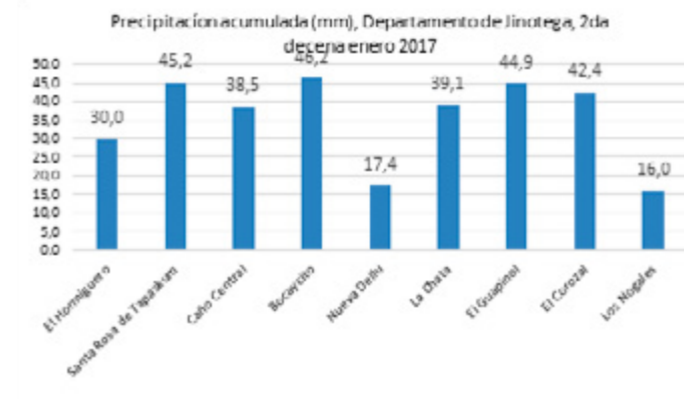


The climate

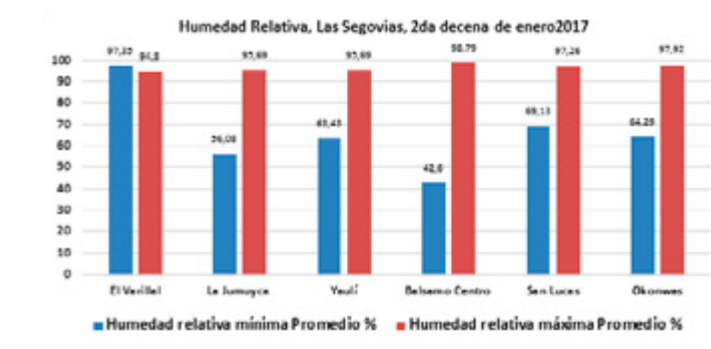
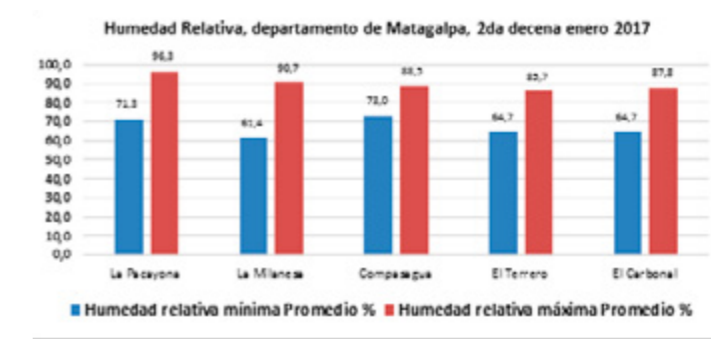
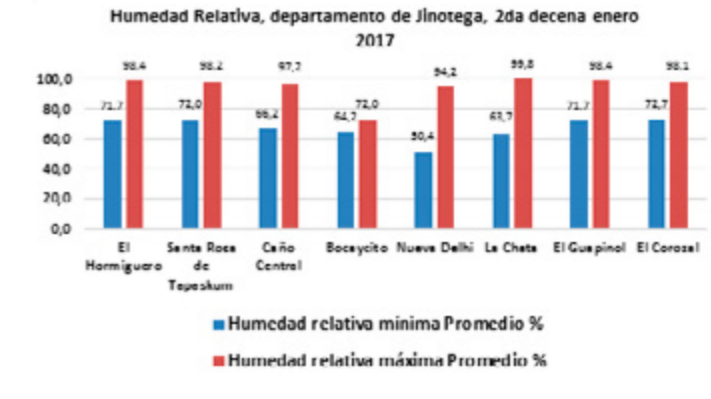
TEMPERATURE



RAINFALL



HUMIDITY



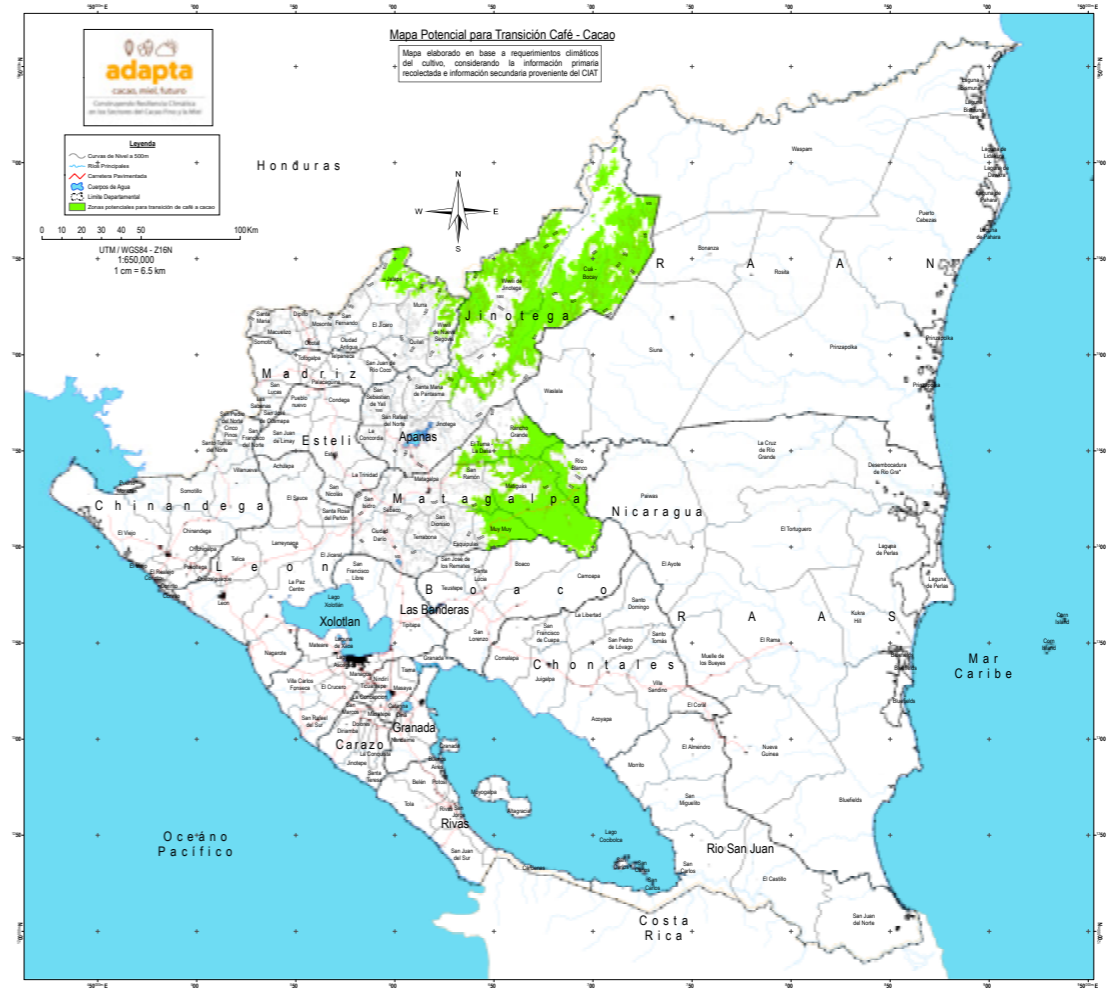
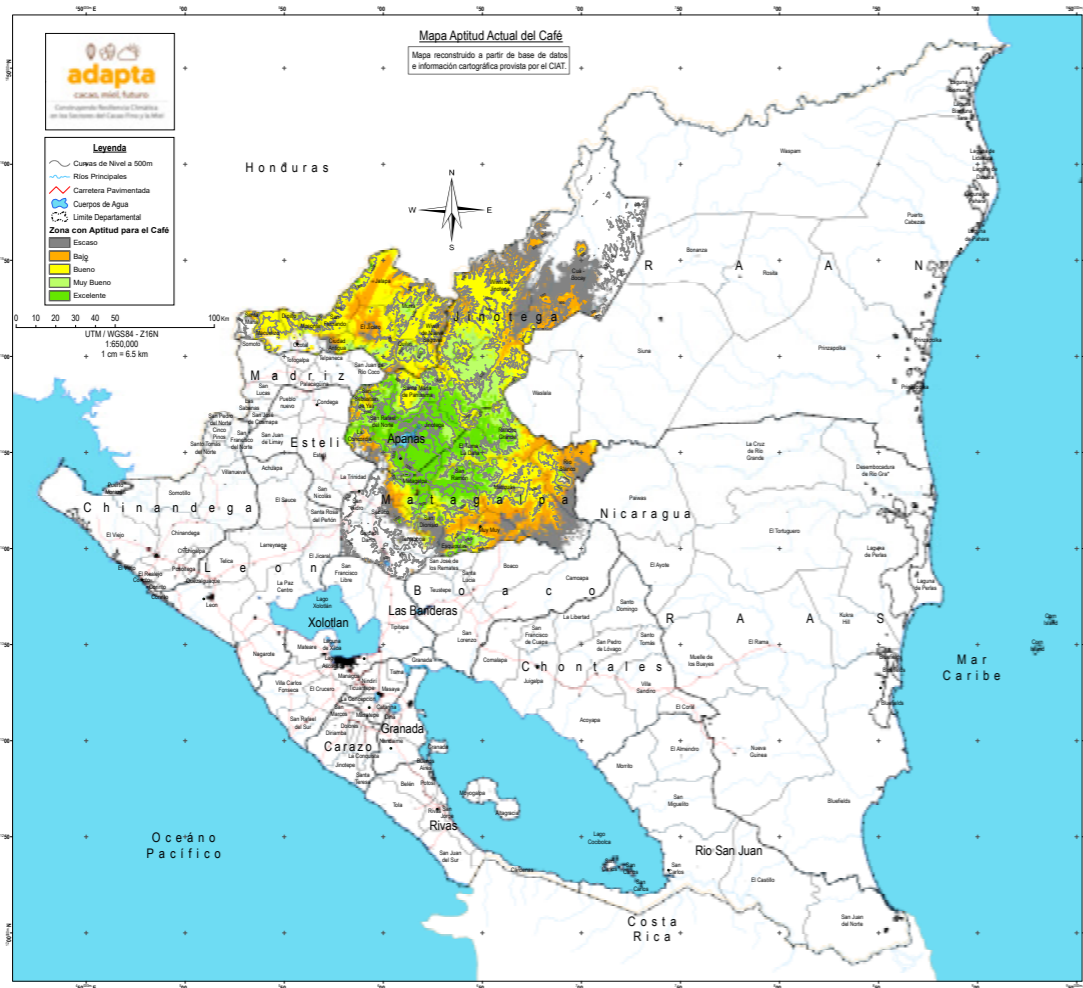
Our crops



Map of current coffee crops



Map of potential crop transition (coffee into cocoa)





Training

Learning for life

Proyecto adapta has the ambitious aim of giving power to producers. So producers in Nicaragua can really adapt to climate change with its constant and varied consequences, it is vital that they themselves manage not only the information but also the tools which can provide them with this information.

We want the knowledge derived from this project to belong to everyone and be available to everyone. Because of this, the training and workshops are a central tenet of **Proyecto adapta**.

During the course of this first year, we have developed workshops both for the technical teams from the supporting organisations and for the producers.

Highlights of this are:

Training on the effects of climate change:

How is it affecting Nicaragua? What impact is it having on cocoa and honey production?

Training for the 20 observing producers and their families on how to manage the weather stations and to carry out the phenological observations for cocoa and bees.

How is the data collected? How should the agricultural weather bulletins be interpreted?

How is the data collected? How should the agricultural weather bulletins be interpreted?, the first experiences of the project presented by the observing producers, the situation for cocoa and honey in Nicaragua and the interpretation of the data provided by the project.





International trade fairs

Fine quality



The cocoa which comes from **Proyecto adapta** producers is fine quality. Ingemann has spent years working with cocoa plantations in Nicaragua.

The aim of this project is not only to increase yield, but also to ensure that the cocoa quality is as exquisite as ever.

To promote the great work **Proyecto adapta** producers are doing, representatives attended two international trade fairs: The Chocolate Show in London, and Le Salon du Chocolat in Paris. This was an excellent opportunity to put out information about this innovative project.



Achievements



On September 29, 2016, Proyecto Adapta was officially launched, and in the first year, we have achieved:

- ✓ 800 producers taking part in **Proyecto Adapta**. 20 of them will be observing producers with the task of collecting weather and phenological data.
- ✓ Clear limits have been set within the study with its 800 participants.
- ✓ 20 weather stations, eight phenological observation points for cocoa and five phenological observation points for bee species have been installed, following an exhaustive micro-localisation study.
- ✓ A study of the soil quality and potential has been carried out.
- ✓ A study of coffee seeds, their yield and potential has been carried out.
- ✓ A study of cocoa seeds, their yield and potential has been carried out.
- ✓ A study has been carried out on the genetic material of bee species, their yield and potential.
- ✓ A study has been carried out on the national and international weather databases in order to find out what climatic information we should share. We have made a detailed characterisation of the project zones.
- ✓ Six ten-year bulletins have been published with verified weather forecasts and specific advice for the crops of the 800 cocoa and honey producers in the project. These bulletins were sent by WhatsApp and also printed to ensure that everyone has access to them.
- ✓ Individual training has been given to the observing producers and their families, and two general training sessions for the 800 producers.
- ✓ Training has been given to the technicians from the project's supporting organisations.
- ✓ We have attended two international trade fairs.
- ✓ We have developed an online communication platform to share what we learn from the project.

Next steps

And this is only the beginning

This is only the first year of a project which promises to be a revolution for the cocoa and honey producing sectors in Nicaragua. This project is not only urgent and necessary, but is also designed to be a pioneer for projects in other countries and for other crops.

In the next few years:



We will generate solutions so small-scale agriculture can adapt to climate change.



We will keep training producers on the management of climate information and how to adapt their crops.



We will keep publishing our regular weather bulletins and alerts whenever necessary.



We will design an analysis tool to assess climate risk in the value chain.



We will create demonstration plantations which will enable us to prove that our climate resilient practices really work.



We will train our producers to improve their business models.



We will work with financial organisations to make them aware of the positive impact of our project and the importance of supporting climate change adaptation.



We will continue to publish and broadcast our achievements and news of our work.

And much, much more...

Our aims in numbers:

1000 cocoa and honey producers are trained and have better resilience to climate change.

10 innovations are used by producers to make them more resilient.

12% growth in annual sales for small producers of organic honey and fine cocoa to Ingemann through being more resilient.

2.5% annual income growth for small producers of organic honey and fine cocoa through being more resilient.


Visit our website at | www.proyectoadapta.com | and follow us on **Facebook**.



PROYECTO ADAPTA

Proyecto ATN/ME-15095-NI; ATN/NV-15096- NI

www.proyectoadaptacom

 ProyectoAdapta



P16 BID licence/disclaimer.

Copyright © 2017 Inter-American Development Bank. This work is licensed under Creative Commons IGO 3.0 Attribution-Non-Commercial-Non-Derivative (CC-IGO BY-NC-ND 3.0 IGO)(<http://creativecommons.org/licenses/by-nc-nd/3.0/igo/legalcode>) and can be reproduced for any non-commercial use by granting credit to the IDB. Derivative works are not allowed.

Any dispute relating to the use of IDB works that can not be resolved amicably shall be submitted to arbitration in accordance with UNCITRAL rules. The use of the IDB's name for any purpose other than for the attribution and use of the IDB logo, shall be subject to a separate license and is not authorized as part of this CC-IGO license.

The opinions expressed in this publication are solely those of the authors and not necessarily reflect the views of the Inter-American Development Bank, its Executive Board and Countries it represents.