



June 2024

COFFEE AND CARBON IN COLOMBIA: HUMAN RIGHTS CONCERNS AT THE INTERSECTION OF FOOD SYSTEMS, CLIMATE CHANGE AND DATA-BASED TECHNOLOGIES



FIAN
INTERNATIONAL

m a e l a 
Movimiento Agroecológico
de América Latina y El Caribe

PUBLISHED BY

FIAN International and **MAELA Colombia**

JUNE 2024

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The authors would like to thank the following people for their contributions to the report and their review of a preliminary version: Miriency González, Ana María Suárez Franco, Sibylle Dirren, Sofía Monsalve Suárez.

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KEY FINDINGS

1. Carbon markets have become a preferred response of states and corporations to climate change. However, some of their problematic assumptions, questionable climate benefits, and risks to the human rights of people and communities make them a false climate solution. While many carbon market schemes concern forest conservation and afforestation, they are also more recently being promoted for agricultural lands and ecosystems, including those owned and managed by small-scale food producers. This raises specific concerns for the rights of peasants and other people working in rural areas, which need to be addressed.
2. Carbon markets require a range of technologies to measure carbon storage and issue and trade carbon credits, ranging from remote sensing to so-called artificial intelligence (AI) and digital platforms. This complex technological infrastructure and the underlying models require the collection and use of enormous amounts of data, add opacity to carbon markets and create an additional layer of power imbalances. Data-based technologies are thus central to the financialization of nature and ecosystems and the creation of new forms of wealth extraction, exploitation and colonialism.
3. Colombia has embraced the bioeconomy in general to decarbonize its economy, and carbon markets in particular. However, Colombia does not currently have a specific normative framework to regulate carbon markets. This situation creates serious risks for the rights of people and communities, including peasants, Indigenous Peoples, Afro-Colombian communities and other rural people.
4. One project that is currently being implemented in Colombia and aims to connect smallholder farmers to global carbon markets is called Asómbrate. A joint project of the Netherlands-based transnational bank Rabobank and a non-profit organization called Solidaridad, it promises to generate additional income for small-scale coffee and cocoa growers by promoting agroforestry and their participation in international carbon trading through a digital platform, called ACORN, which was created by Rabobank. In interviews, peasant families participating in the project have expressed concerns about lack of information and transparency concerning the collection and use of personal and farm data, lack of independent complaint and accountability mechanisms, and indications of changes of farming practices by participating peasants that could entail negative environmental and climate impacts. These reports point to human rights risks of carbon trading projects involving smallholders, in particular regarding the undermining of peasants' autonomy and self-determination.
5. To comply with its obligations under international human rights and environmental law, Colombia is required to put in place effective frameworks and mechanisms to protect the rights of people and communities in the context of carbon markets. Agriculture-related carbon trading projects require specific consideration in the context of the recent recognition of peasants as a group requiring special protection in Colombia's Constitution and the implementation of the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP). Special attention should be given in this context to ensure people's self-determination over data, including their right to decide what data to share, with whom and for what purposes, including the right to refuse the sharing of data.
6. Colombia should carry out a participatory process to assess the impact of carbon markets and to support and promote alternative, community-led models to reduce greenhouse gas (GHG) emissions, protect and restore ecosystems and biodiversity, and promote sustainable and just food systems, which do not result in the commoditization and financialization of nature.
7. International and regional human rights institutions should develop guidance for states on how to ensure the respect, protection and fulfillment of human rights in the context of carbon markets, with particular attention to the rights of Indigenous Peoples, peasants and other small-scale food producers and rural communities.



INTRODUCTION

The relationship with the natural environment is one of the fundamental tensions of modern societies, especially under capitalism. Two main approaches have emerged to resolve this tension. The first calls for a fundamental rebalancing of this relationship, based on the recognition that human societies are intrinsically intertwined with their natural environments and that the two co-evolve. From this perspective, the respectful and holistic ways in which Indigenous Peoples and many peasants, small-scale food providers and other rural people and communities interact with the living world based on their traditional knowledge, innovations and practices are of immense importance and must be respected, protected and promoted, for the benefit of societies as a whole. In contrast, a second approach seeks to better incorporate “nature” into capitalism by redefining biological processes and ecological functions as “ecosystem services” and transforming them into marketable assets. While some proponents of this approach ostensibly recognize the contributions of Indigenous Peoples and rural communities, they primarily see them as performing functions that can benefit the market economy and, thus, promote their inclusion in value chains as service providers.

Carbon markets are perhaps the best example of this latter approach. Promoted since the 1990s as a response to climate change that is supposed to allow for the cost-effective reduction of greenhouse gas (GHG) emissions based on market mechanisms,¹ they have become an important part of climate change mitigation policies under the sustainable development agenda. Despite being criticized for their limitations, their questionable environmental and climate benefits, as well as their detrimental impacts on Indigenous Peoples, peasants and other rural communities (see chapter 1 of this report), they remain a centerpiece of the currently dominant approaches to responding to climate change.

This report specifically addresses carbon trading projects that directly involve smallholder food providers, i.e., the generation and trading of carbon credits derived from smallholder agriculture. In addition, it pays particular attention to the data-driven technologies that are necessary for carbon markets to function. In doing so, the report links carbon markets to two issues important to current policy debates, namely the transformation of food systems and digitalization. Both issues are directly related to the opposing approaches mentioned above: as with measures to address climate change, the transformation of food systems and the promotion of data-driven technologies also require a choice between measures that build on and reinforce the current economic system and related power relations (i.e. market-based approaches in which transnational corporations play a central role), or taking steps towards a real and just transition to models that seek to achieve more equitable and just structures, using human rights as a framework that pays particular attention to marginalized people and communities.

The report addresses these issues by examining an example of a carbon trading project in Colombia that focuses on connecting small farmers to international carbon markets. Based on the results of field and desk research, it analyzes the concerns expressed by participating farmers from a human rights and environmental justice perspective to make some recommendations to the Colombian state, as well as to other national and international actors.



The report is the result of a collaboration between FIAN International, the world's leading organization promoting the human right to food and nutrition, and MAELA Colombia. MAELA (*Movimiento Agroecológico de América Latina y el Caribe*) is a social movement in defense of peasant agroecology that brings together more than 200 organizations of peasants and other small-scale food producers, indigenous communities, landless communities, rural women and youth, consumers, researchers and social organizations in 20 countries in Latin America and the Caribbean.²

We hope that this report can contribute to filling existing gaps in the documentation, analysis and regulation of carbon markets, especially with regard to carbon trading schemes that directly affect small-scale food providers. In particular, we want to sound the alarm on the specific risks to the human rights of these groups arising from carbon markets to ensure that public policy frameworks are put in place to ensure that these are addressed in the design, implementation and monitoring of climate policies, as well as in policy frameworks dealing with food systems as well as data and digital technologies. We see this as a contribution to the efforts needed to ensure that the rights of Indigenous Peoples, peasants and other rural populations are respected, protected and fulfilled, as a central element of measures towards a just transition towards social, environmental and intergenerational justice.

PART I



CARBON MARKETS AND DATA-BASED TECHNOLOGIES AS BUILDING BLOCKS OF A FINANCIALIZED BIOECONOMY

1. A critical assessment of carbon markets from a human rights and climate justice perspective

Carbon markets have become one of the most prominent tools in the current policy response to climate change and are central to the “zero net emissions” pledges and “carbon neutral” claims of states and corporations. However, they have also been criticized for their questionable environmental benefits and negative impacts on the human rights of people and communities. Carbon markets are also one of the pillars of the financialized bioeconomy, which seeks to create new assets, investment opportunities and profits from natural and biological processes.³

Carbon markets seek to use the ability of natural carbon reservoirs, such as plants, soils and the ocean to absorb carbon dioxide/CO₂ from the atmosphere. Each ton of CO₂ that is absorbed (for instance, through reforestation) or prevented from being released (for instance through forest conservation) is equivalent to a carbon credit, which can be traded. The underlying principle of carbon markets is to put a price on emissions, thereby aiming to create an incentive for businesses, individuals and other entities to reduce their carbon footprint, to help to mitigate climate change.⁴

There are two types of carbon markets: compliance and voluntary. In compliance markets, such as national or regional emissions trading schemes (sometimes also called cap-and-trade schemes), a central authority (usually a government) grants or sells a limited number of permits to emit a specific amount of CO₂ for a specific period. Polluters must have enough permits to match their emissions during the allotted time period. If their emissions exceed the amounts allowed by their permits, they can buy permits from other participants. Conversely, if they have not used all their permits, they can sell them. In voluntary carbon markets, on the other hand, participants are under no formal obligation to achieve a specific target. Instead, corporations and other actors are enabled to purchase carbon credits voluntarily to offset their emissions. These credits are typically generated through projects that reduce or remove greenhouse gases, such as reforestation or renewable energy projects, and can be traded on dedicated platforms.

At the international level, the Kyoto Protocol⁵ played a crucial role in the creation of carbon markets by establishing mechanisms that allowed the trading of carbon credits and emission allowances on an international scale. The Protocol introduced several market-based mechanisms to achieve global GHG emission reductions, which contributed to the establishment of a global carbon market by creating financial incentives to reduce emissions and fostering international cooperation. Building on this basis, the Paris Agreement on Climate Change contains provisions on carbon markets and so-called cooperative approaches in its Article 6. Although the Agreement does not explicitly use the term “voluntary carbon markets,” Article 6.4 in particular establishes a framework that supports the development and use of such markets by providing mechanisms for trading carbon credits that contribute to national and international climate goals.⁶

Since the entry into force of the Paris Agreement in 2016, particularly voluntary carbon markets have experienced significant growth. The value of the global voluntary carbon market was estimated at USD 1.9 billion in 2022,⁷ and could reach a value of USD 50 billion in 2030.⁸ In addition, the average price of credits in the voluntary carbon markets rose sharply in 2022, reaching a level not seen since 2008.⁹

HOWEVER, CARBON MARKETS PRESENT SEVERAL SERIOUS PROBLEMS, INCLUDING THE FOLLOWING:¹⁰

- Carbon trading schemes reduce climate change and ecological destruction to the issue of carbon in the form of CO₂ in the atmosphere. Not only does this neglect the impact of other GHGs (such as nitrous oxide (N₂O), which is mainly emitted by industrial agriculture and is about 300 times more potent than CO₂¹¹), but it ignores the Earth's complex natural cycles and oversimplifies complex, non-linear climate processes.
- This extreme simplification is related to questionable assumptions on which carbon markets are based. For example, carbon offset mechanisms assume that the sequestration of CO₂ through an action such as planting trees is equivalent to the emission of the same amount of CO₂ by burning fossil fuels.¹² In addition, offset projects typically last much less than the average lifetime of CO₂ emitted into the atmosphere (about 120 years). These temporary offsets for long-term, or even permanent, environmental degradation not only raise doubts about their effectiveness, but also place a burden on future generations.
- Due to the complexity of climate processes and the number of varieties at play, it is extremely difficult, if not impossible, to calculate the actual impact of offset projects. This is especially true in the case of carbon credits generated by avoided emissions in the future, as this requires establishing a baseline and hypothetical scenarios to determine what would have happened without the offset activity.¹³ In the words of one journalist "Offsets are an imaginary commodity created by deducing what you expect to happen from what you assume would have happened."¹⁴ This makes carbon credits extremely vulnerable to flawed accounting and outright fraud.¹⁵
- Carbon markets can lead to a net increase in CO₂ emissions or, at best, be a zero-sum game, rather than emissions reduction. For example, the possibility of offsetting emissions can function as an enabler of more emissions from burning fossil fuels. Moreover, the real possibility that carbon stored in trees and soils through offset projects will be released again in the future, while fossil fuel emissions are irreversible and permanent, can result in a real increase in cumulative atmospheric GHGs. A study developed for the European Commission, for example, revealed that 85 percent of



UN Clean Development Mechanism offset projects between 2013 and 2020 failed to reduce emissions.¹⁶

- Carbon markets depoliticize the allocation of pollution rights. Corporations that have amassed huge profits from emissions-intensive activities – often over a long period of time – can now buy carbon credits to offset their emissions, in the process greenwashing their operations and presenting themselves as responsible and climate-sensitive companies, while escaping liability for environmental harm caused by them. At the same time, carbon credits often imply green colonialism because offset projects (such as reforestation or large-scale conservation programs) are mostly located in the Global South, while the companies buying the carbon credits are often from the Global North which is responsible for the majority of GHG emissions. In addition, carbon exports are promoted as a pillar of the economies and development of Southern countries, thus reproducing unequal and exploitative relationships between North and South.¹⁷
- Carbon markets accelerate the financialization of nature, whereby ecosystems are subordinated to the economy.¹⁸ The creation of a new commodity in the form of a tradable asset – i.e., carbon credits – is at the very heart of carbon markets. These are set to be integrated into the global financial system under the label of “sustainable finance”.¹⁹ In addition to the fact that financialized carbon markets are subject to increased risks,²⁰ this entails new forms of wealth extraction from peoples’ territories (i.e. their lands, forests, fisheries and oceans).
- Finally, carbon markets divert attention from more robust measures to address the climate crisis, such as binding regulations to reduce GHG emissions and phase out fossil fuels, as well as policies in support of energy transition and real solutions that people and communities are building in their territories, such as agroecology. Indeed, carbon markets favor incremental over structural change and are therefore the preferred climate change measures of many corporations. Following the adoption of the Paris Agreement, Shell’s chief climate change advisor, for example, was quoted in the media as taking credit for the inclusion of carbon markets as a way to pre-empt other regulations.²¹ In this context, it is important to keep in mind the fact that carbon markets are being driven while extractive activities are set to continue to increase at a rapid pace.²²

The issues mentioned in relation to carbon markets raise serious human rights concerns, particularly in relation to land grabbing and the resulting dispossession and displacement of rural people and communities from their lands, forests, fisheries and territories, as companies seek to control the underlying assets of the carbon credits they require.²³ This includes economic displacement, where people and communities may be allowed to remain on land where carbon trading projects have been set up, but lose effective control over their use to the extent that they have contractually committed to meeting the objectives of these projects. Furthermore, carbon trading schemes can lead to the instrumentalization and exploitation of rural communities to solve a problem they have not created, thus perpetuating (or even exacerbating) inequalities.²⁴ The serious human rights issues raised by carbon markets have led the UN Special Rapporteur on the Rights of Indigenous Peoples, Francisco Calí Tzay, to call for a moratorium on carbon markets.²⁵

For many years, carbon markets and offset schemes have focused on carbon sequestration through forest conservation and afforestation. In fact, many offset projects are linked to the United Nations Reducing Emissions from Deforestation and Forest Degradation (REDD+) program, which has received much criticism due to deep systemic flaws, resulting in uncertain environmental benefits and widespread violations of the human rights of Indigenous Peoples and rural communities.²⁶ In fact, “Forestry and Land” was the highest value category for voluntary carbon markets in 2021 and 2022, with the highest number of projects reported for 2022.²⁷

In recent years, the potential for carbon sequestration in agricultural systems – in soils and/or biomass – has received increasing attention. In fact, the volume of agriculture-related carbon credit transactions grew by 283 percent between 2021 and 2022. Overall, credits from projects linked to agriculture, forestry and land use accounted for half of the market share of voluntary carbon markets in 2022, at 46 percent. In addition, agricultural credits became the most expensive by average price, surpassing forestry-related offset project credits.²⁸ Agriculture-related carbon trading is sometimes referred to as “carbon farming” and has specificities, while general concerns about carbon markets also apply here.²⁹ However, the concrete implications of linking carbon markets to agriculture, and in particular to peasant and small-scale agriculture, have not yet been widely documented and analyzed.

2. The technology side of carbon trading

Although the basic idea behind carbon markets – offsetting emissions through sequestration – may seem relatively straightforward, their actual implementation is very complex. In addition to the technical and political issues intrinsic to carbon markets (and offset schemes in general) described in the previous chapter, they require an enormous technological infrastructure. Indeed, in order to function, carbon credit trading depends on a number of technologies that enable carbon sequestration to be measured and verified, and carbon credits to be generated, issued, traded and managed. These include:

- Internet of Things (IoT) and sensor technologies are used for real-time data collection and monitoring of energy consumption, emissions, and carbon sequestration, among others, supporting the measurement of carbon reduction activities.³⁰
- Georeferencing, satellite imagery and remote sensing (including aerial surveys and LiDAR technology³¹) play an important role in monitoring and verifying carbon sequestration projects such as reforestation, afforestation, and avoided deforestation. These technologies provide data for assessing changes in land use, forest cover, and carbon stocks.
- Carbon accounting systems, such as GHG accounting software, are used to track and report corporations’ and other actors’ emissions. These systems often employ methodologies approved by international standards bodies like the Intergovernmental Panel on Climate Change (IPCC) or ISO standards.³²

- Data Analytics and so-called Artificial Intelligence (AI) play a crucial role in processing large volumes of data collected from various sources, including IoT devices, satellite imagery, and carbon accounting systems. AI is used, for example, to create models to estimate tree biomass from satellite imagery. These technologies can also be used for the actual trading of carbon credits, analyzing market trends and making investment decisions.³³
- Blockchain and Distributed Ledger Technology (DLT) are used to create platforms for recording, carrying out and tracking carbon credits transactions. These technologies enable the creation of digital tokens representing carbon credits and facilitate market transactions.³⁴

The widespread use of technology for carbon markets is rarely addressed prominently in policy debates, but it has several implications that are important to keep in mind for a critical analysis from a human rights perspective. First, all of the above technologies rely on the collection, storage, processing and use of huge amounts of data, which raises issues of data protection, security and privacy, but also broader issues of control over data and self-determination. These issues are all the more crucial because most, if not all, of these technologies – and, consequently, the data collected and used by them – are controlled and used by corporations and other private entities. Indeed, the data economy is characterized by the concentration of power within a few large companies who have the financial and technical resources to collect, store, process and use large amounts of data, and who capture most of the economic benefits arising from their use.³⁵

Second, the use of these technologies does not guarantee the efficacy of carbon markets, even if this is what the promoters of carbon markets and these same technologies want to make believe. Rather, the deployment of shiny and sophisticated technologies is a way to obfuscate the intrinsic flaws of carbon markets. Indeed, while “accuracy,” “efficiency,” and “transparency” are buzzwords used by those promoting these technologies, in reality each of them contributes to creating opacity. Companies will always claim that their data, models and technologies are accurate, but without transparency – in particular openness, clarity and accessibility of information regarding how technologies function, how they are developed and how decisions are made within technological systems – as well as clear and binding rules for transparency and accountability, each layer of technology risks creating a black box, with obvious consequences for accountability.

Furthermore, no technology is neutral and, for instance, the way in which carbon storage is measured and the assumptions underlying AI-generated models that inform the generation of carbon credits matter a lot to determine what the actual environmental benefits of carbon trading can be. Once again, the shiny surface of technology risks distracting from the fact that all these issues are fundamentally political and have impacts on the rights of people and communities. Embedded in the current market-based model and without adequate and effective regulation – including to safeguard human rights –, the main function of data-driven technologies is to serve the process by which natural and biological processes are redefined as “environmental services” and consequently measured, valued, traded and used for profit-driven interests.



PART II

CARBON MARKETS AND PEASANTS' RIGHTS IN COLOMBIA

3. Carbon markets and related policies in Colombia

Since taking office in 2022, Colombia's current President, Gustavo Petro, has repeatedly emphasized his government's goal of transforming the country into a forerunner of a new form of green, decarbonized capitalism.³⁶ This includes a transition to clean energy and harnessing Colombia's potential to absorb carbon through its rainforests and other ecosystems. Already during the previous administration, Colombia adopted a National Bioeconomy Strategy aimed at promoting sustainable development, innovation and competitiveness through the use of biological resources. The strategy aims to leverage Colombia's biodiversity and natural resources to drive economic growth while conserving ecosystems and promoting social inclusion.³⁷

In addition, under President Petro, the Colombian government has reaffirmed its commitment to the Paris Agreement and has set ambitious emissions reduction targets. The goal is to reduce emissions by 51% by 2030.³⁸ In this context, the government has adopted several measures, including a carbon tax to disincentivize the use of fossil fuels.³⁹ The promotion of carbon markets is also part of its strategy to incentivize emission reductions and promote investment in low-carbon technologies and projects.

Although Colombia is still in the process of establishing a regulated carbon market, there is already a voluntary carbon market through which companies and other actors can trade carbon credits. According to a report by the Colombian Association of Carbon Market Actors (AsoCarbono), as of September 2023, more than 50,000,000 carbon credits had been traded in Colombia.⁴⁰ The same report identifies 212 certified carbon credit projects in Colombia, as well as 88 projects in the planning or validation phase.⁴¹ In the context of this report, it should be noted that AsoCarbono's report does not provide specific information on carbon trading projects linked to agriculture, which could indicate that this is still a relatively small and emerging sector.

It is important to note that a considerable number of carbon market and carbon credit projects in Colombia are linked to the UN REDD+ program, in which the country participates as part of its strategy to reduce deforestation and promote forest conservation through financial mechanisms.⁴² According to AsoCarbono, 48 of the 212 projects are linked to REDD+, representing 65.2 percent of the carbon credits issued.⁴³ As elsewhere, REDD+ projects are often implemented in the traditional territories of Indigenous Peoples, Afro-Colombian and other rural communities, and have given rise to complaints from affected people that their right to free, prior and informed consent is not being respected. In addition, the implementation of REDD+ projects has led to internal tensions within communities, raising doubts about the promised benefits of these projects for local people. In a recent example, Indigenous Peoples of the Pirá Paraná River in the Colombian Amazon took legal action to request



the cancellation of a carbon credit project called “REDD+ Baka Rokarire”, claiming that they never approved it and that the person who signed the contract was not their legal representative.⁴⁴

Cases such as this highlight the fact that, despite its stated commitment to carbon markets and the existence of a significant number of projects, Colombia so far has only a patchy framework for regulating these markets, especially those outside of REDD+. Human rights groups have consistently pointed to several problems in the context of REDD+ and other carbon market projects, particularly in relation to the absence of social and environmental safeguards, lack of access to information, and persistent gaps in regulations to ensure respect for the free, prior and informed consent of affected people and communities.⁴⁵

The Colombian Constitution establishes in Article 78 that the natural environment is a matter of collective rights, highlighting the right of communities to participate in all decisions that may affect it.⁴⁶ Therefore, community participation in decisions that may affect the diversity and integrity of the environment is guaranteed through constitutional actions such as popular and group actions.

Another relevant policy is Resolution 1447 of 2018, which establishes a system for monitoring, reporting and verification of climate change mitigation actions at the national level, related to the GHG emissions reduction and removal accounting system. While this Resolution contains important provisions for ensuring transparency and accountability, including through a national registry of climate change mitigation programs, its focus is on technical procedures for carbon accounting, verification, etc. Social, environmental and human rights safeguards and their implementation are virtually absent from the document.⁴⁷

However, social and environmental safeguards are mentioned in the National Development Plan 2022-2026, which was developed through a process that included several consultations with Colombian citizens. In its Art. 175, the plan emphasizes that implementers of climate change mitigation initiatives must comply with environmental, social and economic regulations, and particularly – in the case of initiatives in the agricultural, forestry and other land use sectors – comply with the social and environmental safeguards defined by the UNFCCC and adopted by Colombia through its National Interpretation of Social and Environmental Safeguards. The plan further specifies that this requires respect for free, prior and informed consent whenever projects affect areas with the presence of Indigenous Peoples, black, Afro-Colombian, Raizal and Palenquero communities. Finally, it requires project implementers to report on the implementation of social and environmental safeguards, during all phases, and announces that the government will develop new regulations in this regard.⁴⁸

In summary, the absence of a comprehensive policy and regulatory framework on carbon markets creates serious risks for the rights of affected people and communities, particularly Indigenous Peoples, peasants, Afro-Colombian communities and other rural populations. In particular, there is currently no specific regulation in Colombia for carbon trading projects in agriculture, especially those affecting peasant farmers.

4. Carbon trading involving peasants: the *Asómbrate* project

A carbon credit trading project currently being implemented in Colombia that specifically targets peasants is called *Asómbrate*.⁴⁹ According to the project's website, it is “a program that supports producers to train them and facilitate their entry into the international voluntary carbon market [...]”⁵⁰ It builds on an earlier project, called *Café del Futuro*, funded through the Norwegian development cooperation agency Norad, which promoted the adoption of “climate-smart” agricultural practices by smallholder coffee farmers – especially agroforestry – to increase on-farm carbon storage and reduce emissions.⁵¹ *Asómbrate* focuses specifically on generating carbon credits through sequestration in agroforestry systems – coffee and cocoa – and connecting smallholders to carbon markets, allowing them “to benefit directly from the sale of CO2 carbon from their farms.”⁵²

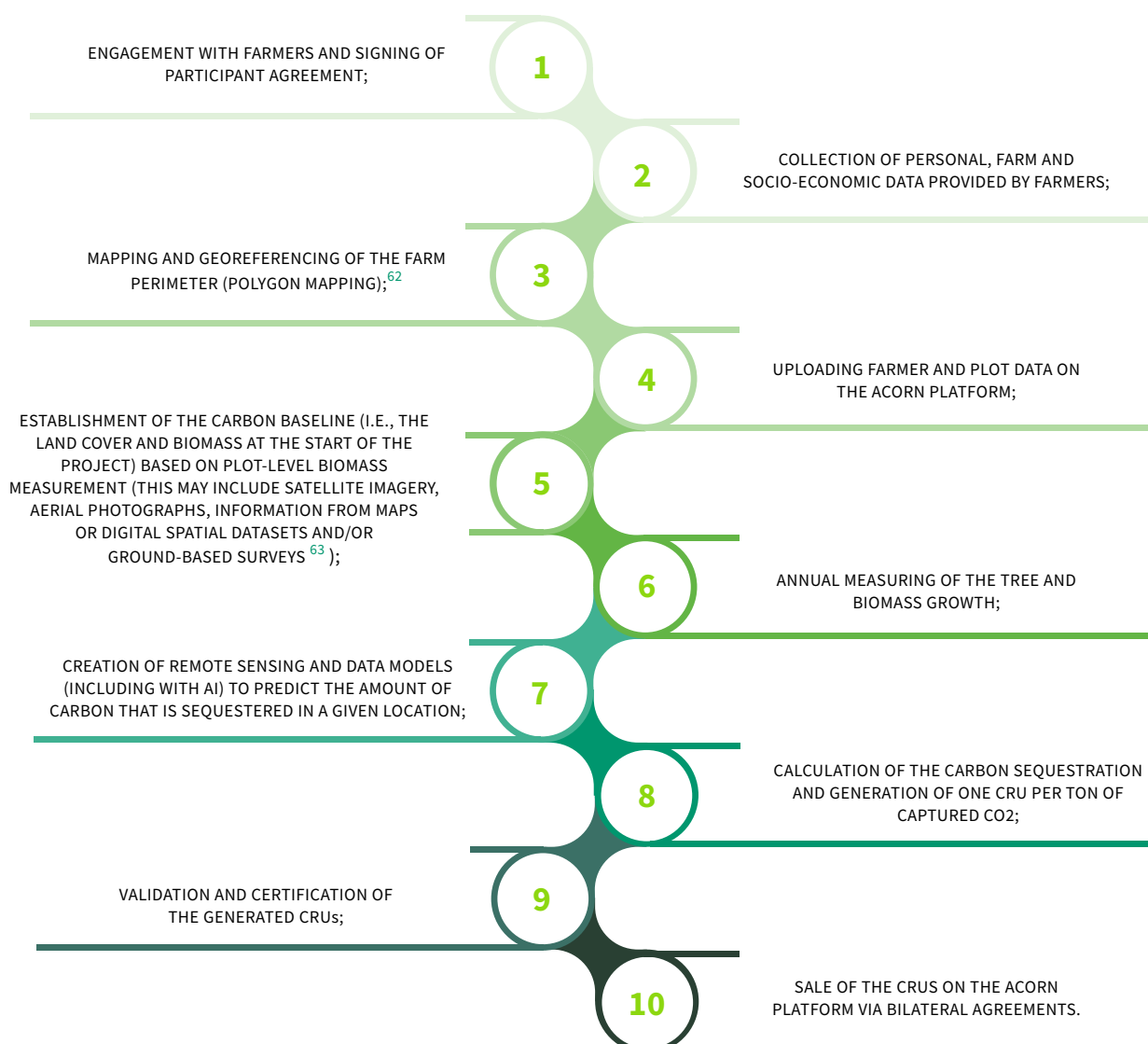
According to a project map on its website, *Asómbrate* currently operates in the Colombian Departments of Huila, Risaralda, Caldas, Cauca and Meta for coffee, and the departments of Caldas, Tolima, Huila, Antioquia, Santander, Bolívar, Cesar, Norte de Santander, Sucre, Córdoba, Meta and Casanare for cocoa.⁵³ According to the project website, to be eligible to participate in the project, producers must have between one-half and ten hectares of land and provide proof of ownership.⁵⁴

The *Asómbrate* project is linked to a carbon trading platform, called ACORN, which was created by the Netherlands-based transnational bank Rabobank.⁵⁵ ACORN bills itself as “an online marketplace for carbon removal units that connects large companies with small farmers who can sequester carbon through agroforestry.”⁵⁶ The platform is based on Microsoft's Azure Cloud.⁵⁷ According to Rabobank, ACORN “supports the initiation and development of [...] agroforestry projects and

facilitates the subsequent trade of the so-called carbon removal units (CRUs) that are generated from the sequestered carbon.”⁵⁸ ACORN’s stated goal is to empower smallholder farmers and generate additional income, in addition to achieving carbon sequestration and combating climate change.⁵⁹

ACORN generates and trades carbon credits (CRUs) for the carbon removed from the atmosphere by the trees planted on participating farms in addition to the main crops such as coffee or cocoa. ACORN emphasizes that its credits are based on biomass carbon (i.e., not soil carbon) and represent actual or ex post carbon removal, as opposed to credits issued for potential/anticipated future sequestration.⁶⁰

ACORN/Rabobank provide detailed information about the methodology and technical process for measuring carbon storage as well as creating and trading CRUs,⁶¹ which can be summarized as follows:



Rabobank claims that 80 percent of the revenue from the sale of carbon credits goes directly to the farmers participating in the project. Half of the remaining 20 percent goes to ACORN and the other half to the local partners – in the case of *Asómbrate*, a non-profit organization called Solidaridad.⁶⁴ Although the value of carbon credits fluctuates according to the market, the *Asómbrate* project guarantees that credits are sold on the ACORN platform at a minimum price of COP 100,000 (approx. EUR 20).⁶⁵ On its website, ACORN lists Microsoft and several other companies as buyers of its carbon credits.⁶⁶ In addition, its website contains a register of all the carbon credits issued and their buyers.⁶⁷

ACORN's website currently lists 27 projects in 16 countries in Latin America, Africa and Asia,⁶⁸ and states that the platform has issued nearly 315,000 CRUs from some 316,000 hectares, while “supporting” more than 300,000 farmers. Two of the projects – one for coffee and one for cocoa – are located in Colombia, both in the department of Risaralda, which corresponds to the location of the farms involved in the *Asómbrate* project that were interviewed for this report.

A key actor in Colombia is Solidaridad, a non-profit organization that acts as local partner of ACORN and implements the *Asómbrate* project on the ground. Solidaridad is organized as a network with an international secretariat based in the Netherlands and seven regional centers in Africa, Asia, Europe, North America and Latin America. It claims to have more than 50 years of experience in developing “inclusive and sustainable value chains” to improve the conditions of small producers.⁶⁹ ACORN's website lists Solidaridad as a partner organization in Colombia, Peru, Honduras, Nicaragua, Kenya and Uganda.⁷⁰ For *Asómbrate*, Solidaridad acts as the local face of the project, recruiting farmers and providing technical assistance. Solidaridad also carries out the initial data collection from farms to onboard the smallholder farmers to the ACORN platform.⁷¹

Initially, the actual monitoring and measuring of biomass production and carbon sequestration was done by ACORN's so-called remote sensing partners, who “specialize in vegetation monitoring, machine learning, and biomass and carbon stock estimation. Together with these partners, Acorn is developing algorithms to measure biomass growth in a scalable and iterative manner.”⁷² Until recently, ACORN's remote-sensing partners included two Netherlands-based companies, called Space4Good and Satelligence.

Space4Good presents itself as a company that provides services for “remote sensing-based biomass estimation using artificial intelligence.”⁷³ According to its website, the company uses high and low-resolution data from drones and satellites, algorithms and artificial intelligence to “determine biomass estimations for the selected agroforestry and mixed-tropical forests to a high level of accuracy.”⁷⁴ The other company, Satelligence, specializes on providing “satellite data to monitor carbon sequestration occurring through the increase of biomass.”⁷⁵ In an interview from



July 2023, Satelligence’s CEO states that the company relies on satellite data from a NASA project called Jedi, combined with European satellites and the Sentinel Program. Due to the challenges associated with monitoring growth rates for small farms, the company additionally uses LiDAR technology.⁷⁶ In a written communication, Rabobank stated that it was no longer collaborating with Satelligence or Space4Good and that it now performed the biomass calculations and built the remote-sensing models in-house.⁷⁷

The certification of the carbon credits generated and traded through ACORN is done by the Plan Vivo Foundation, a Scotland-based charity, which acts as a certification body and has developed its own carbon standard.⁷⁸ According to Rabobank, certification by the foundation “demonstrates that a project is sustainable over the long-term, truly benefits people’s livelihoods and provides vital climate and environmental benefits.”⁷⁹ Before being traded on the ACORN platform, the carbon credits are accredited by a validation and verification body (VVB). According to Rabobank, the validation of the *Asómbrate* project was performed by AENOR, a Spain-based company, which offers a range of certification, validation and verification services.⁸⁰

Asómbrate claims that 14,587 coffee growers are currently participating in the project (in addition to another 8,993 cocoa producers) and that it has issued 28,299 carbon credits.⁸¹ It further states that 3,255 payments to participating smallholders have been made, without providing further details. Both Solidaridad and Rabobank claim that the project particularly benefits smallholder producers, many of which “live below the poverty line and struggle financially with an average income between 3,000 and 4,000 USD a year.”⁸² Participation in the project is supposed to improve productivity and yields through the adoption of agroforestry practices, as well as additional income through the sale of carbon credits. *Asómbrate* claims that these benefits will be long-term (20 years and more) and emphasizes the strong training component of the project, particularly through the so-called Carbon Farming Academy, a joint initiative by Rabobank and Solidaridad which provides “a digital platform that facilitates learning concepts on climate-smart agriculture practices and the scalable and monetizable market for environmental services.”⁸³

5. Peasants’ reports pointing to concerns related to carbon trading schemes

“The organization [Solidaridad] was very clear with us peasant farmers and said that the price of the carbon credit can vary according to the market. In Colombia it also varies according to the price of the dollar because the resources come from the Netherlands, so it is not clear what the value of each credit is.”

“If we receive money, say something like 500,000 pesos a year, and that money comes for having trees that have always been there and the coffee needs them, I would be happy because it is money that I don’t have and I didn’t have to do anything to get it. One does not ask oneself if the value is correct, but simply receives. Because I don’t know how much I am supposed to get for my farm, so I am content.”⁸⁴



Interviews with several smallholder coffee growers who participate in the *Asómbrate* project point to several concerns related to carbon trading schemes. The interviews were conducted with peasants in the municipality of Belén de Umbría in the Colombian department of Risaralda who own around 2,000 coffee trees and had been participating in the project for at least six months, but in most cases less than a year, at the time of the interviews. Only one coffee grower interviewed had been involved in Solidaridad-implemented projects for several years. The following paragraphs summarize the most important findings of the accounts received.

The hope of receiving additional farm income emerges clearly as the main reason why peasant families chose to participate in the *Asómbrate* project. However, the vast majority of those interviewed had not received any payments at the time of the interviews, although one family stated that their neighbors had received some payments, based on a price of 100,000 Colombian pesos (around 20 euros) per carbon credit. Yet some interviewees said they didn't really care how much money they received and when, since the project didn't cause them any extra work, so any payment was a bonus for them.

According to the accounts received, Solidaridad recruits farming families to participate in the project, visiting farms and providing basic information about the project. Several statements indicate that Solidaridad cooperates with local authorities, such as mayors, and the local office of the National Coffee Farmer Federation (Federación Nacional de Cafeteros) to contact peasants and promote the project. All respondents stated that they had signed consent forms for the use of their data (personal and agricultural) in the framework of the project, as a condition of their participation. Some interviewees also indicated that Solidaridad staff had inspected their farms and collected data. However, the families interviewed stated that they do not know exactly what data had been

collected and how it was used, although they said they knew that the project used technologies such as geo-referencing and satellite imagery to calculate carbon capture on the farm.

In addition, the peasants interviewed participating in the project were not able to provide information on the value of a carbon credit generated on their farms, nor on the mechanisms for establishing its value and calculating the payments to which they are entitled. Some families reported that they had been told that the price changes permanently, as they depend on the market. Respondents also stated that they did not know when and how often they would receive payments or how much money they could expect to receive each year.

In addition, the interviewed peasants had very limited knowledge and understanding of the technical aspects of the project. They reported that Solidaridad staff would collect some personal and farm-related data⁸⁵ and inform them that technologies such as satellite imagery and artificial intelligence (AI) would be used to measure the carbon stored on the farm and calculate its value. However, none of the interviewees were able to provide additional information on how carbon credits are generated from their farms and how they are registered and traded. Nevertheless, most of them knew that a “Dutch bank” was behind the project and was the main actor in carbon trading.

Interestingly, the local Solidaridad staff interviewed also had little information about the exact process of calculating on-farm carbon storage, generating carbon credits and trading these credits on the ACORN platform. They stated that they only collected the data from farmers and entered it into a platform, but that only a few employees hired by Rabobank had access to the aggregated data and the platform and that they were the ones who counted and calculated the carbon sequestered on the farms.

Finally, the peasants interviewed reported that there was no accountability mechanism for the project in which they could present complaints or ask questions. They stated that Solidaridad organized meetings from time to time, but that their day-to-day farm work made it difficult for them to participate in them on a regular basis. A local Solidaridad staff member stated, however, that a WhatsApp group had been set up so that project participants could request information or file any complaints. Most interviewees appreciated the fact that participation in the project did not require them to change their farming practices or generate additional work. Some reported that Solidaridad had provided free fruit trees to those interested in planting them on their farms, but that participation in this initiative was voluntary. However, one interviewee reported that some of the farmers participating in the project had begun to replace existing trees on their farms with fast-growing trees because they had been told that these would increase carbon sequestration and thus generate more income.

In response to the reports from the farming families, Solidaridad, through its director in Colombia, replied that all farmers participating in the *Asómbrate* project are obliged to give their consent to share (personal) data for the purpose of generating CRUs, and that the project’s procedures comply with both Colombian law and the European Union’s General Data Protection Regulation (GDPR).⁸⁶ According to Solidaridad, “the current stage requires farmers to sign a participant agreement detailing the roles and responsibilities of both parties. Solidaridad plus its partners have initiated the necessary logistics to ensure that all registered (new and existing) farmers, despite their remote location, have the possession of a signed participant agreement.”⁸⁷ Rabobank also claims that “all [participating] farmers have signed a consent form at the start of the project.”⁸⁸

Regarding payments to peasants resulting from the generation and sale of carbon credits, Solidaridad recognizes the possibility that participating peasants did not receive any payment after more than six months. According to the organization,

“[t]he reason for this is that Acorn performs measurements on the growth in biomass only once a year to ensure the highest quality of the measurements. The exact moment of measurement depends on the specific region and its climatic conditions. ACORN furthermore sells ex-post carbon removal, meaning *actual* CO2 removal that has taken place over the year *before* the annual measurement. It is therefore possible that some farmers will not receive a payment each year, if the measurement indicates that the removal on their farms is below 1 CRU in that particular year. Farmers that have generated more than 1 CRU in the measured year, will receive a payment in the next calendar year. The payments are once a year. The payment date, the exact carbon price, the total payment value are communicated once the carbon credits have been sold. The price of the carbon depends on different factors, but ACORN pays a minimum price of 20 EUR per CRU. [...] It is not possible to estimate the expected volume of CRUs that a farm generates, as this depends on climatic, environmental and human factors throughout the year.”⁸⁹

In addition, Solidaridad states that the *Asómbrate* project places great emphasis on informing interested producers about its proposition and conditions of participation, “using farmer adapted terminology.”⁹⁰ According to Solidaridad, “specific questions of individual farms are addressed [during farm visits] and only after consent forms are signed the data collection will start on the particular farm.”⁹¹ Moreover, the organization points to the project website to consult the conditions and to a WhatsApp number that is free to all registered users.

Similarly, Rabobank also states that ACORN puts “great emphasis on providing clearly presented and easy-to-digest information to farmers,” specifying that this concerns the understanding of participant agreements, the clarity of the calculations for the issuance of carbon credits and the transparency of the sale process of CRUs and the subsequent payment mechanism.⁹²

To the statements indicating a lack of accountability mechanisms, Solidaridad states that “Farmers are able to share their petitions, questions and complaints through four different types of channels: (1) the Project Council, (2) the general WhatsApp support line, (3) WhatsApp line of locally based field technicians and (4) through the contact form on our website.”⁹³ Rabobank further emphasizes that “[t]hese communication channels are in place since the start of the project. They are continuously monitored by Solidaridad, Rabobank, and third-party audits.”⁹⁴ Moreover, the bank claims that farmers can withdraw from the program “at any point in time”.⁹⁵

Finally, responding to reports according to which producers participating in the *Asómbrate* project may have replaced trees with fast-growing species, Solidaridad states that:

“we discourage tree cutting – even of old trees – as this can negatively affect the income obtained from the carbon removals. However, if there are signs that tree cuttings are taking place at massive scale, we take these denouncements seriously [...]”⁹⁶



In the same vein, Rabobank notes that:

“Our Acorn Design Document states that pruning practices are required to ensure that shade levels are optimal for the main crops coffee and cocoa. It is not intended that farmers should remove trees to replace it [sic] with new ones (fast growing trees). Our program disincentivize these practices, as the aim of our program is to support sustainable practises and not to maximize carbon income.”⁹⁷



PART III

TOWARD THE PROTECTION OF THE RIGHTS OF PEASANTS AND RURAL PEOPLE IN THE CONTEXT OF CARBON MARKETS

6. Human rights analysis

The information received from peasants who participate in the *Asómbrate* project points to several issues that are important to consider from a human rights and environmental law perspective. Analyzing them allows us to identify measures that the Colombian state is required to take to ensure that its climate change policies and measures are consistent with its human rights and environmental obligations.

It is important to situate the findings in the Colombian context, which is marked by a long and ongoing historical process of marginalization and structural discrimination of peasants, Indigenous Peoples, Afro-Colombian communities and other rural people.⁹⁸ This process has been intensified by a decade-long armed conflict which has created profound social inequality and injustice. This reality places these groups at particular risk of instrumentalization and exploitation, including in the context of carbon trading schemes. One of the peasants participating in the *Asómbrate* project expressed this very clearly by saying:

“In Colombia, the peasantry has been submerged in a situation of abnegation, which has led to a conformist attitude, because we, peasants, have never received enough support, so anything they give us, even a smile where they gather us and tell us something nice, we are all happy and this is the result of the oblivion we have suffered.”⁹⁹

These concerns are exacerbated through the great power asymmetries that exist between rural people and communities on the one hand, and transnational companies such as Rabobank and Microsoft on the other, which are behind the ACORN platform. In such an uneven relationship and in the absence of adequate accountability mechanisms and oversight, projects like *Asómbrate* raise major concerns of reproducing exploitative patterns and structures. In this context, it is worth mentioning the triple role of Microsoft in the context of this project: one of the world’s biggest technology companies is, at the same time, the provider of the cloud underlying the ACORN platform and a buyer of carbon credits through that very same platform. Furthermore, it is a key player in the provision of digital infrastructure and services in rural areas in Colombia.¹⁰⁰ How real is the possibility for peasant communities to access justice and redress in case of abuses in such a scenario?

Acknowledging the structural discrimination and marginalization of peasants in the country, the Colombian legislature has recently approved a constitutional amendment that recognizes the country’s peasants as subjects of rights and special protection.¹⁰¹ This Act complements existing legislation that gives a similar status to Indigenous Peoples and Afro-Colombian communities.

Peasant and civil society organizations have welcomed this development and are demanding that effective measures are taken to implement this decision and to ensure the respect, protection and fulfilment of the rights of peasants, on the basis of the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP) as well as the international human rights and environmental law framework.

Such measures also need to consider the human rights risks of carbon trading projects and schemes. Based on the findings of our research on the *Asómbrate* project, this requires firstly to address risks arising from the extraction and collection of huge amounts of data to enable carbon trading on the ACORN platform, which are then fed into and processed by several informatic systems, including so-called AI systems. One important finding is the lack of information held by smallholder farmers regarding what data exactly is being collected and how it is used – and how it may be used in the future. Importantly, the data in question not only concerns personal information, but also comprehensive farm data. The CEO of Satelligence, one of ACORN’s former so-called remote sensing partners, explained in an interview the amount of data and information that his company collects:

“With the satellites, Satelligence measures all the dynamics, all the changes in the landscape. What kind of crop is growing there? What was the land use before the crop was growing there, was it a shrub, was it grassland? The approach is from land use, land cover and change, but also from carbon stock.”¹⁰²

The Policy Recommendations on Data for Food Security and Nutrition that have been recently adopted by the UN Committee on World Food Security (CFS) recognize that the data generated and managed by Indigenous Peoples, peasants and other small-scale food producers are closely linked to their traditional knowledge, innovations and practices, which are protected under international human rights and environmental law.¹⁰³ Moreover, it is important to stress that it is impossible to clearly separate personal from non-personal (farm) data in the context of peasant farming, precisely because of the intrinsic connection between smallholder producers, their farming practices and their territories.

The lack of transparency regarding what kind of data exactly is collected and how it is used for the generation and trading of carbon credits entails the serious risk of instrumentalizing smallholder producers and their practices and ways of life, as well as creating new forms of exploitation. Not only are smallholder farmers’ territories used as carbon sinks for polluting corporations (as a “solution” allowing them to continue their destructive and harmful operations), but the data that is being extracted from them feeds and trains the algorithms and AI models belonging to powerful multinational technology companies. Without effective regulation, such data could be used for profiling and surveillance as well as lead to the loss of effective control of people and communities over their farming practices and territories. This would not only affect the peasants who agreed to participate in a carbon trading project, but also future generations of rural people living and working on the concerned land. The reports received from some of the coffee growers that neighbors have started to cut down old trees on their farms indicates that carbon credit projects could lead to changes in farming practices that are motivated by external incentives, rather than considerations of peasant autonomy. Advice that is given to peasants, which primarily focuses on improving their performance for a carbon trading program and which is based on AI models is never neutral.

All in all, data-based technologies play a central role in enabling the subjugation of peasant farms and territories to capitalistic interests of corporations and other actors in the context of carbon markets. This entails the imposition of a logic that assumes that people's territories are an economic resource and source for the extraction of wealth – with all the violence and destruction this entails. Such a view is fundamentally opposed to the perception and worldview of rural communities, for whom they are the source of life, food, shelter, encounter and solidarity, and thus constitute the very foundation of their ways of life.¹⁰⁴

Putting in place and implementing binding and effective measures to ensure the right to access to information, consultation and participation as well as free prior and informed consent, in accordance with Colombian national legislation as well as international human rights and environmental law,¹⁰⁵ must be part of the measures taken by the Colombian state to address these risks. This includes to ensure access to information about the technologies that are used in the context of carbon trading projects, how they function, how they are developed, and how decisions are made within technological systems.

However, such measures are not sufficient to address the possible loss of autonomy and self-determination of peasants, Indigenous Peoples, Afro-Colombian communities, ethnic groups and other rural people through carbon trading projects, including future generations of these groups. These are the very foundation of their rights as well as their food and management systems. Therefore, all measures addressing carbon markets need to be embedded in public policies and legal measures in support of their rights, which includes, among others, measures to safeguard and promote their rights to land and seeds as well as their traditional knowledge, innovations and practices, and the management systems in which they are embedded.¹⁰⁶ Moreover, this requires public policies in support of agroecology as the basis for just, healthy and truly sustainable food systems and the realization of the right to food and nutrition. It is important to consider both present and future generations in this context.¹⁰⁷

Another critical aspect that needs to be addressed by the Colombian state is to ensure accountability of corporations and other non-state actors, including in the context of carbon markets. The findings of this research have shown the absence of adequate, independent complaint and accountability mechanisms in the *Asómbrate* project. During the investigation it was not possible to assess whether the participation agreements that farmers must sign in order to participate in the project clearly set out the rights and obligations of all parties – as claimed by Rabobank/ACORN and Solidaridad – which is a precondition for participating farmers to seek redress in case of non-compliance. The existing power imbalances between the farming families and the actors involved in the *Asómbrate* project and ACORN are likely to manifest themselves in the event that the farmers decide to take civil action to denounce possible non-compliance, as they could make it difficult for them to access justice and adequate redress. Although Rabobank and Solidaridad claim that several channels



exist for participating farmers to voice questions, concerns and complaints, including a dedicated WhatsApp channel, it is evident that independent and effective remedy mechanisms are lacking. Voluntary self-regulation by corporate and other non-state actors cannot be sufficient to safeguard the rights of rural people in this context, and the Colombian state is therefore required to ensure adequate and effective regulation and public oversight of carbon trading projects as well as the entities that promote and implement them. This includes the obligation to ensure that peasants and other rural people are aware of the legal avenues available to them to defend their rights in case of abuse and to make legal assistance available to them.

Finally, while it is urgent for Colombia to close the gaps in its governance and regulatory framework regarding carbon markets to ensure the respect, protection and fulfilment of the rights of peasants, Indigenous Peoples, Afro-Colombian communities, ethnic groups and other rural people, the intrinsic flaws of carbon trading schemes and their documented adverse impacts on affected communities call for a comprehensive assessment of whether they are appropriate tools for achieving Colombia's objectives regarding climate change and biodiversity protection. A growing body of research demonstrating how carbon markets entail land grabbing and other forms of dispossession of rural communities and questioning their environmental benefits¹⁰⁸ calls for a broad, participatory process to evaluate the results of carbon trading schemes and programs in Colombia, placing particular attention on the rights of rural people and communities. Such a process should also provide a space for discussing alternative, community-led approaches to reduce Colombia's GHG emissions, protect and restore ecosystems and biodiversity, allow sustainable economic development and promote healthy and just food system based on agroecology. This should include assessing models that recognize and support the important contributions of peasants, Indigenous Peoples, Afro-Colombian communities, ethnic groups and other rural people to overcoming the current ecological crisis, while avoiding the further commoditization and financialization of territories and nature.



7. Conclusions and recommendations

Carbon markets create several human rights concerns, especially regarding the respect, protection and fulfilment of the rights of Indigenous Peoples, peasants, ethnic communities and other people living in rural areas. Carbon trading projects directly involving peasants and other smallholder food producers create specific human rights risks, including through the collection and use of huge amounts of personal and farm-related data, the widespread use of data-based technologies, and existing power imbalances, which undermine the autonomy of farming communities. To comply with its obligations under national and international human rights and environmental law, Colombia is required to take measures to safeguard and guarantee human rights in the context of carbon markets and to put in place policies that support community-based approaches for the reduction of GHG emissions, the protection and restoration of ecosystems and biodiversity, and sustainable and just food systems.

To respond to the human rights concerns related to carbon markets, the state of Colombia should take the following actions:

- 1.** Adopt measures to implement the recently adopted constitutional amendment recognizing peasants as subjects of special protection to ensure the respect, protection and promotion of the rights of peasants and other people working in rural areas, as enshrined in the UNDROP and the international human rights and environmental framework.
- 2.** Conduct an inclusive and participatory process, with adequate conflict of interest safeguards, to assess the impacts of carbon markets and other climate change measures put in place by Colombia (including REDD+ projects), with a particular focus on the impacts on the rights of Indigenous Peoples, Afro-Colombian communities, peasants and other rural people. Such a process should be conducted with specific mechanisms and procedures ensuring the effective participation of organizations representing rural people and communities, and should consider putting in place a moratorium on carbon markets, as called for by the UN Special Rapporteur on the Rights of Indigenous Peoples.
- 3.** Identify and put in place public policies to support alternative approaches and community-led models to reduce GHG emissions, protect and restore ecosystems and biodiversity, and promote sustainable economic development and food systems based on agroecology, which recognize the critical role of peasants, Indigenous Peoples, Afro-Colombian communities and other rural people, while not resulting in the commoditization and financialization of nature, nor the curtailing of their right to self-determination.

4. Adopt and implement public policies to ensure public oversight, effective regulation and accountability in the context of carbon markets and carbon trading projects, including:

a. Specific safeguards and accountability mechanisms to ensure the respect, protection and fulfilment of the rights of peasants, Indigenous Peoples, Afro-Colombian communities and rural people. Carbon trading projects directly involving these groups should receive special attention in this context, including in the implementation of the recently adopted constitutional amendment recognizing peasants as subjects of special protection;

b. Measures to ensure access to information, transparency and participation, and free, prior and informed consent in the context of carbon markets and other climate change measures;

c. Specific binding regulations for corporations and other non-state actors promoting and implementing carbon credit projects to ensure respect of human rights and accountability. Among others, such regulation should include measures guaranteeing

i. access to information and participation by affected people and communities, including access to information about the technologies that are used, how they function, how they are developed, and how decisions are made within technological systems;

ii. access to independent and effective remedy mechanisms by affected people and communities. This should include provisions to ensure the provision of legal support by competent state authorities in cases where the affected communities need to judicially prosecute the involved corporations and other non-state actors in their countries of origin or where the assets needed for reparation are located; and

iii. measures to address power asymmetries, such as, for example, the reversal of the burden of proof.

d. Specific measures addressing the human rights risks arising from the collection, storage, processing and use of data in the context of carbon markets. Such measures should be part of broader policies ensuring the protection of rural people's traditional knowledge, innovation and practices, and their self-determination over data, including their right to decide what data to share, with whom, for what purposes and under what conditions, including the right to refuse the sharing of data;

e. Mechanisms to safeguard the human rights of future generations that could be affected by carbon trading projects, including through the collection, storage, processing and use of data. This could include the creation of municipal councils mandated to protect the human rights of children, youth and future generations,

which are allowed to request information regarding the risks created by carbon trading projects for these groups, and may demand corrective measures to prevent such risks, including by means of ending contracts in situations of significant risk.

National human rights institutions should monitor the impacts of carbon trading projects on rural populations, in consultation with communities and the organizations representing them, put in place channels allowing affected people to submit complaints and requests, and issue recommendations to the competent authorities for measures aimed at preventing human rights and environmental harm in the context of carbon trading projects.

The regional and international human rights systems should develop guidance for states on how to ensure the respect, protection and fulfillment of human rights in the context of carbon markets, with particular attention to the rights of Indigenous Peoples, peasants and other small-scale food producers and rural communities.

Organizations of peasants, Indigenous Peoples, Afro-Colombian communities and other rural people should document irregularities and abuses as well as changes in control over and use of land, forests and fisheries related to carbon trading projects.

ENDNOTES

- ¹ According to the United Nations Environmental Program (UNEP), “Carbon markets are carbon pricing mechanisms enabling governments and non-state actors to trade greenhouse gas emission credits. The aims is to achieve climate targets and implement climate actions cost effectively.” Please see www.unep.org/topics/climate-action/climate-finance/carbon-markets<https://www.unep.org/topics/climate-action/climate-finance/carbon-markets>.
- ² For more information, please see: www.maelacontinental.com.
- ³ In response to current global social, environmental and economic challenges, governments and corporations are promoting the bioeconomy as a means to use ‘renewable’ biological resources to replace fossil fuels as well as for food, animal feed, and other bio-based products. While the core objective could be positive, the financialized version of the bioeconomy is fundamentally about generating profits from biological processes. For more information, please see Transnational Institute (TNI) (2015). *The Bioeconomy: A Primer*. Available at: www.tni.org/files/publication-downloads/tni_primer_the_bioeconomy.pdf.
- ⁴ www.unep.org/topics/climate-action/climate-finance/carbon-markets.
- ⁵ The Kyoto Protocol was adopted in 1997 and entered into force in 2005. It was superseded by the Paris Agreement as the principal regulatory instrument governing the global response to climate change since the entering into force of the latter, in 2016.
- ⁶ www.unep.org/topics/climate-action/climate-finance/carbon-markets.
- ⁷ Ecosystem Marketplace (2023). *Paying for Quality. State of the Voluntary Carbon Market 2023*, p. 6. Available at: <https://www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-market-report-2023>.
- ⁸ www.mckinsey.com/capabilities/sustainability/our-insights/a-blueprint-for-scaling-voluntary-carbon-markets-to-meet-the-climate-challenge.
- ⁹ Ecosystem Marketplace (2023), p. 8.
- ¹⁰ The following paragraphs are partly based on: Green Finance Observatory (2019). *50 Shades of Green. The Rise of Natural Capital Markets and Sustainable Finance. Part I: Carbon*. Available at: <https://greenfinanceobservatory.org/wp-content/uploads/2019/03/50-shades-carbon-final.pdf>.
- ¹¹ About three-quarters of N₂O emissions come from agriculture, especially from the use of synthetic fertilizer. Please see Chrobak, U. (2021). *The world’s forgotten greenhouse gas*. BBC, 4 June 2021. Available at: www.bbc.com/future/article/20210603-nitrous-oxide-the-worlds-forgotten-greenhouse-gas.
- ¹² Carton, W., Lund, J.F. and Dooley, K. (2021). *Undoing Equivalence: Rethinking Carbon Accounting for Just Carbon Removal*. *Front. Clim.* 3:664130. DOI: 10.3389/fclim.2021.664130. Available at: www.frontiersin.org/articles/10.3389/fclim.2021.664130/full#h9.
- ¹³ The effect of an activity to reduce CO₂/GHG emissions below the level that would have occurred in the absence of the activity is referred to as “additionality”.
- ¹⁴ Davis, N. (2007). *The inconvenient truth about the carbon offset industry*, *The Guardian* 16 June 2007. Available at: www.theguardian.com/environment/2007/jun/16/climatechange.climatechange.
- ¹⁵ Greenfield, P. (2023). *Revealed: more than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows*. Available at: <https://www.theguardian.com/environment/2023/jan/18/revealed-forest-carbon-offsets-biggest-provider-worthless-verra-aoe>. One recurrent pattern has been that the real threat to the forests that conservation projects were going to conserve has been deliberately exaggerated
- ¹⁶ Öko Institut (2016). *How additional is the Clean Development Mechanism? Study prepared for the European Commission (DG CLIMA)*. Available at: https://climate.ec.europa.eu/system/files/2017-04/clean_dev_mechanism_en.pdf. On p. 11, this report states: “Overall, our results suggest that 85% of the projects covered in this analysis and 73% of the potential 2013-2020 Certified Emissions Reduction (CER) supply have a low likelihood that emission reductions are additional and are not over-estimated. Only 2% of the projects and 7% of potential CER supply have a high likelihood of ensuring that emission reductions are additional and are not over-estimated. Our analysis suggests that the CDM still has fundamental flaws in terms of overall environmental integrity. It is likely that the large majority of the projects registered and CERs issued under the CDM are not providing real, measurable and additional emission reductions.”
- ¹⁷ For more information, please see: Lang, M., Manahan M. A., Bringel, B. (Eds.) (2024). *The Geopolitics of Green Colonialism. Global Justice and Ecosocial Transitions*. Pluto Press.
- ¹⁸ FIAN International, Transnational Institute (TNI), *Focus on the Global South* (2020). *Rogue Capitalism and the Financialization of Territories and Nature*. Available at: www.foodsovereignty.org/roguecapitalism.
- ¹⁹ Green Finance Observatory (2019). *50 Shades of Green. Part III: Sustainable Finance 2.0. The Securitization of Climate and Biodiversity Policies*. Available at: https://greenfinanceobservatory.org/wp-content/uploads/2020/03/50-shades-part-III_v5.10.pdf.
- ²⁰ The financial stability risks inherent in carbon markets is described in: Green Finance Observatory (2018), pp. 41-49.
- ²¹ Aronoff, K., (2018). *Shell Oil Executive Boasts that his company influenced the Paris Agreement*. *The Intercept*, 8 December 2018. Available at: <https://theintercept.com/2018/12/08/shell-oil-executive-boasts-that-his-company-influenced-the-paris-agreement>.
- ²² United Nations Environmental Programme (2024). *Global Resources Outlook 2024*. Available at: www.unep.org/resources/Global-Resource-Outlook-2024. This report finds that “without urgent and concerted action, by 2060 resource extraction could rise by 60% from 2020 levels – driving increasing damage and risks.”
- ²³ The need for states to protect people and communities from the risk of land grabbing through climate change mitigation projects, including carbon sequestration, has been acknowledged by the UN Committee on Economic, Social and Cultural Rights (CESCR) in its General Comment No. 26 (2022) on Land and Economic, Social and Cultural Rights (E/C.12/GC/26), para. 56.

- ²⁴ See, for instance: Institute for Agriculture and Trade Policy (IATP) (2020). Carbon Markets and Agriculture. Available at: www.iatp.org/carbon-markets-and-agriculture.
- ²⁵ At a human rights dialogue with the Special Rapporteur on the rights of Indigenous Peoples and the Expert Mechanism on the Rights of Indigenous Peoples during the twenty-third session of the UN Permanent Forum on Indigenous Issues (UNPFII), which took place at the UN Headquarters in New York from 15-26 April 2024), Tzay said: “My recommendation on this [issue] is very clear. I believe that a permanent moratorium, or at least a moratorium, can be a solution for stopping human rights abuses of Indigenous Peoples’ rights in these carbon markets.” Recording of the session available at: <https://webtv.un.org/en/asset/k1r/k1rvxl94dd>.
- ²⁶ For recent examples please see: Human Rights Watch (2024). Carbon Offsetting’s Casualties. Violations of Chong Indigenous People’s Rights in Cambodia’s Southern Cardamom REDD+ Project. Available at: www.hrw.org/report/2024/02/28/carbon-offsettings-casualties/violations-chong-indigenous-peoples-rights; Calí Tzay, F. (2023). Green financing – a just transition to protect the rights of Indigenous Peoples. Report of the Special Rapporteur on the human rights of Indigenous Peoples, José Francisco Calí Tzay (A/HRC/54/31). Available at: <https://undocs.org/A/HRC/54/31>; Friends of the Earth International (2023). Bank of evidence on false climate solutions. Relating the impacts on people and planet. Available at: www.foei.org/wp-content/uploads/2023/11/Bank-of-evidence-climate-false-solutions_EN_Nov-2023.pdf.
- ²⁷ Ecosystem Marketplace (2023). Paying for Quality. State of the Voluntary Carbon Market 2023, p. 13.
- ²⁸ Ecosystem Marketplace (2023), p. 13.
- ²⁹ European Coordination Via Campesina (ECVC) (2022). Carbon farming: A ,new business model’ ... for who? Available at: www.eurovia.org/publications/ecvc-publication-carbon-farming-a-new-business-model-for-who.
- ³⁰ For more information, please see: Shinde, V.R., Tasgaonkar, P.P., and Garg, R.D. (2018) “Environment Monitoring System through Internet of Things (IOT),” International Conference on Information, Communication, Engineering and Technology (ICICET), Pune, India, 2018, pp. 1-4, doi: 10.1109/ICICET.2018.8533835. Available at: <https://ieeexplore.ieee.org/document/8533835>.
- ³¹ LiDAR (Light Detection and Ranging) is a remote sensing technology that uses laser light to measure distances to the Earth’s surface and other objects.
- ³² One corporate accounting and reporting standard created by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) is the so-called „Greenhouse Gas Protocol”. Please see: <https://ghgprotocol.org>.
- ³³ The United Nations Framework Convention on Climate Change (UNFCCC) has recently created an Initiative on Artificial Intelligence for Climate Action (#AI4ClimateAction Initiative). Please see https://unfccc.int/ttclear/artificial_intelligence.
- ³⁴ See, for instance: <https://blockchainclimate.org>.
- ³⁵ United Nations Conference on Trade and Development (UNCTAD) (2021). Digital Economy Report 2021. Cross-border data flows and development: For whom the data flow. Available at: <https://unctad.org/publication/digital-economy-report-2021>.
- ³⁶ See, for example: www.bloomberglia.com/2023/01/18/capitalismo-descarbonizado-en-que-consiste-la-propuesta-de-petro-en-davos.
- ³⁷ Gobierno de Colombia (2020). Bioeconomía - para una Colombia Potencia viva y diversa: Hacia una sociedad impulsada por el Conocimiento. Available at: https://minciencias.gov.co/sites/default/files/upload/paginas/bioeconomia_para_un_crecimiento_sostenible-qm_print.pdf.
- ³⁸ www.minambiente.gov.co/colombia-reducira-en-un-51-sus-emisiones-de-gases-efecto-invernadero-para-el-ano-2030.
- ³⁹ www.minambiente.gov.co/cambio-climatico-y-gestion-del-riesgo/impuesto-al-carbono.
- ⁴⁰ Asociación Colombiana de Actores de Mercado de Carbono (AsoCarbono) (2023). Informe sobre el estado actual del mercado colombiano de carbono. Al 30 de septiembre de 2023, P. 5. Available at: <https://asocarbono.org/wp-content/uploads/2023/10/immc-jul-a-sep-2023.pdf>.
- ⁴¹ Ibid., p. 8.
- ⁴² www.un-redd.org/partner-countries/latin-america-and-caribbean/colombia.
- ⁴³ Ibid., p. 9.
- ⁴⁴ For more information, please see: Bermúdez Liévano, B. (2022). Territorio de los jaguares de Yuruparí dividido por proyecto de bonos de carbono. La Silla Vacía, 26 October 2022. Available at: www.lasillavacia.com/silla-nacional/territorio-de-los-jaguares-de-yurupari-dividido-por-proyecto-de-bonos-de-carbono.
- ⁴⁵ <https://akubadaura.org/vulneracion-del-derecho-a-la-consulta-previa-en-proyectos-redd-en-colombia>.
- ⁴⁶ Political Constitution of the Republic of Colombia, Art. 78 (Chapter III). Available at: www.secretariasenado.gov.co/constitucion-politica.
- ⁴⁷ www.minambiente.gov.co/wp-content/uploads/2022/01/15.-Resolucion-1447-de-2018.pdf. It should be noted that the implementation of the registry framework established by this resolution was suspended by Colombia’s Consejo del Estado between September 2022 and May 2024.
- ⁴⁸ Gobierno de Colombia (2023). Plan Nacional de Desarrollo 2022-2026: Colombia, potencia mundial de la vida. Available at: <https://petro.presidencia.gov.co/prensa/Paginas/Conozca-aqui-el-Plan-Nacional-de-Desarrollo-2022-2026-Colombia-potencia-mundial-de-la-vida-230510.aspx>.
- ⁴⁹ The name of the project is a play on words: “Asóbrate” is an expression meaning “Be astonished”, but “sombra” also means shade, thus pointing to the shade created by trees in agroforestry.
- ⁵⁰ <https://asombrate.org>.
- ⁵¹ The NGO Solidaridad, who implemented the project, claims that 14.822 coffee growers from Colombia and Peru adopted “climate-smart” practices through *Café del Futuro*, resulting in increased income, reduced pressure on ecosystems, better carbon storage and reduction of CO2 emissions in production systems. Please see: <https://solidaridadlatam.org/programa/cafe>.

⁵² <https://asombrate.org>.

⁵³ <https://asombrate.org>.

⁵⁴ Whereas the project website (<https://asombrate.org>) refers to 0.5 ha as the minimum size of participating farms, Rabobank's documents indicate 0.1 ha. Please see: ACORN (2021). The Acorn Framework for Voluntary, Ex-Post, Agroforestry Carbon Removal Units. Version 1.0, September 2021, p. 47. Available at: https://assets.ctfassets.net/9vhdnop8eg9t/5HTRPAA8U0geZofq8qPhtx/aff50c099d45a2666006d2643f81913a/The_Acorn_Framework_v1.0_-_Sept_2021.pdf. The *Asómbate* website also mentions that farmers must have planted trees on their farms within the last five years to be eligible in the project, which is also not consistent with the information shared by Rabobank.

⁵⁵ ACORN is an acronym for "Agroforestry CRUs for the Organic Restoration of Nature", whereby "CRUs" stands for "Carbon Removal Units".

⁵⁶ <https://acorn.rabobank.com/en/blog/a-marketplace-for-change>.

⁵⁷ <https://news.microsoft.com/source/emea/features/banking-on-green-financial-service-firms-use-tech-to-nurture-a-more-sustainable-planet>; <https://rabobank.jobs/en/article/how-project-acorn-contributes-to-new-revenue-models-for-farmers-jelmer-van-mortel>. In the second article, Jelmer van Mortel, Rabobank's Innovation Manager Markets states: "We work closely with Microsoft. We have built a platform on their technology."

⁵⁸ ACORN (2021). The Acorn Framework for Voluntary, Ex-Post, Agroforestry Carbon Removal Units. Version 1.0, September 2021. Available at: https://assets.ctfassets.net/9vhdnop8eg9t/5HTRPAA8U0geZofq8qPhtx/aff50c099d45a2666006d2643f81913a/The_Acorn_Framework_v1.0_-_Sept_2021.pdf.

⁵⁹ <https://acorn.rabobank.com/en>. In a written response to a preliminary version of the present report, sent to FIAN International on 11 June 2024, Rabobank states that the "[p]rimary goal of the agroforestry design in Acorn projects is to increase local food production, to optimize the farmer income and to improve resilience to the impact of climate change." The response by Rabobank is available at [here](#).

⁶⁰ <https://acorn.rabobank.com/en/carbon-offsetting>. In a written response to a preliminary version of the present report, sent to FIAN International on 11 June 2024, Rabobank states that additionality is an important aspect of ACORN and that it performs "a detailed analysis to determine whether a project is considered additional according to the requirements of the Acorn framework."

⁶¹ <https://acorn.rabobank.com/en/monitoring> and ACORN (2021).

⁶² Polygon mapping usually involves taking a smartphone or other mobile device with a mapping software or other GPS enabled for offline use and walking around the boundaries of a farm to map the farm perimeter.

⁶³ ACORN (2021), p. 26.

⁶⁴ <https://acorn.rabobank.com>. This information has been confirmed by Solidaridad in an email correspondence with FIAN International.

⁶⁵ <https://asombrate.org> and <https://acorn.rabobank.com/en/carbon-offsetting>. In a written response to a preliminary version of the present report, sent to FIAN International on 11 June 2024, Rabobank states that the current sales price is around EUR 35 per credit.

⁶⁶ <https://acorn.rabobank.com>.

⁶⁷ <https://acorn.rabobank.com/en/registry>.

⁶⁸ <https://acorn.rabobank.com/en/projects>. Ghana, India, Nicaragua, Kyrgyzstan, Zambia, Colombia, Kenya, Côte d'Ivoire, Tanzania, Uganda, Morocco, Brazil, Peru, Mexico, Honduras, Rwanda.

⁶⁹ www.solidaridadnetwork.org/news/fostering-inclusive-value-chains-accelerate-advocate-amplify.

⁷⁰ <https://acorn.rabobank.com/en/projects>.

⁷¹ Information received during interviews with smallholder coffee growers and local Solidaridad staff. Solidaridad sent a response to a preliminary version of this report to FIAN International on June 12, 2024. The full response is available [here](#).

⁷² ACORN (2021). The Acorn Framework for Voluntary, Ex-Post, Agroforestry Carbon Removal Units. Version 1.0, September 2021, p. 8.

⁷³ www.space4good.com/portfolio.

⁷⁴ Ibid.

⁷⁵ https://satelligence.com/?s=rabobank&asp_active=1&p_asid=1&p_asp_data=1&filters_initial=1&filters_changed=0&qtranslate_lang=0¤t_page_id=5023.

⁷⁶ <https://carbonherald.com/acorn-program-positive-impact-farmers-satelligence-ceo-niels-wielaard>.

⁷⁷ In a written response to a preliminary version of the present report, sent to FIAN International on 11 June 2024, Rabobank states "Remote Sensing models are built internally by Rabobank, following the methodology that Plan Vivo [ACORN's certifying partner] has approved. Satelligence and Space4Good were initially our partners for biomass calculations but we have grown our technical capabilities to perform these calculations ourselves following our internal expertise and we now no longer work with either Satelligence or Space4Good."

⁷⁸ www.planvivo.org.

⁷⁹ ACORN (2021). The Acorn Framework for Voluntary, Ex-Post, Agroforestry Carbon Removal Units. Version 1.0, September 2021. This document provides technical details of ACORN's monitoring and certification process.

⁸⁰ Information received through a written response to a preliminary version of the present report, sent to FIAN International on 11 June 2024. For more information on AENOR, please see: www.en.aenor.com/certificacion/medio-ambiente/proyectos-vcs.

- ⁸¹ <https://asombrate.org> (consulted on 28 May 2024).
- ⁸² <https://acorn.rabobank.com/en/projects/solidaridad-latin-america-colombia-coffee>.
- ⁸³ <https://colombia.carbonfarmingacademy.org>.
- ⁸⁴ Statements from interviews with peasant families participating in the Asómbrate project.
- ⁸⁵ According to a copy of a consent form seen by MAELA Colombia and FIAN International, farmers participating in the Asómbrate project are asked to consent to the collection of the following farm data: agroforestry type, main crop species, as well as secondary and tertiary crops, planting date, number of trees in the plot and annual yield.
- ⁸⁶ Email correspondence received by FIAN International on 15 May 2024 as well as a written response by Rabobank to a preliminary version of the present report, sent to FIAN International on 11 June 2024.
- ⁸⁷ Email correspondence received by FIAN International on 15 May 2024.
- ⁸⁸ Written response to a preliminary version of the present report, sent to FIAN International on 11 June 2024.
- ⁸⁹ Email correspondence received by FIAN International on 15 May 2024.
- ⁹⁰ Ibid.
- ⁹¹ Ibid.
- ⁹² Written response to a preliminary version of the present report, sent to FIAN International on 11 June 2024.
- ⁹³ Email correspondence received by FIAN International on 15 May 2024.
- ⁹⁴ Written response to a preliminary version of the present report, sent to FIAN International on 11 June 2024.
- ⁹⁵ Email correspondence received by FIAN International on 15 May 2024.
- ⁹⁶ Ibid.
- ⁹⁷ Written response to a preliminary version of the present report, sent to FIAN International on 11 June 2024.
- ⁹⁸ Toro Pérez, Catalina , Reyes Beltran, Pablo y León Piñuela, Patricia, (2021). *Conflictividad socio ambiental y lucha por la tierra en Colombia*. UNAL, Bogotá.
- ⁹⁹ Statement received during interviews with peasant families in the Risaralda department in May 2023.
- ¹⁰⁰ Monsalve Suárez, S., and Seufert, P. (2022). The Big Tech Takeover of Food Systems in Latin America: Elements for a Human Rights-based Alternative. In *State of Big Tech 2022: Dismantling Digital Enclosures*. Available at: <https://projects.itforchange.net/state-of-big-tech/agritech-and-food-systems-in-latin-america-corporate-takeover-and-elements-for-a-human-rights-based-alternative>.
- ¹⁰¹ Legislative Act No. 01 of 2023 (5 July 2023). Available at: www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=213790.
- ¹⁰² <https://carbonherald.com/acorn-program-positive-impact-farmers-satelligence-ceo-niels-wielaard>.
- ¹⁰³ Committee on World Food Security (CFS) (2023). Policy Recommendations on strengthening collection and use of food security and nutrition data and related analysis tools to improve decision-making in support of the progressive realization of the right to adequate food in the context of national food security (<https://www.fao.org/3/nn152en/nn152en.pdf>). Para. 5 of these Policy Recommendations states the following: “Indigenous Peoples, peasants and other small-scale food producers have a variety of methods to generate, collect, store, and use data that are often not considered in standard data collection systems and in FSN decision-making. It is important to recognize the significance of these data for FSN and FSN decision-making at local and national level, and to support the effective, inclusive and meaningful participation of those who generate and manage these data, information, and knowledge, while respecting their human rights and protecting their traditional knowledge, innovations and practices”. The protection of traditional knowledge, innovations and practices are enshrined in Art. 8j of the Convention on Biological Diversity (CBD) and Art. 19 of the UNDROP.
- ¹⁰⁴ Jiménez, C. y Novoa, E. (2014). *Producción Social del Espacio: El Capital y las Luchas Sociales en la Disputa Territorial*. Ediciones Desde Abajo- Bogotá Colombia, p. 10.
- ¹⁰⁵ Colombian Constitution, Art. 78; Resolution 1774 of 2018; International Covenant on Civil and Political Rights (ICCPR), Arts. 19 and 25, Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean (Escazú Agreement, 2018), Arts. 3, 5, 6 and 7; Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention, 1998), Arts. 1, 4, 5, 6, 7 and 8; UNDROP, Art. 11; United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), Arts. 15, 19, 29 and 32.
- ¹⁰⁶ UNDROP, Arts. 17, 19 and 20. Art. 20.2 states: “States shall take appropriate measures to promote and protect the traditional knowledge, innovation and practices of peasants and other people working in rural areas, including traditional agrarian, pastoral, forestry, fisheries, livestock and agroecological systems relevant to the conservation and sustainable use of biological diversity.”
- ¹⁰⁷ Maastricht Principles on the Human Rights of Future Generations. Available at: www.ohchr.org/sites/default/files/documents/new-york/events/hr75-future-generations/Maastricht-Principles-on-The-Human-Rights-of-Future-Generations.pdf.
- ¹⁰⁸ See, for example: Friends of the Earth International (2023). Bank of evidence on false climate solutions. Relating the impacts on people and planet. Available at: www.foei.org/wp-content/uploads/2023/11/Bank-of-evidence-climate-false-solutions_EN_Nov-2023.pdf. For the impacts on Indigenous Peoples, see: Calí Tzay, F. (2023). Green financing – a just transition to protect the rights of Indigenous Peoples. Report of the Special Rapporteur on the human rights of Indigenous Peoples, José Francisco Calí Tzay (A/HRC/54/31). Available at: <https://undocs.org/A/HRC/54/31>.

