



Connected Landscapes and People

— IN CAQUETÁ —

Advocating for forest conservation and
low-emission rural development in the Amazon

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**Forest conservation initiatives
and low-emission rural
development in the Amazon**

CONNECTED LANDSCAPES AND CONNECTED PEOPLE IN CAQUETÁ

*Advocating for forest conservation and low-emission
rural development in the Amazon*



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Prologue

Dear Reader,

Putting together this book wasn't without its challenges for the team at Fondo Acción, but over the course of seven years, the Connected Landscapes Program helped us grow and mature as an organization in so many ways. It led us to face new challenges and put all our energy into the commitments to landscape transformation that we had presented to donors, allies and public entities. Summarizing all the experiences, achievements and frustrations in a single volume is an even bigger task. We could fill an entire library with all that we learned from this project.

In order to share our work with all of you, we needed to synthesize and be selective about what we say, so that what we learned with our partners and communities could reach a larger audience. Caquetá and its communities are unique, but the strategies designed for that context and the solutions used by Connected Landscapes can be adjusted and adapted to other scenarios, or serve as inspiration for new ways of addressing the issue of deforestation in Colombia.

The *Connected Landscapes Program* set changes in motion that are reducing deforestation and stimulating low-emission rural

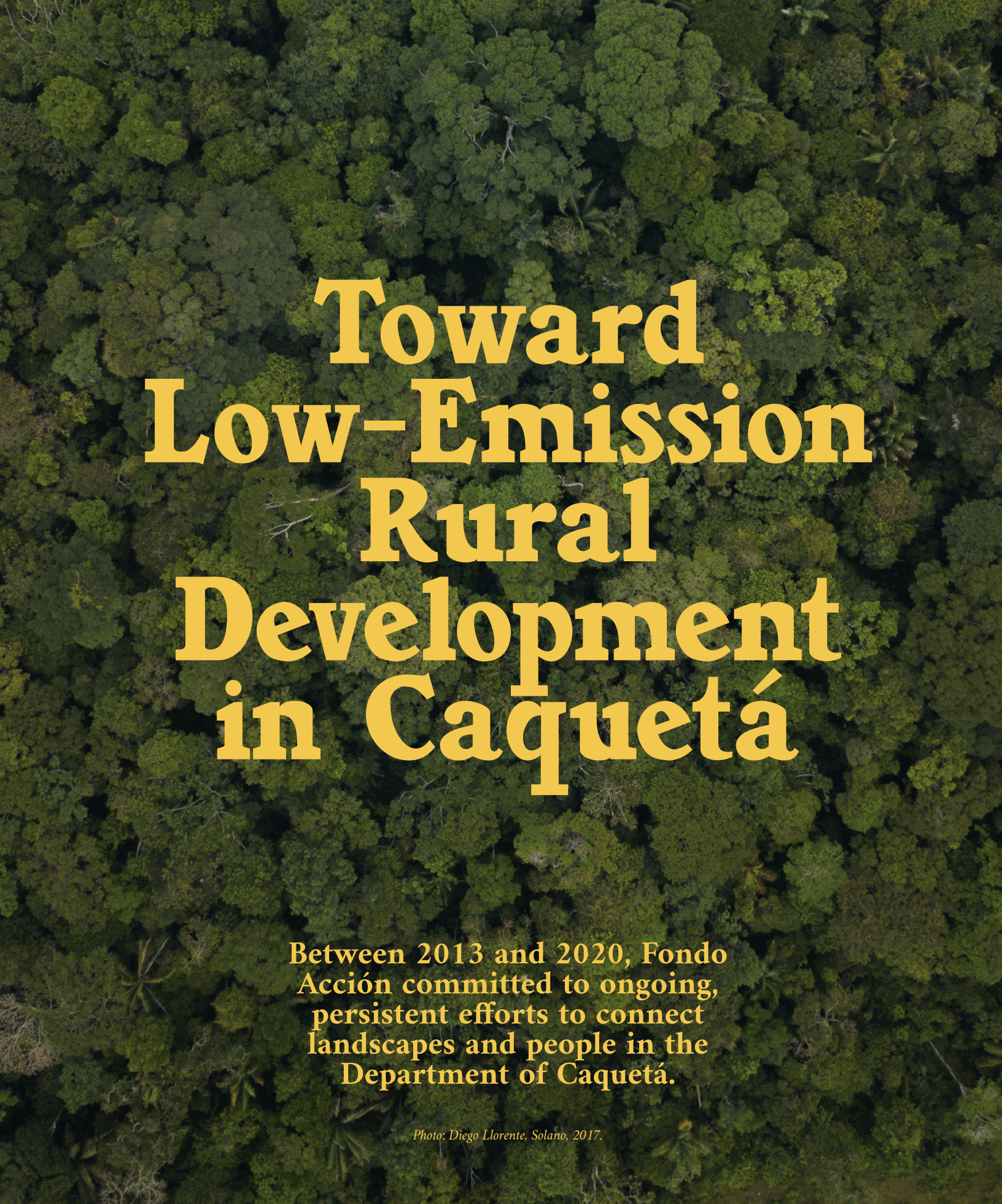
development in Caquetá. This text describes the efforts, main results and impacts. We hope it will serve as a reference for other initiatives that work toward forest conservation, protect the ecosystems of the Amazon, and simultaneously improving the living conditions of rural populations..

The first chapter gives a summary of the background for Connected Landscapes and describes the conceptual foundations of the program. In the second chapter, we describe the program's theoretical approach based on the initial problem, the assumptions, the strategies and the proposed steps, as well as the changes we expected to see when the intervention was complete. The third chapter describes the programmatic and methodological approaches that were put into practice. It includes a timeline and description of the main operational milestones, plus some of the main results of the program in light of the monitoring and evaluation indicators that were agreed upon. Chapter Four makes a more detailed analysis of the impacts of the program within Solano and Cartagena del Chairá. These are framed around three guiding questions about healthy ecosystems and

concern for the climate, as well as well-being, participation, and sustainable economic development. Finally, chapter five details the main lessons learned and some recommendations for present and future efforts to reduce deforestation, addressing the challenges of climate change and promoting the well-being of the people who live in the Amazon.

We, at Fondo Acción, would like to express our sincere gratitude to the people of the United States of America and the United States Agency for International Development (USAID). They kindly placed their trust and resources in the Connected Landscapes Program, and in the Fondo Acción team to spearhead this effort. I also wish to express my deep respect and admiration not only for the principles and values of Fondo Acción, but also for the commitment and dedication to this program on the part of the Connected Landscapes team, which I had the pleasure of joining for a time. Connected Landscape's story would be completely different had it not been for the generosity and openness of the Caquetá communities, and the invaluable support of our institutional allies that work within the department of Caquetá. Thank you all.

Natalia Arango V.



Toward Low-Emission Rural Development in Caquetá

Between 2013 and 2020, Fondo
Acción committed to ongoing,
persistent efforts to connect
landscapes and people in the
Department of Caquetá.

Photo: Diego Llorente, Solano, 2017.



Photo: Andrés Cardona, Cartagena del Chairá, 2019.

Fondo Acción has worked to limit the rampant deforestation in Caquetá and to promote a form of rural development that provides communities with real prosperity, safeguards the Amazon forest, protects biodiversity, and reduces carbon dioxide emissions. This chapter establishes the changing contexts of Caquetá over the

past seven years and discusses the origins of the project.

It provides a brief overview of the theoretical and critical concepts that helped introduce the Connected Landscapes Program into the region, and it ends by posing a set of guiding questions that will be addressed in the analysis section of this book.

Background

The Amazon biome is culturally and environmentally priceless. On the one hand, it contains the largest reserve of tropical forest on the planet, and it supplies the ocean with approximately 15% of all of the world's freshwater discharge. About 10% of all known biodiversity inhabits a region that stretches across the borders of Bolivia, Brazil, Colombia, Ecuador, French Guiana, Suriname, Peru and Venezuela. As the largest tropical forest reserve, the Amazon biome also retains between 90 and 140 billion metric tons of carbon, making it the world's largest climate regulator (WWF, n.d.). On the other hand, the enormous expanse of the Amazon—6.7 million km² (IUCN, n.d.), much of it very remote—is inhabited by more than 350 indigenous groups, of which at least seventy live in total isolation (Semana Sostenible, 2019). According to the United Nations Environment Programme (UNEP) and the Amazon Cooperation Treaty Organization (ACTO), 650 different dialects are spoken throughout this region. Given all of the above, there are endless efforts to halt the ongoing dynamics of deforestation and forest degradation in the Amazon. Initiatives to protect and conserve the natural forest and all its ecosystem services, as well

as its enormous cultural diversity, continue to be implemented at every level.



In Colombia, the Amazon region covers 48 million hectares, which represents 41% of the continental surface area of the country, and it contains the largest and most intact expanse of primary forest that remains.



In 2018, around 60% of the more than sixty million hectares of forest in Colombia were located in the departments of Amazonas, Caquetá, Guainía, Guaviare and Vaupés (IDEAM, 2018). Numerous studies have identified the Colombian Amazon as one of the country's most biodiverse regions, with high concentrations of endemic plant and animal species. In 2009, a study by the Humboldt Institute (IAvH) and The Nature Conservancy (TNC) identified up to six priority conservation sites in the south-western Amazon, based on criteria for protecting biodiversity.

There have been recurrent Conservation efforts in the Colombian Amazon throughout the country's recent history. Currently, 74.7% of the Amazon region falls under some form of protection (Gaia Amazonas, 2019). In total, 216 indigenous territories and 51 protected areas—including National Parks (PNN, Parques Nacionales Naturales), forest reserves, nature reserves, municipal parks, and regional parks—ensure that the Amazon's biological and cultural resources are being cared for (Gaia Amazonas, 2019).

As for its inhabitants, the Colombian Amazon is an ancestral home to several indigenous communities. At least 26 ethnic groups inhabit the Colombian Amazon (SINIC, n.d.), five of them located in the Andean foothills area. Likewise, over the last century, peasant populations descending from the Andean region have been colonizing the area in search of land and resources to exploit.

In addition to the cultural and biological diversity of the Colombian Amazon, it must be emphasized that it also provides much of the water that determines the environmental and social conditions in the greater Amazon basin, not to

mention the role this water plays in global climate regulation.

However, the strategic importance of the Colombian Amazon and its immense natural bounty have provoked ongoing, unsustainable demands on the region. In 2011, the Colombian Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) declared that the Colombian Amazon, particularly the Putumayo and Caquetá regions, had become one of the main sources of deforestation in the country, losing up to 300,000 hectares of forest per year (ha/year) (IDEAM, 2012). Between the 1990s and the 2000s, the primary forest in the department of Caquetá was systematically fragmented due to the encroaching agricultural frontier, illegal logging practices, illicit crops, and extensive ranching. Despite notable conservation efforts, during these two decades the country lost 6.2 million hectares of natural forest, with an estimated annual deforestation of 310,000 ha/year (Ministry of Environment and Sustainable Development, 2012). The *municipalities** of San Vicente del Caguán and Cartagena del Chairá, in Caquetá, were one of the focal points of deforestation at that time. By 2019, the situation had only become more

entrenched. Of IDEAM's early deforestation alerts, 84% were in the Amazon, and four of the region's thirteen early alerts were in the department of Caquetá (IDEAM, 2020).

In addition to their fundamental role in the economic activity of a region—by providing the goods and essential services that supply raw materials and ensure the availability of fertile soil, clean air and water, and food production—the loss of these forests has critical sociocultural and biophysical consequences for the life and development of communities. Across the Amazon, the transformation of ecosystems has had serious social and environmental repercussions, including the loss of endemic species and the interruption of forest connectivity between the Amazon plains and the Andean foothills (Fondo Acción, 2013). This has not only caused a reduction in species richness, but it limits the ways natural ecosystems can adapt to the effects of climate change (Fondo Acción, 2013). According to TNC (2013), climate change will soon affect the consistent supply of water to the Amazon, which will increase, among other things, the sediment load in the river system throughout the entire

basin, altering aquatic ecosystems and the hydraulic characteristics of the channels.

Deforestation and degradation in the Colombian Amazon region have had a deep impact on areas inhabited by vulnerable populations, such as indigenous groups and small farmers subject to territorial and cultural pressures. Despite the fact that many indigenous peoples live in small, well-protected territories, these are usually located in the middle of larger areas that are already deforested or that face a high probability of deforestation. For their part, small farmers live in areas where unsustainable extraction and agricultural practices have brought with them low productivity and high soil erosion.

* TN: Colombia is divided into departments, which are further divided into municipalities, though these are not necessarily extensions of an urban center. They are an administrative and political division similar to a "county" in the USA.

From Conflict to Post-Conflict



1. The peace talks were held between the Government of Colombia and the Revolutionary Armed Forces of Colombia (FARC) from 2012 to 2016. The negotiations ended on September 26, 2016 with the signing of the Agreement for Ending the Conflict and the Construction of a Stable and Lasting Peace.

Departments like Putumayo, Guaviare and Caquetá have been at the center of the armed conflict in Colombia, experiencing the social, economic, political and environmental effects first-hand. Predictably, the peace talks, begun in secret in 2012 and resolved between both parties in 2016¹, had a visible effect on the region. One of those effects, in addition to the FARC's withdrawal, was the rapid rise in deforestation and forest degradation that began in 2016 (IDEAM, 2018).

Although between 2010 and 2014 there was a marginal reduction in deforestation throughout the Amazon, as well as in critical departments such as Caquetá, the annual loss of forests in the region doubled beginning in 2015, and this acceleration became more intense in 2016 (IDEAM, 2018). This is due in part to a reconfiguration of regional power dynamics among extralegal combatants and an increase in land-grabbing after the signing of the peace accords. This complex social scenario in the Amazon and Caquetá is still happening today,



Photo: Pablo Devis, Solano, 2018.

and it poses substantial challenges to reducing deforestation and forest degradation and working to improve the living conditions of the most vulnerable populations in the Amazon. These challenges include curbing predatory colonization processes, decreasing the monopolization of land, promoting sustainable agricultural practices, and expanding the areas protected by conservation bodies and practices.



The Path toward a Better Future in the Amazon and Caquetá

2. Five protected areas within the National Network of Protected Areas have been created in the Amazon since 2000: PNN Serranía de los Churumbelos Auka Wasi, PNN Alto Fragua Indi Wasi and PNN Río Puré in 2002; Flora and Fauna Sanctuary (SFF) Orito Ingi-Anduve in 2008; and PNN Yaigojé Apaporis in 2009.

In the last two decades, the network of protected areas² in the Colombian Amazon has been strengthened with the creation of new areas (United Nations, n.d.) and the expansion of some that already existed, such as the PNN Serranía del Chiribiquete, which went from 2.7 million to 4.3 million hectares (PNN, 2018). In recent years, there have been innovations in the selection and placement of conservation schemes, as in the case of PNN Alto Fragua Indi Wasi, for example, a protected area under the joint administration of governmental

and indigenous authorities, in recognition of the value and environmental and cultural knowledge of the latter. Various civil society organizations have focused their work on promoting sustainable agricultural practices, expanding or formalizing indigenous reservation areas, stimulating environmental conservation actions in strategic areas (local, municipal, regional) and influencing the design and development of documents and public policy tools that favor the protection, conservation and sustainable use of natural resources.

Connected Landscapes

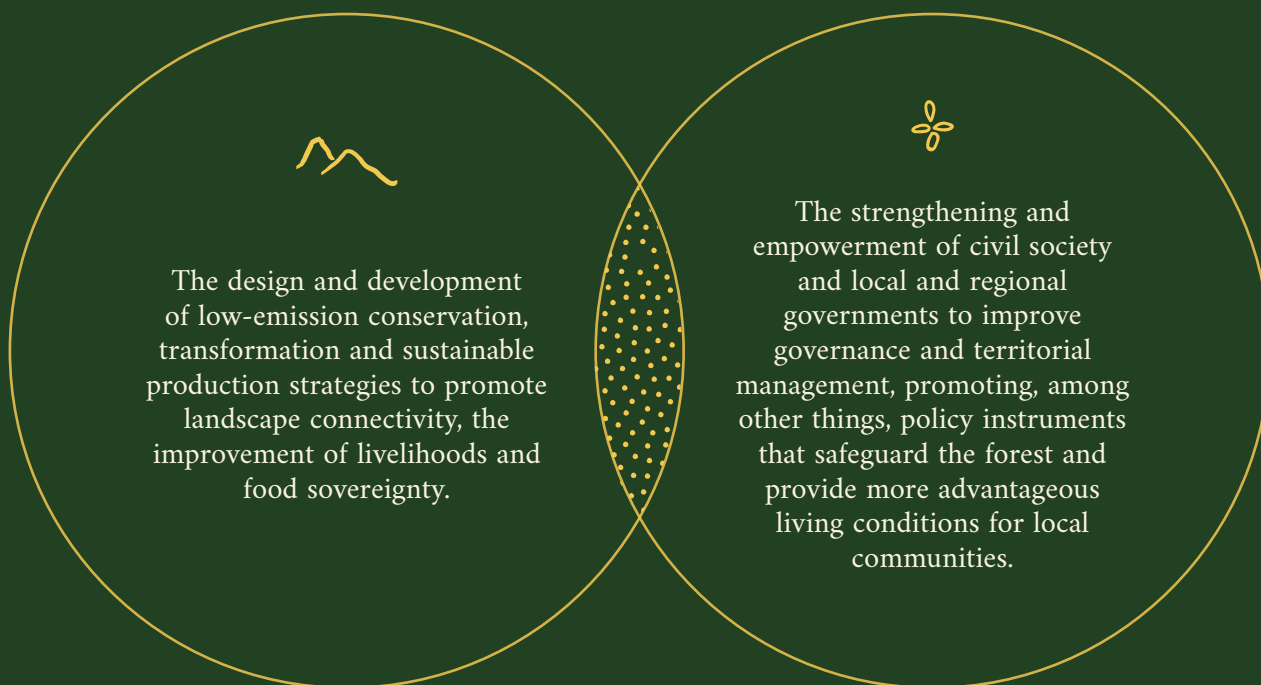


Photo: Andrés Cardona, Cartagena del Chairá, 2019.

With twenty years of investing in the conservation of biodiversity and sustainable rural development, Fondo Acción has contributed to maintaining and improving the living conditions of rural families in the Amazon region. Since July 2013, much of

this work has taken place through the Connected Landscapes Program. This initiative was created with the intention of effectively and realistically reducing the deforestation and degradation of strategic, biodiverse and highly threatened

areas of the Amazon forest in the department of Caquetá by promoting both the connections between ecological and social systems as well as the sustainable management of natural resources. For this, Connected Landscapes followed two primary axes:



The Connected Landscapes Program was conceived and designed between 2012 and 2013, months before the formal peace talks began between the Government and the FARC. At the time of the Program's conception, the main pressures on the Caquetá forest and its communities stemmed from the expansion of the agricultural frontier through extensive cattle ranching, the advance of illicit crops, and illegal logging. Although illegal mining, encroaching infrastructure projects, and oil and gas prospecting and extraction were pressures as well, they were less widespread. The prioritized areas for initial intervention were the municipalities of Solano, San José del Fragua, and Belén de los Andaquíes.

By 2015, as the Program developed, the deforestation pressures in Caquetá and the availability of new resources through cooperative agreements led Fondo Acción to extend their activities to Cartagena del Chairá. Meanwhile, the peace talks were moving forward, which led to the signing of the Final Agreement for Ending the Armed Conflict in 2016. This agreement had different consequences in these regions. In the case of Caquetá, it led to a shift in the social order and a modification of the dynamics of land use, which affected both this department and much of the Amazon. Since 2016, not only was there a reconfiguration of armed territorial control in Caquetá, but, as previously noted, the rate of deforestation increased and

land-grabbing was consolidated as its main agent. Though it had been designed and commissioned in 2013, Connected Landscapes was now immersed in this context, so it became necessary to adapt to changing national and regional circumstances. This was always done within the framework of international cooperation efforts that sought to strengthen environmental resilience and low-emission development. Among other objectives, the aim is to reduce threats to biodiversity throughout Colombia and to improve the management of natural resources in the most important and vulnerable ecosystems. This management of resources can include working to mitigate climate change and adapting to the changing conditions that it foreshadows.

The development of Connected Landscapes was governed by five guiding principles:

Connectivity of ecological and social systems

Defined as recovering the continuity of the Amazon forest and reversing its fragmentation, as well as the preservation and enrichment of the social and cultural values of its communities.

Conservation of biodiversity

Defined as sustaining and protecting strategic areas rich in biological diversity.

Participatory construction

Defined as a predominant bottom-up approach to work that favors the empowerment, strengthening and grass-roots leadership of rural communities.

A focus on gender

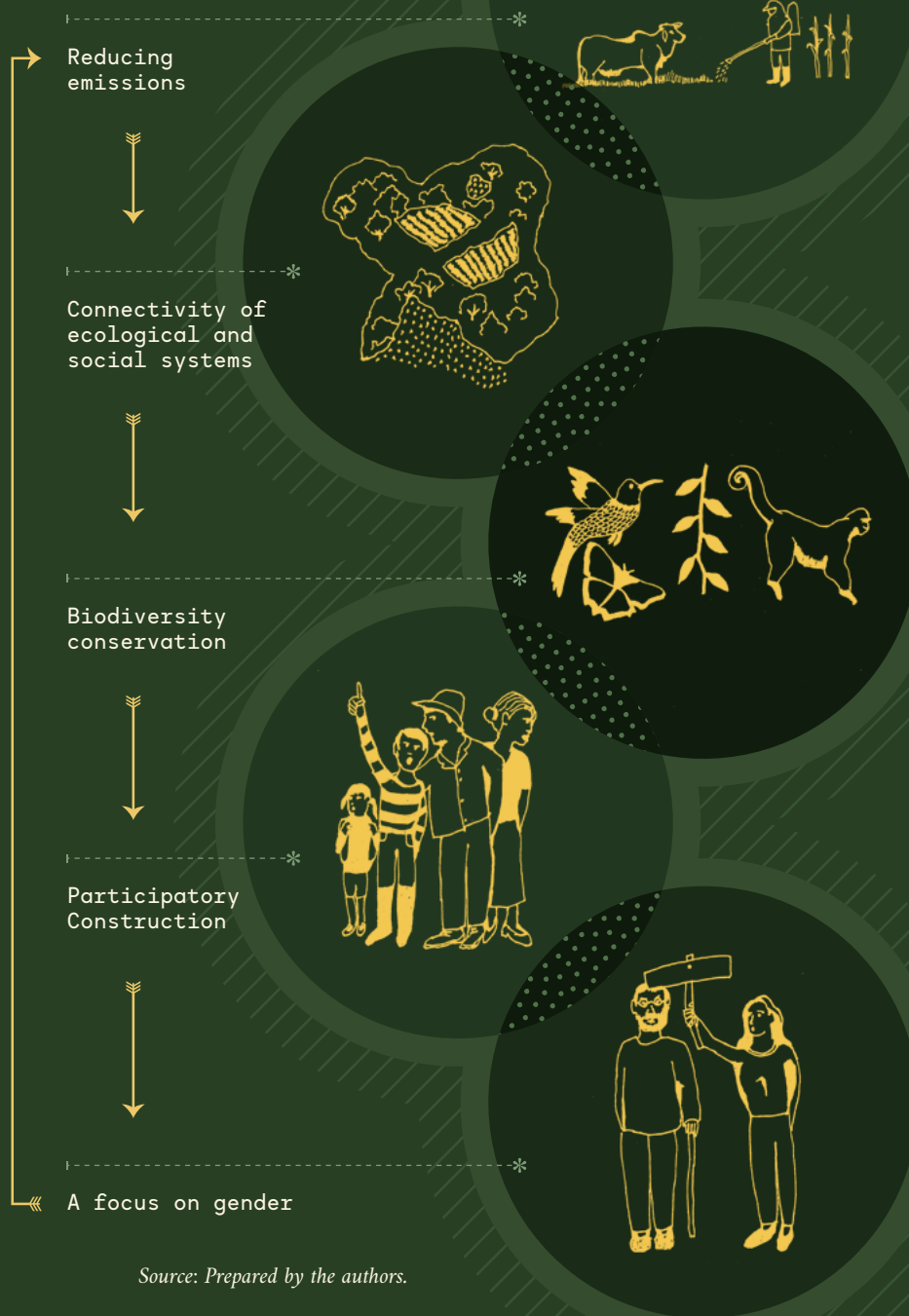
Defined as a recognition of the differences between men's and women's roles and values.

Reducing emissions

Defined as decreasing the greenhouse gas emissions (GHG) associated with soil cover and land use.

Figure 1.1.
The principles of
Connected Landscapes

Principles



Source: Prepared by the authors.



Photo: Andrés Cardona, Cartagena del Chairá, 2019.

Rural Development with an Eye toward Climate Change

3. It was not until 1987, with the publication of the Brundtland Report, also called *Our Common Future*, by the United Nations Commission for Development and Environment, that the world began to seek a transition toward sustainable development that would meet the needs of the present without jeopardizing the needs of future generations (United Nations, n.d.).

✧ The prevailing concept of rural development throughout the world during the 20th century³ was based on industrial economic growth and the extractive use of natural resources (EII, 2014). In Colombia, attempts to attain this kind of development have repeatedly involved inconclusive debates and efforts to modify ownership structures and the productive use of the land. Although some sectors of society have seen positive results from this extractive development model, there are glaring negative

impacts on communities and the environment. Regarding the former impacts, alongside an increase in migration from rural areas to urban centers, there has been an increase in income disparity between urban and rural sectors in Colombia, and the monopolization of land has continued to expand (Machado, 2017). As for the latter impacts, large areas of forest have been lost due to the expanding agricultural frontier and illegal logging, while the soils have degraded, losing their fertility and ability to

provide ecosystem services. In addition, there is an observable loss of connectivity between forests, which endangers the habitats of innumerable species of fauna and flora. Additionally, the GHG emissions produced by the agricultural and forestry sector, as well as by various land use strategies, have historically represented the larger part of national GHG emissions, reaching 58% of the total in 2012. For this reason, Colombia's commitment to reducing deforestation, conserving strategic ecosystems and changing agricultural practices has been fundamental (Minambiente, 2015).

In response to these circumstances, new approaches have emerged from various stakeholders that seek to reduce the impacts generated by the extractive model. These approaches seek to align rural development with the demands of climate change mitigation while also adapting to the inevitable transformations already set in motion. These approaches are largely encompassed under the Low-Emission Rural Development (LED-R)⁴ approach that aims to stimulate a climate-resilient rural development model (EII, 2013).

❖ 4• The Low Emission Rural Development (LED-R) approach is championed by the Earth Innovation Institute (EII), formerly IPAM International.



Photo: Andrés Cardona, Cartagena del Chairá, 2019.

What is Low-Emission Rural Development?

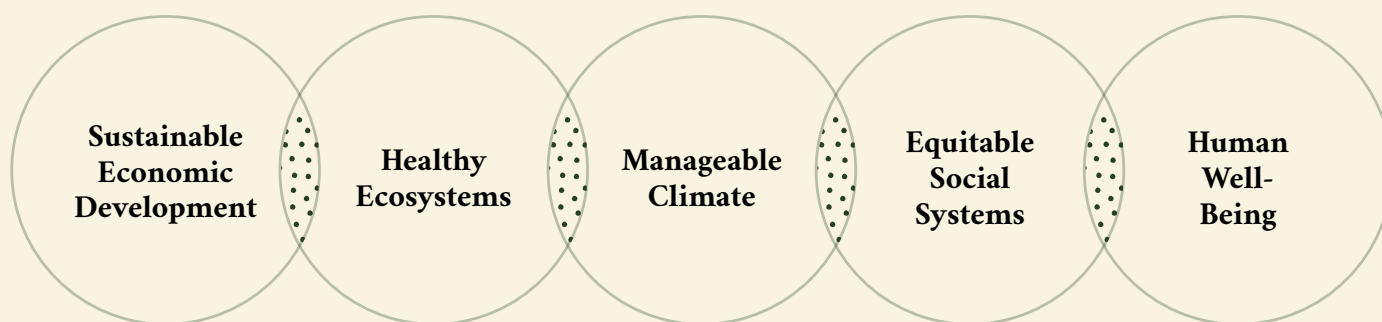
LED-R is a comprehensive approach to sustainable development with an eye toward climate change. It combines innovative strategies to reduce GHG emissions while responding

to a concern for human well-being. LED-R aims to contribute to reducing emissions associated with land use while empowering local actors and institutions to maintain healthy ecosystems,

respond to climate change, ensure human well-being, promote equitable social systems, and generate sustainable economic development (EII, 2014).

Figure 1.2.

The pillars of low-emission rural development (based on EII, 2014).



Source: Prepared by the authors. Based in EII (2014).

According to EII (2014), low-emission rural development is principally characterized by:

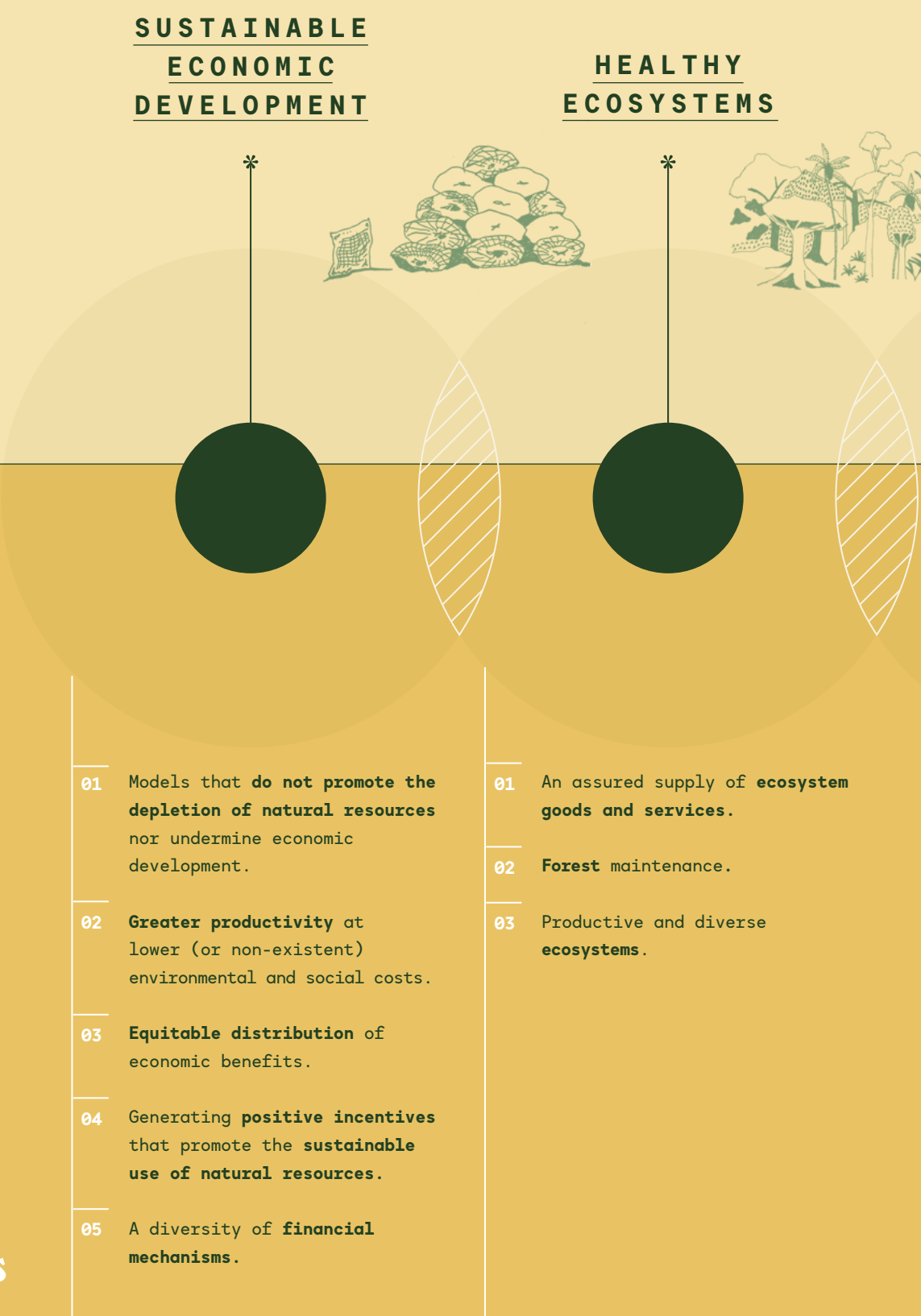
- Recognizing the role of forest managers.
- Empowering local institutions to drive small-scale positive changes.
- Privileging a bottom-up approach.
- Engaging a wide range of stakeholders.
- Attempting to synchronize policies that improve the governance of natural resources.
- Having a regional scope.
- Contributing to a stable climate by reducing land-based activities.

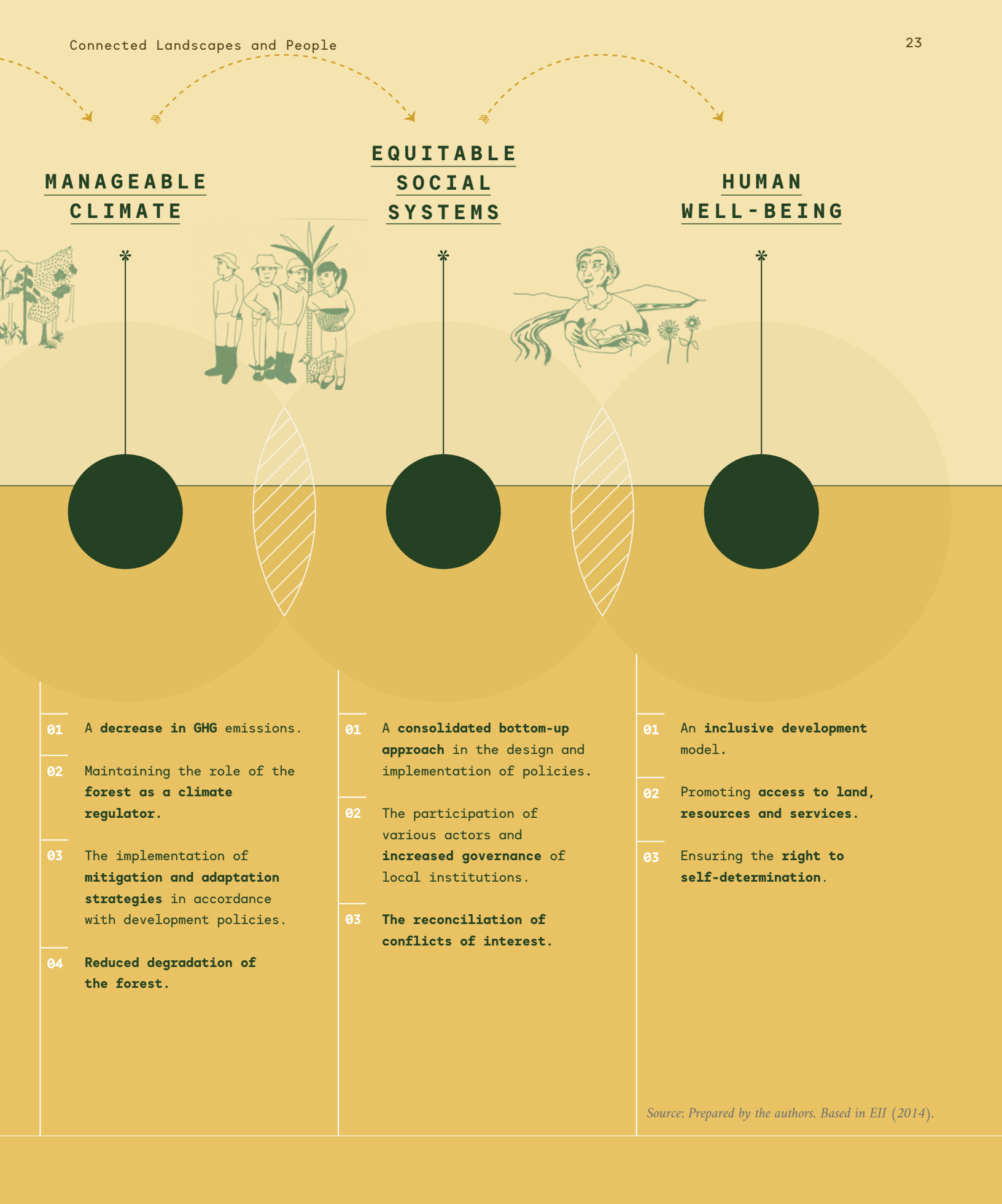
LED-R is a highly participatory process that links multiple stakeholders. The most prominent among these are small farmers, grassroots organizations, public entities, non-governmental organizations, financial entities, large farmers, academics and indigenous peoples.

Figure 1.3.
The pillars of
low-emission rural
development

Pillars

Achievements





The LED-R Model within the Framework of Connected Landscapes



Photo: Firos nv, Unsplash.

As indicated in the guiding principles of Connected Landscapes, the one that cut across all aspects of the development and implementation of the project was the reduction of emissions. Thus, in addition to seeking to reduce deforestation, the Program pursued a hands-on approach to low-emission rural development that, over time, could be considered and evaluated and could serve as a reference for future attempts to protect the Amazon and draw attention to climate change.

To integrate the conceptual elements of LED-R, as outlined by the EII (2013 and 2014), with the particular social, environmental, economic and political context of Caquetá, Connected Landscapes concentrated on three components of the model (see figure 1.4):

- a.** Healthy ecosystems and a manageable climate
- b.** Well-being and participation
- c.** Sustainable economic development

a

Healthy ecosystems and a manageable climate

A development model that will help reduce deforestation should effectively protect the current forest, recover degraded vegetation cover and preserve the balance of ecosystems and their ability to provide ecosystem goods and services. The proposed LED-R model could achieve this with healthy ecosystems and a manageable climate through:

- The conservation, restoration and protection of natural resources, particularly the forest and other vegetation cover.
- Maintenance of the water supply.
- Maintenance of plant connections through springs and water channels.
- Placing strategic areas under the care of management figures or guiding them with sustainable practices adapted and adjusted to the changing climate.
- Effective mitigation of GHG emissions.

b

Well-being and participation

For Fondo Acción, it was essential to find ways for the people and communities linked to the Program to “make a decent living” that would lead to their general well-being. The proposed LED-R model could achieve this with a commitment to well-being and participation through:

- Promoting the active participation of rural women as agents of dissemination.
- Strengthening leadership skills, community organizations, growers’ associations and community authorities.
- Strengthening participation and local territorial governance.
- Ensuring food sovereignty.
- Sustainable use of ecosystem services that promote quality of life.
- Improving attention spans in children and adolescents.

c

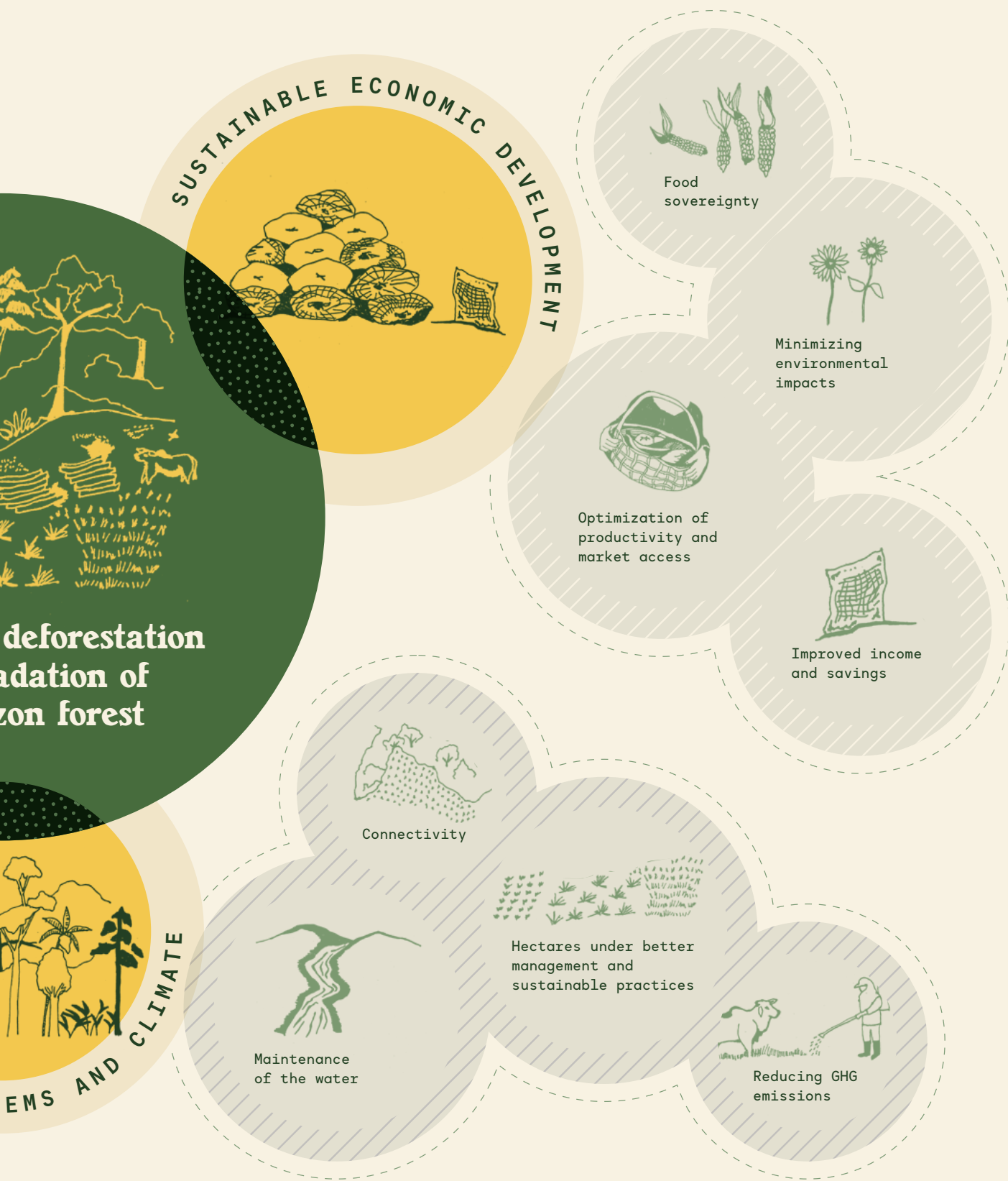
Sustainable economic development

Improved living conditions for the rural families of Caquetá were considered attainable insofar as sustainable economic development was encouraged and advanced through:

- Improving income or generating savings through systems of production adapted to the new climate.
- Optimization of productivity and market access.
- Progress in local food sovereignty.
- Minimizing the environmental impact of current systems of production.



Source: Source: Prepared by the authors.



Evaluation of the Connected landscapes LED-R model



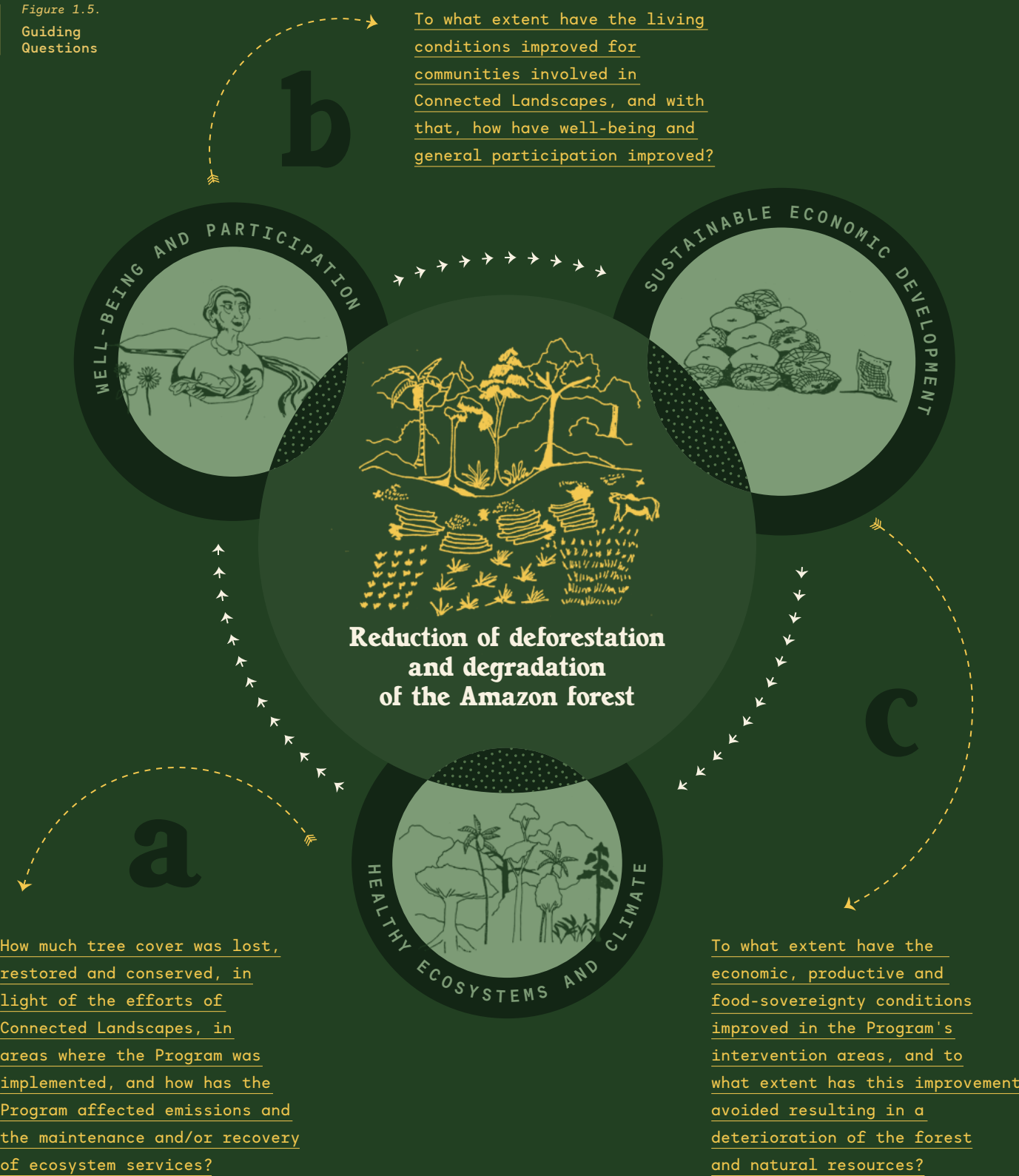
Photo: Andrés Cardona, Solano, 2018.

As stated in the introduction, this document has two central purposes. On the one hand, it shares the main results of the Connected Landscapes Program in light of its main objective. On the other, it measures these results according to the LED-R model for Connected Landscapes. This will be developed in detail in chapter four, where the Connected Landscapes LED-R Model will be evaluated to answer three questions (see Figure 1.5).

Based on these three questions, chapter four will be dedicated to analyzing the specific contributions of the Connected Landscapes Program to low-emission rural development in the department of Caquetá, and from there, its relationship to a reduction in the rate of deforestation and degradation of the Amazon forest. These questions cover all the elements that Fondo Acción prioritized in each of the three components of

the Connected Landscapes LED-R model: a) healthy ecosystems and climate, b) well-being and participation, and c) sustainable economic development. In turn, this analysis will lead to identifying lessons learned, thus contributing to a reinforcement (and where appropriate, adjustment) of the process set in motion by the Program and contributing to the consolidation of Amazon conservation as a shared concern for everyone.

Figure 1.5.
Guiding
Questions



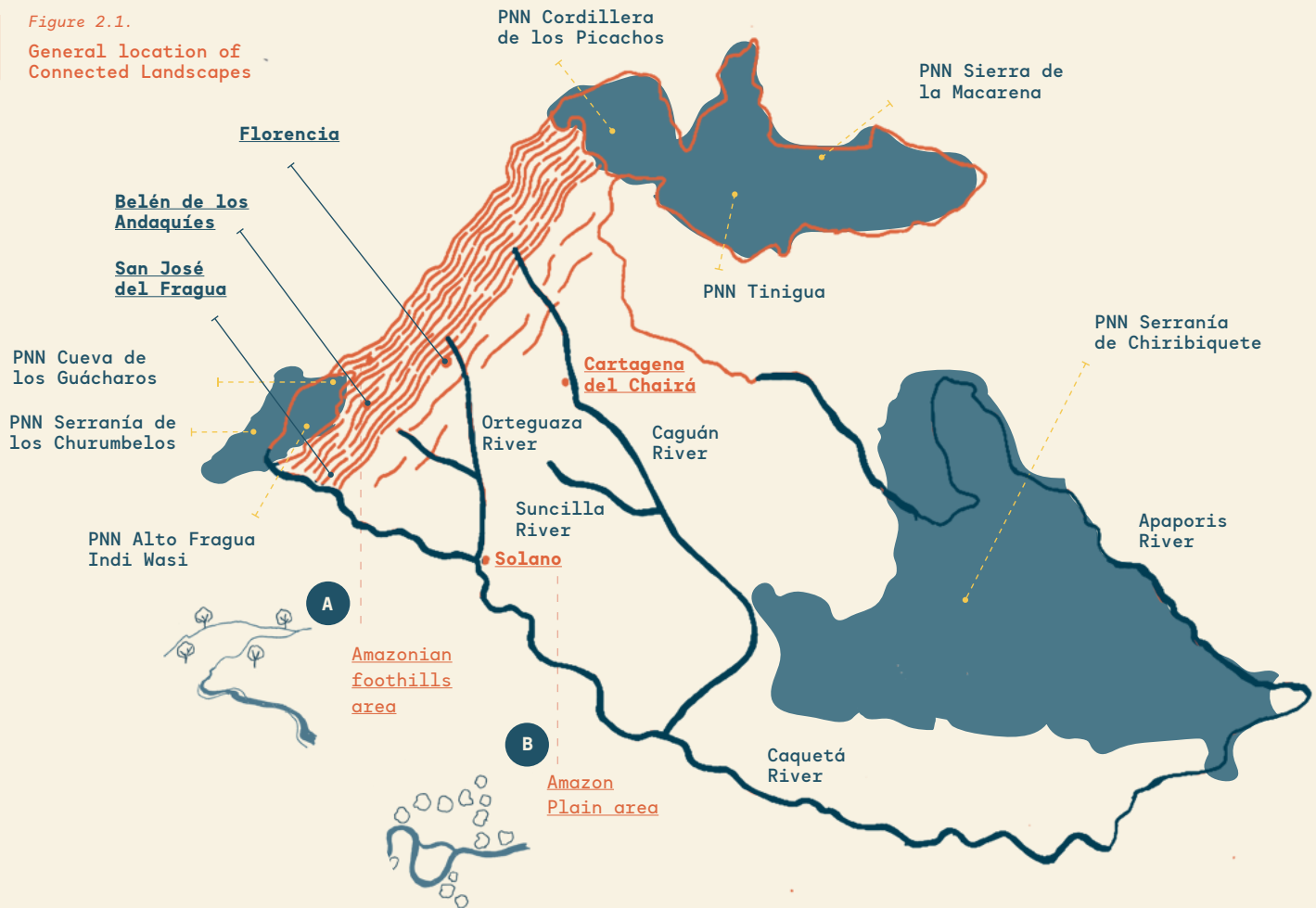
A close-up photograph of an elderly person's hand, with deeply wrinkled skin, planting a green seedling into dark, rich soil. The hand is positioned in the center-right of the frame, with fingers gently holding the base of the plant. The seedling has long, thin, green leaves. The background is a soft-focus view of the soil and other small plants, creating a sense of a natural, cultivated environment.

The Way Forward

**The Connected Landscapes Program
focused on the Department of Caquetá
because it is a gateway to the whole
region and the epicenter for the
transformation and degradation of its
natural resources.**

Photo: Andrés Cardona, Solano, 2018.

Figure 2.1.

General location of
Connected Landscapes

Source: Prepared by the authors.
Based on Segura (2020).

Caquetá was selected for the program because it is the most densely populated department in the Amazonian region, and it has had the highest deforestation rates in the country for several consecutive years (IDEAM, 2018). The program focused on both the Andean-Amazonian foothills and the Amazon plains because of their rich biodiversity and their environmental and cultural vulnerability to the pressures of ecosystem transformation.

This chapter presents the theory of change outlined by Fondo Acción and partners in response to the threats facing the Amazon forest and its biodiversity seven years ago. It describes the context of the problem that ultimately inspired the design of the program. From there, it covers the strategies, steps and blueprints that were presented and considered for arriving at a scenario where connecting people and connecting landscapes would take priority.

The Problem in Question



Photo: Diego Llorente, Las Mercedes (Solano), 2017.

Figure 2.2 shows the chain of results as well as the causation and logic that underpins Connected Landscapes. As illustrated, the starting point or the main question (between 2012 and 2013) was how to decrease the destruction, degradation and fragmentation of forests and the consequent loss of natural habitat and deterioration of ecosystem services in the department of Caquetá. Land use and land change dynamics were putting a lot of pressure on natural resources and Amazonian biodiversity along the agricultural

frontier, near forested areas and in other key environmental areas⁵.

In 2012 and in the beginning of 2013, there were three issues that distinguished themselves as exerting the most pressure on the forests of Caquetá: the rapid expansion of the agricultural frontier to increase cattle ranching, illegal logging and illicit crop cultivation (Fondo Acción, 2013). According to the FAO (Karl, 2002), livestock production has been one of the main drivers transforming forests

into pastures throughout South America. In Cartagena del Chairá, for example, between 2002 and 2007, 51,180 hectares of forest were lost while cattle herds went from 26,317 heads of cattle to 81,390 during the same period (Segura, 2020). To this day, ranching expansion is largely due to the predominance of inefficient livestock systems where large areas of forest are cleared for a small number of animals. When it comes to logging, Colombia has laws that permit logging in specific areas. However,



❖ 5. Some key environmental areas:

PNN

- Serranía de Chiribiquete

PNN

- Alto Fragua Indi Wasi

PNN

- Serranía de los Churumbelos Auka Wasi

PNN

- Cordillera de los Picachos

PNN

- Cueva de los Guácharos, Caquetá
Soil and Water Conservation District, Forest reserve established by Law No. 2 of 1959

◦ PRN

- Cerro Páramo y Miraflores and other paramos and watersheds

illegal logging has long been a very serious national problem. In 2006, the World Bank estimated that 42% of all wood traded in Colombia had been logged illegally (WWF, 2015). In Caquetá, the sites for illegal timber trafficking have traditionally been Cartagena del Chairá and Solano, where between 2013 and 2017 as much as 117,152 m³ of wood was trafficked (EIA, 2019). Lastly, there is illicit crop cultivation, which according to the United Nations Office on Drugs and Crime (UNODC),

was responsible for 41,150 hectares of Amazon forest loss between 2005 and 2015. In Caquetá during that period, the most affected municipalities were again Solano and Cartagena del Chairá (UNODC, 2018). Even if those coca cultivations are not the largest in terms of hectares, they have a dramatic effect on the changes in vegetation cover. This opens the way to aggressive transformation of the land into pastures, which speeds up the loss of forest.

Figure 2.2.
Connected Landscapes
chain of results and
logical relations

Source: Prepared by the authors.

The Problem

High deforestation,
forest degradation and
fragmentation

Increasing greenhouse
gas emissions

Loss of habitat and
biodiversity and
deterioration of ecosystem
services and functions

Constant expansion of the
agricultural frontier

Poverty and marginalization
of the rural population

Pressures on indigenous
peoples and the predominant
use of unsustainable and
ineffective production
systems

Public policy, plans
and tools that do not
promote the protection
of the forest and
natural resources

Weak regional, municipal
and local governments

An unorganized civil
society

Strategies and Steps Needed

SPATIAL AND TECHNICAL INFORMATION

- 01 Gathering information and analyzing landscapes

LANDSCAPE TRANSFORMATION

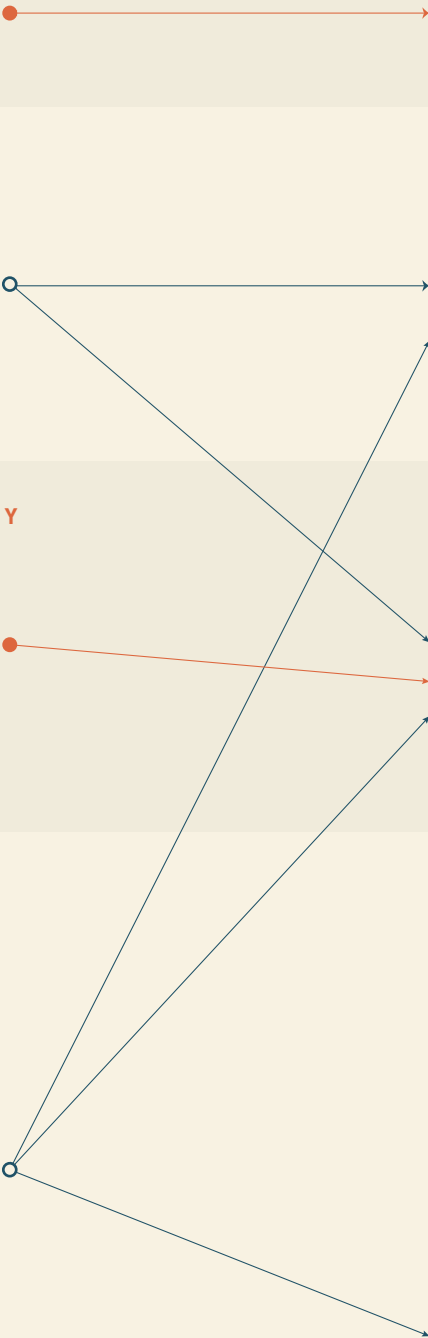
- 01 Agreements on prioritized landscapes
- 02 Building consensus and proposals for transformation

TRANSFORMATION OF PUBLIC POLICY

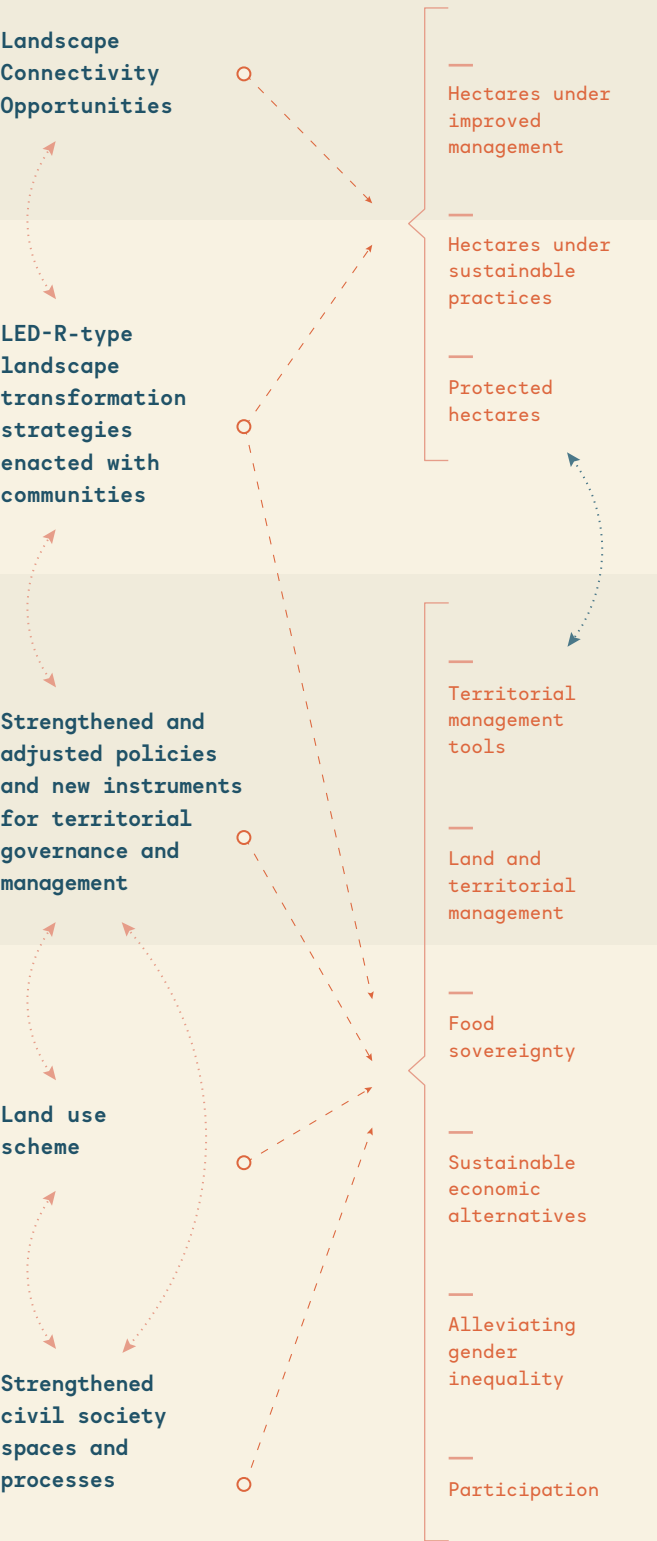
- 01 Advocacy in municipal and departmental governments
- 02 Advocacy with local and community authorities

SKILL BUILDING

- 01 Strengthening the land management skills of local communities
- 02 Strengthening organizational skills
- 03 Strengthening the technical skills of public officials
- 04 Empowering civil society and regional and local governments



Outcomes



Benefits

- Less conversion of natural habitat to other uses
- Fewer practices that pollute the soil and water
- Increased vegetation cover
- Less GHG emissions

- More income and more savings per rural family
- Better rural livelihoods
- Greater territorial governance towards sustainability

Expected changes

Reduction of deforestation, forest degradation and fragmentation in critical areas of Caquetá

Recovery and maintenance of biodiversity and Amazon ecosystems

Improvement in the quality of life of the rural population

Caquetá

2012-2013



Photo: Diego Llorente, Las Mercedes (Solano), 2017.

The socioeconomic conditions of the region are characterized by high rates of poverty and a marginalized rural population. These issues stem, among other things, from the prevailing development model and the exploitation of natural resources.

Caquetá was 42.1%, with 10.2% of the population living under extreme poverty (DANE, 2012). For the same year, although the population's access to primary education reached 90%, secondary education only reached 50% (GobCaquetá, 2012). Given the dimensions of Caquetá (88,965 km²), municipalities and areas far from Florencia and from the main highways, such as Solano and Cartagena del Chairá, also had serious restrictions in mobility, product commercialization, economic development and access to health and education services, among others. The situation was especially dire

among indigenous communities and rural farming populations within border areas. Indigenous reserves in the Andean-Amazonian foothills were increasingly threatened by anthropogenic pressures—that is, those caused by human activities—from the areas surrounding the their reserves. Meanwhile, rural farmers in the Amazon plain areas suffered because of inefficient production systems, continuing environmental deterioration of their land, and marginal economic gains that threw them into dependence on large livestock owners and intermediaries for the sale of agricultural products. Adding to the debility of the

region before getting the program started, there were also considerable institutional weaknesses in the municipal and departmental governments, plus a severe lack of relevant policies that prioritized the protection of the forest and the conservation of its biodiversity. Although, by 2012, the departmental government had expressed an interest in environmental protection in its Development Plan, there were still no concrete political measures taken to make this happen. Restricted operational and managerial capacity in the most remote areas of Caquetá, where the greatest environmental wealth is found, added to this. The state of municipal governments was not much better, since their concerns were reduced to guaranteeing basic services and infrastructure for their communities.

In 2012, the entire region was also immersed in the armed conflict, a situation that determined the exercise of territorial control and the access to and use of its natural resources. In this context, both rural farmers and indigenous grassroots organizations managed to play a noticeable role in the region. In areas with many rural farm communities, such as Solano, the Community Action Boards (CAB) were the champions of social organization throughout the territory, as did the JAC Municipal Associations in the municipalities. These became de-facto political affiliates and connecting with them helped with gaining access to the regions, particularly to the most remote and isolated areas. In some municipalities, the CABs entered into “Núcleos Campesinos,” rural

organization structures not recognized by the national government.

Indigenous groups left territorial management and control in the hands of the native authorities or councils on their reserves (depending on the hierarchy of the territory) and in those of the Caquetá Regional Indigenous Council (CODIC).

The map of grassroots organizations in Caquetá was improved in 2012 by a vast network of women’s, environmental, educational and pro-development community organizations and producers associations, among others, that worked tooth and nail to move their respective purposes and agendas forward, despite the great operational, technical and legal deficiencies.

Once the problem was defined and the



Photo: Diego Llorente, Las Mercedes (Solano), 2017.

Desired Change

area of intervention surveyed and assessed, Fondo Acción and partners of the Connected Landscapes Program proposed a series of strategies and actions that sought to:
Reduce the rate of deforestation and forest degradation and loss of biodiversity in strategic



a predominance of sustainable production strategies with lower greenhouse gas emissions. It was hoped that the above would lead to an increase in the accumulated carbon reserves in the soil and vegetation, as well as the vegetation cover, which would be achieved through natural regeneration and the establishment of silvopastoral systems. Adopting sustainable farming practices and exploring economic alternatives

to cattle would also lead to an improvement in the income and savings for the rural population, enhancing the livelihoods of rural farmers and indigenous people (Karl, 2002).

These changes would be achievable, at least in part, if the assumption were proven true that access to low-emission productive strategies leads to the effective improvement of

livelihoods and, in parallel, reduces the rates of deforestation and forest degradation. This would be actionable through the development of public policies and measures that stimulate the protection of natural resources and foster a low-emission economic model.

The Way to Achieving the Desired Change

Four strategies were created to help reach the desired change. The first strategy was to obtain spatial and technical information on the state of vegetation cover in the region and on the state of the main environmental services. Based on this information, the program would prioritize specific areas where intervention was relevant, could produce a high impact and might contribute to the connectivity of ecological and social systems. The second strategy was aimed at transforming the landscape based on consensus with communities and government authorities who would then implement low-emission production strategies via land planning exercises. The third strategy required efforts to transform public policy so that it guarantees a future with preserved forests and natural resources. Finally, the fourth strategy urgently required heading down a path toward strengthening the technical, leadership, organizational and management skills of the various actors (municipal and

departmental governments, rural farmer and indigenous grassroots organizations, productive partnerships, etc.) so that they would take responsibility for territorial management, environmental protection, economic development and the promotion of public participation in the department and in the prioritized regions for intervention.

The intervention will have been

01

Inclusion of strategic areas under planning tools or improved management.

02

Adoption of sustainable practices for the production and for the conservation of natural resources.

03

Development of viable and sustainable economic alternatives.

04

Adoption of public policies and implementation of tools for departmental, municipal and local community ordinances that promote conservation and sustainable development.

05

Strengthening of food sovereignty.

06

Strengthening women's roles in community management and rural work.

07

Strengthening land use at different scales.

08

Consolidation of local governance processes.

Connected Landscapes and People

A photograph of a wide river at sunset. The sky is filled with soft, orange and yellow clouds. The water reflects the warm light. In the foreground, a long, narrow wooden boat with an outboard motor is on the water. Two people are in the boat: one at the stern near the motor and another further forward. The riverbanks are lined with dense, lush green vegetation. The overall mood is peaceful and scenic.

Connecting people and connecting landscapes are the two aims that summarize the endeavors of the Connected Landscapes Program in Caquetá.

Photo: David Rugeles, Cartagena del Chairá, 2016.



Photo: Andrés Cardona, Cartagena del Chairá, 2019.

This chapter describes in detail what these efforts consisted of, how they were executed, when and where they took place, and who the communities, organizations, authorities and agencies were that took

part in the program. Each subsection is supported by research results and personal testimonials that allow us to understand first-hand the experiences of the people involved.

Work Locations

Connected Landscapes operated in four municipalities in the department of Caquetá: Belén de los Andaquíes and San José del Fragua in the Andean-Amazonian foothills, and Solano and Cartagena del Chairá in the Amazonian plain. These municipalities were selected by drawing on the previous experiences of some of the program’s partners—mainly the Caquetá Government, the donor, and the NGO Amazon Conservation Team (ACT). The municipalities were highlighted as areas that would provide opportunities for conserving biodiversity, reducing deforestation, and reducing forest degradation as identified by IDEAM (2012) and IAvH (Fondo Acción, 2013). Figure 3.1 shows the regions where the program was implemented.

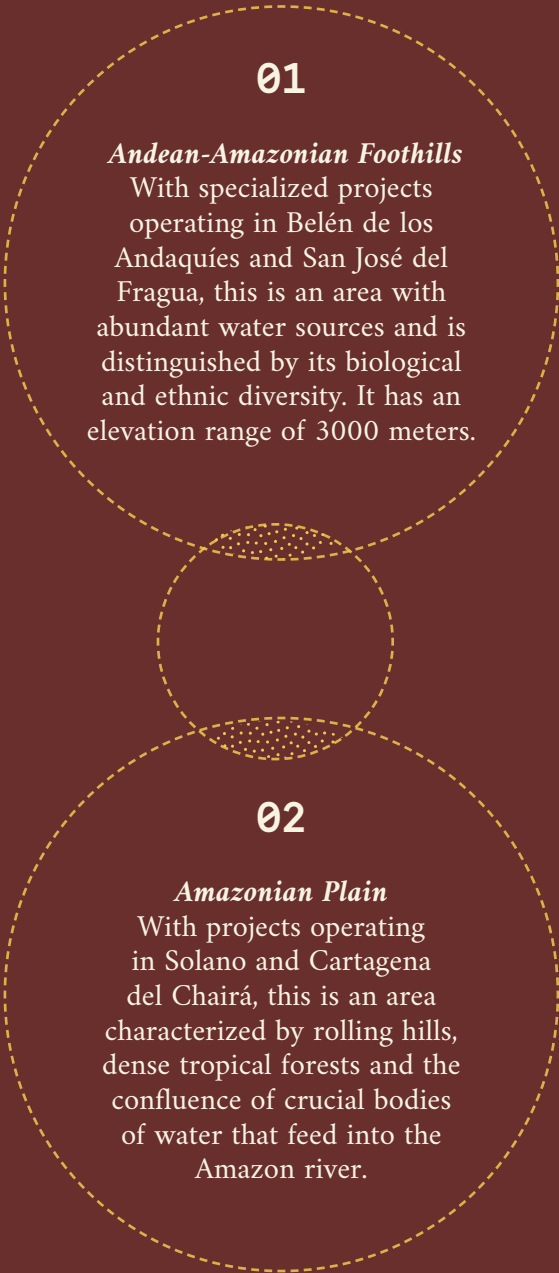
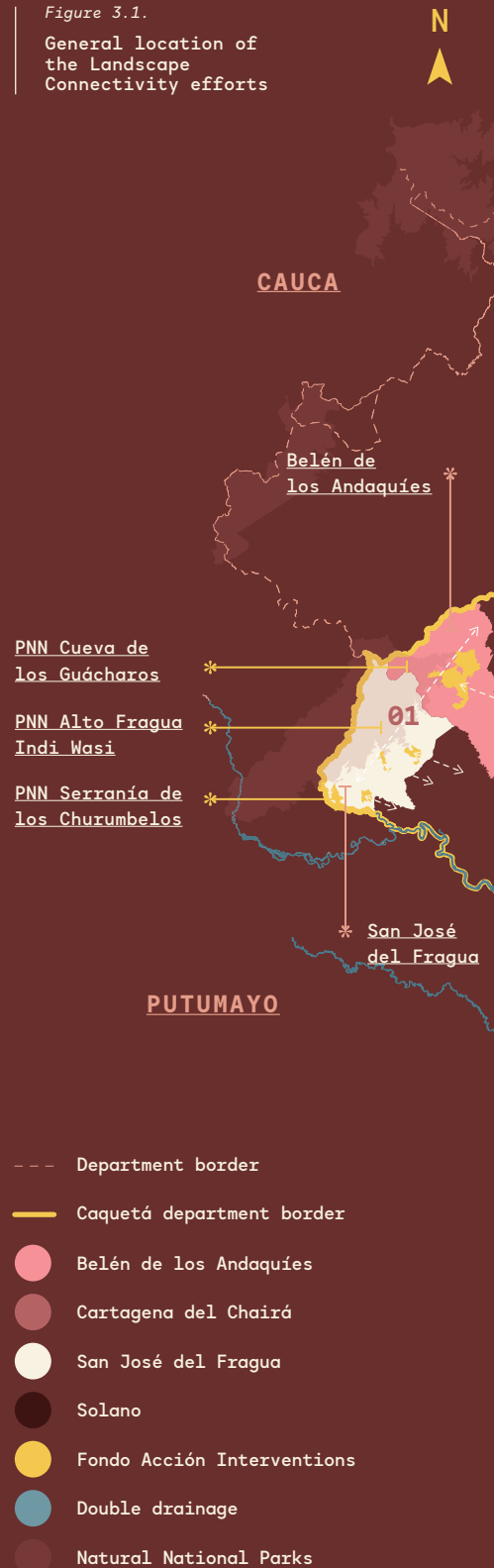
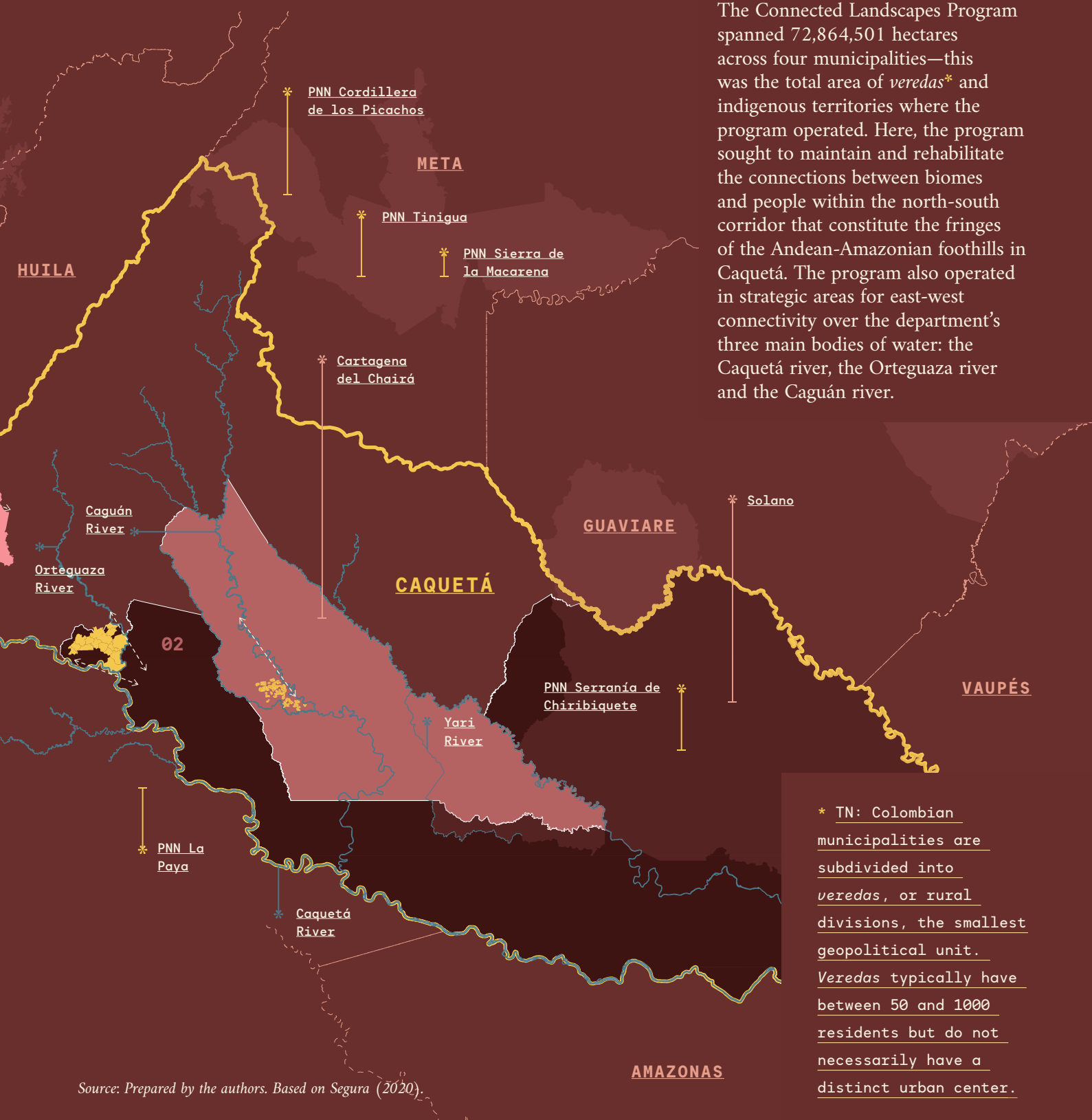


Figure 3.1.
General location of
the Landscape
Connectivity efforts

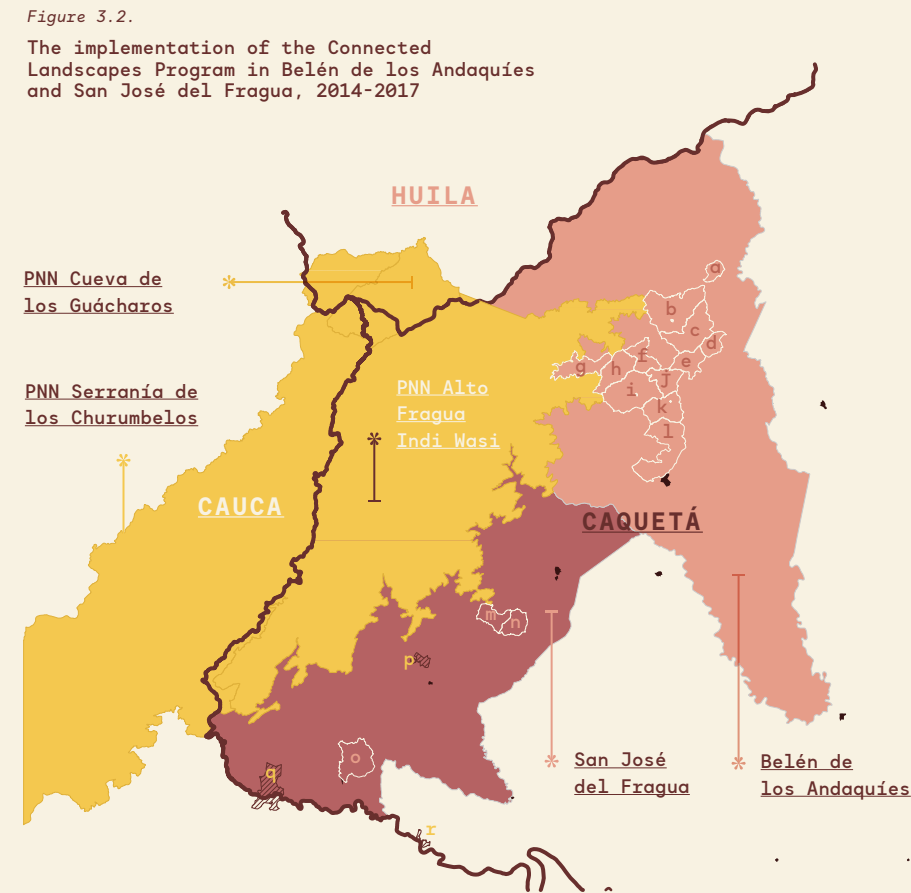




* TN: Colombian
municipalities are
subdivided into
veredas, or rural
divisions, the smallest
geopolitical unit.
Veredas typically have
between 50 and 1000
residents but do not
necessarily have a
distinct urban center.

Source: Prepared by the authors. Based on Segura (2020).

Andean-Amazonian Foothills



Source: Prepared by the authors. Based on ACT (2016a y 2016b) y Segura (2020).

Operations in the Andean-Amazonian foothills included 15 veredas and four indigenous reserves (three reserves and one council) in the municipalities of Belén de los Andaquíes and San José del Fragua in the PNN Alto Fragua Indi Wasi, the PNN Serranía de los Churumbelos, PNN Cueva de Los Guácharos and PNN Andaki protected areas. The general area of operations

in the two municipalities totaled 16,950.5 hectares (12,060.5 in Belén de los Andaquíes and 4,890 in San José del Fragua), which extended along a strip of approximately 70 kilometers from the south of San José del Fragua to the central, mountainous area of Belén de los Andaquíes. This strip, in addition to serving as a buffer for the protected areas, supplies

the Orteguaza and Caquetá river basins with water, and is an ancestral site for the indigenous communities of the Inga and Misak ethnic groups. The strategic areas of operation here contribute both to connectivity along the Andean-Amazonian foothills of Caquetá as well as to connectivity with the national and municipal protected areas of the two municipalities.

Andean-Amazonian Foothills

MUNICIPALITIES

BELÉN DE LOS
ANDAQUÍES

SAN JOSÉ
DEL FRAGUA

VEREDAS

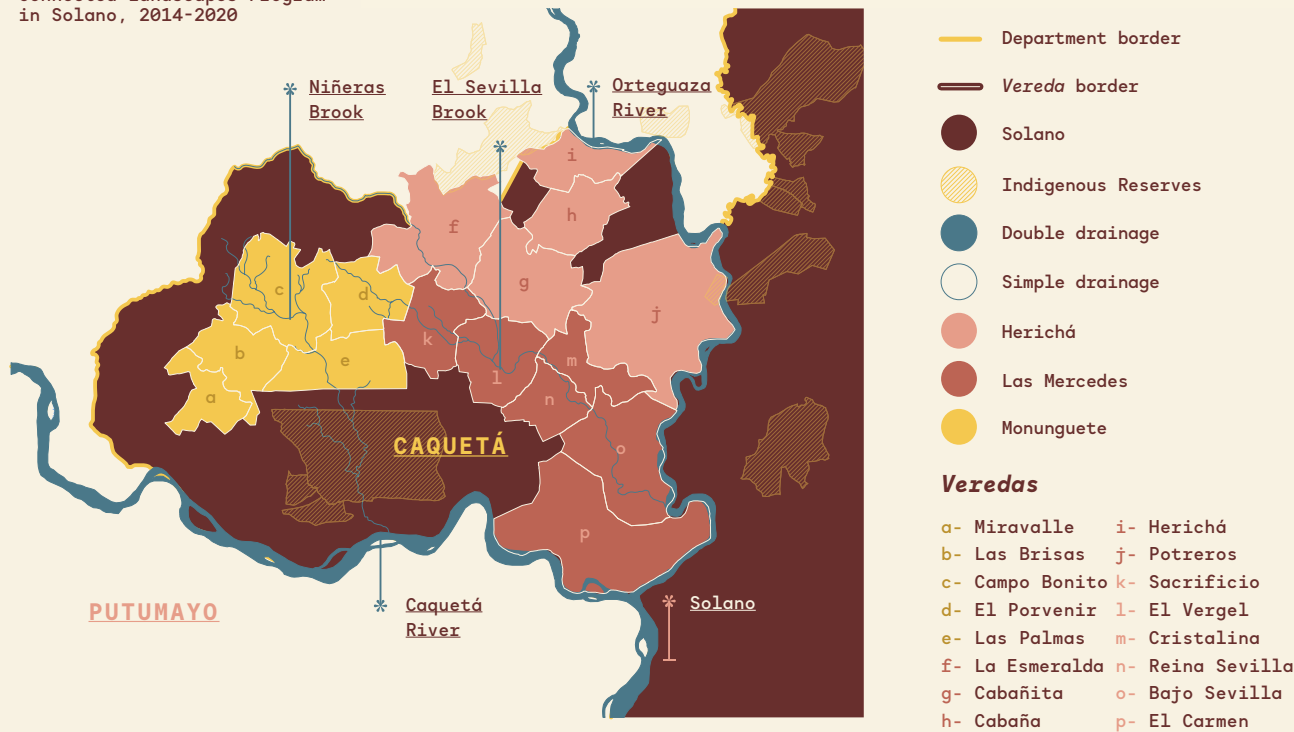


INDIGENOUS
TERRITORIES



The Amazon Plain

Figure 3.3.
Areas of intervention of the
Connected Landscapes Program
in Solano, 2014-2020



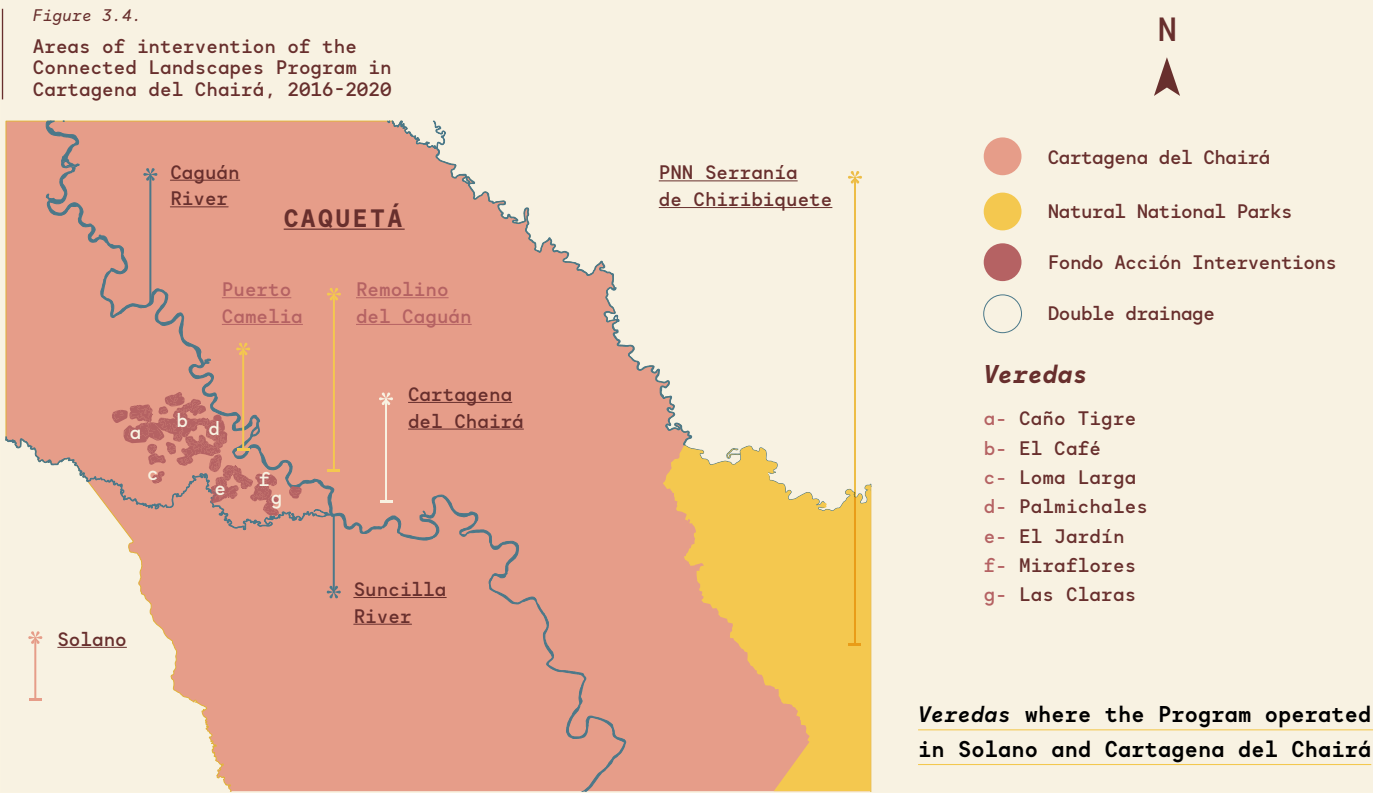
Source: Prepared by the authors. Based on Segura (2020).

The *veredas* in Solano and Cartagena del Chairá where the program operated are protected areas within PNN Serranía del Chiribiquete. Because of this, the efforts made in the Amazon plain were not only intended to contribute to connectivity along the department's water corridors, but also to help contain environmental pressures facing the national park. In Solano's Amazon plain, the operations centered around the area known as Entreríos, located at the intersection of the Orteguaza and Caquetá rivers. In the north-western end of the municipality, the program operated within 16

settlements between 2014 and 2020. The general area covered was 31,130.4 hectares (which constitutes 67.3% of the entire Entreríos area), dotted around three peasant *núcleos**: Herichá, Monunguete and Las Mercedes.

* TN: A *núcleo*, or nucleus, is a collection of *veredas* that have a joint administrative body, similar to what is elsewhere in Colombia referred to as a *corregimiento*.

Entreríos is a transitional zone between highly degraded territories in the municipalities of Solita and Valparaíso and the first blocks of dense tropical, Caquetá forest within the municipality of Solano. The connectivity hubs of the operations in Solano were the micro-basins of the El Sevilla and Niñeras rivers. This area is predominantly populated by peasant farmers, as well as indigenous communities of the Huitoto and Coreguaje ethnic groups, who live in formally-recognized reserves. Six of the *veredas* served by the program border the Niñeras, Herichá, San Luis and Canagucha indigenous



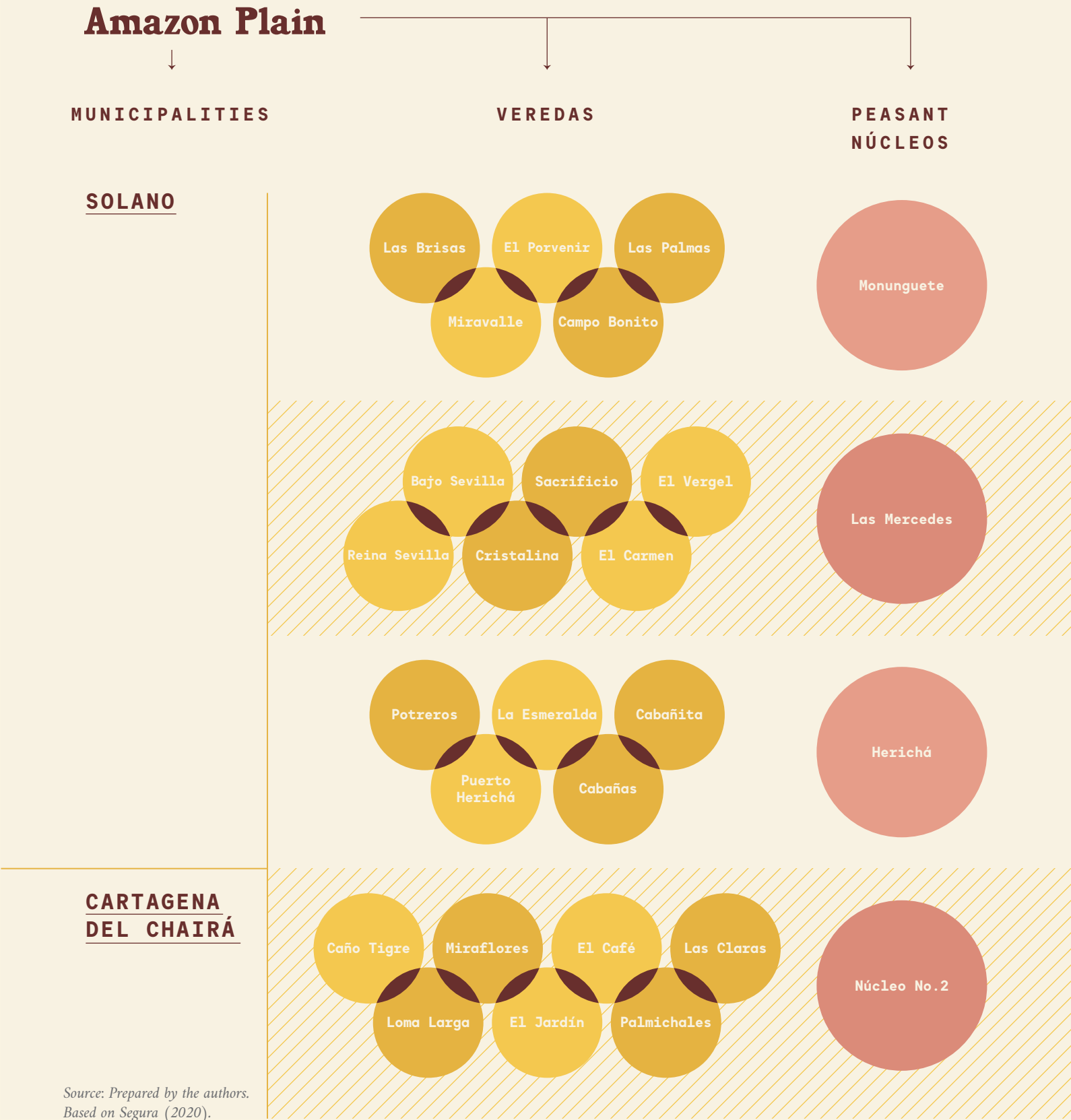
Source: Prepared by the authors. Based on Segura (2020).

reserves. Between 2016 and 2020, in Cartagena del Chairá, the program serviced 24,783.5 hectares and seven *veredas* in Bajo Caguán (Núcleo Campesino No. 2) at the intersection of the Caguán River and the Suncillas River. The area, which falls under the authority of the Remolino del Caguán police department, is part of the forest reserve allocated under Law No 2 (1959)⁶, which sought to colonize the territory.

Part of the areas where the program operated border current forest reserves and serve as a transitional zone between settled and dense tropical forest regions.

❖ 6. The forest reserve areas established by Law No. 2 of 1959 sought to develop a 'forest economy' and increase protection of the water, the forest floor and the wildlife. Seven forest reserves across the nation were defined by Law No. 2 of 1959: Cocuy, Sierra Nevada de Santa Marta, Central, Serranía de los Motilones, Pacífico, Amazonia (Amazonas, Cauca, Guanía, Putumayo and Vaupés) and Amazonia (Caquetá, Guaviare and Huila). The reserve areas are divided into three categories:

- Zone A: Maintenance of basic biomes necessary to ensure the supply of ecosystem services.
- Zone B: Areas assigned for the sustainable management of forest resources.
- Zone C: Areas that offer conditions for the development of sustainable agroforestry, silvopastoral activities and other activities aligned with the overarching objective of the forest reserve initiative (Minambiente, 2020).



Program Timeline



The Connected Landscapes Program was started and developed between 2012 and the first half of 2013. The program was launched on July 30, 2013 and during that year logistical, administrative, legal and financial preparations were made to ensure the program would be ready for implementation. As Figure 3.5 shows, the program's first undertaking in Caquetá, jointly made with the Caquetá Government, was to outline the process for implementing all future activities and creating a framework agreement for cooperation and continued support (November 2013). The program was then introduced to departmental and regional agencies, including Corpoamazonia (Corporation for the Sustainable Development of the Southern Amazon), Agrosavia (Colombian Corporation for Agricultural Research, formerly Corpoica), the University of

Amazonia, SENA (National Training Service) and the Institute of Amazonian Scientific Research (Sinchi).

Running parallel to this roll out—and even earlier on in 2013—the program began to draw up a strategy for initiating operations in the Andean-Amazonian foothills. This included organizing the first exploratory visits and identifying organizations and local stakeholders in the municipality of Solano that could facilitate the project so that it would run smoothly in the field. The program also began supporting membership for the Caquetá Government within the Climate and Forest Governors Working Group (GCF TaskForce), an international body that includes more than 30 sub-regional governments around the world with the objective of reducing deforestation and mitigating climate change. Between the second and third



Photo: Andrés Cardona, Solano, 2018.



The Connected Landscapes Program was created between 2012 and the first half of 2013. It was launched on July 30, 2013 and began outlining a strategy for its future activities in the Andean-Amazonian foothills and preparing for introductory visits with local organizations in the municipality of Solano. These were identified as organizations that would be able to facilitate and help the project succeed in the field.



Photo: Andrés Cardona, Solano, 2018.



In 2015, Fondo Acción supported the program's launch in Solano through the implementation of their early childhood intervention initiatives, namely Inversiones de Alto Efecto strategies and the Glen Nimnicht Scholarships. 2015 was truly a year of expansion for Connected Landscapes, which since August made exploratory visits to begin its operations in Cartagena del Chairá as well.

quarter of 2014, with ACT at the helm, and after reaching local agreements with governmental and private partners in San José del Fragua and Belén de los Andaquíes, Connected Landscapes began the work of prioritizing rural families and the indigenous reserves in the Andean-Amazonian foothills.

By the end of 2014, Paisajes Conectados was already directly supporting farms and reserves on *veredas* where ACT was working. During 2014, Fondo Acción wrapped up their preparations in Solano and, in accordance with the work days of the local community

authorities, prioritized Entreríos as the focus area for operations within the municipality.

In the first trimester of 2015, while activities took root in the Andean-Amazonian foothills, Fondo Acción decided to augment the launch of program activities in Solano with complimentary interventions for children by setting in motion the strategies for high-impact investments and the degree in Comprehensive Early-Childhood Care. The Inversiones de Alto Efecto were aimed at ensuring sufficient supplies and improving the infrastructures of five rural schools in the Entreríos area



(2016). Likewise, the associated training program educated caregivers for girls and boys in early childhood care.

After reaching an agreement with local communities in the second quarter of 2015, Fondo Acción assembled a technical team from Caquetá to help in the execution of the program in Solano. This team was made up of four rural community assistants, a social worker, an agricultural specialist and a program coordinator.

With this team in place for the second half of the year, the *veredas* selected for the program were prioritized and the families

and properties participating in the program were identified. At the end of 2015, technical aspects of the program had already begun for farms in Solano.

2015 was a year of expansion for Connected Landscapes. Since August, the program had been exploring the possibility of operating in Bajo Caguán in Cartagena del Chairá. It was at the behest of the donor that the scope of the program was extended to this municipality, given its alarming rates of deforestation. By the end of 2015, the program's technical activities were consolidated in Solano, Belén de los Andaquíes and San José del Fragua, while in Cartagena del Chairá the necessary agreements were reached with the local communities to formally start activities in 2016.

2016 can largely be viewed as a period of consolidation for the program. At the municipal level, on-farm conservation and reform were well underway in the selected municipalities. This also strengthened the relationship with the department's administration by working jointly with the Caquetá Government and the University of Amazonia on public policy issues, skill building and the potential effects on municipal and departmental development plans. This year saw the beginning



Throughout 2018, initiatives began for the development of sustainable value chains such as cocoa and traditional salted semi-hard cheese production. Farmer's markets were launched in Solano and work began on the gender strategy through the construction of community gender guidelines and the launch of The School of Women Leaders (Escuela de Lideresas), a branch of the School of Leadership.





Photo: David Rugeles, Solano, 2018.

of the program's initiatives in Cartagena del Chairá and the launch of the first phase of the Small Grants strategy in the Andean-Amazonian foothills. This was created as a complement to the strides that had been made in conservation and sustainable production on the farms through supporting personal projects, families and organizations at a grassroots level. It was also the year when the School of Leadership was designed and implemented along with the community-based construction of local management tools, key factors in strengthening local governance in the four municipalities. Chief among these were the following, which were all written and published over the course of the year: the Minga Based on Andaquí

Thinking (Minga de Pensamiento Andaquí), the Peasant Núcleo No. 2 Community Agenda of Cartagena del Chairá (Agenda Comunitaria del Núcleo Campesino No. 2 de Cartagena del Chairá), the Guidelines for the Rural and Environmental Development of the Amazon of Caquetá (Lineamientos para el Desarrollo Rural y Ambiental Amazónico de Caquetá) and the Food Sovereignty Guidelines for the Indigenous Peoples of Caquetá (Lineamientos de Soberanía Alimentaria para los pueblos indígenas de Caquetá). Moreover, in 2016, as a result of the collaborative efforts of various programs—including Connected Landscapes—the department of Caquetá successfully joined the GCF TaskForce.

During the first half of 2017, the program concluded operations in the Andean-Amazonian foothills, as well as its working partnership with ACT. As of 2017, the program started concentrating on the areas of Solano and Cartagena del Chairá. This began in February with the launch of the second phase of the Small Grants strategy, which operated in the municipality of Solano in 2017. program implementation also began on the farms in Cartagena del Chairá, which serviced 153 participating families in the area's Amazon plains. This was also the year when the efforts taken to strengthen the local grassroots organization in the municipalities of Solano and Cartagena del Chairá were revitalized. The Community Development Plans for the 16 participating



veredas in Solano forged ahead, which led to the development of a proposal for community planning for Entreríos, presented to the municipal council as a technical proposal for updating the municipal territorial planning scheme. That year, the first signs of social reorganization and the adjustment of territorial control were evident, largely due to the presence of new illegal actors after the FARC signed a peace agreement and left the department's rural areas.

In 2018, on-farm activities continued in Solano and Cartagena del Chairá—particularly those with technical support—and operations to strengthen sustainable value chains such as cocoa and traditional salted semi-hard cheese production began.

As part of these efforts—and in order to establish territorial presence, boost the local economy, increase food security, and diversify farm income—farmers markets were launched in Solano, which would later be replicated in Cartagena del Chairá in 2019. During 2018, the focus on gender made great strides, informed by the initiatives carried out in the Amazon foothills. Community gender guidelines were published and The School of Women Leaders—a branch of the School of Leadership—was developed and launched, which was essential in making the role of women visible in processes of rural conservation and development.

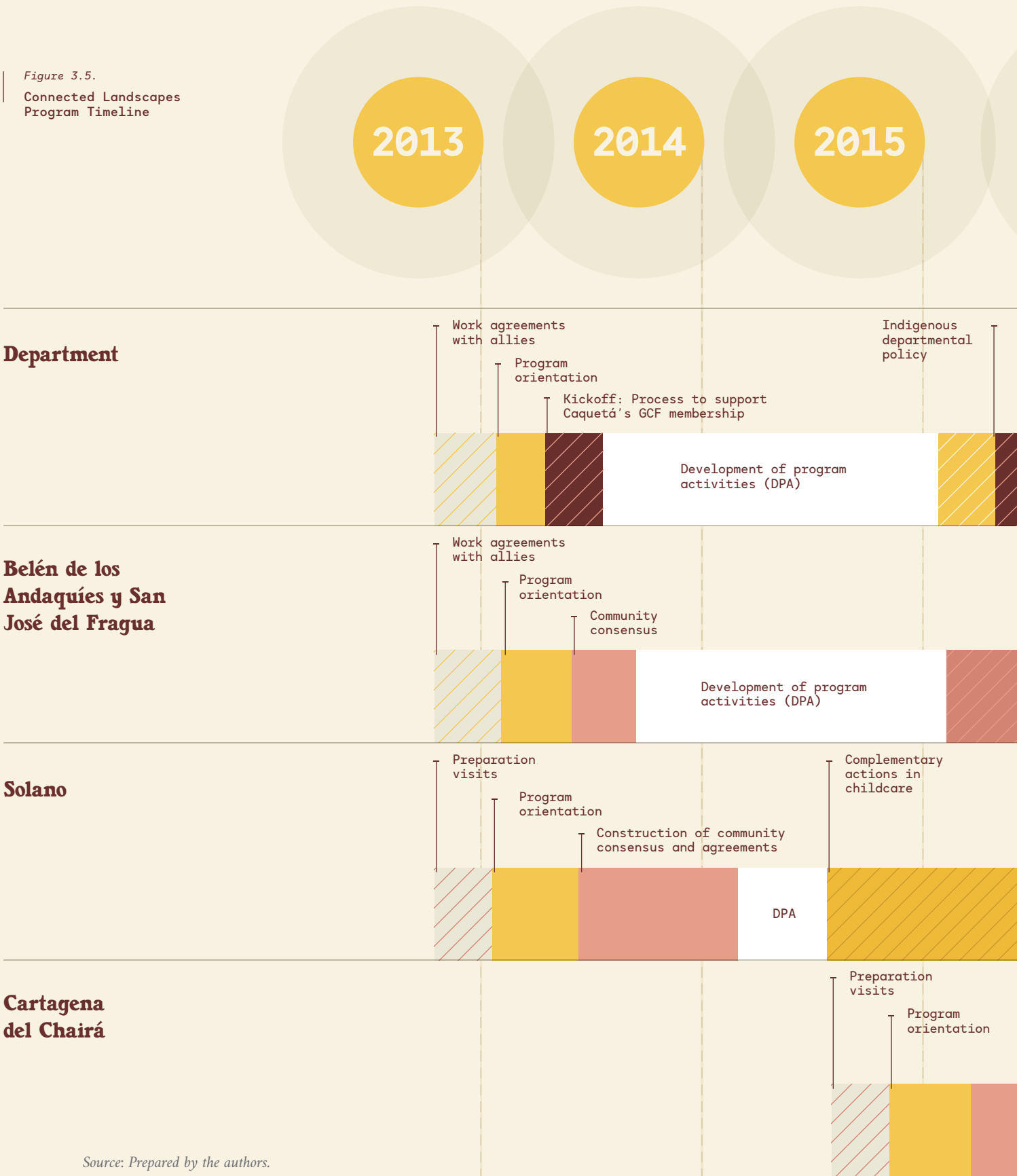
In 2019, the Small Grants strategy was expanded to Cartagena del Chairá and The School of Women Leaders was concluded. It promoted local women's small business ventures, new grassroots organizations, environmental education led by women, and the chairing of female leaders in Community Action Boards and other community organizations. During that year, as part of the process of generating new sustainable processed foods, the initiative

for producing processed foods from local gardens was launched. This, in turn, would develop into the production of processed foods from rural farm-grown vegetables sold under the brand Raíz de Agua.

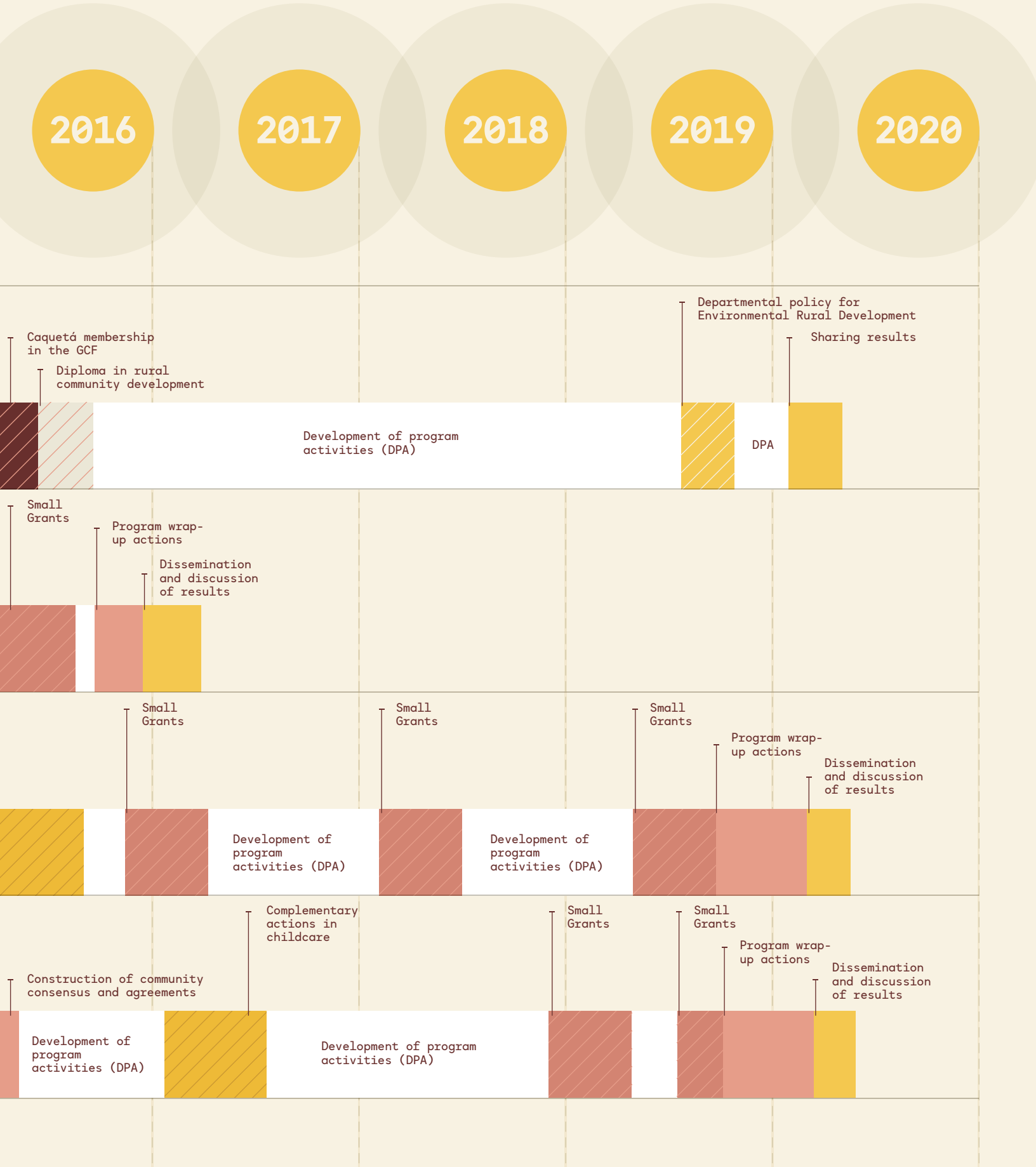
For the second half of 2019 the focus shifted towards wrapping up operations on the farm and collecting field data to conduct a final evaluation of the program. This included, among other things, distributing surveys, completing the necessary technical activities on the farm, final evaluation meetings for the settlement initiatives and evaluating local organization.

In 2020, the program team focused on bringing activities in the *veredas* to a successful close, concluding the process of supporting cheese and processed food production. It also involved producing comprehensive management and procedural documents that covered the topics and technical teachings of the program, and in preparing organizational documents for the closure of Connected Landscapes itself. Finally, before the program deadline, there was a wrap up of the administrative, financial, legal and operational processes.

Figure 3.5.
Connected Landscapes
Program Timeline



Source: Prepared by the authors.



Families, Andean-Amazonian Organizations and Additional Program Participants



Photo: Andrés Cardona, Solano, 2018.

In the four municipalities where the project operated, Connected Landscapes worked with and was geared toward rural farming families, indigenous communities, communal grassroots organizations, women's groups and formal administrations.

Criteria for selection of participants was based not only on their interest in reducing deforestation, conserving and connecting forest landscapes, and promoting low-emission rural development, but also on the level of responsibility and passion

they displayed for tackling these issues. Within the department, the program also benefited from having the Caquetá Government and the University of Amazonia both as participants and as strategic allies.

Figure 3.6.
Participants in the
Amazon Foothills

In the Amazon foothills, the program worked with 240 rural farming families and 60 indigenous families from one council and three reserves. A total of 16 organizations participated in the initiatives. Among them were the Caquetá Departmental Indigenous Council (CODIC), the Children’s Audiovisual School of Belén de los Andaquíes (Escuela Audiovisual Infantil de Belén de los Andaquíes), the Tierra Viva Foundation, the Caquetá Women’s Platform (Plataforma de Mujeres del Caquetá) and the Belén Women’s Municipal Table (Mesa Municipal de Mujeres Belemitas).

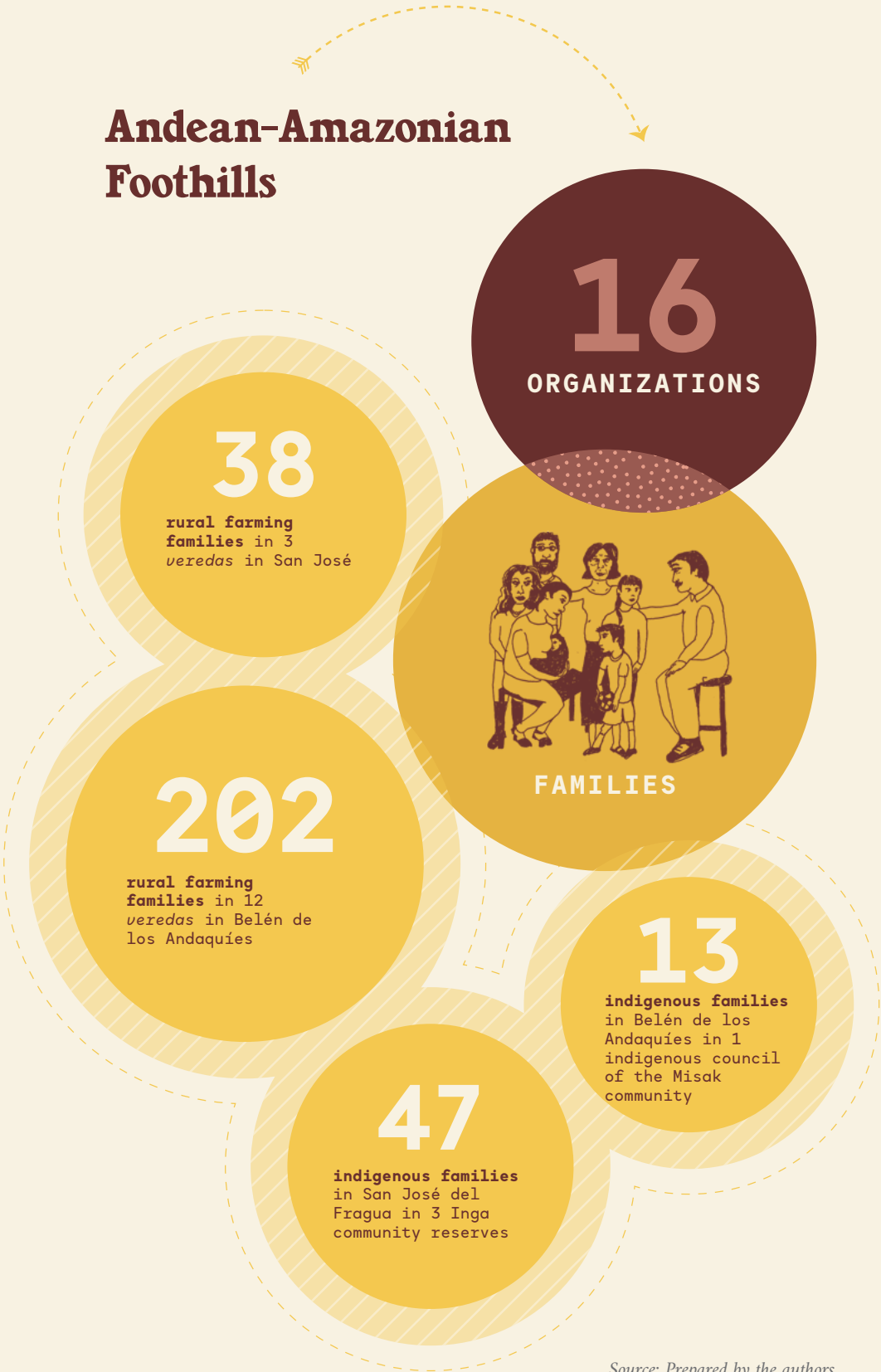
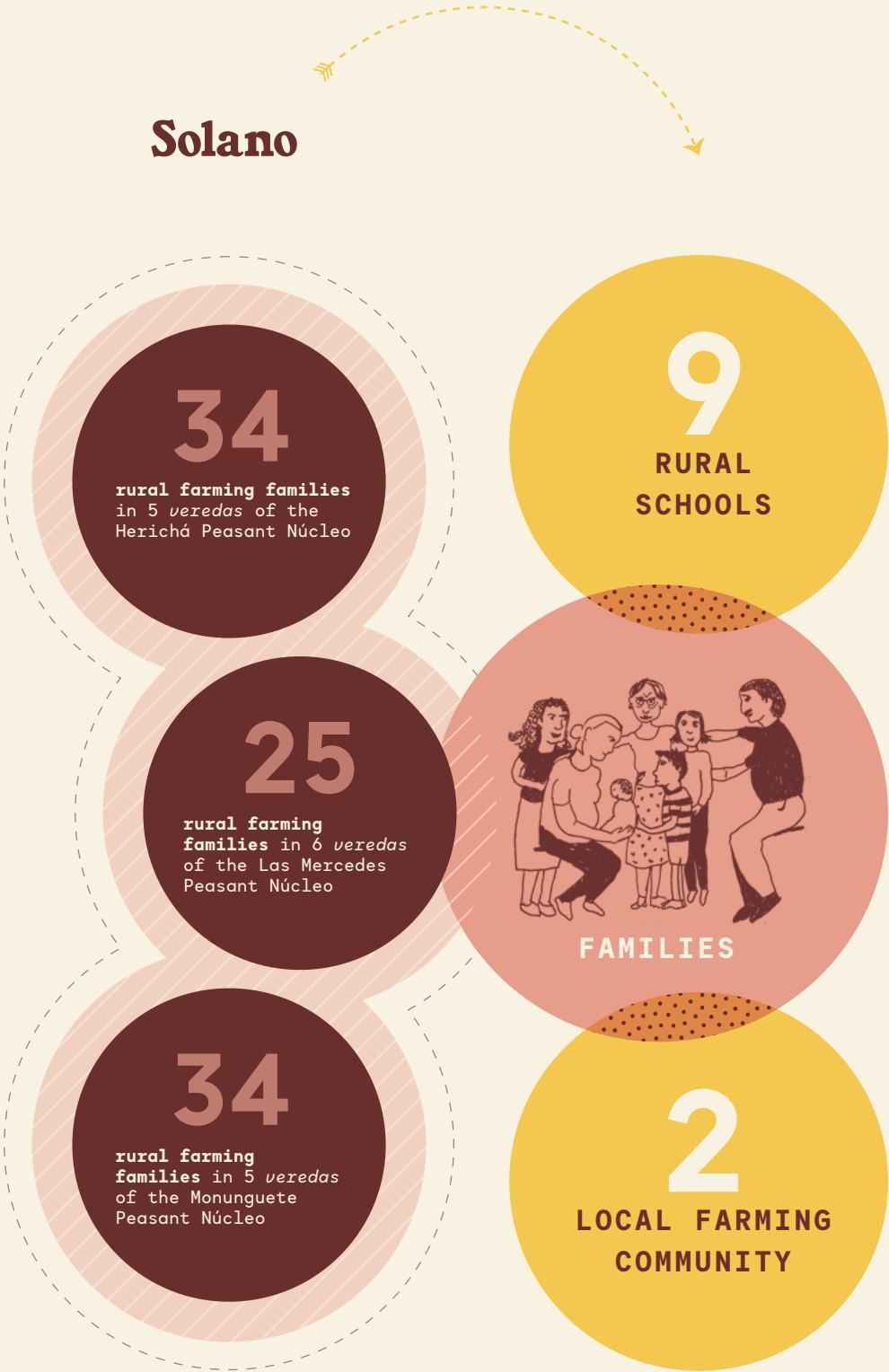


Figure 3.7.
Participants
in Solano

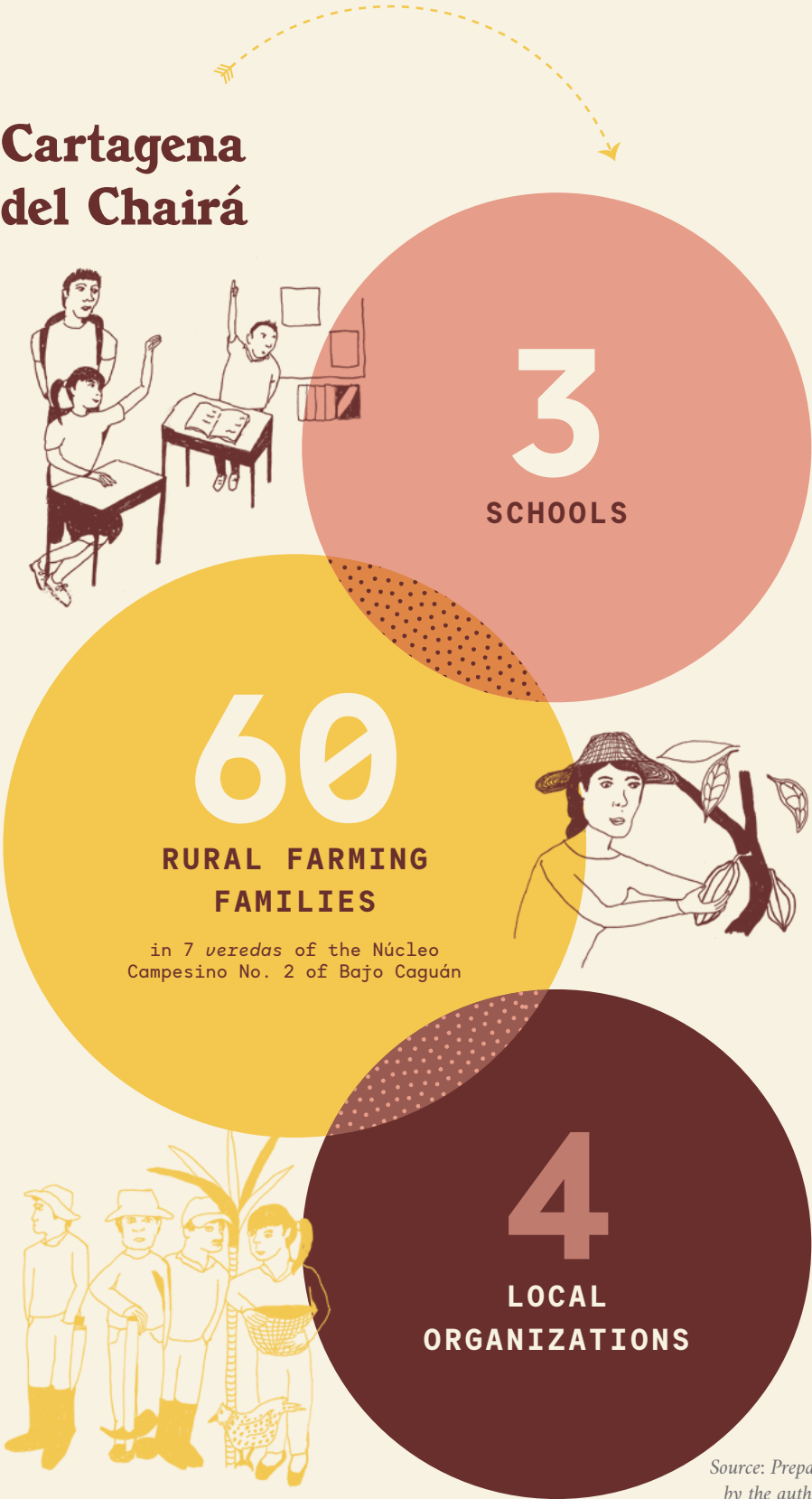
In Solano, the families who took part were exclusively rural farmers; 93 families in total participated and completed the activities. Thanks to the implementation of the early childhood intervention initiatives, nine rural schools also took part in Connected Landscapes activities. Two local farming community organizations were linked through the projects as well: Prodesarrollo and the Cattle Rancher’s Association of the Peasant Núcleo Las Mercedes (Agamesol).



Source: Prepared by the authors.

Figure 3.8.
Participants in
Cartagena del Chairá

In Cartagena del Chairá, 60 rural farming families (with 60 farms) participated in the program. Within the framework of the early childhood intervention initiatives, three rural schools were furnished with solar panels. Four local organizations participated in the initiatives: the Association for Economic Solidarity in of the Middle and Lower Caguán (Asoes - Asociación de Economía Solidaria del Medio y Bajo Caguán), the Committee of Cocoa Farmers of Remolino del Caguán and Suncillas (Chocaguán), (Comité de Cacaoteros de Remolino del Caguán y Suncillas), Peasant Núcleo No. 2 (Núcleo Campesino No. 2) and the Revolving Livestock Fund of Peasant Núcleo No. 2 (FES - Fondo Rotatorio Ganadero de Núcleo Campesino No. 2).



Source: Prepared
by the authors.

Figure 3.9.
Regional and
Municipal
Participants

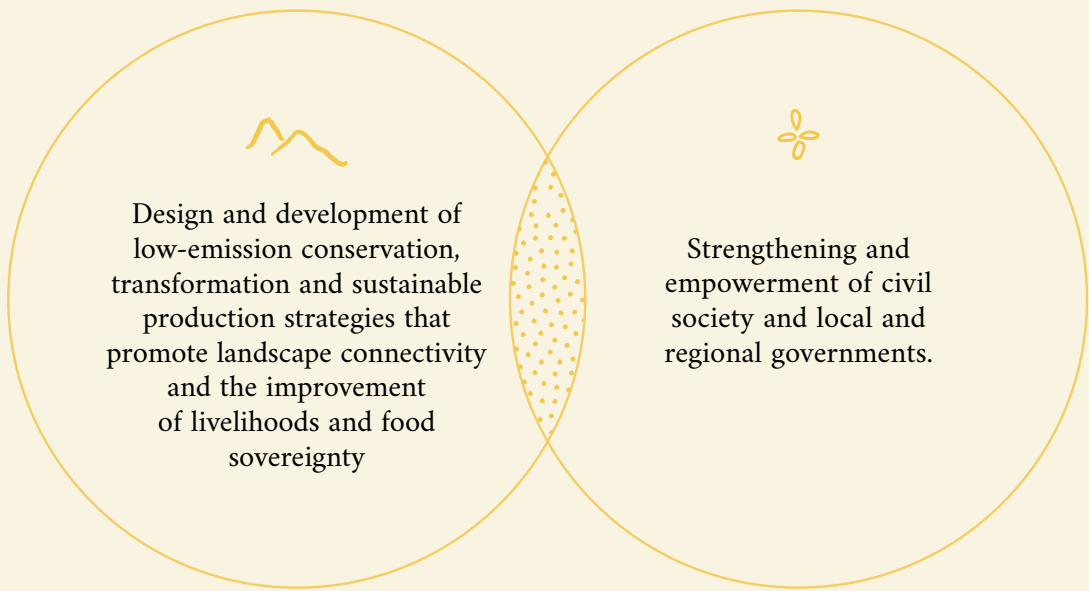
At both the regional and municipal level, Connected Landscapes tied its work to various levels of government as well as to the University of Amazonia. The work undertaken with the Caquetá Government to strengthen public policy processes took place through the Planning Secretary and the Agriculture Secretary. Together with the four mayors and their respective municipal councils, activities were organized for advocating legislation on gender, conservation and sustainable value chains. The University of Amazonia was not only one of the organizations empowered by this, but also became a key ally for the design and implementation of initiatives to develop technical training for rural development, early childhood care, conservation, climate change, IT and monitoring water quality.



Source: Prepared by the authors.

Laying the Groundwork for the Connection of Landscapes and People

To better achieve its objectives, based on the theory of change framework, Connected Landscapes implemented two key components for their work:



These areas were developed within the framework of five program principles, guided by the Low Emission Rural Development (LED-R) model, which promotes *healthy ecosystems and climate,*

well-being and participation, and sustainable economic development.

Figure 3.10 shows how the program unified these approaches. This is the approach is the point

of reference for the development of the following sections of this chapter, which explain the what, when, how and why of the program, in addition to outlining the main results.

Figure 3.10.
Technical Approaches to
Connected Landscapes

Theory of Change strategies

Spatial and technical information



Landscape transformation



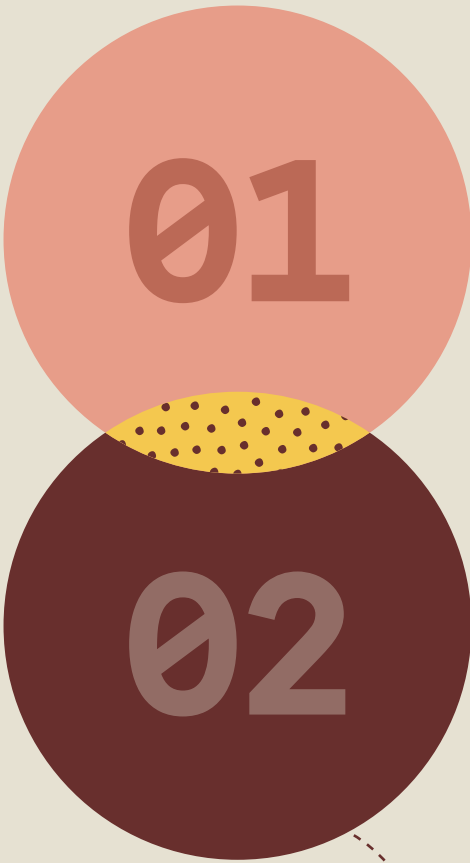
Transformation of public policy



Skills building



Components



Low-emission conservation, transformation and sustainable production strategies

Strengthening and empowerment of civil society and local and regional governments

Principles

- A Emission reduction
- B Participatory construction
- D Focus on gender
- E Connectivity of ecological and social systems



c Conservation of biodiversity

LED-R Model



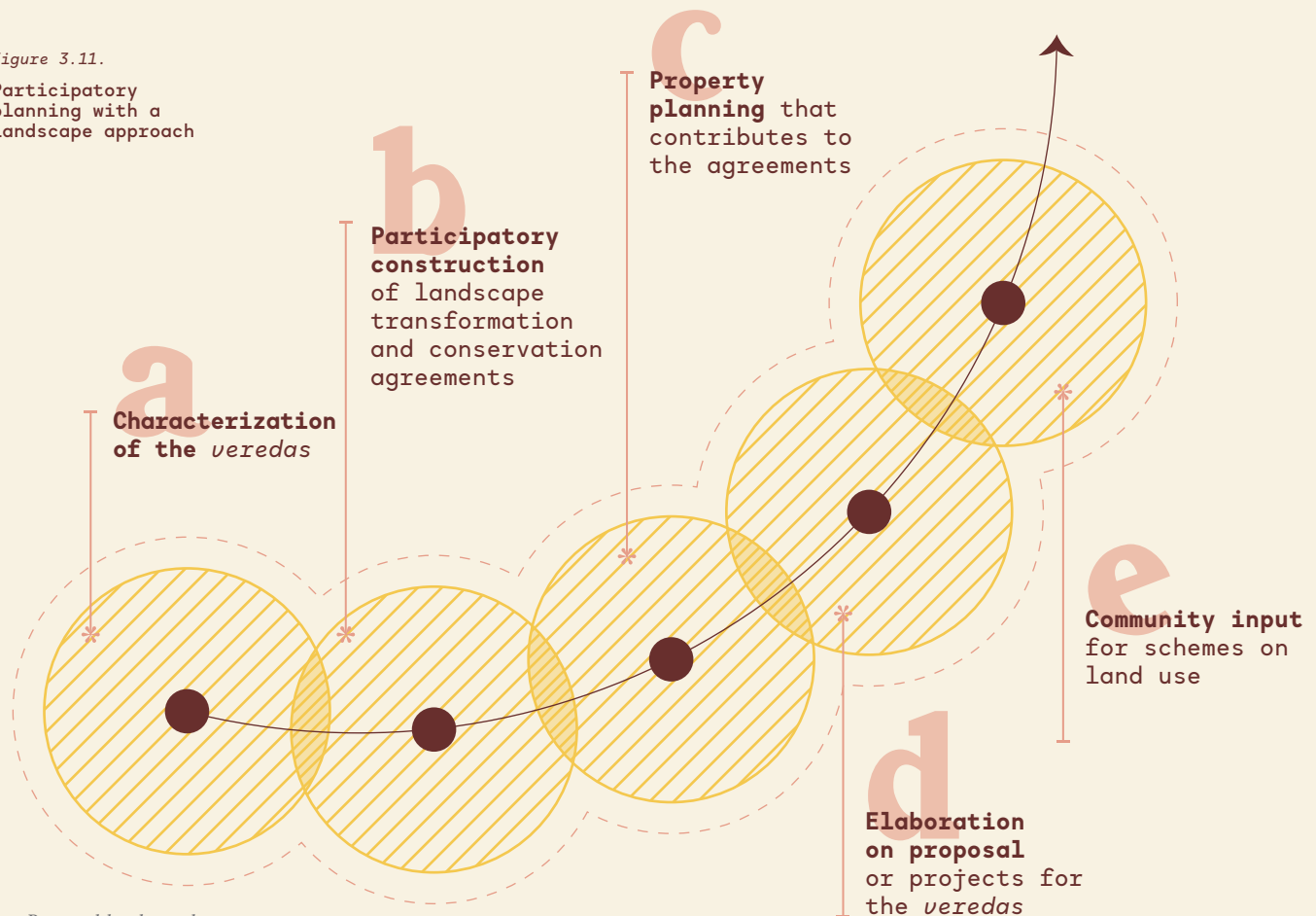
Reduction of deforestation and degradation of the Amazon forest

Source: Prepared by the authors.

Low-Emission Conservation, Transformation and Sustainable Production Strategies

Figure 3.11.

Participatory planning with a landscape approach



Source: Prepared by the authors.

Low-emission conservation, transformation and sustainable production strategies were the heart of the program's technical work on the ground, with each of the 60 indigenous families and 393 rural farm families. These strategies, which laid out how to achieve a transformation of the landscape for good practices,

were promoted and put into effect through Participatory Planning with a Landscape Approach. In this way, property plans (or management plans, in the case of indigenous communities) were built collectively and aimed at shared community conservation objectives in the *veredas* or reserves/councils.

Participatory Planning with a Landscape Approach operated on the basis of settlement characterization, where each settlement was environmentally, socially and economically analyzed. Adjustments were made in each area where the program was implemented, according to the local context. However, the



results were always the basis for final agreements for the conservation and transformation of the settlements, promoting the protection and restoration of natural resources and environmental services. These conservation agreements in turn became benchmarks for the development of how land would be used on each farm. All families planned their farm with the aim of contributing to the scope of the agreements made in their respective *veredas*.

As shown in Figure 3.12, the purpose of these agreements was to contribute to the conservation and transformation of the property in stages, and with this, toto the settlement and landscape as a whole. The key in this approach was to have common objectives that were conducive to conservation and the transformation of the landscape.

Additional Information

The property plans in Connected Landscapes are documents for organizing and planning farms over ten years, constructed with communal participation. They project a future farm, or a “dream” farm, always keeping in mind the integration and balance of environmental, productive, economic and social functions. The property plans are based on a map of the present and the future of each farm, and they are centered on zoning for areas of use and conservation.

The planing is concretized in plans for activities in ten years time.

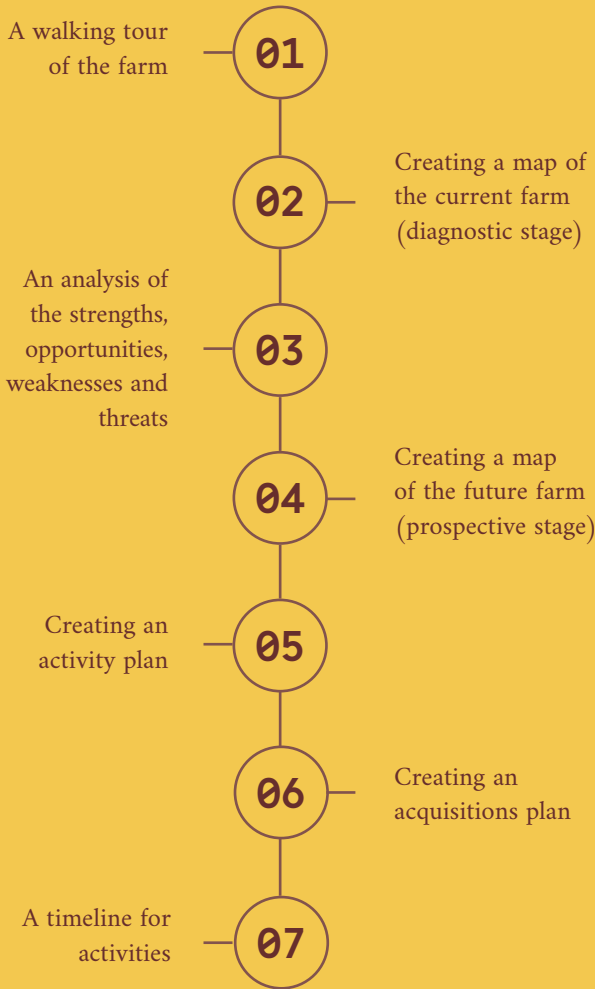
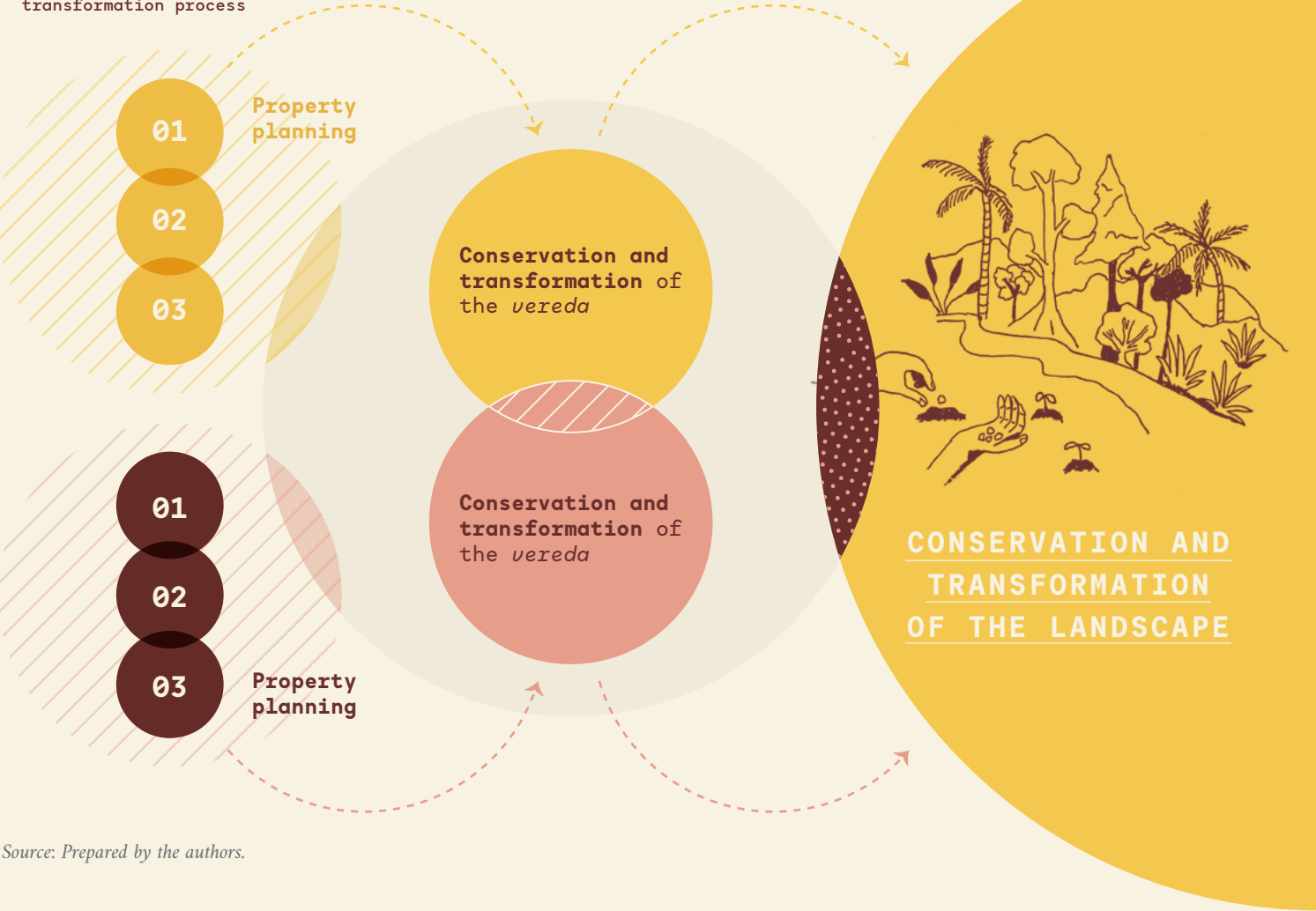


Figure 3.12.
Landscape conservation and transformation process



Source: Prepared by the authors.

These needed to allow for technical interventions on the farms while simultaneously safeguarding the landscape. In terms of the program, these objectives were associated with connectivity between

ecosystems expressed through the maintenance and recovery of bodies of water, riparian forests, floodplain forests and wetlands, and the conservation of relictual forests, among others. With indigenous communities,

Participatory Planning with a Landscape Approach, executed by ACT, followed the route of the relevant authorities to update the management plans as laid out by the reserves or councils.

Planning agreements with indigenous groups



In Solano and in the foothills, Participatory Planning with a Landscape Approach was scaled up to municipal planning processes, based on information obtained in farms, *veredas* and communities.

This was done to outline proposals that later were presented to the municipal councils for updating land use plans (EOT, Esquema

de Ordenamiento Territorial). Ensuring that the planning ran parallel with updates to the EOT was key as this meant the promotion of community action and civic engagement. This ensured more effectively integrated requirements for land use by the communities, as well as strategies to tackle this. Likewise, the property planning, and landscape

conservation and transformation agreements, which served as the basis for the proposals, were driven by forest conservation principles. That they intersected with the EOT also further stimulates and encourages the incorporation and ownership of environmental criteria into the planning.

Proposals for Bio-Cultural Corridors in the Andean-Amazonian Foothills

It is true that regional corridors are crucial in connecting the forests of the department of Caquetá with other regions. However, it is often forgotten that the decline of connectivity and fragmentation within these stems from the cumulative effect of locally generated micro-connectivities (on farms and *veredas*). As a result, a model of conservation and connectivity for the municipalities of Belén de los Andaquíes and San José del Fragua was created based on the information gathered from the program. This was made possible by precisely identifying the fragmentation in these municipalities and the opportunities for connectivity. When looking at this information in relation to properties within the *veredas* where Connected Landscapes operated in the

Andean-Amazonian foothills, it is easy to see that these are located at connecting points along the edges of the core areas in forests they serve and in places where forests are completely fragmented. In later interventions, the program contributed to improving these core areas and rehabilitating these points of connection—or corridors—with the remaining forest. In areas with the highest levels of fragmentation, forests were restored and rehabilitated in order to connect them with more well-preserved areas. Considering this analysis, five biocultural corridors were conceived and mapped out: two in Belén de los Andaquíes and three in San José del Fragua. These proposals for the corridors were presented in the council proceedings for the two municipalities.

Planning and Zoning proposal for Entreríos (Solano)

The Entreríos area is located at the junction of the Orteguaza and Caquetá rivers, spanning a total area of 46,071 hectares. All the *veredas* that took part in the Connected Landscapes Program are within this area, occupying almost 70% of it. Entreríos is home to important sources of water, such as the Sevilla and Niñeras rivers. The local population concentrates their activities along here, and the forest cover is extremely dense. Entreríos helps connect the Andean-Amazonian foothills and the Amazon plain and protects the natural wealth of the mid and lower Caquetá river while keeping the impact of human activity low in the Serranía de Chiribiquete National Park. Despite its importance, this area is exposed to unsustainable agricultural activities and constant deforestation. By 2016, this area had lost almost 50% of its forest

cover due to settlements, extractive industries removing raw materials from the area, and extensive livestock activities. Today, Entreríos is dominated by floodplain forests, landscapes featuring patches of forests and areas of agricultural production.

The creation of the Community Development Plan, which was spearheaded by the 16 *veredas* participating in the program, ensured there was an organizational process available for the entire area. This was centered on analyzing forest reserve areas, areas of use, connectivity opportunities, groundwater recharge zones, and landscape morphology. Based on this, a land management structure was proposed and presented to the Solano municipal council to be considered when updating the municipal planning scheme.

On-the-Ground Activities with Participating Families

7. Given the collective control over indigenous territories and the absence of individual farms there, the activities that were carried out by indigenous family groups took the form of family records and not property plans.

✧ Rural farmers and indigenous families⁷ were asked to describe their “dream farms.” The contents of the program were then based both on those descriptions and on the elaboration of farmland plans that contributed to the conservation and transformation of its *veredas*. From this planning exercise, family projects were proposed detailing conservation and landscape transformation activities for the parcels of land they owned.

Connected Landscapes worked together with each family in the execution and technical support of the activities conducted at the farm or settlement. For this process to work, it was crucial that the responsibility for farmland planning stayed within the family and that the responsibility for executing the activities described in the family projects was shared. In other words, the family was responsible for carrying out the activities while the program was responsible for providing support.

The development of family projects was also a progressive process, which was carried out in stages. If the family’s first project activity was successfully completed by them, they then moved on to the second activity, and so on. This principle functioned as an incentive for maintaining

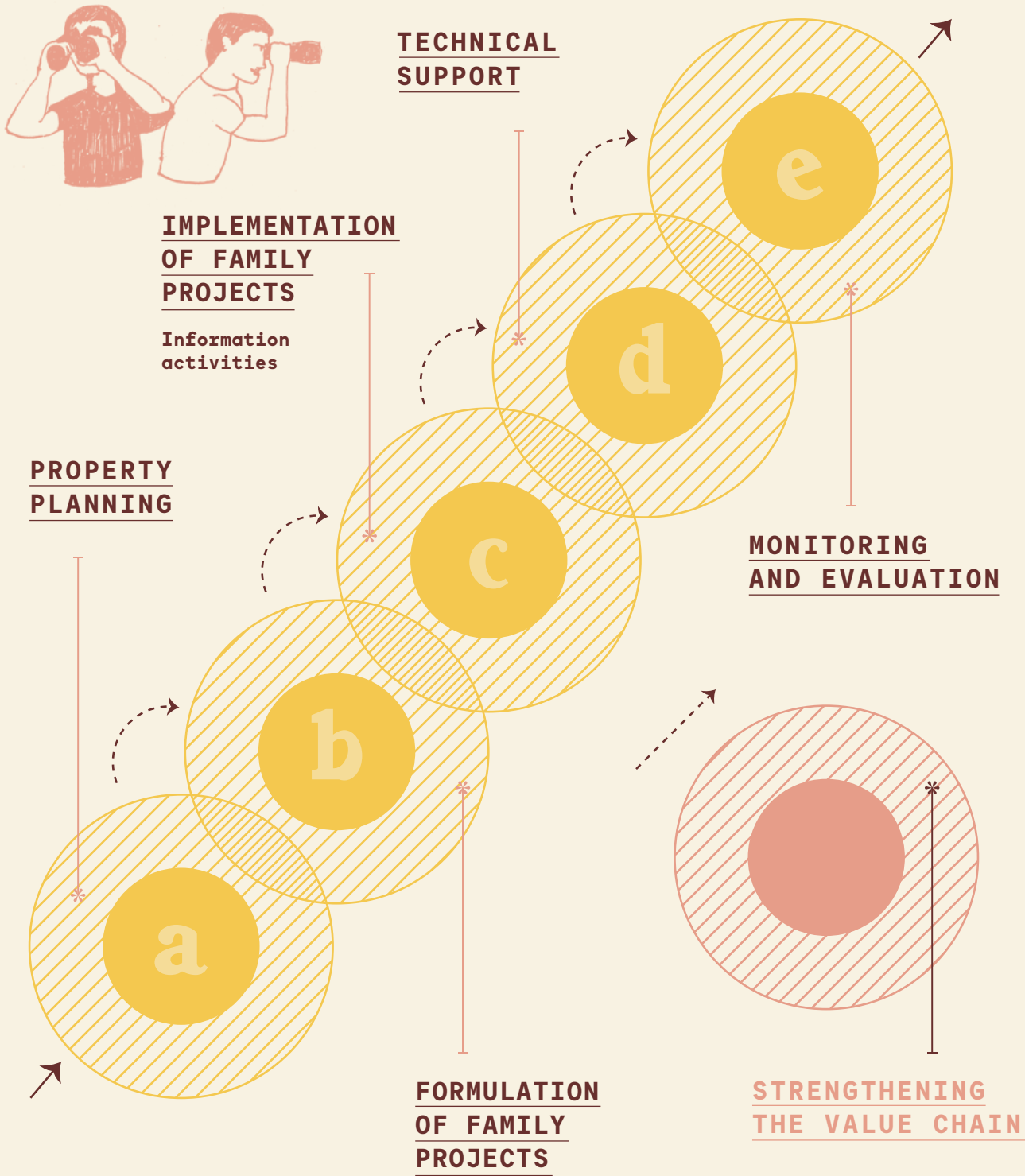
conservation at the forefront, allowing productive transformation to achieve sustainability. The first activities in all family projects were focused on conservation. The progress of the projects depended on the efforts of each family. In the case of the most committed families, the execution of the projects also strengthened the value chains related to farm production. Although all the family projects were different and were designed one-by-one according to the particular context of each farm, *vereda* and reserve, in many cases they included some of the strategies illustrated in Figure 3.14.

Hipólito on planning

“It’s like thinking foward and seeing what you want in the future. You have to look at how one part is now and what you want it to become. **Plan** what you’ll need to start, what you’ll do first, then what you’ll do next, and so on.”

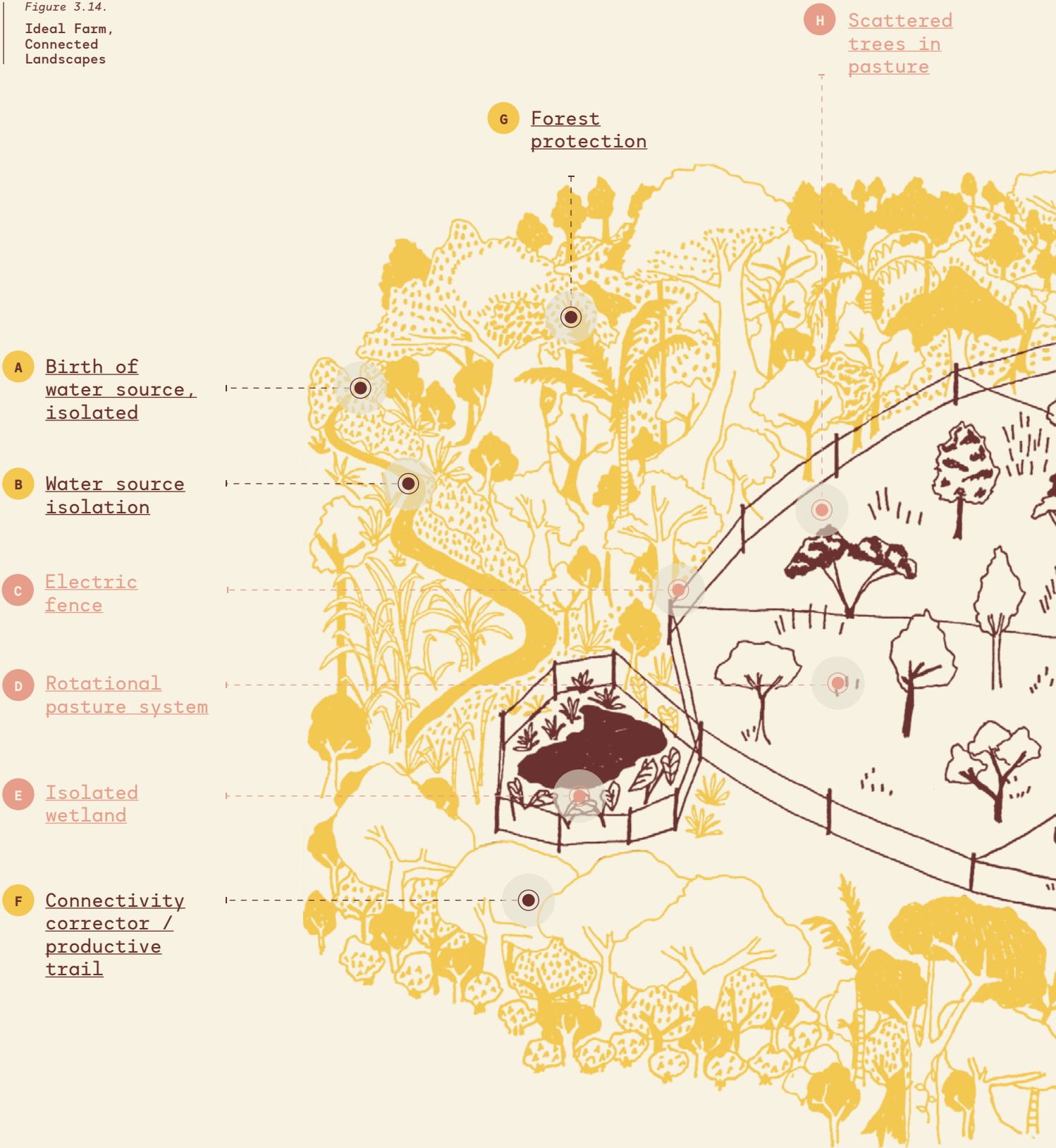
Vereda Potreros (Solano)

Figure 3.13.
On-site
Actions



Source: Prepared by the authors.

Figure 3.14.
Ideal Farm,
Connected
Landscapes

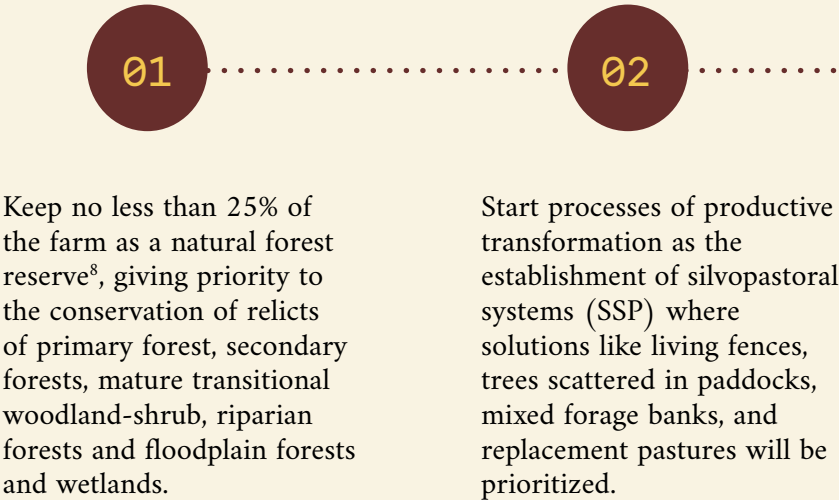




Source: Prepared by the authors.

The main strategies for conservation, landscape transformation and sustainable low-emission production drawn in the property plans and the families' respective projects were the following:

❖ 8. The families that had enough forest to meet this percentage (1-25%) would keep the land they had as a reserve, or allow transitional woodland-shrub to mature in order to increase the overall vegetation cover of the property. Due to safety concerns, areas of the participating farms were not measured at the beginning of the program. What was recorded in the property plans, including coverage data, was sourced from the families during the planning stages of the initiative.



03

Establish agroforestry systems and areas for fruit crops that will support food production.

04

Increase livestock production through establishing rotational management processes for pastures following the Voisin system, using solar powered electric fencing (with the possibility of also using this domestically) and water management through livestock aqueducts.

05

Consolidate the use of water for production and domestic purposes by creating irrigation systems for family gardens and livestock aqueducts with the possibility of other uses.

09

Create productive or connectivity corridors (habitat corridors) to encourage the connections previously lost between forest blocks on the farm and to support the production of food, forest materials and feed. Some of the plants sown included: black manwood, 'achapo' wood, 'bilibil', 'cachimbo', smoked 'escobo', 'guamo cerindo' wood, cedar and 'ahumado pajarito' wood.

10

Create plant nurseries for the recovery, reproduction and dissemination of tree, plant and fruit seeds, especially those endemic to the area or traditional species, such as 'yopo', 'brogue', black manwood and cinnamon cedar.

11

Develop strategies around food production through the establishment of family gardens and staple crops (corn, beans, cassava, plantain), as well as the conservation of native species that ensure food sovereignty and security.

My Farm and My Forest



Reminiscing about her childhood, Elena remembers that every time they wanted to sow seeds on the farm they had to cut down trees from the forest. “Our mindset was to tear down the bush, grow crops and sow to find sustenance,” she recalls. This is a practice that continued years later with her husband, with whom she cut down a stretch of forest to occupy the land with cows. This is how, on her farm, Elena began to dedicate herself to extensive ranching, one of the activities that, in recent years, has made Solano, Caquetá one of the municipalities with the most deforestation in Colombia.

“We started to plant grass to keep cattle, we cut down old and young forest.”



Photo: David Rugeles, Cartagena del Chairá, 2016.

The forest on Elena’s farm was shrinking little by little until it had almost completely disappeared. But then, in what she considers an intuition, a thought crossed her mind: the trees that were left had to be kept standing. She and her family, without any in-depth knowledge—and contrary to what was customary in their region—began to conserve the trees that were there.

Later, with Fondo Acción’s Connected Landscapes Program, Elena and her family became part of the group who learned new ways to care for their farms and the Amazon ecosystem.



“They taught us that not only could you preserve a small part, but that you could also reforest places, protect water sources and have silvopastoral systems.”

Gaining a new understanding of cultivation and conservation through the program, Elena decided to take action: where she had cut down trees, she reforested and left logs for regeneration. She also planted trees near water sources and placed her cattle in rotation in smaller paddocks. In 2015, during the drought season, she saw the fruits of that labour: while most farms were experiencing drought, her water supply was plentiful. “We said: we truly have wealth and we must take care of it,” she recalls.

Her interest in conservation also encouraged Elena to take part in community action. She was president of the Community Action Board of her village and is the leader of the Prodesarrollo women’s group aiming to find sustainable uses for the resources of the Monunguete “veredas”. Her leadership, which has been nurtured throughout Connected Landscapes, has given her and other women the tools to influence decisions in her territory, and for those decisions to reflect caring for the environment. “I have learned to understand who I am and how I can serve the community,” she says.

This extraordinary change in mentality that occurred both in Elena and in her community led to participating families isolating more than 25 thousand meters of water sources and planting more than 7,000 trees in just six years. In a department where, according to IDEAM, 49% of the country’s deforestation occurred in 2017, the people of Caquetá contribute to conservation in one of the most important ecosystems in the world, home to more than 1,000 species of birds and amphibians.

Today Elena, energized by the experience, allows herself to continue dreaming:

“In five years, I imagine my farm with trees that connect the forests nearby.”

Connected Landscapes managed to develop 453 property plans and carry out the same number of family projects with 60 indigenous families and 393 families in rural communities. In total, 6,167.9 hectares

incorporated sustainable practices and 26,055.7 hectares adopted planning tools or a reserve management plan. These were covered by improved management figures that contribute to conservation,

transformation of landscapes and low-emission sustainable production. The following graph summarizes the results by municipality.

Table 3.1.
Summary of areas under improved management and employing sustainable practices⁹

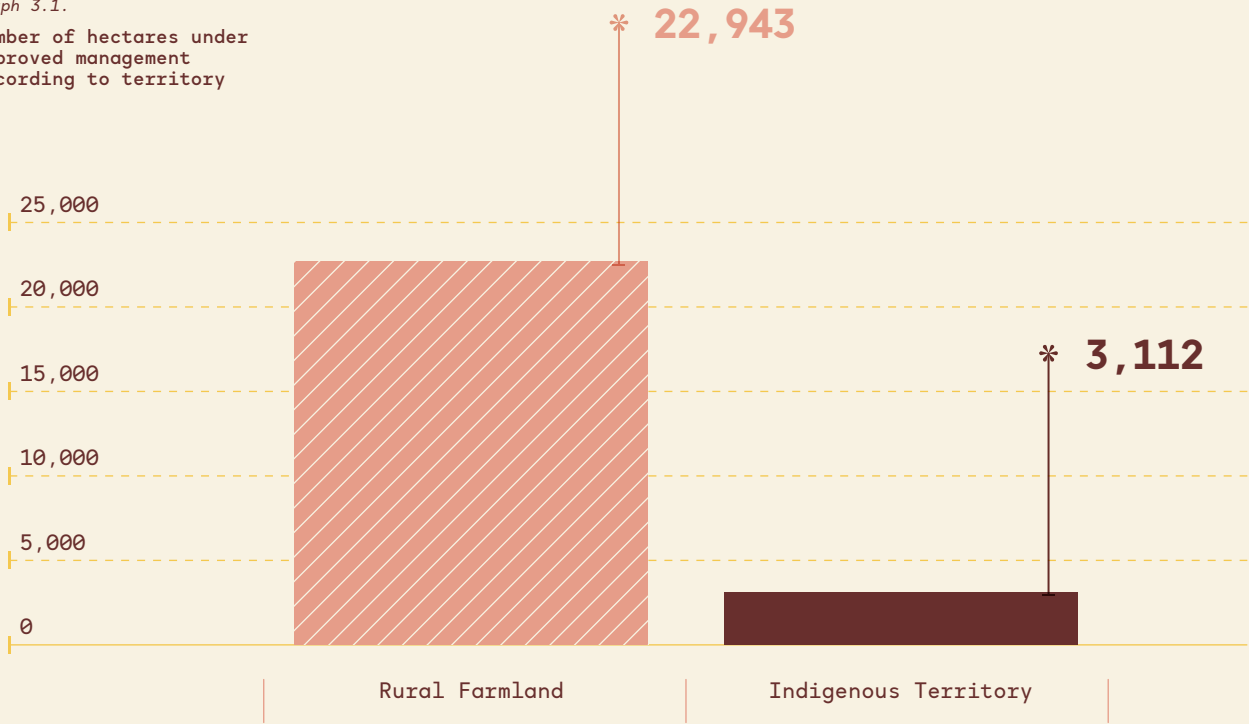
	Total "veredas" area (hectares)	Number of Reserve Management Plans	Number of property plans	Number of hectares under improved management	% of hectares under improved management/total "vereda" hectares	Hectares under sustainable practices
San José del Fragua	4,890	3	85	3,978.2	81 %	1,657.1
Belén de los Andaquíes	12,060.52	1	215	7,996.5	66 %	
Solano	31,130.44	0	93	6,625	21 %	2,012.2
Cartagena del Chairá	24,783.54	0	60	7,456	30 %	2,498.1
Total	72,864.5	4	453	26,055.7	36%	6,167.8

Source: Montero (2020).

❖ 9. Hectares under sustainable practices corresponds to the number of hectares in which technical interventions were carried out on the farm, supporting the promotion of conservation, landscape transformation and low-emission sustainable production.

❖ 10. Hectares under improved management are the number of hectares accounted for in the property planning or management plans.

Graph 3.1.
Number of hectares under
improved management
according to territory



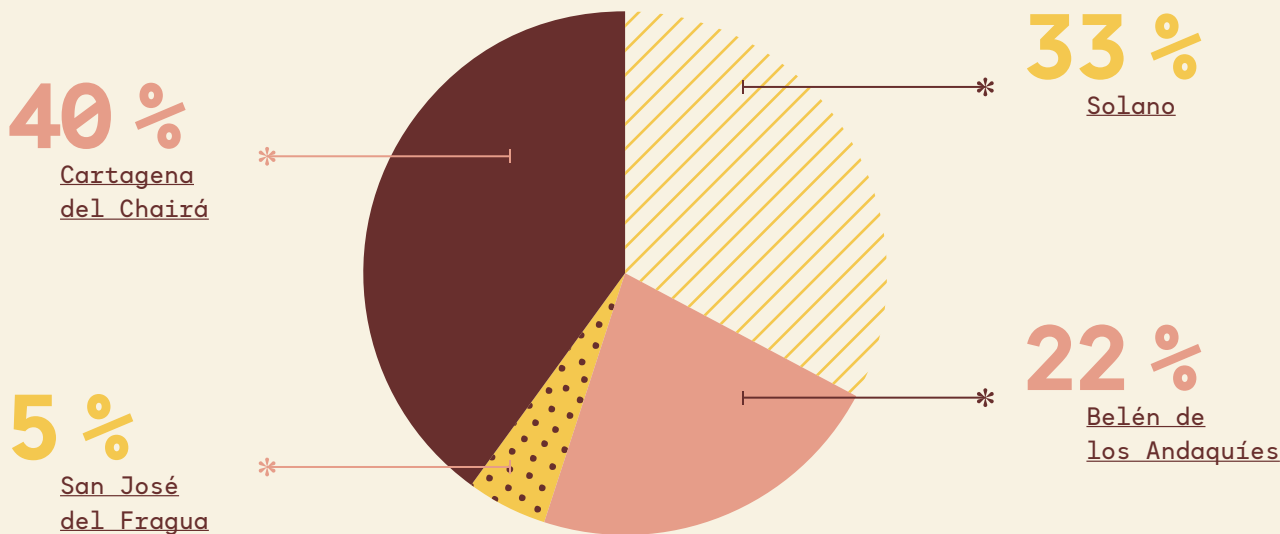
Source: Montero (2020).

Out of the entire area under improved management, 22,943 hectares were planned in rural farmlands and 3,112.7 in indigenous territories. There was direct intervention through the implementation of sustainable farming practices in 23.7% of the area under management totalling 6,127.9 hectares.

Photo: David Rugeles, Cartagena del Chairá, 2016.



Graph 3.2.
Hectares Under
Sustainable Practices
by Municipality



Source: Montero (2020).

73% of the area utilizing sustainable farming practices was in the municipalities of the Amazon plain (Solano and Cartagena del Chairá). The remaining 27% was in the municipalities of the Andean-Amazonian foothills in San José del Fragua and Belén de los Andaquíes. Sustainable practices were grouped as follows: agricultural products for personal consumption, conservation,

production system, agroforestry system and fruit trees. Table 3.2 describes the final result for land where sustainable practices were utilized in close detail.

The progress achieved from the technical improvements of farms launched by Connected Landscapes to achieve conservation is evident: landscape transformation and low-

emission sustainable production. Some of the outstanding data in the table are: isolation of water sources and forest, the establishment of living fences and habitat corridors (productive or connectivity corridors), home gardens and the installation of an electric fence leading to the productive transformation of large ranching systems.



Table 3.2.
Notable Results of Utilizing
Sustainable Practices

Sustainable Practice	Total Implemented Practices				
	Belén de los Andaquíes	Cartagena del Chairá	San José del Fragua	Solano	Total
Livestock aqueduct		59 units		78 und	137 und
Forest isolation		14,176.2 m		6,437.3 m	20,613.5 m
Water source isolation	47,598.3 m	25,247.4 m	13,210 m	27,536.1 m	113,591.8 m
Planted trees	41,572 m	24,000 units	23,814 units	37,200 units	126,586 units
Staple crops (agricultural crops for personal consumption)	1.75 ha		2 ha		3.75 ha
Mixed forage banks		634.2 m²		100 m²	734.2 m²
Biodigesters	1 unit		6 units	5 units	12 units
Bovine area		2,251.3 m		2,406.7 m	4,658.1 m
Electric fence for paddock divisions	12,751 m	156,543 m	8,610 m	137,849 m	315,753 m
Living fences	9,401 m	16,661 m	4,410 m	16,617.9 m	47,090.2 m
Indigenous "chagra" gardens			40.7 ha		40.7 ha
Connectivity corridors		13,928.8 m	200 m	25,280.8 m	39,409.7 m
Ecological stoves	33 units		3 units		36 units
Isolated water sources (springs and intakes)	69 units	43 units	17 units	48 units	177 units
Home gardens	120 units	53 units	12 units	78 units	263 units
Implementation of tillage	7 ha				7 ha
Implementation of "yatul" gardens	6 ha				6 ha
Improvement of stables				4 units	4 units

Table 3.2 Continued

Sustainable Practice	Total Implemented Practices				
	Belén de los Andaquíes	Cartagena del Chairá	San José del Fragua	Solano	Total
Fruit tree plots	15.8 ha		6.00 ha		21.8 ha
'Small species projects' (chickens)	147 units		37 units	6.00 units	190 units
Cheese making		10 units		19 units	29 units
Fertile corridors	28,438 m	2,924.9 m	11,160 m	4,027.00 m	46,549.9 m
Agroforestry systems	172.7 ha	1.66 ha	33 ha	1.12 ha	208.5 ha

Source: Prepared by the authors. Based on ACT (2016a y 2016b) y Segura (2020).

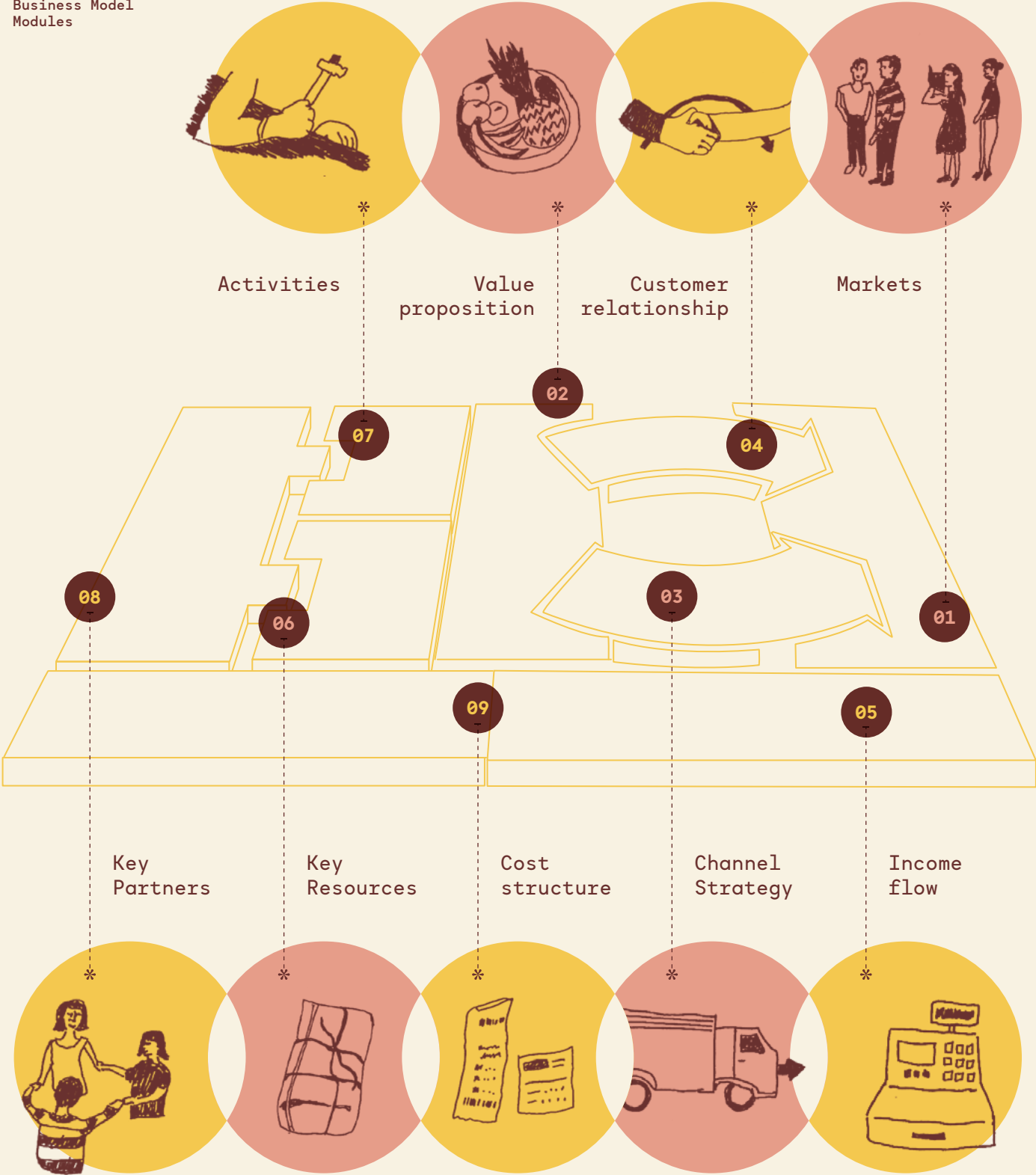
Value Chain Strengthening

Developing systems that are environmentally sustainable for rural production largely depends on their economic viability and success, with as little alteration to the foundational biomes. Connected Landscapes coupled low-emission conservation, transformation and sustainable production strategies with strengthening prioritized value chains.

This was achieved through the business model canvas methodology (Osterwalder and Pigneur, 2011), which identifies nine areas or modules through which a business generates value. The prioritization of value chains was based on the relationship of the chain with transformation towards sustainability on the farm, the significance of the

chain for the family economy, the impact of the chain on decreasing deforestation, forest degradation and unsustainable use of natural resources, the potential for economic diversification, and the possibility of generating opportunities for women. Having considered all of the above, Connected Landscapes defined three prioritized value chains as follows.

Figure 3.15.
Business Model
Modules



Source: Prepared by the authors. Based on Osterwalder y Pigneur (2011).

Traditional Grated salted cheese in Solano and Cartagena del Chairá

Salted grated cheese was chosen as one of the value chains because, in the Amazon plain area where the program operated, more than 60% of the participating families depend on the production of this traditional cheese as their livelihood. Because of this, many of the Connected Landscapes efforts to reduce deforestation included converting the livestock systems in use (all of which were extensive systems), into more efficient systems based on silvopastoral processes, rotational management of pastures, and water and forest conservation. Making the livestock sustainable systems economically feasible was essential to guaranteeing reliability (not expansion) over time. Strengthening this value chain consisted of:



Making cheese production more efficient through the launch of 28 artisanal production workshops and an associative transformation plant operating with good manufacturing practices and good milking practices.

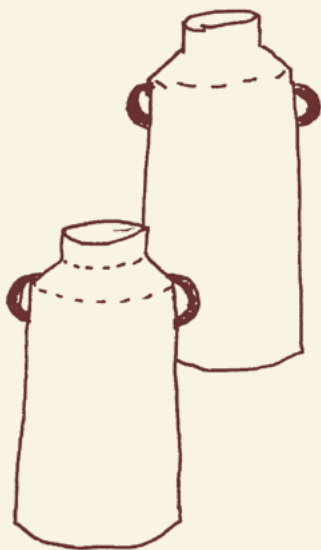
Improvement of the productivity of salted grated cheese by 28 families in their respective workshops.

- This improvement and consolidation of the cheese value chain was implemented to increase production yield by 19% in terms of cheese per liter of milk; going from yields of 9.5 liters of milk per kilogram of cheese, to 8 liters of milk per kilo of cheese. The processing capacity was amended and yielded an increase of 65%, going from processing 115 liters of milk per day, to processing 190 liters of milk per day.
- The farms went from having an average of 40 hectares of grass distributed between two and four paddocks, to having 20-25 paddocks on 25 hectares. Grasslands for livestock feed—mainly dairy cattle—decreased from 50-60 hectares for 40 dairy cows to 25 hectares for 40 cows.

Skill building for good manufacturing practices and good milking practices for 28 cheese-producing families.

d

Artisanal chain production of local grated and sliced cheese in workshops with Agamesol acting as a collection point, local production and subsequently expanding to wholesale customers (generating an economy of scale).



e

Strengthening the Las Mercedes Cattle Rancher's Association (Agamesol) in Solano through establishing accountability measures, and the development of the Strategic Organizational Plan and granting financial aid through Small Grants for the adoption of a milk collection plant and production of grated cheese designed to process 2000 liters of milk a day and produce 250 kilos of cheese a day. Introducing quality control of the cheese through bromatological and microbiological tests, making adjustments in the production process if needed.

h

Creating a pilot program for the commercial sale of cheese to wholesalers in major cities and establishing two commercial advance agreements for the supply of cheese with wholesale buyers.

i

Ninety-four milking kits and 28 laboratory kits were provided to improve obtaining, handling and using milk within the cheese production process by rural families in Solano and Cartagena del Chairá.

f

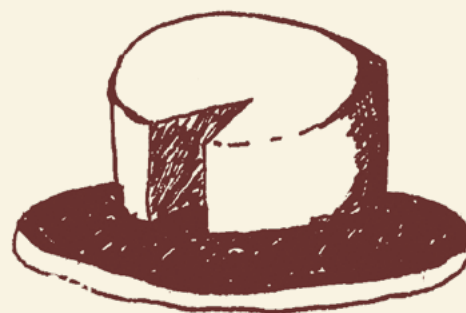
Performing bromatological and microbiological tests on the cheese to determine the quality of the product and to make adjustments in the process if needed.

j

Creating a project proposal for the commercial sale of grated cheese approved as part of the Tropical Forest Alliance's (TFA) portfolio of investment projects.

g

Optimizing feed production by introducing silvopastoral systems and rotational management of pastures.



Cocoa in Bajo Caguán

Cocoa production is commonplace in Caquetá, particularly in the foothills. However, cocoa production has also developed in the municipalities of Solano and Cartagena del Chairá. Cartagena del Chairá distinguishes itself thanks to local community initiatives, among which the Cocoa Growers Committee of Remolino del Caguán and Suncillas (Chocaguán) stand out further. Chocaguán grows cocoa and produces table chocolate at a local factory. It originally emerged as a way to substitute illicit crops and purports to establish agroforestry systems in cocoa that favor ecological connectivity. In Bajo Caguán, cocoa production is an economic alternative that helps to discourage exclusive dependence on livestock ranching. Strengthening this chain, associated with specific work with Chocaguán, consisted of:



a

Strengthening the Chocaguán board of directors, which included updating its legal constitution, its certification and legal representation.

b

Formulating a strategic organizational plan for Chocaguán.

c

Encouraging the production of cacao as crop replacement through providing equipment and tools for the establishment of a clonal nursery in Bajo Caguán (Cartagena del Chairá).

d

Identifying cocoa biotypes and organoleptic characteristics for scoping value generating opportunities and market niches for Chocaguán.

- Twelve samples were sourced from native cocoa and a 'fine' and 'extra fine' quality was found, with sweet characteristics, and with floral, fruity and spicy notes.

e

Determining the commercial potential of Chocaguán table chocolate.

f

Skills building in cultivation, growing, harvesting and post-harvesting management of cocoa for cocoa producers.

g

Developing a marketing strategy and executing a pilot campaign with 909 units of table chocolate measuring half a pound, and commercializing table chocolate with the Chocolate Colombia organization.



Vegetable Value Chain

One of the program's strategies for reducing deforestation and improving food sovereignty was to diversify income sources and ensure local food production. This was achieved through strengthening gardens and staple crops (agricultural produce for personal consumption) on farms. Food was produced for family supply and sufficient surpluses were sold, either fresh at markets, or to be used in processed food production. Connected Landscapes consolidated this chain through two strategies. The first was to support the production of vegetables and other foods in gardens and staple crops by creating access to sell these in municipal farmers markets that would boost the local economy and the consumption of homegrown food. This would generate a supplementary income for families, as well as reduce dependence on imported food from other regions. The second strategy was to design and produce processed products that, based on inputs from the farms, represented the Amazonian flavors. Strengthening this value chain consisted of:

Assessing opportunities for commercialization through farmers markets.



Putting into place three farmers markets (two in Solano and one in Cartagena del Chairá) for processed and fresh agricultural products in Solano and Cartagena del Chairá where more than four tons of food was sold.

Designing the Mercados Campesinos brand and logo and introducing an outreach strategy.

Providing packaging and transportation materials for processed and fresh agricultural products to more than 50 farmers participating in markets in Solano and Cartagena del Chairá.

Conducting two market surveys in the urban areas of Solano and Remolino del Caguán to establish local commercial opportunities for fresh produce at farmers markets.

f

Implementing sowing schedules for fresh produce in more than 50 farms to supply farmers markets in Solano and Cartagena del Chairá.



g

Training rural farming families on how to operate and run in an open market with fresh produce, as well as forming village market committees.

h

Strengthening family gardens and sowing plans for 15 families linked to the farmers market in Belén de los Andaquíes.

i

Diversifying the products available for sale in the Belén de los Andaquíes farmer's market.

j

Providing shelves and display structures for agricultural products from families linked to the farmers market in Belén de los Andaquíes.

k

Skill building for commercial management for the members of the farmers market in Belén de los Andaquíes.

l

Implementing skill building for good manufacturing practices in food preservation techniques for rural families.

m

Development of the necessary financial tools for the creation of small businesses.

n

Preparation of processed products using produce from family gardens and staple crops. A traditional Amazonian pesto and pickle was developed to be produced by rural farming families in Solano and Cartagena del Chairá. These products were provided with the following:

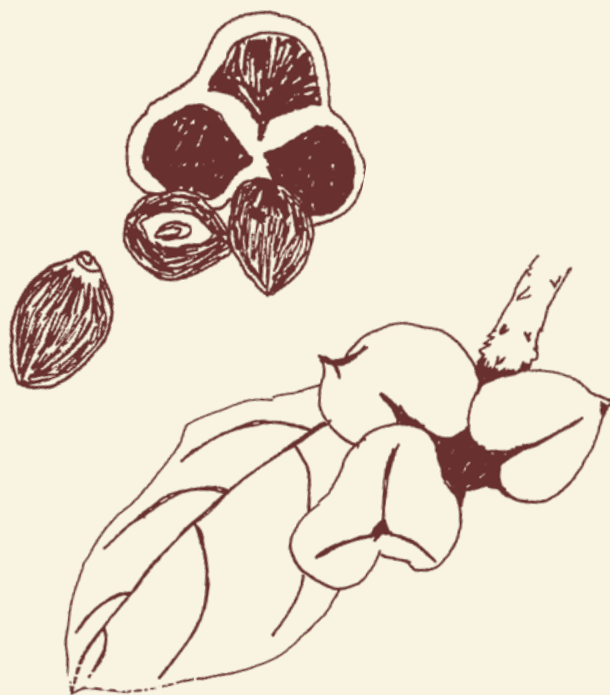
- Product design.
- Design of the production process flow.
- Design of the Raíz de Agua brand to distinguish the products from the rest.
- Provision of equipment for the elaboration of processed Amazonian products.
- Market survey for the sale of products processed under the Raíz de Agua brand and preparation of a marketing guide.

ñ

Skill building for rural farming families on the production of organic fertilizers using microorganisms.

Wild Chestnut or 'Cacay' in the Foothills

Exploring the commercialization of non-timber forest products was also encouraged by the program as a sustainable agricultural alternative. This was executed by the program partner, ACT. One of the non-timber forest products explored was the chestnut tree, or 'cacay' chestnut, prevalent in the municipalities of Belén de los Andaquíes and San José del Fragua. Through this initiative the foundations were laid for the commercialization of this nut for the natural oil industry. Strengthening this value chain consisted of:



a

Establishing a framework association agreement for the supply and sale of fresh chestnuts to Kahai SAS. This agreement outlined specific technical support activities needed to pass quality control.

b

Inventory of wild chestnut trees in Belén de los Andaquíes and San José del Fragua.

c

Skill building for rural families on harvesting and postharvest techniques.

d

Planting new chestnut trees to enrich production.

e

Creating a marketing strategy and rolling out a pilot program for the commercialization of chestnuts.

f

Technical support in the sowing of chestnut seeds to encourage cultivation.

Working toward an Economy that Protects the Forest

→ Cristian, a resident of the Las Claras *vereda*, had spent most of his life in the city, but the moment he left for Cartagena del Chairá he fell in love with the tranquility of the mountains. His family are ranchers and he wakes up at dawn every day to work in the fields, taking care of his grandmother's garden. For years, everyone believed that the only way to keep cattle was in large areas of grass, so they felled trees

But that has now changed for him. With the insights and skills he gained from the Connected Landscapes Program, he understood that there were other ways of relating to the surrounding nature, where conservation and production go hand in hand.

“We thought it would never work, because farmers are sometimes stubborn, but we did it and it worked.”

The family garden has been expanded over recent years. He grows chives, onions, bell peppers, cucumber, chili, peanuts and other products. Because of his garden—and given his love for cooking—he decided to start a business venture with one of his neighbors, Fabián. With the ingredients that they themselves grow, they produce marinades and Amazonian pesto for Raíz de Agua, a brand they want to expand and with which they will bring the food of their region to the rest of the country.



Photo: Andrés Cardona, Cartagena del Chairá, 2018.

The actions described so far that the program launched within the low-emission conservation, transformation and sustainable production strategies component generated results, among which the following stand out:



26,055.72

hectares were covered under improved management figures.



6,167.98

Hectares adopted sustainable practices.

906

people had increased economic benefits derived from the sustainable management and conservation of natural resources.



3

value chains were strengthened through the improvement of their agricultural, manufacturing and transportation practices.



The Farmers who Made History at the Solano Market



Photo: Andrés Cardona, Solano, 2018.

→ For more than 20 years, Enrique Palacios and Dolly Romero have lived in the Miravalle district in Monunguete, almost two hours from Solano's urban area. As recently as 15 years ago, a large portion of this land was cultivated with coca. Although farmers also grew food products, many of them did not understand the value and economic potential of their farms and didn't know much about conservation. But things changed. At Enrique and Dolly's farm (named Nápoles), there has always been work to do. Along with their nine children, they divide the tasks between themselves: they tend to the animals, grind the corn, prepare cheese, and weed the garden. They have kept the garden since 2005 and it has provided them with tomato, coriander, onion, cabbage,

beans, 'susuca', squash and medicinal plants. Instead of buying food, the family can now feed themselves with the produce they grow.

Enrique, Dolly and their children are just one of the 453 families that participated in the Connected Landscapes Program. They have helped to conserve 25 of the hundred hectares of their farm, and they have also been trained on how to manage their garden. Now, they no longer sow or plant their vegetables in the ground, but build boxes to provide the seeds and roots with fresh soil, and they also know the advantages of protecting their crops from the sun and rain by using tarps. This organic, chemical-free and healthy home-grown vegetable garden is now their greatest pride.

“You have to have the products you need. For example, the farm is too far away from the store to buy onions or tomatoes. By being able to grow them, well then you have provided for the family.”

Until recently, they would give their neighbors what they didn't eat so that it wouldn't go to waste. As the Miravalle settlement is an hour's ride from the farmhouse—and another four hours by boat and by bus from Florencia (the capital of the department)—thinking about selling your products seemed far-fetched. However, on November 30, 2018, Enrique and Dolly organized themselves for the very first farmers market in Solano. This was organized by Connected Landscapes, in collaboration with the Mayor of Solano and Agrosolidaria Florencia. Although they were nervous, because they still doubted whether someone would want to buy what they

grew on their farm, they prepared 63 kilos of food and herbs, including valerian, cabbage, chives, scallion and squash. On the eve of market day, 25 families from Monunguete, Las Mercedes and Herichá gathered in Solano.

Together they had over two tons of food to sell. This consisted of 83 varieties of food products, including fruits, vegetables and processed products. At 6:00 a.m., excited and proud, the farmers prepared their stalls to start receiving customers. While the adults negotiated prices for cheeses, cakes, sugarcane, 'susuca', onion, banana, cucumbers, bell bell peppers, chili—and even a manually-powered blender that generates its energy by pedaling—the children had a designated space to paint and read stories about their region. Before noon, as people came together, products began to sell out. Sellers were surprised by the success of the initiative.

Enrique and Dolly, and the rest of the farmers, sold everything that they had brought. This farmers market opened a whole new avenue of opportunity for the people of Solano. It is a success that proves to farmers that it is possible to protect natural resources and the potential of their land, to produce their own food, highlight the flavors of the Amazon, and find business opportunities that allow them to strive for a better future.

“Sometimes you think: this can't be worth anything, because we don't know how to value what we have. But wouldn't you know it? After having sold out of stock, why would I continue giving it away? I'm very happy to have my healthy, local products and that people are thinking about eating more products from here.”

Janio

“How do I help save the environment?”

Well...in addition to leaving these mountains to the springs and the banks of the canyons, these water sources need to be protected with wires and all that so that the animals, in this case the livestock, don't go in there to damage them. Because if we allow the cattle to step on the birth of the water sources, the waters and banks will deepen, and as the waters deepen, we lose them.”

*Vereda Las Claras
(Cartagena del Chairá)*



Photo: Andrés Cardona, Solano, 2018.



Empowering Civil Society and Local and Regional Governments



The second component of the Connected Landscapes Program worked to strengthen civil society and local and regional governments. To achieve this, skill building and public policy reform (local and regional) with a view toward environmental sustainability was launched. The assumption on which this was developed was that low-emission conservation, transformation, and sustainable production strategies would ultimately be embraced and

would last over time as long as: a) people and institutions have the knowledge, tools and capacity to adopt and implement both on-site technical actions and governance processes towards sustainability, and b) public policies were implemented which could guarantee inclusive socio-economic models and conservation efforts for forests and natural resources. As will be indicated throughout this section, these two aspects were intertwined and supported each other.

Figure 3.16.
Skill building



Source: Prepared by the authors.

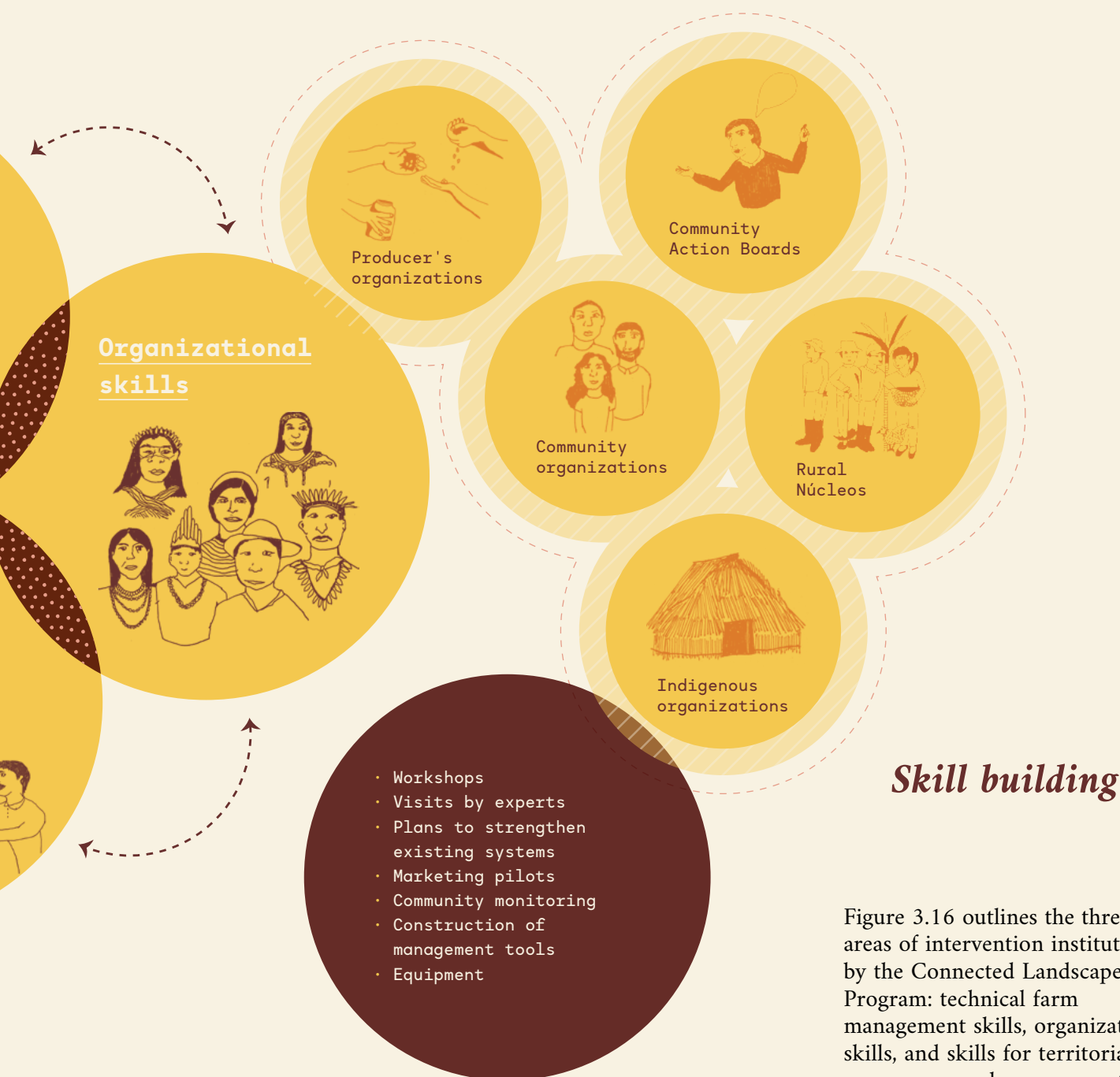
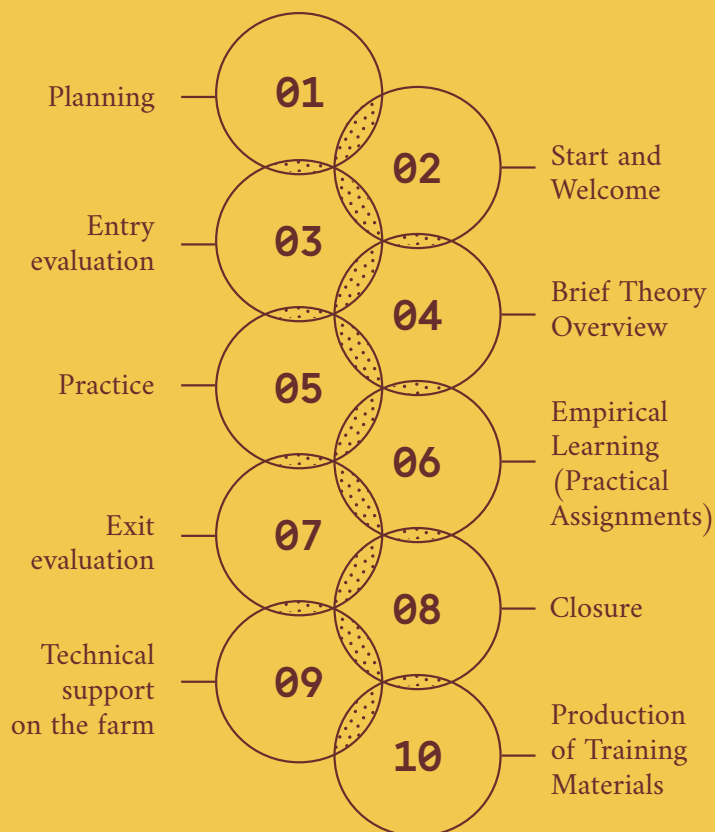


Figure 3.16 outlines the three areas of intervention instituted by the Connected Landscapes Program: technical farm management skills, organizational skills, and skills for territorial governance and management. Training to strengthen technical farm management skills was provided for the 453 families participating in the program and to a group of specially selected producer's organizations.

Rural Training Schools

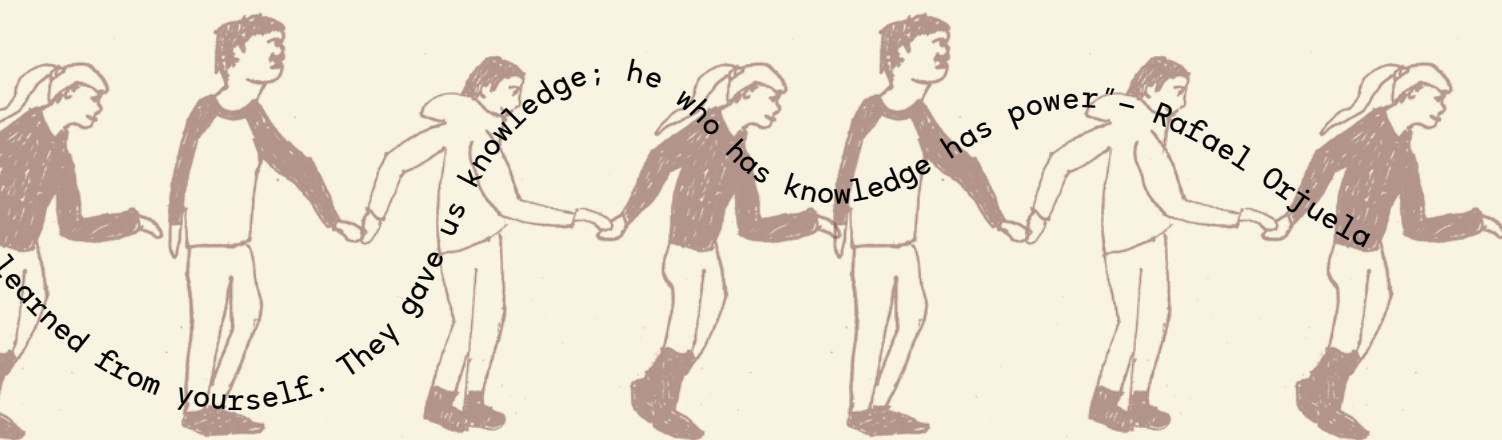
Rural Training Schools are farmer-centered training centres that help self-education and self-discovery for a variety of skills and subjects for rural peoples. They have an organic and interactive structure and subjects are prioritized according to the participant's needs with the guidance of a facilitator. Teaching is done by hands-on practice and experimentation and open unbiased exchanges in which local knowledge is extremely relevant (Pumisacho and Sherwood, 2005; Jiménez, 2012).

Rural Training Schools encourage critical thinking and, above all, knowledge that has practical application for the lives of the participants. The steps are as follows:



The **technical farm management skills** that the program promoted were related to sustainable practices and the value chains described above. In general terms, skill building addressed the following major themes: conservation and sustainable use of natural resources, good agricultural practices and good manufacturing practices for agricultural products.

Various methods were adopted to carry out these actions. However, given the value placed on local knowledge and the logic of learning by experience and hands-on practice, the method that prevailed was that of the Rural Training School. With farmers in the role of counselor, practical application is prioritised



over verbal instruction and interactive learning over individual participation (Pumisacho and Sherwood, 2005).

Skill building was also extended to the farms via field trips, learning materials that were prepared and distributed, and the process of providing technical support to the farms and indigenous territories by skilled workers and rural community assistants. For the program, technical support was crucial and the aim was to go far beyond assistance or advice.

This support was shaped by the family projects, plus their property plans and management plans. It was developed to align with the following principles:

○ ***Shared Responsibility***

The success of technical support depends on both the participating family and the field technician.

○ ***Longevity and Recurrence***

The support must be permanent; during the program, there was support in the field at least once every three months..

○ ***On-site Installation***

Technical support and installation must be carried out on-site; within the program, this was always conducted on the participating families' farms.

○ ***Completeness***

The farm is understood as being an integral unit with environmental, social, and economic functions, and not only from a production perspective. The guideline for technical support was property planning with a community conservation approach, understanding that the farm is part of a larger landscape and context.

○ ***Informed Dialogue***

Technical support is a tool in which local knowledge and empirical knowledge are recognized. Solutions and technical guidance emerge from an exchange of knowledge and not from one-way instruction from a technician.

The purpose of supporting **organizational efficiency** was to enhance the ability of private and public entities to become promoters of the program's purpose, and for them to be encouraged to take an active role in the transformation of Amazonian landscapes. This process was completed through five-steps:

11. FOCO focuses on measuring organizational indicators related to the work environment, work team competencies, communication, participation, planning, relations with external groups, resource management, product/service portfolios, and resources and infrastructure. ICAF measures indexes related to organizational structure, banking procedures, effective procedures, control procedures, tax obligations, accounting practices, human resources and legal aspects. ❖

01

Prioritization of Organizations

The organizations were prioritized according to the geographic and socioeconomic scope of their action; the relationship of their work to the objectives of the program, particularly how they relate to reducing deforestation; and their interest and willingness to participate and to improve. The organizations covered a wide spectrum, including community organizations, humanitarian organizations, indigenous organizations, civil society organizations, women's groups, the departmental government, and municipal councils, among others.

02

Organizational Evaluation

The program characterized each which established where support was needed. This diagnostic phase was carried out using the evaluation tools designed by Fondo Acción: FOCO (Strengthening of Organizational Capacities) and ICAF (Administrative and Financial Capacity Index)¹¹.

03

Preparation of a Capacity Building Plan

Based on the needs identified during the evaluation phase, plans were drawn up that detailed what needed to be consolidated in each organization. These outlined work plans and pin pointed goals and commitments. In general terms, the plans focused on the following major themes:

- Key tools.
- Economy and Finance.
- Communications.
- Human development and participation.

04

Implementation

The tools used for strengthening the capacity of organizations were workshops, visits by experts and exchange days. The main themes covered were:

- Forming strategic plans: Implementation of strategies and product marketing pilots.
- Development of communication and dissemination strategies.
- Actions to support administrative, accounting and financial capacities.
- Reviewing and updating the boards of directors and legal constitutions.
- Execution of human development and leadership activities.
- Provision of equipment and materials for the organizational operations.
- Conducting market surveys and economic viability analysis.

*Photo: Sixzero media,
Florencia, 2019.*

05

Evaluating the plan

At the end of the initiative, there was a final evaluation using the same tools used for the diagnoses (FOCO and ICAF). Connected Landscapes helped to strengthen a total of 21 organizations in the department of Caquetá. Together with its partners, the program consolidated conservation processes such as those chaired by the Tierra Viva Foundation in the Municipal Natural Park Andaki (buffer zone of the PNN Alto Fragua Indi Wasi), as well as the empowerment of women's groups, the promotion

of community communication initiatives for the environment and children, updating management plans for indigenous reserves, strengthening formal education for ethnic populations, promoting environmental awareness, and supporting community-led production initiatives and businesses that favored the conservation of biodiversity and the forest. The details of the organizations which benefited in this way, arranged by municipality, can be seen in Figure 3.17.



Figure 3.17.
Empowered
organizations

LOCATION	ORGANIZATION	AREA OF SUPPORT
Solano	Organización para el Desarrollo de Monunguete (Prodesarrollo)	<div>A. Environmental oversight and community monitoring</div> <div>B. Strengthening systems</div> <div>C. Human resources and leadership</div>
	Asociación de Ganaderos del Núcleo Campesino Las Mercedes (Agamesol) 	<div>A. Strategic planning</div> <div>B. Marketing strategies and pilot programs</div> <div>C. Provision of equipment and operational materials for the strengthening of a milk collection center</div> <div>D. Strengthening good manufacturing practices</div> <div>E. Design of an entrepreneurial project proposal for the TFA</div>
Cartagena del Chairá	Comité de Cacaoteros de Remolino del Caguán y Suncillas (Chocaguán)	<div>A. Strategic planning</div> <div>B. Marketing strategies and pilot programs</div> <div>C. Identification of cocoas and market niches</div>

LOCATION

ORGANIZATION

AREA OF SUPPORT



Comité de Cacaoteros de Remolino del Caguán y Suncillas (Chocaguán)

- D. Provision of equipment and operational materials
- E. Good manufacturing practices
- F. Administration and legal
- G. Formulation of entrepreneurship project proposal for the TFA, to promote the value chain with zero deforestation

Cartagena del Chairá

Asociación de Economía Solidaria del Medio y Bajo Caguán (Asoes)

- A. Strategic planning
- B. Administration and accounting

Núcleo Campesino No. 2

- A. Strengthening of legislation and operation of community actions
- B. Administration and resource management

Fondo de Economía Solidaria (FES) del Núcleo Campesino No. 2

- A. Preparation of an assembly of partners
- B. Joint restoration directives and legal constitutions



LOCATION

ORGANIZATION

AREA OF SUPPORT



Consejo Departamental
Indígena de Caquetá (CODIC)

A. Program design and public
policy management

Escuela Audiovisual
Infantil de Belén de
los Andaquíes

A. Provision of communications
equipment

B. Photography

C. Social mapping and monitoring.

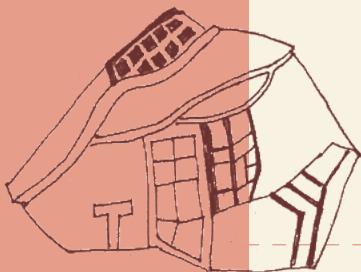
Andean-Amazonian
Foothills

Fundación Tierra Viva

A. Administration

B. Provision of GIS (Geographic
Information Systems) and photog-
raphy equipment

C. Community monitoring



Mercado campesino de
Belén de los Andaquíes

A. Strategic planning

B. Program efficacy

C. Marketing and dissemination

Asociación Indígena
Tandachiridu Inganokuna

A. Update of indigenous
management plan

B. Strengthening of the
ethnoeducation strategy

C. Strengthening of inter-institu-
tional relationship



LOCATION

ORGANIZATION

AREA OF SUPPORT



Cabildo indígena
misak El Águila

- A. Design of the management plan for the indigenous council
- B. Start-up of production and conservation projects

Consejo por la Vida y la
Cultura del Agua de
Belén de los Andaquíes

- A. Strengthening of environmental techniques

Andean-Amazonian
Foothills

Mesa Municipal de
Mujeres Belemitas

- A. Public policy design
- B. Administration and finance

Fundación para
discapacitados y el
adulto mayor (Fundiamá)

- A. Strengthening and monitoring of aquatic micro-invertebrates
- B. Technical environmental strengthening



Plataforma de Mujeres
del Caquetá

- A. Strategic planning
- B. Provision of operational equipment
- C. Communications strategy

Institución Educativa
Rural Indígena
Yachaicuri

- A. Strengthening community monitoring and project design

LOCATION

ORGANIZATION

AREA OF SUPPORT



Andean-Amazonian
Foothills

Consejo Comunitario de
Mujeres de San José
del Fragua

Grupo de Mujeres Unión
y Esperanza de la
vereda Los Ángeles

- A. Strengthening public policy design
- B. Strengthening administration and finance



Department

Grupo Asociativo de
Productores de Plátano
de Belén de los
Andaquíes

Secretaría de
Agricultura de Caquetá
(Gobernación de Caquetá)

- A. Strengthening of the formulation of production plans
- B. Strengthening management and decision-making

Universidad de la
Amazonia

- A. Strengthening food sovereignty and the implementation of the Departmental Plan for Food and Nutritional Security (Canutsa)

- A. Strengthening community monitoring
- B. Strengthening rural community

Source: Prepared by the authors. Based on ACT (2017) y Montero (2020).

A Female Leader



My name is Eliana Escarpeta. I live in Solano, Caquetá. When I started going to The School of Women Leaders, I was a nervous and somewhat shy person who wanted to learn more about nature conservation. In the first meeting, something happened that I did not expect: we chose the topics we wanted to learn about and we created a study plan for ourselves.

The School of Women Leaders has allowed me to change my way of thinking. Meeting more people whose stories are similar to mine has helped me to become stronger and more confident. In the process, I have managed to face one of the biggest challenges I had: convincing my husband to come to these gatherings.

After attending five times, I feel completely changed and more confident in myself. I think about who I am and what I dream of, things that I had never stopped to think about before. I have a much better understanding of the things that a community can achieve

and, although I initially didn't like the idea of being a leader, today I belong to the central board of Prodesarrollo, a local organization where I live. Throughout history, women have been viewed as teachers and the protectors of their land. That's why it's so important that more women continue to lead all kinds of processes, so that wherever there is a patch of forest left, we make sure to preserve it. As a leader in my community, I will continue to learn more and I will encourage other women to live and act freely. I'm going to dedicate myself to that process because, the more women there are on the boards, the more strength we give to other women. I'm going to tell men to stop thinking that a woman's place is in the home. We can decide what we want to do.

*Eliana Escarpeta
Enero de 2019*



Photo: Pablo Devis, Solano, 2018.

The Path to Leadership

→ My name is Carlos Lombana. I live near Remolino del Caguán, in Caquetá. I work on whatever comes my way to help my parents and I had never thought of taking a position on a Community Action Board. My legs were shaking just from having to speak to any audience and I felt like no one ever noticed me.

One day I decided to accept the invitation to participate in the School of Leadership of the Connected Landscapes Program. In each session I realized that I had worth that I had never recognized. I got to know myself more and more and realized my virtues and that I could use these to benefit others.

In the process of training leaders, people from my community decided to apply for the vacancy of president of the Community Action Board and, with the confidence I was gaining, I decided to accept the invitation. At 25 years old I became president of the Community Action Board of the Caracol *vereda*. I discovered that I could lead a community, that there are many parts of myself that I'm still learning about, but they're slowly emerging as I put myself to the service of my community.

Patience is my greatest quality and I have used it to resolve conflicts in my community.



Photo: Paula Niño, Cartagena del Chairá, 2017.

I have learned that it's necessary to listen more, work as a team and try to explain things in different ways to everyone. In the years I have ahead as president, I have the task of speaking up about environmental sustainability, and of giving more workshops to my community on the importance of the conservation of our forests and indiscriminate logging.

In five years time, I imagine a strong community, progressing, with obstacles, but also with the capacity to solve them. I hope we continue to walk independently, to be on par with the *veredas*, and work in partnership with the entire group.

*Carlos Lombana
Octubre de 2017*

The third area that needed support was skill ***building for governance and territorial management***. Efforts were needed to generate and improve the skills of leaders, community organizations and village action boards (among others) to establish guidelines, agreements and norms on the social, environmental and economic processes of their territories, in addition to processes and mechanisms that would then bring them into practice. This meant providing rural community leaders with elements to expand their personal potential, improve their self-esteem, establish self-confidence, expand their communication skills and break down any fears associated with stereotypes and social labels.

The School of Leadership was one of the most powerful and effective strategies for capacity building. This school had two phases. The first one catered to men, women, and youth from Solano and Cartagena del Chairá. It focused on local leaders recognizing themselves as managers and catalysts for change, and strengthening and developing skills that would help them to become leaders in their communities. This first phase was carried out through three training cycles that were divided into two areas of study. One area covered aspects of the human being and their development. The second area of study covered aspects related to implementation and specific skills and knowledge to carry out tasks and projects

that respected the environment within the territory and the communities¹².

The second phase at the school was aimed exclusively at female leaders. In addition to enhancing the leadership skills of the participants, women were given a platform and empowered within a predominantly male environment. This second phase was also developed around two areas of work: “being” and “doing.”

For “being”, teamwork, knowing how to listen, self-esteem and self-confidence were discussed. For “doing”, environmental issues such as climate change, clean seeds and sustainable management of natural resources were covered. All the training focused on the development of personal or community projects that would improve the living conditions of the communities. The School of Women Leaders culminated in women taking what they had learned and replicating many of the activities within their own communities.

- ❖ 12. Some of the topics covered in the first phase of the School of Leadership were: what is a leader, personal power and the power of others, project design, basic IT knowledge and how to use the Internet/communications.

Connected Landscapes was developed in part to be one of the crucial drivers for change in gender inequality, and to change practices so as to strengthen skills and improve the living conditions of men and women. The objectives were:

- Promote access to information and training, guaranteeing gender equality.
- Promote the participation of women in low-emission production systems.
- Improve the participation of women in decision-making at the community level.
- Promote equitable participation in policy initiatives towards the conservation and sustainable management of biodiversity.

Several women took on roles of responsibility within their communities during the development of the Connected Landscapes Program. Some of them were:

Helena Dussán

She became president of the Campo Bonito Community Action Board in Monunguete, Solano.

Ana Judith Silvestre

She became president of the Community Action Board of the village of La Esmeralda in Herichá, Solano.

Aida Bohórquez

She became president of the Community Action Board of the village of La Independencia in Herichá, Solano.



Photo: Pablo Devis, Solano, 2018.

Luz Stella Silva

She became a member of the Agamesol board of directors in Las Mercedes, Solano.

Edelmira Flores

She became president of the Community Action Board of the Bajo Sevilla village, Solano.

Eliana Escarpeta

She became a member of the board of directors of the Prodesarrollo organization.

Although the initiative was aimed at different areas and needs, its goal was to provide the sustainable management of natural resources and avoid deforestation and forest degradation. Along these lines, the strategy also aimed to cement the conditions that favored social empowerment and territorial governance, giving women a special role as the managers of any local changes that needed to be made. Skill building helped to consolidate technical actions for conservation, landscape transformation and low-emission sustainable production, and also to shape the process of building local territorial governance, as explained below.

Transformation of public policy and strengthening of territorial governance



Photo: Sixzero media, Florencia, 2019.

Connected Landscapes understood governance as the process through which agreements, norms and routes are established for decision-making around the social, environmental and economic functioning of the territory, as well as the procedures to guarantee compliance (Grenville Barnes Grenville, 2014). This is why the Connected Landscapes work strategy on governance revolved around the *participatory construction of territorial management tools*.

Through these *tools, agreements, norms, objectives, lines of work and guiding principles for development* were decided and defined for community development and environmental sustainability in the different *veredas*, rural hubs and municipalities.

Through the construction of the territorial management tools and plans, a future vision of the territories was agreed upon and agreements, principles and routes were established to achieve it. Connected Landscapes facilitated

the processes by which these management tools were built. These also served to launch public policy advocacy initiatives with municipal governments and the departmental government. This event sought to transform the existing public policy—which was not thorough enough to guarantee forest conservation—into a public policy that was pertinent to the Amazon. It also included maintaining the region's natural resources and guaranteeing quality of life for the communities.

The main tools built with support from Connected Landscapes



The Peasant Núcleo No. 2 Community Agenda of Cartagena del Chairá

The community agenda is the result of a participatory exercise by rural leaders from the Núcleo Campesino No. 2 in Cartagena del Chairá to build territorial peace and promote sustainable human development in Bajo Caguán. The agenda is a guide that includes the challenges for the sustainable development of the territory and sets out plans of action, principles and commitments to conserve natural resources, guarantee food sovereignty, seek sustainable economic development, and promote the active participation of women in Bajo Caguán. The community agenda was drawn up in 2016 in the midst of the peace process with the FARC, and was escalated and recorded as part of the Municipal Development Plan of Cartagena del Chairá for the period of 2016-2019.

Community Development Plans in Solano

The Community Development Plans (PDC, Plan de Desarrollo Comunitario) include a ten-year survey carried out by the 16 veredas where the program operated in Solano. The development of these plans started in 2017; within these, the vision of the community was captured and village agreements were defined. These plans were integrated with the construction of the Development Program with a Territorial Focus (PDET, Programa de Desarrollo con Enfoque Territorial) and the and the Action Plan for Regional Transformation (PATR, Plan de Acción para la Transformación Rural) of the department of Caquetá between 2017 and 2019, and were presented as inputs for the update of the municipal EOT.



The Minga Based on Andaqui Thinking

Facilitated by the support of ACT, this tool is a shared vision for local development for women in Belén de los Andaquíes and San José del Fragua to advance a strategic plan that allows them to effectively incidence the municipal and departmental agendas for development. It proposes some agreements and a path for taking action to incidence conservation and food sovereignty, and also includes the strategic lines to achieve it.

Gender and Conservation Guidelines for High Living Standards in Bajo Caguán and Solano

This instrument proposed a plan of action to incorporate and make high standards of living visible, with a focus on gender, in the territories of Solano and Bajo Caguán. It was proposed as a local route for assessment, advocacy and management of women working in municipal public policy and in territorial peace. The tool gathers the needs of women and sets out different solutions to position their role in food sovereignty and conservation in Cartagena del Chairá and Solano.



Food Sovereignty Guidelines for the Indigenous Communities of Caquetá

Facilitated by ACT, this tool was a product of the joint work of various indigenous communities, and included the principles and plans necessary to guarantee food sovereignty for the indigenous communities of the department. The tool was presented in advocacy spaces such as the Caquetá departmental assembly and was included as a chapter in the Caquetá Comprehensive Indigenous Policy approved by departmental ordinance 018 of 2015.



Guidelines for the Rural and Environmental Development of the Amazon of Caquetá

These guidelines were the final product of a degree in Rural and Environmental Development provided by Fondo Acción and Universidad de la Amazonia, where peasant and indigenous leaders from Caquetá formulated proposals and principles for sustainable rural development in the department. These guidelines stimulated and contributed to the construction of the Public Policy for Sustainable Rural Development of Caquetá, approved by the departmental assembly in December 2019 (Decree 1355/2019).

Work Plan for the Co-management of the PNN Alto Fragua Indi Wasi

This plan established an agreement and a plan of action to recompose PNNAFIW's co-management through the shared administration of the protected area between National Natural Parks (PNN) and the Inga ethnic authorities of the buffer zone.

Advocating Locally for Global Change

→ Driven by the dream of erasing the red dots on the maps that show Caquetá as one of the most deforested departments in Colombia, Víctor Garcés and other people from his community in Bajo Caguán built the Community Agenda for Peasant Núcleo No. 2 with the support of the Connected Landscapes Program. The Agenda is a tool that brings together the community's solutions to the main environmental and social

problems of its region. It's also a public policy tool that serves as a roadmap to achieve sustainability. It's a solution from and for the territory that has been presented to local, regional and national entities. It was also reflected in the Municipal Development Plan of Cartagena del Chairá. With this document, Victor hopes that, "those red and yellow dots on the maps will become green like the mountains and blue like the waters."



Photo: Pablo Devis, Solano, 2018.



Photo: Andrés Cardona, Solano, 2018.

Enrique

“It’s a wonderful experience. We take what little produce we have on our farm, and look how we’re doing now! At the beginning we had doubts and we said if we have something left, then we’ll take it back home. But see, we’re selling out of stock. I became a great negotiator thanks to the employer—she turned me into a boss at this.”

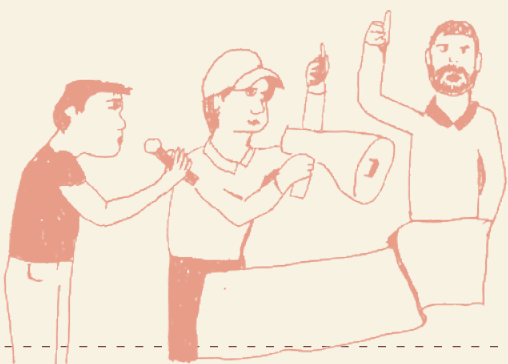
Vereda Miravalle (Solano)

The process of building these territorial management tools served to strengthen territorial governance, insofar as it facilitated the conclusion and establishment of agreements, rules, and ways to promote rural environmental development in the territories. This work also contributed to a transformation of communal, municipal and departmental public policy, as it managed to incidence the formulation of new public policies aimed at conserving natural resources and promoting the quality of life for rural and indigenous populations. As shown in Figure 3.18, the advocacy process for public policy was supported by efforts to strengthen skill building for governance and territorial management, as previously explained.

Figure 3.18.
Strengthening Capacity
for Advocacy

Strengthening

School of Leadership



Diploma in Amazonian Rural
Environmental Development



Community Agenda Workshops for
Núcleo No. 2



Workshops on
indigenous politics



Workshops with indigenous
people on food sovereignty



Property planning workshops
and *vereda* agreements



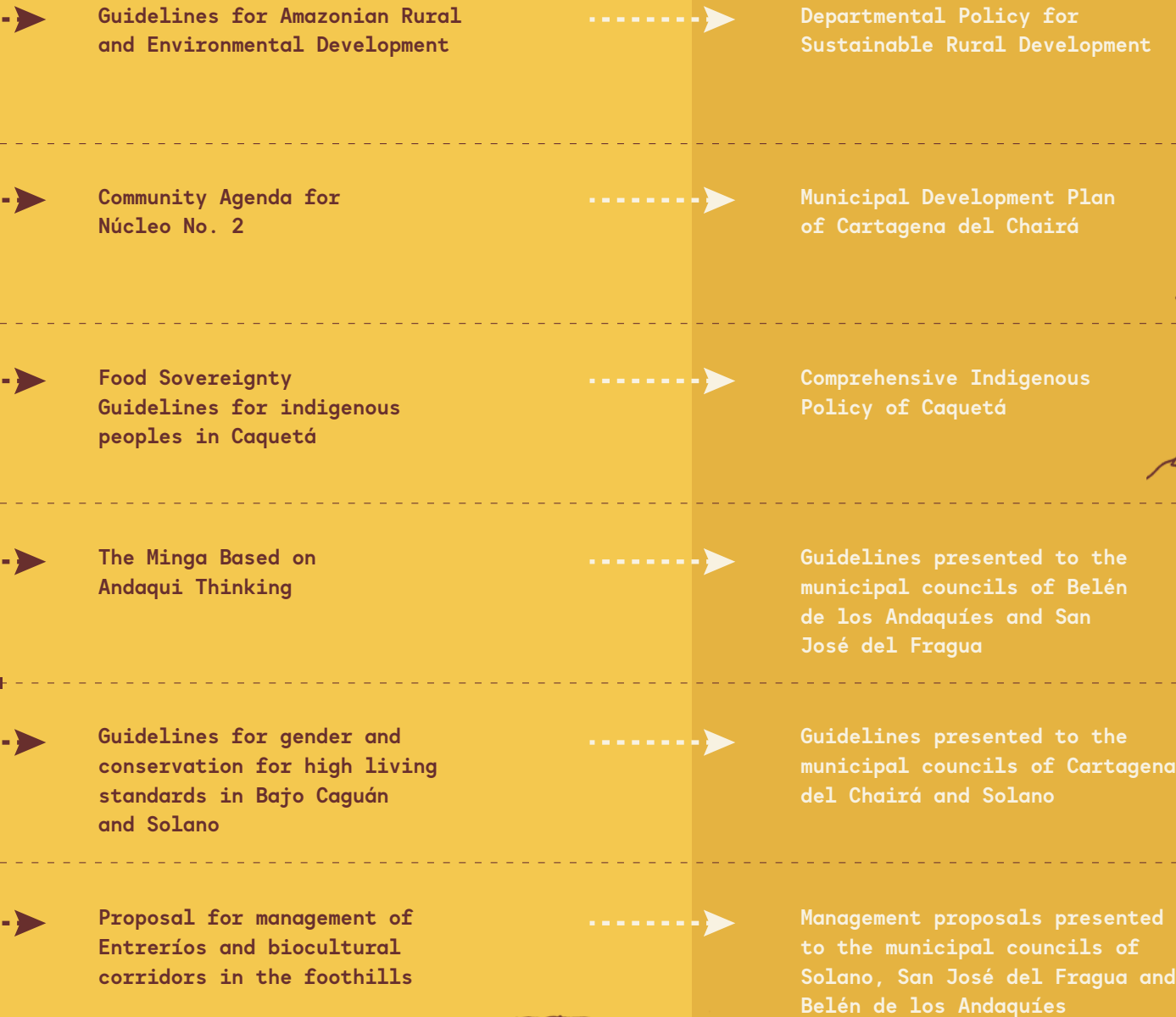
Workshops on Solano's Community
Development Plans and Projects
in the Foothill *veredas*



Source: Prepared by the authors.

Management Tools

Impact on Public Policy



Rafael Orjuela

“Revenue improved. We can get resources by other means than just livestock. I can diversify the farm, and i can now also sell other things.”

Remolino del Caguán (Cartagena del Chairá)

The territorial management tools, along with the transformation of public policy was made by following these three steps:

1. *framing topics of interest,*
2. *offering alternatives and*
3. *advocacy.*

The first step involved highlighting the relevance of a specific topic, and sensitizing and training the general public to be more determined. This step helped put important issues for the program and its participants on the agenda and in the public debate. The second step resulted from a collective process through which solutions and responses to the “framed” theme were constructed, discussed and proposed. Connected Landscapes made sure to facilitate participatory elaboration of simple, digestible and practical proposals that were easily understandable and self-managed by the communities. The third step involved disseminating and publicizing the proposed solutions to relevant decision-makers on whom the development of public policy in the municipality and department depends.

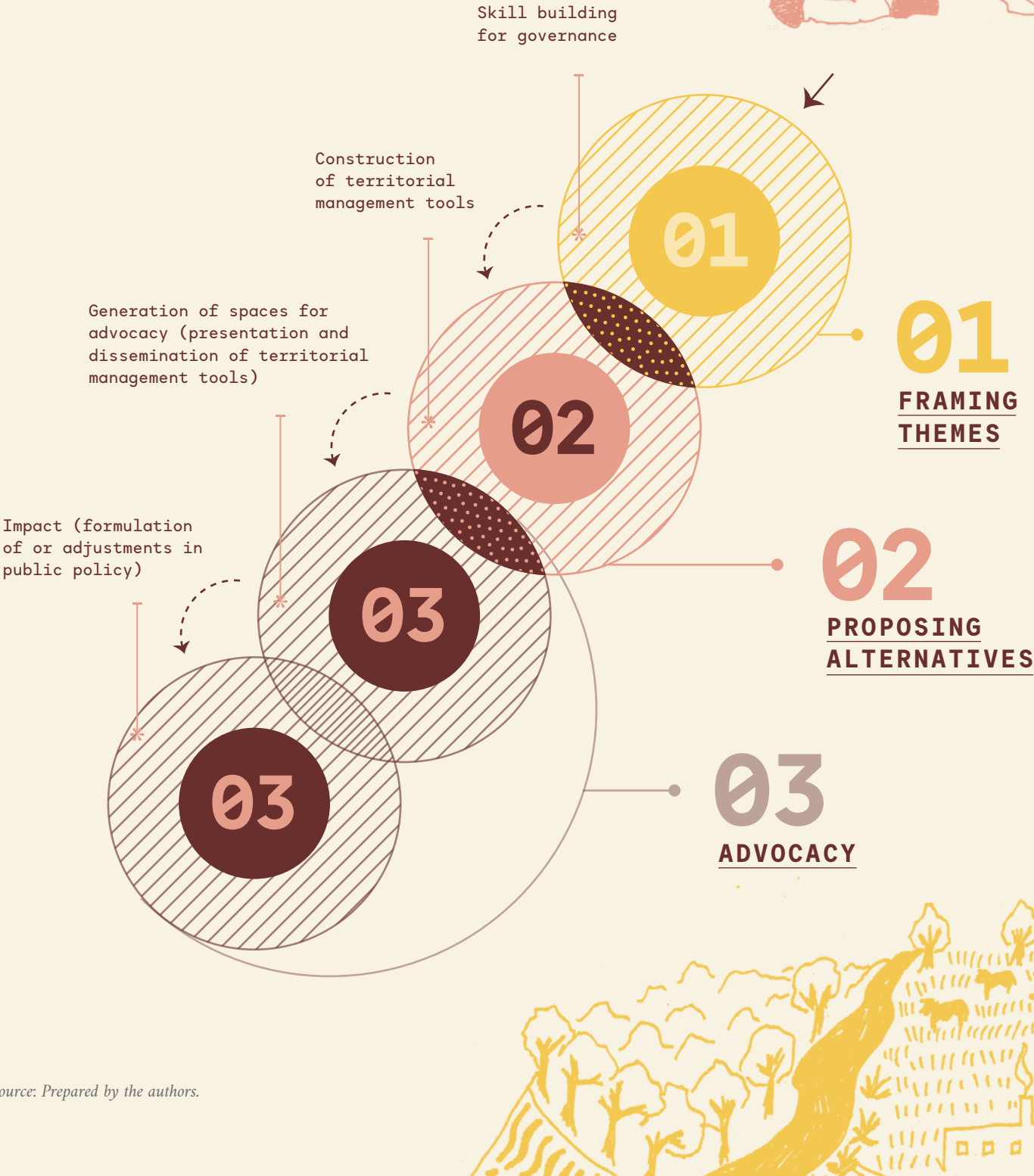
Through the route described in the figure 3.19, Public Policy Impact and Transformation Course, Connected Landscapes facilitated the development of 27 territorial management tools that incided the formulation and adoption of three municipal and departmental public policies aimed at the conservation of biodiversity and sustainable management of natural resources.



Photo: Pablo Devis, Solano, 2018.

Figure 3.19.

Impact Path and
Transformation of
Public Policy



Source: Prepared by the authors.

Connected Landscapes also implemented other strategies to achieve the project objectives. The most relevant are:

01

Development of Rural Community Markets

Three rural community markets were planned and executed (two in Solano and one in Cartagena del Chairá). The objective—in addition to stimulating the local economy—was to promote participation for improving local environmental management and generating awareness and incorporation of the territory and natural resources. These markets were characterized by two specific spaces. The first space was commercial, where traditional products from the region were distributed and sold, both fresh and processed. This sought to raise awareness about the enormous offer of Amazonian produce, the diversity and richness of local flavors and the culture surrounding cuisine and agriculture, as well as the diversity of flora. The availability of local products in the market was intended to reverse the widespread local idea that there was neither sufficient nor adequate food supply in the area. A second space sought to sensitize the local population to the value of the Amazon people in their territories, which was frequently forgotten given the predominance of settlers that bring the Andean culture with them.

Nelson, teacher

“Solar generators are very important because with them we can use electrical appliances at the educational headquarters, like computers and printers, without moving them. Plus, lighting at night is going to be very important for the teacher who will be at the campus all the time.”

Bajo Caguán

02

Launch of the Small Grants Programs

In order to complement its activities, Connected Landscapes designed and operated a program called Small Grants, which had several phases and worked in the four municipalities. The objective of Small Grants was to consolidate the processes that contribute to the conservation and sustainable management of natural resources, promote the sustainability of actions in the field, promote low-emission development, and support the strengthening of communities. The projects that were consistently supported through smaller grants were:

- a. Projects that contribute to the strengthening of productive systems and sustainable livelihoods that reduce pressure on the forest.
- b. Projects that improve the conditions of sustainable value chains through attention to production, transformation and marketing needs.

- c. Projects aimed at the adoption of clean technologies.
- d. Projects aimed at strengthening organizations for the management of sustainable value chains.

The Small Grants program was adapted based on the advances of Connected Landscapes in its conservation strategies, landscape transformation, low-emission production systems and governance. The small grants served to:

- a. Promote projects among groups of families or associations.
- b. Generate more skills for presenting project profiles with a logical framework and a value chain approach.
- c. Empower women, promoting and increasing their participation.
- d. Advance and consolidate the property plans and the dreams that families had for their farms.

In total, the program made 158 small grants in the four municipalities, of which 65 were given to women. A total of 2,570 people benefited from the donations: 1,130 children, 744 women and 696 men. The following table outlines the donations supported by municipality and by type of project:

Table 3.3.
Summary of small grants given

	San José del Fragua	Belén de los Andaquíes	Solano	Cartagena del Chairá	Florencia	Total
Conservation	2	11	4			17
Clean Energies	8	11	14	18		51
Value Chains			9	16		25
Organizational Strengthening	1	4			1	6
Sustainable Productive Systems	11	40	8			59
Total	22	66	35	34	1	158

Source: Montero (2020).

Some of the results Connected Landscapes found for the strategy of strengthening and empowerment of civil society, and local and regional governments described were:



22

267

women from local communities prioritized as beneficiaries of incentives for sustainable production or Small Grants.

institutions and public-private organizations with greater capacity for the effective management of environmental resources.



158

Small Grants recipients implementing activities that provide sustainable project results.



3,658

people trained in
natural resource
management
or biodiversity
conservation.



5

officially proposed,
adopted or implemented
laws, policies, strategies,
plans, agreements
or regulations that
address climate change
(mitigation or adaptation)
or the conservation of
biodiversity.





Analysis of Results and their Impact on Low- Emission Rural Development

As described in chapter three, for seven years
Connected Landscapes undertook efforts to
reduce deforestation in Caquetá in pursuit of
low-emission rural development.

Photo: David Rugeles, Cartagena del Chairá, 2016.

Those efforts led to important results related to the strengthening of territorial governance, the empowerment of civil society, the empowerment of local and regional governments, the visibility and strengthening of women's roles in rural society, and the adoption of sustainable practices for both the conservation of natural resources and for low-emission sustainable production. Peasant farms and indigenous territories designed or updated land-use plans and reservation management plans, promoting an improved management of important Amazonian biomes and ecosystems.

All of these results are important in and of themselves. However, it is essential to gain a better grasp of their impact in the region and in the communities where the Program took place. This knowledge will elucidate the specific contributions of Connected Landscapes to low-emission rural development in Caquetá and to the reduction of Amazon deforestation. This, in turn, will provide a way to identify the successes, limitations and technical lessons of the Program.

This chapter analyzes the main impacts of the Program in light of the questions stated at the end of the first chapter regarding the Connected Landscapes LED-R model, summarized as follows: 1. How has the Program contributed to the maintenance and recovery of tree cover in the areas where it operated and how did it promote the control of emissions and the maintenance and/or recovery of ecosystem services? 2. To what extent have living conditions improved for communities involved in Connected Landscapes, and with that, how have well-being and general participation improved? 3. How were sustainable economic development and food security improved for people in the areas where the program operated?

To answer these questions, this chapter focuses much of its attention on the geographies of Solano and Cartagena del Chairá, given that, immediately after Connected Landscapes came to a close in 2017, ACT engaged in new efforts in the foothills where the Program had been active, the results of which cannot be attributed to Connected Landscapes.

Healthy Ecosystems and Climate

How has the Program contributed to the maintenance and recovery of vegetation cover and how did it promote the control of emissions and the maintenance and/or recovery of ecosystem services?

Connected Landscapes developed in the field during a period when important changes were happening in Caquetá. Although the persistent loss of Amazonian forest in the years prior to 2013 was the impetus for

implementing the Program, the arrival of the peace agreement, which began negotiations in 2012 and was signed in 2016, is an extraordinary milestone that altered the economic, social, and political conditions that affect

deforestation. Table 4.1 illustrates deforestation trends for Colombia, the Amazon and the department of Caquetá between 2000 and 2018, according to historical records from IDEAM.

Table 4.1.
National and regional trends in gross annual deforestation, measured in hectares, 2000-2018

	2000 - 2005	2005 - 2010	2010 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018
Total National Deforestation	315,602	281,974	166,073	120,938	140,356	124,035	178,597	219,973	197,159
Total Amazonian Deforestation	116,355	96,105	104,067	75,318	65,960	61,762	78,656	152,909	138,176
Total Caquetá Deforestation	35,707	33,391	36,098	29,844	29,245	23,812	26,544	60,373	46,745
% Amazonia Deforestation /National total	37 %	34 %	63 %	62 %	47 %	50 %	44 %	70 %	70 %
% Caquetá Deforestation /Amazonian total	31 %	35 %	35 %	40 %	44 %	39 %	34 %	39 %	34 %
% Caquetá Deforestation /National total	11 %	12 %	22 %	25 %	21 %	19 %	15 %	27 %	24 %

Source: Fondo Acción. Based on IDEAM(2019).



Photo: David Rugeles, Cartagena del Chairá, 2016.

With annual losses of around 300,000 hectares, the first decade of the 21st century shows the highest national deforestation figures in recent history. During that decade, deforestation in Caquetá and the Amazon region accounted for around 11 and 37%, respectively, of the nationwide total. After a relative decline from 2010 to 2015, national deforestation grew in 2016, the same year that saw an increase in Amazonian deforestation in relation to the nationwide total. Since 2010, Caquetá has been one of the departments with the highest rates of forest loss in Colombia, and in 2017, its contribution to the national

deforestation total reached a record 27%. Cartagena del Chairá and San Vicente del Caguán are the municipalities that have historically had the highest forest losses within the department. Since 2016, they also rank among the top three municipalities with the highest annual deforestation in the country.

According to a recent study (IDEAM, PNUD, MADS, DNP and Cancillería, 2015), the Caquetá and Caguán rivers have been the main access routes for agents of deforestation within the department. Between 2005 and 2015, the principal direct cause of general deforestation in the

department was the expansion of the agricultural frontier and, to a lesser extent, the extraction of minerals. When the FARC withdrew from rural areas of Caquetá in 2016, they left a power vacuum in the control of this territory, and the subsequent reorganization of the social order altered the phenomenon of deforestation. Starting in 2017, real estate speculation and hoarding became a direct cause of forest loss (KPMG, 2020). New groups in search of political, economic and social control entered the scene, while some investors took advantage of the situation to seize new lands, expanding the agricultural frontier.

Stabilization of the agricultural frontier in the Program's areas of operation



Photo: Sixzero Media, Cartagena del Chairá, 2017.

Connected Landscapes initiated projects for land-use planning on farms that opted for the transformation of unsustainable agricultural practices, a shift to food production and the conservation and recovery of natural resources. The result of these efforts was the planning of 26,055.7 hectares and the

adoption of sustainable practices in 6,167.9 hectares, which together contributed to stabilizing the agricultural frontier in critical areas among the foothills and on the Amazon plain in Caquetá. Through a high-resolution analysis of changes in land cover from 2016 to 2019, it was determined that the actions of

the Program in Solano had a positive effect by stabilizing the agricultural frontier and reducing net deforestation in the areas of direct intervention. This is an outstanding impact given that, as mentioned before, deforestation in the country and in the department had been growing since 2016.

According to a multitemporal analysis carried out by the Program, the direct intervention area in Solano had a lower rate of loss¹³ (0.12%) than the area of incidence in neighboring farms

(0.76%) and even less than that of the entire Entreríos area (1.47%). This is shown in Table 4.2 as well as in Figure 4.1, where the changes in coverage inside and outside the farms are contrasted.

❖ 13. The annual rate of deforestation (RD - Puyravaud) is the annualized negative variation in the area covered by natural forest in a given spatial reference unit *j* between two instants of time *t*, 1 and 2 (IDEAM, 2020).

Table 4.2.
Analysis of Land Use and Land Cover (LULC) in the direct intervention area and its area of incidence in Solano, 2016-2019

	Farm Areas (Direct Intervention)			Area of Influence (Neighboring Farms)			Total Area		
	LULC 2016	LULC 2019	Loss /Gain	LULC 2016	LULC 2019	Loss /Gain	LULC 2016	LULC 2019	Loss /Gain
Sandy Areas	0.5	9.8	9.3	14.0	26.7	12.6	14.5	36.5	22.0
Untouched Forest	1,301.9	1,273.2	-28.7	2,931.6	2,889.9	-41.7	4,233.5	4,163.1	-70.5
Secondary Forest	625.8	647.8	22.0	1,259.1	1,206.5	-52.6	1,884.9	1,854.3	-30.6
Bodies of Water	4.4	5.0	0.6	159.4	150.7	-8.7	163.8	155.7	-8.1
Grasslands	206.2	89.3	-116.9	275.9	168.5	-107.4	482.1	257.8	-224.3
Floodplains	4.1	0.3	-3.9	49.5	64.5	15.0	53.7	64.8	11.1
Pastures, Crops and Others	2,900.0	3,017.5	117.5	4,654.9	4,837.7	182.8	7,554.9	7,855.2	300.3
Total	5,042.9	5,042.9		9,344.5	9,344.5		14,387.4	14,387.4	

Deforestation Rate0.12 %

Deforestation Rate0.76 %

Deforestation Rate0.56 %

Source: Prepared by the authors. Based on Peña(2020).

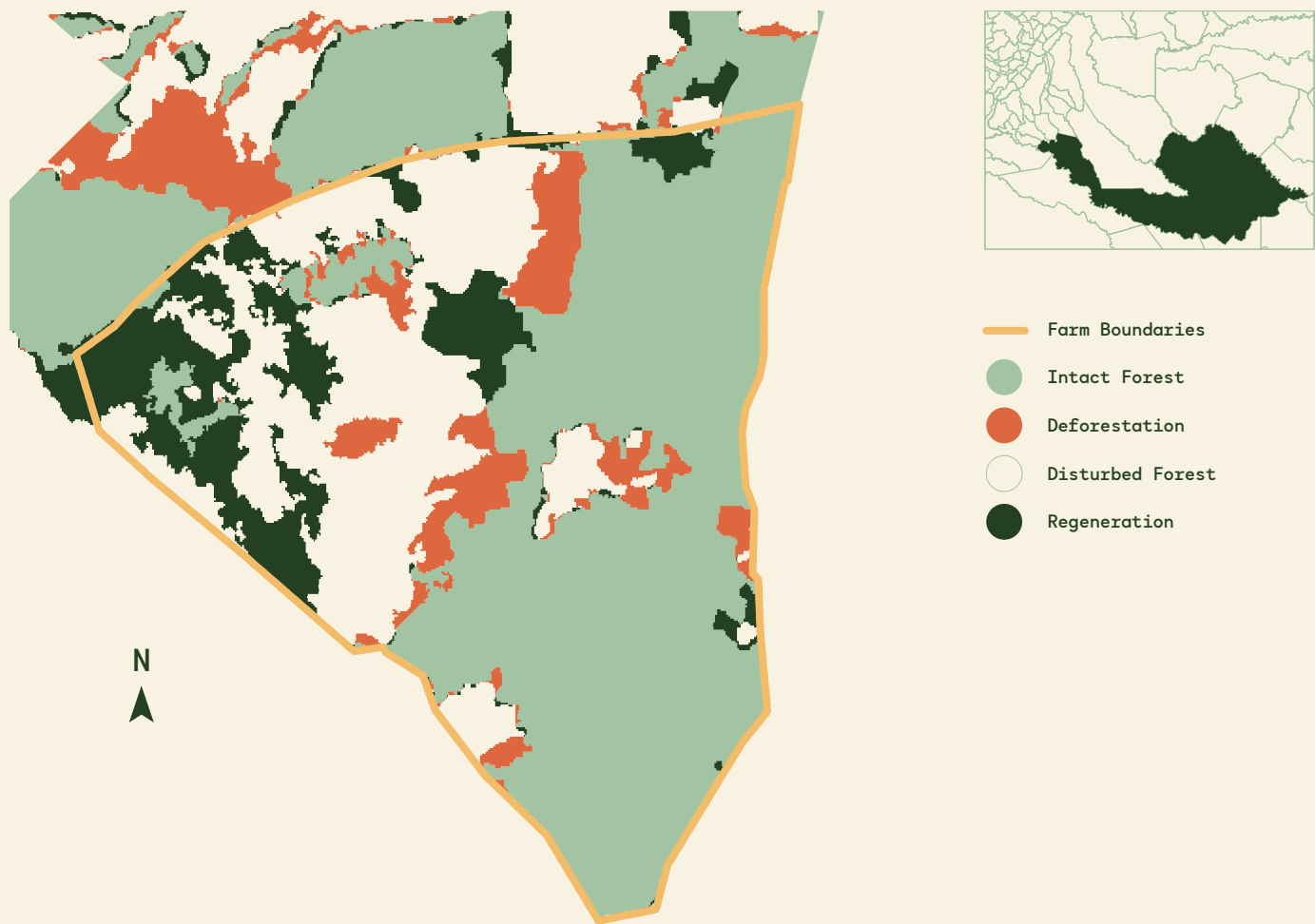
Note: All areas are given in hectares.

Figure 4.1.
Changes to the forest
in Solano, 2016-2019



Source: Peña (2020).

Figure 4.2.
Changes in tree cover on a
farm in Solano, 2016-2019



Source: Peña (2020).

During the period when Connected Landscapes was involved with farms in Solano, the total net deforestation in the direct intervention area in that municipality (5,042.9 ha) was only 6.7 hectares, while the area of incidence within the neighboring farms lost 94.3 hectares. Likewise, although the participating farms in Solano did experience forest loss, 342.9 hectares of tree cover were regenerated during the same period, which indicates land

management practices. In Figure 4.2, this dynamic is illustrated using a participating farm in the Campo Bonito *vereda*. The dark green represents recovered growth and the orange represents loss of cover.

During the period analyzed in Solano, 66% of the Program participants, and 62.5% of the *veredas*, had more areas of natural regeneration than areas with losses. As Table 4.3 indicates, in 10 of the

16 villages there were negative deforestation rates, which suggests that the soil management practices established in the land-use plans contributed to recuperating the tree cover.

According to monitoring and evaluation data (M&E), 88% of the Program participants in Solano experienced changes in cover during the 2016-2019 period. The data indicates that these changes were mainly

Table 4.3.
Change in areas of direct intervention
in Solano organized by peasant vereda
and núcleo, 2016-2019

Peasant Núcleo	Veredas	Forested - Unforested 2016		Forested - Unforested 2019		Changes 2016-2019			
		Forested	Unforested	Forested	Unforested	Gross Deforestation	Regenerated Cover	Net Gains	Deforestation Rates
Monunguete	Campo Bonito	365.2	481.6	367.5	479.2	55.5	57.9	2.4	-0.2 %
Herichá	Esmeralda	199.8	396.9	204	392.8	37.7	41.9	4.1	-0.7 %
Herichá	Cabañita	154.8	319.1	155.9	318	26.1	27.2	1.1	-0.2 %
Monungute	Brisas	109.2	203.9	121.5	191.6	19.8	32.1	12.3	-3.6 %
Las Mercedes	El Vergel	88.2	193	104.1	177	12.1	28.1	16	-5.5 %
Las Mercedes	Sacrificio	43.5	102.1	48.5	97.1	8.8	13.8	5	-3.6 %
Herichá	Cabaña	50.8	104.7	53.5	102	7.1	9.8	2.7	-1.7 %
Monunguete	Miravalle	40.3	129.6	40.5	129.4	6.9	7.1	0.2	-0.1 %
Monunguete	El Porvenir	65.7	39.7	77.5	27.8	5.7	17.6	11.8	-5.5 %
Herichá	Herichá	1.6	6.9	4.9	3.6	0	3.3	3.3	-37.4 %

Source: Prepared by the authors. Based on Peña (2020).

Note: All areas are given in hectares.

to create areas for staple crops and, to a lesser extent, for other crops and pastures. In general terms, the analysis indicates that, in Solano, the Program reduced deforestation and contributed to stabilizing the agricultural frontier through the consolidation of management practices that favored recuperating vegetation cover.

Although 2016–2019 saw a resurgence in settlers coming to the area and a significant increase in the livestock inventory in Cartagena del Chairá, in 51 of the 60 farms that participated in the Program there, the deforestation rate (3.67%) was lower than that of the neighboring farms in the area of incidence (3.9%), and it was lower than the

2012–2018 rate in an expanded area of analysis, under similar anthropogenic pressures, that stretched from Peñas Coloradas to Remolinos del Caguán (3.9%)¹⁴.

✧ 14. Rates were obtained through a low-resolution multi-temporal analysis for the period 2012-2018.

Table 4.4.
Change in Land Use and Land Cover (LULC)
in a selected group of 51 families in
Cartagena de Chairá, 2016-2019

	Farm Areas (Direct Intervention)			Area of Influence (Neighboring Farms)			Total Area		
	LULC 2016	LULC 2019	Loss /Gain	LULC 2016	LULC 2019	Loss /Gain	LULC 2016	LULC 2019	Loss /Gain
Sandy Areas	0.0	0.0	0.0	7.3	7.3	0.0	7.3	7.3	0.0
Untouched Forest	635.2	539.3	-95.9	2,919.6	2,492.4	-427.2	3,554.9	3,031.8	-523.1
Secondary Forest	389.5	378.6	-10.9	965.6	963.7	-1.9	1,355.1	1,342.3	-12.9
Bodies of Water	0.2	0.2	0.0	36.9	36.9	-0.1	37.1	37.1	-0.1
Grasslands	13.7	16.2	2.5	53.7	72.8	19.2	67.4	89.1	21.7
Floodplains	0.0	1.7	1.7	1.4	4.8	3.4	1.4	6.4	5.1
Pastures, Crops and Others	1,570.4	1,673.1	102.7	1,593.8	2,000.6	406.8	3,164.2	3,673.7	509.4
Total	2,609.1	2,609.1		5,578.5	5,578.5		8,187.5	8,187.5	

Source: Prepared by the authors.
Based on Peña (2020).
Note: All areas are given in
hectares.

Deforestation Rate	3.67 %	Deforestation Rate	3.90 %	Deforestation Rate	3.85 %
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Of the families who participated in the Program and reduced deforestation (when compared to deforestation rates in similar areas), 21 out of 51 (41%) adopted tree cover management practices that contributed to the stabilization of the agricultural frontier in the area where Connected Landscapes had been active. Despite the efforts of the

Program, in Cartagena del Chairá there were nine families (15% of all participating families) whose deforestation was more active than expected. These families generated 53% of the total gross deforestation in that program’s area of operation, and they predominantly live in *veredas* that are adjacent to or near the forest reserve areas defined by Law No.2. The closing evaluation

helped determine that this group of families still practices cattle fattening, and the *veredas* where they live have been recently settled, a process streamlined after the peace negotiations and legitimized by inadequate control and management of vacant lots by the *vereda* community board, the municipal government and the competent authorities.

Maintenance and recovery of environmental services

The analysis of the results for maintenance and recovery of environmental services in Solano and Cartagena del Chairá was conducted based on information from the M&E

process and a community monitoring pilot program in the Campo Bonito *vereda* (Solano). This analysis focuses on the water supply, yet it also explores the recuperation of

degraded vegetation cover and natural spaces as an indicator for improved natural habitats, regulated erosion and water sediment, and carbon capture.



Photo: David Rugeles, Cartagena del Chairá, 2016.

Protection of water resources and water supply

In Solano and Cartagena del Chairá, 52,783.6 linear meters of water sources (springs, creeks, streams, and wetlands) were cordoned off with 31-meter-long strips of protective fencing. These protected areas constitute 163.6 hectares of water conservation and natural restoration of the tree cover. The divisions were intended to improve the conveyance, availability and quality of water for families, and they were implemented in tandem with liquid transport and storage strategies. Table 4.5 depicts the improvement in water availability for the participating families in Solano and Cartagena del Chairá, and it compares water availability for productive purposes and for family consumption both at the start and at the end of the Program¹⁵.

The data to the right is derived from the exit survey, where participating families were asked whether or not they had water

15. Connected Landscapes contributed to improving water conservation on farms and to improving sustainable practices, particularly limiting deterioration of water resources as a result of

their use in productive activities. Given that the water source is usually the same for productive uses and human consumption, these changes incidentally favored the availability of water for the latter.



Table 4.5.
Improvement of water
availability in the areas
of operation, 2016-2019

Municipality	Núcleo	Vereda	Base Line				Closing Evaluation			
			% of families with yearlong access to water for productive uses		% of families with yearlong access to water for personal consumption		% of families with yearlong access to water for productive uses		% of families with yearlong access to water for personal consumption	
			NO	YES	NO	YES	NO	YES	NO	YES
Solano	Herichá	Cabaña	25 %	75 %	25 %	75 %	0 %	100 %	0 %	100 %
		Cabañita	13 %	88 %	13 %	88 %	0 %	100 %	0 %	100 %
		La Esmeralda	50 %	50 %	20 %	80 %	0 %	100 %	0 %	100 %
		Potreros	38 %	63 %	13 %	88 %	0 %	100 %	0 %	100 %
		Puerto Herichá	0 %	100 %	0 %	100 %	0 %	100 %	0 %	100 %
	Total Herichá núcleo		25.0 %	75.0 %	14.0 %	86.0 %	0.0 %	100.0 %	0.0 %	100.0 %
	Las Mercedes	Bajo Sevilla	43 %	57 %	29 %	71 %	0 %	100 %	0 %	100 %
		El Carmen	0 %	100 %	0 %	100 %	0 %	100 %	0 %	100 %
		Cristalina	50 %	50 %	25 %	75 %	0 %	100 %	0 %	100 %
		Reina Sevilla	0 %	100 %	0 %	100 %	0 %	100 %	0 %	100 %
		Sacrificio	40 %	60 %	20 %	80 %	0 %	100 %	0 %	100 %
		El Vergel	25 %	75 %	0 %	100 %	0 %	100 %	0 %	100 %
	Total Las Mercedes núcleo		26.3 %	73.7 %	12.3 %	87.7 %	0.0 %	100.0 %	0.0 %	100.0 %

| Table 4.5 Continued

			Base Line				Closing Evaluation			
Municipality	Núcleo	Vereda	% of families with yearlong access to water for productive uses		% of families with yearlong access to water for personal consumption		% of families with yearlong access to water for productive uses		% of families with yearlong access to water for personal consumption	
			NO	YES	NO	YES	NO	YES	NO	YES
Solano		Campo Bonito	31 %	69 %	38 %	62 %	0 %	100 %	0 %	100 %
		El Porvenir	33 %	67 %	0 %	100 %	0 %	100 %	0 %	100 %
		Las Brisas	17 %	83 %	17 %	83 %	0 %	100 %	0 %	100 %
		Las Palmas	25 %	75 %	14 %	86 %	0 %	100 %	0 %	100 %
		Miravalle	0 %	100 %	0 %	100 %	0 %	100 %	0 %	100 %
	Total Monunguete núcleo		21.2 %	78.8 %	13.9 %	86.1 %	0.0 %	100.0 %	0.0 %	100.0 %
Cartagena del Chairá		Caño Tigre	0 %	100 %	0 %	100 %	0 %	100 %	0 %	100 %
		El Café	18 %	82 %	9 %	91 %	0 %	100 %	0 %	100 %
		El Jardín	0 %	100 %	0 %	100 %	0 %	100 %	0 %	100 %
		Loma Larga	33 %	67 %	0 %	100 %	0 %	100 %	0 %	100 %
		Palmichales	0 %	100 %	0 %	100 %	0 %	100 %	0 %	100 %
	Total Núcleo No. 2		10.30 %	89.70 %	1.82 %	98.18 %	0.0 %	100.0 %	0.0 %	100.0 %
Sum Total			21 %	79 %	10 %	90 %	0 %	100 %	0 %	100 %

Source: Prepared by the authors. Based on Segura (2020) and Montero (2020).

for productive uses and human consumption throughout the year. The table indicates that water availability in each of the farms improved as a result of these protective measures and that, by the end of the program, one hundred percent of the participating families had a consistent water supply for human consumption and productive uses throughout the year. The results from the exit surveys

regarding water availability are good. However, to guarantee the permanent availability of water to all participating families, it was deemed necessary to continue working to improve the vegetation cover at the sources. As Table 4.6 indicates, of the 53 springs identified by the community monitoring pilot program in the Campo Bonito vereda (Solano), only 25% have a vegetation cover of more than one quarter, and

only 6% reach the ideal three-quarters cover for protecting the water resource. On the participating farms in Campo Bonito, there was no water source management at the beginning of the program, and the springs were neither isolated nor protected with natural cover. While it is good to see that these protective practices have become a habit, there are still very few springs in the *vereda* with ideal cover.

Table 4.6.
Percent of vegetation cover for
springs in Campo Bonito, 2019

Number of springs in Campo Bonito with percent of vegetation cover per spring				Total Springs
0 % - 25 %	25 % - 50 %	50 % - 75 %	75 % - 100 %	
40	7	3	3	53
75 %	13 %	6 %	6 %	100 %

Source: Natura (2020).



Photo: Diego Llorente, Solano, 2018.

Recovery of vegetation cover and associated environmental services

Land use and land cover analysis in Solano and Cartagena del Chairá estimated changes in forest cover during the period 2016-2019. However, given the short amount of time for the planted trees to grow, and the slow development of natural plant regeneration in the selected areas, the analysis carried out using remote sensing failed to capture the progress in recovering and growing vegetation in the participating farms in both municipalities. This section provides details on these areas and, based on those details, the impact on the improvement of associated ecosystems services.

In Solano and Cartagena del Chairá, in addition to the 52,783.6 linear meters of water source protection described above, 20,613.5 linear meters of forest protection were established. Based on the length and width (31 x 2 meters) of the protected tracts, there should be an estimated recovery of 167.75 hectares in passive natural regeneration, resulting in reduced erosion, decreased sedimentation of water sources, and an expanded carbon sink.

Likewise, as part of the efforts toward recovering the structural connectivity of the landscape, 46,161.6 meters of connectivity corridors and productive corridors were established to promote carbon



capture, habitat connectivity in fragmented areas (facilitating the movement of species), the recovery of timber species in danger of disappearance (such as the black manwood and Aniba canelilla) and the development of productive functions on the farm (fruit trees and forages). These corridors and trails were established in strips of 4 meters on average and are equivalent to 18.5-hectare enclosures. Per participating family in Solano and Cartagena, an average of 1.1 hectares were isolated and left in natural regeneration processes, and 0.12 hectares were cordoned off to establish connectivity corridors and productive trails.

On average, each participating family in Solano planted 400 trees on their farm: 210 quickstick (*Gliricidia sepium*) were planted

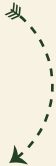
as living fences, and 190 native trees, such as black manwood, cedars, rose apple and American muskwood, among others, were used to create connectivity corridors and as scattered trees in pastures. These trees contribute to carbon capture, temperature regulation and nutrient retention in the soil. Figure 4.3 summarizes the positive impacts on the maintenance and recovery of ecosystem services related to natural plant regeneration and the tree planting described in the preceding paragraphs.

The foreseeable medium and long-term effect of planting and protection for natural regeneration is the improvement of critical ecosystem services in the predominant natural biome of the intervention area in Solano and Cartagena del Chairá.

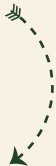
Figure 4.3.
Maintenance and recovery
of ecosystem services

**Actions taken by
the Program**

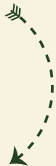
ISOLATING WATER
SOURCES



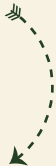
ISOLATING
FORESTS



CONNECTIVITY
CORRIDORS



LIVING FENCES



PLANTING
NATIVE SPECIES
IN CONNECTIVITY
CORRIDORS AND
SCATTERED TREES
IN PASTURES

**Associated
Positive Impacts**

- Improvements in water production and supply
- Control over erosion and sedimentation in water sources
- Carbon capture
- Soil restoration
- Forest and biodiversity conservation
- Carbon capture
- Improvement of landscape structural connectivity
- Increased areas for species habitat and range
- Carbon capture
- Soil maintenance
- Nutrient retention
- Soil maintenance
- Erosion control
- Carbon capture
- Improved structural conectivity
- Nutrient retention
- Carbon capture
- Nutrient retention
- Forest species maintenance
- Temperature and humidity regulation

Source: Prepared by the authors.



Photo: Sixzero Media, Cartagena del Chairá, 2017.

Table 4.7.
Carbon capture from planting and natural regeneration in the municipalities of the Amazon plain

Positive impacts on carbon emission control

At the end of the Program, and making calculations for three years of continued growth¹⁶ for both the new plantings and the areas of natural regeneration, a carbon capture of 6,419.8 and 4,141.8 tons carbon dioxide equivalent (tCO₂eq) was estimated for the 93 participating farms in Solano and the 60 in Cartagena del Chairá, respectively.

16. The calculation of atmospheric carbon captured by planted trees and regrowth was estimated for three years (2016-2019) so that it would correspond to the same period as the multitemporal analysis.

CO ₂ Capture per type of new planting and natural regeneration on farms over the course of 3 years	Average number of trees planted per farm / Average regenerative area per farm	tCO ₂ per farm	total tCO ₂ in Solano and Cartagena del Chairá
Native species planted	190	14.93	2,284.3
Quickstick planted for living fences	210	19.56	2,992.7
Natural regeneration	1.1 ha	34.54	5,284.6
Total Accumulation per CO ₂ captured		69.03	10,561.6

Source: Prepared by the authors. Based on Sierra (2020).

Throughout the direct intervention area in Solano, reduced deforestation has had positive impacts through carbon capture and reduced emissions.

- In Solano, when comparing the current deforestation in the direct intervention areas of the Program with what would be obtained for the same areas under an assumed scenario without a project (based on the department’s historical deforestation rates between 2000 and 2015¹⁷) a reduced deforestation of 21.1 hectares was obtained, as indicated in table 4.8.
- Using the values in aerial biomass content for tropical forests reported by IDEAM(2014) and converting this to carbon (tCO₂eq) for both the aerial and underground components, the averted emissions in Solano were estimated for the hectares of forest that were preserved and protected from historical deforestation (Table 4.9).
- Finally, adding the averted emissions in Solano (10,272.5 tCO₂) and the tons of carbon captured through natural regeneration and the planting of trees (6,419.8 tCO₂eq), a final carbon emissions figure is obtained for Solano of 16,692.3 tCO₂eq.

Table 4.8.
Reduced deforestation in Solano

	2016	2019
Forest in ha	1928	1921

Actual deforestation rate	Actual annual losses in ha	Actual total losses in ha
0.12 %	2.2	6.7
Historical deforestation rate	Annual losses in ha according to historical rate	Losses in ha accumulated over 3 years
0.48 %	9.3	27.8
Reduced deforestation in ha		21.1

Source: Prepared by the authors. Based on Sierra (2020).

Table 4.9.
Avoided emissions in Solano

Reduced deforestation in Solano in ha	21.1
Estimated CO ₂ (t/ha) in humid tropical forests in the intervention area	487.8
Emissions prevented through reduced deforestation (tCO ₂)	10,272.5

Source: Prepared by the authors. Based on Sierra (2020).

❖ 17· There should be an analysis of the historical rate of deforestation in areas larger than the project intervention areas (often more than twenty times the size of the area covered by the project), since it is assumed that the processes or motivators for deforestation are not local. Rather, they depend on landscape transformation dynamics at a regional level.

As mentioned before, in Cartagena del Chairá, 51 of the 60 participating farms (which represents 85% of the program intervention area in Cartagena del Chairá) had a deforestation rate lower than both the rate for the neighboring area of incidence and the rate for the expanded analysis area between Peñas Coloradas and Remolino del Caguán. Following a process similar to the one shown for Solano above, this difference in rates means that these 51 farms deforested 13.1 hectares less than the neighboring area, equivalent to 6,390.2 tCO₂eq. Including the carbon captured in these 51 farms through planting and natural regeneration (3,520.5 tCO₂eq), the total balance of emissions for these farms is 9,910.7 tCO₂eq.



Photo: Andrés Cardona, Solano, 2018.

General Assessment



The analysis of the main contributions of the Program in Solano and Cartagena del Chairá, in regards to the first component of the Connected Landscapes LED-R model, showed that deforestation was reduced in Solano and in a portion of the direct intervention area in Cartagena del Chairá. Throughout the area of intervention in the Amazon plain, Connected Landscapes had a positive effect on carbon capture through tree planting and natural regeneration

efforts, and it succeeded in stimulating water conservation practices and reaffirming the habits for land use management in various *veredas*.

The Program performed differently in the two regions analyzed. In the entire direct intervention area of Solano, deforestation rates were reduced and natural restoration practices and land use management were strengthened, which helped to

stabilize the agricultural frontier. A positive carbon balance of 21,069.4 tCO₂ was generated for the entire direct intervention area of Solano. In Cartagena del Chairá, on the other hand, the Program progressed in the control of deforestation in 51 of the 60 farms of participating families, which experienced lower rates of loss than equivalent and comparable areas in Bajo Caguán. This is positive given that Cartagena del Chairá has

been in the five most deforested municipalities in the country for the last four years, and as of 2016, it has also seen a growth in cattle herds and an increase in the flow of new settlers.

In an assessment of the nine families in Cartagena del Chairá whose results did not meet expectations, it was suggested that competent authorities should coordinate efforts to control the occupation of and access to vacant land owned by the state. In locations such as Cartagena del Chairá, where there is a large amount of natural forest and unoccupied forested areas available in recently created *veredas* (many of them unregistered), the power vacuum and lack of territorial control created by the FARC's departure and the growth of the livestock economy, among other causes, have stimulated new settlements, land grabs, and speculation.

This analysis of the Program's contributions and challenges in the implementation of this component of the LED-R model provides the following highlights:

01

As evidenced by the experience in Solano, deforestation control requires, among other things, intensifying and optimizing sustainable productive practices in areas with high and medium anthropogenic intervention. This will discourage the transformation of forested areas where anthropogenic intervention is still low.



03

The conservation and transformation agreements in *veredas* helped to guide efforts for protecting the forest and recovering and maintaining ecosystem services on the participating farms. The development and use of these agreements can be optimized through periodic monitoring, which would use remote sensing in alliance with institutions such as IDEAM, and through community monitoring exercises in all districts, accompanied by a targeted reinforcement of the environmental committees of community boards and other local authorities.

02

Efforts at forest conservation and transformation of production practices in areas that are experiencing deforestation are critical to generating positive effects on forest conservation. However, these should occur parallel to and integrated with joint efforts that meet and respond to the demands of economic diversification, control of access to state land, registration of rural property, the alignment of environmental and agricultural policies, and coordination with unions, among others concerns.

04

Land grabbing and the creation of new *veredas* in forested areas in Cartagena del Chairá are direct causes of deforestation. In order to respond to this, land registration should be fostered to regulate rural property as well as to control access to state land. This effort would be chaired by the National Land Agency in concert with Corpoamazonia, the Ministry of Environment and Rural Development, municipal and departmental governments, police and control agencies, and community authorities. In the absence of such actions, the regulation, control and access to new areas on the frontlines of deforestation are almost exclusively left to the communal actions boards in *veredas* neighboring the area of interest. If these *veredas* issue guarantees, and these guarantees are approved by the municipality's community affairs office, deforestation of new forested areas will be more likely to occur.



05

Fostering intergenerational sustainability is critical to reducing deforestation and transforming ecosystems. Emphasis must be placed on working in the field with children, adolescents and young people. They will have their own short-, medium- or long-term life goals (and possibly properties) that will determine whether or not the natural environments they inhabit will be protected. Work with farms must consistently integrate the entire family, opening up options for lifestyles that all members can embrace and put into practice without threatening the conservation of the Amazon.

06

The actions of the Program had valuable repercussions. During the development of the Program in Solano, 18.6% of the participating families admitted knowing neighbors who were not participating in the Program yet who were nonetheless implementing the lessons and activities developed by Connected Landscapes. In Cartagena del Chairá, 27.5% of the participating families said they knew neighbors who were doing the same. Based on the exit interviews, 27 neighboring families in Solano and Cartagena del Chairá that had not participated in the Program were seen to be putting into practice activities related to conservation and new forms of production, such as division of paddocks, protection of water sources, planting of scattered trees in pastures, land use strategies, and gardening as a source of food.

Well-Being and Participation

To what extent have living conditions improved for communities involved in Connected Landscapes, and with that, how have well-being and general participation improved?



Photo: Sixzero media, Florencia, 2019.

As mentioned in the first chapter, the Connected Landscapes LED-R model provided a better living by: fostering participation and governance; engaging the role of women in the region, taking advantage of ecosystem services

for quality of life, improving the living conditions for children and adolescents, and reinforcing food sovereignty and security.

This section addresses the guiding questions with an analysis of

qualitative and quantitative data. It begins by reviewing the general exit evaluations provided by families and *veredas*. It then gradually delves into more specific data and observations regarding aspects of a “good living.”

Exit evaluation from families and *veredas*



The exit evaluations for the Program in Solano and Cartagena del Chairá were conducted during technical assistance visits to each of the 153 participating farms in the Amazon plain. During these visits, the following seven variables regarding the beginning and the end of the Program were evaluated on a scale of one to five:

01

Vereda conservation agreements.
Which assesses the knowledge of the participating families regarding conservation agreements and changes in the *veredas*.

02

Strengthening of organizations.
Which evaluates the participation of families in their Community Action Board.

03

Family participation.
Which assesses the degree to which various family members participate in activities on the farm.

04

Conservation practices.
Which assesses the degree of sustainable practices implemented on the farm.

05

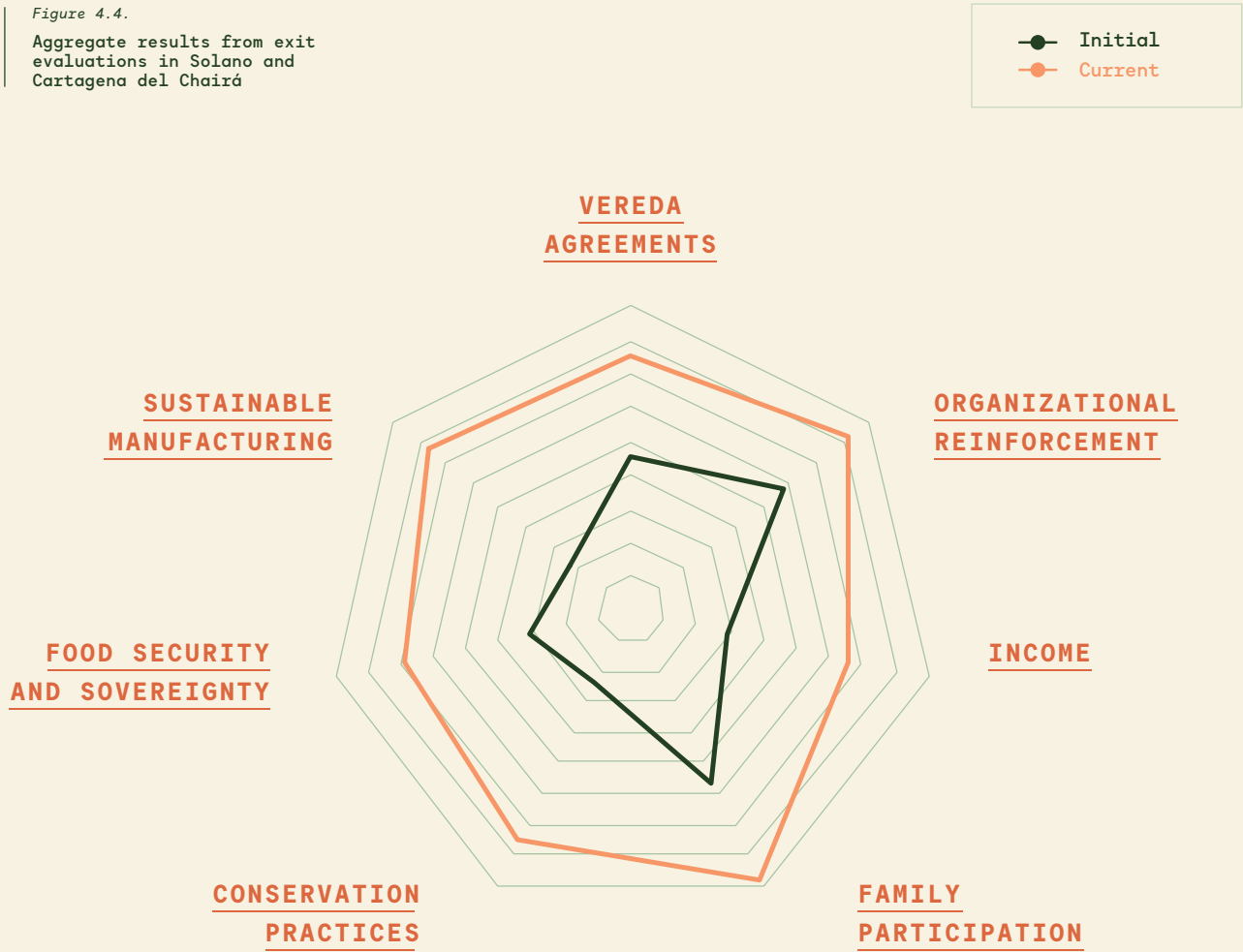
Food sovereignty and security.
Which assesses the diversification and increase in the food supply and consumption, as well as the usefulness of the income generated from food produced on the farm.

06

Sustainable systems of production
Which assesses the knowledge regarding sustainability and conservation practices as well as their implementation.

07

Income.
Which assesses the relationship between productive activities on the farm and the income they generate.



Source: Prepared by the authors. Based on Montero (2020).

The aggregate results of the 153 families in Solano and Cartagena del Chairá are illustrated in Figure 4.4 and demonstrate the following:



- Participating families and local leaders in Solano and Cartagena del Chairá show significant progress in adopting conservation practices and changes for sustainable systems of production. This result is very relevant given that, in areas where the Program has been operating, sustainability and conservation practices for the use of natural resources were almost non-existent, and residents resisted their implementation. Thus, it is a plus that the communities of Solano and Cartagena del Chairá have adopted sustainable agricultural practices. The adoption of these practices not only reduces the impact of farms on the natural environment, but it also indirectly improves the water and energy supply for rural households and the quality of life for participating families.



Photo: Andrés Cardona, Cartagena del Chairá, 2019.

- The Program contributed to improving management by local organizations by encouraging families to participate in their Community Action Boards and, through these channels, in municipal land management. This improved management became especially pertinent after the peace agreement was signed with the FARC. At that time, territorial management took on an essential role in the *veredas* and their Community Action Boards. The qualitative evaluation indicates that continued work with Community Action Boards will be necessary to better ensure compliance with the collectively authored community agreements.
- As Figure 4.4 shows, the Program participants perceived an improved family dynamic on the farms. The families' exit evaluations indicate an enriched and more visible participation in farm activities by all family members, especially by women. The improvement in family participation was due, in part, to the variety of topics in the technical assistance and skill-building activities, which were designed to enrich and invigorate the learning experience for a plurality of participants in each family.

○ As will be detailed later in this chapter, incomes improved for the participating families due to the Program's support for diversifying production and saving money by producing their own food. To continue improving these incomes and to make local agricultural production more competitive, optimization of transport, storage and marketing strategies will be necessary, as well as reducing the number of intermediaries who control the purchase and sale of products. Likewise, efforts to reduce dependence on the income derived from livestock activity should continue within the peasant economy.

○ Conservation agreements created within the *veredas* helped the participating families to establish common goals for managing the plans for their farms, thus protecting their own natural resources as well as those of the *vereda*. These agreements were also important for stimulating environmental awareness, both among residents in the intervention areas and among communal authorities. However, more needs to be done to reinforce the Community Action Boards' ability to enforce compliance with the agreements and to pass the Connected Landscapes exercises to *veredas* that neighbor the areas of direct intervention.



○ According to the exit evaluations, food security and sovereignty improved in Solano and Cartagena del Chairá. Gardens were implemented by 85% of the families as a food production strategy and a way to save money, and they even developed small businesses that generated new income. The evaluation showed that sustainable food production on family farms requires constant attention, a regular consumption of these foods and a specific economic interest. Because gardening is not an ingrained cultural practice, it is vulnerable to factors associated with weather conditions, lack of external financial support, family disinterest, etc.



Photo: Andrés Cardona, Cartagena del Chairá, 2019.

Promoting participation and governance and activating the role of women in the region



Participation and governance

The challenge for Connected Landscapes in the field was to expand the public participation of people and communities and to strengthen local policies (mainly environmental) in order to progressively change departmental and municipal public policies and even community regulations.

Public participation improved by involving families in the activities of the Community Action Boards and by encouraging all family members to contribute—especially women—in decisions about their farms and their land. Participation was also enriched by strengthening community-based organizations and growers' associations that, through their respective organizational missions, could contribute to a social and economic shift toward inclusion and environmental sustainability. However, the greatest contributor

to public participation was the collective authoring of territorial management plans and tools and the creation of channels for reaching decision makers at the municipal and departmental levels.

The semi-structured exit interviews show that preparing territorial management plans and tools brought various members of the community to participate in both decision-making for their land and in the creation of inclusive development proposals based on community goals. The development of territorial management plans and tools required the community to enter into agreement on the future of their land and to establish principles and rules that contribute to that future. This became the foundation for strengthening environmental governance so that communities would gradually:

01

Establish agreements and rules for safeguarding natural resources.

02

Incorporate environmental and sustainability principles in decision making processes.

03

Propose paths toward the social, environmental and economic functioning of the territory.

04

Implement procedures to ensure compliance with agreements, rules and principles.



Photo: Sixzero media, Florencia, 2019.

In addition to the above, according to several local leaders, these channels, for territorial management plans and tools to reach municipal and regional governments, created space for participation in meetings with public authorities who listened to and interacted with local communities, which became key inroads to public policy formulation. Among the communal development plans, a community agenda, gender guidelines and a proposal for territorial statutes, twenty territorial management

plans and tools were created for the Amazonian plains area, which involved the participation of at least 180 people (including 45 women), representing 23 *veredas* and 4 peasant *núcleos*. The creation of these resources for territorial management, in Solano and Cartagena del Chairá, translated into the formulation of a departmental public policy on sustainable environmental development, as well as a municipal development plan that incorporated participatory principles and environmental

sustainability. Additionally, the resources for territorial management, together with the leadership skills gained by members of the local community, contributed to the incorporation of the local visions, strategies and concrete development proposals into the larger PDET of Caquetá and its respective PATR. The impact of the Program in expanding public participation is illustrated in the following testimonies from community leaders, collected during the semi-structured interviews.

Community Leader Víctor Garcés



→ “We used to play a more local role, and now it's not just local. We had a limited vision that only addressed our area. With the Program, our vision has expanded. We were transformed, in the sense that we came to understand the territory and its problems. We managed to get closer to institutions and talked to them, to know that the problem is everywhere and things can be done from the outside. It was also good to know how they see us from the outside. People recognize the value of the local and the importance of the Amazon for everyone. We can contribute to the world from our territory. We were skeptical about leaving. We were very suspicious, but we had to get closer and make ourselves known. We had to learn to speak with other institutions, create that circle and end mistrust and allow people to enter. The shield was broken. Links were formed.”

*Puerto Camelias
(Cartagena del Chairá)*

Community Leader Rafael Orjuela



→ “Governance has improved now that people understand that working together is easier. If you want to improve the quality of life, everyone has to be included. The seven veredas are leading things. Things improved when people learned that being part of an organization is not just being part of a group. It means working with each other and for everyone. Before, community work was seen through a selfish lens. If we all work with the same purpose, everything goes well. We benefit from the leadership skills of the organizations and from the skills we each possess.”

*Remolino del Caguán
(Cartagena del Chairá)*

Through the systematization of program activities and the exit evaluations by families and *veredas*, the key elements for energizing public participation in Solano and Cartagena del Chairá were identified, and using these, progress can be made in the strengthening of environmental governance.



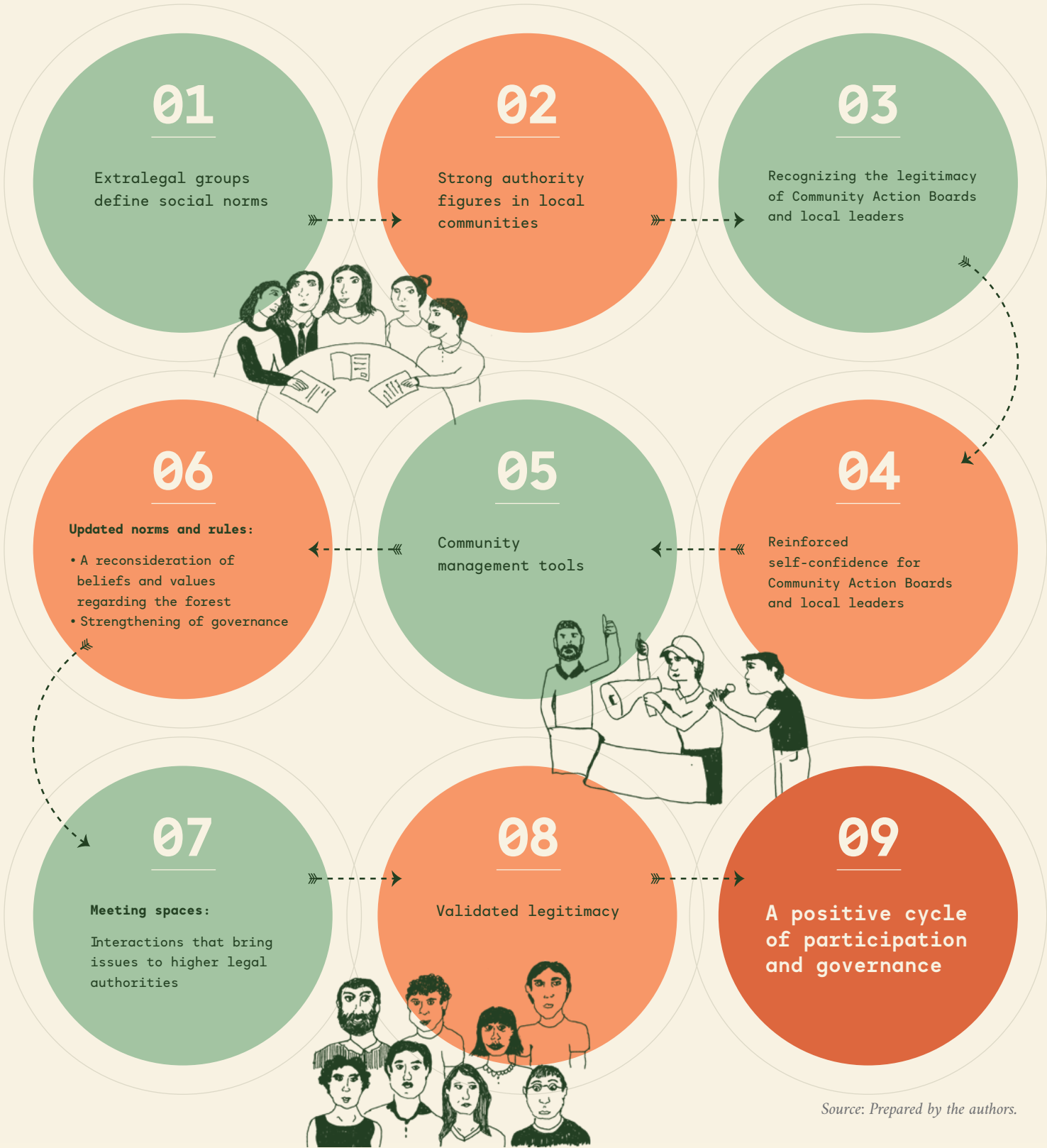
Photo: Sixzero Media, Solano, 2017.

As Figure 4.5 illustrates, Connected Landscapes launched in areas where the social order was determined and controlled by extralegal groups. When the Program started, the Community Action Boards and local leaders quickly demonstrated a level of organization and

community management that favored Fondo Acción's activities. In the midst of the social complexities encountered at the start of activities in the field, Fondo Acción came to recognize the relevance, prominence and role of community organizations and local leaders.

They were subsequently given commissions and incorporated to refine the focus of the field work. This required an understanding of the local social structure and careful attention to development priorities.

Figure 4.5.
Critical elements in strengthening
participation and governance



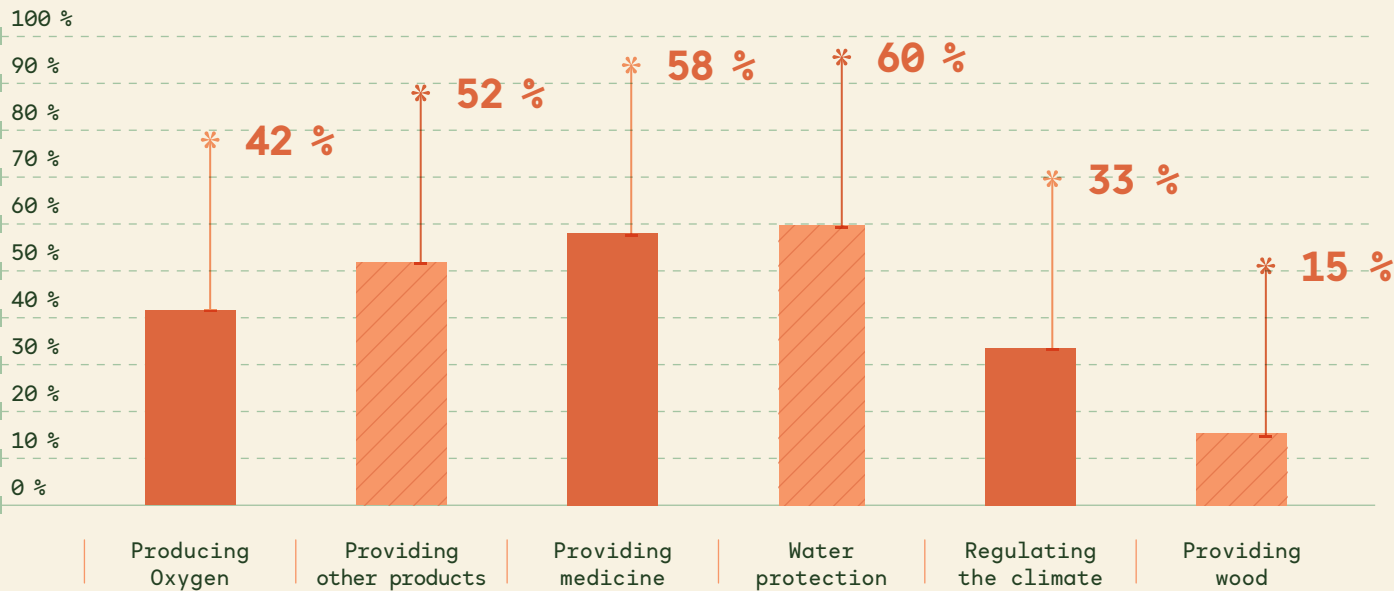
Source: Prepared by the authors.

The community organizations and local leaders in Solano and Cartagena del Chairá felt understood and saw themselves as participants in a process driven by participatory principles. It was under these conditions that spaces could be created for the communal

authoring of resources for territorial management, establishing new community development guidelines that gave priority to the forest and recognized the valuable role of local women. Community leaders took these locally oriented resources to decision makers at

the municipal and regional levels, which gradually resulted in the formulation of new public policies. The community organizations and local leaders felt heard and recognized, and began to reaffirm a new understanding of the forest and the value of the Amazon.

Graph 4.1.
Perception of the forest in
Cartagena del Chairá during
the family exit evaluations



Source: Montero (2020).

Although the impacts of strengthening local participation and environmental governance may be more effectively evaluated in the medium and long term, some of the exit evaluations reveal positive results in the new forms of forest use.

As stated in the third chapter, the territorial management plans and tools developed by the

communities are related to the establishment of agreements and guidelines for the sustainable use of natural resources. Graph 4.1 shows new ways of thinking about the forest that families participating in the Program identified during the closure activities. Although the forest has been seen as a space for the expansion of agricultural activity, or as a source of wood for the

construction of houses and other farm infrastructure, approximately 60% of the 60 families in the Program in Cartagena del Chairá felt that the supply of water and medicine was the main function of the forest, followed by services that farmers have traditionally undervalued, such as climate regulation and oxygen production.

Public participation was also enhanced by improving the skills of grassroots organizations that contribute to the social and economic transformation of the areas of intervention. In Solano and Cartagena del Chairá, six organizations were offered support and, as indicated by the four examples in Figure 4.6, this initiative improved governance and public participation in the program's intervention areas. As the figure shows, the aforementioned was achieved, in part, by updating rules and agreements that block deforestation and burning, as well as by instituting environmental committees, re-establishing communal conflict mediation, promoting territorial control inspections, developing strategic planning exercises, and optimizing market access for products.



Photo: Andrés Cardona, Solano, 2018.

Figure 4.6.

Strengthening organizations and their contribution to governance and participation

Cartagena del Chairá

Peasant Núcleo No. 2 - Management and Communal Development Organization for Bajo Caguán



- A. The reconciliation councils were reactivated, which help resolve conflicts over farm boundaries and the eviction of squatters in vacant lots.
- B. The environmental manual and the coexistence manual were updated with an agreement on non-deforestation, conservation of water sources and zero burning of pastures.
- C. A general environmental committee was created for the núcleo and the environmental committees were reactivated within the twenty Community Action Boards, which meet every two months with the central committee.
- D. Communication with Corpoamazonia was strengthened, which enabled the Community Action Boards to be trained in environmental legal regulations.
- E. To reduce deforestation, training sessions on environmental pedagogy, penal regulations and prevention of wood extraction were organized for the Community Action Boards with WWF, TNC, National Parks (PNN) and Natural Heritage.
- F. A community agenda was built, thanks to the Program, which allowed communities to integrate their development plans with the Cartagena del Chairá municipal development

Cartagena
del Chairá

Peasant Núcleo No. 2 -
Management and Communal
Development Organization
for Bajo Caguán



plan and to initiate resource management efforts with at least three entities that support rural development and conservation.

- G. Women took leadership positions in the organization's board of directors thanks to the various sessions at the School of Leaders and the gender and conservation meetings with the Peasant Núcleo No. 2.

Cartagena
del Chairá

Asoes

- A. Directors were trained for leadership roles and responsibilities to promote concerted and participatory decision-making that respects the knowledge and actions of others.
- B. Administrative, financial, and accounting skills were improved in order to manage resources more efficiently and facilitate accountability in assemblies made up of peasant business partners.

Solano

Development -
Management and Communal
Development Organization
for Monunguete



- A. The Community Action Boards, environmental committees and all members of the organization's board of directors agreed to a formal process for making decisions about the peasant núcleo.
- B. A strategic plan of the organization was built, oriented toward the protection of natural resources.

| Figure 4.6. Continued

Solano



Development -
Management and Communal
Development Organization
for Monunguete

- C. A biannual tour was planned for all the veredas in the peasant núcleo for listening to the community concerns and proposals for changes or ways to address the needs of the núcleo. This improved the social participation of the inhabitants of Monunguete in the management of their territory.
- D. The largest number of women joined the organizational board of directors. Currently, two women (Treasury and Secretary) are part of the board.
- E. A practice of discussion and participation was implemented in the development of new project proposals, which fostered social inclusion in the peasant núcleo.
- F. The environmental handbook was rewritten to include fines for those who deforest water sources, cut down forests, or let farm animals onto the road.

Solano

Agamesol

- A. A pilot program for business took place in Ibagué and Bogotá with seven exercises to sell grated salted cheese. This exercise brought together the products and efforts of more than fifteen peasant producers and led to two sales agreements signed with wholesale buyers.

Women as agents of dissemination

The work with women and the gender strategy yielded very good results for enhancing public participation in the Caquetá communities. In the Program's areas of direct intervention, the role of women in community development has traditionally been confined to the domestic realm and was not visible.

During the Program, and as a result of the work with women leaders, five rural women rose to directorate positions on the Community Action Boards in their *veredas* or growers' associations, enabling them to make key decisions about the management of their territories—Their voices, historically silenced by a predominantly male culture, were heard. For example, in the Campo Bonito vereda, in Solano, women have continuously held positions as leaders since 2016, and even as recently as 2017, their participation in the Community Action Board has increased and been maintained. The increase in women's participation meant an expansion of women's voices in decision-making. But it also meant a restructuring of men's roles, which constitutes an important advance in gender equality for a society where men have not participated in domestic tasks and have dominated Community Action Boards.

In Solano and Cartagena del Chairá, one of the main



Photo: Sixzero Media, Florencia, 2019.

achievements in strengthening the participation of women in territorial management was the composing, dissemination and official presentation (to municipal authorities) of the gender guidelines for food conservation and sovereignty. These guidelines, developed by 46 women, include proposals that recognize the role of women in rural development and their vision for it. The participation of women in their social and communal environments was also strengthened through seven meetings at the School of Leaders, which enrolled 19 women from Solano and Cartagena del Chairá, where they developed soft skills and conservation knowledge.

These women, formerly engaged almost exclusively in their work as wives and mothers, shared and replicated their transformation with children, young people and teachers in their communities.

The exit interviews show that, today, the women who participated in the Program's activities are perceived as leaders in the organizational and conservation process, with skills and abilities not only for household chores, but also for the activities that take place in participatory decision-making spaces. Women went from being important in the private sphere to being important in the public sphere as well.



Photo: Pablo Devis, Solano, 2018.

The accounts collected from each of the women who attended the School of Leaders made it possible for the Program to observe that all of them had gained self-confidence and the skills to communicate their knowledge with tranquility and security. The women who participated in the School discovered strengths and abilities that they now exercise to the benefit of their communities, their families and themselves. They learned to be attentive to what others think, finding a balance between silence and intervention, and their ideas enrich the public sphere. They recognize themselves as agents

of change in their region, and workloads on the farm and at home are now distributed among all family members.

Over the course of the Program, two women rose to the municipal council, two traveled to India to become solar engineers, and two more participated in a panel at the Bogota Book Fair in 2019.

Marina

“You learn to value yourself, which we hadn't done. Because I thought I was a working woman, and I wasn't worth it. I didn't feel important before, and now I think that each of us is worth a lot. With the knowledge I have, I know we are going to change this region”.

Cartagena del Chairá

Taking advantage of ecosystem services and other benefits for quality of life



Photo: Sixzero Media, Cartagena del Chairá, 2017.

The implementation of conservation and sustainable production practices on farms sought, among other things, to improve and maintain the provision of ecosystem services. Indirectly, however, through this process, the Program also contributed to improving the quality of life for families in the following ways: a) water conservation was achieved by improving vegetation cover, which also ensured a permanent

water supply for domestic use among many of the participating families; b) solar panels installed for electric fences, which delimit grazing rotations, also provided energy for domestic use; and c) seven rural schools received electricity from solar panels.

Tables 4.10 and 4.11 detail the use of solar energy in the different *veredas* in Solano and Cartagena del Chairá, respectively, before and after the Program.

The Herichá núcleo, in Solano, was supplied with 31 solar electric generators, 20 were delivered to the Las Mercedes núcleo, and 34 were delivered to the Monunguete núcleo. On the participating farms in Solano, there were six electric plants at the beginning of the Program, and at the close they had 85, which, in addition to improving the energy supply, generated total annual savings in batteries, candles, fence posts and fuel equivalent to 28,044,000 pesos.

Table 4.10.
Number of solar
generators per núcleo
and vereda in Solano

Núcleo	Vereda	Number of plants before the Program	Number of plants after the Program	Total	Savings in pesos
Herichá	Cabaña		4	4	
	Cabañita		8	8	
	Esmeralda		10	10	
	Potreros	1	8	9	
	Puerto Herichá	0	1	1	756,000
Total Herichá núcleo		1	31	32	756,000
Las Mercedes	Bajo Sevilla	1	6	7	4,416,000
	El Carmen	1	1	2	432,000
	Cristalina	1	2	3	
	Reina Sevilla	2	1	3	
	Sacrificio	0	5	5	1,704,000
	El Vergel	0	4	4	2,040,000
Total Las Mercedes núcleo		5	20	25	8,592,000
Monunguete	Campo Bonito	0	13	13	6,948,000
	El Porvenir	0	3	3	

Table 4.10 Continued

Núcleo	Vereda	Number of plants before the Program	Number of plants after the Program	Total	Savings in pesos
Monunguete	Las Brisas	0	6	6	8,424,000
	Las Palmas	0	8	8	2,748,000
	Miravalle	0	4	4	576,000
Total Monunguete núcleo		0	34	34	18,696,000
Sum Total		6	85	91	28,044,000

Source: Montero (2020).

In Cartagena del Chairá, on the other hand, 40 solar generators were supplied to power electric fences that benefited the Caño Tigre, El Café, El Jardín, Loma Larga and Palmichales veredas.

As in Solano, these solar generators improved quality of life, providing energy at night for lighting houses and for the use of energy-efficient appliances.

Table 4.11.
Number of solar generators per núcleo and vereda in Cartagena del Chairá

Núcleo	Vereda	Number of generators before the Program	Number of generators after the Program	Total	Savings in pesos
Núcleo No. 2	Caño Tigre		9	9	24,600,000
	El Café		22	22	75,772,800
	El Jardín	1	1	2	20,000
	Loma Larga	1	2	3	76,455,000
	Palmichales		4	4	20,316,000
Total núcleo No. 2		2	38	40	197,163,800

Source: Montero (2020).

Properties that depended on candles, wood or gasoline reported a total savings of 197,163,800 pesos, with the El Café and Loma Larga districts showing the greatest savings. In the direct intervention farms, they went from having 2 solar generators to 38. The savings and improvement in the quality of life

for families as a result of the use of solar energy became apparent during the evaluation sessions, as illustrated in the previous tables. As indicated in the data derived from the community monitoring exercise, in Table 4.12, the adoption of solar panels provided families with energy for domestic use (lighting and

household appliances) and pasture fencing, and directly resulted in a reduction in the use of batteries and candles. Since there was no change in technology in the kitchens or in the brushcutters used to maintain the farms, the use of firewood and gasoline was maintained in these activities.

Table 4.12.
Energy matrix for the Campo Bonito vereda (Solano)

Family	Type of energy used														Use			
	2013							2019							Lighting	Cooking	Household appliances	Pasture fencing
	E	G	NG	S	W	B	C	E	G	NG	S	W	B	C				
Family 1		✓			✓	✓	✓		✓		✓	✓	✓	✓	S	W	S	S
Family 2		✓			✓	✓	✓		✓		✓	✓	✓		S	W	S	S
Family 3		✓		✓	✓	✓	✓		✓		✓	✓	✓	✓	S	W	S	S
Family 4		✓			✓	✓	✓		✓		✓	✓			S	W	S	S
Family 5		✓			✓	✓	✓		✓		✓	✓			S	W		S
Family 6		✓			✓	✓	✓		✓		✓	✓	✓	✓	S	W		S
Family 7		✓			✓	✓	✓		✓		✓	✓			S	W	S	S
Family 8		✓			✓	✓	✓		✓		✓	✓			S	W		S
Family 9		✓		✓	✓	✓	✓		✓		✓	✓			S	W	S	S
Family 10		✓			✓	✓	✓		✓		✓	✓	✓	✓	S	W		S
Family 11		✓			✓	✓	✓		✓		✓	✓	✓	✓	S	W		S

Source: Natura (2020).

Note: E = Electricity, G = Gasoline, NG = Natural Gas, S = Solar, W = Wood, B = Batteries, C = Candles

Finally, as described in the analysis of the maintenance and recovery of vegetation cover, the control of emissions, and the maintenance and/or recovery of ecosystem services, the water

supply was considerably improved as a consequence of the isolation of water sources. Table 4.13 summarizes the improvement in the provision of water throughout the year by the families

participating in the Program in Solano and Cartagena. To close the Program, the 153 participating families already had a supply of water for human consumption and productive uses throughout the year.

Table 4.13.
Summary of the improvement in water supply

			Base Line				Closing Evaluation			
Municipality	Núcleo	Vereda	% of families with yearlong access to water for productive uses		% of families with yearlong access to water for personal consumption		% of families with yearlong access to water for productive uses		% of families with yearlong access to water for personal consumption	
			NO	YES	NO	YES	NO	YES	NO	YES
General total			21 %	79 %	10 %	90 %	0 %	100 %	0 %	100 %

Source: Prepared by the authors.

Improved living conditions for children and adolescents

Given Fondo Acción's work with children, from its beginnings, Connected Landscapes included an intervention model that embraced efforts to improve conditions for the most vulnerable children and adolescents of Solano and Cartagena del Chairá. This was done through a differential focus on children, which identified children and adolescents as one of Fondo Acción's priorities in

Caquetá. This approach was initially based on what was called *the Caquetá complementary investment strategy*, which involved investing simultaneously in the natural environment and in protective environments and quality care for children. The initial result of Fondo Acción's complementary investment strategy was the initiative "One, two, three

for Solano and Cartagena del Chairá," which sought to escalate the impact for children and adolescents. This initiative had two specific components: a) high-impact investments and b) training human capital. Through the high-impact investment component, infrastructure and resources for rural schools were improved in the intervention areas in Solano, generating the results presented in Figure 4.7.



Photo: Sixzero Media, Florencia, 2019.

The five projects in Figure 4.7 responded to problems identified by the communities themselves. Fondo Acción facilitated their adjustments and execution, with communities in each of the *veredas* participating in the design of infrastructure projects for childcare environments. The five projects positively impacted the communities of the respective *veredas* by improving sanitary conditions in the kitchens and cafeterias of three schools. In two of the schools, on the other hand, the investments generated better spaces and materials for

learning and recreation. The five high-impact investments benefited boys, girls, adolescents, pregnant women, and teachers in Solano, as shown in Table 4.14.

The second component of “One, Two, Three for Solano and Cartagena del Chairá” was the human capital formation. This component, supported through the Glen Nimnicht Early Childhood Scholarship Fund (FBGN, Fondo de Becas Glen Nimnicht para la Primera Infancia), provided training for people dedicated to early childhood care in rural

areas. In partnership with the Universidad de la Amazonia, 60 caregivers (30 in Solano and 30 in Cartagena del Chairá) were trained through the Diploma in Comprehensive Care for Early Childhood. This was aimed specifically at mothers, teachers, community leaders and people that were linked to services, programs or projects for children, from prenatal to eight years of age, in the Herichá, Monunguete and Las Mercedes peasant núcleos in Solano, and in the Núcleo Campesino No. 2 in Cartagena del Chairá.

Table 4.14.
Direct beneficiaries of
the high-impact investments

	Alternativa	Sevilla	Potreros	Monunguete	Campo Bonito	Total
Boys 0-2 years old	5	4	8	20	2	39
Girls 0-2 years old	3	2	4	30	1	40
Boys 3-5 years old	5	2	3	10	3	23
Girls 3-5 years old	4	1	2	15	2	24
Boys 6-11 years old	7	5	10	30	11	63
Girls 6-11 years old	7	3	8	40	10	68
Adolescent boys 12-18 years old	6	8	25	35	5	79
Adolescent girls 12-18 years old	9	4	18	45	4	80
Pregnant women	0	0	3	10	0	13
Pregnant teenagers	0	0	1	5	0	6
Families	17	15	35	105	20	192
Disabled persons	1	0	1	5	0	7
Male Profesors			1		1	2
Female Profesors	1	1				2

Source: Prepared by the authors. Based on Pereira (2017).

With these diplomas, these 60 caregivers were trained to:

- a. Improve the early-childhood assistance that was being provided by the various educational agents in the region.
- b. Provide the participants with theoretical-conceptual, legal and practical foundations that inform a comprehensive and multidimensional early-childhood education.
- c. Develop skills in the participants to advise and guide families with children in the early-childhood stage.
- d. The diploma improved the skills of caregivers responsible for 2,138 children under the age of eight in Bajo Caguán (Cartagena del Chairá), Entreríos and the urban area of Solano.



Other childhood services provided by Connected Landscapes

The described complementary investment strategy was reinforced through efforts by Connected Landscapes to: a) create safe and healthy environments for young children, b) promote learning about natural resources and the wealth of their territories among children and adolescents, and c) contribute to the development of family environments that enrich dialogue and learning.

- The 153 families participating in the Program in Solano and Cartagena del Chairá are made up of a total of 615 people. Of these, 262 are men, 203 are women and 150 are children and adolescents. Using data on the water supply and electricity supplied by solar panels provided by the Program (see: “Taking advantage of ecosystem services and others for quality of life”), at the close of Connected Landscapes 100% of the 150 children and Teenagers participating in the Program have access to water in their homes throughout the year, and 85.6% of the farm houses they live in have electric light sources to do their chores or enjoy leisure time with the family.

- Seven rural schools (three in Cartagena de Chairá and four in Solano) were provided with solar energy equipment, which improved the study and leisure conditions for 121 children.
- Through pedagogical community research in the eight rural schools of the Potreros *vereda*, in Solano, an instruction manual was developed that would alter learning and teaching methodologies to recognize the social and environmental surroundings of the students. It would adapt educational materials to specific environmental and rural realities in order to generate more pertinent and contextualized learning. This process directly benefited 32 children and 5 teachers, but it was implemented and designed so that teachers could replicate results.

Food Security

Food security is the last variable that the Connected Landscapes LED-R model considered essential to address in order to attain a “good living” for the peasant populations in Solano and Cartagena del Chairá. The Program focused on gardening as a food supply and a way to save money. This is because the target population predominantly imports and purchases foods, thereby exposing itself to shortages caused by external circumstances (natural disasters, market fluctuations, disruptions of public order, etc.).



Photo: Andrés Cardona, Cartagena del Chairá, 2019.

Adopting the garden as a food production strategy

According to the program's records, 78 of the 93 families in Solano began to use the garden as a food production strategy. Of these, 56% maintained constant production every year, while the remaining 44% experienced irregular production. However, all the gardens remained in operation.

Meanwhile, in Cartagena del Chairá, 53 of the 60 participating families began to use the garden as a food production strategy. Of these, 49% maintained constant production and 51% had no permanent production during the execution of Connected Landscapes. As in Solano, and despite the management challenges, all the gardens in Cartagena del Chairá were in operation at the end of the Program.

The analysis of the quantitative and qualitative results obtained from the exit evaluations shows that the gardens require management, care and, most importantly, personal enjoyment and interest on the part of some family member. Documented gardening practices showed that those that prosper the most, and produce permanently, do so



Photo: Andrés Cardona, Cartagena del Chairá, 2019.

without a need for many external supports, but the participating family must consume what they cultivate. The adoption of the gardens can be understood in some cases as a reflection of an agroecological culture (healthy food without chemicals, homemade fertilizers, management and enrichment of the soil, diversity in food, etc.) and in others as an indirect indicator of comprehensive rural development.

The results for active gardens at the end of the Program are good. Of the families participating in

the Program, 85% adopted a garden, kept it operating, and had an improvement in food production. Despite the difficulties and challenges of maintaining and cultivating a garden in the right conditions, and how much its maintenance depends on the families' own cultural values, the food production strategy contributed to local food security, and, as will be expanded upon in the next section, which addresses sustainable economic development, they generated significant savings that favored the peasant family economy.

General Assessment



Photo: David Rugeles, Cartagena del Chairá, 2016.

The analysis of the results for this section shows that in the areas of direct intervention there were important achievements that contributed to improving the living conditions in these communities, which also improved well-being and general participation, and encouraged low-emission rural development in Solano and Cartagena del Chairá. Although efforts are still required to improve control and oversight by community authorities, the strengthening of local governance facilitated the establishment of new rules and agreements, encouraging rural development that respects the forest and responds to the challenges of climate change. This strengthening

process served to stimulate new leadership within the communities and expand the population's public participation in the management of their territory, including more active interaction with authorities and decision makers at the municipal and departmental levels.

Local communities gained the confidence, autonomy and skills to incidence public policy and participate more effectively in the construction of their territories. Their participation takes an approach to development that gradually prioritizes the conservation and sustainable use of natural resources over the harmful extraction and exploitation of the Amazon.

Although not yet all people and community authorities have been persuaded to follow this approach, it has begun to generate changes that will continue to be consolidated.

The expansion of public participation was particularly successful as regards the increase in the number of women in leadership positions and the visibility of their role as producers, managers, and conservationists. This was endorsed through the strengthening of their role as educators, entrepreneurs and directors in their communities and their families. The results of this analysis indicate that the Program was effective in



influencing the peasant núcleo to strengthen participation and environmental territorial governance. The work with the Community Action Boards in the *veredas*, however, must continue to be strengthened, so that rules and agreements for the conservation and sustainable use of natural resources will go beyond their *veredas* and are more effectively complied with in all the *veredas*. This becomes critical in regions of the country where this model of community organization prevails, since community action is the local body that validates the use of natural resources and even the occupation of lands, sometimes in areas belonging to the State.

In this sense, it is necessary to support and strengthen activities closer to the boards and to other groups, associations and organizations who have a direct critical impact in the field. Likewise, although the Program had an impact on the design of public policy and decision-making at the municipal and departmental levels, efforts must continue for the consolidation of approaches to development that prioritize conservation and sustainable use in the Amazon, especially those that ensure concrete actions.

This seven-year experience in Caquetá corroborates that one of the main causes of Amazonian deforestation is

the effectively permanent absence of the Colombian state. This absence encourages environments of illegality that jeopardize the achievements in territorial governance achieved by international cooperation programs, such as Connected Landscapes, and it encourages poorly regulated economies that indiscriminately attack natural resources.

“Good livings” improved through the conservation of water sources and the adoption of renewable energy sources. One hundred percent of the families participating in the Program reduced the use of candles and batteries, thus improving housing



Photo: David Rugeles, Cartagena del Chairá, 2016.

conditions and reducing the possibility of accidents and the deterioration of health. This directly impacted children and adolescents, who improved their study and leisure conditions at home. With the permanent availability of quality water in the farm houses, the well-being of the local population also took a step forward. Children's living conditions in greater Solano and Cartagena were affected by the improved infrastructure at five schools in Solano, the provision of solar energy to seven schools

(four in Solano and three in Cartagena del Chairá), and the training of sixty caregivers for young children, generating favorable conditions for a future of intergenerational sustainability.

Finally, food security in the area improved for various families and expanded their economic alternatives. Gardening in Solano and Cartagena del Chairá had a very positive impact on family savings, and it minimized the negative effects of shortages due to force majeure, such as the

one recently produced by the Covid-19 pandemic.

Improving the conditions of well-being and participation in rural communities is a slow and gradual process, as is the strengthening of low-emission rural development. The analysis of the results of the Program shows that this process is underway in the areas of direct intervention in Solano and Cartagena del Chairá, and that substantial progress was achieved in the field with respect to the previous circumstances.

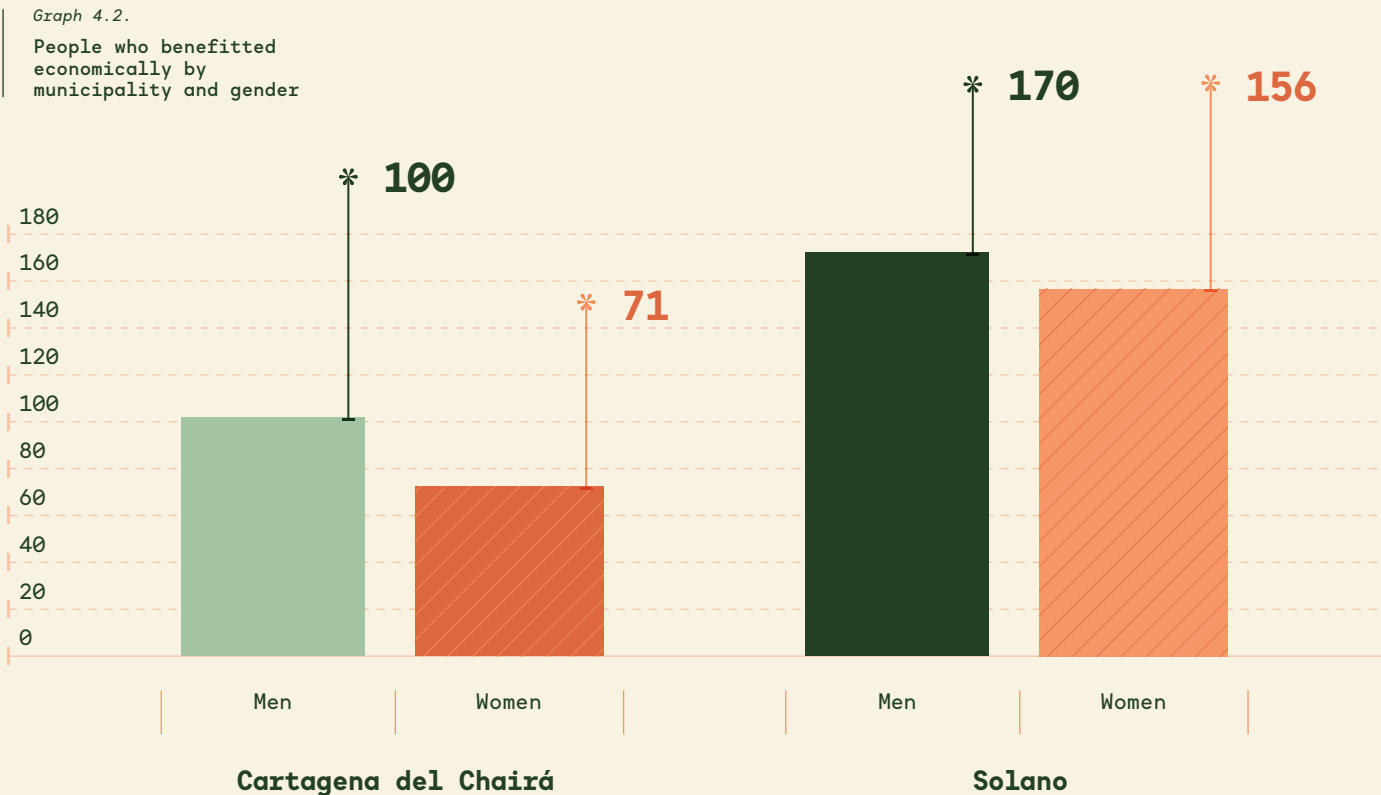
Sustainable economic development

How were sustainable economic development and food security improved for people in the areas where the program operated?

The answer to this question is intrinsically related to the economic benefits derived from positive changes in the income and savings for families participating in the Program. These benefits may include wages, communal income, savings and non-monetary benefits, among others. These economic benefits were measured with surveys that

documented production volumes for prioritized products, product destinations, prices and other data. To calculate the number of people in Solano and Cartagena del Chairá who benefitted economically, the following aspects were considered: 1. economic benefits corresponding to an increase in the sale of prioritized products

and 2. economic benefits derived from savings on imported goods by increasing the production and consumption of food on the farm. In the two municipalities, there were a total of 497 people with increased economic benefits: 227 women and 270 men. Graph 4.2 shows the results disaggregated by municipality and by gender.



Source: Montero (2020).

Over 40% of the women in the two municipalities experienced increased economic benefits.

In Solano, 73% of the participating farms received increased economic benefits, while in Cartagena del Chairá, 75% of the farms did. Of the entire population participating in the Program in Solano, 79% experienced increased economic benefits, while in Cartagena del Chairá, 68% of the participating population did.

Based on the surveys, 50% of the people who benefited from farm intervention increased their economic benefits by selling products from their farm or by saving on the purchase of imported goods. Table 4.15 lists the total increase in sales for products supported by the Program. The values correspond only to people who experienced increased economic benefits in Solano and Cartagena del Chairá. The data presented corresponds to the consolidated difference between sales revenue and

savings through food production between 2016 and 2019. As can be seen in the table, in the two Amazonian municipalities, the increased benefits during the execution of the Program were valued at 952,759,477 pesos. The savings that resulted from food production and cheese production produced the highest income, accounting for 58% and 35.1%, respectively, equivalent to 882,720,121.1 pesos over the course of three years. These two activities alone generated economic benefits for 932 people.

Table 4.15.
Increased economic benefit
by economic activity in Solano
and Cartagena del Chairá

Product	Value of increased benefits from sales or savings in pesos	% of economic benefits per product	No. of persons with increased economic benefits
Vegetables	3,010,028.75	0.3 %	197
Molasses	5,772,440.9	0.6 %	61
Plantain	6,514,309.5	0.7 %	174
Pigs	48,568,982.0	5.1 %	9
Milk	6,173,603.8	0.6 %	88
Cheese	334,014,373.0	35.1 %	535
Savings from consuming homemade goods	548,705,739.1	58 %	397
Total	952,759,477.0	100 %	

Source: Montero (2020).

Note: The values for economic benefits are current prices in Colombian pesos.

A closer look at the data



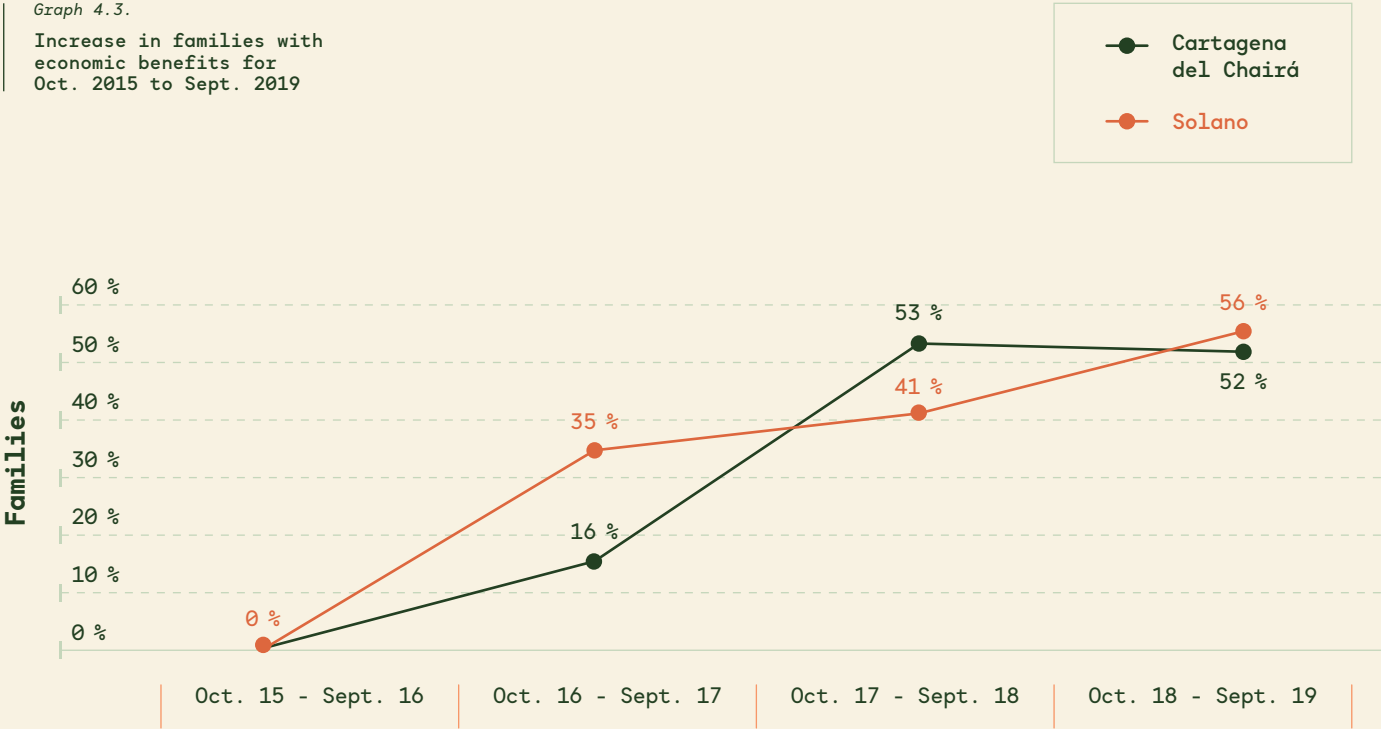
As Graph 4.3 illustrates, the number of families in the Program who benefitted economically increased over time. During the first years, the percentage of families with economic benefits was between 16% and 35%, but by 2019 more than 50% of families in the two locations had seen increased economic benefits derived from productive

activities on their farms as a result of the Program.

The increase in the number of families with economic benefits over the course of the Program is an important result, given that the underlying activities gradually became a central source of income for the families. Thus, for example,

between 2015 and 2016, only 31% of all families received 100% of their income from activities supported by the Program. By 2019, the activities supported by the Program had become more relevant for the participants, accounting for more than 80% of family income for 65% of the participating families.

Graph 4.3.
Increase in families with economic benefits for Oct. 2015 to Sept. 2019



Source: Montero (2020).

Miguel Santos

→ When he started working with Connected Landscapes, Don Miguel, a “solino” from Bajo Caguán, as the men who live alone are known in the area, depended on the wages he received from neighboring farms. According to Don Miguel, he worked 15 days a month and received 450,000 pesos

With the materials, training, and technical assistance provided by the Program, Don Miguel managed to start his own cheese production. He now produces 100 kilos of cheese a month, which represents 640,000 pesos.

He also raises and sells pigs for an additional income of 900,000 pesos.

Since he can now stay on his farm, he produces milk, bananas, yucca and some vegetables to feed himself, which according to his accounts, saves him up to 700,000 pesos a month.

“Connected Landscapes changed my life”.

*Vereda Caño Tigre
(Cartagena del Chairá)*



Photo: Andrés Cardona, Cartagena del Chairá, 2019.

Economic benefits from sales

Table 4.16 shows the increase in economic benefits derived from the sale of the main products associated with Program activities in Solano and Cartagena del Chairá. The data confirms the importance of home gardens, staple crops and harvest corridors for the economic benefits that allow families to save money. This is a positive result not only

in terms of increased value, but also in terms of the number of people it benefited (397). Cheese production also been an important source of income in both municipalities, but it is more relevant in Solano, where 475 people benefit from the income generated by this activity, which was supported by efforts to implement good agricultural

and manufacturing practices. On the other hand, although the production and sale of fresh vegetables and processed products still carries less weight in the matrix of economic benefits, their presence is relevant, given that a significant number of people (108) participate in these emergent ventures and initiatives.



Photo: Andrés Cardona, Cartagena del Chairá, 2019.

Table 4.16.
Disaggregated economic
benefits by municipality

Municipality	Product	Value of increased economic benefit	Value of increased benefits from sales or savings in pesos	No. of persons	Benefits per capita
Cartagena del Chairá	Vegetables and processed foods	850,000	654,500	5	130,900
	Pigs	13,595,000	10,468,150	2	5,234,075
	Cheese	166,123,200	127,914,864	60	2,131,914
	Savings from consuming homemade goods	287,235,576	221,171,394	113	1,957,269
Total Cartagena del Chairá			360,208,908	180	2,001,161
Solano	Vegetables	2,980,000	2,294,600	103	22,278
	Molasses	5,400,000	4,158,000	7	594,000
	Plantain	700,224	539,172	2	269,586
	Pigs	49,481,600	38,100,832	7	5,442,976
	Cheese	267,661,700	206,099,509	475	433,894
	Savings from consuming homemade goods	425,369,280	327,534,346	284	1,153,290
Total Solano			578,726,459	878	659,142

Source: Montero (2020).

Note: The values for economic benefits are current prices in Colombian pesos.



Photo: Andrés Cardona, Cartagena del Chairá, 2019.

On the other hand, Table 4.17 shows the general sales for products from participating farms in Cartagena del Chairá and Solano during three different periods. The product that generated the highest sales between 2015 and 2019 was cheese, which has an 86.44% share in sales, followed by the sale of pigs with 9.83%. The other activities, although they do not individually represent more than 2.2% of sales, show the activation and growth of new economic alternatives. During the last reporting period (2019), sales of ten agricultural products, including fresh and processed vegetables, are recorded for a value of more than twenty million pesos, suggesting an income diversification through products (such as vegetables) that between

2015 and 2016 were only used for family consumption, or were not cultivated. The table also indicates an emergent added value through products, such as dehydrated chili, processed foods, dehydrated saffron and cakes.

The increase in sales shown in Table 4.17 was due, among other things, to an increase in the number of producers engaged in activities such as cheese production, banana planting and vegetable production between September 2015 and September 2019. During the same period, the number of cheese producers rose from 86 to 104, while the number of vegetable producers rose from 63 to 116. The increase in sales was also determined by a price increase for several of the products.

Finally, and in order to have comparative benchmarks that help determine the scope of the increase in economic benefits, Graph 4.4 illustrates the improved economic benefits in terms of the annual minimum wage (SMLV)* in 2019.

* TN: This document uses the Colombian abbreviation SMLV (Salario Mínimo Legal Vigente, or Current Legal Minimum Wage) because, in contrast to the hourly minimum in the USA, it is a salaried figure that scales directly from hourly to monthly to yearly, as will be indicated when appropriate.

Table 4.17.
Sales of products that increase
economic benefits in Cartagena
del Chairá and Solano

Products	Oct. 2015 - sept. 2016	Oct. 2016 - sept. 2017	Oct. 2018 - sept. 2019	Sum Total	% of Income
Dehydrated chilli peppers			340,000	340,000	0.02 %
Processed foods			200,000	200,000	0.01 %
Rice			300,000	300,000	0.02 %
Cacao			4,401,600	4,401,600	0.23 %
Dehydrated turmeric or saffron			150,000	150,000	0.01 %
Vegetables		1,120,000	3,380,000	4,500,000	0.24 %
Eggs			600,000	600,000	0.03 %
Corn			5,015,000	5,015,000	0.26 %
Molasses			5,400,000	5,400,000	0.28 %
Sheep			120,000	120,000	0.01 %
Plantain			700,224	700,224	0.04 %
Cakes			1,900,000	1,900,000	0.10 %
Pigs	62,338,000		125,414,600	187,752,600	9.83 %
Chicken			2,880,000	2,880,000	0.15 %
Milk	12,813,600	20,090,400	9,578,750	42,482,750	2.22 %
White chickens			1,368,000	1,368,000	0.07 %

Table 4.17 Continued

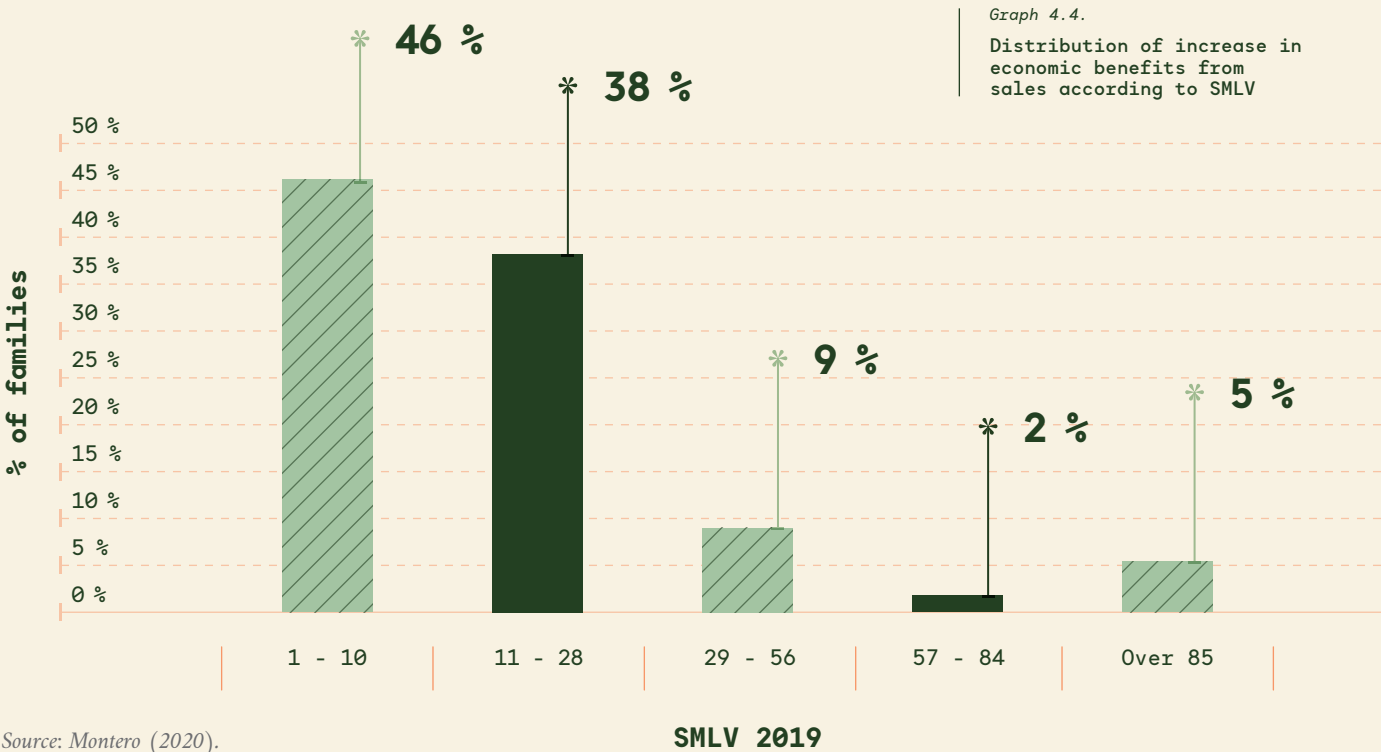
Products	Oct. 2015 - sept. 2016	Oct. 2016 - sept. 2017	Oct. 2018 - sept. 2019	Sum Total	% of Income
Cheese	367,862,900	480,292,200	803,635,000	1,651,790,100	86.44 %
Yucca	480,000		480,000	960,000	0.05 %
Sum Total	443,494,500	501,502,600	965,863,174	1,910,860,274	100.00 %

Source: Montero (2020).

Note: The values for economic benefits are current prices in Colombian pesos.

As can be seen in the graph, 46% of families increased their economic benefits by between 1 and 10 SMLV in 2019; for 38% of families, the increase was between

11 and 28 SMLV. This increase is fundamentally related to the increase in cheese production and the generation of new savings from food produced on their farms.



Source: Montero (2020).

Agricultural production and productivity by farm

So far, details have been provided regarding improved economic benefits, particularly those derived from productive activities and sales that were supported by the Program as new activities or activities that have become more sustainable. There has also been a progressive diversification of income through the production of vegetables and processed products, but also a consolidation of cheese production (which benefits the largest number of families) within the peasant economy, and a significant increase in savings from food production on farms.

Table 4.18 tracks changes in the volume of agricultural production on participating farms from 2015 to 2019. The data highlights that, with the exception of the sale of pigs, all products had an increase in production at the end of the period with respect to year 1, and most production peaked in 2019. This data confirms what the economic benefit tables have already shown. Cheese production had a significant increase, particularly in the last year. Other activities related to animal production and byproducts also experienced significant changes in terms of production volumes. This is the case for the production of eggs and chickens. On the other hand, agricultural production, with products such as cocoa, rice and sugarcane, did not experience substantial increases in

production volumes and do not seem to occupy such a relevant place in the regional productive matrix, despite past efforts with cocoa.

The table shows the incorporation of new products such as chili, turmeric, papaya and cakes within the regional production matrix. However, efforts are still required to incorporate economic alternatives related to the sustainable use of forest resources (timber and non-timber products) or other ecosystem services such as carbon capture or aesthetic services related to the landscape. The increase in agricultural

production described in Table 4.18 was mainly the result of an increase in peasant producers (productive units). Vegetable production, on the other hand, was the only agricultural activity that had a sustained increase in on-farm productivity.

In the case of cheese production, the increase in productivity was evaluated for a group of families in Solano whom the Program had assisted in optimizing their production system. This improvement in productivity was estimated based on the variation in milk and cheese production on each farm, per month, between 2016 and 2019.



Photo: Diego Llorente, Solano, 2017.

Table 4.18.
Changes in production
volumes in Solano and
Cartagena del Chairá

Product	Amount produced Oct. 2015 - Sept. 2016	Amount produced Oct. 2016 - Sept. 2017	Amount produced Oct. 2017 - Sept. 2018	Amount produced Oct. 2018 - Sept. 2019
Dehydrated chilli peppers (unit)	0	0	0	80
Processed food (unit)	0	0	0	20
Rice (kilos)	0	450	0	1,000
Cacao (kilos)	0	180	0	1,051
Sugar cane (kilos)	240	13,440	0	10,500
Dehydrated turmeric or saffron (unit)	0	0	0	30
Vegetables (bundle)	5,075	4,912	2,316	18,706
Eggs (unit)	600	7,200	600	20,380
Corn (kilos)	0	0	0	23,238
Molasses (kilos/month)	0	0	1,440	3,480
Panela (kilos/month)	0	1,440	0	0
Papaya (unit)	80	0	0	1,200
Finger banana (kilos)	8,400	8,400	3,312	17,620
Pineapple (unit)	0	0	4,944	332
Plantain (kilos)	18,601	12,785	10,680	34,087
Cakes (unit)	0	0	0	104

Table 4.18 Continued

Product	Amount produced Oct. 2015 - Sept. 2016	Amount produced Oct. 2016 - Sept. 2017	Amount produced Oct. 2017 - Sept. 2018	Amount produced Oct. 2018 - Sept. 2019
Pig sales (unit)	1,662	0	12	802
Egg laying chicken sales (unit)	180	180	0	396
Milk sales (liters)	242,930	169,674	121,100	278,939
Meat chicken sales (unit)	0	0	0	48
Cheese (kilos)	106,624	93,684	44,254	186,553
Yucca (kilos)	9,396	4,182	390	41,950

Source: Montero (2020).



Photo: Diego Llorente, Solano, 2017.

As Table 4.19 shows, 16 farms were monitored. Of these, twelve had increases in productivity, one remained static, and three reduced their productivity due to conditions that are difficult for the Program to control: genetics of milking animals, economic situation, sale of livestock, and maintenance of pastures. In this sample, cheese making productivity improved by 77%, on average. This increase in productivity was linked to an increase in the farm's installed capacity for cheese processing capacity.

Table 4.19.
Cheese production in prioritized families in Solano

Participant	Installed Capacity	Trend	% increase/decrease
Rodrigo Hernández	130 l/day	Decreased	-33 %
José Francisco Reyes	250 l/day	Increased	110 %
Ana Judith Silvestre	130 l/day	Increased	200 %
Luis Bautista	130 l/day	Decreased	-10.7 %
Rafael Bautista	130 l/day	Increased	27 %
Luis F. Toledo	130 l/day	Increased	94 %
Hipólito Rincón	250 l/day	Increased	25 %
Luz Stella Silva Soto	130 l/day	Stable	
Wilder Cortés	130 l/day	Increased	10 %
Jaime Ramírez	130 l/day	Increased	50 %
Alfredo Castro M.	250 l/day	Increased	70 %
Salvador Cuero	250 l/day	Increased	71 %
Jairo Barreto	130 l/day	Increased	11 %
Efraín Zambrano	250 l/day	Increased	160 %
Eva Yela Yanangona	130 l/day	Decreased	-20 %
Rubiel Montiel	130 l/day	Increased	100 %

Source: Rincón (2020).

Effects on savings produced by strengthened food security and other causes

In Solano and Cartagena del Chairá, 85.6% of the families developed family gardens as a food production strategy (53 families in Cartagena del Chairá and 78 families in Solano). In addition to the gardens, the participating families also established 6,951.9 linear meters of harvest corridors as a strategy for connectivity and subsistence agriculture. To account for people with economic benefits from savings, families were asked the amount saved in a month through what they produce and consume on their farm, and the difference between the baseline

(2015-2016) and the final count was calculated (2018-2019).

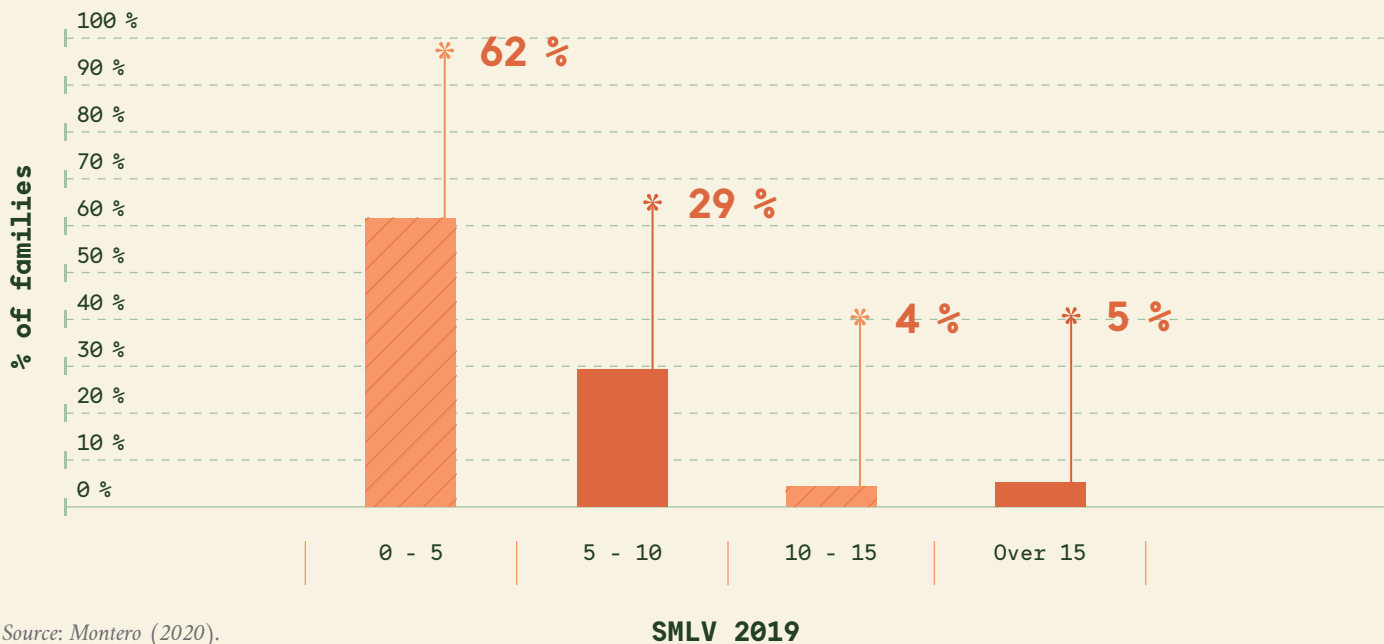
The savings from food production and consumption amounted to 548,705,739 pesos and benefitted 114 families in the two municipalities. Of these resources, as Graph 4.5 illustrates, 91% of families saved up to 10 SMLV (2019 value). This means that 74% of the families participating in Connected Landscapes experienced greater physical access to food supply while also considerably reducing their expenses on imported goods. Food production and consumption generated 58%

of the total increased economic benefit, benefiting 397 people, equivalent to a savings per person of 1.6 monthly SMLV (2019 value), that is, 1,382,130 pesos.

Other savings

On the other hand, the participants claim to have generated savings of approximately 199 million pesos through the installation of solar generators, living fences, and pasture divisions due to a decrease in the consumption of candles, batteries, lanterns, gasoline for power generators and brushcutters, in addition to the investment in fence posts.

Graph 4.5.
Distribution of increase in economic benefits per savings according to SMLV



General Assessment



This section detailed the progress in sustainable economic development in the Program's intervention areas in the Amazon plain. The analysis shows that the Program made progress in the production and sale of new products, contributing to a shift towards sustainability and the strengthening of cheese production. Connected Landscapes was particularly successful in the implementation of a food security strategy that contributed to food production strategies on the farms. The participating families generated 952,759,477 pesos in increased economic benefits between 2015 and 2019.

As described in the third chapter, many of the technical activities that Connected Landscapes started in the field were aimed at promoting, firstly, a productive transformation of the farm system to reduce its impact on the forest in Solano and Cartagena del Chairá. These actions also sought to expand the portfolio of sustainable economic alternatives that generate income in rural families. The analysis indicates that the productive transformation and diversification efforts led by Connected Landscapes were successful, as they managed to launch a process that adds to low-emission rural development. The

analysis also indicates, however, that it is necessary to continue consolidating and strengthening this transition towards a sustainable and diversified productive matrix.

The Program persevered in implementing food production strategies, and these resulted in an improvement in the income of families and in the availability of food in the two areas of operation. Efforts to ensure that this strategy fostered the development of productive ventures showed, at least for the period analyzed, positive results that not only contribute to diversifying income and generating significant savings, but that also stimulate new ways of using resources and a more

ecological consideration of the territory.

Like the previous two sections of this chapter, the evidence from the analysis in this third section indicates that a shift toward low-emission rural development is taking place in the program's intervention areas. New economic alternatives have emerged and, although livestock activity continues to be important, the gradual implementation of more sustainable systems has been established. The continuity of these changes, however, is vulnerable to many factors that Connected Landscapes could not address. They require comprehensive and cohesive efforts by the various responsible parties.



Photo: Andrés Cardona, Solano, 2018.

Lessons Learned and Some Recommendations

Almost seven years after the Connected Landscapes Program began in 2013, reducing deforestation in the department of Caquetá and throughout the Amazon region remains an urgent nationwide challenge.

Photo: Andrés Cardona, Solano, 2018.



Photo: Andrés Cardona, Solano, 2018.

The social and political order have changed, both nationally and regionally, yet forest loss in the Amazon and Caquetá continues at an accelerated rate. Although the IDEAM deforestation report for 2019 (IDEAM, 2020)

shows deforestation in the Amazon has decreased, and this is certainly a reason to feel optimistic, the ongoing efforts to control deforestation regionally and nationally must not be allowed to subside.

Lessons Learned

Through its operations in Caquetá, Connected Landscapes provided useful lessons about how to control deforestation and promote low-emission rural development so that these efforts can be repeated in other regions of the country. These lessons include:

a

→ The Program demonstrated that, for programmatic activities to effectively impact the region, they largely depend on building **trust** between communities and the facilitating entity. Connected Landscapes made efficient use of the available resources and tools to build an atmosphere of mutual trust that served as a foundation for the development of the Program. This trust developed out of an understanding of the social and economic dynamics of the region, the villages and the participating families. This made Connected Landscapes more credible, encouraged participation by different agents, and facilitated the administration of the

Program, issuing prompt adaptations to changes in the local context. Connected Landscapes strengthened this atmosphere of trust by consistently following through on its commitments and the agreements formed with families and communities, as well as with community, municipal and departmental figures. This not only helped with staging activities, but it also increased the credibility of the Program.

This atmosphere of trust also laid the groundwork for strengthening environmental territorial governance and for implementing advocacy campaigns that could affect departmental and municipal public policy.

b

→ Participant communities should be encouraged to implement and appropriate the activities presented to them through highly **participatory** programs and projects, like Connected Landscapes, where local knowledge plays a role in designing solutions and material changes. With the direct participation of local communities, Connected Landscapes developed solutions for conservation, landscape transformation and low-emission sustainable production that were tailored to each farm. This increased the sense of belonging, facilitated the fulfillment of tasks by the beneficiaries, integrated the entire family in the chores and apprenticeships, and responded to the specific conservation and production requirements of each of the farms and veredas.

C

- Forest and biodiversity conservation must pursue activities that go far beyond the strictly environmental sphere. Although the primary purpose of Connected Landscapes was to conserve and connect forests while maintaining biodiversity, the Program made a significant effort to improve the **well-being** of families and local populations. As a result, in addition to conservation and changes in production, improvements were made regarding sources of income, access to food, access to alternative water and energy sources, protective environments for children and adolescents, caregiver training, and citizen participation for historically marginalized and stigmatized populations.



Photo: Andres Cardona, Solano 2018.

d

- Without consistently offering **training programs** for organizations, families and individuals, it would not have been possible for participants to reach new leadership positions, develop approaches to land management with a focus on gender, learn new ways of thinking about development, or implement new agricultural and conservation practices. The training strategy was active

throughout the Program, and it was particularly effective when corroborated by practical activities that put new knowledge to use. Skills attained through the Program were consistently put into practice at the participating farms, organizations and veredas, as well as by the families that were part of the project. This skill-building strategy played a definitive role in environmental and social changes, and it was instrumental in demonstrating the positive effects of conservation and the transformation of farm production.

e

- Connected Landscapes opted to **support local grassroots organizations** that pursue low-emission rural development through community work or productive activities. This strategy was an effective means of amplifying lessons about conservation and sustainable manufacturing, and it was key to supporting advocacy campaigns that were able to transform municipal and departmental public policy based on local concerns. By reinforcing local organizations, the Program put in place the skills to advance low-emission rural development, creating and strengthening leadership positions for territorial management.



Photo: Sixzero media, Florencia, Solano 2019.

f

- Generating new **leadership positions** and promoting the participation of **women and youth** in territorial management and conservation were valuable processes. Women and youth became protagonists in the new values and development proposals that safeguard natural resources, recognize the importance of local food production and supply, promote new family ventures that seek to maintain the wealth of native seeds, preserve ancestral knowledge, open space for environmental studies as an educational field, and guarantee human and social well-being above productivity. Incorporating new leaders and interlocutors in decision-making was critical to reimagining development in these communities. The participation of women was also important for positioning and developing food security and local food supply, as well as for diversifying the productive alternatives that were so unlike the traditional agricultural activities predominantly led by men.

g

- Connected Landscapes took a ground-up approach and contributed to **strengthening territorial governance** through ongoing work with grassroots organizations, collectives and local authorities, such as peasant núcleos. This approach was key to empowering the local producers' social organizations and to pushing principles and guidelines for low-emission rural development at the municipal and departmental level.

In the short and medium term, it will be necessary to continue strengthening the community action boards—the first level of response for regional administrative concerns—so that they improve and optimize their oversight and environmental control functions.

The agreements in veredas for the conservation and transformation of the landscape were a critical resource for guiding forest and biodiversity conservation. Community action boards must ensure compliance with these agreements. This task, however, must be supported and endorsed by the departmental government, the municipality and Corporamazonia.

h

- Connected Landscapes achieved meaningful results in public policy advocacy. These achievements were thanks to a rapid, functional integration and synchronization with **allies** such as ACT, the Caquetá Governorate, TNC, Natural Heritage, EII and the German Corporation for International Cooperation (GIZ), as well as to the active participation of community organizations and leaders in territorial governance.

Deforestation is a phenomenon with multiple underlying causes, agents, and motivators. Thus, regardless of the scope of any program or project, the control and reduction of deforestation must take place hand-in-hand with different advocates and stakeholders whose synergies and complementarities can:



Photo: Sixzero media, Florencia, Solano 2019.

- Foment sustainable alternatives.
- Reduce and control the impact of productive activities that are not environmentally friendly.
- Generate incentives for conservation.
- Unseat or redirect incentives that indirectly encourage deforestation (related to labor, agricultural development, etc.).
- Provide environmental principles and directives in the development of infrastructure projects.
- Apply strategies and regulations for land use.
- Put monitoring and territorial control efforts in practice.
- Identify and penalize environmental crimes.
- Strengthen environmental and forest governance in all settings.

This integration can be achieved through regional or departmental networks that synchronize efforts and attend to the phenomenon of deforestation in an organized manner from the local level (personal property) to the national level. These networks should coordinate with the National Council

to Combat deforestation (CONALDEF) and the Inter-regional Commission for the Control of Deforestation (CIDOD), and with the Inter-regional Commission on Climate Change and the Regional Nodes on Climate Change.



→ Connected Landscapes activities in the rural areas and farms were facilitated by **constant technical assistance** in the field. This was led by a local technical assistance team made up of professionals, technicians and local promoters from Caquetá and, in some cases, from the very veredas where the Program took place. This continuous technical support by people from the department and areas of operation allowed participating families to learn by doing, guaranteeing the progressive development of activities, ensuring technical adjustments were made in a timely manner, and guaranteeing a correct



Photo: Andrés Cardona, Solano, 2018.

response to the changing conditions of their local context.

The local technical team served as a consistent way to connect with families, and it facilitated the planning, implementation, and monitoring of activities on the ground, which in turn strengthened credibility and confidence in the Program.

j

- **Landscape-based planning** implemented in the field helped integrate on-farm technical activities with the governance activities associated with landscape conservation and transformation agreements. This in turn helped the participating families and organizations fully understand the scope of the Program and the effect it would have on their farms within the larger landscape. The conservation agreements served as references for planning and protecting the territory. Although local environmental governance must be empowered to ensure compliance, these agreements not only served as a way to plan the territory, but they also contributed to advancing a conservation pedagogy. Land-use planning helped families to fully understand the way they use the land on their farms, and it helped them recognize the productive value and environmental functions of the forest.



Photo: Andrés Cardona, Solano, 2018

k

- Connected Landscapes managed to stimulate new **ventures and sustainable economic alternatives** that helped to diversify the incomes of peasant families and reduce dependence on productive activities that are not environmentally friendly. This was achieved in parallel with the implementation of actions that reduced the environmental impacts of productive activities on the farm and promoted the conservation of natural resources.

At the end of the Program, there was much to be

done to strengthen and expand the portfolio of sustainable productive alternatives that diversify the peasant economy. Programs and projects should focus both on reducing the impacts of the predominant unsustainable manufacturing practices, and on strengthening sustainable value chains that favor the permanence of the standing forest (agroforestry systems, silvopastures, agro- and ecotourism, non-timber forest products). The exploration and materialization of promising new sustainable value chains in the Amazon should also include, where possible, the exploration of community forestry strategies and conservation incentives that make use of public or private sources, for example, through tax exemptions and green lines of credit.



Photo: Andrés Cardona, Solano, 2018.

1

→ Programs that, like Connected Landscapes, seek to reduce deforestation must, from the outset, adopt measures to carry out regular (at least annual) **deforestation monitoring**. Only this monitoring makes it possible to measure the fulfillment of conservation commitments by the participants and to take the pertinent measures (including the exclusion of participating families) if these commitments are not fulfilled.

m

→ The experience of Connected Landscapes shows that the programmatic actions and methodologies on the farm and vereda must be adjusted according to the **specific context** and the level of anthropogenic intervention in each working geography. Areas with low intervention and high forest cover are more prone to new settlements and rapid forest transformations. These areas are regularly more exposed to speculation and land grabbing. Therefore, in these circumstances, it is critical to strengthen territorial control, ensure compliance with regulations on land use, and coordinate

actions with municipal and national control entities that ensure compliance with the law. In these areas, economic alternatives based on the forest or on agroforestry systems should be promoted, almost exclusively, which is made possible by the existence of legal and recognized settlements. In areas of medium to high anthropogenic intervention, even with the presence of forest remnants, transforming production and adopting good agricultural practices can prevent soil degradation, and with it, the expansion of the agricultural frontier and new waves of migration to wooded areas with productive soils. Efforts at control and oversight must be promoted by means of environmental education and awareness that emphasize the productive value and environmental functions of the forest.

no

→ In a relatively short time, the isolation of water sources and springs on the farms participating in the Program showed successful results. The **permanent water supply** on family farms was ensured, and with it, a collective consciousness regarding the value of the forest and the negative impacts of unsustainable manufacturing. These rather short-term results were very effective in transforming the prevailing logic in these areas and should be expanded and replicated.

→ The strategy of complementary investment in children and the environment helped Connected Landscapes to better understand the local reality and relate more fully to it. The urgency of forest protection, which characterizes environmental programs, is embedded in a complex local universe with many other priorities, such as access to education, healthcare, transportation, electricity, and communication.

A **comprehensive understanding of the rural reality** in Caquetá helped in the implementation of programmatic efforts that, without deviating from their environmental priority, were relevant, were well received by the communities, and reached a greater diversity of the local population.

p

→

Intergenerational sustainability work must teach the next generation to reduce the unsustainable use of natural resources and the persistent transformation of the forest. This work involves: establishing better educational conditions and opportunities for children and adolescents; stimulating a better understanding of the value of natural resources; appreciating the importance of conservation; learning from small sustainable forest management alternatives; and reducing the chances that children and adolescents adopt lifestyles as adults that deteriorate the environment.



Photo: Andrés Cardona, Solano, 2018.

Some recommendations

01

02

After seven years of Connected Landscapes, Caquetá today shows the progress toward low-emission rural development. There has been a push to achieve synergistic and complementary transformations at the municipal and departmental level. It is clear, however, that the consolidation of a low-emission rural development paradigm in Caquetá requires essential elements that are presented here as recommendations:

At this time, the Caquetá Government, supported by its membership in the Forest and Climate Working Group and its leadership in the Amazon RAP (Administrative Planning Region), has the opportunity to preside over a jurisdictional process that would consolidate low-emission rural development as the development paradigm for the entire region. This development should be considered and demanded from the national government in light of the STC3460 ruling of 2018, wherein the Constitutional Court recognizes the Colombian Amazon as an entity subject to law and that warrants protection, conservation and restoration by the State.

Caquetá is a department with a forestry mission. It has an opportunity to lead the way in reducing deforestation and establishing climatic stability, effectively changing land-use and reducing activities based on forest transformation. Although it is important to invest resources in a shift toward sustainability for the livestock sector and other rural sectors, greater investments should be made to explore and specify value chains for promising timber and non-timber forest products supported by community forestry models. These experiences can be expanded to design a differentiated rural development strategy for the Amazon, which, limited by environmental and land use regulations, guarantees forest protection.

03

The lack of effective efforts to control the illegal occupation of lands and land grabbing in forested areas along the agricultural frontier is one of the underlying causes of deforestation. The experience of Connected Landscapes shows that land occupation and land grabbing traditionally occur in areas neighboring veredas that have already been established (legally or illegally), in areas with forest wealth, in areas adjacent to forest reserves, and in areas without the presence of state entities. This suggests that it may be possible to predict where future occupations and hoarding could take place. This information could be used to develop a national registry of at-risk areas where prioritized measures can be taken to prevent unlawful access to land that belongs to the State. One of these preventive measures should include agile management of rural property in areas at risk of deforestation.

04

For several years, Amazon deforestation has played an important role in the country's total deforestation: between 60% and 70% of the country's forest loss occurs in the Amazon. Therefore, the resources, efforts and agencies for controlling deforestation should be anchored to deforestation control chapters or hubs in the Amazon that respond to and address forest loss in their region.

05

There should be a continued effort to encourage and consolidate local environmental governance that helps to control deforestation and expand the process of low-emission rural development by transforming and regulating the behavior of settlers in areas of the agricultural frontier. This governance must also be supported by efforts to control deforestation by regional and national authorities.

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