



Commodity Hub Ecuador

Global Programme:
Sustainability and Value Added
in Agricultural Supply Chains
(AgriChains)

Activities in the banana supply chain



Implemented by



Commodity Hub Ecuador

(Global Programme AgriChains)

The *Commodity Hub Ecuador* Project of the German Development Cooperation Agency, GIZ, is part of the Global Program: Sustainability and Value Added in Supply Chains (AgriChains), commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The area of intervention covers the provinces of El Oro (bananas) and Esmeraldas and Napo (cacao) in Ecuador. *The Commodity Hub* seeks to improve sustainability in agricultural supply chains for bananas and cacao, recognizing the importance of linking consumers in the destination countries and production conditions in the country of origin. The Project works on three of the four priority areas of focus of the German cooperation:

- ▶ **Effectively reduce poverty, hunger, and inequality:** promoting transformation towards sustainable and resilient agri-food systems; decent work, living wages and sustainable supply chains; training and employment especially for young people.
- ▶ **Promote fair transition with determination:** create decent and climate-friendly jobs; better adapt to climate change; protect and restore natural resources and biodiversity.
- ▶ **Establish a feminist development policy:** promote gender equality, equitable representation, strengthening of rights and better access to resources.

The main focus of the Project is to sustainably increase yields, raise incomes and promote more and better employment in both chains. To achieve these objectives, the Project promotes innovative and digital solutions, strengthens the capacities of stakeholders, seeks cooperation with global stakeholders, supports linking farmers and international markets, and promotes knowledge transfer.

This document presents the activities underway and implemented, with a focus on the banana supply chain.

Our partner

Ministry of Agriculture and Livestock and its aligned agencies: Agency for Phytosanitary and Zoo sanitary Regulation and Control (Agrocalidad) and National Institute of Agricultural Research (INIAP)

Target group

Small banana farmers and associations from the province of El Oro, located in southern Ecuador, on the border with Peru.



Cooperation areas



Decent work, living wages,
transparent and fair supply chains



Sustainable management of natural
resources and climate change



Access to markets and
creation of added value



Towards a feminist
development policy



Emergency situations
due to pests and diseases

Activities in the banana supply chain



1. Better working conditions for cardboard recycling workers
2. Empowerment of banana workers to overcome poverty
3. Working towards more transparency in banana supply chain - Technical and functional analysis of the UNIBANANO system



4. Climate changes - production adapts. Free access to meteorological data for small farmers
5. Sustainable water management in small scale banana production
6. Use of renewable energies in banana production: Less CO2, more independence
7. Study: Impact of climate change on banana production in Latin America
8. Sustainable management of plastics in banana production
9. Promotion of bio-inputs: local production at low-cost production
10. Promotion of green infrastructure at border crossings: Environmentally friendly disinfection tunnel
11. Agriculture 4.0: Use of drones and artificial intelligence to control banana crops



12. Diversification of incomes, access to markets: Direct sale of baby bananas to European markets
13. Dual education for a sustainable banana production
14. Easy access to organic certifications for small scale banana producers
15. Improving access to international markets: Promotion of Ecuadorian Good Agricultural Practices (GAP)
16. Adding value to unsold bananas - diversifying income. The "Banapan" venture
17. Reducing malnutrition among school kids by promoting local consumption of bananas and cacao



18. "Rural Youth" Entrepreneurship School
19. Studies and trainings with a gender approach. "The situation of women, youth, and vulnerable groups in banana production"



20. A network of laboratories for research and pest control
21. An educational campaign to prevent the spread of banana pests





Decent work, living wages, transparent and fair supply chains



Better working conditions for cardboard recycling workers



Partner:
FSC Germany
and FSC Ecuador



Cooperating:
Guayaquil's Municipal GAD,
PROCARSA, Productora
Cartonera S.A., Dole



Duration:
June 2021 - June 2023



Target group:
100 recycling workers from
Guayaquil and areas of influence
of the banana sector



Indicators:

- Improves employment
- Improves income • Gender
- Political strategies • Innovation
- Leading companies
- Capacity building • Standards and certifications

Description of the activity:

The banana sector is one of the main buyers of cardboard for packaging and exporting fruit. In Ecuador, the cardboard industry requires approximately 300,000 tons of raw material per year. About 180,000 tons (53.3%) of this raw material are collected in the country (75% cardboard and 25% paper), of which about 50,000 tons (29.36%) are collected by recycling workers in the country's four largest cities: Guayaquil (over 28,000 tons), Quito (around 20,000 tons), and Cuenca and Manta (around 2,000 tons).

Approximately 160,000 tons are imported annually to cover domestic demand. These imports could be substantially reduced by almost 60,000 tons by working directly with recycling workers.

Sixty percent of the recycling workers in Ecuador are women and/or senior citizens who suffer from chronic illnesses and are often the sole breadwinners in their households. During the COVID-19 pandemic, the vulnerability of this group increased due to lockdown and activity-restriction measures that prevented them from earning their only daily income.

To contribute to a post-COVID economic reactivation and improve the social and working conditions of recycling workers at the grassroots level, we work together with FSC Germany and FSC Ecuador. The project links this group with the cardboard and paper industry to increase sustainability in the banana supply chain. The project acknowledges the important work of grassroots recycling workers and seeks to make their economic, social, environmental, political, and cultural contributions visible, while promoting job creation.

Collaboration with FSC Germany raises awareness among consumers in European markets and seeks collaboration with the private sector (retailers) to include sustainability criteria in their sourcing policies for certified banana boxes.



Empowerment of banana workers to overcome poverty

Description of the activity:

Social development strategies in the banana sector mainly focus towards improving incomes and wages but ignore other aspects that guarantee better living conditions for workers. In other words, increasing economic compensation alone does not guarantee that families will have a decent life.

This is why this activity seeks to complement social responsibility strategies that are currently being implemented through a new work model that empowers banana workers and their families. This model, called the Poverty Elimination Stoplight, brings about structural and sustainable changes so that workers can overcome multidimensional poverty and improve their quality of life. The stoplight is a comprehensive and participatory model that guarantees the implementation of social programs involving all the stakeholders in the value chain.

With this stoplight, employees and collaborators identify their needs and priorities to improve their quality of life. Based on this information, associations or companies develop improvement plans.

The workers themselves and their families evaluate their quality of life in seven dimensions: 1) Income and employment, 2) housing and infrastructure, 3) health and environment, 4) organization and participation, 5) inner self and motivation 6) education and culture 7) agroproductivity.

Family information on these parameters is recorded in a geo-referenced platform that allows associations or companies to focus and enhance social responsibility programs. Through traceability systems, information on the impact made will be available to end consumers, so retailers will be able to offer spaces for promoting the social responsibility actions behind the product.



Partner:

Paraguay's Foundation for Cooperation and Development



Duration:

December 2022 - June 2024



Target group:

workers of banana farms in the province of El Oro



Indicators:

- Improves employment
- Innovation
- Capacity building
- Cooperation with private sector
- Gender
- Living wages/decent work



**Partner:**

Ministry of Agriculture and Livestock

**Duration:**

December 2022 – June 2024

**Target group:**

banana sector

**Indicators:**

- Innovation
- Political strategies
- Digitalization



Towards more transparency in banana supply chains. Technical and functional analysis of the UNIBANANO system

Description of the activity:

In Ecuador, the Ministry of Agriculture and Livestock continuously monitors to ensure the transparency of the banana registration and export processes. For this, the “Unibanano” system, operating since 2012, is used. The data of farmers, exporters and sellers are registered and updated here. The aim is to control the purchase and sale contracts of the fruit with authorized exporters.

The system showed alleged irregularities in calculating production areas versus productivity of boxes per hectare. To determine the status of the system and make recommendations, the Project supported the Ministry with a Technical and Functional Analysis.

Since presenting the results of this analysis in 2022, the Ministry has implemented actions focused on updating and improving the platform. One of them is aimed at reviewing and improving the system's security. At the same time, the Ministry is promoting internal analysis processes to move towards building a modern system to make the marketing of bananas transparent for the benefit of farmers, exporters, and consumers.





Sustainable management of natural resources and climate change

Climate changes - production adapts. Free access to meteorological data for small farmers

Description of the activity:

Having control of the environmental variables that influence crop development is important for agricultural production. Generally, these data and the tools to obtain them are expensive. With support from the Sustainable Supply Chains Project in Ecuador, this information will be available to small banana farmers through a network of weather stations and a digital platform called the Banana Observatory.

In banana production, weather stations are used to plan aspects such as irrigation since they can measure soil moisture to determine whether to irrigate the crop or not. At the same time, meteorological data allow precise fertilization planning. Thus, production is improved while being environmentally friendly by saving resources.

As part of the activity, six weather stations were installed on the farms of small and medium-sized banana farmers in the country's main banana farming areas. These stations will feed into and be interconnected with an existing network.

The information generated by the stations will be processed and analyzed on a web platform, the Banana Observatory. The platform is free to access and contains not only meteorological data but also data on production, marketing, production indicators, among others. It will be available to over 4,000 farmers.

The Observatory's aim is to improve crop management and productivity, and to reduce shrinkage levels, i.e., fruit that is not exported and remains in the domestic market. The information contributes to planning production cycles, efficient use of water, fertilizers and pesticides, and strengthens resilience to the effects of climate change.



Partner:

Ecuadorian Association of Banana Exporters "AEBE"



Duration:

December 2021 - November 2023



Target group:

4000 small banana farmers



Indicators:

- Improves income
- Improves yield
- Climate change
- Innovation
- Digitalization
- Cooperation with private sector



Sustainable water management in small scale banana production

Description of the activity:

Agriculture uses 70% of the world's freshwater and because of the growing population, global food production is expected to increase 70% by 2050. This will have a direct impact on water resources.

Banana plantations require abundant and frequent water supply for the various processes involved in the production of the fruit. It is important for the industry to know the measures that can be applied to reduce freshwater consumption and contamination in agricultural production. Additionally, this is a relevant issue for consumers, who are increasingly demanding more information on the impact of the products they buy.

In 2022, a water footprint study was conducted in the province of El Oro, one of the most important banana production areas in Ecuador. The water footprint is an indicator of the direct and indirect use of freshwater by consumers or, in this case, banana farmers.

The amount of water used in production and for washing prior to packing bananas for export was determined. The study is complemented by a sustainability analysis, a document with good practices and technologies identified, and provides strategies and concrete measures for efficient water management.

Good practices and technology identified:

- Recirculation of water in fruit washing.
- Reduction of tub depth.
- Regulation of inlet flow rates in fruit washing.
- Integrated irrigation management.
 - Substitution of nitrogen fertilizers for organic fertilizers.
 - Organic matter management.
 - Creation of connectivity corridors and landscape management.

The study recommends working on measures at the farm level, but also on actions to manage and restore the landscape that creates water for irrigation in the banana-growing zone. To this end, work is currently underway on pilots for the implementation of best practices on farms and landscape management measures in micro-watersheds.

With these actions, small farmers implement measures to adapt to climate change.

 **Partner:**
several

 **Duration:**
since August 2021

 **Target group:**
associations of small farmers from El Oro, decision-makers

 **Indicators:**

- Improves income
- Improves yield
- Innovation
- Capacity building
- Climate change
- Political strategies





Use of renewable energies in banana production: Less CO₂, more independence

Description of the activity:

Between 5% and 10% of cacao and banana production costs result from energy expenses. Most non-renewable energy is used for irrigation, crop management, and post-harvest (drying, storage). Besides emissions caused by the use of diesel or gas, access to energy for small farmers is limited and increasingly expensive.

In 2022, an analysis of the technical feasibility and economic profitability for applying renewable energy technologies in cacao and banana production, with emphasis on small-scale production, was carried out. Energy demands were analyzed through a sample of farms, including mapping and meteorological measurement with the use of stations.

Mapping was carried out using the Value Links methodology, developed by GIZ, whose aim is to promote economic development with a value chain perspective, from a participatory learning approach.

The study shows that replacing diesel or gas with renewable energy systems has high potential for cost savings and mitigation of CO₂ emissions. Likewise, by applying renewable energy technologies, farmers are becoming more independent of volatile energy markets.

Key results:

- In banana and cacao, the use of electric scythes with rechargeable batteries through solar panels are technically feasible and economically viable options. Payback time is estimated between 5 and 7 years.
- Banana storage in cold chambers (powered by renewable energies) has proven to be a feasible and cost-effective solution (with a payback of 6 to 8 years). Moreover, possible loss of fruit is reduced.

As a next step, applications of technologies that have been shown to be feasible and profitable in banana and cacao farms are being piloted.



Partner:
several



Duration:
since January 2022



Target group:
small scale farmers from El Oro,
decision-makers



Indicators:

- Improves income
- Improves yield
- Innovation
- Capacity building
- Climate change



Study: Impact of climate change on banana production in Latin America



Description of the activity:

The economies of several countries in Latin America depend on banana exports. Climate change impacts all agricultural production, including bananas. To better understand the changes ahead, a study was developed in 2020 comparing the effects of climate change for specific banana growing regions in four countries: Colombia (Antioquia, Magdalena, La Guajira), Ecuador (El Oro), Costa Rica (Heredia), and Dominican Republic (Mao and Azua).

The research provides an analysis of the changes already observed (ex post) and a model of the effects that will most likely happen (ex-ante). It is based on the two IPCC climate model scenarios up until 2050 and 2070, and shows the following key results:

- Temperature increase is already seen and impacts production in each of the regions. The model shows an increase in all regions until 2070 by up to 2.98 degrees in Magdalena-Colombia.
 - Change in precipitation does not appear to be uniform across regions. According to the models, El Oro (Ecuador) is one of the productive regions that could potentially benefit from the projected changes with up to a 10% increase in precipitation.
 - Magdalena (Colombia) and El Oro (Ecuador) are likely to benefit from the effects of climate change on yields due to increased rainfall. All other production regions analyzed will see a negative impact.
- Furthermore, based on the results obtained, the study gives recommendations for public decision-making and adaptation policies.



Target group:
decision-makers, banana sector in general



Indicators:

- Political strategies
- Improves yield
- Climate change



Sustainable management of plastics in banana production

Description of the activity:

Banana production requires the use of plastics in several processes. For example, when farming, polyethylene sleeves are used to sheathe the acorn and protect the fruit from possible pests and damage to the product for export.

Plastic separators are also placed between the so-called hands of the bunch to prevent friction and mechanical damage to the fruit. Additionally, plastic sleeves are used for packing the fruit.

Likewise, the plants are secured at the plantation using ropes or plastic strips to prevent them from tipping over. Agrochemicals are marketed in plastic tanks and containers.

Against this background, a study is being developed to establish the use of plastics in the banana supply chain in the province of El Oro. Data obtained will provide quality information on the amount of plastic used in the banana supply chain, management models with sustainable practices, and the potential for undertaking circular economy processes with the private sector.



Partner:
several



Duration:
since January 2023



Target group:
banana farmers in El Oro,
decision-makers



Indicators:

- Capacity building
- Innovation
- Climate change
- Cooperation with private sector
- Added value
- Leading companies
- Political strategies





Promotion of bio-inputs: local production at low-cost production



Partner:

Inter-American Institute for
Cooperation on Agriculture (IICA)
National Institute of Agricultural
Research (INIAP)
Ministry of Agriculture and
Livestock (MAG)



Target group:

150 farmers of four
associations from El Oro



Indicators:

- Improves income
- Improves yield
- Innovation
- Climate change
- Funds for Ukraine
- Capacity building
- Standards and certifications

Description of the activity:

War between Russia and Ukraine have seriously affected Ecuadorian agriculture. For instance, 32% of imports of mineral fertilizers and farming supplies for the banana sector come from Russia. Due to the conflict, there was a four-fold increase in prices and shortages of agricultural supplies, which prompted the search for low-cost domestic solutions for banana production.

To reduce dependence on external supplies, the company is working on the local production of organic fertilizers. With support from the Sustainable Supply Chains Project, four associations are implementing laboratories for producing trichodermas and biols to scale up these innovations to more farmers.

Trichodermas are a type of fungus that can achieve biostimulant and biocontrol effects beneficial to plants. These include improved soil health to boost productivity and reduced pest attack. Biols are organic waste-based preparations that are rapidly absorbed and support crop strengthening.

With this activity, banana farmers develop their own bio supplies in laboratories set up in their associations. They also test the effectiveness of these materials in demonstration plots. As a result, farm production is improved in a sustainable manner and independence from agro-supply markets is increased.

The application of biols and fertilizers is expected to be carried out on approximately 2,000 hectares of banana crops. Approximately 400 farmers will be involved in this initiative.





Promotion of green infrastructure at border crossings: Environmentally friendly disinfection tunnel

Description of the activity:

Foc R4T is a fungus that grows in the soil and has the potential to seriously affect Musaceae such as banana and plantain. This disease has caused great losses in countries where it has been detected, since it attacks the plant by entering from the soil where it remains for approximately 30 years. Foc R4T is easily spread and drastically reduces banana production.

In addition, Foc R4T can be easily transported through soil stuck on vehicles that passed through a contaminated plantation, tools, or people's shoes, making it a constant threat in border areas.

A common practice is installing disinfection arches or tunnels where quaternary ammonium is applied to all heavy vehicles. These systems require proper management, otherwise the chemicals used can contaminate soil and water and harm people.

In 2022, the first environmentally friendly disinfection tunnel was delivered. The tunnel was built based on an environmental impact study and included a water recirculation system. It was installed using sustainability criteria and includes a waste trap and a chemical deactivation system to allow water reuse in the disinfection process. This tunnel is located on the border between Ecuador and Peru (a country with confirmed presence of Foc R4T). This is currently the most vulnerable geographic zone given that the border province of El Oro is one of the largest banana producers. Seventy percent of production is small-scale and involves approximately 4,000 farmers.

Due to its characteristics, this tunnel has become a regional benchmark in terms of prevention, containment, and biosecurity measures against Foc R4T. This innovation is being scaled up to other border crossings in the region.



Partner:

Agency for Phytosanitary and Zoo
sanitary Regulation and Control
(Agrocalidad)

Municipality of El Oro (local government)



Duration:

since May 2021



Target group:

small scale banana farmers

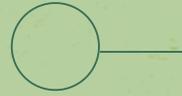


Indicators:

- Food safety
- Innovation
- Environmental conservation



Agriculture 4.0: Use of drones and artificial intelligence to control banana crops



Partner:

National Institute of Agricultural Research (INIAP)



Target group:

associations of small scale banana farmers



Indicators:

- Improves employment
- Improves income
- Climate change
- Improves yield
- Innovation
- Capacity building
- Digitalization

Description of the activity:

The main idea of agriculture 4.0 is to achieve maximum productivity with minimum agro-inputs. The greatest challenge in this type of precision agriculture is the use and management of advanced technological tools; that is, their availability and accessibility in the field.

Based on studies and pilots, the project was able to prove that with the use of drones and a web platform it is possible to monitor different crops to identify pests and diseases in time and inexpensively. Early detection of diseases allows an immediate reaction in a limited affected area and, if necessary, a minimum application of pesticides. This contributes to a potential reduction in using chemical inputs.

How does it work?

The drones take photographs of the crops at around 30 meters above the ground. These images are processed on a web platform to identify sick leaves that show symptoms such as yellowing, among others.

These photographs are evaluated by technical personnel involved in phytosanitary surveillance to confirm or rule out crop pests. The initiative transforms the work previously done by technical personnel monitoring farms on foot. The increase in the area monitored can reach 100 hectares per month per drone.

The advantage of this tool is that it is easily accessible at affordable costs for small farmer associations. Through drone flight training, farmers learn how to transfer the images they take with their drones to a platform that allows them to monitor their crops and keep updated information.

The web platform can be upgraded in the future; for example, with the integration of hyperspectral cameras and thermal imaging to detect more plant diseases. Likewise, the innovation can be applied to other crops beyond bananas.





Access to markets and creation of added value

Diversification of incomes, access to markets: Direct sale of baby bananas to European markets

Description of the activity:

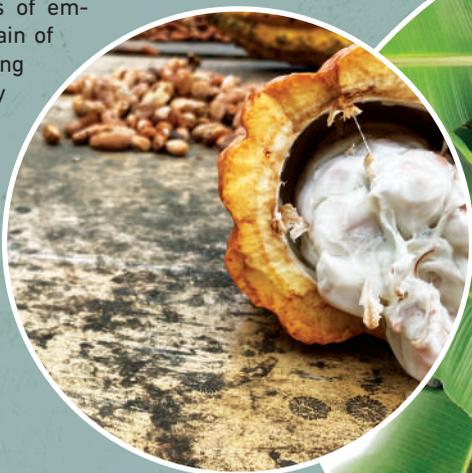
"*Orito*" is a type of banana that is approximately 12 cm long and is sweeter. It is also called baby banana or lady finger because of its finger-like dimensions.

Because of its size and flavor, *oritos* are the favorite of children and is a snack or school lunch complement. It can be eaten raw or baked and roasted.

In El Oro, the province that exports the largest quantity of bananas in Ecuador, *orito* cultivation is normally associated with cacao farming, along with timber and fruit trees. Farming in these diversified agroforestry systems has the advantage of greater biodiversity and good soil and water management. At the same time, farmers can sell not just one product but several. By increasing the area of *orito* farming in agroforestry systems, the income of small farmers can be improved.

For this reason, work is underway on a project involving over 100 cacao farmers, so that at least 100 families can produce *orito* bananas in agroforestry systems and sell them directly in international markets.

By increasing the sources of employment in the supply chain of banana and its types, living incomes and the quality of life of families will improve. Furthermore, it reduces migration of young people from rural areas to the city.



Partner:

Union of Cacao Farmers' Organizations (UNOCACE)



Duration:

December 2022 - November 2024



Target group:

small *orito* farmers in the province of El Oro



Indicators:

- Improves income
- Innovation
- Climate change
- Cooperation with private sector
- Standards and certifications



**Partners:**

Regional Corporation of Banana Farmers of Ecuador "Agroban"
Humboldt Zentrum

**Duration:**

2021 – 2023

**Target group:**

500 small scale farmers from farming associations of the provinces of El Oro, Guayas and Cañar.
30% women
15% young adults

**Indicators:**

- Improves income
- Improves employment
- Climate change
- Sustainability
- Innovation
- Capacity building
- Certifications
- Gender



Dual education for a sustainable banana production

Description of the activity:

Workers and small farmers who directly manage crops in the field and the administrative staff of banana farms in key regions of the country have often not had access to professional education aimed at sustainable production.

The program aims to help 500 small banana farmers in Ecuador learn how to increase their crops yield while protecting and conserving the environment. Participants are trained online and perform on-the-job training in the field (dual education). Topics to address include information and communication technologies, technical banana crop management, packing and export processes, and business management.

With this activity, farmers incorporate new technologies in the way they grow bananas. For example, they learn how to extract soil samples for better application of biols to replace chemical fertilizers and minimize pests.

They also learn about the use of weather stations to reduce water wastage and prevent root rot in plants. Furthermore, the project promotes the certification of farms with Good Agricultural Practices (GAP) to help with market entry.



Easy access to organic certifications for small scale banana producers

Description of the activity:

Due to costs and administrative efforts, access to certification can be challenging for small farmers. Therefore, one option is to train public and private professionals who can advise small farmers on organic certification processes before they enter the formal certification process. This prevents delays and costly problems.

As part of the "Training Program for Implementers of Organic Standards," over 100 people have been trained as experts in national and European organic standards to support the certification processes for sustainable and differentiated products from small-scale farmers.



Partner:

Agency for Phytosanitary and Zoo sanitary Regulation and Control (Agrocalidad)

Associations of small organic farmers
Municipalities and universities of the intervention zones



Duration:

October 2021 - February 2023



Target group:

400 representatives of the public and private sector, banana farmers
30% women
70% men



Indicators:

- Improves employment
- Improves yield
- Improves income
- Climate change
- Sustainability
- Capacity building
- Standards and certifications





Partner:

Agency for Phytosanitary and Zoosanitary Regulation and Control (Agrocalidad)



Duration:

since August 2021



Target group:

small scale farmers with a focus on those who do not have certifications to enter european markets



Indicators:

- Improves employment
- Improves yield
- Improves income
- Climate change
- Sustainability
- Innovation
- Capacity building
- Standards and certifications
- Political strategies



Improving access to international markets: Promotion of Ecuadorian Good Agricultural Practices (GAP)

Description of the activity:

The process to obtain international certification is a major challenge for small-scale farmers. Two major constraints are the cost of certification and the implementation process. With this in mind, the Ministry of Agriculture and Livestock, through the Agency for Phytosanitary and Zoosanitary Regulation and Control (Agrocalidad), is promoting the certification of Good Agricultural Practices (GAP) at the national level.

The aim of GAP is to promote sustainable production and food safety, i.e., food that is free of hazards that could harm the health of consumers. Moreover, cooperation agreements have been established for the development of GAP+ or deforestation-free farming.

GAP certification is currently undergoing a process of equivalence with the Global GAP standard. To provide international support for the GAP certification process, the Sustainable Supply Chains Project supports the implementation of the ISO 17065 standard. This seeks to make Agrocalidad the first national public agency in the world to issue certifications equivalent to Global GAP that are affordable for small-scale farmers at minimal cost.

While the accreditation process for Agrocalidad continues, the Sustainable Supply Chains Project provides support for developing a national strategy to promote and increase GAP certification in Ecuador's agricultural sector.





Adding value to unsold bananas - diversifying income. The “Banapan” venture

Description of the activity:

Conflict between Russia and Ukraine have seriously affected Ecuadorian economy and agriculture exports. Twenty-five percent of banana exports were paralyzed due to sanctions against Russia. Ecuador’s agricultural export sector faced an increase in the cost of inputs along with a decline in the sale price of fruit.

This situation prompted associations of small banana farmers to diversify their sources of income and add value to bananas grown for export that could not be sold.

The Oro Verde Cooperative, which brings together organic banana farmers, decided to start making flour to produce savory and sweet bread, many of which are gluten-free and have nutritional value.

The women and young people involved in this cooperative are responsible for drying and dehydrating the bananas to produce the flour with which they prepare the bread. These are sold in a small bakery located in the city of Machala, in southern Ecuador.

The bread is made under the BANAPAN brand name and come from bananas that have met all export standards but have not been able to be sold. This way, farming is used more comprehensively, jobs are created for women and young people, and new national markets are opened with view to international expansion.



Partner:
Oro Verde Cooperative



Duration:
finalized



Target group:
rural women and young people linked to associations of small banana producers



Indicators:

- Improves income
- Improves employment
- Innovation
- Cooperation with private sector
- Added value
- Capacity building



**Partner:**

World Food Programme
Ministry of Education
Ministry of Economic and Social
Inclusion

**Duration:**

December 2022 - October 2023

**Target group:**

small banana farmers, school kids,
and decision-makers

**Indicators:**

- Improves income
- Political strategies
- Cooperation with private sector
- Food safety
- Added value
- Funds for Ukraine



Reducing malnutrition among school kids by promoting local consumption of bananas and cacao

Description of the activity:

Bananas and cacao are important agricultural products in Ecuador. In 2022, the economic situation of farmers was affected as a result of the interruption in exports to Russia and Ukraine. Products that were not exported remained in Ecuador, with the domestic market unable to compensate for the losses. For example, domestic per capita banana consumption is only 2.5 kilos per year. Coupled with limited exports, liquidity and income problems of small farmers increase.

On the other hand, chronic malnutrition in Ecuador affects 23% of children under the age of 5, with a higher incidence among the rural indigenous population, where it reaches 40.71%. National statistics show that 35.4% of children between the ages of 5 and 11 are overweight and obese.

Therefore, encouraging the consumption of fruits such as bananas and cacao would help address nutritional problems, as well as the loss of income of small-scale farmers, especially in the provinces of Esmeraldas, El Oro, and Napo. The project to promote local consumption of bananas and cocoa seeks to mitigate the impact of the conflict between Russia and Ukraine, link alternative markets to sell to and, at the same time, support national efforts to reduce malnutrition.

One of the alternative markets to be targeted is the school feeding market. The inclusion of fresh produce in these meals is planned based on a model developed by the UN World Food Programme. This model involves the Central Government, local governments, parents, and small farmers who deliver their products directly to schools in rural areas.





Towards a feminist development policy



“Rural Youth” Entrepreneurship School

Description of the activity:

Technological innovation is an opportunity for young people in rural areas to undertake ventures that allow them to increase their income, improve their quality of life, and counteract rural-urban migration.

To support these opportunities, the Ministry of Agriculture and Livestock is developing entrepreneurship schools for young people between the ages of 18 and 29 in rural areas. These schools promote technological development in the countryside and aim to reduce the migration of young people by showing them new ways of working in agriculture.

One of the topics addressed in these spaces in 2022 has been the identification of banana diseases with the use of new technologies and digitalization.

The people participating could access credits of up to USD 20,000 through state support to pursue their entrepreneurial ideas and apply them in key areas of the country.

Young people also had the opportunity to present their venture proposal aimed at solving a problem identified in agriculture. The projects were assessed by a panel of experts and the best proposals received computers as a prize for developing their innovations.



Partner:

Ministry of Agriculture and Livestock



Target group:

young adults from rural areas



Indicators:

- Innovation
- Gender
- Climate change
- Political strategies
- Digitalization
- Capacity building





Target group:

160 decision-makers.
70% women and young adults



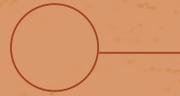
Indicators:

- Improves employment
- Standards and certifications
- Gender
- Political strategies
- Improves income
- Capacity building

Description of the activity:

The situation of women in rural areas and specifically in the agricultural sector is marked by limited access to skilled jobs, greater informal jobs than men, less access to productive resources, less control over the products of their work, and fewer sale opportunities. There is also a lack of recognition of their agricultural, domestic, or family care work.

Furthermore, gender-based division of labor places decision-making positions in the hands of men, which limits women's autonomy to manage financial resources. This situation can also apply to young people and vulnerable groups.



Studies and trainings with a gender approach. “The situation of women, youth, and vulnerable groups in banana production”

In 2022, a study was developed based on the collection of information and interviews with people linked to both value chains to establish possible strategies, activities, and recommendations. The purpose of the study is to establish a baseline for incorporating human rights, gender, intergenerational, and equity approaches in the implementation of activities of the Sustainable Supply Chains Project in Ecuador and in advising its partners.

At the same time, the study makes recommendations for defining public policies in this area. It is hoped that the Ecuadorian public sector will include the study's strategies in state programs focused on women and youth.

Associations of small farmers that were part of the construction of the study have requested support from the Cooperation Agency to build a gender strategy that considers local realities. There are plans to replicate this initiative with more associations.

Important findings:

- Jobs that require strength are not perceived as suitable for women, yet those are the highest paying ones.
- Credit programs often do not cover the high costs of production. Women without resources can only aspire to be farm employees.
- Young men and women who do not inherit a farm/business can only aspire to remain as employees.

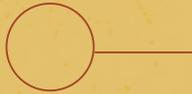
Main recommendations identified:

- Integration of more women and young people into the banana and cacao value chains under decent working conditions.
- Work on training and certification, associativity, and access to financial resources.
- Creation of multi-stakeholder partnerships, information on agricultural supply, and value-added certifications.





Emergency situations due to pests and diseases



A network of laboratories for research and pest control

Description of the activity:

Using robotic systems for sample extraction (DNA/RNA nucleic acids) for research and agricultural monitoring purposes strengthens progress and knowledge building in the country. The applied technology can be used for the detection of both COVID-19, through PCR tests, and the banana fungus *Fusarium R4T*.

In response to the health emergency, it was agreed, together with the Ecuadorian University Yachay, to use the equipment to improve the capacity to carry out PCR tests in the health sector. At the end of the pandemic, these tools were used to integrate the University into the national laboratory network system for the prevention of *Fusarium R4T*.

In 2020, an automated RNA/DNA extractor was delivered, which was first used to address the COVID-19 emergency in the country. Currently, this donation is part of the network of state laboratories that focus on the early detection of *Foc R4T*, a fungus that can affect the banana industry, which has been established in several Latin American countries as part of the biosecurity measures taken at the regional level for preventing and/or containing this pest.

Likewise, agreements and exchanges between laboratories have been promoted and technical training and joint methodologies to strengthen the network of analysis and research between laboratories have been supported.



Partner:

Agency for Phytosanitary and Zoo sanitary Regulation and Control (Agrocalidad)

Universidad de Investigación de Tecnología Experimental Yachay
National Institute of Agricultural Research (INIAP)



Target group:

banana sector, population affected by the COVID-19 pandemic, health sector



Indicators:

- Innovation
- Capacity building
- Funds for economic recovery post-COVID





Partner:
Agrocalidad



Target group:
small scale banana farmers, Ecuador's population (raising awareness)



Indicators:

- Capacity building
- Innovation
- Food safety



An educational campaign to prevent the spread of banana pests

Description of the activity:

Fusarium or Foc R4T is a soil-borne fungus that can seriously affect the banana industry regionally. To date, it has been found as a pest in Peru, Colombia, and Venezuela. Currently, Ecuador is free of Foc R4T.

As part of the measures to prevent the entry of this pest into Ecuador, the educational and informational campaign "Estamos Alerta, Ecuador sin Fusarium R4T" was developed, aimed at small banana farmers in Ecuador.

The campaign includes didactic material to be used in training and workshops with producers in areas where internet access and access other media is restricted. At the same time, it contains informative forms for communication platforms with the aim of raising awareness among the entire population.

The communication materials were developed jointly with the technical staff of the public institutions responsible for phytosanitary monitoring and have been validated by farmers. This ensures that the contents are understandable and applicable in the territories.



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