	Social, Gender and Environmental study of the Project CSICAP* in Colombia	
	<b>ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK</b> presented to: The Alliance of Bioversity International and CIAT	Date: 03/31/2021 Rev: 01/12/2021
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# ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

Climate-smart initiatives for climate change adaptation and sustainability in  
prioritized agricultural production systems in Colombia - CSICAP\*

Annex 6

Green Climate Fund Funding Proposal

\* The initial title of the project was changed from Low-Emission and Climate Resilient Agriculture in Colombia (LECRA) to Climate-smart initiatives for climate change adaptation and sustainability in prioritized agricultural production systems in Colombia (CSICAP). All the references in this document have been changed to CSICAP. If there is any reference to LECRA should be understood as CSICAP

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## Introduction

The Environmental and Social Management Framework (ESMF) with a gender perspective has been developed to support the proposal for funding of the "Low Emission Climate Change and Variability Resilient Agriculture in Colombia" (CSICAP for its acronym in English) project to the Green Climate Fund. The ESMF seeks to manage the environmental and social risks of the CSICAP project through mitigation measures.

For the development of this framework, each of the components and activities included in the CSICAP project were analyzed considering, on the one hand, the measures, and practices that the project will use to improve resilience to climate change and reduce the water and carbon footprint of the prioritized agricultural activities, and, on the other hand, the existing environmental, social, and economic conditions in the territories where the project will be implemented.

In addition to the environmental, social, and institutional context elements, the document lays out an environmental and social management plan that defines the guidelines, procedures, and obligations for the responsible parties and strategic partners, which comply with the environmental, social, and gender standards, safeguards and policies of CAF and the Green Climate Fund, as well as with Colombian regulations and public policy. CSICAP was classified as a Category B project, which means it has environmental and social impacts considered to be of medium impact.

The incorporation and enforcement of these arrangements will minimize the potential adverse impacts of the project on the environment, communities, and project beneficiaries. Furthermore, the ESMF opts for an approach that also seeks to maximize the positive impacts and outcomes of the CSICAP project. Similarly, the project's information disclosure strategy and grievance redress mechanism seek to promote transparency and accountability among stakeholders.

The document is organized in the following way:

- A description of the territorial, environmental, social and gender context of the CSICAP Project.
- An analysis of environmental and social regulations. First, the general framework of the CSICAP project is presented, followed by the regulations that must be followed during the implementation of the project activities.
- An evaluation of the environmental and social management capacities of the Producer Associations participating in the project. This includes an analysis of i) the existence of rules and regulations, ii) inter-institutional relations, iii) internal coordination, iv) financial capacity, and v) monitoring mechanisms. The chapter includes a section of recommendations, with the purpose that the development of these competencies will strengthen the implementation of the project and facilitate its environmental and social management.
- A mapping of key stakeholders. The first part takes up the results of the inter-institutional relations from the previous chapter and maps the stakeholders involved in the eight value chains that are the subject of the project's study, as well as the current state of relations among them. Based on these results, the stakeholders with whom these relationships need to be

strengthened are identified, as well as those parties that could be interested in becoming strategic allies for the implementation of the project and its Environmental and Social Management Framework.

- An identification and assessment of the environmental, social, and gender risks of the CSICAP project, as well as the formulation of mitigation measures for each of these risks.
- The description of the environmental and social management plan, which sets out the assumptions on which the ESMF was developed, as well as the Framework's objectives. It also establishes the procedures for implementing the ESMF, the institutional arrangements that will facilitate its administration, as well as the conditions for its review and updating.
- A definition of the mechanisms for disseminating information on the project, its implementation and progress in meeting the goals, and its budget execution. It also includes guidelines for recording, reporting, and resolving incidents, requests, complaints, claims, suggestions, and denunciations that may arise during the implementation of the project.
- A presentation of the indicators associated with the environmental, social, and gender risks identified, as well as the monitoring mechanism for the proposed mitigation measures.
- The definition of the estimated budget for the implementation of the ESMF, both for the execution of plans and strategies, as well as for the financing of the work team that will support the design and implementation tasks, such as monitoring and stakeholder relations.

It is worth mentioning that an integral part of the ESMF is Annex 7, Stakeholder Participation, which describes the approaches made to key stakeholders for the project, as well as a participation plan. Also, an integral and fundamental part of the ESMF is Annex 8 - Part B, Gender Action Plan, which, based on an analysis of the conditions and risks faced by rural women, formulates actions that contribute to closing gender gaps in the prioritized value chains and promote equitable access to the strategies, plans, programs, services, goods and activities of the CSICAP Project.

## 1. Environmental and social context

The following is a territorial and environmental characterization of the areas prioritized for the implementation of the CSICAP project. Subsequently, a diagnosis of the environmental, social, and gender conditions associated with each of the components of the CSICAP project is presented.

### 1.1 Territorial and environmental characterization

The CSICAP project will be implemented in 22 departments<sup>1</sup> in the Andean, Caribbean, Pacific and Orinoco regions of the country: Antioquia, Arauca, Boyacá, Caldas, Caquetá, Casanare, Cauca, Cesar, Córdoba, Cundinamarca, Huila, La Guajira, Magdalena, Meta, Nariño, Norte de Santander, Quindío, Risaralda, Santander, Sucre, Tolima and Valle del Cauca.

The territorial characterization provides relevant information on the environmental conditions and potential of the territories addressed by the CSICAP project, as well as on the environmental problems identified. To this end, indicators are presented on land use and vocation, protected areas of various categories, forest cover, and deforestation. Concerning water resources, reference is made to the water vulnerability of the territories and existing data on the water footprint, which are highly relevant for the value chains analyzed. Besides, reference is made to information related to disaster risk management, which makes it possible to keep in mind the vulnerability of the intervention territories concerning floods, torrential flows, and landslides, which are the risks that may have the greatest impact on the project. It also includes the climate change vulnerability and risk index formulated by the country in the framework of the Third National Communication. Greenhouse Gas (GHG) information is also included for the target departments.

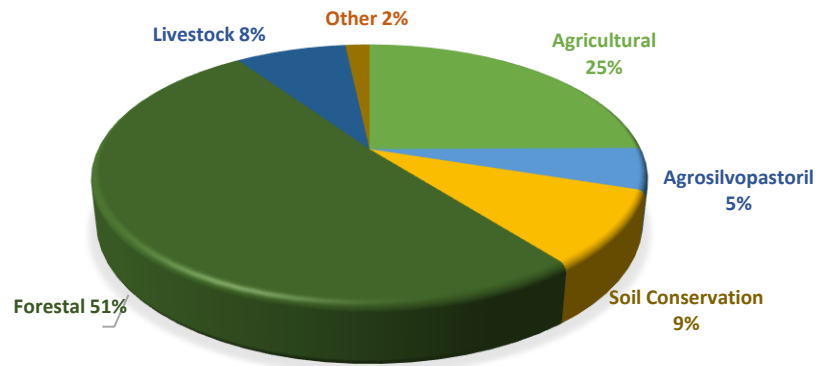
It should be clarified that the CSICAP project will involve land located exclusively in areas included in the agricultural frontier established by Resolution 261 of 2018, and within the agricultural frontier the conservation areas established in the regulations are excluded. It is also clarified that throughout the implementation of the project, strict compliance will be given to the use restrictions established in the regulations, so special attention will be paid to moorland areas, especially in everything related to the potato and livestock value chain and in applicable cases.

The area of the municipalities selected by the CSICAP project is 18.6 million hectares. Regarding land use vocation, which corresponds to the "major class of use that a unit of land is in natural capacity to support with sustainability characteristics, evaluated on a biophysical basis" (IGAC, 2012), forest use vocation prevails with 51% of the area of the intervention municipalities, followed by agricultural vocation areas with 24.8%. Graph 1.1 shows the detail of the categories identified in the intervention areas.

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<sup>1</sup> To date, there are an estimated 311 municipalities in 22 departments

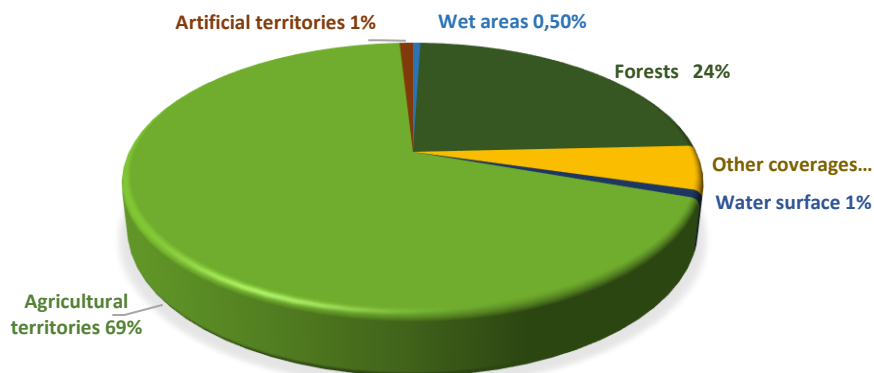
**Graph 1.1. Land use vocation CSICAP municipalities**



Source: Prepared by the authors based on (IGAC, 2012).

However, when analyzing the use coverage (Graph 1.2), 69% of the territory is used for crops (transitory and permanent crops and heterogeneous agricultural areas) and 24% is forest (dense, open, and gallery forests, forest plantations, and shrub vegetation).

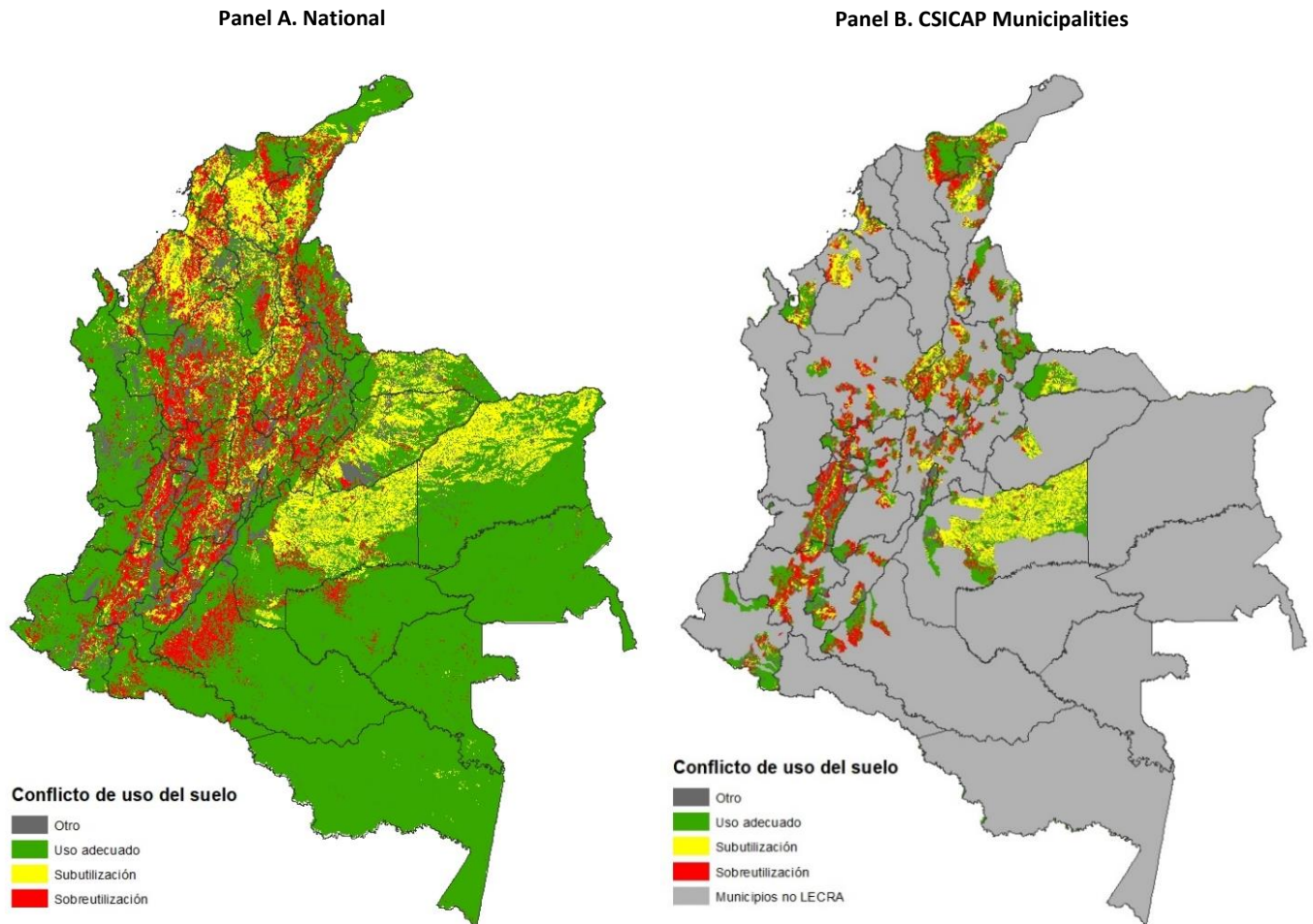
**Graph 1.2. Land use coverage in CSICAP municipalities**



Source: Prepared by the authors based on (IGAC, 2012).

As a result, 42.3% of the area of the CSICAP municipalities is in adequate land use, 24.8% is underutilized and 21.9% is overutilized. Underutilized areas are areas that are inadequately used, thus leading to problems in the food supply, social unrest and directly influencing the overutilization of land in fragile ecosystems and expanding the agricultural frontier at their expense (IGAC, 2012). On the other hand, overexploited areas with an agricultural vocation present the degradation of natural resources (IGAC, 2012). Map 1- Panel A shows the land use conflict in Colombia and Panel B shows the results in the CSICAP project intervention municipalities.

Map 1. Land use conflict



Source: Prepared by the authors based on (IGAC, 2012).

In line with the above information, it is important to consider that, although the land use vocation is identified according to its conditions, territorial dynamics determine land use and also, on occasions, motivate phenomena such as deforestation, which is one of the main environmental problems currently faced. In Colombia, approximately 52% of the continental territory is covered by forests (IDEAM, 2020), exposed to strong pressures. According to the latest deforestation monitoring report for Colombia conducted by IDEAM in 2019, the main direct causes of deforestation are praderization, illicit crops, poor extensive cattle ranching practices, illicit mineral extraction, unplanned transportation infrastructure, expansion of the agricultural frontier in non-permitted areas, and illegal logging.

Important regulatory and policy advances have been made in the country, such as CONPES<sup>2</sup> 4021 National Policy for the Control of Deforestation and Sustainable Forest Management, approved on December 21, 2020, and according to the reports delivered, in the last three years<sup>3</sup> deforestation

<sup>2</sup> National long-term public policy documents approved by the National Council for Economic and Social Policy

<sup>3</sup> In 2017, 219,973 ha were deforested, in 2018 197,159 ha were deforested and in 2019 158,894 ha were deforested (IDEAM, 2020).



has been reduced. It is worth mentioning that in the municipalities of the CSICAP project, 236,570 hectares were deforested between 2014 and 2018.

Currently, 12 deforestation nuclei have been identified, 5 of which are concentrated in the Amazonian foothills. Although the intervention areas of the CSICAP project do not intersect with the identified nuclei, it is essential to pay special attention to this issue and promote the participation of Producer Associations in the signing of zero-deforestation agreements, as well as actions aimed at promoting the recovery of vegetation cover in key areas to maintain the environmental services on which the population and the development of value chains depend.

Concerning the environmental potential of the project's municipalities, it is important to highlight the existence of 4,645,200 hectares of forests at present. Due to Colombia's great diversity and natural wealth, the regulations have developed several types of protection zones for existing forests and ecosystems to guarantee their conservation and sustainable use. Among these figures of protection are the areas of the National System of Protected Areas (SINAP), made up of the set of protected areas, social actors, and management strategies and instruments for their conservation (Parques Nacionales Naturales de Colombia, 2021). In the intervention municipalities, 2,103,207 hectares have been reported under these figures classified in different categories that determine the permitted uses in each case<sup>4</sup>. Map 2 shows the SINAP protected areas existing in the CSICAP municipalities (about the areas in the country) and Table 1.1 shows the number of hectares under each protection category.

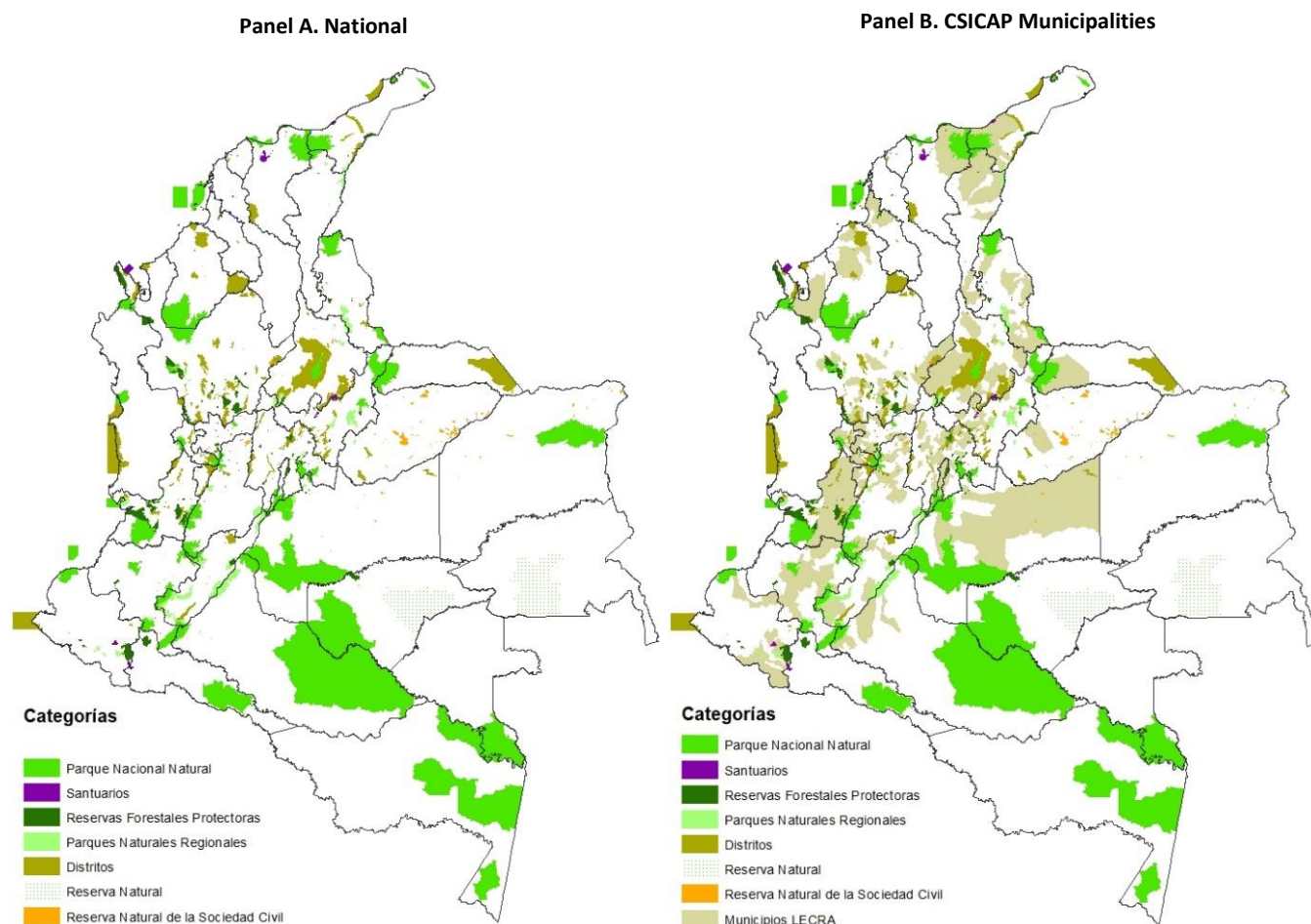
**Table 1.1. Categories of SINAP protected areas and their extension in the municipalities of the CSICAP project**

Category	Hectares
Recreational areas	29
Regional integrated management districts	377.214
Soil Conservation Districts	5.082
National Natural Park	1.243.753
Regional Natural Parks	161.695
Civil Society Nature Reserve	26.039
National Protected Forest Reserves	186.840
Regional Protected Forest Reserves	75.454
Flora and Fauna Sanctuary	16.370
Flora Sanctuary	726

Source: Prepared by the authors based on (Parques Nacionales Naturales de Colombia, 2020)

4 Public protected areas: a) National Natural Park System; b) Protected Forest Reserves; c) Regional Natural Parks; d) Integrated Management Districts; e) Soil Conservation Districts; f) Recreation Areas. Private protected areas: civil society nature reserves.

**Map 2. Areas of the National System of Protected Areas**



Source: Prepared by the authors based on (Parques Nacionales Naturales de Colombia, 2020).

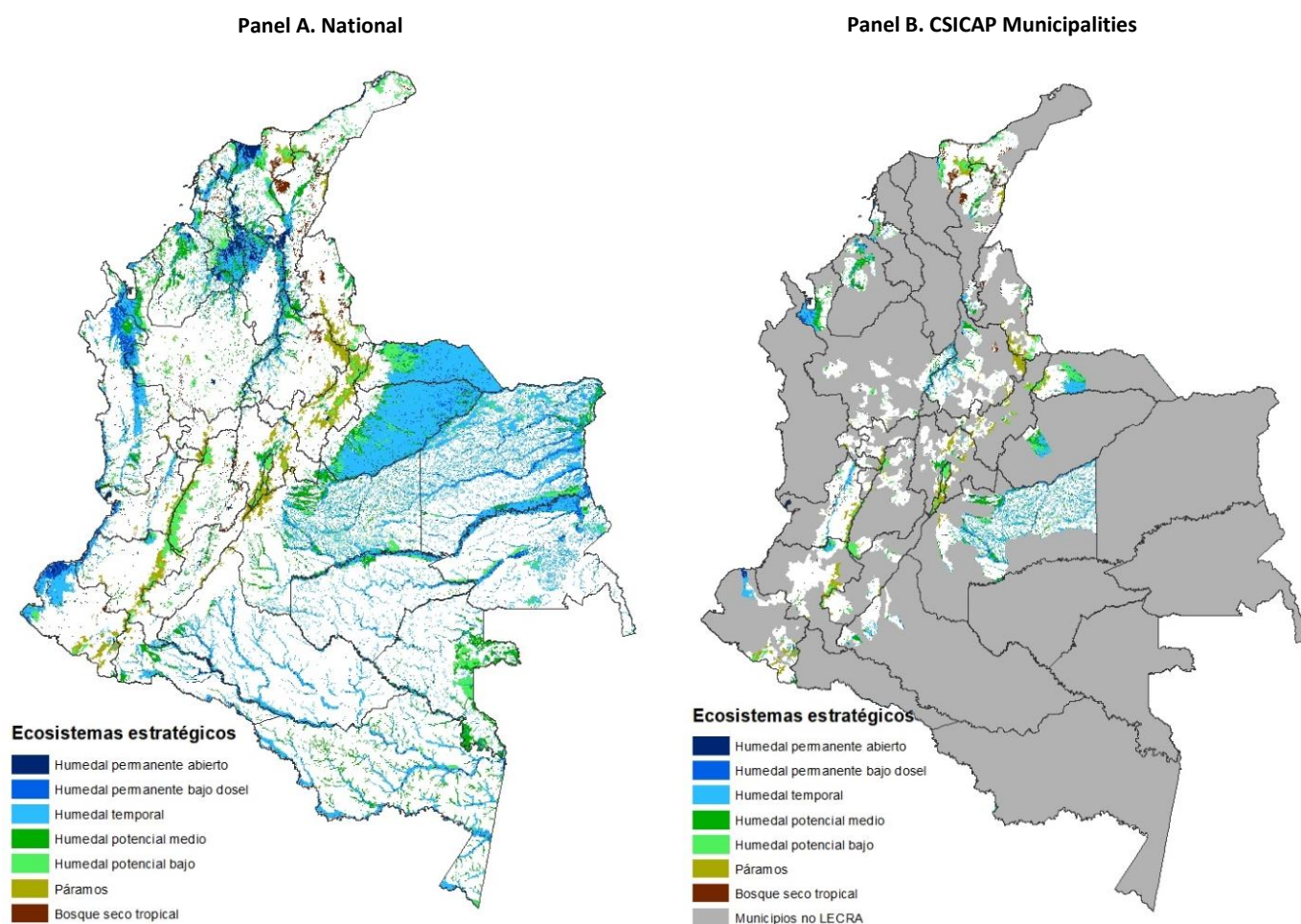
There are also other types of reserves called Second Law Forest Reserves, created in 1959, which are not protected areas but, in some cases, they include areas of the National System of Protected Areas (SINAP) and collective territories. These areas are delimited by the Ministry of Environment and Sustainable Development<sup>5</sup> and their use is restricted. In the CSICAP municipalities, there are 1.2 million hectares classified as zone A, 384 thousand hectares zone B, and 172 thousand hectares zone C.

Likewise, within the scope of the CSICAP project, it is essential to consider the existence of strategic ecosystems in the intervention municipalities, since these ecosystems provide environmental services of great importance for the population and the value chains analyzed. It was identified that in the intervention municipalities, there are 1,327,296 hectares of wetlands (IAvHumboldt, 2015),

<sup>5</sup> ZONE A. Maintenance of the basic ecological processes necessary to ensure the supply of ecosystem services; ZONE B. Areas destined for the sustainable management of forest resources; ZONE C. Areas whose biophysical characteristics offer conditions for the development of agroforestry, silvopastoral, and other productive activities compatible with the objectives of the Forest Reserve and which must incorporate the forest component (Ministerio de Ambiente y Desarrollo Sostenible, 2021).

1,154,526 hectares of moorlands (IAvHumboldt, 2012) and 221,814 hectares of tropical dry forest (IAvHumboldt, 2014). It should be mentioned that there are specific prohibitions in the case of moorland (paramo) ecosystems that are extensively addressed in other sections of this document. Map 3 shows the aforementioned ecosystems in Colombia, as well as in the project intervention municipalities.

**Map 3. Strategic Ecosystems**

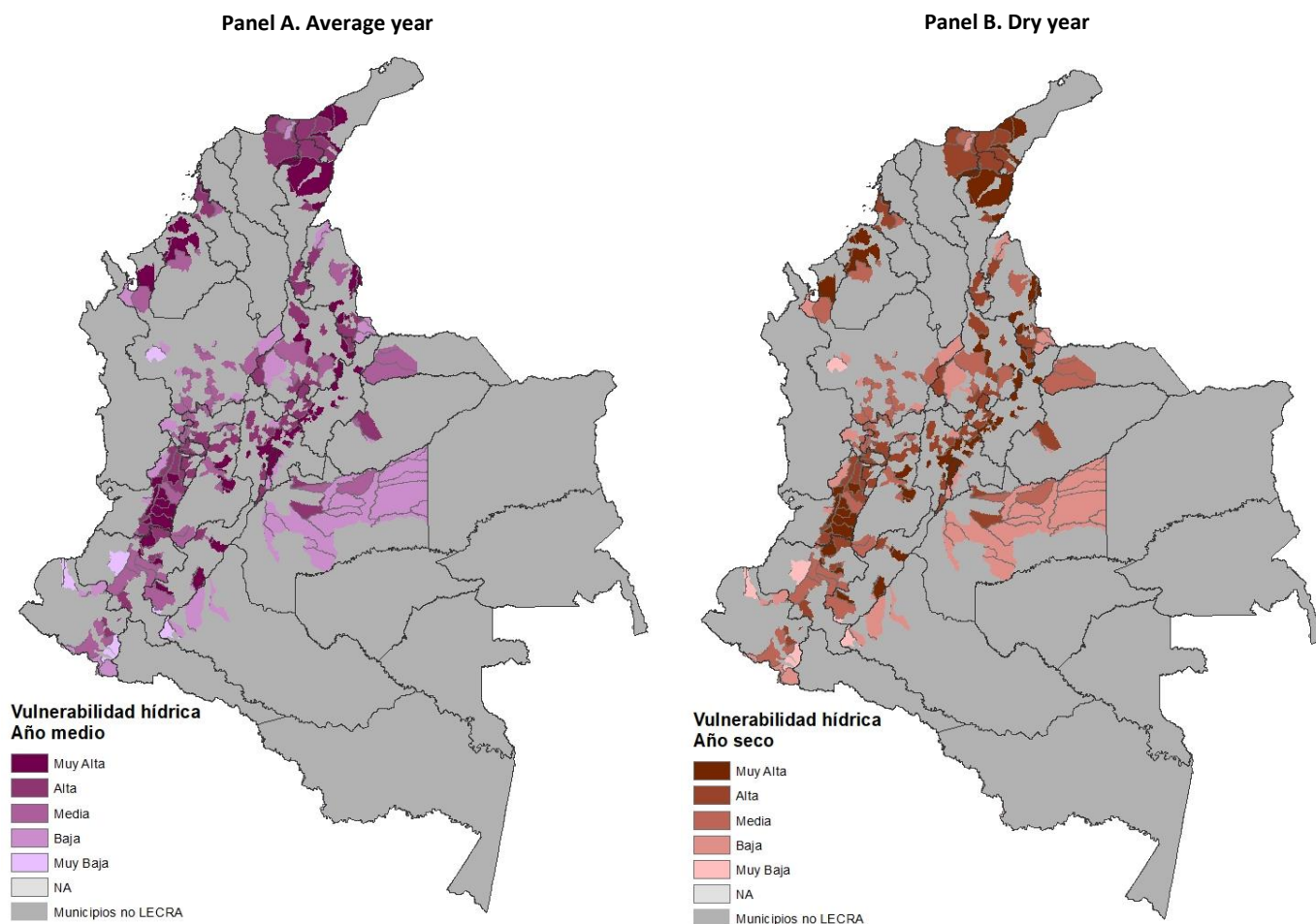


Source: Prepared by the authors based on (IAvHumboldt, 2014) (IAvHumboldt, 2012) (IAvHumboldt, 2015).

In relation to water resource management, the water shortage vulnerability index (IVH for its acronym in Spanish) was used, which measures the degree of fragility of the water system to maintain a supply that allows the water supply of sectors using the resource, both in average hydrological conditions and in extreme dry year conditions. This index makes it possible to identify areas with high fragility in relation to water supply and areas with a high risk of water shortage (IDEAM, 2019). This information is essential for decision-making regarding the value chains under study and their planning. Regarding the CSICAP municipalities, the index was analyzed for both dry and medium years, and the results are presented in Map 4 and Table 1.2, showing that, in the medium year, almost half of the municipalities have a high vulnerability, followed by the low, very

high and medium vulnerability. In the dry year, 44% of the municipalities have a very high vulnerability, followed by the high and medium vulnerability.

**Map 4. Vulnerability index to water shortage in the average and dry years, in municipalities of the CSICAP project**



Source: Prepared by the authors based on (IDEAM, 2019).

**Table 1.2. Distribution of municipalities in the CSICAP project according to vulnerability to water shortage**

IVH	Average year <sup>6</sup>	Dry Year <sup>7</sup>
Very low	1,0%	0,0%
Low	19,6%	4,2%
Medium	14,1%	18,6%
High	48,2%	33,1%
Very high	17,0%	44,1%

Source: Prepared by the authors based on (IDEAM, 2019).

<sup>6</sup> "When the water supply is taken as the historical average value of net water supply" (IDEAM,2008)

<sup>7</sup> "When the hydrological scenario is the most tragic in minimum flows and the least frequent in the hydrological data set" (IDEAM, 2008)

Regarding water uses in the municipalities that will be intervened, it is very useful to consider the analyses carried out by the 2018 National Water Study, which quantify the water footprint, which means, the territorial impact of anthropic use, in terms of reduction of water availability, both in quantity and quality (CTA; GSI-LAC; COSUDE; IDEAM, 2015). Specifically, the green and blue water footprint, to analyze the sectoral and multisectoral water requirement at the hydrographic subzone level, from the point of view of the impact on water quantity.

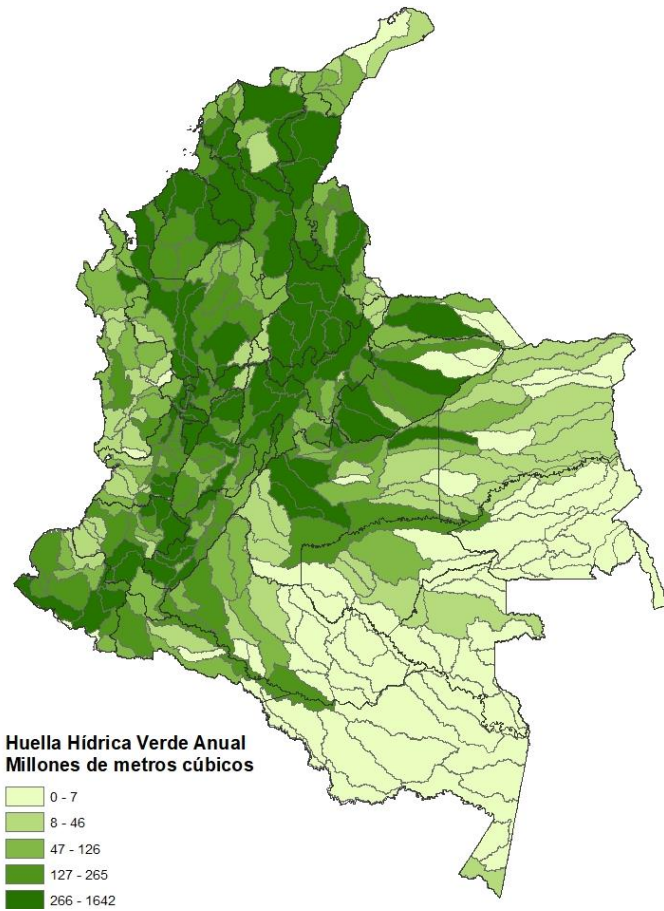
The green water footprint is the water stored in the soil, and is quantified by estimating the water evapotranspired by vegetation associated with an anthropic process (crops) that does not originate from irrigation water (rainfed agriculture); therefore, it allows a numerical approximation to the competition of the agricultural sector and natural ecosystems due to the expansion of the agricultural frontier (CTA; GSI-LAC; COSUDE; IDEAM, 2015). According to data (IDEAM, 2019) the green water footprint for the CSICAP municipalities is 39,430.44 million m<sup>3</sup> per year, in contrast to the total green water footprint of the country corresponding to 51,681.67 million m<sup>3</sup> per year. According to Map 5, the green water footprint for the CSICAP municipalities is 39,430.44 million m<sup>3</sup> per year, in contrast to the total green water footprint of the country corresponding to 51,681.67 million m<sup>3</sup> per year.

The blue water footprint is quantified by estimating the volume of water associated with an extraction or retention of a surface and/or groundwater source to meet the water requirement of an anthropic process that does not return to the basin of origin. The blue water footprint is present in the agricultural sector as irrigation, and in all other sectors, as the part of the water used that does not return to the basin (CTA; GSI-LAC; COSUDE; IDEAM, 2015). In the reference municipalities, the footprint is 5,857.72 million m<sup>3</sup> per year, in contrast to the total footprint of the country corresponding to 8,329 million m<sup>3</sup> per year. Map 6 shows the blue water footprint of Colombia and the CSICAP municipalities.

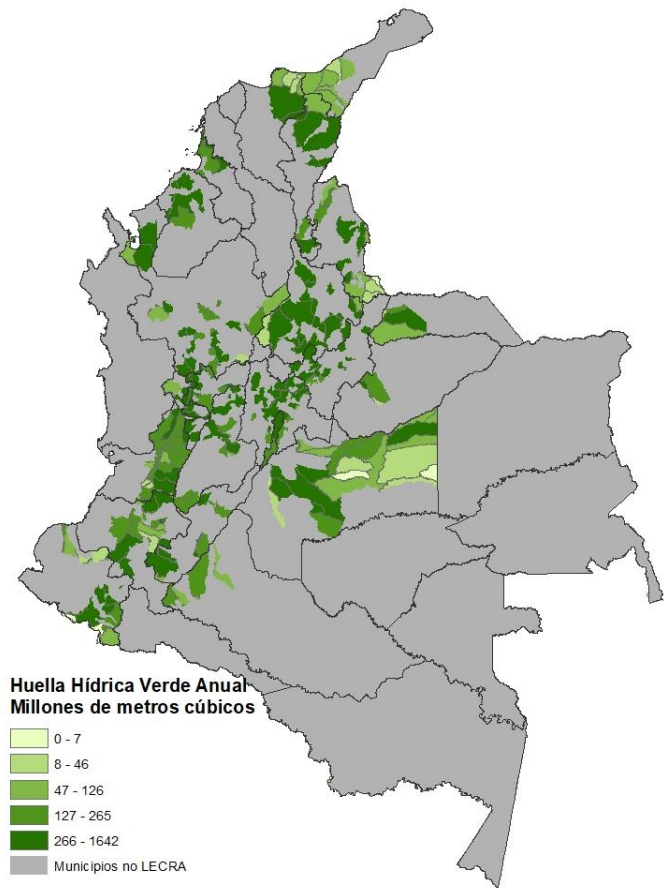


Map 5. Green water footprint

Panel A. Colombia

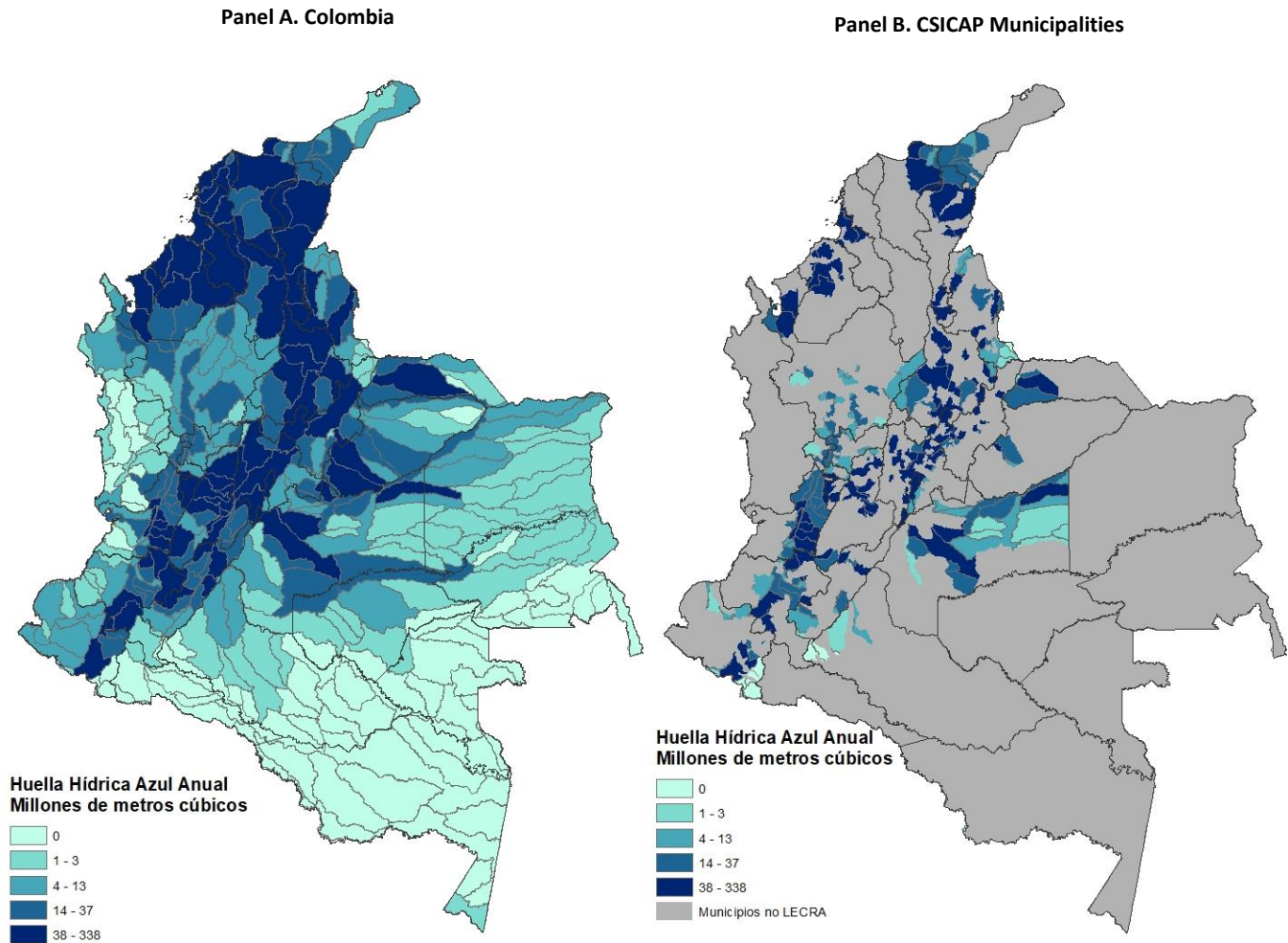


Panel B. CSICAP Municipalities



Source: Prepared by the authors based on (IDEAM, 2019)

Map 6. Blue water footprint



Source: Prepared by the authors based on (IDEAM, 2019).

Concerning the information related to risk management and climate change, the area vulnerable to disasters such as floods, landslides, and torrential flows was identified, which, if they materialize, could have a significant impact on the municipalities where the project is located. It was identified that in the municipalities of the CSICAP project: 3,628,169 hectares present high and very high susceptibility to mass movements (SGC, 2015), 3,517,996 hectares present high and very high risk of torrential flows (IDEAM, 2010), and a total of 604,136 hectares correspond to periodically floodable areas (IGAC-IDEAM, 2012; 2016). These issues should receive special attention once the properties subject to project intervention have been identified.

Along the same lines, considering that the CSICAP project is aimed at addressing issues related to climate change adaptation and mitigation in value chains, it is highly relevant to refer to the analysis of vulnerability and risk due to climate change, developed within the framework of the Third National Communication on Climate Change in 2017. Through the analysis of 113 indicators, a tool was built to analyze climate change risk at the municipal scale. A methodology was developed in

which, through the analysis of 6 dimensions (food security, water resources, biodiversity, health, human habitat, and infrastructure) and climate change scenarios (precipitation and temperature) established for the country, the risk<sup>8</sup> is measured based on the estimation of the threat<sup>9</sup> and vulnerability<sup>10</sup> of territories in the face of climate change (IDEAM, UNDP, MADS, DNP, Chancellery, 2017). Municipalities with a rating close to 1 (high), with high threat and vulnerability, have a high risk due to climate change and, therefore, are a priority for implementing actions that promote and implement adaptive management of the territories. On the other hand, municipalities with low threat and high vulnerability have a medium climate change risk.

Regarding the climate change vulnerability index, 4% of the municipalities have a high vulnerability, 38% have a medium vulnerability, 29% have low vulnerability and 29% have very low vulnerability. Regarding the risk, 8% present high risk, 38% medium risk, 17% low risk, and 37% very low risk. Also, it is identified that among the territories where the CSICAP project will be implemented, there are no municipalities with very high vulnerability and very high risk. Map 7 and Map 8 below represent this information in cartographic form.

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<sup>8</sup> In general, all municipalities present some type of risk due to climate change in Colombia (IDEAM, UNDP, MADS, DNP, Chancellery, 2017), the risk is determined from the relationship between vulnerability and threat. The rating given in each index ranges from 0 (low) to 1 (high).

<sup>9</sup> The climate change threat represents the possibility of affectation in the different dimensions evaluated, due to temperature increase or increase/decrease of precipitation by 2040 under national scenarios (IDEAM, UNDP, MADS, DNP, Chancellery, 2017). The rating given in each index ranges from 0 (low) to 1 (high).

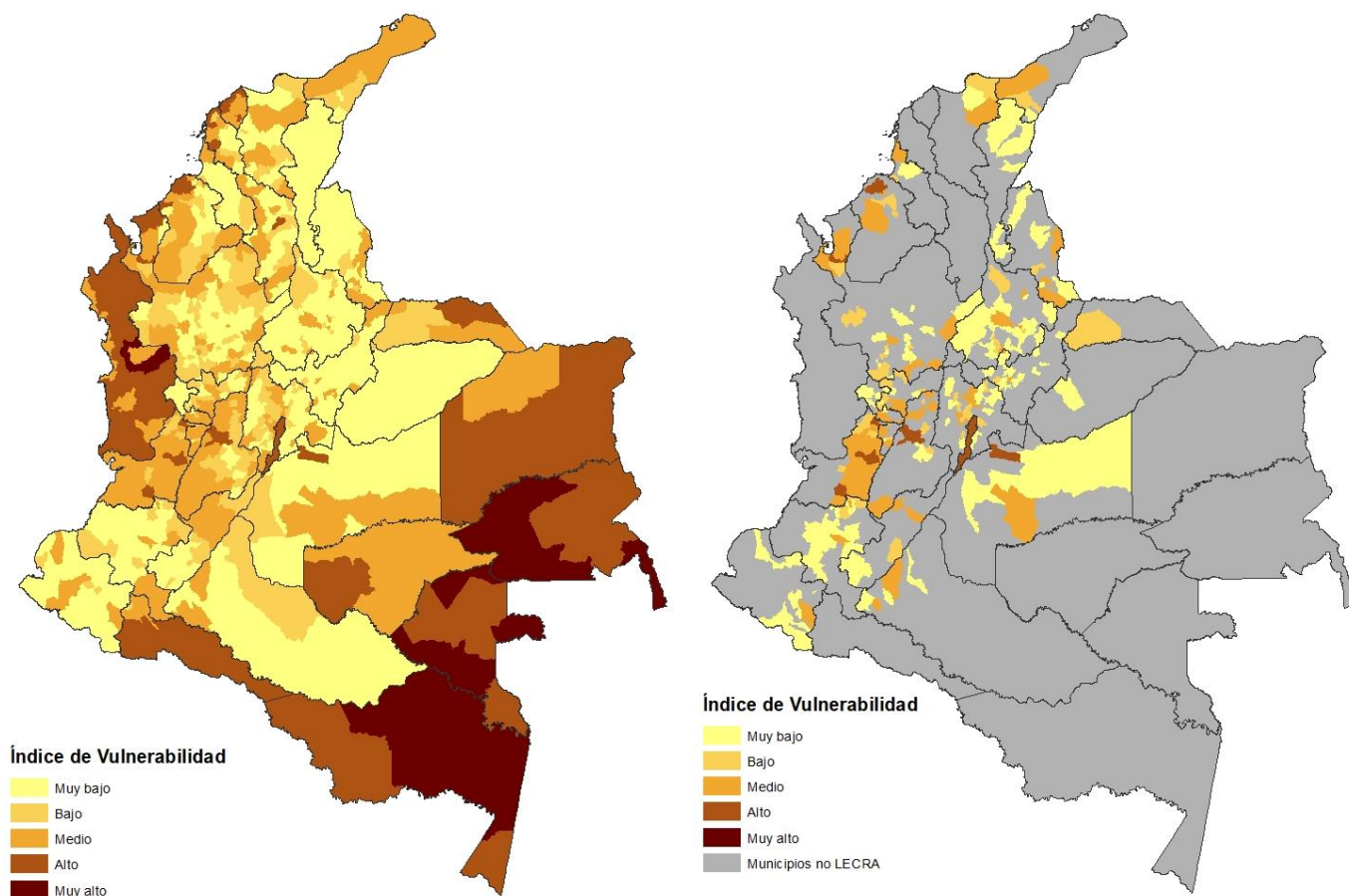
<sup>10</sup> Vulnerability is constituted as the relationship between the sensitivity of the territory and the adaptive capacity management of the municipalities (IDEAM, UNDP, MADS, DNP, Chancellery, 2017). The rating given in each index ranges from 0 (low) to 1 (high). In turn, sensitivity refers to both favorable and unfavorable conditions that municipalities must face the threat of climate change, either due to low management in the quality of life of the inhabitants or high anthropogenic transformation pressure (IDEAM, UNDP, MADS, DNP, Chancellery, 2017). The rating given in each index ranges from 0 (low) to 1 (high). For its part, adaptive capacity refers to both favorable and unfavorable conditions that municipalities must face the threat of climate change, either due to low management in the quality of life of the inhabitants or high anthropogenic transformation pressure (IDEAM, UNDP, MADS, DNP, Chancellery, 2017). The rating given in each index ranges from 0 (low) to 1 (high).



Map 7. Vulnerability to climate change

Panel A. Colombia

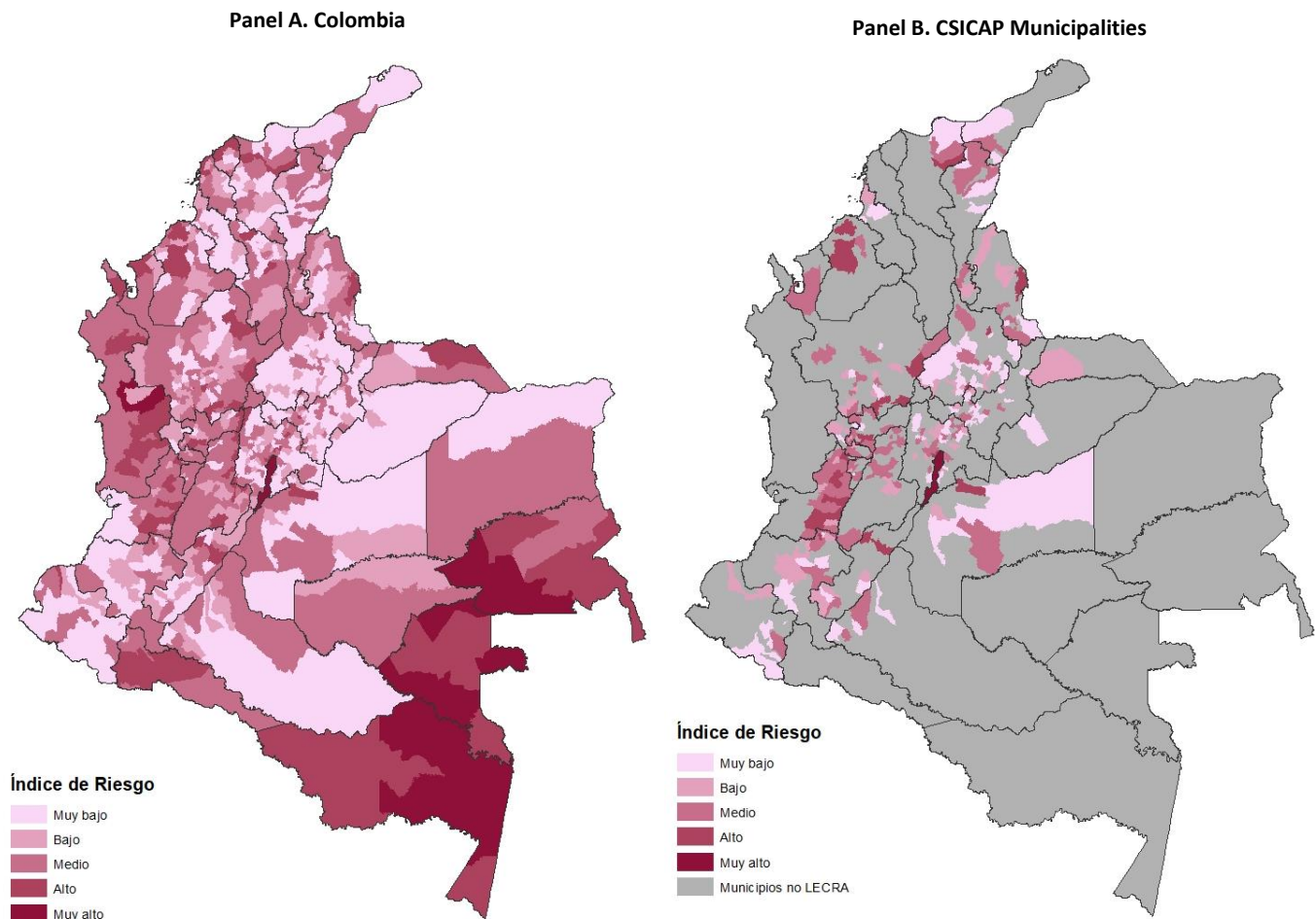
Panel B. CSICAP Municipalities



Source: Prepared by the authors based on (IDEAM, PNUD, MADS, DNP, CANCELLERÍA, 2017).

The aforementioned indices are very useful because they will allow for the adequate management of the dimensions analyzed to identify the vulnerability of the territories to climate change. It is recommended that, in the process of implementing the CSICAP project, these indices are analyzed in particular for each of the municipalities involved, to address the most priority dimensions in each case and contribute to the management of climate change in the intervened territories.

Map 8. Climate change risk Colombia and municipalities CSICAP



Source: Prepared by the authors based on (IDEAM, PNUD, MADS, DNP, CANCELLERÍA, 2017).

Regarding the emission of Greenhouse Gases (GHG), it is worth mentioning that the data available for the country correspond to the National and Departmental GHG Inventory prepared in the framework of the Third National Communication of 2016<sup>11</sup>, which made a report on the amount of GHG emitted directly into the atmosphere as a result of human activities and removals by carbon sinks, such as forests, crops or pastures.

The inventories by department are presented for the year 2012 with results by emissions, removals, and total net emissions (balance of emissions minus removals). The sectors with the highest gross GHG emissions according to (IDEAM, PNUD, MADS, DNP & CANCELLERÍA, 2016) are the forestry sector and the agricultural sector<sup>12</sup>. The forestry sector accounts for 36% of gross emissions mainly

<sup>11</sup> This document presents the emissions, removals, and net balance of GHG generated in the national territory for the years 1990 to 2012.

<sup>12</sup> 1) Manufacturing industries are the third most important sector at the national level in terms of emissions, 85% of which are due to the energy use of fossil fuels and their industrial processes. 2) Transportation is the fourth most important sector at the national level in terms of emissions, more than 90% of which are due to the energy use of fossil fuels. 3) The Mining and Energy sector is responsible for 10% of national GHG emissions. Its emission sources are diverse, the main ones being the energetic use of fossil fuels for power production and oil and gas production and refining, and fugitive emissions also from the oil and gas subsector. 4) Sanitation represents

due to deforestation (change of natural forest converted to shrubland-secondary vegetation and grasslands are the largest). In this sector, removals at the departmental level are directly related to the areas planted with forest plantations and natural forest regeneration. The agricultural sector is the sector with the second-highest gross emissions in the country (26%). The main cause of emissions is due to enteric fermentation, followed by emissions from the renewal of permanent crops. The latter are offset in some departments by removals associated with the growth of the same crops. At the departmental level, emissions are directly related to the country's livestock population, and removals are directly related to the area of permanent crops, mainly the area planted with coffee, with Huila, Antioquia, and Tolima being the departments with the largest hectares planted with this crop. In other departments, such as Meta, crops such as oil palm are responsible for the largest absorptions.

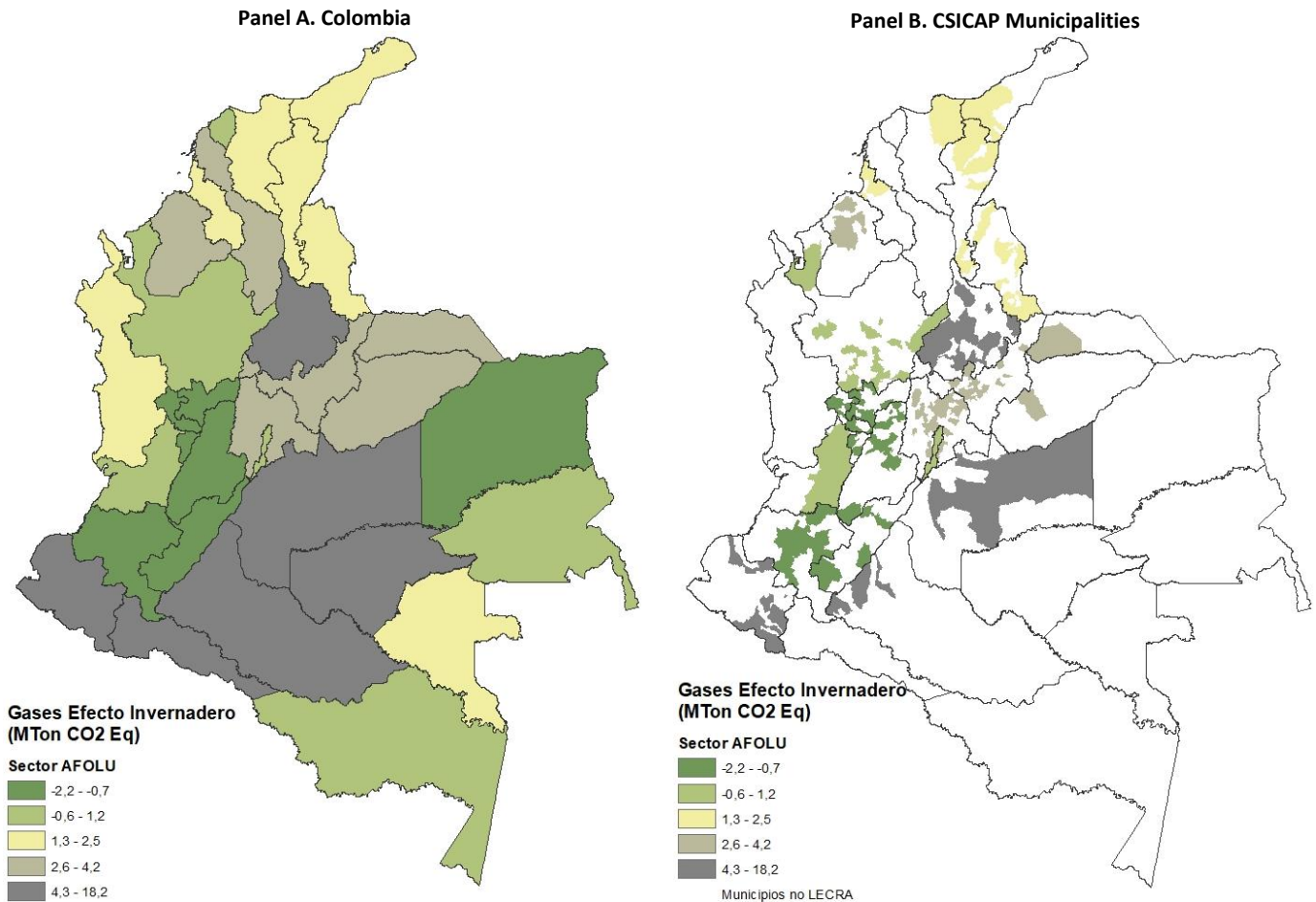
Taking into account the economic sectors analyzed in the national GHG inventory, a total of 148.8 millions tons of CO<sub>2</sub> equivalent were identified in the departments targeted for intervention, distributed as follows: Energy sector, 67.9 millions tons of CO<sub>2</sub> equivalent; AFOLU sector (agriculture, forestry, and other land use), 61.9 millions tons of CO<sub>2</sub> equivalent; and Waste sector, 11.9 millions tons of CO<sub>2</sub> equivalent; and Industrial Processes and Product Use sector, 7.0 millions tons of CO<sub>2</sub> (IDEAM, PNUD, MADS, DNP & CANCELLERÍA, 2016). Map 1 shows the emissions of the AFOLU sector by the department regarding the municipalities of intervention<sup>13</sup> and, as a reference, the national total is shown.

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4% of total national emissions. Emission sources are landfill disposal, wastewater treatment, and waste incineration. 5) The Residential sector has a smaller share of national GHG emissions, although it is three times higher than the commercial sector. 6) Commercial; the combined GHG emissions of the commercial and residential sectors (3% of the national total) are mostly due to the energy use of fossil fuels.

<sup>13</sup> The results are departmental, so the departmental value is imputed to the CSICAP municipality belonging to the respective department.

**Map 1. Greenhouse Gas Emissions, Agriculture, Forestry and Other Land Uses Sector**



Source: Prepared by the authors based on (IDEAM, PNUD, MADS, DNP & CANCELLERÍA, 2016).

## 1.2 Component 1: Characterization by value chain

Component 1 of the project, "Digital agriculture and climate services for the modernization of the countryside with emphasis on adaptation and mitigation", will be implemented in 22 departments of the country and the capital district.

Specifically, 35 municipalities were prioritized for the rice chain, located in the departments of Antioquia, Casanare, Cesar, Córdoba, Huila, La Guajira, Magdalena, Meta, Norte de Santander, Sucre, Tolima, and Valle del Cauca, for which intermediate risks associated with climate change were identified (17.1% present high risk and 45.7% medium) and a relatively low vulnerability (5.7% of the municipalities present high vulnerability and 34.3% medium). It should be noted that nearly 3 out of 4 producers have information, communication, and connectivity technology, among which the availability of electricity predominates, followed by television signal, and community radio signal

or receiver. Access to ICT goods (about 10%) or availability is quite limited (less than 5%). The main uses of information technologies include consulting weather forecasts, consulting reports, and planning and monitoring production.

In the case of the banana chain, 10 municipalities located in the departments of Antioquia, Cesar, La Guajira, and Magdalena were prioritized, which are at intermediate risk of climate change (70.0%), as well as vulnerability to this phenomenon (50% of the municipalities). It is worth noting that nearly 4 out of 5 producers have information, communication, and connectivity technology, for which electricity predominates, and concerning communication, the television signal or community radio signal and receiver. And the main uses of information technologies correspond to the consultation of weather forecasts, economic and Producer Association reports, and production planning and monitoring.

The sugarcane chain selected 49 municipalities located in Caldas, Cauca, Risaralda, and Valle del Cauca for the implementation of the CSICAP project actions, which are at greater risk of climate change (18.4% of the municipalities are at high risk and 61.2% are at medium risk), as well as vulnerability (6.1% are highly vulnerable and 55.1% are medium vulnerable). For the capacity to access information, communication, and connectivity technologies, 3 out of 5 producers have some means of access, where the availability of electricity (60%), information and communication is obtained from television signals (50%), and community radio signals and receivers (40%); while the availability of ICT goods is less than 5% and internet connection is below 1%. It should be noted that the main uses of information correspond to the consultation of weather forecasts, precision agriculture, and the consultation of reports.

The Panela (raw sugar cane) chain prioritized 87 municipalities located in the departments of Antioquia, Boyacá, Caldas, Caquetá, Cauca, Cesar, Cundinamarca, Huila, Nariño, Norte de Santander, Quindío, Risaralda, Santander, Tolima, and Valle del Cauca, of which the risk to climate change is intermediate because in 2% of the municipalities it is high and for 35.6% it is medium; On the other hand, a lower vulnerability to climate change is identified (compared to the rest of the groups) since 1% report high vulnerability and 13.8% report medium vulnerability. Similarly, about 63% of the producers have access to information, communication, and connectivity technologies, with electricity (60%), television signal (50%), and community radio signal and receiver (45%) prevailing. The main uses of the information corresponding to consulting weather forecasts, consulting reports, and precision agriculture.

The potato chain selected 91 municipalities in Antioquia, Bogotá D.C., Boyacá, Caldas, Cauca, Cundinamarca, Nariño, Santander, Tolima and Valle del Cauca to implement project actions. It should be mentioned that the risk associated with climate change 1.1% of the municipalities are classified as very high risk, 4.4% as high, and 33.0% as a medium; and about vulnerability to climate change 2.2% is high and 16.5% is medium. On the other hand, 3 out of 6 producers have information, communication, and connectivity technologies (60% have access to electricity, followed by a television signal, 50%, and community radio signal and receiver, 44%). The main uses of information include consulting weather forecasts, consulting reports, and precision agriculture.

For the corn chain, 34 municipalities were prioritized in Antioquia, Cesar, Córdoba, Huila, La Guajira, Meta, Quindío, Risaralda, Santander, and Tolima, with a higher risk (compared to other sectors) of climate change, since 14.7% of the municipalities are classified as high and 38.2% as a medium; and regarding vulnerability, 5.9% are classified as high and 17.6% as a medium. Nearly 4 out of every 5 producers in these departments have access to information, communication, and connectivity technologies (with electricity coverage prevailing, followed by television signals and community radio signals and receivers).

Finally, the livestock chain prioritized 29 municipalities located in Antioquia, Arauca, Caquetá, Cauca, La Guajira, Meta, Nariño, Santander, and Sucre, for which the lowest risk of climate change was identified concerning the other chains (3.7% high and 18.5% medium) and vulnerability (29.6% medium). The possibility of accessing information, communication, and connectivity technologies is 62.9% of the producers, where about 60% have electricity, 50% have a television signal, and 46% have a community radio signal and receiver. And the uses given to the information corresponding to the consultation of weather forecasts 25%, economic or Producer Association reports 10% and for planning and monitoring production less than 3%.

Table 1.3 shows the number of female and male producers that are expected to benefit from the actions of component 1 of the CSICAP project.

**Table 1.3 Male and female beneficiaries of CSICAP component 1**

Value chain	Total number of female and male producers	Estimated number of women
Rice	3,491	618
Corn	3,580	605
Livestock	16,350	2,992
Banana	855	75
Plantain	2,700	238
Potato	13,089	2,435
Panela	7,000	1,617
Coffee	80,000	16,000
Sugar cane	2,750	682
<b>Total</b>	<b>129,815</b>	<b>25,261</b>

Source: prepared by the authors. Estimate of the number of women based on the National Agricultural Census (2014).

### 1.3 Component 2: Characterization by value chain

Concerning component 2 of the project, "Genetic improvement, crop management techniques and other technological options and their scaling up to increase resilience and promote low-carbon agricultural development", the situation of land use, genetic improvement, and implementation of adaptation and mitigation mechanisms varies among the value chains.

It is identified that there is a high vulnerability of water resources in the rice-growing intervention areas, since 77% of the municipalities have high or very high water vulnerability in dry years, and 17.2% in the average year; it is also estimated that the green water footprint is 20.4 million cubic meters per year and the blue water footprint is 4 million cubic meters; The agriculture, forestry and other land use (AFOLU for its acronym in English) sector accounts for 37.9% of the emissions generated in the prioritized departments. Of the rice producers in the selected municipalities, 73.6% implement soil conservation methods (predominantly direct or manual sowing, minimum tillage, and stubble cultivation), and 67.9% implement soil improvement practices such as fertilizer application.

In the case of the banana chain, high water vulnerability is identified because 90% of the municipalities are categorized as high or very high for a dry year, and 40% high in an average year. In terms of water resource demand, the green water footprint is 3.5 million cubic meters, and the blue footprint is 967 million cubic meters per year; and it is established that 25.99 million tons of CO<sub>2</sub> equivalent emissions are generated in the municipalities, with the AFOLU sector contributing 28.8%. On the other hand, nearly 9 out of 10 banana companies and 4 out of 5 producers implement soil conservation measures (by planting vegetation cover, direct or manual planting, and soil-forming substrates), and 9 out of 10 companies and 7 out of 10 producers implement soil improvement practices.

The sugarcane chain has a high-water vulnerability, with 77.6% of municipalities classified as high or very high in dry years and 51.1% in medium years. In terms of water demand, the green footprint is estimated at 10.2 million cubic meters and the blue footprint is 1.2 million cubic meters per year; and these municipalities produce 11.69 million tons of CO<sub>2</sub> equivalent emissions, where the AFOLU sector saved 31%. It should be mentioned that 98% of legal producers and 70% of natural producers implement soil conservation methods (direct or manual sowing and minimum tillage), and 99% of companies and 72% of producers implement soil improvement methods (such as the use of fertilizers).

In the Panela (raw sugar cane) chain, 45.9% of the municipalities have very high- and high-water vulnerability in the dry year and 16.1% in the medium year, in which the green water footprint is 20.5 million cubic meters, and the blue water footprint is 2.1 million cubic meters per year; and 90.97 million tons of CO<sub>2</sub> equivalent emissions are generated in the departments, of which 34.7% are produced by the AFOLU sector. It is worth noting that 4 out of every 5 producers implement soil conservation methods such as minimum tillage, direct or manual sowing, and stubble cultivation, and 65.2% implement soil improvement measures such as the use of fertilizers.

In the potato chain, 69.2% of the municipalities have high and very high vulnerability in the dry year and 45.1% in the medium year. Also, the green water footprint is 20.1 million cubic meters, and the blue water footprint is 2.2 million cubic meters per year; and 80.06 million tons of CO<sub>2</sub> equivalent emissions are generated in the selected departments, of which 19.7% correspond to the AFOLU sector. On the other hand, 77.6% of the producers implement soil conservation methods (prevailing minimum tillage, direct or manual planting, and stubble cultivation), and 73.5% implement soil



improvement practices such as organic or chemical fertilizers, amendments, and burning, among others.

In the corn chain, 64.7% of the municipalities have high or very high-water vulnerability in dry years and 17.6% in medium years. In terms of water use, the green water footprint is 20.9 million cubic meters, and the blue water footprint is 3.4 million cubic meters per year; and for CO<sub>2</sub> generation, it is established that 56.17 million tons of equivalent emissions were produced in the departments, of which 30.3% corresponds to the AFOLU sector. It should be mentioned that 59% of the producers implement soil conservation methods, including direct or manual sowing, minimum tillage, or stubble cultivation, and 65.3% develop soil improvement practices.

Finally, in the livestock chain of the 29 selected municipalities, 37.9% are classified as high or very high-water vulnerability in dry years and 10.3% in medium years; associated with water demand, the green water footprint reaches 14.4 million cubic meters and the blue footprint 2.6 million cubic meters per year; and in these departments, 77.83 million tons of CO<sub>2</sub> equivalent emissions are produced, 61.6% of which corresponds to the AFOLU sector. Meanwhile, 59.4% of the producers develop soil conservation measures such as minimum tillage, direct or manual sowing, and stubble cultivation.

Table 1.4 shows the number of female and male producers that are expected to benefit from the actions of component 2 of the CSICAP project.

**Table 1.4 Male and female beneficiaries of CSICAP component 2**

Value chain	Total number of female and male producers	Estimated number of women
Rice	3,142	556
Corn	3,970	671
Livestock	3,700	677
Banana	975	86
Plantain	5,400	475
Potato	6,670	1,241
Panela	600	139
Coffee	10	2
Sugar Cane	3,020	749
<b>Total</b>	<b>27,487</b>	<b>4,595</b>

Source: Prepared by the authors. Estimate of the number of women based on the National Agricultural Census (2014).

## 1.4 Component 3: Characterization by value chain

Component 3 of the CSICAP project, "Knowledge Management and Agricultural Innovation in Context," includes, among other activities, the implementation of the Environmental and Social Management Framework and the Gender Action Plan.



The rural areas of the country show gender gaps in the participation of women in the household and productive decisions, resulting in conditions of vulnerability. This situation is evidenced by the fact that in 3 out of every 10 households in the municipalities prioritized by the project, women are the head of household and are associated with greater conditions of monetary poverty (while 27.7% of rural households headed by men are in poverty, for households headed by women it is 34.6%) and multidimensional poverty (26.8% of rural households headed by men and 33.8% of households headed by women are in this condition).

These differences are increased by the great disparities in the activities performed depending on sex. Specifically, in the selected departments, 74.2% of men work, while 38% of women are engaged in housework, and only 37.5% work. This is evidence of the differences in the burden and time dedicated to care activities.

In the case of the rice chain, in 55.1% of the agricultural production units, production decisions are made only by men and in 28.7% women participate. There are also large differences in the availability of land since men have an average of 40.6 hectares and women have 27.6 hectares. Similarly, the availability of productive factors is limited, with only 26% of producers receiving technical assistance (33.9% for mixed producers, 25.8% for male producers, and 20.4% for female producers), as well as access to credit, with only 18.2% receiving financing (18.6% of male producers and 11.9% of female producers).

In the case of the banana chain, 79.6% of the banana companies' decisions are made by men and 20.1% by women, and while the size of the production units of male producers is 145 hectares, the size of women's production units is 107 hectares. It should be mentioned that, given the production system, access to technical assistance is greater in this group, with 98.4% of the companies, and financing with 56% of the legal producers.

In the case of the sugarcane chain, in 54.4% of the production units, production decisions are made by men only, and in 24.8% by women only. Associated with this lower participation is the lower availability of land, where men have, on average, 6 hectares and women have 3.2 hectares. Additionally, the possibility of accessing productive factors is lower for women, as in the case of technical assistance, where 51.0% received this service, and 59.3% of men; likewise, the approval of credit or financing is 10.5% of female producers and 14.5% of male producers.

In the case of the Panela (raw sugar cane) chain, 55.3% of the agricultural production units are made by men and 23.1% by women. On the other hand, women have less land (4.5 hectares compared to 7.2 hectares for men), less access to technical assistance (27.5% of women producers and 35.5% of men), and less access to credit or financing (15.1% for women and 18.2% for men).

In the case of the potato chain, in 53.5% of the agricultural production units, decisions are made by men and 18.6% by women. Besides, the availability of land is greater for male producers (7.7 hectares) than for female producers (4.3 hectares). Also, access to factors such as technical

assistance, where 15.3% of the male farmers received it and 9.8% of the female farmers; and the approval of financing, with 24.1% and 19.3% of the men and women farmers, respectively.

In the case of the corn chain, there is a higher participation of men in production decisions (64.7% of the UPAs) compared to women (16.9%), as well as greater availability of land (30.6 hectares compared to 18.4 ha). Similarly, fewer women received technical assistance (16.1%) compared to men (21.9%) and the possibility of accessing financing (13.6% of women producers and 14.6% of men producers).

Finally, in the case of the livestock chain, 63.8% of the production units are owned by men and 18.3% by women; and the size of the farmers' production units is 72.7 hectares for men and 29.5 hectares for women. It should be noted that access to technical assistance is similar for both sexes, with 16.7% for men and 16.2% for women; and financing is slightly higher for women with 18.1% and 16.5% for men.

Table 1.5 shows the number of female and male producers that are expected to benefit from the actions of the third component of the CSICAP project.

**Table 1.5 Male and female beneficiaries of CSICAP component 3**

Value chain	Total number of female and male producers	Estimated number of women
Rice	3,491	618
Corn	6,000	1,014
Livestock	16,350	2,992
Banana	855	75
Plantain		
Potato	14,500	2,697
Panela	12,000	2,772
Coffee		
Sugar Cane	800	198
<b>Total</b>	<b>53,996</b>	<b>10,367</b>

Source: Prepared by the authors. Estimate of the number of women based on the National Agricultural Census (2014).

## 2. Environmental and social policy and legal framework

This chapter presents the general environmental and social regulatory and policy framework to understand the national context in which the CSICAP project is framed. Subsequently, the specific legal framework applicable to the project is delimited according to the project's components and activities.

## **2.1 Environmental and Social regulations and Public Policies relevant to the CSICAP project in Colombia**

The following is a description of the regulatory and policy framework for environmental issues in the country, with emphasis on biodiversity management and ecosystem services, water resource management, climate change management, as well as environmental management and territorial planning instruments. It also identifies the main regulatory instruments related to environmental sustainability in the agricultural sector. Finally, the normative and policy framework for the inclusion of the gender and ethnic differential approach in the CSICAP project is presented.

### **2.1.1 Environmental Policies and Regulations**

The 1991 Political Constitution of Colombia obliges the Colombian State to protect the diversity and integrity of the environment, conserve areas of special ecological importance, as well as the planning, management and use of natural resources. At the time of its enactment, the environmental agenda was being positioned at the international level, in 1992 the Earth Summit was held in Rio de Janeiro, where the United Nations Framework Convention on Climate Change (UNFCCC) was established, adopted in the country through Law 164 of 1994, as well as the Convention to Combat Desertification, adopted by Law 461 of August 4, 1998, and the Convention on Biological Diversity, adopted by Law 165 of 1994. These conventions allowed countries to recognize the importance of their natural base and the relevance of their actions to combat climate change.

In response to the need to organize, strengthen and modernize the institutional capacity to comply with these obligations, Law 99 was issued in 1993, which created the Ministry of the Environment as the lead agency for environmental management, reorganized the sector, and established the National Environmental System (SINA for its acronym in Spanish)<sup>14</sup>.

Previously, the country had made significant progress in natural resource management. In 1959, Law 2 was issued, establishing the country's Protective Forest Zones and Forests of General Interest (National Forest Reserves) as areas oriented to the development of the forest economy and the protection of soil, water, and wildlife. Subsequently, in 1974, Decree-Law 2811 was issued, the National Code of Renewable Natural Resources and Environmental Protection<sup>15</sup>, which recognizes the environment as a common heritage, of public utility and social interest, and makes the State and individuals responsible for its preservation and management. Regarding forest conservation, CONPES 2834 National Forest Policy was formulated in 1996, which defines general strategies to promote the sustainable use, conservation, and recovery of forest ecosystems<sup>16</sup>.

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<sup>14</sup> The guidelines, norms, programs, and institutions that establish the country's environmental principles.

<sup>15</sup> It is important to mention Law 23 of 1973, which grants powers to the President of the Republic for the issuance of the Natural Resources and Environmental Protection Code.

<sup>16</sup> In the same year, Decree 1791 was issued, which establishes the forest harvesting regime, aimed at regulating the activities of the public administration and private parties for the use, management, harvesting, and conservation of forests and wild flora.

Regarding regulations related to protected areas, Decree 622 of 1977<sup>17</sup> regulated Decree Law 2811 of 1974 about the national park system, in 2010 CONPES 3680 was formulated, which presented guidelines for the consolidation of the National System of Protected Areas (SINAP for its acronym in Spanish), and Decree 2372 of the same year regulated the SINAP. All of these regulatory and policy instruments have laid the groundwork for the management and conservation of the various categories of protected areas in the country.

Likewise, in terms of biodiversity conservation and as an advance associated with Colombia's international commitments in these matters, in 2012 the National Policy for the Comprehensive Management of Biodiversity and its Ecosystem Services (PNGIBSE for its acronym in Spanish) was formulated, which seeks to guarantee the conservation of biodiversity, as well as the fair and equitable distribution of its benefits and contribute to improving the quality of life of the population. In this same line regarding the sustainable use of biodiversity and the management of genetically modified organisms, within the framework of the Convention on Biological Diversity, Colombia participated in the Cartagena Protocol on Biosafety made in 2000, approved through Law 740 of 2002; also, in 2010 the country participated in the Nagoya Protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their use, which was approved through Law 1926 of 2018.

Concerning matters related to water resource management, Decree 1541 of 1978<sup>18</sup> regulated the Natural Resources Code (Decree-Law 2811 of 1974) about the domain of non-maritime waters, defines the categories of public and private domain waters, and determines the domain of watercourses and riverbanks, among others. Also in 1978, Decree 1594 of 1984<sup>19</sup> was issued, which defines quality criteria and water characteristics for each use, among others. Years later, Law 373 of 1997 regulated the programs for the efficient use and saving of water in the country, and in 2002 Decree 1729 of 2002<sup>20</sup> was issued, which determines the principles and guidelines for the management and organization of hydrographic basins. Along the same lines, the National Policy for the Integral Management of Water Resources (PNGIRH for its acronym in Spanish) was formulated in 2010 to guarantee the sustainability of this resource.

About regulatory and policy advances in specific ecosystems such as wetlands and moorlands, it is worth mentioning Law 357 of 1997, which approves the Convention on Wetlands of International Importance as Waterfowl Habitat - RAMSAR Convention, and the National Policy for Inland Wetlands of Colombia, formulated in 2002, these initiatives seek to guarantee the conservation and sustainable management of the country's wetlands.

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<sup>17</sup> By which partially regulates: Chapter V, Tittle II, Part XIII of Decree Law 2811 of 1974 on the National Parks System, Law 23 of 1973 and Law 2 of 1959.

<sup>18</sup> Regulating Part III of Book II of Decree-Law 2811 of 1974: "On non-maritime waters" and partially regulating Law 23 of 1973.

<sup>19</sup> By which Title I of Law 9 of 1979 is partially regulated, as well as Chapter II of Title VI - Part III - Book II and Title III of Part III - Book I - of Decree-Law 2811 of 1974 regarding water uses and liquid wastes.

<sup>20</sup> Whereby Part XIII, Title 2, Chapter III of Decree-Law 2811 of 1974 on hydrographic basins, partially regulating numeral 12 of Article 5 of Law 99 of 1993 and other provisions.

Regarding the moorland wetlands, it is necessary to mention the restrictions on productive activities established in the regulations. Article 202<sup>21</sup> of Law 1450 of 2011 establishes that no agricultural activities may be carried out in these ecosystems, in December 2014 the Council of State issued a concept regarding the applicability of the prohibition of the development of agricultural activities in moorlands in which it determined that "concerning the agricultural activities that were already being developed in moorland ecosystems before Law 1450 of 2011, the State must implement a public policy for their gradual dismantling, through programs of substitution for other compatible economic activities, environmental training, reconversion, etc. [...], so that there is an adequate transition to the new scenario implied by Article 202 of Law 1450 of 2011" (Ministerio de Ambiente y Desarrollo Sostenible, 2018).

Subsequently, in Law 1753 of 2015, Article 173 reiterates the prohibition of productive activities, among which agricultural and livestock activities are mentioned, and explicit mention is made of the protection of wetlands. In line with the above, Law 1930 of 2018 dictates provisions for the comprehensive management, preservation, restoration, and sustainable use of moorlands in the country, and Article 5 refers to the prohibitions established related to interventions in these ecosystems.

Other relevant normative advances in territorial planning are Law 388 of July 18, 1997, and Law 1454 of 2011, which defines the Land Management Plans (POT for its acronym in Spanish). These norms define environmental determinants as superior hierarchy norms that must be incorporated into territorial planning. It is also relevant to mention Decree 1640 of 2012, which regulates the instruments for the planning, ordination, and management of watersheds and aquifers (POMCAS for its acronym in Spanish). In this same line, it is relevant to mention the 2016 Policy for Sustainable Land Management, which defines actions for the preservation, restoration, and sustainable use of land, articulated with the instruments for water and biodiversity conservation, land use planning, and risk management.

Likewise, it is worth mentioning that in 2015, Decree 1076 Sole Regulatory Decree of the Environment and Sustainable Development Sector was issued, which consolidates all the aforementioned regulations of the environment sector.

About progress in climate change adaptation and mitigation and the reduction of greenhouse gas (GHG) emissions, in addition to the approval of the UNFCCC in 1994, Law 629 of 2000 ratified the Kyoto Protocol, which establishes GHG emission reduction targets for industrialized countries. To advance in compliance with the convention and the protocol, the country formulated in 2002 the Climate Change Policy Guidelines, later in 2011 the CONPES 3700 was formulated, which developed a coordination framework for the implementation of the prioritized actions to face climate change

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<sup>21</sup> "Paragraph 1. In paramo ecosystems, no agricultural activities may be carried out ... paragraph 2. In wetland ecosystems, agricultural activities may be partially or restricted ... in any case, in wetlands designated within the list of the international importance of the RAMSAR convention such activities may not be carried out". Currently, the wetlands designated RAMSAR according to Decree 1076 of 2015 are Otún Lagoon, Chingaza Lake System, La Cocha Lagoon, Inírida Fluvial Star Wetland Complex, San Juan River Delta and Baudó River Delta, Magdalena River Estuarine Delta, Ciénaga Grande de Santa Marta, Tarapoto Lakes Wetlands Complex, Ayapel Swamp Complex, Zapatos Swamp Complex, Bitá River Basin Wetlands Complex, Bogotá Capital District Urban Wetlands Complex.

in the country. Regarding risk management, Law 1523 was issued in 2012, which adopted the National Policy on Disaster Risk Management and established the country's National Disaster Risk Management System.

On the other hand, in 2016 Decree 298 was issued, which established the organization and operation of the National Climate Change System (SISCLIMA), as an instance of coordination, formulation, and evaluation of policies, standards, and other management instruments that in terms of climate change adaptation and GHG mitigation are developed in the country. Additionally, in 2017 through Law 1844, the "Paris Agreement" was approved, adopted on December 12, 2015, which committed countries to voluntarily establish a Nationally Determined Contribution (NDC) to contribute to the global goals of GHG emissions reduction<sup>22</sup>. That same year, the National Climate Change Policy was formulated, which seeks to move towards climate-resilient and low-carbon development. Similarly, through Law 1931 of 2018, guidelines for climate change management were established, addressing climate change adaptation and GHG mitigation actions to promote a sustainable economy and low-carbon development.

In this context, in 2018, CONPES 3934, Green Growth Policy, was formulated, which seeks to lead the country to a transition towards a more sustainable, competitive, and inclusive economic model, through the efficient use of natural resources in economic sectors, including the agricultural sector. Finally, it is relevant to refer to the Sustainable Development Goals (SDGs), CONPES 3918 of 2018, Strategy for the Implementation of the SDGs in Colombia, develops tools to consolidate a sustainable development model for the country with a 2030 horizon. Specifically, SDG 1 end poverty, SDG 8 decent work, and economic growth, SDG 12 responsible production and consumption, SDG 13 climate action, SDG 15 life of terrestrial ecosystems, are directly related to the actions planned by the CSICAP project.

### **2.1.2 Agricultural sector policies and regulations**

Articles 64 and 65 of the 1991 Political Constitution establish that the State shall prioritize the integral development of agricultural, fishing, forestry, and food production activities, for which purpose it shall promote the transfer of knowledge and technologies and technical and business assistance to producers to improve their income and quality of life. To respond to these commitments, Decree 1071 of 2015, the Sole Regulatory Decree of the Agriculture, Livestock, Fisheries, and Rural Development Administrative Sector, defines the institutional framework of the sector and compiles the regulations that promote comprehensive rural development. This decree regulates, among other aspects, the planning and management of rural land, agricultural uses, agricultural risk management, land suitability, and agricultural innovation and extension.

For land access, acquisition, and adjudication, Law 160 of 1994 created the National System of Agrarian Reform and Rural Peasant Development. The system was established as the planning, coordination, and operating mechanism to promote progressive access to land ownership, through

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<sup>22</sup> Colombia proposed a 20% reduction in GHG emissions with respect to the projected 2030 scenario.

a subsidy for land acquisition, among other instruments. Also, this law regulates the occupation and use of the Nation's vacant lands and seeks to promote the adequate use of rural lands and waters suitable for agricultural and livestock exploitation, through land-use planning instruments and subject to environmental conservation policies. Likewise, Law 1776 of 2016 in Article 4 determined that the Ministry of Agriculture and Rural Development would be responsible for leading and coordinating the formulation of the general rural development policy and states that the Ministry will define the agricultural frontier taking into account the environmental reserve zones and other restrictions on land use. Along these lines, Resolution 261 of 2018 was formulated, which defines the national agricultural frontier and makes it possible to identify the areas that may be destined for agricultural use in the territories.

Regarding irrigation, Law 41 of 1993 regulates the provision of the public service of land suitability for agricultural activities, as well as the construction of irrigation districts subject to the conservation of hydrographic basins. Subsequently, Law 1955 of 2019 adjusted the concept of public service, as well as the public service rate, the system and method for calculating rates, and the sanctions and infractions related to its provision. Additionally, CONPES 3926 National Agricultural Irrigation Policy 2018-2038 approved in 2018, establishes a strategic framework aimed at improving productivity, competitiveness, and environmental sustainability of production systems through the management of irrigation, drainage, and flood protection systems.

In terms of agricultural innovation and extension, Law 1876 of 2017 created the National Agricultural Innovation System (SNIA), defined new functions, competencies, and articulation mechanisms for national and territorial entities and agencies, and created the public agricultural extension service to improve the productivity, competitiveness, and sustainability of the Colombian agricultural sector. The law is based on the recognition of the productive and social organization of the territory as a participatory planning process that allows the harmonization of agricultural uses and rural land tenure, favoring an adequate balance between agricultural production, efficient land use, and social, environmental, and economic sustainability. It also involves, within the agricultural extension, actions aimed at generating comprehensive competencies in agricultural producers for the sustainable management of natural resources and the adoption of practices for mitigating and adapting to climate change. This is aimed at improving the productive and environmental performance of the farms and contributing to the economic and social development of the families.

In the area of agricultural financing and risks, Law 16 of 1990 created the National Agricultural Credit System and the National Agricultural Credit Commission - CNCA as the administrator of such system, as well as the Fund for the Financing of the Agricultural Sector - Finagro. In line with the above, Law 69 of 1993 established agricultural insurance and created the National Fund for Agricultural Risks, administered by Finagro, as mechanisms to encourage and protect food production and marketing against natural and biological risks affecting agricultural activities. Within this framework, the CNCA defines the conditions for accessing the Agricultural Insurance Incentive. In the same sense, Law 101 of 1993 on Agricultural Development opened the possibility of creating development funds through agricultural and fishing parafiscal contributions.

On the other hand, it is important to refer to the regulations associated with the agreement with the FARC-EP of November 2016; such is the case of Decree 893 of 2017, which creates the Development Plans with Territorial Approach (PDET for its acronym in Spanish) as a planning and management instrument to implement as a priority the sectoral plans and programs within the framework of the Comprehensive Rural Reform (RRI for its acronym in Spanish). In this regard, the RRI includes plans for irrigation and drainage, marketing, income generation, technical assistance, and property formalization, of which the Ministry of Agriculture and Rural Development has issued the first three during 2020.

### **2.1.3 Policies and regulations related to ethnic communities**

Through Law 21 of 1991, Colombia ratified Convention 169 of 1989 on Indigenous and Tribal Peoples in Independent Countries of the International Labor Organization (ILO). The adoption of this Convention has been fundamental in the elaboration of national laws and policies regarding indigenous peoples and black communities, since it describes in-depth their rights, emphasizing the right to a dignified life, the right to maintain, strengthen and preserve their institutions, cultures, and traditions, as well as to the pursuit of their development in a determined and free manner. Besides, the agreement calls on member states to develop participatory and open approaches, promoting spaces for dialogue and consultation with these peoples.

Within this framework, the Political Constitution of Colombia of 1991, in Articles 7 and 8, establishes the duty of the State to protect the ethnic and cultural diversity of the Nation, that is, the integral survival of the Indigenous Peoples, through their cultures and systems of social, economic and political organization. Likewise, Article 56 empowers the National Government to dictate the necessary fiscal norms and others related to the functioning of the indigenous territories. Article 63 provides that public property, natural parks, communal lands of ethnic groups, reservation lands, the archaeological heritage of the Nation and other property determined by law are inalienable, imprescriptible, and unseizable. Additionally, Article 330 stipulates that the indigenous territories shall be governed by Councils formed and regulated according to the uses and customs, in such a way that the systems of government of the Indigenous Peoples are recognized. Likewise, Article 329 establishes that the conformation of the Indigenous Territorial Entities (ETIS for its acronym in Spanish) will be made subject to the provisions of the Organic Law of Territorial Ordering, and its delimitation will be made by the National Government, with the participation of the representatives of the indigenous communities, the prior concept of the Commission of Territorial Ordering, and it is also established that the reserves are of collective property and not alienable. And the constitution provides that prior consultation must be carried out in the decisions taken about the exploitation of natural resources in the indigenous territories.

On the other hand, it is essential to refer to Law 70 of 1993, which recognizes the right to collective property for the black communities that occupy the rural riparian zones of the rivers of the Pacific Basin, following their traditional production practices.



Regarding the exploitation of natural resources in the territories of indigenous peoples and black communities, it is relevant to refer to the process of prior consultation, which is a fundamental right of ethnic peoples and seeks to consult them regarding projects or activities to be carried out in their territories, to protect their culture, institutions, natural resources, and livelihoods.

In the case of the CSICAP project, taking into account that the project will be developed in areas already intervened within the national agricultural frontier, which excludes the collective territories delimited and assigned to ethnic groups, no direct negative impacts on collective territories of indigenous communities nor afro-descendants are anticipated (indigenous reservations and community councils), since these areas are outside the project's area of intervention, so it was not considered necessary to carry out prior consultation processes<sup>23</sup>.CSICAPCSICAP. However, in order to enhance the positive impacts for producers descended from ethnic groups, potential beneficiaries of the project, a differential ethnic approach was included in the diagnosis and risk analysis, as well as in the processes of dissemination and relationship with the project. , in order to promote equitable development, with the understanding that in rural territories the inhabitants and rural communities (peasant, ethnic and those who do not recognize themselves as none) share traditional practices.

If at some point the activities and locations of the project are modified and a consultation is required, this process shall be governed by Decree 2613 of 2013 (which adopts the Interinstitutional Coordination Protocol for Prior Consultation), the methodological guide established by Presidential Directives No.10 of 2013 and No.8 of 2020, as well as by the guidelines established in Decree 1066 of 2015 (Sole Regulatory Decree of the Administrative Sector of the Interior) and by the Directorate of the National Authority for Prior Consultation of the Ministry of the Interior (Decree 2353 of December 26, 2019).

#### **2.1.4 Gender equality policies and regulations<sup>24</sup>**

In the area of gender equity, the country has ratified various international instruments aimed at guaranteeing women's rights and non-discrimination. These include the 1979 Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), the Platform for Action for Women's Rights promulgated at the Fourth World Conference on Women (Beijing, 1995), and the Convention on the Prevention, Punishment, and Eradication of Violence against Women (Convention of Belém do Pará). Similarly, it is worth mentioning Sustainable Development Goal 5 on Gender Equality.

These and other instruments recognize the link between gender inequalities and the disproportionate effects of climate change on women, especially rural, indigenous and Afro-descendant women. In this sense, they call attention to the need to adopt measures that include a

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<sup>23</sup> For the purposes of the project, the term ethnic group and ethnic community applies to both indigenous communities and groups and Afro-American communities and groups. Similarly, the GCF definition referred to in the Indigenous Peoples Policy applies.

<sup>24</sup> For more information, the Gender Analysis in Annex 8- Part A includes a more detailed analysis of Colombia's current gender policy and regulatory framework.

gender perspective and respond to the problems and needs of these women, who face triple discrimination due to their gender, their rural location, and their ethnicity.

In Colombia, the 1991 Political Constitution guarantees equal rights and opportunities for men and women. Along these lines, different norms have been issued to comply with this principle, including Law 823 of 2003, which dictates norms on equal opportunities for women; Law 1257 of 2008, which adopts norms to guarantee women lives free of violence; Law 1413 of 2010 or the care economy law; and Law 731 of 2002 or the rural women's law. These norms, especially the last one, have served as a framework so that, from the agricultural and rural development administrative sector, norms and policy guidelines are established to guarantee rural women's effective access to land (Decree-Law 902 of 2017, Law 1900 of 2018), financing, assets and productive projects (Law 1900 of 2018), and agricultural extension (Law 1876 of 2017).

## **2.2 Specific legal Framework for CSICAP project activities**

The following is a summary of the regulatory framework relevant to CSICAP activities<sup>25</sup>.

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<sup>25</sup> The Gender Analysis included in Annex 8 includes a matrix that comprehensively lists Colombia's current gender regulatory framework.

**Table 2.1. Specific legal Framework for CSICAP Project activities**

Regulation	Objective	Application to the project
<b>Law 388 of July 18, 1997</b>	It defines the land use plans (POT for its acronym in Spanish) and through this regulatory instrument takes into account the existence of environmental determinants and their incorporation into land-use planning.	Regarding regulations related to land use planning, it is essential to ensure that the land selected for the implementation of the CSICAP project is located in areas permitted under the land use plans (population over 100,000 inhabitants), basic land use plans (population between 30,000 and 100,000 inhabitants) or land use plans (population under 30,000 inhabitants) of the districts and municipalities, as appropriate.
<b>Resolution 261 of 2018</b>	The National Agricultural Frontier is defined and the methodology for its general identification is adopted.	<p>The national agricultural frontier is defined as <i>"the limit of rural land that separates the areas where agricultural activities are developed, conditioned areas and protected areas, areas of special ecological importance, and other areas where agricultural activities are excluded by law"</i>.</p> <p>Article 5. <i>"... its delimitation is based on the transformed territory, which is dedicated to the development of agricultural activities in rural land... recognizes the multifunctionality of the territory, which allows including within the agricultural frontier other services and activities compatible with the development of agricultural activities"</i>, likewise in one of the paragraphs of the article reference is made to the use of the <i>"map of natural forest to non-forest from 2010 of the IDEAM is considered as a tool for the general identification of the agricultural frontier in Colombia"</i>.</p> <p>It is essential to ensure that the properties selected for the implementation of the CSICAP project are areas included within the agricultural frontier.</p>
<b>Sole Regulatory Decree of the Agriculture, Livestock, Fisheries and Rural Development Administrative Sector</b>	Chapter 2. Basic Genetic Materials of Improved Seeds	<p>The CSICAP project plans to carry out research and in some cases the development of improved seeds, hybrids, and clones resistant to effects associated with climate variability, pest resistance, among others. In this case, the project must consider the regulations in force in this area, and it is recommended that Chapter 2 is considered in particular:</p> <p>Article 2.13.7.2.2.1 Determines that the Ministry of Agriculture and Rural Development, through the Colombian Agricultural Institute (ICA for its acronym in Spanish), has the function of supervising the registration, certification, multiplication, and distribution of all improved material intended for food or industrial crops.</p> <p>Article 2.13.7.2.2.3. Defines that basic genetic materials produced by private industry that are to be delivered for multiplication and distribution to the public, in the form of improved materials, must be registered with the ICA.</p> <p>Article 2.13.7.2.2.4 Determines that the Colombian Agricultural Institute (ICA) must certify the seed of improved materials to be made available to the public.</p>
<b>Decree 1071 of 2015</b>	Chapter 3. Living Modified Organisms	<p>The CSICAP project plans to carry out research and in some cases the production of hybrids, and clones. In this case, it is recommended to consider the current regulations on this matter:</p> <p>Chapter 3, establishes the regulatory framework for Living Modified Organisms (LMOs) following the provisions of Law 740 of 2002, which approves the "Cartagena Protocol on Biosafety to the Convention on Biological Diversity", which applies to the transboundary movement, transit, handling, and use of Living Modified Organisms (LMOs) that may have adverse effects on the environment and biological diversity, taking into account the risks to human health, productivity and agricultural production.</p>

		<p>Article 2.13.7.3.3 Establishes as the competence of the Ministry of Agriculture and Rural Development, through the Colombian Agricultural Institute, ICA, the authorization of activities when dealing with Living Modified Organisms (LMOs) exclusively for agricultural, livestock, fisheries, commercial forestry, and agro-industrial plantations, which may have adverse effects on the conservation and sustainable use of biological diversity.</p> <p>Article 2.13.7.3.5. The Ministry of Health and Social Protection directly or through the authority it delegates, shall be competent for the authorization of the activities indicated in this chapter when dealing with Living Modified Organisms (LMO) for exclusive use in health or human food.</p>
	<p>Title 8. Agricultural inputs</p>	<p>Regarding the use of pesticides, their registration and control within the scope of the CSICAP project, Title 8, which establishes the Registration and Control of Chemical Pesticides for Agricultural Use, must be considered:</p> <p>Article 2.13.8.8.1.1. Following the provisions of Article 4 of Decision 436, the Ministry of Agriculture and Rural Development, through the Colombian Agricultural Institute, ICA, or the entity that takes its place, is the Competent National Authority, to carry out the registration and control of chemical pesticides for agricultural use.</p> <p>Article 2.13.8.1.3. Establishes that the Colombian Agricultural Institute, ICA, through a single-window system, shall be responsible for carrying out the registration and control of chemical pesticides for agricultural use and for receiving, processing, and coordinating with the competent authorities, the applications for registration of chemical pesticides for agricultural use, shall receive the registration applications and shall forward them to the Ministries of Health and Social Protection and the Ministry of Environment and Sustainable Development, so that they may carry out, within the scope of their competences, the procedures for the control of the activities related to chemical pesticides for agricultural use.<sup>26</sup>.</p>
<p><b>Sole Regulatory Decree of the Environment and Sustainable Development Sector. Decree 1076 of 2015</b></p>	<p>Title 2. Environmental Management. Chapter I. Special management areas. Section 1 and 2 National System of Protected Areas Section 4. Zoning and permitted uses. By which the National System of Protected Areas the National System of Protected Areas, the management categories that comprise it, and other provisions.</p>	<p>About protected areas, it must be guaranteed that the properties selected for the implementation of the CSICAP project are areas outside the conservation figures established in the National System of Protected Areas.<sup>27</sup> (SINAP for its acronym in Spanish), if the land is located within any of the special management areas, the agricultural and livestock activity developed on the land must coincide with the uses permitted by the regulations and with the guidelines established in the Management Plan of the corresponding Protected Area.</p> <p>Article 2.2.2.1.2.1. The categories of protected areas that make up the SINAP are established Public Protected Areas a) Those of the National Natural Parks System, b) Protected Forest Reserves, c) Regional Natural Parks, d) Integrated Management Districts, e) Soil Conservation Districts, f) Recreation Areas. Private Protected Areas g) Civil Society Natural Reserves. Each of these areas has defined permitted uses and some of them have approved Management Plans.</p>

<sup>26</sup> It is of great relevance to mention that Colombia is part of the Andean Community, which adopted DECISION 436 corresponding to the Andean Standard for the Registration and Control of Chemical Pesticides for Agricultural Use, this binding decision seeks to establish requirements and harmonized procedures for the registration and control of chemical pesticides for agricultural use, guide their correct use and management to prevent and minimize damage to health and the environment under authorized conditions, and facilitate trade in the subregion..

<sup>27</sup> The National System of Protected Areas is the set of protected areas, the social and institutional actors, and the management strategies and instruments that articulate them, which contribute as a whole to the fulfillment of the country's general conservation objectives.

Section 18 Conservation of natural resources on rural properties	<p>Regarding the selected properties where the CSICAP project will be implemented, compliance with the obligations established for the owners of rural properties must be considered.</p> <p>Article 2.2.2.1.1.18.1 Protection and use of water refer to not contaminating water sources, protecting the quality of water resources, not altering the natural flow of water, or changing its bed or channel as a result of non-permitted activities, among others.</p> <p>Article 2.2.1.1.1.18.2. Protection and conservation of forests refer to maintaining the forest cover within the property of the protective forest areas, protecting the species of vegetation banned, prevention of fires, pests, fire control, among others.</p> <p>Article 2.2.1.1.1.18.3. Provisions on Forest Cover refers to the fact that owners of properties of more than 50 hectares must maintain at least 10% of their extension in forest cover.</p> <p>Article 2.2.1.1.1.18.4. Provisions on Forest Coverage establishes that in adjudicated vacant lands larger than 50 hectares the owner must maintain a proportion of 20% of the extension of the land in forest coverage.</p> <p>Article 2.2.1.1.1.18.6. Soil Protection and Conservation refers to maintaining the physical integrity and productive capacity of the soil, implementing adequate cultivation and soil management techniques, among others.</p>
CHAPTER 3. Environmental permits	<p>Regarding the selected properties where the CSICAP project will be implemented, compliance with current regulations must be taken into account, concerning environmental licenses in applicable cases. The following is a brief review of the competencies of the environmental authorities about environmental licensing.</p> <p>Article 2.2.2.2.3.1.2. Defines the Environmental Authorities competent to grant or deny environmental licenses, 1. The National Environmental Licensing Authority (ANLA for its acronym in Spanish). 2. The Regional Autonomous Corporations and the Sustainable Development Corporations.</p> <p>Article 2.2.2.2.3.1.3. defines the concept and scope of the environmental license. The environmental license, <i>"is the authorization granted by the competent environmental authority for the implementation of a project, work or activity, which, following the law and regulations, may produce serious deterioration to the renewable natural resources or the environment or introduce considerable or notorious modifications to the landscape"</i>.</p> <p>Article 2.2.2.2.3.2.2.2. It is determined within the competencies of the National Environmental Licensing Authority (ANLA), to grant or deny the environmental license for projects, works, or activities: the construction and operation of irrigation and or drainage districts, production of pesticides, import of pesticides (Pesticides for agricultural use (active ingredient and/or formulated product), except for pesticides of biological origin elaborated based on extracts of vegetable origin, among others.</p> <p>Article 2.2.2.2.3.2.2.3. The Competence of the Regional Autonomous Corporations in matters of environmental licenses is established in the following topics: construction and operation of irrigation and/or drainage districts for areas greater than or equal to five thousand (5,000) hectares and less than or equal to twenty thousand (20,000) hectares, among others.</p>
Subsection 1. Water Efficiency and Saving Program (PUEAA)	<p>Concerning water use, if within the scope of the CSICAP project there are users that have requested water concessions, it is recommended to consider the guidelines of the PUEAA focused on the optimization of water resource use, made up of the set of projects and actions that must be developed and adopted by users requesting water concessions to contribute to the sustainability of the resource. It is very important to emphasize Section 22. Discharge for agricultural use, irrigation, and drainage.</p> <p>Article 2.2.3.3.4.19. Control of contamination by agrochemicals. In addition to the measures required by the competent environmental authority, to control water pollution by the application of agrochemicals, the following are prohibited: 1. the manual application of agrochemicals within a strip of three (3) meters, measured from the banks of any body of water. 2. The aerial application of agrochemicals within a thirty (30) meter strip, measured from the banks of any body of water.</p>

<b>Resolution 886 of 2018 Ministry of Environment and Sustainable Development</b>	By which guidelines are adopted for the zoning and regime of uses in the delimited moorland areas and guidelines are established for the design, training, and implementation of programs for the substitution and reconversion of agricultural activities, and other determinations are made.	<p>The CSICAP project must consider within the scope of its actions the determinations established in the Resolution, given that the moorland ecosystems are areas of special environmental interest and have special protection. And the resolution adopts guidelines for zoning, determination of the regime of uses, and the preparation of the environmental management plan applicable to the delimited moorlands, as well as the guidelines for designing, training, and implementing programs for the substitution and reconversion of agricultural and livestock activities in these ecosystems.</p> <p><i>"Article 2. This administrative action is aimed at agricultural and livestock activities that were being developed before June 16, 2011, and that are located within the moorland areas delimited by the Ministry".</i></p> <p>Special attention should be paid to the guidelines in Article 9, which refers to the zoning of the moorlands in which the zoning categories are defined: 1. Zone in transit to reconversion and substitution, 2.</p> <p>Article 15. Guidelines to address the conversion and substitution of agricultural activities... <i>"1. These guidelines are aimed at agricultural activities that were being developed before June 14, 2011. The intervened areas within the moorland area, with agricultural activities that have been carried out after June 16, 2011, should be subject to priority substitution and restoration. 2. The intervention of new areas for the development of agricultural activities is completely prohibited. Joint actions must be carried out to prevent the advancement of agricultural activities within the delimited area. This means that areas that have been conserved with a natural cover or that are already in the process of restoration may not be the object of interventions for agricultural production purposes. 3. The prohibition does not imply displacement or expropriation of the communities that inhabit the moorland; on the contrary, mechanisms must be designed to prevent this from happening. The inhabitants of the moorland should be the subjects of the integral management of these ecosystems".</i></p>
<b>Law 1930 of 2018</b>	Whereby provisions are issued for the integrated management of the moorland in Colombia.	<p>It is essential to consider the restrictions and guidelines of this Law within the scope of the CSICAP project, especially the provisions of Articles 5 and 6:</p> <p>Article 5. Prohibitions. development of projects, works, or activities in moorlands will be subject to the corresponding Environmental Management Plans. In any case, the following prohibitions must be taken into account: <i>"... 5. The use of heavy machinery in the development of agricultural activities is prohibited. The use of other types of machinery will be subject to the development of activities oriented to guarantee a vital minimum, following the moorland management plan... 6. Final disposal, management, and burning of solid and/or hazardous waste are prohibited... 7. The introduction and management of genetically modified organisms and invasive species are prohibited... 8. 11. Fumigation and spraying of chemicals are prohibited and should be gradually eliminated in the scope of agricultural and livestock activities reconversion. 12. The degradation of native vegetation cover is prohibited...</i></p> <p><i>Paragraph 4. The economic practices carried out in these areas shall be carried out in such a way as to avoid the deterioration of biodiversity, promoting alternative and environmentally sustainable production activities that are in harmony with the objectives and principles of the present law.</i></p> <p><i>...Article 10. On agricultural and mining activities. The Ministries of Agriculture and Rural Development, Mines and Energy and their attached or related entities and territorial entities, in coordination with the Regional Autonomous Corporations, and under the guidelines of the Ministry of Environment and Sustainable Development, shall concur to design, train and implement programs for the substitution and reconversion of high impact agricultural and livestock activities and small traditional miners..."</i></p>

Source: Prepared by the authors.

### 3. Assessment of institutional capacities for environmental and social management

To evaluate the capacity of the Producer Associations to address the social and environmental issues associated with the CSICAP project, a series of analytical categories were identified and the Institutional Capacity Analysis and Development System (ICADS) methodology was used to analyze the strengths and opportunities for improvement of the organizations, based on four components: A. Normative, regulations and guidelines; B. Inter-institutional relations; C. Internal coordination; D. Financial capacity. Besides, the ICADS guidelines were adapted to include a component E. Monitoring, follow-up, and evaluation capacity. Likewise, the analysis of the information provided by some of the associations was complemented by the information from the interviews and group sessions held in the territory.

The following is the result of the application of this methodology in each of the Producer Association participating in the CSICAP project<sup>28</sup>. The analysis of the institutional capacities of the associations for environmental and social management, given the implementation of the CSICAP Project, yielded very diverse results. Table 3.1, presents a comparative summary of the competencies possessed by the entities and that were evidenced in the study.

**Table 3.1. Matrix summarizing the rating of the institutional capacity of the Producer Associations**

Component	Rating							
	Asbama	Asocaña	Fedearroz	Fedegan	Fedepanela	Fedepapa	FNC	Fenalce
Quality management and PQR	30%	15%	100%	100%	0%	50%	100%	20%
Environmental management standards, regulations and guidelines	100%	71%	71%	0%	0%	46%	61%	53%
Inter-institutional relations	100%	100%	100%	100%	98%	99%	100%	80%
Inter-institutional relations in environmental management	100%	100%	100%	0%	0%	100%	100%	50%
Internal articulation	80%	84%	87%	55%	74%	84%	100%	58,6%
Internal articulation in environmental management	100%	100%	100%	30%	0%	77%	100%	100%
Financial capacity in environmental management	100%	100%	0%	0%	0%	0%	70%	0%
Monitoring, follow-up and evaluation capacity	2,5%	86%	95,9%	42,8%	88%	76,7%	76%	47,6%
Average	87%	82%	80%	41%	33%	65%	88%	51%

Source: Prepared by the authors.

<sup>28</sup> It is worth mentioning that since the Association of Colombian Banana Growers - Augura did not submit the information in the ICADS format, it is not possible to present the results of the analysis of their institutional capacities.

First of all, it is important to point out that capacities are not homogeneous within the Producer Associations. The entities have strengths in the management of some issues (with scores above 80%, most of them 100%), and weaknesses in the management of others (with scores that can reach 0%, either because the information was not filled out in the ICADS format or because of the total absence of capacity).

In summary, none of the organizations obtained a 100% score in all components. However, a review of the average scores reveals two groups. The first group is made up of the associations with the greatest capacity for environmental and social management (with averages equal to or higher than 80%): Asbama, Asocaña, Fedearroz, and the Federación Nacional de Cafeteros. The second group has a medium capacity (with averages between 50% and 65%) and is made up of Fedepapa and Fenalce. Fedegan and Fedepanela obtained the lowest scores; however, this may be related to the fact that they did not answer most of the questions in the ICADS format. The qualitative work evidenced different efforts that each of these two entities has been developing, so they are not considered to be at a low level. The analysis suggests that Fedegan would be in the high-capacity group and Fedepanela in the medium capacity group; however, this assessment should be verified when more data is available.

For the component of rules, regulations, and guidelines for quality management and grievance redress mechanism, the Producer Associations with the highest scores are Fedearroz, Fedegan, and the Federación Nacional de Cafeteros, while Fedepapa has a medium score and Asbama, Fenalce, Asocaña and Fedepanela have a low score. Asbama, Fedearroz, Asocaña, and the Federación Nacional de Cafeteros were the highest-rated organizations in terms of environmental standards, regulations, and guidelines, while Fedepapa and Fenalce had an average rating. Fedepanela did not submit any information.

Concerning inter-institutional relations, in general, the Producer Associations have a high capacity and relations with other entities and organizations, which reflects their mission to represent and advocate for the interests of their members, mainly before the national government, as well as the need to seek strategic allies to join efforts to improve the conditions of their members and the competitiveness and profitability of their production. In terms of inter-institutional relations associated with environmental issues, Fenalce had an average rating and Fedegan a low rating. Fedepanela did not submit any information.

In terms of internal articulation, the Federación Nacional de Cafeteros, Fedearroz, Fedepapa, Asocaña, Asbama, and Fedepanela presented a high score, while Fenalce and Fedegan presented a medium score. Likewise, concerning internal capacity for the management of environmental issues, Fedearroz, Asbama, Fenalce, Asocaña, the Federación Nacional de Cafeteros, and Fedepapa presented a high score, while Fedegan presented a low score and Fedepanela did not present any information.



In terms of financial capacity, only Asbama, Asocaña, and the Federación Nacional de Cafeteros reported allocating specific resources to environmental management issues. The rest of the Producer Associations do not allocate specific resources to these issues.

In terms of capacity for monitoring, follow-up, and evaluation of environmental and social issues, Fedearroz, Fedepanela, and Asocaña had the highest rating, followed by Fedepapa and the Federación Nacional de Cafeteros. Fenalce and Fedegan had a medium rating and Asbama a low rating.

The heterogeneity of capacities both within and among the Producer Associations shows that it is necessary to work on strengthening them so that these issues do not compromise the results and sustainability of the CSICAP project.

Based on the triangulation of the results of the ICADS, the qualitative primary information, and the consultation of secondary information, some recommendations are formulated below (Table 3.2) for each Producer Association. These proposed actions will be incorporated into the mitigation measures and the Environmental and Social Management Framework of the project, to meet the requirements of the CSICAP project within the scope of its design, operation, and implementation.

**Table 3.2. General recommendations for environmental and social management capacity building**

Recommendation	Producer Association							
	Asbama	Asocaña	Fedearroz	Fedegan	Fedepanela	Fedepapa	FNC	Fenalce
Develop a protocol for handling complaints, claims and grievances	x				x			
Advance in the quality certification of its processes	x				x	x		x
Sign agreements with universities in the regions, to promote the exchange of experiences and encourage research according to the needs of the territories and the industry	x	x	x	x	x	x	x	x
Sign zero deforestation agreements with the Ministry of Environment	x	x	x		x	x	x	x
Improve the relationship with the Environmental Authorities and the creation of work agendas in which the Producer Association explains the needs of the sector and promotes the rapprochement of women and men producers with the Authorities and the strengthening of communication channels between the parties.			x	x	x	x		x
Expand coverage and close and constant technical assistance of producers through extensionist services, as well as the selection of suitable extensionists and, if possible, from the region. Guarantee the strengthening of local capacities and the generation of bonds of trust with producers.		x	x	x	x	x		x
Facilitate, within its information systems, the identification of the ethnicity of its affiliates, so that this population can be characterized, and measures can be formulated according to their needs.	x	x	x	x		x	x	x
Strengthen information systems for monitoring sustainable production practices, the implementation of practices related to environmental management (biodiversity conservation, waste management, among others). It is also recommended to incorporate information related to food security.	x	x	x	x	x	x		x
Define resources for the development of environmental management actions and emergency response.			x	x	x	x		x
Articulate the actions of the CSICAP project with the mitigation actions established in the respective sectoral NAMA.				x	x		x	
Review the plans and management of spraying and the impact on people's health and natural resources. Although there are several international certifications, in the group work sessions it became evident that aerial spraying directly affects farmers and agricultural workers.	x							
Engage with the Ministry of Agriculture, Ministry of Environment and (local) Environmental Authorities to ensure the Federation's participation in the spaces created to discuss the regulation of Law 1930 of 2018				x		x		

Source: Prepared by the authors.

## 4. Stakeholder mapping

This chapter takes up the results of the inter-institutional relationships analyzed in the previous section and incorporates them into a mapping or sociogram that identifies the key actors in the study area, both in terms of the relationships they currently have with each other and that may affect or contribute to the CSICAP project, as well as the relevance they may have for its implementation.

The section is divided into two parts. The first part presents an analysis of the relationships between the different actors that interact in the value chains associated with each of the Producer Associations participating in the CSICAP project. The second part lists, by way of recommendation, some entities that were not identified in the sociogram but which it is suggested to keep in mind and coordinate with them for the implementation of the Gender Action Plan and the project's Environmental and Social Management Framework.

### 4.1 Sociogram results

In general, the stakeholder maps of the Producer Associations show networks with a medium level of density, which indicates inter-institutional coordination with different types of agents. In value chains such as rice, livestock, and corn, the associations work with ministries, state entities, Regional Autonomous Corporations, and lending institutions. It is interesting to note that these chains have ties with international institutions or actors (cooperation agencies, non-governmental organizations, international research institutions), such as CIMMYT, CIAT, embassies, and foreign universities, which demonstrates institutional management that articulates its interests and finds ways to obtain support from these organizations for the implementation of projects and actions that benefit the chain.

Those who provide extension services offered by the associations usually have a good relationship with producers. For example, in the corn, livestock, panela, and sugarcane chains, extensionists rated their relationship with producers and producer associations with a 5. Similarly, those entities that provide technical assistance services such as the ICA and the associations Fedepapa, Fedearroz, and Augura, as well as sugar mills such as Incauca, were rated by extensionists and producers as having a high and superior level of coordination.

A constant feature of the stakeholder maps is the medium or low level of relations between extensionists and producers and local public entities such as mayors' and governors' offices and municipal entities such as UMATA. In value chains such as corn, cattle, bananas, potatoes, and sugarcane, the weak relationship between producers and municipalities is due to the lack of economic and training support for the production projects they carry out, the poor infrastructure provided by local governments, which is detrimental to producers, and the difficulty in articulating the interests of the Producer Associations with public policies to support agricultural production. This could affect the implementation of the CSICAP project, which is why it is a priority to efficiently

coordinate local governments and associations that have a presence in the territory, especially with the aforementioned chains. However, some other chains establish better relations with producers and Producer Associations. For example, in the panela and coffee value chains, the producers interviewed gave a score of 5 for their coordination with the municipal governments, who finance productive projects and provide them with land for planting.

On the other hand, in networks such as rice, cattle, and bananas, common crime or armed groups interfere in the producers' production processes, affecting the performance of the chains. This information can be contrasted with those departments where there is a presence of armed actors, which are also territories dedicated to the aforementioned crops, such as Urabá, Arauca, Casanare, Antioquia, Tolima, Nariño, Cauca, and Magdalena. The interference of this type of agent has repercussions on processes such as planting and harvesting, or livestock raising since in many cases they steal the production or trigger processes that imply the displacement of the people living there.

It is also important to highlight the role played by higher education institutions such as universities and other educational institutes within the value chains, especially about technical assistance services. Although in some cases these relationships are weak, the presence of these types of links indicates the articulation that the associations are trying to achieve in terms of knowledge production. Most of the universities with which the associations are linked are regional, which shows that the vocation of the agronomy faculties of the institutions has been able to articulate with the interests of the producers in the departments where they are present.

Finally, some Producer Associations from rice, bananas, cattle, and potato value chains have good relationship with public entities at the national level such as the Ministry of Agriculture and Rural Development and the Ministry of Environment. In addition, associations such as Fedegan, Fedepanela and the Federación Nacional de Cafeteros have circumscribed an environmental agenda together with international cooperation agencies. However, Producer Associations such as Augura and Fedearroz have low levels of articulation with Regional Autonomous Corporations due to conflicts regarding the development of projects, environmental regulations, and the norms that govern them.

## **4.2 Strategic allies**

Based on the Stakeholder Mapping, the project's links with additional national and local stakeholders were analyzed, who, because of their competencies, can contribute to the proper implementation of the CSICAP project in the prioritized municipalities, especially the Gender Action Plan and the Environmental and Social Management Framework. However, those relations need to be strengthened, either because they did not appear in the mapping, or because their relationship is weak, or because they need to take a more active role in the project.

As a result, public entities in the agriculture and environment sectors that can contribute to the promotion of resilient and low-emission agriculture and livestock production are identified below. Similarly, public agencies of the social inclusion sector with which it is recommended to coordinate

actions related to the care economy are indicated. Some international cooperation agencies with which the national government and some local governments have been working on these issues are also presented. Finally, some civil society women's organizations that are leading the fight for gender equality in the country are mentioned.

Regarding the entities of the agriculture and rural development sector, starting with the Ministry, it is suggested that the project should be coordinated with the various technical directorates of that entity. Although the Ministry of Agriculture's participation is led by the Directorate of Innovation and Technological Development, it is important to involve other directorates, such as those responsible for financing and productive capacities. The first can support the management with the National Agricultural Credit Commission<sup>29</sup>, Finagro<sup>30</sup>, Banco Agrario<sup>31</sup> y Banca de las Oportunidades<sup>32</sup> for the development of financial products and services and financial education that favor project beneficiaries. Similarly, with the second, which implements co-financing programs for farmer groups under specific methodologies, such as El Campo Emprende and Alianzas Productivas, opportunities could be generated to support the implementation of activities related to the second and third components of the CSICAP project.

On the other hand, it is recommended that the associations involved in the CSICAP project strengthen and recognize the links with the Rural Agricultural Planning Unit (UPRA for its acronym in Spanish) to promote the efficient use of rural land for agriculture and livestock activities and sustainable production. This will be done by strengthening value chains in those territories identified by the UPRA as suitable soils in the zoning exercises for agricultural production, and as established in the Production Management Plans issued for the rice, corn, dairy, and meat chains. Besides, it is recommended that the CSICAP project generate information exchanges with the National Unified Rural and Agricultural Information System (SNUIRA for its acronym in Spanish), to help agricultural producers access and use agricultural, hydro-meteorological and agroclimatic statistical information to improve agroclimatic risk management.

It is also suggested that synergies be sought with the Rural Development Agency (ADR for its acronym in Spanish)<sup>33</sup>, due to the possibility of structuring and co-financing Comprehensive Agricultural and Rural Development Projects (PIDAR for its acronym in Spanish) of national interest, specifically in the technical assistance components, which are in line with the needs and differences existing in the territories. The purpose of these PIDARs is to provide comprehensive support to

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<sup>29</sup> It is the administrative agency of the National Agricultural Credit System and the governing body of public agricultural financing policy.

<sup>30</sup> Fondo para el Financiamiento del Sector Agropecuario (FINAGRO), is a second-tier financial institution in the sector, which grants resources on concessional terms to first-tier banks or financial institutions, which grant loans to male and female producers.

<sup>31</sup> State-owned first-tier bank that provides financial services to agricultural and rural economic activities.

<sup>32</sup> Financial inclusion program of the national government administrated by Bancóldex (a second-tier business development bank in the commerce and industry sector).

<sup>33</sup> Article 4 of Decree 2364 of 2015 defines that among the functions are: "i) formulate, structure, co-finance and execute national strategic projects, as well as those of territorial or associative initiative, aligned to the comprehensive agricultural and rural development plans with a territorial approach and the policy formulated by the Ministry of Agriculture and Rural Development, ii) establish and disseminate the lines of co-financing of comprehensive agricultural and rural development projects with a territorial approach".

agricultural and livestock producers, including the promotion of adaptation and mitigation measures to reduce the risk of loss of crops and livestock production in the face of climate hazards.

On the other hand, Law 1876 of 2017, which creates the National Agricultural Innovation System, defines the agricultural extension service as an agent of change that seeks to increase the integral well-being of producers, their families, and their environments, based on the development of comprehensive human and social capacities, access to and effective use of information and ICTs, sustainable management of natural resources and greater participation of producers in sectoral public policy spaces. Also, the aforementioned law establishes that the Departmental Agricultural Extension Plans (PDEA for its acronym in Spanish) are planning instruments that define strategic and operational elements for the provision of agricultural extension services, in coordination with the municipalities, which are responsible for providing this public service. It is, therefore, necessary to strengthen coordination between the Producer Associations and local governments (departmental and municipal) to include in municipal and departmental priorities the strengthening of capacities concerning climate change resilience and mitigation, the analysis of business chains and models, and agricultural extension.

From the private sector, it is important to mention the Sociedad de Agricultores de Colombia (SAC), which brings together the main Producer Associations in the agricultural sector and represents them before the national government to promote public policies for agricultural and rural development. These associations include seven of the nine participating in the CSICAP project: Asbama, Asocaña, Augura, Fedearroz, Fedearroz, Federación Nacional de Cafeteros, Fedepanela and Fedepapa. Besides, the SAC sits on several boards of directors of sector entities, such as the National Land Agency, Agrosavia, ICA, and Finagro, as well as the National Agricultural Credit Commission. In recent years, the SAC has worked hand in hand with the Office of the Vice President of the Republic to comply with the commitments signed in the Pacts for Growth and Employment Generation, as well as in the Pact for Equity for Rural Women. It has also managed a public-private agreement through which around one hundred public policy proposals prepared by the SAC and the Institute of Political Science will be studied to promote entrepreneurship and the integral development of the Colombian countryside.

Concerning environmental sector entities, the fieldwork and the analyses carried out revealed, in general, limited interaction with some associations, as well as a low and almost non-existent relationship between producers, extension workers and these environmental organizations. Given this situation, it is essential within the scope of CSICAP to foster these relationships and join efforts to enhance the expected results of the project. Below are some recommendations to strengthen the interaction of project stakeholders with environmental sector entities in the framework of environmental sustainability processes and the advancement and articulation with the national and international agenda on climate change.

For instance, although the interventions and components of the CSICAP project are framed within the agricultural sector, it also seeks to advance in sustainable production practices, proper solid waste management, circular agriculture, reduction of greenhouse gas (GHG) emissions, among

others, which are issues that are also addressed from the country's environmental agenda. It is recommended that the Ministry of the Environment and Sustainable Development be actively involved in the working groups that are developed, to make progress in identifying synergies in the project's topics. Specifically for the livestock, panela (raw cane sugar), and coffee value chains, it is recommended that actions are articulated and the recommendations proposed in the existing NAMAS be taken up again and that the CSICAP project contributes to the implementation of the proposed mitigation activities. In the case of the other value chains, it is also recommended that progress be made in negotiations related to zero deforestation agreements. Promoting this type of agreement in the CSICAP project is essential and would contribute greatly to the sustainability of the value chains analyzed. Likewise, it is recommended to take advantage of existing instances such as those established in Decree 298 of 2016<sup>34</sup> that establishes the organization and operation of the National Climate Change System (SISCLIMA), specifically, join efforts with the Regional Climate Change Nodes, responsible for supporting the implementation of projects and actions related to climate change in the regions through the articulation of efforts between the central and territorial levels.

Regarding the research institutes attached to the Ministry of Environment and Sustainable Development, especially the Institute of Hydrology, Meteorology and Environmental Studies - IDEAM, it became evident that the Producer Associations and some extension workers consider it to be of great importance and relevance for the agricultural sector, however, existing relations are still weak, therefore, within the scope of the CSICAP project, it is recommended to strengthen these relationships and, if possible, develop agreements that allow IDEAM's participation in the project and its direct interaction with the Producer Associations, Agrosavia and CIAT, since their functions include the generation of relevant and pertinent information for the agricultural sector. Also, IDEAM's involvement will make it possible to join efforts to capture and analyze agroclimatic information, the central focus of CSICAP's first component.

Also, depending on the areas of intervention, it is suggested to strengthen relations with the Instituto Amazónico de Investigaciones Científicas - SINCHI<sup>35</sup>, the Instituto de Investigación Ambiental John von Neumann del Pacífico - IIA<sup>36</sup> and the Instituto de Investigación de Recursos Biológicos Alexander von Humboldt<sup>37</sup>. These entities generate high-quality information related to ecosystem services and sustainable use of biodiversity, which can be useful for the relevant stakeholders of the project, especially on issues related to conservation, preservation of ecosystems and water sources, environmental management issues, and the impact of agricultural and livestock activities in paramos, among others.

The stakeholder map showed the need to move forward with agreements and strategies to promote greater participation of universities and educational centers in the value chains. In the interviews

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<sup>34</sup> <http://es.presidencia.gov.co/normativa/normativa/DECRETO%20298%20DEL%2024%20DE%20FEBRERO%20DE%202016.pdf>

<sup>35</sup> For example, for the activities to be carried out in the department of Caquetá (municipalities of Florencia, Albania, El Docello, Morelia and San José Del Fragua)

<sup>36</sup> For example, for activities in municipalities in the Biogeographic Chocó region, such as El Charco in Nariño, and Apartadó, Carepa, Chigorodó and Turbo in the Urabá Antioqueño

<sup>37</sup> Its coverage is national



and group sessions, it was mentioned that, although in some chains there has been progress and cooperation between Producer Associations and universities, there is still significant potential to be exploited. Within the scope of the CSICAP project, it is recommended that strong relationships are fostered and established between the associations and universities to promote research on project topics, to create agreements for applied research on varieties and sustainable production practices, among others, that will benefit both the academy and the Producer Associations, and in turn promote capacity building in the project's regions of intervention.

In addition, the sociogram showed the existing tensions between the Regional Autonomous and Sustainable Development Corporations and the producers, mainly concerning information gathering instruments. Besides, it became evident that sometimes it is the Producer Associations and/or extension workers who mediate between the producers and the regional environmental authorities. In this case, it is recommended to promote a closer and more direct relationship between the environmental authorities and the needs of the agricultural sector, especially the producers. Although these entities exercise command and control over the natural resources in the regions, it is important, on the one hand, to reconcile positions so that both producers and associations understand and know in detail the environmental requirements and make progress in their compliance, and, on the other hand, so that the Corporations also understand the needs of the sector. To this end, it is proposed that, within the scope of the CSICAP project, information is provided in a clear and precise manner, progress be made in sustainable practices jointly with the environmental authorities in the areas of intervention, and these entities are linked to the project's technical committees so that they can learn about the processes and make contributions in the knowledge areas of their competence.

Although Colombia's National Natural Parks (PNN for its acronym in Spanish) were not mentioned in the stakeholder mapping, their support and participation in the project are essential, given that some of the value chains targeted by the project are close to PNN areas, such as potato production, which is located in or near moorland ecosystem and high Andean forest areas. Besides, in some cases, the production activities may take place in border areas of the National System of Protected Areas. In addition, some producers from ethnic communities are in areas of the PNN. However, the entity has made progress in recent years with Use, Occupancy, and Tenure Agreements that have allowed for the resolution of territorial conflicts. It should also be considered that PNN is an environmental authority and exercises command and control functions in areas under its jurisdiction, so its participation in the project would be of great relevance.

For interinstitutional relations with other sectors, it is important to mention the Ministry of Housing, City and Territory, which is the governing entity of public policy, and the National Plan for Drinking Water Supply and Basic Rural Sanitation. This plan requires coordination with the Ministry of Agriculture to identify and manage co-financing for the implementation of alternative methods of access to water in dispersed rural areas. Also, the plan promotes the participation of communities throughout the cycle of drinking water projects. In this way, efforts and resources could be pooled

in municipalities where the Plan and CSICAP converge for the development of activities that improve access to water for productive and reproductive activities in rural households.

Similarly, considering that the CSICAP project's strategy is to promote various mechanisms for digital agriculture to expand the coverage of agricultural information and technical assistance services, but that this strategy may be limited by the low connectivity of rural areas, it is recommended that the Ministry of Information and Communication Technologies is involved. This entity leads, among other policy instruments, the implementation of the National Rural Connectivity Plan, which seeks to improve Internet access in populated centers.

On the other hand, although it was not referenced in the map of actors, it is suggested to seek greater articulation of the CSICAP project with the Agencia de Renovación Territorial - ART, which is responsible for coordinating the intervention of national and local entities in rural areas affected by the armed conflict and prioritized by the national government. Some of the project's intervention areas correspond to municipalities in which the Territorially Focused Development Programs - PDET<sup>38</sup> are implemented. ART coordinates and articulates the intervention of the national government in these territories, so it is essential that within the scope of the CSICAP project these relationships are fostered to join efforts and carry out articulated interventions in these territories in such a way as to contribute to their integral development.

In the Stakeholder Mapping, only one Producer Association referred to the existing relationship with the Ministry of Interior. Although this project does not require prior consultation, it is suggested that this entity be involved in the working groups, considering its competencies in terms of interaction with communities in general and ethnic communities, so that the approaches made with them during the implementation of the project are carried out under the existing regulations and parameters.

Regarding gender issues, and to facilitate the effective implementation of the Gender Action Plan, we recommend coordination with entities that strengthen and consolidate the participation of women as active actors, as stipulated in Law 731 of 2002, which aims to promote a comprehensive development of rural women and accelerate equality between men and rural women.

In this regard, it is suggested that the CSICAP project is coordinated with the Presidential Council for Women's Equity (Consejería Presidencial para la Equidad de la Mujer -CPEM), which is attached to the Office of the Vice President of the Republic. The CPEM coordinates the National Women's System and the National Policy on Gender Equity for Women and acts as a link between national government entities on these issues.

Similarly, the Rural Women Directorate (DMR) of the Ministry of Agriculture and Rural Development is responsible for formulating and coordinating policies, plans, programs, projects, and measures favorable to rural women with other agencies of the Ministry and entities from the sector. Also, this

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<sup>38</sup> With the information available to date, 50 municipalities have been identified in PDET.

Directorate leads the Fondo de Fomento para las Mujeres Rurales (FOMMUR). The purpose of this fund is to support plans, programs, and projects for rural activities to strengthen rural women and their organizations, and its resources may be used for outreach activities, training, specialized technical assistance, incentives, support, and compensation required by rural women.

In this context, the coordination of the CSICAP project with the DMR and sectoral entities such as the Rural Development Agency (ADR) can facilitate and pool resources for the implementation of the Gender Action Plan, both in terms of access to productive technologies and the promotion and strengthening of associativity among rural women, the development of strategies for the productive inclusion of women in different links of the value chains, and support for the marketing of their products. It is also important to coordinate with the National Land Agency (ANT), the highest authority in matters of rural property management, access, and formalization, to facilitate the access by CSICAP project female beneficiaries to its service channels.

On the other hand, the stakeholder maps did not show any communication or relationships between the Producer Associations and entities such as CPEM, the Instituto Colombiano de Bienestar Familiar, or Prosperidad Social. However, taking into account the double working shift and the different responsibilities that women have, not only regarding production, but also with care work, it is important that the CSICAP project establishes collaboration mechanisms with social sector entities, to implement actions aimed at involving more women producers, reducing and redistributing the burden of rural women concerning childcare, and facilitating their attendance to project activities. In this sense, actions such as the creation of pilot projects to approach the care economy at the local level (proposed in the Gender Action Plan) will have to be based on the establishment of relationships, the pooling of resources, and the articulation of functions with entities such as the National Planning Department, ICBF, Prosperidad Social, CPEM's Territorial Mechanisms, and the Departmental Secretariats.

Concerning multilateral and international cooperation entities, it is suggested that organizations such as FAO be involved in the CSICAP project, which would make it possible to advance and strengthen the gender approach to the differentiated vulnerability of men and women to climate change, as well as their strategies for dealing with it. This institution and its work in Colombia involve risk management and rehabilitation of agricultural livelihoods, generating resilience in vulnerable communities. Also, in recent years FAO has worked on these issues with the Ministry of Agriculture and other agencies from the agricultural sector.

Another relevant aspect of the Gender Action Plan is the implementation of a training and socialization plan for the political empowerment of women in the areas of leadership, participation in local, regional, and national decision-making bodies, communication, associativity, and formalization of organizations. In this regard, it is recommended to coordinate with entities such as UN Women, who have worked on leadership and political participation issues and whose support to the Departmental Secretariats for Women, together with the Gender Affairs Observatory of the Presidential Advisor's Office for Women's Equity, would allow promoting and ensuring women's participation and the integration of the gender approach within the CSICAP project. Likewise, it is

suggested to take advantage of the different territorial mechanisms for gender equality that have been implemented by local authorities in departments such as Tolima, Córdoba, Santander, Caldas, Antioquia, and Risaralda, to facilitate the implementation of actions at the territorial level, based on the characteristics, needs and local decision-making and participation instances.

In addition to public and cooperation entities, it is important to involve rural women's and producers' organizations so that the CSICAP project has a participatory approach both in the design of specific actions and during their implementation and monitoring. In this regard, there are some civil society platforms in the country that represent rural women's organizations and groups before the national government, which could serve as liaisons with local communities. The most representative platforms are:

- Asociación Nacional de Mujeres Campesinas, Negras e Indígenas de Colombia (ANMUCIC)
- Colectivo de Mujeres Trenzadas Somos Más
- Plataforma de Incidencia Política de las Mujeres Rurales Colombianas

Finally, it is essential to consider all these recommendations and the relationship with the entities and organizations referenced to achieve both an adequate implementation of the CSICAP project, as well as compliance with the guidelines established in the Environmental and Social Management Framework with a gender perspective of the project. It should be mentioned that in the mitigation measures, specific actions are proposed with each of these entities to achieve successful inter-institutional coordination and pool efforts and resources from various sources. The aim is not only to enhance the results of the CSICAP project but also to strengthen the capacities of institutions, entities, and organizations at the national and local levels so that CSICAP becomes a reference for rural development in Colombia.

## **5. Environmental and social risk assessment**

This evaluation includes an analysis of each of the activities of the CSICAP project to identify potential environmental, social, and gender risks that may arise during its implementation and that, if mitigation measures are not established, could compromise the results of the project, deteriorate the territories and ecosystems, weaken relations with the communities, worsen the living conditions of the direct and indirect beneficiaries of the project, and increase the existing gender gaps. The following is an explanation of the methodology followed and the results of its application, including the proposed mitigation measures.

### **5.1 Methodology**

This exercise was carried out based on the triangulation of the following inputs:

- The comprehensive diagnosis of the environmental, social, gender<sup>39</sup>, and institutional capacity conditions in the territories and of the potential beneficiaries of the CSICAP Project, which was elaborated from quantitative information and interviews with the different actors involved.
- The referencing of the normative framework and environmental and social policies in force in the country.
- Mapping of key actors and the state of relations between them.

Once the risks were identified, each was characterized based on the following criteria:

- Nature: positive/negative, direct/indirect
- Magnitude: severe, moderate, low
- Extent/location: area, distribution
- Temporality: during planning, operation
- Duration: short term / long term, intermittent / continuous
- Reversibility/irreversibility
- Significance: local, regional, global

Based on this characterization, each identified risk was evaluated considering its potential impact, which means, the consequences that the risk would have if it were to occur (Table 5.1), and the probability of the risk occurring (Table 5.2). Finally, the importance of each risk was assessed as low, moderate, or high, taking into account these two factors (Table 5.3).

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<sup>39</sup> For more information on this diagnosis, please refer to Annex 8.

**Table 5.1. Evaluation of the impact of each identified risk**

Score	Rating	Definition
5	Critical	Significant adverse impacts on human populations and/or the environment. Adverse impacts of significant magnitude and/or spatial extent (large geographic areas, large numbers of people, transboundary impacts, cumulative impacts) and duration (long-term, permanent, and/or irreversible); affected areas include areas of high value and sensitivity (such as valuable ecosystems, critical habitats); adverse impacts on indigenous peoples' rights, lands, resources, and territories; involve significant displacement or resettlement; generate large amounts of greenhouse gas emissions; impacts may result in significant social conflict.
4	Severe	Adverse impacts on people and/or the environment of medium to large magnitude and spatial extent and more limited than critical duration (e.g., predictable, mostly temporary, reversible). Note: Potential impacts of risks caused by projects that could affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples should be considered as potentially severe, at a minimum.
3	Moderate	Impacts of low magnitude, limited in scale (site-specific) and duration (temporal), can be avoided, managed, and/or mitigated with relatively simple and accepted measures.
2	Minor	Very limited impacts in terms of magnitude (small, affected area, very low number of people affected) and duration (short), easily avoided, managed, mitigated.
1	Negligible	Negligible or no adverse impacts on communities, individuals, and/or environment.

Source: (Programa de la Naciones Unidas para el Desarrollo, 2014) (page 19)

**Table 5.2. Rating of the "probability" that a risk will materialize**

Score	Rating
5	Expected
4	Very likely
3	Moderately likely
2	Not likely
1	Slight

Source: (Programa de la Naciones Unidas para el Desarrollo, 2014) (Page 20)

**Table 5.3. Determination of risk significance**

Impact	5	Red	Red	Red	Red	Red
	4	Yellow	Yellow	Red	Red	Red
	3	Green	Yellow	Yellow	Yellow	Yellow
	2	Green	Green	Yellow	Yellow	Yellow
	1	Green	Green	Green	Green	Green
		1	2	3	4	5
Probability						

Note: green=low, yellow=moderate, red=high

Source: (Programa de la Naciones Unidas para el Desarrollo, 2014) (Page 20).

Finally, mitigation measures were formulated for each of the risks identified, and a new evaluation was made of their impact, probability, and importance. The result of this analysis is presented in a matrix of risks and mitigation measures (Table 5.4).

## 5.2 Mitigation measures

**Table 5.4. Impact and Risk Assessment and Mitigation Measures**

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
Cross-sectional	Public order issues that limit the development of project activities	Probability: 4 Impact: 4  HIGH	Design and implement a risk management plan related to security issues and a protocol that ensures safe access to the project areas for the personnel, and states the specific actions to be taken in the event of a threat to physical integrity. The plan must include protocols for defining the areas in which the socialization activities, the pilots and other activities in the field will take place in such a way that the associated security risks are assessed and mitigated. Develop a virtual safety training for project participants and implementers. In case of having implementing agencies and organizations, compliance with these guidelines must be required. Evaluate the possibility of signing agreements with the Police and the armed forces when required.	Probability: 2 Impact: 3  MODERATE
Cross-sectional	Ignoring the needs of men and women producers based on the particularities of the territories and the value chains involved in the project, including the time and economic constraints that limit assistance to socialization activities, training, agroclimatic working groups, among other project activities	Probability: 4 Impact: 4  HIGH	Design and implement a strategy for the social appropriation of knowledge in which the specific characteristics of men and women producers of each value chain are identified and specific guidelines are provided to meet the needs of access and appropriation of the information generated within the scope of the project. This strategy must be executed in tandem with the activity 1.1.3. of the Gender Action Plan: Elaborate in a participatory way a document that articulates into project activities the local knowledge and practices of men and women related to the management of agroclimatic risk, both in the crop and in other aspects, such as the home, the agroecological calendar, irrigation strategies and practices and tools to manage drought. This strategy must take into account the needs and create activities tailored to women, the youth, ethnic groups, and the elderly.	Probability: 1 Impact: 1  LOW



Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
			<p>Develop a communications plan, with communication tools differentiated by value chain, region and target groups. The educational contents (by value chain) will be developed in clear language to guarantee the understanding and use of the information generated in the project. It is recommended that the material developed within the scope of the project includes local terms, in such a way as to recognize the cultural diversity of the regions and promote the appropriation of the information. In the case of ethnic communities, it is recommended to develop communicative pieces in indigenous language when applicable.</p> <p>This strategy must be articulated with the following activities of the Gender Action Plan:</p> <p>1.1.1 Design and implement plan for disseminating information on agroclimatic risk management that includes a language analysis differentiated by region, considering ethnic elements -if necessary-, transmission schedules (taking into account variables of the care economy and sexual division of labor). The analysis shall present the scope of the plan in terms of number of people disaggregated by gender, age, ethnicity.</p> <p>1.1.2 Within the plan for disseminating information on agroclimatic risk management, define and implement actions through different communication channels, with the support of the local platforms of Vive Digital (National Plan to develop a digital ecosystem in the country) and other platforms of information dissemination (community radio stations, booklets with audio instructions).</p> <p>In coordination with the communications plan, the most appropriate communication channel will be selected and implemented based on the characteristics of the territory (for example, television programs, radio programs, among others).</p> <p>Engage local leaders into the technical team of the project, especially in the group of professional extension workers in the project intervention areas, to generate local technical capacity while creating bonds of trust.</p> <p>Define jointly with the Producer Associations the places for the development of socialization and training activities (considering travel, costs, among others) and also the ideal dates for the implementation of these spaces in such a way that they do not interfere with regular activities of the value chain.</p> <p>This strategy must be articulated with the following activity of the Gender Action Plan:</p> <p>3.1.3. Design and implement a gender-sensitive plan specifying the strategy for the inclusion of women in training activities and women's access to technology -which will be part of the project's agricultural extension strategy-.</p> <p>Prioritize activities in the territories associated with extension services that provide visits to each farm, in order to guarantee constant technical support.</p> <p>Allocate economic resources for travel to the selected places, and in cases where accommodation and food are required, to ensure participation in the sessions.</p>	
Cross-sectional	Low coverage of public services in the project intervention areas (non-interconnected areas, without	Probability: 5 Impact: 3	This risk will be mitigated through the two strategies mentioned above, on the one hand, the strategy of social appropriation of knowledge that will identify the needs of men and women producers by value chain and will provide specific recommendations for each case.	Probability: 3 Impact: 1

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
	electricity, low or non-existent digital coverage), which limits the generation and access to information	MODERATE	On the other hand, through the communications plan, which will allow the project information to reach each type of producer based on their specific needs and living conditions (for example, in some areas the most effective channel is radio programs, in others, internet). In tandem with activity 1.1.1 of the Gender Action Plan, within the plan for disseminating information on agroclimatic risk management, define and implement actions through different channels, with support from the local Vive Digital platforms (national plan to develop a digital ecosystem in the country) and from other information dissemination platforms (community radio stations, booklets accompanied by audio instructions).	LOW
Cross-sectional	Difficulties in the inter-institutional articulation between the entities that finance and those that execute the project, which may affect the results of the project	Probability: 3 Impact: 4  HIGH	Establish an inter-institutional coordination body to make decisions for the implementation of the project and provide technical guidance Design and implement a communications plan for the project in which workshops and other information dissemination and socialization spaces are defined, prepared, convened and organized. The purpose of this plan is to guarantee the adequate and timely handling of the information, as well as the provision of different channels necessary for its disclosure.	Probability: 1 Impact: 1  LOW
Cross-sectional	Conflicts generated between selected producers and those who were not selected as beneficiaries of the project, which can result in difficulties in the implementation of the project and widen existing social gaps	Probability: 4 Impact: 4  HIGH	Define targeting and prioritization criteria that allow selecting the project beneficiaries in a transparent and equitable manner. Criteria should include aspects related to gender and ethnicity. This information must be public and freely accessible, in order to comply with transparency commitments so that both associated and non-associated agricultural producers understand the selection process. The information and communication tools generated throughout the project must be public and freely accessible, it is recommended that it is available on the platforms of the project, the Producer Associations and the Ministry of Agriculture.	Probability: 2 Impact: 1  LOW
Cross-sectional	Low or non-existent participation of producers from ethnic groups in the project	Probability: 3 Impact: 2  MODERATE	Within the scope of the strategy for the social appropriation of knowledge and the communications plan, recommendations will be incorporated to promote the participation of men and women producers from ethnic communities in the value chains analyzed Engage in the technical team of the project, especially in the group of extension workers, people from ethnic communities in the project intervention areas in such a way that trust is built, work with the communities is facilitated and local capacity is generated. In the value chains where is feasible, propose a minimum percentage of participation of producers from ethnic communities in the project Include the identification of producers from ethnic communities in the Producer Associations formats and databases that gather information about their members. Design a guide that inform Producer Associations on how to promote ethnic diversity at their workplace and introduce it in their internal policies and guidelines	Probability: 1 Impact: 1  LOW
Cross-sectional	Lack of representation of women in instances of participation and decision-making, such as the Agroclimatic Working Groups, due to	Probability: 4 Impact: 3  MODERATE	Activities from the Gender Action Plan: 1.2.1 Design and implement a training and socialization plan on women's empowerment issues. 1.2.3 Include and implement a module within the training plan and participation plan for young rural women	Probability: 3 Impact: 3

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
	the work overload associated with unpaid care work (associated with double shifts), as well as the gender roles and stereotypes that are socially accepted		1.2.2. Design and implement a plan to promote the participation of women in local and regional decision-making bodies of the agricultural sector, that liaise with local and regional authorities (mayor's offices, governorates). The plan includes activities to disseminate information on calls for applications to decision-making positions, work sessions with local authorities. Special emphasis will be placed on the participation of women in instances such as the Agroclimatic Working Groups.	MODERATE
Cross-sectional	Not having enough data to carry out the monitoring and follow-up of the project technical, environmental and social results	Probability: 4 Impact: 3  HIGH	Create a monitoring platform that involves a system of performance and result indicators associated with the project. This platform will have an interoperable system and be freely accessible to the public to consult the progress of the project in real time.	Probability: 1 Impact: 1  LOW
			In the inter-institutional coordination instance, the characteristics of the platform, its location, as well as the indicators that will be developed and followed up will be defined. Each Producer Association and implementing partners will define the people responsible for data management as well as the information management protocols.	
			Each Producer Association will advance in the identification of social, environmental and gender indicators that can be incorporated in their specific monitoring systems and databases. Each indicator must have an Indicator Reference Sheet that will describe the indicator, the measurement formula and the periodicity of the reports. This issue will be handled in a particular way for each union.	
Cross-sectional	Low implementation of the mitigation measures established due to the weak and moderate institutional capacity of the Producer Associations to deal with social and environmental issues	Probability: 4 Impact: 4  HIGH	Strengthen the gender action plan of each Producer Association as stated in the project's Gender Action Plan in activities 3.5.2, 3.5.3, 3.5.4, 3.5.5, 3.5.6	Probability: 2 Impact: 2  LOW
			Gender Action Plan activity 3.5.1. Develop a training module on gender equality with all the employees of each of the Producer Associations, which includes specific sessions according to the roles and positions of the employees (customer service, managerial roles, etc.).	
			This risk also refers to the institutional capacity that each Producer Association currently has to implement the activities associated with the mitigation of environmental and social risks. The Producer Associations that will participate in the project are very diverse and have developed different social and environmental measures. Below, general recommendations are made about the minimums they should have to advance in the implementation of the CSICAP project (these recommendations are based on the analysis of their institutional capacity).	
			<b>Fedearroz</b>	
			Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources	
			Engage with the Ministry of Environment to celebrate zero-deforestation agreements	
			Engage with the (local) Environmental Authorities to build/improve communication channels between them and the producers	
			Improve the identification of producers (members of the Federation) from ethnic communities	

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
			Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system	
			<b>Asbama</b>	
			Develop a complaint and claims procedure	
			Advance in the quality certification of its internal processes	
			Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources	
			Engage with the Ministry of Environment to celebrate zero-deforestation agreements	
			Improve the identification of producers (members of the Producer Association) from ethnic communities	
			Improve the technical assistance for small farmers/producers	
			Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system	
			<b>Fedepapa</b>	
			Advance in the quality certification of its internal processes	
			Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources	
			Engage with the Ministry of Environment to celebrate zero-deforestation agreements.	
			Engage with the Ministry of Agriculture, Ministry of Environment and (local) Environmental Authorities to ensure the Federation's participation in the spaces created to discuss the regulation of Law 1930 of 2018	
			Engage with the (local) Environmental Authorities to build/improve communication channels between them and the producers	
			Improve the identification of producers (members of the Federation) from ethnic communities	
			Improve the technical and crop management assistance for small farmers/producers, and provide guidance on financial resources and credit	
			Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system	
			<b>Fenalce</b>	
			Advance in the quality certification of its internal processes	

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
			<p>Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources</p> <p>Engage with the Ministry of Environment to celebrate zero-deforestation agreements.</p> <p>Engage with the (local) Environmental Authorities to build/improve communication channels between them and the producers</p> <p>Improve the technical and crop management assistance for small farmers/producers, and provide guidance on financial resources and credit</p> <p>Improve the identification of producers (members of the Federation) from ethnic communities</p> <p>Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system</p> <p><b>Fedegan</b></p> <p>Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources</p> <p>Articulate the project activities with the mitigation actions established in the NAMA (nationally appropriate mitigation actions) for sustainable livestock</p> <p>Engage with the (local) Environmental Authorities to build/improve communication channels between them and the producers</p> <p>Improve the identification of producers (members of the Federation) from ethnic communities.</p> <p>Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system</p> <p><b>Asocaña</b></p> <p>Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources</p> <p>Engage with the Ministry of Environment to celebrate zero-deforestation agreements</p> <p>Improve the identification of producers (members of the Producer Association) from ethnic communities</p> <p>Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system.</p> <p><b>Federación Nacional de Cafeteros</b></p> <p>Engage with the Ministry of Environment to celebrate zero-deforestation agreements</p> <p>Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system</p>	

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
			<p>Articulate the project activities with the mitigation actions established in the NAMA (nationally appropriate mitigation actions) for the coffee sector in Colombia</p> <p><b>Fedepanela</b></p> <p>Develop a complaint and claims procedure</p> <p>Advance in the quality certification of its internal processes.</p> <p>Engage with the Ministry of Environment to celebrate zero-deforestation agreements</p> <p>Articulate the project activities with the mitigation actions established in the NAMA (nationally appropriate mitigation actions) for panela (raw sugar cane) sector in Colombia which promotes a Low Carbon Development Strategy for the production of panela</p> <p>Engage with the (local) Environmental Authorities to build/improve communication channels between them and the producers</p> <p>Improve the identification of producers (members of the Federation) from ethnic communities.</p> <p>Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system</p>	
Cross-sectional	Events related to natural disasters (floods, mass wasting, earthquakes, landslides, torrential flows, fires, among others), as well as environmental emergencies	<p>Probability: 4 Impact: 4</p> <p>HIGH</p>	Once the specific intervention sites have been defined, an Environmental Emergency Response and Disaster Management Plan must be formulated in which the probabilities of the materialization of the aforementioned risks are identified, analyzed and quantified, as well as the activities for their prevention, mitigation, and management. This plan will be built jointly with the Producer Associations, the Ministry of Agriculture, Agrosavia, CIAT and other entities participating in the project. The plan must take into account Law 1523 of 2012 and the guidelines provided by the National Unit for Disaster Risk Management.	<p>Probability: 3 Impact: 3</p> <p>MODERATE</p>
<p>Activity 1.1. Strengthening and modernization of the technical assistance system aimed at adaptation and mitigation</p> <p>Activity 1.2. Information services to reduce agroclimatic risk. It seeks to provide timely and reliable information on the main climate threats and management recommendations to avoid crop losses.</p>	The areas selected to install the stations and platforms for agroclimatic information gathering, might exclude producers (including ethnic ones) located in remote areas or areas with difficult access (due to costs and/or public order situations), in such a way that not enough information is generated to meet the specific requirements for decision-making	<p>Probability: 4 Impact: 3</p> <p>MODERATE</p>	<p>Include social criteria in the identification processes of the areas in which the agroclimatic stations will be located.</p> <p>Sign an agreement with the Ministry of ICT to increase the coverage of information technologies in the areas where it is necessary to establish the agroclimatic stations for the gathering of information demanded by the value chains.</p>	<p>Probability: 2 Impact: 2</p> <p>LOW</p>
Activity 1.1. Strengthening and modernization of the technical assistance system aimed at adaptation and mitigation	The limited communication between the implementing partners and the beneficiaries may affect the flow of information received about dates of events, training sessions, among	<p>Probability: 3 Impact: 4</p> <p>HIGH</p>	Establishment of an inter-institutional coordination instance with representation of men and women producers.	<p>Probability: 1 Impact: 1</p> <p>LOW</p>

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
<p>Activity 1.2. Information services to reduce agroclimatic risk</p> <p>Activity 2.2. Crop management techniques and other technological options and their scaling up to increase resilience and mitigation</p> <p>Activity 3.1. Strengthening the beneficiaries' capacity and their local food system. These activities involve training processes for technicians and producers, and communication channels to expand the number of the project beneficiaries.</p>	<p>others, in such a way that there is a risk that the information is incomplete and/or misunderstood or cut off, and, as a result, the expected results might be affected</p>		<p>Draft and implement a communications plan for the project that guarantees the adequate and timely management of the information, as well as the diversity of channels necessary for its dissemination (this issue is highly relevant considering that the project will be developed in rural areas). A specific communication channel will be included so that information can flow in a timely and appropriate manner to the producers and institutions participating in the project.</p>	
<p>Activity 1.1. Strengthening and modernization of the technical assistance system aimed at adaptation and mitigation</p> <p>Activity 1.2. Information services to reduce agroclimatic risk</p> <p>Activity 2.2. Crop management techniques and other technological options and their scaling up to increase resilience and mitigation</p> <p>Activity 3.1. Strengthening the beneficiaries' capacity and their local food system. These activities involve training processes for technicians and producers, and communication channels to expand the number of the project beneficiaries.</p>	<p>Access to information technologies may carry high costs in rural area which limit the dissemination and appropriation of information and technological tools that are developed within the scope of the project</p>	<p>Probability: 4 Impact: 3  MODERATE</p>	<p>This risk will be mitigated through the two strategies mentioned above, on the one hand, the strategy of social appropriation of knowledge that will identify the needs of men and women producers by value chain and will provide specific recommendations for each case. On the other hand, through the communications plan, which will allow the project information to reach each type of producer based on their specific needs and living conditions (for example, in some areas the most effective channel is radio programs, in others, internet).</p> <p>The communications plan will include communication tools differentiated by value chain, region and target groups. The educational contents (by value chain) will be developed in clear language to guarantee the understanding and use of the information generated in the project.</p> <p>In coordination with the communications plan, the most appropriate communication channel will be selected and implemented based on the characteristics of the territory (for example, television programs, radio programs, among others).</p> <p>Activity 1.1.5 from the Gender Action Plan: Design and implement a plan to cofinance electronic communication devices (smartphones) for (direct and indirect) women beneficiaries of the program.</p> <p>Activity 1.1.1 from the Gender Action Plan: Design and implement actions to train men and women producers in Information Literacy with an ethnic and gender focus</p>	<p>Probability: 3 Impact: 1  LOW</p>
<p>Activity 1.1. Strengthening and modernization of the technical assistance system aimed at adaptation and mitigation</p> <p>Activity 1.2. Information services to reduce agroclimatic risk.</p>	<p>Although the project seeks to provide reliable predictions through the generation of information and agroclimatic forecasts, there is a risk that these predictions are not accurate and, as a result, crops are affected due to untimely decisions.</p>	<p>Probability: 3 Impact: 4  HIGH</p>	<p>This risk will be mitigated through the implementation of the strategy of social appropriation of knowledge. During project socialization activities, specifically those addressing agroclimatic forecast, it will be explained clearly and concisely what they consist of, the usefulness and effectiveness of climate predictions and the occurrence of climate phenomena, in such a way that both the Producer Associations and the men and women producers clearly understand the risk in the decision-making processes regarding crop management.</p>	<p>Probability: 1 Impact: 1  LOW</p>



Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
These activities involve the organization and interconnection of the existing information in the different repositories and databases of the Producer Associations, and linking it with information from existing free access platforms that come from remote sensing or other sources, as well as early warning platforms that, through the generation of climate predictions, use of simulation models and Big Data information, allow generating recommendations to take necessary measures to avoid crop losses due to the direct and indirect effects of climate	For example, decisions related to starting or delaying the time of sowing based on the forecast, which does not coincide with the real climate conditions, can cause economic losses for producers		<p>The strategy of social appropriation of knowledge must incorporate for each value chain an activity in which the traditional knowledge and practices that are implemented in the territories by ethnic and local communities are identified and recognized.</p> <p>Incorporate, in training and socialization activities, spaces for discussion and collective building of knowledge, recommendations and best practices for crop management. They will collectively recognize both agroclimatic forecasts and local knowledge and practices.</p> <p>Producer Associations should provide technical assistance with regular visits to each men and women producer in which detailed monitoring of the crop is carried out and, in the cases that apply, a step-by-step plan with corrective measures is taken in an adequate time frame.</p>	
<p>Activity 2.2. Crop management techniques and other technological options and their scaling up to increase resilience and mitigation</p> <p>Activity 3.1. Strengthening the beneficiaries' capacity and their local food system. These activities involve training processes for technicians and producers, and communication channels to expand the number of the project beneficiaries.</p>	Women might have less access than men to the information generated by the project. This is due to the fact that, on the one hand, women have less access to technological resources (cell phones, computers, telephones, among others) and that there is a sexual division of labor and socially accepted gender roles that give women less access to public spaces (where the dissemination of information occurs)	<p>Probability: 3 Impact: 3</p> <p>MODERATE</p>	<p>From the Gender Action Plan: Implementation of activities 1.1.1, 1.1.2, 1.1.3, 1.1.4 regarding a comprehensive information dissemination strategy on crop practices for agroclimatic risk management, taking into account ethnic and gender differences, through different communication channels Activity 1.1.5 Design and implement a plan to cofinance electronic communication devices (smartphones) for (direct and indirect) women beneficiaries of the program.</p>	<p>Probability: 2 Impact: 3</p> <p>MODERATE</p>
Activity 2.1. Strengthening the germplasm bank, development of new varieties and massive multiplication of seeds for adaptation and mitigation. Seed multiplication techniques will be applied to outstanding varieties, facilitating a large-scale adoption of the varieties developed by the project.	The introduction of genetically modified organisms might have negative impacts on ecosystems and biodiversity (for example: crossing and/or genetic contamination of native species, competition with native species, loss of native species, development of more resistant pests, among others)	<p>Probability: 4 Impact: 4</p> <p>HIGH</p>	<p>Regarding the introduction and management of genetically modified organisms, the project will comply with the corresponding regulations in relation to authorizations, permits, among others. In addition, great attention will be paid to interventions carried out in surrounding areas of moorland ecosystems, taking into account the guidelines of Law 1930 of 2018. This is an issue of special attention for the potato value chain.</p> <p>Carry out research and experimentation in controlled environments, in such a way as to avoid a possible negative impact on the species and ecosystems of the intervention areas.</p> <p>Carry out impact evaluations associated with the biosafety aspects of genetically modified organisms that are developed in the project in compliance with current regulations, and that involve the analysis of potential impacts on ecosystems.</p>	<p>Probability: 2 Impact: 3</p> <p>MODERATE</p>

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
			<p>The strategy of social appropriation of knowledge will include educational content related to the knowledge of existing technologies for the development of new varieties, hybrids, clones, among others. In this way, public awareness will be generated about the potential benefits and risks of this type of seeds.</p> <p>Guarantee access to detailed information on the benefits and risks associated with genetically modified organisms to producers and final consumers. This aspect is fundamental and is aimed at complying with the principles of transparency and the right to make informed decisions.</p>	
<p>Activity 2.1. Strengthening the germplasm bank, development of new varieties and massive multiplication of seeds for adaptation and mitigation. Seed multiplication techniques will be applied to outstanding varieties, facilitating a large-scale adoption of the varieties developed by the project.</p> <p>Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation. It is expected to validate and incorporate sustainable production practices that increase productivity and at the same time promote efficient use of water resources, restore soil properties, reduce GHG emissions or increase carbon sequestration.</p>	Use of genetically modified organisms and development of high impact production practices in areas with moorland ecosystems. This risk should be given special attention in the potato and livestock value chains.	<p>Probability: 5 Impact: 5</p> <p>HIGH</p>	<p>The project will comply with restrictions stated in the regulations, specifically in Law 1930 of 2018 article 5, which establishes prohibitions of some productive practices in moorlands such as: the use of heavy machinery in the development of agricultural activities; the final disposal, management and burning of solid and/or hazardous waste; the introduction and management of genetically modified organisms and invasive species; burning; logging; fumigation and spraying of chemicals should be gradually eliminated in activities of conversion of agricultural land into sustainable activities; the degradation of native vegetation cover, among other practices, is prohibited.</p> <p>The project will not carry out activities within delimited moorland areas (there are 37 moorland complexes in Colombia). However, in case it is necessary within the scope of the project to provide assistance to producers located in those areas, the aforementioned prohibitions will be complied and the project will promote the participation of those producers in training spaces that will inform about and promote the development of sustainable practices, which in turn will allow to reduce the pressure on these ecosystems. These measures need special attention in the potato and livestock value chains.</p> <p>The Project Management Unit (environmental team), with support from the Producer Associations, will identify the male and female producers who carry out their productive activities in areas close/adjacent to delimited moorland ecosystems and will monitor the implementation of project activities developing sustainable agriculture practices. Likewise, they will provide guidance and technical assistance for producers in these areas to participate in the activities proposed by the environmental authorities within the scope of Law 1930 of 2018.</p> <p>These activities will be arranged in tandem with Activity 2.1.1 from the Gender Action Plan: Engage women beneficiaries as leaders in the process of implementing CSICAP's plans and activities for the conservation, preservation and restoration of strategic areas and ecosystems.</p>	<p>Probability: 2 Impact: 3</p> <p>MODERATE</p>
Activity 2.1. Strengthening the germplasm bank, development of new varieties and massive multiplication of seeds for adaptation and mitigation.	Loss of cultural diversity due to limited recognition of local knowledge and traditional productive practices, such as community seed storage/banks,	<p>Probability: 4 Impact: 3</p> <p>MODERATE</p>	The strategy for the social appropriation of knowledge will propose specific actions aimed at recognizing and documenting existing traditional practices, especially in the potato, corn, sugar cane value chains.	<p>Probability: 1 Impact: 1</p> <p>LOW</p>

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation. Activity 3.1. Strengthening the beneficiaries' capacity and their local food system.	among others, related to the project's value chains		This activity will be arranged in tandem with Activity 2.1.2 from the Gender Action Plan: Design and implement a plan for the recovery and/or promotion of quality native seeds and species with commercial gains, managed by rural women	
Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation. It is expected to validate and incorporate sustainable production practices that increase productivity and at the same time promote efficient use of water resources, restore soil properties, reduce GHG emissions or increase carbon sequestration.	Although the project seeks to reduce and make more efficient use of agrochemicals, health risks associated with the high use of pesticides and chemical inputs in the production process may continue	Probability: 4 Impact: 5  HIGH	<p>Advance in the identification and assessment of health risks associated with the use of pesticides and agrochemicals in each value chain. Although there are regulations in this regard, men and women producers and agricultural workers are still exposed to this type of substances frequently.</p> <p>Each Producer Association will review and analyze the existing measures and protocols in light of current regulations, and if necessary, update them to reduce the impact of the use of agrochemicals and pesticides on producers' health.</p> <p>The project activities will aim to reduce the use of chemical inputs, especially pesticides, in the value chains, in such a way that they implement sustainable agriculture practices and reduce impacts on the environment and people.</p> <p>Each implementing partner will update its occupational health and safety plan in order to reduce the risks associated with exposure to these types of substances</p>	Probability: 2 Impact: 3  MODERATE
Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation. It is expected to validate and incorporate sustainable production practices that increase productivity and at the same time promote efficient use of water resources, restore soil properties, reduce GHG emissions or increase carbon sequestration.	In Colombia there is a significant gap between access to and ownership of land between men and women. This situation entails a risk in the project implementation process as it may lead to a higher proportion of men being involved in project activities such as land irrigation and drainage, adoption of new technologies.	Probability: 4 Impact: 3  MODERATE	<p>Activities from the Gender Action Plan:</p> <p>2.1.5. Design and implement a training plan exclusively for women on issues of climate resilient agriculture that focuses on the tasks performed by women within each crop/chain, such as: seed selection, diversification of crops, subsistence farming, pre- and post-harvest</p> <p>3.3.2 Implement sessions to share information regarding and engage women beneficiaries into public programs (led by the Ministry of Agriculture and the National Land Agency) aimed at improving women's access to land.</p> <p>3.1.2. Develop and deliver a training module for women producers (women-only activities), using various methodologies (e.g., female farmer-to-female farmer extension), for the implementation of new technologies provided by the project</p>	Probability: 2 Impact: 2  LOW
Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation. It is expected to validate and incorporate sustainable production practices that increase productivity and at the same time	There is a risk of a new gender gap with respect to access to the inputs necessary for the development of the project (such as adoption of new practices and technologies). This is due to the processes of feminization of poverty in rural areas, which	Probability: 4 Impact: 3  MODERATE	<p>Activities from the Gender Action Plan:</p> <p>2.1.1 Engage women beneficiaries as leaders in the process of implementing CSICAP's plans and activities for the conservation, preservation and restoration of strategic areas and ecosystems.</p> <p>2.1.3. Design and implement a training and support plan for the production and commercialization of organic fertilizers and bioproducts for the management of pests and diseases, led by women farmers' groups and/or organizations</p>	Probability: 2 Impact: 2  LOW

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
promote efficient use of water resources, restore soil properties, reduce GHG emissions or increase carbon sequestration.	highlights the greater economic vulnerability of households headed by women		2.1.4. Design and implement a training and dissemination module for young rural women on primary processing, management, marketing, among other topics	
<p>Activity 1.1. Strengthening and modernization of the technical assistance system aimed at adaptation and mitigation</p> <p>Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation</p>	Difficulties in adopting recommendations and new agricultural practices due to traditional practices and distrust of new technologies	<p>Probability: 4 Impact: 3</p> <p>MODERATE</p>	<p>Implementation of the strategy for the social appropriation of knowledge, which will propose actions to motivate the participation of men and women producers in an easy-to-understand language, and other activities to approach the producers based on their needs and expectations, in such a way that bonds of trust are generated</p> <p>Working groups, spaces for discussion and collective knowledge building will be promoted so that the recommendations generated in the project recognize traditional and local knowledge, in such a way that men and women producers are engaged in the processes and appropriate the knowledge.</p> <p>Agriculture demonstration plots will be implemented so that men and women producers get to know the results of the proposed practices, their application process, and the economic and productivity benefits</p>	<p>Probability: 1 Impact: 2</p> <p>LOW</p>
Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation, such as: agroforestry arrangements, rational use of fertilizers and promotion of bioproducts, optimization of irrigation systems, conservation agriculture, use of harvest residues, landscape level conservation and restoration.	Introduction of exotic and/or inappropriate species in agroforestry, silvopastoral arrangements and, in general, in reforestation and restoration processes in the project intervention areas	<p>Probability: 4 Impact: 3</p> <p>MODERATE</p>	<p>Plans will be formulated in which the proposed interventions and restoration strategies will be designed (enrichment planting, forest enclosure, forest fences, connectivity through living fences, establishment of protective strips of water bodies, passive restoration, among other practices). These plans will identify the type of ecosystem existing in the intervention areas, and the species and forest arrangements, as well as define the implementation, maintenance and monitoring processes.</p> <p>Ecological corridors within the farms and areas of intervention will be developed, especially riparian buffer zones alongside water courses such as rivers, streams and wetlands.</p> <p>The restoration processes that are promoted will follow the guidelines of the National Plan for Restoration, Ecological restoration, Rehabilitation, and Recovery of Disturbed Areas formulated by the Ministry of Environment in 2015. The use of native species will be prioritized.</p> <p>Farm plans will be drafted with each men and women producer participating in the project, in which the production system of the farms will be characterized with the support from the agricultural extension workers. This plan will also involve components associated with home gardens that contribute to guaranteeing the food security of the families. As far as possible, these plans will also be extended to producers who are not members of the Producer Associations.</p> <p>The areas and farms (agricultural holdings) that can be considered for the implementation of payments for environmental services will be identified, and at least two projects will be drafted taking into account the "Payments for environmental services of regulation and water quality" guideline prepared by the National Planning Department and the Ministry of Environment, in coordination with the selected municipalities and/or departments.</p>	<p>Probability: 2 Impact: 1</p> <p>LOW</p>

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
<p>Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation, such as: agroforestry arrangements, rational use of fertilizers and promotion of bioproducts, optimization of irrigation systems, conservation agriculture, use of harvest residues, landscape level conservation and restoration.</p>	<p>Pollution by ordinary and/or hazardous waste in the development of the production processes of the value chains subject to intervention</p>	<p>Probability: 5 Impact: 4  HIGH</p>	<p>This risk occurs in two ways. One related to the waste of the value chain in general on a large scale, and the second way refers to the waste that is produced in each farm, both ordinary and those associated with the specific characteristics of the value chain (some are high risk, like the packaging of fertilizers and pesticides). The existence of comprehensive solid waste management plans will be identified within the implementing partners. They will be drafted or updated depending on the specific needs and current state.</p>	<p>Probability: 1 Impact: 2  LOW</p>
			<p>The project will develop roadmaps in which the solid waste generated in each value chain will be characterized and its proper management until the final disposal site will be defined. Also, men and women producers will be trained in the proper management of solid waste. Communication pieces to bring awareness and protocols for the management and disposal of hazardous waste will be developed.</p>	
			<p>The project will seek the signing of agreements with local authorities to join forces for a comprehensive management of the solid waste generated in the targeted value chains</p>	
			<p>The implementing partners will celebrate agreements with local firms and/or organizations that collect and properly manage the waste generated, with an emphasis on organizations that promote social contributions to the communities in the areas of influence of the project.</p>	
<p>Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation. Activity 3.1. Strengthening the beneficiaries' capacity and their local food system, in order to improve the knowledge, swift attitude towards technologies and practices, and develop new skills</p>	<p>Limited implementation of agricultural practices and/or project recommendations due to the high cost of buying/adopting the technologies and infrastructure promoted by the project. Likewise, the status of land ownership and usage makes it difficult to invest in infrastructure, technologies, and good agricultural practices.</p>	<p>Probability: 4 Impact: 4  HIGH</p>	<p>The project seeks the implementation of low water consumption technologies in agronomic management. However, in order to avoid inappropriate use of water resources in the project intervention areas, guidelines will be formulated for the efficient use of water resources on the farm, especially in activities and areas with scarce resources.</p>	<p>Probability: 2 Impact: 2  LOW</p>
			<p>It is essential both in the planning and operation phases of the project to identify the costs associated with the implementation of the proposed agricultural practices. It is an issue that must be socialized very clearly and explained in detail with all the beneficiaries. It must be identified how many men and women producers will benefit from these technologies and if they must incur any expenses.</p>	
			<p>Implementation of the strategy of social appropriation of knowledge which will identify the specific characteristics of the men and women producers of each value chain and provide specific guidelines to meet the needs of access and appropriation of the information generated within the scope of the project. This strategy must incorporate at least one component associated with the specific needs of: 1. Women; 2. Young people; 3. Ethnic groups; 4. Elder people.</p>	
			<p>Recommendations and actions will be designed to provide assistance to the producers based on their specific characteristics. Likewise, in relation to the status of land tenure, guidelines will be incorporated into the project so that producers with different conditions can participate in and benefit from project activities.</p>	

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
			<p>In coordination with Activity 3.3.2 from the Gender Action Plan, the project will seek to engage women beneficiaries into public programs (led by the Ministry of Agriculture and the National Land Agency) aimed at improving women's access to land</p> <p>The communications plan will include a specific activity aimed at the socialization of the sustainable agriculture practices identified for each value chain, as well as the associated implementation costs and the percentage of these costs that will be financed by the project.</p> <p>Formalize written agreements with each men and women beneficiary of the project, in such a way that the project contribution and the (financial or in kind) contribution of the producer, as well as the timing of these commitments, are clearly stated for every actor involved.</p>	
<p>Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation.</p> <p>Activity 3.1. Strengthening the beneficiaries' capacity and their local food system</p>	Women might participate in a lesser proportion due to the burden of care work (double shift), conflict in the schedule between care work and the project activities, as well as the gender gap with respect to decision-making and participation in productive activities	<p>Probability: 4 Impact: 3</p> <p>MODERATE</p>	<p>Activities from the Gender Action Plan: 3.3 Strategy designed and implemented to liaise with government officials and engage women beneficiaries into public programs aimed to improve women's access to factors of production</p> <p>3.3.1 Implement sessions to share information regarding funding opportunities and engage women beneficiaries into public programs (led by the Ministry of Agriculture and Finagro) aimed at improving women's access to credit, financial inclusion and literacy. The activities shall include specific sessions for young rural women sharing programs that target their population group</p>	<p>Probability: 3 Impact: 3</p> <p>MODERATE</p>
Activity 3.1. Capacity building and strengthening of the project beneficiaries, extension workers, implementing partners and other actors	Since there is a division between the tasks and jobs performed by men, -in most value chains- and the tasks performed by women (selection and marketing), a wage gap can be perpetuated which may result in lower income for women and feminization of poverty. In addition, the "second working shift" of women producers can perpetuate a gap in the time available to participate in project activities.	<p>Probability: 3 Impact: 3</p> <p>MODERATE</p>	<p>Activities from the Gender Action Plan: 3.4 Pilot projects systematized and implemented to approach the care economy at the local level for (direct and indirect) women beneficiaries</p> <p>3.4.4 Create a network of daycare and childcare facilities for (direct and indirect) women beneficiaries of the project.</p> <p>3.2.1. Develop participatory working sessions with women to discuss the barriers in accessing agricultural and productive services: time constraints, difficulties in accessing technical assistance and recommendations to provide an extension service tailored to their needs</p>	<p>Probability: 3 Impact: 2</p> <p>MODERATE</p>
Activity 3.1. Capacity building and strengthening of the project beneficiaries, extension workers, implementing partners and other actors	Low participation of women in extension services provided by the project due to the sexual division of labor, the gap in decision-making within the farms (agricultural holdings), low access to land	<p>Probability: 4 Impact: 3</p> <p>MODERATE</p>	<p>Activities from the Gender Action Plan: 3.1.1 Develop and deliver training modules with men and women producers participating in the project on gender equality and gender mainstreaming 3.1.4. Design and implement a gender awareness training plan with agricultural extension workers for the subsequent implementation of the gender equality training module with producers</p>	<p>Probability: 3 Impact: 2</p> <p>MODERATE</p>

Activities	Unmitigated impacts	Probability of impact and impact	Mitigation measures	Probability of impact and impact post mitigation
			3.1.5 Design and implement a training and certification plan for women extension workers, with the support of SENA and in response to the demand for agricultural extension workers from the Producer Associations, in order to facilitate their subsequent engagement. The plan will emphasize support strategies for the promotion of young rural women as extension workers.	
Activity 3.1. Capacity building and strengthening of the project beneficiaries, extension workers, implementing partners and other actors	Women might have less access than men to the information generated by the project. This is due to the fact that, on the one hand, women have less access to technological resources (cell phones, computers, telephones, among others) and that there is a sexual division of labor and socially accepted gender roles that give women less access to public spaces (where the dissemination of information occurs).	Probability: 3 Impact: 3  MODERATE	Activity 3.2.2 from the Gender Action Plan: Design and implement local workplans to promote the participation of women in (women) farmers' groups or organizations that promote mutual trust, collaboration and training in agricultural and productive issues among them, as a tool to share knowledge and information regarding climate-resilient agriculture and build economic and social processes that allow the sustainability of the implemented strategies. This strategy can be developed with the support of the Rural Development Agency.	Probability: 2 Impact: 3  MODERATE
Activity 3.1. Capacity building and strengthening of the project beneficiaries, extension workers, implementing partners and other actors	Limited or restricted access of men and women producers to the financial instruments that are developed or available within the scope of the project. Even if producers have access to financial products, they might not have constant technical and crop management assistance to implement the production processes funded.	Probability: 4 Impact: 3  MODERATE	<p>Characterization of the financial profile of the men and women producers who participate in the project. This assessment must be carried out taking into account the specific characteristics of each value chain. The project must guarantee that the financial products developed provide solutions and are available to the producers.</p> <p>Draft a roadmap that outlines the step-by-step process for accessing financial products developed or available within the scope of the project. There will also be socialization sessions of these products in the field/project intervention areas, as well as economic and financial education campaigns with an emphasis on women and small farmers.</p> <p>The financial products developed must provide technical and management support services for the people who access them. There should be greater support from the extension worker, the implementing partners, as well as the financial advisors of the financial institution/bank, to ensure that recommendations are appropriate and effectively provided to the producers.</p> <p>Develop specific financial products or preferential loan interest rate for women beneficiaries of the project.</p>	<p>Probability: 1 Impact: 2</p> <p>LOW</p>

Source: Prepared by the authors



### 5.3 Potential benefits

- Strengthening the country's public agricultural and environmental policy on climate change adaptation and mitigation and green growth, as well as gender policy.
- The sustainable production practices implemented will contribute, among other aspects, to the efficient use of water and the reduction of the water footprint.
- Integrated solid waste management, reduction of soil and water contamination, and reduction and rational use of chemical inputs, especially in the application of fertilizers and pesticides that contaminate water sources and affect biodiversity in the areas of intervention.
- Reduction of soil erosion, as well as conservation and restoration of productive landscapes and improvement in the provision of ecosystem services.
- Reduction of greenhouse gas emissions and, therefore, of the carbon footprint in agriculture.
- Mitigation of greenhouse gas emissions and contributions to nationally determined actions (NAMA) in the coffee, panela, and livestock value chains.
- Strengthening relations between Producer Associations and the environmental sector.
- Agroclimatic information and forecasts will enable timely decisions to be made and will make it possible to efficiently manage natural resources in the value chains analyzed.
- Improved agroclimatic risk management due to greater knowledge of climate hazards and the strengthening of adaptive capacities. Benefits for producers and associations as a result of the integration of agro-climatic information into decision-making for comprehensive land-use planning and optimizing the use of natural resources following agro-climatic conditions and the needs of the value chains.
- Strengthening the economic, social, and environmental capacities of male and female producers for sustainable agricultural production, as well as improving agricultural productivity and income levels.
- Recognition of the role of women and their contribution to the rural economy, especially concerning the prioritized value chains. Reduction of gender gaps and the burden of unpaid domestic and care work, which hinder women's full participation in the rural economy. As a result, greater participation of women in project activities, improving living conditions and income levels.
- Recognition of the role of ethnic producers in the prioritized value chains and their contribution to sustainable production.
- Improved institutional capacity of the participating associations for environmental, social, and gender management, as well as for accompanying a greater number of producers in implementing the recommendations and products, which will make the project sustainable in the long term.

## **6. Environmental and Social Management Plan**

### **6.1 Assumptions for the development of the Environmental and Social Management Framework**

- 1 None of the interventions will require the displacement of people.
- 2 None of the interventions will require prior consultation processes.
- 3 Project interventions will take place in areas belonging to the national agricultural frontier defined by Resolution 261 of June 21, 2018, by the Ministry of Agriculture and Rural Development.
- 4 The project will not carry out interventions in areas belonging to the National System of Protected Areas (SINAP) nor within delimited moorland areas (paramos).
- 5 None of the project interventions will be carried out in high-risk areas.
- 6 No deforestation or loss of native vegetation cover will be generated in the intervention areas of the CSICAP project.
- 7 Project activities are aimed at identifying and implementing sustainable production practices that seek to reduce the water footprint, carbon footprint, and GHG emissions and, consequently, reduce the environmental impact of value chains.
- 8 The project seeks to reduce the application of fertilizers and pesticides that pollute water sources and affect biodiversity in the intervention areas.
- 9 Where research and the introduction of genetically modified organisms are carried out, the provisions and restrictions established in current regulations will be complied with.
- 10 The ethnic communities agree to the implementation of the project, and when required, permits will be obtained from the corresponding ethnic authorities.
- 11 Solid waste and spills generated by the value chains participating in the project will be properly managed.
- 12 Traditional practices will be taken into account, as well as community and cultural knowledge about agroclimatic conditions and their impact on the management of value chains.
- 13 The project will seek to provide differentiated attention to the requirements of the communities. The guidelines established in the regulations will be complied with, especially in matters related to the use and application of pesticides. Crop spraying and dusting with chemicals will not affect the health of workers and local inhabitants (this assumption focuses on the banana value chain, where aerial spraying of pesticides is carried out, although it also refers to other chains).
- 14 Producer Associations, other implementing partners and entities, participants, and beneficiaries of the project have the corresponding environmental licenses where required.
- 15 Producer Associations, other implementing partners and entities will comply with the regulations and guidelines established in relation to labor rights of men and women workers.
- 16 Gender equality will be promoted in the implementation and development of the project.

## 6.2 Objectives of the Environmental and Social Management Framework

The central objective of the ESMF is to manage environmental, social, and gender risks and mitigate potential negative impacts associated with the implementation of the CSICAP project. In this way, the ESMF will ensure that the project complies with the environmental and social safeguards and environmental, social, and gender policies of CAF and the Green Climate Fund, as well as with Colombian regulations related to the project. Also, the ESMF will contribute to making CSICAP not only environmentally sustainable but also socially inclusive.

ESMF specific objectives are:

- Comply with applicable laws, regulations, and standards for the protection of the environment and communities, especially the most vulnerable population groups, in the areas of influence of the project.
- Adopt the best possible measures to mitigate the potential environmental, social, and gender impacts of the CSICAP project.
- Promote good environmental and social management practices through planning and continuous improvement.
- Establish the implementation and monitoring procedures, as well as the obligations of the responsible staff at the central level and for implementing project activities, which are necessary to manage the environmental, social, and gender risks of the project.
- Protect flora, fauna, and ecosystems in the areas of influence of the project.
- Minimize or prevent soil, air, and water pollution.
- Facilitate the disclosure of project information to stakeholders through accessible means and understandable language.
- Strengthen relations with project beneficiaries, communities, and other stakeholders, and minimize complaints, claims, incidents, and denunciations that may be made to the project.
- Strengthen the institutional capacity of the participating associations for environmental, social, and gender management.
- Contribute to the implementation of public policies on climate change adaptation and mitigation and green growth, as well as the national government's equity policy for rural women.
- Strengthen the capacities of communities for sustainable and climate-resilient agricultural production and to better manage climate change threats.
- Contribute to closing gender gaps in the prioritized value chains and promote equitable access to the strategies, plans, programs, services, goods, and activities of the CSICAP Project.
- Reduce barriers to access to agroclimatic information faced by rural women.
- Strengthen rural women's capacities for sustainable, climate-resilient agricultural production that guarantees their food security and that of their households.
- Reduce the structural barriers that hinder the entry and full participation of rural women in agricultural value chains.

## 6.3 Implementation and administration of the Environmental and Social Management Framework

### 6.3.1 Administration

The Project Management Unit will be ultimately responsible for CSICAP's ESMF, and compliance and implementation will be through CIAT, the Producer Associations, Agrosavia, and other implementing partners.

To this end, the Unit will have an Environmental, Social, and Gender Team, which will respond to the directives of the National Project Manager, who leads the Unit. The Environmental, Social, and Gender Team will oversee designing guidelines, plans, and strategies for the ESMF, providing support during implementation, monitoring progress and compliance as stipulated in this document, and supporting the review and updating of the ESMF and the GAP.

The ESMF must be socialized in a timely and detailed manner to project stakeholders, especially CIAT, Producer Associations, Agrosavia, and other implementing entities, as well as to all project participants and beneficiaries. In turn, these entities must socialize it with the personnel in the field or participating in project implementation, whether they are employees or contractors, as they are responsible for preventing and mitigating environmental, social, and gender impacts that may arise. All personnel participating in the project will be trained in the requirements and guidelines on safety, health, environmental, social and gender issues addressed during project implementation. Socialization may be face-to-face and/or virtual.

The Project Management Unit, through the Environmental, Social and Gender Team, will provide the Producer Associations, CIAT, Agrosavia, and other implementing partners with guidelines and technical advice on environmental, social, and gender issues for compliance with the ESMF, as well as on the presentation of reports, which must be reviewed by the team.

Besides, the ESMF will be part of the documents of the call for proposal processes that arise throughout the life cycle of CSICAP.

### 6.3.2 Environmental and Social procedures

The environmental procedures established for the CSICAP project are framed in compliance with CAF and Green Climate Fund policy guidelines and environmental and social safeguards. Special emphasis is placed on the following safeguards due to the scope of the project:

***S01 Environmental and social impact assessment and management***, its objective is to establish the environmental and social requirements to identify, assess and manage the environmental and social impacts of a project, identify the risks of climate variability and adaptation measures, manage the identified impacts, promote the improvement of environmental and social management of operations, among others. (Banco de Desarrollo de América Latina CAF, 2016).

***S02 Sustainable use of renewable natural resources***, the objective is to prevent projects from causing degradation of water resources and soil. (Banco de Desarrollo de América Latina CAF, 2016).

***S03 Conservation of biological diversity***, its objective is to conserve native biodiversity and ecosystem integrity, as well as to prevent, minimize, mitigate, and compensate for the negative impacts generated by public and private operations. (Banco de Desarrollo de América Latina CAF, 2016).

***S04 Pollution prevention and management***, which aims to prevent and minimize negative impacts on human health, biodiversity, and ecosystems caused by public and private operations. (Banco de Desarrollo de América Latina CAF, 2016).

***S06 Ethnic groups and cultural diversity***, its objective is to recognize and respect ethnic groups, their traditional knowledge, their customary rights, their human rights, their rights over their territory and the natural resources they use, their culture, their social organization, their knowledge, practices, uses, and customs, among others. (Banco de Desarrollo de América Latina CAF, 2016).

***S08 Working conditions and training***, its objective is to promote compliance with national labor legislation, labor relations, and conditions, promote fair treatment of workers without discrimination and with equal opportunities, promote occupational risk prevention through risk assessment and control in the activities carried out by the projects, among others. (Banco de Desarrollo de América Latina CAF, 2016).

***S09 Gender equality***, which aims to ensure that women and men benefit equally, to ensure the equal participation of women and men in both project design and implementation, and to prevent project design and implementation from deepening pre-existing gender gaps or producing adverse impacts that affect either gender. (Banco de Desarrollo de América Latina CAF, 2016).

The activities proposed under the CSICAP project will be carried out in strict compliance with existing regulations and guidelines in Colombia and will meet high standards of environmental and social management in compliance with the guidelines and principles established by CAF and the Green Climate Fund.

### **6.3.3 Procedures and guidelines for the formulation of plans and strategies**

The project's environmental and social procedures are aimed at managing issues related to compliance with the measures and actions established in the ESMF, and establish guidelines for the proper implementation of measures, documentation of processes, and recording the traceability of actions.

The ESMF established, among others, the development of the following plans and strategies:

- i. Risk management plan associated with security issues.
- ii. Strategy for social appropriation of knowledge.

- iii. Communications Plan.
- iv. Risk management plan for natural disasters and environmental emergencies.
- v. Comprehensive solid waste management plan and development and implementation of roadmaps.
- vi. Environmental plans that incorporate issues related to Payments for Environmental Services, restoration, landscape management tools, conservation agreements, among others.
- vii. Updating of occupational health and safety plans, measures and protocols related to the use of pesticides and agrochemicals.
- viii. Guidelines for the efficient use of water resources on farms.
- ix. Economic and financial education for small female and male farmers.
- x. Gender Action Plan, which incorporates, among others:
  - Comprehensive strategy for the dissemination of information on agroclimatic risk production methods.
  - Plan for the recovery and/or promotion of quality native seeds and species with commercial gains.
  - Training plan for women on climate change resilient production.
  - Plan for the production and marketing of organic fertilizers and bioproducts for pest and disease control.
  - Pilot projects to approach the care economy at the local level.
  - Strategy for women's empowerment and participation in decision-making bodies.
  - Strategy for training and education on gender equality and gender mainstreaming.

These plans and strategies, due to their specificity, will be developed during the implementation of the CSICAP project. For their formulation and implementation, a methodology will be defined, as well as formats and technical annexes that allow the analysis of their traceability, validation, and registration of compliance with the processes and procedures established by the project's ESMF.

The methodology proposed for the formulation of the plans/strategies is the logical framework, and the documents should incorporate the following components:

1. Assessment and baseline section. The information included in this section will make it possible to understand the current situation on as detailed a scale as possible, including regional, local, rural, or farm information, as applicable. The context in which the strategy or plan will be developed should be described. It should include: (i) the delimitation of the area of influence, the specific characteristics of the area, data on the specific population expected to be the beneficiaries (should allow identification of the population groups targeted, as well as the role of men and women), among others.
2. Programmatic section. It should include the general objective, the specific objectives, the details of the components of the strategies/plans as well as their specific activities, and how the objectives established in each case will be met.

3. Action plan and monitoring section. It should include details of specific actions, costs, and schedule of activities for their fulfillment, definition of responsible parties, as well as indicators, baseline, goals, and periodicity of progress reports.
4. Annexes section. It includes the forms and other complementary and required documentation that provides details for the implementation of the plans/strategies.

In line with the above, it is important to mention that, for the implementation of the ESMF, a series of formats will be developed to standardize the information generated, as well as to facilitate the documentation of the procedures and processes of the CSICAP project. Therefore, the following formats, among others, will be developed:

- Minutes of both internal and external meetings.
- Attendance lists allow the consolidation of detailed information of those attending the work and socialization sessions as required.
- Event reports.
- Environmental plans and restoration strategies.
- Conservation agreements.
- Farm plans.
- Formal agreements between project beneficiaries and implementing partners.
- Record of verification of compliance with the project's environmental and social guidelines.

#### **6.3.4 Environmental, social and gender incident reporting**

An online platform will be developed with information from the CSICAP project, which, among other functions, will provide a reporting service for incidents associated with the project, including incidents and/or reports related to non-compliance with ESMF guidelines. These reports may also be made by physical mail, calls, and conversation with professionals in the field. In addition, they may be anonymous reports or, if the person considers it appropriate, he/she may leave his/her name and contact information (it is suggested that the latter is the most appropriate option to respond to the request directly). Incidents will be recorded in the CSICAP project incident log. In cases where the reported incidents may cause serious material environmental and/or social damage, the project implementing organizations will immediately notify the Management Unit and the National Project Manager to take the necessary corrective measures on time. The entire process will be duly documented until resolution and closure.

For the registration of incidents, the following information must be included as a minimum:

- Whether it is a petition, complaint, claim, incident report, suggestion, denunciation, among others.
- Number and date of filing.
- Gender, age, and ethnicity.
- If the person agrees, name, and contact information.

- Time and place of the situation. If applicable, the name of the worker/contractor involved.
- Description of the situation presented.

It is worth mentioning that this procedure will be handled in an articulated manner and will be managed following the guidelines established in numeral 4.2.

### **6.3.5 Inspection and corrective actions**

Periodic inspection of compliance with the project's environmental and social guidelines will be carried out regularly (an inspection is proposed every two months). This work will be carried out by project personnel associated with the components executed by the Producer Associations and supervised by the Environmental, Social, and Gender Team of the Project Management Unit. These inspection sessions will be carried out to identify environmental and social issues that need to be urgently addressed. Priority will be given to the development of face-to-face meetings when required; however, they may also be conducted virtually.

It is worth mentioning that in the event of situations that require priority attention, as mentioned above, the supervisor will be immediately notified of the situation and will take specific corrective actions and report to the appropriate personnel. A complete review of the issues addressed, the actions taken, and the response times will be carried out during the inspection days. Inspection visits will be duly documented, and their appropriate document management will be carried out.

## **6.4 ESMF Review**

The ESMF is not a static document; it is a dynamic and continuous process that must respond to changes in the context and needs of the CSICAP project, which is why it must be reviewed periodically and, where applicable, the required adjustments must be made.

An online platform will be developed with information from the CSICAP project, which, among other functions, will make it possible to report on progress, compliance, and ESMF procedures. Periodic reviews of the project's implementation and compliance will also be carried out (a review every 4 months is proposed). The implementing teams will be responsible for the report and will send the information to the Environmental, Social, and Gender Team of the Project Management Unit, which will consolidate the periodic report that will be submitted to the inter-institutional coordination body for validation and recommendations.

Adjustments and/or amendments may be made in the following cases:

- Changes and/or adjustments to project activities.
- Identification and/or materialization of environmental and/or social risks not previously identified.
- Adjustments to the project monitoring, follow-up, and evaluation system.
- Updating of social and/or environmental regulations that have an impact on the project.



- Inclusion of improvements in established procedures.
- At the request of control entities and/or some of the participating entities, with the prior approval of the governance committees established for the project.

The Environmental, Social, and Gender Team will ensure the socialization of the latest available version of the ESMF and/or its updates, especially with the organizations, project implementing partners, and beneficiaries. Each time the ESMF is updated and/or modified, it shall be socialized for the knowledge of the project stakeholders.

## **7. Stakeholder Engagement and Public Participation**

### **7.1 Public consultation and environmental and social disclosure**

The project will be developed in areas already intervened within the national agricultural border, which excludes the collective territories delimited and assigned to ethnic groups<sup>40</sup>, so no direct negative impacts are anticipated on the collective territories of indigenous or afro-descendant communities (indigenous reservations and councils community), since these areas are outside the project intervention area, so it was not considered necessary to carry out prior consultation processes.

In the project area there may be situations in which there is the presence of self-recognized producers or those recognized by others as descendants of ethnic groups that could be beneficiaries of the project, so during the design and implementation phase we have ensured that incorporate mechanisms and strategies that allow positive impacts to reach all beneficiaries, including producers belonging to these groups, peoples and/or communities, respecting their traditional knowledge, systems and practices, to generate synergy with modern sustainable technologies.

In accordance with the above, in order to enhance the positive impacts of the project, and CSICAP to encourage the participation of producers from ethnic groups in the project, the ethnic differential approach was included in the baseline, risk assessment, as well as in the mitigation measures and in the disclosure and engagement processes to be implemented by the CSICAP project. Specifically, the following measures are considered pertinent:

- The social appropriation of knowledge strategy and the communications plan will incorporate recommendations aimed at promoting the participation of male and female producers from ethnic communities in the value chains analyzed.
- Include in the project's technical team, especially in the group of extension workers, people from ethnic communities in the project's intervention areas, to build trust and facilitate work with the communities while building local capacity.

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<sup>40</sup> For the purposes of the project, the term ethnic group and ethnic community applies to both indigenous communities and groups and Afro-American communities and groups. Similarly, the GCF definition referred to in the Indigenous Peoples Policy applies.

- Where applicable, it is recommended that a minimum percentage of female and male producers from ethnic communities be proposed for participation in the project (as an affirmative action).
- Incorporate the identification of female and male producers from ethnic communities in the information-gathering forms and the databases of the Producer Associations.
- A guideline will be prepared to advance in the incorporation of the ethnic differential approach in the internal policies of the Producer Associations participating in the project.

If at some point the activities and locations of the project are modified and a consultation is required, this process shall be governed by Decree 2613 of 2013 (which adopts the Interinstitutional Coordination Protocol for Prior Consultation), the methodological guide established by Presidential Directives No.10 of 2013 and No.8 of 2020, as well as by the guidelines established in Decree 1066 of 2015 (Sole Regulatory Decree of the Administrative Sector of the Interior) and by the Directorate of the National Authority for Prior Consultation of the Ministry of the Interior (Decree 2353 of December 26, 2019).

Aiming to promote a participatory approach to the CSICAP project, through a qualitative primary information-gathering exercise, Producer Associations officials, extensionists, producers, ethnic producers, local institutional actors, and national institutional actors were interviewed on recommendations for the project implementation. Annex 7 presents a summary of the interviews and group sessions held with stakeholders in the formulation process of the ESMF, as well as the Stakeholder Participation Plan. This plan is based on the instances and activities for the participation of project beneficiaries proposed in the gender action plan and the social and environmental management plan. Among the measures proposed is the definition of a mechanism for the participation of beneficiary representatives in the project's decision-making bodies, such as the technical committees. This is to ensure that their needs and suggestions are heard, recognized, and incorporated into the project and that the activities respond in a timely, relevant, and efficient manner to the characteristics and living and agricultural conditions of the producers.

In accordance with the social, environmental, and gender safeguards of CAF and the Green Climate Fund, information will be disseminated in an accurate and timely manner; taking this guideline into account, the ESMF includes the formulation and implementation of a communications plan that recognizes the particularities of the territories, the needs of the beneficiaries of the CSICAP project, and mainstreams the ethnic and gender perspective into the project. CAF and the Project Management Unit will make periodic reports on its implementation and progress.

As part of this plan, an online platform will be developed for the CSICAP project, which will provide timely information on the strategic direction of the project, its progress, and updates, among others. The information published will be updated at least once a month, once project implementation begins. The platform will include the following sections:

- (i) General information on the CSICAP project (financing, implementers, government entities involved, international cooperation partners).

- (ii) Governance of the CSICAP project (including project documents related to the operational regulations, the ESMF, Steering Committee Minutes).
- (iii) Project components (work plan and distribution of resources).
- (iv) Monitoring of implementation and progress on goals, as well as budget execution (there will be a periodic report on execution, agreements signed, contractual documents, audit results, among others).
- (v) Registration of incidents, complaints, and claims (there will be an online form where complaints and grievances will be registered and there will also be a section with frequently asked questions).
- (vi) Project communication pieces (infographics, brochures, and other documents elaborated by the project) and a section for news, events, publication of calls for proposals, and other information of interest to project stakeholders and the community in general.

The project will also hold a biannual socialization event to present its progress, lessons learned, and challenges. Stakeholders and other relevant actors will be invited to this event. These events may be held in existing spaces, such as the agroclimatic working groups, or a new space may be developed if required. The socializations may be held in person and/or virtually. In addition, the participation of women, ethnic groups, the elderly, and young people, among other target population groups, will be guaranteed on an equitable basis. In these spaces, the Project Management Unit will present the results and progress to date and will receive recommendations from stakeholders to improve project implementation. Subsequently, the event proceedings and attendance lists will be sent, and the Project Management Unit will analyze the relevance and possible incorporation of the recommendations received.

## **7.2 Complaint Register**

As mentioned above, the project's online platform will include a section to receive and register complaints. These reports may also be made by mail, calls, and/or direct communications with the teams in the field, in which case the person in charge of document management within the Environmental, Social, and Gender Team must register them on the web platform (all complaints will have a file number and will be systematized on the platform). Preferably, communications should include the name, contact information, gender, and ethnicity -if applicable-, but communications sent anonymously will also be managed. Complaints will be recorded in the CSICAP project's register of complaints and incidents.

For the registration and attention of incidents and complaints, at least the following information must be included:

- Type of complaint: If it is a question, complaint, claim, incident report, suggestion, grievance.
- Number and date of filing.
- Gender, age, and ethnicity.

- If the person agrees, name, and contact information.
- Time and place of the situation. If applicable, the name of the worker/contractor involved.
- Description of the situation presented.
- The response to the situation, as well as the actions and the time frame in which they will be carried out.
- The person responsible for the project who will address the situation and the person(s) responsible for executing the actions established to address the situation.

### 7.3 Grievance Redress Mechanism

The project has a mechanism for redress of grievances that will allow to:

- Provide adequate and timely attention to situations affecting stakeholders within the scope of the CSICAP project.
- Generate trust since the project team will be ready to attend to complaints and reports promptly.
- Facilitate access to the CSICAP project's communication channels.
- Listen to, assist and communicate with stakeholders in an equitable, timely, and transparent manner.
- Establish clear procedures for addressing concerns, complaints, claims, grievances.
- Contribute to the continuous improvement of the project and its components.
- Provide answers to the population that may be affected by the project's interventions.
- Bring the project closer to vulnerable population groups and, in general, to rural areas.

This mechanism addresses the management of complaints and/or difficulties that arise in the implementation of the CSICAP project. It is worth mentioning that this mechanism does not replace due legal process in applicable cases. It is intended to address complaints, claims, and grievances in such a way that they are resolved promptly and do not escalate to legal proceedings. The following is a step-by-step description of the grievance redress mechanism established for the CSICAP project:

1. Receipt of the claim (under the terms and according to the characteristics mentioned above).
2. Classification of the claim (the person delegated by the Project Management Unit team will review the claim and determine, from 1 to 3, its level of urgency, being 3 a claim that is a priority to be attended to avoid difficulties in the implementation of the project. Priority will be given to addressing complaints and claims that put the life and health of the most vulnerable population at risk, such as women, children, the elderly, people with disabilities, and the ethnic population. On the other hand, it will define the scope of application (whether it is local or national), to give the corresponding transfer and delegate its resolution.

3. It must be reported immediately to the official/contractor who has the competence to deal with it. Depending on the classification of the complaint, the National Project Manager will be informed on time.
4. Corrective measures and actions will be identified to address the situation.
5. A formal response will be given to the complaint, specifying the actions and the person(s) responsible for executing them. The maximum response time to the complaint will be 15 working days following receipt. It should be clarified that if the report received requires immediate attention, it will be dealt with in the shortest possible time. In the event of any incidents involving harassment or physical or sexual violence against women and children, the corresponding authorities will be contacted immediately and the affected persons will be guided to seek psychosocial assistance services.
6. When necessary, dialogue spaces will be convened to resolve situations and requirements that may arise. Situations that take place in the field will be dealt with directly by the project implementing partners. In the case of situations that exceed their competence and require support from the central office, the Project Management Unit team will be called upon to mediate and deal with this type of issues.
7. If necessary, a meeting will be held with the affected person/s and/or complainant/s to hear their arguments and provide a timely response.
8. A minute of the meeting will be written that includes the topics discussed and the actions agreed upon by the parties. This document must be signed by the parties.
9. Compliance with the commitments established to formally close the requirement will be followed up.

In all cases, the project officials or implementing partners will act in good faith and will try to reach a satisfactory solution for both parties, maintaining good treatment and courtesy. As mentioned above, all these situations will be duly documented and managed by the project personnel or contractors. These reports will be submitted periodically to the Project Management Unit. In cases where the claim is not resolved, they will be sent to higher levels until a solution is found and formal closure is achieved.

In cases where a solution and/or conciliation cannot be achieved due to the nature of the claims and the situations presented, the cases will be referred to the Project Steering Committee and will be dealt with by the appropriate entity with due process. When it is evident that the claim is pertinent and legitimate, the project may support the hiring of a qualified person to contribute to the solution of the situation.

The Project Management Unit, through the Environmental, Social, and Gender Team, will generate a periodic report (proposed every 2 months) of the situations presented and their solution to identify lessons learned that will be useful for the project and the issues that arise in this matter.

The Project Management Unit will be responsible for disseminating the grievance redress mechanism to the project team and key stakeholders so that they are aware of it. Likewise, CIAT,

Agrosavia, each of the Producer Associations, and other implementing partners will define the number of delegates who will attend to this type of situations. The contact information and names of the delegates must be submitted to the Project Management Unit on time. These people will meet periodically and will be called upon to deal with these situations, report them and follow up on them.

It is recommended that the persons designated by the implementing partners have training and experience in dealing with grievances and negotiation skills since in those cases where it is required, they will mediate and contribute with their knowledge to the management and solution of the situations that arise. This work should be included in the contractual activities.

The following are some of the functions they will perform:

- Be part of the committees for grievance redress.
- Review, categorize and prioritize the claims that require immediate attention.
- Make reports on the situations that arise and the actions for their resolution.
- Be the focal points for these issues.
- Report to the Project Management Unit on situations that arise.
- Hold periodic meetings to share lessons learned and, if necessary, support similar situations that arise in other project areas.
- Socialize existing mechanisms related to complaints and grievances.
- Update information and records of complaints and grievance situations that arise.
- Prepare periodic reports.

In addition, if is required, it is possible for the stakeholder's access to the GCF's Independent Redress Mechanism (IRM).

## **8. Indicators and monitoring mechanism**

This chapter aims to present the main social and environmental indicators identified for the CSICAP Project and defines the respective management objectives, potential impacts, mitigation measures, and indicators with which to monitor and follow up on the progress of the measures proposed in the ESMF.

Besides, it also states the need to monitor, through the presentation of reports, the implementation of the mitigation measures, to show the successes and lessons learned to define promptly the issues that require corrections/adjustments and to identify the measures that allow a continuous improvement in the project management processes.

The chapter is divided into four sections. Since the risk identification, characterization, and assessment was conducted based on the analysis of each of the CSICAP Project components and activities, the first three sections present the ESMF monitoring mechanism associated with each

project component. Each section defines the general criteria for implementation, monitoring, and reporting. The purpose is to articulate the project actions with the measures defined in the ESMF.

The fourth and last section presents a matrix (Table 8.1) specifying the indicators, action times, responsible parties, monitoring and reporting periodicity for each of the risks identified, and the mitigation measures formulated.

## **7.4 Monitoring mechanism associated with component 1**

Component 1 of the project, "Digital agriculture and climate services for the modernization of the countryside with emphasis on adaptation and mitigation", aims to design, assemble, implement, and operate different climate information services for technicians and producers to improve decision-making at the producer level to avoid crop losses. It seeks to develop early warning services on climate threats, pests, diseases, and abiotic factors due to climate phenomena and integrated territorial planning systems.

### **7.4.1 Performance Criteria**

- There will be no access costs for producers associated with the use of the information platforms developed under the project.
- There will be no vegetation clearing outside the established limits if it is required for the installation of meteorological stations.
- There will be no negative impact on ecosystems or biodiversity associated with this component.

### **7.4.2 Monitoring**

A monitoring system will be implemented for each of the zones in which component 1 will be developed by sex, age, ethnicity, due to regional and population differences, and which is associated with the gathering and management of climate information and reduction and loss of crops from early warnings on climate threats. The objective is to mitigate risks related to exclusion of producers from agroclimatic information due to the remote location or difficult access, limited implementation of agricultural practices by producers, low coverage and high costs of public services and information technologies that limits access to information by producers, and low or no participation of producers in agroclimatic technical working groups due to not recognizing their benefit and/or low availability of time to attend due to the care activities they must perform.

### **7.4.3 Reporting**

In implementing CSICAP project actions, the Producer Associations will compile monthly reports to be submitted to the Project Management Unit, who in turn will notify the National Project Manager, CAF, and the Ministry of Agriculture and Rural Development, indicating: the progress of monitoring activities, any nonconformities and/or non-compliance with the Environmental and Social

Management Framework, and details of corrective actions taken to reduce the impact of any difficulties, situations and/or problems encountered.

All progress, results, and/or events related to Component 1 monitoring will be tabulated and reported as described in the ESMF. The Project Management Unit will notify the National Project Manager and the Ministry of Agriculture and Rural Development if defined mitigation measures are not being implemented in situations that induce crop loss.

## **7.5 Monitoring mechanism associated with component 2**

Component 2 of the project, "Genetic improvement, crop management techniques and other technological options and their scaling to increase resilience and promote low-carbon agricultural development", aims to implement technologies and crop management options to improve the resilience of production systems and low-carbon agricultural development through genetic improvement, efficient use of water resources, reduction of the carbon footprint, reduction of GHG emissions, among other options for adaptation and mitigation of climate change.

### **7.5.1 Performance Criteria**

- No deforestation or loss of native vegetation cover will be generated in the CSICAP project intervention areas.
- The project will not carry out interventions within delimited moorland areas (paramos).
- There will be no negative impact on existing native ecosystems in the CSICAP project intervention areas.
- Native species will be identified and incorporated into the germplasm bank to be developed.
- Participatory work will be carried out to recover native seeds and contribute to their sustainable use.
- The sustainable production practices identified and applied in the territories are aimed at reducing the water footprint, reducing the carbon footprint, reducing GHG emissions, and improving the management of waste and discharges generated in the value chains that are the object of the intervention.
- Native species will be used in the restoration processes and landscape management tools, depending on the areas of intervention.
- The proposed interventions incorporate practices that promote environmental sustainability and circular agriculture.

### **7.5.2 Monitoring**

A monitoring system will be implemented for each of the zones in which component 2 will be developed, by gender, age, and ethnic group of the producer, due to territorial and population differences, and which corresponds to genetic improvement, crop management techniques, and other technological options to promote low-carbon agricultural development. The objective is to mitigate the risks associated with the impact on ecosystems and biodiversity, especially in moorland



areas; public health concerns associated with usage and spraying of pesticides; limited participation of producers belonging to ethnic groups, due to lack of knowledge of the benefits of this type of practices, among other causes; loss of cultural diversity and/or traditional knowledge and local production practices.

### **7.5.3 Reporting**

In implementing the activities, the Producer Associations will compile monthly and annual reports to be submitted to the Project Management Unit, who in turn will report to the National Project Manager, CAF, and the Ministry of Agriculture and Rural Development, indicating: the progress of monitoring activities, any non-compliance with the Environmental and Social Management Framework, and details of corrective actions taken to reduce the impact of any difficulties, situations and/or problems encountered.

All Component 2 monitoring progress, results, and/or events will be tabulated and reported as described in the ESMF. The Project Management Unit will notify the National Project Manager and the Ministry of Agriculture and Rural Development if designed mitigation measures are not being implemented in situations that induce crop loss.

## **7.6 Monitoring mechanism associated with component 3**

Component 3 of the project, "Knowledge management and agricultural innovation in context," is aimed at generating, massively transferring, and scaling up technological options that consider territorial differences in the capacities, knowledge, and conditions of producers (women, men, young people, older adults), through the transfer of technical-technical, producer-producer and mixed knowledge. Institutional capacity building to achieve greater coverage of agricultural extension services.

### **7.6.1 Performance criteria**

- The Producer Associations and organizations participating in the CSICAP project guarantee that the producers participating in the project are up to date with social security issues (health, pension, risks, etc.).
- The Producer Associations and organizations have the necessary permits, authorizations, environmental licenses, and other requirements in place to meet the needs of the value chains they represent.
- The actions of the CSICAP project are in line with local agricultural development objectives and goals and contribute to the fulfillment of government goals.
- The majority of local extensionists will be encouraged and linked to developing the actions established.

### **7.6.2 Monitoring**

A monitoring system will be implemented for each of the zones in which component 3 will be developed by sex, age, and ethnicity of the producer, due to territorial and population differences, and which related to knowledge management and agricultural innovation. The objective is to mitigate the risks associated with: limited implementation of recommendations due to high costs, limited participation of women in production decision making, limited women participation due to sexual division of labor and unpaid care work, and limited access of small male and female farmers to financial instruments.

### **7.6.3 Reporting**

Upon implementation of the actions, the Producer Associations will compile monthly reports for the Project Management Unit, who will report to the National Project Manager, CAF, and the Ministry of Agriculture and Rural Development, indicating progress of monitoring activities, any non-conformities with the Environmental and Social Management Framework, and details of corrective actions undertaken to lessen the impact of difficulties, situations and/or problems encountered.

All Component 3 monitoring progress, results, and/or events will be tabulated and reported as described in the ESMF. The Project Management Unit shall notify the National Project Manager and the Ministry of Agriculture and Rural Development if defined mitigation measures are not being implemented in situations that induce crop failure.

## 7.7 Indicators and monitoring by risk and mitigation measure

**Table 8.1. Matrix of indicators, action times, responsibility and monitoring of the risks identified and mitigation measures formulated**

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
Cross-sectional	Public order issues that limit the development of project activities	- Number of public order events that affect the implementation of the project	Design and implement a risk management plan related to security issues and a protocol that ensures safe access to the project areas for the personnel, and states the specific actions to be taken in the event of a threat to physical integrity. The plan must include protocols for defining the areas in which the socialization activities, the pilots and other activities in the field will take place in such a way that the associated security risks are assessed and mitigated. Develop a virtual safety training for project participants and implementers. In case of having implementing agencies and organizations, compliance with these guidelines must be required. Evaluate the possibility of signing agreements with the Police and the armed forces when required.	Pre and during operation	Producer Associations, Ministry of Agriculture, CIAT, CAF, AGROSAVIA, Project Management Unit	Initial preparation. Monthly Reports
Cross-sectional	Ignoring the needs of men and women producers based on the particularities of the territories and the value chains involved in the project, including the time and economic constraints that limit assistance to socialization activities, training, agroclimatic working groups, among other project activities	- Percentage of agricultural holdings (farms) that received technical assistance - Percentage of agricultural holdings (farms) that received technical assistance about good agricultural practices - Percentage of agricultural holdings (farms) that received technical assistance about good agricultural practices and adopted them - Percentage of agricultural holdings (farms) that received technical assistance about good farming practices for animal production	Design and implement a strategy for the social appropriation of knowledge in which the specific characteristics of men and women producers of each value chain are identified and specific guidelines are provided to meet the needs of access and appropriation of the information generated within the scope of the project. This strategy must be executed in tandem with the activity 1.1.3. of the Gender Action Plan: Elaborate in a participatory way a document that articulates into project activities the local knowledge and practices of men and women related to the management of agroclimatic risk, both in the crop and in other aspects, such as the home, the agroecological calendar, irrigation strategies and practices and tools to manage drought. This strategy must take into account the needs and create activities tailored to women, the youth, ethnic groups, and the elderly.	Pre and during operation	CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers	Annual Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
		<ul style="list-style-type: none"> <li>- Percentage of agricultural holdings (farms) ) that received technical assistance about good farming practices for animal production and adopted them</li> <li>- Number of agricultural extension workers from ethnic groups working at the project</li> </ul>	<p>Develop a communications plan, with communication tools differentiated by value chain, region and target groups. The educational contents (by value chain) will be developed in clear language to guarantee the understanding and use of the information generated in the project. It is recommended that the material developed within the scope of the project includes local terms, in such a way as to recognize the cultural diversity of the regions and promote the appropriation of the information. In the case of ethnic communities, it is recommended to develop communicative pieces in indigenous language when applicable.</p> <p>This strategy must be articulated with the following activities of the Gender Action Plan:</p> <p>1.1.1 Design and implement plan for disseminating information on agroclimatic risk management that includes a language analysis differentiated by region, considering ethnic elements -if necessary-, transmission schedules (taking into account variables of the care economy and sexual division of labor). The analysis shall present the scope of the plan in terms of number of people disaggregated by gender, age, ethnicity.</p> <p>1.1.2 Within the plan for disseminating information on agroclimatic risk management, define and implement actions through different communication channels, with the support of the local platforms of Vive Digital (National Plan to develop a digital ecosystem in the country) and other platforms of information dissemination (community radio stations, booklets with audio instructions).</p>	Pre and during operation	CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers	Monthly Reports
			In coordination with the communications plan, the most appropriate communication channel will be selected and implemented based on the characteristics of the territory (for example, television programs, radio programs, among others).	During operation	Producer Associations, extension workers	Monthly Reports
			Engage local leaders into the technical team of the project, especially in the group of professional extension workers in the project intervention areas, to generate local technical capacity while creating bonds of trust.	Pre operation	Producer Associations	Initial preparation

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
			Define jointly with the Producer Associations the places for the development of socialization and training activities (considering travel, costs, among others) and also the ideal dates for the implementation of these spaces in such a way that they do not interfere with regular activities of the value chain. This strategy must be articulated with the following activity of the Gender Action Plan: 3.1.3. Design and implement a gender-sensitive plan specifying the strategy for the inclusion of women in training activities and women's access to technology -which will be part of the project's agricultural extension strategy-.	During operation	CIAT, Environmental, Social and Gender Team, Producer Associations, extension workers	As required, Reports
			Prioritize activities in the territories associated with extension services that provide visits to each farm, in order to guarantee constant technical support.	During operation	Extension workers	Monthly Reports
			Allocate economic resources for travel to the selected places, and in cases where accommodation and food are required, to ensure participation in the sessions.	During operation	Producer Associations	Monthly Reports
Cross-sectional	Low coverage of public services in the project intervention areas (non-interconnected areas, without electricity, low or non-existent digital coverage), which limits the generation and access to information	<ul style="list-style-type: none"> <li>- Percentage of agricultural holdings (farms) that have access to electricity</li> <li>- Percentage of agricultural holdings (farms) that have on-farm access to internet</li> <li>- Percentage of agricultural holdings (farms) that have access to ICT goods</li> </ul>	This risk will be mitigated through the two strategies mentioned above, on the one hand, the strategy of social appropriation of knowledge that will identify the needs of men and women producers by value chain and will provide specific recommendations for each case.	Pre and during operation	CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers	Initial preparation
			On the other hand, through the communications plan, which will allow the project information to reach each type of producer based on their specific needs and living conditions (for example, in some areas the most effective channel is radio programs, in others, internet).	Pre and during operation	CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers	Initial preparation. Monthly Reports
			In tandem with activity 1.1.1 of the Gender Action Plan, within the plan for disseminating information on agroclimatic risk management, define and implement actions through different channels, with support from the local Vive Digital platforms (national plan to develop a digital ecosystem in the country) and from other information dissemination platforms (community radio stations, booklets accompanied by audio instructions).	Pre and during operation	CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers	Initial preparation. Monthly Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
Cross-sectional	Difficulties in the inter-institutional articulation between the entities that finance and those that execute the project, which may affect the results of the project	- Number of monitoring reports regarding new developments in the articulation between entities that finance and implement the project	Establish an inter-institutional coordination body to make decisions for the implementation of the project and provide technical guidance	Pre operation	Producer Associations, AGROSAVIA, CIAT, CAF, Ministry of Agriculture	Initial preparation
			Design and implement a communications plan for the project in which workshops and other information dissemination and socialization spaces are defined, prepared, convened and organized. The purpose of this plan is to guarantee the adequate and timely handling of the information, as well as the provision of different channels necessary for its disclosure.	Pre and during operation	Producer Associations, extension workers	Initial preparation. As required, Reports
Cross-sectional	Conflicts generated between selected producers and those who were not selected as beneficiaries of the project, which can result in difficulties in the implementation of the project and widen existing social gaps	- Number of complaint reports regarding not being selected as project beneficiary	Define targeting and prioritization criteria that allow selecting the project beneficiaries in a transparent and equitable manner. Criteria should include aspects related to gender and ethnicity. This information must be public and freely accessible, in order to comply with transparency commitments so that both associated and non-associated agricultural producers understand the selection process. The information and communication tools generated throughout the project must be public and freely accessible, it is recommended that it is available on the platforms of the project, the Producer Associations and the Ministry of Agriculture.	Pre operation	Project Management Unit (Environmental, Social and Gender Team), Producer Associations	Initial preparation
Cross-sectional	Low or non-existent participation of producers from ethnic groups in the project	- Percentage of agricultural holdings (farms) with producers from ethnic groups making decisions	Within the scope of the strategy for the social appropriation of knowledge and the communications plan, recommendations will be incorporated to promote the participation of men and women producers from ethnic communities in the value chains analyzed	Pre operation	Project Management Unit (Environmental, Social and Gender Team), Producer Associations	Initial preparation
			Engage in the technical team of the project, especially in the group of extension workers, people from ethnic communities in the project intervention areas in such a way that trust is built, work with the communities is facilitated and local capacity is generated.	Pre and during operation	Producer Associations	Initial preparation
			In the value chains where is feasible, propose a minimum percentage of participation of producers from ethnic communities in the project	During operation	Project Management Unit (Environmental, Social and Gender Team), Producer Associations	Annual Reports
			Include the identification of producers from ethnic communities in the Producer Associations formats and databases that gather information about their members.	During operation	Producer Associations	Annual Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
			Design a guide that inform Producer Associations on how to promote ethnic diversity at their workplace and introduce it in their internal policies and guidelines	Pre and during operation	Project Management Unit (Environmental, Social and Gender Team), Producer Associations	Initial preparation. Annual Reports
Cross-sectional	Lack of representation of women in instances of participation and decision-making, such as the Agroclimatic Working Groups, due to the work overload associated with unpaid care work (associated with double shifts), as well as the gender roles and stereotypes that are socially accepted	<ul style="list-style-type: none"> <li>- Participation in unpaid care work</li> <li>- Average time devoted to unpaid care work</li> <li>- Participation in activities included in the System of National Accounts</li> <li>- Average time devoted to activities included in the System of National Accounts</li> <li>- Number of women trained in women producers and rural women empowerment and their participation in decision-making positions</li> </ul>	Activities from the Gender Action Plan: 1.2.1 Design and implement a training and socialization plan on women's empowerment issues. 1.2.3 Include and implement a module within the training plan and participation plan for young rural women	Pre and during operation	Project Management Unit (Environmental, Social and Gender Team), Producer Associations	Initial preparation
			1.2.2. Design and implement a plan to promote the participation of women in local and regional decision-making bodies of the agricultural sector, that liaise with local and regional authorities (mayor's offices, governorates). The plan includes activities to disseminate information on calls for applications to decision-making positions, work sessions with local authorities. Special emphasis will be placed on the participation of women in instances such as the Agroclimatic Working Groups.	Pre and during operation	Producer Associations CIAT, Project Management Unit (Gender Team), Ministry of Agriculture (Rural Women Directorate)	Initial preparation. Annual Reports
Cross-sectional	Not having enough data to carry out the monitoring and follow-up of the project technical, environmental and social results	- Number or monitoring reports regarding technical, environmental and social results	Create a monitoring platform that involves a system of performance and result indicators associated with the project. This platform will have an interoperable system and be freely accessible to the public to consult the progress of the project in real time.	Pre operation	Producer Associations, AGROSAVIA, CIAT, CAF, Ministry of Agriculture	Initial preparation
			In the inter-institutional coordination instance, the characteristics of the platform, its location, as well as the indicators that will be developed and followed up will be defined. Each Producer Association and implementing partners will define the people responsible for data management as well as the information management protocols.	Pre and during operation	Producer Associations, Ministry of Agriculture, CIAT, Project Management Unit (Environmental, Social and Gender Team)	Initial preparation. Annual Reports
			Each Producer Association will advance in the identification of social, environmental and gender indicators that can be incorporated in their specific monitoring systems and databases. Each indicator must have an Indicator Reference Sheet that will describe the indicator, the measurement formula and the periodicity of the reports. This issue will be handled in a particular way for each union.	Pre operation	Project Management Unit (Environmental, Social and Gender Team), Producer Associations	Initial preparation

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
Cross-sectional	Low implementation of the mitigation measures established due to the weak and moderate institutional capacity of the Producer Associations to deal with social and environmental issues	- Number de mitigation measures implemented	Strengthen the gender action plan of each Producer Association as stated in the project's Gender Action Plan in activities 3.5.2, 3.5.3, 3.5.4, 3.5.5, 3.5.6	Pre and during operation	Producer Associations	
			Gender Action Plan activity 3.5.1. Develop a training module on gender equality with all the employees of each of the Producer Associations, which includes specific sessions according to the roles and positions of the employees (customer service, managerial roles, etc.).	Pre and during operation	Producer Associations	Initial preparation. Annual Reports
			This risk also refers to the institutional capacity that each Producer Association currently has to implement the activities associated with the mitigation of environmental and social risks. The Producer Associations that will participate in the project are very diverse and have developed different social and environmental measures. Below, general recommendations are made about the minimums they should have to advance in the implementation of the CSICAP project (these recommendations are based on the analysis of their institutional capacity).			
			<b>Fedearroz</b>			
			Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources	Pre operation	Producer Associations	Initial preparation
			Engage with the Ministry of Environment to celebrate zero-deforestation agreements	During operation	Producer Associations, Ministry of Agriculture, Ministry of Environment, CIAT	Annual Reports
			Engage with the (local) Environmental Authorities to build/improve communication channels between them and the producers	During operation	Producer Associations, Ministry of Agriculture, Ministry of Environment, CIAT	Annual Reports
			Improve the identification of producers (members of the Federation) from ethnic communities	During operation	Producer Associations	Annual Reports
			Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system	During operation	Producer Associations	Annual Reports
			<b>Asbama</b>			



Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
			Develop a complaint and claims procedure	Pre operation	Producer Associations	Initial preparation
			Advance in the quality certification of its internal processes	During operation	Producer Associations	Annual Reports
			Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources	Pre operation	Producer Associations	Initial preparation
			Engage with the Ministry of Environment to celebrate zero-deforestation agreements	During operation	Producer Associations, Ministry of Agriculture, Ministry of Environment, CIAT	Annual Reports
			Improve the identification of producers (members of the Producer Association) from ethnic communities	During operation	Producer Associations	Annual Reports
			Improve the technical assistance for small farmers/producers	During operation	Producer Associations, Ministry of Agriculture	Annual Reports
			Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system	During operation	Producer Associations	Annual Reports
			<b>Fedepapa</b>			
			Advance in the quality certification of its internal processes	During operation	Producer Associations	Monthly Reports
			Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources	Pre operation	Producer Associations	Initial preparation
			Engage with the Ministry of Environment to celebrate zero-deforestation agreements.	During operation	Producer Associations, MINISTRY OF Agriculture, Ministry of Environment, CIAT	Annual Reports
			Engage with the Ministry of Agriculture, Ministry of Environment and (local) Environmental Authorities to ensure the Federation's participation in the spaces created to discuss the regulation of Law 1930 of 2018	During operation	Producer Associations, Ministry of Agriculture, Ministry of Environment, CIAT	Annual Reports
			Engage with the (local) Environmental Authorities to build/improve communication channels between them and the producers	During operation	Producer Associations, Ministry of Agriculture, Ministry of Environment, CIAT	Annual Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
			Improve the identification of producers (members of the Federation) from ethnic communities	During operation	Producer Associations	Annual Reports
			Improve the technical and crop management assistance for small farmers/producers, and provide guidance on financial resources and credit	During operation	Producer Associations, Ministry of Agriculture	Annual Reports
			Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system	During operation	Producer Associations	Annual Reports
			<b>Fenalce</b>			
			Advance in the quality certification of its internal processes	During operation	Producer Associations	Monthly Reports
			Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources	Pre operation	Producer Associations	Initial preparation
			Engage with the Ministry of Environment to celebrate zero-deforestation agreements.	During operation	Producer Associations, Ministry of Agriculture, Ministry of Environment, CIAT	Annual Reports
			Engage with the (local) Environmental Authorities to build/improve communication channels between them and the producers	During operation	Producer Associations, Ministry of Agriculture, Ministry of Environment, CIAT	Annual Reports
			Improve the technical and crop management assistance for small farmers/producers, and provide guidance on financial resources and credit	During operation	Producer Associations, Ministry of Agriculture	Annual Reports
			Improve the identification of producers (members of the Federation) from ethnic communities	During operation	Producer Associations	Annual Reports
			Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system	During operation	Producer Associations	Annual Reports
			<b>Fedegan</b>			
			Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources	During operation	Producer Associations	Monthly Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
			Articulate the project activities with the mitigation actions established in the NAMA (nationally appropriate mitigation actions) for sustainable livestock	Pre operation	Producer Associations	Initial preparation
			Engage with the (local) Environmental Authorities to build/improve communication channels between them and the producers	During operation	Producer Associations, Ministry of Agriculture, Ministry of Environment, CIAT	Annual Reports
			Improve the identification of producers (members of the Federation) from ethnic communities.	During operation	Producer Associations	Annual Reports
			Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system	During operation	Producer Associations	Annual Reports
			<b>Asocaña</b>			
			Advance in the design/updating of the Federation's environmental management plan, including the cost of the established activities and the identification of funding sources	During operation	Producer Associations	Monthly Reports
			Engage with the Ministry of Environment to celebrate zero-deforestation agreements	During operation	Producer Associations, Ministry of Agriculture, Ministry of Environment, CIAT	Annual Reports
			Improve the identification of producers (members of the Producer Association) from ethnic communities	During operation	Producer Associations	Annual Reports
			Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system.	During operation	Producer Associations	Annual Reports
			<b>Federación Nacional de Cafeteros</b>			
			Engage with the Ministry of Environment to celebrate zero-deforestation agreements	Pre operation	Producer Associations	Initial preparation
			Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system	During operation	Producer Associations	Annual Reports
			Articulate the project activities with the mitigation actions established in the NAMA (nationally appropriate mitigation actions) for the coffee sector in Colombia	Pre operation	Producer Associations Ministry of Agriculture	Initial preparation

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
			<b>Fedepanela</b>			
			Develop a complaint and claims procedure	Pre operation	Producer Associations	Initial preparation
			Advance in the quality certification of its internal processes.	During operation	Producer Associations	Monthly Reports
			Engage with the Ministry of Environment to celebrate zero-deforestation agreements	During operation	Producer Associations, Ministry of Agriculture, Ministry of Environment, CIAT	Annual Reports
			Articulate the project activities with the mitigation actions established in the NAMA (nationally appropriate mitigation actions) for panela (raw sugar cane) sector in Colombia which promotes a Low Carbon Development Strategy for the production of panela	Pre operation	Producer Associations	Initial preparation
			Engage with the (local) Environmental Authorities to build/improve communication channels between them and the producers	During operation	Producer Associations, Ministry of Agriculture, Ministry of Environment, CIAT	Annual Reports
			Improve the identification of producers (members of the Federation) from ethnic communities.	During operation	Producer Associations	Annual Reports
			Regarding the monitoring and follow-up of the project, it is recommended to improve the identification and inclusion of environmental, social and gender indicators within its information and monitoring system	During operation	Producer Associations	Annual Reports
Cross-sectional	Events related to natural disasters (floods, mass wasting, earthquakes, landslides, torrential flows, fires, among others), as well as environmental emergencies	- Number of agricultural holdings (farms) that lost their crops due to natural disaster events or environmental emergencies	Once the specific intervention sites have been defined, an Environmental Emergency Response and Disaster Management Plan must be formulated in which the probabilities of the materialization of the aforementioned risks are identified, analyzed and quantified, as well as the activities for their prevention, mitigation, and management. This plan will be built jointly with the Producer Associations, the Ministry of Agriculture, Agrosavia, CIAT and other entities participating in the project. The plan must take into account Law 1523 of 2012 and the guidelines provided by the National Unit for Disaster Risk Management.	Pre operation	Producer Associations, Ministry of Agriculture, Agrosavia, CIAT, Project Management Unit (Environmental, Social and Gender Team)	Initial preparation
Activity 1.1. Strengthening and modernization of the technical assistance	The areas selected to install the stations and platforms for	- Percentage of agricultural holdings (farms) that consult weather forecast reports	Include social criteria in the identification processes of the areas in which the agroclimatic stations will be located.	Pre operation	Producer Associations, CIAT, Project Management Unit	Initial preparation

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
system aimed at adaptation and mitigation Activity 1.2. Information services to reduce agroclimatic risk. It seeks to provide timely and reliable information on the main climate threats and management recommendations to avoid crop losses.	agroclimatic information gathering, might exclude producers (including ethnic ones) located in remote areas or areas with difficult access (due to costs and/or public order situations), in such a way that not enough information is generated to meet the specific requirements for decision-making				(Environmental, Social and Gender Team)	
			Sign an agreement with the Ministry of ICT to increase the coverage of information technologies in the areas where it is necessary to establish the agroclimatic stations for the gathering of information demanded by the value chains.	Pre operation	Producer Associations, Ministry of Agriculture, CIAT, Project Management Unit (Environmental, Social and Gender Team)	Initial preparation
Activity 1.1. Strengthening and modernization of the technical assistance system aimed at adaptation and mitigation Activity 1.2. Information services to reduce agroclimatic risk Activity 2.2. Crop management techniques and other technological options and their scaling up to increase resilience and mitigation Activity 3.1. Strengthening the beneficiaries' capacity and their local food system. These activities involve training processes for technicians and producers, and communication channels to expand the number of the project beneficiaries.	The limited communication between the implementing partners and the beneficiaries may affect the flow of information received about dates of events, training sessions, among others, in such a way that there is a risk that the information is incomplete and/or misunderstood or cut off, and, as a result, the expected results might be affected	<ul style="list-style-type: none"> <li>- Number of beneficiaries that attend project events and activities</li> <li>- Percentage of beneficiaries that attend project events and activities</li> </ul>	Establishment of an inter-institutional coordination instance with representation of men and women producers.	Pre operation	Producer Associations, AGROSAVIA, CIAT, CAF, Ministry of Agriculture, Project Management Unit (Environmental, Social and Gender Team)	Initial preparation
			Draft and implement a communications plan for the project that guarantees the adequate and timely management of the information, as well as the diversity of channels necessary for its dissemination (this issue is highly relevant considering that the project will be developed in rural areas). A specific communication channel will be included so that information can flow in a timely and appropriate manner to the producers and institutions participating in the project.	Pre and during operation	CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers	Initial preparation. Monthly Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
<p>Activity 1.1. Strengthening and modernization of the technical assistance system aimed at adaptation and mitigation</p> <p>Activity 1.2. Information services to reduce agroclimatic risk</p> <p>Activity 2.2. Crop management techniques and other technological options and their scaling up to increase resilience and mitigation</p> <p>Activity 3.1. Strengthening the beneficiaries' capacity and their local food system. These activities involve training processes for technicians and producers, and communication channels to expand the number of the project beneficiaries.</p>	<p>Access to information technologies may carry high costs in rural area which limit the dissemination and appropriation of information and technological tools that are developed within the scope of the project</p>	<p>- Percentage of agricultural holdings (farms) that presented obstacles that made it difficult or impeded to introduce changes due to lack of resources</p>	<p>This risk will be mitigated through the two strategies mentioned above, on the one hand, the strategy of social appropriation of knowledge that will identify the needs of men and women producers by value chain and will provide specific recommendations for each case. On the other hand, through the communications plan, which will allow the project information to reach each type of producer based on their specific needs and living conditions (for example, in some areas the most effective channel is radio programs, in others, internet).</p>	<p>Pre and during operation</p>	<p>CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers</p>	<p>Initial preparation. Monthly Reports</p>
			<p>The communications plan will include communication tools differentiated by value chain, region and target groups. The educational contents (by value chain) will be developed in clear language to guarantee the understanding and use of the information generated in the project.</p>	<p>Pre and during operation</p>	<p>CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers</p>	<p>Initial preparation. Monthly Reports</p>
			<p>In coordination with the communications plan, the most appropriate communication channel will be selected and implemented based on the characteristics of the territory (for example, television programs, radio programs, among others).</p>	<p>During operation</p>	<p>Producer Associations, Extension workers</p>	<p>Monthly Reports</p>
			<p>Activity 1.1.5 from the Gender Action Plan: Design and implement a plan to cofinance electronic communication devices (smartphones) for (direct and indirect) women beneficiaries of the program.</p>	<p>Pre operation</p>	<p>Producer Associations CIAT, Project Management Unit (Gender Team)</p>	<p>Initial preparation</p>
			<p>Activity 1.1.1 from the Gender Action Plan: Design and implement actions to train men and women producers in Information Literacy with an ethnic and gender focus</p>	<p>Pre and during operation</p>	<p>Producer Associations CIAT, Project Management Unit (Gender Team)</p>	<p>Initial preparation. Monthly Reports</p>
<p>Activity 1.1. Strengthening and modernization of the technical assistance system aimed at adaptation and mitigation</p> <p>Activity 1.2. Information services to reduce agroclimatic risk. These activities involve the organization and</p>	<p>Although the project seeks to provide reliable predictions through the generation of information and agroclimatic forecasts, there is a risk that these predictions are not accurate and, as a result, crops are affected due</p>	<p>- Percentage of agricultural holdings (farms) that presented obstacles that made it difficult or impeded to introduce changes due to uncertainty regarding the real probability of success</p>	<p>This risk will be mitigated through the implementation of the strategy of social appropriation of knowledge. During project socialization activities, specifically those addressing agroclimatic forecast, it will be explained clearly and concisely what they consist of, the usefulness and effectiveness of climate predictions and the occurrence of climate phenomena, in such a way that both the Producer Associations and the men and women producers clearly understand the risk in the decision-making processes regarding crop management.</p>	<p>During operation</p>	<p>CIAT, Agrosavia, Producer Associations, Extension workers</p>	<p>Monthly Reports</p>

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
interconnection of the existing information in the different repositories and databases of the Producer Associations, and linking it with information from existing free access platforms that come from remote sensing or other sources, as well as early warning platforms that, through the generation of climate predictions, use of simulation models and Big Data information, allow generating recommendations to take necessary measures to avoid crop losses due to the direct and indirect effects of climate	to untimely decisions. For example, decisions related to starting or delaying the time of sowing based on the forecast, which does not coincide with the real climate conditions, can cause economic losses for producers		The strategy of social appropriation of knowledge must incorporate for each value chain an activity in which the traditional knowledge and practices that are implemented in the territories by ethnic and local communities are identified and recognized.	Pre and during operation	CIAT, Project Management Unit (Environmental, Social and Gender Team, Producer Associations), extension workers	As required, Reports
			Incorporate, in training and socialization activities, spaces for discussion and collective building of knowledge, recommendations and best practices for crop management. They will collectively recognize both agroclimatic forecasts and local knowledge and practices.	During operation	CIAT, Producer Associations, Extension workers	As required, Reports
			Producer Associations should provide technical assistance with regular visits to each men and women producer in which detailed monitoring of the crop is carried out and, in the cases that apply, a step-by-step plan with corrective measures is taken in an adequate time frame.	During operation	Producer Associations, Extension workers	Monthly Reports
Activity 2.2. Crop management techniques and other technological options and their scaling up to increase resilience and mitigation Activity 3.1. Strengthening the beneficiaries' capacity and their local food system. These activities involve training processes for technicians and producers, and communication channels to expand the number of the project beneficiaries.	Women might have less access than men to the information generated by the project. This is due to the fact that, on the one hand, women have less access to technological resources (cell phones, computers, telephones, among others) and that there is a sexual division of labor and socially accepted gender roles that give women less access to public spaces (where the dissemination of information occurs)	- Number of women beneficiaries - Participation of women beneficiaries with respect to the total project beneficiaries	From the Gender Action Plan: Implementation of activities 1.1.1, 1.1.2, 1.1.3, 1.1.4 regarding a comprehensive information dissemination strategy on crop practices for agroclimatic risk management, taking into account ethnic and gender differences, through different communication channels Activity 1.1.5 Design and implement a plan to cofinance electronic communication devices (smartphones) for (direct and indirect) women beneficiaries of the program	Pre and during operation	CIAT, Project Management Unit (Gender Team), Ministry of Agriculture, Producer Associations, extension workers	Initial preparation. Monthly Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
Activity 2.1. Strengthening the germplasm bank, development of new varieties and massive multiplication of seeds for adaptation and mitigation. Seed multiplication techniques will be applied to outstanding varieties, facilitating a large-scale adoption of the varieties developed by the project.	The introduction of genetically modified organisms might have negative impacts on ecosystems and biodiversity (for example: crossing and/or genetic contamination of native species, competition with native species, loss of native species, development of more resistant pests, among others)	<ul style="list-style-type: none"> <li>- Number of native species affected by crossbreeding or genetic contamination</li> <li>- Number of resistant pest events</li> <li>- Number of producers using improved seeds on their farms</li> <li>- Number of producers who implement sustainable agriculture practices on their agricultural holdings (farms)</li> </ul>	Regarding the introduction and management of genetically modified organisms, the project will comply with the corresponding regulations in relation to authorizations, permits, among others. In addition, great attention will be paid to interventions carried out in surrounding areas of moorland ecosystems, taking into account the guidelines of Law 1930 of 2018. This is an issue of special attention for the potato value chain.	During operation	Producer Associations, Agrosavia, CIAT	Initial preparation. Annual Reports.
			Carry out research and experimentation in controlled environments, in such a way as to avoid a possible negative impact on the species and ecosystems of the intervention areas.	During operation	Producer Associations, Agrosavia, CIAT	Initial preparation. Reports
			Carry out impact evaluations associated with the biosafety aspects of genetically modified organisms that are developed in the project in compliance with current regulations, and that involve the analysis of potential impacts on ecosystems.	Pre, during and after operation	Producer Associations, Agrosavia, CIAT, Project Management Unit (Environmental, Social and Gender Team)	As required
			The strategy of social appropriation of knowledge will include educational content related to the knowledge of existing technologies for the development of new varieties, hybrids, clones, among others. In this way, public awareness will be generated about the potential benefits and risks of this type of seeds.	Pre and during operation	Producer Associations, Agrosavia, CIAT, Project Management Unit (Environmental, Social and Gender Team)	Initial preparation. Monthly Reports
			Guarantee access to detailed information on the benefits and risks associated with genetically modified organisms to producers and final consumers. This aspect is fundamental and is aimed at complying with the principles of transparency and the right to make informed decisions.	During operation	Producer Associations, Agrosavia, CIAT, Ministry of Agriculture, Extension workers	Biannual Reports
Activity 2.1. Strengthening the germplasm bank, development of new varieties and massive multiplication of seeds for adaptation and mitigation. Seed multiplication techniques will be applied to outstanding varieties, facilitating a large-scale adoption of the varieties developed by the project.	Use of genetically modified organisms and development of high impact production practices in areas with moorland ecosystems. This risk should be given special attention in the potato and livestock value chains.	<ul style="list-style-type: none"> <li>- Number of producers who have their crops in areas close to delimited moors</li> <li>- Number of cattle breeders who have their livestock production activities in areas close to delimited moors</li> <li>- Number of producers in areas near delimited moors that</li> </ul>	The project will comply with restrictions stated in the regulations, specifically in Law 1930 of 2018 article 5, which establishes prohibitions of some productive practices in moorlands such as: the use of heavy machinery in the development of agricultural activities; the final disposal, management and burning of solid and/or hazardous waste; the introduction and management of genetically modified organisms and invasive species; burning; logging; fumigation and spraying of chemicals should be gradually eliminated in activities of conversion of agricultural land into sustainable activities; the degradation of native vegetation cover, among other practices, is prohibited.	During operation	Producer Associations, CIAT, Agrosavia, Ministry of Agriculture	Annual Reports



Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation. It is expected to validate and incorporate sustainable production practices that increase productivity and at the same time promote efficient use of water resources, restore soil properties, reduce GHG emissions or increase carbon sequestration.		implement sustainable production practices - Number of producers in areas near delimited moors that implement solid waste management practices	The project will not carry out activities within delimited moorland areas (there are 37 moorland complexes in Colombia). However, in case it is necessary within the scope of the project to provide assistance to producers located in those areas, the aforementioned prohibitions will be complied and the project will promote the participation of those producers in training spaces that will inform about and promote the development of sustainable practices, which in turn will allow to reduce the pressure on these ecosystems. These measures need special attention in the potato and livestock value chains.	During operation	Producer Associations, CIAT, Agrosavia, Ministry of Agriculture	Initial preparation. Annual Reports
			The Project Management Unit (environmental team), with support from the Producer Associations, will identify the male and female producers who carry out their productive activities in areas close/adjacent to delimited moorland ecosystems and will monitor the implementation of project activities developing sustainable agriculture practices. Likewise, they will provide guidance and technical assistance for producers in these areas to participate in the activities proposed by the environmental authorities within the scope of Law 1930 of 2018.	Pre and during operation	Producer Associations, Project Management Unit (Environmental, Social and Gender Team)	Biannual Reports
			These activities will be arranged in tandem with Activity 2.1.1 from the Gender Action Plan: Engage women beneficiaries as leaders in the process of implementing CSICAP's plans and activities for the conservation, preservation and restoration of strategic areas and ecosystems.	During operation	Producer Associations CIAT, Gender Team	As required
Activity 2.1. Strengthening the germplasm bank, development of new varieties and massive multiplication of seeds for adaptation and mitigation.	Loss of cultural diversity due to limited recognition of local knowledge and traditional productive practices, such as community seed	- Percentage of agricultural holdings (farms) from ethnic groups implementing traditional and indigenous water resource management - Percentage of agricultural holdings (farms) from ethnic	The strategy for the social appropriation of knowledge will propose specific actions aimed at recognizing and documenting existing traditional practices, especially in the potato, corn, sugar cane value chains.	Pre and during operation	CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, Agrosavia, extension workers	Initial preparation. Monthly Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
<p>Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation.</p> <p>Activity 3.1. Strengthening the beneficiaries' capacity and their local food system.</p>	storage/banks, among others, related to the project's value chains	<p>groups implementing soil protection and conservation practices</p> <ul style="list-style-type: none"> <li>- Percentage of agricultural holdings (farms) from ethnic groups implementing practices to improve soil health</li> <li>- Percentage of agricultural holdings (farms) from ethnic groups implementing pest and weed control practices</li> </ul>	This activity will be arranged in tandem with Activity 2.1.2 from the Gender Action Plan: Design and implement a plan for the recovery and/or promotion of quality native seeds and species with commercial gains, managed by rural women	During operation	<p>Producer Associations</p> <p>CIAT, Gender Team</p> <p>Ministry of Agriculture, Agrosavia</p>	Monthly Reports
<p>Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation. It is expected to validate and incorporate sustainable production practices that increase productivity and at the same time promote efficient use of water resources, restore soil properties, reduce GHG emissions or increase carbon sequestration.</p>	<p>Although the project seeks to reduce and make more efficient use of agrochemicals, health risks associated with the high use of pesticides and chemical inputs in the production process may continue</p>	<p>- Number of people poisoned by pesticides</p>	Advance in the identification and assessment of health risks associated with the use of pesticides and agrochemicals in each value chain. Although there are regulations in this regard, men and women producers and agricultural workers are still exposed to this type of substances frequently.	Pre and during operation	<p>CIAT, Agrosavia,</p> <p>Producer Associations, farmers/producers (firms)</p>	Annual Reports
			Each Producer Association will review and analyze the existing measures and protocols in light of current regulations, and if necessary, update them to reduce the impact of the use of agrochemicals and pesticides on producers' health.	Pre and during operation	<p>Ministry of Agriculture,</p> <p>Producer Associations, farmers/producers (firms)</p>	Annual Reports
			The project activities will aim to reduce the use of chemical inputs, especially pesticides, in the value chains, in such a way that they implement sustainable agriculture practices and reduce impacts on the environment and people.	Pre and during operation	<p>CIAT, Agrosavia,</p> <p>Producer Associations</p>	As required. Annual Reports
			Each implementing partner will update its occupational health and safety plan in order to reduce the risks associated with exposure to these types of substances	Pre and during operation	<p>Producer Associations</p>	As required. Annual Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation. It is expected to validate and incorporate sustainable production practices that increase productivity and at the same time promote efficient use of water resources, restore soil properties, reduce GHG emissions or increase carbon sequestration.	In Colombia there is a significant gap between access to and ownership of land between men and women. This situation entails a risk in the project implementation process as it may lead to a higher proportion of men being involved in project activities such as land irrigation and drainage, adoption of new technologies.	<ul style="list-style-type: none"> <li>- Percentage of agricultural holdings (farms) by sex of the producer making decisions</li> <li>- Percentage of agricultural holdings (farms) with female producers making decisions, that received technical assistance</li> </ul>	Activities from the Gender Action Plan: 2.1.5. Design and implement a training plan exclusively for women on issues of climate resilient agriculture that focuses on the tasks performed by women within each crop/chain, such as: seed selection, diversification of crops, subsistence farming, pre- and post-harvest 3.3.2 Implement sessions to share information regarding and engage women beneficiaries into public programs (led by the Ministry of Agriculture and the National Land Agency) aimed at improving women's access to land.	Pre and during operation	CIAT, Gender Team, Ministry of Agriculture, Producer Associations, extension workers	Initial preparation. Monthly Reports
			3.1.2. Develop and deliver a training module for women producers (women-only activities), using various methodologies (e.g., female farmer-to-female farmer extension), for the implementation of new technologies provided by the project	Pre and during operation	Gender Team, Producer Associations, extension workers	Initial preparation. Monthly Reports
Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation. It is expected to validate and incorporate sustainable production practices that increase productivity and at the same time promote efficient use of water resources, restore soil properties, reduce GHG emissions or increase carbon sequestration.	There is a risk of a new gender gap with respect to access to the inputs necessary for the development of the project (such as adoption of new practices and technologies). This is due to the processes of feminization of poverty in rural areas, which highlights the greater economic vulnerability of households headed by women	<ul style="list-style-type: none"> <li>- Percentage of agricultural holdings (farms) with female producers making decisions, that received technical assistance</li> <li>- Percentage of agricultural holdings (farms) with technical assistance that implemented the practices learned, by sex of the producer making decisions</li> </ul>	Activities from the Gender Action Plan: 2.1.1 Engage women beneficiaries as leaders in the process of implementing CSICAP's plans and activities for the conservation, preservation and restoration of strategic areas and ecosystems.	Pre and during operation	CIAT, Gender Team, Producer Associations, extension workers	Initial preparation. Annual Reports
			2.1.3. Design and implement a training and support plan for the production and commercialization of organic fertilizers and bioproducts for the management of pests and diseases, led by women farmers' groups and/or organizations	Pre and during operation	CIAT, Gender Team, Ministry of Agriculture, Producer Associations, extension workers	Initial preparation. Annual Reports
			2.1.4. Design and implement a training and dissemination module for young rural women on primary processing, management, marketing, among other topics	Pre and during operation	CIAT, Gender Team, Ministry of Agriculture, Producer Associations, extension workers	Initial preparation. Annual Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
Activity 1.1. Strengthening and modernization of the technical assistance system aimed at adaptation and mitigation Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation	Difficulties in adopting recommendations and new agricultural practices due to traditional practices and distrust of new technologies	- Percentage of agricultural holdings (farms) from ethnic groups that presented obstacles that made it difficult or impeded to introduce changes due to lack of information regarding new practices or benefits	Implementation of the strategy for the social appropriation of knowledge, which will propose actions to motivate the participation of men and women producers in an easy-to-understand language, and other activities to approach the producers based on their needs and expectations, in such a way that bonds of trust are generated	Pre and during operation	Producer Associations, extension workers	Monthly Reports
			Working groups, spaces for discussion and collective knowledge building will be promoted so that the recommendations generated in the project recognize traditional and local knowledge, in such a way that men and women producers are engaged in the processes and appropriate the knowledge.	During operation	CIAT, Agrosavia, Producer Associations, Extension workers	Annual Reports
			Agriculture demonstration plots will be implemented so that men and women producers get to know the results of the proposed practices, their application process, and the economic and productivity benefits	During operation	CIAT, Agrosavia, Extension workers	As required, depending on the crop, Reports
Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation, such as: agroforestry arrangements, rational use of fertilizers and promotion of bioproducts, optimization of irrigation systems, conservation agriculture, use of harvest residues, landscape level conservation and restoration.	Introduction of exotic and/or inappropriate species in agroforestry, silvopastoral arrangements and, in general, in reforestation and restoration processes in the project intervention areas	- Number of hectares affected by the introduction of exotic and/or inappropriate species	Plans will be formulated in which the proposed interventions and restoration strategies will be designed (enrichment planting, forest enclosure, forest fences, connectivity through living fences, establishment of protective strips of water bodies, passive restoration, among other practices). These plans will identify the type of ecosystem existing in the intervention areas, and the species and forest arrangements, as well as define the implementation, maintenance and monitoring processes.	Pre operation	Producer Associations, CIAT, Project Management Unit (Environmental, Social and Gender Team)	Initial preparation
			Ecological corridors within the farms and areas of intervention will be developed, especially riparian buffer zones alongside water courses such as rivers, streams and wetlands.	During operation	Project Management Unit (Environmental, Social and Gender Team) Extension workers	Monthly Reports
			The restoration processes that are promoted will follow the guidelines of the National Plan for Restoration, Ecological restoration, Rehabilitation, and Recovery of Disturbed Areas formulated by the Ministry of Environment in 2015. The use of native species will be prioritized.	Pre and during operation	CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers	Initial preparation. Annual Reports
			Farm plans will be drafted with each men and women producer participating in the project, in which the production system of the farms will be characterized with the support from the agricultural extension workers. This plan will also involve components associated with home gardens that contribute to guaranteeing the food security	During operation	Extension workers	Monthly Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
			of the families. As far as possible, these plans will also be extended to producers who are not members of the Producer Associations.			
			The areas and farms (agricultural holdings) that can be considered for the implementation of payments for environmental services will be identified, and at least two projects will be drafted taking into account the "Payments for environmental services of regulation and water quality" guideline prepared by the National Planning Department and the Ministry of Environment, in coordination with the selected municipalities and/or departments.	Pre operation	Producer Associations, CIAT, Project Management Unit (Environmental, Social and Gender Team)	Initial preparation
Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation, such as: agroforestry arrangements, rational use of fertilizers and promotion of bioproducts, optimization of irrigation systems, conservation agriculture, use of harvest residues, landscape level conservation and restoration.	Pollution by ordinary and/or hazardous waste in the development of the production processes of the value chains subject to intervention	- Number of hectares affected by the contamination of ordinary and/or hazardous waste	This risk occurs in two ways. One related to the waste of the value chain in general on a large scale, and the second way refers to the waste that is produced in each farm, both ordinary and those associated with the specific characteristics of the value chain (some are high risk, like the packaging of fertilizers and pesticides). The existence of comprehensive solid waste management plans will be identified within the implementing partners. They will be drafted or updated depending on the specific needs and current state.	Pre operation	CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations	Initial preparation
			The project will develop roadmaps in which the solid waste generated in each value chain will be characterized and its proper management until the final disposal site will be defined. Also, men and women producers will be trained in the proper management of solid waste. Communication pieces to bring awareness and protocols for the management and disposal of hazardous waste will be developed.	Pre and during operation	CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers	Initial preparation. Monthly Reports
			The project will seek the signing of agreements with local authorities to join forces for a comprehensive management of the solid waste generated in the targeted value chains	During operation	Project Management Unit (Environmental, Social and Gender Team), CIAT, Farmers/Producers, Mayor's Offices	Annual Reports
			The implementing partners will celebrate agreements with local firms and/or organizations that collect and properly manage the waste generated, with an emphasis on organizations that promote social contributions to the communities in the areas of influence of the project.	During operation	Producer Associations, Farmers/Producers, farmer groups/organizations	Annual Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
<p>Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation.</p> <p>Activity 3.1. Strengthening the beneficiaries' capacity and their local food system, in order to improve the knowledge, swift attitude towards technologies and practices, and develop new skills</p>	<p>Limited implementation of agricultural practices and/or project recommendations due to the high cost of buying/adopting the technologies and infrastructure promoted by the project. Likewise, the status of land ownership and usage makes it difficult to invest in infrastructure, technologies, and good agricultural practices.</p>	<p>- Percentage of agricultural holdings (farms) that presented obstacles that made it difficult or impeded to introduce changes due to lack of resources</p> <p>- Percentage of agricultural holdings (farms) whose land tenure arrangement does not hold ownership rights</p>	<p>The project seeks the implementation of low water consumption technologies in agronomic management. However, in order to avoid inappropriate use of water resources in the project intervention areas, guidelines will be formulated for the efficient use of water resources on the farm, especially in activities and areas with scarce resources.</p>	Pre and during operation	<p>CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers</p>	Annual Reports
			<p>It is essential both in the planning and operation phases of the project to identify the costs associated with the implementation of the proposed agricultural practices. It is an issue that must be socialized very clearly and explained in detail with all the beneficiaries. It must be identified how many men and women producers will benefit from these technologies and if they must incur any expenses.</p>	Pre and during operation	<p>CIAT, Agrosavia, Producer Associations, extension workers</p>	Annual Reports
			<p>Implementation of the strategy of social appropriation of knowledge which will identify the specific characteristics of the men and women producers of each value chain and provide specific guidelines to meet the needs of access and appropriation of the information generated within the scope of the project. This strategy must incorporate at least one component associated with the specific needs of: 1. Women; 2. Young people; 3. Ethnic groups; 4. Elder people.</p>	Pre and during operation	<p>CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, extension workers</p>	Annual Reports
			<p>Recommendations and actions will be designed to provide assistance to the producers based on their specific characteristics. Likewise, in relation to the status of land tenure, guidelines will be incorporated into the project so that producers with different conditions can participate in and benefit from project activities.</p>	Pre operation	<p>CIAT, Project Management Unit (Environmental, Social and Gender Team), Producer Associations, Ministry of Agriculture</p>	Initial preparation
			<p>In coordination with Activity 3.3.2 from the Gender Action Plan, the project will seek to engage women beneficiaries into public programs (led by the Ministry of Agriculture and the National Land Agency) aimed at improving women's access to land</p>	During operation	<p>Ministry of Agriculture, National Land Agency, Gender Team</p>	Annual Reports
			<p>The communications plan will include a specific activity aimed at the socialization of the sustainable agriculture practices identified for each value chain, as well as the</p>	Pre and during operation	<p>CIAT, Project Management Unit (Environmental, Social and Gender Team),</p>	Initial preparation. Annual Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
			associated implementation costs and the percentage of these costs that will be financed by the project.		Producer Associations, extension workers	
			Formalize written agreements with each men and women beneficiary of the project, in such a way that the project contribution and the (financial or in kind) contribution of the producer, as well as the timing of these commitments, are clearly stated for every actor involved.	Pre and during operation	CIAT, Producer Associations, Implementing Partners, farmers/ producers	Initial preparation. Annual Reports
<p>Activity 2.2. Crop management practices and other technical options and their scaling up to increase resilience and mitigation.</p> <p>Activity 3.1. Strengthening the beneficiaries' capacity and their local food system</p>	<p>Women might participate in a lesser proportion due to the burden of care work (double shift), conflict in the schedule between care work and the project activities, as well as the gender gap with respect to decision-making and participation in productive activities</p>	<p>- Percentage of agricultural holdings (farms) with female producers making decisions</p>	<p>Activities from the Gender Action Plan:</p> <p>3.3 Strategy designed and implemented to liaise with government officials and engage women beneficiaries into public programs aimed to improve women's access to factors of production</p>	Pre and during operation	CIAT, Gender Team, Ministry of Agriculture, Producer Associations, extension workers	Initial preparation. Annual Reports
			<p>3.3.1 Implement sessions to share information regarding funding opportunities and engage women beneficiaries into public programs (led by the Ministry of Agriculture and Finagro) aimed at improving women's access to credit, financial inclusion and literacy.</p> <p>The activities shall include specific sessions for young rural women sharing programs that target their population group</p>	Pre and during operation	CIAT, Gender Team, Ministry of Agriculture, Producer Associations, extension workers	Initial preparation. Annual Reports
<p>Activity 3.1. Capacity building and strengthening of the project beneficiaries, extension workers, implementing partners and other actors</p>	<p>Since there is a division between the tasks and jobs performed by men, -in most value chains- and the tasks performed by women (selection and marketing), a wage gap can be perpetuated which may result in lower income for</p>	<p>- Percentage of agricultural holdings (farms) with female producers making decisions</p> <p>- Number of pilot projects providing local care services designed and implemented</p> <p>- Number of women beneficiaries with care services</p> <p>- Number of male and female children, seniors, and people</p>	<p>Activities from the Gender Action Plan:</p> <p>3.4 Pilot projects systematized and implemented to approach the care economy at the local level for (direct and indirect) women beneficiaries</p>	Pre and during operation	Producer Associations CIAT, Gender Team, Ministry of Agriculture	Initial preparation. Monthly Reports
			<p>3.4.4 Create a network of daycare and childcare facilities for (direct and indirect) women beneficiaries of the project.</p>	Pre and during operation	Producer Associations CIAT, Gender Team	Initial preparation. Monthly Reports

Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
	women and feminization of poverty. In addition, the “second working shift” of women producers can perpetuate a gap in the time available to participate in project activities.	with disabilities receiving care services	3.2.1. Develop participatory working sessions with women to discuss the barriers in accessing agricultural and productive services: time constraints, difficulties in accessing technical assistance and recommendations to provide an extension service tailored to their needs	Pre and during operation	Producer Associations CIAT, Gender Team	Initial preparation. Monthly Reports
Activity 3.1. Capacity building and strengthening of the project beneficiaries, extension workers, implementing partners and other actors	Low participation of women in extension services provided by the project due to the sexual division of labor, the gap in decision-making within the farms (agricultural holdings), low access to land	- Percentage of agricultural holdings (farms) with technical assistance, by sex of the producer making decisions	Activities from the Gender Action Plan: 3.1.1 Develop and deliver training modules with men and women producers participating in the project on gender equality and gender mainstreaming 3.1.4. Design and implement a gender awareness training plan with agricultural extension workers for the subsequent implementation of the gender equality training module with producers	Pre and during operation	CIAT, Gender Team, Ministry of Agriculture, Producer Associations, extension workers	Initial preparation. Monthly Reports
			3.1.5 Design and implement a training and certification plan for women extension workers, with the support of SENA and in response to the demand for agricultural extension workers from the Producer Associations, in order to facilitate their subsequent engagement. The plan will emphasize support strategies for the promotion of young rural women as extension workers.	Pre and during operation	CIAT, Gender Team, Ministry of Agriculture, Producer Associations	Initial preparation. Monthly Reports
Activity 3.1. Capacity building and strengthening of the project beneficiaries, extension workers, implementing partners and other actors	Women might have less access than men to the information generated by the project. This is due to the fact that, on the one hand, women have less access to technological resources (cell phones, computers, telephones, among others) and that there is a sexual division of labor and socially accepted gender roles that give women less access to public spaces (where the	- Participation in unpaid care work - Average time devoted to unpaid care work - Participation in activities included in the System of National Accounts - Average time devoted to activities included in the System of National Accounts - Local work plans to promote the participation of women in (women) farmers’ groups or organizations designed and implemented - Number of agricultural holdings (farms) with female	Activity 3.2.2 from the Gender Action Plan: Design and implement local workplans to promote the participation of women in (women) farmers’ groups or organizations that promote mutual trust, collaboration and training in agricultural and productive issues among them, as a tool to share knowledge and information regarding climate-resilient agriculture and build economic and social processes that allow the sustainability of the implemented strategies. This strategy can be developed with the support of the Rural Development Agency.	Pre and during operation	Producer Associations CIAT, Gender Team, Ministry of Agriculture (Rural Women Directorate)	Initial preparation. Monthly Reports



Activities	Unmitigated impacts	Indicators	Mitigation measures	Timing	Responsible entities	Monitoring & reporting
	dissemination of information occurs).	producers making decisions, participating in farmers' groups or organizations. - Percentage of agricultural holdings (farms) with female producers making decisions, participating in farmers' groups or organizations.				
Activity 3.1. Capacity building and strengthening of the project beneficiaries, extension workers, implementing partners and other actors	Limited or restricted access of men and women producers to the financial instruments that are developed or available within the scope of the project. Even if producers have access to financial products, they might not have constant technical and crop management assistance to implement the production processes funded.	- Percentage of agricultural holdings (farms) with access to credit - Percentage of agricultural holdings (farms) with access to credit that allocate the resources for crop production - Percentage of agricultural holdings (farms) that presented obstacles that made it difficult or impeded to introduce changes due to lack of access to credit - Percentage of agricultural holdings (farms) that presented obstacles that made it difficult or impeded to introduce changes due to the high cost of the investment	Characterization of the financial profile of the men and women producers who participate in the project. This assessment must be carried out taking into account the specific characteristics of each value chain. The project must guarantee that the financial products developed provide solutions and are available to the producers.	Pre operation	Producer Associations, Ministry of Agriculture, Finagro	Initial preparation
			Draft a roadmap that outlines the step-by-step process for accessing financial products developed or available within the scope of the project. There will also be socialization sessions of these products in the field/project intervention areas, as well as economic and financial education campaigns with an emphasis on women and small farmers.	During operation	Producer Associations, Ministry of Agriculture, Finagro, Banca de Oportunidades, extension workers	Initial preparation
			The financial products developed must provide technical and management support services for the people who access them. There should be greater support from the extension worker, the implementing partners, as well as the financial advisors of the financial institution/bank, to ensure that recommendations are appropriate and effectively provided to the producers.	During operation	Extension workers, Ministry of Agriculture, Banco Agrario	Monthly Reports
			Develop specific financial products or preferential loan interest rate for women beneficiaries of the project.	During operation	Ministry of Agriculture	Annual Reports

Source: Prepared by the authors

## 9. Environmental and Social Management Framework Budget

The total ESMF budget is USD\$ 3.743.500 for the five years of CSICAP project implementation. 70% (USD\$ 2.602.411) will be allocated to the implementation of plans, strategies, and activities, including the Gender Action Plan (with an investment of USD\$ 1.581.314), and the remaining 30% (USD\$ 1.141.089) will finance the proposed Environmental, Social and Gender Team.

*The budget of the Environmental, Social, and Gender Team, in charge of designing guidelines and strategies, accompanying, and monitoring implementation, managing PQRSD, and reviewing and updating the ESMF and GAP.*

**Table 9.1** details:

- The resources required to implement the identified environmental and social risk mitigation measures.
- The annual investment required to implement the Gender Action Plan.
- The cost of the PQRSD Resolution Mechanism.

The budget of the Environmental, Social, and Gender Team, in charge of designing guidelines and strategies, accompanying, and monitoring implementation, managing PQRSD, and reviewing and updating the ESMF and GAP.

**Table 9.1. ESMF Budget**

Item	Estimated Budget (USD)
<b>I. ESMF STRATEGIES</b>	
<b>A. Implementation of Mitigation Measures</b>	
1. Security risk management plan and security protocols	\$ 35.000
2. Strategy for the social appropriation of knowledge	\$ 45.500
3. Communications plan	\$ 0
4. Web platform of the project that will provide information regarding project objectives, components, activities, calls for participants, new, technical and financial monitoring, complaints registration, among other services	\$ 447.917
5. Strengthening the capacities of the Producer Associations for environmental and social management	\$ 75.000
6. Environmental Emergency Response and Disaster Management Plan	\$ 25.556
7. Environmental impact and biosafety evaluations of genetically modified organisms developed within the scope of the project	\$ 90.000
8. Working groups with men and women producers who develop their productive activities (crops and/or livestock) in areas close to moorland ecosystems. The purpose of the roundtables is to advance in the identification of sustainable production practices that reduce the pressures exerted by the potato and livestock value chains in areas close to moorland ecosystems. In these working groups, recommendations will be generated that will serve as input to draft technical guidelines that promote sustainable production practices that allow reducing the impact of the value chains in these areas	\$ 9.000
9. Study on the use of pesticides and agrochemicals in each value chain and their impacts on health, analysis of existing measures and protocols in light of current regulations, and, as applicable, updating of occupational health and safety plans, safety measures and protocols related to their use	\$ 25.000

10. Identification of areas and farms (agricultural holdings) that can be considered for the implementation of payments for environmental services, and drafting of at least two projects taking into account the "Payments for environmental services of regulation and water quality" guideline prepared by the National Planning Department and the Ministry of Environment, in coordination with the selected municipalities and/or departments.	\$ 0
11. Characterization of solid waste generated in each value chain, drafting or updating of comprehensive solid waste management plans, and development of roadmaps for its proper management until the final disposal site. Training of men and women producers in the proper management of solid waste. Development of communication pieces to bring awareness and protocols for the management and disposal of hazardous waste.	\$ 32.014
12. Guidelines for the efficient use of water resources on the farm, especially in activities and areas with scarce resources	\$ 0
13. Economic and financial education for small agricultural producers	\$ 236.111
<b>Subtotal Mitigation Measures</b>	<b>\$ 1.021.097</b>
<b>B. Implementation of Gender Action Plan (GAP)</b>	<b>\$ 1.581.314</b>
<b>C. Stakeholder engagement, public participation plan, Complaints Register and Grievance Redress Mechanism</b> (costs embedded in web platform, ESG Team, among other activities)	<b>\$ 0</b>
<b>(A+B+C) TOTAL ESMF STRATEGIES (INCLUDING GAP)</b>	<b>\$ 2.602.411</b>
<b>II. ENVIRONMENTAL, SOCIAL AND GENDER TEAM</b>	<b>\$ 0</b>
<b>D. Gender Team</b>	<b>\$ 0</b>
Senior Gender Expert	\$ 200.000
Junior professional with experience in social and gender issues	\$ 100.000
<b>Subtotal Gender Team</b>	<b>\$ 300.000</b>
<b>E. Environmental and Social Team</b>	<b>\$ 0</b>
Senior expert in environmental and social management	\$ 200.000
Junior professional with experience in environmental and social issues	\$ 100.000
<b>Subtotal Environmental and Social Team</b>	<b>\$ 300.000</b>
<b>F. Other human resources and management costs</b>	<b>\$ 0</b>
Monitoring Expert	\$ 166.667
Lawyer (Complaints and Grievance Redress Mechanism)	\$ 166.667
Administrative Assistant (Complaints and Grievance Redress Mechanism)	\$ 33.333
Graphic Designer of Communication Design and Audio-visual Production	\$ 116.667
Events, training materials, equipment, transportation, travel allowance	\$ 57.756
<b>Subtotal Other management costs</b>	<b>\$ 541.089</b>
<b>(D+E+F) ENVIRONMENTAL, SOCIAL AND GENDER TEAM</b>	<b>\$ 1.141.089</b>
<b>(I+II) TOTAL ESMF BUDGET (INCLUDING GAP)</b>	<b>\$ 3.743.500</b>

Source: Prepared by the authors

Table 9.2 summarizes the ESMF budget by funding source. Seventy-nine percent of the budget, USD\$ 2,950,000, comes from the Green Climate Fund (GCF), and the remaining 21% from other sources.

**Table 9.2. ESMF budget by source of funding**

Item	Estimated budget (COP)	Estimated budget (USD)	GCF (COP)	GCF (USD)	%	Other sources (Producer Associations, CIAT, Agrosavia, Ministry of Agriculture) (COP)	Other sources (Producer Associations, CIAT, Agrosavia, Ministry of Agriculture) (USD)	%
Implementation of Mitigation Measures	\$3.675.950.000	\$1,021,097	\$2.136.950.000	\$593,597	58.1%	\$1.539.000.000	\$427,500	41.9%
%		27.3%		20.1%			53.9%	
Implementation of Gender Action Plan (GAP)	\$5.692.730.000	\$1,581,314	\$4.375.130.000	\$1,215,314	76.9%	\$1.317.600.000	\$366,000	23.1%
%		42.2%		41.2%			46.1%	
Stakeholder engagement, public participation plan, Complaints Register and Grievance Redress Mechanism	\$0	\$0	\$0	\$0	0%	\$0	\$0	0%
%		0.0%		0.0%			0.0%	
Environmental, Social and Gender Team	\$4.107.920.000	\$1,141,089	\$4.107.920.000	\$1,141,089	100%	\$0	\$0	0%
%		30.5%		38.7%			0.0%	
<b>TOTAL ESMF BUDGET (INCLUDING GAP)</b>	<b>\$13,476,600,000</b>	<b>\$3,743,500</b>	<b>\$10.620.000,000</b>	<b>\$2,950,000</b>	<b>78.8%</b>	<b>\$2.856.600.000</b>	<b>\$793,500</b>	<b>21.2%</b>

Source: Prepared by the authors

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